

STAFF REPORT

TO: Environment & Planning Subcommittee - Commissioner Hearing

FROM: Michael Durand – Senior Planner, Nelson City Council

REFERENCES: RM070602

SUBJECT: **SUSTAINABLE VENTURES LTD EP09/07/01B** - Report prepared for the hearing of 1-3 July 2009

1. INTRODUCTION

1.1 Preamble

This report has been prepared pursuant to section 42A of the Resource Management Act 1991, for the purpose of advising the Environment and Planning Subcommittee on matters relating to the application for resource consent made to Tasman District Council by SUSTAINABLE VENTURES LTD. The application seeks to authorise the discharge of up to 16.75 cubic metres (m³) per day of wastewater to land. The wastewater discharge relates to the proposed subdivision and development of the current Pakawau campground site – a development proposal that is described and assessed in the detail in accompanying reports.

This report is for consideration at a hearing to be held at the Takaka Bowling Club on 1–3 July 2009.

1.2 Reporting Officer

My name is Michael Durand and I hold the position of Senior Planner in the Resource Consents Business Unit at Nelson City Council. I have held this position since March 2009 and am a reporting officer as defined by section 42(6) of the Resource Management Act 1991.

Between May 2006 and March 2009 I held the positions of Consent Planner, Discharges, and then Coordinator Natural Resources Consents at Tasman District Council. In these roles I was responsible for assessing applications for resource consent for discharges of domestic wastewater to land, issuing resource consent decisions under delegated authority, and reporting to hearings committees on such applications.

I have been involved in the Council's assessment of the proposed development since the pre-application period, beginning when I made a site visit in June 2006. Hence the applicant, the Tasman District Council and the Nelson City Council agreed that in the interests of efficiency I should remain as reporting officer on this application.

1.3 Application Site

Address: 1060 Collingwood Puponga Road, Pakawau, Golden Bay
Legal description: Part Section 11 Square 15, all land contained in Certificate of Title NL 96/197 (Limited to Parcels)
Zoning: Residential
Areas: Special Domestic Wastewater Disposal Area

1.4 Information Assessed in this Report

1.4.1 Reports and Correspondence

The following documents were made available by the applicants and are assessed in this report:

- *Sustainable Ventures Ltd Pakawau Village Beach Resort Resource Application*, prepared by Staig and Smith Limited, referenced 8927 and dated May 2007
- Appendix 3 of that document: *Report in Support of Consent Application for Water, Stormwater and Wastewater Discharge*, prepared by Waste Solutions Ltd, referenced 7244 and dated 11 April 2007
- Letter sent to the writer, *Pakawau Beach Resort Wastewater Dispersal* prepared by Waste Solutions Ltd, referenced 130217/1 and dated 7 November 2008
- Drawings appended to that letter, referenced A100–107.
- Submissions
- Further information provided to the Council from Derrick Railton (Waste Solutions Ltd) on 19 June 2009

In preparation of this report I have drawn particularly on two industry standard documents relating to the design of wastewater systems:

- Australian / New Zealand Standard On-site domestic-wastewater management, 1547:2000
- Auckland Regional Council Technical Publication No. 58 (AW Ormiston and RE Floyd) *On-site Wastewater Systems: Design and Management Manual* (Third edition, 2004)

1.4.2 Applicant's Proposal

Summary

The following information has been drawn from the documents listed above and summarises my understanding of the applicant's proposals regarding wastewater treatment and discharge. Some discussion is provided here but the bulk of the assessment can be found later in this report.

The development is proposed to comprise of 30 bach apartments (Table 1) and no longer includes the Resort Complex with its associated reception, 'Great Room', café, toilets and health and fitness centre, as originally proposed. The existing shop, the manager's apartment, and cottage are proposed to be retained. The manager's apartment and the cottage are assumed to each house four people at maximum capacity.

Table 1: Bach Apartment Breakdown

Type Apartment	Number	Inhabitants per Apartment	Total Inhabitants
Studio	5	2	10
One bedroom	9	2	18
Two bedroom	11	4	44
Two bedroom + bunk*	2	8*	16
Three bedroom	2	6	12
Three bedroom + bunk*	1	10*	10
TOTAL	30		110

***Note:** For those apartments described with 'plus bunk', this refers to the rooms included in those apartments which may be used either as additional living space, or bedroom space. To cover the option of bedroom space, an allowance of an additional four people has been made for those apartments.

The assessed design population is 118 persons based on 110 inhabitants in the Bach Apartment and eight inhabitants in the manager's apartment and in the cottage. The per capita wastewater production has been assessed to range between 100–140 litres/person/day. The wastewater generated by inhabitants is therefore calculated to be up to 16.52m³/day. Wastewater is proposed to be generated by fixtures designed for water reduction including reduced flush 6/3 litre toilets, shower-flow restrictors, aerator faucets and water-conserving automatic washing machines.

The proposed treatment system is a Membrane BioReactor (MBR).

The applicant's site and soil assessment suggests that the soil conditions on the site consist of ~100mm of top soil overlying moderately coarse sand. For wastewater design purposes the soil type is Category 1, being rapidly draining. A disposal system has been proposed consisting of pressure-compensating dripper lines laid within drainage coil, laid within sub-surface trenches. The design loading rate for this system is 47 mm per day (i.e. 47 litres of wastewater per square metre per day), to be discharged by 1750 m of trenches of 200 mm base width, at ~1 m spacings.

The land application area lies entirely within the subject site, but there is insufficient space to provide a reserve area in case of the need for expansion of the land application area, or in the case of replacement of part or all of the land application area.

The expected quality of discharged wastewater is shown in Table 2

Table 2: Proposed Wastewater Quality for Consent Conditions

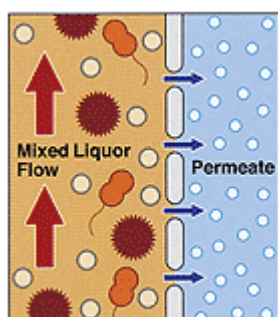
Contaminant	Geometric Mean	95th Percentile
BOD ₅	15 mg/L	20 mg/L
TSS	15 mg/L	30 mg/L
TN	25 mg/L	45 mg/L
Faecal Coliform Count	100cfu/100mL	100cfu/100mL

MBR System

The applicant proposes to install a single membrane bioreactor (MBR) system to treat all the wastewater generated on the site. An MBR is basically an activated sludge process together with a micro- or ultra-filtration system.

The membrane filtration system replaces the clarifier system traditionally used in activated sludge treatment systems. The wastewater typically requires only primary settlement, to remove grit and larger solids, or screening before entering the MBR system.

Filtration of the wastewater occurs through a series of membranes which have a very small effective pore size (typically less than 0.1-0.4 micrometres) and during operation the effective pore size decreases to around 0.01 micrometres due to the build up of proteins and cellular material on the membrane surfaces. This level of filtration is within the range termed “*ultrafiltration*”. The activated sludge, which has a relatively high suspended solids concentration (referred to as “mixed liquor”), flows past the membrane and only those particles less than the effective pore size of the membrane are allowed to cross the membrane. The filtered component is referred to as the “permeate”. The following diagram shows schematically how the membrane works.



The membranes typically hang as sheets within a tank which holds the activated sludge. Commonly air diffusers are located at the bottom of the tank and this provides a cross flow of air bubbles across the membrane to reduce fouling of the membrane surface. The permeate is extracted by way of narrow tubes and the liquid is directed to a storage tank where it can be pumped to the disposal field.

No disinfection of the permeate is required because the effective pore size of the membranes are such that viruses, bacteria, and other pathogenic organisms are prevented from crossing the barrier.

There have been few MBR systems constructed in New Zealand to date, but the technology has been used overseas for a number of years. In my assessment the treated wastewater would be expected to easily meet the standards set out in Table 2. The quality of the treated wastewater is considered to be very high and the expected concentrations would be difficult to achieve using any other commonly-used treatment technology.

Land Application Area

The applicant is proposing a land application area design in which trenches are constructed of ~200 mm width and 1000 mm spacing; these are shown in Figure A107 of the application. The design is unusual as it is a hybrid between a traditional trench system for septic tanks and a dripper field that is commonly used with domestic secondary treatment system. The trenches consist of a pressure compensating dripper line laid within a filter coil pipe, which itself is set within a gravel trench.

This design has advantages over both traditional trench design and dripper field design, as it provides for even distribution of effluent and also allows for the easy servicing and replacement of individual dripper lines, without the need for excavation. There is also the advantage that the trench system takes weight of the surrounding land off the dripper lines and therefore allows for some concurrent landuse activities on the disposal field.

There is proposed to be 1750 m of trench laid at the site. Drawings A101–106 of the application show that with the current configuration of buildings on the site there is – just – sufficient space on the site for this length of trench to be accommodated.

2. SUBMISSIONS AND WRITTEN APPROVALS

2.1 Introduction

The application was notified on 11 August 2008 and 197 submissions were received, most in opposition to aspects of RM070605. The circulation of the revised application (described in Laurie Davidson's report) attracted further comments from a number of submitters.

Comments on submissions are restricted here to those made on specific wastewater issues. There were a number of additional submissions which made ambiguous comments on wastewater matters, such as 'the design is not eco', 'the system is not sustainable', 'the coast is a sensitive environment' etc. It is difficult to respond to these types submissions on an individual basis. It is hoped that the concerns of these submitters are addressed by my comments on the more detailed submissions, and by the assessment provided in the remainder of this report.

Some submitters also commented on the performance of the existing wastewater system servicing the current campground. That system has a history of poor performance. Whilst these comments are welcome they are not strictly relevant to the proposal being assessed here. The system being proposed is quite different to the current system.

The content of submissions received is summarised below. Note that any additional comments that were received following the circulation of the revised application are summarised in italics.

2.2 Submissions Raising Wastewater Matters

Glenys Glover

The submission questions the flow calculations, wonders if 20m³ is sufficient, and is concerned that (i) this will be found to be insufficient in some years' time when environmental impacts become evident, (ii) costs associated with remedying these are significant, and (iii) that it may be too late to add capacity to the system.

The further comments in relation to the amended application include further questioning of the design flow volumes and comments on faecal bacteria contamination off shore in the vicinity of Pakawau, as discussed in a report prepared by the University of Canterbury. In this report, only seven of the 23 samples taken showed faecal bacteria concentrations below guideline levels of <1 colony-forming unit per 100 ml.

Further questioning is given to the land units available for wastewater discharge.

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Tracy Osborne

The submission recognises the sensitive environment and fisheries off shore and expects the Council to monitor compliance and wastewater system performance.

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Diana Dumont

The submission is concerned with the volume of wastewater being discharged stresses that alternatives should be considered, for example, composting toilets, which would reduce the volume of wastewater and provide a valuable resource (compost).

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Nelson Marlborough District Health Board

The submission does not oppose the application for wastewater discharge, but does oppose other aspects of the application. With regard to wastewater the submission is neutral but stresses that effluent disposal should not be allowed to adversely affect water quality or shellfish. The submission also points out the aesthetic effect of using 'greywater' for toilet flushing (meaning treated wastewater).

The submitter wishes to be heard.

Robert Gould and Caren Nessen

The submission takes issue with the proposal to discharge some of the wastewater off-site: “producing more wastewater than can be handled is not sustainable.” Submission also suggests that the wastewater flow figures were calculated using “creative maths” and seeks clarification.

The submitter opposes the application, wishes it to be declined and does not wish to be heard.

Sacha Gilbert, Kerry Gilbert, Peter Ratner and Carol Walters

The submitter is concerned that the neighbouring property is incorporated into the wastewater land application area and seeks a covenant to be put in place to protect any off-site components of the system.

The submitter wishes to be heard.

Wauter Johannes Kalis

The submission questions the wastewater flow calculations.

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Richard Cosslett

“Sewage and wastewater could not be adequately treated on the very small area of land left with no buildings on it.”

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Heather Wallace

The submission questions the flow calculations and suggests that there is insufficient land available for wastewater discharge.

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Golden Bay Marine Farmers Consortium Ltd (GBMFC)

The submission relates entirely to the Consortium’s concerns with RM070602. The submission points out that the marine farming industry is dependent upon clean water and that poor water quality, which may occur as a result of discharges of contaminants to land adjacent to the coast, can jeopardise access to markets. The submission seeks the Council ensures that wastewater calculations are correct and that mechanisms are in place to ensure no bacterial contamination occurs that could adversely affect shellfish. The submission also requests that, if consent is granted, a bond is held by the Council to that effect.

The submission recognises that, elsewhere in New Zealand, wastewater consultants who at the time felt assured their designs would function without causing adverse effects, were subsequently shown to be wrong. This makes the submitter suspicious of the wastewater system design and proposed flow volumes, and questions are raised regarding compliance with consent conditions, discharge to saturated soils and the provision of a reserve area.

The submitter is also concerned about reverse sensitivity issues that may arise when replacement resource consents are being sought for marine farming adjacent to the proposed development.

The submitter opposes the application, wishes it to be declined and wishes to be heard.

Sanford Limited

The submitter owns and operates two mussel farms off shore close to Pakawau. The submission points out that mussels are filter feeders and are sensitive to pollutants such as pathogens and heavy metals in the water. Pollutants can adversely affect mussel growth (and therefore productivity of their business) and can present a public health hazard for consumers of mussels.

The submission points out that faecal bacterial concentrations around their farm have recently been above guideline values, and that the proposed development is inconsistent with efforts needed to improve water quality.

The original position of the submitter, which was in opposition to the application, was revised on consideration of the revised proposal. The submitter now seeks consent conditions that ensure adequate maintenance, monitoring, and the provision of contingency plans in the case of system malfunctions.

The submitter originally opposed the application, wished it to be declined and wished to be heard.

The submitter's position has been revised to neutral and still wishing to be heard.

Jennifer Randall

The submitter is concerned that 20m³ of effluent is too much for the site and is concerned about contingency measures in the case of system failure.

The submitter opposes the application, wishes it to be declined and does not wish to be heard.

Marlborough Shellfish Quality Programme Incorporated

The submission replicates verbatim that of GBMFC, except that the submitter is neutral and does wish to be heard.

After considering the revised application, the submitter was no longer concerned about wastewater discharge on a third party's land, owing to the removal of this from the proposal.

Graham Wells

"Wastewater disposal process is unclear"

The submitter opposes the application, wishes it to be declined and does not wish to be heard.

2.3 Discussion of Submissions

The matters raised by submitters are discussed in section 3 of this report.

3. STATUTORY FRAMEWORK

3.1 Tasman Resource Management Plan (TRMP)

A brief overview is given here of the relevant parts of the TRMP: relevant definitions and applicable policies, objectives and rules, with a short interpretation of each.

3.1.1 Relevant Definitions

The definition of domestic wastewater is provided and discussed briefly here, as there may be varying interpretations of what constitutes domestic wastewater.

Domestic wastewater, whilst the term suggests it is generated by dwellings only, can be generated from a range of sources. Usually domestic wastewater includes toilet, bathroom, laundry and kitchen wastewater only. TP58 considers domestic wastewater to be generated by dwellings and other “institutions” such as schools, residential accommodation facilities, and some commercial and public facilities. Therefore domestic wastewater can be either purely “domestic” (i.e. from a dwelling) or “of a domestic nature” (i.e. consisting of wastewater from bathrooms, toilets, laundries and kitchens, whilst not necessarily being from a dwelling per se).

According to Chapter 2 of the TRMP, domestic wastewater means “any wastewater from a residential activity and includes wastewater from toilets, greywater, a mixture of wastewater from toilets and greywater, and wastewater of similar character from other premises.” (emphasis added)

Indeed, Council has previously assessed resource consents for wastewater discharges against the relevant rules for “domestic” wastewater, even if those discharges are not generated by dwellings. The key words in the definition are “of similar character”. In the case of the application being assessed here, the nature of the proposed development and the type of wastewater that will be generated is consistent with this definition; therefore the relevant policies, objectives and rules in the TRMP are those that address specifically domestic wastewater issues.

Regarding the relevant rules for discharges of domestic wastewater in the Special Domestic Wastewater Disposal Area, it should be noted that rule 36.1.5(c)(ii) requires a set-back between the disposal field and “any bore for domestic water supply”. Domestic water supply is defined in Chapter 2 as “*the water usage of an individual home or household, including the needs of domesticated animals and of a household vegetable garden where the production of the garden is for that household’s personal consumption.*” (emphasis added)

In my view, the character of this definition is not consistent with that described above for wastewater discharges that are essentially “domestic”. The existing bore and proposed water supply for the proposed development is clearly intended to supply water for essentially domestic use, yet the supply does not meet the definition of a domestic water supply as it is not for an individual home or household. This definition is problematic in this instance because it allows wastewater disposal fields be located closer than 20m from bores as permitted activities when those bores are supplying water for consumptive use, even if not for a household per se.

Regardless of this, as outlined below, the volume of wastewater proposed to be discharged means that that discharge is a discretionary activity and consent is required.

3.1.2 Special Domestic Wastewater Disposal Area (SDWDA) and Applicable Rules

Tasman District has several SDWDAs gazetted in areas where there is, or where zoning anticipates, residential style development but where wastewater reticulation is absent. In Chapter 2 of the TRMP, the SDWDA is being areas labelled as such on the planning maps. In these areas discharges of domestic wastewater must meet the criteria of rule 36.1.5 to be permitted. This rule is reproduced below.

The discharge of domestic wastewater into land from an on-site wastewater treatment disposal field in a Special Domestic Wastewater Disposal Area commencing after 19 September 1998 is a permitted activity that may be undertaken without a resource consent if it complies with the following conditions:

- (a) The volume of effluent discharged is not more than a weekly averaged flow of 2,000 litres per day.*
- (aa) Any discharge first commencing after 20 December 2003 is not within the Wastewater Management Area.*
- (b) There is no discharge or run-off of effluent into surface water.*
- (c) The disposal field is located not less than:
 - (i) 20 metres away from any surface water body, or the coastal marine area;*
 - (ii) 20 metres of any bore for domestic water supply;*
 - (iii) 1.5 metres of any adjoining property.**
- (d) The discharge does not create an offensive or objectionable odour discernible beyond the property boundary.*
- (e) An access point to allow sampling of the effluent being discharged to the disposal field must be provided with any on-site wastewater disposal system installed after 19 September 1998.*
- (f) The quality of the effluent being discharged into the disposal field does not exceed the following standards:
 - BOD 20 milligrams per litre*
 - Suspended Solids 30 milligrams per litre*
 - Faecal Coliforms 100 faecal coliforms per 100 millilitres**
- (g) The effluent is discharged via a dose-loading system.*
- (h) The plant and any associated machinery is maintained by an appropriately competent person experienced in the operation and maintenance of such plant or machinery and must be according to any service contract supplied by the manufacturer, and such information to show how this condition is being met must be provided as requested by the Council.*

3.1.3 Status of the Application

The proposed discharge does not meet the criteria for a permitted activity. There are no controlled or restricted-discretionary rules so the status of the activity is discretionary, subject to rule 36.1.16 of the TRMP:

Except as specified by Rule 36.1.16A [regarding wastewater discharges in the Wastewater Management Area], any discharge to land that does not comply with the conditions for a permitted activity or the standards and terms for a controlled activity is a discretionary activity.

3.1.4 TRMP Objectives and Policies

Having established that the proposed discharge is of wastewater of a domestic nature, and that, as far as the TRMP is concerned, this is a discharge of domestic wastewater to land as a fully discretionary activity, the relevant policies and objectives of the plan need to be considered.

Objective 33.4.0 states that the desired situation regarding on-site wastewater discharges in Tasman is “on-site disposal of domestic waste-water, which avoids, remedies or mitigates adverse effects on groundwater or surface water quality, habitats, human health and amenity values.”

The relevant policies are 33.4.2, 33.4.2A, 33.4.2B and 33.4.4, reproduced below.

33.4.2 To ensure that the adverse effects, particularly the cumulative adverse effects, of on-site disposal of domestic wastewater on water quality and aquatic habitats, including coastal water, and on human health or amenity in the Wastewater Management Area are avoided, remedied or mitigated by:

- (a) controlling the use of on-site systems in areas where there are significant limitations to sustainable on-site disposal of domestic wastewater including:
 - (i) low or very low permeability clay soils;*
 - (ii) rapidly draining coastal soils;*
 - (iii) areas of high groundwater tables;*
 - (iv) steeply sloping sites, especially on south facing slopes;*
 - (v) unstable terrain;*
 - (vii) proximity to surface water bodies;**
- (vi) high density of existing and new on-site systems and the cumulative impact of such discharges in terrain that has significant limitations to on-site disposal;*
- (b) requiring comprehensive site and soil assessments to identify any site limitations;*
- (c) requiring a high level of performance for design, construction, installation, operation and maintenance for new on-site disposal systems;*
- (d) ensuring adequate buffers between disposal fields, water bodies, and the coast, especially Waimea and Mapua Inlets;*
- (e) reducing the risk to human health arising from pathogens in the wastewater entering into water;*
- (f) ensuring the net Nitrogen losses from land in the Wastewater Management Area to be subdivided do not result in adverse effects on aquatic habitats as a result of discharges of domestic wastewater;*
- (g) ensuring stormwater management accounts for potential effects on on-site disposal fields;*
- (h) ensuring that the potential adverse effects, especially cumulative effects of further residential development, are taken into account in considering any application to subdivide land in the Wastewater Management Area.*

- 33.4.2A *To require regular programmed maintenance of on-site wastewater treatment and disposal systems to minimise risk of system failure and reduce risk of adverse environmental effects.*
- 33.4.2B *To encourage consideration of wastewater treatment systems that service a cluster of households (subject to any site limitations) to:*
- (a) take advantage of opportunities for high technology advanced wastewater treatment solutions at cluster scales;*
 - (b) reduce risks of system failure and cumulative adverse effects of single on-site systems;*
 - (c) enable Council to develop effective and cost efficient systems for monitoring on-site wastewater systems.*
- 33.4.2C *To ensure that legal, practical, financial and enforceable responsibility is established for the operation and maintenance of any on-site wastewater treatment and disposal system, especially where such systems service a cluster of dwellings, taking into account both day-to-day operation and maintenance of such systems as well as provision for depreciation and replacement of equipment and of systems.*
- 33.4.4 *To avoid, remedy or mitigate the adverse effects of discharges of domestic wastewater, including cumulative effects, particularly those in the Special Domestic Wastewater Disposal Areas.*

3.2 Resource Management Act 1991

The status of the activity under consideration here is Discretionary. In such a case the Committee may grant or decline the application pursuant to Section 104(B) of the Act and, if consent is granted, conditions may be imposed pursuant to Section 108.

In making a decision on a resource consent application for a discretionary activity, the Commissioner is required to first consider the matters set out in Section 104(1) of the Act, in addition to the matters set out in Section 7. Primacy is given to Part 2 of the Act, “the purpose and principles of sustainable management of natural and physical resources.”

Any decision should therefore be based, subject to Part 2 of the Act, on:

- The actual and potential effects on the environment of allowing the activity;
- Any relevant provisions of national or regional policy statements;
- Relevant objectives, policies, rules or other provisions of a plan or proposed plan; and
- Any other matters the Committee considers relevant and reasonably necessary to determine the application.

In addition, the provision of Section 104(1)(a), which states that “any actual and potential effects on the environment of allowing the activity,” can be qualified by the permitted baseline concept in section 104(2), which states:

“When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect.”

A comparison between the proposed activity and what other activities could take place on the subject site as of right is relevant to the assessment and is made later in this report.

The purpose and principle of the Act is to promote the sustainable management of natural and physical resources. Sustainable management means:

“Managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people, and communities to provide for their social, economic and cultural well-being and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;
- (b) Safeguarding the life-supporting capacity of air, water, soil and ecosystems;
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment”.

The “Section 104 matters” are to be considered subject to Part 2 of the Act. This includes the purpose and principles in Section 5 of the Act, and other matters to be recognised and provided for in Section 6, or had regard to in Section 7, or taken into account in Section 8 of the Act.

4. PRINCIPAL ISSUES

In accordance with the above discussions, the principal issues to be addressed when determining whether to decline or grant with conditions this application for resource consent, are the following:

- The potential or actual adverse effects of the discharge on the environment and Part 2 matters; and
- The extent to which the effects of the proposed activity are consistent with the policies and objectives of the TRMP – in particular policies 33.4.2, 33.4.2A, 33.4.2B and 33.4.4

5. ASSESSMENT OF ACTUAL AND POTENTIAL EFFECTS

5.1 Background to the Proposed Activity

Section 1.4 of this report lists the information upon which this report is based; that information provides details of the proposed wastewater system design and an assessment of environmental effects.

5.2 Consideration of Effects in the Application

The Auckland Regional Council's publication TP58 suggests that the matters listed in Table 2 be given particular regard to when designing on-site wastewater systems. Table 2 indicates the extent to which these matters have been covered in the applications for resource consent, and whether or not the possible environmental effect is considered by Council to be more than minor.

In the application, regard has been given to some of the matters listed in Table 3. However, so some matters are worthy of further discussion and these matters form bulk of the assessment in section 5.3 below.

Table 3: Matters considered in the assessment of potential adverse effects on the environment.

Matters considered in application?		Adverse environmental effect more than minor?
Conservative approach at design stage	Y/N	N
Robust treatment system	Y	N
High level of treatment	Y	N
Mitigation measures to protect against failure	N	Y/C
Conservative hydraulic loading rates	N	N
Measures to ensure even distribution of wastewater disposal	Y	N
Protection of land disposal area with stormwater cut off drains	N	N
Description of the soil types and categories on the property	Y	N
Description of the land application area	Y	N
Separation from surface water	Y	N
Separation from groundwater	Y	N
Separation from surface water bores	N	Y/N
Determination of potential flood risk	N	N/A
Provision for reserve allocation	N	Y
Provisions to discourage access	N	N
Odour effects	Y/N	N
System management plan	N/C	Y
System maintenance contract	N/C	Y
Education of system users	N/C	Y

Notes:

Y – Yes ; N – No

C – Not addressed in the application, but to be addressed by consent conditions, which should ensure that effects are no more than minor;

* These matters are not always discussed explicitly at resource consent application stage. They are dependent to a large degree on the particular make and model of wastewater system to be installed; many manufacturers' systems comprise alarms, power back-up and other systems to prevent failure and associated environmental effects.

5.3 Assessment: Discussion of Key Potential Environmental Effects

The key potential environmental effects associated with domestic wastewater discharges on the proposed allotments are as follows:

- Impact on surface water or coastal water quality
- Impact on groundwater quality
- Impact on soils
- Impact on amenity values

Adverse impacts on surface water, groundwater and soils themselves can be avoided through appropriate design and site assessment. Aside from the exact make and model of the wastewater system itself, one of the most important aspects of wastewater design to be considered in detail is the soil into which wastewater is to be discharged. Wastewater receives 'treatment' by bacteria in the soil following its discharge from the wastewater system. The discharge should occur at a rate within the hydraulic capacity of the soil (i.e. at rate at which the soil can physically absorb and transmit the water). If the discharge is maintained below this rate then typically the soils remain aerobic (air spaces are present within the soil), and so the water is treated by aerobic bacteria. If the rate of discharge is too high then these air spaces may be lost (the soil becomes saturated). Under these conditions the anaerobic bacteria multiply in the soil and these typically emit an offensive odour. Furthermore, some of the discharged wastewater may reach the surface. Neither of these outcomes are intended or desirable.

The applicant's report has demonstrated that there is enough unsaturated soil depth available between the land application system and groundwater for the renovation of wastewater (i.e. treatment by bacteria in the soil) to be achieved.

This situation is best avoided by the installation of a wastewater system that is suitable for the site, and in particular, discharges the treated wastewater at an appropriate rate for the soil type. These key design parameters have been met in the applicant's wastewater design report.

Adverse impacts on surface water quality should be avoided because the wastewater system has been properly designed and maintenance schedules should be enforced, should consent be granted. The land application area is not proposed to be located closer than 20 metres from any waterbody, and it is appropriately sized for the soil type and the proposed discharge.

As has been discussed above, the writer's view is that the proposed wastewater system is appropriate for the site, the design flow volume is suitable for the system's intended use, and the design irrigation rate is suitable for the proposed volume of water and the soil types present. Therefore, it is not expected that there be any adverse effect on the soils, surface water nor groundwater that could be considered more than minor.

With particular regard to matters raised in submissions, the following points are made.

The per capita flow figures and total flow calculations provided by the applicant are correct and are consistent with the flow figures in the AS/NZS1547:2000, which

presents the industry standard reference document for wastewater system design, and which the Council uses to audit system designs.

It should also be noted in this regard that, as discussed below in detail in section 5.2, the volume of wastewater proposed to be generated and discharged at the site is similar to that expected by the permitted baseline test; i.e. the volume under assessment here is similar to that which the Council would reasonably expect from residential development (the site is zoned residential) with dwellings serviced by permitted on-site wastewater systems.

With regard to faecal contamination off shore, this is considered unlikely and is only a reasonable possibility in the event of a significant system malfunction, such as a puncturing of the membrane. Very low concentrations of bacteria will be discharged from the system, most being removed from the wastewater by the membrane. Further treatment of the wastewater and removal of bacteria occurs in the soil (indeed, in most wastewater systems without bacterial removal by membranes, UV or chlorination, most of the treatment of the wastewater occurs in the soil itself). Therefore, the discharge of bacteria will be very low and these are likely to be removed in the soil before the wastewater reaches groundwater and / or coastal water.

However, it is noted that test results show that there is already some faecal contamination off shore. Possible sources of this contamination include on-site wastewater systems servicing baches in the area, and dairy effluent discharges. With regard to the baches, many in this area are of considerable age and may have wastewater systems that are of a very low technology and discharge wastewater that is very poor in quality. This view is to some extent a supposition and would need to be confirmed by assessment of wastewater systems in the area. Building consent information would provide useful information on the age and type of wastewater systems servicing baches, but in my experience I suspect that very few or none of those systems treat and discharge wastewater to the high quality proposed by the applicant.

Regarding dairy effluent discharges, the TRMP has rules for dairy effluent discharges to land (which may enter water with surface run-off) and discharges to watercourses via treatment ponds. I am not aware of the details of consented or permitted effluent discharges in the immediate area of Pakawau, but elsewhere in Golden Bay Council has demonstrated non-compliance with consent conditions and successfully prosecuted dairy farmers for unauthorised discharges that would contain faecal matter.

Submissions commenting on applicant's proposal to discharge wastewater to and adjacent section appear to have had their concerns addressed, as the revised application now proposes to discharge wastewater to the subject site only.

With regard to the need for proper maintenance and monitoring of the system and the discharge, consent conditions to that effect are proposed here, should consent be granted.

However, some outstanding matters and additional points are:

1. The design loading rate of 47 mm per day is described by the applicant as being “very conservative” (correspondence, 7 November 2008). To the contrary, however this is very close to the maximum loading rate described in AS/NZS1547:2000 and is not conservative.
2. There has been little consideration of the effects of system failure, and of measures to be put in place to prevent this, in the application documents. Submitters raised questions over the effect of a system failure and this would need to be adequately addressed, should consent be granted.
3. Separation distance from the bore has not been considered in the application.
4. The provision for reserve allocation is almost non-existent.
5. A system management plan, service contract and educational materials for users have not been provided as part of the application; these are important for long term performance of the system.

5.4 Assessment against Part 2 matters

5.1.1 Section 5 – Purpose

Under section 104(1) the consent authority must consider applications ‘subject to Part 2’ of the RMA. The purpose of the RMA is to “... promote the sustainable management of natural and physical resources.” (section 5(1)).

If it is seen that activity can be undertaken such that the life-supporting capacity of land is safe-guarded, and adverse effects are adequately mitigated in accordance with the purpose of the RMA, then this proposal could be seen as consistent with this aspect of section 5.

5.1.2 Section 6 – Matters of National Importance

Sections 6 (a) to 6 (d) will not be affected by the discharge of contaminants from this activity.

5.1.3 Section 7 – Other Matters

The Council is required to have particular regard to the matters set out in Section 7 of the RMA. Matters requiring consideration in this case include:

- “(b) the efficient use and development of natural and physical resources;
- (c) the maintenance and enhancement of amenity values;
- (d) intrinsic values of ecosystems; [and]
- (f) maintenance and enhancement of the quality of the environment.”

The proposed re-cycling of treated wastewater for toilet flushing is an effort to make the efficient of use of water at the proposed development.

The proper functioning of the proposed system should not lead to the generation of odours, surface ponding of wastewater, or other effects that would reduce amenity

values. However, the presence of the wastewater system on the site and the discharge to land on the site arguably would not *enhance* amenity values.

The ecosystem where the wastewater system is proposed to be placed, and therefore the land to which the wastewater is proposed to be discharged, has little intrinsic value. However, the discharge is proposed to occur adjacent to an ecosystem of high value. The prospect of off-site adverse effects on ecosystems is of significantly more importance than the effect on the subject site itself.

The discharge described in the application will not enhance the quality of the environment. However, as discussed above, the quality and performance of the existing wastewater system on the site are poor. In this regard, the proposed system, when considered in isolation, could represent an improvement on the current situation

5.1.4 Section 8 – Principles of the Treaty of Waitangi

The principles of the Treaty of Waitangi form the basis of developing a relationship of partnership and communication. A submission in opposition was received from iwi but this did not comment specifically on wastewater matters.

5.2 Assessment Against Relevant Section 104 Matters

Section 104 states the relevant matters to which the Council must have regard when considering applications. Aside from Part 2 matters (addressed above) and the relevant provisions of the regional plan (addressed below), the remaining relevant aspect of section 104 is (2). This provides for the 'permitted baseline' and states that "when forming an opinion for the purposes of subsection (1)(a) [actual and potential effects on the environment], a consent authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect."

The relevant rule in the TRMP is 36.1.5 which permits the discharge to land of up to 2,000 litres of wastewater per day. This is subject to other standard criteria (see section 3.1 of this report) including the quality of the discharged wastewater meeting the following standards:

- BOD 20 milligrams per litre
- Suspended Solids 30 milligrams per litre
- Faecal Coliforms 100 faecal coliforms per 100 millilitres

This standard anticipates a wastewater system that utilises 'secondary treatment' such as an aeration, vermiculture, or packed bed reactor type system. The faecal coliform standard requires micro-filtration or treatment with UV or disinfectant, but this standard has not always been enforced by the Council.

With regard to wastewater discharges at the site, the permitted baseline test must therefore consider the character (principally volume and quality) of wastewater that could reasonably be discharged at the site as a permitted activity. As described in Laurie Davidson's report, the permitted baseline can be assessed as follows:

“The proposed title of 1.03 hectares is zoned Residential and the TRMP rules will allow land in this location to be subdivided down to a minimum area of 1000 m², but the average for subdivisions creating 3 or more allotments has to be 1200 m². This could then conceivably create eight allotments and dwellings could be erected on each of these as a Controlled Activity under the Residential and Coastal Environment Area rules.”

In this instance the permitted baseline is 2,000 litres of secondary treated wastewater being discharged per day from each allotment, being 16m³ in total.

However, as Laurie Davidson’s report goes on to point out:

“In the case of the Residential Zone rules, a second dwelling can be erected on an allotment as a Controlled Activity, but the buildings have to meet the relevant bulk and location requirements, which may be a little difficult to achieve for all eight allotments. The land is also in the Special Domestic Wastewater Disposal Area and the disposal of wastewater has more onerous requirements that may also affect the density of development.”

And therefore, that:

“While it may present some practical difficulties, a development could conceivably create 16 residential units within eight allotments on the 1.03 hectare title and this could be considered as the permitted baseline for the land in question.”

In this case, whilst (controlled activity) resource consents would be required for the dwellings and there may be practical difficulties with servicing, the site could, as a conceivable maximum, hold 16 residential units.

It should be noted here that the permitted rule for domestic wastewater discharges in the SDWDA is concerned with the discharge “*from an on-site wastewater treatment disposal field*” – i.e. not from a dwelling. This means that rule 36.1.5 does not limit the number of disposal fields or the maximum volume of wastewater to be discharged on each allotment in the SDWDA. Rather, this rule simply limits the volume of wastewater that may be discharged from each disposal field.

Therefore, were the subject site subdivided into residential lots then a likely scenario would be the development of approximately eight residential lots, each with one dwelling, bringing about a total discharge of up to 16,000 litres of wastewater per day to the subject site.

A less likely, though possible scenario, would be for each of these residential allotments to subsequently support a second dwelling, in which case the total discharge of wastewater to land in that 1.03 hectares could be up to 32,000 litres per day as collection of permitted activities.

The applicant’s proposal is to discharge up to 20,000 litres of wastewater per day. Therefore, the permitted volume of wastewater that could be discharged at the subject site, were it to become a residential development, is between 80% and 160% of what is proposed by the applicant.

As a footnote to this discussion on wastewater volumes, it is worth considering the likely volume of wastewater discharge against the permitted baseline. In the case of eight dwellings on the subject site, assuming full occupancy of three-bedroom houses on each lot, with standard fixtures and on bore water supply (assuming therefore 180 litres per person per day, at six persons), according to the AS/NZ Standards, the volume of wastewater discharged would be 1,080 litres per day, or approximately half the permitted volume. This equals 8,640 litres per day for the whole of the subject site, which is approximately 43% of the discharge the applicant seeks to authorise.

It is worth stressing that the volume of wastewater proposed to be discharged is not the only criterion for comparison against the relevant permitted activity rules. The quality of the wastewater is an additional and important factor. The permitted thresholds for wastewater quality in the SDWDA are:

- BOD 20 milligrams per litre
- Suspended Solids 30 milligrams per litre
- Faecal Coliforms 100 faecal coliforms per 100 millilitres

Data from real life testing of proprietary on-site domestic wastewater treatment and disposal systems indicate that these thresholds are not always met. The quality and frequency of maintenance work and the awareness of homeowners of the technology and its limitations, plus other factors, can determine the quality of the wastewater discharge to a large degree.

The system proposed by the applicant is designed to treat wastewater to the following standards:

- BOD 15 milligrams per litre
- Suspended Solids 15 milligrams per litre
- Faecal Coliforms 100 coliform units per 100 millilitres

These standards represent a significantly reduced environmental impact in comparison to that which would be permitted in a residential setting.

Furthermore, in the case of a single wastewater treatment and disposal system, as proposed here, there is arguably greater chance of high quality and frequent maintenance being undertaken, so these standards are arguably more likely to be upheld than they would be in the case of a residential development.

In summary, given the volume and quality of wastewater proposed to be discharged at the site and all other things being equal, I would not consider the adverse environmental impact of the proposed discharge to be greater than that which might reasonably occur as a permitted activity, given future residential development of the site that is anticipated by the TRMP.

5.3 Assessment against policies and objectives of the Tasman Resource Management Plan

The relevant policies and objectives of the TRMP were reproduced in Section 3.1.4 of this report. Despite a small number of matters on which the Committee may wish to clarification, I consider that the applicants proposals broadly meet these objectives and policies.

6. RECOMMENDATION

6.1 Grant vs decline

Section 104 of the RMA lists the matters that the consent authority shall have regard to when considering a consent application. Section 104B states that a consent authority may grant or refuse a consent for a discretionary activity, and may impose conditions under section 108.

Based on my audit of the application I consider that, when considered in isolation, the application for resource consent to discharge domestic wastewater to land should be granted subject to recommended conditions.

However, it is my understanding that other applications relating the proposed development are recommended to be declined. In that case, it is appropriate that this application should also be **declined**.

6.2 Duration

Should consent be granted, it is recommended that consent be granted for no more than 20 years in accordance with the expected lifetime of the proposed wastewater system.

6.3 Proposed recommended conditions

Should the Committee determine that the granting of consent is appropriate, this should be subject to the conditions in Appendix 1.



This report prepared pursuant to Section 42A of the Resource Management Act 1991 by MICHAEL DURAND on 20 June 2009.

Discharge Restrictions

1. The discharge shall be from a wastewater system designed and installed in accordance with documents provided in application for resource consent RM070602, in particular:
 - *Sustainable Ventures Ltd Pakawau Village Beach Resort Resource Application*, prepared by Staig and Smith Limited, referenced 8927 and dated May 2007
 - Appendix 3 of that document: *Report in Support of Consent Application for Water, Stormwater and Wastewater Discharge*, prepared by Waste Solutions Ltd, referenced 7244 and dated 11 April 2007
 - Letter sent to the writer, *Pakawau Beach Resort Wastewater Dispersal* prepared by Waste Solutions Ltd, referenced 130217/1 and dated 7 November 2008
 - Drawings appended to that letter, referenced A100–107.
 - Submissions
 - Further information provided to the Council from Derrick Railton (Waste Solutions Ltd) on 19 June 2009

Where inconsistencies are present between those documents and the conditions of this resource consent, the conditions shall prevail.

2. The maximum rate of discharge shall not exceed 16.52 cubic metres per day. The discharge shall contain only treated wastewater which is of a domestic nature. For the purposes of this condition, wastewater which is of a “domestic nature” includes wastewater from toilets, urinals, kitchens, showers, washbasins, baths, and laundries but does not include water from spa pools.
3. The treated wastewater entering the land application areas, based on the results of any single sample collected from the sampling point required to be installed in accordance with Condition 23, shall comply at all times with the following limits:

Determinand	Maximum allowable concentration
5 day carbonaceous biochemical oxygen demand (cBOD5)	20 grams per cubic metre
Total suspended solids	30 grams per cubic metre

Land Application System

4. The maximum loading rate at which the wastewater is applied to land shall not exceed 47 millimetres per day (47 litres per square metre of trench per day).
5. All wastewater shall be discharged to land by way of not less than 1750 m of trench of 200 mm width.
6. Trenches shall be laid level.

7. The land application area shall be located as shown in the application plans A101-108.
8. Notwithstanding Condition 7, in the event that the total area required to adequately dispose of the wastewater is shown to be greater than that calculated in the application, the Consent Holder shall make additional land available for wastewater disposal.
9. The land application areas shall not be used for:
 - (a) roading, whether sealed or unsealed;
 - (b) hardstand areas;
 - (c) erection of buildings or any non-wastewater systems structures; or
 - (d) stock grazing.
10. Any trees planted within the land application area shall remain in place for the duration of this consent except for the purposes of removal and replacement of trees that have reached maturity or require removal for some other reason. In that situation the Consent Holder shall replace the removed trees with trees that are equally suitable, or trees that are of the same species, and will not remove and replace more than 20% of the trees in any one year.
11. The Consent Holder shall mark each land application area by any means that ensures the extent of them is identifiable on the ground surface.
12. There shall be no surface ponding or surface run-off of any contaminants from any of the land application areas as a result of the exercise of this consent.

Collection, treatment and Disposal Systems

13. Except where inconsistent with the conditions of this consent, the construction and installation of the wastewater collection system, treatment plant and land application system shall be carried out in accordance with information submitted with the application for resource consent RM070602 and under the supervision of a person who is suitably qualified and experienced in wastewater treatment and disposal systems.
14. The person supervising the construction and installation of the wastewater collection system, treatment plant and land application system shall provide a written certificate or producer statement to the Council's Co-ordinator Compliance Monitoring prior to the exercise of this resource consent. This certificate or statement shall include sufficient information to enable the Council to determine compliance with Conditions 4–9 (inclusive), 11, and 23. In addition, the certificate or statement shall also confirm the following:
 - (a) that the wastewater system, including the collection system, treatment plant and the land application areas, is capable of treating the design flows and that it has been designed generally in accordance with standard engineering practice;
 - (b) that all components of the wastewater system, including the collection system, treatment plant and the land application areas, have been inspected and

installed in accordance with the manufacturer's specifications and standard engineering practice;

- (c) that the components used in the wastewater system, including the collection system, treatment plant and the land application areas, are in sound condition for continued use for the term of this resource consent, or are listed in the Operations and Management Plan (required by Condition 16) for periodic replacement;
15. Prior to the exercise of this consent, the Consent Holder shall submit a set of final "as-built" plans to the Council's Co-ordinator Compliance Monitoring that shows the location of all components of the wastewater collection, treatment, and land application system. For the purpose of this condition, the Consent Holder shall ensure that the "as-built" plans are drawn to scale and provide sufficient detail for a Council officer to locate all structures identified on the plans.

Wastewater System Operation and Maintenance

16. A chartered professional engineer or suitably qualified person experienced in wastewater engineering shall prepare an "Operations and Management Plan" for the wastewater treatment and disposal system. This plan shall be prepared in accordance with the conditions of this resource consent and shall contain, but not be limited to, the following:
- (a) an inspection programme to verify the correct functioning of the wastewater treatment and land application systems including not less than monthly inspections of the wastewater treatment plant and disposal areas;
 - (b) a schedule for the daily, weekly, monthly and annual operational requirements including requirements of compliance monitoring of consent conditions;
 - (c) a schedule of maintenance requirements for the pumps, tanks, recirculation tanks, treated wastewater holding tank, flow meters and drains;
 - (d) a schedule of maintenance requirements for the management of vegetation on the land application area(s);
 - (e) a contingency plan specifying the actions to be taken in the event of failure of any component of the system, in the event of flooding of the land application area and subsequent use of the emergency storage tanks, and any non-compliance with the conditions of this resource consent;
 - (f) details of how the wastewater disposal system will be managed;
 - (g) emergency contact details (24 hour availability) for the Service Provider and Consent Holder; and
 - (h) monitoring of the land application areas shall include visual ground inspections to identify above ground and surface flows of wastewater and methods to remedy such flows should any be identified.

17. A copy of the "Operations and Management plan" required by Condition 16 shall be submitted to the Council's Co-ordinator Compliance Monitoring for approval prior to exercising this consent. Any changes to this plan shall be in accordance with the conditions of this consent and submitted to the Council's Co-ordinator Compliance Monitoring prior to them taking effect.
18. The Consent Holder shall enter into, and maintain in force, a written maintenance contract with an suitably qualified and experienced wastewater treatment plant operator suitably trained in wastewater treatment plant operation by the system designer, and approved by the Council's Co-ordinator Compliance Monitoring for the ongoing maintenance of the pumps and tanks, and the treatment and land application systems. The maintenance contract shall require the operator to perform maintenance functions and duties specified in the "Operations and Management Plan" required to be prepared by Condition 16. A signed copy of this contract, including full contact details for the Service Provider, shall be forwarded to the Council's Co-ordinator Compliance Monitoring, prior to exercising this consent. Any changes to this maintenance contract must be in accordance with the conditions of this consent and submitted in writing to Council's Co-ordinator Compliance Monitoring prior to them taking effect.

In addition, the Consent Holder shall, every six months from the date of first exercising this consent, provide the Council's Co-ordinator Compliance Monitoring with a copy of a written report that details the maintenance that has been undertaken on the wastewater treatment and disposal system during the previous six month period in accordance with the requirements of the Operations and Management Plan.

Advice Note:

For compliance purposes, a suitably qualified and experienced person would be either a person employed and trained by the manufacturer of the treatment and disposal system, or someone who can provide evidence of satisfactory qualifications and experience in maintaining such wastewater treatment and disposal systems.

19. The collection and treatment tanks that form part of the wastewater treatment plant shall be inspected at least every three months. Where appropriate, all tanks shall as a minimum be cleaned out once the combined depth of the sludge and scum in any tank occupies half of the tank's volume. Material collected from the desludging of tanks shall be removed from site for disposal at a facility authorised to receive such material.

Contingency Measures

20. An audible and visual alarm system shall be installed and operated that is capable of warning of any failure within the treatment or disposal systems (i.e., pump failure, mechanical blockage, and/or high wastewater levels).

This warning system shall be configured to activate an audible and visual alarm system located adjacent to the treatment plant or other prominent place on the site for the treatment plant. The details of the alarm shall be included in the "Operations and Management Plan" required by Condition 16 and shall achieve as a minimum the following:

- (a) effective notification of the operators of any alarm;
- (b) in the event of any alarm activating, the alarm shall continue to operate and until the condition has been remedied and cleared by the operator. The audible and visual alarm system shall be installed and operated on all grinder pumps and tanks and, as a minimum, this alarm shall be activated by a high level switch.

The Consent Holder shall maintain clearly visible signage adjacent to all external alarm panels at the plant to provide a 24 hour contact number in the event of an alarm being activated.

- 21. The Consent Holder shall ensure that the treatment plant (excluding the emergency storage tanks) is designed and maintained so that wastewater can be retained within the treatment system above the alarm level without overflow for a period of at least 12 hours, based on average dry weather flows and in accordance with the provisions in the "Operations and Management Plan". All pumps in the treatment and land application system that are essential for the continuous processing, treatment, and disposal of the wastewater shall include duty and standby units.
- 22. Should power disruption result in the emergency storage capacity being exceeded, the Consent Holder shall ensure that the wastewater is removed from the storage tank at that time for the purpose of maintaining capacity. Wastewater shall be disposed of to a facility that is authorised to accept such wastes. The relevant details of how this will be achieved shall be incorporated in the "Operations and Management Plan" required to be prepared in accordance with Condition 16.

Monitoring and Reporting

- 23. A sampling point to allow collection of a sample of the treated wastewater shall be provided at a point located directly after the final pump-out chamber and before the point where the wastewater discharges to the land application area. Details of the location of this sampling point shall be forwarded to the Council's Co-ordinator Compliance Monitoring prior to the exercise of this consent.
- 24. A sample of the treated wastewater shall be collected from the sampling point required to be installed in accordance with Condition 23. Samples shall be analysed for five day carbonaceous biochemical oxygen demand (cBOD5), total suspended solids, total faecal coliforms, pH, and temperature. The frequency of sampling shall be as follows:
 - (a) for the first 12 months following treatment plant start up, two samples shall be collected at approximately six monthly intervals when the plant is discharging to the land application area;
 - (b) samples shall be collected at least weekly over the period 20 December to 10 January during the period described in (a) above;

- (c) following the first 12 months, samples shall be collected at least annually, with the samples being collected between 20 December and 10 January provided the contaminant limits specified in Condition 3 are always met. Should any of these limits not be met, the sampling frequency shall be increased to monthly sampling, including the frequency specified in (b) above, until full compliance with the contaminant limits of Condition 3 has been achieved over a four month period.
25. All sampling referred to in this consent shall be carried out by a suitably qualified person approved by the Council's Co-ordinator Compliance Monitoring, using standard sampling methodologies and equipment and shall be transported to the laboratory under chain of custody. Where temperature and pH are required, these shall be measured in the field using standard methods and calibrated meters. The detection limits specified in Appendix 1 (Applicable Detection Limits, attached) shall apply to analyses that are undertaken by the laboratory. The samples shall be analysed using standard methodology by an IANZ accredited laboratory. The analytical results shall be forwarded to the Council's Co-ordinator Compliance Monitoring within 10 working days of the results being received from the laboratory.
26. The Consent Holder shall install and maintain at all times a calibrated flow meter, with an accuracy of $\pm 5\%$, on the outlet of the wastewater treatment system to measure the quantities of wastewater discharged to the land application areas.
27. The flow meter required to be installed in accordance with Condition 26 shall be read manually or electronically at the same time daily. Copies of these records shall be forwarded to the Council's Co-ordinator Compliance Monitoring quarterly and also upon written request.
28. Any exceedance of the authorised discharge volume (refer Condition 2) shall be reported to the Council's Co-ordinator Compliance Monitoring in writing within three days of the reading. This report must include any explanation for the non-compliance and an assessment of the likely effects of the functioning of the system and the receiving environment.
29. The Consent Holder or its authorised agent shall notify Council's Co-ordinator Compliance Monitoring of any wastewater discharge to land or water from the treatment plant that is not authorised by this consent in writing as soon as practicable (but no more than 24 hours) after the discharge commenced.

General Conditions

30. The wastewater treatment system shall be located, and the surrounding area maintained, so that vehicular access for maintenance is readily available at all times.
31. The Council may, in the period 1 November to 1 March each year, review any or all of the conditions of the consent pursuant to Section 128 of the Resource Management Act 1991 for all or any of the following purposes:
- (a) to deal with any adverse effect on the environment which may arise from the exercise of the consent that was not foreseen at the time of granting of the consent, and which is therefore more appropriate to deal with at a later stage; and/or

- (b) to require the Consent Holder to adopt the best practical option to remove or reduce any adverse effects on the environment resulting from the discharge; and/or
- (c) reviewing the contaminant limits, loading rates and/or discharge volumes and flow rates of this consent if it is appropriate to do so; and/or
- (d) reviewing the frequency of sampling, flow monitoring and/or number of determinands analysed if the results indicate that this is required and/or appropriate.

Duration of consent (RMA Section 123)

32. This consent expires on 1 July 2029.

ADVICE NOTES

1. This resource consent only authorises the activity described above. Any matters or activities not referred to in this consent or covered by the conditions must either: 1) comply with all the criteria of a relevant permitted activity rule in the Proposed Tasman Resource Management Plan (PTRMP); 2) be allowed by the Resource Management Act; or 3) be authorised by a separate resource consent.
2. The Consent Holder shall meet the requirements of Council with regard to all Building and Health Bylaws, Regulations and Acts.
3. All reporting required by Council shall be made in the first instance to the Council's Co-ordinator Compliance Monitoring.
4. The Consent Holder is advised that compliance with operating guidelines provided by the wastewater system manufacturer and system designer is recommended to reduce the likelihood of malfunction of the treatment or disposal system and a possible breach of consent conditions.
5. If the site becomes part of an urban drainage area identified by Council when future reticulation is available, the Consent Holder will be required to provide connection from the treatment system to the sewer line.
6. Council draws your attention to the provisions of the Historic Places Act 1993 that require you in the event of discovering an archaeological find (e.g., shell, midden, hangi or ovens, garden soils, pit, depressions, occupation evidence, burials, taonga) to cease works immediately, and tangata whenua, the Tasman District Council and the New Zealand Historic Places Trust shall be notified within 24 hours. Works may recommence with the written approval of the Council's Environment & Planning Manager, and the New Zealand Historic Places Trust.

**APPENDIX 2
APPLICABLE DETECTION LIMITS**

Parameter	Detection Limits ¹	Units
Carbonaceous biochemical oxygen demand	2	g/m ³
Total Suspended Solids	3	g/m ³
Total faecal coliforms	10	MPN or cfu/100 mL

Notes:

1. These detection limits apply unless other limits are approved in writing by the Coordinator Compliance Monitoring.