Hokitika Wastewater Treatment Plant Treated Wastewater Discharge

Resource Consent Application and Assessment of Environmental Effects

Stantec

Prepared for:
Westland District Council

Date:
30 September 2025

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Stantec New Zealand

Revision Schedule

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Reviewed by: _____
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Executive Summary

Westland District Council (WDC) currently holds resource consents for the Hokitika Wastewater Treatment Plant (WWTP) to discharge of treated wastewater to the coastal marine area (RC-2015-0141-01) and to discharge contaminants (mainly odour) to air (RC-2015-0141-12). Both resource consents expire on 7 April 2026.

This document is an application for short-term replacement consents of no less than 5 years to continue these discharges. WDC seeks that this application be publicly notified.

This application has been lodged more than six months prior to the expiry of the existing consents (which would be 7 October 2025), in order to enable WDC to keep lawfully discharging treated wastewater from the WWTP to the ocean, and for the discharge of odour from the WWTP, under section 124(1) of the Resource Management Act 1991, until this application is determined. Importantly, the application is also being lodged ahead of the Wastewater Environmental Performance Standards (anticipated in November 2025) to ensure this application can be considered under the current RMA framework – discussed further in section 7.3.8.

The consents are necessary to ensure the discharges remain lawful while WDC work through a process to consider alternative treatment and discharge location options, and to select, consent, build and commission a preferred option to replace the current wastewater scheme.

The effects of the proposed discharge activities have been assessed based on risk, and are described and assessed in Section 5 of this document, which draws on the Assessment of Environmental Effects Report ("AEE Report") in Appendix C. Overall, the adverse environmental effects from the discharges range from "Very low" to "Medium" for most factors, noting that a "Medium" risk is considered "broadly acceptable", defined as "*the maximum level of change from baseline in environmental parameters before the environmental effects become unacceptable" (see section 4.2 of the AEE Report)*. Importantly, this application is for short-term consents to apply only while the applicant considers alternative treatment and/or discharge receiving environments, and commissions a replacement scheme.

Resource Management Act – Form 9

To: West Coast Regional Council
PO Box 66
Greymouth 7840

From: Westland District Council
Private Bag 704
Hokitika 7842

Westland District Council applies for the following type(s) of resource consent:

- Discharge permit to discharge contaminants (treated wastewater) to the Coastal Marine Area; and
- Discharge permit to discharge contaminants (odour) to air.

The activity to which the application relates (the proposed activity) is as follows:

- The discharge of treated wastewater from the Hokitika Wastewater Treatment Plant to the Coastal Marine Area (Tasman Sea Coastal Marine Area), and the discharge of odour to air from the Hokitika WWTP.

The site at which the proposed activity is to occur is as follows:

- Discharge of treated wastewater to the CMA at approximately 1434916 E, 5270950 N (NZTM)
- Discharge of odour to Air - The Hokitika WWTP, State Highway 6 (approximately 1.2 km north of Hokitika, opposite 192 Kumara Junction Highway, Seaview)

The other activities that are part of the proposal to which this application relates are as follows:

- None

No additional resource consents are needed for the proposal to which this application relates.

Attached is an assessment of the proposed activity's effect on the environment that

a) includes the information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and

b) addresses the matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and

c) includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

Attached is an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.

Attached is an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1) (b) of the Resource Management Act 1991, including the information required by clause 2(2) of Schedule 4 of that Act.

The value of the investment of the existing consent holder is in the order of $530,000 (based on the depreciated asset replacement cost of the Hokitika Wastewater Treatment Plant (WWTP) estimated in 2014, and accounting for inflation to 2025 using General CPI). The value of the WWTP including its reticulation network is significantly more. See Section 7.3.7 for more information.

Attached is the following information required to be included in this application by the West Coast Regional Coastal Plan and West Coast Regional Air Plan, the Resource Management Act 1991, or any regulations made under that Act:

- Records of Title (Appendix A)
- Assessment of Environmental Effects Report (Appendix C)
- Wastewater Flows and Loads Assessment Report (Appendix D)

Date: 29 September 2025

Erle Bencich

General Manager District Assets

Westland District Council

Address for Service:

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Telephone: 06 350 9413

Resource Management Act 1991

Schedule Four Checklist

This application document has been prepared in accordance with s88 and the Fourth Schedule of the Resource Management Act 1991. The following table refers to where the information required by the RMA is located within this application document. The application is complete and must therefore be accepted.

Information Required	Document Location
Description of the activity.	**Section 3**
Description of the site at which the activity is to occur.	**Section 2**
Full name and address of each owner or occupier of the site.	**Refer to the RMA Form 9 attached** Records of Title attached in **Appendix A**
Description of any other activities that are part of the proposal to which the application relates.	**Section 3 and 4.1.2**
Description of any resource consents required for the proposal to which the application relates.	**N/A -** No other consents required for the proposal
An assessment of the activity against the matters set out in Part 2.	**Section 7.2**
An assessment of the activity against any relevant provisions of a document referred to in section 104(1)(b), including: a) Any relevant objectives, policies or rules in a document; and b) Any relevant requirements, conditions or permissions in any rules in a document; and c) Any other relevant requirements in a document (for example, in a national environmental standard or other regulations).	**Sections 4 and 6** addresses the activity against the provisions of the: • Rules of the Regional Coastal Plan and Regional Air Quality plan (section 4) • Objectives and policies of the Regional Coastal Plan (section 7.3.5) and Regional Air Quality plan (section 7.3.6) • National Environmental Standards (section 7.3.2) • National Policy Statements (7.3.3) • New Zealand Coastal Policy Statement 2010 (section 7.3.3)
If any permitted activity is part of the proposal to which the application relates, a description of the permitted activity that demonstrates that it complies with the requirements, conditions, and permissions for the permitted activity.	**N/A**
If the application is affected by section 124 or 165ZH(1)(c) (which relate to existing resource consents), an assessment of the value of the investment of the existing consent holder (for the purposes of section 104(2A).	**Refer to the RMA Form 9 attached, Sections 1.1, and 7.3.7**
If the activity is to occur in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act	**N/A** (Not within a customary marine title)

Information Required	Document Location
2011, an assessment of the activity against any resource management matters set out in that planning document (for the purpose of section 104(2B)).	
If it is likely that the activity will result in any significant adverse effects on the environment, a description of any possible alternative locations or methods for undertaking the activity.	**Section 6**
An assessment of the actual or potential effect of the activity on the environment.	**Section 5**
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.	**N/A**
If the activity includes the discharge of any contaminant, a description of: i. The nature of the discharge and the sensitivity of the receiving environment to adverse effects; and ii. Any possible alternative methods of discharge, including discharge into any other receiving environment.	**i. Section 3** **ii. Section 6**
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 effects.	**Section 0**
Identification of the persons affected by the activity, any consultation undertaken, and any response to the views of any person consulted.	**Section 8**
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.	**Section 0**
If the activity will, or is likely to, have adverse effects that are more than minor on 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).	Not applicable
Any effect on those in the neighbourhood and, where relevant, the wider community, including any social, economic, or cultural effects.	**Section 5**, particularly section 5.3 (recreation and aesthetic), 5.1 (public health), and 5.4 (air quality)
Any physical effect on the locality, including any landscape and visual effects.	**Section 5.3**
Any effect on ecosystems, including effects on plants or animals and any physical disturbance of habitats in the vicinity.	**Section 5.2**

Information Required	Document Location
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.	**Sections 5.3, 5.5**
Any discharge of contaminants into the environment, including any unreasonable emission of noise, and options for the treatment and disposal of contaminants.	This application. Description of discharges in **Section 3**
Any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.	**Section 5.6** on Climate Change (no hazardous installations, no other risk wo the wider community)

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1 Introduction

The Westland District Council (WDC) is applying for resource consents to continue discharges associated with the operation of the Hokitika Wastewater Treatment Plant (WWTP). The consents applied for are to authorise the continuation of discharges of contaminants (treated wastewater) via an existing ocean outfall pipeline to the Tasman Sea Coastal Marine Area (CMA), and the discharge of contaminants to air associated with the operation of the WWTP oxidation ponds.

WDC currently holds the following resource consents for these activities:

> *RC-2015-0141-01: To discharge treated sewage effluent to the CMA, via an ocean outfall pipeline, from the sewage oxidation ponds*
>
> *RC-2015-0141-12: To discharge contaminants (mainly odour) to air associated with the operation of the sewage oxidation ponds*

Both resource consents commenced 7 April 2016, and expire on 7 April 2026.

This document describes the activity, the receiving environment and the potential effects on the environment arising from the activities. This document includes an Assessment of Effects on the Environment (AEE) resulting from the discharges. It should be read in conjunction with the information in the appendices, particularly the full "*Assessment of Environmental Effects*" report in **Appendix C**. This document also assesses the discharges in the context of the relevant statutory documents.

This application has been prepared in accordance with Section 88 and the Fourth Schedule of the RMA, and the relevant provisions of the West Coast Regional plans. It meets the information requirements for applications for resource consents and therefore must be accepted for processing.

1.1 Continuation of existing resource consents under s124 of the RMA

Section 124 of the RMA allows a consent holder to continue to operate under an existing resource consent(s) provided that an application to replace that consent is made at least six months prior to expiry (or between six and three months prior, at the discretion of the consent authority).

This application has been lodged more than six months prior to the expiry of the existing consents noted above (which would be 7 October 2025). It has also been lodged prior to the implementation of the Wastewater Environmental Performance Standards (WEPS). Consequently, the application is to be considered under the existing regional plan provisions, as lodgement pre-dates the WEPS.

1.2 Background of the existing WWTP

The WDC operates the existing WWTP and discharge system, which was constructed in 1973. The WWTP is comprised of an inlet structure and two oxidation ponds. Treated wastewater discharges from the ponds via an ocean outfall directly to the CMA. The discharge of treated wastewater to the CMA, and the discharge of odour from the WWTP to air are provided for by the following resource consents:

- RC-2015-0141-01: For the discharge of treated wastewater to the CMA; and
- RC-2015-0141-02: For the discharge of contaminants (mainly odour) to air from the WWTP.

The treated wastewater discharge occurs via an ocean outfall structure for which WDC holds Coastal Permit RC06154/6 to occupy space within the CMA until 22 February 2044.

The WWTP site is designated in the Westland District Plan (Reference No 41) for *Sewage Treatment Disposal*.

As the WWTP site is designated in the District Plan and the outfall structure has a current consent to occupy the coastal marine area, this application addresses only the matters relating to the discharge of treated wastewater to the CMA and the discharge of contaminants to air from the WWTP and oxidation ponds.

2 Existing environment

2.1 Land ownership

The Hokitika WWTP site is located adjacent to State Highway 6 (SH6) and the Hokitika Industrial Branch Railway, approximately 2 km north of Hokitika Township, within land having the following legal description and owners:

Legal Descriptions	Owner(s)
Rural Sections 1003, 1009, 1013, 1021, 4973 and 6599	Westland District Council
Part Foreshore of Tasman Sea Block XIII Waimea Survey District and Part Foreshore of Tasman Sea Block IV Mahinapua Survey District	Alexander Edwin Johnson (mining permit)

Note that the area ‘owned’ by Alexander Edwin Johnson is subject to a mining permit under the Crown Minerals Act 1991, which expired in 2006.

Records of Title are attached in **Appendix A** of this document

2.2 Site location and surrounding environment

The Hokitika WWTP oxidation ponds occupy a narrow strip of land between the Hokitika Industrial Branch Railway to the east and the Tasman Sea to the west. At the seaward side of the site, embankments have been formed between the ponds and the beach. The embankments have been colonised by scrubby native vegetation. The beach extends from the Arahura River mouth in the north to the Hokitika River mouth in the south of the outfall, consisting mostly of sand and gravels. The treated wastewater outfall pipe emerges from the sandy upper beach and is elevated on piles for approximately 50 m, terminating within the intertidal zone. An overview of the site is provided in Figure 1 below:

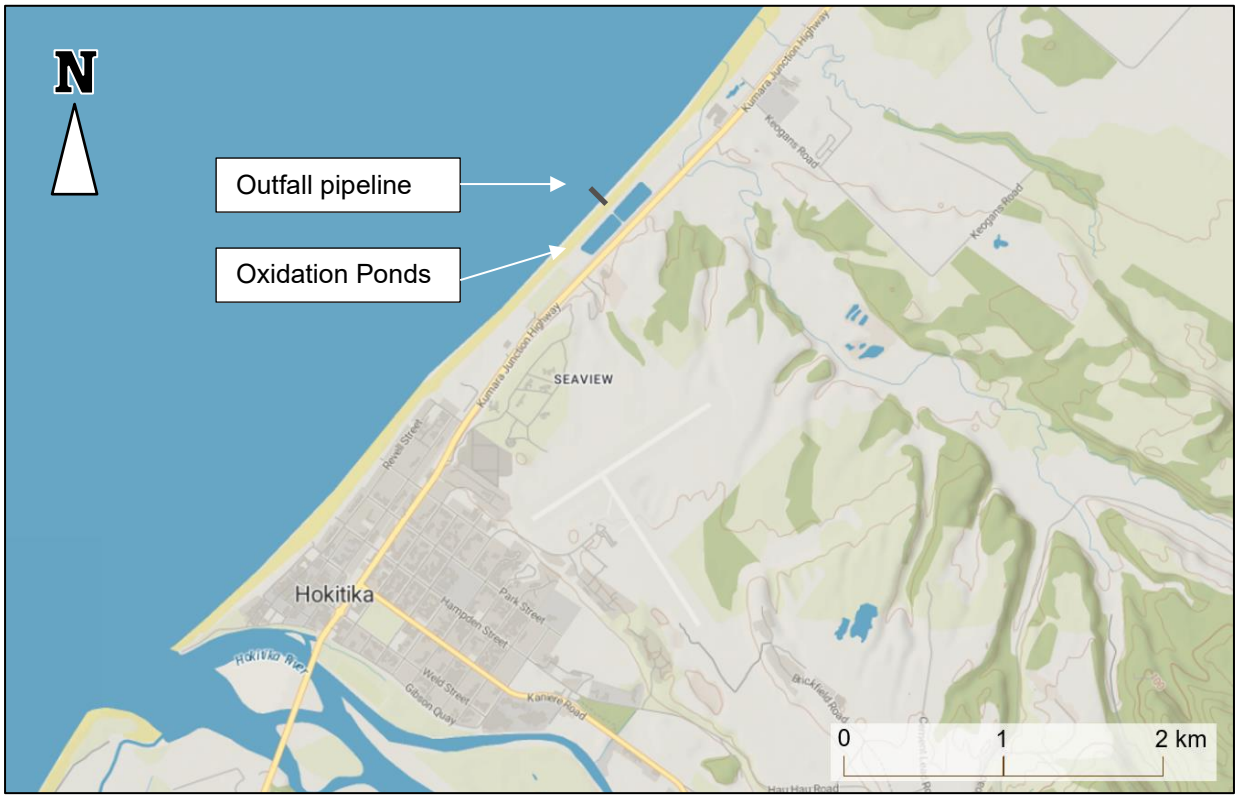


Figure 1: Site location

Land to the south of the ponds is used for grazing, with rugby fields further south, approximately 300 m from the ponds. To the north of the ponds the land is used for grazing, with Houhou Creek crossing SH6 from east to west and flowing to the Tasman Sea. There is a residential dwelling approximately 200 m north of the ponds and immediately adjacent to the left bank of Houhou Creek.

The land to the east of the ponds, on the opposite side of SH6, rises from road level to a terrace approximately 20 m higher. On the terrace to the south-east of the ponds Silver Fern Farms Ltd (SFF) operates a venison and beef processing plant. Further south there is a cluster of residential dwellings at road level and on the terrace. North-east of the ponds there are lifestyle residential dwellings located on the upper terrace.

2.3 Description of receiving environment

Section 3 of the Assessment of Environmental Effects Report (herein "AEE Report"), attached in Appendix C) provides a description of the existing environment. In terms of the discharges to air and water, the receiving environments are summarised as:

- The air above and immediately adjacent to the WWTP, oxidation ponds and outfall, with sensitive receptors being residents of dwellings to the south and north-east, people travelling on the State highway, and recreational users of the adjacent coastal area.
- The coastal marine area, with sensitive receptors being aquatic life, the intertidal zone, recreational users (minimal use), and the coast (water and ecosystem quality).

The coastline in the vicinity of the outfall is described as having a high energy intertidal zone. The beach substrate consists of a mixture of coarse sand, gravel, and cobbles. The prevailing near-shore sea current is predominantly from south to north, although the current's direction can change to southward during certain weather conditions.

Biota within the intertidal area in the vicinity of the outfall is absent, given the high energy coastal environment and the frequency of large changes in beach morphology and movement of sediment along the shoreline. Because of the physical conditions in the intertidal zone, the absence of fauna is expected and is not influenced by the presence of the outfall structure or the discharge.

A significant population of giant triplefin has been identified to the south of the outfall, near the Hokitika River mouth. The species is nationally uncommon and is predominantly a reef-dweller. North of the outfall, the Arahura mussel reefs support green-lipped mussels and other marine reef species.

2.4 Sensitivity of Receiving Environment

The sensitivity of each receiving environment to the effects of the wastewater treatment plant's activities varies according to environmental and human factors. In terms of air discharge, the nearby residential dwellings and recreational users are sensitive to odour in terms of experiencing nuisance effects, especially during on-shore winds. The perception of odour dissipates with increased distance from the treatment ponds.

The coastal marine area is sensitive to the effects of the discharge primarily in relation to its ecological assets situated away from the immediate outfall zone. While the intertidal zone near the outfall is characterised by high energy and a near absence of biota—conditions that inherently limit ecological impact from the discharge—there are significant ecological receptors present further along the coast. Notably, the giant triplefin population south of the outfall is nationally uncommon and potentially vulnerable to water quality changes, and the mussel reefs north of the outfall provide valuable habitat for green-lipped mussels and associated marine species.

3 Description of the Activity

The activities which relate to this consent application include discharging treated wastewater to the CMA, and the discharge of contaminants (odour) to air. These are the key outputs from the Hokitika WWTP to the receiving environment.

3.1 The wastewater treatment system

The WWTP has been operated by WDC since 1973, and treats domestic and industrial wastewater from about 3,500 residents, and a range of commercial users, most notably Silver Fern Farms. A description of the wastewater treatment system is provided in Section 2.2 of the AEE Report in **Appendix C**, summarised as follows:

The system collects wastewater through a network of approximately 56km of pipelines and 10 pump stations, directing it to two oxidation ponds where natural biological processes break down contaminants. The treated wastewater from the ponds is then discharged to the Tasman CMA via an above-ground outfall approximately 50 m long.

The WWTP consists of:

- Inlet works, including grit channel, manual screen, comminutor, flume type flow measurement, and flow splitter.
- Two oxidation ponds each approximately 2.5ha in area and approximately 1.5 m deep with outlets on north-west corner of ponds (Opus, 2015a).
- Discharge via an elevated above-ground outfall into the foreshore area.

Improvements to the plant since 2015 include aerators to increase biological efficiency and address pond odour, upgraded wastewater quality monitoring equipment, and enhanced fencing.

Sludge, a byproduct of the sewage pond treatment process, is periodically removed, dewatered and sent to landfill, with desludging last undertaken in 2011.

3.2 Wastewater flows and loads

The resource consent conditions of RC-2015-0141-01 require compliance monitoring of treated wastewater prior to discharge via the outfall, and further monitoring of water quality within receiving waters. WDC also monitors the influent raw wastewater at the WWTP inlet, at the outlet (end of pipe), and within the receiving environment by coastal water sampling 200 m north and south of the outfall, through monthly sampling.

3.2.1 Influent flows and loads

The influent wastewater flows and loads are summarised in Table 5-1 of the report '*Hokitika WWTP Influent Flows and Loads*' report attached as **Appendix C**, and provided below as Table 3-1:

Table 3-1: Hokitika WWTP Design Influent Flows and Load Summary

Parameter	Unit	Value	
Flows			
Average dry weather flow	m^3/day	1,860	
Average daily flow	m^3/day	2,155	
Maximum average daily flow	m^3/day	5,400	
Loads		**Average**	**Peak Month**
Average BOD load	kg/day	386	476
Average TSS load	kg/day	353	393
Average TN load	kg/day	70	80
Average TP load	kg/day	9.5	11

The characteristics of the treated wastewater flows and contaminant loads are described in more detail in section 2.5 of the AEE Report attached in Appendix C.

3.2.2 Future flows and loads

Table 3-2 shows the usually resident population based on current national census results, for the Hokitika WWTP catchment (from Table 2-1 of the Flows and Loads report). It shows a total population of approximately 4,000 people, with a zero population growth forecast through to 2030.

Table 3-2: Hokitika Usually Resident Population

	Census Usually Resident Population Counts		
Area	**2013**	**2018**	**2023**
Hokitika	3,165	3,096	3,267
Kaniere	435	459	477
Arahura Valley	210	231	309
Total	**3,810**	**3,786**	**4,053**

No statistically significant growth in visitor accommodation capacity and occupancy is expected over the consent term, noting current market capacity in both Hokitika and the wider West Coast region.

Similarly, no increases in wastewater volumes from Silver Fern Farms (as the primary non-residential wastewater source) are anticipated over the term of the discharge permit, with meat production forecast to remain relatively static.

On that basis, no significant changes to influent wastewater are anticipated over the term of the permits applied for, and it is appropriate to assume that current wastewater inflows will remain stable in respect of volume and contaminant load.

3.2.3 Flows and loads of treated wastewater

Section 4 of the Flows and Loads Report (Appendix C) provides details on the volumes and characteristics of the treated wastewater as discharged to the coastal marine area. These are summarised as follows:

Dry weather flows (at least 2 days no rainfall): 1200 m^3/day – 2400 m^3/day

Wet weather flows: 4,000 m^3/day – 5,000 m^3/day

Average Dry Weather Flow (365 day rolling average): 1,800 m^3/day

It is noted that condition 8 of RC-2015-0141-01 provides for an average volume of 10,000 m^3 per day to be discharge to the CMA, which the applicant proposes to continue.

3.3 Existing Monitoring

RC-2015-0141-01 requires compliance monitoring of treated wastewater prior to discharge via the outfall, and further monitoring within receiving waters. Monitoring of the inlet is not required, however, WDC monitors the influent (in-flows) at the inlet, treated wastewater (at the outlet), and receiving environment quality (sampling at 200 m north and 200 m south of the outfall) monthly. Samples from each location are analysed for:

- $cBOD_5$,
- Suspended solids,
- Ammoniacal-nitrogen (NH_3-N),
- Nitrate-nitrogen,
- Enterococci (ENT),
- Faecal Coliforms (FC), and
- *E. coli.*

3.4 Treated wastewater discharges

3.4.1 Characteristics of the discharge

Section 2.5.4 of the AEE Report provides detail on the characteristics and flows of the treated wastewater as discharged into the CMA, summarised as follows:

Between 2018 and 2025 (to present day), the average discharge volume is 3,245 m^3/day. The volume of discharge over time is detailed further in Section 2.5.4.1 of the AEE Report, as well as the Flows and Loads report (Appendix D).

In terms of the chemical composition of the treated wastewater at the point of discharge, consent condition 11 only requires the monitoring of E.coli and enterococci, at the outfall location, and 200 m north and 200 m south of the discharge point. WDC also monitors for Suspended Solids, $cBOD_5$, Nitrate-Nitrogen, and Ammonia-Nitrogen. While there are no conditions on the limits of those contaminants, as noted in Section 2.5.4 of the AEE Report WDC has an internal benchmark based on industry benchmarks as follows:

- Suspended solids: 50–70 g/m3
- cBOD5: 30–40 g/m3
- Nitrate-Nitrogen: 0.01–0.1 g/m3
- Ammonia-Nitrogen: 20 g/m3

Trigger values for E.coli and enterococci are set by condition 12 as follows:

- 28,000 *E. coli* per 100 mL at the outfall (sampling site 1).
- 280 enterococci per 100 mL at mixing zone boundaries (sampling sites 2 and 3).

The levels for each contaminant are presented in the AEE Report in various areas, depending on the subject matter to which the contaminants relate. To help with referencing, these are located in the AEE report as follows:

- E.coli and enterococci: Section 2.5.4.4 (public health indicators), 3.7.8.2 (public health – water quality)
- cBOD5: Section 3.7.7 (table 3-2)
- Suspended solids, Nitrate-Nitrogen and Ammonia-Nitrogen: Sections 3.7.7 (water quality)

The results for all samples are available in a spreadsheet if required, and are summarised in the following table:

Table 3-3: Summary of wastewater characteristics at sampling locations

	Location	Number of samples collected	Trigger level	Minimum	Average	Median	Maximum	80th Percentile
E. coli (CFU/100mL)	Outlet	78	28,000	3	4435	450	100,000	3500
	200 m north	69	N/A	2	533	67	6,700	900
	200 m south	69	N/A	1	176	35	2,500	214
Enterococci (CFU/100mL)	Outlet	78	N/A	1	775	100	7,000	974
	200 m north	70	280	1	121	40	1,500	184
	200 m south	70	280	2	122	15	3,700	100
Suspended solids (g/m^3)	Outlet	78	N/A	39	187	156	655	262
	200 m north	70	N/A	34	188	178	549	256
	200 m south	70	N/A	48	192	167.5	554	257
Ammonia Nitrogen (g/m^3)	Outlet	42	N/A	0.01	3.17	0.24	20	5.92
	200 m north	69	N/A	0.007	0.16	0.10	0.69	0.23
	200 m south	70	N/A	0.01	0.13	0.10	0.73	0.10
Nitrate Nitrogen (g/m^3)	Outlet	78	N/A	0.01	0.11	0.06	1.11	0.12
	200 m north	69	N/A	0	0.06	0.05	0.33	0.07
	200 m south	70	N/A	0.01	0.08	0.05	0.57	0.08
BOD5 (g/m^3)	Outlet	78	N/A	2	7.92	2	98	5.6
	200 m north	70	N/A	2	2.30	2	7	2
	200 m south	70	N/A	2	2.74	2	40	2

Appendix B of the AEE Report includes graphs of each contaminant over time, for the relevant sampling locations.

The exceedances in trigger values for E.Coli and Enterococci are discussed in Sections 2.5.4.4 and 3.7.8.2 of the AEE Report. Overall, the exceedances highlight poor quality of water within 200 m of the outlet which has an adverse impact particularly on public health in relation to contact recreation and the shellfish harvested in that area. These effects are discussed in Section 5.3 of this document.

3.4.2 Discharge environment

The treated wastewater is discharged via an outfall pipe, which emerges from the sandy upper beach and is elevated on piles for approximately 50 m, terminating within the intertidal zone (i.e. below mean high water springs). The discharge is generally directly into seawater (the CMA), however at low tide discharge can be on to sand (see Figure 2 below).

Signage exists near the outfall, warning the public of the presence of a treated wastewater discharge and the risk of bathing within the mixing zone, as required by condition 4 of the existing consent

Figure 2: Photo of discharge via outfall at low tide (source: Riverlake, 2015)

3.5 Discharge of contaminants to air

The key source of odour at the WWTP is the two oxidation ponds, with a potential source of odour at the inlet channel flow splitting device. The most common sources of odour is from faecal and sulphurous (hydrogen sulphide).

As noted in the AEE Report (particularly Section 4.7), sources of contaminants discharging to air can also include Aerosols (sprays, mists etc), and the formation of corrosive and hazardous chemicals (sulphurous, nitrogenous, acids, aldehydes, and ketones).

As required by consent conditions, WDC have undertaken odour surveys on the 148 properties within a 1.5km radius of the WWTP, last done in 2018 and 2019. According to Section 4.7.1 of the AEE Report, the 2019 results shows an improvement in the perception of odour over 2018 results, also noting that weather (particularly on-shore wind) and proximity to the ponds have an impact on that perception.

There is no particular management of odour, although it is noted that the brush aerators on each lagoon help to reduce odour by increasing the biological efficiency of the ponds. Monitoring of odour is achieved through the surveys as noted above.

4 Resource Consent Requirements

As per Section 15(1) of the RMA, the discharge of contaminants into water (including via land) is prohibited unless allowed by a national environmental standard (which this activity is not), a rule in an operative or proposed regional plan (which this activity is not), or a resource consent. Similarly, Section 15(2) prohibits the discharge of contaminants into air unless allowed by a national environmental standard (which this activity is not), or a resource consent.

For clarity, Section 12 of the RMA does not apply, as this application is not for a structure in the CMA. As noted in Section 1.2, the existing outfall structure is deemed a lawful structure in the CMA under Permit RC06154/6.

4.1.1 Regional Plan Rules Assessment

The operative West Coast Regional Coastal Plan 2001 (RCP), last amended in 2011, is the relevant plan for assessing the discharge of treated wastewater to the coastal environment. The proposed West Coast Regional Coastal Plan 2016 was withdrawn on 17 September 2024.

The operative West Coast Regional Air Quality Plan 2002 (AQP), amended in 2024 and 2025, is the relevant plan for assessing the discharge of contaminants (odour) to air.

The West Coast Regional Policy Statement does not contain any rules, however it sets out objectives and policies that are critical for managing the effects of the use, development and protection of natural and physical resources in West Coast Region. Those provisions are assessed in section 7.3.4 below.

4.1.1.1 Regional Coastal Plan 2001

The relevant rules of the RCP are *set out and* assessed inTable 4-1 below:

Table 4-1: Assessment of RCP Rules

Rule	Wording	Assessment
10.5.2 Discharge of human sewage except from ships	*10.5.2.1 Any discharge of human sewage, except from ships, to the coastal marine area, is a discretionary activity.*	This application is for the discharge of human sewage (other than from a ship) to the CMA, which has not passed through soil or a wetland. As such, resource consent is required as a **Discretionary Activity** under Rule 10.5.2.1 for the discharge of treated wastewater to the CMA.
10.5.5 Discharge of water or other contaminants	*10.5.7.1 Except as provided for by rules 10.5.1.1 through to 10.5.6.7 or national regulations, the discharge of water or contaminants to the coastal marine area is a permitted activity provided the discharge is:* *a) Water which will not change the natural temperature of the receiving waters, after reasonable mixing, by more than 3° Celsius; or* *b) Non-toxic tracer dye; or* *c) Cooling water free of process or waste substances and which would not change the natural temperature of the receiving waters, after reasonable mixing, by more than 3° Celsius; or* *d) Continually flowing water which has been used for holding live sea organisms and which has had no other contaminant added to it.*	This application is for the discharge of contaminants to the coastal marine area, however of the four permitted activities under rule 10.5.5, none apply to this application.
	10.5.7.2 Except as provided for by 10.5.7.1, the discharge of water or contaminants into the coastal marine area is a discretionary activity.	Rule 10.5.7.2 applies, as this application is for the discharge of contaminants into the coastal marine area, and is not provided for under Rule 10.5.7.1 as discussed above. As such, resource consent is required as a **Discretionary Activity** under rule 10.5.7.2

Overall, the discharge of treated wastewater to the coastal marine area is a **Discretionary Activity** under rule 10.5.2.1 and 10.5.7.2 of the RCP.

4.1.1.2 Regional Air Quality Plan 2002

The relevant rules of the Regional Air Quality Plan 2002 (RAQP) are set out and assessed in Table 4-2 below:

Table 4-2: Assessment of RAQP Rules

Rule	Wording	Assessment
Rule 16 General Discretionary Activities	*Any discharge of contaminants into air from:* *1. any industrial or trade premises that is not specifically provided for by any rule within this Plan; or* *2. any source (whether moveable or not), which does not comply with any condition of a permitted activity rule or any of the standards and terms of a controlled activity rule within this Plan, but which is not prohibited;* *is a discretionary activity.* *Advisory Note:* *Discharges of contaminants into air from commercial, industrial … premises … include, but are not restricted to, discharges associated with the following:* *…* *Municipal sewage treatment processes;*	The discharge of odour from the WWTP (oxidation ponds), does not meet any of the Permitted or Controlled rules in the RAQP. The air discharge for this activity is covered by Rule 16, for an industrial premises that is not specifically provided for by any rule in the RAQP, and in the advice notes explicitly includes municipal sewage treatment processes. As such, the air discharge activity being applied for is a **Discretionary Activity.**

There are no other regional rules which relate to air discharge for this activity. As such, resource consent is required for a Discretionary Activity under Rule 15 of the RAQP.

4.1.2 District Plan requirements

The WWTP oxidation ponds are designated under the Westland District Plan, ID 41. The applicant does not propose any changes to the WWTP as a result of this application, and therefore does not require an Outline Plan or waiver for the proposed activity, or an amendment to the designation.

The discharge pipe is located in the CMA and WDC holds resource consent RC06154/6 for the pipe and outfall structure until 22 February 2044.

The replacement of the discharge permits sought through this application does not require resource consent or other planning permission from Westland District Council.

5 Assessment of Environmental Effects

Section 88 of the RMA requires that an applicant assess any actual or potential effects that the proposed activity may have on the environment, and the ways in which any adverse effects may be avoided, remedied or mitigated. Further, Schedule 4,clause (2)(3)(c) requires that an application includes an assessment of the activity's effects on the environment that includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

The effects of the proposed continuation of the activity on the environment have been assessed in detail in the AEE Report, which is attached in **Appendix C**.

This section summarises the effects in that report. Overall, the following effects have been considered:

- Positive effects
- Effects on water quality
- Effects on Recreation and Aesthetic Values
- Effects on Ecosystems
- Effects on public health
- Effects on Air Quality
- Cultural Values

5.1 Positive effects

In accordance with the definition of 'effect' in Section 2 of the RMA, any positive effects of the discharges need to be assessed. Council's assessment should ensure that positive effects are appropriately considered in the overall weighing of effects.

The key positive effect of the proposal to continue the discharges is that they are an integral part of the Hokitika wastewater system that provides a safe and reliable public sanitation system for the community. The key benefit arising from the broader wastewater system is that it conveys untreated wastewater from residential, commercial, and industrial activities (including the Silver Fern Farms complex) across the town, and thereby enables these activities while helping to protect public health and environmental quality. Wastewater systems also provide for the social, economic and cultural health and wellbeing of the community by enabling the development of urban centres as key focal points of social, cultural and economic activities.

There currently no viable alternatives to continuing the WWTP discharges as fundamental to providing a functional wastewater system on an ongoing basis. Consequently, for the short term the discharges

need to continue for the substantial positive effects to be realised, until the current scheme can be replaced. This application is for permits to enable the lawful continuation of the wastewater scheme, and the ongoing public health, economic, social and environmental benefits, while a long term replacement scheme is determined, including in regard to currently evolving statutory and regulatory setting.

5.2 Effects on the Coastal Marine Environment

Section 3.7.7 of the AEE Report describes the water quality of the surrounding marine environment, and Section 4.5 of that report provides an analysis of the actual or potential effects on marine water quality under the existing discharge consent (which is proposed to continue under the short-term consents applied for.

Condition 11 of the existing consent requires monitoring for E.coli and enterococci at the discharge outfall, and 200 m north and south of the outfall, at various frequencies depending on the month of the year. Condition 12 requires additional sampling and reporting if samples return great than:

a) 28,000 E coli per 100 ml at the outfall, or

b) 280 enterococci per 100 ml at mixing zone boundaries (200 m north/south of the outfall)

As discussed in Section 3.7.8.2 of the AEE Report, these trigger value were exceeded as follows:

- On six occasions between 2020 - 2023 at sampling site 2 (200 m North).
- On three occasions at sampling site 3 (200 m South) (one on 15 January 2020, and one in each of May and November 2023 respectively).

The sampling results otherwise fall under the trigger values.

WDC has also collected data (voluntarily) on suspended solids, Ammonia Nitrate and Nitrate Nitrogen, at the same locations.. The following table summarises this monitoring data:

Table 5-1: Data on Suspended Solids, Ammonia Nitrate and Nitrate Nitrogen

Analyte	Sampling location	Number of samples	Average	80th percentile	Maximum
Suspended solids (g/m^3)	200 m north	70	188.46	256.4	549
	200 m south	70	191.73	254.6	554
Ammonia Nitrogen (g/m^3)	200 m north	69	0.16	0.23	0.69
	200 m south	70	0.13	0.10	0.73
Nitrate Nitrogen (g/m^3)	200 m north	8	0.06	0.1	0.33
	200 m south	70	0.08	0.1	0.57

It is noted that the Ammonia Nitrogen results are below the default guideline values under the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018. Note there are no guideline values for suspended solids or Nitrate Nitrogen.

There are no changes to the wastewater treatment process proposed given the short-term of the consents sought, and the current treatment efficacy. As such the effect of the treated wastewater discharges on receiving water quality is not expected to significantly change over the term of the consents applied for.

Emerging Contaminants (which are not monitored for, refer to the details in section 4.4.2 of the AEE Report) can pose an adverse environmental and human health risk, due to the interactions with other contaminants and environmental stressors, and bioaccumulation and biomagnification by organisms. Microplastics in particular are potentially harmful to wildlife and humans if ingested.

Given the type of treatment provided by the Hokitika WWTP pond system, not all microbiological pathogens or emerging contaminants will be removed by the treatment process. However, the treated wastewater is discharged to a high energy coastal environment where it is mixed significantly, substantially reducing concentrations and correspondingly any risk of human exposure or potential for bioaccumulation in receiving environment fauna. The potential effects on coastal fauna is particularly minimal given the quality of the treated wastewater, the rapid dilution and distribution in the high energy receiving environment, and the paucity of coastal flora (as a food source) and fauna present in the vicinity of the outfall. The high energy hydrology of the coastal water receiving environment provides significant mixing, dispersion and dilution. Contaminant loads are quickly dispersed and diluted by the large volume of active, fast-moving coastal water.

Section 4.4.4 of the AEE Report provides an assessment of the effects of the treated wastewater discharge against the requirements of Section 107(1) of the RMA, regarding visible suspended materials, colour, odour, and effects on aquatic life beyond the zone of reasonable mixing. The reasonable mixing zone in this case is considered to be 200 m north and south of the end of the outfall, as indicated by the monitoring points required by the conditions of the current treated wastewater discharge permit. The current treatment process achieves a quality of treated wastewater that does not cause any of the s107 effects in the CMA receiving environment.

5.3 Effects on Public Health and Recreation Values

Adverse effects on public health and recreation values are assessed in Sections 4.5 and 4.6 of the AEE Report, respectively. In summary, the assessment notes that the treated wastewater is discharged directly onto the foreshore at low tide, where a portion is absorbed into beach sediments with the remainder flowing downslope to the sea where it is quickly diluted and dispersed in the high-energy coastal environment. During high and mid tidal cycles treated wastewater is discharges directly to coastal waters within or seaward of the breaker zone.

While this rapid dilution and dispersal significantly reduces the potential for public health risks, a moderate to high risk remains in the event that people choose to engage in activities on the beach or in the sea immediately adjacent to the outfall while treated wastewater is being discharged. Warning signs are currently in place to inform the public of the potential risk, although it is noted that the location is known to be unsafe for swimming / water-based activities in any case, and is not popular for other activities such as fishing or collecting seafood given the absence of marine fauna. The current potential effect on public health and recreation values will remain unchanged for the term of the replacement discharge permits applied for, however it will cease once a long-term replacement scheme is commissioned.

Given the quality and method of treated wastewater discharges, that monitoring shows that it complies with the trigger values of the current discharge permit for the majority of the time, and that the public use of the area within 200 of the outfall is limited, the actual and potential effect of the discharge on public health from recreational activities is considered to be minimal. In the absence of people choosing to come into contact with treated wastewater-contaminated beach sediments or seawater, the adverse effect on public health and recreation values of continuing to discharge treated wastewater via the Hokitika WWTP outfall is negligible.

5.4 Effects on Air Quality

As discussed in Section 4.7 of the AEE Report, there is no recorded ambient air quality data at the WWTP location. Generally, air quality can be degraded from the following in relation to the WWTP:

- Formation of corrosive and hazardous chemicals i.e., sulphurous, nitrogenous, acids, aldehydes, and ketones.
- Aerosols, i.e., sprays, mists etc.
- Odour formation, common sources of odour are faecal and sulphurous (hydrogen sulphide).

The previous consent application concluded that there are no other potential sources of emissions that are likely to affect the air quality in the vicinity of the WWTP, and thus, no potential adverse effects on air quality form the WWTP operation. However, during this consent period, the treatment system was limited to a non-mechanised treatment process system.

The effect of odour on public health, people and communities was assessed in the previous consent application (Opus, 2015b). Aside from the addition of aerators to the treatment system, the assessment is still considered applicable

As required from condition 22 of Resource Consent RC06154/3, Westland District Council undertook community-based odour surveys within a 1.5 km radius of the WWTP in 2018 and 2019, to assess the effectiveness of the plant's odour control and the levels of off-site odour. From these surveys, a report concluded that there appeared to be an improvement in the public's perception of the odour from the oxidation ponds compared to the 2018 survey results. Weather (including westerly winds) and proximity to the ponds appear to have an impact on the perception of the odours offensiveness. The AEE report recommends that community engagement continues.

5.5 Effects on Cultural Values

The discharge of treated wastewater containing human waste to water is unambiguously offensive to mana whenua and it has been an ambition of Te Rūnanga o Ngāti Waewae for the current treated wastewater discharge to the Tasman Sea (Te Tai-o-Rēhua) to cease. The applicant acknowledges the adverse effect of discharging treated wastewater to the coastal marine area, on Māori cultural values and the need for the current discharge to ultimately cease. WDC recognises that a land based wastewater management option better aligns with tikanga for managing human wastewater, such that human wastewater does not discharge directly to water. It is noted that mana whenua accept that this application for short term discharge permits is necessary only as a step toward achieving a better long term outcome, and therefore a Cultural Impact Assessment of the activity has not been requested.

The applicant discussed the proposal to seek short term replacement permits with rūnanga representatives who have been involved in assessing options for the long term scheme, prior to lodging this application.

5.5.1 Cultural Effects from the discharge of treated wastewater

Tangaroa is the Atua/god associated with the sea. Achieving improved cultural health in marine and coastal environments is fundamental to the rūnanga achieving their kaitiakitanga obligations and aspirations.

For mana whenua the effects of the current discharge goes beyond the scientifically based measurable effect on water quality. The treated wastewater discharge adversely affects the cultural values and the mauri of the coastal water and the nearby coastal environment. The effects on water quality and related ecosystem quality however, will continue to have an adverse effect on any taonga and mahinga kai species that inhabit this stretch of coastline such as tuna and īnanga, and the immediately adjacent areas of coastline.

The discharge of treated wastewater to water, especially where, or affecting areas where kaimoana is gathered, is of significant concern to Ngāti Waewae. Such discharges adversely affect the mauri of the water and the ability of Ngāti Waewae whānui to exercise their customary rights and responsibilities. Mahinga kai is central to Ngāti Waewae culture and traditions, and adverse effects on water quality can impact mahinga kai practices, and the rūnanga's cultural heritage and kaitiakitanga responsibilities.

The adverse effects of treated wastewater discharges on water quality and ecosystem health is considered to be minimal in the biophysical sense however the applicant acknowledges that the adverse effects of the discharge on Māori cultural values is more significant, and the rūnanga's preference remains for the current discharge to end. That is also the ultimate goal of the applicant, who is working closely with the rūnanga to achieve that goal with a replacement wastewater scheme.

Overall, it is clear that the effects on cultural values can only be considered as "high" (given the scale used for the remaining environmental effects in this report). However, this application is for a short term to allow time for WDC and iwi to collaborate on an alternative scheme, to achieve a more favourable long term wastewater management scheme that is better aligned with Māori cultural values.

5.5.2 Cultural effects from discharges to air

Air is a taonga derived from Ranginui (the Sky Father). Ranginui is the sky, husband of Papatūānuku and father of her earthly progeny, and is associated with life and light. As with other taonga, the mauri, or life supporting capacity, of air must be protected, and air must be used with respect maintained in or restored to a healthy state.

Discharging contaminants to air can result in adverse effects on sites or resources of significance to tāngata whenua, and their associated values. Air pollution can compromise the quality and value of mahinga kai and wāhi tapu, and can impact the enjoying and appreciation of natural and cultural values. Discharges from the management of human wastewater can also have an adverse effect on cultural values as well as affecting the health and well-being of people and communities. Amenity values are natural or physical characteristics of a place or area that underlie people's appreciation of pleasantness, aesthetic properties, cultural characteristics, and recreational values. The ability to enjoy fresh air and characteristics such as the smell the sea unimpeded by odours from wastewater management processes are key amenity values that are associated with clean air, and the mauri of air as a taonga.

5.5.3 Measures to Avoid, Remedy or mitigate the adverse effects

Fundamentally, discharges of treated wastewater to the CMA as currently occurs with the Hokitika WWTP discharge will continue to adversely affect Māori cultural values. Only avoiding treated wastewater discharges to the CMA in favour of an alternative receiving environment will address the effect. There is therefore no option to remedy or mitigate the cultural offense caused by the current discharge, and the effect on cultural values is regarded as "high" in terms of risk (aligning with the risk based approach on other effects).

However, the applicant has partnered with mana whenua representatives in the options assessment process that is currently underway to identify and implement an alternative long term solution. Rūnanga representatives have been present for the duration of that process as part of the project steering group and are instrumental in determining the option that will ultimately replace the current treatment process and near-shore treated wastewater discharge. While the applicant's preference was to have commissioned an alternative scheme before the current permits expired, the replacement permits are now required to provide for the discharges to lawfully continue only for the period required to achieve

that alternative. The applicant remains committed to addressing the current discharge and the associated adverse cultural effects resulting from it.

5.6 Effects from climate change and natural hazards

Increases in extreme weather events and rainfall as a result of climate change, may result in capacity issues in the network from increased infiltration. Aside from stress on the wastewater network, the key risk from a planning perspective is compliance with the volume and quality of the discharge. Section 4.11 of the AEE Report provides further information on the impact of climate change-related weather events on the WWTP operation.

However, given the timescale of climate change compared to the short term nature of this application, the potential impact of climate change and sea level rise is not considered to be significant on either the outfall or the WWTP.

In terms of other natural hazards such as coastal inundation and erosion, flooding, landslide or earthquakes, providing for the short term discharge permits applied for will not result in an increase in risk from such events, or undue exposure to the wider community. The WWTP is not subject to freshwater flood or landslide risk, and the risk from tsunami, coastal erosion or inundation including storm surge will not measurably increase over the term sought.

5.7 Monitoring and Mitigation measures

As noted in Section 3.3 above, the applicant proposes to continue the existing monitoring regime by monitoring treated wastewater prior to discharge via the outfall, and within receiving waters (at the discharge location, and at 200 m north and 200 m south of the discharge). Samples from each location are to be analysed for:

- $cBOD_5$,
- Suspended solids,
- Ammoniacal-nitrogen (NH_3-N),
- Nitrate-nitrogen,
- Enterococci (ENT),
- Faecal Coliforms (FC), and
- *E. coli.*

The applicant proposes to continue the existing monitoring regime without change, with the same consent conditions (also discussed in Section 10 below).

5.8 Overall Assessment of Effects

Section 4.14 of the AEE Report provides a useful summary of all effects considered in the report. A summary of this table reflecting the above assessment of effects is provided in Table 5-2 below. The risk rating, defined in Section 4.2 of the AEE Report, is a combination of the likelihood of an effect occurring and the magnitude of that effect. The overall risk rating is combined as follows:

Table 5-2: Risk Rating Matrix

Risk Rating Matrix		Magnitude of effect				
		Very high	**High**	**Moderate**	**Low**	**Negligible**
Likelihood of effect	Almost Certain	Very high	Very high	High	Medium	Low
	Likely	Very high	High	Medium	Medium	Low
	Possible	High	High	Medium	Low	Low
	Unlikely	High	Medium	Low	Low	Very low
	Rare	Medium	Low	Low	Very low	Very low
	None	None	None	None	None	None

Table 5-3 below is a summary of the effects on the environment, with ratings for risk and magnitude, and an overall risk rating based on the risk rating matrix above:

Table 5-3: Summary of assessment of effects

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Overall Risk Rating
Marine water quality	Change in water temperature	Possible	Low	Low
	Change in pH	Possible	Low	Low
	Increase in suspended solids	Possible	Low	Low
	Change in salinity / electrical conductivity	Possible	Low	Low
	Change in dissolved oxygen	Possible	Low	Low
	Increase in $cBOD_5$	Possible	Low	Low
	Increase in contaminants from trade waste causing toxicity, and impacting ecosystem function and food chains.	Unlikely	Moderate	Low
	Reduction in water clarity, impacting on ecosystem function	Unlikely	Moderate	Low
	Increase in total nitrogen	Unlikely	Moderate	Low
	Increase in ammoniacal-nitrogen	Likely	Low	Medium
	Increase in dissolved reactive phosphorus	Unlikely	Low	Low
Health of benthic ecosystem, including intertidal ecology	Contamination of seabed sediments	Possible	Low	Low
	Accumulation / erosion of sediment on seabed beneath the outfall	Likely	Moderate	Medium
	Toxic effects on benthic biota	Unlikely	Low	Low
	Increased growth of algae in intertidal zone	Rare	Low	Very low

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Overall Risk Rating
Seabirds and shorebirds	Vector attraction (birds attracted by organic matter from discharge, odour)	Unlikely	Low	Low
Marine mammals	Noise/vibration	Rare	Low	Very low
	Toxic effects on sensitive marine mammals from contaminants	Unlikely	Moderate	Low
Fish	Toxic effects on sensitive fish species from contaminants in the discharge	Unlikely	Moderate	Low
	Change in habitat due to changes in availability of nutrients etc	Unlikely	Moderate	Low
Public health	Increase in faecal contamination leading to recreational health risks	Unlikely	Moderate	Low
	Illness in people who eat contaminated shellfish collected south of the outfall.	Possible	Low	Low
	Increase in faecal contamination in fin fish and rock lobster, leading to illness	Possible	Negligible	Low
	Increase in faecal contamination which contaminates seaweed, leading to illness	Likely	Low	Medium
Recreational values	Reduced ability (or willingness) to undertake primary contact recreation in the vicinity of the outfall	Almost Certain	Low	Medium
	Reduced ability to undertake non-contact recreation near outfall due to frequent discharges	Almost Certain	Low	Medium
Air quality	Odour impacting on neighbours	Likely	Low	Medium
	Odour impacting on beach users	Possible	Low	Low
Groundwater	Reduction in groundwater quality	Rare	Negligible	Very Low
	Changes in groundwater quantity	Rare	Negligible	Very Low
Climate change	Changes in precipitation, leading to changes in inflows to the WWTP. Could exceed WWTP's design capacity.	Likely	Low	Medium
Cultural Values	Adversely affects the cultural values and the mauri of the coastal water			High

The overall risk ratings for marine water quality, ecosystems (including benthic ecosystem, seabirds and shorebirds, marine mammals, and fish), public health, recreational values, air quality, groundwater, and climate change, range from very low to medium, by far the majority of which are "low" risk. As noted in the conclusion of the AEE Report (Section 5), "a *medium level of risk is defined as a broadly acceptable level of effect, which is equivalent to compliance with relevant guidelines or standards".*

The overall risk rating for cultural values is considered "high", although as discussed in Section 5.5.2, this application is for a short term to allow time for WDC and iwi to collaborate on an alternative scheme, to achieve a more favourable long term wastewater management scheme that is better aligned with Māori cultural values.

Risk approach and magnitude of effect

The above assessment of environmental effects is a risk-based approach, which combines the likelihood of impact against the magnitude of the impact. In terms of an overall level of effect on the environment, for most receptors or values this could be considered “minor” given the majority of low and very low risks, while “moderate” effects apply to

- Marine water quality (for ammoniacal-nitrogen)
- Erosion of sediment on seabed
- Contaminating seaweed (public health consumption)
- Recreational values
- Odour impacting on neighbours, and
- Climate change

The level of effect on cultural values is significant, however given the current level of engagement and the short term applied for, overall this is considered appropriate.

6 Consideration of alternatives

Schedule 4 of the RMA requires an assessment of possible alternatives if it is likely that the activity will result in ‘significant’ adverse effects on the environment[1] or where the activity includes a discharge of any contaminants[2].

The applicant is well advanced in the process of assessing alternative options for long term wastewater management, including discharges to various receiving environments, but has not yet completed all investigations necessary to responsibly commit to progressing an option. This optioneering process is ongoing, involves representatives from the Westland District Council, rūnanga, and the West Coast Regional Council, and is expected to complete in the near future.

This current application is simply for short-term discharge permits to enable the current wastewater scheme to continue to discharge treated wastewater and odour to the environment while the applicant confirms the final replacement scheme, secures any necessary consents and approvals, and procures, builds and commissions it. Essentially, there is no immediate alternative to the current discharges given the limited flexibility of the existing WWTP and discharge infrastructure, the short term applied for, and the focus of the applicant in investing limited resources into a long term wastewater solution for Hokitika.

A summary of the Assessment of Alternatives is provided in Section 5 of the AEE Report (Appendix C).

[1] Section 6(1)(a) of Schedule 4
[2] Section 6(1)(d) of Schedule 4

7 Statutory Assessment

7.1 Overview

The RMA is New Zealand's principal statute for managing the use of land, air and water. The overarching purpose of the RMA, as set out in section 5, is to "to promote the sustainable management of natural and physical resources".

This section sets out the framework under the RMA that applies to the resource consent sought, it does so in the following sections:

- Consideration of Applications - Section 104, s105 and s107;
- Relevant Objectives and Policies; and
- Purpose and Principles of the RMA – Part 2.

7.2 Part 2 of the RMA

All relevant planning documents were developed in accordance with the purpose and principles in Part 2 of the RMA and to achieve the purpose of the RMA, as expressed in s5 of the RMA (within Part 2).

As such, recourse to Part 2 of the RMA is only required, or relevant, where particular circumstances exist i.e. where there is:

- Conflict between provisions; or
- Invalidity, incomplete coverage, or uncertainty of meaning in the relevant statutory documents.

In this instance, these circumstances do not exist. The provisions of the relevant planning documents are considered sufficiently clear that recourse to Part 2 is not required. Consequently, more detailed consideration of the provisions of Part 2 is not required or provided in this application document.

7.3 Section 104 Assessment

Section 104 of the RMA sets out the matters to which a consent authority must, subject to Part 2 of the RMA (as above), have regard when considering an application for resource consent. Of relevance to this application, these include:

> 104(1)(a): Any actual and potential effects on the environment of allowing the activity;
>
> 104(1)(b): Any relevant provisions of a national environmental standard, other regulations, national policy statements, the coastal policy statement, regional policy statements and plans, and the District Plan;
>
> 104(1)(c): Any other matter the consent authority considers relevant and reasonably necessary to determine the application.

104(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.

104(2D): Consideration of a resource consent application that relates to a wastewater network

These are addressed in the subsections below.

7.3.1 Section 104(1)(a) RMA: Actual and Potential Environmental Effects

The actual and potential adverse effects are assessed in Section 5 of this application document. Overall, the positive effects are notable, and the adverse effects have been assessed as varying between “Very low” to “Medium” for all effects assessed, with the exception of cultural values assessed as “High”. The majority of effects are assessed as “Low” in terms of an overall risk rating, and noting that an overall “Medium” risk represents “*broadly acceptable level of effect”* in terms of the *“maximum level of change from baseline in environmental parameters before the environmental effects become unacceptable”* (as discussed in section 4.2 of the AEE Report).

In terms of the overall effect on the environment rather than using a risk rating, given that the highest risk rating of “medium” (except for cultural effects) is less than ‘unacceptable’, the appropriate measure for a level of effect could be considered at least “minor” (for a Medium risk rating) but not so far as “significant”. In acknowledging the higher impact on cultural values, while also considering the short term of this consent in order for the applicant to consider alternative options, the overall effect on the environment is considered to be “minor” and is acceptable for this case.

Mitigation measures are in place to manage the potential for contact recreation to occur (by way of warning signs), and noting that the characteristics of the beach, foreshore and marine environment in the area of the outfall do not support or encourage swimming, boating or other contact recreation. Māori cultural values have been identified by working closely with mana whenua in the long term WWTP option selection process, and through active participation by mana whenua in that alternatives process. The effects on Māori cultural values are unavoidable in the short term, and are temporary, until a replacement scheme can be commissioned.

7.3.2 Section 104(1)(b)(i) RMA: National Environmental Standard(s)

There are no National Environmental Standards which relate to this application. Note that, while there is no recorded ambient air quality data at the WWTP location, the NES for Air Quality 2004 does not apply as the levels of contaminants in the air discharge are expected to be well under the thresholds specified in Schedule 1 of that NES.

7.3.3 Section 104(1)(b)(iii) RMA: National Policy Statement(s)

The New Zealand Coastal Policy Statement is assessed and discussed below:

7.3.3.1 New Zealand Coastal Policy Statement (NZCPS)

The NZCPS is a national policy statement prepared under the RMA. The purpose of the NZCPS is to set out a policy framework to achieve the purpose of the RMA in relation to managing the values of the coastal environment of New Zealand. The NZCPS became operative on 3 December 2010. In accordance with section 104(1) of the RMA, regard must be given to the relevant provisions of the NZCPS.

The key objectives and policies relevant to this application are assessed in **Appendix B.4**. Where parts of an Objective or Policy are considered not to be relevant to this application, they are excluded.

Overall, the assessment in Appendix B.4 shows that the activity will achieve the relevant objectives and is consistent with the policies of the NZCPS.

7.3.3.2 National Policy Statement on Urban Development

The Hokitika WWTP is well outside of the Hokitika Urban environment, located approximately 1.1 km north of the edge of Hokitika. However, for completeness, and in case of dispute given the nearby Arahura Valley lifestyle area, the National Policy Statement for Urban Development (NPSUD) is considered as follows:

The NPSUD sets out objectives and policies for planning well-functioning urban environments. Such environments are wholly reliant on effective and functional infrastructure that provides for the health and safety of people and communities, environmental quality, and the social, economic and cultural wellbeing of the community.

Objective 1 of the NPSUD states:

> *New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future.*

The proposal to continue with the Hokitika WWTP discharges in the interim is fundamental to achieving Objective 1 for Hokitika, as the town's wastewater infrastructure is essential to providing a well-functioning urban environment.

7.3.4 Section 104(1)(b)(v) RMA: West Coast Regional Policy Statement (RPS)

The RPS, last amended in 2020, sets the regional priorities for the West Coast Region. It is given effect to through the Coastal Plan, Air Quality Plan, Land and Water Plan, and Pest Plant Management Plan. In general, the proposed activities and mitigation measures uphold the intent of the RPS.

An assessment of the relevant objectives and policies of the RPS, including a commentary on how the activities fit in with these, are presented in **Appendix B.1**.

Overall, this application achieves the objectives and is consistent with the policies of the RPS.

7.3.5 Section 104(1)(b)(vi) RMA: West Coast Regional Coastal Plan (RCP)

An assessment of the relevant objectives and policies of the RCP, including a commentary on how the activities fit in with these, are presented in **Appendix B.2.**

Overall, this application achieves the objectives of the RCP and is generally consistent with the policies of the RCP, when taking into account the mitigation measures (such as signage), that the area is not an appropriate area for contact recreation, and given the short term of the discharges sought.

7.3.6 Section 104(1)(b)(vi) RMA: West Coast Air Quality Plan (AQP)

The relevant objectives and policies of the AQP, including a commentary on how the activities fit in with these, are presented in **Appendix B.3.**

Overall, this application achieves the objectives and is consistent with the policies of the AQP, when taking into account the aerators installed and the ongoing community surveys.

7.3.7 Section 104(2A) RMA: Value of the investment of the existing consent holder

As directed by Section 104(2A) of the RMA, when considering an application affected by section 124 (which this application is), the consent authority must have regard to the value of the investment of the existing consent holder.

The value of the investment of the existing consent holder is estimated to be $530,000, based on the depreciated asset replacement cost estimated in 2014, and accounting for inflation to 2025 using General CPI. However, the value of the WWTP should be considered in conjunction with the reticulation network which conveys raw wastewater to the WWTP for treatment prior to discharge, which is significantly more valuable (but has not been calculated for this application).

For additional information on the calculation of asset value in 2014, refer to the previous consent application.

7.3.8 Section 104(2D) RMA: Wastewater Environmental Performance Standards

The New Zealand Wastewater Environmental Performance Standards (WEPS) are a proposed set of national standards intended to improve the environmental performance of wastewater discharges. They are intended to simplify consenting processes for wastewater infrastructure.

Section 104(2D) RMA states that '… *when considering a resource consent application that relates to a wastewater network, as defined in section 5 of the Water Services Act 2021, a consent authority—*

> *(a) must not grant the consent contrary to a wastewater environmental performance standard made under section 138 of that Act; and*
>
> *(b) must include, as a condition of granting the consent, requirements that are no less restrictive than is necessary to give effect to the wastewater environmental performance standard.*

A discussion document was released in early 2025 ahead of a public submission process. From what is able to be determined from that document, the WEPS would not set an activity status for discharges that either comply or that fail the standards. It is also understood that the WEPS may address only some of the range of contaminants found in wastewater, and other consents are expected to be required under the RMA for those not covered by the WEPS, or for other aspects of wastewater management activities.

The uncertainty around the potential impact of the WEPS is a key reason why WDC is seeking to lodge this short term consent application before they are implemented, so that the application is assessed under the provisions of the West Coast Regional Coastal and Air Quality plans. As well as being required to apply now under s124 RMA, the short term permits will allow WDC to lawfully operate the Hokitika WWTP until the requirements of the WEPS and their implications for the current treated wastewater discharge to the CMA are known.

As at the time of writing this application, no Wastewater Environmental Performance Standards had yet been made under s138 of the Water Services Act 2021, section 104(2D) of the RMA does not apply to this application.

7.3.9 Section 105

Clause 6(1)(d)(ii) of the Fourth Schedule RMA directs that an application for resource consent to discharge contaminants must include a description of *"any possible alternative methods of discharge, including discharge into any other receiving environment"*. A description of alternatives is also required by s105(1)(c) RMA which requires decision makers, when determining an application for a discharge permit that contravenes section 15 or 15B of the RMA, to 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.

These matters are discussed in turn below.

7.3.9.1 The nature of the discharge and the sensitivity of the receiving environment

The nature of the scheme's discharge to the coastal marine area is described in Section 3.2 of this document, and the discharge to air is described in section 5.4. A description of the receiving environments is in Section 2.3, and an assessment of the effects of the discharges (including the receiving environments' sensitivity to those effects) is made in Section 5.

The sensitivity of the environment is considered through each of the receptors in the AEE Report, being marine water quality, benthic ecosystems (including intertidal ecology), seabirds and shorebirds, marine mammals, fish, and the public environment (including public health, recreational values and air quality).

The assessments in the AEE Report conclude that the effects on the environment in terms of an overall risk rating, range from very low to medium for all receptors noted in that report, the majority of which were rated as "low". Effects on cultural values are considered in this document as "high".

Overall, given the interim nature of the scheme and the applicant's commitment to identifying a more sustainable long-term solution, the effects on the environment from the discharge of treated wastewater to the coastal marine area, and the discharges to air, will not result in significant adverse effects on water quality or ecological values.

7.3.9.2 The applicant's reasons for the proposed discharge

The reasons for the proposed discharges are set out in Sections 1 and 3 of this application. Primarily, the applicant seeks approval to continue to discharge treated wastewater to the CMA and odour to air until such time as an alternative wastewater treatment scheme can be selected, designed, consented, constructed and commissioned. The commentary in Section 1.2 describes the background behind, and some of the drivers for seeking these permits as an interim measure ahead of confirming an alternative treatment and discharge method, and receiving environment.

7.3.9.3 Alternative methods of discharge

The applicant has not investigated alternative treated wastewater management options or receiving environments given the purpose of this application, and the applicant's commitment to identifying and transitioning to an alternative option for managing Hokitika's wastewater through a future scheme. A comprehensive assessment of alternatives is currently being undertaken in respect of that future scheme, with the current discharges to the CMA and to air intended to continue only as an interim measure.

7.3.10 Section 107

Section 107(1) of the RMA prevents the granting of applications to discharge contaminants to land or water that contravene s15 of the RMA, if after reasonable mixing the discharge would result in:

(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.

The assessment of the effects on the receiving environment of discharging treated wastewater to the CMA is set out in Section 5 (particularly section 5.2) of this document. It demonstrates that the discharge will not result in any of the effects identified in s107(1)(c) – (g) in the CMA. This is due to the quality and effectiveness of the treatment process and the high energy coastal receiving environment which rapidly mixes the treated wastewater with the coastal waters. Consequently, s107 does not prevent the application to discharge treated wastewater as proposed from being granted.

8 Notification and Consultation

8.1 Affected Parties

Pursuant to section s95B(7) of the RMA, an assessment is required to determine whether the proposed activity will or is likely to have adverse effects that are minor or more than minor on any person. Section 95E(3)(a) of the RMA states that any effect on a person who has given written approval to the application must be disregarded.

No formal written approvals were obtained at the time of lodging this application. Given the significance of this project to the community, **the applicant seeks that this application be publicly notified.**

8.2 Iwi engagement

As discussed in section 5.5, the applicant has discussed this proposed application (to seek a short term replacement consent) with rūnanga representatives prior to lodging this application.

9 Term

WDC seeks a minimum term of **five years** for each discharge permit applied for. This minimum timeframe is considered necessary for the applicant to undertake engagement and investigations to identify the best practicable option for managing Hokitika's wastewater, undertaken assessments of environmental effects, prepare and apply for resource consents, complete the design process, and commission an alternative treatment and discharge solution.

10 Conditions sought

The applicant proposes to continue with the conditions in the current permits (RC-2015-0141-01 and RC-2015-0141-12) without change.

11 Conclusion

The applicant seeks resource consent to continue to discharge treated wastewater from the Hokitika WWTP to the CMA via the existing outfall, and contaminants (odour) to air from the operation of the Hokitika WWTP oxidation ponds. These permits would be interim for a term of no less than five years, while an alternative wastewater scheme is selected, built and commissioned to replace the current scheme.

An assessment of this proposal has been prepared consistent with Schedule 4 of the Act, and addresses all matters that the WCRC as consent authority must consider when making a decision on an application under section 104 of the RMA.

The assessment of environmental effects in Section 5 of this document has considered the positive effects as well as the actual and potential adverse effects of the discharges on the environment. Overall, the assessment concludes that the effects on the environment in terms of an overall risk rating, range from very low to medium for most effects, with “low” representing by far the majority of receptors/values. A “high” risk rating has been given for effects on cultural values.

Given the interim nature of the permits applied for and the applicant’s commitment to identifying a replacement long-term wastewater management solution, the effects on the environment from continuing the current discharge of treated wastewater to the coastal marine area and discharge of odour to air are considered at least “minor” but acceptable, particularly as the discharges will not result in significant adverse effects on water quality or ecological values over the consent period.

Taking all of the above into account, the WCRC has sufficient information to make a decision on this application, and it is considered appropriate for consent to be granted in accordance with section 104B of the RMA.

Appendices

Appendix A Record of Title

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**WS3B/1372**
Land Registration District	**Westland**
Date Issued	11 February 1972

Prior References
WS2A/347

Estate	Fee Simple
Area	2.8328 hectares more or less
Legal Description	Rural Section 1009
Registered Owners	

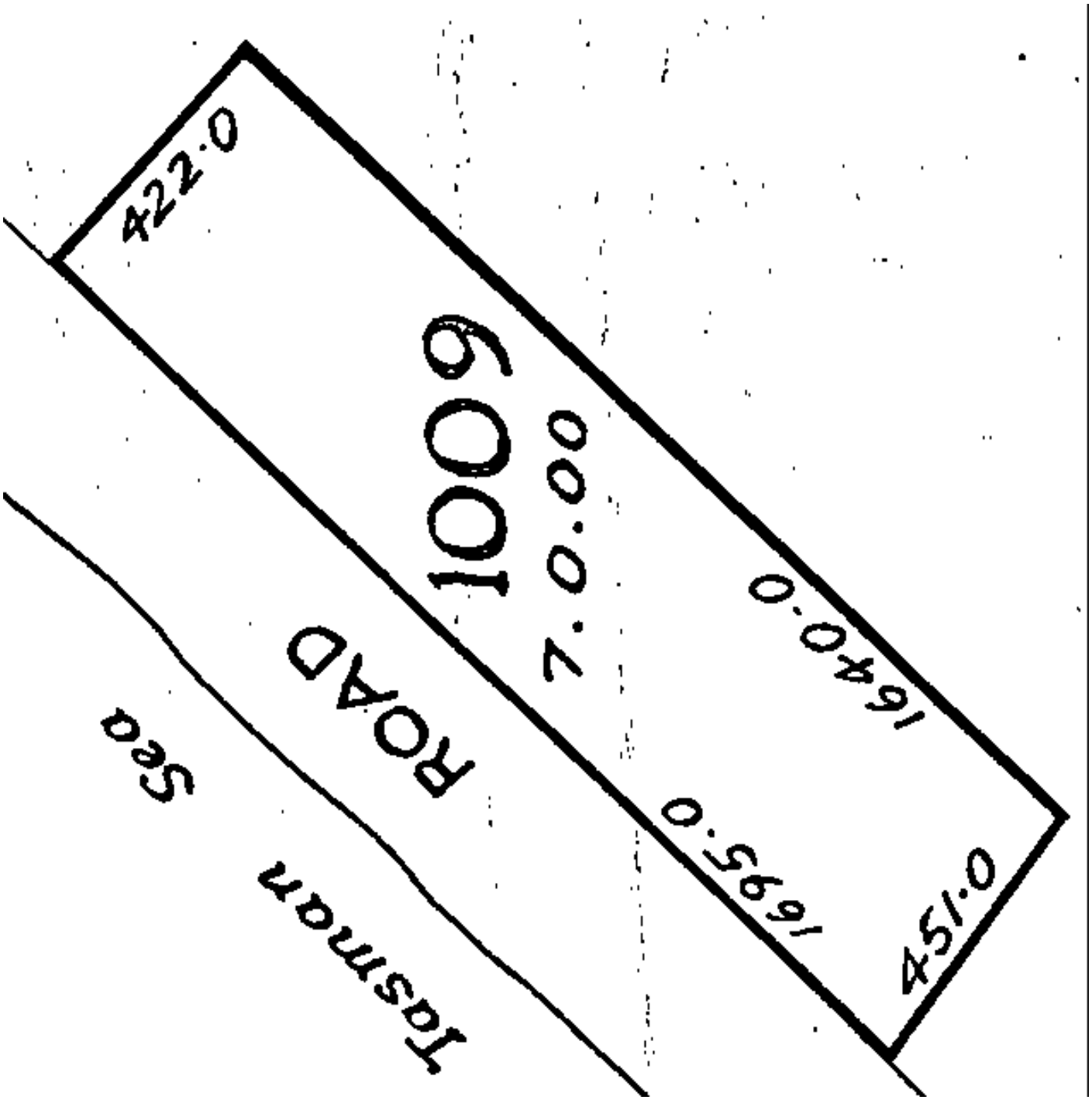
Westland District Council

Interests

Subject to the rules and regulations for mining on private property within the Provincial District of Westland

100580.1 Notice declaring State Highway adjoining within land to be a Limited Access Road - 17.2.1995 at 11.00 am

Subject to a right (in gross) to convey electricity over part marked B on DP 589210 in favour of Westpower Limited created by Easement Instrument 12786111.1 - 1.9.2023 at 2:23 pm


422.0
1009
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ROAD
Tasman Sea
0.0491
0.5691
451.0

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Limited as to Parcels
Search Copy

R.W. Muir
Registrar-General
of Land

Identifier **WS3B/1416**
Land Registration District **Westland**
Date Issued 11 February 1972

Prior References
WS2C/263

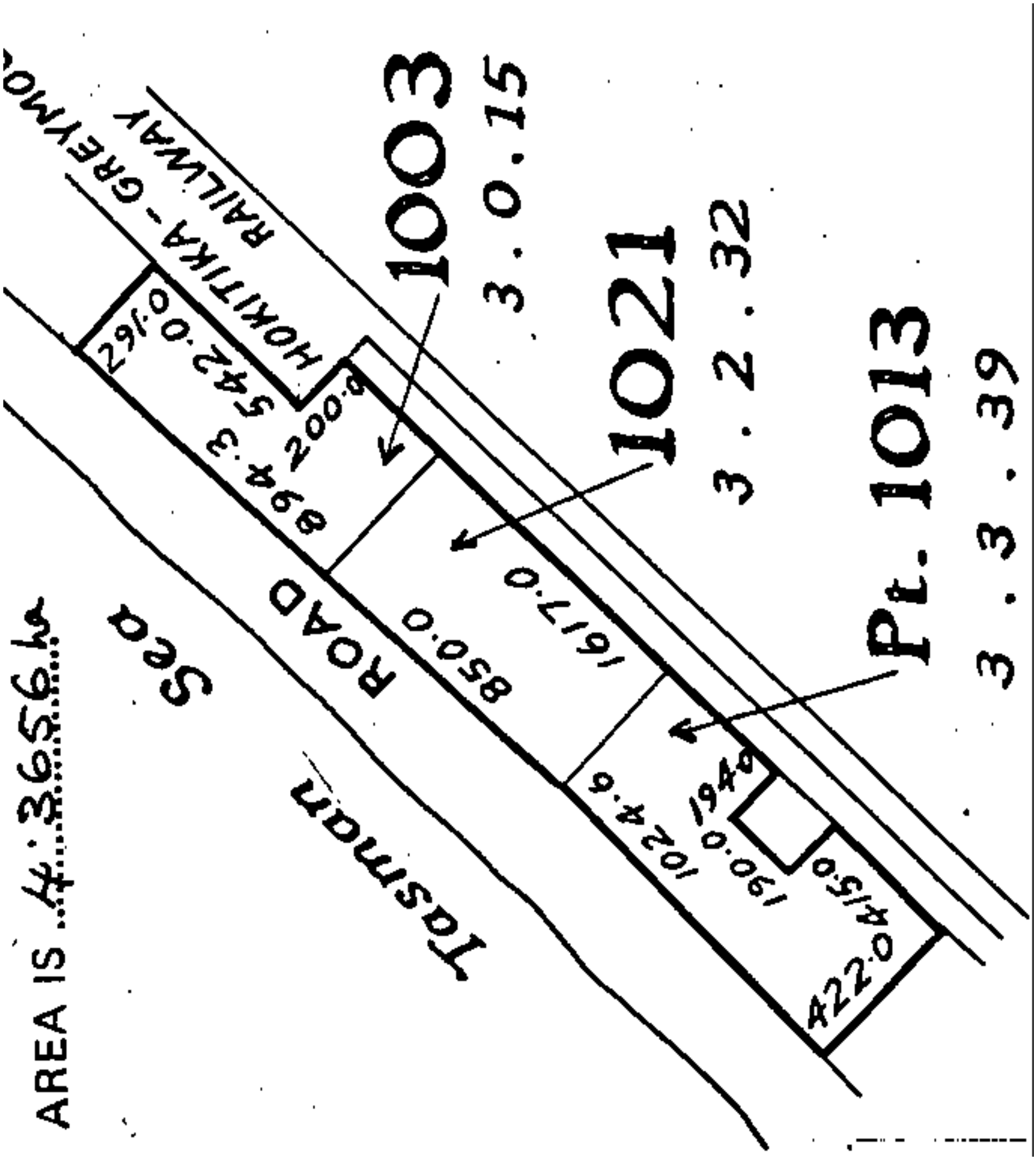
Estate Fee Simple
Area 4.3655 hectares more or less
Legal Description Rural Section 1003 and Rural Section 1021
and Part Rural Section 1013

Registered Owners
Westland District Council

Interests

Subject to the rules and regulations for mining on private property within the Provincial District of Westland

100580.1 Notice declaring State Highway adjoining within land to be a limited access road - 17.2.1995 at 11.00 am



HOKITIKA - GREYMOUTH RAILWAY
1003
3 . 0 . 15
1021
3 . 2 . 32
Pt. 1013
3 . 3 . 39
542.0
162.0
200.0
894.3
1617.0
850.0
ROAD
1940
190.0
1024.6
415.0
422.0
Tasman Sea
AREA IS 4.3656 ha

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD

Search Copy

R.W. Muir
Registrar-General
of Land

Identifier	**WS3B/1417**
Land Registration District	**Westland**
Date Issued	11 February 1972

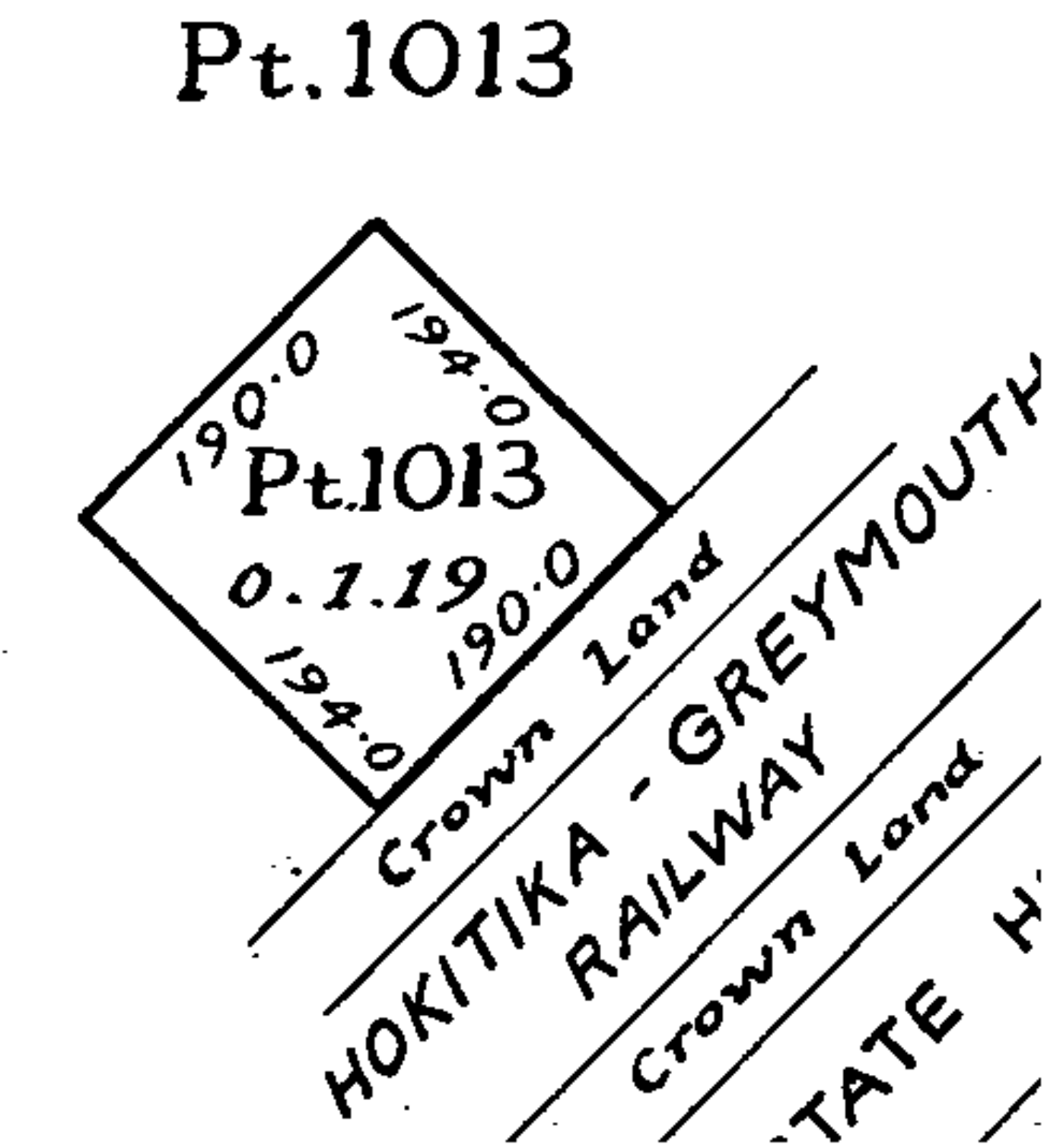
Prior References
WS3A/87

Estate	Fee Simple
Area	1492 square metres more or less
Legal Description	Part Rural Section 1013
Registered Owners	

Westland District Council

Interests

100580.1 Notice declaring State Highway adjoining within land to be a Limited Access Road - 17.2.1995 at 11.00 am


Pt.1013
Pt.1013
0.1.19
190.0
194.0
190.0
194.0
Crown Land
HOKITIKA - GREYMOUTH
RAILWAY
Crown Land

RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017

Search Copy

R.W. Muir
Registrar-General
of Land

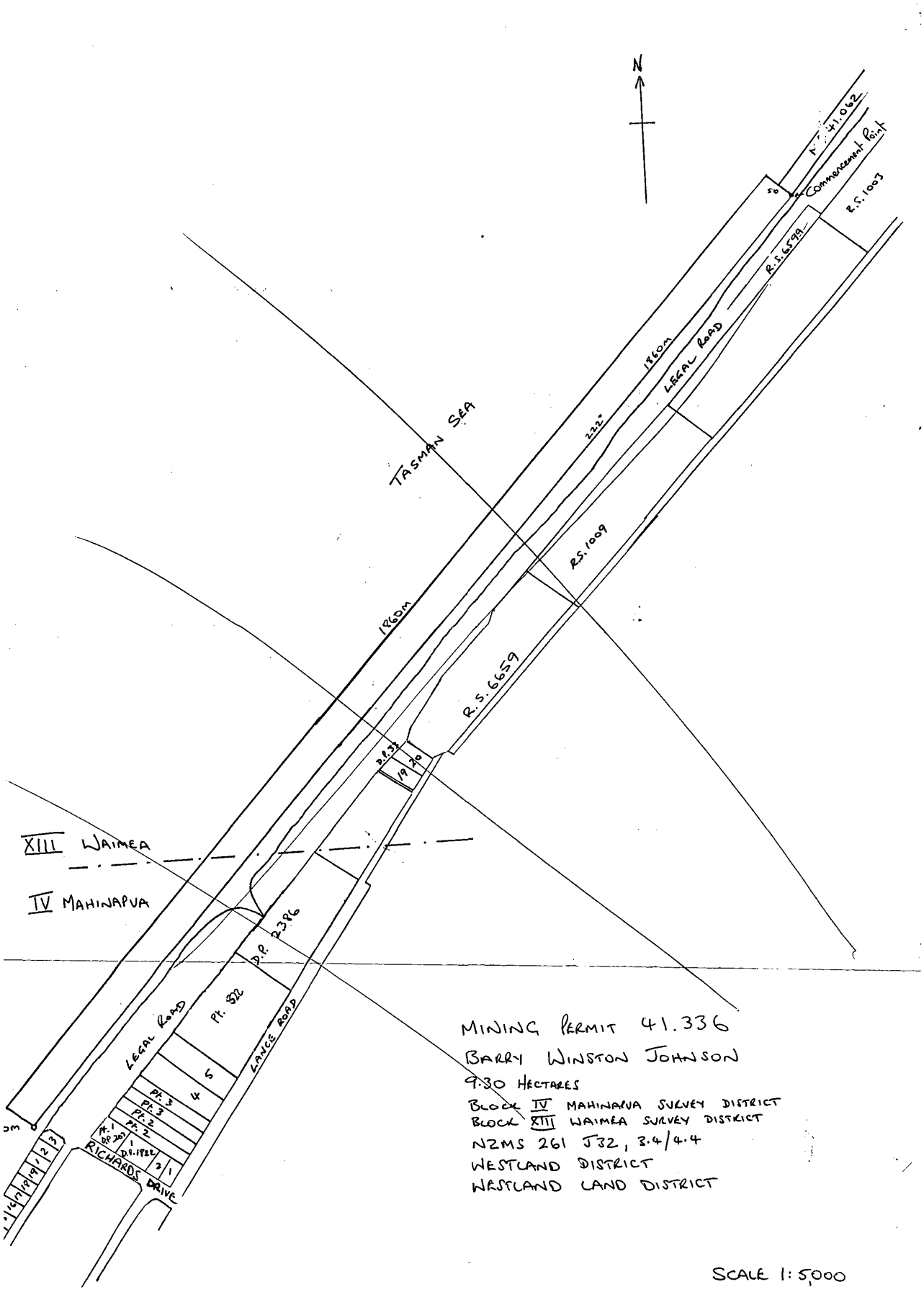
Identifier	**WS7C/57**
Land Registration District	**Westland**
Date Registered	07 February 1996 11:00 am

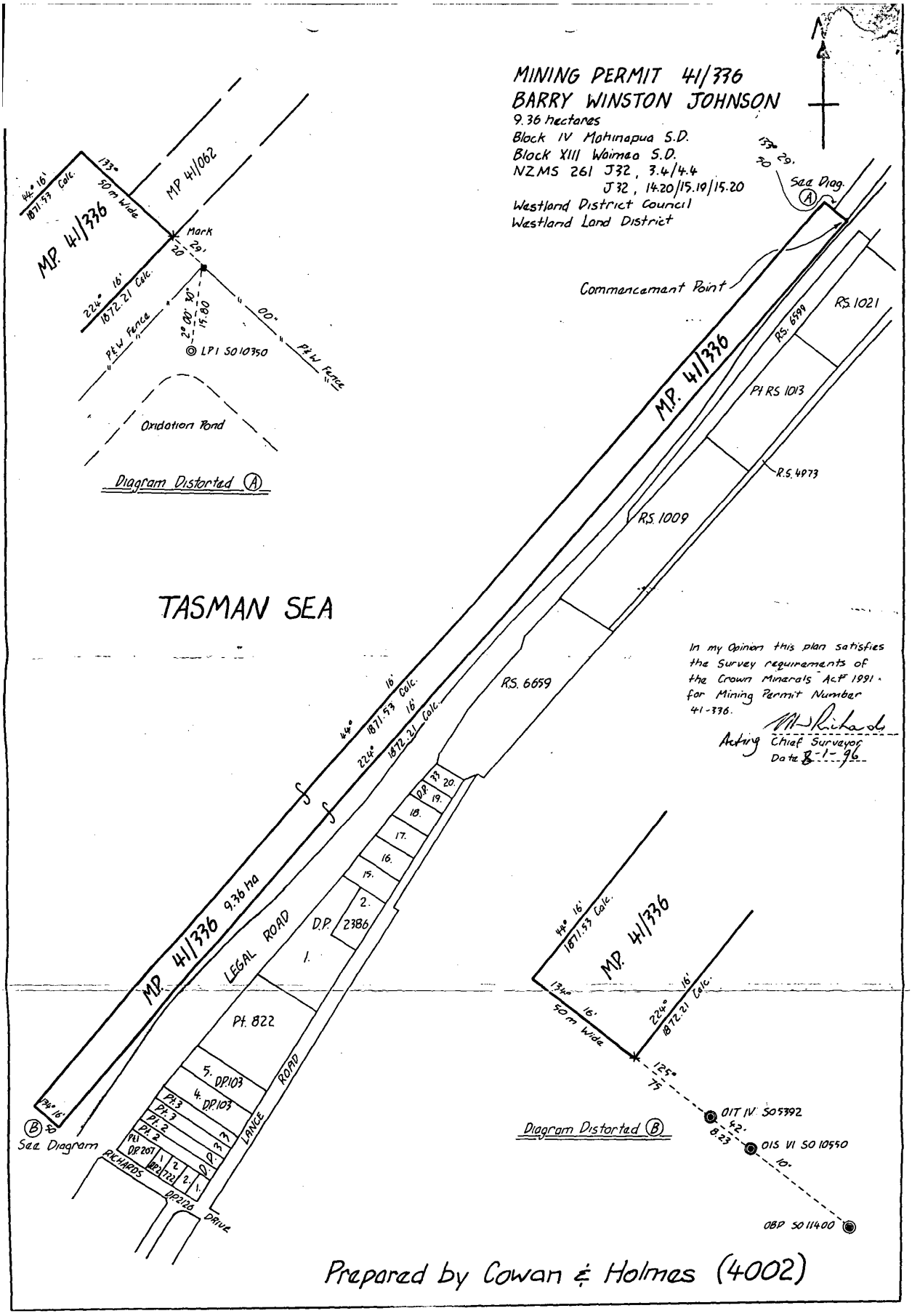
Type	Permit under s81 Crown Minerals Act 1991		
Area	9.3600 hectares more or less	**Term**	Ten years commencing on the 30th day of January 1996
Legal Description	Part Foreshore of Tasman Sea Block XIII Waimea Survey District and Part Foreshore of Tasman Sea Block IV Mahinapua Survey District		

Registered Owners

Alexander Edwin Johnson

Interests


N
M.P. 41.052
Commencement Point
50
R.S. 1003
R.S. 6599
LEGAL ROAD
1860m
222°
TASMAN SEA
R.S. 1009
1860m
R.S. 6659
D.P. 233
19 20
XIII WAIMEA
IV MAHINAPUA
D.P. 2396
LEGAL ROAD
Pt. 512
LANCE ROAD
5
4
Pt. 3
Pt. 3
Pt. 2
Pt. 1
Pt. 2
1
D.P. 1922
2
1
RICHARDS DRIVE
MINING PERMIT 41.336
BARRY WINSTON JOHNSON
9.30 HECTARES
BLOCK IV MAHINAPUA SURVEY DISTRICT
BLOCK XIII WAIMEA SURVEY DISTRICT
NZMS 261 J32, 3.4/4.4
WESTLAND DISTRICT
WESTLAND LAND DISTRICT
SCALE 1:5000


MINING PERMIT 41/336
BARRY WINSTON JOHNSON
9.36 hectares
Block IV Mahinapua S.D.
Block XIII Waimea S.D.
NZMS 261 J32, 3.4/4.4
J32, 14.20/15.19/15.20
Westland District Council
Westland Land District
Sea Diag. A
Commencement Point
MP. 41/336
MP 41/062
50 m Wide
Mark
Pt. W Fence
LPI SO10350
Oxidation Pond
Diagram Distorted A
RS. 1021
RS. 6599
Pt RS 1013
RS. 4973
RS. 1009
RS. 6659
TASMAN SEA
In my Opinion this plan satisfies the Survey requirements of the Crown Minerals Act 1991 for Mining Permit Number 41-336.
Acting Chief Surveyor
Date 8-1-96
9.36 ha
LEGAL ROAD
D.P. 2386
Pt. 822
DP.103
LANCE ROAD
RICHARDS DRIVE
DP 2126
Sea Diagram B
Diagram Distorted B
OIT IV SO5392
OIS VI SO10550
OBP SO11400
Prepared by Cowan & Holmes (4002)

Appendix B Assessment against objectives and policies

B.1 West Coast Regional Policy Statement (RPS)

The relevant objectives and policies of the RPS, including a commentary on how the activities fit in with these, are presented in *Table 11-1* below:

Table 11-1: Assessment of Objectives and Policies against the RPS

RPS Chapter	Objective / Policy Wording	Commentary
Chapter 3: Issues of significance to Poutini Ngāi Tahu	*Objective 1: Recognise and provide for the relationship of Poutini Ngāi Tahu and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga within the West Coast Region.* *Policy 1: …the Regional and District Councils will continue to provide opportunities for active involvement of tangata whenua … under the RMA.* *Policy 2: In consultation with Poutini Ngāi Tahu, provide for the protection of ancestral land, wāhi tapu, water, … from the adverse effects of activities…* *Policy 3: The special relationship that Poutini Ngāi Tahu have with te taiao (the environment), … will be given particular consideration in resource management decisions and practices.*	As noted in Section 5.5, the current treated wastewater discharge to the coastal marine area is acknowledged as being offensive to iwi, and that it adversely affects cultural values and the mauri of the coastal water and the nearby coastal environment. As such, Objective 1 of Chapter 3 of the RPS is not met. The rūnanga's involvement as key project partners in optioneering for the long term replacement scheme is consistent with Policy 1. The effect of the discharges on Poutini Ngāi Tahu's relationship with te taiao is acknowledged, and is a key driver for needing the short term permits until a long term option that better addresses the matters in Policies 2 and 3 can be implemented. The applicant has made this application having first discussed this proposal with rūnanga representatives prior to lodging this application.
Chapter 8: Land and Water	*Objective 1: Achieve the integrated management of water and the subdivision, use and development of land within catchments, recognising the interconnections between land, fresh water, and coastal water, including by managing adverse effects of land and water use on coastal water quality.* *Policy 1: Adverse effects on fresh and coastal water quality and aquatic ecosystems arising from …* *(b) Discharges of contaminants to water will be avoided, remedied or mitigated, to ensure that water quality and aquatic ecosystems are maintained or improved.*	While the ongoing treated wastewater discharge is not fully aligned with the intent of achieving integrated management of water and land resources as expressed in Objective 1—given the adverse effects of the discharges on the mauri and cultural values of coastal waters—it is subject to a short-term consent that allows for the consideration of alternative options. The assessment of effects in Section 5.2 concludes that the discharge result in less than minor or minor adverse effects on marine water quality, with section 5.5

	Policy 8: Provide for the social, economic and cultural wellbeing derived from the use and development of land and water resources, while maintaining or improving water quality and aquatic ecosystems.	addressing ecosystem impacts and noting that effects on marine life are similarly limited. In terms of Policy 8, the treatment of wastewater (and necessary associated discharge) is a social, economic and cultural necessity, as discussed in Section 5.1. While the water quality is not maintained in so far as the existing environment without a discharge, this is a short term consent to continue the current discharging regime. Policy 8 is partially met, as the continued discharge allows for ongoing social and economic wellbeing associated with the use of land and water resources; however, the application acknowledges that longer-term solutions are necessary to fully achieve the policy's intent of maintaining or improving water quality and the associated cultural values.
Chapter 9: Coastal Environment	*Objective 1: Within the coastal environment:* *a) Protect indigenous biological diversity;* *b) Preserve natural character…* *c) Protect natural features and natural landscapes…* *Policy 5: … manage … water use in the coastal environment in a way that avoids significant adverse effects … and avoids, remedies or mitigates other adverse water quality effects on sites that are significant to Poutini Ngāi Tahu, including the following:* *a) Estuaries, hāpua lagoons, and other coastal wetlands; and* *b) Shellfish beds and fishing areas.*	The effects of the continued discharges on recreation and aesthetic values is discussed in Section 5.3, and risks summarised in Section 5.8. The discharge outfall is clearly visible to recreational users as it protrudes into the coastal environment as a pipe on piles which may be perceived as an adverse effect on amenity and the natural character. This is not proposed to change, and it is worth noting this is a temporary effect given the short term of this consent. The table of risks in Section 5.8 indicates that the risk level is between Very low and Medium in terms of overall risk of treated wastewater impacting on water quality in relation to shellfish, marine ecosystems etc, the majority of which are low risk. A Medium risk is defined in the AEE Report as "broadly acceptable", where acceptable is *"the maximum level of change from baseline in environmental parameters before the environmental effects become unacceptable*". As such, this application is consistent with Policy 5 in so far as "significant adverse effects" are avoided. While there are adverse effects from the treated wastewater discharge on the coastal environment that cannot be avoided, these are temporary effects

		given the term applied for, and necessary for the continued discharge of treated wastewater in order to operate a wastewater network for the population of Hokitika. Objective 1 is achieved in that the risk to biodiversity is generally "low", although noted that the objective on natural character cannot be achieved given the discharge structure in place – which is outside of the scope of this application as that has a separate permit.
Chapter 10: Air Quality	*Objective 2: To allow discharges to air which are part of activities contributing to the social, economic, and cultural wellbeing of people and communities on the West Coast, while managing adverse effects of those discharges.* *Policy 2: Management of adverse effects of the discharge of contaminants to air must include consideration of the following:* *a) Reverse sensitivity, including the siting of new, incompatible development in proximity to activities that discharge contaminants to air;* *b) Use of technology, codes of practice, and industry standards; and,* *c) The best practicable option to minimise the adverse effects of the discharge.*	The effects of the discharge of contaminants (odour) to air are discussed in section 5.4 of this report, which notes that odour has improved over time (from surveys between 2018 and 2019), however also notes that weather and proximity to the ponds impact on odour perception. The risk rating noted in Section 5.8 is Low for recreational users, and Medium for impacting on neighbours, which represents a generally acceptable risk ("acceptable" described further in Section 5.8, generally noted as not "unacceptable"). In terms of reverse sensitivity, there are no known new developments proposed for areas adjacent to the ponds. Aerators on the pond help to limit odour, and are considered appropriate technology. As such this application is consistent with Policy 2 with respect to reverse sensitivity. In terms of technology and best practical option, this application is for a short term consent while WDC considers alternative treatment and discharge solutions. Overall, this application achieves Objective 2 as a discharge to air for which the adverse effect is managed to a degree which it is not unacceptable. This discharge is a necessary product of operating the WWTP which is an intrinsic requirement for the social, economic and cultural wellbeing of the community, as described in Section 5.1.

B.2 West Coast Regional Coastal Plan (RCP)

The relevant objectives and policies of the RCP, including a commentary on how the activities fit in with these, are presented in Table 11-2 below:

Table 11-2: Assessment of Objectives and Policies against the RCP

Objective / Policy	Wording	Commentary
Objective 10.3.1	*To maintain existing water quality within the coastal marine area and to achieve water quality within the coastal marine area that is, in appropriate areas, suitable for contact recreation and the eating of shellfish, within five years of the date this Plan becomes operative.*	Section 5.2 of this report assesses the effects of the discharge on the marine environment, and a risk rating is supplied in Section 5.8. Overall the impact of the discharge on the environment is assessed at "Low" for the majority of effects for marine water quality and ecology as a whole, with some "Medium" risks which are still considered acceptable (and not "unacceptable", as described in Section 5.8). As discussed in Section 5.3, contact recreating and collection of shellfish is not advised within 200m of the discharge location, and signage is present to warn public of the health risks. The area is also known to be unsafe for swimming, and is not popular for fishing or collecting seafood. Overall Objective 10.3.1 is not achieved in terms of health risks, however it also does not apply as it is not an appropriate area for contact recreation.
Objective 10.3.2	*To take into account public health, community (including commercial, cultural and recreation values) and biological values associated with the coastal marine area when considering the discharge of contaminants into the coastal marine area.*	The effects on Public Health in terms of the WWTP scheme are primarily positive; the discharge enables the WWTP scheme to operate which is a significant public health matter (discussed further in Section 5.1). Adverse effects on public health relate to the recreational use of the area near the discharge, and potential for collection of fish/shellfish. As discussed in section 5.3, while there is a moderate risk on public health for people directly contacting water in the vicinity of the discharge, warning signs remain in place to

		inform the public of the risks that may be present. Effects on Cultural values are considered “high”, as discussed in Section 5.5, although overall appropriate given the short term of the consent applied for and the existing engagement with iwi in developing an alternative treatment/discharge solution. The adverse effects on public health are short term, and are considered to be well outweighed by the positive effects of a sanitary system for the population of Hokitika, which this discharge enables. As such, Objective 10.3.2 is achieved for the short term.
Objective 10.3.3	*To safeguard the life supporting capacity of the coastal marine area.*	The life supporting capacity of the coastal marine area is not ‘safeguarded’ by the act of discharging of treated wastewater, and as such this objective cannot be achieved from this application. However, as discussed in Section 5.2, the discharge is mixed very quickly within the high energy inter-tidal zone which reduces the risk of exposure and bioaccumulation.
Objective 10.3.4	*To maintain and, where appropriate, enhance water quality in:* *…* *(a) Areas where there is direct discharge containing human sewage;*	This application does not seek to enhance the water quality in the area, and cannot maintain the water quality as if there was no discharge present. As such Objective 10.3.4 cannot be achieved. However it is important to reiterate that this application is for a short term consent with a view to consider alternative (improved) treatment and discharge location options.
Objective 10.3.5	*To consider the adverse effects associated with a discharge of contaminants directly to the coastal marine area relative to the adverse effects associated with the discharge of the same material to other receiving environments.*	The effects of the discharge of contaminants to the coastal marine area are discussed in Section 5.2. Discharges to other receiving environments are currently being considered by WDC. In the absence of technical assessments of discharges to other receiving environments, as has been discussed elsewhere in this

		application the adverse effects of the discharge of treated wastewater in this area is rapidly reduced when received as it mixes in a high energy coastal environment. The volume and energy of the coastal water is considerable when compared to other water environments (lakes or rivers), and the dissipation would be very difficult to match on land discharge unless there was a very large amount of land to rapidly take up the treated wastewater.
Policy 10.4.1	*To not allow point source discharge of contaminants into the coastal marine area where that discharge would, beyond an effective mixing zone, result in a lowering of the existing water quality in the receiving waters.*	The current mixing zone of 200 m (radius) is consistent with the conditions of the existing discharge permit. As discussed in section 5.2 of this document, given the rapid mixing in the high energy coastal environment, monitoring shows the receiving water quality is not significantly diminished. This is wholly consistent with policy 10.4.1.
Policy 10.4.2	*To require an effective mixing zone for discharges of water or contaminants into the coastal marine area which takes account of:* *(a) The sensitivity of the receiving environment; and* *(b) The particular discharge, including contaminant type, concentration, and volume; and* *(c) The physical processes acting on the area of discharge; and* *(d) The community uses and values, including the values of Poutini Ngai Tahu, associated with the area affected by the discharge, and* *(e) The ecosystem values associated with the area.*	The current effective mixing zone is 200 m (as a radius). This is considered to be appropriate particularly given the high energy of the coastal environment which rapidly mixes the discharge with coastal waters at that point. The overall risks to the environment and community values are “very low” to “moderate” within the zone, which as discussed in section 5.8 are considered acceptable. A 200 m mixing zone is therefore appropriate and consistent with Policy 10.4.2. This application does not seek to change the effective mixing zone.
Policy 10.4.4	*To restrict the discharge of human sewage or wastes into any enclosed waters, marine reserve, taiapure or maataitai reserve area where that discharge would adversely affect the values associated with the area.*	Treated wastewater is proposed to continue to be discharged into the coastal marine environment at the existing discharge location. That location is not into enclosed waters, a marine reserve, taiapure or maataitai reserve area.
Policy 10.4.5	*10.4.5 The discharge of a contaminant (either by itself or in combination with other discharges) directly into the coastal marine area will only be allowed where:* *(a) It can be shown that the adverse effects of the discharge to any area, other than the coastal*	Policy 10.4.5(b) opposes discharge of contaminants into the coastal marine area unless there are no practical alternatives. WDC are currently considering a range of alternative treatment and discharge

	marine area, would create greater adverse effect than the discharge to the coastal marine area; or *(b) There are no practicable alternatives to the discharge occurring to the coastal marine area; and* *(c) The discharge is of a standard which will achieve a water quality standard suitable for contact recreation and shellfish gathering in areas defined by Objective 10.3.1, within five years of this Plan becoming operative.*	location options, which requires a comprehensive analysis of each option against a range of criteria. This application is for a short term to allow the continuation of the discharge while WDC consider the alternatives. Until then, there are no immediately available alternative options, which is consistent with Policy 10.4.5(b).

B.3 West Coast Air Quality Plan (AQP)

The relevant objectives and policies of the AQP, including a commentary on how the activities fit in with these, are presented in Table 11-3 below:

Table 11-3: Assessment of Objectives and Policies against the AQP

Objective / Policy	Wording	Commentary
Objective 6.3.1	*The protection of human health and areas of cultural and amenity value from the adverse effects of odour discharges.*	The effects of discharging contaminants (mainly odour) to air are discussed in Section 5.4, and risk ratings summarised in Section 5.8. Overall, the perceived levels of odour have improved between 2018 and 2019 levels; the AEE Report gives an overall risk rating of "Medium" given the likely effect but low magnitude of effect. Community surveys have been undertaken which showed an improvement in perception of odour from 2018 and 2019. This is a current condition of consent (condition 22); the AEE Report recommends that this community engagement continues for this short term consent. Objective 6.3.1 is achieved as human health is not adversely affected by the discharge of odour and other contaminants to air, and the impact on amenity in the nearby recreational area is "low" in terms of magnitude. The application is consistent with Policy 6.4.1 as WDC has previously installed aerators to increase the biological efficiency of the ponds and therefore reduce odour emissions. In terms of frequency, duration and other factors of odour, Policy 6.4.2 is given effect to through community surveys, which will continue.
Policy 6.4.1	*To avoid or mitigate any adverse effects on amenity values or human health arising from the discharge of offensive or objectionable odour, through consideration of the following:* *• Good management practices (including the use of codes of practice) and process technology, to minimise odorous contaminants;* *• Appropriate control technologies to reduce the emission of odorous contaminants;* *• Buffer zones and site planning mechanisms.*	
Policy 6.4.2	*The Regional Council will have regard to the following factors in the management of odour:* *• Frequency of the odour;* *• Intensity of the odour;* *• Duration of the odour;* *• Offensiveness of the odour;* *• Location of the odour.*	

B.4 New Zealand Coastal Policy Statement

The NZCPS is a national policy statement under the RMA. The purpose of the NZCPS is to state policies in order to achieve the purpose of the Act in relation to the coastal environment of New Zealand. The NZCPS became operative on 3 December 2010. In accordance with section 104(1) of the RMA, regard must be given to the relevant provisions of the NZCPS.

The key objectives and policies relevant to this application are summarised below, and commentary provided in relation to this application. Where parts of an Objective or Policy are considered not to be relevant to this application, they are excluded.

Objective 1

To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems ...

(c) maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity

Comment:

As discussed in Section 5.2 of this document, the treated wastewater discharged into the coastal marine environment is significantly, and rapidly mixed given the high energy coastal environment at that location. The risk rating on marine water quality, summarised in Section 5.8, is between Low and Medium, which represents a level of risk which is below “unacceptable” in terms of effects on the environment.

This application does not seek to enhance the coastal water quality, and cannot achieve Objective 1. However it is for interim permits to enable the continued discharge while an alternative treatment/discharge is considered. Continuing the activity for a further five years, with the same level of treatment is expected to give rise to the same minor and acceptable effects on the CMA.

Objective 3

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

- *recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;*
- *recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.*

Comment:

The principles of the Treaty of Waitangi have been taken into account in preparing this application, particularly tino rangatiratanga, including by engaging with the rūnanga in this application, as a component of the long term WWTP scheme replacement process. WDC acknowledges that this application does not represent the preferred option for rūnanga but considers the reasons for requesting short term permits is to achieve a more favourable long term wastewater management scheme that is better aligned with Māori cultural values.

Objective 4

To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment by:

- *recognising that the coastal marine area is an extensive area of public space for the public to use and enjoy;*

Neither the air discharge or discharge of treated wastewater to water impedes (in a physical sense) the recreational opportunities in the vicinity of the coastal outfall, however the discharges may discourage people from using that area due to the effects (odour or the risk of contacting treated wastewater). Signage is in place to warn public of the health risks in the vicinity of the discharge, which essentially limits the enjoyment of the public space at this point, and as such Objective 4 cannot be achieved. However as noted in Section 5.3, the location of the discharge is known to be unsafe for swimming and is not popular for activities such as fishing or collecting seafood.

Objective 6

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

- *the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;*
- *some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;*
- *functionally some uses and developments can only be located on the coast or in the coastal marine area;*
- *the coastal environment contains renewable energy resources of significant value;*
- *the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities;*
- *the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;*
- *the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the coastal marine area can be protected;*

Comment:

The WWTP outfall and discharge forms part of regionally significant infrastructure and provides essential services to the residents of Hokitika. As discussed in Section 5.1 the discharge enables the operation of the Hokitika WWTP which provides sanitary systems for existing and future residents, and enables commercial and industrial activities that provide employment and generate economic benefit to local and regional communities. Given the design and location of the existing scheme, it is functionally

reliant on discharging treated wastewater to the CMA, with relatively minimal adverse effect on the values of the CMA, as discussed in section 5.8.

Overall Objective 6 is achieved as a significant asset which provides for public health for existing residents and enables future development, while not unduly compromising the quality of the CMA over the term of the consent applied for.

Policy 2: The Treaty of Waitangi, tangata whenua and Māori heritage

In taking account of the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and kaitiakitanga, in relation to the coastal environment:

a) recognise that tangata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations;

b) …

c) with the consent of tangata whenua and as far as practicable in accordance with tikanga Māori, incorporate mātauranga Māori in regional policy statements, in plans, and in the consideration of applications for resource consents, notices of requirement for designation and private plan changes;

d) provide opportunities in appropriate circumstances for Māori involvement in decision making, for example when a consent application or notice of requirement is dealing with cultural localities or issues of cultural significance, and Māori experts, including pūkenga, may have knowledge not otherwise available;

e) recognize and protect the role of tangata whenua as kaitiaki of the coastal environment, and provide for their involvement in the management of coastal resources;

f) provide for opportunities for tangata whenua to exercise kaitiakitanga over waters, forests, lands, and fisheries in the coastal environment through such measures as:

i. bringing cultural understanding to monitoring of natural resources;

ii. providing appropriate methods for the management, maintenance and protection of the taonga of tangata whenua;

Comment:

As discussed in Section 5.5 of this document, the discharge of treated wastewater to the coastal marine area water is acknowledged as offensive to mana whenua. WDC is currently considering alternative treatment and discharge options; rūnanga representatives are part of the project steering group and will be instrumental in choosing an appropriate alternative solution. This application is made with the full knowledge of the rūnanga, as an interim step in achieving that long term solution.

Policy 23 Discharge of contaminants

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

(a) the sensitivity of the receiving environment;

(b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and

(c) the capacity of the receiving environment to assimilate the contaminants; and:

(d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;

(e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and

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

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

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

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

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

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

Comment:

As discussed in Section 6 of this document, alternative options for treatment processes and discharge locations are currently being considered by WDC.

In terms of Policy 23 (1), the sensitivity of the receiving environment is discussed in Section 2.3 of this document, with the effects on water quality and ecosystems in the CMA discussed in Section 5.2, and risk ratings on the adverse effects summarised in Section 5.8. Overall, the treated wastewater discharged into the coastal marine environment is rapidly assimilated in the high energy coastal environment at that location. Within the 200 m mixing zone (radius), the risk rating of the discharge into the coastal marine area is between Low and Medium for effects on water quality and marine ecosystems, where Medium is considered “generally acceptable”.

This application is entirely consistent with Policy 23 (2)(a) as it is for the discharge wastewater which has been treated first. The application is particularly consistent with Policy 23 (2)(b) as this is for a short term consent to enable continued discharge of treated wastewater to the CMA while WDC consider alternative treatments and receiving environments.

Appendix C Assessment of Environmental Effects Report

Hokitika Wastewater Treatment Plant

Assessment of Environmental Effects

Stantec

Prepared for:
Westland District Council

30 September 2025

Prepared by:
Stantec New Zealand

Project/File:
310103422

Stantec New Zealand

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
0	30/09/2025	Final	E Wilson-Hill	J Grinter	S Bennett	S McAulay

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Acronyms/Abbreviations

Acronym/Abbreviation	Full name
AWDF	Average dry weather flow
AEE	Assessment of Environmental Effects
ANZG	Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018)
BPO	Best Practicable Option
$cBOD_5$	Five-day carbonaceous biochemical oxygen demand
CHZ	Coastal Hazard Zone
CMA	Coastal Marine Area
CRA	Coastal Recreation Area
CSM	Conceptual Site Model
DGV	Default Guideline Values
DWF	Dry weather flows
EcIA	Ecological Impact Assessment Guidelines
EC	Emerging contaminant
E. coli	*Escherichia coli*
ENT	Enterococci
FC	Faecal coliforms
I&I	Inflow and infiltration
MACA Act	Marine and Coastal Area Act
mbgl	Metres below ground level
MfE	Ministry for the Environment
NH_3-N	Nitrogen as ammonia
NH_4	Nitrate nitrogen
QMRA	Quantitative Microbial Risk Assessment
RMA	Resource Management Act 1991
SFF	Silver Fern Farms
SH6	State Highway 6
Stantec	Stantec New Zealand
TSS	Total suspended solids
UV	Ultraviolet
WCRC	West Coast Regional Council
WDC	Westland District Council
WMP	Westland Milk Products
WWF	Wet weather flows
WWTP	Wastewater Treatment Plant

1 Introduction

1.1 Purpose of this Report

Westland District Council (WDC, the applicant) has engaged Stantec New Zealand (Stantec) to provide advice and recommendations associated with the discharge of treated wastewater from Hokitika Wastewater Treatment Plant (WWTP).

The process for determining the long-term wastewater network solution for Hokitika WWTP is a long process and unable to be completed prior to the current consents expiry date (7 April 2026). Therefore, WDC is applying for a short-term consent of at least five years, for the existing wastewater scheme which involves a treatment system comprising of two oxidation ponds and treated wastewater discharge via an above-ground outfall into the foreshore area. WDC has allocated the following funds for capital expenditure in relation to the Hokitika Wastewater Scheme within the next 30 years (WDC 2025):

- 2025 – 2027: $27 million for WWTP upgrades.
- 2034 – 2054: $32 million for upgrades to wastewater network reticulation, and $680,000 for upgrades to the WWTP pump station.

This report provides a summary of relevant information and an assessment to support WDC's resource consent application to the West Coast Regional Council (WCRC) in accordance with the provisions of the Resource Management Act 1991 (RMA).

This report provides an Assessment of Environmental Effects (AEE) to characterise the quality and quantity of contaminants discharged to water from the WWTP's operation and its effects on the receiving environment. This assessment will support the consenting application(s) for WDC's selected wastewater scheme (including its treated wastewater discharge) at Hokitika.

This report is limited to the information regarding the area around the WWTP, and the immediate receiving environment for the discharge within the Tasman Sea.

1.2 Scope of this Report

This report assesses the actual and potential environmental effects for the proposed continued operation of the existing wastewater scheme, and specifically for the discharge of treated wastewater into the Tasman Sea via the ocean outfall. It includes:

- The characterisation of the quality and quantity of the treated wastewater discharged to ocean via the ocean outfall.
- An assessment of environmental effects based on available information to the extent possible and informed by inputs from available previous reporting and monitoring data from the site.

The effects assessment forms a pivotal part of the overall consent application.

2 Description of Existing Activity

This section describes the activities that have been, and continue to be, undertaken at the Hokitika WWTP under the existing discharge consents.

2.1 Location of WWTP

The Hokitika WWTP is located within Seaview, Hokitika, approximately 2 km north of the Hokitika Township, on the West Coast of New Zealand (Figure 2-1). The site is bounded by State Highway 6 (SH6) and the Hokitika Industrial Branch Railway to the east, and Tasman Sea to the west.

WDC owns the land, with the legal description as RS 1003, 1009, 1013, 1021, 4973 & 6599, Block XIII Waimea Survey District.

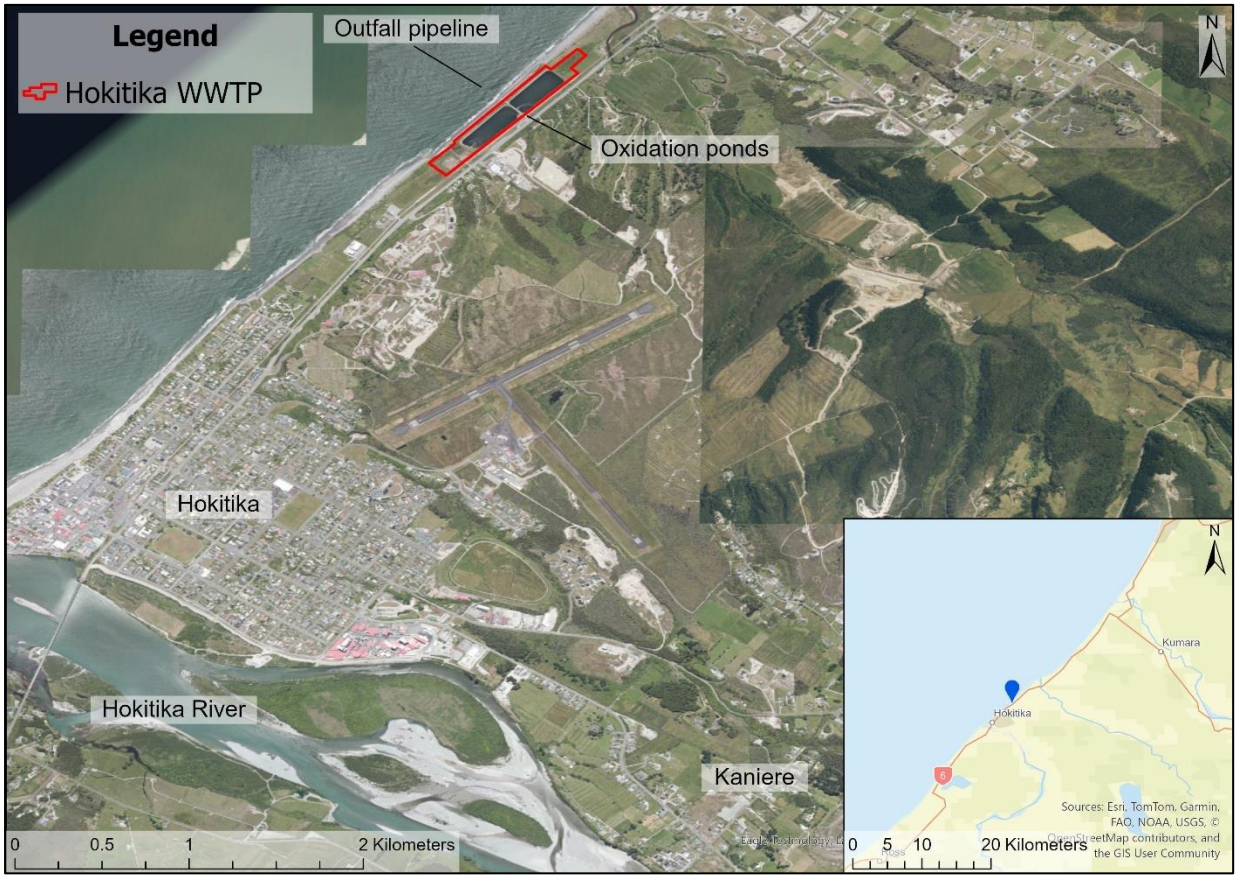

Figure 2-1: Site location

2.2 Overview of Existing Wastewater System

The Hokitika WWTP has been operated and managed by WDC since its construction in 1973. The WWTP system comprises an inlet structure and two oxidation ponds that operate in parallel that discharge to the ocean via an above-ground outfall into the Tasman Sea.

The WWTP receives domestic wastewater from a residential population of approximately 3,557 (StatsNZ 2023) (City Population 2022)) in the Hokitika and Kaniere townships, as well as industrial wastewater (trade waste) from commercial and industrial sources. The most significant discharge of trade waste (in terms of volume) is from the trade waste effluent scheme for Silver Fern Farms (SFF), which is a meat processing facility. Additional inputs include from Seaview Hospital, a roadside septage bay, campervan and stock truck effluent, and other tankered waste from private on-site septic systems (Opus 2015a).

Wastewater (from domestic and industrial sources) is currently collected via a network of 56 km of pipelines and 10 pump stations (WDC 2025). It is received at the WWTP inlet works from the network, then treated through an inlet screen and a two-pond oxidation pond at the WWTP. Specifically, the treatment of domestic and industrial (trade waste) wastewater occurs within the following stages:

- Inlet works, including grit channel, manual screen, comminutor, flume type flow measurement, and flow splitter.
- Two oxidation ponds each approximately 2.5ha in area and approximately 1.5 m deep with outlets on north-west corner of ponds (Opus 2015a).
- Discharge via an elevated above-ground outfall into the foreshore area.

Changes to the WWTP since the 2015 application include:

- Brush aerator on each oxidation pond for supplementary mechanical aeration was installed in approximately 2019 to reduce odour and increase the biological efficiency of the ponds (Bencich, Hokitika Wastewater Treatment Plant Oxidation ponds, Environmental Monitoring Report March 2016 – March 2018, 2018).
- An outflow meter was installed in August 2018 to replace the previous flow meter (Bencich, Hokitika Wastewater Treatment Plant Oxidation ponds, Environmental Monitoring Report March 2016 – March 2018, 2018).
- Fitzherbert Street Pump Station upgraded, and pump run hours recorded.
- Fencing around the two oxidation ponds.

The system operates by dividing the flow at the inlet structure to the oxidation ponds, then recombining the treated wastewater from both the northern and southern ponds and pumping it out via the outfall pipeline to the Tasman Sea during high tide, and directly to the beach/foreshore area during low tide. Inlets are located in the eastern corner of each pond and the outlets located in the northwestern corners of the ponds. Wastewater flows are monitored at the outlet of the ponds, and monitoring of influent quality and treated wastewater quality are monitored at the inlet and outlet of the ponds.

The oxidation pond system relies on the natural biological processes. Therefore, the treatment of the wastewater is dependent on natural conditions such as ambient and water temperature, salinity, oxygenation, wind action on the pond surface, humidity, and UV (sun) exposure time. Algal growth in the ponds is supported by other types of types of organisms, bacteria, fungi, diatoms, and protozoa. All of these organisms (and the balance between them) influence the operational efficiency of the treatment system. Therefore, it is essential to maintain conditions within the oxidation ponds that allow the organisms' activity to operate at maximum efficiency (Opus 2015a).

(Opus 2015a) found that rainfall infiltration to the ponds and the wastewater collection network occurs , based on flow and rainfall information available at the time of that assessment. This was noted as reducing the Hydraulic Residence Time of wastewater in the ponds during rainfall events (Opus 2015a). The Opus report made several recommendations for improvements to the WWTP to improve the treatment of the wastewater. Some of the recommendations have been implemented, these include flowmeter upgraded, upgrades to the Fitzherbert Street pump station and record of the pump run hours kept, fencing of the oxidation ponds, and installation of two brush aerators.

The build-up of organic and inorganic matter from WWTP operations is known as sludge. According to WDC, the pond was last desludged in 2011. The sludge was sampled and the dewatered sludge disposed of at Butlers Landfill, located adjacent to State Highway 6 (Ruatapu Ross Road) approximately 19 km south of Hokitika township. No desludging has occurred since 2011.

A sludge survey report in 2019 (Conhur Ltd 2019) identified that the average depth to the pond base (assumed to be the base of the pond, rather than the top of the sludge layer) from the water surface for Pond 1 is 1.31 m and for Pond 2 is 1.24 m. The report confirmed that the volume of sludge in Pond 1 at that time was approximately 11,260 m^3, with an average sludge depth of 0.59 m across most of the pond. The weighted average solids content of the eight samples retrieved from the pond was 4.99%. Pond 2 contained approximately 8,210 m^3 of sludge, with an average sludge depth of 0.49 m across most of the pond. The weighted average solids content of the eight samples retrieved from the pond was 4.70%.

Given the depth of Pond 1 (1.31) and the average sludge depth (0.59 m), the available water depth is less than one metre (0.72 m). For Pond 2, the available water depth is 0.75 m. The Water New Zealand report for Good Practice Guide for Waste Stabilisation Ponds: Design and Operation, states that there should be 'at least 0.9 m of aerobic water depth above any sludge layer for algae to thrive and control odours' (Water New Zealand 2017). Additionally, the Oxidation Pond Guidelines 2005 states that the sludge depth should generally not exceed 600 m or one third of the ponds depth (NZET Ltd 2005). The Guide recommends desludging of the entire pond when the sludge layer exceeds 200 mm (Water New Zealand 2017). Given the information provided in the (Conhur Ltd 2019) report, both Pond 1 and Pond 2's sludge depth exceeds one third of the ponds depth. Therefore, this increased sludge may be reducing the pond's working depth and retention time (NZET Ltd 2005).

The main components of the Hokitika WWTP are identified on Figure 2-2.

Figure 2-2: Hokitika WWTP and outfall, taken from Opus 2015 (Opus 2015a)

2.3 Existing Resource Consent

WDC holds the following discharge permits for the wastewater scheme are outlined in Table 2-1 below. It is noted that the two consents of focus for this resource consent application are RC-2015-0141-01 and RC-2015-0141-02. The other consents relate to desludging of the ponds which are not currently being applied for.

Table 2-1: Existing and relevant resource consents to this environmental report

Resource Consent No.	Description	Issue date	Expiry date	Status
RC-2015-0141-01	To discharge treated sewage effluent to the CMA, via an ocean outfall pipeline, from the sewage oxidation ponds.	7 April 2016	7 April 2026	Existing
RC-2015-0141-02	To discharge contaminants (mainly odour) to air associated with the operation of the sewage oxidation ponds	7 April 2016	7 April 2026	Existing
RC06154/1	Discharge Permit: to discharge solid contaminants to land as a result of de-sludging the Hokitika sewage oxidation ponds.	7 April 2009	22 February 2016	Expired
RC06154/2	Discharge Permit: to discharge liquid, produced from dewatering of sewage sludge to land by way of seepage from the base of a sewage sludge dewatering area adjacent to the Hokitika sewage oxidation ponds.	7 April 2009	22 February 2016	Expired
RC06154/3	Discharge Permit: to discharge contaminants (odour) to air during the de-sludging and ongoing operation of Hokitika sewage oxidation ponds.	7 April 2009	22 February 2016	Expired
RC06154/4	Discharge Permit: to discharge reduced quality treated sewage effluent to the Coastal Marine Area via an outfall pipeline, during the de-sludging of the Hokitika oxidation ponds.	7 April 2009	22 February 2016	Expired
RC06154/4	Discharge Permit: to discharge treated sewage effluent from the Hokitika oxidation ponds to the Coastal Marine Area, via an outfall pipe.	7 April 2009	22 February 2016	Expired

2.4 Location of Outfall and Ownership

The pipeline to the outfall traverses WDC land to the west of the oxidation ponds to the coastline. The outfall pipeline comes out from the sandy upper beach and is elevated on piles for approximately 45 m before it discharges within the intertidal zone (Opus 2015b). The pipeline extends 100 m from the fence line into the intertidal zone.

The ocean outfall structure is consented under a Coastal Permit to discharge to the Coastal Marine Area (CMA) until 22 February 2044 by resource consent RC06154/6. The outfall is in a Coastal Development Area (CDA7) under Schedule 3B of the Coastal Plan.

The WWTP site is not located by a Mātaitai Reserve or conservation land. The closest Mātaitai Reserve to the site is Mikonui Reserve, located 25 km south along the West Cost, situated between the Totara River and Mikonui River (Ministry for Primary Industries 2025). Blue Spur Conservation area is the closest public conservation area to the site, located 1.8 km southeast of the site. There is a small ‘local purpose reservoir – public abattoir’, Seaview, located 275 m south of the site, between the rugby fields and Kumara Junction Highway (Department of Conservation 2017).

2.5 Wastewater Flows and Loads

This section summarises the existing quantity of wastewater (flows) received and treated at the Hokitika WWTP, along with the characteristics of the influent (including for trade waste) and the quality of final treated wastewater. Further details are available in the Hokitika Wastewater Flows and Loads Report prepared separately (Stantec 2025).

It also considers future growth, and associated changes that may occur in the quantity and quality of wastewater received at the WWTP, however given the short consent term sought, this assessment is limited in scope. It is anticipated that a more detailed assessment of potential future growth and demand for wastewater services will be undertaken as part of the long-term consent application.

2.5.1 Wastewater Inflows

WDC has measured the influent flows to the WWTP and the treated wastewater discharge flows. However, as noted in the previous resource consent application (Opus 2015b), the wastewater flow monitoring data has continued to be inconsistent and of generally poor quality, with significant gaps and reporting errors. Influent flows to the WWTP are influenced by infiltration to the reticulation network and rainfall directly to the ponds influences outflows; both of which occur during wet weather.

Figure 2-3 illustrates the total combined influent flow to the Hokitika WWTP between 2021 and 2023. This includes flows from domestic and industrial; sources (with the latter detailed further in Section 2.5.2 below). The dry weather flows (DWF), defined as zero rainfall for at least two-days, on a daily basis (on average) was generally less than 2,000 m^3/day and can get as low as 1,200 m^3/day. The wet weather flows (WWF) can increase up to 4,000 m^3/day and rarely increases to 5,000 m^3/day. This difference between the DWF and WWF is largely attributable to inflows and infiltration (I&I). The average dry weather flow (ADWF) was generally 1,800 m^3/day, based on a rolling 365-day average. The discharge outflow will be influenced by any gains and losses through the WWTP.

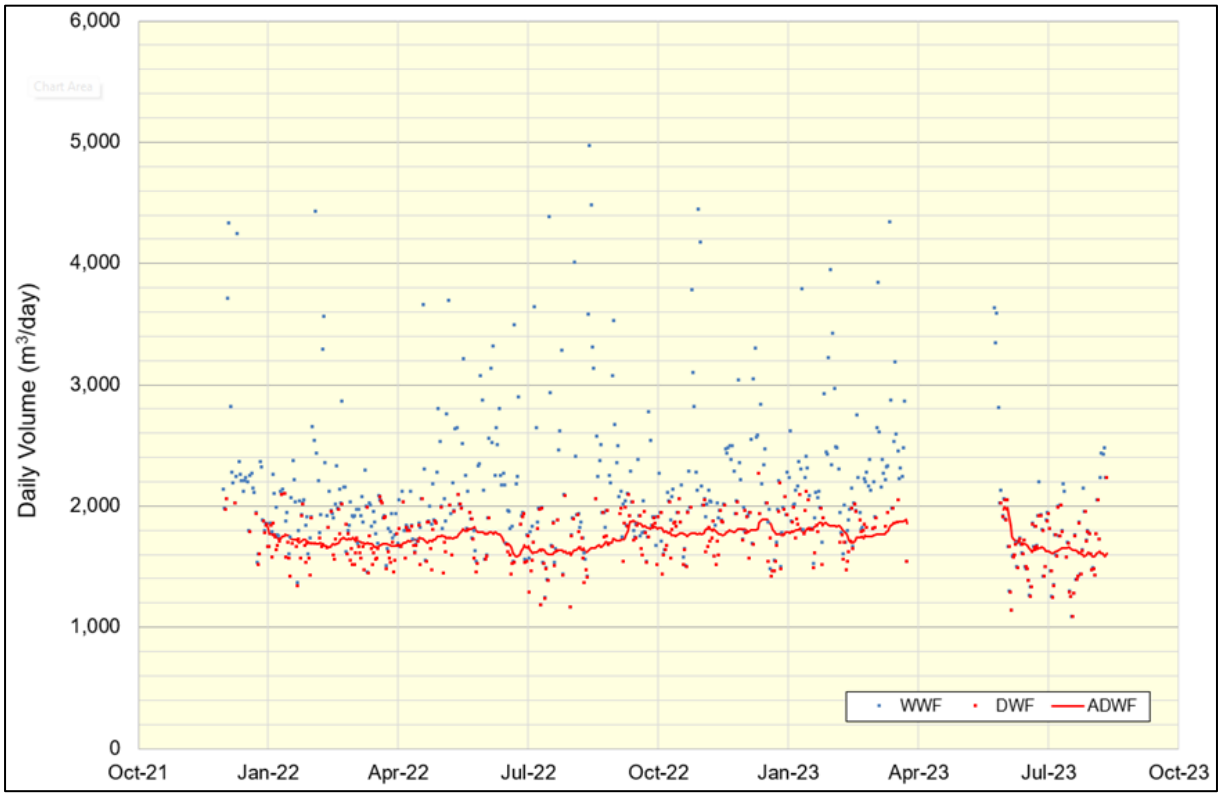

Figure 2-3: Influent flow measurements (December 2021 - August 2023)

2.5.2 Domestic Influent

In 2023, Hokitika's wastewater scheme serviced a domestic population of approximately 4,035 (across Hokitika, Kaniere and the Arahura Valley, based on 'Usually Resident Population' counts from the 2023 Census). This has increased by approximately 6.6% from 3,786 in 2018.

Additionally, a population peak during late March to early April (during the annual Hokitika Wild Foods Festival) results in a temporary but significant increase to influent flows each year.

Hokitika has the capacity to accommodate up to 796 visitors, based on the total number of accommodation units available (and assuming average occupancy of 2.0 people per unit) (Black 2018). However, this report identifies that Evan Jones Construction Hokitika purchased land and released draft plans for a 100-room hotel in Hokitika and was seeking an investor to purchase the completed property. No further updates could be found, and no new hotel has been constructed in Hokitika.

The flows and loads assessment assumed that during the peak period (such as Wild Foods weekend, in February/March), 75% occupancy occurs (around 600 visitors, sustained over 1 month out of 12 each year), with peak day visitor numbers at up to 800 (Stantec 2025).

2.5.3 Industrial Influent (Trade Waste)

The largest contributor of trade waste to the scheme is SFF, a venison and beef processing plant located approximately 1 km north of Hokitika; with smaller contributors being stock truck effluent, in-transit campervans (disposing of domestic waste at communal dump stations), and septage from septic tank disposal companies. Discharge volume and quality changes in the trade waste influent may be attributed to changes in the manufacturing processes and/or chemicals used by each discharger. All of the trade waste inflows are included in the wastewater quantities discussed in Section 2.5.1.

Trade waste influent flows and associated (estimated) contaminant loads were assessed in the Opus 2015 report to determine the potential impact of the trade waste discharge on the oxidation ponds (Opus 2015a). This assessment has since been revisited to include data for the SFF discharges from 2014 to 2023.

SFF is a significant contributor of industrial/trade waste; they have a consent to discharge up to 500 m^3/day of wastewater to the Hokitika Wastewater Scheme. BOD and TSS are contaminants of concern for the SFF discharge, as evidenced by a rise in BOD load from SFF correlated with the slaughtering of animals at the SFF facility (shown in Figure 2-4). TSS follows a similar trend, as described in (Stantec 2025). The concentrations entering the wastewater system vary depending on factory processing and is likely correlated with changes in the number of livestock kills at the SFF plant, with peak periods in May and June. SFF also contributes a significant portion of the pathogen load to the WWTP (Opus 2015a).

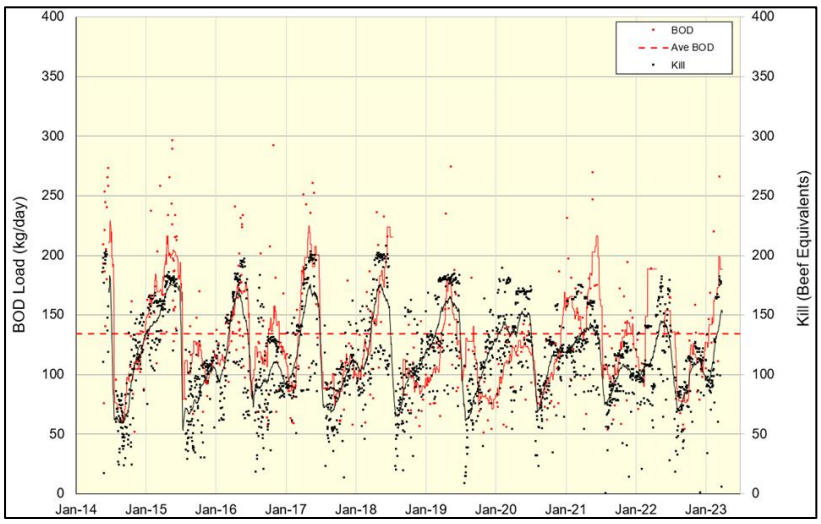

Figure 2-4: SFF Wastewater BOD Load and Kill counts taken from the Stantec Flows and Loads assessment (Stantec 2025)

2.5.4 Treated Wastewater

The existing resource consent requires compliance monitoring of treated wastewater prior to discharge via the outfall, and within receiving waters. Monitoring of the inlet is not required; however, WDC monitors the influent (inlet), treated wastewater (outlet), and receiving environment (200 m north and south of the outfall) monthly. Samples from each location are analysed for:

- $cBOD_5$.
- Suspended solids.
- Ammoniacal-nitrogen (NH_3-N).
- Nitrate-nitrogen.
- Enterococci (ENT).
- Faecal Coliforms (FC).
- *Escherichia Coli (E. coli).*

Consent condition 13, has trigger values for *E. coli* and ENT. The condition states that if at any time during monitoring any samples collected at Sampling Sites 1, 2, and 3 (Figure 3-5) exceed the following trigger values:

- 28,000 *E. coli* per 100 mL at the outfall (sampling site 1).
- 280 ENT per 100 mL at mixing zone boundaries (sampling sites 2 and 3).

Aside from *E. coli* and ENT, there are no consent limits or trigger values for the other parameters. However, , as noted in the Environmental Monitoring reports completed by WDC, WDC has internal benchmark based on industry benchmarks (Bencich, Hokitika Wastewater Treatment Plant Oxidation ponds, Environmental Monitoring Report March 2016 – March 2018, 2018). As follows:

- Suspended solids: 50–70 $g/m^{3.}$
- BOD_5: 30–40 $g/m^{3.}$
- Nitrate-Nitrogen: 0.01–0.1 $g/m^{3.}$
- Ammonia-Nitrogen: 20 $g/m^{3.}$
- Faecal coliforms: 10,000 cfu/100 mL.

Relevant figures for the monitoring data from 2018 to 2025 has been provided in Appendix A for the outlet (Sampling Site 1) and inlet. All figures, aside from BOD_5 and suspended solids, have been graphed with a logarithmic scale to enable comparison between the influent and treated wastewater data.

2.5.4.1 Volume

The existing consent requires that “actual flows at the outfall” are monitored continuously, with volumes recorded on at least a daily basis (Condition 15).

Based on the flow meter at the outlet, the average daily flow volume from Hokitika WWTP from 2018 to 2025 is 3,245 m^3/day. The current consent states that the average volume of treated wastewater discharged to the CMA shall not exceed 10,000 m^3/day. Figure 2-5 below shows the monthly average of daily volume of wastewater of the outlet flow meter (i.e. treated wastewater discharged from the WWTP).

There are some discrepancies in the wastewater flow dataset. For example, flow was not recorded in August 2018 or November 2022. Flow data was collected from the inlet only in July 2023. There is a potential data processing error in June 2019 as this states that the flow was recorded at the sampling site 200 m north[1].

[1] It is likely this flow was recorded at the outlet rather than the sampling site 200 m north and was incorrectly labelled.

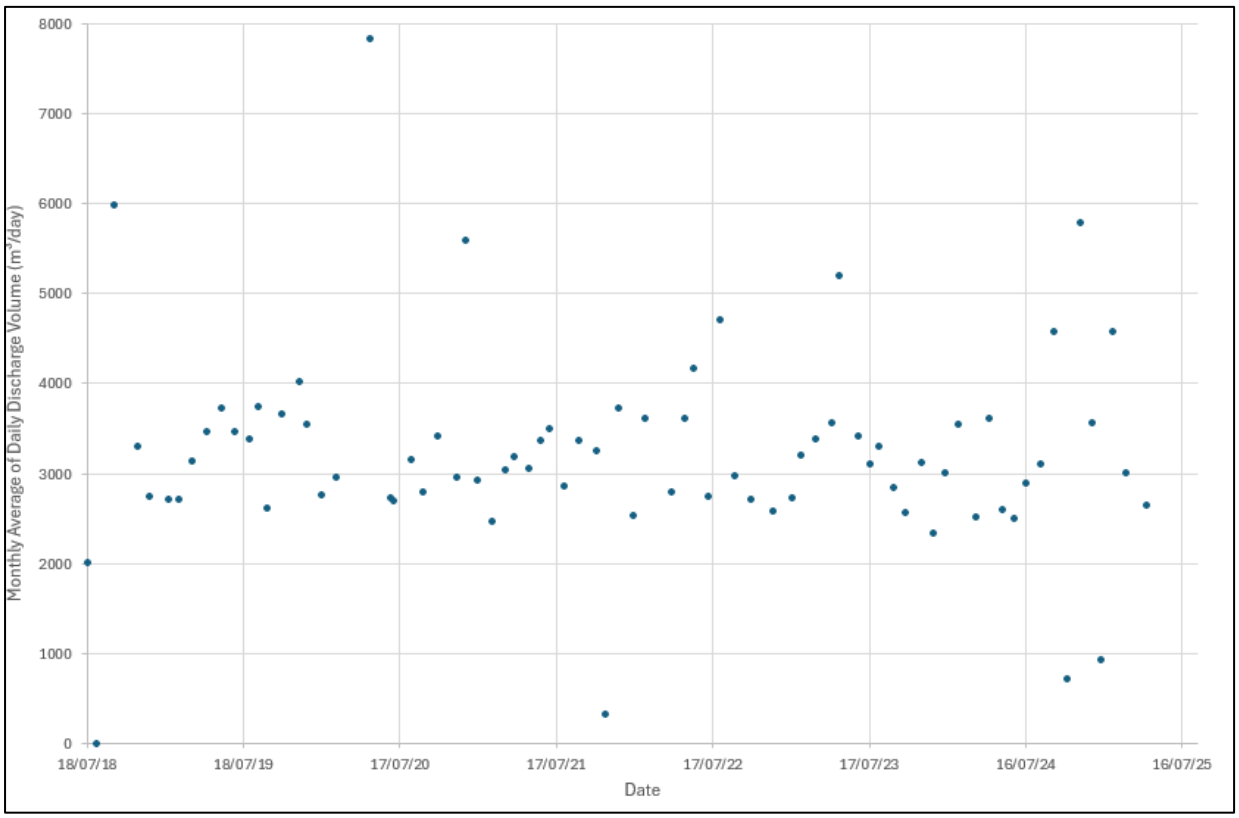

Figure 2-5: Monthly average of daily discharge volume (m^3/day) from 2018 to 2025

The (Opus 2015a) report noted that there were a lack of accurate flow and concentration data for the Hokitika WWTP. Therefore, that assessment was based on the interpretation of available data. The assumed domestic flows in 2015 was 759 m^3/day and the domestic BOD load was estimated to be 194 kg/day. Despite this data being from 2015, the report states that the residential population of Hokitika is expected to remain relatively static for the short or medium term, and thus, still relevant to the term of this proposed consent.

2.5.4.2 BOD_5 and TSS

Figures showing the monitoring data for the inlet and outlet of the WWTP from 2018 to 2025 are shown in Appendix A. Trends in BOD and suspended solids are expected to reflect the SFF annual cycle related to their co-op supply chain and animal management practices. As well as Kill Count for smaller animals such as bobby calves and venison, as well as larger animals (Opus 2015a).

There does not appear to be a consistent year on year trend through the 2018 to 2025 monitoring period for the inlet sampling site. However, during the 2020–2023 monitoring period, BOD and TSS concentrations appeared highest in the November to June period. The BOD and SS results follow a consistent similar trend in peaks and troughs. There is a significant peak in SS (1,970 g/m^3) in January 2021, likely reflective of a large rainfall event and infiltration from non-reticulated wastewater system sources such as stormwater or flows directly to the ponds. The suspended solids results for the outlet and inlet sampling location do not appear significantly different throughout the period, although there has been a significant reduction in the BOD concentration.

Previously, Opus provided an assessment of the treated wastewater quality at Hokitika WWTP from January 2009 to 2015 (Opus 2015a). From 2011, there was a decline in the concentrations of SS and BOD_5, attributed to a significant infiltration event (June 2011), likely from a non-wastewater scheme source such as stormwater or groundwater.

2.5.4.3 Nutrients

As discussed in Section 2.5.4.2 above, Opus considered that a significant infiltration event in June 2011, was the likely cause for the decline in NH_4 from 2011, similar to SS and BOD_5 (Opus 2015a). This

event was attributed to a significant infiltration event (June 2011), likely from a non-wastewater scheme source such as stormwater or groundwater.

The treated wastewater discharge quality has been assessed at Hokitika from 2018 to 2025. Relevant figures have been provided in Appendix A.

NH_3-N and nitrate nitrogen are key wastewater characteristics of the wastewater. These have been analysed monthly from samples at the inlet and outlet sampling sites. Concentrations of NH_3-N show significant reductions between the inlet and outlet throughout the period. There was minimal difference between nitrate in inlet and outlet as would be expected for an oxidation pond. Trends in nitrate nitrogen and ammonia concentrations were both relatively consistent from 2018 to 2025 at both the inlet and outlet site. However, the range of data has reduced, with the maximum concentrations declining from 2019 to 2025. The highest concentration of nitrate nitrogen in the outlet in April 2019 was 1.1 g/m^3, while the highest concentration of nitrate-nitrogen in August and September 2024 was 0.08 g/m^3. The highest concentration of NH_3-N in the outlet in June 2019 was 19.8 g/m^3, while the highest concentration of NH_3-N in 2024 was 3 g/m^3 in March.

2.5.4.4 Public Health Indicators

The consent includes trigger values for public health indicators as summarised in Section 2.5.4. Monitoring results for Sampling Sites 2 and 3 (mixing zone boundary), specifically, the trigger value for ENT, are discussed in Section 3.7.8.2. Generally, the outlet concentrations of indicator bacteria were low and less than the consent trigger values. There were two exceedances of the consent trigger value in the treated wastewater for *E. coli* (28,000 cfu/100mL) at Sampling Site 1 (outfall). This was in April 2019 (64,000 cfu/100mL) and February 2024 (>100,000 cfu/100mL) (Figure 2-6).

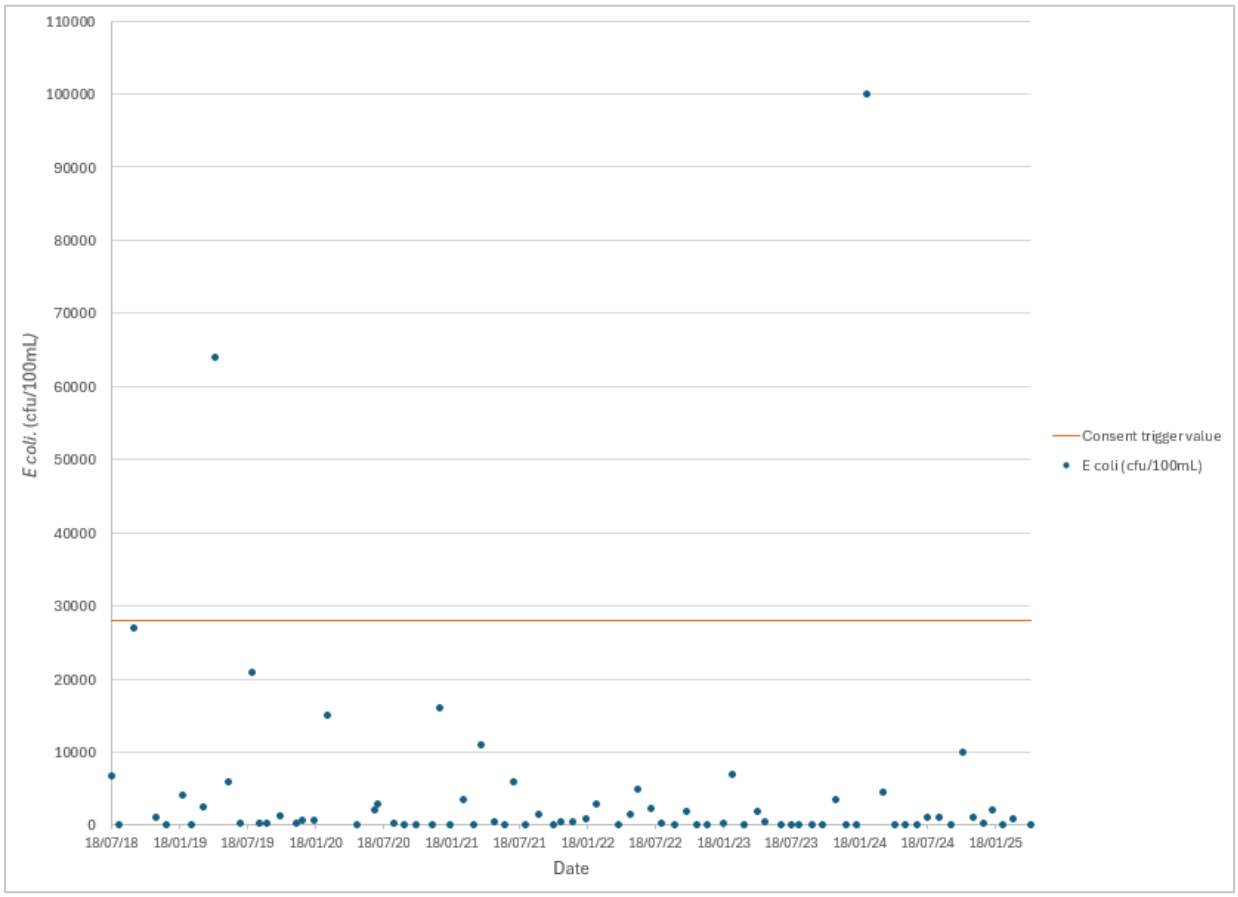

Figure 2-6: E. coli concentrations from the outlet sampling location compared against the consent trigger value (28,000 cfu/100mL)

Table 2-2 provides the count, average, median, maximum, and minimum concentrations of *E. coli,* ENT, and FC at the outlet and inlet. The *E. coli* results have been compared against the consent trigger

value. The maximum *E. coli* concentration received during the 2018–2025 monitoring period is well below the consent trigger level.

Table 2-2: Average and maximum concentrations and counts for E. coli, ENT, and FC for the inlet and outlet sampling locations for the outlet (Sampling site 1) for the monitoring period 2018–2025. E. coli compared against the trigger values (3 significant figures (s.f.))

	Location	Count	Minimum	Average	Median	Maximum	Trigger level
E. coli	Inlet	78	1,900	1,390,000	106,000	1,930,000	N/A
	Outlet	78	3	4,435	450	100,000	28,000
ENT	Inlet	78	400	144,000	20,000	1,920,000	N/A
	Outlet	78	1	775	100	7000	N/A
FC	Inlet	78	3,400	1,760,000	141,500	23,000,000	N/A
	Outlet	78	3	6,040	560	163,000	N/A

2.5.4.5 Emerging Contaminants

Treated wastewater discharged from the Hokitika WWTP is likely to contain emerging contaminants (EC) as are all domestic discharges and many industrial / trade waste discharges in New Zealand; however, these contaminants have not been monitored to date as the current resource consent does not require monitoring of EC's in treated wastewater, which is typical. As such it is not possible to report directly on the presence of EC's within Hokitika's treated wastewater discharged and their quantities.

EC's within wastewater schemes similar to that at Hokitika can include microplastics; pharmaceuticals; plasticisers; antimicrobials; corrosion inhibitors; flame retardants; surfactants; ultraviolet (UV) filtering substances; steroid hormones; musk fragrances and perfluoroalkyl and polyfluoroalkyl substances (PFAS) (Stewart & Tremblay, 2020). The type of EC's present is dependent on what is present/used in the wastewater catchment by the population and trades serviced.

The concentrations of EC's differ depending on the WWTP and the inputs, such as the proportion of influent that comes from industrial/trade waste sources; the size of the domestic population serviced; the treatment processes used, and the removal of particulate matter as sludge.

Further information regarding EC's and their potential effects is provided in Section 4.4.2.

2.5.5 Predicted Future Growth

No population growth is forecast for Hokitika during the proposed term of this consent application (i.e. five years to 2030).

Future 'predicted' demand on the scheme, and impacts on wastewater flows, was assessed in the Opus, 2015 report. Impacts are as follows with references to updated population data (StatsNZ 2023) (City Population 2022), the information provided in the Opus 2015 has been italicised and further updated information in normal text:

- *The general population declined between 2006 and 2013 in the order of 10%.* From 2013 to 2023, has increased by 3%.
- *With closures of Solid Energy and Oceania Gold mines, it was Opus' opinion that the population will remain static or possibly decline further.* Since 2013, the population has remained relatively static.
- *On the West Coast, tourism is strongest in Westland.* However, Hokitika Wild Foods Festival brings thousands of attendees to the town. In 2024, approximately 7,000 people attended and approximately 9,000 people in 2023[2].
- *Westland Milk Products are a major employer in the area and were in a growth phase despite current milk prices. Based on a 2015 press release, it is estimated that a further 50 full-time jobs*

[2] https://www.stuff.co.nz/style/350462381/thousands-turn-out-at-hokitika-s-wildfoods-festival

were to be created and construction peak of 300 contractors. In 2025, Westland Milk Products website stated they have approximately 660 people employed[3].

The WDC Infrastructure Strategy notes that the District's population is expected to decline by 500 people between 2023–2048, based on Statistics NZ's medium population growth forecast. However, townships have seen significant development since 2022 with the addition of 260 new residential lots mainly located in Hokitika, or in the area between Ross and Kumara. The developments in Ross and Kumara are not serviced by Hokitika WWTP, however, the Infrastructure Strategy doesn't split the lots out by area. During 2025, work is underway to subdivide over 100 residential lots on the Hokitika Racecourse land.

Table 2-3: Local population data for each Census since 2006 (Stats NZ)

	Census Usually Resident Population Counts		
Area	**2013**	**2018**	**2023**
Hokitika	3,165	3,096	3,267
Kaniere	435	459	477
Arahura Valley	210	231	309
Total	**3,810**	**3,786**	**4,053**

(all numbers represent population that were "usually resident" on Census date)

2.6 Discharge, Dilution, and Dispersion

The treated wastewater via the outfall pipeline to the Tasman Sea during high tide and directly to the beach/foreshore area during low tide. The dilution and dispersion of the discharge during these two discharge conditions will vary.

Dilution and dispersion of the WWTP was investigated several times in 2011 as summarised in the Hamill (2015) report (Hamill 2015). One investigation completed a Rhodamine dye test to monitor the dilution and dispersion using aerial imagery and grab samples from the beach. Rapid dispersion due to wave action and an estimated dilution of great than 1,000:1 was identified. It's noted that the location of sampling was not specified. Another study was undertaken during different coastal current conditions and wastewater flow rates, which confirmed the rapid dispersion.

Barter and Johnson investigated whether adding milk factory effluent to the discharge would make it conspicuous. The investigation resulted in a black discharge from biofilm being flushed from the pipes. However, rapid dispersion of the effluent meant there was no obvious change in colour or clarity within 10 m to 100 m of the discharge (Hamill 2015).

Additionally, no noticeable colouration in the surrounding water was identified by NIWA during a 2010 site visit due to the high energy mixing occurring at the outfall.

3 Description of Existing Environment

3.1 Land

The WWTP is located on WDC-owned land. WDC planning maps (Westland District Council n.d.) show this area as being within a 'rural zone' and the WWTP as land designated 'Hokitika Oxidation Pond' for the purpose of sewage treatment disposal.

There are no areas of Significant Indigenous Biodiversity within 1 km of the site.

The WWTP is located across a back-beach swamp, previously cleared and drained for farmland use (Opus 2015a). Prior to the oxidation ponds establishment, the site was utilised for grazing pastures. The

[3] https://www.westland.co.nz/people-and-place/our-people/

topography of the area is generally flat with terraces to the east. Sand dunes abut the western side of the ponds.

The WWTP occupies a narrow strip of land bounded by the Tasman Sea to the west and the Hokitika Industrial Branch Railway and State Highway 6 (SH6) to the east. The area immediately south of the oxidation ponds is utilised for grazing, with rugby fields located approximately 300 m further south. Land north of the ponds is also utilised for grazing with the Houhou Creek crossing beneath SH6 from east to west and flowing north-west to discharge into the Tasman Sea. Further east from SH6 and the railway line is a terrace raised approximately 20 m above the WWTP which is occupied by SFF. Residential dwellings are located in the surrounding land to the south (at Seaview) and north-east (Arahura Valley). Hokitika Airport is located 1.3 km south of the WWTP. The Westland Milk outfall pipeline is located approximately 110 m south and extends 800 m into the coastline.

The centre of Hokitika Township is located approximately 2.3 km south of the WWTP along the coastline, and Kaniere is located approximately 4 km southeast. There are additional small rural communities within the surrounding area.

3.2 Terrestrial Ecology

The embankments formed between the oxidation ponds and the beach are covered by scrubby native vegetation (Opus 2015b). A wetland is located between the railway and the beach dune, by the oxidation ponds. This provides bird habitat but hasn't been defined as a wetland in 'Schedules 1 or 2 of the Regional Land and Water Plan (2014) or deemed to be a lake for riparian margin management' (Beca 2019).

There is limited information available about the coastal habitat directly adjacent to the WWTP, within the sand dune system. However, studies undertaken by NIWA in 2019 to inform a review of the Regional Coastal Plan (Operative 2001) included two areas immediately to the north and south of the site respectively; MMB 9 (Chesterfield Shoreline) and CPA11 (Mahinapua Creek/Tūwharewhare)[4] (NIWA 2019).

For the purpose of this assessment (and in the absence of location-specific information) it is assumed that these areas are generally representative of the ecosystems along the shoreline adjacent to the WWTP if it had not been modified.

The report (NIWA 2019) identified the following characteristics for these areas, which are identified on Figure 3-3:

MMB9 (Chesterfield Shoreline) – approx. 12 km north of the WWTP, along the Tasman Sea coast:

- Potentially contains habitat for Speckled skink (undescribed taxa, genetically distinct; species has restricted range).
- Habitat is fragile and sensitive to coastal erosion and sea level rise.

CPA11 (Mahinapua Creek/Tūwharewhare) – approx. 5 km south of the WWTP, and south of Hokitika River mouth:

- Waterfowl and indigenous waders likely to be present (not observed during study by NIWA).
- Ecosystem has high natural values, margin remains largely in indigenous vegetation.

3.3 Geology

The regional geology of the area is described in the Institute of Geological and Nuclear Science's (GNS) geological web map (GNS Science n.d.) as OIS1 (Holocene) ocean beach deposits, comprising of beach sand and gravel underlying present day coastal plain.

During construction in 1973, the ponds weren't excavated from ground level, but were instead located within a low area, enclosed by gravel walls between the dune ridge and higher ground by the railway

[4] MMB = Marine, Mammal, Bird and Reptile Area and CPA = Coastal Protection Area (designated as per NZ Coastal Policy Statement 2010)

line (Opus 2015a). The gravel was taken from the higher terrace to the east and placed by earthmoving machinery. The substrate of the oxidation ponds is comprised of sandy gravel and fine silty sand, with a layer of decomposed vegetation and soil. Intertidal zone is dominated by mixed sand and gravel beaches. (Opus 2015a).

3.4 Groundwater

The hydraulic gradient of the site is towards the Tasman Sea to the west. The land has been described as moderately porous and relatively free draining (Opus 2015a). However, as the site is located generally at sea level, the unconfined groundwater may be susceptible to sea water intrusion close to the coast.

Given these hydrogeological characteristics, and the hydraulic gradient directed down towards the Tasman Sea (and away from surface water bodies, described in Section 3.5 below), it is assumed that there is no direct connection between groundwater and (fresh) surface water beneath the site. However, there is likely a connection between groundwater and the Coastal Marine Area.

3.5 Surface Water

There are two large regional rivers in the surrounding area. The Hokitika River mouth is located 3 km south of the WWTP, and Arahura River is 4.3 km north. Houhou Creek is aligned east to west, approximately 245 m north of the site. However, the WWTP site is noted to be isolated from surface water flows from the surrounding pastureland by the constructed embankments. (Opus 2015a). As such, it is assumed that there are no pathways for surface runoff from the WWTP site to enter nearby surface water bodies.

3.6 Climate

Hokitika's climate is described as oceanic, comprising of mild summers, cool winters, and rainfall relatively evenly distributed throughout the year. It is one of the wettest places in New Zealand, with approximately 2,700 mm of rainfall per year (Macara 2016). The rainfall contributes to flows via infiltration to the network and direct rainfall to the pond surface. Evapotranspiration is relatively low (approximately 700 mm); thus, only small volumes of water are removed by this route once fallen on land (Macara 2016).

Surface winds across the West Coast tend to be light and variable and are influenced by synoptic-scale circulation and large frictional effects from the eastern mountain barrier (Macara 2016). Specifically, air damming effect of the southern alps that causes westerly air to rise and form Canterbury's north-west winds, protects Hokitika and Westland from the normal velocities of the wind that would otherwise blow more strongly from the Tasman Sea. Cold southerly weather systems are also disrupted by the Southern Alps (Opus 2015b).

Rainfall data from Hokitika EWS Weather Station for 2021–2025 are shown on Figure 3-1. Since 2021, there has been eight major storm events exceeding 100 mm of rainfall in 24 hours, including two events (26 October 2024 and 4 March 2025) that exceeded 140 mm in 24 hours (144.2 mm and 149.8 mm respectively).

Based on monthly averages of daily total rainfall, while 2021 and 2022 were typically drier (reflecting the effects of La Niña on the west cost of the South Island, reducing rainfall), especially between January – April. La Niña conditions (based on surface air pressure) were dominant during 2021 and 2022, before a brief period of neutral-El-Niño conditions (producing more rainfall on the West Coast) during late 2023 – early 2024 (NIWA 2025).

The rainfall appears relatively evenly distributed throughout the year, with slight seasonal increase in winter from May to July. November and December also tend to receive slightly higher amounts of rainfall, before declining in the summer months.

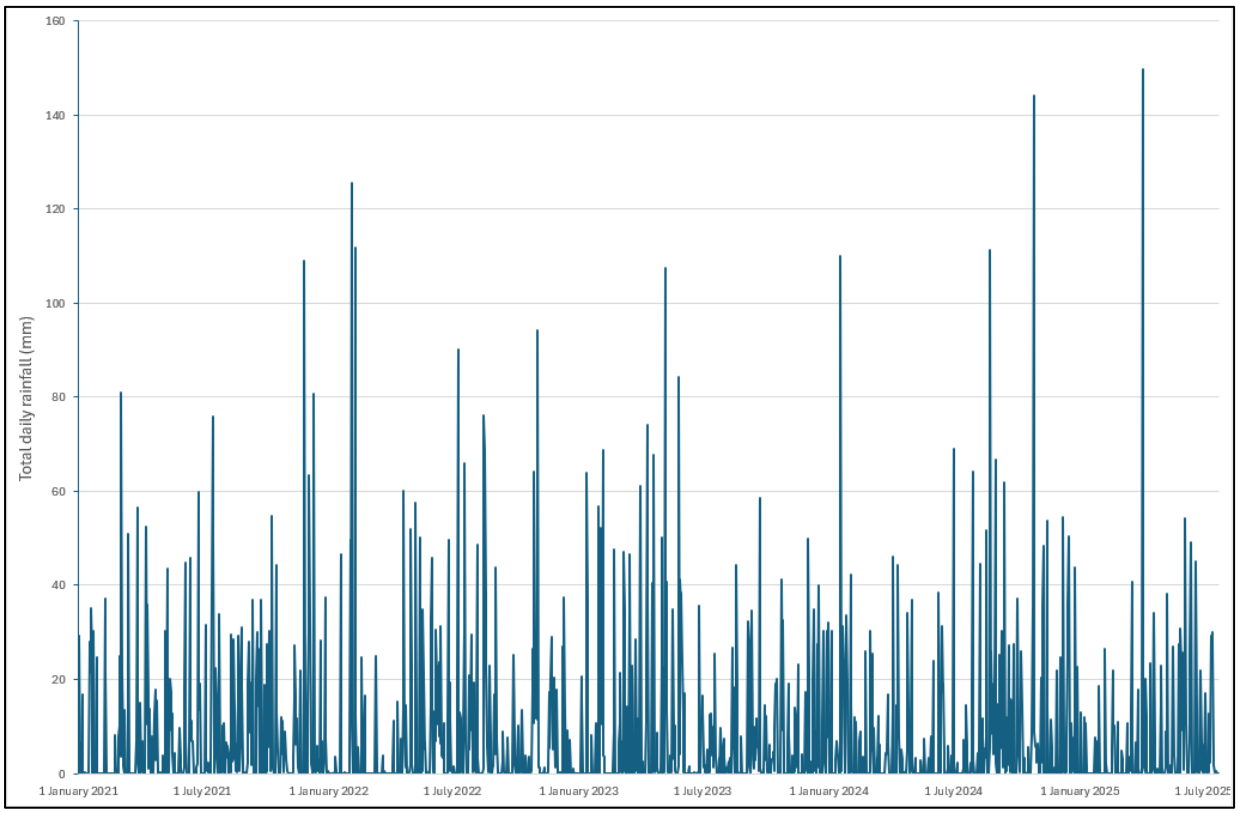

Figure 3-1: Total daily rainfall recorded on the Hokitika EWS weather station for 2021–2025, sourced from WDRC

3.7 Coastal Marine Environment

3.7.1 General

The CMA in the vicinity of the Hokitika WWTP is located along the West Coast, facing west towards the Tasman Sea. The discharge area is described as a high tide zone (Hamill 2015) and a high-energy intertidal zone. The discharge area is subject to westerly swells with prevailing nearshore drift from south to north (Beca 2019), thus, the coastal currents (known collectively as the Westland Current) flow from south to north (Cawthron 2011).

The WWTP outfall and mixing zone is located within a Coastal Hazard Zone (CHZ21), as noted in the West Coast Regional Coastal Plan (West Coast Regional Council 2001). An area noted to be affected by erosion, flooding, and dune blowouts. There are several rock groynes installed along the coastline to maintain a consistent shoreline position and prevent wave wash over flooding and help with erosion (NIWA 2022).

The shoreline adjacent to the WWTP is subject to a number of coastal hazards including erosion by wind and the sea (particularly during storms). Historic studies have typically highlighted these hazards and referred to the area as highly active in terms of changes to coastal geomorphology (e.g. (Gibb 1986)). Figure 3-2 shows an oblique aerial view of the coastline in 1986, with the WWTP visible to the centre-right of the image. The narrow piece of land on which the WWTP is located is described as a ‘Holocene coastal plain’.

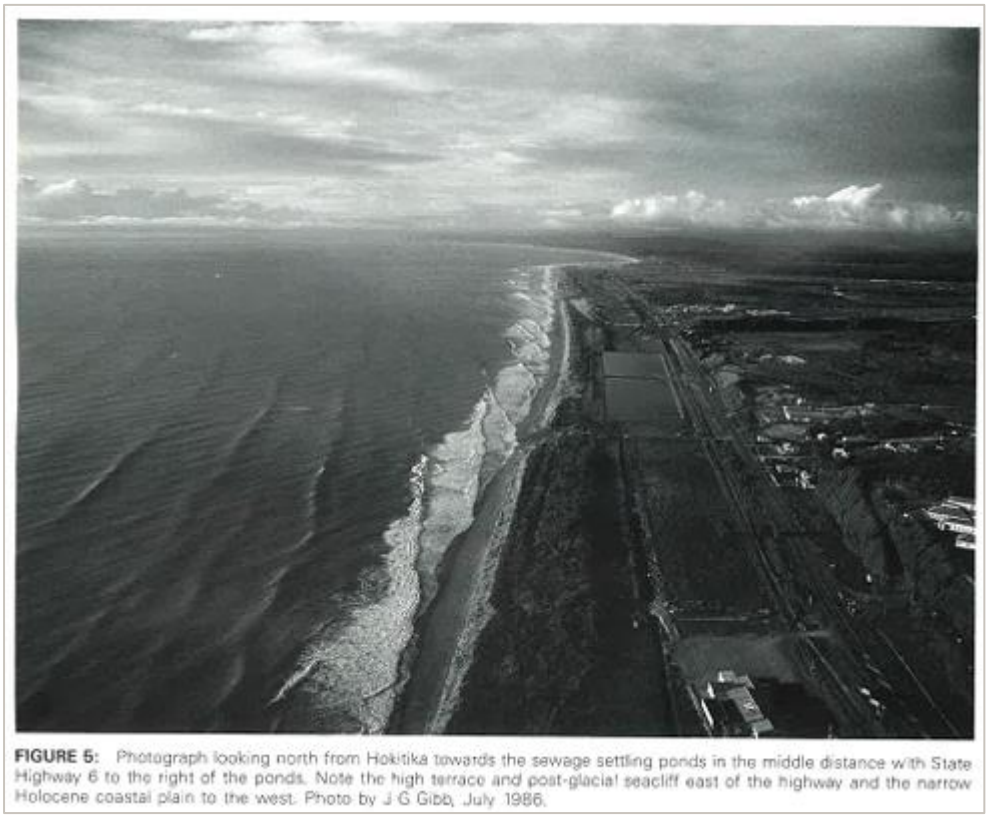

FIGURE 5: Photograph looking north from Hokitika towards the sewage settling ponds in the middle distance with State Highway 6 to the right of the ponds. Note the high terrace and post-glacial seacliff east of the highway and the narrow Holocene coastal plain to the west. Photo by J G Gibb, July 1986.

Figure 3-2: Hokitika WWTP and surrounding coastal environment, in (Gibb 1986)

3.7.2 Intertidal and Subtidal Ecology

The intertidal zone is dominated by mixed sand and gravel beaches with generally low biological biodiversity (Opus 2015a). Mussel beds are present on a rocky reef approximately 4.7 km north of the WDC outfall, near the Arahura River mouth.

The intertidal beach undergoes significant changes as during storm events, large amounts of material are moved offshore and then gradually replaced during calmer periods (Beca 2012). The biota within the intertidal area in the vicinity of the outfall are typically absent (or very limited), likely due to the frequent significant changes in the beach morphology and movement of sediment along the shoreline. Both the Westland Milk Products (WMP) and WDC outfalls have also historically been prone to scouring action, which constantly removes any encrustations of biota and prevents the establishment of any permanent populations (Cawthron 2011). The zone has been described as a “uniform shelf grading out to fine sediments” (McKnight 1969 in (Cawthron 2011), p18). Therefore, it is likely that the locations physical characteristics within the intertidal zone promote the absence of fauna, irrespective of the presence of the outfall (Opus 2015a).

Intertidal and subtidal aquatic ecology of this discharge area was assessed by (Cawthron 2011) when Westland Milk Products were considering relocation of their outfall. In addition to the above characteristics (which were also described by (Cawthron 2011)), the 2011 study found that:

- Algal beds are known to occur within the intertidal zone along the West Coast in general. These are typically dominated by *Gigartina spp.* and *Durvillea spp.*, and are particularly associated with the mussel beds at Arahura (James 2002, in (Cawthron 2011), p19).
- Giant triplefin fish (*Blennodon dorsale,* which are ‘nationally uncommon’) have been found within the Hokitika River mouth, which is an unusual occurrence as they are typically reef-dwellers.
- The subtidal zone along the Hokitika coastline is highly dynamic, with high wave energy particularly in the vicinity of the WMP outfall [and this is also likely at the WDC outfall]. This has made it difficult to survey the area historically (Cawthron 2011).

- Based on the characteristics of the subtidal substrate in the vicinity of both outfalls, and comparing this with similar locations on the West Coast, the subtidal zone is potentially home to "'Venus' communities" dominated by "suspension feeding bivalve mollusca" such as *Scalpomactra scalpellum, Maorimactra ordinaria, Tellinella huttoni* and *Nucula nitidula* (McKnight 1969, in (Cawthron 2011), p19). All of these species are known to inhabit sandy substrates (including gravelly sand) ranging to mud.

3.7.3 Bathymetry

The seabed is generally a uniform shelf grading out to fine sediments, with course-grained mixed sand and gravel. Offshore, the continental shelf slopes gently off to the Challenger Plateau to the north. The seabed drops sharply to the south (Benn and Neale 1992). Submarine canyon, the Hokitika Canyon, is located 10 km offshore and connected by a narrow, low-gradient channel like feature that transports land-derived organic matter 200 km away from the coast (Leduc, et al. 2020). A marine chart indicating general bathymetric features in the vicinity of the WWTP and Hokitika coastline is shown in Figure 3-3.

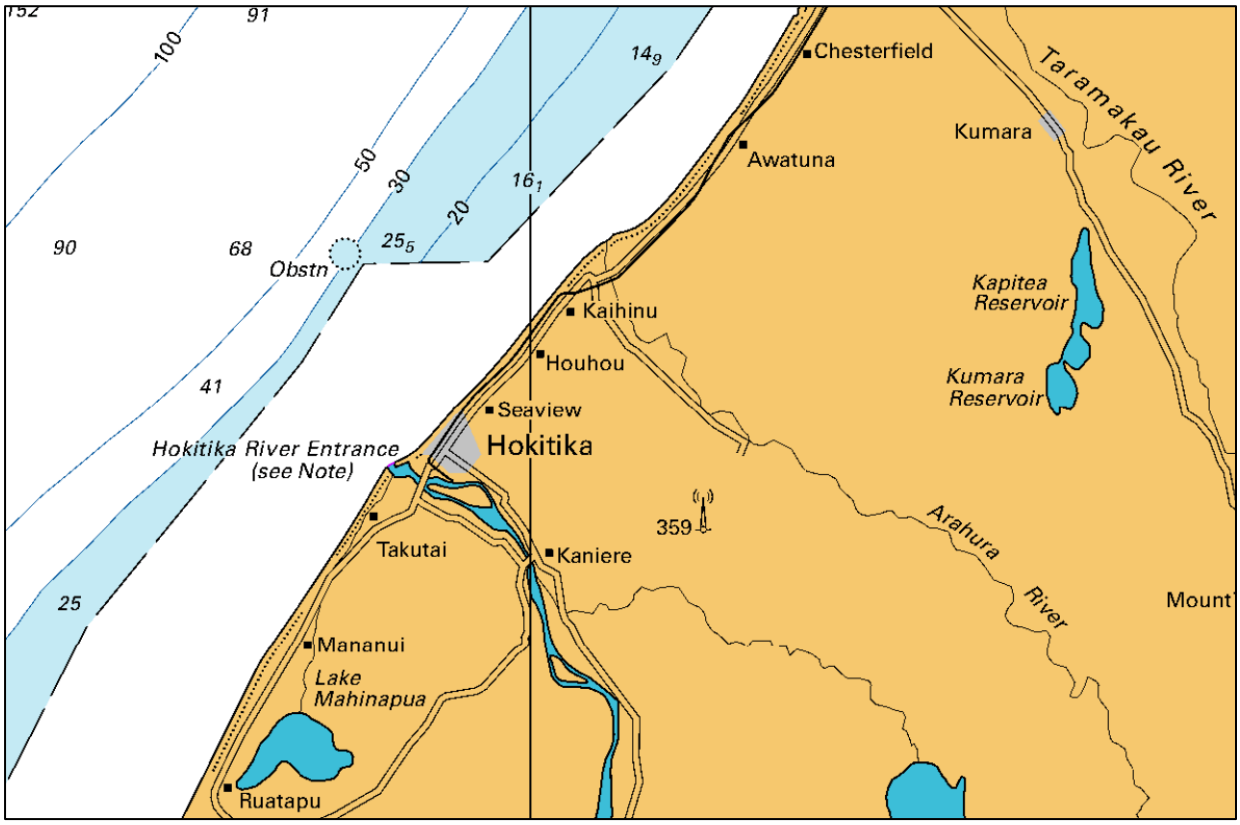

Figure 3-3: Bathymetry along the Hokitika coastline (from (Young 2025), accessed 17 July 2025)

3.7.4 Seabed Sediments

The seabed is generally comprised of a uniform shelf grading out to fine sediments, with course-grained mixed sand and gravel (McKnight 1969 in (Cawthron 2011), p18). Beaches along the West Coast have historically been well-supplied with sand and gravel from rivers including the Hokitika River (which contributes approximately 12 million m^3/year of suspended load, as estimated by (Benn and Neale 1992)). Mixed sand-gravel beaches are dominant in the vicinity of the WDC outfall (Benn and Neale 1992). This means that sediment particle size is typically dominated by sand (<2 mm diameter) and round, flattened gravel (20 – 200 mm diameter), as depicted in Figure 3-4. Foreshore sediments are typically transported northwards by wave action, except during northerly storms. The rate of sediment drift has been estimated at 240,000 m^3/year at Hokitika (Benn and Neale 1992). The mixed sand-gravel substrate has contributed to low biodiversity within the intertidal zone, as described in Section 3.7.2.

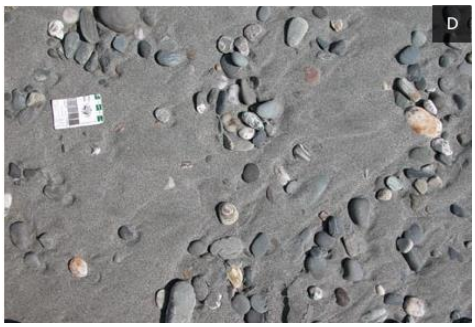

Figure 3-4: Example of mixed sand-gravel seabed sediment found within the nearshore zone near Hokitika (Hume, T., NIWA in (Neale, et al. 2007))

The WWTP outfall discharges directly onto the foreshore/beach during low tidal conditions before flowing briefly across the lower beach below the high tide line before entering the coastal water. However, the quality and potential contaminant uptake to these sediments have not been assessed as there are no historical monitoring data available for the location immediately surrounding the outfall. However, the sediment that the outfall discharges into at low tide will be covered and mobilised in high tide. This will lead to the dispersion of any directly contaminated sediment and reduce potential for accumulation.

3.7.5 Hydrology

The water movement and circulation patterns are influenced by prevailing wind from the southwest and near-shore sea currents which move from south to north (Hamill 2015). However, near shore currents can shift direction to be southwards during certain weather events such as changes in wind direction and when the Hokitika River has high flows associated with storm events (Hamill 2015). Based on this, the discharge plume is expected to move north of the outfall during most weather conditions.

3.7.6 Contamination Sources

The sources of contamination, other than the treated wastewater from the outfall, are likely to include agricultural runoff from the surrounding pastoral farmland, works associated with industrial sites such as SFF. Westland Milk Products wastewater discharge outfall is located 100 m south of the WWTP outfall and will contribute to the contaminant sources. However, it is noted that this outfall pipeline discharges 800 m into the CMA and is unlikely to impact the water quality in the CMA by the Hokitika WWTP.

3.7.7 Water Quality

Condition 11 of the current discharge consent requires WDC to undertaken sampling of receiving waters as shown in Table 3-1. Sampling locations are shown in Figure 3-5.

Table 3-1: Condition 11 of existing consent - receiving water quality sampling requirements

Month	Sampling frequency	Sampling conditions	Sample tests	Sampling sites
April May June July August September October	Monthly	Dry weather	*E.coli* and enterococci	Discharge @ outfall 'Sampling Site 1' Tasman Sea @ 200 m north of outfall 'Sampling Site 2' Tasman Sea @ 200 m south of outfall 'Sampling Site 3'
November December January February	Once every two weeks	Dry weather	*E.coli* and enterococci	
March	Twice	Dry weather if possible	*E.coli* & enterococci	

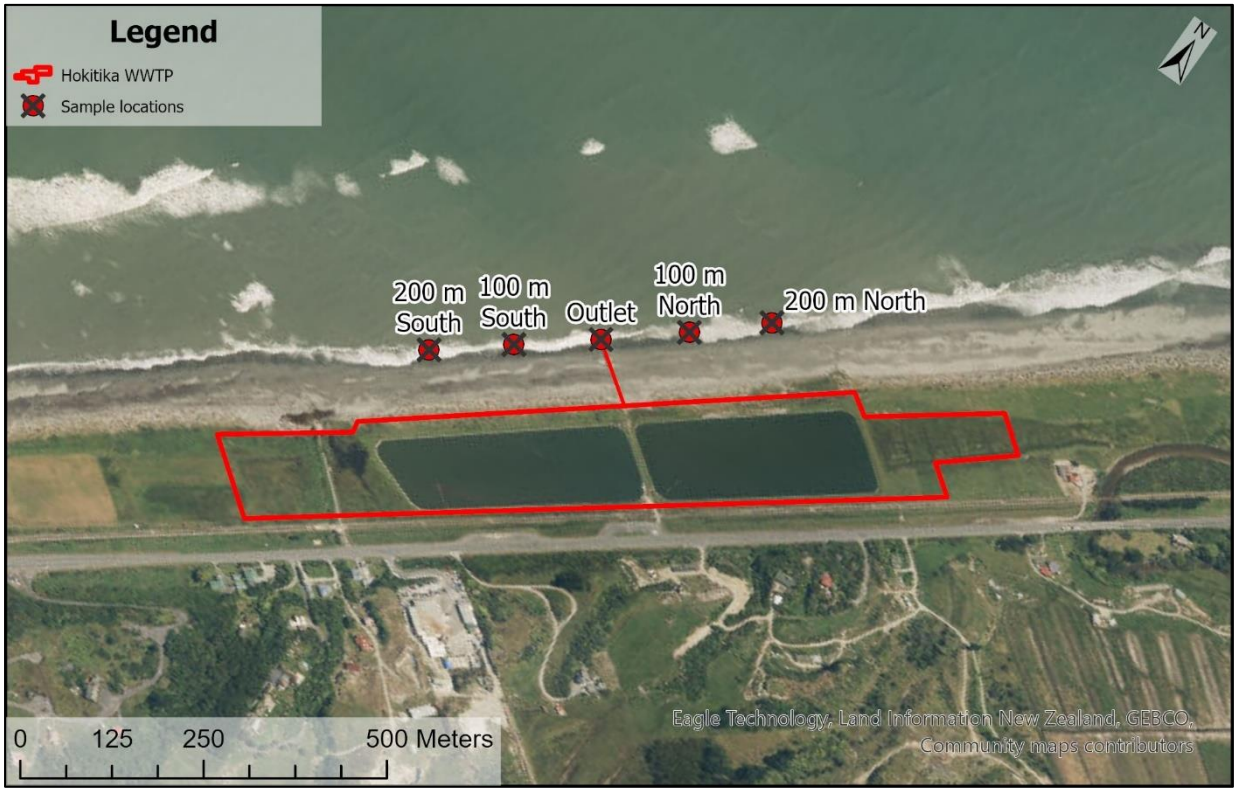

Figure 3-5: Outfall and receiving waters sampling locations; 100 m north and 100 m south (prior to 2019 only); 200 m north (Sampling Site 2) and 200 m south (Sampling Site 3) of the outfall.

No other parameters are required to be monitored under the existing consent. However, WDC have routinely tested the samples (typically on a monthly basis) for TSS, BOD_5, total ammoniacal-nitrogen, and nitrate-nitrogen in addition to the parameters listed in Table 3-1.

The FC, ENT, and *E. coli* results are discussed in Section 3.7.8 as they indicate the degree of risk to public health from the discharge.

Key trends observed in data collected between April 2019 – April 2025 are summarised in Table 3-2 for the remaining parameters. The overall status of each parameter over this period is indicated by ↑ (increasing concentrations); ↓ (decreasing concentrations), or → stable (no significant change).

Nutrient concentrations are often elevated in surf zones due to sediment resuspension and cycling of nutrients by bivalves. Blooms in surf diatoms have been observed along the Hokitika coast and can occur on relatively pristine beaches (Opus 2015b).

Table 3-2: Summary of trends in receiving water quality observed 200 m north and south of the outfall since 2019

Parameter	Observed trends	Overall status
TSS	• Results are similar between the two sites at 200 m north and south of the discharge location. • Concentrations have gradually decreased since 2023, from around 250 g/m^3 to less than 100 g/m^3.	↓
Nitrate-nitrogen	• Concentrations have typically been less than 0.15 g/m3, and relatively stable between 2019 – 2025. • A small number of results were elevated above 0.15 g/m^3; including 4 samples collected between November 2019 and January 2021, and samples collected from both north and south sites on 4 February 2025 (0.33 and 0.36 g/m^3 respectively).	→

Parameter	Observed trends	Overall status
	• The highest concentration recorded in this period was 0.57 g/m^3 on 7 November 2022 (at 200 m south).	
Total Ammoniacal-nitrogen	• Concentrations have recently increased during the 2024/2025 summer, compared with previous results. It is not clear whether this is a long-term trend at this time. • The highest concentration since 2019 was 0.73 g/m^3, on 20 November 2024 (at 200 m south). • All results were below the ANZG 2018 Default Guideline Value (DGV) for 95% protection of species against toxic effects in marine waters (0.91 g/m^3).	↑
BOD_5	• Concentrations have remained relatively stable and below 8 g/m^3 from 2019–2025, aside from one elevated concentration (40 g/m^3) recorded on 10th September 2020 (at 200 m south).	→

Summary statistics for suspended solids, nitrate-nitrogen, and ammoniacal-nitrogen are provided in Table 3-3 and all results are plotted in Figure 3-6, Figure 3-8, and Figure 3-7.

It is noted that the receiving water monitoring requirements changed between the previous consent (expired 2016) and the existing consent. The previous consent required samples to be collected at 100 m north and south of the outfall. This changed to 200 m in the existing consent. It took around three years for this change to be reflected in practice, which meant that the new requirement to sample at 200 m distance from the outfall was not fully implemented until April 2019. As such, to avoid inappropriate comparisons of historic results, only the sampling results reflective of the current resource consent (200 m north and south) have been assessed in this report.

Table 3-3: Summary statistics for receiving water quality results recorded between 2019–2025

Analyte	Sampling location	Number of samples	Average	Median	80th percentile	Minimum	Maximum
Suspended solids (g/m^3)	200 m north	70	188	178	256	34	549
	200 m south	70	192	167.5	257	48	554
Ammonia Nitrogen (g/m^3)	200 m north	69[5]	0.16	0.10	0.23	0.007	0.69
	200 m south	70	0.13	0.10	0.10	0.01	0.73
Nitrate Nitrogen (g/m^3)	200 m north	69[5]	0.06	0.05	0.07	0	0.33
	200 m south	70	0.08	0.05	0.08	0.01	0.57

[5] No concentration for Ammonia Nitrogen or Nitrate-Nitrogen was provided for November 2019.

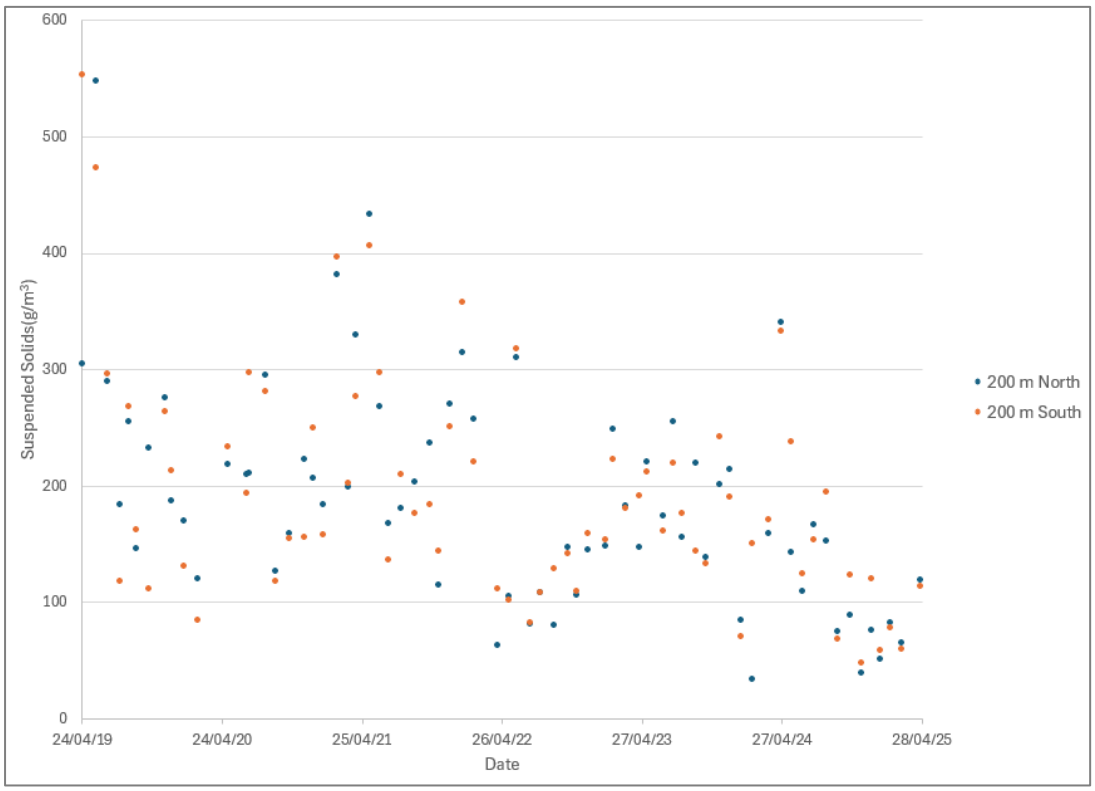

Figure 3-6: Suspended solids results (g/m³) per sampling location for the existing resource consent (RC-2015-0141-01)

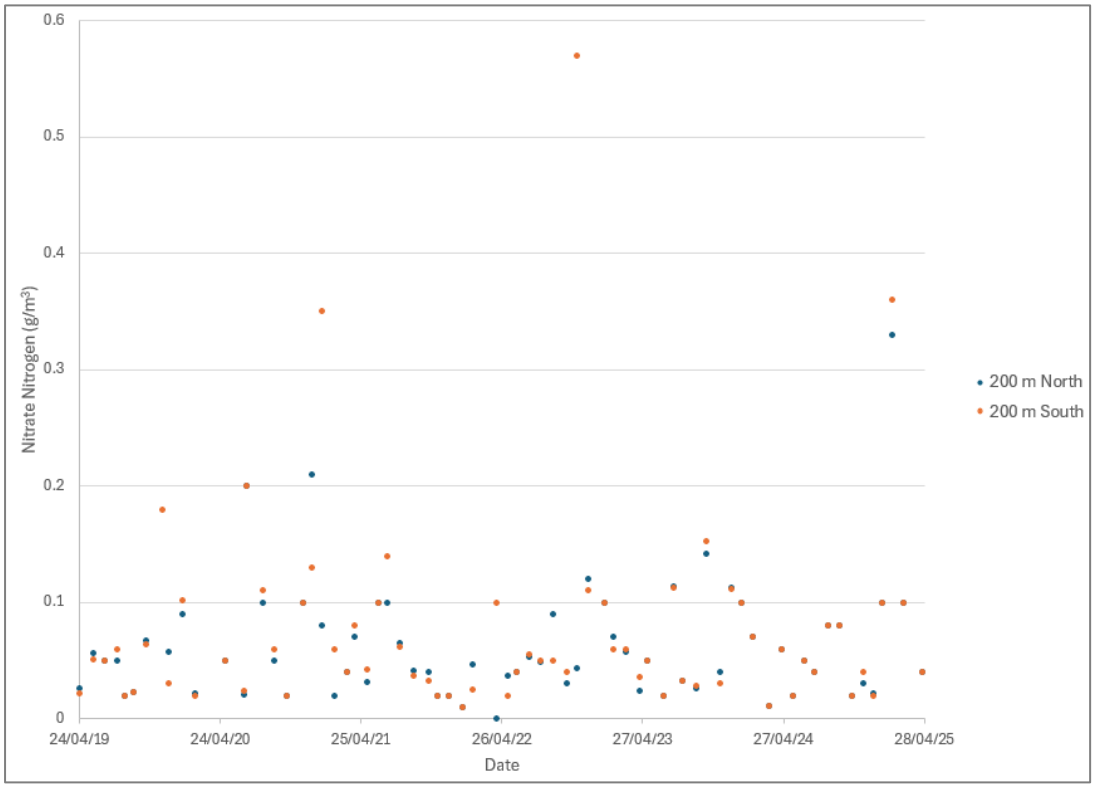

Figure 3-7: Nitrate nitrogen results (g/m³) per sampling location for the existing resource consent (RC-2015-0141-01)

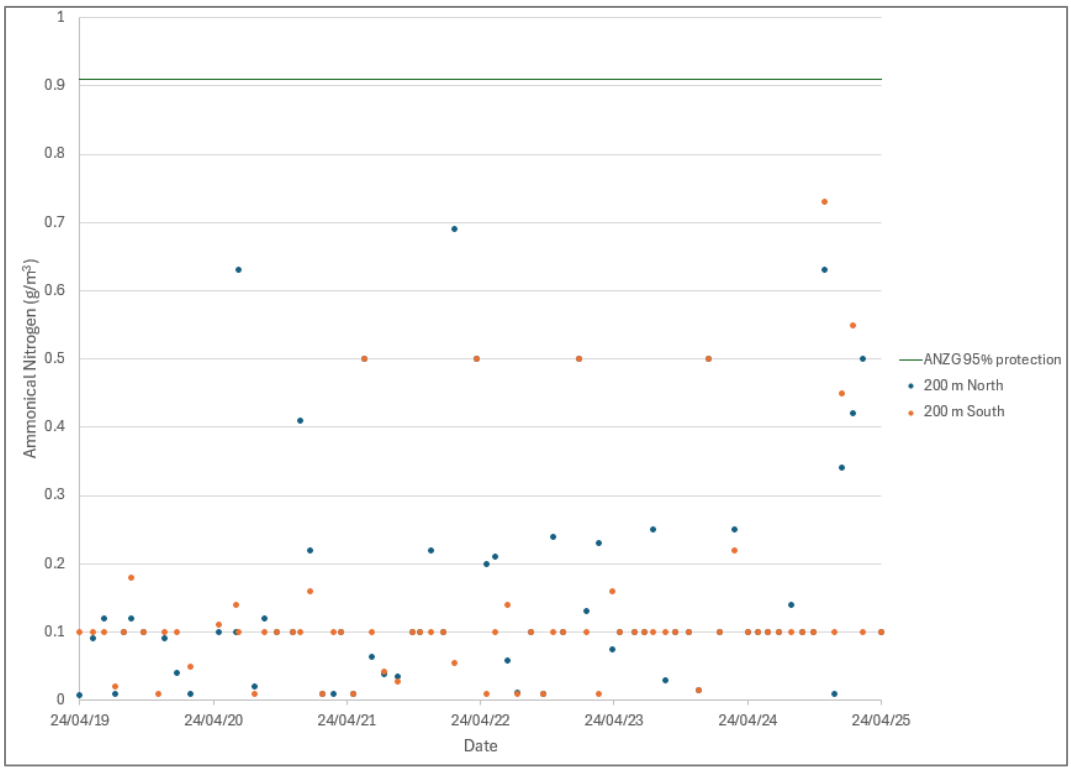

Figure 3-8: Ammoniacal nitrogen results (g/m³) per sampling locations for the existing resource consent (RC-2015-0141-01) against the ANZG 2018 DGV for 95% protection against toxic effects in marine waters (0.91 g/m³)

3.7.8 Public Health

The potential effect of the discharge on public health is indicated by the following information sources as discussed in this section:

- Quantitative Microbial Risk Assessment (QMRA) undertaken for the WMP outfall, which included the WDC discharge.
- Coastal water monitoring for faecal indicator bacteria.
- Information on contamination of shellfish flesh in the area.

3.7.8.1 Quantitative Microbial Risk Assessment

A QMRA has not been undertaken for the WDC outfall recently, however this was completed for the WMP outfall in 2011 (NIWA 2011). The discharge from the outfall as modelled included the potential discharge from the Hokitika WWTP, as well as the WMP discharge. The predicted risks will be lower than those from the current WDC outfall due to the increased length of the WMP outfall, but the QMRA provides useful information to this assessment as discussed.

Given the close proximity of the outfalls, it is assumed that the level of public access and the types of recreational and customary activities undertaken along the shoreline within the vicinity of the WMP outfall are also representative of that for the WDC outfall.

The QMRA considered associated gastrointestinal illness risk, and the risk of Acute Febrile Respiratory Infection (Respiratory).

The QMRA considered human health risks to recreational water users and consumers of shellfish associated with the discharges of treated wastewater from the WMP outfall. It primarily focused on the risk presented by milk-associated pathogens that could be present in the discharge. These included *Pseudomonas aeruginosa*; *Staphylococcus aureus*; *Legionella*; *Listeria*; *Mycobacterium avium* subsp. *Paratuberculosis*; *Salmonella* spp.; *Yersinia enterolitica,* as well as indicator organisms such as faecal

coliforms, *Escherichia coli* and Enterococci. Most of these organisms may also be found in domestic wastewater.

Norovirus and adenovirus were selected as representative viral pathogens, to estimate the potential health risks associated with the WDC outfall discharge.

The assessment identified the following receptors as being at risk from the discharge of treated wastewater from the WDC outfall into the marine receiving environment ((NIWA 2011), p46):

- Secondary contact recreational users who are exposed to potential health risks from **inhalation of aerosolised pathogens** along the high energy coastline.
- primary contact recreation users at risk from **ingestion of discharged pathogens.**
- **consumers** of raw filter-feeding shellfish harvested in the locality of Arahura River to the North of the WDC outfall.

A detailed list of recreational activities known to occur along the Hokitika shoreline (and identified in the 2011 QMRA) is included in Section 3.12 below. It was noted that the beach in the immediate vicinity of the outfall in not generally used for primary contact activities; this is likely due to the high energy coastal environment which is not conducive to safe and enjoyable conditions for swimming, surfing and boating as well as the presence of the outfall and its discharge.

Overall findings from (NIWA 2011) for the WMP outfall included:

- Risks to swimmers near the Hokitika River mouth, 2 km south of the outfall) associated with the WDC discharge were predicted to be an order of magnitude lower than those predicted close to the outfall.
- Predicted risks for swimming at the beach alongside Hokitika township were the greatest for children (~3 children on average infected with norovirus, per 100 recreational water users).
- Around 0.2% of consumers of shellfish harvested from near the Arahura River mouth were expected to become infected with norovirus, based on known conditions for the transport of viruses in the WDC discharge along the shoreline from the modelled WMP outfall.

3.7.8.2 Water Quality

Hokitika WWTP's current resource consent requires monitoring of treated wastewater quality for the specific parameters, frequencies, conditions, sampling types, and sampling sites in the Condition 11 of the resource consent (as summarised at the beginning of this section).

Consent Condition 12 has trigger values for *E coli* and ENT (as per Table 3-4 below). The trigger value for *E coli* applies to sampling site 1 (the outfall; treated wastewater prior to discharge) and has therefore been discussed in Section 2.5.4. The consent condition states that if at any time during monitoring any samples exceed 280 ENT/100 mL at mixing zone boundaries (sampling sites 2 and 3 (Figure 3-5)), then the Consent Holder shall resample weekly at all three sampling sites for one month following the trigger level activation.

Water quality results reported by WDC between 2019–2025 indicated that ENT levels exceeded the applicable Ministry for the Environment (MfE) Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas (Ministry for the Environment 2002), ENT guideline value (140 ENT/100mL) for marine waters on several occasions, at both the 200 m north and south monitoring locations. This indicates that a potential risk to the health of people engaging in contact recreation within 200 m of the outfall was present on the occasions when the guideline value was exceeded.

Exceedances of the (Ministry for the Environment 2002) guideline value for ENT occurred as follows:

- On 16 occasions between February 2019 and May 2025 at sampling site 2 (200 m north), often in consecutive samples (noting that the sampling frequency would have changed during this period in accordance with Condition 11).
- On eight occasions (two of which were consecutive) between April - May 2023, at sampling site 3 (200 m south).

The trigger value from Condition 12 (280 ENT/100mL) was exceeded as follows:

- On six occasions between 2020 - 2023 at sampling site 2 (200 m North).
- One three occasions at sampling site 3 (200 m South) (one on 15 January 2020, and one in each of May and November 2023 respectively).

Table 3-4 provides the count and average concentrations of ENT at the mixing zone boundaries, compared against the relevant trigger value, and discussed further below.

Table 3-4: Average and maximum concentrations and counts for ENT for the receiving water sampling locations (Sampling site 1 and 2), compared against the trigger value for the monitoring period 2019-2025 (no d.p).

	Location	Number of samples collected	Average result (CFU/100mL)	Maximum result (CFU/100mL)	Trigger level (ENT/100mL)
ENT	200 m north	70	121	1,500	280
	200 m south	70	122	3,700	280

The consent requires that WDC resample weekly at all three sampling sites for one month following the trigger level activation. This sampling has historically not been undertaken.

FC results exceeded the MfE microbiological recreational area guideline values for shellfish gathering in marine waters (median content 14 MPN/100mL and 90th%ile 43 MPN/100ML*).* Almost all monitoring results from 2018–2025 for the sampling locations 100 m north and south, and 200 m north and south of the outfall exceeded the median guideline value. The 90th%ile guideline value was also exceeded in several monitoring events. This indicates a risk from consumption of shellfish gathered beyond 200 m of the outfall.

Receiving water quality monitoring from 2011–2014 was assessed by Hamill in 2015 (Hamill 2015). The report noted that the microbial water quality at the edge of the 200 m mixing zone near the outfall was poor and did not comply with recreational bathing water guidelines. This report also noted more frequent exceedances of the trigger value (280 ENT/100mL) at the 200 m north sampling site between 2013 – 2014, which is aligned with the more recent results analysed.

The NIWA 2011 report on the QMRA also assessed the cumulative effects of both the WMP and WDC discharges into the Tasman Sea by comparing results for Enterococci with the relevant Microbiological Assessment Category from the Microbiological Water Quality Guidelines for marine bathing waters (Ministry for the Environment 2002).

The report found that “the microbiological water quality of the Hokitika Beach shoreline is poor north and immediately southwards of the WMP outfall” ((NIWA 2011), p45) and this would therefore also be the case for the WDC outfall). (NIWA 2011) commented that “the relatively large distance (~4km) from the [WDC outfall] and the comparatively energetic surf conditions that prevail, suggest that it might be reasonably unlikely that viral pathogens from the WDC discharge would be transported as far as the mussel beds near Arahura River” (p45).

3.7.8.3 Shellfish

Recreational and customary gathering of shellfish has been known to occur along the rocky coastline at Hokitika, with target species including mussels (*Mytilus spp., Perna canaliculus*), pāua (*Haliotis iris*) and kina (*Evechinus chloroticus*) (Neale, et al. 2007).

Flesh from shellfish collected within the vicinity of the outfall has not been tested for pathogens. While Condition 10(f) of the existing consent does require that “*there shall be no discharge to water from the HWWTP that results in [tainting or rendering of shellfish or fish unsafe for human consumption] in either the Coastal Marine Area at or outside the boundaries of the mixing zone being 200 m either side of the ocean outfall pipe*”, it does not require direct monitoring of shellfish flesh. There are no other investigation reports or studies available regarding the level of contaminants present in shellfish along the Hokitika coast to the authors’ knowledge.

In the absence of direct monitoring of shellfish flesh, it is appropriate to consider historic microbiological water quality results (as described in Section 3.7.8.1) to understand the potential risks to public health (via consumption of potentially contaminated shellfish) posed by the discharge.

The results discussed in Section 3.7.8.1 indicate that faecal contamination is present in the waters to the north and south of the outfall, with higher counts of FIB often observed at the 200 m north site, compared with 200 m south. Results from a 2006 study indicated that "the sewage plume [from the WDC oxidation pond] can hug the shore for considerable distances northward of the outfall" (Stott et al. 2006 in (NIWA 2011), p50).

The Arahura mussel beds (where shellfish gathering is most likely to occur, rather than along the foreshore where the outfall is located) are 4 km north of the WWTP. Previous investigations (e.g. (Hamill 2015)) have identified high concentrations of faecal contamination in the mussel collections at these reefs, but it could not be determined whether the contamination could be attributed to wastewater discharges from the WDC or WMP outfalls.

3.7.9 Fish

A significant population of giant triplefin (*Blennodon dorsale*) has been identified to be present to the south of the outfall, by the Hokitika River mouth. This species is a nationally uncommon species that is abundant on the Northern West Coast and predominantly a reef-dweller (Opus 2015a).

The outfall and the 200 m mixing zone are located within a Ngai Tahu Treaty Settlement Area (South Island Fishery Area), indicating that customary fishery can take place and a commercial fishery region 'Challenger (FMA 7)' (Fisheries New Zealand n.d.). This region supports significantly important inshore commercial fisheries. Specific to the West Coast is inshore trawl vessels for albacore tuna or various trawl and dredge fisheries. Trawlers often catch flatfish, gurnard, snapper, John dory, red cod, terakihi, warehou, star gazers, and barracouta. The applicable fishery management areas to the WWTP are:

- 7CHA – Challenger/Central (Plateau).
- SKJ1 – Skipjack Tuna; ALB1 – Albacore Tuna, and STU1 – Slender tuna (encompass all of New Zealand.

The outfall and the 200 m mixing zone are not located within a Mataitai Reserve or a customary fishing management area (Ministry for Primary Industries 2025).

3.7.10 Bird Life

eBird, a publicly available citizen science and global database, holds observations for 24 species 2025 at the Hokitika WWTP. These include (but not limited to), the paradise shelduck, black swan, Canada goose, mallard, pied stilt, sacred kingfisher, black billed Gull, and white-fronted tern (eBird 2025).

The protected Blue Penguin/Kororā (*Eudyptula minor)* reside by the outfall and the 200 m mixing zone for shelter, resting, breeding, and moutling (West Coast Penguin Trust 2018). Penguins commonly nest in dunes, coastal forest, farmland and rocky areas up to 200m inland from the beach. In Hokitika, the breeding season through to moult is approximately June to February, with activity increasing from April. During this time, the penguins are most active and can be found walking across the beach, returning to their nest from the sea after dusk, and generally leaving for the sea before dawn (West Coast Penguin Trust 2018).

Penguin population counting data from the zone north of Hokitika town boundary to Houhou Creek, within the WWTP site, indicated that there are between 30 and 50 pairs of Blue Penguins in the area. However, these are mostly populated further towards Hokitika town. A Penguin Management Plan has been prepared by the West Coast Penguin Trust that covered the preconstruction, construction and post construction phases of the WMP outfall. Additionally, a coastal sites assessment by NIWA in 2019 (NIWA 2019) identified that the area immediately north of Hokitika from Richards Drive to Houhou Creek (which includes the Hokitika WWTP) has high numbers of blue penguins.

3.7.11 Marine Mammals

From available online information (Berkenbusch, Abrahma and Torres 2013), it is understood that the following mammals may inhabit the CMA by the outfall and the 200 m mixing zone:

- Blue whales (*Balaenoptera spp.*)– Northern South Island's West Coast.
- Pygmy right whales (*Caperea marginata*)– South Island West Coast.

- Hector's Dolphin (*Cephalorhynchus hectori hectori*) – sightings on the South Island's West Coast by Westport and Greymouth.
- NZ Fur seal (*Arctocephalus forsteri*) colonies – South Island West Coast.

This confirms the findings of the survey undertaken for WMP (Cawthron 2011) which noted the presence of Hector's Dolphin and NZ Fur Seal, along with the Southern right whale (Eubalaena australis) off the coast of Hokitika. The report noted that these species were those "most likely to be influenced by any coastal discharge off Hokitika" because they are known to be year-round residents (or seasonal visitors in the case of the Southern right whale) and/or regularly travel or feed within inshore waters in the area.

3.8 Aesthetics

Due to the high energy mixing zone, the adverse effects of the discharge on water clarity are considered to be negligible. Additionally, due to the high energy of the intertidal zone, the colour of the discharge is quickly assimilated (Opus 2015b).

However, there is expected to be an adverse effect on the amenity from the presence of the wastewater that is discharged from the outfall. Particularly, when the wastewater is discharged directly to the beach due low tidal conditions. As shown in Figure 3-9, both the outfall structure and the discharge are highly visible from the beach.

Figure 3-9: The existing WDC wastewater outfall at the Hokitika coastline

3.9 Socio-economic Environment

Hokitika has a population of approximately 3,267 (StatsNZ 2023). This has declined since 1996 which had a population count of 3,660 based on an estimated resident population. No assessments of the social environment of Hokitika have been formally undertaken in relation to the discharge of treated wastewater from the outfall into the CMA.

Within the proposed consent term, it is not anticipated that there will be significant changes to the social environment. Whilst the effects on the social environment have not been explicitly assessed (i.e., in Table 4-6, Section 4.14), a broad assessment is included in Section 4.8.

No assessments on the social environment of Hokitika has been formally undertaken, however, a review of the census data on work and labour force is provided below (StatsNZ 2023).

Based on the 2023 census data, Hokitika's largest industries for employment include manufacturing (13.8%), retail trade (9.8%), accommodation and food services (9.8%), health care and social assistance (9.3%), and construction (9.3%). Employment rates have remained relatively consistent in the past three censuses (2013, 2018, and 2023). Based on the 2023 census, employed full time workers make up 48.2% of the Hokitika population and 2.3% are unemployed. The median personal income of adults is $35,900 in Hokitika, compared to $41,500 for New Zealand.

Westland District infometrics data for 2023 is available for the level of socio-economic deprivation in terms of decile, where decile 1 represents the least deprived 10% of areas, and decile 10 represents the most deprived 10% of areas (Infometrics Ltd 2023). For Westland District, the highest percentage of the population is within Decile 6 (23.9%), followed closely by Decile 8 (22.1%).

Within the proposed consent term, it is not anticipated that there will be significant economic change.

The effects on the economic environment have not been explicitly assessed (i.e., in Table 4-6, Section 4.14), however a broad assessment is included in Section 4.8.

3.10 Cultural Values

No cultural impact assessment has been completed for this consenting process as of reporting (September 2025). The following information was received in relation to the 2015 application (Opus 2015a).

Representatives of Te Rūnanga o Ngāti Waewae and Te Rūnanga o Ngai Tahu have raised concerns that the Hokitika treated wastewater discharge is offensive to Maori cultural values, and the Rūnanga are seeking the progressive removal of these discharges to water, and replacement with land treatment.

Ngāti Waewae seek a long-term objective of a change to the current pond and discharge system. They will not support a resource consent for an on-going long-term discharge into the sea. Ngāti Waewae seek an improved treatment system with no direct ocean discharge. Ngāti Waewae have expressed a desire to work with WDC on developing some changes, and consent conditions with timeframes to work towards improvements in the wastewater treatment system and the means for discharging the treated wastewater.

As noted in Section 8 of the 2015 AEE, WDC provided funding in the Long-Term Plan for investigations of improvements to the wastewater treatment and implementation of limited options for short term improvements. This work has been implemented as described in Section 2.2.

The WCRC advised that the Marine and Coastal Area (Takutai Moana) Act (MACA Act) requires WMP (with respect to their new outfall) to notify iwi, hapu and whanau groups that have made application in regard to customary rights under the Act (Beca Limited 2019).

Te Rūnanga o Ngāi Tahu have made a dual application to the High Court of New Zealand and for Crown Engagement under the MACA Act (Application ID MAC-01-13-002), which applies to the engagement coastline of Ngāi Tahu. This area includes the Coastal Marine Area in which the WDC outfall is located (Te Arawhiti 2025).

3.11 Recreation and Tourism

The West Coast Regional Coastal Plan identifies the area beach north and south of the Hokitika township as Coastal Recreation Area (CRA 13) (West Coast Regional Council 2001). This area's main recreational uses are for swimming, walking, fishing, and beach golfing. The WWTP outfall is located approximately 1.3 km north of this area and is noted as a less popular swimming and fishing area. The beach conditions are noted as generally unsafe from frequent storm conditions and associated rips, currents, and holes (Beca 2019). Additionally, proximity to the WWTP outfall, limited public beach access and parking, and a relatively low population in vicinity of the area, means the area is less popular for swimming and fishing (Beca 2019).

It is noted that the Westland Current, described in Section 3.7.1, typically flows northwards, and therefore the discharge from the outfall would typically move away from the Hokitika CRA13, not towards it.

The QMRA for a combined discharge of WMP and WDC discharges from the proposed WMP outfall undertaken by (NIWA 2011) identified the following recreational activities that took place along the Hokitika Beach shoreline, including in the vicinity of the WDC outfall:

- Secondary contact shore-based fishing activities – surfcasting, angling within the river mouth, whitebaiting and set netting.
- Pounamu fossicking (near the Arahura River mouth but also back towards Hokitika).
- Stone and driftwood fossicking.
- Firewood gathering, bonfires.
- Beach walking.
- Motorbiking and four-wheel driving along the beach, from public access points.
- Swimming, surfing, bodyboarding (moderately popular along Hokitika Beach).
- Kayaking.
- Public events held on the beach in warmer months include the Driftwood and Sand Beach Art Festival (January), Sand Dunes classic golf tournament (January), and Wildfoods Festival (March).

The local tourism industry has been in recovery mode following the peak of the COVID-19 pandemic. Slow growth back to pre-pandemic levels is expected to continue but is hampered in part by the current weak global economy and increased travel costs to NZ for visitors form the Northern Hemisphere (WDC 2025). West Coast visitor trends were assessed in December 2022 (ChristchurchNZ 2022). The report assessed visitor trends based on Electronic Card Transactions (ECT) and accommodation. Hokitika is noted to be a regional hotspot for visitors. There has been a 42.1% increase in the visitor spending in Hokitika from 2019 to 2022.

4 Assessment of Environmental Effects

4.1 Introduction

In accordance with Section 88 of the RMA, a person may apply to the relevant consent authority for a resource consent. Section 88(2)(b) requires the application to include information relating to the activity including an assessment of the activity's effects on the environment, as required by Schedule 4. The assessment must be in such detail as corresponds with the scale and significance of the actual and potential effects that the activity may have on the environment. The potential effects of the proposal include both positive and adverse effects.

The assessment applies the definition of an "effect" as stipulated in Section 3 of the RMA, which is as follows:

the term effect includes:

(a) any positive or adverse effect; and

(b) any temporary or permanent effect; and

(c) any past, present, or future effect; and

(d) any cumulative effect which arises over time or in combination with other effects regardless of the scale, intensity, duration, or frequency of the effect, and also includes—

(e) any potential effect of high probability; and

(f) any potential effect of low probability which has a high potential impact.

An assessment of environmental effects has been undertaken to identify the risks associated with the WWTP activities for the next five years of the sought consent's duration. The methodology used to inform and complete the assessment is detailed in Section 4.2, while the findings of the assessment and supporting evidence (where not already included in the sections above) are summarised in Sections 4.3 and 4.4.

4.2 Methodology

The potential effects of the proposed activities on the receiving environments have been identified, and the risk of those effects occurring (and any outcomes) assessed, using the following steps:

1. **Establishing a Conceptual Site Model (CSM)**, detailed in Section 4.4 below, to identify:
    a. The **potential sources** of contaminants associated with the operation of the WWTP and discharges of treated wastewater.
    b. **Possible pathways** through which contaminants could reach (and have an effect on) receptors.
    c. **Receptors**, including aspects of the receiving environment and the setting for the activities (e.g. social, economic and cultural context).
2. Considering the characteristics of the receptor(s), including any environmental, social or cultural **values** (based on the current/historic state of the receptor(s), as detailed in Section 3 of this report).
3. Defining the **types of effects** that could occur as a result of the proposed activities, assuming that the pathways identified could occur.
4. **Assigning a consequence/magnitude** rating to each potential effect, using the definitions specified in Table 4-1. This is based on the potential change from the baseline that would be expected without the discharge being present.
5. **Determining the likelihood** of an effect occurring, using the definitions specified in Table 4-1.
6. **Assigning a risk rating**, based on the assigned magnitude x likelihood, and ensuring that the risk rating from Table 4-2 is appropriate.
7. Determining the **level of effect** that could occur, based on the assigned risk rating, and ensuring that the description of the level of effect in Table 4-3 is appropriate.

The CSM was used to inform this AEE by aiding in the identification of potential sources of contamination, and pathways by which sensitive receptors could be exposed to contaminants. This process enabled the potential risk to human health and/or the environment as a result of soil and/or groundwater conditions to be determined. The assessment has identified the likely presence or absence of the following elements:

- ***Source*** – a substance that is capable of causing an unacceptable risk to human and/or environmental health.
- ***Pathway*** – a mode or route by which the substance/source can migrate to a receptor.
- ***Receptor*** – someone and/or something that could be adversely affected by the substance/source.

Where one or more of the CSM elements were absent the potential risk to human and/or environmental health was considered to be very low. Where all these elements were present, a complete or potentially complete pathway for exposure to contamination existed. The CSM is detailed in Section 4.4.

In order to assign a **risk rating**, relevant elements of the methodology outlined in the Ecological Impact Assessment Guidelines (EcIA; (Roper-Lindsay 2018)) were applied to identify and assess the potential significance of any effects on the environment that could be associated with the proposed discharge. Where necessary this methodology was adapted to accommodate the unique setting and nature of the proposed activities, as well as the potential effects.

The Alternatives Assessment process (outlined in Section 5 of this report) considered the potential effects on the receiving environment including the coastal environment, surface water, groundwater, and land, as relevant to the site and the proposed methods for discharging treated wastewater from the Hokitika WWTP.

This assessment is based on a risk-based approach, i.e. effects were assessed in terms of their potential magnitude (based on degree of change, degree of exposure to a hazard) and the sensitivity of the receiving environment (i.e. receptor(s)) to potential effects. This assessment also considers the **likelihood** of an effect occurring during the consent term, as defined in Table 4-1.

(Roper-Lindsay 2018) uses a risk-based approach to assess the risk of an effect occurring, and the magnitude of the effect. The EcIA guidelines focus strongly on ecological values and the magnitude of potential effects on them (including the duration of the effect) but does not consider the likelihood of effects occurring to the degree that is necessary and appropriate for this proposed activity. This assessment incorporates likelihood with greater emphasis.

The definitions for 'likelihood' and 'magnitude' criteria applied in this assessment are detailed in Table 4-1 below.

This assessment also accounts for any planned mitigation measures incorporated into the proposed activity by the nature of its design, and as such the overall 'level of effect' determined is referring to residual effects, after any mitigation measures are implemented.

Table 4-1: Criteria for assessment of magnitude, duration and likelihood of effects

Term	Description
Magnitude and Duration of effect (adapted from Tables 8 and 9, **(Roper-Lindsay 2018)**)	
Very high	Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known ecological population or range of the element/feature AND/OR the receiving environment is in pristine condition and is highly sensitive to change. Effects are permanent (i.e. continue for an undefined time beyond the span of one human generation (approximately 25 years))
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known population or range of the element/feature. AND/OR The receiving environment is of a high quality, with moderate sensitivity to change. Effects are long term (i.e. substantial improvement does not occur until after 25 years or more) to permanent
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known population or range of the element/feature AND/OR The receiving environment has been subject to slight modification (with resulting minimal, localised degradation), and is somewhat sensitive to change. Effects are temporary (medium term, 5-15 years or more) to long term
Low	Small shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR having a minimal effect on the known population or range of the element/feature. AND/OR The receiving environment has been subject to modification (with resulting noticeable and/or widespread degradation) and is not sensitive to change (i.e. changes resulting from the proposed activity will not be discernible from background conditions). Effects are temporary and short term (1 – 5 years)
Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; AND/OR having negligible effect on the known population or range of the element/feature. AND/OR The receiving environment is highly degraded and is not sensitive to change. Effects are temporary and either limited to construction activities only or would only persist for months (up to 1 year).
Likelihood of effect occurring	

Term	Description
Almost certain	Effect has occurred under existing operations/conditions and is expected to occur at least annually in future (if the proposal is implemented).
Likely	Effect has occurred under existing operations/conditions or elsewhere, and/or is expected to occur once in every 5 – 10 years.
Possible	Effect has not occurred under existing operations/conditions, and/or could possibly occur once every 10 – 20 years (i.e. possibly occur during short term consent).
Unlikely	Effect has not occurred under existing operations/conditions and is not expected to occur more than once during the proposed consent term, if at all.
Rare	There are significant barriers preventing the effect from occurring, and it has not been known to occur in the given context. The effect is not expected to occur during the proposed consent term.
None	A pathway for the effect to occur does not exist, to the best of the available knowledge.

Table 4-2: Risk Rating Matrix, based on likelihood and magnitude of potential effects

Risk Rating Matrix		**Magnitude of effect**				
		Very high	**High**	**Moderate**	**Low**	**Negligible**
Likelihood of effect	Almost Certain	Very high	Very high	High	Medium	Low
	Likely	Very high	High	Medium	Medium	Low
	Possible	High	High	Medium	Low	Low
	Unlikely	High	Medium	Low	Low	Very low
	Rare	Medium	Low	Low	Very low	Very low
	None	None	None	None	None	None

Table 4-3: Definitions for different levels of effect

Level of effect	**Level description**
Very High	Represents very high risk; unacceptable[6] for proposed activity to continue under existing circumstances. Refine proposal and control measures to lower the potential risk of the effect(s) occurring.
High	Represents high risk of potential level of effect being generally unacceptable. Refine proposal and control measures to lower the risk of the effect(s) occurring.
Medium	Medium risk - Level of effect is broadly acceptable.[7]
Low	Low risk - Level of effect is largely acceptable.
Very low	Very low risk - Level of effect is acceptable.

[6] 'Unacceptable effect' reflects a change in the environment that has exceeded an acceptable level and usually indicates that a change has occurred that is not acceptable from a socio-economic, ecological, biological or cultural perspective.
[7] 'Acceptable level' is the maximum level of change from baseline in environmental parameters before the environmental effects become unacceptable. This is equivalent to compliance with relevant guidelines or standards.

4.3 Conceptual Site Model

The CSM is depicted in Table 4-4.

Table 4-4: Conceptual Site Model for Hokitika WWTP.

Sources	Pathways	Receptors
• Treated wastewater discharge to the Tasman Sea via the ocean outfall	• Dilution and dispersion of contaminants away from the outfall into the coastal water or sediments	• WWTP site workers • Nearby surface water bodies – wetland • Coastal environment (Tasman Sea), ecology (shellfish, marine biota, seabirds) • Human exposure includes dermal contact and ingestion – public recreation, food gathering and consumption of contaminated fish and shellfish • Users of the underlying groundwater.
• Odour from the WWTP	• Transported by aerosol or wind	• WWTP site workers • Nearby residential houses and commercial activity
• Odour from the discharge	• Transported by aerosol or wind	• Recreational users of the beach

4.4 Effects on the Marine Receiving Environment

4.4.1 Marine Water Quality

Refer to Section 3.7.7 for the summary of available information on marine water quality under the existing discharge consent.

It is noted that no changes to the quality of the treated wastewater (as described in Section 2.5.4) are proposed at this time, and it is expected that operations would continue as per the current status quo until a Preferred Option for long term management of the wastewater scheme is confirmed (refer to Section 4.3).

Therefore, this assessment of effects for the short-term consent is largely based on existing information.

4.4.2 Emerging Contaminants

As discussed in Section 2.5.4.5, the current resource consent does not require monitoring or investigation of EC's on the receiving environment, the wastewater treatment process, or wider effects such as those relating to public health and cultural considerations.

The expected ECs that may be found in the Hokitika WWTP wastewater discharge are associated with products and medications extensively used by humans and industrial sources, as well as from the various industrial activities that occur within the serviced catchment (described in Section 2.5.2). This includes sunscreen, household cleaning products, and personal medicines. The everyday use of such products means these ECs are ubiquitous contaminants. Examples of ECs commonly detected include pharmaceuticals; plasticisers; antimicrobials; corrosion inhibitors; flame retardants; surfactants; UV filters, steroid hormones; musk fragrances and perfluorinated alkyl substances (Stewart and Tremblay 2020). Plastic is another expected EC present in the wastewater system, sourced from packaging, clothing and textiles, electronics, construction, and consumer electronics (Masterton, Pantos and Campos 2023).

The presence of EC's in the environment can pose an adverse environmental and human health risk. This is due to the chemicals interactions with other contaminants and environmental stressors, and bioaccumulation and biomagnification of some EC's by organisms. Microplastics are potentially harmful to wildlife and humans through physical uptake and exposure to toxic substances. The potential harmful effects of microplastics and EC's are understudied and thus, they are a contaminant of emerging concern.

The findings of previous investigations into ECs at other WWTPs in NZ are presented in Section 2.5.4.5 and the assessed risk of ECs at the WWTPs are discussed below.

Previous investigations have investigated the effect of EC's in other treated wastewater discharges. Concentrations of EC's at Nelson North WWTP in 2021–2022 were higher than the range previously reported in New Zealand. However, mixing and dilution with the receiving environment concluded that the risk of adverse effects to the receiving environment can be considered very low. The concentrations of EC's in the treated wastewater from Bell Island WWTP were considered low and represented a negligible risk to aquatic organisms in the receiving environment. The wastewater inputs at Hokitika WWTP contain similar trade waste inputs than that of Nelson North and Bell Island WWTP's, thus, expected to contain similar to or less EC's within the wastewater stream especially those from trade waste sources. Additionally, given the expected treatment, mixing and dilution of wastewater when it enters the coast, the effect of EC's is likely to be minimal.

Further, the impact of EC's, specifically, endocrine disrupting chemicals and microbiological pathogens, effect on fish and marine mammals from municipal effluent discharge has been investigated by Cawthron in 2009 (Cawthron 2009). The investigation focused on the Ruakaka WWTP that discharged to Bream Bay. Similar marine mammals frequent the Bream Bay waters to the West Coast including dolphins, as well as infrequent visitors such as whale populations who seasonally visit the area and are therefore, less likely to be affected by the discharge.

The report noted that for Bream Bay, given the low levels of chemical pollutants sourced to the WWTP relative to large urban centres from Northern Hemisphere studies, secondary treatment, UV disinfection of wastewater, dilution of discharge in the marine system, the risk of the wastewater discharge to fish and marine mammals is considered low.

Given the higher inputs of industrial (trade waste) and lack of secondary treatment at Hokitika WWTP compared to Nelson North and Bream Bay WWTPs, it is likely that the Hokitika WWTP will remove a much smaller portion of EC's from the influent wastewater in comparison. However, there is significant mixing within the high energy inter-tidal zone once the discharge enters the coastal environment, which reduces the risk of exposure and bioaccumulation.

4.4.3 Seabed Sediments

No field-based seabed assessments have been completed for this site as part of this assessment. As such, a precautionary approach has been taken, albeit with consideration of historic investigations and literature (described in Section 3.7.4).

The treated wastewater is discharged directly onto the mixed sand/gravel foreshore before flowing briefly across the lower beach below the high tide line, before entering the coastal water. Therefore, a contaminant source, receptor, pathway is present and has been assessed.

4.4.4 Effects on Receiving Environment after Reasonable Mixing

Section 107(1) of the RMA prohibits discharge or coastal permits to be granted if the discharges associated with them would be "likely to give rise to all of any of" a series of effects within the receiving waters, after reasonable mixing. The proposed activity has been assessed for this AEE against Section 107(1)(c-g) of the RMA, and it was determined that none of the effects would be likely to arise as a result of the proposed discharge to the Tasman Sea. The findings of the assessment are detailed in Table 4-5.

Table 4-5: Assessment against requirements of Section 107(1) of the RMA

S107(1) requirement (after reasonable mixing)[8]	Historic compliance under current consent	Evidence
C. the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials	Compliant	Industrial and trade waste inputs are expected to remain consistent and not increase significantly in the next 5 years. The discharge produced has been 'clear',

[8] (a) and (b) not part of this list of effects in S107 of the RMA

S107(1) requirement (after reasonable mixing)[8]	Historic compliance under current consent	Evidence
		and no observations of these have been noted, as described in Section 4.6.
D. any conspicuous change in colour or visual clarity	Compliant	Visual effects (including changes in water colour at the surface) associated with the wastewater discharge has been investigated. Due to rapid dispersion and dilution of treated wastewater when it enters the high-energy marine environment, no noticeable change in colouration or clarity was noted. As described in Section 2.6.
E. any emission of objectionable odour		
- **from the WWTP**	Non-compliant	The public's perception of odour appears to be improving from previous years based on community-based surveys undertaken in 2018 and 2019, as described in Section 4.7 below. However, the odour is still described as offensive to some residents within 1.5 km of the site, dependent on weather conditions, proximity to site, and time of year.
- **from the discharge**	Compliant	Whilst no formal monitoring is undertaken of odour from the discharge, given that level of treatment, it is unlikely that odour effects would be experienced except for in close proximity to the outfall.
F. the rendering of fresh water unsuitable for consumption by farm animals	Not relevant	Discharge is to marine waters.
G. any significant adverse effects on aquatic life	Compliant	Intertidal and subtidal populations of marine biota are small and transient at best, due to the highly dynamic and inhospitable nature of the Hokitika coastline (refer to Section 3.7.2). As such, the ecological value of the CMA is low and not sensitive to potential effects associated with the discharge. Treated wastewater from the WDC outfall (in combination with that from WMP outfall) has previously been assessed as having heavy metals and other possible contaminants (e.g. organic matter) that are "well within the range of accepted concentration" for marine mammals. Long term impacts from the outfall on prey fish communities for the species identified in Section 3.7.11 were also "expected to be extremely low" (Cawthron 2011).

4.5 Effects on Public Health

The existing discharge is directly to the foreshore via a short outfall. It is directly accessible and visible to users of the beach, given its close proximity to the shoreline. However, as described in Section 2.6, when the discharge occurs at high tide it is rapidly dispersed in the high energy coastal environment, and significant dilution of at least 1,000:1 (sea water: treated wastewater) is expected to be achieved. This does mitigate the risk to public health to some degree, but a moderate to high risk will still be

present especially for any people engaging in primary contact recreation (which is unlikely but possible, due to the unsafe swimming conditions experienced). Currently, the risk is further mitigated to a degree through the use of signage to warn the public of the presence of a treated wastewater discharge. This is a requirement of the existing consent (Condition 9), and it is proposed to retain this requirement for the short-term consent.

4.6 Effects on Visual Amenity and Recreation Values

The Hokitika WWTP is located along the West Coast coastline within a small strip of land between SH6 and the beach. The WWTP is visible from this road and surrounding residents. However, the WWTP is not considered visibly obtrusive as consists of two low-lying ponds surrounded by beach dunes. The outfall, however, is raised on piles above the beach and the discharge to the intertidal zone is visible (refer to Figure 3-9 in Section 3.8). There may be a perceived adverse effect on amenity from this.

There have been several investigations into the discharge plume of the treated wastewater entering the receiving environment. Due to rapid dispersion and dilution of treated wastewater when it enters the high-energy marine environment, the colour of the discharge is quickly assimilated and no noticeable change in colouration or clarity was noted. Therefore, the visual impact of the discharge itself when covered by water is likely minimal.

The presence of the outfall reduces the recreational value of the area; this effect is almost certain to occur. However, due to the unsafe swimming conditions experienced and accessibility issues, the recreational value of the beach is low and hence the effect is low. Particularly as there are more popular, safer, and more accessible beaches in the area compared to this beach.

4.7 Effects on Air Quality

The West Coast Regional Air Quality Plan became operative in 2003 and was amended in 2024 (The West Coast Regional Council 2002). Rule 16 includes the discharges of contaminants into air from commercial, industrial, or trade premises which are not specifically provided for by any rule within the Plan and are therefore discretionary activities requiring a resource consent. Discharges listed includes municipal sewage treatment processes, therefore, Rule 16.1 applies to the discharge of odour from the Hokitika WWTP's oxidation ponds.

There is no recorded ambient air quality data at the WWTP location. It is noted that wastewater treatment processes that can influence air quality are as follows (Opus 2015b).

- Formation of corrosive and hazardous chemicals i.e., sulphurous, nitrogenous, acids, aldehydes, and ketones.
- Aerosols, i.e., sprays, mists etc.
- Odour formation, common sources of odour are faecal and sulphurous (hydrogen sulphide).

Generally, collection systems with long retention time can be prone to the formation of hydrogen sulphide (septic) compounds in the network prior to arrival at the WWTP. An indicator of this would be chemical attack to concrete works and metals at the inlet works (Opus 2015b). WDC staff stated in 2025, that the wavebands of both oxidation ponds have exposed aggregate but are still in reasonable condition.

An aerator was installed on each of the ponds in 2018, located approximately 80 m north from the edge of the road, and 65 m north of the campervan waste disposal transfer station at the closest point. The aerators were installed to help to reduce odour by increasing the biological efficiency of the ponds. While these have the potential to form 'wind-blown' aerosol contaminants from the aeration process to the surrounding land and receptors, the odour is overall significantly reduced because of the aeration.

The effect of odour on public health, people and communities was assessed in the previous consent application (Opus 2015b). Aside from the above, this assessment is still considered applicable to the current treatment processing. There have been no odour complaints received by WDC since December 2019. Recent community-based odour surveys required for consenting is discussed below.

4.7.1 Odour Surveys

The site holds a Resource Consent (RC06154/3) for the discharge permit to discharge contaminants to air. Consent condition 22 states that a community-based odour survey within a 1.5 km radius of the WWTP must be undertaken to assess the effectiveness of the plant's odour control and the levels of off-site odour.

An odour survey was undertaken in 2018 and then again in May and June of 2019 by Opus (Opus 2019). A survey was sent to all 148 properties within a 1.5 km radius of the WWTP. The report concluded that there appeared to be an improvement in the public's perception of the odour from the oxidation ponds compared to the 2018 survey results. Weather and proximity to the ponds appear to have an impact on the perception of the odours offensiveness. During warmer weather with winds blowing onshore, odours were more frequently noted, or recreational users of the area next to the ponds.

Therefore, odour appears to be offensive to some residents within 1.5 km of the site, dependent on weather conditions, proximity to site, and time of year. Opus stated that on-going community engagement is recommended to continue for and outside of consenting requirements.

4.8 Socio-Economic Effects

No significant changes to the WWTP are proposed as part of this resource consent period other than the standard asset management upgrading procedures. Costs are associated with the maintenance of existing infrastructure and operation costs and the application process to seek the short-term consent only.

It is noted that a Business Case has been undertaken to consider the costs associated with options considered for long term management of the wastewater scheme, as described in Section 4.3, but those costs are excluded from the scope of this application.

4.9 Cultural Effects

During the previous consent application, several cultural issues were raised by representatives of Te Rūnanga o Ngāti Waewae and Te Rūnanga o Ngai Tahu. The direct discharge of treated wastewater was noted as offensive to Māori cultural values. The cultural values have been further discussed in Section 3.10.

The cultural effects of this short-term consent application have not been assessed in Table 4-6 below, as they will be addressed in the main application document.

4.10 Effects from Climate Change

The West Coast has experienced several extreme weather events that have caused significant damage and disruption from heavy rain and flooding (Macara 2016). Increased extreme weather events and increased rainfall are likely to pose a risk to the discharge as will increase the infiltration events and loading to the ponds and reticulation system of the WWTP. NIWA projected climate changes and hazards for the West Coast identify that by 2040 rainfall intensity, (ex)tropical cyclones, and extreme wind speeds are expected to increase by up to 10% across New Zealand by 2040. Specifically, for Hokitika, a larger increase in winter annual rainfall is expected (+10%) (NIWA n.d.).

No specific climate change or 'growth scenario' has been completed based on population growth and domestic and trade waste estimates. However, the potential impact of climate change and sea level rise during this short-term consent is not considered to be significant on either the outfall or oxidation ponds.

The current Infrastructure Strategy identifies the following projected changes in Westland District as a result of climate change (WDC 2025):

- Increased rainfall (particularly in winter and spring), with more frequent extreme rainy days. This will potentially lead to capacity issues for the wastewater network, and associated issues with compliance.
- A slight increase in the frequency of 'mean annual flood' conditions, presenting a risk of inundation for infrastructure situated near rivers. Likely to lead to increase in infiltration of stormwater to the

wastewater network, due to reduced ability of stormwater pumps to pump excess stormwater into rivers.

- Increased mean sea level rise and storms, potentially inundating infrastructure near the coast.

4.11 Effects on Climate Change

The continued operation of the existing Hokitika wastewater scheme may have the following potential effects:

- Methane produced from the oxidation pond and activated sludge process.
- The discharge of treated wastewater to the sea produces nitrous oxide and methane.
- Indirect carbon emissions from energy usage at the WWTP (e.g., from mechanical aeration), and as a result of the sludge transfer to landfill for disposal, although this is likely minimal.
- No new infrastructure is planned, therefore no additional 'embodied greenhouse gases' are expected in association with capital infrastructure.

Maintaining the existing WWTP operation is expected to result in minimal change to the current level of emissions.

4.12 Residuals Management and Disposal

For wastewater systems, residuals is the collective term used to include the by-products of the conveyance, treatment, and discharge of the wastewater itself. This includes the screenings, sludge, noise, odour, and other air discharges.

4.12.1 Sludge

As of reporting (July 2025), there has been one desludging event in 2011. The sludge was removed and disposed of offsite at landfill. A subsequent sludge survey was completed on 10 February 2019 (Conhur Ltd 2019). The survey found that:

- The total volume of sludge estimated to be in both ponds was 21,310 m^3 (11,260 m^3 in Pond 1, and 10,050 m^3 in Pond 2). At the time of the survey, Pond 1 was estimated to be approximately 40.2% full of sludge, and Pond 2 was 29.4% full.
- Dry weight of sludge samples collected from the ponds ranged between 3.4 – 6.4% in Pond 1 (8 samples) and between 3.8 – 6.2% in Pond 2 (8 samples).

If sludge is removed from the pond, it will require appropriate management given it is likely to contain contaminants produced during the treatment process including pathogens, heavy metals, pesticides, and a high organic content. Samples of the sludge will be analysed by an IANZ-accredited laboratory provider to determine the characteristics of the material and assess this against the Waste Acceptance Criteria of the closest waste management facilities with capacity to receive the sludge for disposal. All sampling and management of sludge from the ponds will be undertaken in accordance with the *Water New Zealand Good Practice Guide for Waste Stabilisation Ponds: Design and Operation, November 2017* (Cameron and Clark 2017).

If odour is generated from this element of the plant, or in the transport of the sludge from Hokitika WWTP to landfill, then appropriate management measures will be put in place.

4.12.2 Noise

Noise levels from the Hokitika WWTP infrastructure are low. The treatment system is predominately a natural facultative and non-mechanicalised system. Aerators were installed in 2018 that may produce low-level noise.

WDC has stated that no noise complaints have been made.

4.13 Positive Effects

The key positive effect of the proposal is that it will form an integral part of the Hokitika wastewater system that provides a safe and reliable public health sanitation system for the community. The key benefit arising from the wastewater system is that it conveys untreated wastewater away from residential, commercial, and industrial areas of the town, and thereby enables these activities while helping to protect public health.

4.14 Summary of Effects

The actual and potential effects of the proposed discharge of treated wastewater from Hokitika WWTP were assessed using the methodology described in Section 4.2, and based on the information contained in this report, and particularly within Section 3 and this Section. The findings of the assessment are detailed in Table 4-6.

Where an actual or potential change in the environment has been assessed in Table 4-6, this refers to the change in environment from where the WWTP discharge does not exist to one in which the proposed discharge of treated wastewater from Hokitika WWTP occurs as described in this report.

Table 4-6: Assessment of potential effects of the proposed discharge of treated wastewater from Hokitika WWTP to the Tasman Sea via the existing outfall.

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
Marine water quality	Change in water temperature	Possible	Low	Low	No data available. The treated wastewater comes from oxidation ponds, and the temperature is therefore likely to be higher than the receiving environment temperature, but dilution will result in minimal change.
	Change in pH[9]	Possible	Low	Low	No data available. However, sea water has considerable buffering capacity and is slightly basic, and typically so is the treated wastewater from oxidation ponds. Therefore, minimal change in pH is expected after discharge.
	Increase in suspended solids	Possible	Low	Low	Section 2.5.4 (treated wastewater prior to treatment) and 3.7.7. Trade waste inputs from SFF are considered to remain relatively consistent and not increase significantly over the term of the proposed consent.
	Change in salinity/electrical conductivity	Possible	Low	Low	No data available. Trade waste inputs from SFF are considered to remain relatively consistent and not increase significantly over the term of the proposed consent. While not tested for, this is unlikely to significant change.
	Change in dissolved oxygen	Possible	Low	Low	No data available. Trade waste inputs from SFF are considered to remain relatively consistent and not increase significantly over the term

[9] If the pH of coastal water is outside of the range (8.0-8.4 pH (ANZG 2019)), then the potential effects on the receiving environment are toxicity to fish, reduction in optimal aquatic habitat, and may impact the toxicity of other contaminants which are typically present in treated wastewater such as heavy metals and nutrients such as ammonia.

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
					of the proposed consent. $cBOD_5$ concentrations have been relatively consistent and majority of the results are within the acceptance range of less than 2 mg/l. Therefore, the dissolved oxygen concentrations, while not tested, are expected to remain consistent and have a low risk/level of effect.
	Increase in $cBOD_5$	Possible	Low	Low	Section 2.5.4 (treated wastewater prior to treatment) and 3.7.7. Trade waste inputs from SFF are considered to remain relatively consistent and not increase significantly over the term of the proposed consent.
	Increase in contaminants from industrial /trade waste sources (oil and grease, foams, scums, heavy metals) causing toxicity, and impacting ecosystem function and food chains.	Unlikely	Moderate	Low	Sections 3.7.7 and 2.5.4.5 (emerging contaminants). Conservative/precautionary assessment of magnitude due to uncertainty regarding long term effects (e.g., from bioaccumulation, if contaminant levels did increase). An increase/change in industrial/trade waste inputs is unlikely.
	Reduction in water clarity, impacting on ecosystem function (e.g. increased turbidity, reduction in light availability for photosynthesis, reduction in available food and habitat) as well as reducing amenity value	Unlikely	Moderate	Low	Sections 2.6, 3.7.7, 4.4.4 (Table 4-5), 4.6 Any effect would be short term and temporary (hours or days, not months).
	Increase in total nitrogen concentrations, resulting in nitrogen enrichment (causing algal blooms and associated	Unlikely	Moderate	Low	No data available. The treated wastewater quality data for nitrate nitrogen is below guideline values and expected to have a low risk/level of effect. It is assumed that the total nitrogen

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
	turbidity, change in food and habitat availability)				concentrations would be similar, and when mixed with the receiving environment the risk would be low.
	Increase in ammoniacal-nitrogen concentrations, resulting in toxic effects on sensitive biota	Likely	Low	Medium	Section 3.7.7 Increased likelihood due to past and recent occasional spikes in wastewater concentrations at the outlet. These exceedance require dilution of <100 fold to comply with relevant guidelines for toxic effects on sensitive marine organisms. Typically, wastewater concentrations require less than 10-fold dilution to comply with the guidelines. Therefore, minimal effects limited to the small area near the discharge.
	Increase in dissolved reactive phosphorus (DRP) concentrations, resulting in nutrient enrichment (causing algal blooms and associated turbidity; change in food and habitat availability)	Unlikely	Low	Low	No data available. But nutrient effects in coastal water are typically not limited by phosphorus and hence increases in P concentration have limited effects.
Health of benthic ecosystem, including intertidal ecology	Contamination of seabed sediments	Possible	Low	Low	Sections 3.7.3 and 4.4.3 This is unknown as seabed sediments have not been investigated. This is likely due to treated wastewater discharge directly to the beach during low tidal conditions. Industrial/trade waste inputs are expected to remain stable at current levels. Past studies have shown that seabed sediments do not accumulate around the outfall, and sediment transport away from the outfall due to prevailing strong currents is significant.

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
	Accumulation (or erosion) of sediment on seabed beneath the outfall; changes in bathymetric contours due to the discharge	Likely	Moderate	Medium	Sections 3.7.1, 3.7.3, and 4.4.3 This site is located within a coastal hazard zone (CHZ21) that is affected by erosion, flooding, and dune blowouts. Any effect of sediment accumulation from the discharge will not be discernible.
	Toxic effects on benthic biota	Unlikely	Low	Low	Sections 3.7.2, 3.7.7, and 4.4.1 Industrial/trade waste inputs are expected to remain stable at current levels. The high energy, dynamic nature of the subtidal zone in the vicinity of the WWTP has historically made it difficult to survey the area, however, 'Venus' communities dominated by suspension feeding bivalve mollusca are expected to inhabit the area (McKnight 1969, in (Cawthron 2011), p19). The highly mobile seabed will limit any build-up of toxins in benthic sediment.
	Increased growth of algae in intertidal zone	Rare	Low	Very low	Section 3.7.2 While algal growth has been documented within the intertidal zone, it is difficult for algae to establish over long periods of time due to the high energy wave environment.
Seabirds and shorebirds	Vector attraction (birds attracted by organic matter from discharge, odour)	Unlikely	Low	Low	Section 3.7.10, 4.7, 4.12.1 There has been no seabird or shorebird assessment in the vicinity of the WWTP, aside from for the blue penguins. However, publicly available surveys and the blue penguin survey indicates that birds frequent the WWTP area. Inputs and quality of treated wastewater are expected to remain consistent, and the BOD of the discharge is low and hence will have minimal bird and other vector attraction properties.

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
Marine mammals	Noise/vibration	Rare	Low	Very low	Section 3.7.11 and 4.12.2 Noise levels are expected to be low and localised to the plant on land, as opposed to the outfall and discharge. There has been no marine mammal assessment is the vicinity of the WWTP, however, those indicated as likely to frequent the area would likely be further out into the Tasman Sea, rather than close to the outfall.
	Toxic effects on sensitive marine mammals from contaminants in the discharge	Unlikely	Moderate	Low	Sections 2.5.4, 3.7.7, and 3.7.11 Industrial/trade waste flows are expected to remain consistent. The concentration of toxic substances known to bioaccumulate in food sources that would also persist through treatment processes, such as pesticides and heavy metals (mercury), have not been specifically assessed, but are expected to be typical and the high energy coast will dissipate the discharge.
Fish	Toxic effects on sensitive fish species from contaminants in the discharge	Unlikely	Moderate	Low	Sections 2.5.4, 3.7.7, and 3.7.9 Industrial/trade waste flows are expected to remain consistent. The concentration of toxic substances known to bioaccumulate in food sources that would also persist through treatment processes, such as pesticides and heavy metals (mercury), have not been specifically assessed, but are expected to be typical and the high energy coast will dissipate the discharge.
	Change in habitat due to changes in availability of nutrients, degree of light penetration through water. Primarily relates to non-mobile species	Unlikely	Moderate	Low	Sections 3.7.7 and 4.4.1 Linked to the effects related to increase in nutrients, as described in the marine water quality section (3.7.7). There are no historical reports of degraded environment or habitat as a direct result of the discharge.

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
Public health	Increase in faecal contamination (indicated by enterococci and faecal coliform counts) in marine waters within 200 m of the outfall, leading to human health risks associated with contact recreational water use	Unlikely	Moderate	Low	Results from historic microbiological monitoring indicate that contamination does occur and has exceeded guidelines for contact recreation in the past (Section 3.7.8.1). However, public use of the area within 200m of the outfall is limited.
	Increase in faecal contamination (indicated by enterococci and faecal coliform counts) in shellfish, leading to illness in people who eat contaminated shellfish collected from the shoreline south of the outfall.	Possible	Low	Low	There are no known shellfish beds in the immediate vicinity of the outfall, however people may dive for pāua or similar further offshore (refer to Section 3.7.8.2) but concentrations will be signifcantly reduced further away from the outfall.
	Increase in faecal contamination (indicated by enterococci and faecal coliform counts) in fin fish (e.g. hoki) and rock lobster, leading to illness in people who eat contaminated fin fish or rock lobster they have caught from the shore (e.g. surfcasting) or by boat close to the outfall.	Possible	Negligible	Low	Results from historic microbiological monitoring indicate that contamination does occur and has exceeded guidelines for contact recreation in the past (Section 3.7.8.1). However, fin fish do not accumulate pathogens to the same extent as shellfish and are more likely to be cooked before eating.
	Increase in faecal contamination (indicated by enterococci and faecal coliform counts) in discharge, which contaminates seaweed deposited along the shoreline south of the outfall. People develop an illness after eating contaminated seaweed.	Likely	Low	Medium	The extent to which people gather and consume seaweed along the coast near the outfall is unknown. Algal beds are present (Section 3.7.2).

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
Recreational values	Reduced ability (or willingness) to undertake primary contact recreation in the vicinity of the outfall due to frequent discharges of treated wastewater and associated public health risk	Almost Certain	Low	Medium	This effect has occurred under the existing consent (hence the need to have permanent signage in place), so continuation of the discharge for up to five more years is unlikely to noticeably change the 'status quo'. More popular and accessible beaches are located nearer to population centres than the outfall.
	Reduced ability to undertake non-contact or secondary contact recreation in the vicinity of the outfall due to frequent discharges of treated wastewater and associated public health risk. E.g. wading, boating, walking/running along shoreline, birdwatching, and cycling.	Almost Certain	Low	Medium	Sections 3.11 and 4.5
Air quality	Odour from WWTP impacting on neighbours	Likely	Low	Medium	Section 4.7 Based on community-based engagement, the odour issues appear to be declining in occurrence and strength of offense to receptors.
	Odour from discharge impacting on users of the beach	Possible	Low	Low	Section 4.7 Treated wastewater is expected to have a relatively low odour profile compared to the WWTP itself. May be apparent close to the discharge but expected to reduce quickly with distance.
Groundwater	Reduction in groundwater quality	Rare	Negligible	Very Low	Section 3.4 No past evidence of effects on groundwater directly resulting from the discharge. Any effect would be indistinguishable from
	Changes in groundwater quantity	Rare	Negligible	Very Low	

Receptor / Value	Actual or potential effect(s)	Likelihood of effect(s) occurring	Magnitude of effect(s)	Risk Rating/Level of effect	Supporting evidence/assumptions
					effects from external sources within the aquifer.
Social values	Not explicitly assessed; refer to Sections 3.9, 3.11, and 4.8.				
Economy (e.g. infrastructure, employment)	Not explicitly assessed; refer to Section 4.8.				
Cultural values	Not assessed in this report				
Climate change	Changes in precipitation, leading to changes in inflows to the WWTP. Could exceed WWTP's design capacity.	Unlikely	Low	Low	Section 4.10. The forecasted change in precipitation from climate change is unlikely to occur in the time frames of this short-term consent.

5 Assessment of Alternatives

As part of the reconsenting process, Council has been reviewing what upgrades are required to the existing WWTP, or if a replacement WWTP should be constructed. It has been acknowledged that while it is necessary to seek a short-term consent to enable WDC to legally continue operating the current wastewater scheme (with discharge via a short outfall to the Hokitika shoreline of the Tasman Sea) to avoid discharges of untreated wastewater to the receiving environment and a high level of risk to public health in Hokitika, it is not the best practicable option for the future. As such, the 'status quo' was not included in the Alternatives Assessment that has been underway since 2021.

In partnership with Poutini Ngāi Tahu, Council agreed on a considered pathway to ensure that community and stakeholders were involved in the decision-making process for the upgrade. This included forming a Project Oversight Subcommittee of Council to oversee the governance of the project and a Project Working Group to work through the process. It also included following a business case process to guide the project. The inaugural meeting of the Project Oversight Subcommittee was held on 4 August 2021.

Through successive workshops the Project Working Group, composed of Poutini Ngāi Tahu representatives, Council staff and Stantec technical persons, identified the problem definition, benefits of investment, investment objectives and key (minimum) service requirements, associated with the project. These formed a set of success criteria against which to assess the project outcomes. These are recorded in the project Indicative Business Case document along with identified project risks, constraints and dependencies.

A 'Long List' of base options for different elements of the Hokitika Wastewater Scheme (including discharging to different receiving environments; different locations for the WWTP, and options for management of inputs (e.g. for trade waste/industrial discharges including specific options for managing the SFF input; implementing a wastewater bylaw; managing water demand, and reduction of inflow and infiltration to the wastewater network). This was then further refined through an assessment against the criteria and objectives identified in the earlier workshops to develop a 'Short List'.

The Short List of options was assessed using a Multi-Criteria Analysis (MCA) process that was informed by a number of technical assessments and investigations that have also informed this application to some extent. These included a hydrogeological assessment of potential land application areas, a receiving environment planning assessment and consenting strategy, and a review of previous reports such as those from (Cawthron 2011) and (NIWA 2011). The 11 short-listed options included:

- Discharging treated wastewater to the ocean via the WMP existing (long) outfall, replacing the current treatment system with a Biological Trickling Filter, and also adding various combinations of other treatment enhancements including UV disinfection OR membrane filtration, AND cultural enhancements.
- Discharging treated wastewater to land likely located west of Hokitika Airport via Rapid Infiltration Basins or Trenches and using Conventional Secondary treatment (similar to what is currently in place), but with possible additions of UV disinfection OR membrane filtration, AND cultural enhancement.

To date, short-listed options involving membrane filtration have been ruled out, with the preference being for the addition of UV disinfection instead.

The full details of this options assessment process will be released as part of the planned future long term consent application. At the time of preparing this assessment, a Preferred Option for the long term has not been identified, but negotiations are underway with WDC's key stakeholders (including WMP, Poutini Ngāi Tahu, and SFF) to reach a consensus. It is intended that a preferred option will be identified by early 2026, at which stage an application for long term consent will be developed. The overall process, including the current status, is illustrated in Figure 5-1.

The next steps in the Alternatives Assessment process will be to:

- Obtain the replacement short term discharge permit for the WWTP (which this assessment pertains to).

- Select and confirm a Preferred option for long term management of wastewater in Hokitika.
- Continue discussions with WMP regarding potential use of their long ocean outfall.
- Continue discussions with SFF to confirm the level of treatment applied to their trade waste/industrial discharges.

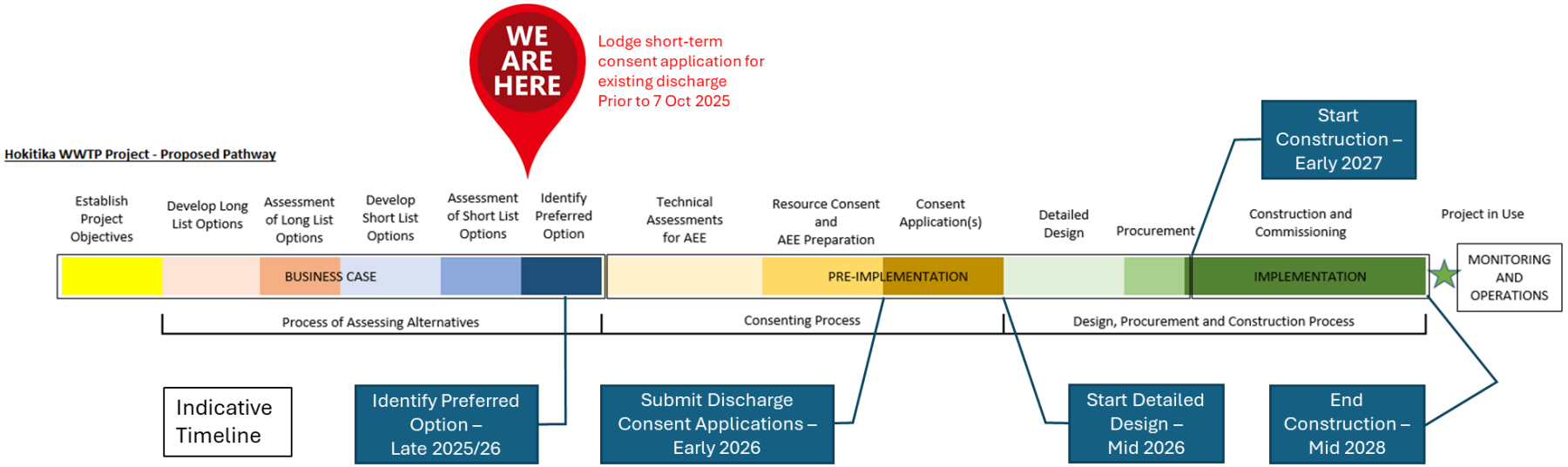

Figure 5-1: Current timeline for delivery of the Hokitika WWTP project, including the Business Case and Options Assessment

6 Conclusions

WDC commissioned Stantec to provide an Environmental Report for the ongoing short-term operation of the Hokitika WWTP and the associated discharge of treated wastewater to the Tasman Sea. This report has been prepared to inform the short-term resource consent application.

A Conceptual Site Model was developed to identify the relevant sources, pathways, and receptors associated with the discharge of treated wastewater.

The majority of the potential effects identified in this assessment are expected to be of a 'low' or 'very low' level. Some effects at a 'medium' level of risk were identified, mainly in relation to the toxicity effects of elevated levels of ammoniacal-nitrogen in the receiving waters, public health, recreational value and odour effects. A medium level of risk is defined as a broadly acceptable level of effect, which is equivalent to compliance with relevant guidelines or standards.

It is expected that these identified effects will be managed through continued compliance with appropriate resource consent conditions and routine monitoring.

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Appendices

Appendix A Treated Wastewater Quality Figures

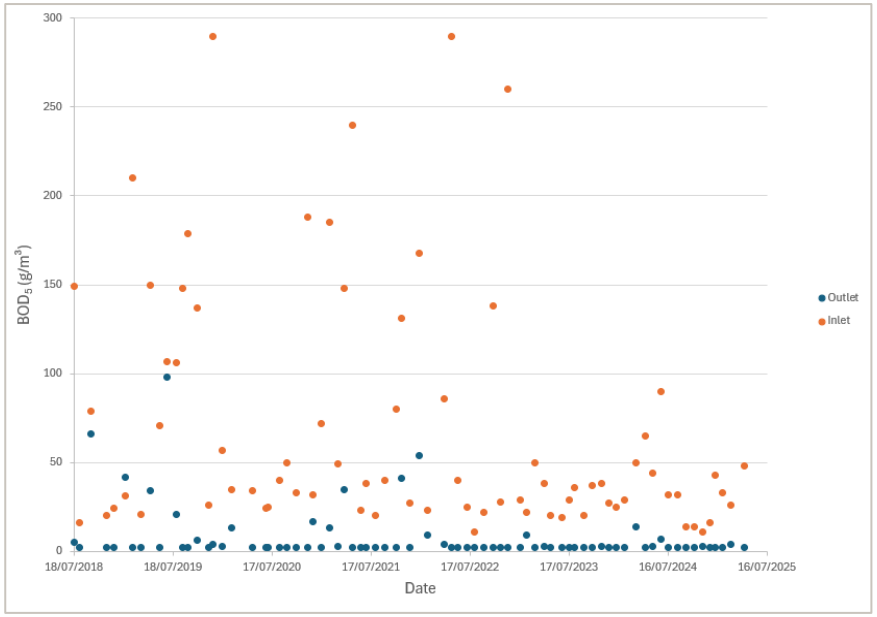

Figure A-1: Monthly monitoring results for BOD_5 (g/m^3) for the July 2018 to April 2025 monitoring period.

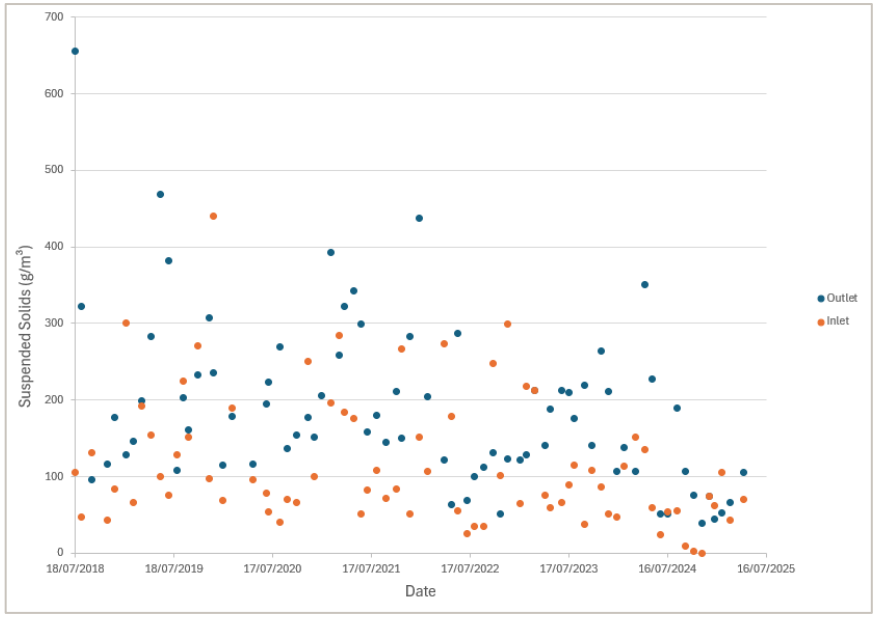

Figure A- 2: Monthly monitoring results for suspended solids (g/m^3) for the July 2018 to April 2025 monitoring period.

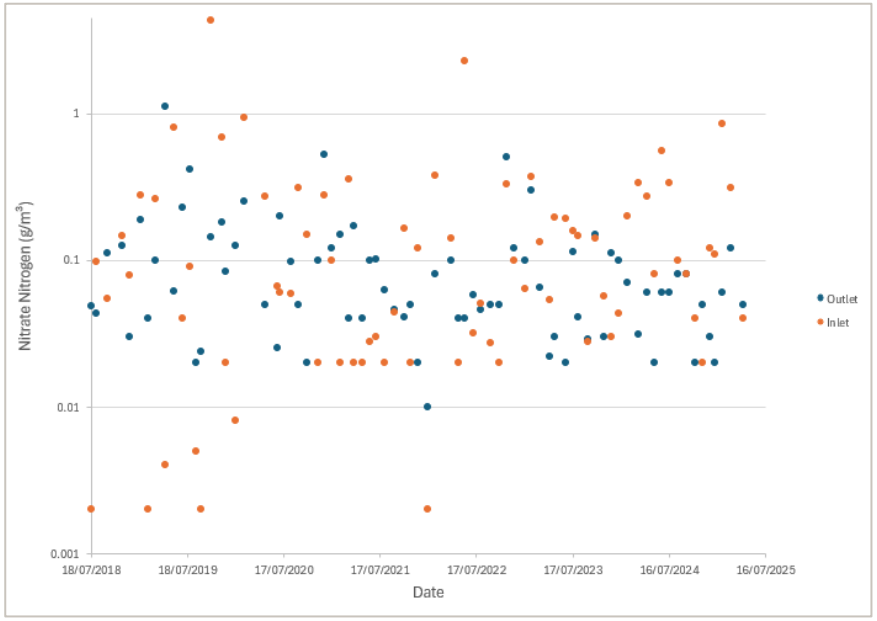

Figure A-3: Logarithmic scale of monthly monitoring results for Nitrate Nitrogen (g/m³) for the July 2018 to April 2025 monitoring period.

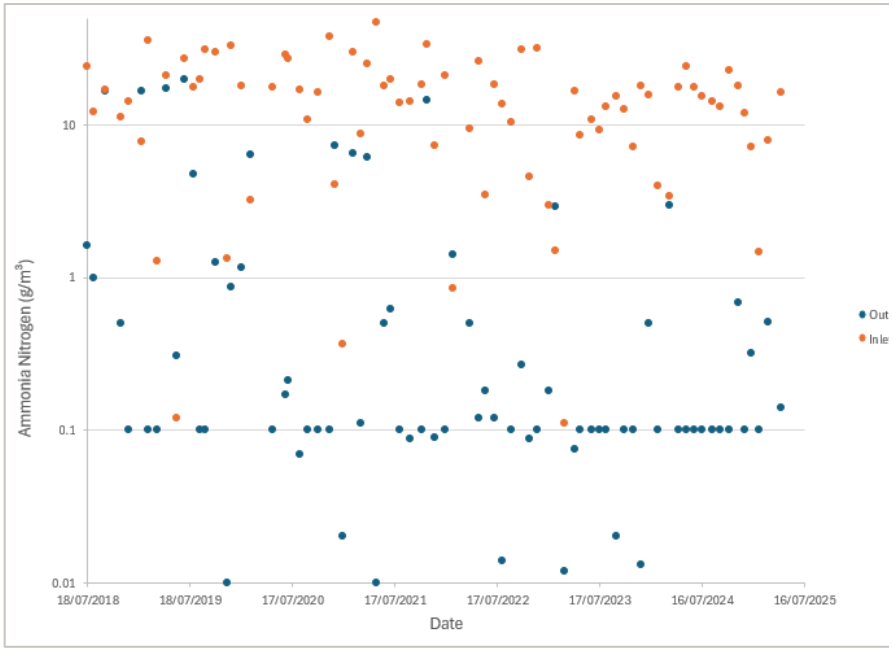

Figure A-4: Logarithmic scale of monthly monitoring results for Ammonia Nitrogen (g/m³) for the July 2018 to April 2025 monitoring period.

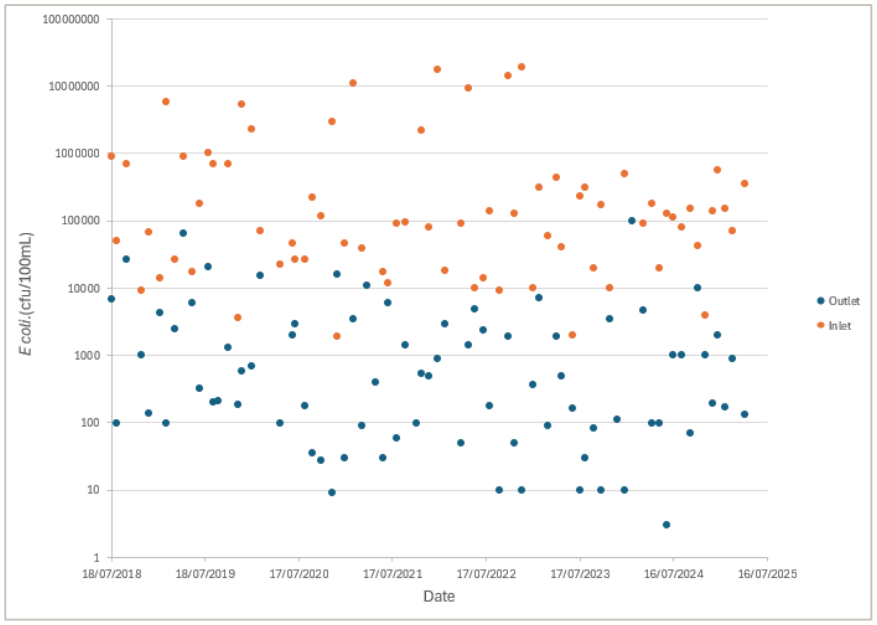

Figure A-5: Logarithmic scale of monthly monitoring results for E. coli (cfu/mL) for the July 2018 to April 2025 monitoring period.

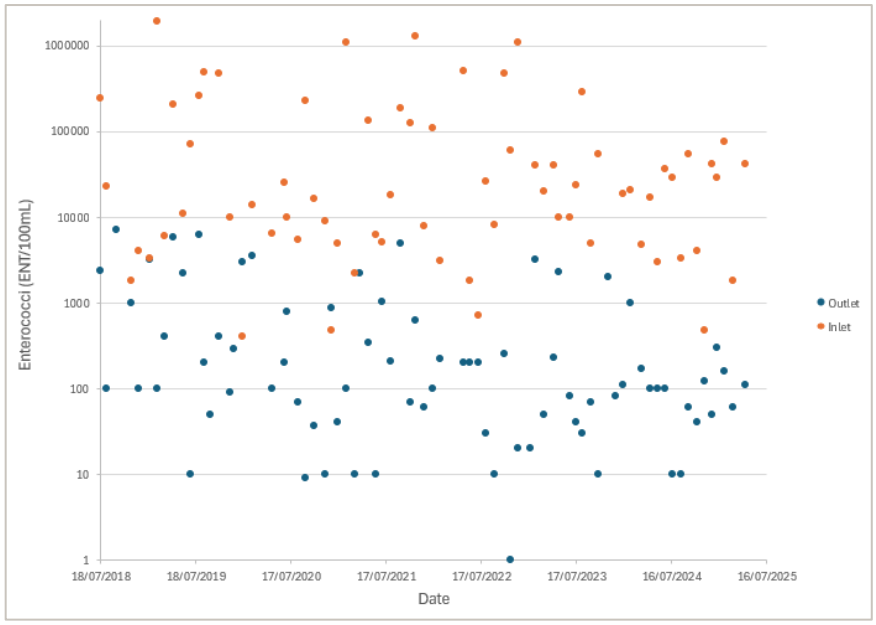

Figure A-6: Logarithmic scale of monthly monitoring results for Enterococci (ENT/mL) for the July 2018 to April 2025 monitoring period.

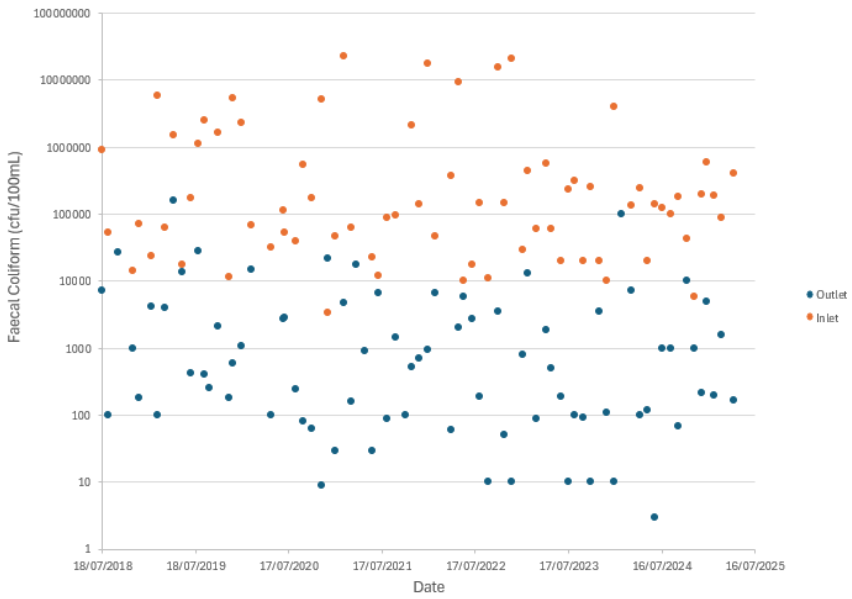

Figure A-7:' Logarithmic scale of monthly monitoring results for Faecal Coliforms (cfu/mL) for the July 2018 to April 2025 monitoring period.

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Appendix D Flows and Loads assessment

Hokitika WWTP

Influent Flows and Loads

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Prepared for:
Westland District Council

Date:
18 August 2025

Prepared by:
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Stantec New Zealand

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
A	18/08/25	Final	AJS	JS	JM	SM

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Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
ADF	Average daily flow
ADWF	Average dry weather flow
BOD	Biochemical oxygen demand
DAF	Dissolved air flotation
TN	Total nitrogen
TP	Total phosphorus
WDC	Westland District Council
WWF	Wet weather flow
WWTP	Wastewater treatment plant

1 Introduction

Westland District Council (WDC) owns and operates the Hokitika wastewater treatment plant (WWTP) which was constructed in 1973. The WWTP comprises an inlet structure and two oxidation ponds that discharge to the Tasman Sea. These are provided for under the following resource consents:

- RC-2015-0141-01: For the discharge of treated sewage effluent to the coastal marine area.
- RC-2015-0141-02: For the discharge of contaminants (mainly odour) to air.

These consents commenced on 7 April 2016 and expire 7 April 2026.

The existing WWTP location on the coast is vulnerable to inundation and erosion and WDC are currently assessing options for a new WWTP in a different location, along with a new treated wastewater discharge location. This process, along with the consenting, design and construction of the new WWTP, is expected to take up to 5 years.

In the meantime, WDC are applying for interim consents to provide for the continued lawful discharge associated with the operation of the existing WWTP until the new WWTP is operational. The consents being applied for are for a period of 5 years to 2030.

This report sets out the design influent flows and loads for the bridging consent period to support the consent application.

2 Domestic Wastewater

An aerial photograph of the Hokitika WWTP catchment showing the areas serviced is shown in Figure 2-1.

Figure 2-1 Hokitika WWTP Catchment Areas

2.1 Usually Resident Population

New Zealand Census usually resident population counts for the Hokitika WWTP catchment are presented in Table 2-1.

Table 2-1 Hokitika WWTP Catchment Census Populations (Stats NZ)

	Census Usually Resident Population Counts		
Area	**2013**	**2018**	**2023**
Hokitika	3,165	3,096	3,267
Kaniere	435	459	477
Arahura Valley	210	231	309
Total	**3,810**	**3,786**	**4,053**

No population growth is forecast for Hokitika for the design horizon of this report (to 2030).

2.2 Visitors

Hokitika has a relatively large tourism industry drawing visitors to the town, with a variety of accommodation to cater for tourists. Tourism is broadly seasonal with larger numbers occurring over the summer months. The busiest weekend of the year is the annual Wild Foods Festival held in February / March during which accommodation occupancy within the town can reach capacity.

Visitor accommodation capacity in Hokitika, and assumed occupancy rates for design purposes, based on Statistics NZ data, are presented in Table 2-2 and Table 2-3. No growth in visitor accommodation is assumed over the next 5 years.

Table 2-2 Hokitika Visitor Accommodation Capacity

Accommodation	Total Number of Accommodation Units[1]	Average Occupancy per Unit	Overnight Visitor Capacity
Hotels / motels	228	2.0	456
Holiday parks / campgrounds	110	2.0	220
Holiday homes / rentals	60	2.0	120
Total	**398**		**796**

Table 2-3 Hokitika Assumed Visitor Occupancy Rates

Period	Number of months	Visitors (% of capacity)	Overnight Visitors
Off peak	6	10%	80
Shoulder	5	33%	265
Peak month (January)	1	75%	600
Peak day	-	100%	800
Annual average	-	25%	200

[1] Accommodation Unit = hotel / motel room, cabin / caravan site / tent site, or a holiday house / holiday rental house.

2.3 Domestic Wastewater Flows and Loads

Design per capita wastewater flows and loads based on typical measured New Zealand values, and the resulting wastewater flows and loads based on the populations presented above, are shown in Table 2-4.

Table 2-4 Hokitika WWTP Domestic Wastewater Flows and Loads

Parameter	Design Per Capita Flows and Loads		Annual Average Domestic Wastewater Flow and Loads
	House Resident (permanent + rental)	Hotel / Holiday Park Resident	
ADWF	370 L/p/d x (4,053 + 30)	200 L/p/d x 170 visitors	1,545
BOD	60 g/p/d x (4,053 + 30)	Assumed to be 60% x per capita house resident loads x 170 visitors	251
TSS	70 g/p/d x (4,053 + 30)		293
TN	14 g/p/d x (4,053 + 30)		60
TP	2.0 g/p/d x (4,053 + 30)		8.4

3 Silver Fern Farms Wastewater

Silver Fern Farms operate a meat processing plant approximately 1 km north of Hokitika on State Highway 6, directly opposite the Hokitika WWTP. The plant processes cattle, deer and bobby calves. Wastewater from the processing plant is dosed with lime for pH correction prior to screening followed by primary treatment in a dissolved air flotation (DAF) unit to recover solids. Solids recovered by the DAF are dewatered prior to transport off site for further processing. Treated effluent from the DAF is combined with domestic wastewater from staff amenities prior to discharge to the WDC WWTP across the road.

Plant production and wastewater flows and loads follow a seasonal pattern, peaking around May to June as shown in Figure 3-1.

No growth is expected in kill numbers and wastewater production over the next 5 years.

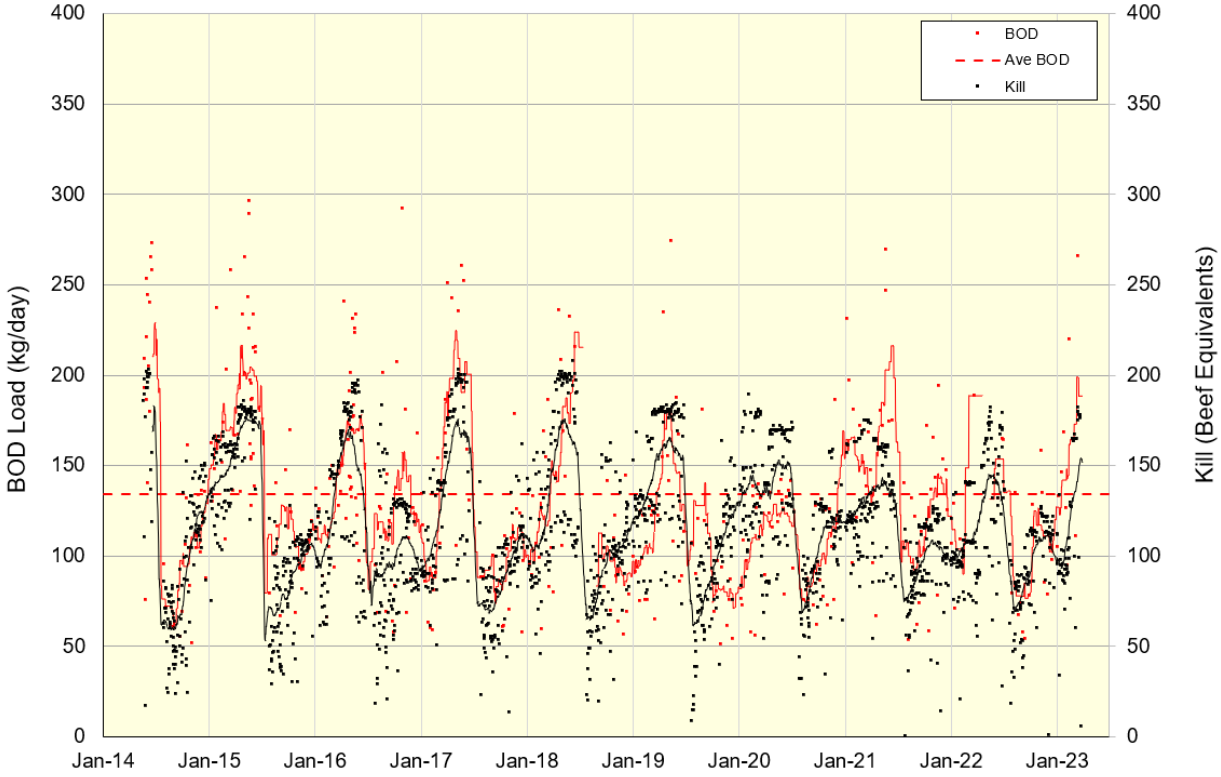

Figure 3-1 Silver Fern Farms Wastewater BOD Load and Kill

Annual average and maximum day wastewater flows and loads are presented in Table 3-1.

Table 3-1 Silver Fern Farms Wastewater Flows and Loads 2014 - 2023

Parameter	Units	Annual Average	Maximum Month	Maximum Day
Flow	m^3/day	310	400	500
BOD load	kg/day	135	225	250
TSS load	kg/day	60	100	150

4 Combined Wastewater Flows and Loads

Combined influent (domestic plus Silver Fern Farms) flows measured at the WWTP influent flow meter are shown in Figure 4-1. Dry weather flows (following two or more days of no rainfall) are shown in red. Average and maximum flows are shown in Table 4-1.

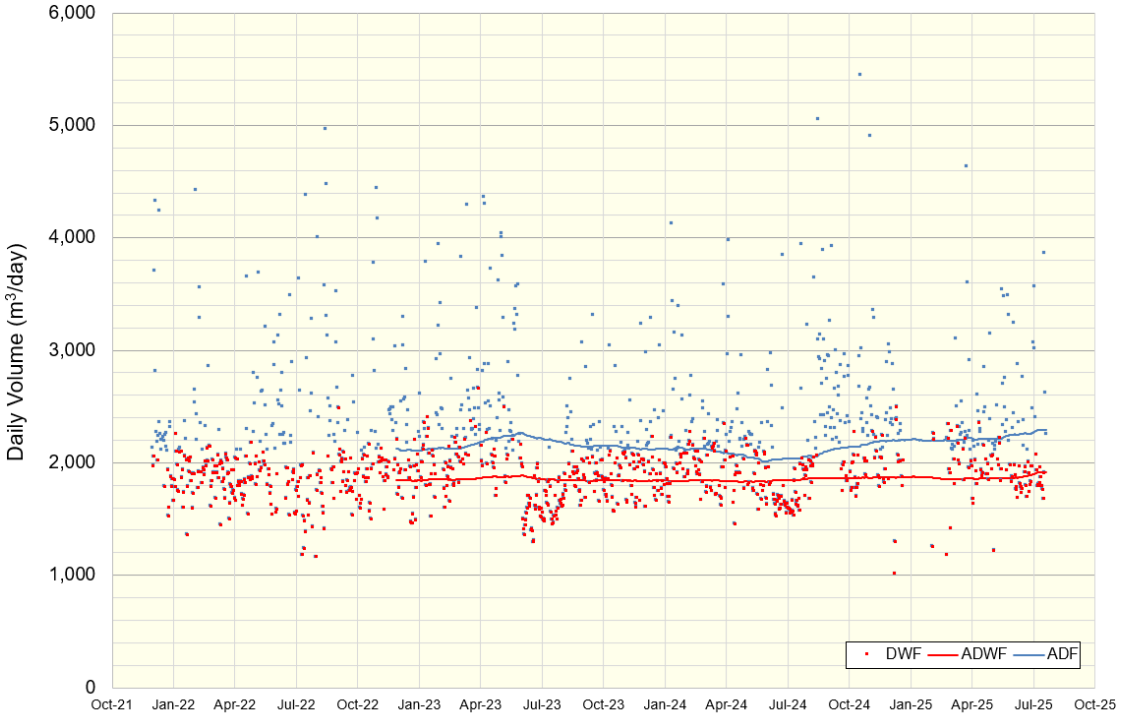

Figure 4-1 Hokitika WWTP Influent Flows 2021 – 2023

Table 4-1 Hokitika WWTP Wastewater Flows 2021-2023

Parameter	Units	Value
Average dry weather flow	m^3/day	1,860
Average daily flow	m^3/day	2,155
Maximum daily flow	m^3/day	5,400

WDC conducted a special sampling campaign between December 2021 and March 2022 to measure influent loads to the WWTP. The campaign used an autosampler linked to the influent flow meter to take flow proportional composite samples. Results of the sampling campaign are presented in Table 4-2.

Table 4-2 Hokitika WWTP Sample Campaign Wastewater Loads 2021-2022

Parameter	Units	Value
Average BOD load	kg/day	320
Average TSS load	kg/day	270
Average TN load	kg/day	70
Average TP load	kg/day	9.5

The estimated domestic flows and loads (permanent residents plus visitors) plus measured Silver Fern Farms flows and loads are compared with the sample campaign combined flows and loads in Table 4-3.

The December and March special sampling campaign results occurred during the shoulder season for visitors and average production for Silver Fern Farms and are therefore considered to be representative of average wastewater flows and loads to the WWTP.

Table 4-3 Hokitika WWTP Influent Flows and Load Summary

Parameter	Units	Estimated Domestic from Population	Measured Silver Fern Farms	Estimated Domestic + Measured SFF	Measured Values
ADWF	m^3/day	1,545	310	1,855	1,860
Average BOD load	kg/day	251	135	386	320
Average TSS load	kg/day	293	60	353	270
Average TN load	kg/day	60	not measured	-	70
Average TP load	kg/day	8.4	not measured	-	9.5

As shown in Table 4-3 the estimated total flow based on catchment population plus measured Silver Fern Farms provides a reasonable match with the average measured dry weather flows. The estimated BOD and TSS loads based on catchment population plus measured Silver Fern Farms are 20% to 30% higher than the measured loads. However, as the measured loads were from a sample campaign covering a relatively short period, it is prudent to include a buffer or contingency for design purposes. The measured combined TN load to the WWTP is lower than expected given the contribution from Silver Fern Farms wastewater which is thought to have a high TN concentration (although SFF do not measure the TN concentration of their wastewater, meat processing wastewater typically has a high nitrogen content). The reason for the lower-than-expected combined TN load is not known.

The relative contributions of BOD and dry weather flow from permanent residents, visitors and Silver Fern Farms on an annual basis is presented in Figure 4-2 and Figure 4-3.

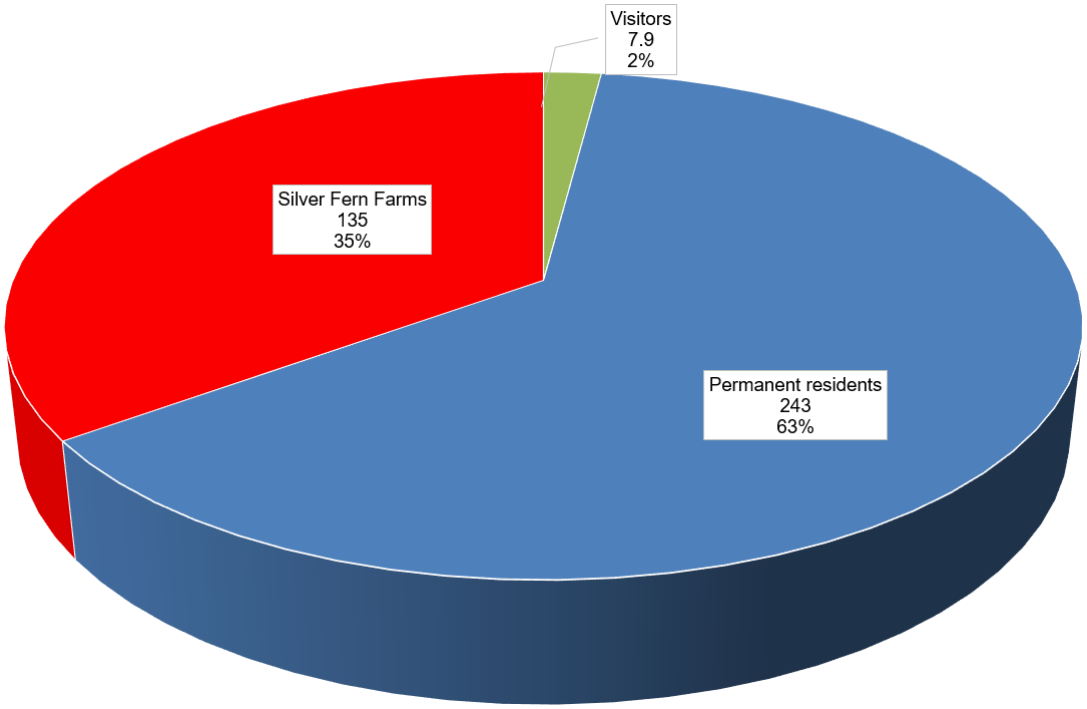

Figure 4-2 Hokitika WWTP Influent Relative BOD Load Contributions (Annual Basis)

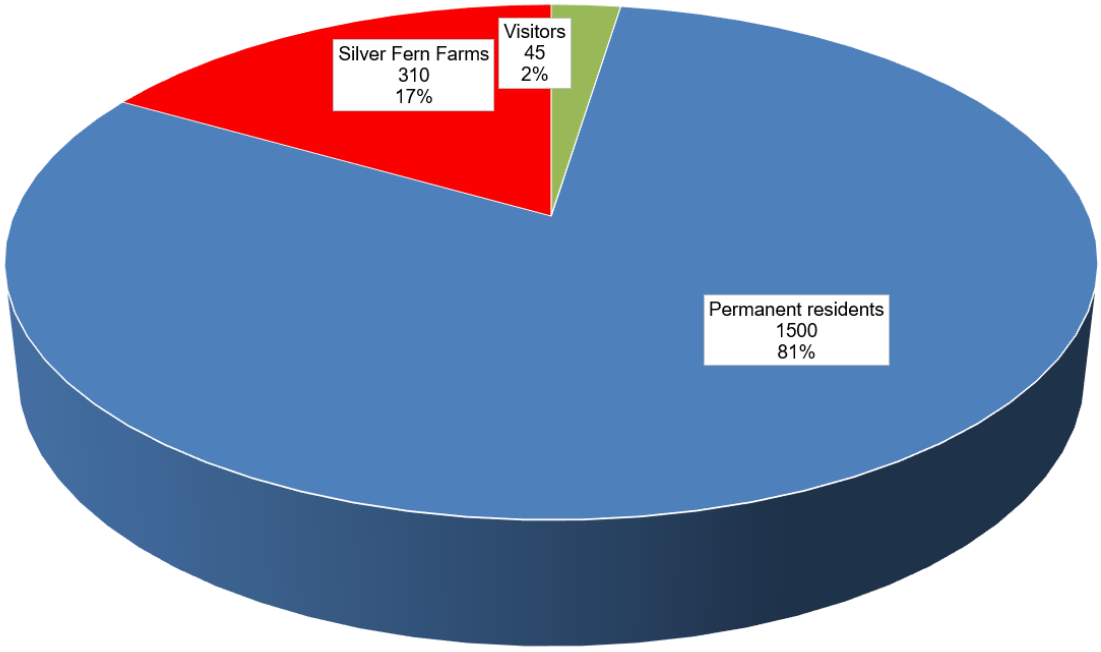

Figure 4-3 Hokitika WWTP Influent Relative Dry Weather Flow Contributions (Annual Basis)

5 Summary

The design influent flows and loads for the bridging consent period are summarised in Table 5-1.

Peak month loads are shown to indicate the estimated combined loads to the WWTP during Silver Fern Farms peak production and wastewater loads.

Table 5-1 Hokitika WWTP Design Influent Flows and Load Summary

Parameter	Units	Value	
Flows			
Average dry weather flow	m^3/day	1,860	
Average daily flow	m^3/day	2,155	
Maximum daily flow	m^3/day	5,400	
Loads		**Average**	**Peak Month**
Average BOD load	kg/day	386	476
Average TSS load	kg/day	353	393
Average TN load	kg/day	70	80
Average TP load	kg/day	9.5	11

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