Nelson City Council
te kaunihera o whakatū

OPEN

MINUTE ITEM ATTACHMENTS

Ordinary meeting of the

Nelson Regional Sewerage Business Unit

Friday 6 March 2020
Commencing at 1.00p.m.
Rūma Waimārama

Floor 2A, Civic House

110 Trafalgar Street, Nelson

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RESOURCE CONSENT DECISION

Decision of the Hearing Commissioners

Hearing held at the Beachside Event Centre, 70 Beach Road, Tahunanui, Nelson
Monday 11 November – Wednesday 13 November 2019
Site visit 12 November 2019
Hearing closed on 31 January 2020

This is the report and decision of independent Hearing Commissioners Ms Sharon McGarry, Dr Ngaire Phillips and Mr John Iseli. We were appointed by the Tasman District Council (**TDC** or 'the Council') to hear and determine an application lodged by the Nelson Regional Sewerage Business Unit, for resource consents associated with the operation of the Bell Island Wastewater Treatment Plant (**WWTP**). The resource consents sought are ancillary to operation of the WWTP and the oxidation ponds which is a permitted activity under the Tasman Resources Management Plan (**TRMP**). The applications, made in accordance with the Resource Management Act 1991 (**RMA** or 'the Act'), were lodged with the Council on 6 November 2017.

Attendances

APPLICANT:	Ms Katherine Forward (Counsel, Duncan Cotterill) Mr Donald Clifford (Acting General Manager, NRSBU) Dr Donald Morrissey (Senior Coastal Scientist, Cawthron) Dr Neale Hudson (Environmental Chemist and Manager – Freshwater and Estuaries, NIWA) Mr Jim Bradley (Technical Specialist - Wastewater and Public Health Engineer, Stantec) Ms Kirsten Norquay (Senior Process Engineer, Stantec) Dr Paul Heveldt (National Environmental Science Specialist, Stantec) Mr Grant Russel (Principal Environmental Consultant, Stantec)
SUBMITTERS:	Te Ātiawa Manawhenua Ki Te Tau Ihu Trust ('Te Ātiawa) - Ms Sylvie Heard (Kaitiakitanga Planner) - Mr Daren Horne (Kaitiaki and Cultural Adviser) Mr Mark Quinn
REPORTING OFFICER:	Mr Leif Pigott (Team Leader - Natural Resources Consents, TDC) Mr Alastair Jewell (Hearing Facilitator and Principal Planner, TDC)

1 Summary

[1] Under delegated authority of the Tasman District Council, we **GRANT** the following resource consents:

- Coastal Permit RM1238 – To discharge treated wastewater into the Waimea Inlet;
- Discharge Permit RM171255 – To discharge contaminants (primarily odour) into air;
- Discharge Permit RM171256 – To discharge treated wastewater to land via irrigation;
- Discharge Permit RM171257 – To discharge treated wastewater onto land via seepage from the clay-lined facilities (ponds); and
- Coastal Permit RM172558 – To occupy the coastal marine area (Waimea Inlet) and to use and maintain an existing pipe and diffuser outlet structure.

2 Procedural Matters

[2] The hearing of these applications commenced at 1pm on Monday 11 November 2019. Evidence was heard over the course of three days and the hearing was adjourned at 4pm on Wednesday 13 November 2019. The hearing was held at the Beachside Event Centre, Tahunanui, Nelson.

[3] We undertook a site visit on the morning of Tuesday 12 November 2019 at low tide to enable access to Bell Island. We also visited Best Island.

[4] Prior to the hearing, a report was produced pursuant to section 42A of the RMA ('s42A Report') by the Council's Reporting Officer, Mr Leif Pigott (Team Leader - Natural Resources Consents, TDC).

[5] The s42A Report provided an analysis of the matters requiring consideration under the RMA and recommended the application should be granted subject to conditions for a duration of 20 years. Appended to the s42A Report was a draft set of conditions for consideration and a document titled TDC – Future Development Strategy Growth Projections.

[6] The s42A Report and the Applicant's evidence was pre-circulated prior to the hearing in accordance with section 103B of the RMA. This enabled application documentation, submissions, s42A Report and pre-circulated evidence to be pre-read and we directed that it be 'taken as read' during the hearing[1].

[7] The Hearing was adjourned on 13 November 2019, to enable the provision of a revised set of proposed consent conditions to be circulated for further comment from the parties and for the Applicant to provide a written right of reply and final set of proposed conditions.

[8] A revised set of proposed conditions were circulated to the parties on 26 November 2019. Further comments on conditions were received from the Waimea Inlet Forum

1 As provided for by section 41C(1)(b) of the RMA

Working Group, Te Ātiawa, Mr Mark Quinn, Mr Trevor Sellars and the Council's Reporting Officer.

[9] A written right of reply and final set of proposed conditions on behalf of the Applicant was received on 20 December 2020.

[10] The hearing was closed on 31 January 2020, following completion of our deliberations.

[11] We acknowledge all the parties' willingness to respond to our questions and to provide further information and comment. We consider the approach taken has greatly assisted us in fully understanding the issues, technical evidence presented and evaluating proposed consent conditions. We thank all the parties for their contributions in this regard. We thank Mr Alastair Jewell, the TDC's Hearings Facilitator, for the assistance that he provided throughout the hearing process and those parties who attended the hearing and presented evidence.

[12] Section 113(3) of the RMA states:

> *A decision prepared under subsection (1) may, -*
> *(a) instead of repeating material, cross-refer to all or a part of -*
> *(i) the assessment of environmental effects provided by the Applicant concerned:*
> *(ii) any report prepared under section 41 C, 42A, or 92; or*
> *(b) adopt all or a part of the assessment or report, and cross-refer to the material accordingly.*

[13] Accordingly, in the interests of brevity and economy, we intend to make extensive use of section 113 of the RMA and focus our assessment of the applications on the principal matters in contention.

3 The Proposed Activities

[14] The nature of the proposed activities was described in the application documents and the assessment of environmental effects (**AEE**)[2]. The application also included the following documents:

(a) Appendix A – Existing resource consents;
(b) Appendix B – Projected Wastewater Influent Quality and Quantity Projections;
(c) Appendix C - Cawthron Report No. 3006 '*Bell Island Wastewater Treatment Plant Consent Renewal: Assessment of Environmental Effects'* (dated 24 October 2017) by Donald Morrisey and Anna Berthelsen;
(d) Appendix D - Cawthron Report No. 3077 '*Capacity of the Marine Receiving Environment of the Bell Island Wastewater Treatment Plant to Assimilate Additional Nutrients'* (dated 27 October 2017 by Paul Gillespie and Anna Berthelsen;

2 'Bell Island Wastewater Treatment Plant Resource Consent Application and Assessment of Environmental Effects' dated 6 November 2017 by Stantec New Zealand.

(e) Appendix E - 'Bell Island Discharge Plume and Dilution Investigation' (dated September 2017) by MetOcean Solutions Ltd;
(f) Appendix F - Cawthron Report No. 3069 *'Analysis of Emerging Organic Contaminants in Effluent of the Bell Island Wastewater Treatment Plant'* (dated 5 September 2017) by Grant Northcott and Louis Tremblay;
(g) Appendix G - *'Bell Island Wastewater Treatment Plant Quantitative Microbial Risk Assessment'* (dated October 2017) by Graham McBride, NIWA;
(h) Appendix H - *'Cultural Effects Assessment'* (**CEA**) (undated) by Ngāti Kuia;
(i) Appendix I – Assessment of Objectives and Policies;
(j) Appendix J – Pipe and Diffuser Outlet Structure Plan;
(k) Appendix K – Stakeholder and Iwi Consultation Supporting Information;
(l) Volunteered consent conditions;
(m) *'Bell Island Wastewater Treatment Plant Odour Management Assessment'* (dated 23 November 2018) by Dr Chris Hearn, BPO Environmental Success; and
(n) 'Recommended actions to reduce odour risks associated with the Bell Island Wastewater Treatment Plant' (dated 10 January 2019) by Beca.

[15] We adopt the Council's s42A Report's summary of the proposal and do not repeat this here.

[16] The application requested consent terms of 35 years for all the consents sought.

4 Description of Site

[17] The s42A Report provided an accurate description of the application site based on the application documentation, Council information and a site visit.

[18] The s42A Report noted the following key points:

(a) Bell Island is approximately 1.5 square kilometres (**km^2**) in area, is located 5 km west of Nelson, and is situated between Best and Rabbit Islands in Waimea Inlet;

(b) The Island is relatively low lying with the highest elevation being 5 metres above mean sea level (mean high water spring is 1.65 metres above mean sea level)

(c) The WWTP is the predominant land use on Bell Island, ancillary land uses include forestry and pasture;

(d) The WWTP was commissioned in 1983 and consists of three oxidation ponds, two maturation ponds and ancillary buildings. An irrigator is located to the west of the ponds and a pipe from the WWTP leads to a diffuser fixed to the seabed 400 m east of Bell Island;

(e) There have been five archaeological finds on the island suggesting that the area was regularly inhabited in pre-European times (confirmed by the CEA provided with the application);

(f) The Waimea Inlet is a large shallow, bar-built estuary (3,460 hectares (ha)) located within Tasman Bay adjacent to the city of Nelson, with approximately 3,307 ha of intertidal area with the remaining 150 ha being subtidal;

(g) There are ten islands located within the Inlet which contribute significantly to the considerable habitat heterogeneity;

(h) There are two tidal openings located at opposite ends of Rabbit Island and the tidal compartment is largely drained with each ebbing tide, resulting in a relatively rapid flushing rate;

(i) The Inlet plays a significant role in the integration of terrestrial and coastal marine ecosystems by, for example, providing critical habitat for a variety of plant and animal species, maintaining coastal productivity, and nourishing the marine food web. High value is placed on the Inlet's terrestrial-wetland coastal aquatic continuum as habitat for wildlife, fish and invertebrates, and its complex, heterogeneous physical and biological structure. It has been recommended that eleven intertidal, and eight terrestrial areas, including the whole western inlet, be protected due to their special biological assets. The inlet has also been assessed by the Department of Conservation as meeting the criteria for a wetland of international importance;

(j) The Inlet is listed in Schedule 25D of the TRMP as an area with nationally significant natural ecosystem values. These values include the Inlet's status as the largest barrier enclosed estuary in the South Island, and one of only two sites where the endangered peppercress plant has been recorded. The Inlet is considered to be of outstanding importance for waders and provides habitat for the endangered grey saltbush, white heron, royal spoonbill, Australasian bittern and banded rail;

(k) The outfall system consists of a tidal storage basin at the WWTP. A 500 metres (m) length of 1200 mm diameter concrete pipeline then crosses the Inlet and connects the tidal storage basin to the edge of a low tide channel, where it then branches into two diffuser strings - one approximately 70m long and one approximately 94 m long. Outlet riser pipes (100 mm diameter) are spaced along the diffusers every 1.7 metres. Treated wastewater typically flows by gravity through the outfall but can be pumped up to the maximum daily discharge volume of 25,000 cubic metres per day (m3/day);

(l) Rabbit Island is located to the north of the WWTP and is a popular recreation reserve with a large swimming beach, recreation and picnic areas, a boat ramp and mountain bike tracks. The remainder of Rabbit Island contains a Council owned commercial pine plantation where the biosolids from the WWTP are disposed (irrigated);

(m) Best Island is located to the south of the WWTP and contains approximately 30 residential houses. The remainder of Best Island is used as a golf course or grazing. West of Best Island is the Waimea River which is a popular location for recreational boating and fishing; and

(n) There a several swimming beaches along the Inlet to the north and east of the WWTP. These are popular locations for wind surfing, kite surfing, kayaking, swimming, dog walking and fishing.

4.1 Relevant Rules and Activity Status

[19] The s42A Report outlined the relevant rules of the TRMP and applicable zoning, and overlay areas as follows:

Zoning: Bell Island - Rural Industrial
Waimea Inlet – Coastal Marine Area

Areas: Bell Island - Coastal Environment Area
Waimea Inlet – Estuary; and the estuary is in the Waimea Inlet Schedule 25D - Nationally Important Natural Ecosystem Values

Consent application no.	Purpose	Rule	Permitted activity rule not met	Activity status
RM171238	Discharge of treated wastewater into Waimea Inlet from Bell Island WWTP	36.2.3.1	36.2.2.8	Discretionary
RM171255	Discharge of contaminants (primarily odour) to air from Bell Island WWTP	36.3.5.1	No PA	Discretionary
RM171256	To discharge treated wastewater to land by way of irrigation	36.1.5.2	36.1.2.4	Discretionary
RM171257	Discharge of treated wastewater to land via seepage from clay-lined facilities (ponds) at the Bell Island WWTP	36.1.5.2	36.1.2.4	Discretionary
RM171258	To occupy the coastal marine area and to use and maintain an existing pipe and diffuser outlet structure, required for the discharge to coastal water	25.1.5.7	No PA	Controlled

[20] The s42A Report noted there was no relevant permitted activity rule for the discharge into air.

[21] The s42A Report stated that the activities were 'inextricably linked' and therefore the activities should be 'bundled' and considered as a discretionary activity by applying the most restrictive activity status).

[22] Mr Russell, for the Applicant, agreed with this approach.

[23] We accept this approach and consider the applications as a bundle, as a **discretionary activity**.

[24] We note that Schedule 36C of the TRMP classifies the receiving waters as Class FAE (management for aquatic ecosystems, fisheries and fish spawning) and sets out the minimum standards that must be met, after reasonable mixing.

5 Notification and Submissions

[25] The s42A Report provided an outline of the timeframe for processing the application, including periods where processing of the application was suspended under section 91 of the Act.

[26] The application was publicly notified on 17 February 2018 and the submission period closed on 23 March 2018.

[27] A total of 15 submissions were received, with eight in support of the application, four in opposition, and three neutral. Seven submissions indicated they wished to be heard.

[28] The key issues raised in the submissions were summarised in the s42A Report as follows:

(a) Regional Growth,

(b) Odour control,

(c) Discharge of wastewater to water, water quality,

(d) Effects on the ecology,

(e) Term of the consent,

(f) Alternatives,

(g) Cultural effects; and

(h) Global warming/sea level rise/ long term suitability of the location.

[29] We consider this to be an accurate summary of the key issues raised.

6 Relevant Statutory Provisions Considered

[30] In accordance with section 104 of the RMA, in making this determination we have had regard to the relevant statutory provisions including the relevant sections of Part 2 and sections 104, 104B, 105, 107 and 108.

[31] Pursuant to section 104(1), and subject to Part 2 of the Act, which contains the Act's purpose and principles, we must to have regard to-

(a) Any actual and potential effects on the environment of allowing the activity;
(ab) Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will result from allowing the activity;

(b) Any relevant provisions of a national environmental standard, other regulations, a national policy statement, a New Zealand coastal policy statement, a regional policy statement or a proposed regional policy statement, a plan or proposed plan; and

(c) Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

[32] Under section 104(2), when forming an opinion for the purposes of section 104(1)(a) regarding actual and potential effects on the environment, we may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect. This referred to as consideration of the 'permitted baseline'.

[33] The s42A Report noted there was no applicable permitted baseline. The Applicant agreed, but noted it was important to recognise the operation of the WWTP is a permitted land use under the TRMP. We agree that the application of a permitted baseline is not helpful in this case, but acknowledge the use of Bell Island for the operation of the sewerage treatment plant and ponds is permitted.

[34] Under section 104(2A) we must have regard to the value of the investment of the existing consent holder, as the application was made under section 124 of the RMA (exercising a resource consent while applying for a new consent). We note the Applicant's evidence that the value of the existing investment in the WWTP is in excess of $80 million (**M**). We note the evidence of Mr Clifford that the replacement costs to site the WWTP in another location would be in the order of $150-$200M. We record we have had regard to this investment in making our determination.

[35] In terms of section 104(3), in considering the application, we must not have regard to any effect on any person who has given written approval to the application. We note no formal written approvals were provided.

[36] In accordance with section 104(1)(b)(i)-(vi) of the RMA, we have had regard to the relevant statutory provisions of the following documents:

- National Standards for Air Quality;
- New Zealand Coastal Policy Statement 2010 (**NZCPS**);
- Tasman Regional Policy Statement (**RPS**); and
- TRMP.

[37] We consider the submissions received to be directly relevant to our task of determining the applications, and we have given careful consideration to the matters raised in those submissions in accordance with section 104(1)(c) of the RMA.

[38] We consider the Te Tau Ihu Iwi Statutory Acknowledgement Area, relevant iwi management plans, the existing resource consents held for the WWTP and other non-statutory plans are relevant 'other matters' under section 104(1)(c).

[39] In addition, in terms of any coastal or discharge permit that contravenes section 15 of the RMA, we are also required to have regard to sections 105 and 107 of the RMA.

[40] In accordance with section 105, when considering section 15 (discharge) matters, we must, in addition to section 104(1), have regard to -

(a) The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and
(b) The Applicant's reason for the proposed choice; and
(c) Any possible alternative methods of discharge, including discharge to any other receiving environment.

[41] In terms of section 107, we are prevented from granting consent allowing any discharge into a receiving environment which would, after reasonable mixing, give rise to all or any of the following effects, unless certain exceptions apply[3] -

(c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended material:
(d) Any conspicuous change in the colour or visual clarity:
(e) Any emission of objectionable odour:
(f) The rendering of fresh water unsuitable for consumption by farm animals:
(g) Any significant adverse effects on aquatic life.

[42] Under section 104B, we may grant or refuse the applications, and if granted, we may impose conditions under section 108. We have considered the final conditions proposed provided by the Applicant in its right of reply in assessing the actual and potential environmental effects of the proposal.

[43] Section 108(2)(e) of the RMA allows us to impose conditions of consent that require the best practicable option (**BPO**) to control any adverse effects caused by a discharge. The BPO for the discharge of contaminants (to both air and coastal water), which includes contaminants that give rise to odour, is defined in section 2 of the RMA as:

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.

[44] Section 108(8) of the RMA restricts the requirement for BPO to being the '*most efficient and effective means of preventing or minimising any actual or likely adverse effect on the environment*'.

[45] When applying the efficiency and effectiveness test, we acknowledge that we need to consider the efficiency from the Council's and community's perspective, as well as the Applicant's viewpoint. We accept that requiring the implementation of the BPO can

3 Section 107(2) - The exceptions being: (a) that exceptional circumstances justify the granting of the permit; (b) that the discharge is of a temporary nature; or (c) that the discharge is associated with necessary maintenance work – and that it is consistent with the purpose of this Act to do so.

still provide flexibility to enable change, provided the effects remain the same or decrease.

7 Summary of Evidence Heard

[46] Copies of all the written material submitted during the consent process are held by the TDC, and a brief record of questions and responses during the hearing was kept by TDC's Hearing Facilitator. In addition, we took our own notes of the verbal statements and verbal evidence presented to us, and any answers to our questions. We have, however, referred to relevant elements of the submissions, statements, and evidence in this decision.

7.1 The Applicant

[47] **Ms Katherine Forward**, Counsel with Duncan Cotterill, conducted the Applicant's case, presenting opening legal submissions and calling seven witnesses. Ms Forward outlined the rationale for the proposal and addressed background to the WWTP, the resource consents sought, submissions, section 124, the statutory framework, effects on the environment, regulations and planning documents, the s42A Report, and Part 2 of the Act. She concluded that based on the evidence provided the application should be granted for a term of 35 years, subject to the conditions proposed. She tabled a copy of the Applicant's record of odour complaint investigations since March 2018.

[48] **Dr Donald Morrissey**, Senior Coastal Scientist for Cawthron Institute, provided a written statement of evidence outlining Cawthron's involvement with the application, an overview of the receiving environment and monitoring programme, comment on the assimilative capacity of the Waimea Inlet, changes in the proposed conditions (as compared to the existing consent), and responses to the issues raised. He concluded that monitoring undertaken had found no evidence of adverse effects beyond the currently consented mixing zone; and that there is capacity for assimilation of additional nutrients without adverse enrichment effects.

[49] Dr Morrissey was recalled on the second day of the hearing to respond to questions regarding the DOC photograph of a visible plume and the extent of the consented mixing zone. He also commented on the age of the monitoring data and the importance of the Waimea Inlet as a significant habitat for threatened and endangered species.

[50] **Dr Neale Hudson**, Environmental Chemist and Manager – Freshwater and Estuaries for NIWA, provided a written statement of evidence assessing the human health risk from the discharge into the Waimea Inlet. He presented the human health risk assessment (Quantitative Microbial Risk Assessment (**QMRA**)) undertaken by Mr Graham McBride in 2017, for which Dr Hudson was the technical reviewer and commented on the findings. At our request, Dr Hudson provided us with a copy of his report titled '*Waimea Inlet: microbiological water quality context*' (dated October 2017) prepared for NRSBU.

[51] Dr Hudson was recalled on the second day of the hearing to run the video simulation of the hydrodynamic predictive modelling of the discharge over tidal cycles undertaken by MetOcean.

[52] **Mr Donald Clifford**, Acting Manager for NRSBU, and Branch Manager and Technical Director in Civil Engineering for Beca, provided a written statement of evidence outlining the structure and function of NRSBU, the level of investment at Bell Island, the application process, regional growth and demand on the WWTP, contractual arrangements, irrigation onto land, the complaints response protocol, and issues raised. Mr Clifford outlined the proposed capital works and future upgrades resulting from the odour assessment undertaken. Appended to his evidence were copies of: the NRSBU Governance Charter (dated December 2009); the NRSBU Memorandum of Understanding between the TDC and NCC; NRSBU Strategic Plan 2013-2016; NRSBU Wastewater Asset management Plan 2017; NRSBU Business Plan 2019-2020; and the Nelmac Emergency Response Plan (dated July 2016).

[53] Mr Clifford was recalled on the second and third day of the hearing to outline the Applicant's commitment to and timing of implementation of the upgrades set out in the Beca table included with the application titled 'Recommended Actions to Reduce Odour Risks Associated with the Bell Island Wastewater Treatment Plant' (dated 10 January 2019). He also provided an updated tabled dated 4 July 2019.

[54] Mr Clifford also provided a statement of rebuttal evidence with the Applicant's right of reply addressing matters raised by Te Ātiawa, consultation and pest control efforts undertaken on Bell Island.

[55] **Mr Jim Bradley**, Technical Specialist - Wastewater and Public Health Engineer for Stantec, provided a written statement of evidence outlining the assessment of alternatives undertaken using five categories of alternatives and 18 different alternatives, including wastewater management, reduction in wastewater treatment and discharge/disposal locations and methods. He concluded that in terms of the financial implications and the current state of technical knowledge, the consents sought represented the BPO. He considered the assessment of alternatives undertaken by the Applicant was comprehensive and robust. Attached to his evidence were Appendices A-F.

[56] **Ms Kirsten Norquay,** a Senior Process Engineer for Stantec and Wastewater Specialist for Nelmac (a role she has held since 2016) provided a written statement of evidence describing the operation and maintenance of the Bell Island WWTP under the current contract with Nelmac. She explained how her role gave her a good understanding of the day-to-day operation and performance of the WWTP and outlined the development of the Operations and Maintenance Manual, Pond Management Plan and Odour Management Plan. Attached to her evidence were Attachments A-F, and copies of the Pond Management Plan v9 (dated October 2019) and Odour Management Plan v9 (dated October 2019).

[57] **Dr Paul Heveldt**, National Environmental Science Specialist for Stantec, provided a written statement of evidence regarding odour effects of discharges to air from the WWTP. He outlined the nature and sources of odour, the ability of the WWTP to comply with proposed conditions, people's differing perceptions of odour, results of the odour assessment and odour monitoring undertaken, the Odour Management Plan, submissions on odour and the s42A Report. He concluded that with implementation of the recommended upgrades and the conditions proposed, the risk of adverse effects caused by odours would be significantly reduced.

[58] **Mr Grant Russell**, Principal Environmental Consultant for Stantec, provided a written statement of evidence addressing the statutory framework, assessment of effects, the importance of the WWTP as a strategic asset and significant regional infrastructure, the Waimea Inlet Management Strategy and the Waimea Inlet Action Plan, submissions, conditions and the s42A Report. He concluded the application was consistent with the policy framework; and that the effects on the receiving environment are not significantly adverse and can be mitigated by conditions of consent. Attached to his evidence were copies of a map of Nelson's sewer network, a revised set of proposed conditions, and a letter from Dr Morrisey regarding proposed contaminant limits for the discharge. At the hearing, Mr Russell tabled a further set of revised conditions reflecting changes discussed earlier in the hearing.

7.2 Submitters

[59] **Te Ātiawa Manawhenua Ki Te Tau Ihu Trust** ('Te Ātiawa') was represented at the hearing by Ms Sylvie Heard, a Kaitiakitanga Planner for Te Ātiawa and Mr Daren Horne, Kaitiaki and Cultural Adviser for Te Ātiawa. Ms Heard provided a written statement addressing the Statutory Acknowledgement, the existing environment from a cultural perspective, concerns of Te Ātiawa, Te Ao Māori (the Māori World) and the AEE. Mr Horne provided a verbal history of the relationship and significance of Te Tau Ihu to Te Ātiawa.

[60] Ms Heard stated that Te Ātiawa expects to be a co-manager of its rohe and has not been consulted satisfactorily under the requirements of the RMA as mana moana and mana whenua. She noted most concern related to the duration of consent sought and requested a maximum duration of 15 years.

[61] Mr Horne provided oral evidence of the relationship and cultural value of the Waimea Inlet to Te Ātiawa. He emphasised the importance of enabling practices such as kaitiakitanga and manaakitanga; and the significant adverse effect on the mana of his people caused by not being able to practice these due to adverse effects on the mauri of the waters and degradation of the estuary.

[62] **Mr Mark Quinn**, a resident at 18 Barnett Avenue, appeared at the hearing to speak to his submission. He stated that he had lived on Best Island for over 20 years and accepted that the consent would probably be granted. However, he stressed that the odour experienced from the WWTP had been extremely offensive and annoying at times, particularly when malfunctions had occurred at the plant over the Christmas

period in 2017. He considered that previous adverse odour events had primarily been associated with lack of maintenance at the Bell Island WWTP and poor management of the ponds. He noted there had been '*a flurry of work over the last 18 months to fix the many problems*'. He tabled a map showing areas where he frequently experienced offensive odours while fishing around the island.

7.3 Reporting Officer

[63] **Mr Leif Pigott**, Reporting Officer for TDC, tabled his s42A Report and addressed the key matters raised in the hearing. He provided further information, at our request, of the Council's record of odour complaints; information on the upgrade of the Motueka WWTP[4]; a copy of a document titled '*Waimea Inlet 2014 – Broad Scale Habitat Mapping*' (dated August 2014) prepared for TDC; and a copy of a TDC report on a study into nitrate concentrations in Waimea groundwater. He re-iterated the conclusions of the s42A Report and his recommendation that the consents sought should be granted for 20 years, subject to conditions.

[64] Mr Pigott provided a further Memo (dated 13 December 2019) commenting on the Applicant's revised proposed conditions, which were circulated following adjournment of the hearing.

7.4 Applicant's Right of Reply

[65] Ms Forward provided legal submissions in reply for the Applicant, rebuttal evidence from Mr Clifford, further records of odour patrols undertaken by NSRBU, and a final set of proposed conditions. Ms Forward re-iterated that the WWTP is '*a piece of critical public infrastructure and a significant asset to the community*'. She highlighted the expert evidence and significant body of monitoring data collected since the WWTP was established and considered this demonstrated that the discharge has had no adverse effect on water quality or ecological values, outside the mixing zone. She considered duration of consent to be the most critical point for consideration and re-iterated case law, expert evidence, other similar consents around New Zealand, and the inclusion of the MTRR condition, supported a 35 year consent term.

[66] The reply also updated developments since the hearing including appointment of Mr Nathan Clarke as Operation Manager for NRSBU (commencing in March 2020) and agreement to purchase 60 ha of land near Bell Island for additional land disposal (subject to the necessary consents). She submitted this demonstrated the Applicant's commitment to explore possible alternatives.

4 'Upgrade of the Motueka Wastewater Treatment Plant' by Leif Pigott and Juliet Westbury and an accompanying PowerPoint presentation; and copies of the resource consents for the Motueka WWTP.

8 Principal Issues in Contention

[67] In assessing the applications before us, we have considered the application documentation and AEE, the s42A Report and technical reviews, all submissions received, and the evidence provided during and after the hearing. In making our assessment, we are required to consider the actual and potential effects of the application on the existing environment, which includes lawful existing activities, permitted activities and any activities authorised by existing resource consents.

[68] We adopt the conclusion of the s42A Report that the effects on groundwater from any seepage from the clay lined WWTP ponds is not expected to be significant. We note the evidence of Dr Morrisey that there is no evidence that the irrigation of wastewater on Bell Island has had any adverse effects on the estuary. We are satisfied that the annual groundwater monitoring proposed will ensure any significant adverse effects on groundwater quality are avoided. We accept there will not be any adverse effects on drinking water supplies given the location of the WWTP and the direction of groundwater flow.

[69] We also adopt the conclusions of the s42A Report that the effects from the occupation, and use and maintenance of the outfall pipe and diffuser will not have any significant adverse effects on the environment.

[70] We note the Waimea Inlet is identified by the Department of Conservation (**DOC**) as a significant wetland habitat of national and international importance to endangered flora and fauna. We note it is listed in Schedule 25D of the TRMP, as an area with nationally significant ecosystem values.

[71] We note the submission from DOC acknowledged the monitoring undertaken shows the existing discharge is having a minor effect on water quality and the benthic environment, outside the zone of mixing. This accords with the Applicant's evidence and the conclusions reached in the s42A Report. Overall, we accept there is no evidence of adverse effects on significant ecological habitats within the inlet, outside the zone of reasonable mixing.

[72] On the basis of the evidence, we consider the principal issues in contention relate to:

- Air quality effects;
- Water quality effects (including effects on human health); and
- Cultural effects.

9 Main Findings on the Principal Issues in Contention

9.1 Air Quality Effects

[73] Submitters[5] have raised concern regarding the occurrence of regular and ongoing offensive odours from operation of the WWTP.

5 Including Mark Quinn, John and Carol Syme, Donna Robertson and Trevor Sellars

[74] The submissions indicate that odour from the plant has caused adverse amenity effects at times in the recent past. Submitters requested increased communication between NRSBU and the Best Island residents and a shorter consent duration.

[75] Mr Quinn stated that a more robust maintenance and monitoring plan was required for the plant, and observed that improved feedback via regular community liaison meetings would be useful. He considered that the proposed odour monitoring protocol should include regular visits to Best Island. He accepted that odour effects were not as frequent or as intense (offensive) as they had been at times in the past, but stressed that rigorous conditions would be required for any consent granted to ensure that odour is adequately controlled in future. He stated that the requested 35 year consent duration was of specific concern and considered a shorter term (ten years) was appropriate to focus the Applicant's mind on ongoing mitigation of adverse effects.

[76] In response to questions, Mr Quinn acknowledged that the odours he experienced had significantly reduced since March 2018, and that those recently experienced were intermittent and of short duration.

[77] Dr Heveldt described the various sources of odour at the WWTP and the methods used to control odour emissions. He discussed remedial measures and improvements proposed to reduce odour emissions, with specific reference to the recommendations of a separate report prepared by BPO Limited[6]. He also discussed odour complaints that had been received and the odour monitoring undertaken by the Applicant. He described the contents of the Odour Management Plan and agreed with Mr Pigott that the odour control improvement works specified in the BPO Limited report should be implemented, as soon as practicable. He stated that no large scale WWTP is entirely free of odour, but that the Nelson plant could be operated in a manner that complies with a condition requiring no offensive or objectionable odour effects beyond the boundary of the site.

[78] Dr Heveldt noted that the production of odorous compounds is the greatest in the sewerage reticulation network, under circumstances of long retention times such as during low flows. He highlighted the point of inflows to the WWTP and the aeration basin require specific mechanical aeration measures to mitigate the formation of odorous compounds; and that odours from the clarifier and ATAD treatment units could release odours when operated under sub-optimal conditions. He noted that odour events from the facultative ponds were now limited to occasional seasonal releases related to algal die-off in spring and autumn and/or destruction of algae by fungal parasites in summer. He considered implementation of the Pond Management Plan had contributed to significant reductions in the frequency and offensiveness of the odour events associated with the ponds and that the Operation and Maintenance Plan effectively address odour emissions from these WWTP elements.

6 '*Bell Island Wastewater Treatment Plant Odour Management Assessment*' (dated 23 November 2018) by Dr Chris Hearn, BPO Environmental Success

[79] Dr Heveldt outlined targeted improvements to reduce odour risk such as inlet improvements (covering and sealing), providing back up power generation to critical elements, sealing the top of the ATAD tanks and optimising performance, and optimum use of biofilters. In response to questions, he commented on the relative priority of these mitigation measures and timing for implementation. He noted there was potential for the discharge of odour from future de-sludging of the ponds.

[80] Dr Heveldt discussed the record of odour complaints, odour complaint response procedures and introduction of an independent odour patrol protocol by NRSBU since April 2018.

[81] Mr Clifford addressed the need to provide sufficient back up power generation for key elements of the WWTP, in the event of a sustained power failure. He said it was acknowledged that the power generator currently onsite is undersized and that plans were underway to have three generators onsite within the next six months. He outlined a number of other upgrades aimed at reducing odour risks which were scheduled to be implemented within the next 12 months. He agreed that it would be appropriate to require these as a condition of consent to provide certainty of implementation. He outlined the costs of the planned upgrades and confirmed there was already an approved business plan to enable this level of spending. He agreed that a condition of consent could exclude the discharge of odour from de-sludging the ponds given the effects of this activity had not be assessed as part of this application.

[82] Mr Clifford acknowledged the importance of building relationships with the community to address any concerns about odours from the WWTP. He noted the Applicant had proposed a condition requiring annual meetings with the residents of Best Island in order to inform them of actions taken to avoid and minimise odours, and to consult on the Odour Management Plan.

[83] Mr Russell also noted the need to build positive relationships with the Best Island residents and confirmed the commitment of NRSBU to do this.

[84] Mr Pigott noted that during his site visit in January 2018, the WWTP infrastructure was poorly maintained and key elements were not being operated to best practice standards, such as lack of sufficient bark in the biofilter. He agreed that since this time the Applicant had implemented a number of changes to significantly improve day to day management and had undertaken necessary maintenance and a number of upgrades. He considered the complaints records (both the Applicant's and the Council) reflected the significant improvements in odours from the WWTP over the last 18 months. He supported codifying the Beca recommendations into conditions of consent to ensure the BPO was progressively implemented over a relatively short timeframe.

[85] In reply, Ms Forward submitted that the Applicant had agreed to codify the recommended odour upgrades (Beca table) as Appendix 3 of the proposed conditions and that this would ensure offensive odour events beyond the boundary would be rare.

Findings

[86] Submitters request increased communication between the Applicant and Best Island residents. We are mindful of their concerns regarding non-compliance with the conditions of the existing consent, notably the 'no offensive or objectionable odour' condition. We find that the proposed upgrades and improvements, as specified in the BPO Limited report and in the evidence of Mr Clifford and Dr Heveldt, are important measures to achieve ongoing compliance with such a condition and ensure that adverse odour effects are acceptable to Best Island residents. Accordingly, we intend to make some specific changes and additions to the schedule of works listed in Appendix 3 to the conditions proposed by the Applicant, consistent with the evidence that has been provided by the Applicant and its experts.

[87] We heard evidence regarding the early 2018 odour events associated with upset odour conditions in the treatment ponds. The Applicant stated that improved pond management procedures, as specified in a Pond Management Plan, have been implemented and Dr Heveldt considered that pond management is now 'very good'. He noted that a key factor is minimising upset conditions in the ponds. This view was supported by the evidence of Ms Norquay.

[88] On the basis of this evidence, we are satisfied that under normal operating procedures the ponds can be managed to ensure there is no offensive or objectionable odour beyond the boundary of the site.

[89] With regard to specific odour upgrade works required, we are mindful of the evidence of Dr Heveldt concerning the condition of the ATAD biofilter and the likely need for upgrade and also the submission of Mr Quinn that his observations indicate that the ATAD units are a significant source of odour from the site. We have therefore included a requirement in Appendix 3 of the conditions for the consent holder, during 2020, to:

> *'Engage a suitably qualified person in the field of odour control to investigate the size and design of the ATAD biofilter, with specific reference to increasing the filter size to meet good practice guidelines and maintaining the conditions and moisture content of the filter media. Complete any improvements to the biofilter size, design and operating procedures recommended by the investigator.'*

[90] We have also been made aware of the need for additional electricity generators on site to serve critical elements of the WWTP and provide ongoing odour control during a sustained power outage to Bell Island. In taking onto account the evidence of Mr Clifford, we have decided to include a specific requirement in Appendix 3 of the conditions that during 2020 the consent holder must:

> *'Ensure that at least three appropriately sized emergency electricity generators are installed at the WWTP site that ensure ongoing functioning of the plant to achieve odour control in the event of a network power outage. The WWTP equipment served by the generators will, at a minimum, include:*
>
> *(a) The inlet screens;*
>
> *(b) The ATAD biofilter; and*

(c) The aeration basin.'

The Applicant has voluntarily implemented an odour monitoring protocol whereby an independent odour patroller regularly monitors odour around the plant and at Best Island, and records the results. We were provided with a record of monitoring that has already been undertaken in general accordance with this protocol by an odour patroller. We consider this is good practice and agree it is appropriate to require this as a condition of consent.

[91] In addition, we have determined that the condition should include a requirement for the odour patroller to undertake odour monitoring in response to any complaints considered to be associated with the operation of the WWTP by including the following clause:

> *'The odour patroller shall also undertake a visit 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 discharges from the WWTP.'*

We consider that a specific response by the odour patroller to substantiate odour complaints from nearby residents or other parties is appropriate. We do not consider this additional requirement to be overly onerous given the Applicant's level of confidence in achieving ongoing odour mitigation through the upgrades it has committed to and claims made that adverse odour events beyond the site boundaries will be rare events.

[92] Annual community liaison meetings with Best Island residents have been proposed by the Applicant in response to submissions. We find that such a condition is appropriate in the circumstances of this case, where adverse odour effects have occurred in the past and residents should have the opportunity to provide feedback on the ongoing effectiveness of the proposed odour control works. In taking into account the schedule of significant odour control upgrades proposed for 2020 and 2021, we determine that liaison meetings should occur six-monthly for the first two years of consent, and annually thereafter.

[93] Overall, we are satisfied on the evidence before us that appropriate mitigation measures and management procedures are proposed to support compliance with a 'no offensive or objectionable odour' condition and ensure that adverse effects are acceptable for residents and other affected parties. We consider that with the upgrade works proposed and the improved odour management procedures recently implemented, combined with the additional measures we have imposed, the Applicant will continue to achieve further significant reductions in the risk of adverse odour events caused by the WWTP emissions over the next one to two years.

[94] We consider the Applicant can be held to account by Best Island residents via the regular liaison meetings required by condition and also via independent odour monitoring that is reported to the Council. Given these factors and the comprehensive set of consent conditions we intend to impose, we find that adverse odour effects associated with the ongoing operation of the WWTP are likely to be acceptable over the medium term (15-20 years).

9.2 Water Quality Effects

[95] Several submissions referred to the adverse effects of the discharge on the water quality of the Waimea Inlet, including adverse effects from increased nitrogen loads, the assumption regarding the virus log reduction, the carrying capacity of the area, as well as general opposition to the discharge to the coastal waters. A number of submitters expressed concern at the adverse effects from the predicted increases in total nitrogen loading to the estuary were unsustainable.

[96] The submission from the Marlborough District Health Board highlighted the need to ensure that the waste leaving the plant was well treated to ensure there is sufficient log removal of viruses in the treatment system to reduce risks to human health to an acceptable level.

[97] The s42A Report noted that the Waimea Inlet suffers from several sources of pollution and that Faecal Indicator Bacteria (**FIB**) and nutrient inputs can be affected to a greater degree by catchment runoff than by FIB contributions from the WWTP.

[98] The s42A Report noted that the mixing zone originally proposed in 1993 had been 500 m, but that this was reduced to 250 m in the existing consent. The Report stated that the current mixing zone of 250 m was still valid given mixing is shown to be very rapid and contaminant concentrations reduce to background levels within a short distance.

[99] The s42A Report referred to the Applicant's report on emerging contaminants (Appendix F of the application) and the QMRA undertaken using the MetOcean probabilistic dispersion modelling. It stated that the performance of the WWTP is known to vary and that it is unclear if the 3 log removal suggested by the application is realistic at all times and that this needed to be addressed by the Applicant.

[100] Dr Morrissey noted that monitoring suggests that the inlet is in a generally healthy ecological state, although the effects of historic habitat loss and modification, as well as changes in catchment land use, are evident in some areas. He concluded that this had resulted in nutrient enrichment, nuisance algal growth and fine mud being deposited, but that such areas were outside the downstream path of the Bell Island discharge. He also described how the relative contribution of the discharge to nutrient loads in the receiving environment is much greater under low flows than during high rainfall events, when the Waimea River is the major source. He also stated that the discharge is one among several sources of nutrients, FIB and other contaminants to the Waimea Inlet and Tasman Bay. He emphasised that management of both point and diffuse sources is required to maintain or improve sediment and water quality.

[101] Dr Morrissey described the potential adverse effects that could arise from the discharge, which could include effects on organisms living in the sediment as the result of the accumulation of organic matter and trace metals in sediments, as well as increased risk of algal blooms associated with increased nutrients in the water column. He noted that such blooms may be toxic and can also reduce oxygen concentrations in the water when they die.

[102] Dr Morrisey described how the predominance of intertidal areas in the Waimea Inlet, coupled with a relatively large tidal range, meant the inlet is well flushed. With the discharge being released on the outgoing tide and the strong tidal flow in the channel, he concluded that this provided an effective mitigation through mixing and dilution.

[103] Dr Morrisey described the water quality monitoring programme, which has been in place since 1983, to assess whether consent limits were currently being met. He noted that the limits apply at the boundary of a 250 m mixing zone and were designed to ensure that adverse effects beyond the mixing zone are negligible. He concluded that the rapid decrease of contaminant concentrations within the mixing zone (with concentrations remaining essentially the same beyond the mixing zone) indicated that the discharge was rapidly mixed and diluted.

[104] Dr Morrisey noted that the results of seabed monitoring surveys provided no evidence of abnormal sediment anoxia or other obvious signs of organic enrichment. In addition, he stated that no adverse cumulative enrichment effects due to the wastewater discharge were detected, with total nitrogen and organic matter generally being consistent amongst sites. He noted that elevated concentrations of some metals were detected, but that these were not associated with the discharge, as indicated by the elevated concentrations in other reference sites.

[105] Dr Morrisey noted that daily loads of total nitrogen and total phosphorus had not exceeded the consented limit of 500 kg/day and 150 kg/day, respectively during any of the five yearly monitoring surveys. He also noted that the summer trigger value for total nitrogen of 400 kg/d had only been exceeded on three occasions since monitoring began. He noted that elevated concentrations of FIB (which includes faecal coliforms and/or enterococci) were recorded within the mixing zone, but that highest values of FIB were frequently recorded at sites outside the mixing zone, suggesting that contamination was derived from a variety of sources. He referred to the human health risk assessment presented by Dr Hudson for further information on bacterial risk.

[106] Dr Morrisey noted evidence for other sources of contaminants being present well away from the discharge, with periodically elevated concentrations of nutrients and FIB being recorded at these sites. He presented data showing the relative contribution of the wastewater to nutrient loads in the Waimea Inlet under low and high flow conditions. He acknowledged that the data showed that under low flow conditions the WWTP discharge could contribute as much nitrogen as the Waimea River and smaller streams (the other major contributors), and almost all of the phosphorus load.

[107] Dr Morrisey discussed the predicted effects of future discharge flows and loads. He noted that average discharge volumes were predicted to increase over the next 35 years from 15,450 m^3/day to 18,550 m^3/day (a 20 percent increase), with peak flows remaining at 25,000 m^3/day. He noted that concentrations of contaminants were not predicted to increase in the receiving waters, assuming dilution factors remained the same, and therefore the toxicity of the discharge would not increase. He acknowledged that the total loads of contaminants would increase in proportion to

increasing discharge volumes and that accumulation of contaminants could potentially occur as a consequence of these increased loads. He described the results of hydrodynamic modelling and concluded that the accumulation of most contaminants in the water column, sediment or biota were unlikely to lead to increased adverse effects or risk.

[108] To address the potential adverse effects resulting from accumulation of nutrients, Dr Morrisey relied on Cawthron Report No. 3077 by Paul Gillespie and Anna Berthelsen (AEE, Appendix D). The report assessed the potential capacity of the marine receiving environment to assimilate additional nitrogen and phosphorus over the proposed 35-year term. The assessment involved comparison of current (i.e. up to 2017) inputs of nitrogen and phosphorus to the receiving environment with standards and guidelines designed to protect estuarine and coastal environments from nutrient enrichment (eutrophication). The assessment acknowledged that the Waimea Inlet, as a whole, was likely to have only limited capacity to assimilate additional nutrient loading due to its nutrient enriched status. However, the assessment concluded that the area downstream of the outfall and the adjacent part of Tasman Bay had a very low eutrophication status and could assimilate up to 27 percent and 24 percent increase in total nitrogen, respectively, without adverse effect (i.e. moving to a higher level of eutrophication). The assessment concluded that the worst-case prediction over the 35-year term was a 17 percent increase in nitrogen loading and that the effects of the discharge would be acceptably small.

[109] When questioned as to his confidence around the uncertainty of the information used to assess assimilative capacity, Dr Morrison stated that he was confident that there wouldn't be a catastrophic event and that any adverse effects would be not be irreversible. He also noted that monitoring results to date had not identified any significant benthic or water column ecological effects of increased nutrients from the WWTP discharge.

[110] The assessment by Gillespie and Berthelsen also recommended that site-specific thresholds for nutrient concentrations be developed, consistent with guideline recommendations. However, when questioned on the potential for developing a resource consent condition requiring that such thresholds be developed, Dr Morrisey concluded (after discussion with colleagues) that such an undertaking would require consideration of all nutrient sources within the catchment and was better suited to a regional council-led catchment wide initiative.

[111] In response to question, Dr Morrisey stated that the existing consented mixing zone was the smallest reasonable zone of impact given the level of dilution. He noted that the mixing zone was a pie shape (given discharge on ebb tide only) and was therefore limited in area.

[112] Dr Hudson described the QMRA modelling that was undertaken by Mr McBride. He described how this approach considered the amount of pathogen-contaminated wastewater, the mixing and dilution rates within the receiving environment (derived from hydrodynamic modelling), the ingestion rates of individuals (through recreational

use and food consumption) and the known or estimated relationships between dose and response, to determine the probability of infection and illness risk.

[113] Dr Hudson described the key results of the QMRA analysis. He noted that to achieve a 'no observable adverse effect level' under both La Niña and El Niño conditions for primary (e.g. swimming) and secondary (e.g. kayaking) users, a 100-fold (2-log) reduction of wastewater contaminants would be required. He noted the results indicated that a higher level of treatment (at least 1000-fold or 3-log order of reduction) would be required to achieve a similar effect for consumers of raw shellfish.

[114] Dr Hudson noted that compliance monitoring data (for the period 2011-2016 inclusive) provided little indication of significant trends in FIB concentrations over this period, which he considered suggested relatively consistent wastewater treatment performance. He noted that the monitoring data indicated a spatial trend (increasing from west to east) but no temporal trend, and that relatively elevated concentrations could occur at all recreation sites monitored, at various times. He noted that the monitoring also indicated that infrequent, transient rainfall-related events contributed significant loads of FIB to the Waimea Inlet and south Tasman Bay at times, and that these events appeared to have a greater effect on recreational water quality than the routine discharge of treated wastewater from Bell Island WWTP. He also referred to the results of a context assessment undertaken by Mr Graham McBride in 2017, which indicated that inputs of faecal contaminants unrelated to the Bell Island WWTP were likely to be having an adverse effect on recreational quality at times.

[115] Dr Hudson noted that the microbial quality in the Waimea Inlet and south Tasman Bay was determined by multiple sources, including the Bell Island WWTP, as well as runoff from urban areas and farmland. He stated that molecular methods such as FIB source tracking could be used to identify sources of faecal contaminants and the results could be used to prioritise remedial actions. As with Dr Morrisey, he emphasised the importance of managing both point and diffuse source inputs if a consistent reduction of health risks to the 'no observable adverse effect level' was to be achieved.

[116] Dr Hudson agreed with the increase in monitoring frequency proposed by the Applicant. He considered this would provide a better description of the variability of the treatment process and would increase confidence that the treatment efficacy was adequate, or identify the requirement for increased treatment. He considered that it would also allow the treatment efficacy of the WWTP to be optimised in terms of FIB and potentially, pathogen removal. He noted that the existing WWTP is largely passive in reducing faecal contaminants and relied on retention time and adequate sunlight penetration to provide sufficient ultra violet (**UV**) solar radiation to inactivate both FIB and pathogenic organisms.

[117] In response to questions, Dr Hudson was not able to comment on the current level of treatment achievable by the plant and deferred to Ms Norquay's evidence. However, he noted this would require measuring FIB concentrations at the point of inflow to the WWTP and at the point of outflow (discharge channel) to look at the difference. He

noted this would require a "fair number of samples", but would be relatively easy to do.

[118] Ms Norquay described the sources of wastewater entering the WWTP (including trade waste contributions), the treatment processes and the overall quality of the treated wastewater, which has mostly met compliance limits. The exception was total biochemical oxygen demand (**tBOD**) concentrations, which had exceeded compliance limits on occasion. In her opinion, these exceedances were due to nitrification occurring during incubation in the laboratory rather than reduced performance of the treatment system. She therefore considered that carbonaceous BOD (**cBOD**) was a more appropriate determinand for assessing compliance.

[119] Ms Norquay described the development, review and implementation of the Pond Management Plan, which provides support for the operation of the pond system; and the role and activities of the Pond Management Team, of which she is a member. She described how the ponds were proactively managed to maximise treatment performance and to mitigate poor pond health, which she described as being largely successful. She mentioned two events in 2018 with pond management, which had resulted in odour issues, but noted their rapid recovery within one to two weeks. She noted that analysis of data from the ponds had informed management and had led to significant improvements.

[120] Ms Norquay presented a summary of capital upgrades to the WWTP implemented since 2014. She noted that additional capacity may need to be provided at the WWTP to treat the additional organic and solids loads projected in 35 years to the required standards, although such adjustments may not be needed if the population growth was not realised or if there was a loss of a major trade waste generator.

[121] Ms Norquay also described how the WWTP pond system design and management is expected to typically provide at least 3-log (1000-fold) removal of viruses. She maintained that with an activated sludge system operating, the WWTP would typically be expected to provide a further 1 to 2 log removal (i.e. up to 4 to 5 log removal overall), when it was operating. In response to questions, she explained that the Bell Island WWTP '*had all the attributes needed for at least 3 log removal*.' She noted the results of effluent quality investigations of virus reductions undertaken for the Mangere WWTP over a long period of time in the 1990s indicated at least 3 log removal was consistently achieved. She noted Bell Island had similar design characteristics, including good sunlight exposure, shallow pond depth (<1 m), more than one pond in a series, good mixing, baffles (to reduce short circuiting), active management of organic loads, and with all effluent passing through a primary clarifier.

[122] In response to questions regarding future options for increasing log removal of viruses, Ms Norquay commented that UV treatment was an option but that, in her opinion, it was not necessary at this stage based on the QRMA results. She also noted that the activated sludge system could not always be used, as its operation could lead to elevated suspended sediment concentrations from algal growth over the summer.

[123] As requested by us, Ms Norquay provided us with more recent monitoring results of the discharge quality, which addressed concerns that the information in Figures 3-9 to 3-13 of the AEE needed to be updated.

[124] Towards the end of the hearing, Ms Norquay proposed a sampling programme to address the lack of information on the actual log removal rate of viruses achieved by the existing WWTP system, which was subsequently offered as a condition in the final set of conditions proposed by the Applicant.

[125] Ms Forward addressed sections 105 and 107 of the Act in opening submissions. She highlighted the evidence of Dr Morrissey in relation to the sensitivity of the receiving environment that there is no evidence of adverse effects on ecology or water quality beyond the designated mixing zone and that there is capacity for assimilation of additional nutrients without adverse enrichment effects. She noted the reason for the discharge was to enable the continued operation of regionally significant infrastructure, which was essential to the health and safety of the residents within the reticulation catchment. She highlighted the evidence of Mr Bradley in relation to alternative receiving environments and the conclusion that the application of the preferred solution was the BPO.

[126] Ms Forward submitted that section 107 was only triggered, if after reasonable mixing, one of the effects listed arises. She noted the long-term monitoring undertaken by Cawthron had not observed any conspicuous oil/grease slicks, scums or foams in the vicinity of the discharge or significant adverse effects on colour and visual clarity after reasonable mixing. She considered it was difficult to draw any conclusions from the photographs supplied by DOC (and referred to in the s42A Report) given the lack of information on the resolution, scale, angle, height of plane, atmospheric conditions or camera equipment used. She noted section 107(2) and (3) provided pathways for the grant of consent to occur in circumstances where the effects are temporary and/or exceptional; and noted there was no evidence of any adverse effects outside the zone of reasonable mixing.

[127] At the hearing, Mr Pigott acknowledged that the Waimea Inlet was a sensitive environment that suffered from several sources of pollution, not just those from the WWTP. He concluded that the overall effects of the WWTP discharge on water quality were likely to be no more than minor. He also noted that no information had been provided that contradicts the conclusions from the Cawthron report on ecological effects.

[128] Overall, Mr Pigott was satisfied the TRMP water quality standards for Class FAE would be met, outside the 250 m mixing zone. He accepted the section 107 adverse effects shown in the photograph provided by DOC were temporary and exceptional given such an event has not been seen before or since. He therefore concluded there was no barrier to granting consent under section 107.

[129] Mr Pigott highlighted the uncertainty in relation to future contaminant loads and flows beyond 20 years, as well as the uncertainty around emerging contaminants. He also

noted that operating the WWTP up to the proposed maximum nutrient limits to accommodate future growth could potentially reduce water quality in the receiving water and may result in cumulative impacts. He considered this was a key area of uncertainty.

[130] Mr Pigott questioned the log removal levels actually achieved by the WWTP and considered that this needed to be addressed by the Applicant. He agreed with Ms Norquay that UV treatment could be a future option to ensure at least a 3 log removal of viruses is achieved, but cautioned that this was dependent on achieving low total suspended sediment concentrations.

[131] In reply, Ms Forward provided an updated Table 10-1 of the AEE, which listed other existing resource consents to discharge to the Waimea Inlet and Tasman Bay. She noted that any cumulative effects assessment should be limited to things that will occur rather than things that may occur. She highlighted the evidence of Dr Morrisey that no cumulative enrichment effects have been detected downstream of the discharge. She submitted the evidence also concluded that the Waimea Inlet can accommodate an increase in nutrients (over and above the 17 percent increase in total nitrogen over a 35-year term) without entering a eutrophic state. She considered the cumulative effects were not yet at a level that could be considered unacceptable.

[132] Ms Forward explained that the proposed 400 kg/day trigger was derived from the existing consent and that this appeared to have been carried forward from the original 1993 water right and the 2002 resource consent. She noted that while this trigger was based on WWTP performance and not environmental effects, it was considered an appropriate trigger into the future, as the receiving environment showed no significant adverse total nitrogen effects. She stated:

> *'…Cawthron considers that the approach of monitoring the receiving environment for effects, including use of the 400 kg/day median mass load over the summer months as a trigger for further investigation was more appropriate than setting an absolute total nitrogen limit (i.e. carrying over the current limits) which are not effects based'.*

[133] Ms Forward also noted the view of Dr Morrisey that the development of site-specific nutrient limits more appropriately falls to a collaborative approach between the two Councils, rather than resting solely with the Applicant. She noted that the monitoring showed the WWTP is one of many contributing sources of nutrients to the Waimea Inlet and it would therefore be unreasonable to require the Applicant to carry the entire catchment and fund the development of site-specific nutrient limits.

[134] Ms Forward submitted that the QMRA is recognised as a leading example of risk assessment internationally and that the MetOcean hydrodynamic study had informed this assessment. However, in order to satisfy the Reporting Officer's and the Hearing Panel's concerns regarding the ability of the WWTP to achieve a minimum 3 log removal, she noted the Applicant had proposed a new condition requiring a two-year period of virus sampling and comparison of the data collected with the results of the QMRA. She noted that in the event there was a significant difference between the

monitoring results and the data assumed for the QMRA, a MTRR specific to virus removal would be triggered under the conditions of consent.

Findings

[135] Overall, we accept the conclusions of the Applicant and the s42A Report that the current discharge is not having a significant adverse effect on water quality, outside the zone of reasonable mixing.

[136] We are satisfied that the discharge contaminant limits are appropriate. We note that regular long-term monitoring of the WWTP discharge and the receiving waters shows that the discharge has consistently been managed within the consent limits of the existing consent and in accordance the TRMP's minimum water quality standards for Class FAE coastal waters, outside the 250 m mixing zone. We note agreement that the size and extent of the mixing zone is appropriate, and we agree.

[137] Cawthron Report No.3077 states that total nitrogen loads from the WWTP discharge are predicted to increase by 17 percent over the next 35 years, in conjunction with a 20 percent increase in discharge volume. However, we note this was considered to be the 'worst case scenario', as the Report states '*...NRSBU expects that improved efficiencies will be achievable to effectively minimise this increase'* (pg. 42). The Report concludes that, assuming that dilution factors remain the same, nitrogen concentrations are not predicted to increase noticeably beyond present levels in the receiving waters. The Report states that monitoring results to date have not identified any significant benthic or water column ecological effects of increased nutrients from the WWTP.

[138] The Cawthron Report concludes that assessment of the assimilative capacity of the Waimea Inlet indicates that there is little capacity for assimilation of additional nutrients and has a 'moderate-high' vulnerability to ecological effects, despite no adverse ecological effects being expressed.

[139] The Cawthron Report concludes that down current of the WWTP discharge and the Inner Tasman Bay there is potential for some increase in concentrations of nitrogen without exceeding relevant thresholds or expression of adverse enrichment effects. However, we note the assessment also states:

> *'We must emphasise, however, that the available data describing water quality characteristics of the environment are extremely limited and should be interpreted with care.' (pg.31);*

And

> *'Estimates presented here of the potential for the Waimea Inlet and Tasman Bay to assimilate additional nutrients without unacceptable enrichment effects are based on thresholds implemented elsewhere. These provide useful context in general terms, however ongoing monitoring will be required to improve confidence in their interpretation.' (pg. 43).*

[140] Overall, on the basis of this report and the evidence of Dr Morrisey, we find the Waimea Inlet, as a whole, is highly sensitive to additional nutrient inputs; and that there is a moderate level of uncertainty regarding the assimilative capacity of the receiving waters of the Waimea Inlet, as a whole. While we accept the projected increases in nutrients are unlikely to result in 'catastrophic and irreversible' ecological effects, we consider there is potential for adverse cumulative effects on water quality and ecological values in the Waimea Inlet.

[141] We note that total nitrogen concentration is a useful parameter to assess water quality because it has biological significance to organisms of concern and provides an indication of likely toxicity. While we note that there was no specific evidence presented to match loads in the discharge to concentrations in the receiving environment, we accept the premise that it is reasonable to assume that as long as the average total nitrogen loads comply with the currently consented trigger value of 400 kg/day and a threshold of 500 kg/day, adverse effects should not increase. However, the Applicant's proposed conditions remove the existing consent limits for both nitrogen and phosphorus.

[142] We are conscious that the WWTP has not routinely been operated up to these maximum nutrient loads and that the observation of no adverse ecological effects in the receiving waters reflects this operation within these existing nutrient limits. In this regard, we agree with Mr Pigott that 'use of the headroom' within the discharge limits of the previous consent to accommodate future growth, coupled with increased flows, could potentially result in reductions in water quality in the receiving waters and cumulative impacts.

[143] While we accept the evidence that the assimilative capacity assessment of the Waimea Inlet downstream of the WWTP discharge and adjacent area of Tasman Bay, coupled with continued compliance with existing consent conditions for total nitrogen, indicate that there should be no increase in adverse effects on water column or sediment biota within these receiving environments, we consider it is not appropriate to significantly increase nutrient inputs into the nutrient sensitive environment of the Waimea Inlet, particularly from point sources such as the WWTP. We therefore find that the absolute limits on maximum nitrogen and phosphorus loads in the existing consent should be imposed to ensure existing quality of the environment is not further degraded, as a minimum.

[144] We disagree with Ms Forward that the existing nutrient limits are not effects based, as monitoring the effects of the discharge over the term of the consent is in our view effects based. We do not consider proposed Condition (20)(d) is a substitute for the existing nutrient limits, as monitoring the receiving waters for 'significant adverse effects' when the 400 kg/day total nitrogen limit is triggered does not maintain existing water quality. We consider investigating significant adverse effects and establishing any cause-effect link with the WWTP discharge would be extremely challenging, particularly given the existing degraded state of the Waimea Inlet.

[145] Overall, we find on the basis of the evidence, that the WWTP discharge should continue to be operated within the nutrient limits of the existing consent; and that any future increase in flows and loads must be managed within these limits to ensure there is no adverse cumulative impact on the existing state of the Waimea Inlet, as a whole.

[146] We agree with Ms Forward, that a collaborative joint Council approach to site-specific nutrient limits in the Waimea Inlet is required to address the cumulative impacts of contaminants from both point sources and non-point sources. However, until this work is completed, existing nutrient limits should be retained.

[147] We acknowledge the importance of the hydrodynamic computer modelling undertaken by Met Ocean to understand tidal flows and mixing of the treated wastewater. We also acknowledge the importance of the assumed discharge quality in terms of virus removal to the results of the QMRA.

[148] We note that the QMRA presented as part of the application concludes that 2 log (100 fold) removal of viruses by the WWTP is required to minimise the risks associated with contact recreation at sites downstream of the WWTP and scallop collection from Tasman Bay. We note that to adequately reduce the risk of illness associated with consumption of other shellfish, at least 3 log (1000 fold) removal is required. We accept that based on studies from other WWTP, Ms Norquay predicts that the Bell Island WWTP will achieve at least 3 log removal.

[149] We note that the ability of the WWTP to achieve at least 3 log removal of viruses is not supported by evidence derived from the operation of the Bell Island WWTP and presented as part of the hearing process. However, we accept that the monitoring programme suggested by Ms Norquay and proposed by the Applicant in the final reply, will provide the data required to quantify the removal rate of the existing system and compare this with the risks quantified using the QMRA. We consider this addresses our concerns regarding uncertainty of potential health effects.

[150] On the basis of the evidence, we find there is no barrier to the grant of consent under section 107 and that any breach, outside the mixing zone is likely to be temporary and/or exceptional.

9.3 Cultural Effects

[151] The s42A Report outlined the cultural significance of water as taonga to tangata whenua and the significance of the Waimea Inlet and Bell Island. It noted that the discharge of wastewater to water is culturally offensive and abhorrent. It stated that the general thrust around New Zealand has been to discharge treated wastewater to land.

[152] The s42A Report referred to the CEA and the acknowledgement that the WWTP discharge is having a cumulative effect on the mauri and natural character of the estuary; and that the estuary is degraded.

[153] The submissions from Te Ātiawa, Rarua Ātiawa Iwi Trust – Wakatū Incorporation and Ngāti Rārua Ātiawa Iwi Trust, and Ngāti Tama Ki Te Waipounamu Trust ('Ngāti Tama') raised concern regarding significant adverse effects on cultural values from the discharge of human effluent into coastal waters.

[154] The joint submission from Wakatū Incorporation and Ngāti Rārua Ātiawa Iwi Trust requested the Applicant undertake a study into alternatives to discharge to water and a consent term of 20 years. It also requested the establishment and reporting on a Cultural Health Index, and sufficient storage capacity for heavy rain inflows and plant failure to avoid discharges to the estuary.

[155] The submission from Ngāti Tama Ki Te Waipounamu Trust stated it was neutral to the application, but requested:

(a) A reduced consent term of 15 years;
(b) Investigation of future land-based discharges to avoid adverse effects on water quality and cultural values (native fisheries, ecological, mahinga kai) for the coastal marine environment;
(c) Recognition that the carrying capacity of the WWTP will be insufficient to meet future population growth demands;
(d) No further degradation or cumulative effects on the mauri of the coastal water, habitat, native fisheries and birds, rongoā (plants) and kai species;
(e) Consideration of the effects of climate change on the receiving coastal environment;
(f) Consideration of the potential to impact Ngāti Tama cultural values.

[156] Ngāti Tama requested conditions that would require the Applicant to:

(a) Protect, enhance and maintain natural and ecological values and to provide a net benefit to the environment.
(b) Enable Ngāti Tama to undertaken cultural health monitoring programmes on the coastal marine area;
(c) Protect archaeological sites and enhance protection from ongoing erosion by strategic planting;
(d) Native tree and shrub restoration on the island;
(e) Provide for an iwi monitor during soil and physical work;
(f) Provide for a Ngāti Tama iwi representative to the NRSBU Board selected by Ngāti Tama; and
(g) Ensure the highest standards of structural integrity of the infrastructure to avoid damage and degradation of cultural values.

[157] The submission in opposition to the application from Te Ātiawa raised concern that the continuing use of the coastal marine area as a waste receptacle ignores the significant cultural values attributed to it by Iwi. The submission requested that the application be declined, as it currently stood.

[158] In her statement of evidence for Te Ātiawa, Ms Heard highlighted the recent Deed of Settlement confirming Te Ātiawa hold mana whenua mana moana over the Motueka/Wakatū (Tasman/Nelson) rohe. She noted the plethora of middens,

occupation sites, battle sites, pā sites and urupā throughout the area. She outlined that the Council had been notified of the withdrawal of Te Ātiawa from Tiakina by email on 6 October 2017. She noted the hui with NRSBU on 8 October 2018 and follow up emails after the hui had only addressed some of the concerns raised. She considered that '*...the Iwi has not been engaged at the appropriate level of consultation and has failed to be treated as a Treaty Partner in the process*' (pg. 5)

[159] Ms Heard stated that the CEA provided with the application had been prepared for a previous consent and that a new CEA for this application would be required. She considered the CEA prepared by Ngati Kuia on behalf of Ngāti Kuia, Ngāti Apa kit e Rā Tō and Rangitāne o Wairau did not represent the views of Te Ātiawa.

[160] Ms Heard described the concepts of kaitiakitanga, mātauranga Māori, mauri and mana; and the relevance of the Treaty of Waitangi/Te Tiriti o Waitangi, RMA, NZCPS and TRMP. She also noted the relevant provisions of the TRMP in relation to the protection of cultural values and relationships, adverse effects on natural processes and the cumulative effects of contaminants in the Waimea Inlet. She stated that Te Ātiawa had not had the opportunity to contribute mātauranga Māori through involvement in the monitoring process. She noted the mauri of the water of the Waimea Inlet is currently degraded and continues to be degraded by the discharge of treated wastewater to the coastal marine area.

[161] In response to questions, Ms Heard said Te Ātiawa sought to have a Cultural Health Index (CHI) monitoring included in the monitoring programme. She also considered that the existing adverse effects of the discharge on cultural values could be partly offset by positive actions, such as restoration planting around the estuary and use of mātaitai and rahui.

[162] Mr Horne emphasised the importance of enabling his people to exercise kaitiakitanga and the need to restore the estuary to pre-development conditions in 1830s, when birds and fish were plentiful and the waters were not 'paru' (soiled/sewage). He accepted that compromise was needed, but considered that cost should not be used as an excuse to not adopt new technologies. He stated a desire to have CHI monitoring as part of a wider catchment model for the Motueka catchment that incorporated the work of Gail Tipa. He considered the requirement to undertake an MTRR every nine years (as proposed) was too long and requested it be every three to five years. When questioned as to possible offsets or mitigations, Mr Horne acknowledged that placing a rahui (stopping) was not an option, but describe the current situation as '*putting the toilet in the kitchen*'.

[163] In opening submissions, Ms Forward acknowledged the discharge of treated wastewater into water is a significant cultural effect and is offensive to tangata whenua. She noted the Applicant acknowledges the strong desire of tangata whenua to avoid discharges of wastewater to the sea. However, she highlighted that the cost of a full land-based disposal system was prohibitive at this time and could not be sustained by the ratepaying communities. She noted the Applicant's commitment to upgrading the WWTP to address odour issues, and to further investigating and

implementing a pilot water reuse system which could reduce discharge volumes to the estuary. She submitted that overall the conditions proposed would mitigate cultural effects.

[164] Ms Forward also highlighted the creation of a position on the NRSBU Board to represent the views of local iwi and to advise on cultural impacts. She noted that the recent appointment of Mr Frank Hippolite to this position had been accelerated in response to the submission by Ngāti Tama ki Te Waipounamu Trust.

[165] Mr Clifford responded to the comments made by Ms Heard regarding consultation and provision of the CEA in his rebuttal evidence. He noted that NRSBU had not been advised by either Council that Te Ātiawa had withdrawn from Tiakina te Taiao and had become independent, until a hui in October 2018. He considered NRSBU had used 'reasonable endeavours' to obtain information on cultural values to inform the consent process.

[166] Mr Pigott noted the difficulty in getting consensus with eight different iwi groups holding Statutory Acknowledgement and considered that building partnerships would not be an 'easy fix'. He noted that CHI monitoring in conjunction with Tiakina te Taiao at six monthly intervals for five years had been imposed on the consent for the Motueka WWTP and that this could be removed after this time if there were no significant adverse effects on the cultural health of the receiving waters. However, he noted that Te Ātiawa had not provided sufficient detail to enable the imposition of CHI monitoring and he therefore did not recommend imposing such a condition in this case.

[167] In response to questions regarding the adequacy of the consultation undertaken and the status of the CEA, Mr Pigott confirmed that he had taken this into account in the prescriptive nature of the conditions recommended and was one of the key reasons for recommending a 20 years consent duration.

[168] In reply, Ms Forward submitted that while section 36A of the RMA imposes no duty on the Applicant to consult any person about the application, the Applicant had undertaken wide ranging and extensive consultation, including iwi and Best Island residents. She noted the purpose of consultation was to identify issues, not to reach agreement.

Findings

[169] We are satisfied the Applicant has made reasonable efforts to consult with tangata whenua and potentially affected parties.

[170] We accept the CEA adequately identifies key principles and potential effects on cultural values and relationships. While we acknowledge the CEA was prepared by Ngāti Kuia, we consider it reflects the general view of tangata whenua and identifies key values and concerns.

[171] We acknowledge the concerns raised both in submissions and the CEA are consistent and express fundamental opposition to discharges of human effluent to water. All express concern about cumulative effects and degradation of the Waimea Inlet. We accept the discharge is having significant adverse effects on cultural values and relationships, and the ability for tangata whenua to exercise practises such as kaitiakitanga and manaakitanga.

[172] We have paid particular attention to cumulative effects on water quality, ecological values and human health. We agree that the discharge should not further degrade water quality or ecological and human health. We are satisfied that conditions and limits can be imposed to ensure the quality of the receiving environment is maintained and the effects are appropriately monitored for the duration of the consent.

[173] We consider the appointment of an iwi representative on the NRSBU Board, will assist in building partnerships and in providing a pathway for iwi concerns to considered and addressed in future planning and decision making. We note that this will be a critical role in ongoing investigations into alternatives and managing future growth. We agree that the MTRR condition will require the Applicant to continue to investigate alternatives and to ensure the BPO is implemented.

[174] We consider the planting programme required by the proposed conditions will improve the natural character of Bell Island and will improve ecological habitat. We acknowledge that this partially offsets adverse effects of the WWTP on cultural values.

[175] We agree with the Applicant and Mr Pigott that there is insufficient detail to impose a condition requiring CHI monitoring. We consider this would be best achieved at a catchment wide level as part of both Councils' state of the environment monitoring.

10 Decision

[176] Pursuant to Sections 104B, 105 and 107 of the Act, we **GRANT** the resource consents RM171238, RM171255, RM171256, RM171257 and RM171258, subject to the conditions attached in Attachment 1 of this decision, for the reasons outlined below.

11 Reasons for the Decision

11.1 Effects on the Environment

[177] On the basis of the evidence before us, we consider the adverse effects on air quality, water quality and cultural values can be avoided, mitigated and remedied by the imposition of appropriate conditions.

11.2 Positive Effects

[178] The submission in support of the application from Alliance Group Ltd Nelson Plant noted the company employs approximately 230 people in exporting meat products, and contributes $10M in salaries and $5M in service and materials to the local economy. It stated the operation relies on NRSBU for pre-treatment effluent disposal.

[179] The submission in support of the application from Nelson Pine Industries noted the company is a significant employer and contributor to the local economy. It stated the company relies on the treatment of its wastewater to a high standard of treatment in a cost-efficient manner.

[180] Ms Forward highlighted the significant positive effect of the application was that it enables the ongoing effective and efficient wastewater treatment and disposal which is very important to the social, economic, cultural wellbeing, and health and safety of the community. She noted the significant benefits to residents, businesses and industry in the area; and the substantial cost savings to both Councils from the joint budget.

[181] Mr Clifford noted the significant positive effects to the residents, businesses and industries from the continued operation of the WWTP; and the significant number of fulltime employment opportunities provided through the Nelmac contract.

[182] In rebuttal, Mr Clifford outlined efforts undertaken on Bell Island to control Argentine ants and feral cats. He noted the sand bank to the north of the island, known as Shell Bank, was an important roosting and breeding site for some birds. He considered the pest control work provided protection for Shell Bank.

[183] In making this determination, we have taken into account these positive effects. We acknowledge the pest control undertaken on Bell Island will have positive effects on ecological values. However, because this was not codified in the conditions of consent, we have not taken the benefits of pest control into account.

11.3 Relevant Planning Provisions

[184] The NZCPS is the highest order document with objectives and policies to give effect to the purpose and principles of the RMA. It was agreed that the relevant objectives and policies of the NZCPS should be given the most weight. It is also agreed that the more specific policies should be given more weight than the general policies. In undertaking a fair appraisal of the NZCPS, we have read the objectives and policies both individually and as a whole.

[185] We accept the provisions of the NZCPS have been prepared to give effect to Part 2 of the Act. We acknowledge the RPS and TRMP were prepared before the NZCPS.

[186] The Applicant's assessment of the application against the relevant objectives and policies was included as Appendix I of the application. It concluded that the application was 'generally consistent' with the relevant provisions of the NZCPS, RPS and TRMP.

[187] The s42A Report concluded the application was generally consistent with the policy direction of the NZCPS.

[188] Ms Heard highlighted Objective 3 of the NZCPS and the requirement to incorporate mātauranga Māori into sustainable management practices. She noted that this objective is further clarified through Policies 6, 13, 14, 21 and 23, where mātauranga Māori and cultural values should be incorporated into the decision-making process to ensure the purpose of the RMA is achieved.

[189] Mr Russell relied on the Applicant's assessment in Appendix I of the application and agreed with the s42A Report conclusion that the application was consistent with the policy direction; particularly the key objectives of the NZCPS which recognise the social and economic importance of WWTP as strategic asset.

[190] The evidence of Mr Bradley noted that the 1992 and 2002 AEEs had addressed land application/disposal for treated wastewater in some detail. He stated that up to 545 ha of land would be required with costs ranging from $7.5M (summer irrigation only) to $43.4M (full year scheme) depending on the option. He noted further investigations as part of the November 2017 AEE had identified that an area of 580 ha of land was required for a six-month irrigation season on clay loam soils. He noted that a range of treated wastewater reuse options have been investigated, including reuse of treated wastewater at the plant and on golf courses, the airport or the A&P showgrounds.

[191] Ms Forward submitted that the WWTP provided a solution that is the BPO for the treatment and disposal of wastewater. Mr Bradley undertook a comprehensive review of alternatives, which was fed into the Applicant's analysis of the BPO, and concluded the application and volunteered conditions represents the BPO.

[192] Mr Pigott accepted that, based on the Applicant's evidence, the application represented the BPO for the discharges to air and water.

[193] In response to questions regarding the relevance of NZCPS Policy 11 and the need to avoid adverse effects on significant habitats of threatened and endangered species, Mr Pigott considered this policy was not engaged. He noted he was satisfied that the evidence shows no adverse water quality or ecological effects outside of the mixing zone.

[194] In reply, Ms Forward noted Dr Morrisey's evidence that it was very unlikely any taxa or habitat effects would occur given the location of the outfall structure, high flushing capacity on an ebbing tide, and the location of the two 'significant' sites. She submitted these factors and the proposed conditions would adequately avoid or mitigate adverse effects on indigenous species, ecosystems and habitats.

[195] We noted NZCPS Policy 23, and section 105 and Schedule 4 of the Act require the Applicant to consider alternative methods of discharge and discharge to alternative receiving environments. We accept the Applicant has undertaken such a consideration and has made a 'reasoned choice', as submitted by Ms Forward.

[196] In considering the nature of the discharge and the sensitivity of the receiving environment, the financial implications of other options, and the current state of technical knowledge, we are satisfied the application represents BPO. We note the importance of the MTRR condition in requiring reassessment of the BPO within the context of new technologies and ongoing monitoring in the receiving waters. We consider the timing and frequency of this review is critical in ensuring adverse effects are mitigated and avoided throughout the term of the consent.

[197] In response to questions, Ms Forward confirmed that the wording of the MTRR conditions left determination of the BPO to the consent holder. She considered this was appropriate given the Council could rely on the general review condition. We have taken this into account in determining an appropriate consent duration.

[198] Ms Forward submitted that in relation to the application Objective 6 was key driver of the NZCPS and provides for the existing use subject to protection of the values of the coastal environment.

[199] We note the TRMP provisions relating to the air discharge includes very clear policy direction to avoid, remedy and mitigate adverse effects on the use and enjoyment of other land and on the qualities of the natural and physical environment (Objective 5.1.2), to avoid, remedy and mitigate effects of odours and fumes (Policy 5.1.3.9), to maintain and enhance air quality (Objective 34.1.2), and to ensure adverse effects on the receiving environment are avoided, remedied or mitigated (Policy 34.1.3.1), and to allow or regulate contaminant discharges to air (Policy 34.1.3.2).

[200] We noted the TRMP provisions relating to the wastewater discharges are also very directive requiring maintenance of water quality and enhancement where it has been degraded (Objective 35.1.2), to control the adverse effects of discharges to enable water classification standards to be met (Policy 35.1.3.2), to seek to improve water

quality (Policy 35.1.3.3), to ensure water quality is not degraded (Policy 35.1.3.4), and to avoid adverse effects of point source discharges (Policy 35.1.3.5).

[201] Policy 35.1.3.8 of the TRMP requires the Applicant to avoid the discharge of untreated wastewater unless it better meets the purpose of the Act than disposal to land.

[202] We note that Policy 35.1.3.6 of the TRMP sets out criteria to be taken into account when determining what constitutes reasonable mixing, including water circulation patterns and tidal flow characteristics, likely effects on aquatic life within the mixing zone, characteristics of the discharge, and the classification of water.

[203] Overall, we find that in light of the statutory framework, water quality in the receiving waters must, at a minimum, be maintained and where it is degraded it must be improved. We consider absolute nutrient limits must be imposed to prevent any further degradation of the estuary and to ensure the existing ecological values are protected. We find that in order to address cumulative effects and improve existing degradation, reductions in nutrient input from both point sources and non-point sources will need to be addressed.

[204] Overall, we find that with the imposition of conditions the application is generally consistent with the guidance of the NZCPS, RPS and TRMP.

11.4 Other Matters

[205] The application stated the following iwi management plans are relevant to the application:

(a) Ngāti Kuia Pakohe Management Plan 2015;
(b) Nga Taonga Tuku Iho Ki Whakatū Management Plan 2004;
(c) Ngāti Koata Iwi Management Plan 2002; and
(d) Te Tau Ihu Mahi Tuna (Eel Management Plan) 2000.

[206] Ms Forward noted the Waimea Inlet Management Strategy and the Waimea Action Plan should also be taken into account under section 104(1)(c). She noted the presence of the existing assets and land use in and around the inlet had been recognised in these documents.

[207] The Applicant's record of compliance with the conditions of the existing discharge permits was raised by submitters, and was addressed by both the Applicant and the Reporting Officer in relation to air and water.

[208] In response to questions regarding the relevance of the Applicant's compliance history, Ms Forward submitted it provided some comfort that the Applicant can meet the conditions proposed and that the limits proposed are appropriate.

[209] In reply, Ms Forward submitted the recent compliance history in relation to odour events demonstrated noticeable improvements from progressively implementing odour mitigation upgrades.

[210] Ms Heard referred to the Te Ātiawa Iwi Ki te Tahu Ihu – Iwi Environmental Management Plan (**IEMP**) and the relevant provisions relating to kaitiakitanga, mātauranga Māori, mauri, and mana.

[211] We record we have taken these non-statutory plans and the Applicant's compliance history into account in making this determination.

11.5 Part 2 of the Act

[212] Ms Forward submitted there was no need to undertake a separate assessment of the application under Part 2 of the Act in light of the Court of Appeal's decision on *RJ Davidson Family Trust v Marlborough District Council*[7].

[213] Mr Russell commented that we would need to have recourse to Part 2 of the Act if it was appropriate and necessary to do so.

[214] Mr Pigott considered there was no need to undertake a Part 2 assessment given the relevant provisions of the NZCPS, RPS and TRMP.

[215] We accept that the provisions of the NZCPS, RPS and TRMP have been formulated to give effect to the purpose and principles of the Act. We acknowledge that the provisions of the RPS and TRMP pre-date NZCPS 2010 and therefore do not necessarily give effect to the provisions of the NZCPS. However, we do not consider reference to Part 2 would add anything to the evaluative exercise we have undertaken under section 104 of the Act.

[216] Overall, we find that granting the consents sought will promote the sustainable management of natural and physical resources, as defined in section 5 of the RMA.

12 Consent Duration

[217] A key concern raised by submitters was the 35-year consent duration sought. Submitters requested a shorter consent term ranging from 5-15 years. The DOC submission sought a maximum consent term of 20 years.

[218] The s42A Report noted that due to the large range of potential growth in the region it was not possible to accurately predict the quantum of contaminants that would be discharged in the future. It stated that this variability was a matter to be taken into account in the duration of consent, as the risk around the ability of the WWTP to accommodate growth would become significant after about 20 years. It noted that methods and best practice for wastewater treatment are evolving quickly and that information regarding climate change is also advancing quickly. It concluded that these factors had been taken into account in recommending a 20-year consent

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duration. It stated that consent duration and the ability to review a consent provided different safeguards.

[219] The s42A Report stated that the low-lying nature of Bell Island and predicted effects from climate change (sea level rise and an increase in the frequency of storm events) support the conclusion that the island is not a good place for a large wastewater treatment system.

[220] Ms Heard stated that Te Ātiawa consider the consent term sought to be excessive given the unknowns associated with the future, including potential effects of climate change. She drew our attention to TDC's coastal hazard work and noted that the site was identified as potentially affected by sea level rise. She therefore sought a precautionary approach to the consent duration.

[221] Mr Quinn considered the consent term should be limited to 15 years given the performance and malfunctions over the last 15 years and the recent improvements which were yet to be proven.

[222] Ms Forward addressed the consent duration in opening submissions and submitted that applicable case law suggested a term of 35 years was appropriate. She considered the value of the sunk infrastructure and cost of an alternative system, combined with the importance of the application to public health and well-being supported a longer-term duration. She cited *PVL Proteins Ltd v Auckland Regional Council*[8] and noted the Court commented that the review and BPO conditions may be more effective than a shorter term for the consent, if the goal was to ensure systems and conditions do not become outdated, irrelevant or inadequate.

[223] Ms Forward cited *Te Rangatiratanga o Ngāti Rangitihi v Bay of Plenty Regional Council*[9], where on appeal, the High Court had granted long term consents to protect the significant existing and future investment by the applicant because the effects would be mitigated through stringent monitoring and review conditions. She also referred to *Crest Energy Kaipara Ltd v Northland Regional Council*[10] which she submitted was analogous to this application because the WWTP is a critical component of the regional infrastructure and included a detailed monitoring programme and a comprehensive review programme. She highlighted the need for security of investment and the unnecessary cost of the consent process for a short duration consent. She submitted that a short duration consent would likely result in a conservative approach to funding approvals by both Councils and the wider community through the Long-term Plan process.

[224] Ms Forward submitted that the risk around the ability of the WWTP to accommodate increases in wastewater after 20 years, as raised in the s42A Report, stating:

8 [2001] NZEnvC A61/2001
9 [2010]16 ELRNZ 312
10 [2011] NZEnvC 26

> *'…this an appropriate resource management factor to consider in setting consent duration. Regional growth projection[s] are clearly relevant in establishing the need for the infrastructure. However, whether NRSUBU can accommodate unexpected increases in waste stream volumes is an operational and asset planning matter for NRSBU alone.'*[6]

[225] Mr Clifford highlighted the length of the consent process and the costs involved in providing substantially more information. He considered this enabled improved decision making and better management of the WWTP over the 35-year consent term sought. He noted the proposed MTRR condition would require the Applicant to regularly turn its mind to new technology advances that may present an alternative BPO. He considered a 35 years term would give the community the confidence to further invest in the site and more likely result in meaningful improvements through the Long-term Plan process.

[226] Mr Bradley considered a 35 years consent term would provide infrastructure security and financial security for the community. He noted that this length of duration was appropriate given the significant capital and operational investments required. He stated that the economic asset life of the Bell Island Scheme and the associated collection network is much longer than 35 years. He noted other long-term (30-35 years) consents that had been granted for similar discharges to the marine environment (his Appendix B and F).

[227] Mr Bradley highlighted the MTRR condition proposed as a 'standalone review approach' and noted this was successfully used in other municipal wastewater consents. He noted the timing of the MTRR need to coincide with Long-term Plan 3-yearly cycle and that nine years between reviews would enable this to occur every third plan cycle. Overall, he considered the conditions proposed and a long consent term would allow flexibility for future changes in flows and loads, environmental and community requirements, and technologies.

[228] We accept the evidence of Mr Clifford and Mr Bradley that the value of the existing WWTP infrastructure is approximately $75-80M. We accept the life of some of the wastewater system may be longer than 35 years (e.g. pipelines). However, we consider many key parts of the WWTP itself are coming to the end of their life and need upgrading or are in need of significant maintenance. We note that most of the upgrades proposed are required to meet current best practice to mitigate odour effects.

[229] We agree with Mr Pigott that there are significant risks in predicting water quality effects and climate change beyond 20 years.

[230] Having considered all of the factors raised and the conclusions reached in our assessment of effects we consider the appropriate consent duration is 20 years.

13 Consent Conditions

[231] Further comments from submitters[11] and the Reporting Officer were received after circulation of the revised conditions, following the adjournment of the hearing. Some of these re-iterated requests for a shorter consent duration.

[232] Te Ātiawa raised a number of requested a number of changes including:

(a) Inclusion of a new condition requiring the consent holder recognise the partnership with tangata whenua and to commission a CHI assessment to assess the health of Te Taiao on an annual basis (including consequential changes to Condition (4));
(b) Changing the frequency for submitting a MTRR to every three years (Conditions (5) and (6));
(c) Include discussing results from CHI monitoring and provide updates on the ultimate goal of relocation of the WWTP to the purpose of the hui (Condition (8)(a));
(d) Require and set a rate for reimbursement for iwi attendance at the hui (Condition (8)(c));
(e) Giving at least one month's notice of the hui to iwi representative (Condition (8)(a) and Advice Note (1));
(f) Acknowledge (by way of new Advice Note (3) under Conditions (8) and (9)) that the post-settlement world is extremely demanding on iwi and that attendance at the hui may not be possible;
(g) Clarification in Advice Note (1) under Condition (9) that *'Consultation and planting shall involve the current members and representatives of the Waimea Inlet forum, which includes Te Tau Iwi in its membership along with Tangata Whenua Iwi in their own right'*;
(h) Inclusion of Te Tau Ihu Iwi as a party to be notified in the event of a breach of the conditions of consent; and
(i) Requiring a 'telemetered' measuring device (Condition (12)) and annual calibration of the measuring device (Condition (13)).

[233] Mr Sellars requested the reporting schedule required by the conditions be annual, require consultation with residents (including Best Island, Lower Queen Street, Beach Road and Monaco etc.), and include response to complaints from resident by the odour patroller.

[234] The Waimea Inlet Forum supported proposed Condition (9) requiring a restoration and planting programme and noted its members would be pleased to be participants in the proposed Bell Island Stewardship Group.

[235] During the hearing Mr Pigott stated he was unclear on how meaningful the proposed MTRR condition would be and that he considered there was a risk that any recommendations or alternative identified through this process may not be taken up by the NRSBU Board. He considered any funding was unlikely to be provided until

11 Te Ātiawa, Mark Quinn, Trevor Sellars, and the Waimea Inlet Forum.

well after the ninth year. He recommended at least six yearly reviews to ensure water quality is maintained over time. We agree and find that six yearly reviews under the MTRR condition are appropriate.

[236] In his further comments, Mr Pigott considered that imposing a condition requiring CHI monitoring would add a new dimension to the current monitoring framework proposed and it is unclear what would be monitored and how. He stated that he had no issue with adding Te Tau Ihu Iwi to the parties to be notified and the wording clarification sought by Te Ātiawa. He noted it was assumed that flow metering is telemetered and it is normal to calibrate flow meters every five years. Overall Mr Pigott agreed with the final set of conditions proposed by the Applicant, subject to a few minor changes.

[237] The final set of conditions proposed by the Applicant responded to most of the requests from the parties. However, we note the Applicant did not accept a reduced frequency for the MTRR, reimbursement for iwi representatives attending hui, reference to post-settlement demands on iwi's ability to attend hui, inclusion of CHI monitoring, and the requirement for annual calibration of flow meters.

[238] In reply, Ms Forward submitted that we could have confidence in the MTRR condition, as it had been successfully applied to many other WWTP consents around New Zealand. She noted this would require the Applicant to keep up to date on technology advances and environmental change, including climate change. She noted that the Applicant had responded to concerns regarding the frequency of the review by requiring an initial review after six years and then moving to nine yearly reviews.

[239] Ms Forward noted the Applicant had carefully considered volunteering consent conditions providing for CHI monitoring and kaitiaki monitors, but considered it would be challenging given the many different iwi groups.

[240] Ms Forward also noted that a CHI monitoring condition providing an opportunity for iwi to exercise mātauranga Māori was discussed in the hearing with Te Ātiawa representatives, but that the condition suggested after the hearing did not contain this and the particulars of the CHI were not identified. She also noted the concerns raised by Mr Bradley that conditions cannot bind a third party to complete monitoring. She said caution was required to ensure such as condition does not put the consent holder in non-compliance if iwi representatives are unavailable.

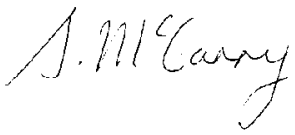
[241] Ms Forward submitted that the conditions proposed by the Applicant provide a pathway for Te Tau Ihu iwi to participate in and to inform the Applicant's decision making for the term of consent through the appointment of a Te Tau Ihu iwi representative (Mr Hippolite) to the NRSBU Board and their involvement in the restoration planting programme.

[242] At the close of the hearing, there was a high level of agreement between the Applicant and the Reporting Officer on the final set of proposed conditions provided with the Applicant's reply.

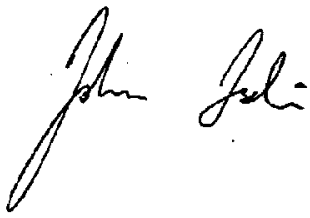
[243] Overall, we agree with the Applicant and the Reporting Officer that there is insufficient detail or evidence before us to impose a requirement to undertake CHI monitoring. We consider the wording suggested by Te Ātiawa is vague and that it is unclear how a template would be developed. We accept the Applicant has undertaken baseline studies to assess effects on water quality, taonga species, sites of cultural importance and has provided a recommendation for the operation of the plant from suitably qualified experts.

[244] As discussed above, we have made a number of changes to the conditions in line with our findings on the assessment of effects. In particular, we have determined that nutrient limits must be imposed to ensure the quality of the receiving environment is maintained.

Issued this 21st day of February 2020



Sharon McGarry
Independent Hearing Commissioner (Chair)



John Iseli
Independent Hearing Commissioner

Dr Ngaire Phillips
Independent Hearing Commissioner

Attachment 1

tasman district council | Te Kaunihera o te tai o Aorere

Resource consents

RM171238, RM171255, RM171256, RM171257, RM171258

Pursuant to section 104B of the Resource Management Act 1991 ("the Act"), the Tasman District Council ("the Council") hereby grants resource consents to:

Nelson Regional Sewerage Business Unit

(hereinafter referred to as "the Consent Holder")

Activities authorised by these consents

RM171238	Coastal Permit	To discharge treated wastewater into the Waimea Inlet
RM171255	Discharge Permit	To discharge treated wastewater onto land via irrigation
RM171256	Discharge Permit	To discharge contaminants (primarily odour) into air
RM171257	Discharge Permit	To discharge treated wastewater into land via seepage from clay-lined facilities (ponds)
RM171258	Coastal Permit	To occupy the coastal marine area (Waimea Inlet) and to use and maintain an existing pipe and diffuser outlet structure

Location details:

Address of property: 150 Bell Island Access, Best Island

Legal description: Island No 2 Bell Waimea East District

Record of title: CT 56/193

Co-ordinates (NZTM):

	Easting	Northing
Wastewater Treatment Plant	1614689	5428295
Irrigation area	1614184	5429297
Outlet structure and discharge to Waimea Inlet	1615481	5428066

Pursuant to section 108 and 108AA of the Act, this resource consent is issued subject to the following conditions:

A2355076

Conditions

General – RM171238, RM171255, RM171255, RM171256, RM171257 and RM171258

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 RM171238, RM171255-RM171258, entitled 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand dated 6 November 2017 and also in accordance with the management plans for the wastewater treatment plant required by Condition 7. In the event that there is any conflict between these documents and any condition(s) of these consents, the conditions shall prevail.

2. The term of this consent is 20 years.

3. The Consent Holder shall maintain a Complaints Register for the activities authorised by these 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:

   (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;

   (f) The date and name of the person making the entry; and

   (g) 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 of receipt of the complaint or on the next working day. All other complaints shall be included in the Annual Report required by Condition 4.

4. The Consent Holder shall prepare an Annual Report and provide it to the Council's Team Leader Monitoring and Enforcement by 30 September 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) Collate, analyse, and interpret 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) A summary of complaints, if any, received by the Consent Holder and any measures taken in response to those complaints;

(d) Details of the date of the hui as required by Condition 8 below, numbers in attendance, and a summary of matters discussed and any actions arising;

(e) A summary of the odour upgrade works to be completed within the next 12 months as detailed in Appendix 3;

(f) A summary of the odour upgrade works detailed in Appendix 3 that have been completed;

(g) The record of results from all odour monitoring patrols undertaken in accordance with Condition 39 over the previous year; and

(h) Details of the date of the liaison meetings required by Condition 37, numbers in attendance, and a summary of matters discussed.

5. The Consent Holder shall submit a Monitoring and Technology Review Report to the Council's Team Leader Monitoring and Enforcement by the 6th, 12th, and 18th anniversaries of the date of commencement of these consents. The Monitoring and Technology Review Report shall be prepared by a suitably qualified and experienced person and shall include the following:

(a) Volumes, flows and loads profile and changes assessed against future population projections and wastewater projections as set out in in section 4 of the Bell Island Wastewater Treatment Plant Resource Consent Application and Assessment of Environmental Effects 6 November 2017;

(b) An assessment of ongoing compliance with the requirements of these consents particularly in relation to any reported non-compliance with consent conditions and the adequacy and scope of such monitoring and any actions arising;

(c) An assessment of compliance/consistency with any relevant national or regional water quality policies, environmental standards or guidelines in effect at the time;

(d) A summary of any major improvements made to the reticulation, treatment or disposal system since the commencement of this permit, including a discussion of potential benefits;

(e) A summary of any residual actual or potential adverse effects outside the designated mixing zone of the treated wastewater discharge, irrespective of whether the discharge complies with the conditions of these consents;

(f) An assessment of the implications of climate change (reasonably foreseeable within the duration of these consents) on the performance of the Bell Island wastewater treatment plant;

(g) An outline of significant technological changes and advances in relation to wastewater management, treatment, discharge, and beneficial reuse

technologies that could be of relevance for possible future use in the Bell Island wastewater treatment and discharge facilities; and

(h) A general assessment of whether any newly available technology option(s) or combination of options identified through (g) above is likely to represent the Best Practicable Option (BPO) to minimise the potential and actual adverse effects of the discharge of treated wastewater at the Bell Island wastewater treatment plant.

6. The Consent Holder shall consider the assessment completed in Condition 5(h) and advise the consent authority whether it intends to adopt any option(s) or incorporate such technologies as BPO.

Advice note:

The 6th, 12th and 18th anniversaries from the date of the commencement of the consents is to align with 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.

7. The Consent Holder shall, at all times, have an Operations and Maintenance Manual, a Pond Management Plan, and an Odour Management Plan in place and make these plans available to the Council's Team Leader Monitoring and Enforcement upon request.

(a) The objective of these plans is to provide a framework for the operation and management of the wastewater treatment plant and discharge facilities to ensure compliance with the conditions of these consents. These plans shall, as a minimum, cover:

(i) An overview description of the wastewater treatment plant and discharge facilities (being the irrigation system and pipe/diffuser outlet structure);

(ii) A description and schedule of the routine inspection, monitoring, and maintenance procedures to be undertaken to ensure operation of the wastewater treatment plant and discharge facilities complies with the conditions of these consents;

(iii) A description of the sampling location(s) and methodology for sampling the treated wastewater discharge, groundwater and receiving environment;

(iv) A schedule of the critical aspects of the wastewater treatment plant and the detailed response and contingency plans to remedy any possible variations from normal plant operation that could potentially affect discharge quality;

(v) Details of contingency plans and procedures to address a critical power or equipment failure at the wastewater treatment plant;

(vi) Procedures for recording routine maintenance and all major repairs that are undertaken;

(vii) The Consent Holder's chain of command, responsibility and notification protocols; and

(viii) Details of the complaints procedure, record keeping and response procedure.

(b) These plans shall be reviewed and updated at least every three years by the Consent Holder but may also be amended 'as required' as a result of any changes in the operation or management of the wastewater treatment plant and discharge facilities that could affect the quality and quantity of the discharges authorised by these consents.

8. During the month of November each year, the Consent Holder shall arrange a hui for Te Tau Ihu iwi. Notification of the hui shall be via the Consent Holder's website and by email or mailed notice to each iwi representative at least four weeks before 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 concerns in relation to the wastewater discharge;

(b) The Consent Holder providing an opportunity for Te Tau Ihu iwi to view the Bell Island wastewater treatment plant including an opportunity to:

(i) assess the structural integrity of the infrastructure to avoid damage and degradation to coastal values; and

(ii) confirm that identified archaeological sites are protected from the Consent Holder's activities associated with the operation of the Bell Island wastewater treatment plant;

(c) The Consent Holder seeking input from Te Tau Ihu iwi into potential works that could be undertaken at the Bell Island site to:

(i) maintain the natural character and ecological values of Bell Island; and

(ii) protect the Mauri of the Waimea Inlet in so far as it relates to the wastewater discharge; and

(d) The Consent Holder providing Te Tau Ihu iwi with updates on progress of reusing treated wastewater from the Bell Island wastewater treatment plant; and

(e) Minutes of this hui will be distributed to all parties within four weeks of the date of the hui.

Advice notes:

1. 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.

2. *In the event of adverse weather, the Consent Holder shall organise an alternative day for a viewing the WWTP.*

9. Within 12 months of commencement of consent, the Consent Holder shall in consultation with the Bell Island Stewardship Group develop a restoration planting programme to enhance the cultural values of Bell Island. The restoration planting programme shall include the following matters:

   (a) The Consent Holder shall make a fund available to complete the works identified in the restoration planting programme.

   (b) Following consultation, the Consent Holder will present the finalised programme to Bell Island Stewardship Group for input and comment. Each member of the Bell Island Stewardship Group will have 12 weeks to provide feedback. If no feedback is received the Consent Holder may proceed to implement the programme as though approval had been obtained.

   (c) If consultation in response to the finalised programme results in proposed revisions to the programme by the Bell Island Stewardship Group the parties will work together in good faith to revise the programme to meet both their needs.

   (d) Works shall avoid any areas which would negatively impact operations at the Bell Island wastewater treatment plant, or require additional consenting requirements (such as works within the coastal marine area).

   (e) The Consent Holder shall in consultation with the Bell Island Stewardship Group review the effectiveness of the restoration planting programme within three years of implementation of the programme and every three years thereafter.

   Advice notes:

   1. *Consultation and planting shall involve the current members and representatives of the Waimea Inlet Forum and Te Tau Ihu iwi – referred to in this condition as the 'Bell Island Stewardship Group'*

   2. *The consultation component of the above condition will be complied with if any member of the Bell Island Stewardship Group advises the Consent Holder that they are willing for the Consent Holder to proceed without their involvement.*

10. 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 any or all of these consents annually between 1 October and 1 November for any one or more 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.

Conditions for RM171238 – Discharge treated wastewater into the Waimea Inlet

11. In the event of a breach of the consent conditions or the Consent Holder becoming aware of an unauthorised discharge of treated wastewater in an extreme event to the Waimea Inlet, the Consent Holder shall notify as soon as practicable, and within one working day of this being known the following: the Council's Team Leader Monitoring and Enforcement, the Nelson Marlborough Bay District Health Board Senior Health Protection Officer, and Te Tau Ihu iwi.
This notification shall include, but not be limited to:

(a) The reasons the discharge did occur;

(b) The duration of the discharge;

(c) Sampling and monitoring procedures used to assess the effect of the discharge on the Waimea Inlet, and the adjacent shoreline and public health;

(d) Details of notification, procedures and public education initiatives undertaken that ensured the public was informed of the discharge and its potential adverse effects, and actions taken that helped to avoid or mitigate the adverse effects of the discharge; and

(e) Details of the procedure used for receiving and dealing with any complaints about the adverse effects resulting from the discharge.

The Consent Holder shall notify the Council's Team Leader Monitoring and Enforcement and the Nelson Marlborough Bay District Health Board Senior Health Protection Officer and Te Tau Ihu iwi of the cessation of any discharge as soon practicable and within three working days of the discharge ceasing under this condition.

Advice note:

The notification requirements in this condition will be complied with if the Consent Holder gives notice to each iwi representative in accordance with contact details maintained by Tasman District Council.

12. The Consent Holder shall maintain a telemetered measuring device to ±5% accuracy to record the times and rates of discharge of treated wastewater to the Waimea Inlet. These records are to be supplied electronically to the Council's Team Leader Monitoring and Enforcement at least every two months, upon written request, and included in the Annual Report required by Condition 4.

13. The accuracy of the measuring device referred to in Condition 12 shall be tested by an experienced person at least once every five years and confirmation of the accuracy shall be included in the Annual Report required by Condition 4 for the year the testing is undertaken.

14. The discharge of treated wastewater to the Waimea Inlet shall, under normal operating conditions, only occur for a period of up to three hours after any high tide which occurs at the defined outlet structure.

15. The average daily rate of discharge of treated wastewater to the Waimea Inlet, based on a rolling 365 day averaging period, shall not exceed 20,000 cubic metres per day (m^3/day).

16. The maximum volume of treated wastewater to the Waimea Inlet over any 24-hour period shall not exceed 25,000 cubic metres (m^3) and where wastewater is irrigated to land under resource consent RM171256 the combined volume discharged to land and to the Waimea Inlet shall not exceed 26,040 m^3.

17. The quality of treated wastewater discharged to the Waimea Inlet shall be measured at the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and meet the following standards:

Determinand	Unit	Median limit	Percentile limit	Maximum limit	Compliance period
Faecal coliforms	cfu/100 mL	20,000	100,000- 90th percentile limit	-	26 most recent fortnightly samples
Carbonaceous five day biochemical oxygen demand ($cBOD_5$)	mg/L	40	50 -90th percentile limit	-	26 most recent fortnightly samples
Total suspended solids (TSS)	mg/L	100	150 -90th percentile limit	-	26 most recent fortnightly samples
Total phosphorus	kg/day	-	150 – 87.5th percentile limit	180	8 most recent fortnightly samples

Determinand	Unit	Median limit	Percentile limit	Maximum limit	Compliance period
Total nitrogen 1 April to 31 July	kg/day	500	600- 87.5th percentile limit		8 most recent fortnightly samples
Total nitrogen 1 August to 31 March	kg/day	400		600	8 most recent fortnightly samples

(a) Compliance with these limits shall be based on a representative sample, as defined in Condition 21, of treated wastewater collected fortnightly from the discharge channel and analysed for faecal coliforms, $cBOD_5$, TSS, TN and TP concentrations.

(b) For the purposes of this condition for faecal coliforms, $cBOD_5$, and TSS:

(i) To determine compliance with median limits, no more than 13 samples out of any 26 consecutive fortnightly samples shall exceed the specified median limit.

(ii) To determine compliance with the 90th percentile limit, no more than three samples out of any 26 consecutive fortnightly samples shall exceed the specified 90th percentile limit.

(c) For the purposes of this condition for TN and TP:

(i) To determine compliance with median limits, no more than 4 samples out of any 8 consecutive fortnightly samples shall exceed the specified median limit.

(ii) To determine compliance with the 87.5th percentile limit, no more than one sample out of any 8 consecutive fortnightly samples shall exceed the specified 87.5th percentile limit.

(d) The daily mass of TN and TP discharged on each day that samples are collected, as required by this condition, shall be calculated by multiplying the concentration in each sample collected by the volume of treated wastewater discharged on the day that the sample was collected.

(e) All treated wastewater sampling required shall be undertaken by a suitably experienced person.

(f) All samples taken shall be analysed by a laboratory that is accredited for that analysis to NZS/ISO/IEC 17025 or equivalent or to any other comparable standard approved by the Consent Authority.

18. The Consent Holder shall collect a representative sample of treated wastewater from the discharge channel once every three months for a period of 24 months from commencement of consent, and analyse it for the following:

(i) culturable human enterovirus;

(ii) human enterovirus by PCR; and

(iii) human norovirus (GI, GII) by PCR.

Advice note:

The discharge of treated wastewater to the Waimea Inlet is not expected to result in any significant adverse effects as a result of pathogens. However, this condition requires the Consent Holder to undertake regular monitoring of enterovirus and norovirus over a two year period to better understand the relative concentrations in the treated wastewater discharge and the log order of removal achieved by the WWTP compared to the Quantitative Microbiological Risk Assessment carried out as part of the 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand and dated 6 November 2017.

For the representative sampling required under this condition:

(a) Samples shall be collected at the same time as those collected in accordance with Condition 17 above.

(b) Sampling shall be undertaken by a suitably experienced person.

(c) Samples will be collected and analysed in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and where possible, all samples taken shall be analysed by a New Zealand laboratory that is accredited for that analysis to NZS/ISO/IANZ17025 or equivalent or to any other comparable standard approved by the Consent Authority. Enterovirus and norovirus (genome copies/L) shall be determined by Reverse Transcriptase - quantitative Polymerase Chain Reaction (RTqPCR).

Advice note:

As at the commencement of consent, not all the above virus analyses were covered by existing accreditation at a New Zealand laboratory.

(d) Within six months of completing the monitoring required by this condition, the Consent Holder shall submit a report, prepared by a suitably qualified and experienced person to the Council's Team Leader Monitoring and Enforcement. The report shall summarise the results of the monitoring required by this condition (including virus concentrations and calculated log order virus removal), and provide a comparison with data associated with the Quantitative Microbiological Assessment (QMRA) carried out as part of the 'Bell Island Wastewater Treatment Plant – Resource Consent Application and Assessment of Environmental Effects' prepared by Stantec New Zealand and dated 6 November 2017.

(e) If the report prepared in accordance with clause (d) above indicates that there may be a significant difference in the observed concentrations and log order removal relative to that defined in the QMRA, the Consent Holder shall engage

a suitably qualified person to review the implications with respect to the QMRA. If such implications are deemed to identify an unacceptable level of risk, the Consent Holder shall take immediate actions to improve treatment and commission a Monitoring and Technology Review Report, within six months, in accordance with Condition 5 above to specifically address increased virus removal at the wastewater treatment plant.

Advice note:

Any Monitoring and Technology Review Report commissioned under this condition will not alter the timing of the Monitoring and Technology Review Reports commissioned under Condition 5.

19. In addition to the limits specified in Condition 17, the maximum concentrations of the following substances in the treated wastewater discharged to the Waimea Inlet shall not exceed the following:

Determinand	**Maximum concentration**
Total arsenic	1.98 g/m^3
Total cadmium	0.039 g/m^3
Total chromium	0.24 g/m^3
Total copper	0.072 g/m^3
Total lead	0.24 g/m^3
Inorganic mercury	0.006 g/m^3
Total nickel	0.39 g/m^3
Total zinc	0.83 g/m^3
Cyanide	0.22 g/m^3
Phenols	22 g/m3
Total sulphides	1.2 g/m^3

Compliance with these limits shall be based on a representative sample of treated wastewater collected annually from the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7 and analysed for the listed determinands.

20. In the event that the median mass load of TN discharged to the Waimea Inlet between 1 August to 31 March in any year, exceeds 400 kilograms per day (kg/day) the Consent Holder shall:

(i) Undertake an investigation to assess whether any significant adverse environmental effects within the receiving environment have occurred as a result of the discharges authorised by these consents;

(ii) Within two months of completion of the investigation required by sub-clause (i), submit a nitrogen effects assessment report, prepared by a suitably

qualified and experienced marine ecologist/scientist, to the Council's Team Leader Monitoring and Enforcement. The nitrogen effects assessment report shall outline the results of the investigation required by sub-clause (i) of this condition and include a conclusion as to whether any significant adverse environmental effects within the receiving environment have occurred as a result of the discharges authorised by these consents. In addition, the nitrogen effects assessment report shall include recommendations on whether any amendments to the monitoring programme(s) specified in Appendix 2 (attached to these consents) should be made to better assess the effects of the discharges authorised by these consents; and

(iii) In the event that the nitrogen effects assessment report required by sub-clause (ii) recommends amendments to the monitoring programme(s) specified in Appendix 2 (attached to these consents) then those amendments shall be made and implemented provided they are first agreed to in writing by the Council's Team Leader Monitoring and Enforcement.

(b) If the nitrogen effects assessment report required by sub-clause (ii) above concludes the discharges authorised by these consents have caused any significant adverse environmental effects within the receiving environment, the Consent Holder shall:

(i) Within two months of the date the nitrogen effects assessment report is submitted in accordance with sub-clause (ii) above, submit a nitrogen limits report, prepared by a suitably qualified and experienced marine ecologist/scientist, to the Council's Team Leader Monitoring and Enforcement for certification. The nitrogen limits report shall outline a proposed monitoring programme and timeframe to derive site-specific treated wastewater quality limits for nitrogen which, if complied with, will ensure that the discharge of treated wastewater does not result in significant adverse effects within the receiving environment. These discharge limits may either be concentration or mass load limits for TN and/or, if more appropriate, specific nitrogen species;

(ii) Once certified, the monitoring programme required by clause (b)(i) of this condition shall be implemented. Within one month of the completion of the monitoring programme a report, prepared by a suitably qualified and experienced marine ecologist/scientist, shall be submitted to the Council's Team Leader Monitoring and Enforcement for certification. The report shall outline the derivation of site-specific discharge limits for TN or specific nitrogen species which, if complied with, will ensure that the discharge of treated wastewater does not result in significant adverse effects within the receiving environment; and

(iii) Comply with the TN or specific nitrogen species discharge limits from the time they are certified by the Council's Team Leader Monitoring and Enforcement.

***Advice note**:*

The discharge of treated wastewater to the Waimea Inlet is not expected to result in any significant adverse effects as a result of TN. However, this condition requires the Consent Holder to undertake regular monitoring of TN and, if the specified TN mass load trigger is exceeded, monitoring within the receiving environment to assess potential effects. Should that monitoring show that the discharge has resulted in significant adverse effects then the Consent Holder is required to derive site-specific TN (and/or nitrogen species) discharge limits which must then be complied with.

21. For the purposes of Conditions 17,18, 19, and 20 a 'representative sample' shall consist of a composite sample made up of at least three subsamples collected at least five minutes apart from the discharge channel in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7. All samples shall be collected in laboratory supplied containers and using appropriate procedures as directed by the accredited environmental testing laboratory and shall be transported to the laboratory under chain of custody.

22. The results of the monitoring specified in Conditions 17, 18, 19, and 20 shall be included in the Annual Report required by Condition 4. Notwithstanding the above, the Consent Holder shall report any exceedance of any limit to the Council's Team Leader Monitoring and Enforcement within five working days of any exceedance being detected.

23. The discharge shall not cause any of the following effects in the receiving water outside the zone of reasonable mixing shown in Figure 1 included in Appendix 1 (attached to these consents):

(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.

24. The Consent Holder shall undertake monitoring of the receiving environment in accordance with the monitoring programme(s) contained in Appendix 2 attached to these consents. The Consent Holder may amend the monitoring programme(s), including determinands to be monitored/analysed and frequencies of monitoring, provided this is first agreed to in writing by the Council's Team Leader Monitoring and Enforcement.

Conditions for RM171256 – Discharge treated wastewater onto land via irrigation

25. The total rate of treated wastewater discharged onto land via irrigation shall not exceed 1,040 cubic metres per day and shall occur over an irrigation area not exceeding 20.5 hectares, as shown on Figure 2 included in Appendix 1 (attached to these consents).

26. The maximum application rate for irrigation shall not exceed 15 millimetres (mm) in any 24-hour period and 35 millimetres in any consecutive seven day period.

27. The Consent Holder shall maintain a measuring device to ±5% accuracy to record the volumes of irrigation. The daily irrigation volume(s) should be recorded and included in the Annual Report required by Condition 4.

28. Irrigation shall not occur within 24 hours of a 20 mm rainfall event occurring as measured at the on-site weather station required by Condition 38. Information required to assess compliance with this condition shall be recorded and included in the Annual Report required by Condition 4.

29. The Consent Holder shall ensure there is no spray drift beyond the property boundary.

30. The irrigation gun located at the end of the centre-pivot irrigator shall be disabled so that no irrigation may occur within the arc shown in red and labelled "No Gun Spraying" in Figure 2, included in Appendix 1 (attached to these consents).

31. There shall be no surface water ponding, direct discharge, or run-off into any water body as a result of the irrigation.

32. No fertiliser which contains nitrogen compounds shall be applied within the irrigation area shown on Figure 2, included in Appendix 1 (attached to these consents).

Advice note:

The Consent Holder has volunteered this condition, however other fertilisers can be applied to the irrigation area provided they do not contain any nitrogen compounds. Fertilisers containing nitrogen may be applied to other parts of Bell Island which are outside the irrigation area.

33. The Consent Holder shall monitor groundwater quality at the shallow bore located within the irrigation area shown on Figure 2 included in Appendix 1 in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7, which will ensure that the sample is representative of the potentially affected shallow aquifer.

    (a) Monitoring shall occur annually during the month of February and shall be tested for the following:

        (i) temperature

        (ii) pH;

        (iii) electrical conductivity;

(iv) total oxidised nitrogen (TON, $NO_{3\text{-}N} + NO_2\text{-}N$);

(v) total ammoniacal nitrogen [(NH_3+NH_4)-N];

(vi) Total suspended solids (TSS);

(vii) Escherichia coli; and

(viii) Faecal coliforms.

(b) The temperature, pH and electrical conductivity shall be measured in the field using an appropriately calibrated meter.

(c) All groundwater quality monitoring required shall be undertaken by a suitably experienced person in accordance with the methodology in the Operations and Maintenance Manual required by Condition 7.

(d) All samples taken shall be analysed by a laboratory that is accredited for that analysis to NZS/ISO/IEC 17025 or equivalent or to any other comparable standard approved by the Consent Authority.

Advice note:

The purpose of this condition is to build baseline data so that in the scenario that it becomes appropriate to set water quality limits on the parameters monitored, the Consent Holder has sufficient data to inform this assessment.

34. The Consent Holder shall include the following information in the Annual Report required by Condition 4:

(a) The dates on which irrigation occurred and for each day that irrigation occurred;

(b) The duration of irrigation;

(c) The volume of irrigation;

(d) The area that was irrigated;

(e) The level of rainfall as recorded by the on-site weather station referred to in Condition 38;

(f) The results of groundwater monitoring required by Condition 33; and

(g) A discussion on trends, if any, in groundwater quality based on the past five years' monitoring data.

35. The Consent Holder shall provide and maintain adequate signage at the perimeter of the irrigation area warning the general public that treated wastewater is irrigated and notifying persons not to enter unless they are authorised to do so.

Conditions for RM171255
Discharge contaminants (primarily odour) into air

36. There shall be no discharges to air from the wastewater treatment plant or irrigation area that result in an adverse effect that is offensive or objectionable beyond the Bell Island property boundary.

37. The Consent Holder shall arrange meetings with residents of Best Island at least once every six months for the first two years following commencement of this consent, and at least annually thereafter. The Consent Holder shall notify all Best Island property owners and occupiers of the date, time and location of each meeting at least two weeks prior to the meeting. The purpose of these meetings shall be to inform the residents of the actions taken to avoid offensive or objectionable odours beyond the Bell Island property boundary and minimise odour from the wastewater treatment plant, and also to provide an opportunity for comment and consultation on any necessary amendments to the management plans referred to in Condition 7. Whenever practicable, the Consent Holder shall take all reasonable measures to inform the residents of Best Island of the possibility of an odour event prior to its occurrence. In such cases, the Consent Holder shall inform residents of the cause and likely duration of the event and the actions being taken to remedy or mitigate its effects.

38. The Consent Holder shall monitor and log meteorological data at the WWTP from an on-site weather station. The data recorded shall consist of wind direction, wind speed, air temperature, barometric pressure, relative humidity and rainfall. The meteorological monitoring shall be:

    (a) In general accordance with the Good Practice Guide for Air Quality Monitoring and Data Management, Ministry for the Environment, 2009, or subsequent updates;

    (b) Continuous for the duration of the consent comprising 1-minute data, collected and averaged to 10-minute and 1-hour time periods; and

    (c) The on-site weather station shall be located at a point that is representative of local weather conditions across the site.

    (d) The data shall be available to the Council's Team Leader Monitoring and Enforcement on request with minimal delay.

39. The Consent Holder shall appoint a suitable independent person to the role of odour patroller at the Bell Island wastewater treatment plant and shall comply with the following odour protocol:

    (a) The odour patroller shall visit the site at least once per month and record observations of odour at specified locations around the boundary of the wastewater treatment plant, downwind of the WWTP infrastructure and ponds opposite Best Island under easterly wind conditions, on the shoreline of Best

Island facing the WWTP and at any other position(s) that may be impacted by odour that could have an adverse effect beyond the property boundary;

(b) The odour patroller shall also undertake a visit to the site 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 discharges from the WWTP.

(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 wastewater treatment plant operators of the outcomes of the odour patrol and any necessary interventions or inputs shall be made at the wastewater treatment plant to mitigate the odours observed; and

(e) In addition to the monthly odour patrols, the odour patroller may, at their discretion, visit the Bell Island wastewater treatment plant 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.

40. The Consent Holder shall, within the timeframe specified, complete the list of odour upgrade works as detailed in Appendix 3 (attached to these consents).

Advice note:

Desludging of the facultative and maturation ponds is necessary from time to time and is a permitted activity under Rule 17.12.2.1 of the Tasman Resource Management Plan. However, odour emissions from the desludging activities may cause adverse effects that are offensive or objectionable beyond the property boundary of the WWTP and is thus a discretionary activity requiring resource consent. Such a consent must be obtained prior to the time at which desludging is scheduled to be carried out.

Conditions for RM171257
Discharge treated wastewater to land via seepage

41. The Consent Holder shall take all practicable steps to avoid damaging or interfering with any liner(s) that are present at the base of any treatment ponds, including during desludging.

Conditions for RM171258
Use and maintenance of a pipe and diffuser outlet structure within the Waimea Inlet

42. The use and occupation of the coastal marine area (the Waimea Inlet) shall be limited to the pipe and the outlet diffuser structure to convey and discharge treated wastewater and any temporary structures associated with the installation, repair, and maintenance of the offshore outlet pipe and outlet diffuser structure. The pipe and outlet diffuser structure is shown in Figure 3 included in Appendix 1 (attached to these consents).

43. The diffuser structure shall be inspected and maintained by a suitably experienced person within six months of commencement of these consents and then at least once every two years to ensure its integrity. Written records of these inspections and details of maintenance undertaken shall be held on-site and presented to the Council's Team Leader Monitoring and Enforcement on request.

44. The Consent Holder shall, at least every five years, provide to the Council's Team Leader Monitoring and Enforcement a report prepared by a suitably qualified and experienced person(s) to demonstrate that the pipe and outlet diffuser structure is:

    (a) In sound repair and the diffuser ports are clear of any significant marine growths; and

    (b) The pipe is not exposed above the seabed floor other than the diffuser outlet structure.

45. In the event that the Consent Holder becomes aware that the pipe is exposed (other than the diffuser outlet section that is designed to be exposed), either as a result of an inspection carried out or at any other time, the Consent Holder shall:

    (a) immediately notify the Council's Team Leader Monitoring and Enforcement and the Harbourmaster's Office; and

    (b) within 10 working days of that notification, prepare and submit a report to the Council's Team Leader Monitoring and Enforcement to assess any adverse environmental effects resulting from the exposed pipe and outline any proposed remediation or risk management to be undertaken.

46. The structures authorised by this consent shall be maintained in a good and sound condition, and any repairs that are necessary shall be made as soon as reasonably practicable.

47. In the event of the structure becoming redundant or no longer fit for purpose, the Consent Holder shall take all necessary steps to either remove the structure or incorporate the structure or the materials used in its construction in a replacement authorised structure or other work.

Appendix 1

Figures referred to in conditions

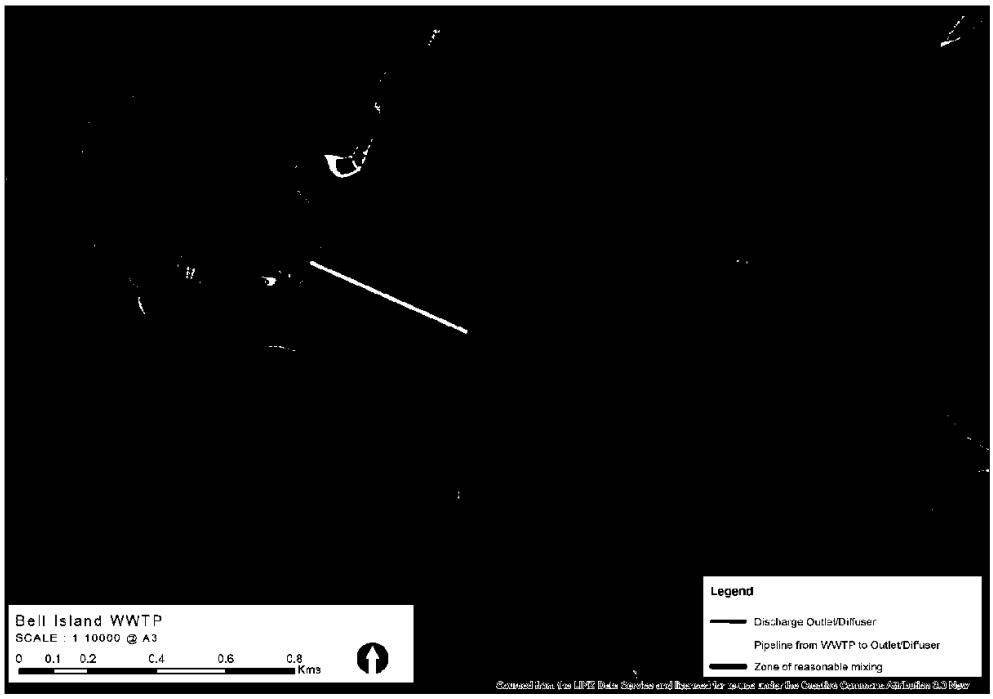
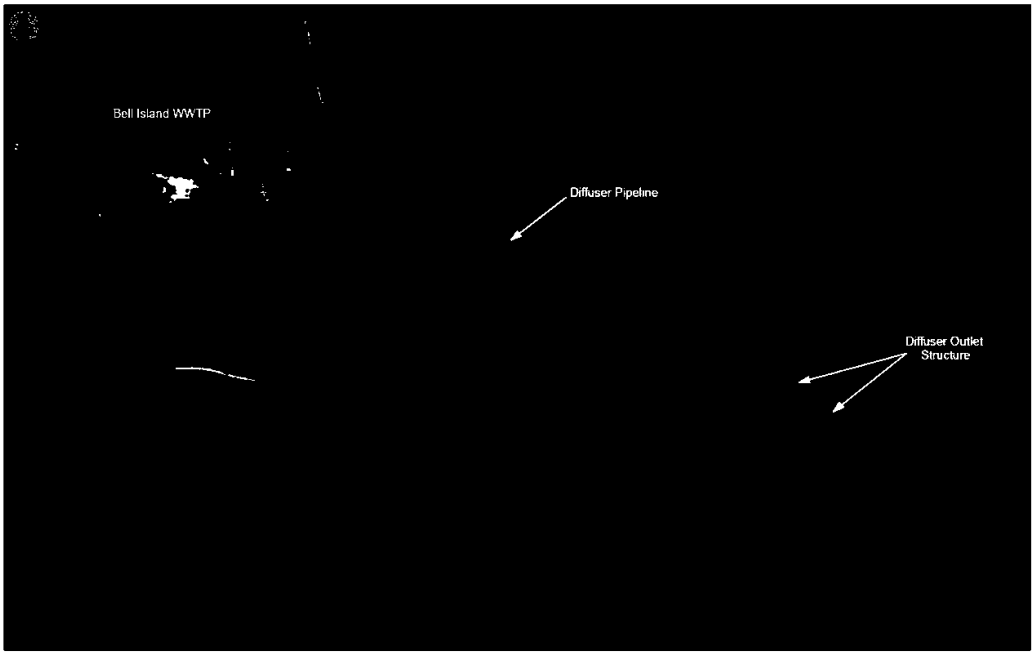


Figure 1. Zone of reasonable mixing, being defined as the area delineated by a 250 metres radius north of the outfall and within 45° included angles.

Figure 2. Location of Wastewater Irrigation Area (shown in Yellow), no gun spraying zone and irrigation monitoring bore.



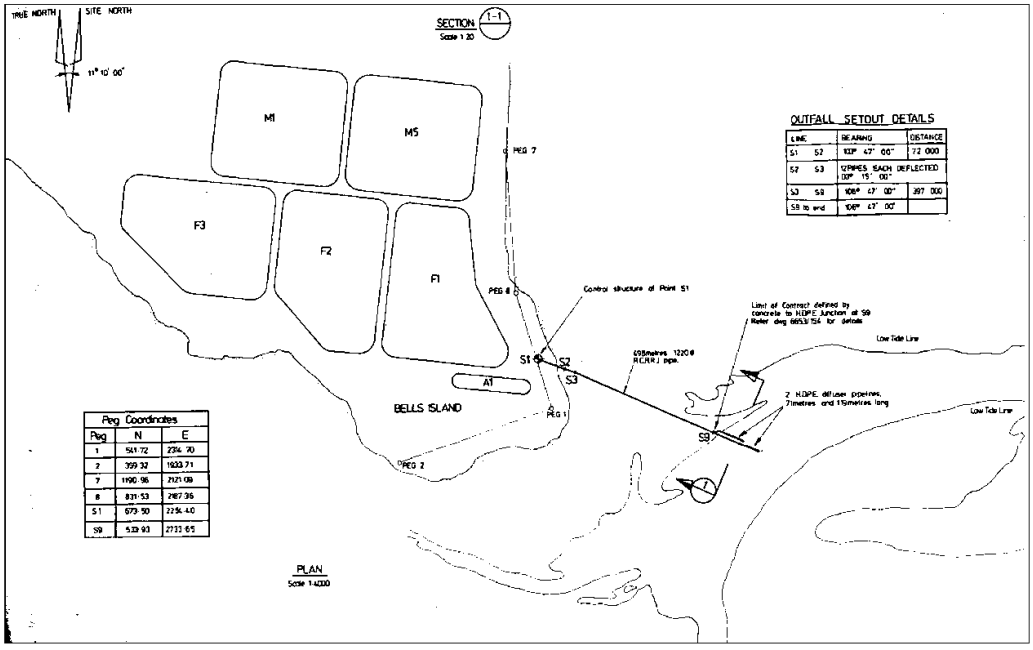


Figure 3. Location of pipe and outlet diffuser structure.

Appendix 2

Bell Island Wastewater Treatment Plant Resource Consents Receiving Environment Monitoring Programme

PART 1 – Five-yearly Benthic and Sediment Monitoring Programme

The following monitoring shall be undertaken at five-yearly intervals and shall coincide with the Tasman District Council's five-yearly State of the Environment (SoE) monitoring undertaken within the Waimea Inlet.

1. A field survey of the sites shown in Figure A attached to this monitoring programme (and as described in Cawthron Report No. 2979[1]), recording:

- Sediment type;
- Visible macrofauna;
- Macrophyte species and coverage;
- Sediment profiles; and
- Any obvious signs of enrichment or pollution (e.g. microalgal mats, H_2S, odours, fats, oils, unnatural debris etc.)

2. Analysis of the following characteristics in sediment samples from the sites shown in Figure A:

- Particle size;
- Total nitrogen content;
- Organic matter content;
- Chlorophyll-a content – only at sites where there is visual evidence of microalgal films on the surface of the sediment; and
- Infauna species and abundance (0.5 millimetre sieve sizes)

3. Analysis of the following trace metals in samples of sediment and shellfish (cockles, where present) from the sites shown in Figure A attached to this monitoring programme:

- Total mercury (sediment only);
- Total arsenic;
- Total cadmium;
- Total chromium;
- Total copper;
- Total lead;
- Total nickel; and
- Total zinc

NOTES:

The monitoring programme shall be based on previous studies with modifications as recommended in Cawthron Report No. 2979.

The above benthic monitoring may be co-ordinated with the testing programme outlined in Part 2 (Microbiological and Nutrient Assessment Monitoring).

The sites will be located to reflect the likely dispersal patterns of the treated wastewater discharge and the location of the mixing zone.

[1] Cawthron Report 2979 (Part 1): Morrisey D, Webb S 2017. Coastal effects of the Nelson (Bell Island) regional sewerage discharge: benthic monitoring survey 2016. Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 2979. 32 p.

PART 2 – Microbiological and Nutrient Assessment Monitoring Programme

The objective of this programme is to provide a statistically and scientifically rigorous assessment of the effects of the discharge of treated wastewater from the Bell Island wastewater treatment plant on the microbial and nutrient status of the Waimea Inlet and the microbial status of the Rabbit Island and Tahunanui beaches.

The programme shall consist of two sub-parts (Sub-Part A and Sub-Part B).

Sub-Part A

A full receiving water survey shall be undertaken at five-yearly intervals and may be carried out as part of, or in conjunction with, other water quality monitoring programmes in the area, including the five yearly benthic monitoring programmes outlined in Part 1. Sampling shall be scheduled to commence during the ebb tide during favourable weather conditions and after periods of at least three days with no significant rainfall. The sampling locations are shown on Figure B attached to this monitoring programme and as described in Cawthron Report No. 2945[2].

Sampling (as described in Cawthron Report No. 2945) shall consist of:

- at least three treated wastewater samples collected at timed intervals during the ebb tide discharge period;
- seawater samples taken from the Waimea Inlet and inner Tasman Bay at the sites shown in Figure B and as described in Cawthron Report No. 2945;
- shellfish samples taken from Waimea Inlet and Tasman Bay at a subset of the sites as shown in Figure B and described in Cawthron Report No. 2945. Shellfish samples shall be comprised of Greenshell™ mussels *(Perna canaliculus)* deployed in baskets as described in Sub-Part B, below, and in Cawthron Report No. 2945.
- depth profiles of salinity and temperature at all sites shown in Figure B, and profiles of salinity, temperature, dissolved oxygen, turbidity, light (as photosynthetically active radiation) and chlorophyll-*a* at sites T3, T4, T5 and T6 in inner
- Tasman Bay shown in Figure B.

A composite of the treated wastewater samples shall be tested[3] for:

- nutrients (nitrate, nitrite, ammonia, dissolved inorganic nitrogen, total nitrogen, dissolved reactive phosphorus and total phosphorus).
- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci).

The seawater samples shall be tested for:

- nutrients (nitrate, nitrite, ammonia, dissolved inorganic nitrogen, total nitrogen, dissolved reactive phosphorus and total phosphorus);
- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci); and phytoplankton species and abundance (Tasman Bay sites only).

The shellfish samples shall be tested for:

- faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci).

[2] Morrisey D, Johnston O, Newcombe E 2016. Impact of the Nelson (Bell Island) regional sewerage discharge on the coastal environment: receiving water survey—August 2016. Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 2945. 21 p.

[3] All testing should be accredited to IANZ

Sub-Part B

Sub-Part B shall be undertaken twice yearly (once during summer and once during winter) and shall include analyses of shellfish samples for faecal indicator bacteria (faecal coliform, *Escherichia coli* and enterococci) from the inner Tasman Bay sites shown in Figure C and as described in Cawthron Report No. 3417[4]. Shellfish samples shall be comprised of Greenshell™ mussels *(Perna canaliculus)* deployed in baskets. Mussel deployments shall be of approximately seven days duration (minimum three days, maximum 14 days), with no rainfall in the catchment for at least three days, or with rainfall less than 1mm prior to recovery of the mussels. A subsample of mussels shall be analysed for faecal indicator bacteria at the start of deployment. Seawater samples shall also be collected from mussel deployment sites at the start and end of deployment and analysed for faecal coliform, *Escherichia coli* and enterococci and phytoplankton species and abundance.

Depth profiles of salinity, temperature, dissolve oxygen, turbidity, light (as photosynthetically active radiation), and chlorophyll-*a* shall be measured at each site at the start and end of the period of mussel deployment.

This assessment programme may be carried out as part of, or in conjunction with, other water quality monitoring programmes in the area, including the five-yearly programme outlined in Sub-Part A.

[4] Campos C 2019. *Coastal effects of the Bell Island regional sewerage discharge: August 2019 mussel monitoring survey.* Prepared for Nelson Regional Sewerage Business Unit. Cawthron Report No. 3417. 16 p. plus appendices

Figure A. Sampling locations for Part 1of the Monitoring Programme – Five-yearly Benthic and Sediment Monitoring Programme. Note that the suffix 'B' was added to the site names W3, W5, etc. in Cawthron Report No. 2979.

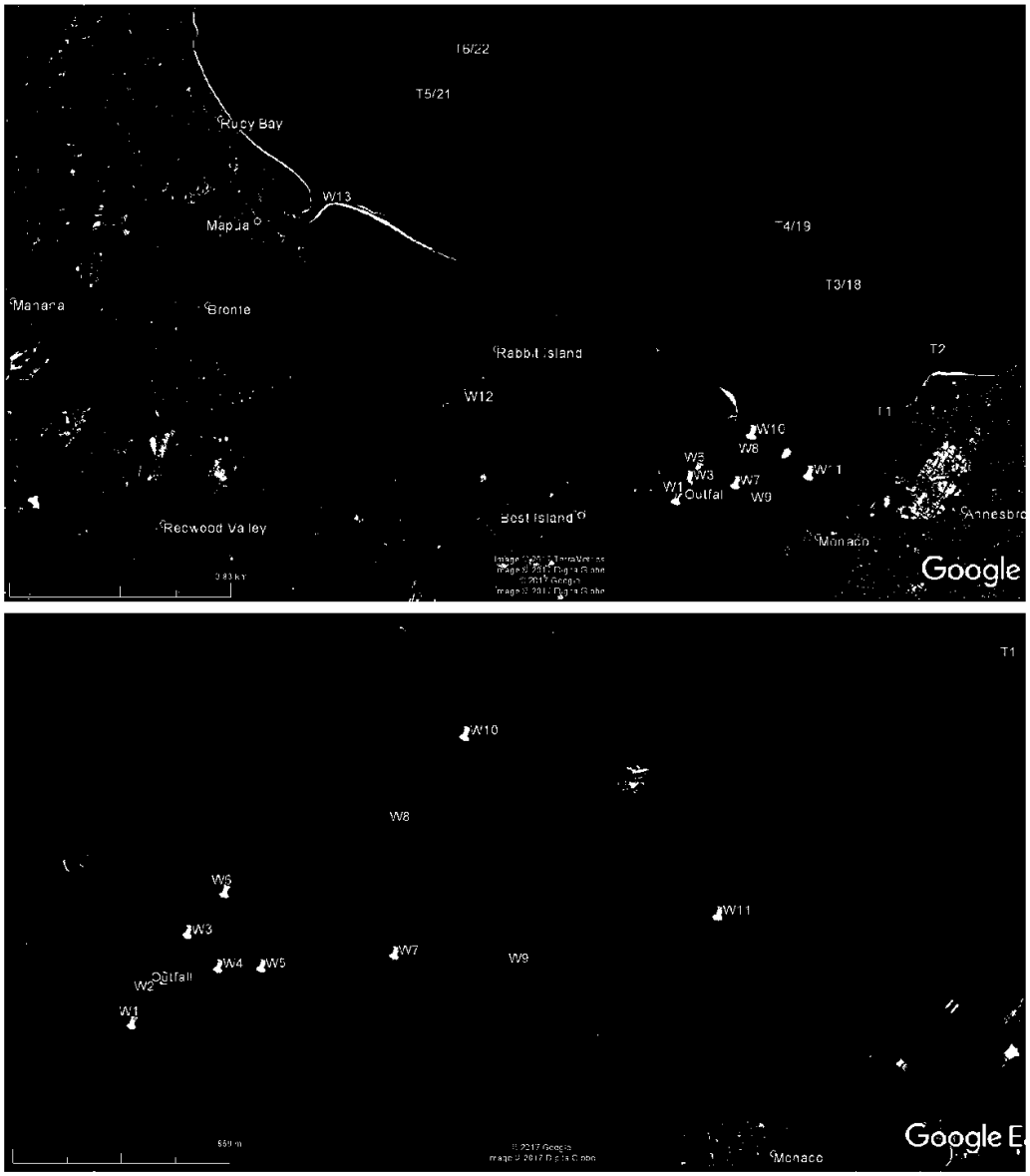


Figure B. Sampling locations for Sub-Part A of Part 2 of the Monitoring Programme – Five-yearly Microbiological and Nutrient Assessment Monitoring Programme (Upper image: overview of all locations. Lower image: detail of locations in eastern Waimea Inlet). Red markers indicate water sampling and mussel deployment sites, yellow markers indicate water sampling only.

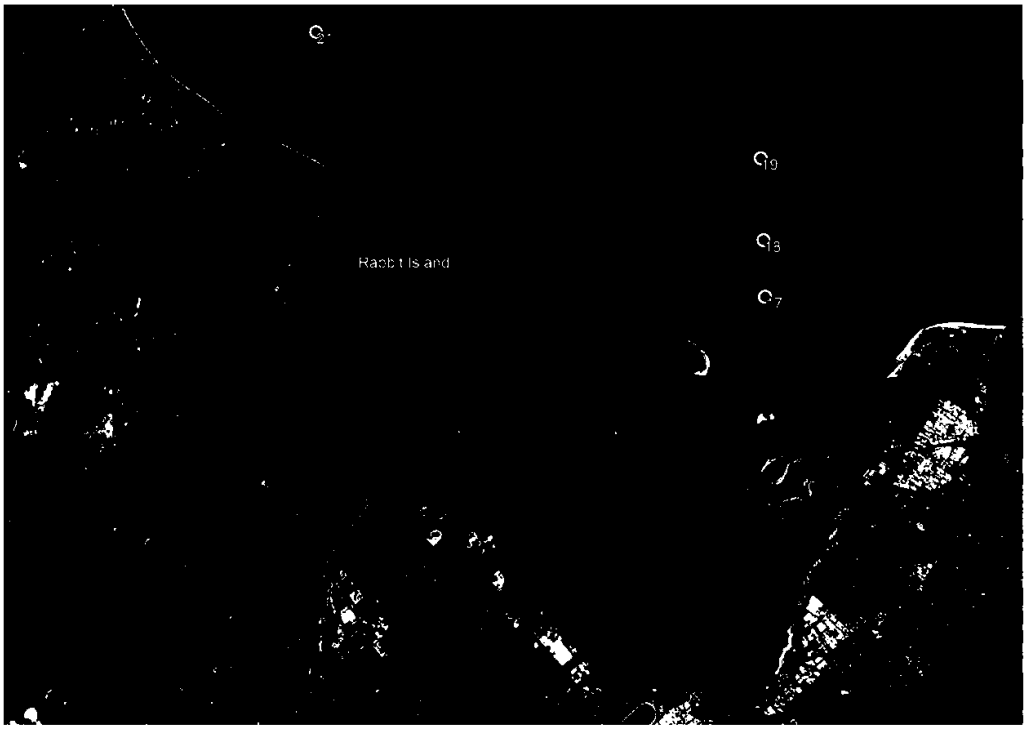


Figure C. Sampling locations for Sub-Part B of Part 2 of the Monitoring Programme – Six-monthly Microbiological and Nutrient Assessment Monitoring Programme in inner Tasman Bay.

Appendix 3

Odour upgrade works

Works to be completed in 2020

1. Inlet Area improvement

(a) Add individual suction pipe connections to each milliscreen cover.

(b) Install new larger covers. As part of new cover installation, provide appropriately sized air inlet ports in the covers, placed to maximise the swept volume of the chamber.

(c) Create separation system for the internals of the screen chamber to allow operation of one half of the screening chamber while the other half is being maintained.

2. Old Aeration Basin

(a) Basin to be cleaned out of sludge and pump added to keep basin empty of water.

(b) New grit drainage facility to be completed.

3. Chamber C3

(a) Provide a small bio filter and associated pipework and fan.

(b) Installation of impermeable barrier beneath existing walkways to contain odours.

4. Facultative and Maturation ponds

4.1 Sludge Bank Accumulation

(a) Begin monitoring the sludge accumulation in the ponds every second year, and also 6 months after any desludging undertaken.

(b) Add and/or reposition aerator/mixers to dissipate sludge banks.

(c) Mixing plan to be developed following the limited desludging of pond F1 and F3.

(d) Selective desludging of ponds F1 and F3 where accumulation occurs.

4.2 Stratification and pond inversion

Pond mixing plan to be developed for F3 to combat stratification.

4.3 Floating Algae and scum

(a) Portable pond mixing system to be developed for F3 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".

(b) Within six months following the implementation of the above, investigate a floating boom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

4.4 Insufficient algae

Investigate installing a reseeding network that directs seeding streams to the optimal inlet areas of the pond in such a way that the seeding stream can be directed to the required pond or ponds easily.

4.5 Inlet Bypass to F1

Design an overflow/bypass system that allows each unit to be bypassed individually.

5. Sludge Storage tank and new sludge storage tank

(a) Design and construct a second sludge storage tank from appropriate materials and provide a small air inlet pipe and elbow with mesh to exclude rain and birds as part of tank design.

(b) Add a new odour suction line to the existing tanks as part of odour ducting upgrade.

6. ATAD System & Bio-filter System Improvements

(a) Add a second odour manifold and a second fan, larger connections to Bio solids storage tank and new connections to sludge storage tank.

(b) Connect the new sludge storage tank as detailed at 5(a) to the ATAD bio filter suction pipework at the same time as completing works at 6(a).

(c) Provide automation of fan speeds to control pressure in the air suction system.

(d) Following completion of 6(a), investigate connecting the odour Management System to the SCADA so that the pressure, speed and other aspects can be easily seen, and can be recorded.

(e) Following completion of 6(a), investigate adding control dampers to the pipework (to allow isolation of tanks from service) and consider automated dampers with pressure feedback.

(f) At the same time as competing works identified at 6(a), confirm that the underground section of the suction pipework is adequately drained to prevent accumulation of condensate.

(g) Engage a suitably qualified person in the field of odour control to investigate the size and design of the ATAD biofilter, with specific reference to increasing the filter size to meet good practice guidelines and maintaining the conditions and moisture content of the filter media. Complete any improvements to the biofilter size, design and operating procedures recommended by the investigator.

(h) Measure the ammonia concentration before and after the bio filters to confirm the need for an ammonia scrubber and the potential additional nitrogen load to the ponds.

i. If the ammonia concentrations indicate the need, in the opinion of a suitably qualified person in the field of odour control, add a water based scrubber using recycled pond water to scrub ammonia prior to the bio filter. The scrubber will also cool the air and extend the life of the bio filter media.

ii. If the additional nitrogen load to the ponds from a water-based scrubber are considered to be too high, fit an acid based scrubber. Ensure that a cost-effective method for sale or disposal of the ammonia salt solution is available and reliable.

Advice note: *Works identified in 6(b), (c) and (d) may be delayed until 2021 to follow other works to the sludge storage tank(s) identified in 9 below. The Consent Holder will update the Councils Team Leader Monitoring and Enforcement if delays are expected.*

7. <u>Emergency Generators</u>

Ensure that at least three suitably sized emergency electricity generators are installed at the WWTP site that ensure ongoing functioning of the plant to achieve odour control in the event of a network power outage. The WWTP equipment served by the generators will, as a minimum include:

(a) The inlet screens;

(b) The ATAD biofilter; and

(c) The aeration basin.

Works to be completed in 2021

8. Chamber C3

Add sulphide attack protection to the internal concrete surfaces of C3.

9. **Facultative and Maturation Ponds**

9.1 Stratification and pond inversion

Pond mixing plan to be developed for F1 to combat stratification.

9.2 Floating Algae and scum

(a) Portable pond mixing system to be developed for F1 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".

(b) Within 6 months following the implementation of the above, investigate a floating boom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

9.3 Insufficient algae

Implement and install reseeding network if investigations at 4.4 above conclude this is necessary.

9.4 Inlet Bypass to F1

Implement overflow/bypass system as designed at 4.5 above.

10. Sludge Storage tank and new Sludge Storage tank

Replace the roof on the existing sludge storage tank as part of tank refurbishment and provide a small air inlet pipe and elbow with mesh to exclude rain and birds.

Works to be completed in 2022

11. Facultative and Maturation Ponds

11.1 Stratification and pond inversion

Pond mixing plan to be developed for F2 to combat stratification.

11.2 Floating Algae and scum

(a) Portable pond mixing system to be developed for F2 to re-entrain the solids back into the water column that can be placed where the problem occurs and redeployed if wind changes move the floating "mats".

(b) Within six months following the implementation of the above, investigate a floating bloom or similar that can be used to "corral" the floating mats and a way of effectively removing the material.

Works to be completed 2023

12 Gravity Belt Thickener

(a) Seal up penetrations between the top and bottom floors

(b) Extract the air from the GBT area via the GBT. Add low level extraction ducts to the GBT room to pick up relatively dense H2S.

(c) Seal up the sump in the work shop area and increase the extraction rate inside the sump of the odour treatment unit.

(d) Add a fan at one end of the workshop area to flush any fugitive odours out of the building.

(e) Investigate improved monitoring procedure for the performance of the Carbon filter.

13 Facultative and Maturation Ponds

13.1 Sludge Bank accumulation

Desludging of F2 where total accumulation of sludge reaches a point where the sludge occupies too much of the pond volume.

Work to be completed 2029

14 Facultative and Maturation Ponds

14.1 Sludge Bank accumulation

Desludging of F1 and F3 where total accumulation of sludge reaches a point where the sludge occupies too much of the pond volume.