

PORIRUA WASTEWATER TREATMENT PLANT

Discharge of wastewater & discharge to air

Executive summary

April 2021

1 Introduction

Wellington Water is applying on behalf of Porirua City Council to replace two resource consents that are key to the continued operation of the Porirua Wastewater Treatment Plant (the treatment plant). Consent is required for:

- the discharge of odour from the treatment plant
- the discharge from the treatment plant to the sea off Rukutane Point.

The applications seek consent for a 20 year period, subject to:

- upgrading and improving the treatment plant
- regular monitoring and measurement of the environmental impact, including a new ecological survey
- a review of the treatment plant technology and monitoring after 10 years.

Context: the Porirua Wastewater System

The treatment plant is part of a wider wastewater system that also includes a network of pipes and pumping stations that serve both Porirua and the northern Wellington suburbs.

The 'public network' is owned by the relevant council (Wellington City Council and Porirua City Council) as shown in Figure 1. Ownership of this public network is split into three elements:

- that part of the wastewater network owned solely by Wellington City Council (shown in purple in Figure 1)
- that part of the wastewater network owned solely by Porirua City Council (shown in yellow in Figure 1)
- that part of the wastewater network and the treatment plant owned jointly by Porirua City Council and Wellington City Council (shown in red in Figure 1).

The wastewater network, including both the publicly and privately owned sections, and the treatment plant all have to operate effectively to protect public and environmental health.

The development and maintenance of the public network is undertaken by Wellington Water as the council-owned service provider for wastewater. Wellington Water has identified priorities across the public network and has projects underway aimed to reduce overflows and their potential impacts. An application for a resource consent in relation to discharges from the public network is being developed and is expected to be submitted to Regional Council later in 2021.

Figure 1: Overview of the Porirua wastewater system



2 Proposal

Porirua City Council is seeking two resource consents.

Discharge of contaminants to air

The first consent application is a discharge permit that would provide for the discharge of contaminants (primarily odour) to air from the treatment plant. Odour is generated mainly in the early stages of the treatment process as the untreated wastewater enters the treatment plant from the tunnel and within the milliscreen building (see Figure 2).

The air discharge consent application proposes to continue current management practices that minimise odour.

Discharge of wastewater to the coast

The second resource consent application is a coastal permit that would provide for discharges from the treatment plant to the sea at Rukutane Point. This consent application covers:

- The discharge of fully treated and disinfected (by ultraviolet light) wastewater
- Intermittent discharges of partially treated wastewater¹ until capacity upgrades are completed in June 2023.

These intermittent discharges occur when heavy rain significantly increases the volume of wastewater in the system, beyond the capacity of the treatment plant.

In 2023 upgrades will increase the peak treatment capacity of the plant from approximately 1,000 litres per second (L/s) to 1,500 L/s. These upgrades are necessary to manage the higher wastewater flows that occur in wet weather when rainwater and ground water gets into privately and publicly owned wastewater pipes and is conveyed to the treatment plant. At 1,500 L/s, the plant will be able to treat more wastewater than the network can deliver to it. This means that after June 2023 all treatment plant discharges will be fully treated.

The upgraded capacity of the treatment plant will also be over three times greater than the average wastewater flows (440 L/s) that are projected for the end of the 20-year consent period. The treatment plant will therefore have more than enough capacity to accommodate even the high population growth that is projected in Porirua and the northern suburbs of Wellington over this time.

The consent application also proposes that:

- Risks from possible treatment plant malfunction will be managed using good practice operational management procedures. A new operational management plan will be submitted to the Regional Council for certification and must be reviewed at least every five years

¹ Partially treated discharges are a mix of fully treated wastewater and wastewater (diluted with rainwater) which has bypassed parts of the treatment process.

- There will be regular monitoring of the treated wastewater and of the coastal water
- A review of treatment technology and the monitoring programme will be undertaken before the resource consent's 10th anniversary and may be undertaken at other times should monitoring indicate that a review is necessary.

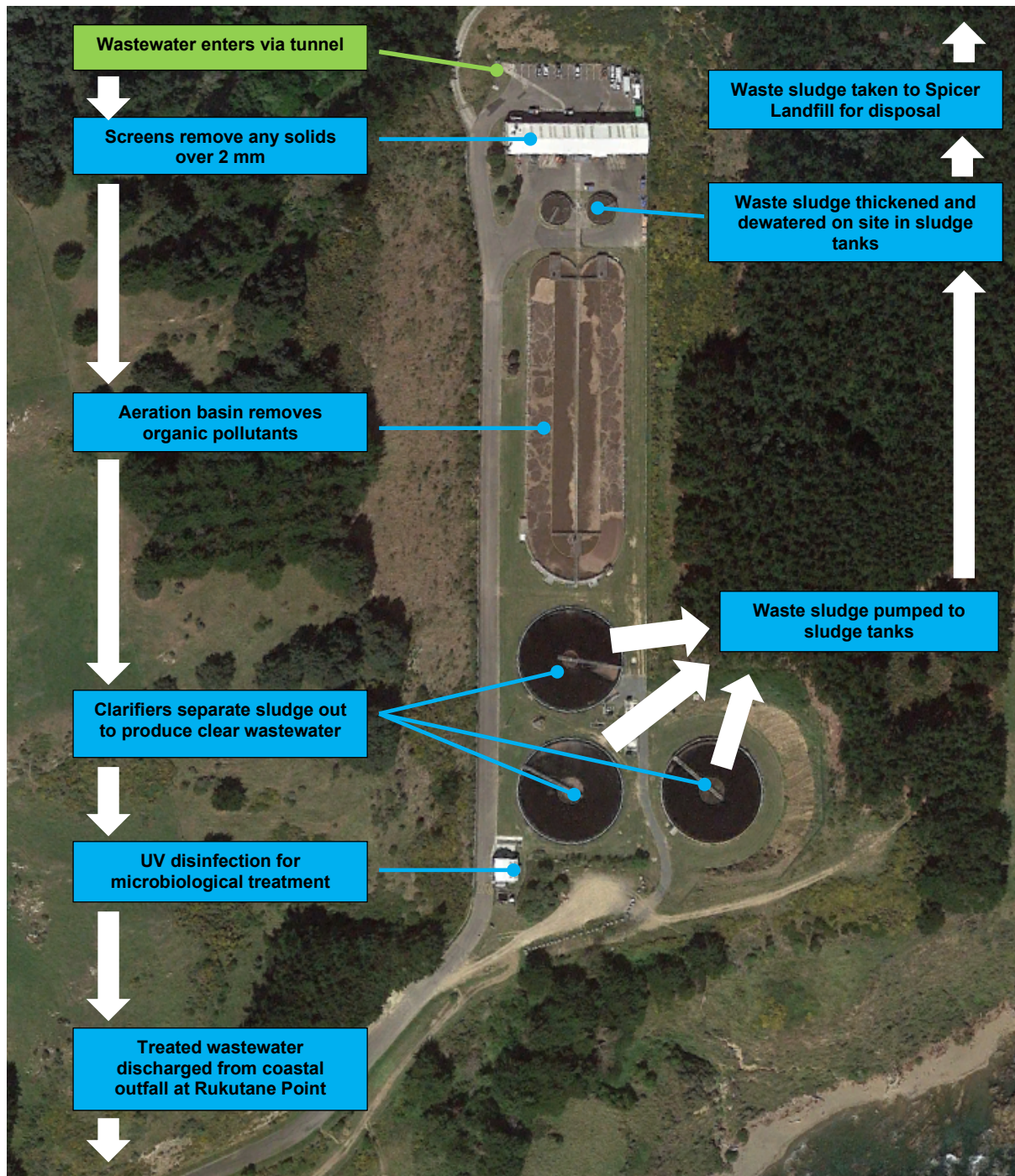


Figure 2: Porirua Wastewater Treatment Plant

3 Expected benefits

The key benefit of the wastewater system is that it conveys untreated wastewater away from residential and commercial areas of Porirua and the northern suburbs of Wellington and helps to protect the public and environmental health in these areas.

The benefits of the proposed improvements to the treatment plant outlined in the consent application are to eliminate intermittent discharges of partially treated wastewater and therefore, reduce potential health risks to recreational water users around the outfall and at Titahi Bay.

4 Potential environmental effects

Discharges to air

The environmental impacts from the discharge of odour are assessed to be 'less than minor' or very low at the site boundary. The impact is also very unlikely to increase as the amount of wastewater being treated increases over the life of the consent.

The 'less than minor' assessment is based on:

- the ongoing application of treatment plant management practices
- the nature of the treatment plant site (located in a deeply incised valley, surrounded by trees)
- the characteristics of the receiving environment (regular strong winds, distance to houses and other sensitive receptors).

Porirua City Council and Wellington Water continue to monitor odour from the treatment plant. More recently some discernible odour has been reported on Pikarere farm in very light conditions. Further improvements to the treatment plant can be made during the term of the consent if required.

Wastewater discharges

The assessment of environmental effects related to the discharges of wastewater to the sea, considers the following impacts:

- Water quality effects
 - Suspended solids, colour and clarity
 - Oil and grease
 - Public health effects
 - Effects on marine ecology and aquatic life
- Natural character, landscape and visual effects
- Effects on values of significance to Ngāti Toa
- Recreation effects.

Overall, the improvements to the plant and management approach outlined in the consent application are expected to reduce the impact of the discharge.

Ecological effects and natural character

The application assesses the potential effect on the rocky reef at the discharge point and predicts that most adverse ecological effects will be 'less than minor'.

However, there is the potential for adverse ecological effects to be 'more than minor' due to nutrient enrichment and ammonia toxicity. This may occur as wastewater flows increase a result of population growth over the next 20 years. These potential ecological effects may in turn result in a 'more than minor' impact on the natural character of the reef.

This potential increase in adverse effects is based on several conservative assumptions, and it is possible that it may not eventuate.

To address the possibility of future impact, the application proposes the following monitoring, review and response approach:

- Monitor the actual adverse effects, including repeating the ecological survey undertaken by the Cawthron Institute for the assessment of environmental effects
- Review the treatment plant technology and monitoring programme if the monitoring results indicate that this necessary. Even if the monitoring results do not show any problems a review of the treatment plant technology and monitoring must occur before the 10th anniversary of the resource consent
- Require Porirua City Council to develop a plan to respond to the findings of the technology and monitoring review.

Public health & recreation

The application proposes to upgrade the treatment plant by June 2023. Once this is complete, the discharge from the plant will have no observable adverse effect on public health. Consequently, the assessment concludes that the adverse effects from the treatment plant discharge on contact recreation and shellfish gathering will be negligible.

This conclusion is based on an assessment of the upgraded plant's effectiveness at treating viruses and bacteria and on peer-reviewed modelling of the adverse effects on several key recreation locations.

Even though there is no expectation that public health will be affected, there will be ongoing monitoring. The technology and monitoring review that must be completed before the 10th anniversary of the consent must consider whether any changes are necessary to those aspects of the plant that treat the public health risks from the wastewater discharge.

Impacts on Ngāti Toa's values

Values of significance to Ngāti Toa include the mauri of the receiving water, access to mahinga kai and kaimoana and Ngāti Toa's ability to exercise rangatiratanga and fulfil kaitiakitanga responsibilities.

Ngāti Toa have identified that these values are adversely affected, and Wellington Water and Porirua City Council are working with Ngāti Toa to provide mitigation for this cultural harm. This may include, for example, changes or upgrades at the treatment plant to better mitigate adverse effects on Ngāti Toa's values and the implementation of a specific kaitiaki monitoring plan. Further information will be provided as these are developed.

Other effects

The AEE identifies that adverse effects on landscape and visual amenity will be very low.

5 Resource consent conditions and mitigation measures

Both the air discharge and wastewater discharge resource consent applications offer a range of conditions. These conditions seek to ensure that any potential adverse effects are managed in accordance with the proposed mitigation measures.

These conditions include:

- core discharge compliance requirements (e.g. wastewater discharge volumes and wastewater quality parameters)
- operational procedures (e.g. an operational management plan and a specific odour management plan)
- monitoring and reporting requirements
- technology and monitoring review conditions.

Porirua City Council has also proposed to continue the treatment plant Community Liaison Group. This group was established as part of the approval of the existing resource consent. The group provides an avenue through which stakeholders can be informed about the operation, maintenance and upgrade of the treatment plant and its compliance with the conditions of the resource consent.

As part of the on-going work with Ngāti Toa further consent conditions are likely to be developed. Information on these will be made public as they are developed and will be able to be discussed at the hearing.