

South Taranaki District Council  
Opunake WWTP  
Monitoring Programme  
Annual Report  
2016-2017

Technical Report 2017-40

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## Executive summary

South Taranaki District Council (STDC) operates a municipal wastewater treatment plant (WWTP) located on South Road at Opunake, in the Otahi and Heimama catchments. This is a three-stage treatment system comprised of a primary oxidation pond, a wetlands treatment system, and a subsurface, reticulated trench system that discharges to an unnamed stream between the Otahi Stream and the Heimama Stream. This report for the period July 2016 to June 2017 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess STDC's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of STDC's activities.

STDC holds one resource consent to discharge treated wastewater, which include a total of 12 conditions setting out the requirements that they must satisfy. They also hold one resource consent allowing the intermittent discharge of comminuted wastewater from an ocean outfall in Middleton Bay, and another to place and maintain the outfall structure. These include a total of 20 conditions setting out requirements that STDC must satisfy.

### **During the monitoring period, STDC demonstrated an overall good level of environmental performance.**

The Council's monitoring programme for the year under review included four inspections and 40 water samples collected for physicochemical analysis (10 samples analysing the effluent quality from the system, 6 measuring effects on receiving waters, and 24 samples monitoring water quality at nearby contact recreational beach bathing sites).

The monitoring showed that the WWTP continued to perform to a high standard, with no issues noted in plant performance or operation during inspection. No complaints regarding the operation of the plant were received during the period under review.

As in previous years, the monitoring indicated that the treatment system was effectively treating the municipal wastewater to the extent that no significant effects were noted in the receiving waters of the Tasman Sea, and the water quality of nearby popular beach bathing sites remained at a very high standard. There were no unauthorised incidents recording non-compliance in respect of this consent holder during the period under review.

During the year, STDC demonstrated a good level of environmental and a high level of administrative performance with the resource consents. There were no issues with the performance of the WWTP, or complaints made related to its operation. One consented overflow from the Hector Place pumping station through the ocean outfall structure occurred during the monitoring period. This was self-notified by STDC and a timely and appropriate response was carried out. No enforcement action was required.

For reference, in the 2016-2017 year, consent holders were found to achieve a high level of environmental performance and compliance for 74% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 21% of the consents, a good level of environmental performance and compliance was achieved.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance remains at a generally high level. This report includes recommendations for the 2017-2018 year, including minor changes to the scheduled monitoring programme.

## Table of contents

	<b>Page</b>
1. Introduction	1
1.1. Compliance monitoring programme reports and the Resource Management Act 1991	1
1.1.1. Introduction	1
1.1.2. Structure of this report	1
1.1.3. The Resource Management Act 1991 and monitoring	1
1.1.4. Evaluation of environmental and administrative performance	2
1.2. WWTP System	3
1.2.1. Background	3
1.3. Resource consents	5
1.3.1. Water discharge permit	5
1.3.2. Water discharge permit (ocean outfall)	5
1.3.3. Coastal permit (structure)	6
1.4. Monitoring programme	6
1.4.1. Introduction	6
1.4.2. Programme liaison and management	7
1.4.3. Site inspections	7
1.4.4. Chemical sampling	7
2. Results	8
2.1. Inspections	8
2.2. Results of effluent monitoring	9
2.2.1. Dissolved oxygen levels	10
2.2.2. Microfloral component	13
2.2.3. Wetlands effluent monitoring	13
2.2.4. Trench system effluent monitoring	13
2.3. Results of receiving environment monitoring	14
2.3.1. Tasman Sea monitoring	14
2.3.2. Bacteriological recreational water quality monitoring	15
2.5. Investigations, interventions, and incidents	19
3. Discussion	20
3.1. Discussion of site performance	20
3.2. Environmental effects of exercise of consents	20
3.3. Evaluation of performance	21
3.4. Recommendations from the 2015-2016 Annual Report	24

3.5.	Alterations to monitoring programmes for 2017-2018	24
4.	Recommendations	25
	Glossary of common terms and abbreviations	26
	Bibliography and references	28
Appendix I Resource consents held by South Taranaki District Council (For a copy of the signed resource consent please contact the TRC Consents department)		

## List of tables

Table 1	Dissolved oxygen levels at the surface of the Opunake WWTP primary pond	10
Table 2	Results of effluent analysis monitoring at various treatment stages	12
Table 3	Chlorophyll-a levels and primary pond appearance	13
Table 4	Tasman Sea receiving water sampling results	15
Table 5	Guideline levels for contact recreation bathing sites	18
Table 6	SFRG for Opunake Beach for the five-year period from October 2010 to April 2015	18
Table 7	Summary of performance for consent 4248-2	21
Table 8	Summary of performance for consent 0236-6	22
Table 9	Evaluation of environmental performance over time	23

## List of figures

Figure 1	Schematic of Opunake WWTP design and layout	4
Figure 2	Aerial view of the Opunake WWTP and sampling location	11
Figure 3	Location of receiving water sampling sites for Opunake WWTP	14
Figure 4	Bacteriological (enterococci) results from Opunake Beach during summer 2016-2017	16
Figure 5	Median bacteriological results at Opunake Beach since summer 1993-1994	16
Figure 6	Bacteriological (enterococci) results from Middleton Bay during summer 2016-2017	17



# 1. Introduction

## 1.1. Compliance monitoring programme reports and the Resource Management Act 1991

### 1.1.1. Introduction

This report is for the period July 2016 to June 2017 and describes the monitoring programme associated with three resource consents held by South Taranaki District Council (STDC). STDC operates a municipal wastewater treatment plant (WWTP) situated on South Road at Opunake.

This report covers the results and findings of the monitoring programme implemented by the Taranaki Regional Council (the Council) in respect of the consents held by STDC that relate to the discharge of treated wastewater in the Otahi and Heimama catchments. This is the twenty-seventh annual report to be prepared by the Council to cover STDC's discharge and its effects.

### 1.1.2. Structure of this report

**Section 1** of this report is a background section. It sets out general information about:

- consent compliance monitoring under the Resource Management Act 1991 (RMA) and the Council's obligations;
- the Council's approach to monitoring sites through annual programmes;
- the resource consents held by STDC in the Otahi/Heimama catchments;
- the nature of the monitoring programme in place for the period under review; and
- a description of the activities and operations conducted at STDC's site.

**Section 2** presents the results of monitoring during the period under review, including scientific and technical data.

**Section 3** discusses the results, their interpretations, and their significance for the environment.

**Section 4** presents recommendations to be implemented in the 2017-2018 monitoring year.

A glossary of common abbreviations and scientific terms, and a bibliography, are presented at the end of the report.

### 1.1.3. The Resource Management Act 1991 and monitoring

The RMA primarily addresses environmental 'effects' which are defined as positive or adverse, temporary or permanent, past, present or future, or cumulative. Effects may arise in relation to:

- a. the neighbourhood or the wider community around an activity, and may include cultural and social-economic effects;
- b. physical effects on the locality, including landscape, amenity and visual effects;
- c. ecosystems, including effects on plants, animals, or habitats, whether aquatic or terrestrial;
- d. natural and physical resources having special significance (for example recreational, cultural, or aesthetic); and
- e. risks to the neighbourhood or environment.

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' inasmuch as is appropriate for each activity. Monitoring programmes are not only based on existing permit conditions, but also on the obligations of the RMA to assess the effects of the exercise of consents. In accordance with Section 35 of the RMA, the Council undertakes compliance monitoring for consents and rules in regional plans, and maintains an overview of the performance of resource users and consent holders. Compliance monitoring, including both activity and impact monitoring, enables the Council to continually re-evaluate its approach and that of consent holders to resource management and, ultimately, through the refinement of methods and considered responsible resource utilisation, to move closer to achieving sustainable development of the region's resources.

#### 1.1.4. Evaluation of environmental and administrative performance

Besides discussing the various details of the performance and extent of compliance by STDC, this report also assigns them a rating for their environmental and administrative performance during the period under review.

Environmental performance is concerned with actual or likely effects on the receiving environment from the activities during the monitoring year. Administrative performance is concerned with STDC's approach to demonstrating consent compliance in site operations and management including the timely provision of information to Council (such as contingency plans and water take data) in accordance with consent conditions.

Events that were beyond the control of the consent holder and unforeseeable (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

The categories used by the Council for this monitoring period, and their interpretation, are as follows:

##### Environmental Performance

**High:** No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving significant environmental impacts and was not obliged to issue any abatement notices or infringement notices in relation to such impacts.

**Good:** Likely or actual adverse effects of activities on the receiving environment were negligible or minor at most. There were some such issues noted during monitoring, from self reports, or in response to unauthorised incident reports, but these items were not critical, and follow-up inspections showed they have been dealt with. These minor issues were resolved positively, co-operatively, and quickly. The Council was not obliged to issue any abatement notices or infringement notices in relation to the minor non-compliant effects; however abatement notices may have been issued to mitigate an identified potential for an environmental effect to occur.

For example:

- High suspended solid values recorded in discharge samples, however the discharge was to land or to receiving waters that were in high flow at the time;
- Strong odour beyond boundary but no residential properties or other recipient nearby.

**Improvement required:** Likely or actual adverse effects of activities on the receiving environment were more than minor, but not substantial. There were some issues noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent



minor non-compliant activity could elevate a minor issue to this level. Abatement notices and infringement notices may have been issued in respect of effects.

**Poor:** Likely or actual adverse effects of activities on the receiving environment were significant. There were some items noted during monitoring, from self reports, or in response to unauthorised incident reports. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

### Administrative performance

**High:** The administrative requirements of the resource consents were met, or any failure to do this had trivial consequences and were addressed promptly and co-operatively.

**Good:** Perhaps some administrative requirements of the resource consents were not met at a particular time, however this was addressed without repeated interventions from the Council staff. Alternatively adequate reason was provided for matters such as the no or late provision of information, interpretation of 'best practical option' for avoiding potential effects, etc.

**Improvement required:** Repeated interventions to meet the administrative requirements of the resource consents were made by Council staff. These matters took some time to resolve, or remained unresolved at the end of the period under review. The Council may have issued an abatement notice to attain compliance.

**Poor:** Material failings to meet the administrative requirements of the resource consents. Significant intervention by the Council was required. Typically there were grounds for an infringement notice.

For reference, in the 2016-2017 year, consent holders were found to achieve a high level of environmental performance and compliance for 74% of the consents monitored through the Taranaki tailored monitoring programmes, while for another 21% of the consents, a good level of environmental performance and compliance was achieved.

## 1.2. WWTP System

### 1.2.1. Background

The Opunake WWTP comprises two distinct components. The first is the interception of the town sewage by diverting the terminal sewer into a new pumping station. This pumping station is located on Hector Place, adjacent to the terminal sewer leading to the outfall and diverts the sewage to a land-based treatment system located on a headland bounded by State Highway 45 and the Heimama and Otahi Streams. Installation of storage at the pump station has been provided in the event of power outages, faults or breakdowns in the pumping system.

The second component is a land-based treatment system (Figure 1) and is comprised of an initial 1.25 hectare primary oxidation pond. Provision for aeration of this pond was made but has not been required to date. After treatment in this pond the effluent passes through a series of two combined secondary oxidation pond/wetland systems. Final disposal of the effluent is via a series of soakage trenches, which are backfilled with gravel and permit effluent flow along the trenches and through the side walls into a silty sand layer. This series of trenches has been designed to allow regular intervals between use of the individual trenches. The trenches are located a minimum of 30 metres from the coastal cliff face. The land-based treatment system was constructed during the 1993-94 period and has been operational during the nineteen subsequent monitoring years. The groundwater monitoring bores were constructed in September 1994 and are located as shown in Figure 1.

This system operates under consent 4248-2, which was renewed in June 2003, and has an expiry date of June 2018.

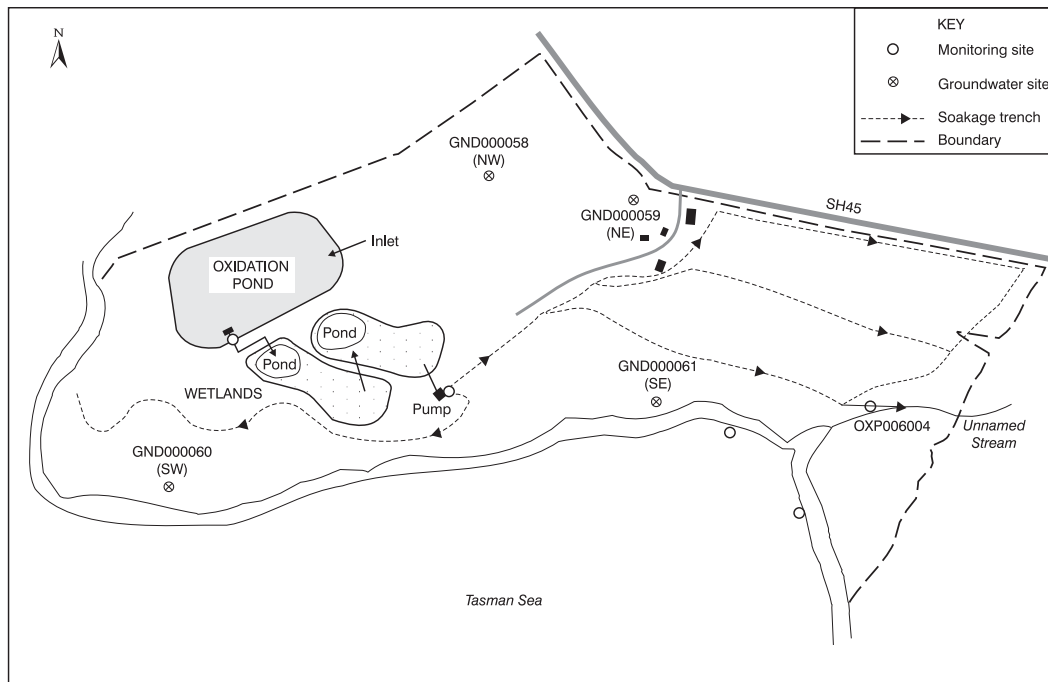


Figure 1 Schematic of Opunake WWTP design and layout

The site is currently leased for sheep farming in the sewage treatment area and two other areas of land in the treatment plant have been leased out for grazing of cattle (STDC, 2015). A public walkway through the area is maintained by the Council and riparian planting of the receiving unnamed stream (Figure 1) was performed in autumn 2009.

In association with this land based sewage treatment scheme, a consent (coastal permit) was granted to allow for the use of the ocean outfall when storm and groundwater inflows exceed the capacity of the new pump station. This allows for the discharge of untreated wastewater via the ocean outfall.

## 1.3. Resource consents

### 1.3.1. Water discharge permit

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

STDC holds water discharge permit **4248-2** to discharge up to 2,074 cubic metres per day of treated municipal wastewater from the Opunake municipal oxidation pond and wetlands treatment system onto and into land and into an unnamed stream between the Otahi Stream and the Heimama Stream. This permit was issued by the Council on 11 June 2003 under Section 87(e) of the RMA. It is due to expire on 1 June 2018.

Condition 1 details requirements of the system design and operation.

Condition 2 requires the consent holder to adopt the best practicable option.

Condition 3 details requirements of the management plan.

Condition 4 sets out operator requirements.

Condition 5 details requirements of aerobic conditions in the pond.

Condition 6 limits the duration of ponding on the land surface.

Condition 7 sets limits on the overland flow of wastewater.

Condition 8 details requirements relating to monitoring.

Condition 9 details requirements around new trade wastes connections.

Condition 10 sets limits on the effects of the discharge on receiving waters.

Condition 11 relates to reporting requirements.

Condition 12 provides for review.

The permit is attached to this report in Appendix I.

This summary of consent conditions may not reflect the full requirements of each condition. The consent conditions in full can be found in the resource consent which is appended to this report.

### 1.3.2. Water discharge permit (ocean outfall)

Section 15(1)(a) of the RMA stipulates that no person may discharge any contaminant into water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or by national regulations.

STDC holds coastal permit **0236-6** to discharge up to 4,666 cubic metres per day of comminuted wastewater from an ocean outfall in Middleton Bay, Opunake, to the Tasman Sea. This permit was issued by the Council on 7 April 2006 under Section 87(e) of the RMA. It is due to expire on 1 June 2018.

Condition 1 requires the consent holder to adopt the best practicable option.

Condition 2 provides for the exercise of the consent under certain conditions.

Condition 3 details requirements of the outfall design and upgrades.

Condition 4 details upgrade reporting requirements.

Condition 5 limits situations that allow for discharges to occur.

Condition 6 maintains limits on discharge of solids.

Condition 7 details requirements of notification following discharges.

Condition 8 details requirements of reporting following discharges.

Condition 9 sets requirements of the contingency plan.

Condition 10 relates to installation and maintenance of signage following discharges.

Condition 11 details requirements of notification to health authorities following discharges.

Condition 12 provides for the regular occurrence of meetings with interested parties.

Condition 13 requires the implementation of a stormwater/groundwater infiltration reduction programme.

Condition 14 relates to the monitoring of shellfish following major discharges.

Condition 15 provides for review.

The permit is attached to this report in Appendix I.

This summary of consent conditions may not reflect the full requirements of each condition. The consent conditions in full can be found in the resource consent which is appended to this report.

### 1.3.3. Coastal permit (structure)

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations.

STDC holds coastal permit **4577-3** to place and maintain the Opunake marine outfall structure within the coastal marine area at Middletons Bay. This permit was issued by the Council on 5 December 2005 under Section 87(c) of the RMA. It is due to expire on 1 June 2018.

Condition 1 details requirements for notification prior to maintenance works.

Condition 2 requires all practicable measures to minimise disturbance from maintenance works..

Condition 3 details requirements of the outfall maintenance.

Condition 4 details removal and reinstatement requirements.

Condition 5 provides for review.

The permit is attached to this report in Appendix I.

This summary of consent conditions may not reflect the full requirements of each condition. The consent conditions in full can be found in the resource consent which is appended to this report.

## 1.4. Monitoring programme

### 1.4.1. Introduction

Section 35 of the RMA sets obligations upon the Council to gather information, monitor and conduct research on the exercise of resource consents within the Taranaki region. The Council is also required to assess the effects arising from the exercising of these consents and report upon them.

The Council may therefore make and record measurements of physical and chemical parameters, take samples for analysis, carry out surveys and inspections, conduct investigations and seek information from consent holders.

The monitoring programme for the Opunake WWTP consisted of three primary components.

### 1.4.2. Programme liaison and management

There is generally a significant investment of time and resources by the Council in:

- ongoing liaison with resource consent holders over consent conditions and their interpretation and application;
- discussion over monitoring requirements;
- preparation for any consent reviews, renewals or new consent applications;
- advice on the Council's environmental management strategies and content of regional plans; and
- consultation on associated matters.

### 1.4.3. Site inspections

The Opunake WWTP was visited four times during the monitoring period. With regard to the consent for discharge to water, the main points of interest were plant operation and performance, disposal trenches operation and the discharges of treated wastewater. An extra inspection was performed after an overflow event following heavy rain. Hector Place pumping station and the emergency overflow structure were also included in these inspections. Inspections provided for the operation, internal monitoring, and supervision of the plant to be reviewed by the Council. Sources of data being collected by STDC were identified and accessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council. The neighbourhood was surveyed for environmental effects.

### 1.4.4. Chemical sampling

The Council undertook sampling of the discharges from the site, the water quality either side of the discharge point and mixing zone, and the summer water quality at nearby recreational bathing sites

The Opunake WWTP primary pond effluent was sampled for dissolved oxygen and microfloral component on four occasions, and the primary pond and wetland effluents were sampled for pH, conductivity, BOD, SS, and bacterial components (faecal coliform and enterococci) on one occasion. Effluent nutrient and BOD analyses were carried out on two occasions for both the primary pond and wetland effluents.

Sampling of the soakage trench treated effluent and the Tasman Sea either side of the discharge was carried out on three occasions, and the sample analysed for conductivity and faecal coliform bacteria.

Contact recreational bacteriological water quality at Opunake Beach and at Middleton Bay was monitored by the Council on 24 and 13 separate occasions respectively between early November 2016 and early April 2017.

## 2. Results

### 2.1. Inspections

29 August 2016

An inspection was conducted in overcast weather with light southerly wind conditions.

The influent screen was operating and wastes were fully contained. The primary pond level was higher than normal operating level and the discharge screen was clear. The pond was a very pale green colour and relatively clear, with a rippled surface. No noticeable odour was encountered downwind of the pond. Dissolved oxygen (DO) levels were measured and a sample was collected for chlorophyll-a analysis. Multiple ducks and two black swans were observed on the pond surface.

The wetland pond surfaces were pale green in colour and relatively clear, with light rippling at the surface. Three ducks were observed on the ponds, and the wetland sump discharge pump was operating at the time.

An inspection of the overland soakage trench system was also conducted. It found that some surface water was discharging to the coast via the two open trenches. The flow rate of treated effluent from the subsurface trench system was estimated at 10 L/s, and the discharge appeared to have only a minor visual impact on the receiving waters.

The treated wastewater discharge and two Tasman Sea sites either side of the discharge point were sampled for compliance monitoring purposes.

The Hector Place pumping station and the emergency overflow structure were also inspected and found to be in a satisfactory condition with no sign of spills or overflows.

6 December 2016

A compliance monitoring inspection was conducted in fine weather with light northerly wind conditions.

The influent screen was operating and wastes were fully contained. The primary pond level was normal and the discharge screen was clear. The pond was turbid and mainly flat, and a very dark green colour.

Slight noticeable odour was detected immediately downwind of the step screen. This was described as an 'amine-type' odour. Large numbers (250+ individuals) of Canadian Geese, mallard ducks, and black swans were observed on the primary pond. DO levels were measured and a sample collected for chlorophyll-a analysis.

The wetlands pond surfaces were mainly flat and dark green in colour, with three ducks present. The wetland discharge sump was on standby.

An inspection of the overland soakage trench system found that all open trenches were relatively dry. The treated wastewater discharge was dark green and relatively turbid. It was discharging at an estimated flow rate of 4 L/s, showing a noticeable visual impact on the receiving waters of the unnamed stream.

Samples were collected at the Tasman Sea monitoring sites either side of the unnamed tributary for compliance monitoring purposes.

The Hector Place pumping station and the emergency overflow structure were also inspected and found to be in a satisfactory condition.

22 February 2017

An inspection of the WWTP was conducted in fine weather with light south westerly wind conditions.

The influent step screen was operating and wastes were fully contained. The primary pond was a turbid, dark green colour, with a rippled surface. A small pocket of organic scum and floatables had accumulated

near the south western corner. DO measurements were taken and effluent grab samples were collected for full wastes and chlorophyll-a analysis. Numerous mallard ducks (250+ individuals) and several black swans were observed on the pond.

The wetland ponds were a dark green colour, and the discharge sump pump was operating at the time of inspection. Effluent grab samples were collected for full wastes analysis.

All open trenches were relatively dry and no significant boggy areas were observed in the overland trench system. The treated wastewater discharge flow rate was estimated at 2 L/s, having a noticeable visual impact on the receiving water of the unnamed stream. A green plume from the unnamed tributary discharge was observed in the mixing zone at the coast.

The Tasman Sea monitoring sites were sampled either side of the unnamed tributary as per the summer monitoring program.

The WWTP surrounds and facilities were inspected, along with the Hector Place pump station and the emergency outfall. All were found to be in a satisfactory condition with no signs of unauthorised discharges or overflows.

### 16 May 2017

The final compliance monitoring inspection for the period was carried out in overcast weather with calm wind conditions.

The influent screen was operating and wastes were fully contained. The primary pond level was normal, and the pond was a slightly turbid, pale green brown colour. The surface was mainly flat. Numerous (250+ individuals) mallard ducks, Canadian geese, and black swans were observed on the pond. An algal sample was collected for chlorophyll-a analysis.

The wetland pond surfaces were flat, and a slightly turbid, pale green colour. Two scaup ducks were observed on the surface. The wetland discharge pump was operating at the time of inspection.

Most trenches in the overland trench system contained surface water and were discharging with minimal boggy areas. The discharge flow rate from the subsurface effluent trench system was estimated at 20 L/s, and a slightly noticeable environmental impact was observed on the receiving waters.

The Hector Place pumping station and the emergency overflow structure were also inspected and found to be in satisfactory condition.

Neighbouring cattle appeared to have broken into the riparian margin along the unnamed stream between the Otahi and Heimama Streams near the treated stormwater discharge. Extensive damage to the established riparian margin plants was noted during the inspection.

## 2.2. Results of effluent monitoring

Effluent analyses were carried out at three locations throughout the treatment system, for the purpose of monitoring the effectiveness of each stage of treatment. These locations were the primary pond effluent (OXPO01002), the partially treated wetlands effluent (OXPO06001), and the fully treated final discharge from the subsurface trench system (OXPO06004) (Figure 2).

Along with a visual survey of each component of the system; dissolved oxygen levels (DO) and the microfloral component of the pond were measured during each inspection. These are discussed in Sections 2.2.1 and 2.2.2 respectively.

The primary pond and wetland effluents were sampled for pH, conductivity, SS, and bacterial components (faecal coliform and enterococci) on one occasion. Effluent nutrient and BOD analyses at these sites were carried out on two occasions.

Sampling of the reticulated trench treated effluent and the Tasman Sea either side of the discharge was carried out on three occasions, and the sample analysed for conductivity and faecal coliform bacteria.

The results of effluent monitoring at all three sites are displayed in Table 1.

### 2.2.1. Dissolved oxygen levels

The dissolved oxygen concentration in WWTPs varies both seasonally and during the day as a result of a combination of factors. The photosynthetic activity of the pond's microflora together with fluctuations in influent waste loadings on the system are major influencing factors. Minimum dissolved oxygen concentrations are generally recorded in the early hours of daylight, and therefore pond performance has been evaluated by standardising sampling times toward mid-morning for all regular inspection visits during the monitoring period.

The results of dissolved oxygen monitoring in the primary pond recorded adjacent to outlet are included in Table 1.

**Table 1** Dissolved oxygen levels at the surface of the Opunake WWTP primary pond

Date	Time (NZST)	Temperature (°C)	Dissolved Oxygen	
			Concentration (g/m <sup>3</sup> )	Saturation (%)
29 August 2016	0945	12.7	2.8	27
6 December 2016	0855	20.3	15.9	173
22 February 2017	0845	20.6	2.3	25
16 May 2017	1000	13.1	5.6	53

Results in Table 1 indicated a relatively wide range of dissolved oxygen concentrations (between 25% and 173% saturation) in the surface layer of the primary pond near the outlet. These were typical of the levels generally recorded in this oxidation pond (i.e. supersaturation is seldom recorded). No mechanical aeration of the pond occurs, and the lowest DO readings were recorded in the summer period, which is consistent with previous results.



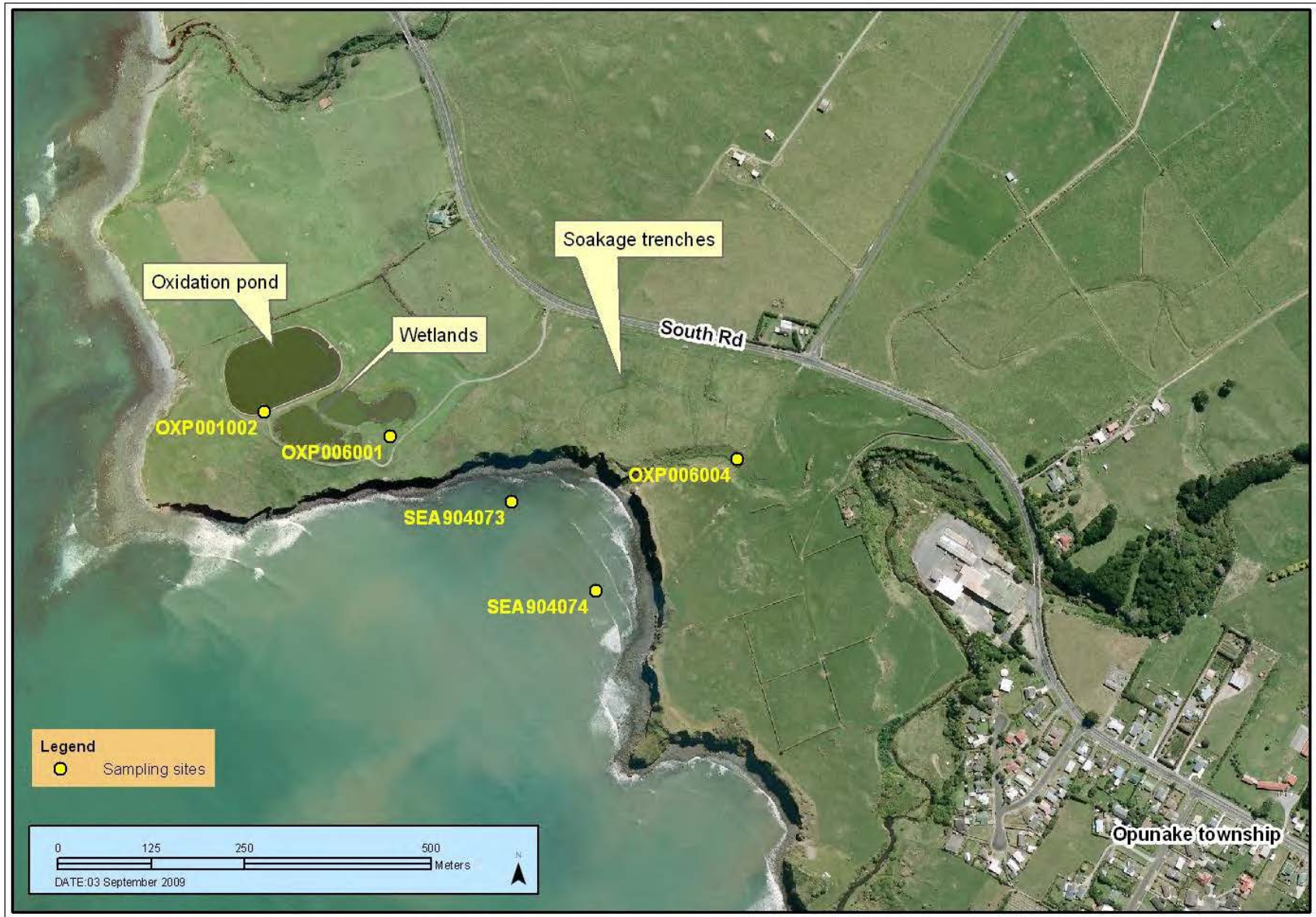


Figure 2 Aerial view of the Opunake WWTP and sampling location

Table 2 Results of effluent analysis monitoring at various treatment stages

Site		Primary pond effluent				Wetlands partially treated effluent				Final treated discharge from trench system			
Date		29 Aug 2016	06 Dec 2016	22 Feb 2017	2015-2016 Range	29 Aug 2016	06 Dec 2016	22 Feb 2017	2015-2016 Range	29 Aug 2016	06 Dec 2016	22 Feb 2017	2015-2016 Range
Time		0945	1005	1015		0855	0910	0930		0845	0900	0920	
Parameter	Unit												
Temp	°C	12.7	20.3	20.6	11.9-18.4	12.1	20.0	19.1	11.6-16.5	12.2	19.7	19.6	-
pH	pH	7.3	-	-	7.1-7.6	7.4	-	-	7.3-7.8	-	-	-	-
BODF	g/m <sup>3</sup>	8.4	13	6.8	-	7.2	5.8	5.3	-	-	-	-	-
Conductivity @ 20°C	mS/m	40.8	-	-	38.2-51.1	41.3	-	-	38.0-43.7	40.9	32.5	42.2	37.5-51.6
Ent	/100ml	2,500	740	9,400	1,000-14,000	34	30	160	46-5,500	-	-	-	-
FC	/100ml	44,000	25,000	62,000	12,000-140,000	500	2,900	660	160-19,000	220	1,200	140	78-1,100
SS	g/m <sup>3</sup>	4	-	-	Oct-63	5	-	-	Aug-60	-	-	-	-
<b>Nutrient Analyses</b>													
NH <sub>4</sub>	g/m <sup>3</sup> N	-	13.2	17.7	17.2	-	0.94	9.62	4.04	-	-	-	-
NNN	g/m <sup>3</sup> N	-	0.09	0.02	0.02	-	0.31	0.5	0.13	-	-	-	-
DRP	g/m <sup>3</sup> P	-	2.01	2.96	4.11	-	2.92	4.08	4.77	-	-	-	-
TP	g/m <sup>3</sup> P	-	3.22	4.39	5.28	-	4.28	4.91	5.78	-	-	-	-

### 2.2.2. Microfloral component

Pond microflora are very important for the stability of the symbiotic relation between aerobic bacteria in the primary pond. These phytoplankton may be used as a bio-indicator of pond conditions, for example cyanobacteria are often present in under-loaded conditions and chlorophyceae are present in overloaded conditions. To maintain facultative conditions in a pond system there must be an algal community present in the surface layer.

The principal function of algae is the production of oxygen which maintains aerobic conditions while the main nutrients are reduced by biomass consumption. Elevated pH (due to algal photosynthetic activity) and solar radiation combine to reduce faecal bacteria numbers significantly.

Samples of the primary pond effluent were collected on all four inspections for chlorophyll-a analyses. Chlorophyll-a concentration can be a useful indicator of the algal population present in the system. Pearson (1996) suggested that a minimum in-pond chlorophyll-a concentration of 300 mg/m<sup>3</sup> was necessary to maintain stable facultative conditions). However, seasonal change in algal populations and also dilution by stormwater infiltration might be expected to occur in any WWTP which, together with fluctuations in waste loadings, would result in chlorophyll-a variability.

The results of primary pond effluent analyses are provided in Table 3 together with field observations of pond appearance.

Table 3 Chlorophyll-a levels and primary pond appearance

Date	Time (NZST)	Appearance	Chlorophyll-a (mg/m <sup>3</sup> )	Chlorophyll-a (mg/m <sup>3</sup> ) data from July 2015 to June 2016		
				N	Range	Median
29 August 2016	0945	clear, light green	1.4	4	4-870	202
6 December 2016	0855	turbid, green brown	633			
22 February 2017	0845	turbid, dark green	312			
16 May 2017	1000	slightly turbid, pale green	484			

Despite the wide range of concentrations of chlorophyll-a in the primary pond, the majority of samples showed high concentrations, indicative of a significant phytoplanktonic component. The low DO levels (2.3 g/m<sup>3</sup> to 5.6 g/m<sup>3</sup>) that were measured, which are indicative of the organic wastes' loadings on this system, were associated with the lowest algal concentrations in the pond.

### 2.2.3. Wetlands effluent monitoring

No odours were associated with the system at the time of any inspection visit. Effluent levels in the wetlands were controlled by the wetland discharge pump, which was in operation during three of the four inspections. Minor bird numbers were observed on this section of the treatment plant, which has implications for the level of bacteria in the wetland effluent.

### 2.2.4. Trench system effluent monitoring

The trench system was operative for the duration of the monitoring year. Discharge flow rates estimated at the outfall of the final trench ranged from 2 to 20 L/s, prior to the rock rip-rap outfall through which the final effluent discharged into the stream. This effluent varied in appearance from clear, light green to turbid, dark green.

Three samples of the trench system treated effluent were collected from the discharge point (EXP006004). During the monitoring period, the final effluent (Table 1) was within or close to the ranges of parameters measured from June 2015 to July 2016 at the same site. This effluent quality continued to be indicative of a well-treated waste flowing out of the soakage trenches to the stream. Faecal coliform bacterial quality was better than the corresponding wetlands effluent on all three occasions (56% to 79% reduction in numbers).

The overland trench system, which drains surface water above the subsurface trench treatment system, contained some surface water during the winter and autumn inspections. This was discharging to the coast; however no sampling was required as no significant run-off had occurred.

## 2.3. Results of receiving environment monitoring

Monitoring of the impacts of the Opunake WWTP on receiving waters is measured using both chemical analyses of the receiving waters of the Tasman Sea beyond the boundary of the mixing zone with the unnamed coastal stream, and contact recreational bacteriological quality surveys of the Tasman Sea at Middleton Bay and Opunake Beach (Figure 3). The former was sampled on three occasions during the 2016-2017 period (Section 2.3.1).

Contact recreational bacteriological water quality at Opunake Beach and at Middleton Bay was monitored by the Council on 24 and 13 separate occasions respectively between early November 2016 and early April 2017 (section 2.3.2).



Figure 3 Location of receiving water sampling sites for Opunake WWTP

### 2.3.1. Tasman Sea monitoring

Three sampling surveys of the receiving waters of the Tasman Sea were undertaken during the monitoring period. The sites were established slightly beyond the 50 metre mixing zone in consideration of the wide and meandering nature of the stream mouth. Two of the surveys were performed at, or within, two hours of high tide. Results are presented in Table 4.

Table 4 Tasman Sea receiving water sampling results

Date		29 Aug 2016		06 Dec 2016		22 Feb 2017	
Site		SEA904073	SEA904074	SEA904073	SEA904074	SEA904073	SEA904074
Time (NZST)		1100	1220	0950	0955	0945	0945
Parameter	Unit						
Temp	°C	14.1	14	18.9	19	19.9	19.9
Conductivity	mS/m @20°C	4500	4500	4700	4660	4730	4680
FC	/100ml	<1	40	<1	<1	<1	3
Appearance		clear, light grey		clear, uncoloured		clear, uncoloured	

No significant effects of the WWTP effluent discharge on the receiving waters of the coastal waters of the Tasman Sea were found through the monitoring period, with relatively low bacterial counts measured in the coastal waters on all three occasions, particularly in late spring and late summer.

In general, coliform bacteria numbers were well within the recreational shellfish-gathering guidelines in terms of the median seasonal faecal coliform value (14 per 100 ml) and the 10% guideline value (43 per 100 ml). There was one occasion when the seawater faecal coliform bacterial level exceeded the recommended median guideline value for shellfish gathering at the site on the SE side of the stream mouth. Whilst these results indicate that this particular element of compliance generally has been achieved, care needs to be exercised in drawing too many inferences from the limited data record gathered to date.

### 2.3.2. Bacteriological recreational water quality monitoring

In general, high water quality was found at both contact recreation sites during the annual recreational periods extending from November 2003 to April 2017. Very few single samples have entered the 'Alert' mode at either of Opunake Beach or Middleton Bay over the periods since 2003. Overall the seasonal enterococci medians of 1 per 100 ml at each of the two sites have emphasised the extremely high water quality generally present in these coastal waters over each of these recreational periods.

The sampling programme followed previous formats and was similar to those of previous years which included 13 high tide samples at both Opunake Beach and Middleton Bay, and an additional 11 low tide occasions at the Opunake Beach site. Monitoring extended from early November 2016 until mid April 2017 and covered a wet spring-summer period. The results for Opunake Beach are illustrated in Figure 4 in relation to the MfE, 2003 guidelines. There was no additional sampling required during the period as there was only one usage of the ocean outfall discharge, and sampling of this was combined with a bacteriological sampling survey that was being undertaken at the affected site at the same time.

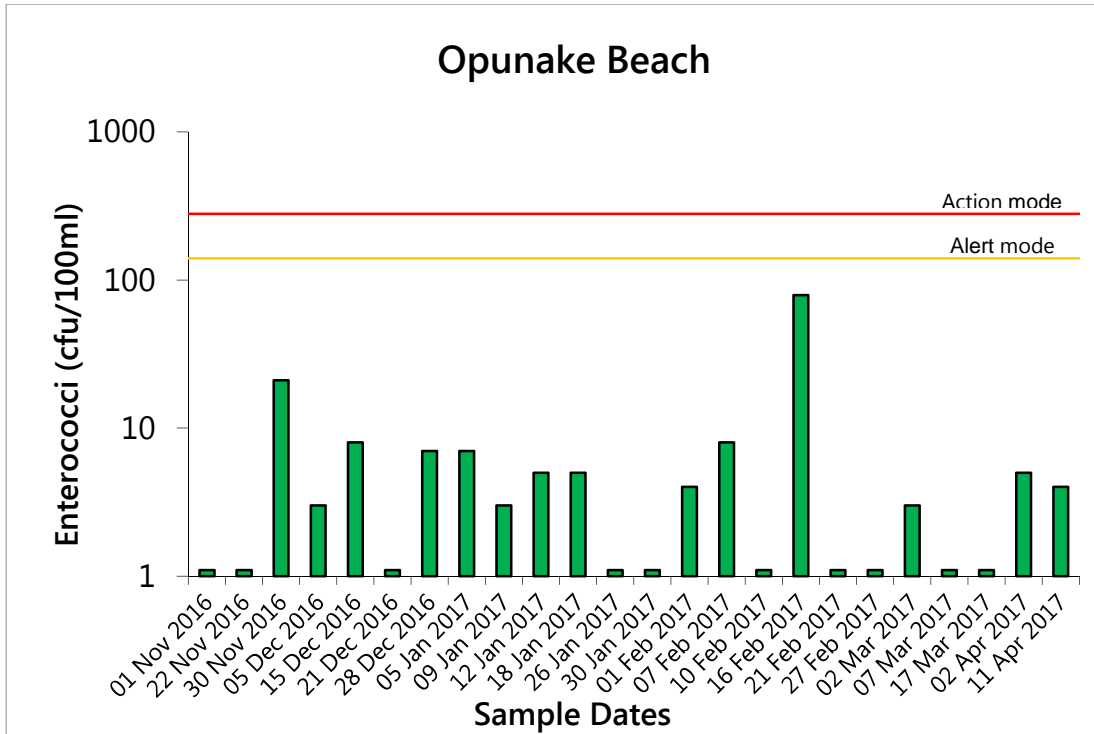


Figure 4 Bacteriological (enterococci) results from Opunake Beach during summer 2016-2017

The coastal bacteriological water quality at Opunake Beach was excellent throughout the monitoring period. There was one elevated count in mid-February 2017 (following a consented discharge from the ocean outfall), but no single sample exceeded the 'Alert' or 'Action' limit for recreational activities during the period. This very high water quality was emphasised by a maximum of 79 enterococci per 100 ml and the seasonal median counts of 1 enterococci (per 100 ml), 1 faecal coliform (per 100 ml), and 1 *E. coli* (per 100 ml) bacteria for the 24 samples collected during the survey period. These results may be compared with past bacteriological survey data for Opunake Beach (Figure 5).

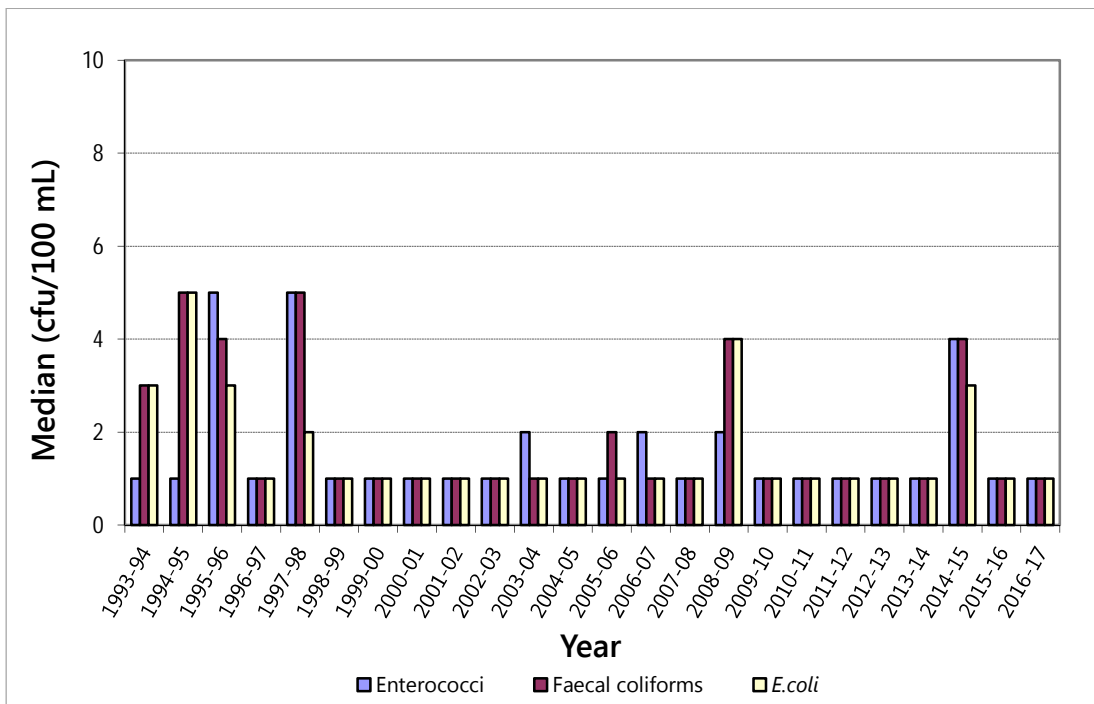


Figure 5 Median bacteriological results at Opunake Beach since summer 1993-1994

These results indicate that in terms of median numbers, the very high contact recreational water quality at this site in 2016-2017 was typical of the very narrow range of the median water quality recorded by all 21 past summer survey programmes.

The results for the survey undertaken over the same summer period at Middleton Bay are illustrated in Figure 6.

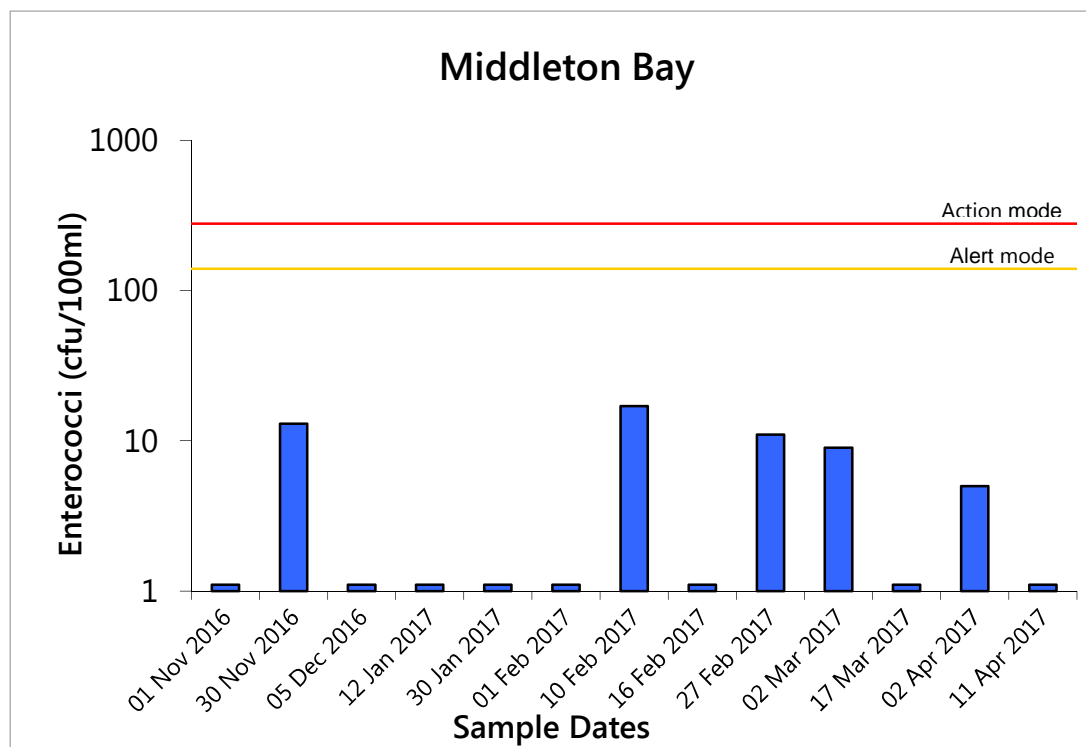


Figure 6 Bacteriological (enterococci) results from Middleton Bay during summer 2016-2017

Although not an intensively used contact recreational area, this site was monitored due to the potential for occasional discharges of untreated domestic sewage (generally following high stormwater infiltration conditions) into the coastal waters from the nearby ocean outfall.

One overflow event was reported by the consent holder over the 2016-2017 monitoring period. This event occurred on the 15 February 2017 and was the result of extremely high rainfall and an operational error. Signage was placed at the affected sites in accordance with the contingency plan. The consent holder subsequently undertook an internal audit of procedural matters and put in place remedial measures to prevent a similar recurrence. In particular, monitoring and alarm system operation and response matters have been re-addressed (STDC, pers comm).

The very high bacteriological water quality was emphasised by the seasonal median counts of 1 enterococci (per 100 ml), 1 faecal coliform (per 100 ml), and 1 *E.coli* (per 100 ml) bacteria for the 13 samples survey period, very similar to water quality recorded at the nearby Opunake Beach.

### 2.3.2.1. Guidelines for contact recreation

Guidelines have been prepared by the Ministry for the Environment in conjunction with the Ministry of Health (MfE, 2003). Components of these guidelines include sanitary surveys/inspections together with assessments of historical microbiological data which, when combined, provide an overall suitability for recreation grade, which describes the general condition of a site based on both risk and indicator bacteria counts. Minor changes to the marine enterococci recreational guideline values have been made for the purpose of regularly assessing single sample compliance with suitability for recreation and are now more

reflective of New Zealand conditions. 'Alert' and 'Action' guideline levels are used for surveillance throughout the bathing season. They may be summarised in Table 5.

Table 5 Guideline levels for contact recreation bathing sites

Mode	Enterococci (nos/100 ml)		
	'Acceptable' (green)	'Alert' (amber)	'Action' (red)
Marine	≤140	141-280	>280 (2 consecutive samples)

### 2.3.2.2. Suitability for recreation grading (SFRG)

The 2003 Microbiological Water Quality Guidelines (MfE, 2003) provide for the grading of recreational water bodies utilising Microbiological Assessment Categories (using historical data) and Sanitary Inspection Categories which generate a measure of the susceptibility of water bodies to faecal contamination. This suitability for recreation grade (SFRG) therefore describes the general condition of a site based on both risk and indicator bacteria water quality. A grade is established on the basis of five years' data and recalculation of a grade may be performed annually although grades should be reassessed on a five-yearly basis.

SFRGs are very good, good, fair, poor, and very poor. Sites graded very good, will almost always comply with the guideline values for recreation, and indicate that there are few sources of faecal contamination in the catchment. Consequently there is a low risk of illness from bathing. Sites graded very poor are in catchments with significant sources of faecal contamination, and they rarely pass the guidelines. The risk of illness from bathing at these sites is high, and swimming is not recommended. For the remaining beaches (good, fair and poor) it is recommended that weekly monitoring be carried out during the bathing season. The public are to be informed when guideline values are exceeded and swimming is not recommended (MfE, 2003).

All of the region's principal coastal recreation sites have been graded according to these criteria, using historical microbiological water quality data extending over the latest five year period (November 2010 to April 2015) preceding the current period (TRC, 2015). The relevant information for Opunake Beach is summarised in Table 6.

Table 6 SFRG for Opunake Beach for the five-year period from October 2010 to April 2015

Site	Sanitary Inspection Category	Microbiological assessment Enterococci (nos/100 ml)			SFR Grade	% of all samples in compliance (ie: <280 enterococci)
		95%ile	Number of samples	Category		
Opunake Beach	Moderate 3	15.5	100	A	Good	100



## 2.5. Investigations, interventions, and incidents

The monitoring programme for the year was based on what was considered to be an appropriate level of monitoring, review of data, and liaison with STDC. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach that in the first instance avoids issues occurring is favoured.

The Council operates and maintains a register of all complaints or reported and discovered excursions from acceptable limits and practices, including non-compliance with consents, which may damage the environment. The incident register includes events where the consent holder concerned has itself notified the Council. The register contains details of any investigation and corrective action taken.

Complaints may be alleged to be associated with a particular site. If there is potentially an issue of legal liability, the Council must be able to prove by investigation that the identified individual is indeed the source of the incident (or that the allegation cannot be proven).

In the 2016-2017 period, the Council was not required to undertake significant additional investigations and interventions, or record incidents, in association with the consent holder's conditions in resource consents or provisions in Regional Plans.

On 15 February 2017, STDC self-notified that an overflow had occurred from the Hector Place pumping station in Opunake, following heavy rainfall and failure of the ultrasonic level control. The total volume of effluent that overflowed was estimated to be approximately 500m<sup>3</sup>. This passed through the ocean outfall structure and discharged into Middleton Bay. This is a consented activity as per Special Condition 5 of consent 0236-6 (granted 7 April 2006, expiring 1 June 2018). Follow-up sampling was undertaken in Middleton Bay and Opunake Beach in conjunction with a programmed recreational bathing beach monitoring survey conducted on 16 February 2017. A report was provided to Council by STDC detailing the events that had led to the overflow, and the remedial action taken. No further action was deemed necessary, and all water quality samples returned results well within contact recreational guidelines.

## 3. Discussion

### 3.1. Discussion of site performance

All aspects of plant performance and normal maintenance were compliant during the 2016-2017 year, with good liaison maintained between STDC and the Council. The WWTP system experienced no operational problems during the period.

Maintenance of the plant was very good during the period. Minimal overland flow from the soakage trenches was observed, and the improved reticulation of the trench system functioned properly throughout the period. Stock access and movement within the WWTP property area in general have been addressed by the consent holder, although the fourth and final inspection of the monitoring period noted that stock damage had occurred to the riparian margin bordering the unnamed stream that the WWTP discharges to. This was followed up with STDC.

Compliance with consents' conditions was very good including operational procedures associated with the reticulation related to the ocean outfall. There was one minor overflow associated with the use of the outfall, and this was carried out in a controlled manner with no significant environmental effects measured. Works were undertaken by STDC immediately to prevent reoccurrence of this type of event.

### 3.2. Environmental effects of exercise of consents

Monitoring of system performance indicated that a high standard of effluent quality was produced by the oxidation pond and series of two wetlands. Wastewater quality from the wetlands and the overland flow was very good, reflecting the good performance of the WWTP system, with significant reductions in bacterial and nutrient loadings. Discharges from the reticulated soakage trench system into the unnamed coastal tributary had minimal measurable effects on the bacteriological quality of the coastal receiving waters of the Tasman Sea in the vicinity of the stream's mouth.

Only infrequent and minor impacts of wastewater disposal from the WWTP were measured on bacteriological contact recreational water quality surveyed throughout the summer period at the principal coastal recreational area on Opunake Beach and at the nearby Middleton Bay. There were no exceedances of the contact recreational bacteriological 'Action' guideline during the season at the Middleton Bay site. This continued the trend of very high bacteriological water quality measured at Opunake Beach over the previous 23 summers. Shellfish-gathering bacteriological water quality standards were not exceeded on any occasion in the coastal waters during the bacteriological monitoring period (adjacent to the WWTP), while the long term median standards have been met at both sites.

### 3.3. Evaluation of performance

A tabular summary of the consent holder's compliance record for the year under review is set out in Tables 7 and 8.

Table 7 Summary of performance for consent 4248-2

<b>Purpose: To discharge up to 2,074 cubic metres per day of treated municipal wastewater from the Opunake municipal oxidation pond and wetlands treatment system onto and into land and into an unnamed stream between the Otahi Stream and the Heimama Stream</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Requirements of system design and operation	Inspections	Yes
2. Adopt best practicable option	Inspection, chemical sampling and biomonitoring	Yes
3. Requirements of the management plan	Documents provided	Yes
4. Operator requirements	Liaison with STDC, inspections.	Yes
5. Aerobic conditions in the pond	Dissolved oxygen monitoring	Yes
6. Limits to the duration of ponding on the land surface	Inspection	Yes
7. Limits on the overland flow of wastewater	Inspection	Yes
8. Monitoring requirements	Liaison with STDC, physiochemical monitoring	Yes
9. New trade wastes connections	Liaison with STDC	N/A
10. Effects of the discharge on receiving waters	Inspection, physicochemical sampling	<b>Minor effects noted downstream of discharge point</b>
11. Reporting requirements	Reports provided	Yes
12. Review of consent	No further review provision	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>Good</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

N/A = not applicable

Table 8 Summary of performance for consent 0236-6

<b>Purpose: To intermittently discharge up to 4,666 cubic metres/day of comminuted wastewater, from an ocean outfall in Middleton Bay, Opunake, Taranaki, to the Tasman Sea</b>		
<b>Condition requirement</b>	<b>Means of monitoring during period under review</b>	<b>Compliance achieved?</b>
1. Adopt best practicable option	Inspection	Yes
2. Provision for documented exercise execution	Inspections	Yes
3. Upgrade design and implementation	Liaison with consent holder	Yes
4. Upgrade reporting	Upgrade completed	Yes
5. Limits upon reasons for discharge	Reporting by consent holder	Yes
6. Limits on solids discharged	Inspections and reporting by consent holder	Yes
7. Notification of discharge	Notification received	Yes
8. Overflow reporting requirement	Report received	Yes
9. Provision of contingency plan	Reporting by consent holder	Yes
10. Maintenance of signage	Inspections	Yes
11. Notification to Taranaki Healthcare	Consent holder reporting	Yes
12. Biennial meetings	Liaison with consent holder and submitters	Not required
13. Implementation of infiltration reduction programme	Consent holder report	Yes
14. Receiving water monitoring	Bacteriological sampling programme as required	Yes
15. Optional review of consent	No further review provision	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		<b>High</b>
Overall assessment of administrative performance in respect of this consent		<b>High</b>

Table 9 Evaluation of environmental performance over time

Year	High	Good	Improvement req	Poor
2000	1			
2001	1			
2002	1			
2003	1			
2004	1			
2005	1			
2006	1			
2007	1			
2008	1			
2009	1			
2010	1			
2011	1			
2012	1			
2013	1			
2014	1			
2015	1			
2016	1			
Totals	17			

During the year, STDC demonstrated a good level of environmental and high level of administrative performance with the resource consent as defined in Section 1.1.4. During the year under review there were no unauthorised incidents or issues associated with the performance or operation of the treatment plant. There was only one overflow from the ocean outfall, following a period of heavy rain and subsequent equipment failure. This was dealt with in a timely and appropriate manner by STDC, and no further action was required. No effects on the receiving waters were recorded following this event.

Monitoring of receiving waters showed that the treated discharge from the WWTP was having only a minor impact on the receiving environment. Contact recreational monitoring throughout the summer period showed that there were no exceedances of the recommended guidelines, and water quality at both Opunake Beach and Middleton Bay continues to be of a high standard.

### 3.4. Recommendations from the 2015-2016 Annual Report

In the 2015-2016 Annual Report, it was recommended:

1. THAT monitoring of consented activities at the Opunake WWTP in the 2016-2017 year continues at the same level as in 2015-2016.
2. THAT additional bacteriological coastal water monitoring of the renewed coastal permit associated with the occasional use of the ocean outfall be carried out only if discharges of comminuted sewage are recorded.

All recommendations were carried out and the consent holder maintained liaison and reporting to the Council in relation to use of the emergency outfall structure.

The monitoring programme was performed as scheduled by the Council. No incident investigations occurred during the 2016-2017 period.

### 3.5. Alterations to monitoring programmes for 2017-2018

In designing and implementing the monitoring programmes for air/water discharges in the region, the Council has taken into account:

- the extent of information made available by previous authorities;
- its relevance under the RMA;
- its obligations to monitor emissions/discharges and effects under the RMA; and
- to report to the regional community.

The Council also takes into account the scope of assessments required at the time of renewal of permits, and the need to maintain a sound understanding of industrial processes within Taranaki emitting to the atmosphere/discharging to the environment.

It is proposed that for 2017-2018 monitoring of consented activities at the Opunake WWTP continue at a similar level as in 2016-2017, with the introduction of quarterly inspections (four per monitoring year) to be undertaken at the ocean outfall structure to monitor compliance with consent 0236-6. A recommendation to this effect is attached to this report.

## 4. Recommendations

1. THAT monitoring of consented activities at the Opunake WWTP in the 2017-2018 year be amended from that undertaken in 2016-2017, by inclusion of quarterly inspections of the emergency ocean outfall structure to ensure compliance with consent conditions.

## Glossary of common terms and abbreviations

The following abbreviations and terms may be used within this report:

Biomonitoring	Assessing the health of the environment using aquatic organisms.
BOD	Biochemical oxygen demand. A measure of the presence of degradable organic matter, taking into account the biological conversion of ammonia to nitrate.
BODF	Biochemical oxygen demand of a filtered sample.
cfu	Colony forming units. A measure of the concentration of bacteria usually expressed as per 100 millilitre sample.
Conductivity	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m.
DO	Dissolved oxygen.
DRP	Dissolved reactive phosphorus.
E.coli	Escherichia coli, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre sample.
Ent	Enterococci, an indicator of the possible presence of faecal material and pathological micro-organisms. Usually expressed as colony forming units per 100 millilitre of sample.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
g/m <sup>3</sup>	Grams per cubic metre, and equivalent to milligrams per litre (mg/L). In water, this is also equivalent to parts per million (ppm), but the same does not apply to gaseous mixtures.
Incident	An event that is alleged or is found to have occurred that may have actual or potential environmental consequences or may involve non-compliance with a consent or rule in a regional plan. Registration of an incident by the Council does not automatically mean such an outcome had actually occurred.
Intervention	Action/s taken by Council to instruct or direct actions be taken to avoid or reduce the likelihood of an incident occurring.
Investigation	Action taken by Council to establish what were the circumstances/events surrounding an incident including any allegations of an incident.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
m <sup>2</sup>	Square Metres.
mS/m	Millisiemens per metre.
NH <sub>4</sub> <sup>+</sup>	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH <sub>3</sub>	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NO <sub>3</sub> <sup>-</sup>	Nitrate, normally expressed in terms of the mass of nitrogen (N).
NO <sub>2</sub> <sup>-</sup>	Nitrite, normally expressed in terms of the mass of nitrogen (N).
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
pH	A numerical system for measuring acidity in solutions, with 7 as neutral. Numbers lower than 7 are increasingly acidic and higher than 7 are increasingly alkaline. The



scale is logarithmic i.e. a change of 1 represents a ten-fold change in strength. For example, a pH of 4 is ten times more acidic than a pH of 5.

Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SFRG	Suitability for Recreational Grading. Describes the general condition of a site based on risk as well as indicator bacteria water quality.
SS	Suspended solids.
Temp	Temperature, measured in °C (degrees Celsius).
TKN	Total Kjeldahl nitrogen. Combination of organic nitrogen, NH <sub>3</sub> , and NH <sub>4</sub> <sup>+</sup> .
Turb	Turbidity, expressed in NTU.
WWTP	Wastewater treatment plant.

\*an abbreviation for a metal or other analyte may be followed by the letters 'As', to denote the amount of metal recoverable in acidic conditions. This is taken as indicating the total amount of metal that might be solubilised under extreme environmental conditions. The abbreviation may alternatively be followed by the letter 'D', denoting the amount of the metal present in dissolved form rather than in particulate or solid form.

For further information on analytical methods, contact the Council's laboratory.

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- Taranaki Regional Council 2016: *South Taranaki District Council Opunake WWTP Monitoring Programme Annual Report 2015-2016*. TRC Technical Report 2016-31.
- Taranaki Regional Council 2017: *State of the Environment Monitoring Report. Bathing Beach Water Quality 2016-2017*. TRC Technical Report 2017-01.



# Appendix I

## Resource consents held by South Taranaki District Council

(For a copy of the signed resource consent  
please contact the TRC Consents department)



**Coastal Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: South Taranaki District Council  
Private Bag 902  
HAWERA 4800

Change To  
Conditions Date: 7 April 2006 [Granted by the Minister of Conservation:  
31 August 2004]

**Conditions of Consent**

Consent Granted: To intermittently discharge up to 4666 cubic metres/day of  
comminuted wastewater, from an ocean outfall in  
Middleton Bay, Opunake, Taranaki, to the Tasman Sea at  
or about GR: P20:831-939

Expiry Date: 1 June 2018

Review Date(s): June 2006, June 2008, June 2012

Site Location: Lookout Headland outfall, Hector Place, Opunake

Legal Description: Lot 2 DP 9250 Pt Sub 1 Borough of Opunake

Catchment: Tasman Sea

### **General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### **Special conditions**

#### **Conditions 1 and 2 [no change]**

1. The consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this resource consent.
2. The exercise of this resource consent shall be undertaken generally in accordance with the documentation submitted in support of application 4157. In the case of any contradiction between the documentation submitted in support of application 4157 and the conditions of this resource consent, the conditions of this resource consent shall prevail.

#### **Condition 3 [Changed]**

3. The sewage conveyance system shall be upgraded, substantially in accordance with recommended Option 3 contained in the document supporting application 4157 entitled 'Opunake Sewage Conveyance System Overflow Minimisation: Study of Options [Harrison Grierson Consultants Limited], June 2003. Implementation of this upgrade shall be completed by 30 October 2006.

#### **Conditions 4 to 15 [no change]**

4. The consent holder shall supply a progress report, on implementation under special condition 3, by June 2006 to the Chief Executive, Taranaki Regional Council.



## Consent 0236-6

5. Following compliance with special condition 3, the intermittent discharge of comminuted wastewater through a marine outfall structure into the Tasman Sea shall only occur when:
  - i) storm and groundwater inflows to the system are such that the capacity of the Opunake wastewater treatment system pump station and upgraded conveyancing system is exceeded; or
  - ii) pump or power failure at the pump station occurs.
6. There shall be no discharge of undisintegrated solids through the outfall.
7. The consent holder shall immediately notify the Chief Executive, Taranaki Regional Council, following any discharge under this permit, including the time, reason(s), duration and volume of wastewater discharged and remedial measures implemented.
8. The consent holder shall forward records relating to special condition 7 at annual intervals to the Chief Executive, Taranaki Regional Council.
9. The consent holder shall prepare and maintain a contingency plan for pump or power failure, or other emergency, at the pump station, to the satisfaction of the Chief Executive, Taranaki Regional Council. The initial plan shall be provided within three months of the granting of this consent.
10. The consent holder shall install and maintain suitable signage advising the public of the health risk on each and every occasion that an ocean outfall discharge occurs.
11. The consent holder shall immediately notify Taranaki Healthcare Limited following any discharge under this permit, in order to enable any measures necessary for the protection of public health to be undertaken.
12. The consent holder and staff of the Taranaki Regional Council shall meet as appropriate, and at least every two years, with interested submitters to the consent to discuss any matter relating to the exercise of this consent.
13. The consent holder shall continue to implement a stormwater/groundwater infiltration reduction programme, and shall carry out all practicable actions to ensure that all unauthorised stormwater connections to the sewage reticulation system are removed and remain disconnected. The consent holder shall report on progress under this condition to the Chief Executive, Taranaki Regional Council, by 30 June 2005 and each subsequent year.
14. The consent holder shall undertake bacteriological monitoring of the receiving water for contact recreational and shellfish-gathering purposes, and feral shellfish. The monitoring programme shall be consistent with the provisions of the 'Microbiological Water Quality Guidelines for Marine and Freshwater recreational area' (Ministry for the Environment and Ministry of Health, 2003), and shall also be directed towards major discharge events and shall be reported to the Chief Executive, Taranaki Regional Council, on an annual basis.

Consent 0236-6

15. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2006 and/or June 2008 and/or June 2012, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 7 April 2006

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**

**Discharge Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: South Taranaki District Council  
Private Bag 902  
HAWERA

Consent Granted  
Date: 11 June 2003

**Conditions of Consent**

Consent Granted: To discharge up to 2,074 cubic metres per day of treated municipal wastewater from the Opunake municipal oxidation pond and wetlands treatment system onto and into land and into an unnamed stream between the Otahi Stream and the Heimama Stream at or about GR: P20:819-953

Expiry Date: 1 June 2018

Review Date(s): June 2004, June 2007, June 2010, June 2014

Site Location: Headland bounded by State Highway 45 and the Heimama and Otahi Streams, Opunake

Legal Description: Ngatitamarongo 20, 21, 22A, 22B Blk IX Opounake SD

Catchment: Otahi  
Heimama

## Consent 4248-2

### General conditions

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council (hereinafter the Chief Executive), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

### Special conditions

1. The design, implementation and operation of the Opunake Wastewater Disposal System shall be undertaken in accordance with the information provided in support of applications 355 and 1650.
2. Notwithstanding any conditions within this consent, the consent holder shall at all times adopt the best practicable option or options [as defined in section 2 of the Resource Management Act 1991] to prevent or minimise any actual or potential effect on the environment arising from any discharge at the site.
3. The consent holder shall implement and maintain a management plan which shall include operating procedures to avoid, remedy or mitigate against potential adverse effects arising from:
  - i) operation of the wastewater treatment plant operation, including discharge via the soakage trenches;
  - ii) plant failure; and
  - iii) pipeline collapse.
4. The consent holder shall use a suitably trained operator to ensure proper and efficient operation and maintenance of the wastewater treatment system including the soakage trenches, to the satisfaction of the Chief Executive, Taranaki Regional Council.
5. The oxidation pond shall be maintained in an aerobic condition at all times.
6. The consent holder shall ensure that after 31 March 2005 the discharge authorised by this consent shall not result in ponding on the land surface that remains for more than three hours.
7. The consent holder shall ensure that after 31 March 2005 the discharge authorised by this consent shall not result in overland flow of wastewater other than as authorised by this consent.
8. Appropriate monitoring, including cliff face stability and physicochemical, bacteriological and ecological monitoring of the wastewater treatment system and receiving waters shall be undertaken through the term of the consent, as deemed necessary by the Chief Executive, Taranaki Regional Council, subject to section 35(2)(d) and section 36 of the Resource Management Act 1991.
9. The consent holder shall undertake to advise and consult with the Taranaki Regional Council prior to accepting new trade wastes, which may contain toxic or hazardous wastes, into the consent holder's wastewater system.

## Consent 4248-2

10. Allowing for a mixing zone of 50 metres extending either side of the mouth of the receiving stream the discharge shall not give rise to all or any of the following effects in the coastal waters of the Tasman Sea:
  - i) any conspicuous change in the colour or visual clarity; and
  - ii) any significant adverse effects on aquatic life, habitats, or marine ecology; and
  - iii) exceedance of the guideline for shellfish gathering waters, as specified in the document 'Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas' [Ministry for the Environment, 2002].
  
11. The consent holder shall provide to the Chief Executive, Taranaki Regional Council in December 2003, June 2004 and December 2004, a report outlining progress towards achieving:
  - i) No ponding on the land surface that remains for more than three hours as authorised by this consent; and
  - ii) No overland flow other than as authorised by this consent.
  
12. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2004 and/or June 2007 and/or June 2010 and/or June 2014, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 11 June 2003

For and on behalf of  
Taranaki Regional Council

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**Chief Executive**



**Coastal Permit**  
**Pursuant to the Resource Management Act 1991**  
**a resource consent is hereby granted by the**  
**Taranaki Regional Council**

Name of  
Consent Holder: South Taranaki District Council  
Private Bag 902  
HAWERA 4800

Consent Granted  
Date: 5 December 2005

**Conditions of Consent**

Consent Granted: To place and maintain the Opunake marine outfall  
structure within the coastal marine area at Middletons Bay  
at or about GR: P20:828-938

Expiry Date: 1 June 2018

Review Date(s): June 2008, June 2012

Site Location: Middletons Bay, Hector Place, Opunake

Legal Description: Lot 2 DP 9250 Pt Sub Sec 1 Town of Opunake

Catchment: Tasman Sea

**General conditions**

- a) On receipt of a requirement from the Chief Executive, Taranaki Regional Council the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.
- b) Unless it is otherwise specified in the conditions of this consent, compliance with any monitoring requirement imposed by this consent must be at the consent holder's own expense.
- c) The consent holder shall pay to the Council all required administrative charges fixed by the Council pursuant to section 36 in relation to:
  - i) the administration, monitoring and supervision of this consent; and
  - ii) charges authorised by regulations.

**Special conditions**

- 1. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to and upon completion of any maintenance works which would involve disturbance of or deposition to the seabed or discharges to water.
- 2. During any maintenance works, the consent holder shall undertake all practicable measures to prevent the discharge or placement of silt and/or organics and/or cement products and/or any other contaminant into the sea, and to minimise the disturbance of the foreshore and seabed.
- 3. The consent holder shall maintain the structure to the satisfaction of the Chief Executive, Taranaki Regional Council.
- 4. The structure[s] authorised by this consent shall be removed and the area reinstated, if and when the structure[s] are no longer required. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to structure[s] removal and reinstatement.
- 5. In accordance with section 128 and section 129 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review, amend, delete or add to the conditions of this resource consent by giving notice of review during the month of June 2008 and/or June 2012, for the purpose of ensuring that the conditions are adequate to deal with any adverse effects on the environment arising from the exercise of this resource consent, which were either not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Signed at Stratford on 5 December 2005

For and on behalf of  
Taranaki Regional Council

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**Director-Resource Management**