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.

STATEMENT OF EVIDENCE OF DANIEL JAMES MURRAY

FOR THE NELSON REGIONAL SEWERAGE BUSINESS UNIT

11 MAY 2022

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STATEMENT OF EVIDENCE OF DANIEL JAMES MURRAY

Introduction

1 My full name is Daniel James Murray.

2 I am currently a Technical Director – Planning with Tonkin & Taylor Limited. I have previously been employed by AECOM New Zealand Limited and its predecessor URS New Zealand. Prior to that I was employed by Opus International Consultants Limited (now WSP New Zealand). In total I have approximately 22 years' experience as a consultant planner. Prior to being a consultant, I was employed for 2 years as a consents planner at Papakura District Council.

3 I hold a Bachelor of Resource Studies with First Class Honours, majoring in Natural Resources Engineering, obtained from Lincoln University in 1998. I also hold a Certificate of Proficiency in Advanced Planning Theory and Practice, obtained from The University of Auckland in 1999. I am a full member of the New Zealand Planning Institute.

4 As a consultant planner I have worked throughout New Zealand assisting private and public sector clients with obtaining statutory approvals, undertaking environmental effects assessment and policy analysis, and providing expert planning evidence at plan and consent hearings. My clients include Waka Kotahi NZ Transport Agency, KiwiRail Holdings Limited, Meridian Energy Limited, Waste Management NZ Limited, Department of Conservation, and Christchurch City Council.

5 I have led the planning inputs to several waste and wastewater consenting projects. Notably in 2005 I provided lead planning evidence for the Christchurch City Ocean Outfall Project and prepared several resource consent applications to facilitate construction of that project. In 2010 I prepared resource consent applications, and hearing evidence, for replacement consents to authorise emergency untreated overflows from the Christchurch City wastewater network to surface waters and the coastal marine area. Between 2011 and 2016 I led multiple application packages in relation to the reopening of Burwood Landfill (formerly Christchurch's municipal landfill), located adjacent to the coastal marine area, to dispose of over 1 million tonnes of waste arising from the Canterbury earthquake events.

6 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.

Background

7 On behalf of the Nelson Regional Sewerage Business Unit (NRSBU, the applicant) I was the lead author for the preparation of the Assessment of Effects on the Environment for the biosolids renewal project (the AEE), submitted to Tasman District Council (TDC) in August 2020. This role included oversight of the preparation of technical assessments (Appendices G-M of the AEE), preparation of the statutory assessment (Section 9 and Appendix N of the AEE), and drafting of the volunteered consent conditions (Appendix Q of the AEE).

8 In preparing my evidence, I have reviewed:

8.1 The resource consent applications and AEE,

8.2 The cultural impact assessment prepared following lodgement of the resource consent applications (February 2021 CIA),

8.3 The evidence of Mr Nathan Clarke, Mr Chris Purchas, Dr Nicholas Berry, Dr Jianming Xue, Dr Jeremy Bennett, Dr Paul Gillespie, Dr Neale Hudson, and Mr Chris Bender,

8.4 The submissions made by Waimea Inlet Forum Working Group, Heritage NZ Pouhere Taonga, Te Rūnanga o Ngāti Rārua and Te Ātiawa Manwhenua Ki Te Tau Ihu Trust, and

8.5 The Section 42A report prepared by Mr Lief Pigott and Mr Alastair Jewell.

Scope of Evidence

9 In my evidence I will address the following:

9.1 A summary of the activity,

9.2 A summary of the site,

9.3 The resource consents required,

9.4 The planning context,

9.5 An assessment of effects on the environment,

9.6 Specific planning issues identified in the submissions,

9.7 Comments on the Council officer's Report,

9.8 Proposed consent conditions,

9.9 Consent duration, and

9.10 Part 2 of the Resource Management Act 1991 (RMA).

Summary of the proposed activities

10 Section 3 of the AEE sets out a description of biosolids and the process used, prior to application to land, to ensure the biosolids are treated and stabilised to a standard which poses a very low risk to human health. Dr Berry has further detailed this process in his evidence and concluded the existing treatment process (autothermal thermophilic aerobic digestion) remains the preferred treatment option.

11 A description of the biosolids application activities are then described in Section 4 of the AEE. By way of summary, the activities principally comprise of:

11.1 Application of biosolids via travelling irrigators in accordance with a Biosolids Management Plan (BMP), and

11.2 Use of a Biosolids Application Facility (BAF), comprising a series of buildings, storage tanks, and hardstand areas.

12 In essence, the proposal is a continuation of activities which have been authorised and implemented at the site for the last 26 years. The existing activity has been subject to a comprehensive suite of conditions to manage and monitor effects on the environment. The current applications build from this foundation and include volunteered and thorough updates to those conditions to reflect current circumstances and understanding, including as a result of expert input and to ensure alignment with the Bell Island Wastewater Treatment Plant (Bell Island WWTP) resource consents granted in February 2020.

13 In a wider context, the activities are an integral component of the Nelson Regional Sewerage Scheme (NRSS). The application of biosolids represents a beneficial reuse of a by-product from the NRSS treatment process which serves the social and economic needs of communities totalling over 45,000 people, and in a way which minimises risks to their health and safety. Mr Purchas has in his evidence concluded that biosolids application on Moturoa/Rabbit Island, relative to alternatives, is currently the best practicable option under the RMA[1].

Summary of the site and environment

14 A description of the site and environmental setting is contained in Section 6 of the AEE. The various experts, in both the technical reports appended to the AEE and in their subsequent evidence, have also described the site according to their area of speciality. The February 2021 CIA provides a detailed analysis of the cultural context of Moturoa.

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[1] ***best practicable option***, *in relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—*
(a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and
(b) the financial implications, and the effects on the environment, of that option when compared with other options; and
(c) the current state of technical knowledge and the likelihood that the option can be successfully applied.
[Section 2 of the RMA]

15 Key attributes of Moturoa/Rabbit Island I wish to highlight include:

15.1 The island and surrounding area has an extensive and rich history for the iwi of Te Tau Ihu,

15.2 Nine archaeological (cultural) sites2 are recorded on the island (but noting this may not be reflective of Te Tau Ihu iwi discoveries or cultural layers),

15.3 The Te Tau Ihu coastal marine area is recognised as a Statutory Acknowledgement Area under multiple deeds of settlement and related legislation,

15.4 The land subject to the applications is vested in TDC under the Reserves Act 1977 as Local Purpose (Plantation) Reserve and Recreation Reserve,

15.5 The biosolids application area is used as a commercial pinus radiata forestry operation, run by a third party (currently PF Olsen) on behalf of TDC,

15.6 The recreational reserve and coastal margins are important assets to locals and visitors for both passive and active recreation, and

15.7 The nearest residential settlement to the biosolids application area is Mapua (approximately 200m across a tidal channel).

16 By way of context to assessment given later in my evidence, in my view it is important to note that the site and environment, and the effects of the proposed activities on that environment, are very well understood. This follows a substantive period of human activity on Moturoa/Rabbit Island and in the surrounding coastal environment along with associated data-gathering and monitoring. This includes:

16.1 Planting of a *pinus radiata* forest commencing approximately 100 years ago (the first plantings took place in 1921 following vesting of the island to the then Waimea County Council for Plantation Reserve purposes[3]),

16.2 The existing biosolids application activity over the last 26 years,

16.3 Monitoring of the coastal environment through other nearby activities; for example, the Bell Island WWTP was commissioned 39 years ago and includes a discharge of treated wastewater to the coastal marine area,

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[2] Cultural Impact Assessment, dated February 2021, at section 6.2

[3] PF Olsen Forest Management Plan 2000-2024 https://pfolsen.blob.core.windows.net/productionmedia/5100/tdc_2019.pdf

16.4 Monitoring, surveys and consultation used to inform and develop the Moturua/Rabbit Island Reserve Management Plan (RMP), from its inception in 1989 and through subsequent updates in 1997, 2001, and 2016,

16.5 Wider state of the environment monitoring; for example, recreational water quality.

17 In my view this proposal is not a situation where the environment or the actual or potential effects on that environment are uncertain or unknown.

The resource consents required

18 The relevant rules and activity status is prescribed by the Tasman Resource Management Plan (TRMP). A full assessment of these matters is set out in Section 7 of the AEE.

19 A summary of the resource consents required and sought is set out in Table 1 below. The proposal has an overall status of a discretionary activity. I note the Council officer agrees with this rule identification and activity status.

Table 1: Resource consents sought by NRSBU under the TRMP

Activity	Resource consent type	TRMP relevant rule	TRMP activity status
Application of biosolids to land at Moturoa/Rabbit Island	Discharge permit	Rule 36.1.5.2	Discretionary
Discharge of odour to air as a result of applying biosolids to land and the operation of the BAF at Moturoa/Rabbit Island	Discharge permit	Rule 36.3.5.3	Discretionary
Operation and maintenance of the Biosolids Application Facility and all other land use activities associated with the application of biosolids to land at Moturoa/Rabbit Island	Land use consent	Rule 17.6.3.5 & Rule 17.11.2.2	Discretionary
Discharge of washdown water and stormwater at the BAF to land at Moturoa/Rabbit Island	Discharge permit	Rule 36.1.5.2 & Rule 36.4.2.3	Discretionary

Planning context

20 The planning documents I consider are relevant to the site and proposed activities are:

20.1 New Zealand Coastal Policy Statement 2010 (NZCPS),

20.2 National Policy Statement for Freshwater Management 2020 (NPS-FM),

20.3 National Environmental Standard for Freshwater (NES-F),

20.4 National Environmental Standard for Sources of Human Drinking Water (NES-HDW),

20.5 Tasman Regional Policy Statement (TRPS),

20.6 Nelson Regional Policy Statement (NRPS),

20.7 TRMP,

20.8 Iwi Management Plans[4], and

20.9 Moturoa / Rabbit Island Reserve Management Plan (RMP).

21 The majority of these documents have previously been addressed in Section 9 and Appendix N of the AEE. I note that following lodgement of the resource consents the NPS-FM 2020 has come into force, as has the NES-F.

22 In this section I highlight provisions of the above documents I consider particularly relevant and pertinent to consideration of the applications. Later in my evidence I will make an assessment of the proposed activities against these provisions. Where I have specifically referenced an objective or policy, I have included the full provision in **Appendix A** of my evidence.

NZCPS

23 The proposed activities are all located above Mean High Water Springs (MHWS) and therefore outside the coastal marine area (CMA). A condition of consent is volunteered by the applicant requiring that no biosolids application occurs within 50 metres of MHWS. Given MHWS will move with any rise or fall of sea or land levels over time, this condition provides some ability for the application activity to adapt to any impacts caused by climate change.

24 While the biosolids application activities do not attract the need for a coastal permit, the coastal environment under the NZCPS is defined more broadly. Of particular relevance to the proposal, the NZCPS acknowledges that activities inland can have impacts on coastal water quality and that the coast has particular importance to tangata whenua, including as kaitiaki.

[4] Te Ātiawa o Te Waka-a-Māui Iwi Management Plan, Pakohe Management Plan 2015, Nga Taonga Tuku Iho Ki Whakatū Management Plan 2004, Iwi Management Plan 2002 (Ngati Koata), Te Tau Ihu Mahi Tuna (Eel Management Plan) 2000 (all Iwi), and Environmental Management Plan 2018 (Ngāti Tama)

25 Objective 1 is pertinent to coastal water quality. It requires the coastal environment be safeguarded and sustained through maintaining coastal water quality, and enhanced where it has deteriorated from its natural condition because of discharges associated with human activity. Policy 4 provides for the integrated management of natural and physical resources in the coastal environment, and requires particular consideration of the impacts of climate change on land use activities and of the impacts of land use activities on water quality. Policy 23 provides a framework for the management of discharges of contaminants, which includes understanding the sensitivity of the receiving environment, the nature of contaminants to be discharged, and the capacity of the receiving environment to assimilate the contaminants.

26 Objective 3 seeks to take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki, and provide for tangata whenua involvement in management of the coastal environment. Policy 2 sets out the means by which this is achieved, which includes recognising that tangata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations.

27 Objective 6 enables people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development. The objective recognises that the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits.

28 Policy 25 requires Councils to avoid risk from coastal hazards over at least 100 years. The policy is principally focussed on avoiding the risks and impacts of hazards on land uses and infrastructure, which in the current applications is the BAF buildings and ancillary structures.

29 Regarding Policy 11 of the NZCPS and the need to avoid adverse effects on significant habitats of threatened and endangered species, in my view this policy is not engaged by the proposal. I note the same conclusion was reached in the Bell Island WTTP consenting process, which involved a direct discharge to the CMA.

NPS-FM

30 Underpinning the NPS-FM 2020 and its core objective is the concept of Te Mana o Te Wai. This concept prioritises, firstly, the health and wellbeing of water bodies and freshwater ecosystems. The second priority is the health needs of people (such as drinking water). The third and last priority is the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

31 The objective is supported by fifteen policies. Among these, the health and well-being water bodies and freshwater ecosystems (where not already degraded) needs to be maintained (Policy 5), the condition of water bodies and freshwater ecosystems is to be systematically monitored over time (Policy 13), and communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with the NPS-FM (Policy 15).

NES-F

32 In the period following lodgement of the resource consent applications, the NES-F has introduced additional potential resource consent requirements, including with respect to certain activities affecting natural wetlands and river beds. Given the nature of the sands and soils of Moturoa/Rabbit Island (as covered in the evidence of Dr Jeremy Bennett), and its highly modified nature following a century of exotic plantation forestry operations, I am not aware of the presence of any features within the biosolids application area which would be subject to the NES-F.

NES-HDW

33 As outlined in the evidence of Mr Clarke, potable water on the island is supplied via the reticulated municipal network. All such water is supplied via pipeline from off the island. On this basis I do not consider the NES-HDW any further.

TRPS and NRPS

34 The TRPS provides strategic direction to promote sustainable resource management in the Tasman district, including Moturoa/Rabbit Island. I note the TRPS is over 20 years old and therefore does not give effect to the NZCPS 2010. The NRPS is only relevant to the applications in part due to covering some of the coastal waters within Waimea Inlet and Tasman Bay. For these reasons, I only briefly consider the regional policy statements here, and consider that they should be given little weight.

35 The TRPS supports the efficient use and development of resources (General Objective 4) and the maintenance of economic and social opportunities to develop resources in a sustainable manner (General Objective 5). Waste related objectives and policies seek to minimise the generation of waste and any risk of contaminants from subsequent disposal (Objective 10.4, Policy 10.8).

36 The TRPS recognises and protects the traditional interests of tangata whenua (General Objective 7). The NRPS recognises that tangata whenua are the kaitiaki of the coastal environment (Policy TW1.5.10).

TRMP

37 As with the TRPS, the TRMP was prepared before the NZCPS 2010 came into effect. In that regard it is my view the relevant provisions of the NZCPS, as a higher order document, carry greater weight than equivalent provisions in the TRMP.

38 Sustainable urban growth that is consistent with the capacity of services and has access to necessary infrastructure is a key objective of the TRMP (Objective 6.3.2.1). Supporting this, utilities and services are required to be adequately to avoid, remedy or mitigate adverse effects on both existing and future urban areas (Policy 6.3.3.1).

39 Via Policy 33.1.3.16, the consent authority must have regard to the extent to which:

39.1 the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water, and on the health of people and communities as affected by their contact with fresh water; and

39.2 it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, and on the health of people and communities as affected by their contact with fresh water resulting from the discharge resulting would be avoided.

40 The TRMP promotes and encourages discharges of wastes to land in preference to discharges to water where the effects are less and the discharge to land is the best practicable option (Policy 33.1.3.13).

41 The TRMP seeks to protect historic and cultural sites in the coastal environment and maintain cultural heritage values of items, sites and areas (Policy 8.2.3.21, Objective 21.5.2).

Iwi Management Plans

42 The Iwi Management Plans (IMPs) set out the values, interests and priorities for natural resource management for iwi. They provide further context for a consideration of cultural effects and in my view are relevant 'other matter' under section 104(1)(c) of the RMA.

43 Avoiding the discharge of untreated human sewage and waste to coastal waters is understandably a common theme among the IMPs. Protection and enhancement of ngā wāhi taonga tuku iho (sites and areas of cultural significance) underpin many provisions.

44 Section 12.4 of the Ngāti Tama ki Te Waipounamu Trust Environmental Management Plan 2018 provides a useful and representative list of key issues and actions of importance to Iwi with respect to wastewater management. I particularly note:

44.1 Poorly designed or operating effluent and sludge disposal schemes is noted as a key issue,

44.2 A requirement for CIA reports, cultural health monitoring, soil risk assessments, and use of application buffer zones in consenting processes, and

44.3 An action to ensure that any discharge activity includes a robust monitoring programme, including regular monitoring of discharges and the effects of operations on the receiving environment.

RMP

45 Under section 104(1)(c) of the RMA the RMP is, in my view, an 'other matter' which is relevant and necessary to consider the application. The RMP is a statutory document under the Reserves Act 1977 and its ongoing development over the last 30 years has been subject to drafting, consultation and submission processes run by TDC with both Te Tai Ihu Iwi and the wider community.

46 The RMP seeks to ensure appropriate best management practice for biosolids application (Section 4.2 Objective 2). It also recognises the benefits of applying biosolids to the forestry plantation while balancing this with the need to protect cultural and ecological values and avoiding conflicts with people undertaking recreational activities (Objective 3). The supporting policies provide a range of management tools, in particular the establishment of exclusion areas (Policy 3) and buffer zones (Policy 4).

Assessment of effects

Positive effects

47 As described in various other evidence, the application of biosolids on Moturoa/Rabbit Island is a beneficial reuse of a product of the wastewater treatment process at the WWTP. The NRSS provides a safe and reliable means of collecting and treating human waste which has a net positive effect for human health.

48 The NRSS also eliminates the need for other wastewater collection and treatment methods along with the significant financial investment and potential adverse effects on the environment associated with those alternatives.

49 The efficient use of the existing wastewater infrastructure is an important positive effect, as it provides the Tasman and Nelson communities with an economically sustainable wastewater treatment system. The value of the investment made in existing infrastructure is a key matter which the consent authority must consider in determining the applications[5]. In addition, implementing alternatives comes with its own costs, both financial and environmental (for example, carbon emissions).

[5] Section 104(2A) of the RMA

50 As detailed in the evidence of Dr Xue, the application of biosolids to forestry has positive benefits in terms of providing a source of nitrogen fertiliser and improving forestry growth. Biosolids improves tree growth (by approximately 30%) and increases economic returns. This is ultimately a social and economic benefit for the ratepayers of the Tasman and Nelson region.

51 Overall, I consider the proposal is consistent with those provisions seeking to enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety. As I am about to discuss, this can be done within appropriate limits and while managing any adverse effects on the environment.

Effects on cultural values

52 I recognise that only Te Tai Ihu Iwi can express whether or not a proposal gives rise to cultural effects. On this basis I will not attempt to do so here. However, I will comment on specific matters which may assist the commissioners with context when making a determination of cultural effects.

53 There have been a number of cultural impact assessments undertaken over the years with respect to activities on Moturoa/Rabbit Island and discharges to the adjacent coastal environment. A summary of some of these assessments is covered in Section 8.3.2 of the AEE.

54 As discussed earlier, Te Tai Ihu Iwi have also been involved in the development of the RMP including identification of exclusion zones for biosolids application.

55 Iwi have been engaged in the wider environment through the recent Bell Island WWTP consenting process, and through subsequent implementation of those consents which have an annual hui requirement. Cultural effects were a key consideration in the Bell Island WTTP re-consenting process, although noting the direct discharge of treated wastewater to water is quite a different proposition to the current applications, which are a discharge to land.

56 The applicant has consulted with the eight iwi of Te Tau Ihu o te Waka a Maui throughout the pre and post lodgement processes. This culminated in the preparation of the February 2021 CIA. A useful summary of the consultation process undertaken is contained in Section 1.3 of the February 2021 CIA.

57 Six of the eight Iwi participated in the preparation of the February 2021 CIA[6]. Subsequently only two of these Iwi submitted on the application (Te Rūnanga o Ngāti Rārua and Te Ātiawa Manwhenua Ki Te Tau Ihu Trust).

58 A suite of conditions have been proposed by the applicant which invites further ongoing involvement from Iwi and to assist with future management of cultural effects. This includes:

[6] Te Ātiawa Iwi ki te Tau Ihu Trust, Te Rūnanga o Ngāti Rārua, Ngāti Tama ki Te Waipounamu Trust, Ngāti Koata Trust, Te Runanga o Ngāti Kuia Trust, and Ngāti Apa ki te Rā Tō.

58.1 an annual hui, to seek and understand ongoing cultural considerations and opportunities for natural character and ecological enhancements (with details and any actions to be provided to TDC in an annual report),

58.2 A 6-yearly monitoring and technology review report (MTRR), which will assist with the identification of any emerging or new effects,

58.3 Continued implementation of exclusion zones from significant sites, in accordance with the agreed zones from the current consent and the RMP, and

58.4 The BMP, which will among other things provide the procedures for ensuring exclusion zones and buffer area requirements are complied with (the BMP also has an annual review component).

59 Given the above, I am of the view that several opportunities have and will continue to be provided to Iwi to be involved in the management of the coastal environment and to have their interests and concerns (with respect to the NRSBU Bell IslandWWTP and biosolids activities) recognised. In that regard it is also my view that the proposal is consistent with relevant objectives and policies regarding the role of tangata whenua as kaitiaki and that the principles of the Treaty of Waitangi have been taken into account.

60 With respect to the recommendations made in the February 2021 CIA, I offer the following comments:

60.1 **Buffer zones (recommendation 9.1) –** An additional buffer area of 200 metres from the currently identified exclusion zones has been suggested. I also note the Council officer has suggested a 30 metre buffer from a “culturally sensitive site” (undefined) in their proposed conditions (condition 24(d)). As I’ve already noted, these exclusion zones have been previously agreed in other processes and my understanding is they already incorporate appropriate buffering. Unless evidence is tabled to the contrary I do not support additional buffering.

60.2 **Iwi monitor protocol (recommendation 9.1) –** I understand the applicant is in principle open to this concept but has not received guidance from Iwi on what this protocol may look like. However, I note that it would not be possible within the scope of the current applications to extend such a protocol to third parties such as the forestry operator.

60.3 **Taonga and restoration (recommendation 9.1)** – As noted above, the proposed condition suite includes an annual hui with a specific requirement to work through opportunities for natural character and ecological restoration and enhancement. There are also obligations within the Bell Island WWTP consents, and in the RMP, to explore such opportunities.

60.4 **Archaeological survey (recommendation 9.1)** - A request for a preliminary survey by a registered archaeologist of the sites in the potential event of any construction work has been made. There is no construction work subject to the current applications therefore I do not consider such a survey is necessary.

60.5 **Accidental discovery protocol (recommendation 9.1)** - As above, the proposed works do not involve construction work or any activities that involve intrusive land disturbance and therefore I am unsure what value such a protocol adds. On that basis I do not support the inclusion of a condition along those lines (such as suggested by the Council officer at condition 33 of their Attachment 3).

60.6 **Review of archaeological map and cultural mapping (recommendation 9.2)** – There is some concern expressed that archaeological and cultural features have not been adequately mapped to date. As I have outlined earlier, over the years there have been several opportunities for these features to be identified, be it through previous CIAs (including for the forestry activity), the February 2021 CIA, or the RMP development processes. The proposed annual hui (specifically condition 7(b)) and annual review of the BMP are further mechanisms for any additional areas to be identified in the future. Respectfully, I do not consider an additional mapping exercise is warranted as a condition of consent.

60.7 **Restoration and enhancement projects (recommendation 9.3) –** Recommendations have been made to return sensitive ecological areas from forestry activities, and for Iwi to give input to landscape design with respect to the tapu status of the site. In my view these are matters relating to the forestry operation and/or the implementation or updating of the RMP, and therefore both fall outside the scope of what can be achieved within the current biosolids applications.

60.8 **Habitat restoration (recommendation 9.4) –** Similar to my previous comment, and as acknowledged in the CIA recommendation itself, this matter is for the RMP (and/or the forestry operation) and is therefore outside the scope of the current applications.

60.9 **15-year consent term (recommendation 9.5**) **–** I will discuss consent duration towards the end of my evidence.

60.10 **Cultural health index (CHI) monitoring programme (recommendation 9.6) –** This suggestion may potentially have some merit in the context of monitoring the wider environment, however, in my view implementing it as a condition within the scope of the biosolids application consents is problematic. The reasons for this are two-fold.

60.10.1 Firstly, given the evidence in particular of Dr Bennett, Dr Gillespie and Dr Hudson which have concluded negligible or less than minor adverse effects on water quality, ecological, and public health grounds, I suspect it will be

difficult to meaningfully differentiate the cultural effects arising from the biosolids activity from the cultural effects of all other activities occurring in the receiving environment. Indeed a similar conclusion was reached by the decisions makers in the Bell Island WWTP process, whereby a CHI condition was not imposed because such monitoring would be better achieved at a catchment wide level.

60.10.2 Secondly, the applicant could become responsible and liable for implementation of the CHI by a third party, which is not consistent with good practice if not ultra vires.

60.11 CHI monitoring is discussed at paragraphs 7.89 to 7.91 of the s42A report. The Council officer concludes they are unable to determine the nature of CHI monitoring, but has nonetheless gone on to recommend a condition of consent (24B in Attachment 3). Having read the suggested condition it has not altered my opinion above and I do not support its inclusion. In particular, I remain concerned there will be significant challenges in identification of cultural indicators which can be "objectively defined and assessed" (proposed clause (c)) over and above the broad suite of environmental indicators already proposed. Additionally, although the condition invites the input of Iwi to both preparation and implementation of a CHI monitoring plan, those tasks are ultimately the responsibility of the Consent Holder. This potentially places them in a very challenging (if not non-compliant) position should Iwi choose not to engage.

60.12 **NRSBU Environmental Plan (recommendation 9.7) –** The applicant has robustly considered alternative sites and biosolids disposal methods in the context of the current applications, as outlined in the evidence of Mr Purchas. As discussed in the evidence of Mr Nathan Clarke, the NRSBU 50-year strategic plan will include further investigation and assessment of the merits in relocating the biosolids operation elsewhere. Future alternatives would also be looked at in the context of the proposed 6-yearly MTRR, which requires assessment and reporting of future forecasts of biosolids quality and quantity, technological advances in relation to biosolids treatment and application, the ability for the activity to continue meeting consent obligations, and whether the proposed activity continues to remain the BPO.

60.13 **Exclusion zones (recommendation 9.8) –** As noted previously, the current exclusion zones already include known areas of archaeological and cultural value. These can continue to be reviewed as any new information comes to light, either through the annual hui or annual review of the BMP.

60.14 **Proof of consultation (recommendation 9.9) –** I have previously acknowledged not all Iwi chose to participate in the recent engagement process, contribute to the February

2021 CIA, or make a submission to the current applications. The applicant remains committed to consultation with future opportunities available through the annual hui.

60.15 **Review of iwi representation on NRSBU (recommendation 9.10) –** Implementation of this matter largely falls outside the scope of the current applications, however, the annual hui would be the appropriate opportunity for this issue to continue being raised and if appropriate addressed.

61 At paragraph 7.62 of the s42A report, and in subsequent analysis, the Council officer comments that several of the CIA recommendations are beyond the scope of the current applications. I agree, as highlighted above.

62 By way of reiteration, the assessment I have just made is not a statement on the nature, scale or degree of cultural effects. However, I hope the comments are helpful in consideration of those effects including the proposed conditions of consent to manage them.

Effects on recreational values and access

63 Recreation and access effects are considered in Section 8.4 of the AEE. Biosolids application is undertaken on commercial forestry land to which the public has either no, or controlled, access. In addition, biosolids application is excluded within areas of recreation reserve, and no biosolids are applied within 50 m of MHWS, which covers the entirety of the coastal margin. As such the proposed activities do not impinge on the general public's ability to access those areas that are open to the public to undertake active or passive recreation.

Effects on forestry and soils

64 As explained in Section 8.5 of the AEE, and in the evidence of Dr Xue, comprehensive monitoring and assessment of the biosolids application and associated research trials has occurred over the last 26 years. Consequently, any effects on soils and forestry are well understood.

65 Dr Xue has also reviewed his original assessment to incorporate 2020-2021 monitoring data available at selected pine stands. Dr Xue's evidence re-affirms his keys findings that:

65.1 Overall, soil pH was maintained above 5, although it gradually decreased with repeated applications of biosolids over time and dropped below 5 at some sites on occasion.

65.2 Repeated applications of biosolids improved soil fertility by increasing soil total N and organic matter over time in both the top and sub soils.

65.3 Despite the slow accumulation, the concentrations of Cd, Cr, Cu, Pb, Hg and Zn remain below the soil limits defined the NZ Biosolids Guidelines 2003, and the

National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (MFE 2012).

65.4 While the maximum values for As and Ni were higher than the NZ biosolids guidelines soil limits on some sites occasionally, the average concentrations of As and Ni are below those limits.

65.5 The existing application rates of 300 or 450 kg N ha^{-1} every 3 years (depending on the stand age) are justified as appropriate and should be retained.

65.6 Improved soil monitoring regime is warranted to safeguard the receiving environment (e.g. soil and groundwater).

66 Overall, the application of biosolids is considered to have a positive effect on the commercial forestry operation, a positive effect on overall soil fertility and nutrition, and no significant adverse effects on soil quality and health. Biosolids application serves as a substitute for nitrogen fertiliser, and provides for increased economic profitability in the forest.

Effects on groundwater

67 Effects on groundwater have been covered in Section 8.6 of the AEE and in the evidence of Dr Bennett. As with effects on soil, monitoring of the groundwater resource and an assessment against appropriate water quality standards and guidelines has occurred over many years and is well understood.

68 Since the lodgement of the application routine monitoring of biosolids, soil and groundwater chemistry and groundwater levels has been conducted on behalf of NRSBU. The additional information has been incorporated into Dr Bennett's evidence, as well as a review of the assumptions made in relation to groundwater levels. I have considered the following revisions and findings outlined within Mr Bennett's evidence:

68.1 The mean annual total volume of biosolids application used in the groundwater assessment has been revised to 32,900 m^3/year based on the average application rates from the last ten years.

68.2 Analysis of groundwater levels and flow paths has been revised to incorporate known groundwater level data.

68.3 The updated groundwater level analysis also impacts the hydraulic gradients used to estimate potential peak contaminant concentrations in the coastal environment. The revised hydraulic gradient is 0.00035.

68.4 The potential quantity of nitrogen available to discharge into the surrounding environment is estimated to be approximately 21.5 tonnes per year. This mass would

represent 4.8% and 1.2% of the reported mean annual cumulative nitrogen loads for the Waimea Inlet and Tasman Bay catchments, respectively[7].

68.5 The maximum nitrate-N concentration predicted in groundwater at 50 m from the source is approximately 3 mg/L, with the peak concentration expected to occur between twelve and sixteen years after the release.

68.6 Mixing of affected groundwater with marine water in the Waimea Inlet will reduce the peak nitrate-N concentrations significantly. Based on estimates of groundwater mixing with estuary flow adjacent to Rabbit Island, Dr Bennett estimates that the nitrate-N concentrations would be approximately 0.00002 mg/L in the Waimea Inlet.

69 In his evidence, Mr Bennett confirms that based on his original technical report and subsequent revisions the groundwater monitoring condition proposed (condition 27) is appropriate to avoid potential adverse effects on groundwater over the life of the new consent.

Effects on coastal values

70 Effects on coastal values have been covered in Section 8.7 of the AEE and in the evidence of Dr Gillespie. The assessment is supported by a comprehensive data set available through the existing consent, other consents, and wider state of the environment reporting.

71 By way of summary, Dr Gillespie concludes that it is unlikely contaminants or nutrients derived from biosolids will directly affect any of the natural values of Waimea Inlet, but they could potentially cause a reduction in environmental quality. However, monitoring shows that the risk of adverse effects from cumulative nutrient and contaminant enrichment of intertidal sediments due to continued application of biosolids is likely to be less than minor. Dr Gillespie has considered the revised groundwater information identified above and re-affirms this assessment.

72 Concentrations of arsenic and nickel in cockles from monitoring survey locations are higher than guidelines for human consumption but this is true of locations adjacent to and away from biosolids application areas. This indicates that the source of contamination is natural (i.e., soils in the catchment) rather than derived from biosolids.

Effects on air quality (odour)

73 Odour effects have been summarised in Section 8.8 of the AEE and addressed in detail in Appendix L of the AEE. Dr Bender has provided further analysis in his evidence.

74 The Council officer has agreed with the AEE analysis and volunteered conditions supplied by the applicant, with the exception of a recommended addition to condition 25:

[7] Evidence of P Gillespie (Coastal Effects), dated 11 May 2022 at [34]-[37].

There shall be no discharges to air from the biosolids application activity or the BAF that results in an adverse effect that is offensive or objectionable beyond the line of Mean high water springs around the perimeter of Moturoa / Rabbit island or the public reserve on the front of Moturoa.

75 While the intent of the Council officer is understood and accepted, in my view the addition lacks clarity or certainty. In conjunction with the advice note suggested by Mr Bender, I suggest the following:

There shall be no discharges to air from the biosolids application activity or the BAF that results in an adverse effect that is offensive or objectionable beyond the line of Mean High Water Springs around the perimeter of Moturoa / Rabbit Island or in the "Old Domain Area" shown on Plan C attached to and forming part of these consents.

Advice note

Non-compliance with Condition 25 shall be determined by a suitably qualified person having regard to the Frequency, Intensity, Duration, Offensiveness and Location (i.e. the FIDOL factors) of the odour discharge and any previous validated odour complaints relating to the same site and the same activity.

76 A copy of the plan referred to is included in **Appendix C** of my evidence.

Effects on public health

77 Effects on public health have been summarised in Section 8.9 of the AEE. In his evidence Dr Hudson has concluded that:

77.1 Treatment of biosolids – Concentrations of microbial contaminants tend to be consistent over time, with infrequent elevated levels, and the biosolids treatment process appears to reduce concentrations of six of the nine microbial test species sufficiently to meet the NZ Biosolids Guidelines 2003.

77.2 Health risks associated with inhalation of airborne microbial contaminants – the method of application of biosolids, coupled with adherence to practices recommended in appropriate guidelines is likely to reduce risks to public health to less than minor; and

77.3 Health risks arising from exposure to groundwater - residual faecal indicator bacteria and pathogens in shallow groundwater pose negligible risk of illness to recreational water users on Moturoa/Rabbit Island or further afield.

Effects on terrestrial ecology

78 Significant Native Habitats on Moturoa/Rabbit Island have previously been mapped for the purposes of the RMP and are excluded from the proposed biosolids application area. The areas in which biosolids are applied is a *pinus* radiata plantation forestry and as such is a highly modified environment and subject to regular disturbance through those operations. As I have mentioned previously, I do not consider Policy 11 of the NZCPS is engaged by the proposal.

79 For these reasons any effects of applying biosolids on terrestrial ecology have been assessed as less than minor.

Effects on landscape and natural character

80 Effects of the proposed activities on landscape and natural character are already established and have existed under the existing resource consents since 1996. In addition, the biosolids application activity coincides with a commercial forestry operation, which commenced in the 1920's and has modified the landscape from its natural state.

Effects from natural hazards and climate change

81 Based on advice from the Ministry of the Environment[8], within the maximum consent term sought by the applicant a sea level rise of approximately 0.5 m should be allowed for. Section 6.12 of the AEE assessed the impact such a rise in sea level (and related storm surges) would have on Moturoa / Rabbit Island and concluded:

81.1 2% (18 hectares) of the current biosolids application area could be affected by MHWS inundation (assuming those areas develop connections with the sea), and

81.2 14% (110 hectares) of the current biosolids application area could be affected by 1 in 100 year storms (assuming no other countervailing natural process such as accretion or dune formation, and assuming no other human intervention such as coastal protection structures).

82 In the last few weeks the NZ SeaRise: Te Tai Pari O Aotearoa programme has released location specific sea level rise projections out to the year 2300 for every 2 km of the coast of New Zealand. These projections can be accessed through a new online tool developed by Takiwā, a data management and analytics platform. Although there are no projection points on Moturoa/Rabbit Island, there are several such points on nearby coastline. Having reviewed several of these points[9] I note they are largely consistent with the previous projection of a 0.5m sea level rise projection occurring towards the end of the consent duration sought.

83 Given the above forecasts the vast majority of the biosolids application area is unlikely to be directly impacted on by sea level rise or storm surges within the consent term sought by the

[8] Coastal Hazards and Climate Change – Guidance for Local Government, Ministry for the Environment, December 2017
[9] Using projection to 2150 medium confidence (SSP2-4.5) and incorporating Vertical Land Movement

applicant. As I have mentioned previously, the continued use of a 50 m buffer from MHWS will in effect result in the biosolids application area dynamically adjusting according to any changes to MHWS over time. The buffer is also a mechanism for limiting the potential for any adverse effects from surface runoff to the CMA or from storm surge impacts. Lastly, the proposed 6-yearly MTRR is a further mechanism for evaluating any impacts of climate change on biosolids application activity in the remainder of the consent term.

84 The biosolids application activity involves moveable plant and machinery and is therefore readily adaptable to climate change. The BAF buildings and infrastructure also largely consists of portable facilities although there are some more permanent components. I note that the BAF only begins to be potentially impacted towards a 1.5 m sea level rise scenario and could be relocated or disestablished long before that scenario played out.

85 Overall, I consider the proposal is consistent with relevant objectives and policies (in particular Policy 25 of the NZCPS) because subject to conditions the activity can be carried out in a way which can adapt, if necessary, to the any impacts of climate change. Risks of social, environmental and economic harm are avoided, and the activity does not increase the risks of adverse effects from coastal hazards.

86 The Council officer has considered climate change matters at paragraphs 7.92-7.95 of his report. Subsequently a series of conditions centred on a climate change adaption plan have been proposed (conditions 31A, 31B and 32 in Attachment 3 of the Council officer's report). Respectfully I consider an adaption plan is not warranted given both my and the Council officer's prior assessment, as well as adding unnecessary duplication given assessing climate change implications is already embedded within the MTRR condition. However, in acknowledgement of the issues raised by the Council officer and submitters, I have suggested an amendment to the MTRR condition to strengthen the requirement to consider future actions that may required to avoid, remedy or mitigate any adverse effects of the authorised activities which arise due to climate change.

87 I also have several concerns with the way the conditions 31B and 32 have been drafted. Notably, increasing the width of the coastal buffer area in specific places by way of consultation with the Council's Team Leader Monitoring and Enforcement is in my view fraught with potential challenges and difficulties. How would the increased buffer be mutually agreed, and if not agreed, how would disputes be resolved? In addition, arbitrarily increasing the buffer in specific places would cause inconsistencies with proposed condition 24 (which prescriptively sets the MHWS buffer area at 50 m).

Summary of effects

88 Monitoring and data from the activity over the last 26 years has led to the sensitivity of the receiving environment, the nature of contaminants to be discharged, and the capacity of the receiving environment to assimilate the contaminants, being very well understood. The discharge avoids contamination that will have an adverse effect on the life-supporting capacity of soil, fresh water and the coastal environment. Equally the proposal provides appropriately for the health of people who interact with these resources through passive and active recreation on the island, and for those communities near the island. The proposal occurs in an appropriate place and form and within appropriate limits.

89 For the foregoing reasons I consider the proposal is generally consistent with relevant objectives and policies of the planning documents, in particular Objective 1, Objective 6 and Policy 23 of the NZCPS and Policy 33.1.3.16 of the TRMP.

90 Although I am unable to comment on cultural effects, I consider the applicant has appropriately engaged with tangata whenua and has recognised and provided for their role as kaitiaki in the coastal environment. This is consistent with relevant objectives and policies, in particular Objective 3 and Policy 2 of the NZCPS, and Iwi management plans. I support consent conditions which seek ongoing input from tangata whenua throughout the term of the consent.

91 The ongoing use of exclusion zones and buffer areas will protect known sites of cultural significance. This is consistent with the planning provisions just referred to, as well as those in the TRMP seeking to protect historic and cultural sites in the coastal environment and maintain cultural heritage values of items, sites and areas (Policy 8.2.3.21, Objective 21.5.2).

Planning issues identified in submissions

Effects on the environment

92 Te Rūnanga o Ngāti Rārua consider that the long term disharge of biosolids to Moturoa has the potential to cause significant adverse effects on customary practice and the cultural association iwi have with Moturoa.

93 Similarly, Te Ātiawa Manwhenua Ki Te Tau Ihu Trust hold concerns the applications will impact on their cultural relationship and traditions with ancestral lands, water, sites and other taonga. They note the quality of the environment is not just considered in its chemical and/or physical terms but also on cultural and spiritual terms.

94 Other than already noted in my earlier discussion on cultural effects, I am not in a position to comment further on these matters.

95 The Waimea Inlet Forum Group consider that some of the applicant's volunteered conditions do not sufficiently manage the adverse effects over the long term. In particular they consider the conditions do not deal with any increasing volume or change in composition of the biosolids over

time nor the predictable and unpredictable effects of climate change. Respectfully I disagree. Proposed conditions 15-22 set various requirements which, in combination, ensure that biosolids is treated to an acceptable standard and applied at an appropriate rate to manage effects. Groundwater, soil, and coastal monitoring (conditions 27-29) – which is reported and assessed both annually (condition 8) and six-yearly (condition 9) – then ensures any changes to effects are determined and if necessary acted upon. I have previously discussed climate change effects and consider the condition set adequately covers this through the coastal buffer and modified MTRR conditions.

96 The Waimea Inlet Forum has also suggested the proffered conditions contain inadeqate prescribed actions in the event of unacceptable environmental impacts, as well as suggesting upper-level trigger points. In my view the observations of the last 26 years (showing less than minor to negligible impacts), coupled with the proffered comprehensive monitoring and reporting regime (including annual and six-yearly reports), and the review condition, provides appropriate avenues to address unanticipated effects should they materialise.

97 Heritage New Zealand Pouhere Taonga consider a condition is required which requires an archaeological assessment to be prepared. In line with my earlier assessment with respect to a similar request in the February 2021 CIA, I do not consider such an assessment is necessary given the proposal does not involve ground intrusive activities.

Consent duration

98 Te Rūnanga o Ngāti Rārua opposes the grant of consent, however, if granted they consider a 15-year term is appropriate. They consider this gives NRSBU sufficient time to phase out and remove the biosolids application activity.

99 Te Ātiawa Manwhenua Ki Te Tau Ihu Trust also opposes the application, but if granted, considers a 10-year duration to be appropriate. Their reasons include that a longer term does runs counter to precaution given uncertainties (including climate change) and does not allow an opportunity to action precautionary activity to protect the integrity of wahi tapu.

100 Although not forming part of the submissions, I note the six iwi (including Te Ātiawa) participating in the CIA also recommend a 15-year consent term.

101 The Waimea Inlet Forum Group also supports a consent term of 15 years. Their reasoning is that this would enable would enable any further consent renewal to draw on the findings of the second six-yearly report (the MTRR).

102 I return to consent duration later in my evidence.

Comments on the Council officer's report

103 I have addressed comments on the Council officer's report as they have arisen throughout my evidence. Further comments on more minor matters are provided against the updated consent conditions in **Appendix B**.

Proposed consent conditions

104 As I have already mentioned, the volunteered consent conditions included in Appendix Q of the AEE form a comprehensive update to the existing condition suite, which over the last 26 years have been shown to adequately manage the environmental effects of the proposal. The updates reflect increased knowledge and understanding as well as current good practice.

105 Throughout my evidence I have made comments on the more substantive amendments to the condition suite suggested by the Council officer.

106 In **Appendix B** I set out a consolidated and updated set of conditions informed by the above along with commentary and reasons. In this updated set there are several other suggested edits which are not otherwise covered in the main body of my evidence.

Consent duration

107 A 35-year term is sought by NRSBU for the three primary consents sought. A 5-year term is sought for the discharge of washdown water from the BAF, to provide sufficient time for the detailed design and construction of the necessary facilities for that water to be collected and directed to the BAF storage tanks.

108 Based on the technical assessments provided with the AEE, and updated via the expert evidence I have reviewed in preparation of my evidence, I support a long duration because:

108.1 There is already an observational record over 26 years of the activity occurring with limited adverse effects,

108.2 Subject to conditions, any predicted adverse effects through to 2055 have been assessed by the relevant experts as ranging from negligible to less than minor, and

108.3 Robust monitoring and review conditions are proffered by NRSBU to manage any unforeseen new information or change in circumstances, and

108.4 Biosolids application on Moturoa/Rabbit Island has positive effects due to being an efficient use of existing infrastructure, a beneficial reuse of material, and provides nutrient and financial benefits to the commercial forestry which in turn benefits TDC and the people and communities it serves.

109 At paragraph 7.45 of the s42A report, the Council officer has identified some circumstances in which a shorter duration might apply, including for an activity which has fluctuating or variable effects or depends on human intervention for maintaining satisfactory [environmental]

performance. The Council officer ultimately concludes these circumstances do not apply to this proposal and determines a 35-year term is appropriate. I concur with that analysis.

110 I acknowledge the position of Te Tai Ihu Iwi with respect to their opposition to the proposed activities on cultural and spiritual grounds, and that if consents are granted, there is a desire for a shorter term to manage uncertainties. Respectfully, I consider the observational record coupled with the proposed condition set which provides a robust set of monitoring and review requirements, appropriately manages any uncertainties and provides avenues, if necessary, for the activities to adapt to changing circumstances.

111 Furthermore, and as I have already mentioned at several points in my evidence, this is not a proposal where both the environment and the actual and potential effects of the proposal are uncertain, unknown, or little understood. Therefore, I do not agree that applying a precautionary approach, such as that addressed in Policy 3 of the NZCPS, is justified in these particular circumstances.

Part 2 of the RMA

112 The NZCPS and TRMP have been formulated to give effect to the purpose and principles of the Act. The TRMP and regional policy statements pre-date the NZCPS and therefore do not necessarily give effect to the provisions of the NZCPS.

113 I am of the view that an evaluation of Part 2 does not add anything to the assessment exercise already undertaken. However, for completeness, I do consider the proposal achieves the purpose of the RMA. The disposal of biosolids enables the Tasman and Nelson communities to provide for their social, economic, and cultural well-being, and particularly their health and safety through an appropriate disposal method. Importantly, subject to consent conditions, it achieves this while safeguarding the life-supporting capacity of water and associated ecosystems and avoiding, remedying, or mitigating adverse effects on the environment.

Daniel James Murray

11 May 2022

Appendix A – Objectives and policies referenced in evidence

Appendix B – Updated consent conditions

Appendix C – Old Domain Area

Appendix A - Objectives and policies referred to in evidence

New Zealand Coastal Policy Statement 2010

Objective 1

To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:

- maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;
- protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and
- maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.

Objective 3

To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by:

- recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;
- promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act;
- incorporating mātauranga Māori into sustainable management practices; and
- recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.

Objective 6

To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:

- the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;
- some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;
- functionally some uses and developments can only be located on the coast or in the coastal marine area;
- the coastal environment contains renewable energy resources of significant value;
- the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities;
- the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;
- the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the oastal marine area can be protected; and
- historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development.

Policy 2 The Treaty of Waitangi, tangata whenua and Māori heritage

In taking account of the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and kaitiakitanga, in relation to the coastal environment:

(a) recognise that tangata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations;

(b) involve iwi authorities or hapū on behalf of tangata whenua in the preparation of regional policy statements, and plans, by undertaking effective consultation with tangata whenua; with such consultation to be early, meaningful, and as far as practicable in accordance with tikanga Māori;

(c) with the consent of tangata whenua and as far as practicable in accordance with tikanga Māori, incorporate mātauranga Māori1 in regional policy statements, in plans, and in the consideration of applications for resource consents, notices of requirement for designation and private plan changes;

(d) provide opportunities in appropriate circumstances for Māori involvement in decision making, for example when a consent application or notice of requirement is dealing with cultural localities or issues of cultural significance, and Māori experts, including pūkenga2, may have knowledge not otherwise available;

(e) take into account any relevant iwi resource management plan and any other relevant planning document recognised by the appropriate iwi authority or hapū and lodged with the council, to the extent that its content has a bearing on resource management issues in the region or district; and

  (i) where appropriate incorporate references to, or material from, iwi resource management plans in regional policy statements and in plans; and

  (ii) consider providing practical assistance to iwi or hapū who have indicated a wish to develop iwi resource management plans;

(f) provide for opportunities for tangata whenua to exercise kaitiakitanga over waters, forests, lands, and fisheries in the coastal environment through such measures as:

  (i) bringing cultural understanding to monitoring of natural resources;

  (ii) providing appropriate methods for the management, maintenance and protection of the taonga of tangata whenua;

  (iii) having regard to regulations, rules or bylaws relating to ensuring sustainability of fisheries resources such as taiāpure, mahinga mātaitai or other non commercial Māori customary fishing; and

(g) in consultation and collaboration with tangata whenua, working as far as practicable in accordance with tikanga Māori, and recognising that tangata whenua have the right to choose not to identify places or values of historic, cultural or spiritual significance or special value:

  (i) recognise the importance of Māori cultural and heritage values through such methods as historic heritage, landscape and cultural impact assessments; and

  (ii) provide for the identification, assessment, protection and management of areas or sites of significance or special value to Māori, including by historic analysis and archaeological survey and the development of methods such as alert layers and predictive methodologies for identifying areas of high potential for undiscovered Māori heritage, for example coastal pā or fishing villages.

Policy 3 Precautionary approach

(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.

(2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that:

(a) avoidable social and economic loss and harm to communities does not occur;

(b) natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and

(c) the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations.

Policy 4 Integration

Provide for the integrated management of natural and physical resources in the coastal environment, and activities that affect the coastal environment. This requires:

(a) co-ordinated management or control of activities within the coastal environment, and which could cross administrative boundaries, particularly:

(i) the local authority boundary between the coastal marine area and land;

(ii) local authority boundaries within the coastal environment, both within the coastal marine area and on land; and

(iii) where hapū or iwi boundaries or rohe cross local authority boundaries;

(b) working collaboratively with other bodies and agencies with responsibilities and functions relevant to resource management, such as where land or waters are held or managed for conservation purposes; and

(c) particular consideration of situations where:

(i) subdivision, use, or development and its effects above or below the line of mean high water springs will require, or is likely to result in, associated use or development that crosses the line of mean high water springs; or

(ii) public use and enjoyment of public space in the coastal environment is affected, or is likely to be affected; or

(iii) development or land management practices may be affected by physical changes to the coastal environment or potential inundation from coastal hazards, including as a result of climate change; or

(iv) land use activities affect, or are likely to affect, water quality in the coastal environment and marine ecosystems through increasing sedimentation; or

(v) significant adverse cumulative effects are occurring, or can be anticipated.

Policy 23 Discharge of contaminants

(1) In managing discharges to water in the coastal environment, have particular regard to:

(a) the sensitivity of the receiving environment;

(b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded;

and

(c) the capacity of the receiving environment to assimilate the contaminants;

and:

(d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;

(e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and

(f) minimise adverse effects on the life-supporting capacity of water within a mixing zone.

(2) In managing discharge of human sewage, do not allow:

(a) discharge of human sewage directly to water in the coastal environment without treatment; and

(b) the discharge of treated human sewage to water in the coastal environment, unless:

(i) there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge; and

(ii) informed by an understanding of tangata whenua values and the effects on them.

(3) Objectives, policies and rules in plans which provide for the discharge of treated human sewage into waters of the coastal environment must have been subject to early and meaningful consultation with tangata whenua.

(4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:

(a) avoiding where practicable and otherwise remedying cross contamination of sewage and stormwater systems;

(b) reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities;

(c) promoting integrated management of catchments and stormwater networks; and

(d) promoting design options that reduce flows to stormwater reticulation systems at source.

(5) In managing discharges from ports and other marine facilities:

(a) require operators of ports and other marine facilities to take all practicable steps to avoid contamination of coastal waters, substrate, ecosystems and habitats that is more than minor;

(b) require that the disturbance or relocation of contaminated seabed material, other than by the movement of vessels, and the dumping or storage of dredged material does not result in significant adverse effects on water quality or the seabed, substrate, ecosystems or habitats;

(c) require operators of ports, marinas and other relevant marine facilities to provide for the collection of sewage and waste from vessels, and for residues from vessel maintenance to be safely contained and disposed of; and

(d) consider the need for facilities for the collection of sewage and other wastes for recreational and commercial boating.

Policy 25 Subdivision, use, and development in areas of coastal hazard risk

In areas potentially affected by coastal hazards over at least the next 100 years:

(a) avoid increasing the risk10 of social, environmental and economic harm from coastal hazards;

(b) avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;

(c) encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;

(d) encourage the location of infrastructure away from areas of hazard risk where practicable;

(e) discourage hard protection structures and promote the use of alternatives to them, including natural defences; and

(f) consider the potential effects of tsunami and how to avoid or mitigate them.

National Policy Statement for Freshwater Management 2020

2.1 Objective

(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Policy 5: Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.

Policy 13: The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.

Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.

Tasman Regional Policy Statement

General Objective 4: Efficient use and development of resources.

General Objective 5: Maintenance of economic and social opportunities to use and develop resources in a sustainable manner.

General Objective 7: Recognition and protection of significant traditional interests of the tangata whenua in relation to land, water, the coast and other taonga Maori.

Objective 10.4: Minimised risks of contamination of the environment arising from the storage, treatment or disposal of all forms of waste.

Policy 10.8: The Council will seek to minimise the generation of all forms of wastes, particularly hazardous wastes.

Nelson Regional Policy Statement

Policy TW1.5.10: To recognise the tangata whenua are kaitiaki of the coastal environment. (Reference: Principle 9 of the New Zealand Coastal Policy Statement)

Tasman Regional Management Plan

Objective 6.3.2.1: Sustainable urban growth that is consistent with the capacity of services and has access to the necessary infrastructure such as water supply, roading, wastewater and stormwater systems.

Policy 6.3.3.1: To ensure that utilities and services are adequate to avoid, remedy, or mitigate adverse effects of urban development and population growth on both existing and future urban areas.

Policy 33.1.3.16 (1) When considering any application for a discharge, the consent authority must have regard to the following matters:

(a) the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and

(b) the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.

Policy 33.1.3.16 (2) When considering any application for a discharge, the consent authority must have regards to the following matters:

(a) the extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their contact with fresh water; and

(b) the extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their contact with fresh water resulting from the discharge would be avoided.

Policy 33.1.3.13 To promote and encourage discharge of wastes to land or constructed wetlands in preference to discharge to water where:

(a) discharge to land or constructed wetlands has less actual or potential adverse environmental effects than discharge to water;

(b) land disposal system design and operation is such that adverse effects on the environment, including soil and surface and groundwater quality are avoided, remedied or mitigated; and

(c) the discharge to land is the best practicable option.

21.5.2 Objective: Maintenance of the cultural heritage values of items, sites or areas in the coastal marine area, including taonga of the tangata whenua.

Policy 8.2.3.21: To protect historic and cultural sites in riparian margins and the coastal environment.

Ngāti Tama ki Te Waipounamu Trust Environmental Management Plan 2018

12.4 Wastewater Management

12.4.1 Aspirations

Ngāti Tama sit at the decision-making table to ensure cultural values are protected in the management of wastewater across the rohe

- Ngāti Tama participate in decision making to ensure cultural values are protected in the management of waterwater infrastructure across the rohe
- active protection of Ngāti Tama wāhi tapu and resource gathering areas from wastewater contamination and degradation;
- areas where wastewater is treated and disposed of are:
    - maintained or enhanced to protect the mauri of surrounding wāhi taonga;
    - actively rehabilitated/restored in order to give something back to the environment; and
    - develop and implement cultural health indicators to collect date and inform the management of areas.

12.4.2 Issues

- physical and spiritual degradation of wai as a result of wastewater entering waterways and contaminating kaimoana beds and coastal fisheries downstream;
- location of wastewater treatment facilities adjacent to waterways and coastal areas – culturally significant localities which are highly productive and greatly valued for gathering resources;
- storm water run-off from roads or industrial sites contaminating water and soils;
- poorly designed or operating effluent and sludge disposal schemes; and
- over-saturation of the soil from discharges to land resulting in wastewater entering waterways.

12.4.3 Actions

a. Ngāti Tama participate at highest level of decision making and management including pre-hearing meetings, site visits, development of consent conditions and monitoring requirements.

b. Require CIA report and cultural health monitoring systems

c. Require soil risk assessments (type and percolation of the soils) prior to consent for discharge to land, to assess the suitability of the receiving environment and buffer zones (as a precautionary measure to prevent wastewater entering wai).

d. Stipulate a five year review of wastewater disposal operations, to provide the opportunity for consent holders to consider the implementation of technological improvements.

e. Require that large scale wastewater disposal operations (for example, town sewage schemes) develop environmental plans as a condition of the consent. These plans will include contingency measures to cope with faults, breakdowns, natural disasters or extreme weather events.

f. Ensure that any discharge activity includes a robust monitoring programme, including regular monitoring of discharges and the effects of operations on the receiving environment.

g. Advocate for wastewater infrastructure to be located away from waterways and coastal environments, where they pose a threat to water quality and impact on cultural values.

12.4.4 Indicators – Number of:

√ discharge or point source discharges, which are moved or located away from wai environments or land which is unsuitable as a receiving environment for contaminants;

√ innovative and culturally sustainable approaches implemented for treating and disposing if wastewater; and

√ wetlands established to improve discharges to land, allowing Papatūānuku the opportunity to filter and clean any impurities.

√ number of environmental projects that provide a positive net benefit to the environment

Moturoa / Rabbit Island Reserve Management Plan

Section 4.2

Objective 2: To ensure appropriate best management practice is used in all aspects of the application of biosolids to forest plantation areas on Moturoa/Rabbit Island.

Objective 3: To recognise the benefits of applying biosolids to forest plantation areas on Motura/Rabbit Island as a fertiliser, while balancing this with the need to protect cultural and ecological values and avoid conflicts with people undertaking recreational activities on the Island (particularly in areas classified as Recreation Reserve).

Policy 3: Exclusion areas, where no application of biosolids is permitted, should include:

a) Rough Island, Bird Island and all areas classified as Recreation Reserve on Moturoa/Rabbit Island;

b) the harakeke/flax swamp near the northern coast of Moturoa/Rabbit Island;

c) māhinga kai areas;

d) sites of archaeological significance (i.e. areas of land where recorded archaeological sites, wāhi tapu, kōiwi or other taonga are located);

e) areas identified as significant native habitats (see Figure 4 of this Plan);

f) the eastern tip of Moturoa/Rabbit Island (area east of Corder Road);

g) the coastal margin and waterways;

h) land subject to tidal inundation (taking sea level rise into account);

i) any areas where heavy metal concentrations exceed acceptable standards; and

j) any other areas identified by resource consent conditions.

Policy 4: Buffer zones should provide an adequate setback from sensitive cultural and ecological sites, the coastline and waterways (including the Traverse, tributaries and estuarine areas) and recreational activities that take place on the Islands.

Appendix B – Updated Conditions

Explanation:

The "Condition" column contains the conditions from Appendix Q of the AEE with key updates and amendments suggested by the Council officer shown as underlined.

Further updates and amendments by Daniel Murray are shown as shaded text. Additions are shown underlined and deletions as ~~strikethrough~~. Comments and reasons for the updates are provided in the adjacent column.

Resource consents

RM200638 Discharge permit to discharge biosolids to land

RM200639 Discharge permit to discharge contaminants to air from application of biosolids to land

RM200640 Land use consent to operate and maintain the Biosolids Acceptance Facility, and associated activities for the application of biosolids to land.

RM200641 Discharge permit to discharge washdown water and stormwater to land from the Biosolids Acceptance Facility.

Ref	Condition	Comment / reasons (where applicable)
General		
(1)	The Consent Holder shall ensure that the activities authorised by these consents are undertaken in general accordance with the information provided with the application entitled "Moturoa / Rabbit Island Biosolids Reconsenting" prepared by Tonkin + Taylor dated August 2020. In the event there is any conflict between this application and any conditions of these consents, the conditions shall prevail.	
(2)	The Consent Holder shall ensure all persons with responsibilities under these resource consents are provided a copy of the resource consents, and the Biosolids Management Plan in condition 11, and made aware of their responsibilities under these documents. For the avoidance of doubt those persons shall include the Moturoa / Rabbit Island forestry operator and the biosolids application contractor and the Operations and Maintenance contractor for the Bell Island Wastewater Treatment Plant.	
(3)	The term of resource consents RM200638, RM200639 and RM200640 is 35 years.	Accepted.
(4)	The term of resource consent RM200641 is 5 years.	Accepted.
(4A)	Land use consent RM200640 is personal to the consent holder rather than attaching to the land.	Accepted.

Ref	Condition	Comment / reasons (where applicable)
(5)	The Council may, in accordance with section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of these consents annually between 1 November and 1 December for either of the following purposes: (a) To deal with any adverse effect on the environment arising from the exercise of these consents which was not foreseen at the time the application was considered and which is appropriate to deal with at the time of review; or (b) To require the Consent Holder to adopt the best practicable option to remove or reduce any adverse effect on the environment resulting from the exercise of these consents. *Advice note: The Council may, in accordance with section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of these consents:* *(a) To enable standards set by a new rule(s) in any regional plan that has been made operative since the granting of these consents to be met;* *(b) When relevant national environmental standards have been made; or* *(c) If the information made available to the consent authority by the Consent Holder for the purposes of the application contained inaccuracies which materially influenced the decision on the application and the effects of the exercise of the consent(s) are such that it is necessary to apply more appropriate conditions.*	
(6)	In the conditions of these consents, "Biosolids Guidelines" means the *Guidelines For The Safe Application Of Biosolids To Land In New Zealand (August 2003)*, published by the New Zealand Water & Wastes Association ~~(or subsequent version)~~.	Not accepted. Binding the Consent Holder to a future and yet unknown version of the Biosolids Guidelines carries significant compliance uncertainties, especially if the guidelines become more onerous. The current proposal and this condition set, which is predicated on the 2003 standards, have been shown to appropriately avoid, remedy and mitigate adverse effects on the environment. Furthermore, the MTRR condition (Condition 9) requires a 6-yearly assessment against the Biosolids Guidelines including any subsequent update, the outcome of which could be used to inform any changes to the authorised activities.
Annual Hui		
(7)	During the month of November each year, the Consent Holder shall arrange a hui for Te Tau Ihu iwi. For the avoidance of doubt this hui may be combined with any hui required under the resource consents for the Bell Island Wastewater Treatment Plant. Notification of the hui shall be via the Consent Holder's website and by	Accepted, but this is already partly covered in the condition preamble and is not suited as a

Ref	Condition	Comment / reasons (where applicable)
	email or mailed notice to each iwi representative at least four weeks before the hui. Minutes of the annual hui will be distributed to all parties, and the Council's Team Leader Monitoring and Enforcement, within four weeks of the date of the hui. The purpose of the hui shall include but is not limited to the following: (a) The Consent Holder recognising the role of tangata whenua as kaitiaki and seeking to understand ongoing cultural considerations in relation to the activities subject to these consents; (b) The Consent Holder providing an opportunity for Te Tau Ihu iwi to view the activities subject to these consents including an opportunity to assess sites of cultural significance and confirm that identified archaeological sites are adequately protected; (c) The Consent Holder seeking input from Te Tau Ihu iwi into potential works or measures that could be undertaken on Moturoa / Rabbit Island to maintain the natural character and ecological values of Moturoa / Rabbit Island and protect the Mauri of the Waimea Inlet insofar as it relates to the activities subject to these consents. ~~(d) Minutes of this hui will be distributed to all parties within four weeks of the date of the hui and supplied to the Council's Team Leader Monitoring and Enforcement.~~ *Advice note: The notification requirements in this condition will be complied with if the Consent Holder gives four weeks of notice to* each *iwi representative in accordance with contact details maintained by Tasman District Council.*	sub-clause as it is not a purpose of the hui. Modifications suggested accordingly.
Annual Report		
(8)	The Consent Holder shall submit an Annual Report and provide it to the Council's Team Leader Monitoring and Enforcement by 31 October of each year. The Report shall cover the period from 1 July to 30 June and include, but not necessarily be limited to, the following: (a) Collation, analysis, and interpretation of the monitoring results required by the conditions of these consents. This assessment shall include an analysis of the past five years' monitoring data and identification of any trends in the results; ~~(b) Copies of any records required by any condition(s) of these consents;~~ (c) Summary of any non-compliances with the conditions of these consents and any the adequacy and scope of such monitoring and any actions arising; (d) A summary of complaints, if any, received by the Consent Holder and any measures taken in response to those complaints; (e) Details of the date of the hui as required by Condition 5 above, numbers in attendance, and a summary of matters discussed and any actions arising; and (f) The record of results from all odour monitoring patrols undertaken in accordance with Condition 26 over the previous year.	It is not entirely clear what purpose clause (b) provides in the annual report process over and above the other clauses (particularly (a)). Should "records" be referring to the raw monitoring data then this is not accepted based on being extensive and onerous to collate and present on an annual basis. I suggest that provision of the data on an "on request" basis is more appropriate and as such have drafted a new condition 8A.

Ref	Condition	Comment / reasons (where applicable)
8A	On request of the Council's Team Leader Monitoring and Enforcement, the Consent Holder shall provide copies of any raw monitoring data or records required by any conditions of these consents. This information shall be provided within two months of the request.	New condition as suggested under Condition 8 above.
6-Yearly Monitoring and Technology Review Report		
(9)	The Consent Holder shall submit a Monitoring and Technology Review Report (MTRR) to the Council's Team Leader Monitoring and Enforcement by 1 March ~~2026~~ 2027 and thereafter at six-yearly intervals throughout the term of these consents. For the avoidance of doubt this report may be combined with the MTRR required under the resource consents for the Bell Island Wastewater Treatment Plant. The MTRR shall be prepared by a suitably qualified and experienced person(s) and shall include the following: (a) Forecast of biosolids quality and quantity throughout the remainder of the consent term as a result of potential future changes to wastewater inputs and/or the wastewater treatment process at the Bell Island Wastewater Treatment Plant; (b) An assessment of the implications of climate change (reasonably foreseeable within the term of these consents) on the ~~application of biosolids at Moturoa / Rabbit Island~~ activities authorised by these resource consents including any future actions which may be required to avoid, remedy or mitigate any adverse effects of those activities which arise due to climate change; (c) An assessment of the ability of the activities subject to these consents to continue complying with the conditions of these consents for the remainder of the consent term, particularly in relation to: (i) The assessment in (a) and (b) above; (ii) Monitoring or other relevant data gathered under these resource consents; (ii) Any reported non-compliance with consent conditions in the prior reporting period; (d) An assessment against the Biosolids Guidelines including any subsequent update; (e) A summary of significant technological changes and advances in relation to biosolids production, treatment, application and end use that could be of relevance to the activities authorised by these consents; and (f) A general assessment of whether any newly available technology option(s) or combination of options identified through (e) above is likely to represent the Best Practicable Option (BPO) to minimise the potential and actual adverse effects of biosolids application on Moturoa / Rabbit Island. ~~*Advice note: The reporting dates in this condition align with the conditions imposed on the Bell Island Wastewater Treatment Plant resource consents and the three-yearly Long-Term Plan cycle and will be carried out under the consultative procedures of, and approved budgets under the Local Government Act 2002.*~~	The originally suggested date of 1 March 2026 for the first MTRR report was assumed to be approximately 5 years into consent commencement and tied to the reporting dates for the Bell Island WWTP consents and the Long-Term Plan cycle. However, given the time elapsed since lodgement, a one-year adjustment is requested to the date of the first MTRR report. Note that NRSBU may still choose to prepare the report earlier. The advice note becomes redundant and I suggest it is deleted. A modification is proposed to clause (b) to address climate change issues raised in conditions 31A, 31B, and 32 – please refer to those conditions for further explanation.
(9A)	~~The six-yearly reviews available to the general public by making them available on a public website (NRSBU or subsequent organisation)~~ The Consent Holder shall make available to the public via a website any MTRR produced under Condition 9.	Accepted but replaced with an alternative for increased clarity and certainty.

Ref	Condition	Comment / reasons (where applicable)
(10)	The Consent Holder shall consider the assessment completed in Condition 9(f) and advise the Consent Authority whether it intends to adopt any option(s) or incorporate such technologies as BPO.	
(10A)	The equipment required by these consents shall be maintained in a good and sound condition, and any repairs that are necessary shall be made as soon as reasonably practicable.	Accepted.
Biosolids Management Plan		
(11)	A Biosolids Management Plan shall be maintained and reviewed annually and include details of: (a) Roles and responsibilities of organisations and staff responsible for the activities subject to these consents, including the chain of command; (b) Procedures to be followed to ensure all relevant conditions under these consents are fully complied with, including independent sections to address: (i) Biosolids application limits; (ii) Exclusion zones and buffer areas; (iii) Odour management and minimisation, including: 1. A detailed description of the activities that may give rise to odour emissions, including discussion of the individual processes, equipment or plant elements and their function; 2. On-site odour monitoring requirements; and 3. Contingency measures to deal with plant malfunctions and maintenance requirements. (iv) Health and safety of the biosolids application contractor and the general public accessing Moturoa / Rabbit Island; (v) Monitoring required under these resource consents; and (vi) Complaints. (c) How records will be kept including time of application, weather conditions, quantities applied, location of application, any other operational parameters; (d) Areas to be used for biosolids application in the following year; (e) Incident and accident response procedures, including in relation to equipment failures and accidental spillage of biosolids; and (f) Methodology for annual review of the plan.	
(12)	A copy of the Biosolids Management Plan in Condition 11 shall be made available to the Council's Team Leader Monitoring and Enforcement upon request.	
Complaints and Notifications		
(13)	The Consent Holder shall maintain a Complaints Register for the purpose of recording and dealing with any complaints that are received by the consent holder in relation to the exercise of these resource consents. All complaints received by the Consent Holder in relation to the activities authorised by these consents shall be logged immediately in the Complaints Register. The Complaints Register shall record:	

Ref	Condition	Comment / reasons (where applicable)
	(a) The date, time, location, duration, and nature of the alleged event/incident; (b) Name, phone number and address of the complainant unless the complainant wishes to remain anonymous; (c) Any remedial action taken by the Consent Holder in response to the complaint and when it was undertaken; (d) The possible cause of the relevant event/ incident that led to the complaint; (e) The weather conditions at the time of the relevant event/ incident including estimates of wind direction, wind strength, temperature and cloud cover; and (f) The date and name of the person making the entry.	
(14)	Details of any complaints received that may indicate non-compliance with the conditions of these consents shall be provided to the Council's Team Leader Monitoring and Enforcement ~~within 24 hours~~ by the next working day following ~~of~~ receipt of the complaint by the Consent Holder. ~~or on the next working day. All complaints shall be included in the Annual Report required by condition 8.~~	The originally volunteered condition suggested a 48 hour window to provide complaints to allow some leniency and flexibility given the different agencies potentially involved in complaint receipt (TDC, NM Waste, NRSBU) and due to some complaints potentially falling on weekends and public holidays. After reconsideration, a one working day window following receipt by the Consent Holder is considered appropriate. Condition 8 (annual plan) already requires a summary of complaints to be provided so the last sentence is considered unnecessary.
Biosolids Volume and Quality		
(15)	The daily volume of biosolids transferred between the Bell Island Wastewater Treatment Plant and Moturoa / Rabbit Island shall be recorded. (a) For this purpose a flowmeter of an accuracy to within ±5% shall be maintained between the pumps at the Bell Island Wastewater Treatment Plant and the Biosolids Application Facility on Moturoa / Rabbit Island. (b) This flow meter shall be calibrated every five years by an appropriately qualified and experienced person and calibration shall be supplied to the Council's Team Leader Monitoring and Enforcement.	New clause (b) accepted.
(16)	(a) Material being processed to biosolids shall be held at 50°C or higher for a minimum duration as determined by the following equation: Minimum duration = 50,070,000 / 10^(0.14t) where t is temperature in °C and is greater than 50°C; and (b) A continuous record of the temperature of material being processed to biosolids shall be made and recorded for the duration of the consent and plotted on a continuous record to enable compliance to be readily visible.	

Ref	Condition	Comment / reasons (where applicable)
(17)	(a) At no less than weekly intervals a grab sample of biosolids shall be analysed for E. coli and volatile solids reduction; (b) If a sample in clause (a) fails to meet the Biosolids Guidelines requirements for E. coli and volatile solids reduction, the Consent Holder shall increase sampling to no less than 7 samples per month over a three-month period and samples shall be analysed for E. coli, Campylobacter, Salmonella, enteric viruses and helminth ova; (c) If clause (b) applies and there are ~~three or~~ more than three non-complying samples in the three-month period then the Consent Holder shall report this to the Council's Team Leader Monitoring and Enforcement in writing within five working days of gaining the lab results of the third sample; this reporting shall include what actions the Consent Holder will be undertaking to ensure the Biosolids Guidelines requirements for E. coli and volatile solids reduction are met as soon as reasonably practicable; and (d) If clause (b) applies, once there are less than three non-compliances in any three-month period against the limits specified in the Biosolids Guidelines, sampling may return to that specified under clause (a).	A new clause (c) is suggested as per the comments on condition 17A below. The number of non-complying samples is revised from "three or more" to "more than three". This change is explained and supported in the evidence of Dr Nick Berry and is consistent with the Biosolids Guidelines.
~~(17A)~~	~~If there are three or more non-complying samples in the three-month period then the Consent Holder shall report it to the Council's Team Leader Monitoring and Enforcement in writing within five working days of gaining the lab results of the third sample. This reporting shall include what actions the Consent Holder will be undertaking to ensure material is being adequately treated.~~	Generally accepted, however, for clarity it is suggested this condition be integrated into condition 17. The phrasing "ensure material is being adequately treated" is uncertain and instead a reference back to the Biosolids Guidelines is suggested.
(18)	(a) At three-monthly intervals the biosolids shall be measured, on a mg/kg dry weight basis, for the following metals/metalloids: arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc. (b) If the concentrations exceed the grade b maximum concentration limits in the Biosolids Guidelines, weekly sampling should be implemented to demonstrate that the biosolids contaminant grade is appropriate for application to land. (c) If clause (b) applies and there are more than six consecutive weekly samples that exceed grade b then the Consent Holder shall report this to the Council's Team Leader Monitoring and Enforcement in writing with five working days of gaining the lab results of the sixth sample; this reporting shall include what actions the Consent Holder will be undertaking to ensure Grade b maximum concentration limits in the Biosolids Guidelines are met as soon as reasonably practicable; and (d) If clause (b) applies, once there are four consecutive samples below the grade b maximum concentration limits in the Biosolids Guidelines, sampling may return to that specified under clause (a).	A new clause (c) is suggested as per the comments on condition 18A below.
~~(18A)~~	~~If there are more than six consecutive weekly samples that exceed grade b then the Consent Holder shall report it to the Council's Team Leader Monitoring and Enforcement in writing with five working days of gaining the lab results of the sixth sample. This reporting shall include what actions the Consent Holder will be undertaking to ensure the adverse effects are avoided.~~	Generally accepted, however, for clarity it is suggested this condition be integrated into condition 18. The phrasing "ensure the adverse effects are avoided" assumes such effects are

Ref	Condition	Comment / reasons (where applicable)
		occurring, which may not be the case. As with Condition 17A it is suggested a reference back to the Biosolids Guidelines is more appropriate.
(19)	Each year, a composite sample shall be monitored for the following organic compounds: Total polychlorinated biphenyls (PCBs); nonyl phenol and ethoxylates (NP/NPE); phthalate (DEHP); linear alkydbenzene sulphonates (LAS); Tonalide and Galaxolid.	
Biosolids Application Limits		
(20)	Biosolids shall be applied at an average depth of no greater than 40mm per application. Advice note 40 mm per application is equal to 40 l/m^2.	Accepted.
(21)	Biosolids shall not be applied: (a) Within 24 hrs of a 10 mm rainfall event occurring in a 24 hr period; or (b) If a rainfall event of more than 50mm is forecast within 24 hrs by a recognised meteorological forecasting service.	
(22)	Biosolids application to any given forestry block shall be limited to the following: (a) During the time period from the last prior-to-harvest biosolid application to 12 years after replanting, biosolids shall be discharged at an average rate of no more than 150 kilograms of nitrogen per hectare per year, calculated using a three year rolling average, and no single discharge shall exceed 450 kilograms nitrogen per hectare per application year. (b) During the time period from 12 years following replanting to the last prior-to-harvest biosolid application, biosolids shall be discharged at an average rate of no more than 100 kilograms of nitrogen per hectare per year, calculated using a three year rolling average, and no single discharge shall exceed 300 kilograms nitrogen per hectare per application year. (c) No more than one application of biosolids shall occur to any given forestry block during the period following harvest and prior to replanting.	
Exclusion Zones and Buffer Areas		
(23)	No biosolids shall be applied at any time in the exclusion zones shown in Plan A attached to and forming part of these consents. ~~The Council may exclude such further areas from the biosolids consent area as are considered necessary should further areas of ecological significance be subsequently identified. Operations in such areas shall cease upon the Council's Team Leader Monitoring and Enforcement request to allow for further assessment and shall not continue without the agreement of the Council's Team Leader Monitoring and Enforcement.~~	Not accepted. These additions are void for certainty (if not *ultra vires*) as they give power to the consent authority to modify the exclusion zones at any time and which could have the effect of precluding the authorised activity occurring in compliance with other conditions of consent.

Ref	Condition	Comment / reasons (where applicable)
	~~Advice note~~ ~~With changes to sea level occurring, the location and species composition will migrate.~~	Furthermore, the term "areas of ecological significance" is not defined in this condition nor anywhere else in the conditions. The issues raised by the Council officer can instead conceivably be addressed by way of other established mechanisms, including: • The Rabbit Island Reserve Management Plan process, • The MTRR condition, or • The s128 review condition.
(24)	No biosolids shall be applied in the following buffer areas: (a) Around the entire coastal edge of Moturoa / Rabbit Island a buffer area of 50 metres inland from Mean High Water Springs; (b) From the outer edge of the plantation forest an inward buffer area of 15 metres; (c) Around the perimeter of the Moturoa / Rabbit Island "Old Domain Area"~~ the Recreation Reserve area located just behind the front beach on Moturoa/Rabbit Island~~ shown on Plan X attached to and forming part of these consents a buffer area of: (i) 30 metres during the months of April to October inclusive; and (ii) 100 metres in the months of November to March inclusive. ~~(d) Within 30 metres of a culturally sensitive site~~ ~~(e) 50 metres of publicly accessible areas~~ ~~(f) 30 metres areas of ecological significance including Wetlands~~	(a) – (b) accepted. (c) is accepted, however, a plan showing the 'Old Domain Area' is proposed to aid clarity and certainty. (d) not accepted. "Culturally sensitive site" is not defined and identified sites have already been excluded (and include appropriate buffering). (e) not accepted. The majority of the application area is "publicly accessible" (whether or not it is technically legal for the public to do so). The forest is regularly accessed by the public, including through the mountain bike track network, which the Consent Holder has no control over. The existing exclusion zones, buffer areas, signage requirements as set out in the BMP, and other conditions of consent are considered adequate to manage any effects on the public. (f) not accepted. The term "areas of ecological significance" is not defined in this condition nor anywhere else in the conditions. Significant

Ref	Condition	Comment / reasons (where applicable)
		Native Habitats are already excluded under Condition 23.
(24A)	The Consent Holder shall ensure there is no spray drift beyond the property boundary.	Accepted.
Cultural Health Index monitoring programme		
~~(24B)~~	~~(a) The Consent Holder shall, within 12 months of the commencement of this consent, and following consultation with iwi, submit to the Council's Team Leader Monitoring and Enforcement for approval a Cultural Indicators Monitoring Plan (CIMP), prepared in accordance with this condition. The Consent Holder shall include any comments from the iwi as part of the consultation, along with an explanation of where and why any comments have not been incorporated into the CIMP;~~ ~~(b) The purpose of the CIMP is to supplement the scientific information collected as part of this consent, by also monitoring various indicators of the cultural effects of the activities authorised by this consent ("Cultural Indicators") in order that the Consent Holder and the Council understand the cultural effects of the activities authorised by this consent, including how any cultural effects may change over time;~~ ~~(c) The Cultural Indicators referred to in this condition shall be capable of being objectively definedand assessed. They may include, but are not limited to, assessing changes in the characteristics of the estuary adjacent to Moturoa / Rabbit Island, the health of culturally significant flora and / or fauna that interact with the Waimea inlet and its environs;~~ ~~(d) The Consent Holder shall invite the Te Tau Ihu iwi to assist in the implementation of the CIMP;~~ ~~(e) The Consent Holder shall implement the CIMP developed in accordance with this condition.~~ ~~(f) Except where (g) below applies, the timing and reporting of the CIMP shall be aligned with the annual hui.~~ ~~(g) The reporting associated with the CIMP shall be provided to the Te Tau Ihu iwi in draft form, not less than four weeks prior to it being submitted to the Council. Final reporting to the Council shall incorporate any feedback received from the Te Tau Ihu iwi (including identifying and explaining any matters of disagreement) and be provided to the Council at the same times as other monitoring results are provided for the annual monitoring plan.~~	Not accepted as outlined in my evidence. By way of summary: • It will be difficult to meaningfully differentiate the cultural effects arising from the biosolids activity from the cultural effects of all other activities occurring in the receiving environment. • The applicant could become responsible and liable for implementation of the CHI by a third party, which is not consistent with good practice if not ultra vires.
Odour		
(25)	There shall be no discharges to air from the biosolids application activity or the BAF that results in an adverse effect that is offensive or objectionable beyond the line of Mean High Water Springs around the perimeter of Moturoa / Rabbit Island, ~~and~~ ~~the public reserve on the front of Moturoa~~ or in the "Old Domain Area" shown on Plan X attached to and forming part of these consents. Advice note	Generally accepted, however, a plan showing the domain area is proposed to aid clarity and certainty (the same plan referred to in proposed updates to Condition 24 above). A new advice note is included as recommended in Chris Bender's evidence. The purpose of the

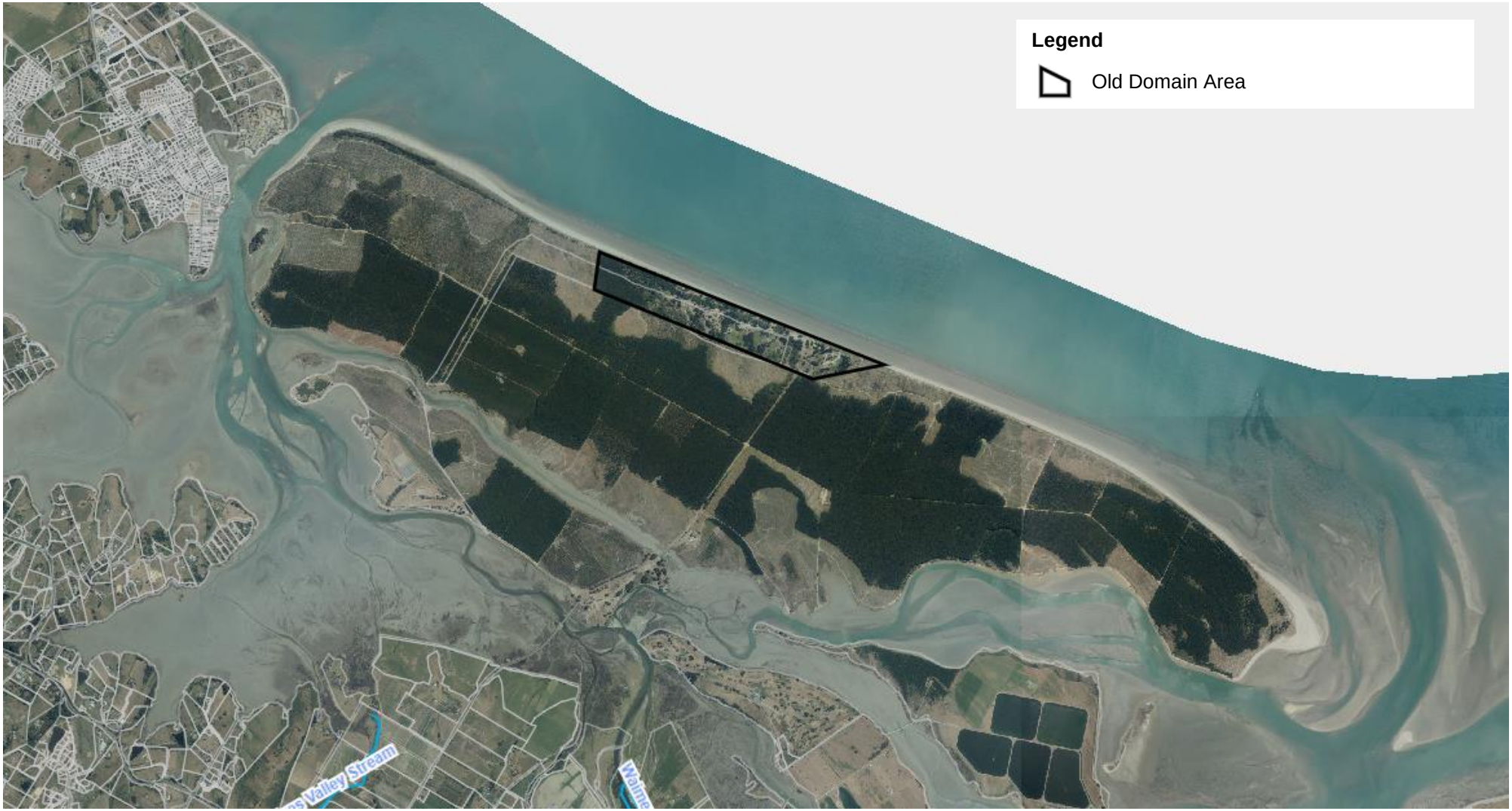
Ref	Condition	Comment / reasons (where applicable)
	Non-compliance with Condition 25 shall be determined by a suitably qualified person having regard to the Frequency, Intensity, Duration, Offensiveness and Location (i.e. the FIDOL factors) of the odour discharge and any previous validated odour complaints relating to the same site and the same activity.	advice note is to align the determination of 'offensive or objectionable' to the relevant industry assessment criteria – the FIDOL factors.
(26)	The Consent Holder shall appoint a suitable independent person to the role of odour patroller and shall comply with the following odour patrol protocol: (a) The odour patroller shall visit Moturoa / Rabbit Island at least once per month and record observations of odour at specified locations around the perimeter of the Island and on the shoreline of Best Island facing Moturoa / Rabbit Island and at any other position(s) that may be impacted by odour that could have an adverse effect beyond the line of Mean High Water Springs around the perimeter of Moturoa / Rabbit Island; (b) The odour patroller shall also undertake a visit to Moturoa / Rabbit Island in response to any odour complaint in circumstances where the initial investigation by the consent holder indicates that the reported odour event may have been caused by the biosolids application activity on Moturoa / Rabbit Island; (c) Odour patrols shall include the specified locations at which odour observations are made and the numerical scale of the offensive or objectionable nature of the odour which the odour patroller adopts to record the observations; (d) The Consent Holder shall inform the biosolids application contractor of the outcomes of the odour patrol and any necessary interventions or inputs shall be made to the application location or method to mitigate the odours observed; (e) In addition to the monthly odour patrols, the odour patroller may, at their discretion, visit Moturoa / Rabbit Island at any time to make observations of odour; this may, but will not necessarily be, in response to complaints received. (f) The Consent Holder shall provide the contact details of the odour patroller to Council's Team Leader Monitoring and Enforcement. If this odour patroller changes the contact details shall be updated with Council's Team Leader Monitoring and Enforcement. (g) The record of results from all odour monitoring patrols shall be retained and provided to the Council on request. ~~Advice note - see resource consent RM171255, condition 38.~~	The advice note, which refers to the Bell Island WWTP consents, does not appear to add any additional value to the implementation of these consents. Suggest deletion.
Groundwater		
(27)	The eleven existing shallow piezometers on Moturoa / Rabbit Island, as shown on Plan ~~XXXX~~ C attached to and forming part of these consents, shall be maintained and monitored as follows: (a) At three-month intervals groundwater levels shall be measured and recorded at all eleven piezometers. (b) At three-month intervals representative samples shall be taken from all eleven piezometers for pH, conductivity, nitrate-nitrogen, ammonium-nitrogen, phosphorus and chloride.	An updated plan is attached to these conditions.

Ref	Condition	Comment / reasons (where applicable)
	(c) At three-month intervals representative samples shall be taken from at least two piezometers for faecal indicator bacteria. (c) Each year a representative sample shall be taken from all eleven piezometers, filtered and analysed for the following heavy metals/metalloids; arsenic, cadmium, chromium, copper, lead, mercury, nickel, zinc, aluminium.	
(27A)	~~There shall be no discharge to water and the discharge shall not cause any of the following effects in the receiving water:~~ ~~(a) The production of any conspicuous oil or grease film, scums or foams, or floatable or suspended material;~~ ~~(b) Any conspicuous change of colour or visual clarity;~~ ~~(c) Any emission of objectionable odour; or~~ ~~(d) Any significant adverse effect on marine aquatic life.~~	Not accepted. A discharge to land in circumstances where it may enter water (groundwater) is the activity sought to be authorised, therefore the first part of the condition ("there shall be no discharge to water") precludes the activity applied for. If it was intended for this to refer to surface water only, there are no naturally occurring surface waters in the application area and other conditions manage application in circumstances which there may be temporary ponding after rainfall. The remainder of the condition appears to have been modelled off s107(1) of the RMA, which states that a consent authority shall not grant a discharge permit should these effects arise in the receiving waters after reasonable mixing (my emphasis). Putting aside that the reasonably mixing qualifier is missing from the condition, in my view the applicant has already demonstrated these effects will not arise in the receiving waters (subject to conditions). In that respect the inclusion of this condition is redundant.
Soil		
(28)	(a) At a minimum of three-yearly intervals, two soil samples shall be undertaken within the topsoil (0 to 20 cm) and subsoil (20 to 40 cm) layers every 10 ha in areas where biosolids have been applied. Samples from each soil layer shall be combined to form a composite sample. At each sample location, the GPS coordinates shall be recorded.	

Ref	Condition	Comment / reasons (where applicable)
	(b) Each composite sample shall be measured for pH, organic matter, total nitrogen, available phosphorous, potassium, calcium, magnesium, sodium and the following metals/metalloids: arsenic, cadmium, chromium, copper, lead, mercury, nickel and zinc; (c) Each composite sample shall not exceed the heavy metal maximum soil concentration limits recommended in the Biosolids Guidelines; (d) If a composite soil sample undertaken in accordance with the above subclauses exceeds the heavy metal maximum soil concentration limits recommended in the Biosolids Guidelines, then the Consent Holder shall: (i) prepare a report to investigate whether the exceedance(s) was as a result of natural influences, one off event, or in whole or part associated with the activities authorised by these consents; and (ii) comment on whether the exceedance measured is likely to continue; and (iii) recommend whether any further action needs to be taken by the Consent Holder. A copy of this report shall be provided to the Council's Team Leader Monitoring and Enforcement. *Advice note: For each 10ha area there shall be two composite samples. One composite sample for each of the topsoil and subsoil layers.*	
Coastal		
(29)	Every six years transect surveys along the foreshore shall be undertaken. The survey is to include sediment profile descriptions, sediment nutrient assessment, habitat classification, and benthic micro and macro algal cover. The transect locations shall be the same as those established under resource consent NN940379V3.	
(30)	(a) Visual checks along the Moturoa / Rabbit Island foreshore within Waimea Inlet shall be undertaken by a suitably qualified person at three-yearly intervals for the duration of this consent. Photographic records shall be taken at each inspection. (b) Should this visual inspection indicate any adverse effects on the foreshore, further analysis and tests are to be undertaken at the discretion of the Council's Team Leader Monitoring and Enforcement.	
Biosolids Application Facility		
(31)	Within 5 years of commencement of these consents, all stormwater and washdown water at the Biosolids Application Facility shall be captured and discharged to the BAF holding tanks.	
~~Climate change~~		
~~(31A)~~	~~The Consent Holder shall prepare a climate change adaptation plan and to implement measures which anticipate and adapt to future climate change before it causes adverse environmental impacts, through the establishment of trigger points for preventative actions.~~	Not accepted. The concerns raised by both submitters and the Council officer regarding climate change are

Ref	Condition	Comment / reasons (where applicable)
~~(31B)~~	~~In the event that the progress of sea level rise causes the 50 metre buffer width to be reasonably foreseen to be inadequate to prevent contaminants and nutrients reaching the Inlet in those places, especially with regard to occasional high tide storms, the width of the coastal buffer area shall be increased in specific places, within three months after each six-yearly review, in consultation with the Council's Team Leader Monitoring and Enforcement.~~	acknowledged, however, it is considered the MTRR condition already adequately addresses the matters raised by Condition 31A. Further edits are proposed to the MTRR condition (as covered above) to specifically require the Consent Holder to identify and report any actions arising. As outlined further in my evidence, Condition 31B would be challenging to implement. How would the increased buffer be mutually agreed, and if not agreed, how would disputes be resolved? Condition 32 appears to be similar to proposed condition 23 above (which uses the different term "areas of ecological significance"), and for the same reasons, I do not support its inclusion.
~~(32)~~	~~In the event that natural regeneration, migration of natural vegetation, and / or reestablishment of native cover show that the migration of the inland boundaries of any of the significant native habitats will encroach into mapped buffer areas before the end of the term of the consent. The significant native habitats shall be remapped and buffers altered.~~	
~~(33)~~	~~Accidental discovery ?? but no earthworks are proposed ?~~	Not accepted as outlined in my evidence (the proposed activities do not involve ground disturbance or earthworks).

Appendix C – Old Domain Area



Appendix D – Bore Locations and Transects