17/RC/55

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga

The Hearing Commissioners

9 August 2017
9.00 am

Staff Report for Hearing

The recommendation in the staff report represents the opinion of the writer and it is not binding on the Hearing Commissioners. The report is evidence and has no greater weight than any other evidence that the Hearing Commissioners will hear and consider.

Hearing of Application – APP-20168843
Invercargill City Council

Compiled by Stephen West, Principal Consents Officer

Hearing:	The hearing is scheduled to commence at 9:00 a.m. on Wednesday, 9 August 2017 at the Kelvin Hotel, 20-22 Kelvin Street, Invercargill.
Application:	Invercargill City Council has applied for a discharge permit to discharge water and contaminants from reticulated stormwater systems into surface water bodies, and to water in artificial watercourses.
Notification:	The application was publicly notified on 3 October 2016 and 11 submissions were received. Nine submitters wish to be heard.

1. Introduction

1.1 Status and purpose of this report

This report has been prepared under Section 42A of the Resource Management Act 1991 (RMA) to assist in the hearing of the application for resource consent made by Invercargill City Council. Section 42A allows local authorities to require the preparation of such a report on an application for resource consent and allows the consent authority to consider the report at any hearing.

The purpose of the report is to assist the Hearing Panel in making a decision on the application.

1.2 Key issues

I believe that the key issues are:

- whether or not the application can be approved as a non-complying activity;
- sewage contamination of the stormwater network;
- effects on the receiving environment;
- the effectiveness and timing of mitigation measures.

1.3 Summary of Recommendation

In brief, my recommendation is that the application be refused as a non-complying activity that has adverse effects on the environment that are more than minor, and which is contrary to the objectives and policies of the operative and proposed plans.

I also consider that, even if it was found that the proposal was not directly contrary to the objectives and policies of both the operative and proposed plans, it would still be inconsistent with those objectives and policies to approve the application.

2. The application and procedural matters

2.1 The proposed activities

Applicant:	Invercargill City Council
Application:	To discharge water and contaminants into surface water bodies, and into open drains, from reticulated stormwater systems.
Site address or location:	Waikiwi Stream: • Four outfalls into an open drain along Gloucester Street (between 1,241,703E, 4,854,218N NZTM and 1,241,720E, 4,853,955N NZTM). The drain then runs along West Plains Road and discharges to Waikiwi Stream at approximately 20 m upstream of the West Plains Road bridge.

- An outfall into an open drain west of Renfrew Street (1,241,122E 4,853,378N NZTM).

Waihopai River:

- Various outfalls between Racecourse Road and North Road (between 1,244,959E 4,852,918N and 1,242,280E 4,852,085N NZTM).

Otepuni Stream:

- Various outfalls between Rockdale Road and Bond Street (between 1,246,193E 4,849,937N and 1,241,885E 4,849,420N).

Kingswell Creek:

- Various outfalls between Chesney Street and Bluff Railway (between 1,245,243E 4,846,749N and 1,243,133E 4,846,241N NZTM).

Clifton Channel:

- Various outfalls between Bain Street and Bluff Railway (between 1,244,809E 4,845,678N and 1,243,621E 4,845,502N NZTM).

Invercargill City Council has applied for a resource consent to discharge water and contaminants into surface water bodies from reticulated stormwater systems in Invercargill City.

Stormwater from Invercargill city is collected in drains and discharged into the streams (or, in the case of the Waikiwi catchment, artificial watercourses that drain into a stream) that run through or on the outskirts of the city. The city has 412 km of stormwater pipes, which drain residential, commercial, and industrial properties, roads and parks. The applicant estimates that the Invercargill City stormwater network drains an area of 23.34 km^2, with a total of 146 outfalls.

Section 2.9 of the application discusses engineered overflow points between the sewer system and the stormwater network. There are 64 historical overflow locations within the system, 19 of which were shown by modelling to be capable of spilling or close to spilling, from the sewer to the stormwater network. The applicant monitors the 19 locations by periodic checks which show whether an overflow has occurred since the last check.

The application is only for the discharges from the portion of the Invercargill City stormwater network that discharge into the Waikiwi, Waihopai, Otepuni, Kingswell or Clifton streams above the coastal marine area boundary. Figure 3-3 of the application shows the stormwater catchments.

The stormwater discharges are currently authorised under five resource consents (one for each catchment) which were granted in 2011 for five year periods. The resource consents required monitoring of 17 stormwater outfalls, and instream water quality and sediment quality. Prior to regional rules becoming operative in 2010 the stormwater discharges had been a permitted activity under the Transitional Southland Regional Plan and were not regularly monitored, so there is limited information about stormwater quality for the pre-2011 period.

2.2 Description of the affected environment

The discharges are into five small streams and rivers that flow through, or adjacent to, Invercargill City. The streams have been modified by past development, and there are flood detention dams on the Waihopai River, Otepuni Stream and Kingswell Creek upstream of the city. The applicant's stormwater discharges occur within the lower reaches of each stream.

The following table shows the scale of each catchment, and the percentage which is within the applicant's stormwater network areas:

Catchment	Catchment Area (km^2)	Percentage of Urban Stormwater catchment
Waikiwi Stream	152.33	0.5
Waihopai River	188.01	3.7
Otepuni Stream	38.25	27.4
Kingswell Creek	12.54	30.4
Clifton Channel	2.83	46.4

The catchments are described as follows:

- ***Waikiwi Stream*** – is the northernmost stream and is largely a rural catchment, with some industrial land around Lorneville. The stormwater catchment is mainly residential, with some commercial and industrial areas. There are two stormwater discharge points, both via open drains. One discharge point is a short distance above the West Plains Road bridge, via the roadside drain and the second is into an open drain at the west end of Renfrew Street. The stream is used for fishing and whitebaiting.

  Environment Southland monitors water quality in the Waikiwi Stream at a state of the environment site at SH 6, about 1,200 metres upstream of the applicant's stormwater outfalls. The Waikiwi Stream joins the Oreti River about 8 km downstream.

  The Waikiwi Stream in the vicinity of the outfalls of the artificial watercourses that carry stormwater from the applicant's system is a Lowland Hard Bed waterbody in terms of the water quality standards that apply under the Regional Water Plan.

- ***Waihopai River*** – is the largest of the five waterways.

  Flow in the river is monitored upstream of Invercargill, at Kennington. The Waihopai River has a mean flow of 2,672 litres per second, a median flow (the flow exceeded 50% of the time) of 1,255 litres per second, and a 7-day mean annual low flow of 232 litres per second.[1]

  There are some industrial activities at Morton Mains and Kennington, but the catchment is largely rural upstream of Invercargill. The stormwater catchments that drain into the Waihopai are mostly residential and industrial. The river is used for fishing, whitebaiting and, at times, sporting events.

[1] Spot flows are available for the other catchments, but they are not continuously monitored or rated to provide flow statistics. However scaling based on catchment size relative to the Waihopai River will provide an indication of flow conditions in each stream.

Environment Southland monitors water quality in the Waihopai River at a state of the environment site at Queens Drive. Monitoring information for the Queens Drive site is summarised[2] as follows:

Parameter	Median (2012-2016)	NOF Band	Trend (2012-2016)	Trend (2007-2016)	Trend (2000-2016)
Nitrate (mg/L)	2.2	C	No trend	Indeterminate	Deteriorating
Ammonia (mg/L)	0.0076	B	No trend	-	Improving
E. coli (CFU)	360	B	No trend	Indeterminate	Indeterminate
TN (mg/L)	2.9		No trend	Indeterminate	Indeterminate
TP (mg/L)	0.0285		No trend	Improving	Improving
DRP (mg/L)	0.01		No trend	Indeterminate	Improving

Note: NOF = National Objectives Framework band

The Waihopai River in the vicinity of the outfalls from the applicant's stormwater system is a Lowland Hard Bed waterbody in terms of the water quality standards that apply under the Regional Water Plan.

The coastal marine area boundary for the Waihopai River is the downstream side of the SH 6 (North Road) bridge. The stormwater networks that discharge downstream of that location are not part of this application.

- ***Otepuni Stream*** – is also a largely rural catchment upstream of Invercargill. The catchments of the applicant's stormwater drains that discharge into the stream include residential, commercial and industrial areas. There is likely to be some contact recreation associated with children playing, or carrying out school projects, in or near the stream at times. Eels have been observed in the stream.

Environment Southland monitors water quality in the Otepuni Stream at a state of the environment site at Nith Street. Monitoring information for the Nith Street site is summarised as follows:

Parameter	Median (2012-2016)	NOF Band	Trend (2012-2016)	Trend (2007-2016)	Trend (2000-2016)
Nitrate (mg/L)	1.295	B	Improving	Improving	Indeterminate
Ammonia (mg/L)	0.0239	B	Indeterminate	-	Indeterminate
E. coli (CFU)	1600	D	Indeterminate	Indeterminate	Indeterminate
TN (mg/L)	1.99		Improving	Indeterminate	Improving
TP (mg/L)	0.038		Indeterminate	Improving	Improving
DRP (mg/L)	0.014		Indeterminate	Indeterminate	Indeterminate

Note: NOF = National Objectives Framework band

[2] The river water quality data have been analysed for trends over a 5, 10 and 17 year period (all ending December 2016). Where sufficient data is available for data analysis, trends are reported where we have greater than 95% confidence to be "improving" or "deteriorating", otherwise the direction of trend is "indeterminate". Where a site has an indeterminate trend, this means the direction of the trend is unable to be confidently determined and more monitoring data is required.

The Otepuni Stream in the vicinity of the outfalls from the applicant's stormwater system is a Lowland Soft Bed waterbody in terms of the water quality standards that apply under the Regional Water Plan.

The coastal marine area boundary for the Otepuni Stream is the downstream side of the Bond Street bridge. The stormwater networks that discharge downstream of that location are not part of this application.

- ***Kingswell Creek*** – upstream of Invercargill the stream flows through rural land. Further downstream, the stormwater catchments that discharge to the stream are largely residential areas, with some schools and few industrial sites. Part of the Southland Hospital grounds may discharge to the Kingswell Creek. Similar to the Clifton Channel, there is likely to be some contact recreation associated with children playing in or near the stream at times, but the stream is too small for swimming.

  The Kingswell Creek in the vicinity of the outfalls from the applicant's stormwater system is a Lowland Soft Bed waterbody in terms of the water quality standards that apply under the Regional Water Plan.

  The coastal marine area boundary for Kingswell Creek is the downstream side of the railway bridge.

- ***Clifton Channel*** – is the southernmost stream. It is a small modified watercourse, which largely flows through pasture. It is likely that the stream is used for stock water, and there may be some limited contact recreation (children playing in the waterway at times) where it passes through an undeveloped section that backs onto a residential area, east of Bluff Road. However, this area is also prone to littering in and around the stream. Downstream of Bluff Road, the Clifton Channel enters a narrow industrial area.

  The Clifton Channel in the vicinity of the outfalls from the applicant's stormwater system is a Lowland Hard Bed waterbody in terms of the water quality standards that apply under the Regional Water Plan.

  The coastal marine area boundary for the stream is at the tide gates.

Section 3.3 of the application summarises water quality monitoring within the streams over the last five years, and includes comparison with the water quality standards of the Regional Water Plan and the National Bottom Line values of the National Policy Statement for Freshwater Management.

New River Estuary

The stormwater networks that are the subject of this application[3] do not discharge directly into the New River Estuary. However the Waihopai, Otepuni, Kingswell and Clifton streams flow into the estuary a short distance downstream of the stormwater catchments covered by the application. The Waikiwi Stream flows into the Oreti River, which then flows into the estuary. The New River Estuary is within the coastal marine area and is subject to the Regional Coastal Plan for Southland.

The New River Estuary is a large (4,100 ha) tidal lagoon estuary sited at the confluence of the Oreti and Waihopai Rivers. It is a shallow estuary with a mean depth of about 2 metres. It has a wide

[3] The application does not cover the discharges from the stormwater outfalls within the coastal marine area.

range of habitats (extensive mudflats, seagrass and saltmarsh areas) but has also lost large areas through drainage and reclamation. The Waihopai Arm has been most affected with around 1,200 ha (75%) of the Arm reclaimed (Stevens & Robertson, 2012) [4].

From Sections 3.8.7 and 3.8.8 of the Regional Coastal Plan for Southland (2007):

> "New River Estuary has a high value as a wading and waterfowl bird habitat. A total of 74 wading and waterfowl species (including migratory species from the northern hemisphere), have been recorded. These species include sandpipers, tattlers and greenshanks. Banded dotterels can migrate to Australia but generally migrate internally, as do South Island pied oyster catchers. South Island fernbirds inhabit coastal wetlands."
>
> "The estuary provides extensive rearing and spawning habitat for marine and freshwater fish species, including native fish such as the giant kokopu, lamprey and the long finned eel. The whole estuary has value as a flounder nursery area, while many other fish species, including migratory species, use the estuary or parts of the estuary as a habitat on either a temporary or permanent basis. Along the shores are extensive maritime marshes including an excellent sequence of marsh to sand dune totara forest, which is of national significance."

The following comments about the estuary were made in a 2010 Environment Southland report[5]:

> "Southland boasts a number of estuaries considered to be of national and international significance. The Waituna Lagoon (as part of the Awarua wetlands) is listed under the Ramsar Convention and together with Jacobs River Estuary, New River Estuary, Bluff Harbour, Awarua Bay, Haldane Estuary, Waikawa Harbour and Toetoes Estuary forms a complex that is the single most important bird habitat in Southland, and one of the most important wading bird habitats in New Zealand."

Section 3.8.10 of the Regional Coastal Plan identifies values within specific areas of New River Estuary. The following values are noted in the areas from the southern end of the rifle range stopbank on the west side of the estuary, up to the North Road bridge and down to the mouth of the Kingswell Creek, an area that encompasses the Waihopai Arm and the mouths of most of the streams that receive stormwater from the applicant's systems (other than the Waikiwi Stream and Clifton Channel). The values listed include:

- views;
- natural reflected light;
- significant bird habitat;
- flounder nursery and habitat;
- migratory fish passage;
- conservation values;
- whitebait breeding area.

[4] L Stevens & B Robertson, (2012), "New River Estuary 2012: Broad Scale Habitat Monitoring", Wriggle Ltd, Nelson.
Note: the Waihopai Arm of the New River Estuary is a broad description of an area that would generally encompass the outflows from the Waihopai River and Otepuni Stream, as well as the Kingswell Creek and the Clifton Channel.

[5] Environment Southland and Te Ao Marama Inc ., (2011),"Our Ecosystems: How healthy is the life in our water and our freshwater ecosystems? Part 2 of Southland Water 2010: Report on the State of Southland's Freshwater Environment". Environment Southland. Invercargill. Publication number 2011/7 ISBN 0-909043-45-0, pages 73-74.

Objective 6.2.1 of the Regional Coastal Plan (included in a later section of this report) lists a number of values for the estuary, including that it is a significant habitat (fish, birds, vegetation) and a food basket for harvesting shellfish and fish.

2.3 Planning framework

Resource consents are required under the Regional Water Plan for Southland and the Proposed Southland Water and Land Plan:

- the discharge of water and contaminants into surface water bodies is a non-complying activity under Rule 2 of the Regional Water Plan;
- the discharge of water and contaminants into water in an artificial drain is a discretionary activity under Rule 3 of the Regional Water Plan;
- the discharge of water and contaminants into surface water bodies is a non-complying activity under Rule 6 of the Proposed Southland Water and Land Plan;
- the discharge of water and contaminants into water in an artificial drain is a discretionary activity under Rule 7 of the Proposed Southland Water and Land Plan;
- the discharge of stormwater that contains sewage into a surface water body (including an artificial watercourse), or onto or into land in circumstances where contaminants may enter water, is a non-complying activity under Rule 15(c) of the Proposed Southland Water and Land Plan.

Overall, the application is considered to be a ***non-complying*** activity.

Comment

Section 7.3.3 of the application identifies that the discharges are non-complying under Rule 2 of the Regional Water Plan because there are exceedances of the water quality standards beyond the zone of reasonable mixing. This is discussed in Sections 4.2.6 and 6 of the application, which refer to various exceedances of the standards, most of which are not clearly due to the stormwater discharges. However, the applicant has identified that faecal coliform levels will breach the water quality standards for the receiving waters as a result of the discharges. Therefore the discharges are non-complying under Rule 2 of the Water Plan and, because the provisions are similar, Rule 6 of the Proposed Southland Water and Land Plan.

- ***Non-complying activities***

  When considering a **non-complying activity**, the Hearing Panel may only, in accordance with Section 104D, grant a resource consent for the activity if it is satisfied that:
  - the adverse effects of the activity will be minor; or
  - the application is for an activity that will not be contrary to the objectives and policies of both the relevant plan and the proposed plan.

  If the application passes the "gateway" tests in Section 104D, under Section 104B the Hearing Panel may grant or refuse consent for a non-complying activity, taking into consideration the matters listed in Section 104, and if it grants the application, may impose conditions under Section 108 of the RMA.

- ***Plan status***

The **Regional Water Plan for Southland** became operative 18 January 2010. There have been various plan changes that have not altered the provisions relevant to this application, but all the provisions of the current plan have been operative since 2014.

The variations to the plan that introduced rules with new standards for stormwater (specifically to exclude discharges from reticulated stormwater systems from permitted activity rules) were notified in 2005 and became operative with the plan in 2010. Prior to that time stormwater discharges had been permitted by Rule 11 of the Proposed Regional Fresh Water Plan, which required compliance with water quality standards beyond a 20 metre mixing distance with regard to any stormwater discharges. And before that stormwater discharges had been permitted by Rule 4.3.1.S1 of the Transitional Southland Regional Plan "*provided that the discharges did not contain pollutants or waste*". No monitoring occurred to determine that the applicant's stormwater network discharges complied with either of those earlier rules.

The **Proposed Southland Water and Land Plan** was notified on 3 June 2016 and the submission period closed on 1 August 2016. The provisions of the plan have received submissions but they have not yet been heard.

Therefore the rules of the proposed plan have legal effect, but the objectives and policies of the proposed plan have less weight than those of the Regional Water Plan.

The application was lodged in September 2016, so is subject to the rules, objectives and policies of the proposed plan.

- ***Key Definitions***

Stormwater is defined in both the Regional Water Plan and Proposed Southland Water and Land Plan as "**surface water run-off subsequent to precipitation**".

Surface Waterbody is defined in both the Regional Water Plan and Proposed Southland Water and Land Plan as "Freshwater or geothermal water in a river, lake, stream, pond or wetland or any part thereof that is not located within the coastal marine area but excludes water in an artificial watercourse."

Sewage is defined in both the Regional Water Plan and Proposed Southland Water and Land Plan as "the contents of sewers carrying waterborne wastes of a community. This is sometimes called 'waste water' or 'foul sewage' to distinguish it from stormwater".

Raw sewage is defined in both the Regional Water Plan and Proposed Southland Water and Land Plan as "sewage that has not undergone chemical or biological changes prior to discharge, other than some solids separation, such as in a pond or sump".

- ***Stormwater or water & contaminants?***

Rule 11 the Regional Water Plan permits stormwater discharges to water, but excludes discharges are from reticulated systems. Therefore the discharges default to being discharges

of water and contaminants under Rules 1 to 3, and it is not necessary to define the discharges entirely as stormwater.

For the Proposed Southland Water and Land Plan discharges of stormwater fall under Rule 15. However stormwater is surface water run-off as a result of rainfall. As many of the stormwater drains discharge even when there has not been recent rainfall, the discharges should be defined as discharges of water and contaminants, and are subject to Rules 5 and 6 of the proposed plan.

If the discharges were regarded as purely stormwater discharges consideration would be largely limited to storm event effects. However, in this case the discharges and their effects during dry-weather conditions can also be considered.

Discharge into an artificial drain

Where the discharges within the Waikiwi catchment are into an artificial drain (which is not part of the applicant's stormwater network) Rule 3 of the Water Plan or Rule 7 of the Proposed Plan will apply.

I understand that there is always water within the artificial drains. However, if there was no water within the drain, the discharge becomes a discharge of contaminants to land in circumstances where it may enter a surface water body under Rule 2 of the Water Plan or Rule 7 of the Proposed Plan. This is because the discharge occurs even though it is not "subsequent to precipitation" so is more than just stormwater.

If the discharge meets the definition of stormwater the discharge of stormwater to land is a discretionary activity under Rule 12(b) of the Regional Water Plan and, if it does not include sewage, it is a discretionary activity under Rule 15(b) of the Proposed Plan (if it were not to be bundled with other discharges).

- ***Sewage contamination***

The discharge of raw sewage, foul water or untreated agricultural effluent into water is a prohibited activity under Rule 14 of the Regional Water Plan.

The discharge of raw sewage into surface or groundwater is a prohibited activity under Rule 26(f) of the Proposed Southland Water and Land Plan.

The discharge of **stormwater containing sewage** into surface water, onto or into land where contaminants may enter water (such as to a dry artificial watercourse), is a non-complying activity under Rule 15(c) of the proposed plan.

'Surface waterbody' under the Proposed Plan does not include water within an artificial watercourse, so Rule 15(c) does not apply to the discharge of stormwater that contains sewage directly into water within an artificial watercourse. In that circumstance the discharge would be prohibited under Rule 26(f) of the Proposed Plan.

Sewage contamination of the stormwater systems presents a conundrum. The applicant is not seeking a resource consent to discharge sewage via the drains, but it is occurring. On the face of it those discharges are prohibited. It could be argued that dilution by water within the drainage networks is a chemical change, so that it is not 'raw sewage', but that interpretation

would clearly frustrate the intent of Rule 14 of the Regional Water Plan and Rule 26(f) of the Proposed Plan.

Finding

I believe that it is intended that discharges from stormwater pipes that are contaminated by sewage be considered as a non-complying activity under Rule 15(c) of the Proposed Plan. However, the definitions of stormwater and sewage limit the application of Rule 15(c). This rule will apply when sewage enters the stormwater drains at times when there is stormwater flow (i.e. surface water run-off subsequent to precipitation that has been captured by the network). In instances where the stormwater drains discharge at times when there has not been recent rainfall, the sewage component would be subject to Rule 26(f) of the Proposed Plan (and is therefore a prohibited activity).

- ***Bundling***

Bundling of the activity status often applies where activities within a development could not proceed if a component with a higher category status was declined. In that instance all the related activities should be considered to be at the same level as the highest category.

In this case the discharges are often discrete from one another, particularly from one catchment to another. For example, the stormwater discharges within the Waikiwi catchment could potentially be considered separately from the discharges in the Waihopai catchment.

However the applicant is seeking a single resource consent for multiple discharges across five catchments. Therefore I believe that it is appropriate to bundle all the activities to the highest category, which is non-complying.

- ***Effects of existing activity***

The stormwater discharges are existing activities and are currently authorised by previous resource consents that are continuing in effect under Section 124 of the Resource Management Act. However, for the purposes of considering the current application, the effects of the existing stormwater discharges are not part of the existing environment[6]. In other words, when an application is made for a new resource consent for an existing activity, the existing environment should be considered as if the activity is not occurring.

2.4 Notification and submissions

The application was publicly notified on 3 October 2016 and eleven submissions were received. Full copies are provided in the appendices to this report, but the submissions are summarised as follows:

Submitter	Oppose/ Support	Issues/comments *Decision/Changes sought*	To be Heard?
DairyNZ	Neutral	The discharge includes sewage, even if the applicant is not applying for it. Modelling has demonstrated that the sewage pipe network	No

[6] Ngati Rangi Trust v Manawatu-Whanganui Regional Council [2016] NZHC 2948

Submitter	Oppose/ Support	Issues/comments *Decision/Changes sought*	To be Heard?
		has reached the end of its reasonable use, and requires updating. There is no projection of future growth, nor assessment of the effects of additional population on the pipe networks. The application does not demonstrate that the 1% maintenance budget is sufficient to allow replacement within the proposed consent period. The proposed monitoring is inadequate. The proposed mitigation measures are inadequate, including to address sewage overflows and failures. No remediation is proposed to address elevated copper and zinc concentrations, not to address depressed macroinvertebrate scores and dissolved oxygen concentrations or elevated ammoniacal nitrogen concentrations.	
Federated Farmers of New Zealand - Southland	Oppose	The proposed 35-year consent period is inappropriate. Limits are yet to be determined for the Oreti catchment in accordance with the NPS for Freshwater Management. A 35-year term for the ICC stormwater would undermine the limit-setting process, and the discharge would affect how limits are set on other people, particularly if raw sewage is not eliminated from the stormwater. That would be inequitable. The proposed 50-60 year replacement regime may be insufficient to meet the objectives and limits determined through the NPS process. *Defer consideration of the application until limit-setting for the catchment is complete.*	Yes
Fish & Game New Zealand, Southland Region	Oppose	Pointed out the importance of the lower Oreti catchment and estuary in terms of fish and game values, diversity of wildlife, habitat for indigenous species and recreational activities. It is also the receiving environment for a number of industrial and municipal discharges. It is misleading to exclude the effects of sewage contamination from the consideration of the effects of the discharges. The proposed 35-year term is the maximum available and is too long in the circumstances. Application is based on premise that adverse effects will not increase. Insufficient consideration of the effects of the discharges on the downstream receiving environments, including the estuary. The estuary is in poor condition with increasing eutrophication. Key effects in the estuary are elevated nutrient levels, macrophyte bed loss, high rates of sedimentation and nuisance algal growth. Application does not assess the effects of the discharges against the attribute states in the NPS for Freshwater	Yes

Submitter	Oppose/ Support	Issues/comments ***Decision/Changes sought***	To be Heard?
		Management, nor provide for compliance with those standards, despite the long proposed consent period. Application does not adequately consider alternatives to reduce the quantity and quality of stormwater, particularly at-source controls before the stormwater enters the pipe network. Acknowledges that the stormwater system has a number of positive social and economic benefits. The proposed improvement plan for the stormwater network is estimated to take 50-60 years. There should be an accelerated timeframe for implementation. As presented the application is contrary to numerous objectives policies, including relevant provisions in the Southland Water Plan and Proposed Southland Water and Land Plan. *Decline the application, or* *A duration of 15-20 years* *Improvement to the system to address sewage contamination* *Accelerated rate of improvement, with annual progress reports* *Sediment and surface water quality standards* *Water quality and sediment monitoring* *Review conditions with specific trigger levels*	
A R Flett	Oppose	No effluent to be discharged from stormwater network. Sewage contamination conflicts with Proposed Southland Water and Land Plan. *5-year consent duration* *Require that sewage contamination be corrected within 5 years.*	Yes
B Halligan	Neutral	Acknowledges importance of stormwater system. But considers that application does not provide sufficient emphasis on mitigation of adverse effects, particularly given the term sought and the non-complying activity status. Has observed detergent-like discharges within lower Otepuni catchment. The upcoming catchment limit-setting process and potential for new mitigation technology support a shorter duration. *Grant consent, subject to conditions* *Shorter duration*	Yes
R & R Hamilton	Oppose	Opposed to 35-year consent period. It is unclear what will happen if there is an exceedance. Clarification required of remediation action and tracing sources of contamination. The medium and long-term upgrade plans are not clearly specified. Opposed to amalgamation of areas into one consent as it	Not indicated

Submitter	Oppose/ Support	Issues/comments *Decision/Changes sought*	To be Heard?
		could slow down upgrades to the region. *Maximum of 10 years with monitoring requirements.* *System needs upgraded within 10 years.* *Hot-spots of contamination need to be targeted and treated.*	
W Kent	Oppose	Opposed to the 35-year consent period. Limit setting for the Oreti catchment will begin in 2018, so a decision on this application should not conflict with that timeframe. The objectives of the proposed plan must be taken into account. It is unacceptable to have raw sewage in 8 of the 18 monitored stormwater drains. The drains must be monitored regularly. A 50-60 year replacement programme for the aged stormwater infrastructure will not achieve the objectives of the Proposed Southland Water and Land Plan. Rural dischargers have been given much shorter timeframes under the rules of the proposed plan. A single resource consent for the 5 catchments is opposed. Each catchment may have different requirements under limit setting. *Defer consideration of the application until limit-setting for the catchment is complete.* *10-year consent period* *5-year plans for upgrading and improving the discharges* *Timeframes for improvements set in the consent conditions*	Yes
New Zealand Steel Ltd	Oppose	Concerned about potential controls on cladding materials to control zinc discharges to the environment. It is the substrate type that is the key factor for zinc losses, not the painted or unpainted condition of the material. Zinc losses from AZ and AM category roofing materials are much lower than Z and ZM category roofing materials. *If controls are considered for zinc sources, base consideration on substrate type*	Yes
W D Smellie	Neutral	The consent should not be approved for a 35-year term because of contamination issues. *Approve for a 10-year term* *5-year upgrade targets to meet same standards as farm discharges*	Yes
Southern District Health Board	Neutral	Concerned with the adequacy of conditions to protect public health if the consent is granted. Public health risks associated with sewage contamination are a key issue. Acknowledges that stormwater system is vital to protect from flooding, that the system is aging, that there are constraints regarding treatment options, and the applicant's continuing efforts to upgrade the infrastructure.	Yes

Submitter	Oppose/ Support	Issues/comments ***Decision/Changes sought***	To be Heard?
		Require a recreational survey to assess risk to public *Increased communication (such as signage) about health risks* *Community education about stormwater*	
Te Rūnanga of Waihopai	Oppose	Concerned about cumulative effects in the Oreti Estuary, which is under extreme pressure from human influences, with large areas that are eutrophic. Concern about mahinga kai, cockle fields, fish nurseries, eel and kanakana populations, as well as amenity values and sedimentation in the estuary. The 35-year term sought by the applicant is inappropriate and it is inconsistent with policy within Te Tangi a Tauira about maximum consent periods.	Yes

A pre-hearing meeting was held on 15 June 2017. The submitters spoke about their key concerns with the proposal and I stated that I did not believe that the application could be approved as a non-complying activity. Much of the discussion concerned draft consent conditions suggested by the applicant. The applicant clarified how monitoring would be used to detect and trace sewage contamination. However, the meeting concluded without agreement.

3. Statutory Considerations

3.1 Section 104 of the Resource Management Act 1991

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. Section 104(1) of the Resource Management Act, 1991, states:

> *(1) When considering an application for a resource consent and any submission received, the consent authority must, subject to Part 2, have regard to:*
> *(a) any actual and potential effects on the environment of allowing the activity; and*
> *(b) any relevant provisions of –*
> *(i) a national environmental standard:*
> *(ii) other regulations:*
> *(iii) a national policy statement:*
> *(v) a regional or proposed regional policy statement:*
> *(vi) a plan or proposed plan; and*
> *(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

Section 104 of the Resource Management Act requires consideration of the effects of the application and relevant policy and plan provisions, subject to Part 2 of the Resource Management Act. Case law indicates that the provisions of the regional plans (and the other instruments listed in s104) have been developed under, and give specific effect to, Part 2. Therefore the direction provided by the plan provisions should take precedence when deciding a resource consent, although the provisions of Part 2 will provide guidance where the plan provisions are unclear. However it would be inappropriate to reject the direction provided by the plan provisions in favour of another interpretation of the direction given by Part 2.

- The Environment Court in *Saddle View Estate Ltd v Dunedin CC* [2014] NZEnvC 243, [2015] NZRMA 1 (paragraphs 92-93) inferred, from the approach taken in *Environmental Defence Soc Inc v The New Zealand King Salmon Co Ltd* [2014] NZSC 38, [2014] 1 NZLR 593 that the matters in part 2 of the RMA and in the higher order statutory instruments must be applied as they are particularised in regional and district plans. Plans are to be applied as containing, in particularised form, all the relevant provisions of part 2. Any specific objectives or policies in plans must not be "subverted" by reference to part 2 or other matters[7].

- In *Aro Valley Community Council Inc v Wellington CC* [2015] NZHC 532 (paragraph 24) the High Court said that the Act envisages the formulation and promulgation of a cascade of planning documents, each intended to ultimately give effect to part 2, including s 6. A decision under the relevant district plan provisions is at the bottom of that cascade. The decision maker must apply the relevant provisions, prepared in conformity with s 6(f). Independent reference to s 6(f) is not a mandatory consideration.

The following points on this were made in the High Court decision on *R J Davidson Family Trust v Marlborough District Council*, [2017] NZHC 52:

Paragraph 71:
"The Supreme Court emphasised that:

> *'the RMA envisages the formulation and promulgation of a cascade of planning documents, each intended, ultimately, to give effect to s 5, and to Part 2 more generally. These documents form an integral part of the legislative framework of the RMA and give substance to its purpose by identifying objectives, policies, methods and rules with increasing particularity both as to substantive content and locality.'*

Paragraph 74:

> "*The Court in King Salmon also addressed the way in which a decision-maker must take into account the planning documents. In particular, the "necessary analysis" should be undertaken on the basis of the NZCPS, informed by s 5. Section 5 should not be treated as the primary operative decision-making provision."*

In paragraph 76 of that same decision, the Court stated:

> *"I find that the reasoning in King Salmon does apply to s 104(1) because the relevant provisions of the planning documents, which include the NZCPS, have already given substance to the principles in Part 2. Where, however, as the Supreme Court held, there has been invalidity, incomplete coverage or uncertainty of meaning within the planning documents, resort to Part 2 should then occur."*

The Court then discussed the alternative approach, where direct consideration was given to Part 2:

Paragraph 84:

> *"Although s 5(2) was framed in the appellant's submission as an enabling provision to provide for people in communities and their social, economic and cultural well-being, the decision-maker must also have regard to future sustenance of the resource and the avoidance or mitigation of any adverse effects on the environment."*

[7] Westlaw NZ, commentary on Resource Management Act, A104.01(7).

Paragraph 85:

> *"Section 6 reinforces matters of national importance and places a mandatory consideration on a decision-maker to preserve the natural character of the coastal environment (including the coastal marine area) and protect them from inappropriate use and development (s 6(a)). It also requires, under s 6(c), the decision-maker to protect significant habitats' indigenous fauna. Equally, s 7(d) and (g) require the decision-maker to have "particular regard" to intrinsic values of ecosystems and any finite characteristics of natural and physical resources. Even if the Environment Court had paid specific attention to Part 2, it was not a given that the enabling provisions under Part 2 were to be given pre-eminent consideration."*

In short, the Court appeared to favour the cascade of plan provisions approach, in which the lower order documents give effect to and provide direction on Part 2. But the Court also looked at the alternate 'overall judgement' approach and provided a reminder that the provisions should be considered as a whole; not cherry-picked to suit a particular argument.

Finding

I have adopted the cascade of plan provision approach. The order of the planning documents in s104(1)(b) is reversed in this report, so that the provisions of the relevant plans is discussed before the Regional Policy Statement, and so forth. If a policy is invalid, incomplete or uncertain, direction should be sought from the relevant objectives and then from the regional policy statement provisions, and if it is still unclear, the national policy statement provisions. Ultimately, Part 2 of the Resource Management Act can be considered if the matter is still uncertain.

3.2 Actual and potential effects (Section 104(1)(a))

Section 7.6.1 of the application states that the discharges, **excluding sewage**, "are having a minor to moderate effect on water quality, a minor effect on aquatic ecosystems, a minor effect on groundwater quality and a moderate effect on visual and amenity values". The application is not for the discharge of sewage, but sewage contamination is "having more than a minor effect on water quality".

Therefore the applicant has identified that **the adverse effects of the discharges on the environment are more than minor**.

Visual and Amenity Effects

The applicant identifies that the discharges can cause conspicuous discolouration and that rubbish accumulation at the outfalls can have more than minor local effects.

Grab sample monitoring indicated that suspended solids concentrations were similar in the dry weather and wet weather samples for the stormwater discharges. Although the application notes that the suspended solids concentrations are low compared with national stormwater figures, I am concerned about the dry weather concentrations, particularly given that solids are likely to be associated with nutrients and metals.

Effects on Aquatic habitat

Macroinvertebrate monitoring indicates poor habitat quality and the possibility of degraded water quality within the streams. Upstream sites are of similar quality, and the streams within the city area are modified, so there is no clear evidence that the stormwater is adversely affecting benthic communities in the receiving waters.

Public health risk effects

E.coli is an indicator organism used to detect the presence of micro-biological organisms that have originated in the gut of an animal. The presence of high counts of *E.coli* indicates an elevated risk to human health from consumption or contact with the water. Section 3.3.2 of the application discusses monitoring of *E.coli* within the streams and rivers in the reaches relevant to the applicant's discharges.

The application states that *E.coli* concentrations often exceed 1,000 MPN/100 ml in all of the streams. Generally *E.coli* concentrations are higher in wet weather conditions. The applicant notes that *E.coli* is often elevated upstream, and that there is little change as the rivers pass through the city. The exceptions are the Clifton Channel, where *E.coli* concentrations are typically lower downstream, and the Otepuni Stream where there is a noticeable increase. The Clifton Channel results may indicate a dilution effect (Figures 3-11 and 3-15 appear to show similar changes in median values for ammoniacal nitrogen and dissolved reactive phosphorus) or *E.coli* die-off due to exposure to sunlight in the open channel. However, the Otepuni Stream appears to be impacted by discharges within the city.

The applicant points out that wet weather stormwater will normally have elevated bacteriological counts. For catchments where the city's stormwater system forms a significant part of the overall catchment, the applicant states that "it is likely that in wet weather events the discharges will contribute to exceedances of the [water quality] standard".

Sewage contamination of the stormwater network is also a factor. Over the last five years the applicant has monitored 18 of the 146 outfalls within the stormwater network[8]. The applicant has identified four of the monitored stormwater outfalls where *E.coli* and ammonia concentrations indicate sewage contamination, and another two outfalls where it is suspected.

Section 2.9 of the application referred to historical overflow locations from the City's own sewer network. Modelling identified 19 locations that were higher risk of spilling, so the applicant conducted monitoring at those locations. Two sites had definitely discharged during the monitoring period (since 2013), on at least three occasions. Both sites are within the Otepuni catchment, but only one would overflow to the stormwater network.

Nutrients effects

Nitrogen and phosphorous are key nutrients for plant growth, so elevated concentrations can lead to excess weed and algal growth in waterways. At high concentrations nutrients (for example, ammoniacal nitrogen) can also have toxic effects.

[8] Monitoring of 17 outfalls was specified in the resource consents and the applicant has also monitored the discharge from the Thomson Bush backwater loop.

Monitoring of the receiving waters indicates that nutrient concentrations in the streams were generally higher upstream of the stormwater discharges. The applicant concluded that, while the stormwater discharges were contributing nutrients to the streams, the discharges were not as significant as those upstream. However, phosphorous concentrations did increase in the Otepuni Stream as it passed through the city, indicating impact from stormwater discharges.

Effects from persistent and bio-accumulative contaminants

Monitoring indicates that the stormwater discharges are contributing to the metal concentrations in the water columns of the receiving waters. Zinc concentrations increased downstream of the stormwater discharges in each catchment (but most significantly in the Otepuni and Clifton catchments). Copper concentrations increased downstream of the stormwater discharges in the Otepuni Stream.

Section 3.4.2 of the application discusses metal concentrations in riverbed sediments. Zinc, nickel, lead and polyaromatic hydrocarbons (PAH) in sediments in the Otepuni Stream exceed the ISQG low guidelines. Nickel and polyaromatic hydrocarbons in sediments in the Waihopai River also exceeded the ISQG low guidelines. Zinc is also elevated above the ISQG low guidelines in the Clifton Creek. Because monitoring (over five years) did not show increasing concentrations of metals, the applicant believes that the metal contamination is either historic, or that metal-contaminated sediments are moving through the system and being replaced by fresh inputs.

Monitoring of sediment and biota has been carried out in the rivers and estuary. The following are extracts from pages 23, 33 and 27 of a 2014 report by Landcare Research and Environment Southland that looked at contaminants in sediment:

> *"In general, sediment collected from the urbanised catchments (Otepuni, Waihopai and Kingswell) had higher contaminant loadings for all metals except cadmium compared with sediment from the more agricultural catchments (Oreti, Waikiwi)… This pattern was particularly notable for arsenic, copper, lead, nickel and zinc…. Urban sites have higher concentrations of mercury than the agricultural sites."*
>
> *"Copper and zinc are known to have a range of diffuse sources in urban environments, and stormwater is a known significant contributor to sediment contaminant loads. However, the origin of the elevated nickel concentrations is less clear. Nickel is typically more associated with industrial activities such as electroplating and certain products such as stainless steel, certain batteries and special alloys and thus may be expected to be found in sewage treatment effluent (via trade waste discharges) – although a significant input via stormwater would be unusual."*
>
> *"Higher concentrations of ΣDDTs were found in the sediments of streams draining urban catchments (Otepuni, Waihopai and Kingswell) as compared with rivers draining more agricultural catchments (Oreti and Waikiwi)."*[9]

The report considered that the elevated concentrations of DDT "*may reflect a more intensive historical usage in urban areas in Southland compared with 'broad-acre' use in agricultural areas.*"[10]

[9] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill, pp 23, 27 and 33

[10] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill, page 37

That raises issues around the future use of chemicals in urban areas that, beyond controls under the HSNO Act, could potentially be considered by the applicant as a bylaw to protect stormwater, or by a regional rule. Educational material on appropriate use and disposal of materials might also be effective.

Health risk effects associated with consumption of fish

Objective 6.2.1 of the Regional Coastal Plan refers to one of the values of the New River Estuary is as a food basket, allowing for the consumption of fish and shellfish harvested within the estuary. The following were noted (pages 31, 34 and 37) in the previously referenced report by Landcare Research and Environment Southland. That study was referred to in Section 3.5.3 of the application:

> *"DDTs were found in the majority of flesh samples, and internal organ samples. While the eel concentrations appear higher, this is largely related to the greater lipid content. When expressed on a per-lipid basis, concentrations in the trout flesh are similar, and in some cases higher, than in the eel flesh."*
>
> *"Contaminant concentrations in cockles were typically low – zinc and arsenic were present in the highest concentrations – potentially suggesting that current bioaccumulation of contaminants in the New River Estuary is minor."*
>
> *"Overall, the results of the risk modelling indicate minimal risk to human health arising from consumption of locally caught eels, fish and cockles."* [11]

Effects on Cultural and Spiritual Values

The applicant considers that the effect of the stormwater discharges on cultural values is minor in the context of the degraded state of the receiving waters due to agricultural effects upstream and the effects of channelisation and reduced riparian cover.

However "*Physical and spiritual contamination of water as a result of wastewater disposal to water*" is an issue under Section 3.5.2 of Te Tangi a Tauira, the Ngāi Tahu ki Muirihiku Natural Resource and Environmental Iwi Management Plan 2008[12]. Section 3.5.12 of Te Tangi a Tauira refers to impacts on the mauri of the receiving environment, and impacts on the cultural use of waterways, as issues with regard to discharges to water. Section 3.5.2 of Te Tangi discusses wastewater disposal and notes that "*for Ngāi Tahu ki Murihiku, discharge to land is considered a better option than discharge to water, as discharging to land allows Papatūānuku to filter and cleanse contaminants from the discharge in a natural way, before the discharge enters the hydraulic system.*" Discharging stormwater containing sewage directly into water would appear to conflict with Policy 3.5.2.6 of Te Tangi a Tauira.

The application identifies that Ngāi Tahu has a recognised association with the Oreti River. I also note that the Waihopai, Otepuni, Kingswell and Clifton streams all enter the New River Estuary a short distance downstream of the discharges that are the subject of this application, and that the estuary is part of the Rakiura/Foveaux Strait statutory acknowledgement area.

[11] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill, pp 31, 34 and 37.
[12] The introduction to Section 3.5.2 of Te Tangi a Tauira describes wastewater in a manner that includes sewage.

Taking all these factors into account, I believe that, despite the upstream water quality, sewage contamination via the stormwater drains potentially has an adverse effect on cultural and spiritual values that is more than minor.

Cumulative Effects - Catchment Loads

The information in the application on suspended solids, nutrients and metals is based on grab samples. The application states that flow-proportional sampling will generally not be possible. Estimates of loads will be necessary in future, particularly when Freshwater Management Units are put in place.

MWH New Zealand has estimated[13] annual loads from the applicant's stormwater system based on Auckland Council's TP10 Stormwater Management Devices Design Guideline. Loads are estimated as follows:

Total Nitrogen:	6,440 and 12,600 kg per year
Total Phosphorous:	1,210 and 1,820 kg per year
Faecal Coliforms:	17,900,000,000,000 (No. per year)

Table 3-1 shows that the stormwater catchment areas total 23.3 square kilometres, which is 2,330 ha. Based on the figures provided the nutrient loads from stormwater amount to:

Total Nitrogen:	2.76 to 5.4 kg/hectare/year
Total Phosphorous:	0.5 to 0.8 kg/hectare/year

On a per hectare basis these figures for stormwater are comparable to nutrient losses to water from sheep/beef/deer pasture systems in Southland[14]. The comparison with farm systems does not show the stormwater in a good light, as the figures for farm systems are for total losses, whereas a significant portion of the nutrient losses from the city is discharged separately via the sewer system[15]. The stormwater represents 3-5% of the nitrogen and phosphorous losses when sewage and stormwater are totalled[16].

The treated sewage and stormwater discharges are in the same general area, so there appears to be an opportunity for the applicant to consider offsetting of some of the stormwater load by improved treatment of the sewage discharge. However, the desk-top estimates need to be confirmed by monitoring, and urban stormwater contains other contaminants, particularly sediment and metals, that also need to be considered.

Sedimentation is a significant issue in New River Estuary. Physical changes to the estuary through reclamation, and the resultant effect on tidal flows, have probably been a major factor. As discussed above, the available monitoring indicates that sediment concentrations in the Invercargill stormwater are lower than such discharges elsewhere in the country. However, because of the

[13] P Melero, S Bennett, A Leahy & R Krause, (2016), "Nutrient and Bacterial Loads in Urban Stormwater", MWH New Zealand Ltd, Dunedin.

[14] G Ledgard, (2013), "Nitrogen, Phosphorus and Sediment losses from rural land uses in Southland", Environment Southland, Invercargill, Publication No 2013-7, page 8.

[15] Comparing the combined sewage and stormwater discharges with losses to water from farm systems, the city would look like 2,300 hectares of the leakiest intensive winter grazing systems in terms of nitrogen losses (>100 kg/ha/year).

[16] P Melero, S Bennett, A Leahy & R Krause, (2016), "Nutrient and Bacterial Loads in Urban Stormwater", MWH New Zealand Ltd, Dunedin.

significance of the issue, we need to know more about the contribution of sediment from stormwater loads.

Cumulative effects – New River Estuary

Section 3.4.2 of the application refers to a study by Landcare Research and Environment Southland [17] of sediments and biota in New River Estuary, which all of the receiving water catchments flow into. The study showed that several sites within the estuary were highly enriched with phosphorous and also contained elevated organic carbon. Levels of contamination from metals were generally low and concentrations rarely exceeded ANZECC ISQG-low guidelines. However, sediments from the rivers and streams flowing into the estuary showed that the Otepuni, Waihopai and Kingswell catchments had higher metal concentrations than catchments that drained more agricultural areas. Nickel, Zinc, Arsenic, Copper, Lead[18] and organochlorine pesticides (e.g. DDT) were elevated in the bed sediments of the rivers that pass through the city. The report noted that urban sites also had higher concentrations of Mercury than agricultural sites.

The application contains little other discussion of effects on the estuary. Obviously the applicant's discharges only form part of the contaminant load to the estuary, via the five streams, and apart perhaps from a few specific contaminants (e.g. nickel) the effects observed in the estuary cannot be directly attributed to the stormwater system discharges. However, I have provided the following information because there appears to be more than a minor cumulative adverse effect on the estuary, particularly in the Waihopai Arm.

A 2013 study by Wriggle Ltd for Environment Southland[19] noted that:

> *"mean sedimentation rates (infilling with mud) in Waihopai Arm since 2007 have been very high (14-34 mm/year)".*
>
> In addition *"the invertebrate community was dominated by mud and organic enrichment tolerant surface feeding species. ….Sediment nutrients and organic carbon were very elevated… Heavy metals were below the ANZECC (2000) ISQG-Low trigger values (i.e. low metal toxicity), but concentrations were much higher than at fine scale sites in the well flushed central basin of New River Estuary".*
>
> The same study also stated that *"enrichment by muds and nutrients encourages the growth of short-lived nuisance macroalgae which, in turn, degrades the existing habitat causing the loss of high value seagrass and healthy macro-invertebrate communities"* and *"the presence of muddy, highly eutrophic areas in estuaries limits the food availability for fish and birdlife, and means the capacity of the estuary to assimilate nutrient and sediment loads for the catchment is exceeded"*[20].

[17] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill.

[18] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill, pg 23

[19] B Robertson & L Stevens, (2013), " New River Estuary: Fine Scale Monitoring of Highly Eutrophic Arms 2012/2013, Wriggle Ltd, Nelson.

[20] B Robertson & L Stevens, (2013), " New River Estuary: Fine Scale Monitoring of Highly Eutrophic Arms 2012/2013, Wriggle Ltd, Nelson, pg 17.

A 2011 report by Environment Southland and Te Ao Marama Inc noted that:

> *"The issue of eutrophication is currently the greatest threat facing the New River Estuary. The area covered by nuisance macroalgae (Enteromorpha, Ulva and Gracilaria spp) in the New River Estuary has increased from 26% to 40% in the last four years, along with declining sediment oxygenation. The Waihopai Arm has recorded the largest increase in macroalgae. The factors driving the macroalgal blooms are the degraded quality of incoming water from the Waihopai and Oreti Rivers and the favourable growing conditions, with lower wind speeds because of the reduced wind fetch."*
>
> *"In the monitoring sites in the Waihopai Arm and the Oreti River at Dunns Road, 95% and 100% of all samples in the last five years exceeded the level that limits algal growth. All the freshwater river and stream inputs to the estuary exceeded their respective ANZECC (2000) freshwater total nitrogen guidelines. This highlights the poor condition of the incoming freshwater and suggests there is no limit to the supply of nutrients to fuel macroalgal blooms".*
>
> *"Sedimentation rates in the upper estuary are extremely high and are up to 30 times higher than currently recommended for estuaries like New River Estuary….. The area with the highest density of thick muds and nuisance algal conditions, the Waihopai Arm, also historically had the highest densities of the seagrass Zostera capiconi. Seagrass meadows are hugely important for many invertebrates and fish species, which use them as breeding and juvenile rearing grounds. They are nationally in decline. In 2007, seagrass covered 5.6% of the New River Estuary, which gave the estuary a 'good' rating. However by 2010 seagrass only covered 3.6% of the estuary ('fair'). This habitat deterioration in the Waihopai Arm is caused by the degraded incoming water, which results in muddy sediments, nuisance macroalgae blooms and reduced sediment oxygenation."*[21]

The Landcare Research study referred to by the applicant indicates that urban areas are contributing contamination by metals and have contributed organochlorine pesticides to bed sediments, particularly in the rivers. The report also identified a need for estimates of sediment discharges to the estuary from different sources[22].

Economic Effects

Obviously the stormwater network has a positive economic effect on Invercargill City by enabling land use, and the contamination of the stormwater will have a negative economic effect on the Region. Those are not quantified in the application but should be acknowledged. There will also be an economic effect of mitigating contamination of the stormwater network.

Although the cost of maintaining, let alone upgrading, the stormwater network will be significant, little direct information on cost or economic impact is provided in the application. Section 9 of the application refers to consultation carried out for the applicant's 2015-2025 Long-term Plan. That

[21] Environment Southland and Te Ao Marama Inc ., (2011),"Our Ecosystems: How healthy is the life in our water and our freshwater ecosystems? Part 2 of Southland Water 2010: Report on the State of Southland's Freshwater Environment". Environment Southland. Invercargill. Publication number 2011/7 ISBN 0-909043-45-0, pages 73-74.

[22] J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill, pg 38.

questionnaire identified the current level of expenditure (Option 1 of the questionnaire) on the network as $1.289 million per year.

Option 2 (increase expenditure to 1% of asset value by 2021) will cumulatively increase that by $164,000 per year to reach $2.439 million by 2021/22. The effect on ratepayers was estimated as an increase of $7.90 in 2015/16, rising to $55.43 in 2021/22.

Option 3 was to increase expenditure to 1.5% of asset value by 2021. That would increase expenditure by $246,500 per year and would amount to $3.014 million per year by 2021/22. The estimated rate increase was $11.88 in 2015/16 rising to $83.14 by 2021/22.

It is worth noting that Figure 9-1 of the application, which shows that the responses "strongly favoured the adopted option of increasing expenditure to 1% by 2021" was based on only 62 responses with regard to the stormwater expenditure.

3.3 Relevant provisions of the relevant regional plan objectives, policies and rules (Section 104(1)(b)(v))

Regional Water Plan

The Regional Water Plan for Southland (RWP) is relevant to this application.

The objectives, policies and rules of the RWP that are relevant to this application are listed below:

Objective 2 *To manage water quality so that there is no reduction in the quality of the water in any surface water body, beyond the zone of reasonable mixing for discharges, below that of the date this Plan became operative (January 2010).*

Objective 3 *To maintain and enhance the quality of surface water bodies so that the following values are protected where water quality is already suitable for them, and where water quality is currently not suitable, measurable progress is achieved towards making it suitable for them.*

In surface water bodies classified as … lowland (hard bed), lowland (soft bed) …:

(a) bathing, in those sites where bathing is popular;
(b) trout where present, otherwise native fish;
(c) stock drinking water;
(d) Ngāi Tahu cultural values, including mahinga kai;
(e) natural character including aesthetics.

In surface water bodies classified as …[abbreviated]

Objective 4 *To manage the discharge of contaminants and encourage best environmental practice to improve the water quality in surface water bodies classified as hill, lowland (hard bed), lowland (soft bed) and spring fed, and in particular to achieve a minimum of 10 percent improvement in levels of*

the following water quality parameters over 10 years from the date this Plan became operative (January 2010):

(a) microbiological contaminants
(b) nitrate
(c) phosphorus
(d) clarity

Objective 10

To maintain or enhance the diversity and integrity of aquatic and riverine habitats and ecosystems

Policy A4

1. When considering any application for a discharge the consent authority must have regard to the following matters:
   a. the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and
   b. the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.
2. When considering any application for a discharge the consent authority must have regard to the following matters:
   a. the extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and communities as affected by their secondary contact with fresh water; and
   b. the extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided.
3. This policy applies to the following discharges (including a diffuse discharge by any person or animal):
   a. a new discharge or
   b. a change or increase in any discharge – of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.
4. ….
5. ….

Policy 1A

Any assessment of an activity covered by this plan must take into account any relevant Iwi Management Plan.

Policy 3

Allow no discharges to surface water bodies that will result in a reduction of water quality beyond the zone of reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Policy 4	*For surface water bodies outside Natural State Waters, manage point source and non-point source discharges to meet or exceed the water quality standards referred to in Rule 1 and specified in Appendix G "Water Quality Standards", unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so and so avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life.*
Policy 5	*Manage discharges to water in artificial watercourses so that any new discharge, in conjunction with existing discharges, does not reduce the water quality of the surface water body into which the artificial watercourse flows [Abbreviated].*
Policy 7	*Prefer discharges to land over discharges to water where this is practicable and the effects are less adverse.*
Policy 8	*Prefer point source discharges of contaminants to water at times of high flow over discharges at normal or low flows, and ensure that where discharging does take place at low flows, the effects that could not be practically avoided are minimised.*
Policy 9	*When determining the size of the zone of reasonable mixing, minimise the size of the area where the relevant water quality standards are breached. Consideration should be given to, but not be limited to, the following matters:* *(a) the aquatic ecosystem values in the affected reach;* *(b) the need for fish passage;* *(c) the uses of the water body adjacent to and downstream of the point of discharge.*
Policy 11	*Apply consent conditions requiring consented discharges of stormwater to meet both the ANZECC sediment guidelines and the relevant water quality standards following reasonable mixing to:* *(a) All resource consents for new stormwater discharges; and* *(b) All new resource consents for existing stormwater discharges. Unless it is consistent with the purpose of the Act to allow further time, existing discharges will be required to meet the standards and guidelines by 2010 or the date the resource consent commences, whichever is the latter.*
Policy 13	*Avoid the point source discharge of raw sewage[23], foul water[24] and untreated agricultural effluent to water.*

[23] Raw sewage is defined in the Regional Water Plan as "sewage that has not undergone any chemical or biological changes prior to disposal. Raw sewage may have undergone some solids separation in a storage facility such as a pond or sump.

[24] The discharge from any sanitary fixtures or sanitary appliances that has had either no treatment or primary treatment only, but excludes sludges and effluent from industrial or trade processes, agricultural effluent, and sewage collected by community sewage schemes.

Comment

Policies 3, 4 and 11 are important policies with regard to this application.

Policy 3 is not to allow any discharge that reduces water quality in the receiving waters after reasonable mixing. In effect, the policy requires that all discharges are of the same or better quality than the receiving waters prior to discharge. Regarding Policy 4, section 6 of the application identifies that the discharges fail to meet the water quality standards.

The second part of Policy 3 allows that the discharges may be approved if it is consistent with the purpose of the Resource Management Act to do so. The policy refers to "as set out in Part 2 of the Act". Policy 4 has a similar provision, but also links it to a requirement that contaminant levels that harm human health, stock and aquatic life be avoided.

Case law, as discussed earlier in this report, refers to the cascade of planning documents, with each level giving effect to Part 2. That suggests that the next level above the Water Plan in the hierarchy of plan documents would provide guidance on consistency with the purpose of the Act when applying Policies 3 and 4. However the wording in the policies directs consistency with the purpose of the Act is to be "as set out in Part 2".

Therefore there are two ways forward:

1. follow the wording of Policies 3 and 4 and consider approval in terms of direct consistency with Part 2; or
2. consider whether a discharge is consistent with the provisions of the Regional Policy Statement and Proposed Regional Policy Statement as they are the next level above the Regional Water Plan in the hierarchy and particularise the matters in Part 2 at that level. I believe that consideration of the objectives of the Regional Water Plan should also occur.

With regard to the first approach, it is necessary to consider Section 5 as a whole and Sections 6, 7 and 8 further inform the sustainable management of natural and physical resources. So, to allow a reduction in water quality under Policy 3 or exceedance of water quality standards under Policy 4, the commissioners will have to be satisfied that the discharges not only allow the Invercargill community to provide for its economic well-being, but that clauses (a), (b) and (c) are achieved as well.

Given the values of the New River Estuary, Sections 6(c) and 6(e) are important. Section 6(d) is relevant to the sewage contamination, because that poses a health risk that affects public access. Beyond that, allowing a reduction in water quality would conflict with Section 7(f).

Determining whether or not allowing exceptions under Policies 3 and 4 would be consistent with the purpose of the Act was a key consideration when the discharges were previously decided during the 2011 hearing. The commissioners at that time noted that the stormwater system was "*critical for the Invercargill community to provide for its health and safety and social and cultural wellbeing*". However, to achieve consistency with the purpose of the Resource Management Act the commissioners felt that it was necessary to impose conditions that would require improvement of the discharges towards meeting the water quality standards. It is important to note that in considering that earlier application, the commissioners had been faced with an application for a short-term consent, but with little information on the quality of the stormwater discharges or effects in the receiving environment.

A complication in taking the second approach is that it could potentially require consideration of all policies at the Policy Statement level that are relevant to the activity. However, a more reasonable approach is to only require consideration of those policies that are directly relevant to Policies 3 and 4.

Policy 5.2 of the Regional Policy Statement is the most directly relevant provision and requires compliance with the water quality standards. While that would be appropriate guidance with regard to Policy 3, it would make the allowance for exceptions provided in Policy 4 redundant. In any case, the exceptions under Policy 4 also have to "*avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life*". I also note that Objective 2 of the Regional Water Plan is not to allow any reduction in water quality and that Objective 4 seeks a 10% improvement by 2020.

Policy WQUAL.1 of the Proposed Regional Policy Statement refers to the freshwater objectives, so the exceptions in Policies 3 and 4 must at least maintain water quality in the receiving waters but only if that is consistent with the associated objectives. It is not sufficient to maintain the quality of existing discharges if those discharges cause deterioration downstream. Based on Objectives WQUAL.1 and WQUAL.2, it is unlikely that exceedance of water quality standards would comply with Policy WQUAL.1, and so would not be consistent with the promotion of the sustainable management of natural and physical resources.

Overall, I believe that the applicant's discharges are contrary to Policies 3 and 4, mainly due to the sewage contamination and the effects that may occur due to sewer overflows, as discussed in Section 2.9 of the application. There may be circumstances where the exceptions under Policies 3 and 4 comply with the purpose of the Resource Management Act, but I am not satisfied that is the case with regard to the discharges from the applicant's stormwater networks, particularly with regard to the additional criteria under Policy 4 to avoid levels of contaminants that could harm the health of humans.

Policy 11 of the Regional Water Plan requires compliance with the water quality standards as a condition, which further reinforces Policy 4. If the discharges cannot comply with water quality standards, as has been stated in Section 6 of the application, then the condition required by Policy 11 cannot be imposed. Approving the application without that condition would contravene the policy, and allowing a grace period before activation of such a condition would only be appropriate if the hearing panel considers that a delay is consistent with the purpose of the Resource Management Act.

True stormwater flows are associated with rain events and, in some instances, discoloured stormwater will affect the receiving waters during low flows before the river flow rises to a high flow condition. That is an issue with regard to Policy 8, but a further concern is that the stormwater network also discharges under dry weather conditions, and that some of network discharges untreated sewage. The applicant needs to show that the adverse effects of the discharges in low flow conditions are avoided or minimised in order to comply with Policy 8.

Policy 7 favours discharges to land. In this instance, it is unlikely that discharge to land is practicable, at least in the short-term.

Policy A1 requires that the provisions of the relevant iwi management plan, which in this case is Te Tangi a Tauira, be taken into account. Therefore I have listed the relevant provisions later in this report.

Policy A4 has been inserted in the Regional Water Plan in accordance with the NPS on Freshwater Management. However it is included here for clarity purposes only. Clause 3 of the policy identifies that it applies to new discharges or to a change or increase of any discharge. It refers to new discharges, not new applications for discharges. This can be compared with the wording in Clause 1, which does refer to applications. The wording Clause 3 is specific and therefore Policy A4 does not apply with regard to applications for further consents for discharges that are unchanged.

Proposed Southland Water and Land Plan

The proposed Southland Water and Land Plan (pWLP) was notified by the Council on 3 June 2016. Whilst the same weight cannot be given to the provisions of the proposed plan compared with those of the Regional Water Plan, when making a determination on the application regard (subject to Part 2 of the Act) must be had to the relevant provisions of the proposed plan in accordance with Section 104(1)(b).

The relevant objectives and policies of the pWLP are:

Ngai Tahu

Objective 3 *The Mauri of waterbodies provides for the health of the people, environment and the waterbody.*

Objective 4 *Tāngata whenua values and interest are identified and reflected in the management of freshwater and associated ecosystems.*

Objective 5 *Ngāi Tahu have access to and sustainable customary use of, both commercial and non-commercial, mahinga kai resources, nohoanga, mātaitai and taiāpure.*

Policy 1 *Enable papatipu rūnanga to effectively undertake their kaitiaki responsibilities in freshwater and land management through Environment Southland:*

1. *providing copies of all applications that may affect a Statutory Acknowledgement area, tōpuni, nohoanga, mātaitai or taiāpure to Te Rūnanga o Ngāi Tahu and the relevant papatipu rūnanga;*
2. *identifying Ngāi Tahu interests in freshwater and associated ecosystems in Southland/Murihiku;*
3. *reflect Ngāi Tahu values and interests in the management of and decision-making on freshwater and freshwater ecosystems in Southland/Murihiku, consistent with the Charter of Understanding.*

Policy 2 *Any assessment of an activity covered by this plan must:*

1. *Take into account any relevant iwi management plan; and*
2. *Assess water quality and quantity based on Ngāi Tahu indicators of health.*

Policy 3 *To manage activities that adversely affect taonga species, identified in Appendix M.*

Comment

With regard to clause (1) of Policy 1, Te Rūnanga o Ngāi Tahu was sent a statutory acknowledgement in accordance with regulations, and Te Ao Marama Inc was sent notice of the application. In terms of clause (3), consideration was also given to Iwi representation on the hearing panel in accordance with Section 3.4.1.2 of the Charter of Understanding[25].

Te Tangi a Tauira is considered below in accordance with Policy 2(1). Regarding Policy 2(2), Ngāi Tahu indicators of health are discussed in Section 3.5.11 of Te Tangi a Tauira, and include water quality, fish being safe to eat, that plants are safe to gather, and the abundance and diversity of species.

Regarding Policy 3, a number of the Taonga species are present either in the streams that receive the stormwater network discharges or the New River Estuary downstream, and potentially could be impacted by the applicant's discharges or the cumulative effect of discharges within the catchment, such as Inanga (whitebait), Tuna (eels), Kanakana (lamprey) and Waikaka/Pūpū (mud snail).

Water Quality

Objective 1	*Land and water and associated ecosystems are managed as integrated natural resources, recognising the connectivity between surface water and groundwater, and between freshwater, land and the coast.*
Objective 6	*There is no reduction in the quality of freshwater and water in estuaries by:* *(a) maintaining water quality where it is not degraded; and* *(b) improving water quality in waterbodies, estuaries and coastal lagoons, that have been degraded by human activity.*
Objective 13	*Enable the use and development of land and soils, provided:* *(a) The ….* *(b) The discharge of contaminants to land or water that have significant or cumulative effects on human health are avoided; and* *(c) Adverse effects on ecosystems (including diversity and integrity of habitats), amenity values, cultural values and historic heritage values are avoided, remedied or mitigated to ensure these values are maintained or enhanced.*
Objective 14	*The range and diversity of indigenous ecosystem types and habitats within dryland environments, rivers, estuaries, wetlands and lakes, including their margins, and their life-supporting capacity are maintained or enhanced.*
Objective 16	*Public access to river and lake beds is maintained, except in circumstances where public health and safety are at risk.*

25 http://www.es.govt.nz/Document%20Library/Plans,%20policies%20and%20strategies/Regional%20plans/Iwi%20Management%20Plan/The%20Charter%20of%20Understanding.pdf

Objective 18	*All activities operate at "good (environmental) management practice" or better to optimise efficient resource use and protect the region's land, soils, and water from quality and quantity degradation.*
Policy A4 NPS	*Policy A4 of the NPS 2014*
Policy 13	*Manage land use activities and discharges to land and water so that water quality and the health of humans, domestic animals and aquatic life, is protected.*
Policy 14	*Prefer discharges to land, rather than direct discharges to water.*
Policy 15	*Maintain and improve water quality by:* *1. despite any other policy or objective in this Plan, avoiding new discharges to surface waterbodies that will reduce water quality beyond the zone of reasonable mixing;* *2. avoiding point source and non-point source discharges to land that will reduce surface or groundwater quality, unless the adverse effects of the discharge can be avoided, remedied or mitigated;* *3 avoiding land use activities that will reduce surface or groundwater quality, unless the adverse effects can be avoided, remedied or mitigated; and* *4. avoiding discharges to artificial watercourses that will reduce water quality in a river, lake or modified watercourse beyond the zone of reasonable mixing;* *so that:* *1. water quality is maintained where it is better than the water quality standards specified in Appendix E "Water Quality Standards"; or* *2. water quality is improved where it does not meet the water quality standards specified in Appendix E "Water Quality Standards"; and* *3. water quality meets the Drinking-Water Standards for New Zealand 2005 (revised 2008); and* *4. ANZECC sediment guidelines (as shown in Appendix C of this Plan) are met.*
Policy 17	*1. Avoid adverse effects on water quality, and avoid as far as practicable other adverse environmental effects of the operation of, and discharges from effluent management systems.* *2. Manage effluent systems and discharges from them by:* *(a) designing, constructing and locating systems appropriately and in accordance with standards;* *(b) maintaining and operating effluent systems in accordance with best practice guidelines;* *(c) avoiding any surface run-off/overland flow, ponding or contamination of water resulting from the application of agricultural effluent to pasture;* *(d) avoiding the discharge of raw sewage and untreated agricultural effluent to water.*

Comment

Objective 6 and Policy 13 are key provisions with regard to the application.

Objective 6 seeks to have no reduction in water quality in freshwater bodies and estuaries.

Policy 13 relates to the protection of water quality, human health and aquatic life. Importantly, with regard to the applicant's discharges this is to be through management of land use activities and discharges. To comply with the policy the applicant must manage the inputs to its stormwater system to protect water quality. The sewage contamination indicates that this has not been sufficient in the past. The policy is worded in the present tense. Where there is an existing issue, as in this case, improving the stormwater network over a prolonged period would appear to be inconsistent with the policy, as it would not protect water quality now.

Objective 1 is to manage land, water and associated ecosystems as integrated resources, and recognises the connection between freshwater, land and coast. The relationship between land, water and coast is obviously relevant to stormwater discharges into streams a short distance above the coastal marine area. The objective would lend weight to measures affecting land use in order to mitigate adverse effects on water quality and cumulative effects in the estuary.

Objective 16 refers to public access to river and lake beds. Having untreated sewage in the discharges means that there is an elevated health risk that limits where the public can safely access the rivers.

Objective 18 is that activities operate at good environmental management practice to protect from water quality degradation.

As the application is primarily for the discharge to contaminants to water (rather than land), the application is inconsistent with preference for discharge to land under Policy 14.

The discharges in the Waikiwi catchment are to artificial watercourses. Policy 15(4) requires that such discharges be avoided if they will reduce water quality in the Waikiwi Stream itself.

Policy 15 is to maintain or improve water quality and refers to maintaining standards or improving water quality where it does not meet standards. It also refers to sediment quality guidelines. However, the policy is to do that by avoiding some discharge types, or avoiding, remedying or mitigating the effects of other types of discharge. It does not refer to or provide any direction on existing discharges to surface water bodies. Therefore the discharges to the Waihopai River, Otepuni Stream, Kingswell Creek and Clifton Channel are not subject to Policy 15(1). In these circumstances the assumption must be that the wording is deliberate and it would be inappropriate to try to infer a direction from the policy for the existing discharges.

Policy 17 applies to discharges from effluent management systems, so it should not be directly relevant to discharges from reticulated stormwater systems. Also, the sewer is not the only possible source of sewage contamination of the stormwater network. However there are issues with cross-contamination from the City's sewerage network (Section 2.9 of the application), so the policy is relevant in terms of the stormwater network acting as a conduit for discharges of raw sewage to water. Therefore I believe that, by not preventing overflows from the sewer to the stormwater network, the operation fails to comply with Policy 17.

Freshwater Management Unit Policies

Objective 7 *Any further over-allocation of freshwater (water quality and quantity) is avoided and existing over-allocation is phased out in in accordance with timeframes established under Freshwater Management Unit processes.*

Policy 47 *The FMU [Freshwater Management Unit] sections will:*

1. *establish freshwater objectives for each catchment, having particular regard to the national significance of Te Mana o te Wai, and any other values developed in accordance with Policies CA1-CA4 and Policy D1 of the National Policy Statement for Freshwater Management 2014;*
2. *set water quality and water quantity limits and targets to achieve the freshwater objectives;*
3. *set methods to phase out any over-allocation, within a specified timeframe; and*
4. *assess water quality and quantity based on Ngāi Tahu indicators of health*.

Comment

The above provisions relate to the identification of Freshwater Management Unit (FMUs) and the subsequent development of polices and rules. As part of this process, it is likely that water quality and quantity limits will be set for each FMU. This is part of the process of addressing water quality and the direction provided by the NPS-FM.

Under Environment Southland's 'Progressive Implementation Programme for Implementing the Policies of the National Policy Statement for Freshwater Management 2014', catchment limits for the Oreti and Waihopai-New River Estuary Freshwater Management Unit are to be developed from late 2018 to July 2020.

As was discussed earlier, Objective CC1 of the National Policy Statement for Freshwater Management lends weight to monitoring that assists with understanding contaminant loads from discharges, as it will be necessary to understand loads in terms of managing for any freshwater quality allocation limits.

Consideration of Resource Consent Applications

Policy 39A *To improve integrated management of freshwater and the use and development of land in whole catchments, including the interactions between freshwater, land and associated ecosystems (including estuaries).*

Policy 40 *When determining the term of a resource consent consideration will be given, but not limited, to:*

1. *granting a shorter duration when there is uncertainty regarding the nature, scale, duration and frequency of adverse effects from the activity or the capacity of the resource;*
2. *relevant tangata whenua values and Ngāi Tahu indicators of health;*
3. *the duration sought by the applicant, plus material to support the duration sought;*
4. *the permanence and economic life of any capital investment;*

5. *the desirability of applying a common expiry date for water permits that allocate water from the same resource or land use and discharges that may affect the quality of the same resource;*
6. *the applicant's compliance with the conditions of any previous resource consent; and*
7. *the timing of development of FMU sections of this Plan, and whether granting a shorter or longer duration will better enable implementation of the any revised frameworks established in those sections.*

Policy 41 *Consider the magnitude of environmental effects and risk when determining requirements for auditing and supply of monitoring information on resource consents.*

Comment

Policy 40 is the key policy with regard to consent duration if the application is approved. Taking each of the factors in turn:

1. this is an existing, long-term activity, although much of the information about the discharges and effects in the streams and rivers has only been gathered during the last five years (prior to that the activity did not require a resource consent). We have limited information about the discharge quality as only a few of the outfalls have been monitored. A key uncertainty is with regard to contaminant loads during storm events. In terms of the frequency of adverse effects and the capacity of the resource, the sewage discharges are an obvious issue for the receiving waters, and the New River Estuary downstream is showing signs in the Waihopai Arm of being overloaded by contaminant inputs;

2. with regard to tangata whenua values, relevant provisions from Te Tangi a Tauira are listed in a later section of this report. The submission by Te Rūnanga o Waihopai has also referred to commentary in Te Tangi a Tauira that consent durations should not exceed 25 years.

   In terms of indicators of health, the applicant's discharges affect water quality and clarity at times. Other key indicators that may be affected by the discharges are whether it is safe to eat fish and gather plants from the rivers and estuary;

3. the applicant is seeking a 35 year consent duration, which is the maximum available under Section 123 of the Resource Management Act;

4. the stormwater network is permanent. Clearly the network is a significant asset for Invercargill City Council. The information provided with the applicant's 2015-2025 Long-term Plan Consultation Document stated that 100 years is the assumed economic life of the stormwater pipes. Figure 2-2 of the application indicates that 9% of the pipe network is about 100 years or more old. Section 2.2 of the application refers to the city having 412 km of stormwater pipes. Obviously the older pipes will be in particular areas and not distributed evenly across the network. However, in the absence of better information, if two-thirds of the older pipes are within the network area associated with the discharges under this application, 9% amounts to about 25 km of pipes that are beyond their economic life;

5. regarding application of a common expiry date, there are very few discharges affecting the small streams and rivers that receive the stormwater. For loads to the New River Estuary, the main consented discharges would be the:

   - Invercargill City treated wastewater discharge, which expires on 30 June 2029;
   - Invercargill City landfill leachate discharge, which expires on 29 April 2033;
   - Alliance Group Ltd, Lorneville plant, treated wastewater discharge, which will expire on 30 November 2041.

   The combined load of the Invercargill City treated sewage and stormwater discharges were discussed earlier in this report. Aligning the expiry dates would allow for any offsetting of the stormwater through improved treatment of sewage, and the resultant total load, to be considered together in future;

6. the applicant has been compliant with the terms of the previous resource consent;

7. according to the Progressive Implementation Programme the Freshwater Management Unit (FMU) setting for the Oreti, Waihopai & New River Estuary FMU will occur from 2018 to July 2020. At this stage the FMU framework is unknown, but setting a long consent duration as sought by the applicant is unlikely to assist implementation of the framework.

Policy 41 requires that the scale of environmental effects and risk be considered when determining monitoring. The presence of sewage in some of the applicant's stormwater discharges has an adverse effect on the receiving waters. As there are a large number of outfalls and only about 12% have been monitored regularly, and because at least a quarter of monitored sites are contaminated by sewage, there is an elevated risk to the environment from the discharges that warrants ongoing monitoring. There also appears to be a significantly adverse cumulative effect in the Waihopai Arm of the New River Estuary. While the applicant's discharges will only make a contribution to effects in the estuary, the situation suggests that load monitoring is appropriate.

Policy 39A provides linkage for consideration of effects across land, freshwater and the estuary.

Financial Contributions

Both the Regional Water Plan and the Proposed Southland Water and Land Plan provide for financial contributions to be imposed under particular circumstances. Unfortunately, five of the circumstances provided for are more appropriate to mitigation of the effects of riverbed structure or disturbance activities, or to physical works on the margins of rivers and lakes.

However the remaining two circumstances may be applicable to discharges:

6. General – mitigation works

Where the activity for which consent is granted will cause or contribute to adverse effects on the environment which will not be adequately offset by any of the types of contribution described elsewhere in this section.

Purposes:

(a) To offset the adverse effects of the activity, including protection, and/or restoration of natural or physical resources.

Determination of amount:
The amount of contribution will be determined by calculating a fair and reasonable level of contribution to the costs of undertaking works which are reasonably necessary to avoid, remedy or mitigate the adverse effects of the activity on the environment, including where appropriate works to protect, and /or restore natural or physical resources.

7. General – environmental compensation

Where the activity for which consent is granted will have adverse effects which will not be adequately avoided, remedied or mitigated and those effects can be offset by positive effects elsewhere.

Purposes:
(a) To provide positive effects to offset adverse effects of the activity on the environment by protecting, restoring and/or enhancing natural and physical resources and/or amenity values.

Determination of amount:
The amount of contribution will be determined by calculating a fair and reasonable level of contribution to the costs of undertaking works to protect, restore and/or enhance natural and physical resources and/or amenity values which would have positive effects that would appropriately offset the adverse effects of the activity on the environment.

The following is Section 2.4.3 of the Regional Water Plan and amounts to policy with regard to the imposition of financial contributions. It is also included in the Proposed Southland Water and Land Plan.

In deciding whether or not to impose financial contributions or the types of contribution or the amount of any contribution, Environment Southland will have particular regard to the following matters:

1. the purpose of the financial contribution is to offset or compensate the community or environment for adverse effects caused or contributed to by the activity and not otherwise avoided, remedied or mitigated by the consent holder;
2. whether adverse effects are likely to occur notwithstanding any avoidance, remedy or mitigation undertaken;
3. whether the adverse effects for which a contribution is imposed cannot be avoided, remedied or mitigated directly by project design or, in the case of a discharge, adoption of the best practicable option for preventing or minimising the effects;
4. whether the adverse effects are of such significance that to allow the activity (with or without a financial contribution) would be contrary to the purpose of the Act;
5. the circumstances and extent of financial contributions previously imposed in relation to the activity, either by this Council or any other consenting authority;
6. whether granting a resource consent and requiring a financial contribution would be more effective in achieving the purpose of the Act (including recognition of the economic and social benefits of the activity) and the objectives and policies of this Plan than declining consent or granting a consent without a condition requiring a financial contribution;
7. financial contributions shall relate to the effects of the activity for which consent is granted and be in reasonable proportion to the significance of any adverse effects caused or contributed to by the activity;

8. financial contributions may not be appropriate in every case, even where there are adverse effects;
9. Environment Southland does not intend that adverse environmental effects must be fully mitigated or fully compensated in every case by way of financial contributions.

Comment

Financial contributions as provided for in the Water Plan and the Proposed Southland Water and Land Plan are for the purposes of mitigating or offsetting adverse effects. In terms of the applicant's discharges, avoiding or mitigating contaminant loads would be more satisfactory than attempting to offset the effects in the receiving environment, particularly as it would be difficult to identify a suitable mitigation or offsetting method.

I do not recommend the use of a financial contribution in this instance, but it remains a tool available to the hearing panel.

The ability to apply financial contributions under s108 of the Resource Management Act will be repealed, as from 18 April 2022, by s175 of the Resource Legislation Amendment Act 2017.

3.4 Regional Coastal Plan

Although the discharges occur outside the coastal marine area, I consider that the **Regional Coastal Plan for Southland** contains provisions specific to the New River Estuary that are relevant and reasonably necessary to the determination of this application, given that the discharges occur a short distance above the estuary and will contribute to cumulative effects, particularly within the Waihopai Arm of the estuary:

Objective 6.2.1 *Maintain and enhance the values of New River Estuary*

To maintain and enhance those values that contribute to the mauri of the estuary and provide for its use as:

a. a city playground
- *a family environment, picnics on the shore and swimming in sheltered waters; and,*
- *a variety of water sports to be enjoyed in enclosed waters without the constraints of conflict or pollution.*

b. a symbol for Invercargill
- *an introduction for visitors, good views for people driving to and from Otatara, the airport and Bluff; and*
- *an estuary on display.*

c. a significant habitat
- *where native species can exist alongside humanity;*
- *a refuge for freshwater and marine species, and a spawning and rearing ground, and fish passageway;*
- *a feeding and roosting area for birds including waders and waterfowl; and*
- *sequences of vegetation including a nationally important maritime marsh to totara sand dune forest.*

d. a retreat
- *a place for families to escape the pressures of the city;*
- *an opportunity to experience a natural setting, where the estuary predominates as an ecosystem and human influences are unobtrusive; and*
- *a place where tranquillity and nature replenish the soul.*

e a place of learning
- *where people can discover the heritage of Southland,*
- *where people can gain an understanding of a natural unique ecosystem, the interface of land, sea and freshwater; and,*
- *where, through research, a programme for restoration of the estuary can be developed.*

f a food basket
- *where there are no health risks from consuming the products of recreational fishing and shellfish gathering.*

g an opportunity for commercial use
- *allowing commercial uses which are in harmony with nature and other uses.*

h a place with historical and geological values
- *historical and geological values are located near the estuary shores throughout the area.*

Policy 6.2.1 *The natural character of New River Estuary*

To maintain and enhance the natural character of New River Estuary.

Comment

Both the objective and policy refer to maintain and enhance values of the New River Estuary. The objective lists a large number of values, but the policy is specific to natural character.

The applicant's discharges are not directly into the estuary, but these provisions should be considered in conjunction with the provisions of the Regional Water Plan and Proposed Southland Water and Land Plan, because the estuary is immediately downstream of the discharges.

3.5 Relevant provisions of the Southland Regional Policy Statement (Section 104(1)(b)(v))

The following objectives and policies in the Regional Policy Statement 1997 are of relevance to this application:

Takata Whenua o Murihiku

Objective 1.2 *To recognise the importance of wahi tapu, wahi taoka, mahika kai and the customary use of water to Kai Tahu.*

Objective 1.4 *To have particular regard to the concept of kaitiakitanga in relation to managing the use, development and protection of natural and physical resources.*

Comment

Section 4.8 of the application discusses the effects of the discharges on cultural values. The applicant's conclusion is that the effects of the stormwater discharges on cultural values are minor in the context of the degraded state of the receiving waters due to agricultural run-off from upstream and the effects of channel modifications.

With regard to Objective 1.4, the definition of kaitiakitanga in Section 2 of the Resource Management Act is "*the exercise of guardianship by the tangata whenua of an area in accordance with tikanga Maori in relation to natural and physical resources; and includes the ethic of stewardship*"

Section 5.1.3 of the Regional Policy Statement states that:

> *"Kaitiaki, and the exercise of their responsibilities, kaitiakitanga, are a part of Maori culture and spiritual belief, rooted in the values of society. They cannot be understood without reference to those values. Kaitiakitanga implies a relationship between people and the environment. This relationship encompasses and determines the position occupied by people in relation to the natural world in both its physical and metaphysical senses. Maori value the natural world for both its tangible and its intrinsic worth.*
>
> *Kaitiakitanga includes an obligation on people to use resources in ways which respect and preserve other resources in the environment, both physically, and as sources of spiritual power. Kaitiakitanga have the function of alerting people to the obligations of compliance with the tenets of this relationship. The ability and responsibility for determining how to effect compliance rests with the takata whenua."*

I have omitted reference to Policy 1.2, which recognises Te Whakatau Kaupapa o Murihiku as a Kai Tahu resource management reference planning document for the region, because the document has been superseded by Te Tangi a Tauira.

Water Quality

Objective 5.1	*To sustain the quality of the region's water resources so as to:* *(a) meet the needs of a range of uses, including the reasonably foreseeable needs of future generations* *(b) safeguard the life-supporting capacity of water and related ecosystems.*
Objective 5.2	*To ensure that in the use and development of water and land resources, and the discharge of contaminants, water quality is maintained and wherever practicable enhanced.*
Objective 5.3	*To ensure the taking, use, damming, diversion of water and the discharge of contaminants into water does not compromise water quality standards established for the region.*
Objective 5.4	*To recognise the relationship of Maori with water.*
Policy 5.2	*Require all point source discharges, after reasonable mixing, to comply with water quality standards.*

Policy 5.5 *In preparing, implementing and administering Regional and District Plans and in considering resource consents, local authorities shall assess the effects of land use and development on ground water and surface water quality, including both point and non-point source discharges, and provide for any adverse effects to be avoided, remedied or mitigated.*

Policy 5.8 *Manage the Region's water resources in ways that recognise and provide for the values that Maori place on water.*

Policy 5.9 *Discourage, and where practicable prohibit, the discharge of persistent and bio-accumulative contaminants into water.*

Comment

Policy 5.5 provides for the effects of land use on water quality to be taken into consideration and to provide for any adverse effects to be avoided or mitigated. This provides a policy link to the consideration of contaminant inputs to the applicant's stormwater network, and how adverse effects from those inputs may be avoided or mitigated. That is important because controls of inputs to the system may be more effective than end-of-pipe treatment.

Policy 5.2 requires compliance with water quality standards after mixing in the receiving waters. Sections 4.2.6 and 6 of the application discuss the water quality standards and conclude that the stormwater discharges could impact on compliance with the standards for bacteriological contamination.

Policy 5.8 lends further weight to consideration of iwi values regarding water, such as those within Te Tangi a Tauira.

Policy 5.9 is relevant to contaminants such as metals and polyaromatic hydrocarbons. The stormwater system accepts stormwater from trade and industrial sites which can be sources of these contaminants. Therefore it is important that the stormwater treatment systems such sites are checked to ensure that they are adequate and performing properly. Sections 3.4.2 and 3.4.3 of the application discuss the metal and polyaromatic hydrocarbon monitoring results for sediments in the receiving waters.

Built Environment

Policy 10.2 *Require that network utilities associated with the built environment be undertaken in such a manner as to avoid wherever practicable, remedy or mitigate effects on the quality of natural and physical resources.*

Comment

The policy is clear. The applicant is required to operate its stormwater network in a manner that avoids wherever practicable, remedies or mitigates effects on the quality of natural and physical resources.

The explanation to the policy states that *"in particular, regard shall be had to the effects (especially water quality) of sewage disposal and the discharge of stormwater."* The policy has been operative since 1997.

Coast

Objective 13.5	*To facilitate integrated management of the land and coastal marine area interface.*
Policy 13.1	*Recognise sites and resources of cultural, natural and spiritual significance to Maori and consult the takata whenua when making statutory decisions on issues impacting upon such matters.*
Policy 13.5	*Provide for contact recreation, the human consumption of shellfish and the health and vitality of aquatic organisms within the coastal waters of the Region.*

Comment

Objective 13.5 provides support for consideration of the effects of the discharge in the estuary.

In terms of Policy 13.1, the New River Estuary is referenced in Section 3.6.13 of Te Tangi a Tauira and in Schedules 50 and 104 of the Ngāi Tahu Claims Settlement Act. Section 9 of the application outlines the consultation with Te Ao Marama Inc that occurred prior to the application being lodged.

Regarding Policy 13.5, the stormwater discharges are not the only activities that are having adverse effects on the estuary. However, the presence of contaminants in the discharges, particularly sewage and nutrients, will be adversely affecting the values listed in the policy.

Biodiversity

Policy 2.4	*Avoid, wherever practicable, remedy or mitigate adverse impacts on biodiversity and the natural processes of ecosystems.*

Comment

This is applicable to the cumulative effects that are occurring within the New River Estuary, particularly the Waihopai Arm. While historic land reclamation and contaminant loads from industrial and agricultural sources, a (closed) landfill and the city's sewage discharge are likely to be more significant contributors to effects on the estuary, the stormwater discharges do add part of the contaminant load.

Monitoring

Monitoring Policy 1	*Undertake monitoring sufficient to provide a level of understanding of the environment necessary for effective resource management.*

Comment

I believe that, given the associated objective (*Objective 1: To provide cost-effective, timely, accurate and reliable data on the state of the Southland environment*) and that the RPS became operative in 1997, this policy was largely referring to state of the environment monitoring. However, contaminant load monitoring to support the catchment limit setting process, required to comply with the NPS for Freshwater Management, would also be consistent with the policy.

3.6 Relevant provisions of the Proposed Southland Regional Policy Statement 2012 (Section 104(1)(b)(v))

The Proposed Southland Regional Policy Statement was notified in 2012. Decisions on the Proposed Regional Policy Statement were notified on the 6 June 2015. Appeals on 81 provisions have been lodged with the Environment Court.

The following objectives and policies in the proposed RPS are of particular relevance to this application.

Takata Whenua

Objective TW.3 *Mauri and wairua are sustained or improved where degraded, and mahinga kai and customary resources are healthy, abundant and accessible to tangata whenua.*

Policy TW.1 *Consult with, and enhance tangata whenua involvement in local authority resource management decision-making processes, in a manner that is consistent with the principles of the Treaty of Waitangi/Te Tiriti o Waitangi.*

Policy TW.3 *Take Iwi Management Plans into account within local authority resource management decision making processes.*

Policy TW.4 *When making resource management decisions, ensure that local authority functions and powers are exercised in a manner that:*

- *(a) recognises and provides for:*
  - *(i) traditional Māori uses and practices relating to natural resources;*
  - *(ii) the ahi kā relationship of tangata whenua with and their role as kaitiaki of natural resources;*
  - *(iii) mahinga kai and access to areas of natural resources used for customary purposes;*
  - *(iv) mauri and wairua of natural resources;*
  - *(v) places, sites and areas with significant spiritual or cultural historic heritage value to tangata whenua;*
  - *(vi) Māori environmental health and cultural wellbeing.*
- *(b) recognises that only tangata whenua can identify their relationship and that of their culture and traditions with their ancestral lands, water, sites, wāhi tapu and other taonga.*

Comment

In terms of Policy TW.1, Section 9 of the application outlines the consultation that the applicant carried out with Te Ao Marama Inc.

The provisions of Te Tangi a Tauira are considered below in accordance with Policy TW.3.

Regarding Policy TW.4(b), Section 1.10 of Te Tangi a Tauira envisages its use by local authorities to ensure that Ngāi Tahu ki Murihiku issues and policies are visible in planning documents. Policy TW.4(a) requires that a number of matters be recognized and provided for, including mahinga kai[26], which is relevant to whether or not fish from New River Estuary are safe for consumption, and mauri and wairua[27], which may be impacted due to the sewage contamination of the stormwater.

The provisions listed in the Takata Whenua section are not subject to an appeal, so are considered to be operative.

Water Quality

Objective WQUAL 1 *Water quality in the region:*

(a) safeguards the life-supporting capacity of water and related ecosystems;

(b) safeguards the health of people and communities;

(c) is maintained, or improved in accordance with freshwater objectives formulated under the National Policy Statement for Freshwater Management 2014;

(d) is managed to meet the reasonably foreseeable social, economic and cultural needs of future generations.

Objective WQUAL.2 *Halt the decline, and improve water quality in lowland water bodies and coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands in accordance with freshwater objectives formulated in accordance with the National Policy Statement for Freshwater Management 2014.*

Policy WQUAL.1 *(a) ….*

(b) Manage discharges and land use activities to maintain water quality, or improve it, to ensure freshwater objectives are met

Policy WQUAL.2 *In managing water quality, particular regard will be had to the following contaminants:*

(a) nitrogen;

(b) phosphorus;

(c) sediment;

(d) microbiological contaminants.

Policy WQUAL.8 *Avoid the direct discharge of sewage, wastewater, industrial and trade waste and agricultural effluent to water unless these discharges have undergone treatment.*

Policy WQUAL.9 *Where practicable, manage the siting and operation of activities that result in point source discharges of contaminants to land to ensure that adverse effects on groundwater, surface water and coastal water quality are avoided, remedied or mitigated.*

[26] Defined on page 53 of Te Tangi a Tauira as 'food, and places for obtaining natural foods, methods and cultural activities involved'.

[27] Defined on Page 50 of Te Tangi a Tauira as 'mauri: spiritual essence, lifeforce', and 'wairua: spirit'

Policy WQUAL.11 *Integrate the management of land use, water quality, water quantity, coast and air, and the use, development and protection of resources wherever possible to achieve the freshwater objectives formulated in accordance with Policy WQUAL.1.*

Policy WQUAL.12 *Continue to improve knowledge and understanding of water resources, and the relationship of land use activities with water quality values in water bodies, in Southland to promote the sustainable management of water.*

Comment

Objective WQUAL.1 is that water in the region is of a quality where the life-supporting capacity of the water is safeguarded, and that it is safe for people and communities to use. Clearly having sewage in the stormwater is contrary to this objective, but there are other contaminants in stormwater, such as metals and polyaromatic hydrocarbons, that are also inconsistent with the objective by having or contributing to adverse effects in the receiving waters.

Objective WQUAL.2 supports objectives formulated in accordance with the NPS for Freshwater Management. Similarly Policy WQUAL.1(b) refers to managing land use and discharges to maintain or enhance water quality to support objectives developed under the NPS for Freshwater Management. At present that refers to the objectives of the Proposed Southland Water and Land Plan

Policy WQUAL.2 identifies key contaminants that need to be managed.

Policy 9 could be interpreted as supporting measures to address stormwater inputs to the applicant's network.

I believe that the discharge of sewage from the stormwater pipe is inconsistent with Policy WQUAL.8. The discharge of untreated sewage from the sewer to the stormwater pipe is effectively a discharge to land in circumstances where the applicant loses control of the sewage. The sewer and stormwater networks are owned and controlled by the applicant and if there are faults in the networks leading to overflow from one to the other, then it is the applicant's responsibility to resolve that. However, Section 2.9 refers to engineered overflow points. Therefore at least in some instances sewage overflow into the stormwater system is not the point of discharge, and the eventual outflow from the stormwater network would conflict with Policy WQUAL.8.

Policy WQUAL.11 provides for management across land use, water quality and coast. The purpose expressed in the policy is to maintain or improve water quality.

Policy WQUAL.12 provides support for monitoring that improves understanding of water resources. Monitoring of stormwater loads, such as by flow-weighted monitoring during storm events, would be consistent with this policy, although the policy is generic and does not specifically require such monitoring.

Policies WQUAL.8, WQUAL.11 and WQUAL.12 are not subject to appeal and are considered operative. However the other Water Quality provisions of the PRPS listed above are subject to appeals to the Environment Court. Whilst not given the same weight as the provisions not subject to appeals, these policies are still relevant to the application.

Coast

Objective COAST.3 *Coastal water quality and its ecosystems are maintained or enhanced.*

Policy COAST.5 *Avoid, remedy or mitigate adverse effects of land-based activities on coastal water quality and its ecosystems.*

Comment

Policy COAST.5 is clear that the adverse effects on land-based activities on coastal water and ecosystems are to be avoided, remedied or mitigated.

The Coast provisions of the PRPS listed above are subject to appeals to the Environment Court. Whilst limited weight can be given to them, particularly if there is conflict with an operative provision, these policies are still relevant to the application.

Biodiversity

Objective BIO.2 *Maintain indigenous biodiversity in Southland and protect areas of significant indigenous vegetation and significant habitats of indigenous fauna for present and future generations.*

Objective BIO.3 *Enhance the range, extent and condition of indigenous biodiversity in Southland, with a particular emphasis on those areas most at risk to further loss or degradation.*

Policy BIO.2 *Areas of significant indigenous vegetation and significant habitats of indigenous fauna in the Southland region will be protected and where appropriate enhanced.*

Policy BIO.3 *Protect indigenous biodiversity from adverse effects in the coastal environment as set out in Policy 11 of the New Zealand Coastal Policy Statement 2010.*

Comment

As discussed in an earlier section, the New River Estuary, particularly the Waihopai Arm, is being adversely affected by sedimentation and eutrophication, resulting in the loss of seagrass habitat and issues with macroalgae blooms. The applicant's discharges may not have a significant effect by themselves on the indigenous biodiversity of the estuary, but they are contributing to a significant adverse effect.

Objectives BIO.2 and BIO.3 are not subject to appeal and are considered operative. However, Policies BIO.2 and BIO.3 of the PRPS are subject to appeals to the Environment Court. Whilst the same weight cannot be given to these policies as to other provisions that are not subject to appeals, the policies are still relevant to the application.

Infrastructure

Objective INF.1 *Southland's regionally significant, nationally significant and critical infrastructure is secure, operates efficiently, and is appropriately integrated with land use activities and the environment.*

Policy INF.1 *Recognise the benefits to be derived from, and make provision for, the development, maintenance, upgrade and ongoing operation of regionally significant, nationally significant and critical infrastructure and associated activities.*

Policy INF.2 *Where practicable, avoid, remedy or mitigate the adverse effects of infrastructure on the environment. In determining the practicability of avoiding, remedying, or mitigating adverse effects on the environment, the following matters should be taken into account:*

(a) any functional, operational or technical constraints that require the physical infrastructure of regional or national significance to be located or designed in the manner proposed;

(b) whether there are any reasonably practical alternative designs or locations;

(c) whether good practice approaches in design and construction are being adopted;

(d) where appropriate, and such measures are volunteered by a resource user, whether any significant residual adverse effects can be offset or compensated for; and

(e) ….

Comment

Objective INF.1 and Policy INF.1 recognise the importance of infrastructure but the objective also seeks that infrastructure be "appropriately integrated" with land use and the environment. The applicant's stormwater network would be regarded as at least regionally significant. Regarding Objective INF.1, appropriately integrated would require that the stormwater system not only facilitate land use but do so in a manner that avoided or mitigated adverse effects on the environment.

Policy INF.2 seeks to avoid, remedy or mitigate adverse effects on the environment from infrastructure, but also requires consideration of the following when determining the practicality of mitigation measures:

- functional, operational or technical constraints on design;
- alternative designs;
- good practice in design or construction;
- offsetting of any significant residual adverse effects.

The objective and policies listed above are not subject to appeal and are considered operative.

Urban

Policy URB.1 *The adverse effects of urban development on the environment should be avoided, remedied or mitigated.*

Policy URB.2 *Manage urban growth and development in ways that:*

(a) support existing urban areas;
(b) promote development and/or redevelopment of existing urban areas ahead of greenfield development;
(c) promote urban growth and development within areas that have existing infrastructure capacity;
(d) promote the progressive upgrading of infrastructure and improvement of the quality of sewage and stormwater discharges;
(e) provide potable water supply;
(f) plan ahead for the expansion of urban areas;
(g) promote compact urban form; and
(h) promote appropriate site and building orientation that supports the principles of optimum energy efficiency and solar energy gain.

Comment

Avoidance or mitigation of adverse effects arising from urban stormwater would be consistent with Policy URB.1.

Policy URB.2 refers to managing urban growth and development with regard to various factors. For the purposes of this application, promotion of the progressive upgrading of infrastructure and improvement of the quality of stormwater discharge is especially relevant.

The policies listed above are not subject to appeal and are considered operative.

3.7 Relevant provisions of national policy statements (Section 104(1)(b)(iii))

National Policy Statement for Freshwater Management 2014

The objectives and policies of the National Policy Statement for Freshwater Management that are relevant to this application are:

Objective A1 *To safeguard:*

a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and
b) the health of people and communities, at least as affected by secondary contact with fresh water;

in sustainably managing the use and development of land, and of discharges of contaminants.

Objective A2 *The overall quality of fresh water within a region is maintained or improved while:*

a) protecting the significant values of outstanding freshwater bodies;

b) protecting the significant values of wetlands; and

c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

Objective C1

To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land and associated ecosystems and the coastal environment.

Objective CC1

To improve information on freshwater takes and sources of freshwater contaminants, in order to:

a) ensure the necessary information is available for freshwater objective and limit setting and freshwater management under this national policy statement; and

b) ensure information on resource availability is available for current and potential resource users.

Objective D1

To provide for the involvement of iwi and hapu and to ensure that tangata whenua values and interests are identified and reflected.

Policy C1

By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.

Policy D1

Local authorities shall take reasonable steps to involve iwi and hapu in the management of freshwater; work with iwi and hapu to identify tangata whenua values and interests; and to reflect tangata whenua values and interests in the management of and in the decision making regarding freshwater.

Policy E1

a) This policy applies to the implementation by a regional council of a policy of this national policy statement.

b) Every regional council is to implement the policy as promptly as is reasonable in the circumstances, and so it is fully completed by no later than 31 December 2025.

ba) A regional council may extend the date in Policy E1(b) to 31 December 2030 if …….

c) Where a regional council is satisfied that it is impracticable for it to complete implementation of a policy fully by 31 December 2015, the council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2025 or 31 December 2030 if Policy E1(ba) applies.

d) Any programme of time-limited stages is to be formally adopted by the council by 31 December 2015 and publicly notified.

e) …….

f) …….

Comment

Objective A1 focuses on safeguarding ecosystems and health, and Objective A2 seeks to maintain or improve water quality. Objectives A1 and A2 are focused on protecting fresh water values, and on improving fresh water quality, which is relevant to the immediate receiving waters for the discharges. While Objectives A1 and A2 do not directly link to effects in the New River Estuary, Objective C1 and Policy C1 seek to ensure that fresh water is managed across whole catchments, including the coastal marine area.

Policies A1-A3 require plans to be developed in order to be implemented, and Policy A4 only applies to new discharges or changes or increases to existing discharges. Consideration of this application would not fit within the specified use of those policies so they have been omitted from the provisions listed above.

Regarding Policy D1, section 9 of the application discusses the consultation that the applicant carried out with Te Ao Marama Inc. I also note that both Te Ao Marama Inc and Te Rūnanga o Ngāi Tahu were sent notice of the application, and the provisions of Te Tangi a Tauira are listed in a section of this report.

Objective CC1 came into effect in July 2016. The relevance of this objective is to the setting of monitoring that will feed into the objective and limit setting processes that will be undertaken to implement the policies of the NPS.

Environment Southland has adopted a progressive implementation programme for implementing the policies of the National Policy Statement in accordance with Policy E1. The programme describes the process as developing catchment limits, and for the area that includes the applicant's discharges the process will commence in late 2018 with catchment limits to be developed by July 2020.

The progressive implementation programme refers to catchment limits. These are likely to be in the form of contaminant loads, so monitoring that improves the understanding of contaminant loads from the applicant's discharges is consistent with Objective CC1.

Appendix 2 of the National Policy Statement sets a number of numeric standards for receiving water conditions. The standards are to be implemented through the development of freshwater objectives for all freshwater management units. Until such time as a regional plan implements the standards they are useful for reference only. In that regard, the following is noted:

Nitrate nitrogen:	Section 3.3.5 of the application showed that the national bottom line annual median value was not exceeded.
Ammonia	Section 3.3.4 of the application showed that the national bottom line annual median value was not exceeded.
Dissolved oxygen	Section 3.3.3 of the application notes that dissolved oxygen concentrations have not been monitored in a manner that allows direct comparison with the national bottom lines. However the spot samples that have been collected do not contravene the national bottom line values.
E. coli	The national bottom line is 1000 *E.coli*/100 ml as an annual median. Section 3.3.2 of the application shows that the Clifton Channel upstream of the stormwater outfalls is at about the national bottom line value. All the

other sites comply with the national bottom line, although the SOE monitoring site on the Otepuni Stream appears to be very close to the limit.

Cyanobacteria

There is insufficient information to determine compliance with the national bottom line values for this parameter.

3.8 Relevant provisions of the New Zealand Coastal Policy Statement (Section 104(1)(b)(iv))

The following objectives and policies of the New Zealand Coastal Policy Statement are of particular relevance to this application:

Objective 1

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

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

Policy 1

(1) Recognise that the extent and characteristics of the coastal environment vary from region to region and locality to locality; and the issues that arise may have different effects in different localities.

(2) Recognise that the coastal environment includes:

- *(a) the coastal marine area;*
- *(b) islands within the coastal marine area;*
- *(c) areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;*
- *(d) areas at risk from coastal hazards;*
- *(e) coastal vegetation and the habitat of indigenous coastal species including migratory birds;*
- *(f) elements and features that contribute to the natural character, landscape, visual qualities or amenity values;*
- *(g) items of cultural and historic heritage in the coastal marine area or on the coast;*
- *(h) inter-related coastal marine and terrestrial systems, including the intertidal zone; and*
- *(i) physical resources and built facilities, including infrastructure, that have modified the coastal environment.*

Policy 2

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) take into account any relevant iwi resource management plan and any other relevant planning document recognised by the appropriate iwi authority or hapū and lodged with the council, to the extent that its content has a bearing on resource management issues in the region or district; and

(i) where appropriate incorporate references to, or material from, iwi resource management plans in regional policy statements and in plans; and

(ii) consider providing practical assistance to iwi or hapū who have indicated a wish to develop iwi resource management plans;

(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;

(iii) having regard to regulations, rules or bylaws relating to ensuring sustainability of fisheries resources such as taiāpure, mahinga mātaitai or other non commercial Māori customary fishing; and

(g) in consultation and collaboration with tangata whenua, working as far as practicable in accordance with tikanga Māori, and recognising that tangata whenua have the right to choose not to identify places or values of historic, cultural or spiritual significance or special value:

(i) recognise the importance of Māori cultural and heritage values through such methods as historic heritage, landscape and cultural impact assessments; and

(ii) provide for the identification, assessment, protection and management of areas or sites of significance or special value to Māori, including by historic analysis and archaeological survey and the development of methods such as alert layers and predictive methodologies for identifying areas of high potential for undiscovered Māori heritage, for example coastal pā or fishing villages.

Policy 4

Provide for the integrated management of natural and physical resources in the coastal environment, and activities that affect the coastal environment. This requires:

(a) co-ordinated management or control of activities within the coastal environment, and which could cross administrative boundaries, particularly:

(i) the local authority boundary between the coastal marine area and land;

(ii) local authority boundaries within the coastal environment, both within the coastal marine area and on land; and

(iii) ….

(b) working collaboratively with other bodies and agencies with responsibilities and functions relevant to resource management, such as where land or waters are held or managed for conservation purposes; and

(c) particular consideration of situations where:

(i) ….

(ii) public use and enjoyment of public space in the coastal environment is affected, or is likely to be affected; or

(iii) ….

(iv) land use activities affect, or are likely to affect, water quality in the coastal environment and marine ecosystems through increasing sedimentation; or

(v) significant adverse cumulative effects are occurring, or can be anticipated.

Policy 11

To protect indigenous biological diversity in the coastal environment:

a. ….

b. avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on:

i. areas of predominantly indigenous vegetation in the coastal environment;

ii. habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;

iii. indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh;

iv. habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;

vi. habitats, including areas and routes, important to migratory species; and

vii. ecological corridors, and areas important for linking or maintaining biological values identified under this policy.

Policy 14

Promote restoration or rehabilitation of the natural character of the coastal environment, including by :

(a) ….

(b) ….

(c) where practicable, imposing or reviewing restoration or rehabilitation conditions on resource consents and designations, including for the continuation of activities; and recognising that where degraded areas of the coastal environment require restoration or rehabilitation, possible approaches include:

(i) ….
(ii) ….
(iii) ….
(iv) ….
(v) ….
(vi) reducing or eliminating discharges of contaminants; or
(vii) ….
(viii) ….
(ix) ….
(x) ….

Policy 22

(1) …
(2) …
(3) …
(4) Reduce sediment loadings in runoff and in stormwater systems through controls on land use activities.

Policy 23

(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) ….

(3) ….
(4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:

(a) avoiding where practicable and otherwise remedying cross contamination of sewage and stormwater systems;
(b) reducing contaminant and sediment loadings in stormwater at source, through contaminant treatment and by controls on land use activities;

(c) promoting integrated management of catchments and stormwater networks; and

(d) promoting design options that reduce flows to stormwater reticulation systems at source.

(5) ……

Comment

Policy 1 recognises that the coastal environment varies from place to place, and provides guidance on how the extent of the coastal environment is to be determined with regard to application of the New Zealand Coastal Policy Statement. The coastal environment includes the coastal marine area, but incorporates additional areas. In this case, many of the downstream outfalls subject to this application within the Waihopai, Otepuni and Kingswell catchments discharge into tidal areas, or are on the margin of tidal areas. Therefore, in terms of Policy 1(2)(c) and (h), many of the discharges occur within, or may affect, the coastal environment. Therefore the New Zealand Coastal Policy Statement should be taken into account.

Policy 4 is to provide for integrated management of activities and the coastal environment. In this case land use and discharges affect stormwater quality, and stormwater discharges contribute to effects in the coastal marine area. The policy does not provide strong direction with regard to the application, but creates a linkage to consider effects within the coastal marine area.

Policy 23(2)(a) is not to allow the discharge of untreated human sewage to the coastal environment. However Policy 23(4) is more specific to the management of stormwater discharges:

- clause (a) is to avoid or otherwise remedy sewage contamination of stormwater;
- clause (b) points to dealing with stormwater contaminants at source by treatment and by controls on land use activities.

Policy 14 points to reduction or elimination of discharges of contaminants as one method of restoring or rehabilitating the natural character of the coastal environment.

Objective 1 is to safeguard the integrity of the coastal environment and sustain its ecosystems by methods, including enhancing water quality. Policy 11(b) is to protect indigenous biodiversity in the coastal environment by avoiding significant adverse effects and by avoiding, remedying or mitigating other adverse effects on indigenous ecosystems, including estuaries. As discussed in the section of this report on effects on the environment, monitoring shows that there is a cumulative adverse effect on the Waihopai Arm of the New River Estuary from sediments and contaminants that has reduced habitat for indigenous wildlife.

With regard to Policy 2, both Te Ao Marama Inc and Te Rūnanga o Ngāi Tahu were sent notice of the application, and the provisions of Te Tangi a Tauira are listed in a section of this report.

3.9 Relevant provisions of National Environmental Standards and other regulations (Section 104(1)(b)(i) and (ii))

In terms of the Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007, the discharges are not upstream of registered sources of drinking water that could be affected by the discharges.

3.10 Part 2 of the Resource Management Act 1991

The purpose of the Resource Management Act, as specified in Section 5 of the Act, is *to promote the sustainable management of natural and physical resources*. It states that:

> *"In this Act, "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and safety while:*
>
> *(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations;*
> *(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
> *(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment."*

Section 6 of the Act specifies matters of national importance, which must be recognised and provided for by those exercising functions and powers under the Act, in achieving the purpose of the Act. The matters listed in Section 6 of the Act include the following:

Section 6(a)	*The preservation of the natural character of the coastal environment, wetlands and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development.*
Section 6(b)	*The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.*
Section 6(c)	*The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.*
Section 6(d)	*The maintenance and enhancement of public access to and along the coastal marine area, lakes and rivers.*
Section 6(e)	*The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.*
Section 6(f)	*The protection of historic heritage from inappropriate subdivision, use, and development.*
Section 6(g)	*The protection of recognised customary activities.*

Other matters that the Committee must have particular regard for are listed in Section 7 of the Act, as follows:

Section 7(a)	*Kaitiakitanga,*
Section 7(aa)	*The ethic of stewardship.*

Section 7(b)	*The efficient use and development of natural and physical resources.*
Section 7(ba)	*The efficiency of the end use of energy*
Section 7(c)	*The maintenance and enhancement of amenity values.*
Section 7(d)	*Intrinsic values of ecosystems.*
Section 7(e)	[*Repealed]*
Section 7(f)	*The maintenance and enhancement of the quality of the environment.*
Section 7(g)	*Any finite characteristics of natural and physical resources.*
Section 7(h)	*The protection of the habitat of trout and salmon.*
Section 7(i)	*The effects of climate change*
Section 7(j)	*The benefits derived from the use and development of renewable energy.*

Section 8 of the Act specifies that :

> *"...in achieving the purpose of the Act, all persons exercising functions and power under it, in relation to managing the use, development and protection of natural and physical resources, shall take into account the principles of the Treaty of Waitangi."*

3.11 Any other matters considered relevant and reasonably necessary to determine the application (Section 104(1)(c))

Te Tangi a Tauira

Te Tangi a Tauira is the Iwi Management Plan for the Murihiku area. I consider that the provisions of the plan are relevant and reasonably necessary to the determination of the application.

Section 1.10 of Te Tangi a Tauira states that:

> *The content and structure of this Plan reflects its primary purpose: to provide a living, working document that can assist Ngāi Tahu ki Murihiku to effectively participate in environmental policy and planning.*
>
> *The information in this Plan also provides a resource for local authorities and other government agencies that have an influence over or manage environmental and natural resources. The plan may be used to:*
>
> - *ensure that Ngāi Tahu ki Murihiku, issues and policies are clearly visible in local regional planning documents;*
> - *determine the nature and extent of consultation that may be required with regards to particular activities or places of importance; and*

- *determine the kinds of information Ngāi Tahu ki Murihiku may require to make informed decisions.*

The policies from Te Tangi a Tauira which are relevant to this application are:

General Water Policy

Policy 3.5.10.1	*The role of Ngāi Tahu ki Murihiku as kaitiaki of freshwater must be given effect to in freshwater policy, planning and management.*
Policy 3.5.10.3	*Protect and enhance the mauri, or life supporting capacity, of freshwater resources throughout Murihiku.*
Policy 3.5.10.4	*Manage our freshwater resources wisely, mō tātou, ā, mō ngā uri ā muri ake nei, for all of us and the generations that follow.*
Policy 3.5.10.5	*Promote the management of freshwater according to the principle of ki uta ki tai, and thus the flow of water from source to sea.*
Policy 3.5.10.6	*Promote catchment management planning (ki uta ki tai), as a means to recognise and provide for the relationship between land and water.*
Policy 3.5.10.8	*Protect and enhance the customary relationship of Ngāi Tahu ki Murihiku with freshwater resources.*

Water Quality

Policy 3.5.13.2	*Strive for the highest possible standard of water quality that is characteristic of a particular place/waterway, recognising principles of achievability. This means that we strive for drinking water quality in water we once drank from, contact recreation in water we once used for bathing or swimming, water quality capable of sustaining healthy mahinga kai in waters we use for providing kai.*
Policy 3.5.13.3	*Require cumulative effects assessments for any activity that may have adverse effects of water quality.*
Policy 3.5.13.5	*Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Generally, all discharge must first be to land.*
Policy 3.5.13.6	*Avoid impacts on water as a result of inappropriate discharge to land activities.*
Policy 3.5.13.7	*When assessing the effects of an activity on water quality, where the water source is in a degraded state, the effects should be measured against the condition that the water source should be, and not the existing condition of the water source.*

Policy 3.5.13.9 *Require the use of buffer zones, riparian areas, bunds and other mechanisms to prevent stormwater and other wastewater from entering waterways.*

Policy 3.5.13.10 *Water quality definitions, categories, and standards must be determined, measured, and assessed with cultural values and indicators alongside scientific information. Such indicators and values centre on the ability of the waterway to support life, and the fitness of water for cultural uses.*

Policy 3.5.13.11 *Require robust monitoring of discharge permits, to detect non-compliance with consent conditions. Noncompliance must result in appropriate enforcement action to discourage further non-compliance.*

Comment from water quality section, page 159:

> *"For Ngāi Tahu ki Murihiku, it is not enough to say that a proposed activity will not have adverse effects on the current condition of a waterway. Many of our waterways need to be improved, and human use (e.g. abstractions, discharge) should be conditional on improving the current state of waterways where needed.*
>
> *We need to be requiring improvements and enhancements to river health and water quality. An activity should do more than ensure it won't degrade a river any further."*

Wastewater Disposal

Policy 3.5.2.6 *Avoid the use of water as a receiving environment for the direct, or point source, discharge of contaminants. Even if the discharge is treated and therefore considered "clean", it may still be culturally unacceptable. Generally, all discharge must first be to land.*

Policy 3.5.2.10 *Require that the highest environmental standards are applied to consent applications involving the discharge of contaminants to land or water (e.g. standards of treatment of sewage).*

Policy 3.5.2.15 *Any discharge activity must include a robust monitoring programme that includes regular monitoring of the discharge and the potential effects on the receiving environment. Monitoring can confirm system performance, and identify and remedy any system failures.*

Policy 3.5.2.16 *Require that large scale wastewater disposal operations (e.g. town sewage schemes, industry) develop environmental management plans, including contingency plans to cope with any faults, breakdowns, natural disasters, or extreme weather events (e.g. cash bonds for liability).*

Mahinga kai

Policy 3.5.16.1 *Work with local authorities and other statutory agencies to ensure that cultural values and perspectives associated with those species and places valued as mahinga kai are reflected in statutory water plans, best practice guidelines and strategies, and in concession and resource consent processes.*

Policy 3.5.16.2	*Work towards the restoration of key mahinga kai areas and species, and the tikanga associated with managing those places and species.*
Policy 3.5.16.4	*Consider the actual and potential effects of proposed activities on mahinga kai places, species and activities when assessing applications for resource consent.*
Policy 3.5.16.5	*Use the enhancement of mahinga kai places, species and activities to off set or mitigate the adverse effects of development and human activity on the land, water and biodiversity of Murihiku.*

Biodiversity

Policy 3.5.17.1	*Use planning, policy and resource consent processes to promote the protection and, where necessary, enhancement, of native biodiversity of Murihiku, specifically:* *a. enhancement and restoration of degraded areas;* *b. planting of native species to off set or mitigate adverse effects associated with land use activities;* *c. the incorporation of biodiversity objectives into development proposals;* *d. prohibiting the use of pest plant species in landscaping*
Policy 3.5.17.3	*For Ngāi Tahu ki Murihiku, all species are taonga, whether weta, snail or kiwi, and the effects of an activity on species must consider all species equally.*
Policy 3.5.17. 9	*Promote the management of whole ecosystems and landscapes, in addition to single species.*

Coastal Water Quality

Policy 3.6.7.1	*Ensure that it is clearly understood by all land and coastal users that upstream activities and the impacts these have on water quality have a cumulative downstream effect. Given this, provisions 3.5.10-3.5.14 as outlined in Section 3.5 – Te Rā a Takitimu, Southland Plains of this Plan, should be read in conjunction with the following policies.*
Policy 3.6.7.3	*Encourage protection and enhancement of the mauri of coastal waters, to ensure the ability to support cultural and customary usage.*
Policy 3.6.7.4	*Avoid impacts on coastal waters as a result of inappropriate discharge from activities occurring upstream and in areas adjacent to coastal waters.*
Policy 3.6.7.5	*Avoid the use of upstream waters as a receiving environment for point source discharge of contaminants.*
Policy 3.6.7.9	*Ensure the quality of water in all waterways is improved to support biodiversity in estuarine and coastal waters.*

Policy 3.6.7.15 *Advocate for the adoption of improved treatment systems for the discharge of water and contaminants to reduce the likelihood of effects on the coastal environment from both upstream and coastal water activities. This includes investigations and improvements to existing coastal sewage infrastructure and management and treatment of ballast water.*

Coastal Ecosystems

Policy 3.6.13.3 *Have active involvement in promoting the understanding of ecosystem interactions within the coastal environment and the impacts that changes to water quality and levels of deposition and disturbance may have on each organism and their subsequent role in maintaining ecosystem health.*

Policy 3.6.13.4 *Promote the uniqueness of estuarine ecosystems through maintenance and enhancement of their productive nature.*

Policy 3.6.13.5 *Provide and recognise for the strong cultural links with coastal landscapes and biodiversity held by Ngāi Tahu ki Murihiku.*

Policy 3.6.13.6 *Avoid changes to coastal landscapes and biodiversity which have detrimental impacts on Ngāi Tahu ki Murihiku relationships and associations with coastal land, water, wāhi tapu and wāhi taonga areas.*

Marine Birds

Policy 3.6.14.1 *Recognise for Ngāi Tahu ki Murihiku cultural, historical and spiritual association with taonga species. Such associations must be provided for within all management planning documents.*

Policy 3.6.14.2 *Protect coastal environments in which marine birds nest and feed, particularly tītī populations.*

Commentary on Consent Durations (page 139)

> *"Ngāi Tahu ki Murihiku do not believe we should be granting consents for activities where we do not know what the effects may be over the long term. Anything over 25 years is essentially making decisions for the next generation.*
>
> *We also need to ensure that consent duration recognises and provides for changes in technology, thus allowing us to continually improve the way we do things."*

Stream Health Indicators

Policy 2(2) of the Proposed Southland Water and Land Plan refers to Ngāi Tahu indicators of health for water quality and water quantity. Section 3.5.11 of Te Tangi a Tauira contains the following:

> *Indicators used by tangata whenua to assess stream health:*
>
> - *Shape of the river*
> - *Sediment in the water*

- *Water quality in the catchment*
- *Flow characteristics*
- *Flow variations*
- *Flood flows*
- *Sound of flow*
- *Movement of water*
- *Fish are safe to eat*
- *Uses of the river*
- *Safe to gather plants*
- *Indigenous vs. exotic species*
- *Natural river mouth environment*
- *Water quality*
- *Abundance and diversity of species*
- *Natural and extent of riparian vegetation*
- *Use of river margin*
- *Temperature*
- *Catchment land use*
- *Riverbank condition*
- *Water is safe to drink*
- *Clarity of the water*
- *Is the name of the river an indicator?*

Comment

I believe that sewage within the discharges is likely to conflict with Policies 3.5.13.5 and 3.5.2.6.

Policy 3.5.2.16 promotes the development of environmental management plans, including contingency plans. Although the policy is within the wastewater disposal section of Te Tangi a Tauira, such a plan would be appropriate for the stormwater network, particularly because of the cross-contamination from the sewer network.

Policies 3.6.7.1, 3.6.7.4 and 3.6.7.5 refer to effects on coastal waters arising from activities further upstream. Policy 3.6.7.9 seeks improvement in coastal water quality.

Policy 3.5.17.1 and 3.6.14.2 are particularly relevant to the cumulative effects in the New River Estuary.

Stormwater Monitoring Programme Design report

NIWA wrote a report for Environment Southland, "**Design of Stormwater Monitoring Programmes**[28]" in 2014. It is not a statutory document and should not be applied for the purposes of deciding whether or not to approve the application. However, in terms of the resource consent conditions that may be applied if the resource consent is approved, I believe that the guidance provided by the report is relevant and worth consideration.

[28] J Gadd, A Semadeni-Davies & J Moore, (2014), Design of Stormwater Monitoring Programmes", Environment Southland publication No. 2014-08

Section 2 of the report identifies that the monitoring objectives should be clear. Examples given included:

- to determine if the discharge meets resource consent limits;
- to determine if the discharges are affecting the receiving environment;
- to identify sources of contaminants;
- to determine if stormwater treatment devices are performing as expected.

In Section 3, there is mention that an objective of monitoring during dry weather conditions may be to characterise illicit discharges.

Sections 11, 12 and 13 of the report outline monitoring that the authors recommend for the following objectives which are likely to be relevant to the applicant's discharges:

- measure maximum concentrations for comparison with consent limits or water quality guidelines;
- measure event-based mass loads;
- identify sources of poor stormwater quality.

Mass load monitoring is important given Objective CC1 of the National Policy Statement for Freshwater Management. Information on mass loads will assist with understanding the contribution of the discharge to the catchment load which is needed in order to better manage water quality within the catchment, including the estuary.

Section 3 of the report refers to site selection and raises concerns that may be relevant to the applicant's systems. For example:

- safety;
- tidal currents can cause backwater effects, severely affecting flow measurement;
- saline waters will affect sample results;
- insufficient flow in large, wide pipes for the flow or sampling equipment.

Section 4 of the report discusses monitoring related to storm events:

- stormwater monitoring should be undertaken during storm events to monitor contaminants washed off surfaces during the storm;
- there should be five days of dry weather conditions prior to storm event sampling;
- a storm event of at least 2 mm in a 24 hour period is required for monitoring, but ideally a variety of storm events should be monitored;
- stormwater quality is highly variable and 5-10 storm events are required to adequately characterise stormwater quality.

The report recommends:

- measurement of stormwater flows by a rated structure or Doppler instrument;
- the use of autosamplers to collect stormwater samples;
- volume-proportional or flow-proportional monitoring;
- analysis of samples for:
    - pH
    - Conductivity

- Sediments
- Indicator organisms (E. coli or enterococci)
- Metals (Total and Dissolved), particularly copper and zinc
- Mercury
- Nutrients:
  - Total nitrogen
  - Ammoniacal nitrogen
  - Nitrate nitrogen
  - Dissolved Reactive Phosphorus
  - Total Phosphorous
  - Oxygen demand (BOD & COD)
  - Total Petroleum Hydrocarbons
  - Polycyclic aromatic hydrocarbons
  - Semi-volatile organic compounds

➢ recording of metadata (for example, site name, catchment area, sampling type, etc).

Section 8.4 provides guidance on how to calculate contaminant loads.

Comment

If the hearing panel decide to approve the application monitoring under Section 12 of the guideline is recommended for determining mass loads. The applicant should also be required to calculate and report on mass loads of contaminants.

Ongoing monitoring in dry-weather conditions for illicit discharges is also appropriate.

3.12 Section 104D of the Resource Management Act 1991

Section 104D imposes restrictions on approval of the applications as follows:

(1) Despite any decision made for the purpose of section 95A(2)(a) in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—

(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or

(b) the application is for an activity that will not be contrary to the objectives and policies of—

(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or

(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.

(2) To avoid doubt, section 104(2) applies to the determination of an application for a non-complying activity.

Comment

Section 7.6.1 of the application identifies that the discharges are having more than minor adverse effect on the environment. Therefore approval hinges on the application being for an activity that is not contrary to the objectives and policies of both the Regional Water Plan and the Proposed Southland Water and Land Plan.

At this stage, due in large part to the sewage contamination of the stormwater network, but also the proposed rate of upgrade, the issues with sewer overflow risks within the network, the cumulative effects in the estuary, and the term sought, I believe that the discharges are contrary to Objectives 2, 3 and 4, and Policies 3, 4 and 13 of the Regional Water Plan, and Objectives 14 and 18 and Policy 13 of the Proposed Southland Water and Land Plan.

Objective 2 of the Regional Water Plan seeks no reduction in water quality beyond the mixing zone, Objective 3 seeks measurable progress towards achieving specific values, including Ngāi Tahu cultural values, and Objective 4 seeks a 10 percent improvement in nitrate, phosphorous and microbiological contaminants by 2020. The discharges are not achieving Objectives 2 and 3 due to the sewage contamination, and the applicant's proposed pipe replacement programme is unlikely to address the sewage contamination within the timeframe sought by Objective 4.

Conflict with Policy 13 of the Regional Water Plan is clear due to the sewage contamination.

Whether or not the discharges are contrary to Policies 3 and 4 of the Water Plan hinges a great deal on whether or not the commissioners consider that allowing the discharges to reduce water quality and to cause non-compliance with water quality standards is consistent with the purpose of the Resource Management Act. Policy 4 has an additional provision that contaminant levels that could harm human health or aquatic life be avoided.

Objective 14 of the Proposed Southland Water and Land Plan is to maintain or enhance the life-supporting capacity of indigenous ecosystems (and their range and diversity) within rivers and estuaries. While the stormwater discharges may be a minor component, they are contributing to a significant adverse effect on the estuarine ecosystem in the Waihopai Arm of New River Estuary, as demonstrated by the changes in seagrass habitat.

With regard to Objective 18 of the Proposed Plan, the applicant's stormwater network is not operating at a good environmental practice, as demonstrated by the age of much of the system and the sewage contamination issues.

Policy 13 of the Proposed Southland Water and Land Plan is to manage land use and discharges to that water quality, human health and aquatic life are protected. The sewage contamination and the cumulative effect in the estuary indicate that the discharges are not being managed to protect water quality and aquatic life, and that there is a risk to human health around the stormwater outfalls.

Permitted baseline

Section 104D(2) provides that, in considering whether an adverse effect on the environment is more than minor, an effect may be disregarded if there is a permitted activity with that effect. Rule 11 of the Water Plan and Rule 15(a) of the Proposed Southland Water and Land Plan permit discharges of stormwater, but limit the scale to discharges that are not from reticulated systems. Therefore any permitted baseline would relate to only a fraction of the effect of the reticulated system discharges.

Rule 7.3.4.1 of the Coastal Plan permits the discharge of stormwater, subject to compliance with water quality standards and sediment guidelines beyond 50 metres from the outfall. However, the definition of stormwater in the Coastal Plan is "*surface water run-off subsequent to precipitation which is either diffuse or discharged via a conduit or drain (lined or unlined) directly from surface areas into a natural watercourse or onto or into land*." As many of the applicant's stormwater drains in the coastal marine area discharge even when there has not been recent rainfall, the discharges would not meet that definition. Similar issues surround Rule 11 of the Water Plan and Rule 15(a) of the Proposed Southland Water and Land Plan.

3.13 Value of investment of the existing consent holder if an application affected by Section 124 (Section 104(2A))

Under Section 104(2A) of the Resource Management Act, 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. I confirm that the application has rights of continuance for the discharges under s124. Therefore in determining the application regard must be had to the value of the investment of the consent holder.

The application does not directly refer to the value of the existing stormwater reticulation. Section 2.2 of the application states that Invercargill City has 412 km of stormwater pipes. While approximately one-quarter of the reticulation system is likely to be related to discharges into the coastal marine area, and therefore outside the scope of this application, the value of the pipe system will still be considerable.

3.14 Section 105 matters relevant to discharge or coastal permits

Under Section 105 of the Resource Management Act, the following should be considered:

(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.

Comment

Section 7.6.2 of the application discusses these matters. The applicant has identified that the most likely alternative would be source control of stormwater.

The applicant's consideration of alternatives largely focuses on infrastructure changes. Management or behavioural changes could also be explored, such as auditing or monitoring of stormwater connections to ensure best practice systems are in place.

3.15 Section 107 restriction on grant of certain discharge permits

Under Section 107 of the Resource Management Act, the Council must not grant a discharge permit to discharge contaminants to water or onto land in circumstances where contaminants enter water

if, after reasonable mixing, the discharge is likely to give rise to any or all of the following effects in the receiving waters:

…

(c) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;

(d) any conspicuous change in the colour or visual clarity;

(e) any emission of objectionable odour;

(f) the rendering of fresh water unsuitable for consumption by farm animals;

(g) any significant adverse effects on aquatic life.

However Section 107(2) provides that the Council may approve an application with such effects if it is satisfied:

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

(b) That the discharge is of a temporary nature; or

(c) That the discharge is associated with necessary maintenance work—

and that it is consistent with the purpose of this Act to do so.

Comment

Section 7.6.3 of the application states that no such adverse effects will result from the discharges. That appears to conflict with Section 4.7 of the application which does refer to discolouration of the receiving waters due to the discharge of sediment during wet weather, but it may be the applicant's view that the effect is not conspicuous.

Sewage contamination also potentially makes the receiving waters unsuitable for consumption by farm animals, even though farm animals are unlikely to have access to the rivers in the vicinity of the discharges. The ANZECC Australia and New Zealand Guidelines for Fresh and Marine Water Quality 2000, Section 4.3.2.2, states that "*drinking water for livestock should contain less than 100 thermotolerant coliforms per 100 ml (median value)*".

For the 2011 application the hearing commissioners at the time were also faced with effects under s107(1) and had to consider the provisions of s107(2). The commissioners concluded that the discharges could be approved because exceptional circumstances justified granting of the permits. The relevant factors were that the stormwater discharges were significant and there was a large measure of public benefit, that it had been in place for decades or longer (prior to 2011 the discharges had not been subject to a resource consent), and that the consequences of not allowing the discharge would potentially make Invercargill unfit for human habitation. The Invercargill community's reliance on the stormwater network for their health and safety made the situation exceptional. The commissioners did not believe that s107(2)(b) would apply, as the effect of concern may be temporary but the discharges were not.

3.16 Term of consent

The applicant has requested a consent term of 35 years.

Under Section 123 of the Resource Management Act the maximum consent duration that can be approved for the discharge permit is 35 years.

Should the hearing panel be inclined to approve the application I believe that the following matters should be taken into account as matters that are relevant and reasonably necessary to the determination of the application under s104(1)(c) of the Resource Management Act:

- Policy 40 of the Proposed Southland Water and Land Plan;
- the comment in Te Tangi a Tauira that "*Ngāi Tahu ki Murihiku do not believe we should be granting consents for activities where we do not know what the effects may be over the long term. Anything over 25 years is essentially making decisions for the next generation*."[29];
- guidance from case law regarding consent duration, particularly *PVL Proteins Ltd v Auckland Regional Council, A61/2001, paragraphs 27-33*;
- S104(2A) of the Resource Management Act.

Comment

Policy 40 has been discussed in an earlier section of this report. However, it is a proposed policy so carries limited weight. At the time of drafting this report the proposed plan has been notified and received a large number of submissions, and hearings had commenced. Given the stage of the plan process, I believe that the policy be considered in the context of the guidance from Te Tangi a Tauira and case law regarding consent duration.

In the decision on *PVL Proteins Ltd v Auckland Regional Council* the Court determined that the bases for determination of the consent period were as follows:

- a decision on what is the appropriate term of the resource consent is to be made for the purpose of the Act, having regard to the actual and potential effects on the environment and relevant provisions of applicable instruments under the Act, the nature of the discharge, the sensitivity of the receiving environment to adverse effects, the applicant's reasons, and any possible alternative methods of discharge, including to another receiving environment;

- conditions may be imposed requiring adoption of the best practicable option, requiring supply of information relating to the exercise of the consent, requiring observance of minimum standards of quality in the receiving environment, and reserving power to review the conditions;

- uncertainty for an applicant of a short term, and an applicant's need (to protect investment) for as much security as is consistent with sustainable management, indicate a longer term. Likewise, review of conditions may be more effective than a shorter term to ensure conditions do not become outdated, irrelevant or inadequate;

- expected future change in the vicinity has been regarded as indicating a shorter term;

- uncertainty about the effectiveness of conditions to protect the environment (including where the applicant's past record of being unresponsive to effects on the environment and making relatively low capital expenditure on alleviation of environmental effects compared with expenditure on repairs and maintenance or for profit) suggests a shorter term;

[29] Te Tangi a Tauira, Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008, Wastewater Disposal section, P 139

- where the operation has given rise to considerable public disquiet, review of conditions may not be adequate, as it cannot be initiated by affected residents;

- an activity that generates known and minor effects on the environment on a constant basis could generally be granted consent for a longer term, but one that generates fluctuating or variable effects, or that depends on human intervention or management for maintaining satisfactory performance, or relies on standards that have altered in the past and may be expected to change again in future, should generally be granted for a shorter term;

- review conditions may be used in conjunction with longer terms where review is capable of addressing all issues of concern, but not where a consent holder's financial viability might constrain controls intended to avoid, remedy or mitigate significant adverse effects on the environment.

In that case the Court also commented, in paragraph 82, that:

> *"The consent authority's power of review is to consider changing the conditions of consent to make them more appropriate in the light of the circumstances triggering the review, and the consent-holder's response. The term of the consent is the duration or period for which it may be exercised, on the conditions applicable for the time being. The term implies that after expiry, the question whether consent is to be granted for a further term, or refused, would be the subject of fresh consideration."*

In the circumstances, if the application is to be approved I would consider a 35-year term to be too long. A term expiring on 30 June 2029 would align the expiry dates of the Invercargill City stormwater and sewage consents, as suggested by clause 5 of Policy 40. However, 12 years still seems like a long consent duration in the circumstances and would need to be supported by specified stages of improvements to the stormwater system.

I acknowledge that the discharge is an existing and long-term activity and represents significant investment, and that stormwater drainage is essential to Invercargill City. However, I do not believe that a shorter term creates an issue for the applicant regarding the security of that investment, particularly given s104(2A), which was inserted into the Act four years after the *PVL Proteins Ltd* decision. S104(2A) requires the consent authority to have regard to the value of the investment when the consent holder seeks a further consent for an existing activity. This section provides greater security to consent holders for existing investment, as it lends more weight towards approving new resource consents for the activity. Therefore the section reduces the weighting towards longer consent durations that was expressed in the *PVL Proteins Ltd* decision.

I believe that the *"uncertainty about the effectiveness of conditions to protect the environment (including where the applicant's past record of being unresponsive to effects on the environment and making relatively low capital expenditure on alleviation of environmental effects compared with expenditure on repairs and maintenance or for profit)"* is of particular relevance. There is clearly a long-term issue with investment in the stormwater and sewer networks (as demonstrated by the age of the pipes). Figure 2-2 of the application indicates that 9% of the pipe network is about 100 years or more old. Rates of replacement between 2010-2015, as shown in Table 2-5 of the application, averaged 0.7%[30] each year. Section 2.6 of the application states that the applicant has adopted a

[30] Assuming, as I have elsewhere in the report, that about one-third of the network discharges to the coastal marine area and is outside the calculation of the length of pipeline listed in Section 2.2 of the application. If all 412 km is within the area covered by this consent the average rate of replacement has been 0.5% over the 2010-2015 period.

1% annual replacement budget, which will take effect from 2021, and will replace the "aging earthenware infrastructure" within 50 to 60 years. I appreciate that there is a significant cost involved, but the deferred timeframe for the increased rate of replacement and the overall timeframe show a lack of responsiveness to the issue of sewage contamination. It would be helpful to understand if the replacement works are targeted at cross-contamination issues or if that is a secondary objective of the works, as it may influence how quickly the contamination issue is addressed.

Regarding the use of reviews to balance consent periods, it is true that some updating can occur through the review process, providing flexibility for longer duration consents. However, it should also be understood that reviews are limited in nature. Typically, the consent authority has to have sufficient information to support the review and understand the specific change to be sought before commencing the review. A broader type of review that would rely on information to be requested from the consent holder can be frustrated by the non-participation of an unwilling consent holder.

In a more recent case, *Manawatu District Council v Manawatu District Council, [2016] NZEnvC 53*, the Court adopted the guidance from the PVL Proteins Limited decision, but also took into account a policy with regard to target times and effects on the mauri of the river (paragraph 163). The Court discussed (paragraph 161) the consent processing costs associated with ongoing replacement of short-term consents and agreed that it was an inefficient use of resources, noting that the costs extended to groups that participated in the process in addition to the applicant. However, the Court also accepted that those expenses could be incurred at the time of a review of the conditions even if a longer term consent was granted.

4. Conditions

4.1 Consent Conditions

Based on the discussion at the pre-hearing meeting, I understand that the applicant is likely to table draft conditions at the hearing. If the commissioners decide to approve the application, I recommend that resource consent conditions be drafted to achieve the following:

- monitor for sewage contamination of the stormwater system discharges during low flow/dry weather conditions;
- monitor to determine mass loads of contaminants from the discharges to assist with management of catchment loads;
- monitor effects in the receiving environments, including both water quality and bed sediments;
- alarm monitoring of sewer overflows to the stormwater network, if the overflows are to remain;
- apply limits to the discharges that are either directly enforceable or to trigger actions by the consent holder;
- apply limits on effects in the receiving waters;
- measures (site audits) to check and improve individual inputs to the stormwater network;
- advise the public (public notice and/or signage) where sewage is detected so that people can make informed decisions about access to and along the rivers;
- require a management plan for the network that specifies improvements to reduce contaminants in the stormwater, especially, but not exclusively, sewage. The plan could also

specify how redevelopment and new developments within the city will avoid stormwater contamination;

- allow for review of the conditions.

If the application is approved, the applicant must be able to operate within the consent conditions. It would be better to decline the application than attempt to impose conditions that cannot be met.

4.2 Reasonable Mixing

Policy 11 of the Regional Water Plan provides some of the only direct policy guidance at the plan level on stormwater, and it is to apply conditions so that stormwater discharges meet water quality standards and sediment guidelines after reasonable mixing.

While reasonable mixing is provided for in Sections 70 and 107 of the Resource Management Act, and in the water quality standards of the regional plans, the purpose is not defined. I believe that it is intended as a distance or time to allow some dispersion of the discharge (deposition and other processes may also occur) before the effects in the receiving waters are considered. This allows for the downstream concentrations in the receiving waters to be estimated more reasonably than would be possible in the immediate vicinity of the outfall. For example, a wastewater with 10 units of a contaminant, that is diluted ten-fold, would cause an increase of 1 unit after reasonable mixing. If no reasonable mixing was allowed for there could be concentrations of 0-10 units above background levels in the receiving waters very near the outfall, because the path and the concentrations of the plume could be highly variable and difficult to assess.

The mixing zone could also be considered to be where dilution of the discharge is still increasing (even if it is occurring unevenly), so that at any point up to full mixing the concentrations within the plume are being physically reduced by the action of the water body.

Another consideration is that, in a river situation, part of the waterway will typically be unaffected by the plume until reasonable mixing occurs[31]. That is important because mixing zones have an inherent area which provides refuge for aquatic animals from the more concentrated, poorly mixed plume. Localised effects within the mixing zone can still be considered, such as where an outfall is very close to a sensitive area, but given that part of the waterway is free from the plume it is unreasonable to consider the general water quality standards within the poorly mixed zone.

The definitions of the Regional Water Plan state that the mixing zone is to be determined on a case-by-case basis. However, the Proposed Southland Water and Land Plan defines the reasonable mixing zone as an area along the river of no more than 10 times the width, up to a maximum of 200 metres, and no more than two-thirds of the channel width at Q95[32] flow conditions. The purpose of the two-thirds width limit is unclear, but possibly it is to allow a localised refuge area. As such an area would pinch out when mixing across the entire width of the channel physically occurs a short distance downstream, its value is uncertain. What it does mean is that the proposed plan considers reasonable mixing to occur when mixing is incomplete, having only covered 67% of the river. The definition also states that "*when determining the size of the zone of reasonable mixing, minimise the size of the area where the relevant water quality standards are breached*", which is possibly more of a policy than a definition.

[31] Radial mixing in a completely still water body would be an exception.
[32] The flow that is exceeded 95% of the time.

Width along the channels is variable and information on the widths under Q95 conditions is unavailable. However, the following has been scaled from aerial photographs:

River/Stream	Width	10 x width	2/3 width
Waikiwi	8 m	80 m	5.3 m
Waihopai	6 - 18m	60 - 180 m	4 -12m
Otepuni	3.5 – 6 m	35 – 60 m	2.3 – 4 m
Kingswell	2 – 2.5 m	20 – 25 m	1.3 – 1.7m
Clifton	1 m	10 m	0.7 m

With regard to bed sediments, little actual mixing will occur in the bed beyond the turbulent area immediately around the outfall. There may be deposition extending out from the outfall, which would presumably lessen and become more uniform across the river as mixing within the water column is achieved. However, allowing for deposition is difficult because there could be greater deposition where the river velocity drops or encounters salts that act as a flocculent. Aligning the mixing zone for bed sediments with that of the water column will tend increases in the area where effects are not checked and may cause adverse effects on the riverbed to be missed by monitoring. Viewing the mixing zone for bed sediments as the area where the sediments are still being mixed would support a very small mixing distance of 1 or 2 metres around the outfall. That would not conflict with the Proposed Southland Water and Land Plan definition because the dimensions outlined in the definition are maximum values.

5. Recommendations

5.1 Whether to grant

I recommend that the application be refused.

The application is for a non-complying activity. To approve the application, the Hearing Panel must be satisfied that either the adverse effects on the environment are no more than minor, or that the activity is not contrary to the objectives and policies of both the Regional Water Plan and the Proposed Southland Water and Land Plan.

With the known sewage contamination of the stormwater network, including the engineered overflow points, it is likely that the discharges will have more than minor adverse effect on the environment, particularly on cultural values. Cumulative effects on water quality within the receiving waters and in the New River Estuary also appear to be more than minor. Section 7.6.1 of the application itself refers to the discharges, excluding stormwater, as having a moderate effect on visual and amenity values, and that the sewage is having more than minor effect on water quality. Therefore, the application identifies that the minor effects gateway under s104D is unavailable.

As a consequence, approval of the application hinges on the discharges not being contrary to the objectives and policies of both the operative and proposed plans. However the discharges appear to be contrary to Objectives 3 and 4 and Policies 3 and 4 of the Regional Water Plan, and Objective 16 and Policy 13 of the Proposed Southland Water and Land Plan. As discussed earlier in this report, the engineered overflows within the sewage and stormwater networks conflict with Policy 17(a) of the proposed plan, as it fails to avoid adverse effects on water quality.

Whether or not the discharges are contrary to Policies 3 and 4 of the Regional Water Plan requires a determination whether allowing the discharges would be *"consistent with the promotion of the*

sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act". Policy 4 additional requires that allowing the discharge would "*avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals…. and/or aquatic life*". I have discussed these policies earlier in this report and I am of the view that the discharges are contrary to the policies.

Even if the commissioners find that the discharges are not directly contrary to the objectives and policies of the Regional Water Plan and Proposed Southland Water and Land Plan, the application must still be considered in terms of s104 of the Resource Management Act. On that basis as well, it is my view that the application should be declined, particularly with regard to Objectives 2, 3 and 4 and Policies 3, 4, 11 and 13 of the Regional Water Plan, and Objectives 6, 16 and 18 and Policies 13 and 17 of the Proposed Southland Water and Land Plan.

Obviously the stormwater networks are existing and will continue to discharge, whether or not there is a discharge permit. Therefore finding a way to approve the application, subject to staged improvements, would appear to be a pragmatic approach. However I do not believe that is an option without taking a much different interpretation of the effects or policies.

If the application is declined, the applicant has the following options:

- appeal the decision;
- upgrade the system and lodge a new application;
- apply for a plan change to alter the rules, objective and policies to make the discharges permitted or at least make it possible for a resource consent to be approved.

Overall, I recommend, that for the above reasons, the application be declined under Sections 104, 104B and 104D of the Resource Management Act 1991.

Stephen West
Principal Consents Officer

RECOMMENDATIONS IN COUNCIL REPORTS ARE NOT TO BE CONSTRUED
AS COUNCIL POLICY UNLESS ADOPTED BY COUNCIL

Appendix 1 – s42A report information

1.1 About the author

My name is Stephen West. I am a Principal Consents Officer employed by the Southland Regional Council. I have been employed by the Council as a Consents Officer since 1993. I have processed numerous resource consents of varying types over that time.

I hold the qualifications of a New Zealand Certificate of Engineering (Civil) and a Bachelor of Arts, with Majors in Geography and Environmental Studies, from Massey University.

I have been involved with the application since it was lodged and received by Environment Southland.

1.2 Information relied on in preparation of this report

In preparation of this report, I have had regard to the following documents:

- resource consent application dated 14 September 2016;
- submissions received October-November 2016
- Resource Management Act 1991;
- National Policy Statement for Freshwater Management 2014;
- New Zealand Coastal Policy Statement 2010;
- Regional Policy Statement for Southland 1997;
- Proposed Southland Regional Policy Statement 2012;
- Regional Water Plan for Southland 2010
- Proposed Southland Water and Land Plan 2016
- Te Tangi a Tauira (Iwi Management Plan) 2008;
- Regional Coastal Plan for Southland (2007)
- Environment Southland's Progressive Implementation Programme for Implementing the Policies of the National Policy Statement for Freshwater Management 2014[33]

I have also included information sourced from the following documents to assist with describing the receiving environment, particularly New River Estuary:

- Environment Southland and Te Ao Marama Inc ., (2011), "Our Ecosystems: How healthy is the life in our water and our freshwater ecosystems? Part 2 of Southland Water 2010: Report on the State of Southland's Freshwater Environment". Environment Southland. Invercargill. Publication number 2011/7 ISBN 0-909043-45-0, pp 66-75 http://www.es.govt.nz/Document%20Library/Research%20and%20reports/SOE%20reports/our-ecosystems.pdf
- J E Cavanaugh & N Ward, (2014), "Contaminants in estuarine and riverine sediments and biota in Southland", Landcare Research, Lincoln & Environment Southland, Invercargill. http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Science%20summary%20reports/contaminants_in_estuarine_and_riverine_sediments_and_biota_in_southland_2014.pdf

[33] https://contentapi.datacomsphere.com.au/v1/h%3Aes/repository/libraries/id:1tkqd22dp17q9stkk8gh/hierarchy/Water%20and%20Land%20factsheets/progressive_implementation_plan.pdf?version=latestPublished&activeOnly=true&download=false

- L Stevens & B Robertson, (2012), "New River Estuary 2012: Broad Scale Habitat Monitoring", Wriggle Ltd, Nelson. http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Estuarine%20reports/new-river-2012-broad-scale-2012.pdf
- B Robertson & L Stevens, (2013), " New River Estuary: Fine Scale Monitoring of Highly Eutrophic Arms 2012/2013, Wriggle Ltd, Nelson. http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Estuarine%20reports/new_river_estuary_-_fine_scale_monitoring_of_highly_eutrophic_arms_-_2012_2013.pdf

In addition I have referred to the following document with regard to the setting of stormwater monitoring:

- J Gadd, A Semadeni-Davies & J Moores, (2014), Design of Stormwater Monitoring Programmes", Environment Southland publication No. 2014-08 http://www.es.govt.nz/Document%20Library/Research%20and%20reports/Surface%20water%20quality%20reports/technical_report_-_design_of_stormwater_monitoring_programmes.pdf

Appendix 2 – Legal Descriptions of Sites

Legal description:

Waikiwi Stream:

- Part Lot 3 DEEDS 94 and Road Reserve

Waihopai River:

- Lot 7 DP 12822, Lot 1 DP 14230, Section 59 Block IV Invercargill Hundred, Part Section 119 Block I Invercargill Hundred and Road Reserve, Lot 3 DP12751, Section 1 SO 11766, Crown Land

Otepuni Stream:

- Lot 1 DP 15235, Lot 1 DP 10250, Lot 1 DP 1969, Lot 1 DP 6030, Lot 3 DP 6949, Lots 15, 16, 17, 18 & 27 DP 308320, Lot 3 DP 491532, Lots 3 & 4 DP 13743, Lot 2 DP 3072, Part Section 3 Section 43 Block II Invercargill Hundred, Lot 22 DP 4583, Lot 1 DP 11938, Lots 4 & 5 DP 3463, Part Lot 6 DP 3463, Lots 4 & 6 DP 13476, Part Section 12 Block LXXVI Town of Invercargill, Part Lot 1 DP 3072, Lot 1 DP 3076, Part Lots 3, 4 & 5 DP 3076, Part Lot 1 DP 2138, Railway Reserve and Road Reserve Crown Land

Kingswell Creek:

- Lot 4 DP 11973, Section 1 SO 11795, Lot 3 DP 11973, Lots 1 & 2 DP 14235, Lot 13 DP 6699, Lot 1 DP 9456, Lot 35 DP 6406, Lots 7, 8, 9, 10, 11 & 12 DP 6432, Lot 14 DP 11044 and Road Reserve, Lot 183 DP 5921, Crown Land

Clifton Channel:

- Part Sections 42 & 67 Block XIX Invercargill Hundred, Lot 3 DP 1944, Part Lot 1 Block III DP 110, Lot 6 DP 9369, Lot 16 Block III DP 143, Lot 3 Block V DP 143, Lot 1 DP 10293 and Road Reserve, Crown Land