



*Wanganui Waste Water Treatment Plant*

# **Discharge of Milliscreened Effluent to Ocean Outfall**



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Prepared By

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*Wanganui Waste Water Treatment Plant*

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# **Discharge of Milliscreened Effluent to Ocean Outfall**



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**PART A DISCHARGE PERMIT APPLICATION  
PURSUANT TO SECTION 88 OF THE  
RESOURCE MANAGEMENT ACT 1991**

**To:** The General Manager  
Horizons Regional Council  
Private Bag 11025  
Palmerston North

**Applicant:** Wanganui District Council

**Proposal:** To discharge milliscreened effluent from the Wanganui Waste Water Treatment Plant into an ocean outfall.

**Location:** The WDC ocean outfall is located 1800m off South Beach, Wanganui (at or about approx map reference R22: 813-344).  
  
The WDC Wastewater Treatment Plant is located adjacent to Airport Road, south-west of Wanganui Township at approximate map reference NZMS R22: 837-354.

**Legal Description:** Sec 1 SO 373103

**Valuation** 14250/100/01

**Consent Required:** Discharge Permit to discharge milliscreened wastewater to CMA under Rule 18-40 of the One Plan

**Term Sought** 3 Years

**Attachments:** The Assessment of Environmental Effects is attached as Part B of this report. Other attachments include:  
  
Appendix I - AEE Reports  
Appendix II - Trade Waste Bylaw  
Appendix III - One Plan Values

**Consultation:** Please refer to Section 4 of this AEE for information on the consultation undertaken.

On behalf of  
Wanganui District Council

.....  
Dated

**Address for Service:**

Opus International Consultants Limited  
PO Box 1472  
Palmerston North

Ph: (06) 350 3272  
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Attention: Tabitha Manderson

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## **PART B                    ASSESSMENT OF ENVIRONMENTAL EFFECTS**

### **1        Introduction**

This application has been prepared in accordance with those matters set out in section 88 of, and the Fourth Schedule to, the Resource Management Act 1991. This statement of effects accompanies and forms part of the resource consent application.

The purpose of this application is to obtain a short term resource consent to allow for the ongoing operation of the Wanganui Wastewater Treatment Plant (WWTP) by Wanganui District Council (WDC).

#### **1.1    Background**

This application is made against the background of the failure of the previous wastewater treatment plant in late 2012 – referred to as ‘the failed plant’ from this point forward. WDC is currently in the process of finalising a bio solids strategy to ensure the affordability of a newly designed Wastewater Treatment Plant – referred to as ‘the replacement plant’ from this point forward.

WDC hold a suite of discharge permits relating to the operation of the WDC wastewater treatment plant.

Coastal Permit 101706 allows for the discharge of partially treated wastewater, including tradewaste and domestic sewage until 30 June 2007 and to discharge fully treated wastewater, tradewaste and domestic sewage for a term expiring 30 June 2026.

Coastal Permit 101707 allows for the discharge of untreated diluted wastewater and stormwater to the Coastal Marine Area. Coastal Permit 101707 allowed for the unquantified discharge of stormwater and wastewater to the marine outfall. Coastal Permit 101707 was granted subject to the same consent conditions as Coastal Permit 101706, other than the expiry date of 1 July 2010. A new consent was sought to replace Coastal Permit 101706, Coastal Permit 105288 was granted in 2012.

At the time of applying for the original permits in 2001, final design of the failed plant had not been undertaken. Design was undertaken after the consents were granted to meet the conditions of the various permits. The physical construction of the site was completed in July 2007.

The failed plant had been afflicted by odour problems with these starting in December 2007. The plant has consistently failed to meet the conditions of the consent relating to the quality of effluent discharge.

In early 2012 a survey of both ponds revealed the sludge layer at the bottom of the ponds was more than four metres deep; a situation not anticipated or expected to be reached for several more years. Issues with the failed plant were reported by the Infrastructure Manager to the Infrastructure & Property Committee; this was followed by a joint media briefing with Horizons Regional Council on treatment plant issues.

In mid-October 2012 Council commenced a bio-augmentation programme to begin stabilising the plant and reducing the levels of sludge, suspended solids and subsequent coliforms and enterococci. Improved results were expected before Christmas 2012. In early December 2012 a release of protein material into the wastewater system triggered a decrease in oxygen levels in the plant, halted the bio-augmentation digestion process and caused further excessive odours. In addition the UV plant was damaged by the levels of undigested solids in the waste stream.

This led to the plant being partially shut down to treat the protein compounds and excessive odours which extended beyond the failed plant to the city.

On 17 December 2012 Horizons Regional Council issued a formal warning to the Wanganui District Council regarding odours. Later that month Council was asked to assist a commercial operator by taking hydrogen sulphide through Beach Road pumping station as the industry's sulphide tank has broken down. This caused odour levels to increase even further.

Council commissioned wastewater specialists Cardno BTO to advise on short-term and long-term measures to address the issues with our wastewater treatment plant. Cardno's first report on the long-term options was presented to the Council on 29 April 2013.

Council had to remove the sludge from the existing WWTP to eliminate the odours and prepare for the construction of the new plant. WDC had set forth the terms of reference for the long-term options study in a WDC Resolution:

- To determine whether it is viable to continue with (the present) plant;
  - *Cardno's assessment is that continuing with the plant in its current configuration is not viable. The original design concept is flawed and capital improvements are required in order to reliably meet the effluent consent and minimise the risk of odours.*
- If viable, which options to achieve satisfactory performance are available for completion over the next two years;
  - *Continued operation of the plant in its current configuration is not viable. Despite this, consideration has been given within this evaluation to make best use of existing infrastructure when possible.*
- If not viable, then establish which type of plant would be suitable for Wanganui's waste and what size that would need to be.
  - *A facility that consists of a biological treatment process that produces a settleable floc and continuous sludge handling is critical. This evaluation concludes that overall most cost effective improvement scenario includes:*
    - *Anaerobic pond to provide primary treatment*
    - *Contact stabilisation with new secondary clarifiers for secondary treatment or sequencing batch reactors (SBRs)*
    - *UV disinfection*
    - *Co-wasting of primary sludge and WAS from the anaerobic pond to solids handling*



Since February 2014 the discharge of wastewater from Wanganui has bypassed the treatment ponds, and has been discharging milli-screened effluent via the ocean outfall pursuant to section 330 of the Resource Management Act (emergency works).

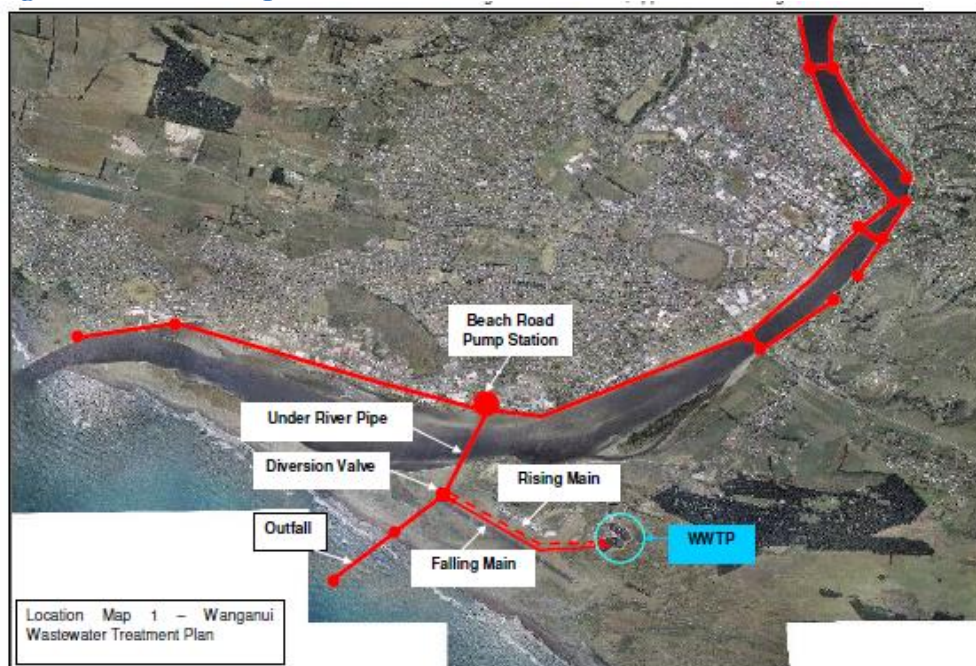
Council commissioned Cardno BTO to prepare a full design of a replacement plant. Cardno BTO's report on the design was peer reviewed by AECOM and it was also reviewed by an independent expert from CH2M Beca. These reports were presented to the Council on 19 June 2014 and the design approved.

On 8 December 2014 the Council decided to delay the construction of the replacement wastewater treatment plant, to enable it to collate further information necessary to enable it to give the go-ahead for work to start. This information related to the likely operating costs of the new plant and its affordability for the community.

Horizons Regional Council instructed WDC that a consent application was required for the discharge of milli-screened effluent if the discharge were to continue.

## 1.2 The Existing Environment

Figure 1: Location Map



### 1.2.1 Coastal Marine Area (CMA)

As noted in the original consent documentation, and detailed in the Horizons Regional Council's joint officers hearing report, "The marine environment is strongly affected by the Whanganui River. It has also been affected by partly treated discharges of domestic and industrial waste from Wanganui since the long outfall was completed in 1984. The seafloor is characterised by fine silt carried downstream by the river, with the seafloor marine community being affected by enriched effluent from the sewage discharges."

## Oceanography

Major oceanographic investigations have previously been carried out to assess the effects of the WDC ocean outfall. These were carried out in 1990-1991 (reported in Bell 1990; Williams and Bell 1991) and in 1999 by Bell *et al* (2000). Bell *et al.* (2000) summarises the relevant oceanographic features as follows:

- “Currents off Wanganui are driven primarily by regional winds rather than tides (accounts for 95% of the variability in measured currents).
- Three main coastal circulation zones are present in the Wanganui region:
  - a) Near-shore circulation zone, which hugs the surf zone out to approximately 3-4m depth, and generated by waves or swell approaching the coast at various angles;
  - b) The coastal current stream beyond approximately 3-4m depth, comprising small tidal flows superimposed on larger wind-driven currents, which flow parallel with the coastline; and
  - c) Local ebb and flood tidal flow patterns associated with the Whanganui River mouth, including the river outflow jet on the outgoing tide, which can bend around towards the shoreline either side of the river mouth depending on the prevailing coastal current.
- The water column along the Wanganui coastline is normally well mixed but stratification of the water column can occur when the freshwater plume from the Whanganui River and/or sustained heating in the surface layer in summer can produce differential changes in water density with depth. In these situations, especially following river floods, vertical stratification may suppress the effluent plume just below the water surface (except any grease slicks and floatable material).
- Prevailing winds during the summer/autumn bathing season are from the W and NW sector (20-40% of the time in summer/autumn) and from the N and NE sectors (20-30%) – they will affect the movement of a surface effluent plume, and especially the transport of any grease slick that forms.
- Following discharge, the diluting effluent plume travels predominantly to the south-east (65-75% of the time) under the prevailing alongshore coastal currents. The outfall plume moves up-coast to the north-west only when winds blow from the southerly sector, or when the incoming tide coincides with calm condition. “

In summary, a complex pattern of plume movements occur for both the Whanganui River outflow and the smaller (in terms of volume) outfall discharge, driven largely by the coastal current and wind velocity occurring at the time. This is further compounded when slicks form above the outfall, providing a more direct route for diluted effluent to reach the near shore zone when they are accompanied by sea breezes (Bell *et al* 2000).

In the original assessment of environmental effects NIWA found that the seafloor community was characterised by biota typical of an enriched environment.

## 1.3 Existing Treatment System

### 1.3.1 Domestic Loading

The estimated resident population for Wanganui according to the 2013 Census is 35,766 people.

The population decreased slightly between the 2006 and 2013 censuses and no significant population growth is projected.

### 1.3.2 Trade Waste

Trade Waste is accepted into the wastewater system. A Trade Waste Bylaw was adopted by WDC in 2008 to regulate the discharge of trade wastes into the WDC wastewater system. The trade waste bylaw is in the process of being reviewed. The acceptable trade waste constituents and concentration of all large industries in Wanganui are controlled by individual trade waste consent permits.

Wanganui has a strong industrial sector which dominates its contribution to national GDP. Being a rural service centre, a great deal of these deal in processing and creating value from farming and agricultural primary products. Manufacturing outputs exceed the national average in employment (Source: Statistics New Zealand). The industries which make use of and send the bulk waste products into the Wanganui Treatment System (and are classed as major users) process animal products – Tanneries, Freezing Works, Dairy Processing, wool products, petfood manufacturing.

### 1.3.3 Flow data

	<b>Flow</b>	<b>Comment</b>
Average Daily Flow Dry weather	370 l/s	Same as modelled in Bell <i>et al</i> (2000).
Average daily flow	381 l/s (379 l/s)	
90 <sup>th</sup> %ile daily flow	541 l/s (540 l/s)	

**Table 1: Current effluent discharge flow rates for combined domestic sewage and industrial wastewater. Calculated as average 15 minute flow and average one hour flow (in brackets).**

Note: Based on 24 months (8 Jan08 – 3Feb10) of flow data at Beach Road Pumping Station.

### 1.3.4 Effluent Quality

The following table shows calculated effluent quality data, prepared in support of the 'bypass' application (Discharge Permit 105288).

**Table 2: Effluent quality at Beach Road Pumping Station over different periods of time.**

Parameter	1995-1999 <sup>(a)</sup> Median (95 <sup>th</sup> ile)	2002-2007 <sup>(b)</sup> Median (average; 95 <sup>th</sup> ile)	2007-2009 <sup>(c)</sup> Median (average; 95 <sup>th</sup> ile)
pH	7.7 (8.9)	7.7 (7.8; 8.5)	-
BOD <sub>5</sub> (g/m <sup>3</sup> )	445 (1145)	456 (477; 909)	365 (419; 855) n=286
Grease and oil (g/m <sup>3</sup> )	120 (538)	51.0 (66.3; 150)	59 (69; 170) n=111
Total Suspended Solids (g/m <sup>3</sup> )	471 (945)	300 (351; 718)	383 (443; 835) n=293
Feacal Coliforms (MPN/100ml)	8x10 <sup>6</sup> (6.5x10 <sup>7</sup> )	2.65 x 10 <sup>6</sup> (6.8 x 10 <sup>6</sup> ; 2.09x10 <sup>7</sup> )	2.2 x 10 <sup>5</sup> (8.08 x 10 <sup>5</sup> ; 2.47x10 <sup>6</sup> ) n=9
Enterococci (MPN/100ml)		5.8 x 10 <sup>5</sup> (1.6 x 10 <sup>6</sup> ; 5.4x10 <sup>6</sup> )	4.5 x 10 <sup>5</sup> (1.19 x 10 <sup>6</sup> ; 4.4x10 <sup>6</sup> ) n=9
Total Sulphides (g/m <sup>3</sup> )	5.2 (27.6)	5.8 (8.1; 26)	3.0 (3.0; 8.0) n=91
Ammoniacal nitrogen (g/m <sup>3</sup> )	16 (38)		
TP (g/m <sup>3</sup> )	7.9		
TN (g/m <sup>3</sup> )	50		
Chromium (g/m <sup>3</sup> )	1.4 (6.8)	3.4 (6.5; 18.9)	
Copper (g/m <sup>3</sup> )	0.055 (0.32)	0.05 (0.059; 0.134)	
Lead (g/m <sup>3</sup> )	<0.1 (<0.1)	0.1 (0.12; 0.2)	
Nickel (g/m <sup>3</sup> )	<0.04 (0.09)	0.05 (0.057; 0.088)	
Zinc (g/m <sup>3</sup> )	0.24 (1.4)	0.248 (0.278; 0.625)	
Mercury (g/m <sup>3</sup> )	-	0.0001 (0.0003; 0.001)	

**Notes:**

<sup>(a)</sup> Data from 1995-1999 from Bell et al (2000). Only 8 samples for TP, DRP, ammoniacal nitrogen, nitrate and TN; 46 samples for other parameters.

<sup>(b)</sup> Data from June 2002 to March 2007 from WDC. Number of samples in period was: pH=93, oil & grease=491, BOD<sub>5</sub> and sulphide=124, TSS=488, FC and ENT=82, metals=ca.82.

<sup>(c)</sup> Data Aug 2007-Nov 2009

### 1.3.1 Wastewater Treatment System

Prior to construction of the original treatment plant in 2007, all wastewater was collected in the wastewater network and delivered to Beach Road pump station. At Beach Road pump station the wastewater received treatment from 4 mm Contra-Shear Suboscreens , self-cleaning, in-channel, semi-submerged rotary screens followed by degritting chambers. From Beach Road the wastewater was pumped out to sea through the ocean outfall.

The original treatment plant was constructed in 2007 and consists of:

- Optimised Aerated Lagoon
- Settling Pond
- UV Treatment

The treatment plant has been operational between August 2007 and February 2014.

In 2013 Beach Road pump station receive a major upgrade. A new 40 mm rake screen was installed upstream of all existing equipment. The original Contra-Shear Suboscreens were replaced with new more effective 3mm step screens. Due to the new positioning of the step screens the performace of the degritting chambers also improved. The original 50 mm rake screen downstream of the treatment equipment remains as a back-up screen.

### 1.3.2 Further Improvements

WDC continue to work with industry to ensure trade waste effluent quality improvements. As an example of this Tasman Tanning has committed substantial capital spend during 2015 to install equipment to remove unwanted by-products such as Sulphates and Chromium from their effluent stream.

## 1.4 Alternatives Considered

All the city wastewater is collected at Beach Road pump station and under normal operations pumped to the Wastewater Treatment Plant. At present the original treatment plant is out of commission and inoperable. Due to the fact that the existing plant cannot be used, WDC have no alternative treatment options available.

### 1.4.1 Land Disposal

WDC do not own or have access to sufficient land for the disposal of milliscreened effluent. The time that would be required to design and construct such a facility would likely exceed the timeframe sought by this proposal.

At the time of preparing the original consent applications for the failed treatment plant the cost of discharging to land was estimated as being in excess of \$60 million and this was not considered to be affordable.

### 1.4.2 Discharge to the River

Directly discharging to the Whanganui River would be considered a “backwards step”, in terms of the journey WDC have taken in regards to their WWTP, and was not considered acceptable.

## 2 Assessment of Environmental Effects

To determine potential effects from the discharge via the ocean outfall two reports have been prepared;

- *Microbiological quality of bathing waters and shellfish. Qualitative Assessment of Effects: Wanganui District Council wastewater discharge. NIWA, March 2015*
- *Whanganui Wastewater Outfall Benthic Effects Assessment. Cawthron Institute, Report No. 2680.*

These reports are found in full in Appendix I.

Both these reports have assessed previously collected data and prepared reports.

Cawthron Institute have prepared a report entitled “Whanganui Wastewater Outfall Benthic Effects Assessment”. This is a short report on the likely effects of the milliscreened discharge on the benthic communities and sediment quality around the ocean outfall. This report is based on reviews of previous studies, including extensive sampling that was undertaken prior to upgrades at the WWTP.

### 2.1 Assumptions Regarding Effluent Quality

From the Cawthron Report -

*The present assessment of likely effects of the discharge of milliscreened effluent during the upgrade of the WWTP is based on the assumption that effluent quality will be similar to that prior to the commissioning of the plant in 2007. In fact, it may be better because before 2002, the discharge included both sewage and stormwater. Separation of stormwater from the effluent began in 2002 and it is now discharged to the Whanganui River. Stormwater is a significant contributor of organic matter, nutrients, and organic and inorganic contaminants, particularly petroleum hydrocarbons, PAH, Cu, Zn and (prior to its removal from petrol) Pb (Williamson 1993). Consequently, although the present volume of effluent is likely to be less than in 1999, so too are contaminant loads.*

*Comparison of effluent quality data before and after the commissioning of the WWTP in 2007 shows that the average daily loads of oil/grease and sulphide were lower in the period 2007–2010 relative to 1996–2001 (Table 1). The average load of biochemical oxygen demand (BOD) was similar between the two periods.*

*Table 1 Average daily loads of contaminants in the effluent from the Beach Road Pump Station (based on monthly average values) for periods before (1996–2001) and after (2007–2010) commissioning of the treatment plant. ND’ no data. Data provided by Wanganui District Council.*

Period	Oil and grease (kg/d)	BOD (kg/d)	Cr (kg/d)	Sulphide (kg/d)
1996–2001	2,849	13,406	65	402
2007–2010	1,859	13,767	ND	111

Based on this brief assessment of effluent quality, it seems reasonable to assume that the quality of the milliscreened effluent discharged during the upgrade to the WWTP will be similar to (or slightly better than) that discharged before the WWTP was originally commissioned.

## 2.2 Likely Effects on Benthic Communities and Sediment Quality

The Cawthron report provides a summary of the Ellis et al (1999) report. This is repeated below –

### **Summary of Ellis et al.'s (1999) findings**

At the time of Ellis et al.'s (1999) survey, the outfall had been operating since the early 1960s, discharging a combination of sewage and stormwater (from public streets and private property). Ellis et al. (1999) concluded that the effect of this discharge on sediment quality was minimal in terms of concentrations of:

toxic organic and trace-metal contaminants.

sulphides and organic matter.

This conclusion was based on sampling sediments at 13 stations along a transect from 1.8 km northeast to 11 km southeast (the predominant direction of water movement in the area) of the outfall diffuser. Bell (1990, 1991, cited in Ellis et al. 1999) reported that the effluent plume flows southeast from the outfall for 70–80% of the time.

Concentrations of sulphides and organic matter were, however, much higher at a station 100 m southeast of the outfall, probably as a result of the discharge. Sediments at this station also contained a larger proportion of silt and clay than those at other stations.

Concentrations of cadmium (Cd), chromium (Cr), copper (Cu), lead (Pb) and zinc (Zn) at all stations were well below International and Australasian (ANZECC 20001) guidelines for the protection of marine organisms. However, concentrations of Cr were elevated at sites between 650 m and 5.2 km from the outfall relative to other sites. According to Ellis et al. (1999), concentrations of Cr were known to be elevated in the effluent at that time.

Concentrations of organic contaminants (polycyclic aromatic hydrocarbons (PAH), polycyclic biphenyls (PCB) and organochloride pesticides) were at or below sediment quality guidelines at all stations.

The abundance and diversity of benthic organisms increased with distance from the outfall. The lowest values were recorded at the station 100 m southeast. The stations closest to the outfall were dominated by small, ephemeral organisms known to be relatively tolerant of organic enrichment, and the relatively high concentrations of sulphides associated with it.

The composition of the benthic fauna correlated with: distance from the outfall, the concentration of Cr, and the proportion of silt/clay in the sediment. This may indicate an effect of the discharge



*beyond the immediately surrounding area (up to 1,200 m) but may also reflect natural environmental gradients in, for example, sediment texture.*

A further survey was undertaken in 2013, following the same methodology as the Ellis et al report. The Cawthron report provides a summary of this survey, repeated below –

*Overall, their survey did not indicate significant or widespread adverse effects on benthic habitats southeast of the outfall. As in the previous study, a clear adverse effect was only evident at the station near the outfall. At this station the fauna was dominated by oligochaete worms, suggesting that it was stressed by organic loading. Concentrations of trace metal contaminants were again well below guideline values (organic contaminants were not measured).*

On the basis of the assumption that the milliscreened effluent now being discharged would be of similar quality to what was occurring prior to the upgrades at the WWTP, the Cawthron report goes on to give an overview of effects. This overview is repeated below –

*Given the similarity in effluent quality prior to 2007 and after bypassing of the WWTP in February 2014, the environmental effects are likely to be similar to those occurring prior to commissioning of the WWTP. Consequently, the results of the survey by Ellis et al. (1999) suggest that the reduced level of treatment of the discharge during the upgrade is likely to have minimal effects on sediment quality around and downstream of the outfall. Concentrations of contaminants are extremely unlikely to exceed guidelines for the protection of marine organisms.*

*Effects on benthic faunal communities are likely to be most severe immediately around the outfall and may extend further downstream (out to 1,200 m). These downstream effects are likely to be relatively subtle (changes in relative abundances of different taxa rather than drastic changes in community composition). Given the dispersive nature of the environment, downstream effects are expected to reduce when the upgrade is complete.*

*Sneddon and Barter's (2013) survey was done six years after the WWTP was commissioned. Presumably, the quality of the effluent discharged from the outfall was improved in terms of loads of organic matter and contaminants. Despite this difference in loadings, there was not a marked difference in concentrations of organic matter or metal contaminants between the two studies. The benthic fauna showed an apparent effect only in the immediate vicinity of the outfall. The earlier study identified an apparent effect out to 1,200 m from the outfall. However, as Sneddon and Barter (2013) noted, it is not clear whether this difference was due to the improved quality of the effluent or the greater statistical power to detect differences among stations in the earlier study. Nevertheless, the general consistency between the results of the two studies supports the conclusion that discharge of milliscreened effluent during the upgrade to the WWTP is not likely to have a major impact on sediment contaminants and fauna beyond the area ca 100–1,200 m around the outfall.*

## **2.3 Microbiological effects**

A report prepared by NIWA (March 2015) provides a review of historical reports in order to give a qualitative assessment of the likely effects, focusing on potential effects on public health.

From the NIWA report -

*The inferences made in these historical reports and recent data are sufficient to indicate the general effects attributable to the current discharge. Which is to say that:*

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□ *Whilst health risks to shoreline recreational water users are generally low, they will be rather elevated during the small percentage of the time that the diluting wastewater plume impinges on the shoreline.*

□ *Also, more significant health risks are likely for:*

- offshore surfers and divers, and*
- consumers of raw shellfish gathered in the vicinity.*

## **2.4 Assessment of Effects - Summary**

- The Cawthron review states that “the results of the survey by Ellis et al (1999) suggest that the reduced level of treatment of the discharge during the upgrade is likely to have minimal effects on sediment quality around and downstream of the outfall. Concentrations of contaminants are extremely unlikely to exceed guidelines for the protection of marine organisms.”
- Effects on benthic faunal communities are likely to be most severe immediately surrounding the outfall and up to 1,200m downstream. Downstream effects are predicted to be subtle.
- Risks to shoreline recreational users are generally low, apart from when the wastewater plume may visit the shoreline.
- There are potentially higher health risks for offshore surfers and divers, and consumers of raw shellfish gathered in the vicinity.

## 3 STATUTORY CONSIDERATIONS

### 3.1 Resource Management Act 1991

The purpose of the Resource Management Act 1991 is to promote the sustainable management of natural and physical resources.

#### 3.1.1 Part II

Part 2 of the Resource Management Act 1991 sets out the purpose and principles of the Act, to promote the sustainable management of natural and physical resources while enabling people and communities to provide for their social, economic and cultural wellbeing and for their health and safety.

The wastewater treatment plant is a physical resource and provides a vital function by contributing to the health and safety of people and the community of Wanganui. WDC has duties under the Local Government Act (2001) and Health Act (1956) to provide wastewater treatment for the Wanganui community. It is important that these services be provided in a cost effective way, meeting the social and economic aspirations of the community. The failed plant was not able to do this resulting in the emergency situation which WDC actively seeks to rectify and will continue to do so. This short term consent is to allow for WWTP plant design to be amended as appropriate. At the time of preparing this consent WDC staff and advisors were completing a bio solids strategy which evaluates different approaches to managing sludge outputs of the replacement plant design. WDC's focus is both to reduce sludge quantities and also reduce operating costs to improve affordability for the community while having an appropriately functioning WWTP.

It is considered that social and cultural wellbeing and health and safety can be provided for by appropriate monitoring and if necessary mitigation in the form of signage if necessary to alert people to avoid certain activities (recreational activities such as diving and surfing; and shellfish gathering) at times, according to monitoring.

Section 6 of the Act sets out the Matters of National Importance that need to be recognised and provided for. Those relevant to this proposal are:

- (a) *The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development;*
- (e) *The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga*

The short term discharge is via an existing structure so no further development is required. As identified in both the NIWA and Cawthron reviews of existing information unlikely to significantly impact on natural character.

Section 7, Other Matters, lists a number of issues Council must consider when assessing applications for resource consents. Those relevant to this proposal 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) *the maintenance and enhancement of the quality of the environment.*

As noted above the WWTP represents a significant physical resource, the proposed ongoing use of that resource is considered to be an efficient use. Upgrades for the replacement WWTP but time is required for this to occur. The upgrade of the Beach Road Pump station screen provides improved primary treatment of the waste water.

Both technical review AEEs prepared for this application conclude that there is little indication that the discharge is having an impact on life-supporting capacity in the CMA. Most of the potential effects are likely to be away from the population area, due to prevailing wind directions.

The amenity values of the area will be maintained as the effects are no more than minor. The intrinsic values of ecosystems and the quality of the environment will be enhanced with the proposed upgrades.

Section 8 of the Act states that consent authorities must take into account the principles of the Treaty of Waitangi. There are no specific Treaty issues with regard to this application.

Overall it is considered that the proposal for a short term discharge of milliscreened wastewater via the ocean outfall is not inconsistent with the principals of Part II.

### **3.1.2 Section 104 Assessment**

Subject to Part 2 of the Act, in making a decision on this application, Manawatu-Wanganui Regional Council is required, under section 104 (1) of the RMA, to have regard to -

- (a) *any actual and potential effects on the environment of allowing the activity; and*
- (b) *any relevant provisions of—*
  - (i) *a national environmental standard;*
  - (ii) *other regulations;*
  - (iii) *a national policy statement;*
  - (iv) *a New Zealand coastal policy statement;*
  - (v) *a regional policy statement or proposed regional policy statement;*
  - (vi) *a plan or proposed plan; and*
- (c) *any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

The actual and potential effects of the discharge have been considered in section 2 above.

### 3.1.3 Matters relevant to certain applications

#### 105 Matters relevant to certain applications

*(1) If an application is for a discharge permit or coastal permit to do something that would contravene section 15 or section 15B, the consent authority must, in addition to the matters in 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 reasons for the proposed choice; and*

*(c) any possible alternative methods of discharge, including discharge into any other receiving environment.*

The potential effects discussed in the NIWA and Cawthron reports take into account the sensitivity of the receiving environment.

This short term proposal will allow for the design and construction of a replacement plant. WDC have considered the various well beings of its community including having a fully functioning WWTP that is affordable for its community.

Alternatives have been considered, including discharge to land, in section 1.4

### 3.1.4 107 Assessment

Section 107 of the RMA describes that a consent authority shall not grant a discharge permit that, after reasonable mixing, gives rise to any of the following effects:

*(c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:*

*(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.*

Unless

*(2) A consent authority may grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 **[[or section 15A]]** that may allow any of the effects described in subsection **(1)** if it is satisfied—*

*(a) That exceptional circumstances justify the granting of the permit; or*

*(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.]*

*[(3) In addition to any other conditions imposed under this Act, a discharge permit or coastal permit may include conditions requiring the holder of the permit to undertake such works in such stages throughout the term of the permit as will ensure that upon the expiry of the permit the holder can meet the requirements of subsection (1) and of any relevant regional rules.]*

The original permits granted for the WWTP acknowledged that the discharge may at times give rise to some of the effects specified in 107(1), in particular the ‘slicks’ that may sometimes occur. It is considered that the decision maker can rely on the provisions of 107(2) as these slicks would be temporary in nature and the proposed discharge permit is to allow for a replacement plant to be designed and constructed, which could be considered maintenance of the existing WWTP. In addition, the term sought for this proposed discharge is of short term while a replacement plant is designed, an option would be to include progress reports would be considered appropriate in terms of 107(3).

## **3.2 New Zealand Coastal Policy Statement 2010**

### **Objective 1**

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

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

### **Objective 3**

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

- *recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;*
- *promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act;*
- *incorporating mātauranga Māori into sustainable management practices; and*

- *recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.*

### **Objective 6**

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

- *the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;*
- *some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;*
- *functionally some uses and developments can only be located on the coast or in the coastal marine area;*

.....

### **Policy 3 Precautionary approach**

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

#### Comment

Due to the comprehensive studies and surveys that have been undertaken in the area for the discharge from the existing pipeline it is considered that the potential effects are well understood, and the potential effects have been assessed as being no more than minor. Therefore a precautionary approach is not required for this proposal.

### **Policy 23 Discharge of contaminants**

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

- (a) the sensitivity of the receiving environment;*
- (b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and*
- (c) the capacity of the receiving environment to assimilate the contaminants; and:*
- (d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;*
- (e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and*

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

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

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

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

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

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

### Comment

The reports from Cawthron and Niwa have confirmed that the effects from the short term discharge will not have a significant effect on the receiving environment.

The proposal is for the short term discharge of milli-screened effluent, milli-screening is a primary form of treatment. There is no definition of what constitutes treated human sewage, but the Courts have held that there is a difference between untreated and screened human sewage. The Court concluded that there is a significant difference between waste being discharge without any screening and that which has been through primary screening. [C54/2003]. Accordingly, the fact that the wastewater has only undergone primary treatment (screening) should not be an impediment to granting of the short term consent.

In this case there are no real feasible alternatives for the discharge, until such time that the replacement plant is constructed. Initial consultation with iwi has been undertaken.

## **3.3 Regional Policy Statement**

The Horizons Regional Council One Plan is considered to be the relevant planning document. This contains both the Regional Policy Statement (RPS) and Regional Plans.

### **3.3.1 Chapter 3 – Infrastructure and Energy 2014**

#### **3.3 Objectives**

##### **Objective 3-1: Infrastructure<sup>^</sup> and other physical resources of regional or national importance**

*Have regard to the benefits of infrastructure<sup>^</sup> and other physical resources of regional or national importance by recognising and providing for their establishment, operation\*, maintenance\* and upgrading\*.*

#### **3.4 Policies**

##### **3.4.1 Infrastructure<sup>^</sup> and other Physical Resources of Regional or National Importance**



***Policy 3-1: Benefits of infrastructure^ and other physical resources of regional or national importance***

*(a) The Regional Council and Territorial Authorities^ must recognise the following infrastructure^ as being physical resources of regional or national importance:*

..

*(viii) public or community sewage treatment plants and associated reticulation and disposal systems*

**COMMENT**

In accordance with the above Policy regard must be had to the benefit from the infrastructure (both the WWTP and ocean outfall) and recognise it as having regional importance.

The WWTP at Wanganui provides ongoing benefits to the residents of Wanganui by being able to provide functioning wastewater treatment infrastructure. Benefits include providing for social and economic well-beings for the community. Granting this short term consent will facilitate the upgrading of the replacement plant and continued use of the existing outfall. It is considered to be appropriate to have regard to Objective 3-1 and Policy 3-1 when making a decision regarding this application.

**3.3.2 Waste\*<sup>1</sup>**

***Policy 3-8: Waste\* policy hierarchy***

*Wastes\*, including solid, liquid, gas and sludge waste\*, must be managed in accordance with the following hierarchy:*

- (a) reducing the amount of waste\* produced*
- (b) reusing waste\**
- (c) recycling waste\**
- (d) recovering resources from waste\**
- (e) appropriately disposing of residual wastes\*.*

***Policy 3-9: Consent information requirements - waste\* policy hierarchy and hazardous substances\****

*Where a proposal has the potential to give rise to significant adverse effects^ on the receiving environment^, an assessment must be required, as part of the consent information requirements for all discharges^ to air, land^, water^ and the coastal marine area^, of:*

<sup>1</sup> **Waste** means any material, solid, liquid or gas that is unwanted or unvalued and discarded or discharged.

(a) reduction, reuse, recycle and recovery options for the discharge<sup>^</sup> in accordance with Policy 3-8, and

(b) any hazardous substances\* that may be present in the discharge<sup>^</sup>, and alternatives to those hazardous substances\*.

#### COMMENT

The stormwater separation project, undertaken by WDC over a number of years, was for the purpose of reducing infiltration inputs to the wastewater stream. Those industries would use hazardous substances in their processes are controlled by consent to discharge to the wastewater stream.

The renewal of the WDC wastewater Bylaw will occur in July 2014, the current Bylaw is included as Appendix II.

### 3.3.3 Chapter 8 Coast

#### **Issue 8-3: Water quality**

*Water quality affects the life-supporting capacity of the CMA as well as people's enjoyment of the CMA. The water entering the CMA from rivers, including streams, has a significant impact on the quality of water in the CMA.*

#### **Objective 8-2: Appropriate protection, use and development in the CMA**

*Managing the CMA as a public area that is fundamental to the social, economic and cultural wellbeing of the people in the Region, while ensuring that the characteristics and Values listed in Tables I.1, I.2 and I.3 of Schedule I and natural character are protected from inappropriate use and development.*

#### **Objective 8-3: Water<sup>^</sup> quality**

*Water<sup>^</sup> quality in the CMA is managed in a manner that has regard to the Values set out in Schedule I: Part C so that:*

*(a) water<sup>^</sup> quality is maintained in those parts of the CMA where the existing water<sup>^</sup> quality is sufficient to support the water<sup>^</sup> management Values of the relevant area in the CMA set out in Tables I.2 and I.3 and the water<sup>^</sup> quality targets in Tables I.4 to I.7 of Schedule I, and*

*(b) water<sup>^</sup> quality is enhanced in those parts of the CMA where the existing water<sup>^</sup> quality is not sufficient to support the water<sup>^</sup> management Values of the relevant area in the CMA set out in Tables I.2 and I.3 and the water<sup>^</sup> quality targets in Tables I.4 to I.7 of Schedule I.*

#### **Policy 8-4: Appropriate use and development**

*Any use or development in the CMA must:*

- (a) *have a functional necessity to be located in the CMA,*
- (b) *facilitate restoration or rehabilitation of natural features where reasonably practicable, and*
- (c) *avoid, as far as reasonably practicable, any adverse effects^ on the following important values:*
- (i) *any characteristic listed in Table I.1 in Schedule I: Part B for each Protection Activity Management Area*
- (ii) *elements and processes that contribute to the natural character and open space characteristics of the CMA*
- (iii) *the landscape and seascape elements that contribute to the natural character of the CMA*
- (iv) *areas of significant indigenous vegetation and significant habitats of indigenous fauna, and the maintenance of indigenous biological diversity^*
- (v) *the intrinsic values of ecosystems*
- (vi) *the natural integrity and functioning of physical processes (including recognition of sea level rise\*)*
- (vii) *historic heritage^.*

*When avoidance is not reasonably practicable, the adverse effects^ must be remedied or mitigated.*

#### **COMMENT**

The reviews undertaken by Niwa and Cawthron have concluded there will be few adverse effects, where potential adverse effects have been identified impacts on the values identified in Table I.1 can be avoided with appropriate signage. The fact that this is an existing discharge, via the outfall, means that the natural character of the environment is not pristine. The Niwa and Cawthron reports confirm there should be few changes in the receiving environment as a result of the proposed discharge.

#### ***Policy 8-6: Water^ quality***

*For the purposes of maintaining or enhancing water^ quality, the CMA is divided into a Seawater Management Zone\* and various Estuary Water Management Sub-zones\* which are described in Schedule I: Part C and shown in Part A. Water^ in the CMA must be managed in a way which:*

- (a) *has regard to the Values and water^ quality targets for the Seawater Management Zone\* and Estuary Water Management Sub-zones\*, as set out in Schedule I: Part C*

*(b) applies Policies 5-3 (ongoing compliance where water quality targets are met), 5-4 (enhancement where water quality targets are not met), 5-9 (point source discharges to water) and 5-11 (human sewage discharges) to the CMA as if any reference to water in those policies is a reference to water in the CMA.*

#### Comment

Regard has been had to the Values identified for the Management Zone, of the potential effects identified these are most relevant to contact recreation and shellfish gathering. As identified by the NIWA review there may be health risks to divers and if people were to eat raw shellfish. It is considered that the health effects can be avoided by appropriate signage.

Compliance with water quality targets is not known, at the time of preparing this consent application. Consideration of the potential impact on the values identified for the Management Zone in accordance with Policy 5-4 has been given above.

A short term is sought for the proposed discharge and is only to allow for the building of a replacement plant, which is to be designed in accordance with best management practice including being affordable for the community. This is considered to be consistent with the relevant sub clauses of Policy 5-9.

In respect of Policy 5-11, the wastewater is not able to be applied onto land or alternative system that mitigates adverse effects of the mauri of the receiving water body at this time. As this short term proposal does not represent the renewal of an existing consent, and will expiry prior to the year 2020 this policy is not applicable at this point in time. The matters within Policy 5-11 will be important in the design of the replacement plant.

### **3.3.4 Overall Comment on One Plan RPS**

The Cawthron and Niwa reports conclude that effects will be minor/similar to previous consents granted for the WWTP. The proposed consent is for a short duration to allow for a replacement plant to be put in place. It is considered appropriate to grant consent for a short term to allow WDC to provide for its communities wellbeings until the replacement plant is in place. The proposal is not inconsistent with the Objectives and Policies of the RPS.

## **3.4 Regional Plan**

### ***Chapter 18 – Activities in the Coastal Marine Area***

#### ***Policy 18-12: Consent decision-making for discharges into the CMA***

*When making decisions on resource consent applications and setting consent conditions for discharges into the CMA, the Regional Council must have regard to:*

- (a) the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objective 6-2 and Policy 6-6, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;
- (b) the applicable Water Management Zone\* or Sub-zone\* and the relevant water^ quality Values and targets in Schedule I;
- (c) restricting the use of hazardous substances\* in any estuary or river^ (including stream) in the CMA to those necessary to control pest plants or marine fauna identified pursuant to a pest management strategy prepared under the Biosecurity Act 1993;
- (d) tikanga Māori^, amenity values^, recreational values and public health and safety, and ensuring any adverse effects^ are avoided as far as reasonably practicable. Where avoidance is not reasonably practicable, the adverse effects^ must be remedied or mitigated; and
- (e) ensuring that any discharge^, after reasonable mixing, must not result in:
- (i) the production of any conspicuous oil\* or grease films, scums or foams;
  - (ii) floatable or suspended materials;
  - (iii) any conspicuous change in the colour or visual clarity of water^ in the coastal marine area^; or
  - (iv) any emission of objectionable odour, or any significant adverse effects^ on aquatic life.

#### Comment

Discharge from the ocean outfall has occurred for some years, the proposed discharge is not for a new discharge. The Niwa and Cawthron reports discuss potential effects.

The relevant policies from the RPS have been considered. There is the potential for some effects, such as on diving and raw shellfish, these will be mitigated through appropriate signage.

#### **Policy 18-13: Consent decision-making for sewage discharges^**

*When making decisions on resource consent^ applications and setting consent conditions^ for sewage discharges^ into the CMA, the Regional Council must have regard to:*

- (a) the Regional Policy Statement, particularly all the objectives and policies of Chapters 2 and 8, Objective 3-1 and Policies 3-1, 3-2, 3-3, 3-6 and 3-7, Objective 6-2 and Policy 6-6, Objective 9-1 and Policies 9-3 to 9-5 and any relevant policies in the NZCPS;
- (b) the applicable Water Management Zone\* or Sub-zone\* and the relevant water^ quality targets in Schedule I;
- (c) avoiding any discharge^ within any river^ (including stream) or estuary in the CMA or within any Protection Activity Management Area identified in Schedule I;

*(d) the extent to which any alternatives have been considered, including discharging to land^; and*

*(e) considering the views and concerns of tangata whenua^ in the decision-making process.*

#### Comment

Given the history of the plant failure there are no viable treatment alternatives for this proposal. Council is actively working to design a replacement plant. This short term consent is needed until the replacement plant can be put in place. Potential effects identified in the Niwa and Cawthron reports, subject to the proposed mitigation, are no more than minor. Utilising the existing outfall avoids discharge to the river/estuary which would have greater effect and was not an option for WDC.

WDC will continue to engage with local iwi.

It is considered that the proposal is consistent with the above Objective and Policy.

## **4 Mitigation**

Signage will be erected in accordance with monitoring if health risks associated with recreation use and raw shellfish gathering.

A Trade Waste Bylaw will be in operation throughout the term of this Permit, appropriate consents will be held with industries in accordance with the Bylaw.

## **5 Consultation**

The Council has approached Iwi regarding the requirement for the WDC to lodge a short term consent with Horizons Regional Council to continue pumping screened waste direct to sea. The Council has also kept Nga Tangata Tiaki, Te Runanga o Tamaupoko and Te Runanga o Tupoho updated regarding progress on the WWTP generally.

Discussions have also been had with the waste water advisory group at the February 2015 meeting. The waste water advisory group includes major industries, small operators and representatives of ratepayers/councillors.

Further consultation is planned with the local officer of health and the department of conservation, though dates are yet to be finalised.

## 6 Summary

The resource consent application to discharge milliscreened wastewater to coastal water under Rule 18-40 of the Proposed One Plan, addresses the actual and potential effects arising from this activity and assesses the activity against the Resource Management Act 1991, NZ Coastal Policy Statement and the relevant Regional Plans. The proposal is consistent with the objectives and policies listed in this application, and given the short term of the proposal the potential effects are considered to be no more than minor.





**APPENDIX I –**

**APPENDIX II –**

APPENDIX III

**Management Values**

<i>Seawater Management Zone Values (from Table I.3)</i>	<i>Management Objectives(from Table I.2)</i>
<i>Inanga Spawning</i>	The CMA sustains healthy inanga spawning and egg development
<i>Whitebait Migration</i>	The CMA is maintained or enhanced to provide safe passage of inwardly migrating juvenile native fish known collectively as <i>whitebait</i> *.
<i>Contact Recreation</i>	The CMA is suitable for contact recreation
<i>Amenity</i>	The amenity values of the CMA are maintained or enhanced
<i>Mauri</i>	The <i>mauri</i> * of the CMA is maintained or enhanced
<i>Shellfish Gathering</i>	The CMA is suitable for shellfish harvesting.
<i>Industrial Abstraction</i>	The CMA is suitable as a <i>water</i> <sup>^</sup> source for industrial abstraction or use.
<i>Capacity to Assimilate Pollution</i>	The capacity of the CMA to assimilate pollution is not exceeded
<i>Existing Infrastructure</i>	The integrity of existing <i>infrastructure</i> <sup>^</sup> is not compromised.

Table I.7: Seawater Management Zone: Water Quality Targets

Management Zone	DO (%SAT)	Algal Biomass	TP (g/m <sup>3</sup> )	TN (g/m <sup>3</sup> )	Ammoniacal Nitrogen (g/m <sup>3</sup> )	Tox.	Visual Clarity (m)		Enterococci		Faecal Coliforms	
	>	Chl a (mg/m <sup>3</sup> )	<	<	<	(%)	>	%Δ	1 Nov - 30 April	1 May - 31 Oct	<	90 <sup>th</sup> ile
Seawater Management Zone*	90	3	0.010	0.060	0.060	99	1.6	20	140	280	14	43





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