

Resource Consent Application - Raglan Wastewater Discharge

Assessment of Environmental Effects

Prepared for Waikato District Council

Prepared by Beca Limited

For Lodgement to Waikato Regional Council

6 November 2019



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Revision History

Revision N°	Prepared By	Description	Date
1	Stephanie Dean	Draft AEE for client review	25 Oct 2019
2	Stephanie Dean	Final for lodgement	5 Nov 2019

Document Acceptance

Action	Name	Signed	Date
Prepared by	Stephanie Dean		5 Nov 2019
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Approved by	Garrett Hall		5 Nov 2019
on behalf of	Beca Limited		

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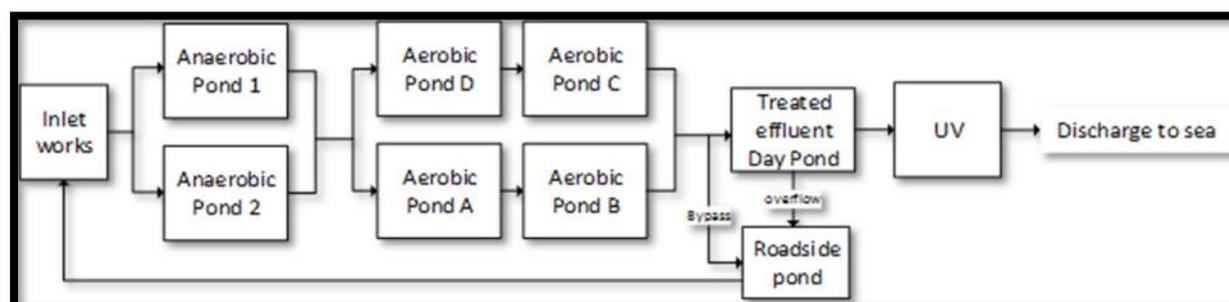
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Executive Summary

Waikato District Council (WDC) is currently investigating and planning the establishment of a long-term sustainable wastewater treatment and discharge solution for the Raglan community. This long-term solution is being developed in collaboration with the local mana whenua and the Raglan community. The existing consents for the Raglan Wastewater Treatment Plant (WWTP) expire in February 2020.

Mana whenua and the Raglan community have expressed a strong preference for a sustainable discharge to land option, and WDC have been investigating potential land discharge / land treatment options since 2016. Since early 2019 these investigations have continued to be progressed alongside an assessment of potential treated wastewater reuse and discharge to water options and combinations of both. Given the complex technical engineering, environmental and cultural considerations involved in the option assessment process, WDC has been unable to complete investigations prior to the expiration of the current consents. In addition to those considerations, WDC has also had to consider the capital, operational and whole of life cost of each option, as well as their affordability to the community.

The existing WWTP comprises inlet works, two anaerobic ponds, four aerobic (enhanced ponds) which provide biological treatment, storage ponds, UV disinfection and then discharge of treated wastewater on the outgoing tide to the Whāingaroa Harbour mouth through an outfall. This treatment and discharge process is shown the schematic below.



This resource consent application (Application) seeks consent for the continuation of the existing discharge and coastal occupation activities whilst the long-term solution is identified and confirmed, and those relevant consent applications are subsequently lodged.

Section 124 of the Resource Management Act (RMA) provides for applicants to continue to operate under an existing resource consent whilst applying for a new consent. WDC seek to utilise section 124(2) of the RMA to lodge the applications three months prior to the expiry of their current consent.

Two changes are proposed to the existing conditions. These changes relate to the optimisation of discharge timing to allow for greater mixing and dilution of treated wastewater on the outgoing tide and amendment to total suspended solids treated wastewater limits to reflect the actual performance of the WWTP which is typical for a pond based WWTP.

An assessment of alternatives has concluded that the short-term, continued operation of the Raglan WWTP whilst the long-term preferred option is identified and confirmed, is the Best Practicable Option (BPO), for the following reasons:

- The short-term consent sought for the Raglan WWTP allows for the on-going provision of critical wastewater infrastructure required to support residential and commercial activities in Raglan;
- The adverse effects of the treated wastewater discharge outside the zone of reasonable mixing are negligible; while adverse effects of discharges to land and air associated with the Raglan WWTP are low / minor;

- There are limited feasible or practicable short-term alternatives available to continuing the present treatment and discharge processes. The most feasible short-term option (which is to upgrade the (membrane of the WWTP) would take up to three years to be designed, constructed and commissioned. This is a longer period than the WDC anticipated timeframe for the identification and confirmation of the long-term option (which may not require a membrane upgrade);
- Other more significant upgrades are not feasible or financially prudent given the long-term solution for the future management of Raglan’s wastewater is being developed;
- During the term of this short-term consent, it is not expected that there will be any changes in the environmental effects of the discharge; and
- It is acknowledged that the receiving environment is highly valued by mana whenua and the continuation of the discharge to the Whāingaroa Harbour mouth will have adverse cultural effects.

A robust assessment of effects on the environment is provided in Section 6. Overall, adverse effects are determined to be low, with the exception of cultural effects (where engagement is continuing with mana whenua as part of the longer-term project). A summary of the effects assessed is outlined below:

Effects Assessed	Level of Effect Determined
Positive Effects	There are positive effects associated with the short-term operation of the existing Raglan WWTP including the provision of a safe sanitation system and the continuing provision of critical wastewater infrastructure to support residential and commercial activities in the township of Raglan.
Water Quality Effects	Negligible adverse effects on coastal water quality outside the zone of reasonable mixing of 150m.
Effects of the Outfall Structure in the Coastal Marine Area (CMA)	Negligible adverse effects due to the short length of discharge structure that is exposed above the seabed. This structure has existed for approximately 30 years in its current state.
Discharge Effects on Recreational Use and Shellfish Gathering	Low human health effects on identified contact recreation and shellfish gathering sites.
Odour Effects of the WWTP	The potential discharges of odour from the WWTP are considered to be adequately avoided and mitigated such that any odours will not be offensive or objectionable beyond the boundary of the WWTP site.
Effects of Seepage on Groundwater and Surface Water	Low adverse effects as a result of potential seepage to land and effects on surface water.

The proposal has been assessed against relevant legislation and planning documentation in Section 8 and is found to be generally in accordance with those provisions.

A summary table of consents sought is included below alongside a summary table of the information requirements for a resource consent application with reference to the fourth schedule of the RMA.

Summary of Consents Sought

Consent	Rule	Activity Status
Waikato Regional Plan		
<i>Air Discharge relating to the Raglan WWTP pond system.</i>	<i>Rule 6.1.9.2 General Rule of the WRP</i>	<i>Discretionary</i>
<i>Discharge to Land relating to the Raglan WWTP pond system seepage.</i>	<i>Rule 3.5.4.5 Discharges – General Rule of the WRP</i>	<i>Discretionary</i>
Waikato Coastal Plan		
<i>Coastal permit relating to the discharge of treated wastewater to the Raglan Harbour.</i>	<i>Rule 16.3.13 Discharges to the CMA of the WRCP</i> Any discharge to the coastal marine area in respect of which the applicant desires to rely on	<i>Discretionary</i>

Consent	Rule	Activity Status
	Section 107(2)(a) of the RMA is a discretionary activity.	
<i>Coastal permit relating to the occupation and use of the existing outfall</i>	<i>Rule 16.4.26 (Use and Occupation of Space by a structure) of the WRCP</i>	<i>Discretionary</i>

Information Requirements for a Resource Consent Application – Fourth Schedule

Information Requirement	Report Section
<i>A description of the activity</i>	<i>Section 2</i>
<i>A description of the site at which the activity is to occur</i>	<i>Section 1.1.1, 2, 3.1</i>
<i>The full name and address of each owner or occupier of the site</i>	<i>Appendix A – Application Form A</i>
<i>A description of any other activities that are part of the proposal to which the application relates</i>	<i>Section 2</i>
<i>A description of any other resource consents required for the proposal to which the application relates</i>	<i>No other consents are required</i>
<i>An assessment of the activity against the matters set out in Part 2</i>	<i>Section 8.7</i>
<i>An assessment of the activity against any relevant provisions of a document referred to in Section 104(1)(b)</i>	<i>Section 8</i>
<i>The assessment under subclause (1)(g) must include an assessment of the activity against—</i> <ol style="list-style-type: none"> <i>1. any relevant objectives, policies, or rules in a document; and</i> <i>2. any relevant requirements, conditions, or permissions in any rules in a document; and</i> <i>3. any other relevant requirements in a document (for example, in a national environmental standard or other regulations).</i> 	<i>Section 8</i>
<i>An application must also include an assessment of the activity’s effects on the environment that—</i> <ol style="list-style-type: none"> <i>1. includes the information required by clause 6; and</i> <i>2. addresses the matters specified in clause 7; and</i> <i>3. includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.</i> 	<i>Section 6 and 8</i>

Clause 6 Information required in assessment of environmental effects

<p>1 An assessment of the activity’s effects on the environment must include the following information:</p> <p><i>if it is likely that the activity will result in any significant adverse effect on the environment, a description of any possible alternative locations or methods for undertaking the activity:</i></p> <p><i>(b) an assessment of the actual or potential effect on the environment of the activity:</i></p> <p><i>(c) if the activity includes the use of hazardous installations, an assessment of any risks to the environment that are likely to arise from such use:</i></p> <p><i>(d) if the activity includes the discharge of any contaminant, a description of—</i> <ol style="list-style-type: none"> <i>(i) the nature of the discharge and the sensitivity of the receiving environment to adverse effects; and</i> <i>(ii) any possible alternative methods of discharge, including discharge into any other receiving environment:</i> </p> <p><i>(e) a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect:</i></p> <p><i>(f) identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted:</i></p> <p><i>(g) if the scale and significance of the activity’s effects are such that monitoring is required, a description of how and by whom the effects will be monitored if the activity is approved:</i></p> <p><i>(h) if the activity will, or is likely to, have adverse effects that are more than minor on</i></p>	<p><i>Significant adverse effects on the environment are not considered to be likely. However for completeness, Clause 6 (1) information requirements are covered in the follow sections.</i></p> <p><i>Section 6</i></p> <p><i>Proposal does not include hazardous installations</i></p> <p><i>Section 2, 3 & 6</i></p> <p><i>Section 4</i></p> <p><i>Section 2.1 and 6</i></p> <p><i>Section 7</i></p> <p><i>Section 2 Appendix B</i></p> <p><i>Section 4</i></p>
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Information Requirement	Report Section
<p><i>the exercise of a protected customary right, a description of possible alternative locations or methods for the exercise of the activity (unless written approval for the activity is given by the protected customary rights group).</i></p>	
<p>(2) A requirement to include information in the assessment of environmental effects is subject to the provisions of any policy statement or plan.</p> <p><i>To avoid doubt, subclause (1)(f) obliges an applicant to report as to the persons identified as being affected by the proposal, but does not—</i></p> <p><i>(a) oblige the applicant to consult any person; or</i></p> <p><i>(b) create any ground for expecting that the applicant will consult any person.</i></p>	<p>Section 6 and 7</p>
<p>Clause 7 Matters that must be addressed by assessment of environmental effects</p>	
<p><i>(1) An assessment of the activity’s effects on the environment must address the following matters:</i></p> <p><i>(a) any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects:</i></p> <p><i>(b) any physical effect on the locality, including any landscape and visual effects:</i></p> <p><i>(c) any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity:</i></p> <p><i>(d) any effect on natural and physical resources having aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations:</i></p> <p><i>(e) any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants:</i></p> <p><i>(f) any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.</i></p>	<p>Section 6</p>
<p><i>(2) The requirement to address a matter in the assessment of environmental effects is subject to the provisions of any policy statement or plan.</i></p>	<p>Section 8</p>

1 Introduction

The Raglan community is currently serviced by a Wastewater Treatment Plant (WWTP) which is located on Wainui Road, Raglan. The wastewater is treated at the WWTP and is then discharged via an outfall into the Whāingaroa Harbour on the outgoing tide. The discharge and coastal occupation resource consents relating to the current WWTP expire on 14 February 2020.

Waikato District Council (WDC) is currently investigating and planning the establishment of a long-term sustainable wastewater treatment and discharge solution for the Raglan WWTP. This long-term solution is being developed in collaboration with the local mana whenua and the Raglan community.

In order for the long-term preferred option to be properly investigated and to enable the continued operation of the WWTP while that process is carried out, WDC is seeking a short-term consent for the existing WWTP discharges. If the WWTP is unable to discharge the WWTP will reach capacity and be unable to operate properly. Raglan's wastewater system would not be operational and overflows of untreated wastewater would occur at pump stations.

Mana whenua, stakeholders and the Raglan community have expressed a strong preference for a sustainable discharge to land option to be investigated thoroughly, and WDC have been investigating potential land discharge / land treatment options since 2016. Since early 2019 these investigations have continued to progress alongside an assessment of potential treated wastewater reuse and discharge to water options and combinations of both. Given the complex technical engineering, environmental and cultural considerations involved in the option assessment process, WDC has been unable to complete these investigations prior to the expiration of the current consents. In addition to those considerations, WDC also has to consider the capital, operational and whole of life cost of each options as well as their affordability to the community.

Section 124 of the Resource Management Act (RMA) allows applicants to continue to operate under an existing resource consent whilst applying for a new consent and WDC seek to utilise that section to lodge these applications prior to the expiry of their current consents.

1.1 Background and History of the Wastewater Scheme

Historically, the wastewater scheme in Raglan was a septic tank-based system, without a municipal WWTP. In the 1970s the Raglan WWTP oxidation pond system and harbour discharge was established.

In November 1990, WDC applied to Waikato Regional Council (WRC) under the provisions of the Water and Soil Conservation Act 1967 for resource consent to discharge up to 3,400 cubic metres of treated domestic wastewater per day into the Whāingaroa Harbour. That application was approved by the WRC. Waikato Tainui (Tainui) appealed WRC's decision to grant the application to the Planning Tribunal (to later become the Environment Court).

As a result of that appeal, negotiations subsequently took place between Tainui, WRC, and the Department of Conservation (DoC). In December 1993, WDC agreed to work with Tainui on the on-going monitoring of the existing situation and the investigation of alternative sewage treatment and disposal systems with a view to ending the current harbour discharge of wastewater. As part of the agreement, WDC commenced investigations into the discharge of treated wastewater to land as opposed to the harbour. In February 1994, the Minister of Conservation granted WDC a coastal permit for the discharge of 2,600 cubic metres of wastewater from the Raglan oxidation ponds. That permit expired in August 1998.

In 1997, WDC lodged an application with WRC for resource consents for proposed upgrades to the WWTP and for discharges to air and water. WDC sought a term of 35 years. WRC granted the application subject to

a number of conditions. Tainui appealed the WRC decision to the Environment Court. As part of those proceedings, Tainui, the other appellants and WDC engaged in mediation. That mediation saw WDC carry out investigations into land treatment options through a Wastewater Working Party. Despite several years of investigations, a viable discharge to land solution was unable to be confirmed. As a result, there was no mediated settlement and the matter was heard by the Environment Court.

In 2004, the Environment Court granted WDC resource consent to discharge wastewater into the Whāingaroa Harbour, subject to conditions, for a 15 year term. Those resource consents are due to expire in February 2020 and are referenced in Table 1 below.

1.1.1 Existing Resource Consents

WDC's existing resource consents for the operation of the Raglan WWTP, Coastal Marine Area (CMA) occupation and discharge to the Whāingaroa Harbour are listed below in Table 1.

Table 1: Existing Resource Consents Associated with the Raglan WWTP and CMA Occupation and Discharge

Consent Type	Activity	Location	Consent Duration
Coastal permit Discharge to water	Discharge up to 2,600m ² of treated wastewater per day into the Whāingaroa Harbour	Riria Kereopa Memorial Drive At or about NZMS 260 R14:728-763	Granted for a period expiring 15 years from the date of commencement of consent as defined in Section 116 of the RMA
Coastal permit Occupation of foreshore and sea bed	To retain an existing wastewater treatment outfall pipeline below Mean High Water Springs (MHWS) on the Whāingaroa Harbour bed, to enable the discharge of treated wastewater to the Whāingaroa Harbour mouth	Riria Kereopa Memorial Drive At or about NZMS 260 R14:727-762	Granted for a period expiring 15 years from the date of commencement of consent as defined in Section 116 of the RMA
Discharge permit Discharge to air	Discharge odour to the air associated with all aspects of the existing and proposed treatment system	Wainui Rd - Raglan (Raglan Wastewater) At or about NZMS 260 R14:729-751	Granted for a period expiring 15 years from the date of commencement of consent as defined in Section 116 of the RMA

1.2 Resource Consents Sought

The consents being sought under this resource consent application are summarised below in Table 2.

Table 2: Summary of Resource Consents Sought

Consent	Rule	Activity Status
Waikato Regional Plan		
Air Discharge relating to the Raglan WWTP pond system	Rule 6.1.9.2 General Rule of the WRP	Discretionary
Discharge to Land relating to the Raglan WWTP pond system seepage	Rule 3.5.4.5 Discharges – General Rule of the WRP	Discretionary
Waikato Coastal Plan		
Coastal permit relating to the discharge of treated wastewater to the Raglan Harbour	Rule 16.3.8 Sewage Discharges- Unless otherwise prohibited by Rules 16.3.10 or 16.3.11, any discharge of human sewage to	Discretionary

Consent	Rule	Activity Status
	<i>the CMA, except those from ships, which has not passed through soil or wetland, is a discretionary activity, provided it complies with the standards and terms stated in this Rule</i>	
<i>Coastal permit relating to the occupation and use of the existing outfall</i>	<i>Rule 16.4.26 (Use and Occupation of Space by a structure) of the WRCP</i>	<i>Discretionary</i>

1.3 Consent Duration

WDC seek the resource consents summarised in Table 2 for a consent duration of 36 months.

2 Description of the Existing Raglan Wastewater Scheme

2.1 Raglan Wastewater Management

The following provides an overview of wastewater management in Raglan including the existing WWTP performance and a description of the improvements that have been made to the WWTP and network over time (as sourced from the 2018-28 Asset Management Plan (AMP) documents, and the asset management database). Since October 2019 Watercare Waikato (Watercare) has taken over the operation and management activities of the WWTP on behalf of WDC.

2.1.1 Overview

The Raglan wastewater scheme services the main township of Raglan and settlement on the Whaanga Coast. The wastewater scheme was first constructed in the 1970s, and the network now consists of a reticulated network, 18 pump stations, and the Raglan WWTP. Wastewater is collected at the pump stations and then conveyed to the Raglan WWTP, located to the south west of Raglan as shown in Figure 1.

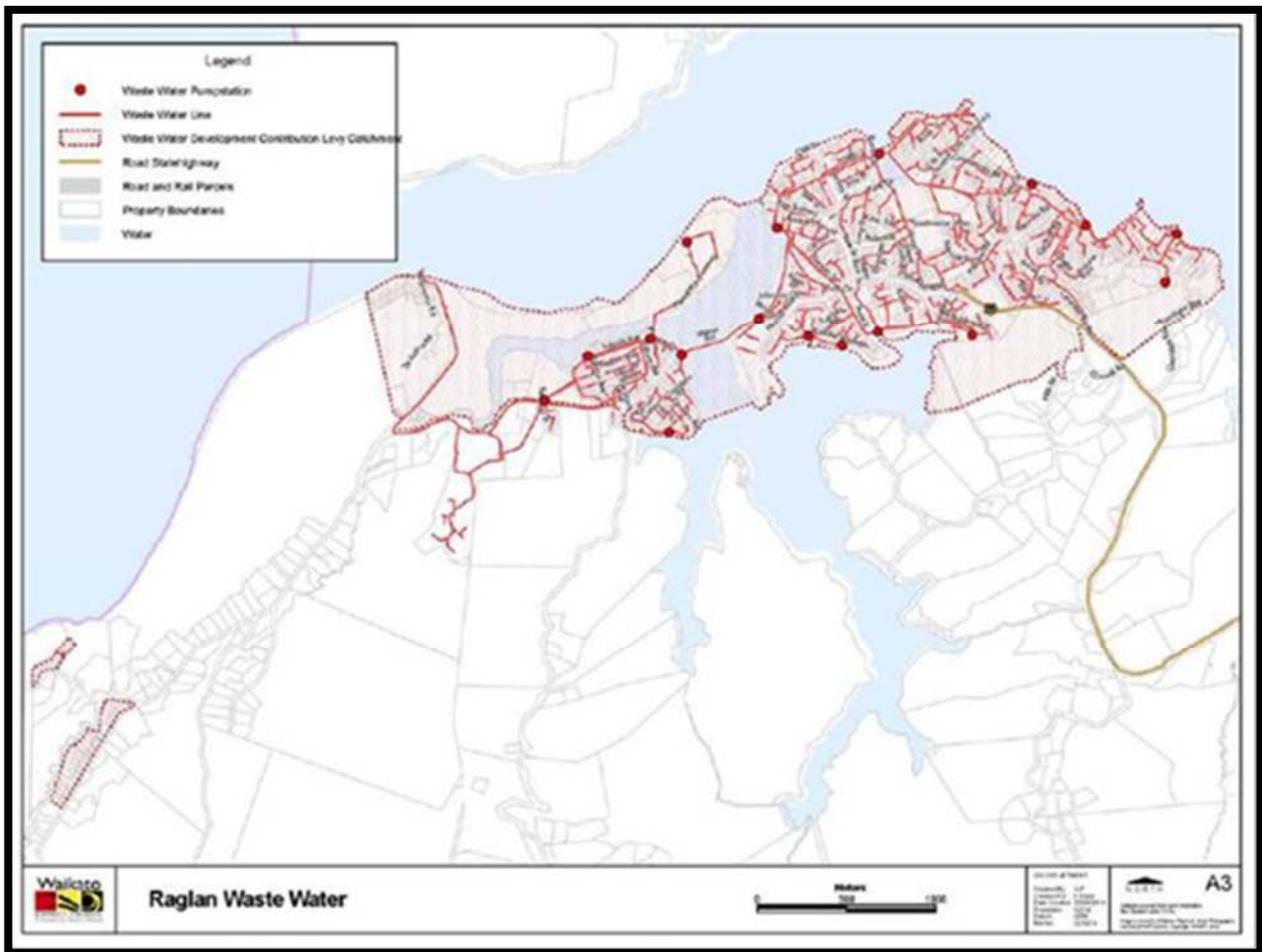


Figure 1: Map showing the wastewater collection areas of Whaanga Settlement and Raglan township in relation to the Raglan WWTP (Google Earth 2019)

2.2 Description of the Existing Wastewater Treatment Plant

2.2.1 Treatment Process

The WWTP originally consisted of two oxidation ponds which discharged into the harbour mouth. Since 2007, there have been subsequent upgrades which are summarised in Table 3.

In addition to the main WWTP, a septage receiving facility was also constructed on site to receive septage waste brought to the site from septic tank collection.

Table 3: Wastewater Treatment Plant Upgrade History

Year	Upgrade
1976	WWTP built (two oxidation ponds)
2007/08	Removal of existing oxidation ponds, installation of anaerobic, aerobic (aquamats and aerators) and storage ponds
2008	UV disinfection installation
2010	Septage reception installed
2015	Day pond installation to reduce algal concentrations in the treated wastewater and provide storage prior to discharge
2017	Aerobic pond upgrade (additional aeration and aquamats to increase the treatment capacity)

The WWTP is located to the south-west of the Raglan community on Wainui Road. Wastewater is received at the inlet works (screen), from where wastewater is piped to anaerobic ponds 1 and 2, then aerated ponds A and D, and on to ponds B and C as represented in Figure 2 below.

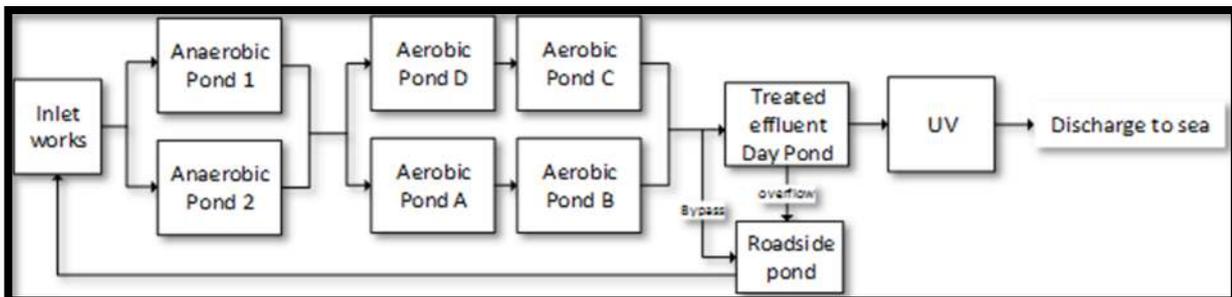


Figure 2: Existing process at Raglan WWTP

Figure 3 shows the layout of the site. The aerobic ponds have an aeration system and aquamats installed. The aquamats provide additional surface area for biological activity. The pond treated wastewater currently discharges into a day pond for storage prior to discharge on the outgoing tide. If the holding capacity of the day pond is exceeded, it will overflow to the roadside (storage) pond. From the day pond treated wastewater is pumped via an inline UV disinfection system to the mouth of the Whāingaroa Harbour.

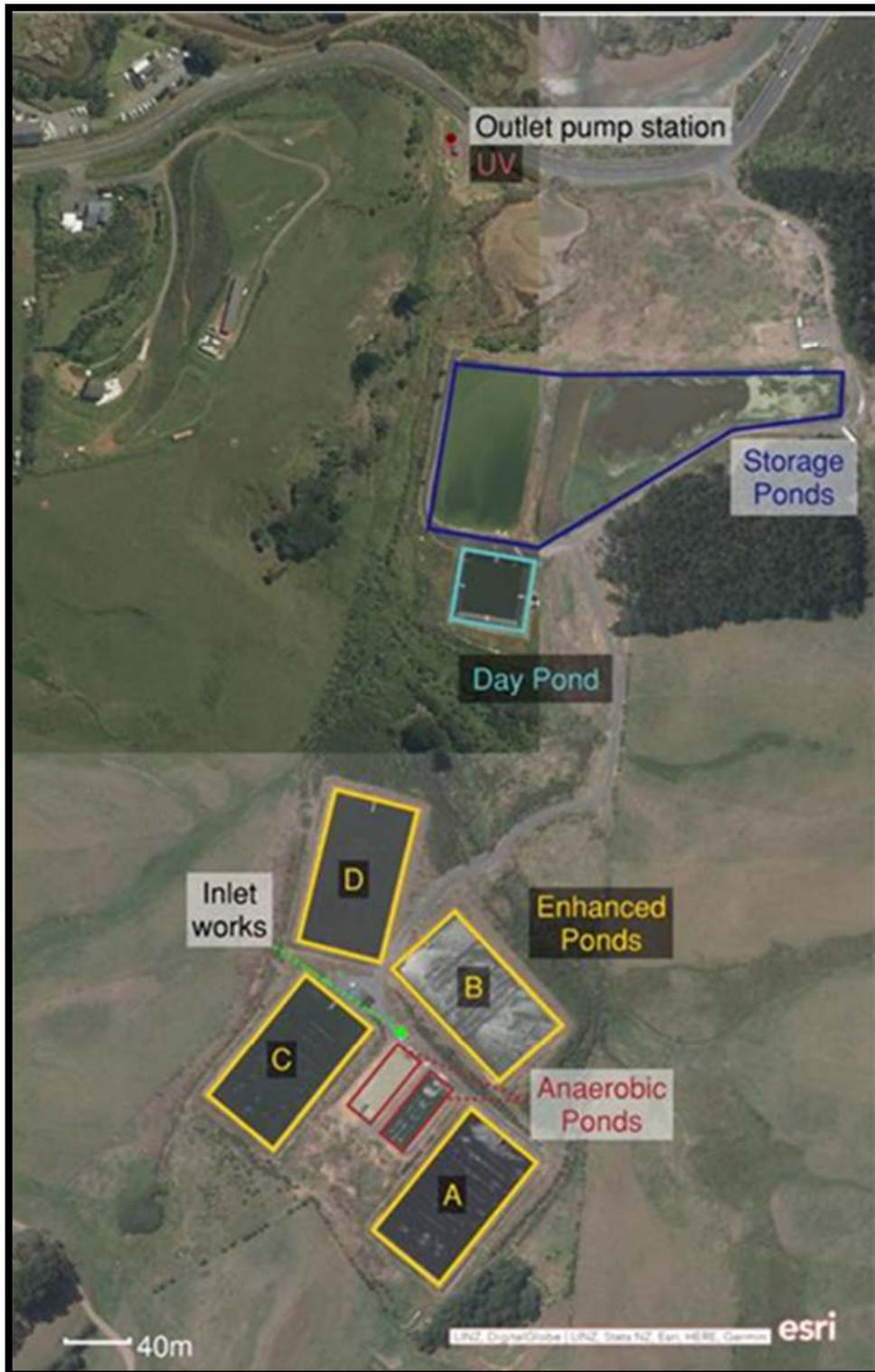


Figure 3: Current Raglan Wastewater Treatment Plant Layout

2.2.2 Existing Performance of the Wastewater Treatment Plant

a. Quality

Table 4 shows the typical quality of the Raglan WWTP downstream of the day pond and UV disinfection system between 2015 and 2019. Due to summer algal concentration peaks, the pond system occasionally

produces peaks of Total Suspended Solids (TSS) from time to time (this is typical for pond based treatment plants). As a result, the WWTP discharge does not consistently meet the consent limits for TSS.

The Carbonaceous Biochemical Oxygen Demand (cBOD₅) concentrations over the last five years have been reasonably consistent. Despite the occasional peaks in TSS concentrations, faecal coliform and Enterococci concentrations are very low, showing the UV disinfection facility is not being impacted by the higher TSS concentrations.

Table 4: Treated Wastewater Quality 2015-19 (Pond Treated Wastewater Post UV)

Parameter	Median Consent	Median Actual	90th Percentile Consent	90th Percentile Actual
Carbonaceous biochemical oxygen demand (cBOD ₅) (mg/l)	10	7	20	13
Total Suspended Solids (TSS) (mg/l)	20	31	30	52
Faecal Coliforms cfu / 100ml	14	1	43	16
Enterococci /100ml		1	35	6

b. Discharge Flows

The Raglan WWTP has consent to discharge 2,600m³ of treated wastewater per day. The conditions of consent provides that the discharge of treated wastewater shall occur for a maximum of 5.5 hours per outgoing tide, no earlier than 0.5 hours before high tide and no later than 1 hour before low tide. In addition, the consent specifies that for not more than 20 days per year immediately after extreme weather, pumping hours may exceed that maximum discharge duration of 5.5 hours per tide and WDC must publicly display an indication of the discharge flow.

Once 2,600m³ of flow has been discharged to the harbour in a 24-hour period, additional flow is stored either in the day pond or the adjacent storage ponds. Treated wastewater in the storage ponds is pumped back into the inlet of the WWTP. The discharged average daily flow (ADF), and peak wet weather flows (PWWF) are shown in Table 2 below.

Table 5: Historical Treated Wastewater Discharge Flows 2014-19

Parameter	Discharge Flow (m ³ /day)
ADF	1,095
10 th Percentile	602
90 th Percentile	1,809
PWWF	2,600

Figure 4 summarises the incoming and discharge flows at the WWTP. Unless there has been significant rainfall, the discharge flows are normally below 2,600m³ per day. The consent has not been exceeded in any of the last five compliance years. In May 2015, due to a failure in the system, there was a discharge outside the discharge window. A formal warning from WRC was received for this event. There have been no occurrences recorded in the last four years.

The seasonal pattern indicated by the average monthly flows shows a definite winter peak for average daily flows, due to wet weather flows. There is approximately an 80 - 100 m³/day Average Dry Weather Flow (ADWF) increase between summer months and the shoulder season, which is assumed to be attributed to the increase in system users over the holiday period. More regular influent sampling would be needed to confirm holiday loads, but these do not appear to be having an impact on the WWTP currently.

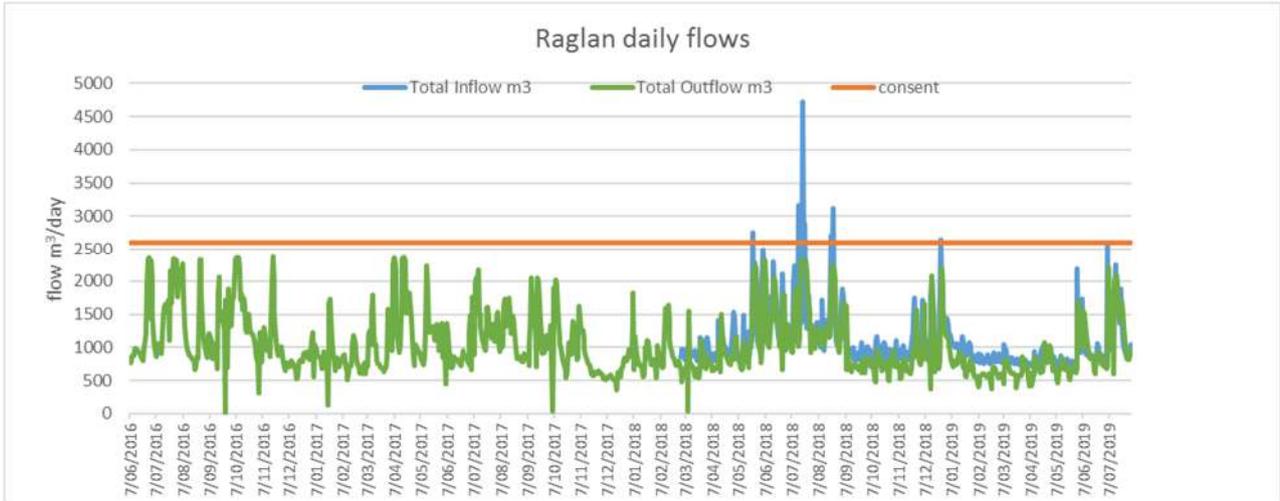


Figure 4: Raglan WWTP incoming and discharge flows 2016 - 2019

2.2.3 Existing Discharge Regime and Timing

An analysis of SCADA data from the Raglan WWTP has been carried out for the period between January 2015 and May 2019. Periods of very low discharges and discharges of less than 45 minutes have been filtered from the dataset for the purposes of this assessment.

The median discharge duration is 2 hours and 15 minutes and the median start time is 15 minutes after high tide with an average flow rate of 0.058m³ per second. Figure 5 shows a typical sequence of discharge and the Manu Bay tide data. This illustrates that although WDC is authorised to commence the discharge up to 30 minutes before high tide, for the majority of time the discharge timing has been optimised to commence after high tide to provide a greater degree of dilution and minimise the possibility of treated wastewater flowing eastwards towards the Raglan township.

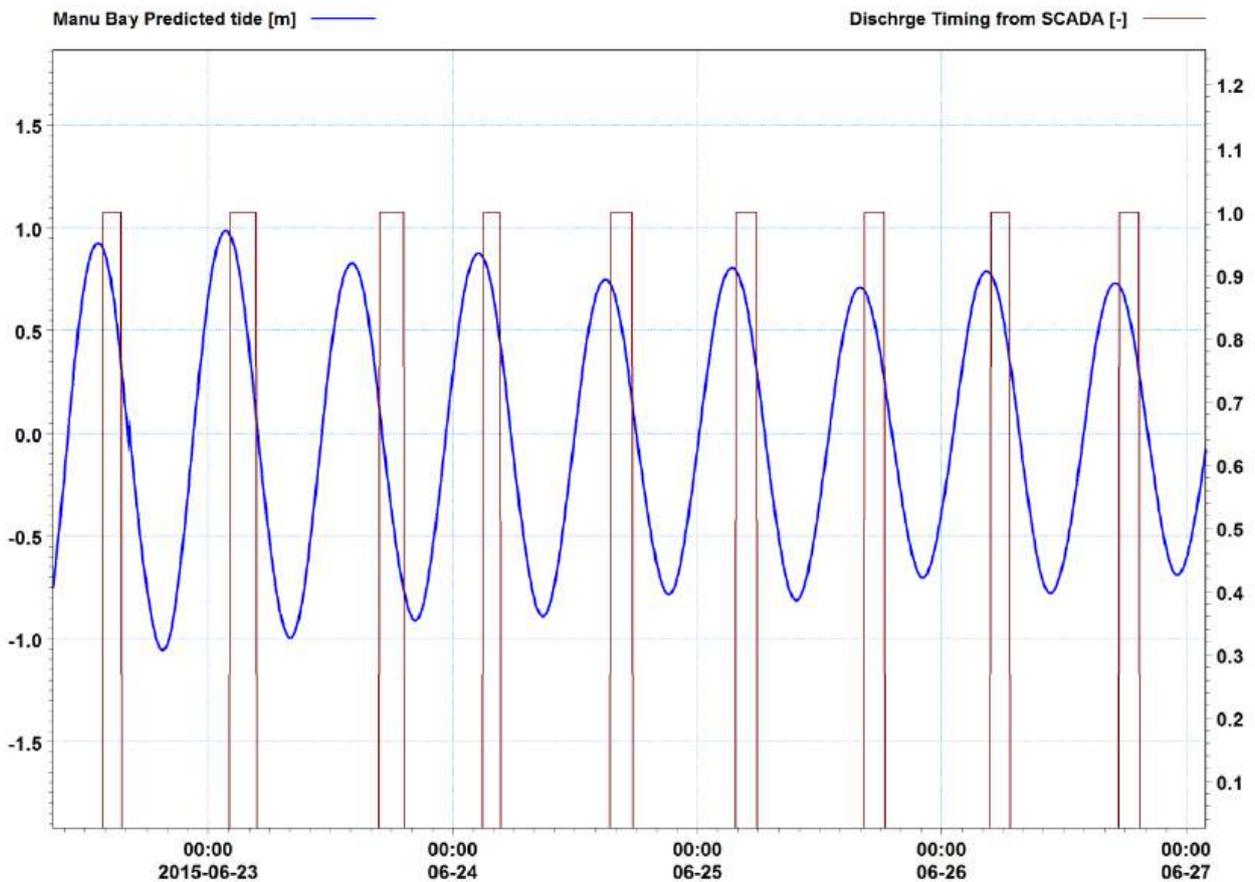


Figure 5: Example of timing of the Raglan WWTP Discharge Using SCADA Data and the Manu Bay Tide Gauge Data

2.2.4 Background Air Quality

The WWTP is located in a rural coastal environment. Typical odours associated with agriculture activities are expected in the surrounding areas which are used for farming or are located adjacent to farms. These may include decomposition of organic material, fertiliser application, animal odour and effluent (agricultural activity) pond odours.

Typical odours associated with coastal land, such as the decomposition of seaweed are also likely to be experienced in areas close to the waterfront at times.

While odour emitted from the existing WWTP will contribute to the current air quality levels in the vicinity of the site. The contribution from the WWTP to ambient air quality levels outside the site boundary is low. This assumption is based on the number of odour complaints which have been received and the separation distance between the WWTP and nearby sensitive receptors. This is discussed further in the AEE in Section 6 below.

2.3 Description of the Existing Harbour Outfall

2.3.1 Overview

Treated wastewater from the existing WWTP discharges from an outfall at the mouth of the Whāingaroa Harbour near Wainamu Road shown in Figure 6 below. The outfall is an Asbestos Cement (AC) 0.22m outer diameter pipeline which emerges in the main channel approximately 65m from the sandbank adjacent to the road. The end of the outfall pipe sits in a depth of approximately 0.3m below chart datum and has existed in this location for approximately 30 years. Historically, it is thought the outfall had a diffuser structure, however

this was damaged and broke off. The exact time of the damage occurring is unknown however the structure existed in its present state in 1997, it is assumed the damage took place before then. The existing pipeline now has an open end.

The wastewater pipeline route to the outfall is shown in Figure 7. The entrance to the harbour is bordered by sandy beaches with Wainamu Beach to the south and Rangitoto Point to the north. The harbour has a deep central channel (up to 20m deep), which has been carved out by strong tidal flows just inside of the harbour entrance. Within the harbour, adjacent to the main township, the sediment within the main channel consists of shelly sand and shelly gravel. Moving up the harbour, the channels become more shallow and narrow and the sediment becomes finer, consisting of sandy mud. Extensive intertidal and shallow subtidal sand and mud flats occur throughout the numerous tributary arms of the harbour.



Figure 6: Approximate location of the outfall (Google Earth 2019)



Figure 7: Wastewater Pipeline Network, outgoing pipeline is highlighted in yellow (WDC 2019)

2.4 Projected Incoming Wastewater Flows

For the proposed three year consent duration, an analysis of existing and projected wastewater flows arriving at the WWTP has been undertaken. Over the proposed three year consent duration a minor increase in Average Daily Flow (ADF) is predicted from 1,211m³/day in 2019 through to 1,427m³/day in 2022. No change in peak discharge flows is projected given the buffering effect of the pond system. This increase of 216m³/day in ADF is minor in the context of the existing discharge volume and assumes the continuing development of properties within the existing Raglan township, as well as additional greenfield development on the Rangitahi Peninsula and Lorenzen Bay.

2.5 Wastewater Network Improvements

A number of overflows occurred in Raglan in 2015 and 2016 which resulted in untreated wastewater being spilled into the harbour from the wastewater network. Consequently, the harbour had to be closed to both contact recreation and collection of seafood for significant periods of time after each event.

Following these events WDC initiated a wastewater overflow Continual Improvement Programme (CIP) in August 2016 in order to address the issues causing overflows. The CIP was carried out in stages.

Stage 1 involved a series of immediate works, which were mainly aimed at early warning of potential overflows. These were:

- Installation of text backups as an alternative for sending out alarms at all 18 Raglan pump stations
- Installation of generator plugs at all pump stations allowing for easy installation of mobile generators
- Installation of a backup generator, lighting and hoist at Greenslade Road pump station
- Additional contractor support
- Public education programme

Stage 1 also included a review of the network to highlight the causes of the overflows and assessment of costs to address any identified problems.

The review provided a high-level overview of the causes and effects of wastewater overflows which had occurred. It also provided a basic outline and detailed the estimated costs for the actions and interventions in the wastewater overflow CIP. The review further recommended additional interventions which could be implemented to reduce the number of overflows and their effects.

Stage 2a, which took place between January and June 2017, included:

- Service delivery improvements
- Procurement of stand-by generators
- Design of SCADA / telemetry updates
- Gathering more data through a CCTV investigation of pipelines
- The development of more detailed wastewater improvement plans for the towns within the Waikato District

In addition to the CIP, WDC engaged consultants to build and calibrate a wastewater network model of the Raglan wastewater network. The calibrated model has been used to undertake system performance analysis of the existing and future catchments.

During the flow data gathering for the model, inflow and infiltration (I&I) investigations were undertaken, including smoke testing in some parts of the Raglan wastewater network.

The network model found that in dry weather the network capacity is sufficient for existing and future dry weather flows. Infiltration and exfiltration (i.e. leaky pipes) are not considered to be a significant issue across

the network, however some areas appear to have moderate infiltration or poor asset condition which could cause localised issues.

A CIP review in April 2018 resulted in recommendations being made, including the undertaking of a stocktake of the I&I work to date, and the development of policies relating to rectification of private drainage defects.

The CIP programme has now been completed.

2.5.1 Pump Station Upgrades

As part of the CIP, WDC commissioned investigations into pump station capacity in the network. These studies showed that there were opportunities for improvements and optimisations to reduce the potential for future overflows. Table 6 summarises the improvements made to the pump stations over the last five years. These improvements have built resilience into the network, and reduced the frequency of overflows, as well as providing improved management of the network and assets.

Table 6: Pump Station Improvements 2015 - 2019

Pump Station Site	Year	Upgrade
Daisy Street	2015	Pump upgrade to provide additional pumping capacity
Nero Street	2015	Radio upgrade for improved data / alarm transfer
Whitley Street	2015	Radio and aerial upgrade for improved data / alarm transfer
Wainui Road	2015	Safety improvements
Marae, Nihinihi Avenue, Lorenzen Bay, East Street	2015	Safety improvements
Hideaway, Greenslade Road, Kaitoke Street	2015	Wet well level controller replacement
Marine Parade, Nero Street	2015	Additional storage
Marine Parade	2015	Odour filter, RPZ
Wainamu Road	2016	New pump station
Daisy Street	2016	Additional storage
Nihinihi Avenue	2016	New level controller
Nero Street, Marine Parade, Wallis Street	2017	New pumps
Kaitoke Street, Tutchen Avenue, Hideaway	2019	New pumps

2.6 Proposed Changes to Conditions

WDC intends to continue the current operation of the WWTP under the existing consent conditions (attached as Appendix B) with the following suggested changes to the existing conditions:

2.6.1 Optimisation of Discharge Timing

The existing consent 971390 states the following with respect to discharge duration (condition 11):

“The discharge of treated wastewater shall occur for a maximum of 5.5 hours per outgoing tide. The discharge may commence no earlier than 0.5 hours before high tide and shall cease no later than 1 hour before low tide. Provided that for not more than 20 days per year immediately after extreme weather, pumping hours may exceed the maximum discharge duration of 5.5 hours per tide.”

DHI, in their work analysing the existing discharge (included as part of Appendix C), have assessed the existing discharge timing and duration based on SCADA data between January 2015 and May 2019, which is shown in Figure 8 and Figure 9.

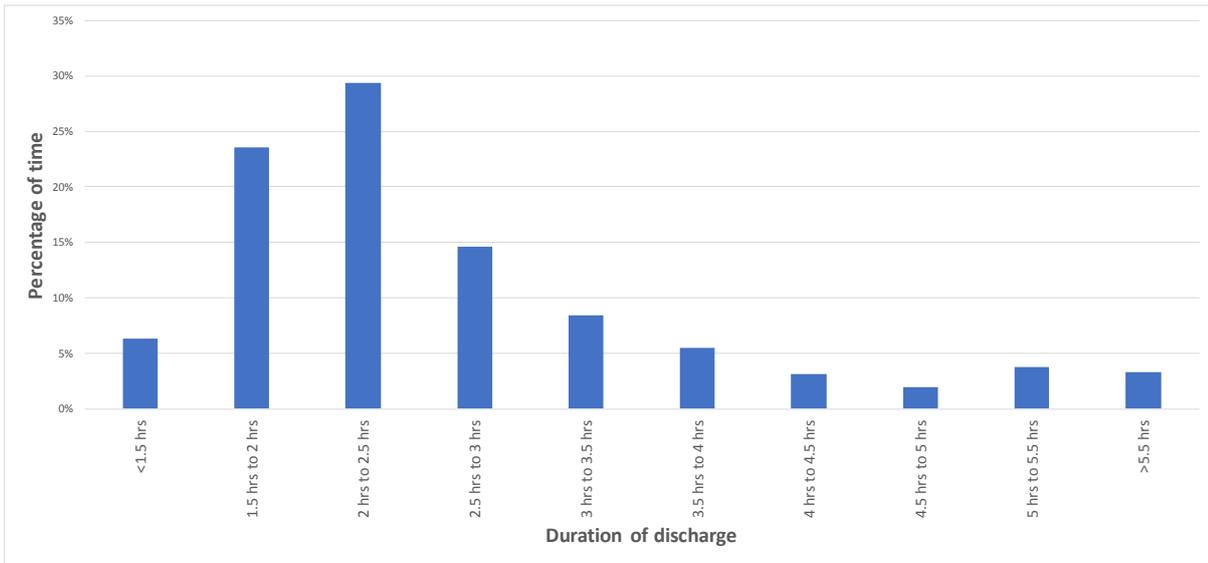


Figure 8: Distribution of duration of discharge from the Raglan Wastewater Treatment Plant. Analysis based on SCADA data from January 2015 through to May 2019

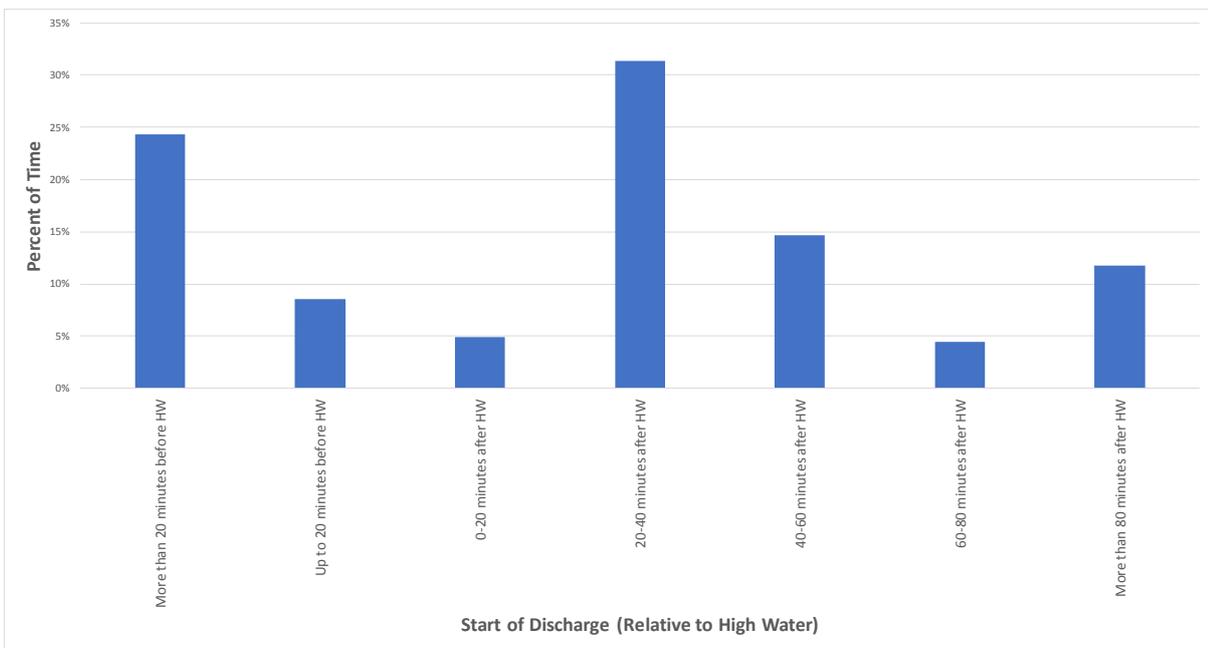


Figure 9: Distribution of start time (relative to high tide) of the Raglan Wastewater Treatment Plant discharge. Analysis based on SCADA data from January 2015 through to May 2019

The analysis indicates that, for the majority of time, the discharge commences after high-tide (when outgoing current velocities become stronger which promotes greater mixing of treated wastewater). However, on some occasions, the discharge commences prior to high-tide when currents are lower or flowing into the Harbour (as authorised by condition 11).

To improve dilution and mixing of treated wastewater on the outgoing tide and to avoid the discharge on the incoming tide, WDC propose to amend condition 11 so that the discharge commences no earlier than 15 minutes after high-tide for a duration of no more than 5 hours. This can be achieved by amending the discharge timing in the SCADA system that operates the discharge pump station.

The updated Condition 11 will therefore read:

The discharge of treated wastewater shall occur for a maximum of 5.5 hours per outgoing tide. The discharge may commence no earlier than 0.25 hours after high-tide for a duration of no more than 5 hours. Provided that for not more than 20 days per year immediately after extreme weather, pumping hours may exceed the maximum discharge duration of 5.5 hours per tide.”

2.6.2 Amendment to Total Suspended Solids Treated Wastewater Condition

Condition 14 of existing consent 971390 states the following:

“The consent holder shall ensure that, no later than 2 years after the date of commencement of this consent, the suspended solids level does not exceed a median level of 20 grams per cubic metres for 12 consecutive monthly samples (one sample per month) and a maximum of 30 grams per cubic metre for 9 of 10 consecutive monthly samples (one sample per month).

The point of compliance with the specified limit shall be at or about the point that the treated effluent enters the discharge pipeline.”

Section 2.2.2 of this AEE states that the WWTP does not consistently meet these TSS limits, which is due to algae growing in the treatment ponds. This algae is part of the natural wastewater treatment process.

NIWA, in their assessment of the existing performance of the WWTP (included as part of Appendix C), have assessed the effectiveness of the UV disinfection process and whether this is adversely affected by these TSS levels. In Section 3.1 of their report, they state:

“The relatively low numbers of Faecal Indicator Bacteria (FIB) reflect the UV treatment of the wastewater prior to discharge. The consistent, relatively small range of concentrations and flux of FIBs indicates that suspended sediment concentrations in the wastewater are also consistent. High suspended sediment concentrations reduce the efficacy of UV irradiation, because they attenuate the light penetration and effectively shade FIB and viruses. This does not appear to be a concern for this discharge.”

Appendix C also provides an assessment of the potential effects of the existing discharge on ‘conspicuous colour or clarity’ in the receiving waters. No observable adverse effects, in terms of colour or clarity, are anticipated beyond the zone of reasonable mixing for the existing discharge.

Given these observations and analysis of TSS concentrations on the effectiveness of UV disinfection, it is proposed to amend the TSS concentration in the consent to reflect the actual performance of the WWTP. A median concentration of 40 grams per cubic metre for 12 consecutive monthly samples and maximum of 60 grams per cubic metre for 9 of 10 consecutive monthly samples is suggested (this is equivalent to a 90%ile).

The Oxidation Pond Guidelines for New Zealand¹ recommend a median limit of 50 grams per cubic metre for TSS for a primary pond system and 40 grams per cubic metre for a maturation (tertiary) pond system. This suggests that the existing consent limit of 20 grams per cubic metre was not achievable by the existing treatment process. The proposed revised median limit of 40 grams per cubic metre is equivalent to the median limit for tertiary pond systems suggested by the Oxidation Pond Guidelines for New Zealand. The Oxidation Pond Guidelines do not suggest a 90%ile value.

¹ New Zealand Water and Wastes Association (2005). Oxidation Pond Guidelines (draft). New Zealand Environmental Technologies, Ministry for the Environment and New Zealand Water and Wastes Association.

3 Existing Receiving Environment

The following Section provides a description of the existing environment for the Raglan Wastewater Scheme.

3.1 Whāingaroa Harbour

3.1.1 Area of Significant Conservation Value

An Area of Significant Conservation Value (ASCV) is an area that has been identified by the Department of Conservation as having values of regional importance.

Whāingaroa Harbour is classed as an ASCV in the Waikato Regional Coastal Plan (WRCP) (see Figure 10 below) due to the presence of:

- Cultural significance to Tainui
- Resident and frequenting rare and threatened wading and coastal bird fauna
- Maui’s dolphin
- Recognised southern limit of mangroves

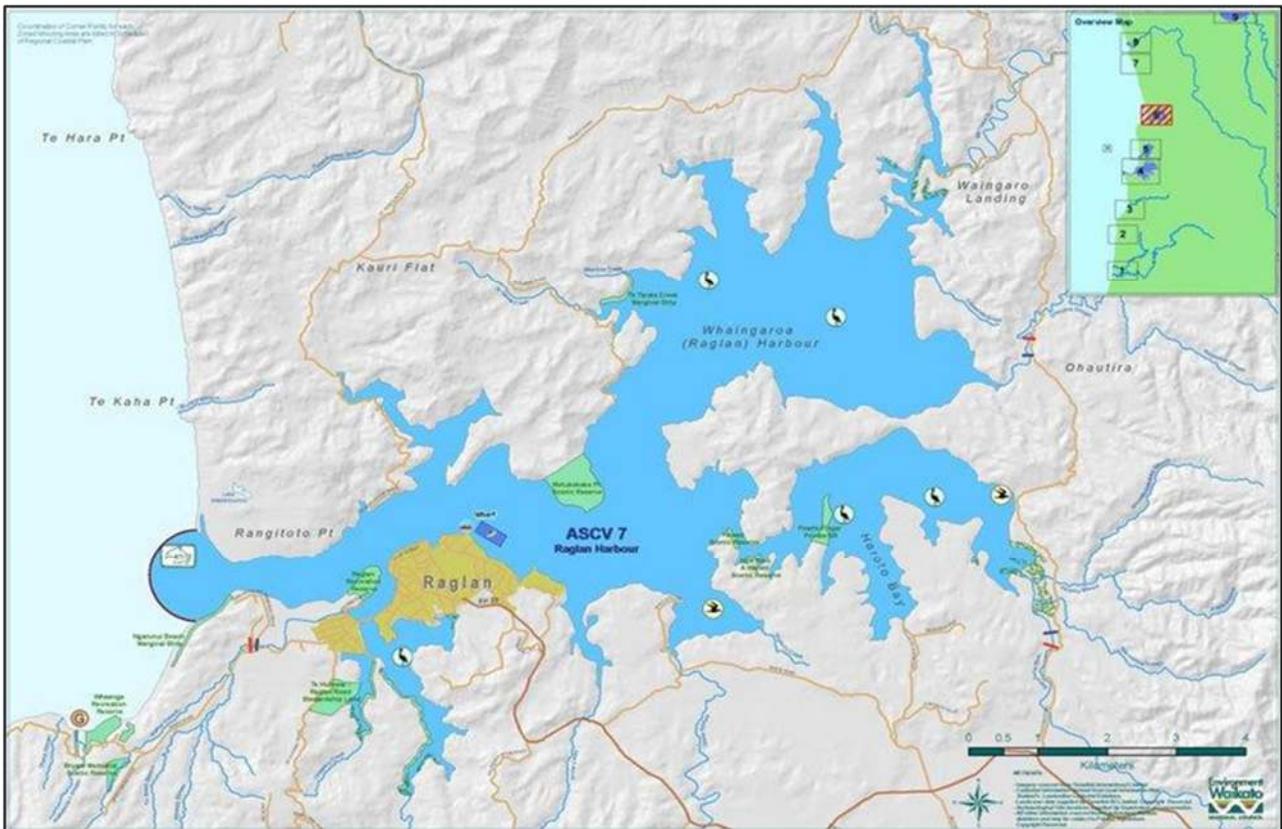


Figure 10: Map of Area of Significant Conservation Values 7 (Waikato Regional Coastal Plan Maps)

3.1.2 Recreational Use

As part of on-going community engagement in developing a long-term wastewater solution, WDC have asked the community to identify on a map the type and location of recreational and food gathering activities that they participate in and around the Whāingaroa Harbour environment. The data collected has been collated on a map attached as Appendix G.

The types of recreation activities identified were swimming along Wainamu Beach to Putoetoe Point and along Ngarunui Beach, kite surfing within the harbour entrance, fishing throughout the whole harbour, shellfish gathering around Putoetoe Point and Aroaro Bay and surfing. Raglan is well known for its surf breaks which are treasured by a large local surfing community and surf club. Raglan's surf breaks also attract tourists to the area.

Surf breaks of National Significance are identified in the New Zealand Coastal Policy Statement 2010 (NZCPS). Of 17 surf breaks identified in the NZCPS as being nationally significant, three are located in Raglan – Manu Bay, Whale Bay and Indicators which are located along the coastline to the south of the harbour mouth. Policy 16 of the NZCPS requires local government to protect the nationally significant surf breaks.

3.1.3 Marine Ecology

The existing ecological values of the Whāingaroa Harbour are summarised below.

Saline Vegetation

Saline vegetation within Whāingaroa Harbour provides biogenic habitat and a range of important functions including protection from erosion and sedimentation, nutrient cycling and the provision of food and shelter to a wide variety of organisms. The harbour is characterised by rushland and mangrove communities and is the southern limit for mangrove distribution on the west coast of New Zealand. The mangrove communities primarily exist throughout the Waingaro arm of the estuary which is in the far north east of the harbour compared to where the outfall is situated at the mouth of the harbour. Mangrove communities within Whāingaroa Harbour have been identified as effective juvenile habitat for grey mullet. Mangroves within the Waingaro River arm are also known to provide habitat to At Risk, Declining banded rail.

A mix of estuarine and freshwater rushland also occur throughout the head of the Waingaro arm, as well as throughout the Ohautira and Waitetuna arms of the estuary. Saltmarsh ribbonwood communities exist throughout the Ohautira and the Waitetuna arms of the estuary. Thin bands of estuarine vegetation in the form of rushland and sea meadow occur in more exposed areas.

The invasive grass saltwater paspallum is commonly found within or dominating communities of rushland and sea meadow. *Spartina*, another invasive saline plant, has been successfully controlled and only a few scattered plants exist within the harbour.

Extensive beds of the At Risk, Declining seagrass occur along the town foreshore up to Lorenzen Bay and within intertidal areas adjacent to Wainui Road up in to the Opoturu River arm.

Benthic Invertebrates

The most common organisms on the southern shoreline of Whāingaroa Harbour entrance (Wainamu Beach) are the small gastropod and the cushion star. Other organisms inhabiting the same environment, but found in fewer numbers have included:

- Sand dollar
- Heart urchin
- Molluscs including
 - The olive shell
 - Whelk
 - Horse mussel
 - Wedge shell
 - Bivalves

Tuatua occurs along the southern bar of the harbour mouth and mussel beds are located upstream of the existing treated wastewater outfall along Wainamu Beach.

Fish

Previous fish surveys carried out in Whāingaroa Harbour found at least 15 fish species. The most common species were yellow eyed mullet, grey mullet, eels, stingrays, kahawai, flounder, snapper, trevally and dogfish. Kingfish are also present in Whāingaroa Harbour, with a number of adults observed by others around the wharf at Cox's Bay during the warmer months. Historical records indicate that whitebait, eels and sea snails occur within Wainui Stream.

Avifauna

The harbour has resident and frequenting At Risk and Threatened wading and coastal birds including international migratory bird species. The upper reaches of Raglan Harbour are used for bird roosting and feeding, whilst the entrance to the harbour is used by wading and coastal birds.

At Risk, Declining banded rail have been observed within mangrove habitat along the Waingaro River arm of the estuary. In addition, the Threatened, Nationally Critical Australasian bittern and At Risk, Declining North Island fernbird have been observed in association with saltmarsh ribbonwood and freshwater wetland vegetation within the Waitetuna River arm of Raglan harbour.

Along the coastline, records of the Threatened, Nationally Vulnerable black petrel and Cook's petrel exist along with records of the grey faced petrel.

Marine Mammals

Much of the west coast of the north island (between Maunganui Bluff and Oakura Beach extending 12 nautical miles offshore and including Raglan harbour) is classified as a marine mammal sanctuary.

Raglan Harbour is recognised as an area which is used by the *Threatened, Nationally Critical* Maui dolphin. This species has a small distribution, on the west coast of the North Island, between Dargaville and New Plymouth, and is mostly seen within one nautical mile of the coast during the summer months (between October and March). Maui dolphin is the rarest dolphin in the world, with an estimated population of between 48 and 69 individuals.

Other marine mammals known to use Raglan Harbour include the *Threatened, Nationally Critical* Orca. This species is regularly observed within the harbour. The New Zealand fur seal is also observed within Raglan Harbour, with breeding colonies occurring throughout the west coast of the north island. Humpback whale use the west coast of the north island as a migratory route to southern waters in spring, returning in winter. In addition, the *Threatened, Nationally Critical* bottlenose dolphins are frequently seen in the coastal waters off Raglan Harbour.

3.1.4 General Water Quality

The Whāingaroa Harbour has a large catchment area of 445km² with seven major river catchments and smaller streams flowing into the Harbour, such as the Ohautira, Opoturu, Waingaro, Tawatahi and Waitetuna Rivers (Fisher, 2014). Due to the large-scale of the catchment, surrounding catchment land uses have an impact on the Harbour water quality as contaminants generated from land uses can be transported via rivers to discharge into the Harbour.

Since the 1970s, land use intensification in the wider catchment has occurred primarily in the form of agriculture and forestry. Prior to the Crown undertaking acquisition of land circa early 1900s, the catchment was predominantly covered in native forest (Fisher, 2014). As a result of the land use intensification, water quality changes in the harbour have been documented with respect to sedimentation and erosion, estuary

edge vegetation and water quality (Fisher, 2014). Faster rates of sedimentation have been reported as a result of natural vegetation disturbance within the catchment. Concerns regarding nutrient inputs from diffuse sources have also been documented (Fisher, 2014).

The relative contribution of contaminants from catchment diffuse sources into the Harbour is expected to be greater compared to the existing WWTP discharge and has been previously studied using hydrodynamic modelling (Greer, 2015) (Modelling Study). It was noted in the Modelling Study that accidental spills and unauthorised discharges from the WWTP may have a relatively unquantified effect on water quality. The modelling study therefore sought to develop an understanding of inputs to the harbour from the WWTP using hydrodynamic modelling in conjunction with a 13-river catchment model to enable some comparison of inputs from the WWTP compared to contaminant inputs from inflowing rivers.

Transport and decay of Faecal Coliforms (FC) in the harbour was simulated using a year long 2012 simulation along with a June 2013 wastewater spill event to allow some quantification of accidental spill effects. The Modelling Study concluded that rivers entering the harbour have a greater influence on harbour water quality relative to the WWTP discharge with regards to FC concentrations. It was noted that the model did however carry some level on uncertainty with regards to predicted source FC concentrations. Further modelling recently undertaken by DHI to quantify the influence of the proposed discharge is discussed in the water quality effects assessment prepared by Beca (Appendix C)².

Both diffuse contaminant sources associated with catchment land uses and WWTP discharge influence a range of water quality parameter concentrations including pathogens, nutrients, and suspended solids (Greer, 2015). Pathogens, including a wide range of microbes are the primary concern with regard to human health given the recreational, fishing and shellfish gathering uses of the harbour.

Residence times have an impact on the fate of contaminants discharged to the Harbour (eCoast, 2016). Through hydrodynamic modelling (eCoast, 2016), residence times of 35 to 45 days in the Harbour have been observed (in the upper estuary during medium river flow conditions). In particular, the Waituna and Waingaro Rivers drain approximately 60% of the Harbour Catchment area and flow into the Harbour head where residence times can be up to 45 days during low river flows (eCoast, 2016). Conversely, lower residence times are predicted to occur at the mouth of the Harbour (eCoast, 2016), where the WWTP discharge is located.

Variables other than river flows also contribute to residence times spatially within the Harbour. Tidal influences are such that residence times of contaminants at the mouth of the Harbour, in the vicinity of the WWTP discharge, can be <1 day (based on interpretation of tracer experimentation where a threshold of 20% reduction in initial tracer concentration was applied, when the tracer was released at high tide (eCoast, 2016)). Under the same tidal conditions, areas of the Harbour influenced by river discharges (predominantly in the upper Harbour) maintain relatively long residence times and consequent tracer / contaminant retention (eCoast, 2016). This provides further evidence that the Harbour water quality experiences a predominant influence from contaminants transported by river flows compared with the WWTP outfall discharge. Overall, the modelling undertaken by eCoast found that in drowned river valley estuaries such as the Whāingaroa Harbour, residence times exhibit an increasing gradient from the mouth to the head of the estuary (Figure 11).

² Raglan Wastewater Treatment Plan – Water Quality Assessment, prepared by Beca Limited, 16 October 2019

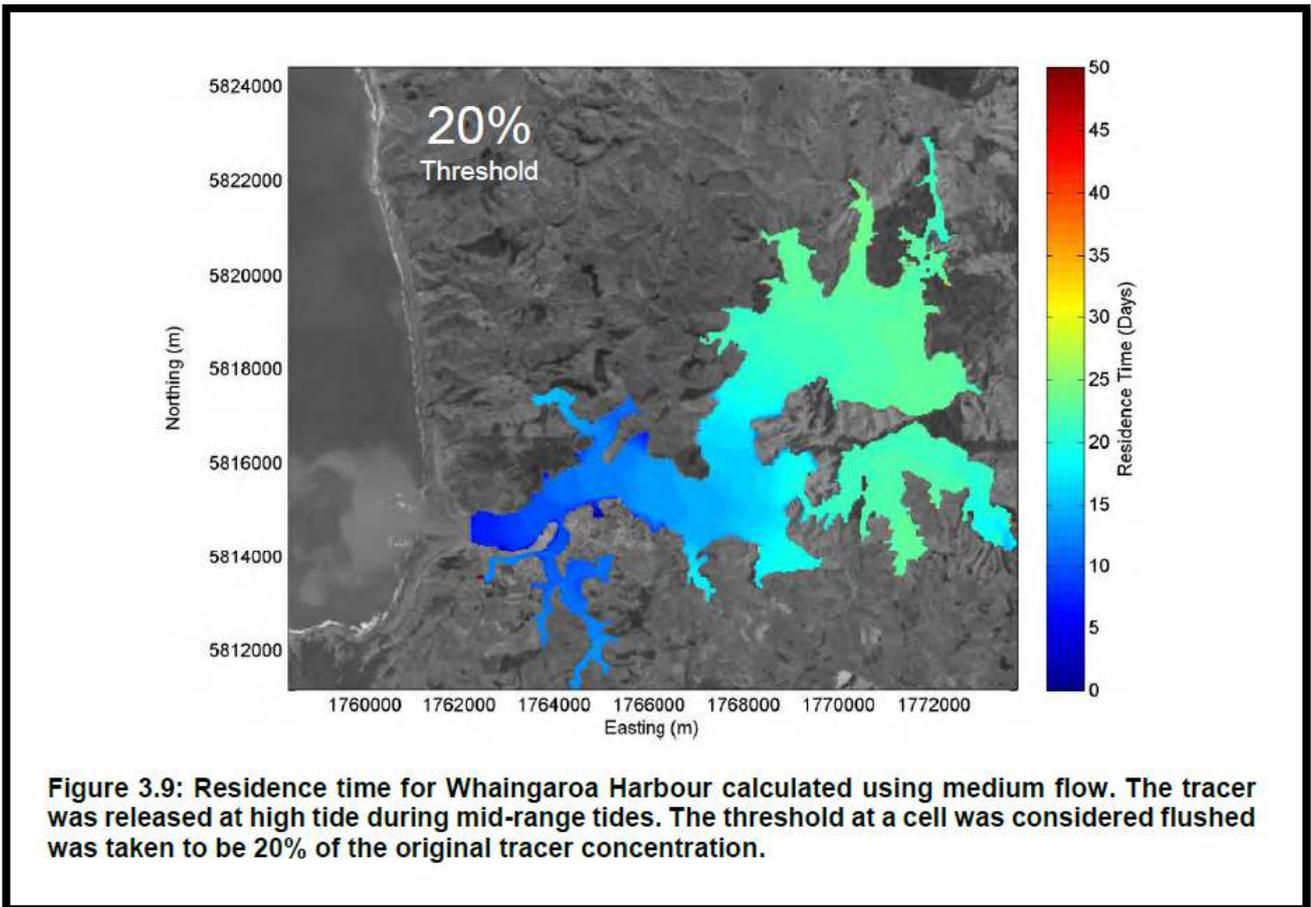


Figure 11: Excerpt from eCoast, 2016 showing gradient of residence times in the Harbour by which 20% of the original concentration of a tracer released at high tide had been reached

Maintaining a high level of water quality in the harbour is important due to its uses for recreation including swimming, water sports, along with collection of kai moana. Faecal indicator species are used to monitor microbial water quality in the harbour including E.coli, Enterococci and Faecal Coliforms.

The general microbiological water quality of the harbour was assessed by NIWA using data from the routine monitoring undertaken in the Harbour by WRC and is discussed in the water quality effects assessment prepared by Beca (Appendix C). NIWA reported that concentrations of faecal indicator species tend to consistently decrease from the upper Harbour toward the mouth of the Harbour suggesting substantial dilution and attenuation of indicator species from inflow toward the Harbour mouth. The 95th percentile concentration of Enterococci calculated from data for January 2017 to June 2019 at the Raglan Mouth was 15 Enterococci/100ml while at two upper harbour monitoring locations 95th percentile concentrations for the same period were 186 and 412 Enterococci/100ml, respectively.

NIWA also assessed data for two recreational sites in the harbour where the number of samples collected, and sampling frequency met the criteria for comparison to the Ministry for the Environment New Zealand recreational quality guidelines (2003). NIWA reported that in 12 of the 16 recreational seasons assessed, gastrointestinal illness risk was likely to be less than 1% based on the faecal indicator date, indicating high recreational water quality. In three of the seasons, the gastrointestinal illness risks were likely to have exceeded 5%, with a greater than 10% illness risk likely in one recreational year (reflecting a single sample that contained an unusually high Enterococci concentration).

WRC also monitor other key biological and chemical water quality parameters such as:

- Salinity

- pH
- Dissolved Oxygen (DO)
- Chlorophyll A (Chl-A)
- Oxidised Nitrogen (NNN)
- Ammonia (NH₄)
- Total Nitrogen (TN)
- Dissolved Reactive Phosphorous (DRP)
- Total Phosphorous (TP)
- Total Suspended Solids (TSS)
- Water clarity (by Secchi Disk (SD))

Six sites are actively monitored by WRC (since October 2017), their locations are shown in Figure 12.



Figure 12: Approximate locations of active WRC marine water quality monitoring sites in the Raglan Harbour

Median concentrations of selected parameters monitored by WRC are presented below in Table 7. Higher median nutrient and TSS concentrations appear to occur near the head of the harbour compared with concentrations reported for locations closer to the mouth. This may be attributed to spatial variation in residence times as discussed above.

Table 7: Median Concentrations of Selected Parameters Monitored by WRC

Parameter	Opoturu	Waingaro	Waitetuna	Raglan Mid Harbour	Raglan Mouth	Wainui
Chl-A (mg/m ³)	7.9	10	12	7.9	6.4	7.2
DO (g/m ³)	7.6	7.7	7.7	7.7	7.8	7.7
DO (%Sat)	98.8	99.7	98.4	100	101	101
DRP (mg/m ³ -P)	7.9	10	12	7.9	6.4	7.2
NH ₄ (mg/m ³ -N)	28	21	22	23	17	28
NNN (mg/m ³ -N)	28	18	40	17	12	11
TN (mg/m ³ -N)	197	250	300	183	157	167
TP (mg/m ³ -P)	18	28	30	22	18	17
TSS (g/m ³)	9.9	18.5	25.5	14.6	11.9	13.8
SD (m)	1.3	0.86	0.63	1.0	1.4	1.2

WRC report various guidelines and standards used to assess estuarine water quality for ecological health³. The reported median dissolved oxygen (% saturation) and ammonia values for all monitoring sites in Table 7 are within the 'Excellent' WRC guideline category of >90% and <100 mg/m³, respectively. The median total phosphorous concentration for all sites are either at or below the upper 'satisfactory' criteria value of 30mg/m³. However, the median NNN and Chl-A concentrations are indicative of elevated nutrients in the Harbour, being within the respective 'unsatisfactory' categories (assuming NNN is in the form of nitrate) >15mg/m³ (for nitrate) and 4mg/m³, respectively.

Elsewhere the Australian and New Zealand Environment and Conservation Council (ANZECC) 2000 guidelines (Guidelines) have been used to provide an indication of marine water quality (Waikato Regional Council, 2015). Though ANZECC trigger values were not developed for the New Zealand marine environment, following the 2018 update to the Guidelines, NIWA adopted the ANZECC (2000) guideline trigger value of 30mg/m³ for dissolved inorganic nitrogen (DIN) assessment (Waikato Regional Council, 2015). Though strictly relevant for southeast Australia in "slightly disturbed estuarine water", the trigger value was adopted by NIWA to contextualise nutrient concentrations in the Firth of Thames in relation to the extent to which the symptoms of eutrophication are expressed (Waikato Regional Council, 2015). Combined median NNN and NH₄ concentrations reported for the 'Raglan Mouth' WRC monitoring location are below the ANZECC DIN trigger value, while respective concentrations at other locations are above the trigger value (though are of a similar order of magnitude).

Though changes to water quality in the harbour can be expected to fluctuate over short periods of time due to events such as heavy rainfall and seasonality, key indicators of water quality outlined above appear to have remained relatively stable since monthly monitoring commenced in 2017 at each of the active WRC Harbour water quality monitoring locations. In summary, the above data shows that the water quality in the harbour mouth is generally good, and representative of open coastal water. However, water quality declines towards the estuary (to the west of the harbour mouth) due to land-based influences, particularly during times of rainfall.

3.1.5 Cultural Significance

Tainui refers to the collective hapū and iwi who are linked through whakapapa relationships and identify with the coastal lands located between Te Akau, north of Raglan to just south of Karioi maunga. Tainui-a-Whiro,

³ <https://www.waikatoregion.govt.nz/environment/environmental-information/environmental-indicators/coasts/estuarine-water-quality-report/estuarine-water-quality-techinfo/>

Ngāti Māhanga and Ngāti Tamainupo are the identified individual hapū groups that hold kaitiakitanga over the Raglan area.

Through consultation with Tainui the project team have been directed to the following documents for reference to the iwi perspective on the harbour and wastewater discharge:

- Inside the Resource Management Act a Tainui Case Study, thesis by Angeline Ngahina Greensill, 2010
- Sean Ellison evidence, 2002 court hearing Tainui Hapū v Waikato District Council

Inside the Resource Management Act a Tainui Case Study 2010 describes the Raglan Harbour as the food basket of Tainui and other hapū around the coast. It is a nursery for kaimoana, flat fish and other marine species. Over the years the productivity of the harbour has noticeably deteriorated with the over exploitation of species such as seahorses.

Through hui between Tainui and the project team, it is understood that the Raglan Harbour holds significant meaning and spiritual connection for Tainui and contributes heavily to mana whenua wellbeing. The discharge of wastewater into the harbour effects hapū's mana and manaakitanga when they cannot feed guests from their own food basket.

Raglan's WWTP oxidation ponds were built on a waahi tapu site and the wastewater pipeline runs through Maori land. In July of this year (2019) a pou was erected at the gates of the WWTP. The pou represents Te Atai o Rongo, the taniwha protector of local Tainui tribes, whose lair was disrupted when the then Raglan oxidation ponds were built on the waahi tapu site in 1977.

3.1.6 Sensitivity of the Receiving Environment

The sensitivity of the receiving environment of the wider Whāingaroa Harbour from a water quality and ecological perspective can be described as highly sensitive. As described in Section 3.1.1, the harbour is an ASCV. However, the immediate discharge environment at the mouth of the Whāingaroa Harbour is less sensitive than the middle and upper reaches of the harbour, given the strong currents, rapidly shifting sand formations and wave patterns which dominate the hydrodynamics of the mouth of the harbour.

From a maori cultural perspective, the Whāingaroa Harbour is considered to be highly sensitive.

3.2 Surrounding Land Use

Figure 13 shows the zoning of the land use surrounding the existing WWTP under the operative Waikato District Plan (WDP). The WWTP site itself is designated under the operative and Proposed Waikato District Plans. The land to the south, east and west of the site is zoned Rural under the operative WDP. This land is predominately used for pastoral agriculture purposes (e.g. animal grazing). However, rural dwellings are also located within these Rural zoned areas. The closest of these dwellings is located more than 200m from any of the treatment wastewater processes and storage ponds. The proposed WDP (PDP) is currently at the hearing stage of the plan change process, the PDP maps retain the surrounding Rural Zone areas as identified in the WDP.

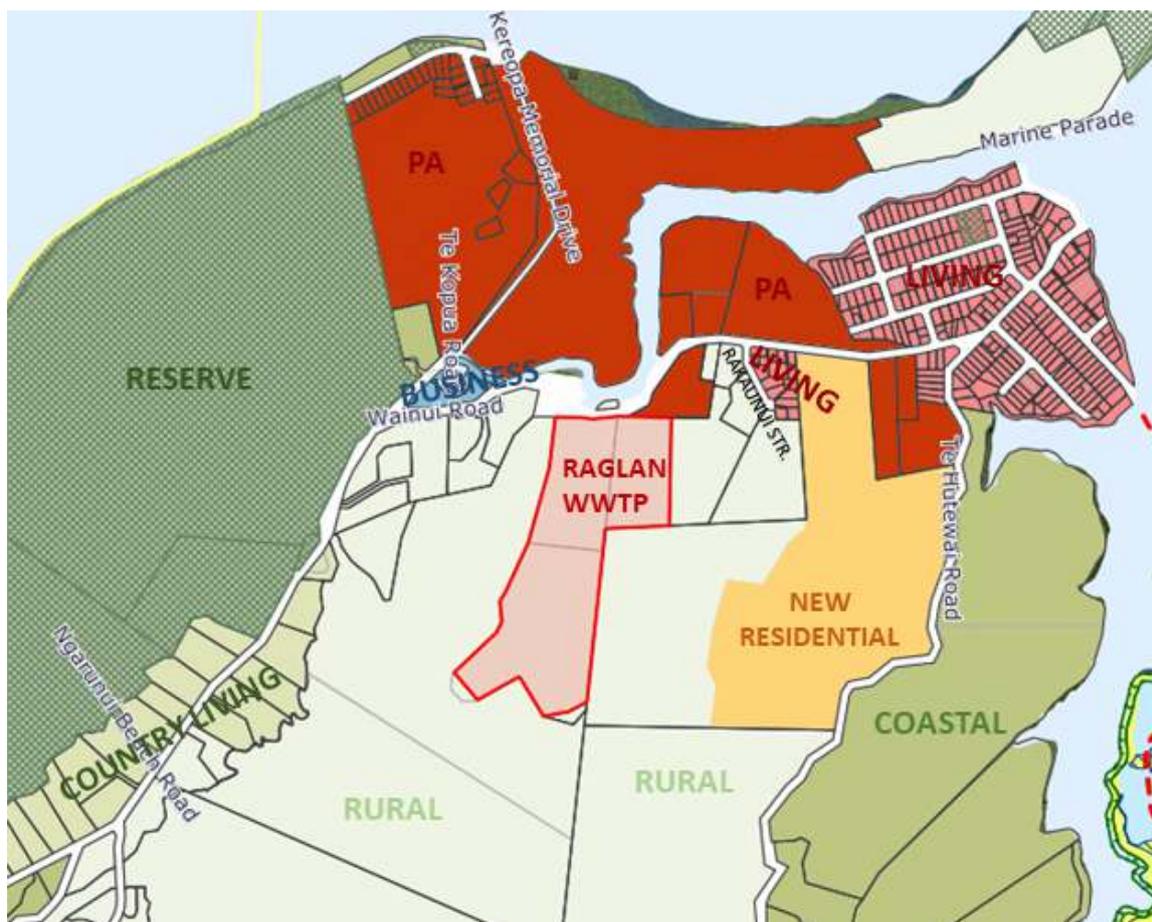


Figure 13: Map showing the WDP zoning of the Raglan WWTP and surrounding area (source Waikato District Council Intramaps)

Farm buildings are also located to the south of the WWTP. These buildings appear to be used for farming and / or milking purposes but also include a worker's cottage accommodation (Location 1 in Figure 14) The cottage is located approximately 163m from any of the wastewater treatment processes.

Other rural dwellings are located to the west of the site, on Wainui Road, in the area zoned Rural Living under the WDP (Location 2.1 and 2.2 in Figure 14). The closest of these dwelling is located approximately 220m from the WWTP.

The land immediately to the north of the site is predominantly zoned Pā under the WDP. Land use in these areas includes dwellings, a marae and a medical centre (Location 6 in Figure 14). The Poihakena Marae is located approximately 220m to the north of the site's northern boundary and more than 350m from the treated wastewater storage ponds (Location 6 in Figure 14) The Poihakena (Raglan) Medical Centre is located on the same property as the Marae (216 Wainui Road).

A small area of land at the corner of Wainui Road and Riria Keropa Memorial Drive is zoned Business. This area incorporates a childcare centre, a café, and a vehicle repair and service business (Location 7 and 8 in Figure 14). The closest of these businesses, the café, is located approximately 260m to the north west of the treated wastewater storage ponds (Location 7 in Figure 14).

The nearest residential area to the site is located approximately 220m to the northeast of the WWTP site on Rakaunui Street (Location 5 in Figure 14). This area is zoned Living under the WDC. The closest dwelling in this area is located more than 300m from the treated wastewater storage ponds. Other areas zoned Living are located further to the east of the WWTP. The nearest of these residential areas is located more than 470m from the WWTP site.

A comparatively large area of land is located to the east of the site which is zoned New Residential under the ODP and PDP planning maps (Location 3 in Figure 14). This area is currently undeveloped and although future residential development is expected to occur, it is unlikely that any significant development will be undertaken over the duration of the short-term consent sought by WDC. Any dwellings in this area would be more than 295m from any of the wastewater treatment processes.

Other land uses in the vicinity of the site include a large natural reserve (Wainui Reserve) which is located approximately 500m to the west of the site (Location 9 in Figure 14).

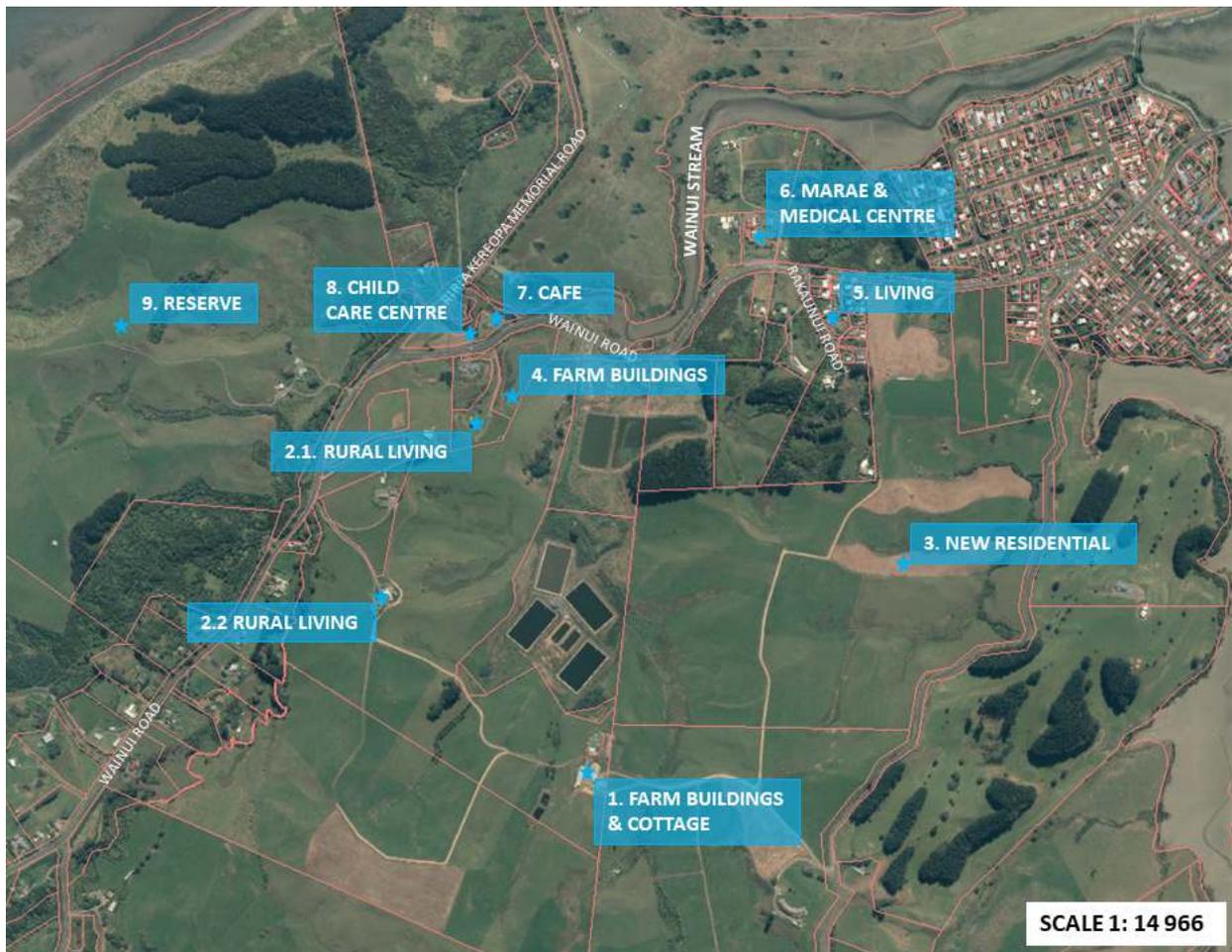


Figure 14: Map showing the location of sensitive receptors surrounding the Raglan WWTP (source Waikato Regional Council LocalMaps)

3.3 Topography

The topography of the surrounding environment is important when considering odour from the Raglan WWTP site. Topography area influences wind and airflow, and therefore the dispersion of odour emitted from the site. Elevated terrain in proximity to an emission source may lead to impingement of emission plumes at lower locations and a potential for lower concentrations than at higher elevations.

The topography of the WWTP site and surrounding area is shown in Figure 15. The WWTP site and the surrounding areas are located on gently undulating terrain. The WWTP is located in a valley which slopes from the southern end of the site down to the northern end of the site. The elevation of the anaerobic and aerated ponds is approximately 9m above sea level (ASL) compared to the elevation of approximately 3m ASL at the storage ponds at the northern end. The Wainui Stream runs to the north of the site, forming a shallow gully (at 1 to 2m ASL).



Figure 15: Map showing the topography of the area surrounding the Raglan WWTP (source Waikato Regional Council LocalMaps)

3.4 Meteorological Conditions

Air pollutant levels are highly influenced by meteorological conditions. The most important of these parameters are wind speed, wind direction and the thermal stability of the atmosphere. Worst case dispersion conditions for WWTP emissions are typically associated with low wind speeds (< 1.5m/s) and high stability atmospheric conditions. These conditions are typical of cool calm winter nights and early morning periods.

The topography of the area surrounding the site is expected to have a significant effect on channelling local wind flows and the dispersion of any odours emitted to air from the WWTP. The hills which surround the site are expected to channel wind flows in approximately a northerly and southerly direction along the gully.

The closest meteorological monitoring stations to the WWTP site are the Whatawhata AWS meteorological monitoring station, which is located approximately 20km to the northeast of the site, and the Port Taharoa meteorological monitoring station, which is located approximately 40km to the southwest of the WWTP.

The location of the two meteorological monitoring stations are shown in Figure 16. The figure also shows the distribution of hourly wind speeds and directions (windrose) observed at each of the monitoring stations. The windrose for the Whatawhata AWS meteorological monitoring station corresponds to the years 2014 – 2018. The wind rose for the Port Taharoa meteorological monitoring station corresponds to the years 2008 – 2012⁴. Both windroses are shown in Appendix B of Appendix D of this report.

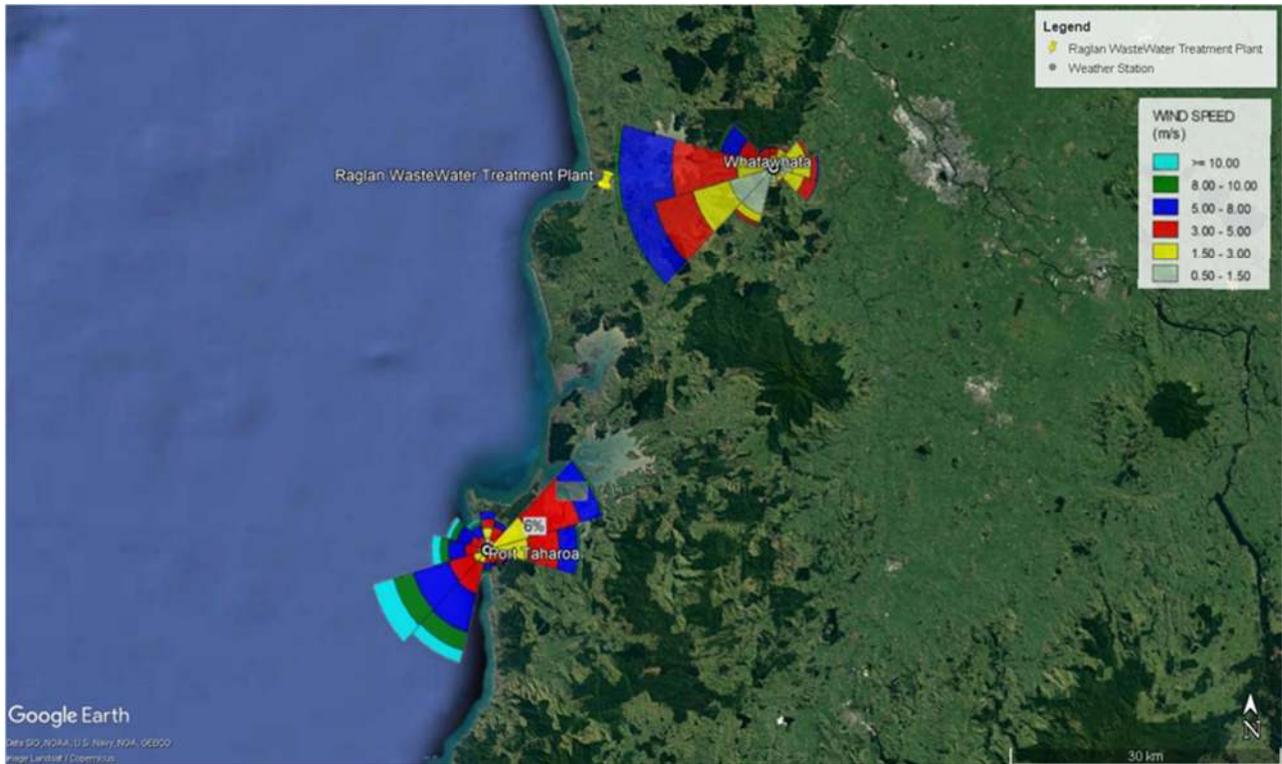


Figure 16: Wind speed and wind direction at the Whatawhata (2014 – 2018) and Port Taharoa (2008 – 2012) meteorological stations for all hours

⁴ Meteorological data after 2012 was not publicly available

4 Alternatives Assessment and the Best Practicable Option

As part of the alternatives considered for the short-term discharge from the Raglan WWTP, consideration was given to:

- The alternatives considered in the work undertaken to date on the long-term consenting project; and
- Any other practical alternatives that could be implemented at the Raglan WWTP.

This was used to determine the Best Practicable Option (BPO) for the short-term discharge consent as defined in the RMA.

This sections sets out the work that has been ongoing in assessing and developing the long-term solution for the future management of Raglan’s wastewater and this is described in Section 4.1 below. This process is on-going.

Section 4.2 sets out the alternatives that have been considered for this short-term consent. Overall, it is considered that the BPO is to allow the current operation of the WWTP to continue whilst the long-term solution is investigation and confirmed. The rationale for this is further described below.

4.1 Alternatives Considered for the Long-Term Raglan Discharge

The alternatives (options) assessment process for the long-term discharge consent project has been progressing since early 2019 with mana whenua, other relevant stakeholders and the wider Raglan community. The aim of this work is to identify, develop and confirm the preferred long-term treatment and discharge method for Raglan’s wastewater.

Given the need to adopt a robust and in-depth assessment of possible alternatives, the assessment process which was adopted that was characterised by:

- A progressively more detailed level assessment of alternatives
- Assessment criteria based on applicable statutory and planning requirements, coupled with long-list option development, traffic-lighting and a multi-criteria analysis (MCA) approach
- Focus on mana whenua and other stakeholder engagement

Below is a summary of the work undertaken to date and which is still on-going.

4.1.1 Long-List of Options

The initial phase of the assessment of alternatives gave consideration to the identification of what options were available and identified a “long-list of options” which considered wastewater management, treatment and discharge options as follows:

Wastewater Management

- Split wastewater reticulation catchment and build and additional new WWTP

Treatment Process Options

- Pond enhancements (e.g. aqua mats, bio-shells and Floating Treatment Media)
- Activated sludge
- Sequencing Batch Reactors (SBR)
- Fixed film processes (e.g. trickling filter)
- Tertiary treatment (e.g. membrane systems)
- Tertiary wetlands (e.g. constructed wetlands)
- Chemical phosphorus precipitation (e.g. use of alum)

Discharge Options

- Existing discharge into the Harbour
- Optimise existing outfall into the Harbour (such as lengthening the outfall, burying the outfall or using a diffuser)
- New ocean outfall (onto the open coast)
- Land-based slow rate irrigation
- Land-based rapid infiltration
- Deep bore reinjection
- Reuse
- Stream discharge (e.g. discharge to a stream as a method of stream restoration)

Following the identification of the long-list of treatment and discharge options, all of the options were developed into actual wastewater schemes (i.e. combinations of treatment processes and discharge environments) which were then carried forward to the assessment process. This resulted in a long-list of 44 treatment and discharge combinations.

Those 44 options were referred to mana whenua, the Raglan Community Board and other key stakeholders for feedback.

At the same time a number of technical investigations were commissioned to inform the options assessment process. These technical investigations are on-going and cover the following:

1. Hydrodynamic modelling of the dilution / dispersion of the treated wastewater discharge in the coastal marine environment;
2. Public health risk assessment of the treated wastewater discharge on shellfish gathering and contact recreation;
3. Investigations into land suitability for land treatment and associated effects assessment for discharge to land options;
4. Assessment of odour effects from the WWTP site and related options; and
5. Assessment of coastal ecology and water quality effects.

4.1.2 Land Discharge Investigations

As part of the long-term solution a desk-top exercise (limited to land below 300m elevation to account for pumping considerations from the WWTP near sea-level to highly elevated land) was undertaken to assess land suitable for the discharge of wastewater to land disposal option.

Land suitability for wastewater application was then determined from a range of published data including parameters such as land use (current capability) and nutrient uptake potential; soil attributes (including slope, stability, soil drainage and permeability); and hydrological and hydrogeological attributes (flood return level and riparian buffer).

The land area required for wastewater application from the Raglan WWTP is dependent on the design of any land discharge system and the amount of storage available. The land area required for full time land treatment for the 2020 year varies from 5.8ha to 384ha, and 8.7ha to 580ha for the 2048 year including buffer areas around sensitive areas such as waterways, property boundaries, residential properties etc. The wide range of variation is due to the consideration of different discharge regimes under different soil and land use scenarios. The regimes cover a range of hydraulic loading for each scenario i.e. varying depth (mm) of irrigation per year.

Overall, this initial assessment concluded that there is suitable land available for a land application system although it is potentially only suitable to receive wastewater through a low rate, soil moisture deficit or restrictive non-deficit regime. This ensures that irrigation is only applied during times when soil moisture is below field capacity (i.e. in summer or dry periods when rainfall is lowest).

Further work on land investigations is currently ongoing for the long-term option.

4.1.3 Traffic Light Assessment

The 44 long-list options were then subject to a traffic light assessment (red, amber or green) process. Based on this assessment seven short-listed options were identified as follows:

Option L1: Majority of flows discharged to land (summer and winter flows to land with contingency discharge to the Harbour) with membrane treatment upgrade;

Option L2: Combined land and water discharge (summer flows to land with winter flows to the Harbour) with existing treatment;

Option L3: Combined land and water discharge (summer flows to land with winter flows to the Harbour) with membrane treatment upgrade;

Option M1: Harbour discharge (modified with diffuser) with membrane treatment upgrade;

Option M2: Extended Harbour discharge (extended into the channel) with existing treatment;

Option M3: Extended Harbour discharge (extended into the channel) with membrane treatment upgrade; and

Option M4: New ocean outfall (completely outside of the Raglan Harbour) with existing treatment.

4.1.4 Short-List Option Development

Once confirmed as the short-list options, the options were subject to feasibility level engineering design and high-level capital, operational and whole-of-life cost estimating. This work was completed in August 2019. Through this work a number of additional technical considerations were identified, which require further assessment from an engineering and environmental effects assessment perspective.

4.1.5 Multi-Criteria Analysis

An initial MCA workshop was held in August 2019. The workshop was attended by members of the project team who represented various technical discipline. The MCA had been informed by mana whenua at a hui with the project team on 5 July 2019. Feedback from stakeholders at stakeholder engagement sessions held on 26 June 2019 and 24 July 2019 were also used by the project team to inform the MCA process. The MCA confirmed that discharge to land options were preferred by mana whenua and the community over discharge to water options, however acknowledged that the discharge to land options had a number of technical and environmental issues associated with them. The discharge to land options were also significantly more costly than the allocated project budget of \$15.4m contained in the WDC Long-Term Plan (LTP).

Given the above complexities, further work is currently being progressed to be carried out by WDC to develop and confirm the preferred long-term option. This involves assessment of discharge to land, discharge to water and treated wastewater reuse options. WDC is committed to investigating all of these options thoroughly and therefore a short-term consent is now sought for the consents covered by this AEE to allow the current WWTP to operate legally whilst the long-term option is determined.

4.2 Alternatives Considered for Short-Term Raglan Discharge

As discussed previously the long-term solution for the future management of Raglan's wastewater is currently being developed. This short-term consent is being sought to allow the continued operation of the existing Raglan WWTP until the preferred option for the long-term solution can be confirmed and the associated consent(s) lodged.

For this short-term consent, the RMA requires the following through Section 105(c) and Schedule 4:

“a description of any possible alternative methods of discharge, including discharge into any other receiving environment”.

Additionally, regard has been given to Policy 23.2 of the New Zealand Coastal Policy Statement (NZCPS) which does not allow the discharge of treated human sewage to water in the coastal environment –

“unless there has been adequate consideration of alternative methods, sites and routes for undertaking discharge and the discharge is “informed by an understanding of tāngata whenua values and the effects on them”.”

Given the above, three possible alternatives have been considered by WDC for the short-term discharge consent. These include:

1. Membrane treatment upgrade to the existing WWTP and maintenance of the existing discharge to the Raglan Harbour;
2. Discharge to land (land treatment) from the existing WWTP; or
3. Continue with the existing WWTP operation as it is, with refinement to current conditions.

These options are considered in further detail below.

4.2.1 Option 1 – Membrane Treatment

A potential treatment upgrade option is the addition of a membrane treatment system which would provide additional removal of primarily Total Suspended Solids (TSS), but also associated removal of pathogens and nutrients associated with solid material. The membrane process would be located downstream of the pond treatment system, with the membrane treated wastewater discharging into the day pond. Membrane systems are well proven in New Zealand and are capable of providing additional suspended solids removal.

However, there are two reasons to why a membrane treatment is not considered to be the BPO the short-term consent. These are:

1. The investigations into the options for the long-term consent include the assessment of combinations of treatment processes and discharge environments, including a combination of discharge to land and coastal water. A number of these combinations include an upgrade to a membrane treatment process while others will not require treatment upgrades, for example, the current treated wastewater quality would be adequate for land discharge. On the basis that the future long-term options may not require the membrane upgrade, undertaking any upgrades for the short-term consent would not be economic, particularly given the timeframes; and
2. Even if the membrane upgrade was an economically viable option, the procurement, design, construction and commissioning process required would mean it would be at least three years before it was operational. Additionally, geotechnical investigations would be required to determine a suitable location and foundation design. As such, the short-term consent would be close to expiry before any membrane treatment upgrade would be functional.

Overall, given the need to continue the assessment of the long-term options for the discharge of wastewater, the membrane treatment process upgrade is not considered appropriate for the short-term consent.

4.2.2 Option 2 – Land Treatment

Discharge to land options are being considered as part of the long-term consenting project. These encompass options to either discharge all or a component of existing and future flows to land. These investigations are on-going and sites being investigated are not currently available to allow even a partial discharge to land.

4.2.3 Option 3 – Continue with the Existing Operation of the Wastewater Treatment Plant

This option comprises continuing to operate the existing WWTP at Raglan with the current discharge to the harbour, with optimisation of condition 11 relating to discharge timing. The WWTP is sufficiently sized to achieve the treatment requirements in the short-term.

4.3 Best Practicable Option

The RMA defines the BPO as follows:

In relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to—

(a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and

(b) the financial implications, and the effects on the environment, of that option when compared with other options; and

(c) the current state of technical knowledge and the likelihood that the option can be successfully applied.

Section 108(2)(e) of the RMA allows a consent authority to impose a condition on a discharge permit relating to the discharge of contaminants, a requirement that the consent holder adopt the BPO to prevent or minimise any actual or likely adverse effect on the environment of the discharge.

However, Section 108(8) states that:

Before deciding to grant a discharge permit or a coastal permit to do something that would otherwise contravene Section 15 (relating to the discharge of contaminants) or 15B subject to a condition described in sub Section(2)(e), the consent authority shall be satisfied that in the particular circumstances and having regard to

(a) the nature of the discharge and the receiving environment; and

(b) other alternatives, including any condition requiring the observance of minimum standards of quality of the receiving environment—

the inclusion of the condition is the most efficient and effective means of preventing or minimising any actual or likely adverse effect on the environment.

It is considered that this approach is particularly relevant to this Project as it brings in the sensitivity of the receiving environment, the financial implications of upgrades to the existing Raglan WWTP as compared to other options, and it also brings in assessment of the state of technical knowledge.

Overall, it is considered that the on-going operation of the Raglan WWTP as it is over the short-term is the BPO, for the following reasons:

- The short-term consent sought for the Raglan WWTP allows for the on-going provision of critical wastewater infrastructure required to support residential and commercial activities in Raglan
- The adverse effects of the treated wastewater discharge outside the zone of reasonable mixing are negligible; while adverse effects of discharges to land and air associated with the Raglan WWTP are low / minor
- There are not considered to be any feasible or practicable short-term alternatives to continuing the present treatment and discharge processes. The most feasible short-term upgrade (membrane) would take up to three years to be designed, constructed and commissioned. This time period is longer than WDC anticipate the process to take to confirm the longer-term option (which may not require a membrane upgrade)
- Other more significant upgrades are not feasible or financially prudent given the long-term solution for the future management of Raglan’s wastewater is being developed
- Over this short-term consent, no changes in the environmental effects of the discharge are expected

Therefore, the proposal to maintain the existing discharges is considered to be the BPO for this short-term consent. As discussed in Section 2.2 of this AEE, WDC proposes to continue the current operation of the WWTP with two proposed changes to the existing conditions. These changes relate to the optimisation of discharge timing (to optimise the flushing of treated wastewater on the outgoing tide from the Whāingaroa Harbour) and an amendment to total suspended solids treated wastewater limits based on an analysis of the effectiveness of the UV disinfection system and lack of observed adverse effects in relation to the existing discharge.

Section 105(1) of the RMA is relevant to the discharge for which consent is sought and it requires regard to be had to the following matters:

- “(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.”*

WDC’s reasons for the proposed discharge and the possible alternative methods of discharge are addressed in this section. As described earlier, a discharge to an alternative receiving environment is not practicable in the context of this short-term discharge consent.

5 Consents Required

5.1 Resource Consents Required

5.1.1 Waikato Regional Coastal Plan

Table 8: below summarises Rules 16.4.26 and 16.3.8 relating to the occupation of the outfall structure in the CMA and wastewater discharge associated with the operation of Raglan WWTP in accordance with the WRCP.

Table 8: Waikato Regional Coastal Plan Assessment

Rule / Section	Provision	Assessment
16.4.26 Use of and Occupation of Space by Structures (Discretionary Activity)	<i>Unless otherwise restricted by Rule 16.8.1 or 16.8.2, the use of or occupation of space by any structure or structures in the CMA described by any of Rules 16.4.12, 16.4.14, 16.4.16 or 16.4.18 is a discretionary activity.</i>	The proposal involves the continued occupation of space by the outfall structure in the CMA that is not otherwise restricted by Rule 16.8.1 or 16.8.2 and is therefore a Discretionary Activity under rule 16.4.26.
Rule 16.3.8 Sewage Discharges (Discretionary Activity)	<p><i>Unless otherwise prohibited by Rules 16.3.10 or 16.3.11, any discharge of human sewage to the CMA, except those from ships, which has not passed through soil or wetland, is a discretionary activity, provided it complies with the standards and terms stated in this Rule.</i></p> <p>Standards and Terms</p> <ul style="list-style-type: none"> <i>It shall be demonstrated that the discharge into the CMA better meets the purpose of the RMA than disposal onto land</i> <i>It shall be demonstrated that there has been consultation with the tāngata whenua in accordance with tikanga Maaori, and that due weight has been given to s6, s7 and s8 of the RMA</i> <i>It shall be demonstrated that there has been consultation with the community generally</i> <p><i>The discharge, after initial mixing, shall not result in:</i></p> <ul style="list-style-type: none"> <i>the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials or</i> <i>any conspicuous change in the colour or visual clarity or</i> <i>any emission of objectionable odour</i> 	<p>The proposal seeks to continue the discharge of treated wastewater from Raglan into the CMA for a duration of 18 months to allow time for a long-term solution to be determined. The treated wastewater does not pass through soil or wetlands. The proposal can meet the standards and terms of the rule and is therefore a discretionary activity under the WRCP.</p> <p>Land disposal options are being extensively investigated however are not finalised at the time of submitting this AEE. Land options have a range of technical, environmental and financial considerations which are complex to investigate in the Raglan area. Alternatives considered for the long-term Raglan discharge are outlined in Section 4.1 above.</p> <p>Consultation with mana whenua and the community is provided in Section 7 of this report. Assessment against s6, s7 and s8 of the RMA is made in Section 9 of this report.</p> <p>Water quality effects are assessed in Section 6.</p>

5.1.2 Waikato Regional Plan

Table 9 below summarises Rules 3.5.4.5 relating to the wastewater discharge associated with the operation of Raglan WWTP in accordance with the WRP.

Table 9: Waikato Regional Plan Assessment

Rule / Section	Provision	Assessment
3.5.4.5 Discretionary Activity Rule – Discharges – General Rule	<p><i>3.5.4.5 Discretionary Activity Rule – Discharges – General Rule</i></p> <p><i>Any discharge of a contaminant into water, or onto or into land, in</i></p>	The proposal includes the municipal wastewater discharge into land via pond seepage from the Raglan WWTP pond systems. The pond seepage may enter

Rule / Section	Provision	Assessment
	<i>circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water, that is not specifically provided for by any rule, or does not meet the conditions of a permitted or a controlled activity rule in this Plan, is a discretionary activity (requiring resource consent).</i>	groundwater and is not specifically provided for by any rule and does not meet conditions of a permitted or controlled activity rule in the WRP.
Air Discharge (WRP) 6.1.9.2 Discretionary Activity Rule – General Rule	<p><i>Except as provided for in any other rule in this Plan, the discharge of contaminants into air from:</i></p> <p><i>Any process or activity that is on an industrial or trade premises and is not permitted by or does not comply with Rules 6.1.9.1, 6.1.10.1 to 6.1.19.1; or</i></p> <p><i>A mobile source or premises that are not industrial or trade premises, and does not comply with Rules 6.1.9.1, 6.1.10.1 to 6.1.19.1 is a discretionary activity (requiring resource consent).</i></p>	The WRP permitted activity air discharge rules do not allow for the proposed air discharges relating to the discharge of treated wastewater. Therefore, the activity defaults to a discretionary activity rule in the WRP.

5.2 Assessment Criteria

Based on the resource consents required under both the WRP and WRCP the overall status of the application is a **Discretionary Activity**.

5.2.1 Regional Coastal Plan

16.4.26 Use of and Occupation of Space by Structures (Discretionary Activity)

In assessing any application for the use of or occupation of space by a structure or structures, the erection of which is deemed to be a restricted coastal activity, regard shall be had to:

Assessment Criteria	Comment
Whether or not the proposed structure is of a greater size than necessary for its purpose.	The current outfall structure is an appropriate size and form for the amount of wastewater flow and discharge regime required. There will be no change to the existing structure as a result of this application.
Whether or not the structure will affect other users in the CMA and have any adverse effects on water quality.	The outfall structure is submerged underground with only a small portion of pipe protruding above the sea floor (but remaining under water) at the discharge point and does not restrict public access. The structure does not impact on other users of the CMA as it is predominantly below the sea floor. The location of this pipe on the seafloor does not result in any adverse effects on water quality as no changes are proposed to the existing structure as a result of this application. The water quality effects of the discharge are assessed in Section 6.
Adversely affect the natural character of an area, or limit public access along the foreshore.	The outfall structure is submerged below the sea bed with only a small portion of pipe protruding above the sea bed (but remaining under water) at the discharge point, as such the structure does not impact on the natural character of the coastal environment as it cannot be seen. There is no effect on public access.
The ability of the structure to be maintained in a safe condition.	The outlet structure is located approximately 5m from the low tideline and is accessible for maintenance and monitoring purposes.
Whether or not there are adequate shore-based facilities.	N/A

Assessment Criteria	Comment
Whether or not the adverse effects resulting from the removal of any structure are likely to be greater than the adverse effects of the structure remaining where it is.	This application seeks consent for the continued occupation of the existing structure.
Whether or not the structure has historical / archaeological significance.	The structure is for infrastructural purposes only and established in the 1970s. The structure is not deemed to hold any historical or archaeological significance.
Whether or not the structure is designed to a standard to withstand coastal processes and relative changes in sea level.	The discharge pipe has been resilient to the coastal processes of the Whāingaroa Harbour for approximately the last 30 years.
The extent to which the structure may constitute a hazard to navigation.	The outfall structure is submerged below the sea bed with only a small portion of pipe protruding above ground (but remaining under water) at the discharge point, as such the structure does not pose a navigation hazard.

Rule 16.3.13 Discharges to the CMA of the WRCP

The Decision-Making Criteria and Considerations which are set out in Appendix II of this Plan, and which are relevant to this activity are assessed below.

Assessment Criteria	Comment
The extent to which any discharge into the CMA will cause erosion or scouring.	The outfall structure is submerged and the discharge regime operates on the outgoing tide. As such, no erosion or scouring occurs as a result of the discharge.
Whether or not the discharge contains any untreated sewage or hazardous substances.	The discharge only contains treated wastewater from the Raglan WWTP as described in Section 2.
Whether or not the discharge of sewage or other contaminants will occur in an area where the water depth is 10m or less.	The discharge of treated wastewater occurs at water depths of less than 10m. Water quality, dilution and mixing zones are assessed in Section 6.2.
Whether or not the discharge contains any solid waste.	The discharge only contains treated wastewater from the Raglan WWTP as described in Section 2.
Whether or not the quality of the water will meet the standards required, after initial or reasonable mixing, for contact recreation purposes as stated in Third Schedule of the RMA.	Water quality, dilution and mixing zones are assessed in Section 6.2. The quality of the water will meet the standards required, after initial or reasonable mixing, for contact recreation purposes as stated in Third Schedule of the RMA.
Whether or not the discharge of sewage or other contaminants will occur in any harbour or estuary.	The proposal involves discharge of treated wastewater to the Whāingaroa Harbour.
Whether or not the discharge contains nutrients which cause undesirable biological growth.	The water quality effects of the proposal are assessed in Section 6.2 of this report.
The extent to which the discharge, after initial or reasonable mixing, results in: <ul style="list-style-type: none"> the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or any conspicuous change in the colour or visual clarity; or any emission of objectionable odour; or any significant adverse effects on aquatic life. 	The water quality effects of the proposal are assessed in Section 6.2 of this report.
The extent to which the characteristics and values of the water into which a discharge may be made would be adversely affected.	The water quality effects of the proposal are assessed in Section 6.2 of this report.
Provision of facilities for collection and disposal of hydrocarbon contaminants, for example, waste oil and paint.	The proposed discharge is for treated municipal wastewater only.
Provision of pump out facilities for collection and disposal of sewage.	N/A
The extent to which the activity will adversely affect any conservation value within the ASCV areas as marked on	Whāingaroa Harbour is classed as an Area of Significant Conservation Value (ASCV 7) in the WRCP (refer to

Assessment Criteria	Comment
maps in Appendix III and described in Appendix IV of this Plan.	Section 4.1.1 above) due to the presence of: <ul style="list-style-type: none"> • Cultural significance to Tainui • Resident and frequenting rare and threatened wading and coastal bird fauna • Maui's dolphin • Recognised southern limit of mangroves An assessment of effects on the environment is provided in Section 6 of this report.
The extent to which water quality has been identified and will be maintained or enhanced.	The water quality effects of the proposal are assessed in Section 6.2 of this report.
The extent to which the discharge will have or is likely to have any adverse effects on human health.	The water quality effects of the proposal are assessed in Section 6.2 of this report.
The extent to which, after initial mixing, the discharge (either by itself, or in combination with other discharges) will or is likely to result in any adverse effects on aquatic flora or fauna.	The water quality effects of the proposal are assessed in Section 6.2 of this report.

5.2.2 Regional Plan

3.5.4.5 Discretionary Activity Rule – Discharges – General Rule

Information requirements to enable the assessment of any application under this Rule are assessed below.

Assessment Criteria 8.1.2.5 Discharges	Comment
Purpose for which the consent is sought.	Refer Section 1 and 2 of this report.
Maximum volume of the discharge.	Refer to Section 6.6 of this report.
The rate at which waste is to be discharged.	Refer to Section 6.6 of this report.
What treatment the waste will receive prior to discharge.	Refer to Section 2.2 for a description of the existing WWTP.
How the volume discharged will be minimised.	Refer to Section 6.6 of this report.
What happens to any sludge or solid waste that may be generated.	Refer to Section 6.6 of this report.
The characteristics of the waste to be discharged.	Refer to Section 6.6 of this report.
What effect the discharge will have on the receiving environment, including the effect on the purpose of water management classes in Section 3.2.3 of the Plan.	Refer to Section 6.6 of this report.
The site location and point of discharge.	Refer to Section 2 of this report.
The extent to which the discharge will comply with Policy 1 in Chapter 6.1 of this Plan, with regard to objectionable odour and particulate matter effects.	Refer to Section 2.5 for an assessment of odour effects.
What or whether alternative methods of discharge and treatment have been considered.	Refer to Section 4 of this report.

Air Discharge (WRP)

6.1.9.2 Discretionary Activity Rule – General Rule

Information requirements to enable the assessment of any application under this Rule are as set out in Section 8.1.5.1. In addition, assessment shall also take into account the matters identified in the policies in Section 6.1.3 of this Chapter.

Assessment Criteria 8.1.5.1 Discretionary and Non-Complying Activity Rules	Comment
The extent to which the Regional Ambient Air Quality Guidelines are complied with.	The Odour Assessment attached as Appendix D demonstrates that the existing WWTP meets Regional Ambient Air Quality Guidelines.
The extent to which the discharge will have an adverse	The existing WWTP is located within a low air quality

Assessment Criteria 8.1.5.1 Discretionary and Non-Complying Activity Rules	Comment
effect on ambient air quality.	environment due to agricultural activities occurring in the area. As a result of the proposed discharge, it is considered that the WWTP will not have an adverse effect on ambient air quality levels beyond the site boundary.
The extent to which the discharge will have an actual or potential adverse effect on the existing air quality characteristics of an area.	As stated above, the surrounding environment consists of agricultural activities that tend to generate odours (i.e. decomposition of organic material, wastewater ponds, fertiliser application and animal odour). Therefore, the surrounding area is considered to have a low sensitivity to odours and the contribution from the existing WWTP is considered to be low.
The extent to which the discharge will have an adverse effect on human health and the health of flora and fauna.	The Odour Assessment in Appendix D discusses that the separation distance between the existing WWTP and high sensitivity receptors is such that no adverse effects occur during normal operating conditions. This due to the existing topographical features and receptors being located on elevated terrain. The nearest sensitive receptor is a worker's cottage that is already located in a low air quality environment. This is discussed further in Section 6 of this report.
The extent to which the discharge will have an adverse effect on amenity values, including any objectionable effects as a result of an odour or particulate discharge (refer also to Guidelines for Assessment in Chapter 6.4).	As discussed above and in Section 6 of this report, the potential discharges of odour from the WWTP are considered to be adequately avoided and mitigated as such that any odours will not be offensive or objectionable.
The extent to which the frequency, intensity, duration, offensiveness and location of the discharge causes adverse effects.	The Odour Assessment in Appendix D concluded that the frequency and duration of effect could be adequately managed via operational measures such as plant design, operator training, plant management and maintenance, monitoring and bypassing anaerobic ponds.
The extent to which the discharge will be reduced at source.	The greatest source of odour potential are from the inlet works, anaerobic treatment ponds and aerated treatment ponds. These odour discharges are reduced by enclosing the inlet works screen and having surface aerators installed in ponds. This is discussed further in the Odour Assessment in Appendix D.
The nature of the discharge and the extent to which it is hazardous (refer Hazardous Air Contaminants List in Chapter 6.7).	The air discharges from the existing WWTP are not listed on the Hazardous Air Contaminants List and are therefore not considered hazardous.
The existing air discharge sources in the area (point and non-point).	The existing air discharges in the area are generated from agricultural activities. These have been discussed further in the Odour Assessment in Appendix D.
The influence of meteorology and topography on the discharge.	This is discussed in Section 3.4 of this report and in the Odour Assessment in Appendix D.
The extent to which the method of discharge is the most efficient and effective means of carrying out an activity.	It is considered that the current method of discharge is effective and efficient for the WWTP.
The extent to which any alternative location or method(s) of discharging any contaminant, such as into a different medium, was considered.	Refer to Section 4 of this report.
Whether the option minimises any adverse effects on the environment.	The AEE in Section 6 of this report summarises the measures and methods to minimise adverse effects on the environment.
The extent to which tāngata whenua as Kaitiaki concerns have been recognised and provided for.	Local iwi has been engaged as part of the consenting process of the WWTP. Their issues and concerns as Kaitiaki have been recognised (summarised in Section 6 and 7 of this report) and there were no issues raised in regard to air discharges.

Assessment Criteria 8.1.5.1 Discretionary and Non-Complying Activity Rules	Comment
The extent to which the activity will have the potential to affect significant heritage sites or areas of historic and cultural significance.	It is recognised that there are sensitive areas of historical and cultural significance to mana whenua in the vicinity of the existing WWTP. These areas will not experience any change to existing situation. The WWTP will not contribute to low air quality beyond the site boundary.
The extent to which the discharge creates actual or potential effects on other receiving environments (i.e. land or water).	The air discharges generated from the WWTP are limited to odour effects which will not create potential adverse effects on receiving environments like land or water.
The extent of any consultation undertaken (as per the reporting requirements in Schedule Four of the RMA).	Refer to Section 6 & 7 of this report.
The extent to which the discharge creates actual or potential effects on the global atmosphere (within the scope of central government policy).	The air discharges from the WWTP do not create adverse effects on the global atmosphere.
The extent to which the discharge creates cumulative effect which may arise over time or in combination with other effects.	The existing WWTP has been consented since February 2005. The proposed discharges are no greater than what is currently generated from the WWTP. The number of complaints received since 2005 have been minimal and this is believed to be due to the area having a low air quality environment.
Any effects of low probability but high potential impact.	The Odour Assessment in Appendix D has undertaken a Risk Assessment that concludes there are no low probability effects with a high potential impact.
Whether management plans and contingency plans have been provided.	It is proposed to utilise the existing Management Plan for the WWTP and to update this Management Plan as required via the process detailed in the existing suite of consent conditions.
The risk of abnormal emissions and the level of control employed.	The Odour Assessment in Appendix D and the AEE in Section 6 lists the measures and methods proposed to control abnormal emissions.
The extent to which relevant codes of practice or other guidelines are adhered to.	The Odour Assessment in Appendix D demonstrates that the existing WWTP adheres to relevant codes of practice and guidelines.
The extent to which the discharge may affect aircraft safety.	The air discharge generated from the WWTP does not have any effect on aircraft safety.
Any other relevant matters.	Refer to AEE in Section 6 and the Odour Assessment in Appendix D.

5.3 Permitted Activity Assessment

There are no activities proposed in this consent application that can be undertaken as a permitted activity under the WRP.

6 Assessment of Effects on the Environment

This section considers the actual or potential effects of the proposed on-going discharges to air and land, and the occupation of a structure and discharge in the CMA associated with the Raglan WWTP on the environment, taking into consideration Schedule 4 of the RMA and the relevant matters for discretion. Particular consideration has been given to positive effects, and to:

- Water Quality Effects
- Effects of the Outfall Structure in the CMA
- Discharge Effects on Recreational Use and Shellfish Gathering
- Odour effects of the WWTP
- Effects of Seepage from the WWTP ponds on Groundwater and Surface Water
- Cultural Effects

6.1 Positive Effects

There are positive effects associated with the short-term operation of the existing Raglan WWTP. It will continue to provide essential wastewater services (the safe and effective conveyance, treatment and disposal of sewage) to the Raglan Township and settlement on Whaanga Coast while the long-term wastewater scheme is determined. Given the timeframes required for the short-term consent (18 months), the WWTP has capacity to manage existing and future population requirements. If the WWTP is unable to discharge the WWTP will reach capacity and be unable to operate properly. Raglan's wastewater system would not be operational and overflows of untreated wastewater would occur at pump stations, with potentially significant volume public health and amenity effects.

6.2 Water Quality Effects

This section summarises potential effects on water quality as a result of the on-going discharge into the Whāingaroa Harbour for the consent term sought in this Application. A Water Quality Assessment report has been prepared by Beca and is attached as Appendix C. The Water Quality Assessment has been informed by the following technical documents which are also attached as appendices to the Water Quality Report.

- NIWA Quantitative Microbial Risk Assessment
- NIWA Microbial Water Quality Context Report
- DHI - Raglan Wastewater Treatment Plant Discharge Assessment

6.2.1 Zone of Reasonable Mixing and Predicted Dilutions

Concentrations of contaminants in the discharge have been assessed with respective predicted dilutions at the zones of reasonable mixing and initial mixing. Potential impacts on the receiving environment as a result of the treated wastewater discharge have been assessed using relevant human health and ecological guidelines.

The zone of reasonable mixing was modelled by DHI using CORMIX simulations, details of the modelling undertaken by DHI are appended in Appendix C of Appendix C. Based on the CORMIX simulations, DHI report a typical zone of reasonable mixing of 150m from the discharge and predict that the minimum dilution achieved at this point is 70-fold under the current discharge regime.

Near Field Dilution

DHI also undertook near field dilution CORMIX modelling where near field dilutions were defined at the distance where there is strong initial mixing. Because of the relatively low discharge rate of the existing

regime, the near field zone was found to be less than 10m. Modelling was undertaken for different phases of the tide and found that lowest dilutions occur just after high tide when ambient currents are lowest. At this time the near field dilution is predicted to be 12.4-fold, however such conditions are only expected to occur for approximately 5% of the time. At other tide phases near field dilutions range from 14.5 – 42.4-fold.

Far Field Dilution

DHI has also modelled far field dilutions of the existing discharge regime. Figure 6 of Appendix C shows the 5th percentile dilution (i.e. dilutions of greater than this occur for 95% of the time) achieved for the 2018 model simulations under the current discharge regime of 1,175m³/day. The flow rate and timing of the discharge is derived from the 2018 discharge monitoring data. Figure 6 of Appendix E of Appendix C is presented for a conservative tracer (which quantifies the degree of physical mixing).

Figure 6 of Appendix E of Appendix C shows that beyond 150m from the outfall the 5th percentile dilutions are greater than 1,000-fold, beyond 700m from the outfall the 5th percentile dilutions are greater than 2,000-fold and that beyond 1,200m the 5th percentile dilutions are greater than 4,000-fold. These levels of dilution are achieved due to a combination of the near-field dilution achieved and because the discharge only occurs for a portion of the outgoing tide resulting in significant levels of dilution between subsequent discharges.

Beyond around 1,000m from the outfall there is a significant degree of dilution with the 5th percentile dilution often exceeding 30,000-fold.

Predicted Concentrations

The predicted 70-fold dilution at the edge of the zone of reasonable mixing and the worst-case scenario near field mixing dilution have been applied to the average annual median concentrations for each of the water quality parameters (except for ammoniacal nitrogen where the average annual 90th percentile concentration has been used in dilution calculations) (presented in Table 1 of Appendix C) to determine likely concentrations in the receiving environment. Resulting concentrations after applying the dilution factors are shown in Table 3 of Appendix C.

Predicted concentrations are compared to the guidelines and standards published by WRC which are used to assess estuarine water quality for ecological health, contact recreation and for shellfish gathering. The WRC guidelines use three categories, 'excellent', 'satisfactory' and 'unsatisfactory'. The assessment made in Appendix C is used as an indicative assessment and does not take into account background concentrations of contaminants.

Predicted nutrient concentrations are also compared to ANZECC (2000) guidelines for fresh and marine water quality. Site specific guidelines have not been developed for New Zealand marine environments. The guidelines suggest that consideration can be given to the use of interim trigger values for slightly disturbed inshore ecosystems in south-east Australia. The WRC guidelines and standards are also based upon the south-east Australia ANZECC (2000) interim trigger values.

Summary

Predicted dilutions at the zones of initial and reasonable mixing have been applied to concentrations of contaminants in the Raglan WWTP discharge. Resulting concentrations from the dilutions have been predicted. The proposed discharge (apart from the optimisation of discharge timing under condition 11) is the same as the current discharge regime therefore water quality in the receiving environment is expected to be maintained, at the same level as under the existing discharge.

6.2.2 Human Health Risk

NIWA has undertaken a human health risk assessment for the discharge (Appendix D of Appendix C). Quantitative Microbial Risk Assessment (QMRA) techniques were used to assess human health risks arising from possible exposure to pathogens at various contact recreation and shellfish gathering sites in the Harbour. NIWA concluded that high initial dilution of the discharged treated wastewater is achieved and as a consequence, infection and illness risks to both recreation water users and consumers of uncooked shellfish are generally low for all pathogens modelled, and at all sites where exposure to diluted treated wastewater may occur.

Summary

Based on the predicted microbiological indicator concentrations, the quality of the discharge will meet WRC contact recreation and shellfish collection standards after initial mixing and reasonable mixing. The QMRA assessment undertaken by NIWA also concludes that illness risks related to Adenovirus and Norovirus as a result of the discharge appear generally low. Overall effects on human health risk are considered to be low.

6.2.3 Toxicant Effects

Ammonia can result in toxicity effects on aquatic life, particularly in fish. Appendix C gives a full assessment of the predicted ammoniacal-nitrogen concentration after the zone of reasonable mixing and after the zone of initial mixing. These results indicate that adverse toxicity effects on aquatic life are unlikely to occur as a result of the discharge. At the end of the zone of reasonable mixing the ammoniacal nitrogen concentration is predicted to be below the adopted ANZECC 2000 guideline and at initial mixing the ammoniacal concentration is only expected to exceed the guideline for only a short period of time during certain tidal conditions (under worst case 90%ile concentrations).

Summary

Predicted ammoniacal-nitrogen concentration are within the 'satisfactory' WRC guideline category at reasonable mixing, for the majority of the time at initial mixing, the predicted ammoniacal-nitrogen concentration is within the 'satisfactory' WRC guideline category. Overall toxicant effects on aquatic life are considered to be negligible.

6.2.4 Nutrients

Nitrate and total nitrogen are not considered toxicants and are therefore not considered to cause acute adverse effects to aquatic flora and fauna in the receiving environment. Predicted concentrations of total nitrogen are consistent with those reported for WRC monitoring sites that are discussed in Section 3.2 of Appendix C. Further significant dilution is expected to occur beyond the zone of reasonable mixing, in the order of 30,000-fold beyond 1km from the outfall as detailed in the DHI report (Appendix C of Appendix C), which will minimise the overall contribution of nitrate and total nitrogen from the WWTP in the wider Harbour.

Additionally, the tidal nature of the Harbour and relatively short residence time at the Harbour mouth (as detailed in Section 3.1 of Appendix C) inhibit the ability for nuisance plant growth to occur. Effects on benthic macroalgal growth are highly unlikely to occur due to the rapid tidal currents in the area and rapidly moving sand benthic environment in the area receiving treated wastewater.

Summary

Physical elements of the harbour, including low retention times near the mouth of the harbour where the outfall is located, are expected to negate nuisance biological growth effects and predicted concentrations after reasonable mixing are reflective of background concentrations observed in wider WRC water quality investigations. Overall the effects of nutrients on aquatic flora and fauna are considered to be negligible.

6.2.5 Other Potential Effects on Water Quality

No conspicuous oil or grease films, scums or foams, or changes in colour or visual clarity have been observed after initial mixing of the current WWTP discharge.

No objectionable odour is expected to occur after initial mixing or reasonable mixing as the discharge is treated wastewater that is well aerated. As the wastewater is aerated, compounds such as hydrogen sulphide that would produce objectionable odours should not be present.

Overall the effects of the proposal on water quality in terms of conspicuous oil or grease films, scums or foams, or changes in colour or visual clarity are considered to be negligible.

6.2.6 Effects on Māui Dolphin

Given the ecological value and conservation status of Māui Dolphin, the magnitude of potential effects of the current discharge of treated wastewater to Whāingaroa Harbour and the potential significance of these potential effects has been assessed by Boffa Miskell Limited. Overall, the potential magnitude of effects on Māui Dolphin has been assessed as negligible. Further details are provided in Appendix I.

6.3 Effects of the Outfall Structure in the CMA

WDC wish to continue the operation of the outfall structure within the Whāingaroa Harbour as detailed in Section 2.3, no changes to the outfall structure are proposed however consent is required for its continued occupation.

Effects relating to water quality are assessed under Section 6.2 above. The outfall structure is an appropriate size and form for its purpose and is submerged below the sea bed with only a small portion of pipe protruding above ground (but remaining under water) at the discharge point, therefore the outfall structure does not affect the use and access of the CMA for recreational uses or pose a navigation hazard. In its current state, the outfall structure is resilient to the dynamic coastal processes in the harbour and no changes to the structure are proposed.

Overall the effects of the outfall structure in the CMA are considered to be negligible.

6.4 Discharge Effects on Recreational Use and Food Gathering

As described in Section 3.1.2 above the Whāingaroa Harbour is used extensively for swimming, kite surfing, fishing, shellfish gathering and surfing. Poor water quality can adversely impact on the community's ability to undertake various recreational activities within the harbour, including the collection of shellfish. The water quality technical assessments discussed in Section 6.2 above identified that the concentrations of both Faecal Coliform and Enterococci in the treated wastewater discharge in the zone of initial mixing and reasonable mixing are predicted to be well within the 'Excellent' categories for shellfish gathering and contact recreation (in accordance with WRC guidelines). Cultural effects, including the effects of the discharge on the gathering of kai moana, are considered separately below.

The NIWA human health risk assessment for the discharge concluded that high initial dilution of the discharged treated wastewater is achieved and as a consequence, infection and illness risks to both recreation water users and consumers of uncooked shellfish are generally low for all pathogens modelled, and at all sites where exposure to diluted treated wastewater may occur.

6.5 Odour Effects of the Wastewater Treatment Plant

The WWTP has the potential to generate adverse odour effects to nearby sensitive receptors. An Odour Assessment has been undertaken by Beca and is attached as Appendix D. The assessment and conclusions of this report have been used to inform the assessment below.

6.5.1 Odour Sensitivity of Surrounding Area

The area surrounding the existing WWTP consists of farmland and predominantly pastoral agricultural activities. Due to the low occupancy level of this area, the area's sensitivity to odour is considered low. However, potential receptors in this area which are considered to have a high sensitivity, include:

- **Nearby rural dwellings:** The air quality at rural dwellings are to some extent also likely to be impacted by existing agricultural activities. However, a relatively high level of air quality amenity would still be expected at these locations. These dwellings are therefore considered to have a high sensitivity to odour nuisance effects
- **Residential areas:** High level of sensitivity (noting that area east of site zoned New Residential is currently undeveloped)
- **Poihakena Marae and Poihakena (Raglan) Medical Centre:** Sensitivity higher during the day when there is a higher occupancy
- **Café and childcare centre:** Sensitivity higher during the day when there is a higher occupancy

These sensitive receptors are shown in Figure 17 below.

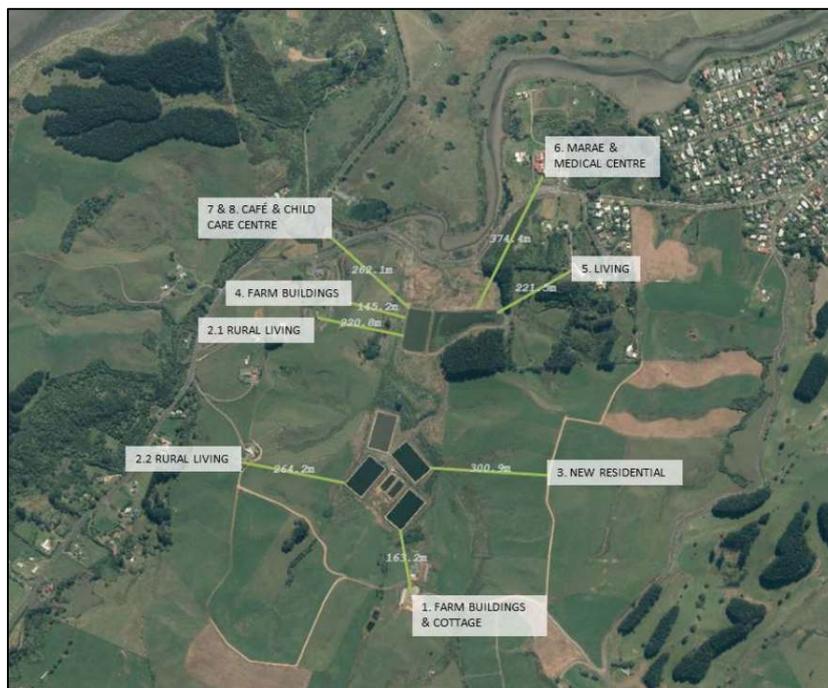


Figure 17: Map showing the location and distance of sensitive receptors in the vicinity of the site around the WWTP

Overall the sensitivity of the receiving environment has not changed to any significant extent since the granting of the existing resource consent in 2004. Based on the land use zoning in the WDP, the sensitivity of the receiving environment is also not expected to change over the term of the proposed consent period.

6.5.2 Potential Effects on Sensitive Receptors

The Odour Assessment in Appendix D assessed the existing separation distances of sensitive receptors with the WWTP to assess the potential nuisance effects of any emitted odours. This assessment was undertaken based on a number of Australian environmental protection authorities (EPA) and New Zealand agencies recommendations on separation distances between industrial land uses and sensitive locations. It is important to note that no separation distances are defined for WWTPs in the WRP. It is also important to note that separation distances are not intended to replace the need for good pollution control but acknowledge that there may be unintended emissions at times, which should be allowed for. Separation distances are intended to minimise the effects of these unintended emissions.

This assessment of separation distances has been summarised in Table 10 below. Further detail of this assessment can be found in Appendix D.

Table 10: Summary of separation distances between the Raglan WWTP's processes and nearby receptors

Receptor No#	Receptor	Sensitivity	Separation Distance (m)
1	Worker's cottage to the south of aeration ponds	Moderate	163m
2.1	Closest rural dwelling	High	220m
2.2	Rural living	High	264m
3	Area zoned New Residential	High (future)	297m
4	Farm building to the west roadside holding ponds	Low - Moderate (Low at night)	145m
5	Residential areas to east of site	High	220m
6	Poihakena Medical Centre and Marae	High	374m
7 & 8	Café and child care centre	High (Low at night)	262m

The table shows that the receptors which are considered to have a high sensitivity to odour nuisance effects are located more than 220m from any of the WWTP treatment processes. The separation distances are greater than the 162 – 200m recommended by EPAs and New Zealand agencies. Therefore, any odour emitted from the WWTP would not be expected to have an adverse effect at these receptors during normal operation conditions.

The nearby receptors with high odour sensitivity are also located either at higher terrain elevation or separated from the WWTP by hills. Both topographical features would tend to channel any odour emitted from the site away from these receptors, particularly during worst case dispersion conditions (i.e. low wind speed and stable atmospheric conditions).

The worker's cottage is closer to the WWTP than any of the high sensitivity receptors. Therefore, higher odour concentration would be expected to occur at this dwelling compared to the high sensitivity receptors. The separation distance between the cottage and WWTP is approximately the same or less than recommended separated distances. Due to the proximity of the cottage to the site, odour may on occasion be observed. It is noted however, that, the wind flows observed at the Port Taharoa meteorological monitoring station indicate that the cottage would only infrequently be downwind of the WWTP and therefore potentially exposed to any emitted odours. The higher terrain elevation of the cottage relative to the WWTP would also tend to channel wind flow from the cottage during poor dispersion conditions.

Based on the separation distances, wind channelling effects of the local topography and moderate sensitivity of the receptor to odour, it is considered unlikely that this dwelling would be adversely impacted by the odour emitted from the site during normal operating conditions.

Although other farm buildings are located approximately 145m west from the roadside holding ponds, the ponds have low odour potential (i.e. wastewater is aerated and has a low nutrient concentrations). Therefore, although the buildings are within the recommended separation distance, any emitted odour from the WWTP is not expected to have an adverse nuisance effect at these receptors.

6.5.3 Existing Odours Emitted from Wastewater Treatment Plant

As a condition of the existing resource consent, WDC is required to maintain a complaints record (Condition 3). Between 2007 and 2018 a total of 10 complaints have been received by either the WDC or WRC with regards to odour emitted from the WWTP. One of the complaints received was attributed to a sewer vent pipe on Wainui Road and may not be directly attributed to the operation of the WWTP.

The frequency of odour complaints has decreased over time with the higher number of complaints received before 2010 most likely attributed to the initial commissioning of the WWTP. The anaerobic ponds were

identified as a source of odour during this period. Changes were made to the WWTP including the incorporation of surface aeration ('odour cap') and reduced loadings.

Since 2011 only three odour complaints have been received by the WDC or WRC which can be directly attributed to the operation of the WWTP.

Overall the complaint record indicates that nuisance odours are on occasion observed by the surrounding community. However, since 2011, after the initial commissioning period, the number of complaints received has been relatively low (i.e. less than one every two years). Overall the complaint record suggests that currently the odour emitted from the WWTP is generally acceptable to the surrounding community during normal operating conditions. However, odours are on occasion generated by the site's processes which can have a nuisance effect beyond the WWTP boundary, but these occur infrequently.

The frequency that nuisance odours are reported since 2010 also suggests that generally the odour generated by the existing processes are appropriately controlled at the site. The odour generated from the site during the proposed consent period subject to this resource consent will be controlled using similar emission control and management procedures as currently implemented.

6.5.4 Management, Monitoring and Contingency Measures

Condition 4 of the existing resource consent requires WDC is required to maintain a Management Plan (MP) which includes management of discharges of odour to air from the site operations.

The MP and the associated Operations and Maintenance Manual (O&M Manual) includes the following:

- The management and operation procedures at the WWTP
- Resources consent responsibilities
- Inspections and maintenance procedures
- Contingency methods for plant malfunctions
- Complaint investigation and resolution procedures
- Reporting procedures
- Training procedures for operators regarding the methods to be used to control odours

Since October 2019 Watercare Services Limited (Watercare) has assumed the management of the WWTP on behalf of WDC. The MP will be revised and updated by Watercare in accordance with the conditions of consent but it is anticipated that the existing level of management will remain, and the effects of the operation of the WWTP will not change.

6.5.5 Assessment of Aerosol Discharges

Aerosols or water droplets may be generated from the open surfaces of the anaerobic, aerated, and holding ponds during strong winds. The larger droplets generated from the surface of the ponds would be deposited close to the ponds and are not expected to be transported off-site. The concentration of any residual wastewater droplets and aerosols in the air would also decrease rapidly with increasing downwind distance due to droplet deposition and dispersion in the atmosphere. The strong winds which are necessary to generate the aerosols would also assist in their dispersion in the environment.

Due to the separation distance between the ponds and nearby sensitive receptors, and the sheltering effect of the valley location of the site, the emission of aerosols from the WWTP are expected to have a negligible effect on the surrounding environment.

6.5.6 Summary

Taking into account the mitigation measures outlined above, it is considered that the odour effects associated with the WWTP are adequately managed and mitigated such that any odours will not be offensive or objectionable beyond the boundary of the site:

- The surrounding land use is primarily used for pastoral agriculture uses and is considered to have a low sensitivity to odours
- The separation distance between the WWTP and high sensitivity receptors is such that no adverse effects are expected to occur at these receptors during normal operating conditions
- These receptors are located either at higher terrain elevation than the WWTP or separated from the WWTP by intervening hills
- These topographical features would also tend to channel any odour emitted from the site away from the receptors, particularly during worst-case dispersion conditions (i.e. low wind speeds and stable atmospheric conditions)
- The nearest sensitive receiver (the worker's cottage) is located in close proximity to other farming activities which emit odour and dust (e.g. dairy milking shed) therefore a lower air quality amenity can be expected at this location
- The comparatively low number of complaints received by the WDC and the WRC since 2011 suggests that the level of odour experienced by the community is generally acceptable
- The potential discharges of odour from the WWTP is considered to be adequately managed and mitigated such that any odours will not be offensive or objectionable. Any effects will be no greater than those associated with the current consents for the operation of the WWTP

6.6 Effects of Discharge to Land from Seepage from Ponds

Seepage of treated or partially treated wastewater to ground and groundwater may potentially result in groundwater contamination, and consequently contaminate surface water when the groundwater seeps into nearby surface water bodies. An Assessment of Effects of Seepage to Groundwater report has been produced by Beca and is attached as Appendix E.

Within the Raglan WWTP site, the two anaerobic ponds, the four enhanced ponds (providing aerobic treatment) and storage ponds are the potential sources of wastewater seepage to ground. The day pond was constructed in 2015 with a synthetic liner and is assumed to be sealed.

6.6.1 Storage Ponds

The eastern storage pond was converted from the original southern oxidation pond that was in operation since 1977. It is likely that the accumulation of sludge at the bottom of the pond has resulted natural sealing of the pond base to a significant extent. The natural sealing occurs by physical and chemical clogging of the soil pores with fine organic materials and by biological and organic clogging caused from microbial growth on the pond base. Field tests have shown that natural sealing in more permeable soils reduced the leakage rates by a factor of ten to several hundred times and resulted in a permeability of 10^{-8} m/s. As a result of the natural sealing formed at the pond base, the seepage volume of water draining from the eastern storage is expected to be low.

The western storage pond was constructed in 2007 with a clay liner. It has been in operation since that time and is likely to have accumulated sludge at its base. Accordingly, the seepage volume of water is expected to be very low.

6.6.2 Anaerobic Ponds and Enhanced Ponds

It is likely that the anaerobic ponds and enhanced ponds were constructed in the clay rich ground that dominates the southern section of the site (Kaurua Ash). Desludging of these ponds has not occurred since that time and it is highly likely that these ponds have a base of sludge which reduces any seepage through the base.

If these ponds were leaking to any significant extent, it is likely that elevated concentrations of NH₄-N would have been observed in the surface waters surrounding the site. Given no elevated concentrations were observed in recent water quality samples taken from the streams that run through the WWTP site, this provides further evidence that any rates of seepage are low.

6.6.3 Day Pond

This day pond was constructed with an impermeable liner and is expected to retain all wastewater within it with no seepage to groundwater.

6.6.4 Summary of Seepage Effects

Overall, the accumulation of sludge at the base of the storage, anaerobic and enhanced ponds have resulted in a natural sealing to prevent seepage and the day pond is constructed with an impermeable liner, therefore effects of seepage on groundwater and surface water are considered to be low.

6.7 Cultural Effects

A Cultural Impact Assessment (CIA) has not been obtained for this short term consent application, however a CIA will be produced by Tanui for the long-term consent.

On the basis that a CIA has not been obtained, in order to understand the potential cultural effects of the discharge to the Whāingaroa Harbour, the project team have reviewed discussions held with mana whenua regarding the long-term solution for wastewater; considered the decision of the Environment Court relating to the previous appeal to the discharge (as outlined in Section 1.1) and taken into account the thesis of Angeline Ngahina Greensill⁵. From that information, it is understood that the Whāingaroa Harbour holds significant meaning and spiritual connection for Tainui and contributes heavily to mana whenua wellbeing. These matters are summarised as:

- From a Maori world view point the discharge of treated wastewater into the harbour is considered to be offensive;
- Discharge of treated wastewater to the harbour, from a Maori perspective, affects mana whenua's mana and manaakitanga as they "*cannot feed guests from their own food basket*";
- Mana whenua views since the establishment of the marine discharge have been clear that it is culturally unacceptable for treated wastewater to be discharged into the ocean. In addition to the actual discharge, the outfall structure is located in the Whāingaroa Harbour which is considered to be an ancestor and lifeforce for iwi;
- Mana whenua are strongly opposed to the current wastewater discharge arrangement; and
- The historical establishment of the WWTP on a waahi tapu site is also deemed to be insensitive by mana whenua.

WDC have been working in collaboration with Tainui in the assessment and consideration of options for the long-term wastewater scheme. This partnership will continue until the preferred long-term wastewater option is identified and confirmed. No formal feedback has been received from Tainui on the short-term consent

⁵ Inside the Resource Management Act a Tainui Case Study, thesis by Angeline Ngahina Greensill, 2010

application although, informal comments have been received and are provided in Section 7 below. WDC intends to continue engagement with mana whenua on both the short and long term wastewater consents.

7 Engagement

7.1 Introduction

A Stakeholder Engagement Plan (SEP) for the long-term wastewater scheme in Raglan has been produced by Beca and is included as Appendix F. Using the SEP to provide guiding principles, objectives and methods, WDC have undertaken an engagement programme to involve mana whenua, other relevant stakeholders and the Raglan community in the process of trying to determine a long-term wastewater scheme for Raglan. The engagement programme is on-going as a long-term solution is yet to be identified. An engagement register documenting the engagement to date is provided in Appendix G and summarised below.

Table 11: Engagement Summary

Date of Engagement	Type of Engagement
On-going	WDC website page with updates Notification of community session on Raglan Notice Board Face Book Page Circulation of meeting minutes
16/05/2019	Hui 1 Poihakena Marae, Raglan
31/05/2019	Raglan WWTP consent application process meeting with Xtreme Zero Waste
11/06/2019	Raglan Community Board Meeting
26/06/2019	Stakeholder Meeting 1 Raglan Community Hall
05/07/2019	Hui 2 Kokiri Centre, Riria Kereopa Memorial Drive, Raglan
10/07/2019	Public Drop in Session 1 Raglan Community Hall Supper Room
13/07/2019	Public Drop in Session 2 Raglan Library
24/07/2019	Stakeholder Meeting 2 Raglan Community Hall
13/08/2019	Raglan Community Board Meeting
19/08/2019	Ngāti Māhanga Meeting
28/08/2019	Fish & Game Meeting

The consistent message received from mana whenua, stakeholders and the Raglan community is for the implementation of a sustainable land-based discharge. This message has been the driver for continued investigations into land-based discharge by WDC. As outlined in Section 1 of this application, WDC are seeking this short-term consent to enable further land-based investigation to be progressed, and a long-term wastewater scheme to be decided.

While key stakeholders have been advised of this application for a short-term consent, WDC are also planning a stakeholder meeting in November 2019 and further public communications to advise the community of the reasoning behind this consent application, and to assure them that on-going technical investigations for the long-term scheme will continue until such time as a preferred option is identified and a long-term consent application is lodged.

7.2 Mana Whenua

Tainui-a-Whiro, Ngāti Māhanga and Ngāti Tamainupo are the identified individual hapū groups that hold kaitiakitanga over the Raglan area. Tainui refers to the collective hapū and iwi who are linked through whakapapa relationships and identify with the coastal lands located between Te Akau, north of Raglan to just south of Karioi maunga.

A CIA has not been obtained for this short term consent application, however a CIA will be produced by Tainui for the long-term consent.

WDC has engaged with Tainui to work in collaboration on the long-term wastewater scheme options. Two hui have been held with mana whenua as detailed in Appendix G. The first hui focused on an update of the project and the wastewater options which were being investigated. The second hui focused on assessing the cultural criteria for the long list options multi criteria analysis, which helped inform the short list options. A meeting has also been held with Ngāti Māhanga who are located further north of the Whāingaroa Harbour.

Tainui have been informed of the short-term consent application via representative Angeline Greensill and WDC will continue to work with mana whenua on the long-term scheme.

Although Tainui have not provided any formal comment on this short-term consent application, initial feedback received by WDC during an informal conversation indicates the following views are held:

- Past historic extensions entered into haven't been satisfactory, in terms of momentum then shown by the applicant to deliver timely innovative thinking / ideas, so that would need to change
- Lessening hapū hesitancy could be achieved by confirmation that the 'breathing space' obtained through a short-term consent will be utilised appropriately to work through non-marine solutions which will be acceptable to both parties

7.3 Marine and Coastal Area (Takutai Moana) Act 2011

The Marine and Coastal Area (Takutai Moana) Act 2011 (MACAA) provides a regime and mechanisms in respect of the marine and coastal area that allows recognition of customary rights of Māori in that area. These mechanisms include "protected customary rights" (PCRs) and "customary marine title" (CMT). Iwi, hapū and whānau can apply to have PCRs or CMT recognised either through High Court proceedings or by engaging directly with the Crown.

All CMT and PCR applications were required to be lodged by 3 April 2017. There are approximately 30 applications under MACAA for the Waikato Region. The applications relevant to this proposal are set out below in Table 11.

The applicants have been notified by WDC of this short-term consent application and a record of communications is included in Appendix H.

Table 12: Relevant MACAA Applications

Applicant Group	Application	Representative group / person	Date notified
Kāwhia Tāngata, Aotea Whenua, Whāingaroa Moana	MAC-01-04-01 CMT and PCR application	Glenn Tootill	18/10/2019
Ngāti Māhanga	MAC-01-03-05 CMT and PCR application	Ngaa Uri o Maahanga Trust Board Rikki Te Awarutu Samuels	18/10/2019
Ngāti Whakamarurangi / Tainui (Ngāti Koata, Ngāti Motemote, Ngāti Tahinga)	MAC-01-04-10 CMT and PCR	H Thomson	18/10/2019
Tainui Hapu o Tainui Waka	MAC-01-04-11	Angeline Greensill	18/10/2019

Applicant Group	Application	Representative group / person	Date notified
	CMT		
Te Whakakitenga o Waikato	MAC-01-04-14 CMT and PCR	Donna Flavell	18/10/2019

8 Legislation and Planning Documents

8.1 Resource Management Act 1991

Overall the application is considered as an **Discretionary Activity**.

Section 104(1) Considerations

Under Section 104(1), a consent authority must, subject to Part 2 of the RMA, 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.

(2A) When considering an application affected by section 124, the consent authority must have regard to the value of the investment of the existing consent holder.

The 104(1) and (2A) considerations are assessed below in Sections 8.2 - 8.8.

Section 104 (2A)- Value of the Investment of the Existing Consent Holder

The optimised depreciated replacement value of the plant is \$2,986,848. This is the sum of 224 line inputs of existing assets (audit data), where assets include pipework, chambers, valves, liner etc.

Section 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.

2) If an application is for a resource consent for a reclamation, the consent authority must, in addition to the matters in section 104(1), consider whether an esplanade reserve or esplanade strip is appropriate and, if so, impose a condition under section 108(2)(g) on the resource consent.

The application includes the discharge of treated wastewater to marine water and the nature of the discharge is addressed in Section 2 of this report. The sensitivity of the receiving environment is outlined in Section 3 and an assessment of environmental effects has been provided in Section 6. The BPO and assessment of alternatives has been discussed in Section 4. The application is not a resource consent for a reclamation therefore 105(2) does not apply.

107 Restrictions on grant of certain discharge permits

(1) Except as provided in subsection (2), a consent authority shall not grant a discharge permit or a coastal permit to do something that would otherwise contravene section 15 or section 15A allowing—

(a) the discharge of a contaminant or water into water; or

(b) a discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or

(ba) the dumping in the coastal marine area from any ship, aircraft, or offshore installation of any waste or other matter that is a contaminant,—

if, after reasonable mixing, the contaminant or water discharged (either by itself or in combination with the same, similar, or other contaminants or water), is likely to give rise to all or any of the following effects in the receiving waters:

(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.

(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.

As assessed in Section 6 of this report, no conspicuous oil or grease films, scums or foams, or changes in colour or visual clarity have been observed after initial mixing of the current WWTP discharge.

No objectionable odour is expected to occur after initial mixing or reasonable mixing as the discharge is treated wastewater that is well aerated. As the wastewater is aerated, compounds such as hydrogen sulphide that would produce objectionable odours should not be present. Overall the effects of the proposal on water quality in terms of conspicuous oil or grease films, scums or foams, or changes in colour or visual clarity are considered to be negligible.

Physical elements of the harbour, including low retention times near the mouth of the harbour where the outfall is located, are expected to negate nuisance biological growth effects and predicted concentrations after reasonable mixing are reflective of background concentrations observed in wider WRC water quality investigations. Overall the effects of nutrients on aquatic flora and fauna are considered to be negligible.

Overall, the discharge is not considered to give rise to any of the effects in the receiving harbour as described in subsection 1 of S107.

8.2 National Environmental Standard for Air Quality

The National Environmental Standard Air Quality (**NESAQ**) regulations are designed to address the health effects caused by poor outdoor air quality. The regulations specify a threshold concentration in ambient air for SO₂, CO, NO₂, and PM₁₀ over specified averaging times.

The discharges to air generated by the WWTP are related to odour which are not addressed by the regulations under the NESAQ.

8.3 New Zealand Coastal Policy Statement (NZCPS)

The NZCPS sets out issues and challenges relevant to the New Zealand's coastal environment. Issues (set out in the preamble of the NZCPS) of particular relevance to this proposal are:

- The natural and recreational attributes of the coast and its attraction as a place to live and visit combined with an increasingly affluent and mobile society to place growing pressure on coastal space and other resources (bullet point 5)
- The coast has particular importance to tāngata whenua, including as kaitiaki (bullet point 9)
- Continuing decline in species, habitats and ecosystems in the coastal environment under pressure from subdivision and use, vegetation clearance, loss of intertidal areas, plant and animal pests, poor water quality, and sedimentation in estuaries and the coastal marine area (bullet point 12)
- Poor and declining coastal water quality in many areas as a consequence of point and diffuse sources of contamination, including stormwater and wastewater discharges (bullet point 14)
- Adverse effects of poor water quality on aquatic life and opportunities for aquaculture, mahinga kai gathering and recreational uses such as swimming and kayaking (bullet point 15)

The proposal is assessed against relevant NZCPS objectives and policies in the following sections.

8.3.1 Water Quality and the Coastal Environment

Relevant Provisions: Objective 1, Policy 2, Policy 21 and Policy 23

Objective 1 relates to safeguarding the integrity, form, function and resilience of the coastal environment and sustaining its ecosystems. The objective seeks to maintain coastal water quality, enhancing it where it has deteriorated from what would otherwise be its natural condition, and including consideration of significant adverse effects on ecology and habitat as a result of water quality from discharges associated with human activity.

Policy 2 seeks to take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and kaitiakitanga, in relation to the coastal environment. Recognising that tāngata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations. Also, providing opportunities in appropriate circumstances for Māori involvement in decision making.

Policy 21 seeks to restore coastal water quality to at least a state that can support such ecosystems and natural habitats.

Policy 23(2) is specific to the discharge of human sewage to coastal water and says "do not allow" this unless (i) there has been adequate consideration of alternative methods, sites and routes for undertaking the discharge and (ii) the discharge is informed by an understanding of mana whenua values and the effects on them.

In summary, the proposal has been assessed as being generally consistent with Objective 1 and Policies 2, 21 and 23 for the following reasons:

- It is intended to continue operate the existing WWTP and discharge to the Whāingaroa Harbour for the proposed consent duration (3 years) while a long-term wastewater scheme for Raglan is determined. Whilst, in the short-term, this will not enhance the waters of the Whāingaroa Harbour, it is considered, as set out in Section 4 of this report that this is the BPO for the term of this consent. Any alternative discharge options and locations are not considered feasible, given the time required to implement any upgrades or alternative options
- Section 6 of this report assesses the water quality effects of the proposal and finds the proposal to have low effects on water quality, ecology, recreational usage and food gathering
- The proposal seeks to optimise the existing discharge regime (by delaying the discharge timing currently authorised under the existing consent to commence 15 minutes after high-tide) to provide an improvement to water quality through improved dilution and mixing of the coastal discharge
- The continued discharge from the Raglan WWTP, will enable WDC to meet its statutory obligations under other legislation
- The continued discharge to the coastal environment is treated wastewater, there has been an adequate consideration of alternative methods, sites and routes as summarised in Section 4 of this report. The discharge has been informed by an understanding of mana whenua values and the effects on them, the consultation undertaken with mana whenua to date aims to establish relationships and support for the long-term wastewater solution rather, than seeking affected party approval. WDC are working in collaboration with local mana whenua on the long-term scheme and recognise that mana whenua have traditional and continuing cultural relationships with the Whāingaroa Harbour area, including places where they have lived and fished for generations

8.4 Operative Waikato Regional Policy Statement – Te Tauākī Kaupapahere Te-Rohe O Waikato

The Waikato Regional Policy Statement (RPS) provides a framework for sustainable management of the region's natural and physical resources. Commentary on the consistency of the proposal with the relevant objectives and policies of the RPS is provided below.

Resource Use and Development

The proposal will enable the on-going safe and efficient use of the Raglan WWTP. The operation of the Raglan WWTP is essential for the wellbeing of the local community, consistent with Objective 3.2.

Coastal Environment

The existing discharge structure is predominantly below the sea bed therefore preserving the natural character and protecting natural features and landscape values of the coastal environment. The need for the structure recognises the interconnections between marine-based and land-based activities; and recognises the dynamic, complex and interdependent nature of natural biological and physical processes in the coastal environment, consistent with Objective 3.7.

Relationship of Tāngata Whenua

As outlined above, WDC are working in collaboration with local mana whenua on the long-term wastewater scheme for Raglan. Mana whenua have been informed of the short-term consent: initial feedback on the proposal is provided in Section 7 of this report.

Amenity, Natural Character and Public Access

Public access to and along the CMA in the vicinity of the outfall structures will not be impeded, no changes to the outfall structure are proposed. It is considered that public access to the CMA will be maintained, consistent with Objective 3.23 and Policies 12.4 and 12.5.

Air Quality

The potential discharges of odour from the WWTP is considered to be adequately avoided and mitigated such that any odours will not be offensive or objectionable. There is no proposed discharge of contaminants that would affect human health, air quality or ecosystems consistent with Policies 5.2 and 5.3.

Marine Water Quality

The proposal is consistent with Policy 7.2 in that the proposed discharge to marine waters is managed through the WWTP system which produces a high-quality wastewater discharge as assessed in Section 6 of this report, which maintains the health of the marine water, ecosystem and amenity. WDC are working with mana whenua on the long-term wastewater scheme in order to protect cultural values.

Overall, the proposal is considered to be consistent with the RPS.

8.5 Waikato Regional Coastal Plan Objectives and Policies (WRCP)

The purpose of the WRCP is to promote sustainable management and achieve integrated management of the CMA.

Table 12 below summarises the relevant objectives and policies of the WRCP associated with the proposed activity.

Table 13: Waikato Regional Coastal Plan Objectives and Policies Assessment

Objective	Policies	Comments
<p><u>Objective 3.1: Preservation of Natural Character</u></p> <p><u>Preservation of the natural character of the coastal environment by:</u></p> <p><u>Protecting it from inappropriate subdivision, use and development;</u></p> <p><u>and</u></p> <p><u>Restoring it where appropriate.</u></p>	<p><u>Policy 3.1.2: Protection of Natural Features</u></p> <p><i>Ensure that any use and development avoids or remedies adverse effects on those natural features, landscapes, seascapes and landforms that define natural character.</i></p>	<p>No changes are proposed to the outfall structure i.e. it will remain mostly below the sea bed with only a small portion above the sea bed (but under water). Any adverse effects on the features of the natural landscape and seascape landforms are minor.</p>
	<p><u>3.1.4A Policy - Use of and Occupation of Coastal Space</u></p> <p><i>Recognise that the use, occupation and development of coastal space is appropriate in the CMA to meet the social, economic and cultural wellbeing of communities, in particular maintaining and enhancing recreational opportunities, provided that:</i></p> <p><i>Any adverse environmental effects, particularly on natural character, habitat and coastal processes, are avoided as far as practicable, and if avoidance is not practicable, adverse effects should be mitigated and provision made for remedying those effects, to the extent practicable;</i></p>	<p>The outfall structure is an appropriate size and form for its purpose and is submerged below the sea bed with only a small portion of pipe protruding above the sea bed (but under water) at the discharge point, therefore the outfall structure does not affect the use and access of the CMA for recreational uses or pose a navigation hazard. In its current state, the outfall structure is resilient to the dynamic coastal processes in the harbour and no changes to the structure are proposed.</p>

Objective	Policies	Comments
<p><u>Objective 3.2: Significant Vegetation and Habitat</u> Areas of significant indigenous vegetation and significant habitat of indigenous fauna is protected.</p>	<p><u>Policy 3.2.1: Protection of Significant Vegetation and Habitat</u> b) Identify the conservation values (described in Appendix IV of this Plan) other than significant indigenous vegetation and significant habitat of indigenous fauna identified under Policy 3.2.1a) above, in areas of significant conservation value (ASCV) (as indicated by maps in Appendix III of this Plan), and protect by avoiding as far as practicable any adverse effects of subdivision, use and development on those values, and if avoidance is not practicable, adverse effects on those values are mitigated and provision made for remedying those effects, to the extent practicable.</p>	<p>The discharge is within ASCV 7 of the WRCP ASCV maps. There are no mangroves located in the vicinity of the outfall structure. As the existing outfall structure is located predominantly the sea bed (and under water), coastal fauna are not considered to be affected by the proposal. The water quality effects in Section 6 are considered to be less than minor, effects on Maui dolphin are avoided as far as practicable considering the BPO outlined in Section 4.</p>
<p><u>Objective 3.3: Amenity and Heritage Values</u> Amenity and heritage values within the CMA maintained or enhanced.</p>	<p><u>Policy 3.3.1: Amenity Values</u> Maintain existing amenity and recreational values, including open space qualities and coastal recreation opportunities. Seek to enhance areas where amenity and recreational values have been compromised or require improvement.</p>	<p>The outfall structure does not affect the use and access of the CMA for recreational uses or pose a navigation hazard. In its current state, the outfall structure is resilient to the dynamic coastal processes in the harbour and no changes to the structure are required for improvement.</p>
<p><u>Objective 4.1: High Water Quality Maintained</u> Water quality in the CMA maintained or enhanced.</p>	<p><u>Policy 4.1.1: Maintaining or Enhancing Water Quality Characteristics</u> Identify the characteristics for which coastal waters are valued and manage these waters to ensure that those characteristics are maintained or enhanced by avoiding, remedying or mitigating the adverse effects of activities on water quality.</p> <p><u>4.1.3 Policy - Point Source Discharges</u> Environment Waikato recognises that there is a need for some discharges to be made into the CMA. Where water quality has been adversely affected by human activity, existing and new discharges will be managed to achieve or contribute to an improvement in water quality. This policy does not prohibit the discharge of contaminants from new or existing sources into the CMA which result in changes to water quality.</p>	<p>Water quality effects are assessed in Section 6.2. Nutrients, toxicants, microbiological concentration, public health, recreational and food gathering effects are considered to be low and negligible outside the reasonable missing zone.</p> <p>The continued discharge to the CMA for the proposed consent duration is the BPO as discussed in Section 4 of this report. Section 6.2 shows the discharge has a less than minor effect on the existing water quality of the Whāingaroa Harbour.</p> <p>The DHI modelling has shown that by changing the discharge regime (the current consent allows the discharge to commence 30 mins before high tide and this could be changed to commence 15 mins after high tide) dilution and mixing is improved to further improve water quality in receiving waters. This improvement is proposed as part of this consent application.</p>
<p><u>Objective 5.1: Development, Maintenance and Removal of Structures</u> Any development, maintenance and removal of structures in the</p>	<p><u>Policy 5.1.1: Existing Structures</u> Ensure that existing structures in the CMA which were not lawfully established are either authorised or removed.</p>	<p>This application is for re consenting an existing structure within the CMA so that it is authorised.</p>

Objective	Policies	Comments
<i>CMA carried out in a manner which protects natural character and amenity values, and avoids adverse effects on the environment (including cumulative effects) and on natural processes, does not constitute a hazard to navigation and takes into account other uses of the CMA and adjacent land.</i>	<u>Policy 5.1.3: Appropriate Structures</u> <i>Ensure only those structures for which a coastal location is necessary are situated in the CMA, and that any structure that is located in the CMA as far as practicable avoids adverse effects (including cumulative effects) on natural character and amenity values, and avoids adverse effects on natural processes. Where complete avoidance is not practicable, the adverse effects should be mitigated and provisions made for remedying those effects to the extent practicable.</i>	The outfall structure is an appropriate size and form for its purpose and is submerged below the sea bed with only a small portion of pipe protruding above the sea bed (but under water) at the discharge point, therefore the outfall structure does not affect the use and access of the CMA for recreational uses or pose a navigation hazard. In its current state, the outfall structure is resilient to the dynamic coastal processes in the harbour and no changes to the structure are proposed.

8.6 Waikato Regional Plan Objectives and Policies (WRP)

The Waikato Regional Plan (WRP) covers resource management issues on land within the region, including sustainable land management, soil conservation, and integration of land and water management. Of particular relevance to this proposal are the objectives, policies and rules relating to discharge of contaminants into land and discharges to air.

Table 13 below summarises the relevant objectives and policies of the Waikato Regional Plan associated with the proposed activity.

Table 14: Waikato Regional Plan Objectives and Policies

Objective	Policies	Comments
<p><u>2.2.3.1 Matters of Concern to Waikato-Tainui</u></p> <p><i>The following is a summary of some matters that are of concern to Waikato-Tainui. It is not comprehensive and does not attempt to do any more than note the issues. Reference to Waikato-Tainui representatives or authorised documentation is recommended in order to fully appreciate the Waikato-Tainui perspective and its context.</i></p> <p>Kaitiakitanga</p> <p><i>Waikato-Tainui are the Kaitiaki of their rohe and consider they should be actively supported to exercise duties and obligations as Kaitiaki. Waikato-Tainui consider it important that they are involved in resource management issues, decision-making and the monitoring of natural and physical resources.</i></p> <p>Air</p> <p><i>Waikato-Tainui require that no discharge of pollutants into the air will affect the wellbeing of their people, the people they host within their rohe, or put fauna and flora, which rely on clean air, at risk.</i></p> <p>Land</p> <p><i>Concerns are expressed regarding soil disturbance activities which impact on cultural values, reduce soil productivity and increase sediment discharges to water bodies. The adoption of good land</i></p>		<p>Tainui as local mana whenua are recognised as kaitiaki of the Raglan WWTP site area, WDC have been working in collaboration with Tainui and will continue to work with them on the long-term wastewater scheme.</p> <p>No discharge of pollutants are proposed, the odour effects associated with the WWTP ponds are considered to have a less than minor effects on sensitive receivers.</p> <p>No soil disturbance activities are proposed as there are no changes to the WWTP proposed. The proposal does not result in any erosion nor does it reduce soil productivity.</p>

Objective	Policies	Comments
<p>management practices is required to reduce soil erosion.</p>		
<p><u>Objective 2.3.2</u> <u>Uncertainty for all parties regarding the relationship between tāngata whenua and resources for which they are Kaitiaki minimised.</u> <u>Tāngata whenua able to give effect to kaitiakitanga</u></p>	<p><u>Policies 2.3.3</u> <i>Policy 1: Processes for Defining Relationship</i> <i>Define the processes to determine the relationship of tāngata whenua with natural and physical resources for which they are Kaitiaki.</i> <i>Policy 2: Increase awareness</i> <i>Promote methods that will increase community awareness of the relationship between tāngata whenua and the natural and physical resources for which they are Kaitiaki.</i></p>	<p>Tainui as local mana whenua are recognised as kaitiaki of the Raglan WWTP site area, WDC are working in collaboration with Tainui on the long-term wastewater scheme. The consultation undertaken with mana whenua to date aims to establish relationships and support for the long-term wastewater solution rather than seeking affected party approval. Therefore, it is considered that the relationship of mana whenua as Kaitiaki with water, land and air has been recognised and provided for.</p>
<p><u>Objective 3.5.2</u> <i>Discharges of contaminants to water undertaken in a manner that:</i> <i>does not have adverse effects that are inconsistent with the water management objectives in Section 3.1.2</i> <i>does not have adverse effects that are inconsistent with the discharges onto or into land objectives in Section 5.2.2</i> <i>Ensures that decisions regarding the discharge of contaminants to water do not reduce the contaminant assimilative capacity of the water body to the extent that allocable flows as provided for in Chapter 3.3 are unable to be utilised for out of stream uses.</i></p>	<p><i>Policy 5: Ground Water</i> <i>Minimise the adverse effects of discharges onto or into land on ground water quality by ensuring that they:</i> <i>do not compromise existing or reasonably foreseeable uses of ground water avoid adverse effects on surface water bodies that are inconsistent with the policies in Section 3.2.3 of this Plan as far as practicable and otherwise, remedy or mitigate those effects</i> <i>are not inconsistent with the policies in Section 3.8.3 that manage the effects of drilling and discharges associated with drilling on ground water quality.</i></p>	<p>Overall, the accumulation of sludge at the base of the storage, anaerobic and enhanced ponds have resulted in a natural sealing to prevent seepage and the day pond is constructed with an impermeable liner, therefore effects of seepage on groundwater and surface water are considered to be less than minor (refer to Section 6).</p>
	<p><i>Policy 6: Tāngata Whenua Uses and Values</i> <i>Ensure that the relationship of tāngata whenua as Kaitiaki with water is recognised and provided for to avoid significant adverse effects and remedy or mitigate cumulative adverse effects on:</i> a. <i>the mauri of water</i> b. <i>waahi tapu sites</i> c. <i>other identified taonga.</i></p>	<p>The consultation undertaken with mana whenua to date aims to establish relationships and support for the long-term wastewater solution rather than seeking affected party approval. Therefore, it is considered that the relationship of mana whenua as Kaitiaki with water has been recognised and provided for.</p>
<p><u>Objective 5.1.2 A net reduction of accelerated erosion across the Region so that:</u> 7. <i>soil productivity, versatility and capability is maintained</i> 8. <i>there are no adverse effects on water quality, aquatic ecosystems and wetlands that are inconsistent with Water Management Objective 3.1.2</i> 9. <i>there is no increase in the adverse effects of flooding or land instability</i></p>		<p>No soil disturbance activities are proposed as there are no changes to the outfall structure. This structure will remain submerged in the sea bed. Therefore, the proposal does not result in any erosion. Overall, the accumulation of sludge at the base of the storage, anaerobic and enhanced ponds have resulted in a natural sealing to prevent</p>

Objective	Policies	Comments
<p>hazards</p> <p>10. accelerated infilling of lakes, estuaries, rivers, wetlands and cave systems is avoided and the rate of infilling of artificial watercourses, excluding structures designed to trap sediment, is minimised</p> <p>11. significant adverse effects on the relationship tāngata whenua as Kaitiaki have with their identified ancestral taonga such as ancestral lands, water and waahi tapu are avoided</p> <p>12. cumulative adverse effects on the relationship tāngata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water, waahi tapu are remedied or mitigated.</p> <p>13. significant adverse effects on natural character and ecological values associated with land and the coastal environment including dune systems is avoided</p> <p>14. there are no adverse effects on air quality that are inconsistent with Air Quality Objective 6.1.2, Objectives 2 and 3</p> <p>15. damage to property and infrastructure is avoided</p>		<p>seepage and the day pond is constructed with an impermeable liner, therefore effects of seepage on groundwater and surface water are considered to be less than minor (refer to Section 6)</p> <p>A Water Quality and Ecology baseline assessment has been prepared and is attached In Appendix C. This concludes that the ecological value of adjacent watercourses to the WWTP were moderate to low and the continued use of the WWTP would not have an adverse effect on ecology. This is discussed in further detail in Section6.</p>
<p><u>Objective 5.2.2 Discharges of wastes and hazardous substances onto or into land undertaken in a manner that:</u></p> <p>a. does not contaminate soil to levels that present significant risks to human health or the wider environment</p> <p>10. does not have adverse effects on aquatic habitats, surface water quality or ground water quality that are inconsistent with the Water Management objectives in Section3.1.2</p> <p>11. does not have adverse effects related to particulate matter, odour or hazardous substances that are inconsistent with the Air Quality objectives in Section6.1.2</p> <p>12. is not inconsistent with the objectives in Section5.1.2</p> <p>13. avoids significant adverse effects on the relationship that tāngata whenua as Kaitiaki have with their taonga such as ancestral lands, water and waahi tapu.</p> <p>14. remedies or mitigates cumulative adverse effects on the relationship that tāngata whenua as Kaitiaki have with their identified taonga such as ancestral lands, water and waahi tapu.</p>	<p><u>Policy 2: Other Discharges Onto or Into Land</u></p> <p>Manage discharges of contaminants onto or into land not enabled by Policy 1, in a manner that avoids, where practicable, the following adverse effects and remedies or mitigates those effects that cannot be avoided:</p> <p>15. contamination of soils with hazardous substances or pathogens to levels that present a significant risk to human health or the wider environment.</p> <p>16. the discharge is not inconsistent with policies in Section5.1.3</p> <p>17. any effect on water quality or aquatic ecosystems that is inconsistent with the purpose of the Water Management Classes as identified by the policies in Section3.2.3</p> <p>18. the adverse effects outlined in the policies and rules for air quality in Chapters 6.1 and 6.2, particularly for odour and particulate deposition</p> <p>19. damage to archaeological sites, waahi tapu or other</p>	<p>The two anaerobic ponds, the four enhanced ponds (providing aerobic treatment) and storage ponds are the potential sources of wastewater seepage to ground. Overall, the accumulation of sludge at the base of the storage, anaerobic and enhanced ponds have resulted in a natural sealing to prevent seepage and the day pond is constructed with an impermeable liner.</p>

Objective	Policies	Comments
	<p><i>identified sites of importance to tāngata whenua as Kaitiaki.</i></p>	
<p>Section 6: Air Module</p>		
<p><u>Objective 1:</u> <u>Significant characteristics of air quality as identified in Table 6-1 are:</u></p> <ol style="list-style-type: none"> <i>protected where they are high</i> <i>enhanced where they are degraded.</i> <i>otherwise maintained.</i> <p><u>Objective 2:</u> <u>No significant adverse effects from individual site sources on the characteristics of air quality beyond property boundary.</u></p> <p><u>Objective 3:</u> <u>Cumulative effects of discharges on ambient air quality do not:</u></p> <ol style="list-style-type: none"> <i>present more than a minor threat to the health of humans, flora and fauna</i> <i>cause odour that is objectionable to the extent that it causes an adverse effect.</i> <i>result in levels of suspended or deposited particulate matter that are objectionable to the extent that they cause adverse effects</i> <i>have a significant adverse effect on visibility</i> <i>cause accelerated corrosion of structures</i> <i>cause significant adverse effects on the relationship tāngata whenua as Kaitiaki have with their identified taonga such as air, ancestral lands, water and waahi tapu.</i> 	<p><u>Policy 2: Managing Effects of Other Discharges</u> <u>Manage other discharges of contaminants to air through controlled and discretionary activity rules having particular regard to the effects of the discharge on:</u></p> <ol style="list-style-type: none"> <i>ambient air quality compared to the Regional Ambient Air Quality Guidelines (RAAQG) levels provided in Chapter 6.3,</i> <i>ambient air quality compared to internationally accepted air quality guidelines or standards for managing and understanding the effects of contaminants on human health, the health of flora and fauna and amenity values,</i> <i>ambient odour and particulate matter levels compared to the guidelines for assessment provided in Chapter 6.4 of the Plan for odour and particulate matter</i> <i>adverse effects from contaminants that are hazardous in ambient air, particularly with respect to human health,</i> <i>the significant characteristics of air quality within an area,</i> <i>significant adverse effects of the discharge on the identified values of tāngata whenua as Kaitiaki,</i> <i>the sensitivity of the receiving environment,</i> <i>existing ambient air quality and any cumulative effects as a result of the discharge on the receiving environment,</i> <i>nationally accepted codes of practice for the relevant activity.</i> <p><u>Policy 4: Best Practicable Option*</u> <i>While having regard to the provisions in Policies 1, 2 and 3, and the likely effects of activities on ambient air quality, Waikato Regional Council will promote the best practicable option to prevent or minimise the discharge of contaminants to air where:</i></p> <ol style="list-style-type: none"> <i>numerical guidelines or standards establishing a level of protection for a</i> 	<p>The odour emitted from the existing WWTP is already contributing to a low air quality environment due to agricultural activities occurring in the area.</p> <p>The Odour Assessment in Appendix D discusses that the separation distance between the existing WWTP and high sensitivity receptors is such that no adverse effects are expected to occur during normal operating conditions.</p> <p>The Odour Assessment in Appendix D concluded that the frequency and duration of effect could be adequately managed via operational measures such as plant design, operator training, plant management and maintenance, monitoring and by passing anaerobic ponds.</p> <p>The greatest source of odour potential are from the inlet works, anaerobic treatment ponds and aerated treatment ponds. These odour discharges are reduced by enclosing the inlet works screen and having surface aerators installed in ponds.</p> <p>Local mana whenua have been engaged as part of the consenting process of the WWTP. Their issues and concerns as Kaitiaki have been recognised (summarised in Section 6 and 7 of this report) and there were no issues raised in regard to air discharges. It is however recognised that there are sensitive areas of historical and cultural significance to mana whenua in the vicinity of the existing WWTP. The air discharges generated from the WWTP can be appropriately managed to avoid any adverse effect on these sensitive areas.</p>

Objective	Policies	Comments
	<p><i>receiving environment are not available or cannot easily be established,</i></p> <p><i>b. the maintenance or enhancement of the existing air quality is desirable or there is uncertainty over existing air quality,</i></p> <p><i>c. the known adverse effects and costs associated with adopting the best practicable option for an operation are small and the costs of investigating the effect on air quality is large in comparison to the potential effects.</i></p> <p><u>Policy 5: Positive Benefits of Resource Use</u></p> <p><i>Recognise the positive benefits to people and communities arising from activities that affect air quality by enabling a range of activities to use the air (including existing activities) whilst ensuring that:</i></p> <p><i>a. high quality air resources are protected,</i></p> <p><i>b. degraded air quality is enhanced,</i></p> <p><i>c. adverse effects on air quality are avoided, remedied or mitigated.</i></p>	

8.7 Part 2 Section 5 of the RMA – Purpose

A review of the Objectives and Policies of the NZCPS, OWRPS, WRCP and WRP indicates that the matters covered by Part 2 of the RMA have been adequately addressed. The proposal has been assessed as being consistent with the policy direction of the NZCPS, OWRPS, WRCP and WRP, therefore it has not been considered necessary to revisit Part 2 of the RMA in this case pursuant to the Court of Appeal's direction in *R J Davidson Family Trust v Marlborough District Council*. It is noted however that the intension of the short-term proposal is to allow further progression of a long-term wastewater scheme for Raglan that is being developed in collaboration with mana whenua, and with the involvement of the Raglan community and stakeholders. The purpose of the long-term scheme is to enable the Raglan community to provide for their social, economic and cultural wellbeing and for their health and safety. The short-term proposal is considered to be the BPO as assessed in Section 4 and allows the continuation of the WWTP in the interim which is essential infrastructure.

8.8 Waikato-Tainui Environmental Management Plan

Section 104(1)(c) *any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

The Waikato-Tainui Environmental Management Plan (TEMP) is a statutory document which gives effect to the Vision and Strategy for the Waikato River, particularly those sections that relate to management of water. The overarching purpose of the Plan is to provide a map or pathway that will return the Waikato-Tainui rohe to the modern-day equivalent of the environmental state that it was in when Kiingi Taawhiao composed his

maimai aroha. A consent authority considering an application for resource consent under Section 104 of the RMA must have regard to the TEMP. Listed below are those objectives and policies most relevant to the proposal:

Objective 23.3.1 Discharge quality and amenity

'The quality and amenity of discharge to air is such that the life supporting capacity and quality of air within the rohe is retained at a level that does not compromise human health, amenity values, or property.'

Policy 23.3.1.1 Discharge quality

'To ensure that the quality of any discharge to air is retained at a level such that it does not compromise human health, amenity values, or property.'

An assessment of odour effects associated with the WWTP have been addressed in Section 6.5 above, it is considered that the odour effects associated with the WWTP are adequately avoided and mitigated such that any odours will not be offensive or objectionable beyond the boundary of the site. No adverse amenity effects are expected to occur at surrounding receptors. As such, the proposed discharge to air is able to retain the life supporting capacity and quality of air within the rohe, and does not compromise human health, amenity values or property.

Objective 24.3.1 Water quality

The mauri of marine waters in the Waikato-Tainui coastal area is protected and enhanced and the marine biodiversity in the Waikato-Tainui coastal area is restored and protected.

Policy 24.3.1.1 Mauri, marine biodiversity

To ensure that the mauri of marine waters in the Waikato-Tainui coastal area is protected and enhanced and that the marine biodiversity in the Waikato-Tainui coastal area is restored and protected.

Policy 24.3.4.2 Customary activities and manaaki manuwhiri

To ensure that Waikato-Tainui marae, particularly coastal marae, are able to undertake customary coastal activities and have the ability to sustain manuwhiri with traditional coastal food sources during hui, poukai, and waananga.

Through hui between Tainui and the project team, it is understood that the Whāingaroa Harbour holds significant meaning and spiritual connection for Tainui and contributes heavily to mana whenua wellbeing. Pollution of the Whāingaroa Harbour effects hapū's mana and manaakitanga when they cannot feed guests from their own food basket.

The effects of the treated wastewater discharge on the Whāingaroa Harbour are assessed in Section 6, effects are found to be less than minor on water quality, ecology, recreational usage and food gathering under public health and WRC guideline standards. The treatment of the wastewater to a high-quality standard maintains the health of the marine water and ecosystems.

Tainui have been working in collaboration with WDC on shortlisting options for the long-term wastewater scheme, WDC will continue to work collaboratively with Tainui to determine the preferred long-term wastewater scheme.

9 Proposed Monitoring and Mitigation Measures

WDC undertake a range of monitoring, mitigation and management procedures in accordance with their existing consents. This Section sets out these key mitigation and monitoring measures. Generally, WDC is proposing to continue to operate, monitor and manage the Raglan WWTP in the same way as required by the existing consents. These requirements will include:

1. Maintaining the existing discharge volume, with a suggested amendment to commence the discharge no later than 15 minutes after high-tide to maximise dilution of treated wastewater and prevent wastewater flowing back up the Harbour (as described in Section 2.4 of this AEE);
2. Maintaining the existing requirement to monitor and record discharge volumes;
3. Maintaining the existing requirement for a Management Plan (including an Air Quality Management Plan);
4. Maintaining the existing requirement for discharge quality monitoring;
5. Maintaining the existing treated wastewater discharge standards, with a suggested amendment to revise TSS concentration limits to reflect the actual performance of the WWTP (as described in Section 2.4 of this AEE);
6. Maintaining the existing requirement to maintain a complaints register; and
7. Maintaining the existing reporting requirements.

10 Conclusion

The Raglan WWTP discharges treated wastewater into Raglan Harbour and currently operates through discharge and coastal occupation resource consents which were granted in 2014 and which expire in February 2020.

Mana whenua and the Raglan community have expressed significant desire for an alternative solution to the harbour discharge and, as a result, WDC is currently investigating a long-term sustainable wastewater treatment and discharge solution.

In order to properly investigate and identify a long-term wastewater management preferred solution whilst continuing the operation of the WWTP, short-term consent is being sought from WRC by way of this application and supporting AEE.

The proposal involves the re-consenting of the Raglan WWTP air discharge and coastal permits for the discharge of treated wastewater into the CMA and on-going occupation of the outfall structure in the CMA. An additional land discharge consent associated with pond seepage at the WWTP is also sought.

Section 4 provides the alternatives which have been considered as part of the work undertaken to date through the long-term consenting project and outlines the practical alternatives which could be implemented at the Raglan WWTP in the short term. It is considered that the proposal which is the subject of this Application is the BPO for the short-term discharge consent as defined in the RMA.

Section 6 gives a robust assessment of effects on the environment which covers:

- Positive Effects
- Water Quality Effects
- Effects of the Outfall Structure in the CMA
- Discharge Effects on Recreational Use and Shellfish Gathering
- Odour Effects of the WWTP
- Effects of Seepage on Groundwater and Surface Water
- Cultural Effects

Overall, effects are determined to be low, with the exception of cultural effects. The Raglan WWTP is mostly compliant with existing consent conditions and the proposal offers an improvement in amending the discharge timing which will allow greater mixing and dilution of the discharge on the outgoing tide.

WDC have undertaken a significant engagement programme involving mana whenua, relevant stakeholders and the wider Raglan community in the process of determining a long-term wastewater scheme for Raglan which is detailed in Section 7. WDC are also working in collaboration with mana whenua on developing a culturally appropriate long-term wastewater scheme. The engagement programme is on-going and has the goal of achieving a positive balance between environmental and cultural improvement and the future cost of infrastructure.

The proposal has been assessed against relevant legislation and planning documentation in Section 8 and is found to be generally in accordance with those provisions.

11 References

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