South Taranaki Water Supplies Monitoring Programme Annual Report 2014-2015

Technical Report 2015-69

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Executive summary

The South Taranaki District Council (STDC) operates a total of 11 water treatment plants (WTP's) throughout the district. STDC holds 32 resource consents which include 302 conditions setting out the requirements that must be satisfied. STDC holds 15 consents to take water, 11 consents to discharge to both land and water, and nine consents to construct and maintain in-stream structures.

Oaonui Water Supply Limited (OWSL) operates the Oaonui WTP. It took over the scheme from STDC in September 2000. OWSL holds two resource consents which include a total of 15 conditions setting out requirements that must be satisfied. OWSL holds one consent to abstract water and one consent to maintain an in-stream structure.

The Nukumaru Water Scheme Society Incorporated (NWSSI) operates a rural water supply scheme. NWSSI holds one consent to take groundwater, this consent has seven conditions.

Cold Creek Water Supply Limited (CCWSL) operates a private WTP in the Cold Creek catchment. This scheme was, until February 2014, owned and operated by STDC however due to law changes it was returned to the original operator and all consents were transferred to CCWSL. There are four consents with a total of 37 conditions. Two to abstract water, one to maintain an in-stream structure, and one to discharge treated backwash.

This report for the period July 2014-June 2015 describes the monitoring programme implemented by the Taranaki Regional Council (the Council) to assess the environmental performance of the three organisations during the period under review, and the results and environmental effects of their activities.

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

During the monitoring period, OWSL demonstrated an overall good level of environmental performance.

During the monitoring period, NWSSI demonstrated an overall high level of environmental performance.

During the monitoring period, CCWSL demonstrated an overall good level of environmental performance.

During the 2014-2015 monitoring period the Council's monitoring programme included five inspections, the collection of ten water samples for physicochemical analysis, three biomonitoring surveys of receiving water, one fish passage survey, eight hydrometric gaugings and the review of abstraction data provided by the consent holders.

Chemical sampling of discharges and receiving waters, macroinvertebrate surveys and fish surveys, all indicated that the water supply schemes did not appear to be causing any significant adverse environmental effects.

During the monitoring period, STDC demonstrated an overall good level of environmental performance and a high level of administrative performance.

During the monitoring period, OWSL demonstrated an overall good level of environmental performance and a high level of administrative performance.

During the monitoring period, NWSSI demonstrated an overall high level of environmental and a high level of administrative performance.

During the monitoring period, CCWSL demonstrated an overall good level of environmental performance and a high level of environmental performance.

For reference, in the 2014-2015 year, 75% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 22% demonstrated a good level of environmental performance and compliance with their consents.

During the monitoring period there were six incident recorded in relation to activities covered by this report. None of these incidents resulted in any significant adverse environmental effects.

This report includes recommendation for the 2015-2016 year.

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1. Introduction

1.1 Compliance monitoring programme reports and the Resource Management Act 1991

1.1.1 Introduction

This report is the Annual Report for the period July 2014 to June 2015 by the Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by the South Taranaki District Council (STDC), Nukumaru Water Scheme Society Incorporated (NWSSI), Oaonui Water Supply Limited (OWSL) and Cold Creek Water Supply Limited (CCWSL). STDC operates 11 WTP's and NWSSI, OWSL and CCWSL operate one water supply scheme each in the South Taranaki District.

This report covers the results and findings of the monitoring programme implemented by the Council in respect of the consents held by STDC, NWSSI, OWSL and CCWSL that relate to water supply schemes and WTP's within the South Taranaki District.

One of the intents of the *Resource Management Act 1991* (RMA) is that environmental management should be integrated across all media, so that a consent holder's use of water, air, and land should be considered from a single comprehensive environmental perspective. Accordingly, the Council generally implements integrated environmental monitoring programmes and reports the results of the programmes jointly. This report discusses the environmental effects of the Company's use of water, land and air, and is the 16th combined annual report by the Council for the water supply industry in the South Taranaki District.

1.1.2 Structure of this report

Section 1 of this report is a background section. It sets out general information about compliance monitoring under the RMA and the Council's obligations and general approach to monitoring sites through annual programmes, the resource consents held by STDC, NWSSI, OWSL and CCWSL, the nature of the monitoring programme in place for the period under review, and a description of the activities and operations conducted at the consent holders' sites.

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 2015-2016 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 *Resource Management Act 1991* (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);
(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 the consent holder/s during the period under review, this report also assigns a rating as to each Company's environmental and administrative performance.

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 the Company'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 (i.e. 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 compliance

- **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 2014-2015 year, 75% of consent holders in Taranaki monitored through tailored compliance monitoring programmes achieved a high level of environmental performance and compliance with their consents, while another 22% demonstrated a good level of environmental performance and compliance with their consents.

1.2 Process description

Details of the processes of each WTP and supply scheme are given in Table 1

Table 1 South Taranaki water supplies resource consents and processes

Water Supply Scheme	Resource consent	Expiry	Activity	Process
Cold Creek WTP	1134-3 Take	2030	To take water from Cold Stream to supply the Cold Creek Water Supply Scheme.	Raw water is abstracted from a weir on Cold Stream. The water is gravity fed to the treatment plant and is passed through a sand filter and then chlorinated (chlorine gas). The filter backwash discharges to Cold Creek via settling ponds. The filter is backwashed roughly once every nine hours. This plant was handed back from STDC to Cold Creek Water Supply Ltd in February 2015.
	10070-1-Temporaray take	2015	To temporarily take water from Cold Stream to supply the Cold Creek Water Supply Scheme.	
	6077-1 Discharge	2018	To discharge filter backwash water and supernatant from the Cold Creek WTP into the Cold Stream in the Taungatara catchment.	
	5454-1 Land Use	2018	To erect, place, use and maintain a water intake structure on the bed of Cold Creek in the Taungatara catchment for water abstraction purposes.	
Eltham WTP	0213–3 Take	2018	To take and use water from the Waingongoro River for municipal water supply purposes.	Raw water is abstracted from a pool (no weir) and piped to the treatment plant. PACl is added and the water passed through a clarifier and sand filters. The water is pH buffered (sodium bicarbonate) and chlorinated. Backwash from the filters is discharged via 1 of 2 settling ponds to a drain which flows to an unnamed tributary of the Waingongoro River.
	0989–3 Discharge	2029	To discharge reservoir contents from the Eltham Water Supply Reservoir onto land adjacent to the Waingongoro River.	
	1810–3 Discharge	2017	To discharge up to 2,000 m^3/day [50 L/s] of overflow and reservoir drainage water from the Eltham water supply reservoir into the Mangawharawhara Stream.	
	1811–3 Discharge	2017	To discharge up to 220 m^3/day [20 L/s] of filter backwash from the Eltham WTP via a settling pond into an unnamed tributary of the Waingongoro River.	
Hawera WTP	0146–2 Take	2020	Take up and use water from the Kapuni Stream for municipal water supply purposes.	New Kapuni WTP commissioned December 2009. Raw water is abstracted from the Kapuni Stream and pumped to the WTP. It passes through grit tanks and a flocculant is added before it goes into a flocculation tank. It then is pumped through strainers before going through the membrane filters. The water is then pH adjusted using caustic soda, chlorinated, and fluoride added before going to the site reservoirs. Membrane backwash water is discharged via 2 settling ponds to the Kapuni Stream. The discharge water is dechlorinated and pH adjusted before it goes to the ponds.
	0933–3 Discharge	2023	To discharge up to 227 m^3/day of settling pond supernatant from a WTP into the Kapuni Stream.	
	5596–1 Land Use	2017	To construct, place, use and maintain a weir and intake structure, and to maintain two existing intake structures in the Kapuni Stream for Hawera water supply.	
	7002-1 Take	2023	Take and use up to 4,320 m^3/day of groundwater at a maximum rate of 50 L/s as a combined total from up to three water bores in a bore field at the Kapuni reservoir site.	
	7446-1 Discharge	2023	To discharge membrane backwash water and cleaning wastewater from the Kapuni WTP into the Kapuni Stream.	
	7413-1 Intake structure	2023	To erect, use and maintain a water intake structure on the bed of the Kapuni Stream.	
	7447-1 Outfall structure	2023	To install, use and maintain an outfall structure on the bank of the Kapuni Stream for the Kapuni WTP.	
Inaha WTP	1185-3 Take	2023	To take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes.	Raw water is abstracted from two intake structures (weirs) on the Mangatoki Stream and a single intake (no weir) on the Waingongoro River. Water is gravity fed and pumped to a settling pond and then to the treatment plant. PACl is added and the water is passed through 2 sand filters. The water is pH buffered (sodium bicarbonate) and chlorinated.
	1186-3 Take	2023	To take water from the Waingongoro River for Inaha rural water supply purposes.	
	5364-1 Take (surrendered)	2017	To take and use water from the Mangatoki Stream for Inaha rural water supply.	

Water Supply Scheme	Resource consent	Expiry	Activity	Process
	3927-2 Discharge	2017	To discharge up to 228 m^3/day of filter backwash to the Mangatoki Stream.	Filter backwash is discharged to a small settling pond, then to an unnamed tributary of the Mangatoki Stream via a natural pond.
	3928-2 Discharge	2017	To discharge up to 3,060 m^3/day of uncontaminated overflow water into the Mangatoki Stream.	
	4102-2 Land Use	2023	To maintain an existing low-level weir and fish pass across the Mangatoki Stream.	
	5365-1 Land Use	2017	To erect and maintain an intake structure (weir) on the bed of Mangatoki Stream.	
Opunake WTP	0232-4 Take	2030	To take and use water from the Waiaua River for Opunake town water supply purposes.	Water is abstracted from the true right bank of the Waiaua Stream (no weir) and enters a settling pond prior to being gravity fed to the treatment plant. PACl is added and the water passed through a sand filter and then chlorinated (chlorine gas). Accumulated solids from the settling pond are regularly removed. The plant has three sand filters that operate in parallel. Each of the filters backwashes (using chlorinated water) approximately once every 1-2 hours depending on river conditions. The filter backwash and reservoir overflow is discharged via a settling tank to the Waiaua Stream.
	5574-2 Discharge	2030	To discharge water treatment residuals, and pond drainage water from the Opunake WTP into the Waiaua River.	
	9473-Structure	2030	To construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes.	Structure consists of stainless steel meshed intake tube set in concrete in the bed of the stream. Water enters the tube and flows into a wetwell buried under the river bank. Water is then pumped to the WTP.
Patea WTP	3388-3 Take	2028	To take and use groundwater from three bores (known as Bore 1, Bore 2 and Bore 4) for Patea Township water supply purposes.	Groundwater is pumped from bores 1,2 and 4 and then sent to WTP at Egmont Road.
Pope WTP	See Waimate West 3911-2	2018	Up to 5 L/s is diverted to the Pope water supply from a larger take from the Otakeho Stream (Waimate West Scheme).	Up to 5 L/s of raw water is taken from the Otakeho-Mangawhero diversion pipeline and gravity fed to the Pope rural water supply. Water enters the WTP and is passed through a sand filter and then chlorinated (sodium hypochlorite). Treated water is stored in tanks adjacent to the WTP.The filter backwash is discharged to an unnamed tributary of the Mangawhero Stream via a small settling pond.
	4446-2 Discharge	2023	To discharge treated backwash water from the Pope Rural WTPinto an unnamed tributary of the Mangawhero Stream.	
Rahotu WTP	3696-3 Take	2031	To take and use water from the Pungaereere Stream for the Rahotu community water supply.	Raw water is pumped from a pool in the Pungareere Stream (no weir) to the adjacent treatment plant. Water is treated by clarification, microfiltration and sand filtration.
	6038-1 Discharge	2019	To discharge filter backwash water and settling tank waste from the Rahotu WTP into the Pungaereere Stream.	
Wai-inu Beach Water Supply	3770-3 Take	2028	To take and use groundwater for Wai-inu Beach water supply purposes.	Groundwater is pumped from a bore, chlorinated and then pumped to a reservoir for distribution.

Water Supply Scheme	Resource consent	Expiry	Activity	Process
Waimate West WTP	0634-3 Take	2023	To take water from the Mangawhero-iti Stream for the Waimate West water supply.	Raw water is diverted from the Otakeho and Mangawhero Streams to the Mangawhero-iti Stream. Water is then abstracted from the Mangawhero-iti Stream (all takes are via weirs) and gravity fed to the WTP. Up to 5 L/s from the Otakeho take is diverted to the Pope rural supply. When sufficient water can be abstracted from the other two streams in the scheme, water from the Mangawhero Stream is avoided due to its turbidity. PACl and flocculent are added and the water passes through a clarifier and sand filters. The water is pH buffered (soda ash) and chlorinated (chlorine gas). On average the clarifier is bled every 6 hours and each of the four filters are backwashed once per day. Clarifier bleed and filter backwash are discharged via one of two settling ponds to an unnamed tributary of the Mangawhero-iti Stream.
	0635-3 Take	2023	To take water from the Mangawhero Stream for the purpose of adding to the flow of the Mangawhero-iti Stream and providing water for the Waimate West water supply.	
	3911-2 Take	2018	To take water from the Otakeho Stream for the Pope and Waimate West water supply schemes.	
	0129-3 Discharge	2023	To discharge treated washwater from the Waimate Water Supply Scheme into an unnamed tributary of the Mangawhero-iti Stream.	
	4826-2 Land use	2017	To erect and maintain an intake structure (weir) on the bed of the Otakeho Stream.	
	5451-1 Land use	2017	To erect and maintain an intake structure (weir) on the bed of the Mangawhero-iti Stream.	
	5452-1 Land use	2017	To erect and maintain an intake structure (weir) on the bed of the Mangawhero Stream.	
Waverley Water Supply	3313-3 Take	2022	To take and use groundwater from the “Fookes Street” bore (GND0244) and the “Chester Street” bore (GND0059) for municipal water supply purposes.	Groundwater is pumped from two bores, which tap a confined aquifer in the Whenuakura formation, to a reservoir for distribution. The water passes through a sand trap prior to being pumped to a reservoir for distribution. There is no treatment.
Waverley Beach Water Supply	9563-1 (not exercised) Permitted Activity Rule 46 used	2028	To take and use water groundwater for Waverley Beach water supply purposes.	Groundwater is pumped from a bore to a reservoir for distribution. It is not chlorinated.
Oaonui WTP	0231-3 Take	2018	To take up to 3,500 m^3/day, at a maximum rate of 50 L/s, from the Oaonui Stream for a rural community water supply scheme and the Maui Production Station.	Raw water is abstracted from the Oaonui Stream (weir) and is piped to a settling pond. For 30 min/day water is backflushed to the stream to remove sediment. Water from the pond is treated with chlorine prior to distribution. Chlorine dosing is automated according to the raw water abstraction rate and turbidity.
	Permitted Activity – discharge		Discharge accumulated solids from the race and settling pond.	
	5453-1 Land use	2018	To erect and maintain an intake structure (weir) on the bed of the Oaonui Stream.	
Nukumaru Rural Water Supply	6451-1 Take	2039	To take up to 605 litres/day (7 L/s) from up to two bores.	Groundwater is pumped from a bore to a reservoir for distribution.

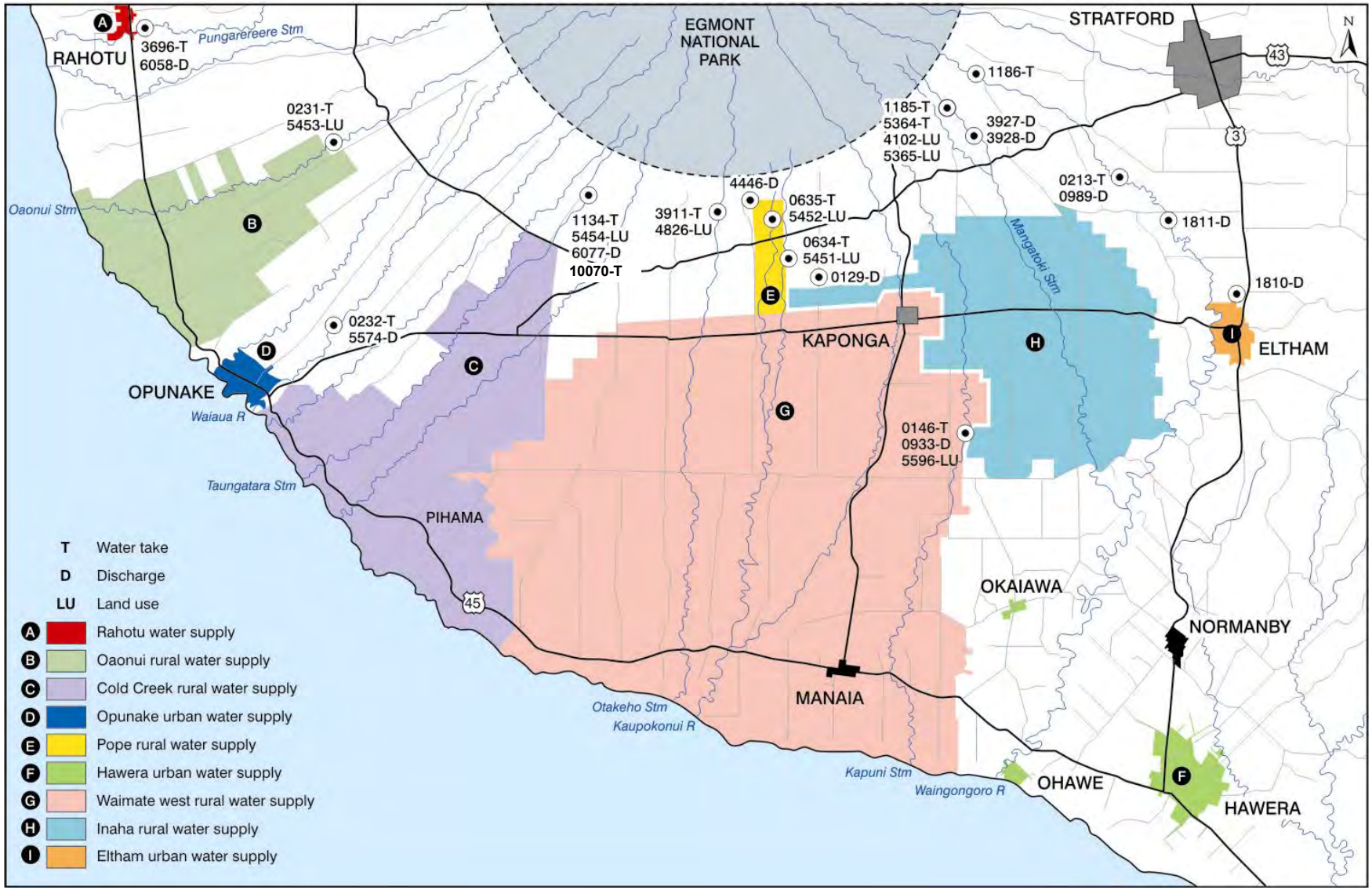

Figure 1 Location of South Taranaki District Council, CCWSL and Oaonui Water Supply Limited resource consents

Figure 2 Location of South Taranaki District Council, Nukumaru

1.3 Resource consents

Section 14 of the RMA stipulates that no person may take, use, dam or divert any water, unless the activity is expressly allowed for by a resource consent or a rule in a regional plan, or it falls within some particular categories set out in Section 14.

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.

Section 13(1)(a) of the RMA stipulates that no person may use, erect, reconstruct, place, alter, extend, remove or demolish any structure or part of any structure in, on, under, or over the bed of any lake or river, unless the activity is expressly allowed for by a resource consent, or a rule in a Regional Plan and in any relevant proposed regional plan.

STDC, OWSL, NWSSI and CCWSL hold various resource consents including water abstraction permits, discharge permits and land use consents for the various water supply plants and structures they operate. These resource consents are listed in Table 1 and their locations are shown in Figure 1and 2. The conditions of the consents are summarised below in Sections 1.3.1 to 1.3.14. Copies of all resource consents held in relation to water supply plants and structures in the South Taranaki District are included in Appendix I.

1.3.1 Cold Creek WTP

CCWSL holds water permit 1134-3 to cover the abstraction of water from Cold Stream to supply the Cold Creek WTP. This permit was issued by the Council on 10 July 2013 under Section 87 of the RMA. It is due to expire on 1 June 2030.

Condition one limits the rate of taking.

Condition two requires the consent holder to record the rate and volume of abstraction to a prescribed level of accuracy.

Condition three specifies the format of the records.

Condition four requires the abstraction records and river flow data be transmitted in real time to the council.

Conditions five, six and seven relate to the certification, maintenance and accessibility of equipment.

Condition eights sets a residual flow rate.

Condition nine requires that the intake screen shall not trap fish.

Condition ten requires the best practical option be adopted.

Condition 11 requires annual leak detection and water use efficiency report.

Condition 12 requires three annual financial contributions.

Condition 13 is a review condition.

CCWSL holds water permit 10070-3 to cover the temporary abstraction of water from Cold Stream to supply the Cold Creek WTP. This permit was issued by the Council on 18 February 2015 under Section 87 of the RMA. It is due to expire on 1 April 2015. It has ten special conditions.

Condition one limits the rate of taking.

Condition two requires the consent holder to record the rate and volume of abstraction to a prescribed level of accuracy.

Condition three specifies the format of the records.

Condition four requires the abstraction records and river flow data be transmitted in real time to the council.

Conditions five, six and seven relate to the certification, maintenance and accessibility of equipment.

Condition eights sets a residual flow rate.

Condition nine requires that the intake screen shall not trap fish.

Condition ten requires the best practical option be adopted.

1.3.1.1 Water discharge permit

STDC holds water discharge permit **6077-1** to cover the discharge of filter backwash water and supernatant from the Cold Creek WTP into the Cold Stream in the Taungatara catchment. This permit was issued by the Council on 29 November 2002 under Section 87 of the RMA. It is due to expire on 1 June 2018.

Condition one establishes the location of the discharge point.

Condition two limits the rate of discharge.

Condition three specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition four limits certain contaminants in the discharge.

Condition five is a review provision.

1.3.1.2 Land use permits

STDC holds land use permit **5454-1** to erect, place, use and maintain a water intake structure on Cold Creek for the Cold Creek WTP. This permit was issued by the

Council on 1 March 1999 under Section 87(a) of the RMA. It is due to expire on 1 June 2018.

Conditions one and six deal with construction and maintenance works.

Condition two requires the structure to be constructed in accordance with the documentation in support of the application.

Conditions three and four require the consent holder to minimise discharge of silt, disturbance of riverbed and adverse effects on water. Areas disturbed are to be reinstated.

Conditions five and seven deal with provision of fish passage.

Condition eight requires that the structure be removed when no longer required and the area reinstated.

Condition nine is a review provision.

1.3.2 Eltham WTP

1.3.2.1 Water abstraction permit

STDC holds water permit **0213-3** to take and use water from the Waingongoro River for municipal water supply purposes. This permit was issued by the Council on 15 December 1999 under Section 87 of the RMA. It is due to expire on 1 June 2018.

Condition one imposes limits on the volume and rate of abstraction.

Condition two requires measuring of daily rates of abstraction and provision of abstraction data to the Council.

Condition three requires exercise of the consent to be in accordance with the information supplied in support of the application.

Condition four requires quantification and reporting of reticulation losses.

Condition five requires investigation and reporting on the blocking of the intake.

Conditions six and eight are review provisions.

Condition seven sets out a requirement for a contribution to the Taranaki Tree Trust.

1.3.2.2 Water discharge permit

STDC holds water discharge permit **0989-3** to discharge reservoir contents from the Eltham WTP Reservoir onto land adjacent to the Waingongoro River.

This permit was issued by the Council on 5 November 2012 under Section 87 of the RMA. It is due to expire on 1 June 2029.

Condition one requires that the best practical option be adopted.

Condition two requires that Council be notified prior to discharge.

Conditions three and four specify volume and time of discharge.

Condition five prohibits direct discharge to the Waingongoro River.

Conditions six and seven deal with the minimisation of sediment entering the stream.

Condition eight sets out effects the discharge must not cause.

Condition nine is a review condition.

STDC holds water discharge permit **1810-3** to cover the discharge of overflow and reservoir drainage from the Eltham WTP reservoir to the Mangawharawhara Stream. This permit was issued by the Council on 28 July 1999 under Section 87 of the RMA. It is due to expire on 1 June 2017.

Condition one requires approval of the Council prior to the emptying and cleaning of the reservoir.

Condition two requires the consent holder to minimise the periods when the consent is exercised.

Condition three requires the consent holder to minimise the discharge of accumulated sediments in the reservoir to the receiving water when emptying and cleaning the reservoir.

Condition four specifies effects which the discharge is prohibited to cause in the receiving waters, while condition five places limits on certain contaminants in the discharge.

Condition six is a review provision.

STDC holds water discharge permit **1811-3** to cover the discharge of filter backwash from the Eltham WTP to an unnamed tributary of the Waingongoro River. This permit was issued by the Council on 28 July 1999 under Section 87 of the RMA. It is due to expire on 1 June 2017.

Condition one deals with maintenance and operation of the settlement pond system.

Condition two specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition three places limits on certain contaminants in the discharge.

Condition four is a review provision.

1.3.3 Kapuni WTP (Hawrea Supply)

1.3.3.1 Water abstraction permits

STDC holds water permit **0146-2** to take and use water from the Kapuni Stream for municipal water supply purposes. This permit was issued by the Council on 7 June 2000 under Section 87 of the RMA. It is due to expire on 1 June 2020.

Condition one imposes limits on the volume and rate of abstraction.

Condition two requires measuring of daily rates of abstraction and provision of this data to the Council.

Condition three requires exercise of the consent to be in accordance with the information supplied in support of the applications, and includes the provision of reporting on efficiency measures every two years.

Condition four specifies the circumstances when additional water can be taken and reporting requirements following such an event.

Condition five sets out a requirement for a contribution to the Taranaki Tree Trust.

Condition six requires the preparation and maintenance of a management plan, in conjunction with other users, for the Kapuni Stream.

Condition seven requires the consent holder to undertake a leak detection and repair programme.

Condition eight requires that the point of abstraction remain the same until the new intake is commissioned.

Condition nine is a review provision.

STDC holds water permit **7002-1** to take and use up to 4,320 m^3/day of groundwater at a maximum rate of 50 L/s as a combined total from up to three water bores in a bore field at the Kapuni reservoir site for municipal, rural, industrial, and recreational supply purposes. This permit was issued by the Council on 2 November 2006 under Section 87 of the RMA. It is due to expire on 1 June 2023.

Condition one requires the exercise of consent to be in accordance with the documentation submitted in support of the application.

Condition two requires the consent holder to notify the Council seven days prior to the exercise of the consent.

Condition three states that the consent holder must supply the Council with a report detailing the results of pump testing prior to the exercise of the consent.

Conditions four and five deal with the rate and volume of abstraction, while condition six deals with recording of the abstractions.

Conditions seven and eight relate to monitoring of the bores.

Conditions nine and ten deal with lapse and review of the consent.

1.3.3.2 Water discharge permit

STDC holds water discharge permit **0933-3** to discharge up to 227 m^3/day of settling pond supernatant from a WTP into the Kapuni Stream. This permit was issued by the Council on 26 January 2006 under Section 87 of the RMA. Changes to consent conditions were made in February 2007. It is due to expire on 1 June 2023.

Condition one requires the adoption of the best practicable option.

Condition two requires the consent to be exercised in accordance with the application documentation.

Condition three requires notification of Council prior to exercising the consent.

Condition four requires the consent holder to address the issue of a permanent solution for water treatment residuals by constructing a new water treatment plant in 2010.

Condition five requires the proper and efficient maintenance and operation of the settlement system.

Condition six lists certain effects which the discharge shall not have on the receiving waters.

Condition seven places limits on certain parameters in the discharge.

Conditions eight and nine deal with lapse and review of the consent.

STDC holds water discharge permit **7446-1** to discharge membrane backwash water and cleaning wastewater from the Kapuni WTP into the Kapuni Stream. This permit was issued by the Council on 13 March 2009 under Section 87 of the RMA. The consent is due to expire on 1 June 2023.

Condition one requires that the consent holder adopt the best practicable option to minimise adverse environmental effects.

Conditions two, three and four deal with levels of contaminants in the discharge, and effects on receiving waters.

Conditions five and six deal with lapse and review of the consent.

1.3.3.3 Land use permit

STDC holds land use permit **5596-1** to construct, place, use and maintain a weir and intake structure, and to maintain two existing intake structures in the Kapuni Stream for the Hawera water supply. This permit was issued by the Council on 19 May 2000 under Section 87(a) of the RMA. It is due to expire on 1 June 2017.

Condition one requires notification of the Council prior to construction or maintenance works.

Condition two requires the construction of the structures to be in accordance with the documentation submitted in support of the application.

Condition three prohibits construction works during the period 1 May to 31 October.

Conditions four and five require the consent holder to minimise streambed disturbance, discharge of silt and adverse effects on water quality.

Condition six prohibits the refuelling of equipment or machinery on the streambed.

Conditions seven and eight deal with the provision of fish passage.

Condition nine deals with prevention of erosion adjacent to or downstream of the rock riprap.

Condition ten prohibits the removal of streambed material during construction other than the material that makes up the weir/rock ramp.

Condition 11 prohibits the removal of streambed material from above the weir other than between 1 November and 30 April.

Condition 12 requires material removed from the streambed to be placed on the banks or dry sections of streambed downstream of the weir so it can re-enter the stream and minimise effects.

Condition 13 deals with the removal of the structure when no longer required.

Condition 14 is a review provision.

STDC holds land use permit **7413-1** to erect, use and maintain a water intake structure on the bed of the Kapuni Stream, including temporary damming and diversion during construction. This permit was issued by the Council on 5 February 2009 under Section 87(a) of the RMA. The consent is due to expire on 1 June 2023.

Condition one requires that the consent is carried out in accordance with the documentation submitted with the application.

Conditions two and three deal with timing and notification of maintenance.

Conditions four and five require the consent holder to minimise disturbance to the stream.

Condition six requires that the structure is removed and the area reinstated, if and when it is no longer required.

Condition seven requires monitoring and maintenance of the fish pass.

Condition eight deals with any archaeological remains discovered during construction.

Conditions nine and ten deal with lapse and review of the consent.

STDC holds land use permit **7447-1** to install, use and maintain an outfall structure on the bank of the Kapuni Stream for the Kapuni WTP. This permit was issued by the Council on 20 February 2009 under Section 87(a) of the RMA. The consent is due to expire on 1 June 2023.

Condition one requires that the land use is carried out in accordance with the documentation submitted with the application.

Conditions two and three deal with the timing and notification of maintenance.

Conditions four and five require the consent holder to minimise disturbance to the stream.

Condition six requires that the structure is removed and the area reinstated, if and when it is no longer required.

Condition seven deals with any archaeological remains discovered during construction.

Conditions eight and nine deal with lapse and review of the consent.

1.3.4 Inaha WTP

1.3.4.1 Water abstraction permits

STDC holds water permit **1185-3** to take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes. This permit was issued by the Council on 16 June 1993 under Section 87 of the RMA. Changes were made to the consent in May 2014. It is due to expire on 1 June 2023.

Condition one requires the adoption of the best practicable option.

Conditions two and three deal with the rate and method of abstraction.

Condition three places a limit on the rate and volume of abstraction.

Conditions four, five and six require the installation, maintenance and certification of a device to measure abstraction.

Condition seven deals with maintenance of the structure and its removal when no longer required.

Conditions eight, nine and ten are related to data retrieval and records of abstraction.

Conditions 11 and 12 requires the screening of intake structures to avoid the entrainment of fish and maintenance to provide fish passage.

Condition 13 requires the promotion of water use efficiency and the undertaking of a leak detection and repair programme. This programme is to be reported on annually.

Condition 14 is a review provision.

STDC holds water permit **1186-3** to take water from the Waingongoro River for Inaha rural water supply purposes. This permit was issued by the Council on 29 August 2006 under Section 87 of the RMA. It is due to expire on 1 June 2023.

Condition one requires the adoption of the best practicable option.

Condition two requires the consent to be exercised in accordance with the application documentation.

Condition three places a limit on the volume and rate of abstraction.

Condition four requires the recording of abstraction rates and provision of data to the Council.

Condition five deals with the maintenance of the intake and its removal when no longer required.

Condition six requires screening of intake structures to avoid entrainment of fish.

Condition seven provides for adequate fish passage.

Condition eight requires the promotion of water use efficiency and the undertaking of a leak detection and repair programme which is to be reported on annually.

Conditions nine and ten deal with lapse and review of consent.

STDC held water permit **5364-1** to take and use water from the Mangatoki Stream for Inaha rural water supply scheme purposes. This permit was issued by the Council on 23 September 1998 under Section 87 of the RMA and was due to expire on 1 June 2017. It was surrendered during the period under review, on 29 May 2014.

Conditions one and two dealt with the abstraction volume, rate and recording of these.

Condition three required the consent to be exercised in accordance with the documentation in support of the application.

Condition four required mitigation of effects through riparian management.

Condition five allowed for the suspension or reduction of abstraction during extreme low flow events.

Condition six was a review provision.

1.3.4.2 Water discharge permits

STDC holds water discharge permit **3927-1** to cover the discharge of filter backwash to an unnamed tributary of the Mangatoki Stream. This permit was issued by the Council on 24 March 1993 under Section 87 of the RMA. It is due to expire on 1 June 2017.

Condition one deals with the maintenance and operation of the settlement pond system.

Condition two specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition three places limits on certain contaminants in the discharge.

Condition four is a review provision.

STDC holds water discharge permit **3928-2** to cover the discharge of uncontaminated overflow water from a settling pond to the Mangatoki Stream. This permit was issued by the Council on 4 June 1999 under Section 87 of the RMA. It is due to expire on 1 June 2017.

Condition one deals with the maintenance and operation of the settlement pond system.

Condition two specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition three is a review provision.

1.3.4.3 Land use permits

STDC holds land use permit **4102-2** to maintain an existing low-level weir and fish pass across the Mangatoki Stream in the Waingongoro catchment. This permit was issued by the Council on 15 June 2005 under Section 87(a) of the RMA. It is due to expire on 1 June 2023.

Condition one requires the adoption of best practicable option.

Condition two requires the consent to be exercised in accordance with the application documentation.

Condition three requires notification of Council prior to exercise of consent.

Conditions four to eight deal with maintenance of the structure.

Condition nine requires the structure to not impede fish passage.

Condition ten requires the structure to be removed and the area reinstated when no longer required.

Conditions 11 and 12 deal with lapse and review of consent.

STDC holds land use permit **5365-1** to erect, place, and maintain a low level intake weir in the Mangatoki Stream for Inaha rural water supply scheme purposes. This permit was issued by the Council on 23 September 1998 under Section 87(a) of the RMA. It is due to expire on 1 June 2017.

Condition one requires notification of the Council prior to major construction or maintenance works.

Condition two requires prevention of discharge of contaminants into the stream during construction or maintenance works.

Condition three prohibits obstruction of fish passage.

Condition four requires the structure to be constructed in accordance with the documentation in support of the application.

Condition five requires the consent holder to ensure the safety of the structure.

Condition six requires the structure to be removed when no longer required and the area reinstated.

Condition seven is a review provision.

1.3.5 Opunake WTP

1.3.5.1 Water abstraction permit

STDC hold water permit **0232-4** to take and use water from the Waiaua River for Opunake town water supply purposes. This permit was issued by the Council on 20 August 2013 under Section 87 of the RMA. It is due to expire on 1 June 2030.

Condition one sets daily volumes and abstraction rates.

Condition two sets out the circumstance under which the secondary intake may be used.

Condition three sets daily volumes and abstraction rates when using the secondary intake.

Condition four deals with notification requiresments when using the secondary intake.

Conditions five, six, seven, and eight deal with the installation of water metering and recording equipment, and maintenance and accessibility of the equipment.

Conditions nine and ten relate to the format and transmission of records.

Condition 11 requires the adoption of the best practical option.

Condition 12 requires annual leak detection and water use efficiency report.

Conditions 13 and 14 are lapse and review provisions.

1.3.5.2 Water discharge permit

STDC hold water discharge permit **5574-2** to discharge water treatment residuals and pond drainage water from the Opunake WTP into the Waiaua River. This permit was

issued by the Council on 30 July 2013 under Section 87 of the RMA. It is due to expire on 1 June 2030.

Condition one requires the consent holder to adopt the best practicable option to prevent or minimise adverse environmental effects.

Condition two states the total daily discharge.

Condition three specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition four places limits on certain contaminants in the discharge.

Conditions five and six are lapse and review provisions.

1.3.5.3 Land use consents

STDC holds land use permit **9473-1** to construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes. This permit was issued by the Council on 21 February 2013 under Section 87(a) of the RMA. It is due to expire on 1 June 2030.

Condition one specifies intake dimensions and screen slot size.

Condition two requires that Council be notified prior to works.

Condition three requires that river bed disturbance be kept to a minimum.

Condition four requires that sediment discharge into the river be minimised.

Condition five specifies maximum screen slot velocity.

Condition six requires that fish passage not be obstructed.

Condition seven requires a one-off payment to contribute to riparian planting to mitigate effects.

Condition eight deals with procedures if archaeological remains are discovered during works.

Condition nine requires the structure be removed when no longer required.

Condition ten is a lapse condition.

Condition 11 is a review condition.

1.3.6 Patea WTP

1.3.6.1 Water abstraction permits

STDC holds water permit **3388-3** to take and use groundwater from three bores (known as Bore 1, Bore 2 and Bore 4) for Patea Township water supply purposes. This permit was issued by the Council on 30 May 2012 under Section 87 of the RMA. It will expire on 1 June 2028.

Conditions 1, 2 and 3 deal with the maximum daily takes for the three bores.

Conditions 4, 5, 6 and 7 deal with requirements to fit and maintain flow meters and data loggers at each bore.

Condition eight requires that the best practical option be adopted.

Conditions 9, 10 and 11 deal with monitoring and mitigating effects on a nearby private bore.

Condition 12 requires that no salt water intrusion shall occur as result of the take.

Condition 13 deals with change and review of consent.

(Note: This consent was changed in October 2014 to include a new bore).

1.3.7 Pope WTP

1.3.7.1 Water discharge permit

STDC holds water discharge permit **~~4446-2~~** to cover the discharge of treated filter backwash from the Pope Rural WTP into an unnamed tributary of the Mangawhero Stream. This permit was issued by the Council on 9 June 2006 under Section 87 of the RMA. It is due to expire on 1 June 2023.

Condition one requires the adoption of the best practicable option.

Condition two requires the consent to be exercised in accordance with the application documentation.

Condition three limits the discharge rate.

Condition four places limits on certain parameters in the discharge.

Condition five requires the proper and efficient maintenance of the settling pond.

Condition six lists effects that the discharge should not have on the receiving waters.

Conditions seven and eight deal with lapse provision and review of consent.

1.3.8 Rahotu WTP

1.3.8.1 Water abstraction permit

STDC holds water permit **3696-3** to take and use water from the Pungaereere Stream for the Rahotu community water supply. This permit was issued by the Council on 15 August 2013 under Section 87 of the RMA. It is due to expire on 1 June 2031.

Condition one limits the volume and rate of abstraction.

Conditions two to seven deal with recording equipment and the provision of abstraction records.

Condition eight requires the consent holder to adopt the best practicable option to prevent or minimise adverse effects.
Condition nine requires the consent holder to submit an annual report on leak detection and minimisation and water use efficiency.

Conditions ten and 11 are lapse and review provisions.

1.3.8.2 Water discharge permit

STDC holds water discharge permit **6038-1** to cover the discharge of filter backwash water and settling tank waste from the Rahotu WTP into the Pungaereere Stream. This permit was issued by the Council on 2 September 2002 under Section 87 of the RMA. It is due to expire on 1 June 2019.

Condition one specifies effects which the discharge is prohibited to cause in the receiving waters.

Condition two places limits on certain contaminants in the discharge.

Condition three is a review provision.

1.3.9 Wai-inu Beach water supply

1.3.9.1 Water abstraction permit

STDC holds water permit **3770-3** to take and use groundwater for Wai-inu Beach water supply purposes. This permit was issued by the Council on 7 May 2012 under Section 87 of the RMA. The consent expires on 1 June 2028.

Condition one sets limits for daily volumes and abstraction rates.

Conditions two to five deal the installation and maintenance of water metering equipment.

Condition six deals with the provision of records.

Condition seven requires the consent holder to adopt best practice.

Conditions eight and nine are lapse and review conditions.

1.3.10 Waimate West WTP

1.3.10.1 Water abstraction permit

STDC holds water permit **0634-3** to take water from the Mangawhero-iti Stream for the Waimate West water supply. This permit was issued by the Council on 7 June 2011 under Section 87 of the RMA. It is due to expire on 1 June 2023.

Conditions one and two limit the rate of abstraction.

Conditions three to six deal with the maintenance, installation and operation of data-logging equipment.

Condition seven requires the consent holder to provide records of water taken. While Condition ten sets a date by which these should be provided in 'real time'.

Conditions eight and nine deal with flow in the Mangawhero-iti Stream downstream of the intake. Condition 12 requires sufficient stream flow measurements to be undertaken in order to comply with Condition nine.

Condition 11 requires the consent holder to install a staff gauge.

Condition 13 requires the consent holder to adopt the best practicable option to prevent or minimise adverse environmental effects.

Condition 14 requires the consent holder to supply an annual report in September each year on various aspects of the scheme.

Condition 15 requires five annual financial contributions.

Condition 16 is a review provision.

STDC holds water permit **0635-3** to take water from the Mangawhero Stream for the purpose of adding to the flow of the Mangawhero-iti Stream and providing water for the Waimate West WTP. This permit was issued by the Council on 7 June 2011 under Section 87 of the RMA. It is due to expire on 1 June 2023.

Condition one limits the rate of abstraction, while Condition two sets restrictions on the take.

Conditions three to six deal with the maintenance, installation and operation of data-logging equipment.

Condition seven requires the consent holder to provide records of water taken. While Condition eight sets a date by which these should be provided in 'real time'.

Condition nine requires the consent holder to adopt the best practicable option to prevent or minimise adverse environmental effects.

Condition ten is a review provision.

STDC holds water permit **3911-2** to take water from the Otakeho Stream for the Pope and Waimate West water supply schemes. This permit was issued by the Council on 22 November 2000 under Section 87 of the RMA. It is due to expire on 1 June 2018. Changes to the conditions of the consent were made on 7 June 2011.

Condition one limits the rate of abstraction.

Conditions two to five deal with the maintenance, installation and operation of data-logging equipment.

Condition six requires the consent holder to provide records of water taken. While Condition eight sets a date by which these should be provided in 'real time'.

Condition seven requires the consent holder to adopt the best practicable option to prevent or minimise adverse environmental effects.

Condition nine deals with recording of flows of less than 500 L/s.

Condition ten is a review provision.

1.3.10.2 Water discharge permit

STDC holds water discharge permit **0129-3** to discharge treated wash water from the Waimate WTP into an unnamed tributary of Kelly's Creek. This permit was issued by the Council on 12 June 2006 under Section 87 of the RMA, with changes made on 15 May 2013. It is due to expire on 1 June 2023.

Condition one requires the adoption of the best practicable option.

Condition two requires the consent to be exercised in accordance with the application documentation.

Condition three limits the discharge rate.

Condition four requires the installation and maintenance of an erosion protection structure.

Condition five places limits on certain parameters in the discharge.

Condition six requires the proper and efficient maintenance of the settling ponds.

Condition seven lists effects that the discharge should not have on the receiving waters.

Conditions eight and nine are lapse and review provisions.

1.3.10.3 Land use consents

STDC holds land use permit **4826-2** to place, use and maintain a water intake structure and associated erosion protection structures, including upgrading the intake structure and constructing a new fish pass, on the bed of the Otakeho Stream. This permit was issued by the Council on 1 March 1999 under Section 87(a) of the RMA. It is due to expire on 1 June 2017. Changes to consent conditions were made on 10 December 2010 to allow for the weir to be upgraded and a new fish pass to be built.

Condition one requires notification of the Council prior to construction or maintenance works.

Condition two requires the structure to be constructed in accordance with the documentation in support of the application.

Conditions three and four require the consent holder to minimise discharge of silt, disturbance of riverbed and adverse effects on water. Areas disturbed are to be reinstated.

Condition five limits the timing of major construction or maintenance works to between 1 November and 30 April.

Condition six requires provision of fish passage.

Condition seven states that a Council biologist shall be present during construction of the fish pass.

Condition eight requires that the structure be removed when no longer required and the area reinstated.

Condition nine is a review provision.

STDC holds land use permit **5451-1** to erect, place, use and maintain a water intake structure on the bed of the Mangawhero-iti Stream. This permit was issued by the Council on 1 March 1999 under Section 87(a) of the RMA. It is due to expire on 1 June 2017.

Condition one requires notification of the Council prior to construction or maintenance works.

Condition two requires the structure to be constructed in accordance with the documentation submitted in support of the application.

Conditions three and four require the consent holder to minimise discharge of silt, disturbance of riverbed and adverse effects on water. Areas disturbed are to be reinstated.

Condition five limits the timing of major construction or maintenance works to between 1 November and 30 April.

Conditions six and seven deal with fish passage.

Condition eight requires that the structure is removed when no longer required.

Condition nine is a review provision.

STDC holds land use permit **5452-1** to erect, place, use and maintain a water intake structure on the bed of the Mangawhero Stream. This permit was issued by the Council on 1 March 1999 under Section 87(a) of the RMA. It is due to expire on 1 June 2017.

Condition one requires notification of the Council prior to construction or maintenance works.

Condition two requires the structure to be constructed in accordance with the documentation supplied in support of the application.

Conditions three and four require the consent holder to minimise discharge of silt, disturbance of riverbed and adverse effects on water. Areas disturbed are to be reinstated.

Condition five limits the timing of major construction or maintenance works to between 1 November and 30 April.

Conditions six and seven deal with fish passage.

Condition eight requires that the structure be removed when no longer required and the area reinstated.

Condition nine is a review provision.

1.3.11 Waverley water supply

1.3.11.1 Water abstraction permits

STDC holds water permit **3313-3** to take and use groundwater from the "Fookes Street" bore (GND0244), the "Chester Street" bore (GND0059) and the "Swinbourne Street" bore (GND2242) for municipal water supply purposes at Waverley. This permit was issued by the Council on 23 September 2010 under Section 87 of the RMA, with changes made on 23 January 2013. It is due to expire on 1 June 2022.

Condition one sets limits on the combined daily volume and combined abstraction rate for all three bores, while condition two sets limits on the daily volume of water and abstraction rate of each bore.

Conditions three to eight deals with the installation and maintenance of metering and logging equipment and the provision of data.

Condition nine requires the consent holder adopt best practice.

Condition ten states that the exercise of this consent shall not cause saltwater intrusion.

Condition 11 requires that the wells be accessible for measurement of static and pumping water levels.

Condition 12 deals with review of the consent.

1.3.12 Waverley Beach water supply

1.3.12.1 Water abstraction permits

STDC holds water permit **9563-1** to take and use water groundwater for Waverley Beach water supply purposes. This permit was issued by the Council on 1 May 2013 under Section 87 of the RMA. It is due to expire on 1 June 2028.

Condition one sets limits on the daily volume and abstraction rate.

Condition two states that taking shall not cause intrusion of saltwater.

Condition three requires that bores are labelled.

Conditions four to ten deal with the installation and maintenance of metering and logging equipment and the provision of data.

Condition 11 requires the consent holder adopt best practice.

Conditions 12 and 13 are lapse and review provisions.

1.3.13 Oaonui WTP

1.3.13.1 Water abstraction permit

OWSL holds water permit **0231-3** to take and use water from the Oaonui Stream for a rural community water supply scheme and the Maui Production Station. This permit was issued by the Council on 22 November 2000 under Section 87 of the RMA. It is due to expire on 1 June 2018.

Condition one limits the abstraction volume and rate.

Condition two requires recording of daily abstraction rates and provision of abstraction data to the Council.

Condition three requires promotion of water conservation and undertaking of a leak detection and repair programme.

Condition four sets out a requirement for a contribution to the Taranaki Tree Trust.

Conditions five and six deal with change and review of consent.

1.3.13.2 Land use permit

OWSL holds land use permit **5453-1** to erect, place, use and maintain a water intake structure on the bed of the Oaonui Stream for water abstraction purposes. This permit was issued by the Council on 1 March 1999 under Section 87(a) of the RMA. It is due to expire on 1 June 2018.

Condition one requires notification prior to construction and maintenance works.

Condition two requires that the structure be constructed in accordance with the documentation supporting the application.

Condition three requires the adoption of best practicable option to minimise adverse effects.

Condition four requires the area disturbed during construction and maintenance to be minimised and disturbed areas reinstated.

Condition five requires major maintenance involving in-stream works to be undertaken between 1 November and 30 April.

Conditions 6 and 7 deal with the provision of fish passage.

Condition eight requires the structure to be removed when no longer required and the area reinstated.

Condition nine is a review provision.

1.3.14 Nukumaru water supply

1.3.14.1 Water abstraction permits

NWSSI holds water permit **6451-1** to take and use groundwater from up to two bores for the purpose of supplying the Nukumaru community rural water scheme. This permit was issued by the Council on 20 October 2004 under Section 87 of the RMA. It is due to expire on 1 June 2039.

Condition one requires the consent to be exercised in accordance with the documentation submitted in support of the application.

Condition two places a limit on the abstraction volume and rate.

Conditions three and four require a water meter to be installed, and abstraction data provided to Council.

Condition five deals with payment of monitoring costs.

Conditions six and seven are lapse and review of provisions.

1.4 Monitoring programme

1.4.1 Introduction

Section 35 of the RMA sets out obligations upon the Council to gather information, monitor, and conduct research on the exercise of resource consents, and the effects arising, within the Taranaki region and report upon these.

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 2014-2015 monitoring programme for the water supply schemes in the south Taranaki district consisted of five 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;
- in discussion over monitoring requirements;
- preparation for any reviews;
- renewals;
- new consents;

- advice on the Council's environmental management strategies and content of regional plans and;
- consultation on associated matters.

1.4.3 Site inspections

The larger WTP's were visited with inspections focussing on discharges and intake structures.

1.4.4 Chemical sampling

The Council undertook sampling of discharges from the Kapuni, Cold Creek, and Inaha WTP's. Receiving water samples were also collected in relation to discharges from the Kapuni WTP.

1.4.5 Receiving environment monitoring

Biomonitoring surveys were undertaken in relation to the Kapuni, Waimate West and Opunake WTP to determine effects upon the stream communities due to the discharge of filter backwash and/or abstractions.

1.4.6 Hydrological surveys

Hydrological surveys were undertaken in order to check flows and maintain ratings curves.

1.4.7 Review of abstraction data

STDC, CCWSL, NWSSI and OWSL provided abstraction data to the Council throughout the monitoring year. This was reviewed by Council staff to ensure abstraction volumes and rates complied with consent conditions.

2. Results

2.1 Inspections

Annual inspections generally focussed on plants with intake structures, these were undertaken on 5 March 2015 during low flow conditions with the exception of Cold Creek WTP which was inspected on 23 June 2015.

Eltham WTP
No discharges were occurring from the plant at the time of inspection. The intake was in good working order and no issues were noted.

Inaha WTP
The weir at the pumped intake was in good order. There was small branch trapped in the fish pass and this was removed by STDC staff. The fish pass was working well with good flow. The weir at the gravity fed take was working well and there was good flow in the fish pass. No issues were noted.

Waimate West WTP
The Mangawhero-iti weir was working well and there was adequate flow down the fish pass. The stream had slightly milky appearance due to Mangawhero water being transferred into the Mangawhero-iti Stream as per consent conditions. The Otakeho weir was in good working order with good flow down the fish pass. A pressure transducer had been installed to measure the river level and gaugings would be required to create a ratings curve.

The Mangawhero Stream was at low flow and was very milky in colour (as it usually is at low flows). The weir was in good condition and there was good flow down the fish pass.

One of the ponds at the treatment plant was discharging approximately 1 L/s. The pond had a significant amount of floatable material and algae, however this was being skimmed off at the outlet structure and the discharge was clear.

Pope WTP
No discharges were occurring at the time. The soak hole was in good condition and well vegetated.

Kapuni WTP
No issues were noted with intake structure. The ponds were inspected and no discharges were occurring. A sample from the pond was taken.

Cold Creek WTP
The Cold Creek WTP was inspected on 23 June 2014. No issues were noted with the intake or the weir, and there was good flow down the fish pass. A sample was taken of the back wash discharge and it was found to be compliant with consent conditions.

2.2 Results of discharge monitoring

2.2.1 Kapuni WTP

Discharge and receiving water samples were taken at the Kapuni WTP (Figure 3) on 17 October 2014 and 22 April 2015 and the results are presented in Tables 2 & 3 below.

Figure 3 Aerial photo showing locations of the old and new WTPs, and relevant sampling sites

Table 2 Kapuni WTP sample results 17 October 2014

Parameter		Upstream (KPN000300)	Pond discharge (STW002080)	Downstream (KPN000301)	Consent limits for discharge
Free available chlorine	g/m^3		0.03	-	<0.1
Conductivity	mS/m	11.3	15.8	11.4	-
Sodium	g/m^3	10.2	16.9	10.3	-
pH	pH	7.8	7.9	7.8	6-9
Suspended solids	g/m^3	-	23		20
Temperature	Deg C	15.0	17.0	15.1	
Turbidity	NTU	1.9	-	1.9	

Table 3 Kapuni WTP sample results 22 April 2015

Parameter		Upstream (KPN000300)	Pond discharge (STW002080)	Downstream (KPN000301)	Consent limits for discharge
Free available chlorine	g/m³		0.01		<0.1
Conductivity	mS/m	9.1	10.8	9.1	-
Sodium	g/m³	8.0	11.5	8.2	-
pH	pH	7.4	6.8	7.4	6-9
Suspended solids	g/m³	-	3	-	20
Temperature	Deg C	13.3	14.5	13.4	
Turbidity	NTU	0.96		0.98	

All results were in compliance with consent conditions with the exception of one sample result marginally exceeding the suspended solids limit of 20 g/m³. The turbidity in the samples collected upstream and downstream of discharge indicated that no effects were occurring.

STDC regularly monitors the pond and this data was reviewed. It was found that no other exceedances had occurred. Ongoing spot checks by Council are recommended to ensure the ponds are achieving sufficient residence and settling time to achieve ongoing compliance.

While the consent does not limit sodium, it is of particular interest due to the use of chemicals such as sodium hypochlorite, sodium hydroxide and sodium bisulphate in the WTP process. Ballance Agri-Nutrients and Vector both have discharges to the Kapuni Stream, upstream of the WTP discharge, which have limits placed on them for sodium. The WTP discharge will continue to be regularly monitored for sodium to establish whether it is making a significant contribution to sodium loadings in the Kapuni Stream.

2.2.2 Cold Creek WTP

The filter backwash from the Cold Creek is treated in two ponds, both of which discharge at the same time. Samples of the discharges were taken on 23 June 2015 and the results are shown in Table 4.

Table 4 Results of sampling at the Cold Creek WTP 23 June 2015

Site	Unit	STW0002066 Cold Creek WTP Pond 1	STW0002067 Cold Creek WTP Pond 2	Consent limits
Free available chlorine	g/m³	<0.01	<0.01	<0.1
pH	-	7.2	7.2	6-9
Suspended solids	g/m³	3	2	20
Temperature	Deg C	5.2	5.0	-

All samples were compliant with consent conditions. The stream was visually inspected and no effects were noted, nor expected when the high dilution rate is considered.

2.2.3 Inaha WTP

A sample was collected from the settling pond discharge on 23 June 2015 and the results are presented below in Table 5. Suspended solids, pH and free available chlorine were in compliance with consent conditions.

Table 5 Results of sampling at the Inaha WTP 23 June 2015

Site	Unit	STW002070 Inaha pond discharge	Consent limits
Free available chlorine	g/m^3	<0.01	<0.1
pH	-	7.1	6-9
Suspended solids	g/m^3	4	20
Temperature	Deg C	6.6	-

2.3 Results of receiving environment monitoring

2.3.1 Hawera WTP macroinvertebrate survey (Kapuni)

The Council's standard 'kick-sampling' technique was used on 19 February 2015 at two sites to collect streambed macroinvertebrates from the Kapuni Stream to determine if there had been any adverse effects on the macroinvertebrate community of the stream from Kapuni WTP backwash discharges. Samples were sorted and identified to provide number of taxa (richness) and MCI and $SQMCI_S$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_S$ takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities, particularly if non-organic impacts are occurring. Significant differences in either the MCI or the $SQMCI_S$ between sites indicate the degree of adverse effects (if any) of the discharges being monitored.

This survey was the fifth to follow full commissioning of the Kapuni WTP. The new discharge point is now located just upstream of the Skeet Road bridge, and the sampling sites were consequently changed, to enable monitoring of this new location. Site 1 has an extensive historical dataset, as a result of monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites, located upstream. This dataset can also be used as a reference for site 2 (KPN000301), until a suitable data record has been established here. It should be noted however, that the monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites is done using slightly different methodology, which has the potential to produce lower taxa richness and higher MCI scores.

This late summer macroinvertebrate survey indicated that the community at site 2, downstream of the discharge point, was in good health, and better than that recorded at site 1, upstream of the discharge point. There is no evidence to suggest that the discharge of filter backwash and settling tank sediment had resulted in an impact on the macroinvertebrate communities of the Kapuni Stream. This is supported by the MCI score recorded downstream of the discharge being higher than the median score for the upstream site.

The macroinvertebrate communities of the Kapuni Stream contained significant proportions of 'sensitive' taxa at both sites and the communities were dominated by 'sensitive' taxa. Taxonomic richness (number of taxa) was high at the control site 1 and decreased only slightly at site 2 downstream of the discharge, although there were some changes in the presence/absence of a few taxa found as rarities (less than five individuals). Site 1 recorded a below average MCI score, which is considered a reflection of the long period of low flows that preceded this survey (60 days). The significant increase in MCI and $SQMCI_S$ scores from site 1 to site 2 was not an expected result considering the extended period of low flow that preceded this survey. However, it is certainly not an indication of any impacts from the Hawera WTP.

2.3.2 Waimate West WTP macroinvertebrate survey (Mangawhero-iti)

October 2014

The Council's 'kick-sampling' technique was used at four sites to collect streambed macroinvertebrates from the Mangawhero-iti Stream in relation to the STDC WWWSS. This has provided data to assess any potential impacts the consented water abstraction may have had on the macroinvertebrate communities of the stream. Samples were processed to provide number of taxa (richness), MCI, and $SQMCI_S$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_S$ takes into account taxa abundances as well as sensitivity to pollution. Significant differences in either the taxa richness, MCI or the $SQMCI_S$ between sites may indicate the degree of adverse effects (if any) caused by water abstractions.

The abstraction of surface water particularly for extended periods of time may result in significant adverse effects on the macroinvertebrate communities living within a waterbody by potentially reducing flow velocities, wetted habitat area, and dissolved oxygen levels and increasing stream temperature, periphyton abundance, macrophytes, pH, and deposited sediment. This October 2014 survey was undertaken to monitor whether the operation of the WWWSS was having an effect on the macroinvertebrate communities in the Mangawhero-iti Stream downstream of the water take under spring conditions. In the Taranaki region spring conditions are usually associated with high rainfall and cool temperatures compared with summer conditions and therefore water abstraction is likely to have less of an impact on macroinvertebrate communities compared with what would normally be expected to occur in summer conditions.

The macroinvertebrate communities recorded at sites 1 and 2 comprised very high proportions of 'sensitive' taxa and were numerically dominated by several abundant or very abundant 'sensitive' taxa. The composition of the communities at both sites

reflected the partially shaded, relatively cool, stony nature of the stream located in the upper mid-reaches of the catchment. This resulted in high MCI and $SQMCI_s$ scores at both sites with site 2 having a significantly higher observed MCI score compared with expected values based on altitude and distance from the Egmont National Park boundary. This was consistent with spring conditions with high residual flows and there was no evidence that water abstraction had had a detrimental impact on the macroinvertebrate community at site 2.

At site 3, situated approximately 3 kilometres downstream of the water intake, the macroinvertebrate community again comprised a high proportion of 'sensitive' taxa which was reflected in the MCI score of 119 units and $SQMCI_s$ score of 6.4 units. This MCI score was not significantly different to the predicted scores for altitude and distance from the National Park boundary (Stark and Fowles, 2009), and consistent with the median taxa richness calculated from previous surveys at the site. However, the MCI score at site 3 was significantly lower than the MCI scores at sites 1 and 2. This result reflected the differences in site location within the catchment. The community at site 3 was dominated by relatively similar 'sensitive' taxa to sites 1and 2 including four very abundant 'moderately sensitive' taxa and one 'very abundant' 'highly sensitive' taxon. However this site had the addition of two abundant 'tolerant' taxa consistent with increases in filamentous and mat periphyton cover.

In the current survey site 4, situated approximately 8.3 km downstream of the water intake, had the lowest taxa richness, MCI and $SQMCI_s$ scores. This community was numerically dominated by more 'tolerant taxa' and fewer 'highly and moderately sensitive' taxa than at the three upstream sites. There was a significant (Stark, 1998) decrease in MCI and $SQMCI_s$ scores between sites 3 and 4 which was consistent with what is typically found in Taranaki ring plain streams with the health of macroinvertebrate communities decreasing downstream as a result of the cumulative impacts of agricultural discharges. The results of the current survey at the site were consistent with expected values and not significantly different to the previous survey.

The overall MCI score decline of 28 units between sites 1 and 4 over a stream distance of 8.3 km was markedly higher than the predicted difference of 13 units (Stark and Fowles, 2009), indicative of greater than expected deterioration in macroinvertebrate community health in the lower to mid-reaches of the Mangawhero-iti Stream compared with equivalent reaches. The difference between observed versus expected values between sites 1 and 3 based on distance was very small (1 unit) with the biggest difference occurring between sites 3 and 4 (difference in observed versus expected of 14 units). However, the same decline in score (28 units) was found by the previous summer survey (February 2014) indicating that there was no evidence for further decline in macroinvertebrate community health since the previous survey.

Overall, the results of this spring survey found no evidence that water abstraction from the Mangawheroiti Stream by WWWSS had had a significant effect on the freshwater macroinvertebrate communities downstream of the abstraction point. Macroinvertebrate indices did decrease from site 2 to site 4 which would most likely be due to the cumulative effects of agricultural discharges on the macroinvertebrate stream communities.

February 2015
The Council's 'kick-sampling' technique was used at four sites to collect streambed macroinvertebrates from the Mangawhero-iti Stream in relation to the STDC WWWSS. This has provided data to assess any potential impacts the consented water abstraction may have had on the macroinvertebrate communities of the stream. Samples were processed to provide number of taxa (richness), MCI, and $SQMCI_S$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_S$ takes into account taxa abundances as well as sensitivity to pollution. Significant differences in either the taxa richness, MCI or the $SQMCI_S$ between sites may indicate the degree of adverse effects (if any) caused by water abstractions.

The abstraction of surface water particularly for extended periods of time may result in significant adverse effects on the macroinvertebrate communities living within a waterbody by potentially reducing flow velocities, wetted habitat area, and dissolved oxygen levels and increasing stream temperature, periphyton abundance, macrophytes, pH and deposited sediment. This February 2015 survey was undertaken to monitor whether the operation of the WWWSS was having an effect on the macroinvertebrate communities in the Mangawhero-iti Stream downstream of the water take under summer conditions. In the Taranaki region summer conditions are usually the hottest and driest and therefore water abstraction is likely to have more of an impact on macroinvertebrate communities compared with other times of the year.

The macroinvertebrate communities recorded at sites 1 and 2 comprised high proportions of 'sensitive' taxa and were also numerically dominated by 'sensitive' taxa. The composition of the communities at both sites reflected the partially shaded, relatively cool, stony nature of the stream located in the upper mid-reaches of the catchment. This resulted in high MCI and $SQMCI_s$ scores at both sites. Though water levels at both sites were lower than at the time of the spring survey, especially at site 2, there were no significant differences in any of the macroinvertebrate indices between the spring and summer surveys at both sites and therefore there was no evidence that water abstraction had had a detrimental impact on the macroinvertebrate community at site 2 since the previous survey.

At site 3, situated approximately 3 kilometres downstream of the water intake, the macroinvertebrate community again comprised a reasonably high proportion of 'sensitive' taxa which was reflected in the MCI score of 116 units and $SQMCI_s$ score of 6.9 units. This MCI score was not significantly different to the predicted scores for altitude and distance from the National Park boundary (Stark and Fowles, 2009), and consistent with the median taxa richness calculated from previous surveys at the site. However, the MCI score at site 3 was significantly lower than the MCI scores at sites 1 and 2. This result reflected the differences in site location within the catchment. The community at site 3 was dominated by relatively similar 'sensitive' taxa to sites 1and 2 including two very abundant 'moderately sensitive' taxa and one very abundant 'highly sensitive' taxon. However this site had the addition of two 'very abundant' 'tolerant' taxa consistent with increases in filamentous and mat periphyton cover compared with site 2.

In the current survey site 4, situated approximately 8.3 km downstream of the water intake, had the lowest taxa richness, MCI and $SQMCI_s$ scores. This community was numerically dominated by more 'tolerant taxa' and fewer 'highly and moderately sensitive' taxa than at the three upstream sites. There was a significant (Stark, 1998) decrease in MCI and $SQMCI_s$ scores between sites 3 and 4 which was consistent with what is typically found in Taranaki ring plain streams with the health of macroinvertebrate communities decreasing downstream as a result of the cumulative impacts of agricultural discharges. The results of the current survey at the site were consistent with expected values and not significantly different to the previous survey.

The overall MCI score decline of 33 units between sites 1 and 4 over a stream distance of 8.3 km was markedly higher than the predicted difference of 13 units (Stark and Fowles, 2009), indicative of greater than expected deterioration in macroinvertebrate community health in the lower to mid-reaches of the Mangawhero-iti Stream compared with equivalent reaches. The difference between observed versus expected values between sites 1 and 3 for distance was moderate (11 units) and similar to the difference occurring between sites 3 and 4 (difference in observed vs expected of 9 units). A slightly smaller decline in score (28 units) was found by the previous spring survey (October 2014) indicating that there was little evidence for further decline since the previous survey.

Overall, the results of this summer survey found no evidence that water abstraction from the Mangawhero-iti Stream by WWWSS had had a significant effect on the freshwater macroinvertebrate communities downstream of the abstraction point. Macroinvertebrate indices did decrease from site 2 to site 4 which would most likely be due to the negative effects of agricultural discharges on the macroinvertebrate stream communities.

Full copies of the biomonitoring reports are attached in Appendix II.

2.3.3 Opunake macroinvertebrate survey

This, the fourth survey of the macroinvertebrate fauna of the mid-reaches of the Waiaua River in the vicinity of the Opunake water supply and treatment plant (following recent relocation of the water supply intake), found no significant recent impacts of the scheme on biological communities in terms of community composition and/or MCI scores under mid summer, low flow conditions.

Community richnesses more typical of those in reaches of similar ringplain streams and rivers were recorded, with no obvious recent impacts of several headwater erosion events which had been apparent in the period between the three surveys from 1998 to 2011 and that from time to time had increased sedimentation in the surveyed reach and caused subtle changes in community composition at all sites. There were minimal changes within individual taxon abundances between the two sites as reflected in the very narrow range (6.9 to 7.1 units) of $SQMCI_s$ values found over this reach of the river under conditions of moderate periphyton substrate cover.

The MCI scores (117 and 117) categorised the two sites in this reach of the stream as having 'good' biological health consistent with good physical habitat and preceding physicochemical water quality. These scores were also higher than predicted scores for

ringplain sites at equivalent altitudes and higher than predicted at equivalent distances downstream of the National Park.

2.4 Abstraction data

Data is collected from all consent holders, tabulated and archived in the Council's database. Below (Table 6) is a summary of data that shows the level of compliance with daily volumes, abstraction rates and data supply.

Table 6 Summary of abstraction data

Plant	Source	Records Supplied on time?	Compliance with daily volumes	Compliance with abstraction rates	Completeness of data
Eltham	Waingongoro	Yes	100%	100%	100%
Hawera	Kapuni	Yes	97%	98%	100%
	Kapuni bore	Yes	100%	100%	100%
Inaha	Mangatoki	Yes	100%	>99%	100%
	Waingongoro	Yes	100%	>99%	100%
Opunake	Waiaua	Yes	100%	100%	100%
Patea	Bore 1	Yes	100%	100%	100%
	Bore 4	Yes	N/A	100%	100%
	Bore 5	Yes	N/A	>99%	100%
	Combined	Yes	100%	N/A	100%
Rahotu	Pungaereere	Yes	100%	100%	100%
Wai-inu	Wai-inu bore	Yes	100%	Not assessed	100%
Waimate West	Mangawhero-iti	Yes	N/A	>99%	100%
	Otakeho	Yes	N/A	100%	100%
	Mangawhero	Yes	N/A	>99%	100%
Waverley	Chester St bore	Yes	100%	100%	100%
	Fookes St bore	Yes	100%	100%	100%
	Swinbourne St bore	Yes	100%	100%	100%
Waverley Beach	Bore 2	N/A	Not exercised	Not exercised	N/A
Cold Creek	Cold Creek	Yes	N/A	>98%	>99%
Oaonui	Oaonui	Yes	97%	Not assessed	100%
Nukumaru	Nukumaru bore	No	100%	N/A	100%

Key: N/A= not applicable (not all consents require abstractions rate data or have daily volume limits)

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 the consent holder. 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 courses 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 (IR) includes events where the Company 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 company is indeed the source of the incident (or that the allegation cannot be proven).

In the 2014-2015 period, the Council was required to record incidents, in association with the WTP's operated by STDC, CCWSL and OWSL.

STDC-1 August 2014
During a routine review of back dated abstraction data it was found that from 7 August 2013 to 24 September 2013 the combined abstraction rate for consents 1183-3 and 5634-3 exceeded the 29 L/s limited set by consent conditions on numerous occasions. A letter requiring an explanation was issued. The response outlined that the exceedance was caused by the abstraction pump not being correctly throttled and that this had been rectified. This explanation was accepted.

STDC-26 September 2014
Self-notification was received concerning abstraction exceedances from the Mangawhero-iti Stream at the Waimate West WTP. Investigation found that a failed logic card had resulted in breaches of water abstraction rate consent conditions on two occasions on 25 September 2013. A review of data showed that there were further breaches on 27 and 30 September 2014. A letter of explanation was received, explaining that during the commissioning of the plant, control over abstractions rates was lost due to equipment failures and air entrainment. This explanation was accepted.

STDC-3 November 2014
During a review of telemetered data it was found that the allowable rate of water abstraction from the Mangatoki Stream had been exceeded on several occasions on the 1 and 2 November 2014. The consent holder was contacted and they undertook to investigate the matter. A reply was received explaining that there had been a power supply interruption producing erroneous readings. Data on the power readings was supplied to substantiate this and the explanation was accepted.

OWSL- 22 November 2014
During review of supplied abstraction data it was found that the daily abstraction limit (3,500 m^3) of resource consent conditions 0231-3 had been breached. The data showed that on 22 November 2014, 3,766 m^3 was abstracted. A letter of explanation was received stating that the exceedance was the result of a burst water pipe and that the pipe was immediately repaired. This explanation was accepted.

OWSL-19 February 2015
During a review of daily abstraction volumes it was found that the daily consent limit of 3,500 m^3 had been exceeded on several occasions in January and February.

A letter of explanation was received and accepted. It was outlined that the combination of small leaks and extremely dry weather was putting pressure on the system. OWSL is working with clients to minimise water use to rectify the situation.

CCWSL-29 January 2015

A request was received from the CCWSL that the water take for this scheme be increased by 12 L/s for a duration of two weeks to replenish the water reservoir, which was low due to dry weather conditions. Emergency works was permitted, under section 330 of the RMA 1991, so that the water take rate of an additional 12 L/s could be taken. The emergency works was allowed until 13 February 2015, however was not required to be actioned. CCWSL subsequently applied for temporary retrospective consent to cover the extra 12 L/s and is currently in the process of obtaining a permanent consent.

3. Discussion

3.1 Discussion of site performance

During the period under review all the consent holders covered by this report faced challenges associated with an especially dry period during the late summer months. Overall this was dealt with well and details of each consent holders performance is outlined below.

3.1.1 STDC WTP's

Older resource consents require that records of daily volumes of water abstracted are to be provided. Some of the newer consents require 15 minute abstraction rates to be telemetered. STDC has been very proactive in having all abstraction data for all consents telemetered to Council's database regardless of whether consent conditions require it or not. As the data is supplied in a raw form this can result in apparent non compliances as a result of various operational factors such as air being entrained in the flow meter due to pump starts, low water levels or blocked intakes. Most incidents of over abstraction investigated during this period were of this nature and were over very short durations.

There was however, one incident at the Mangatoki Stream (Inaha WTP) where exceedances in abstraction were occurring due incorrect pump control. This occurred during early spring and it was not likely that this event caused significant effect on residual flows.

Intake structures were inspected and found to be in good condition and no issues with fish passage were noted.

Reports required by consents 0146-2, 0232-4, 0634-3, 1134-2, 1185-3, 1186-3 and 3696-3 on efficient water use, leak detection and repair were submitted to the Council. All water abstraction records for the period were provided in timely manner.

Overall the performance of STDC's sites was high.

3.1.2 Cold Creek WTP

During the 2014-2015 period the CCWSL continued to work towards gaining compliance with NES requirements. There were exceedances in the rate of water abstracted during the drier months, however these were notified to the Council and a retrospective consent was applied for. A temporary consent was also issued for extra taking during February and March 2015. All water abstraction records for the period were provided in timely manner.

Overall the performance of Cold Creek WTP was high.

3.1.3 Oaonui WTP

During the year under review there were some exceedances of allowable daily volume which were discovered during a review of data supplied to the Council. The consent holder is in the process of investigating water conservation measures and is also

applying for a resource consent to allow for an increased take. All water abstraction records for the period were provided in a timely manner.

Overall the performance of the Oaonui WTP site was high.

3.1.4 Nukumaru Water Supply

There were no exceedances in the daily volumes and all water abstraction records for the period were provided in timely manner.

Overall the performance of the Nukumaru Water Supply site was high.

3.2 Environmental effects of exercise of consents

Filter backwash discharge sampling was conducted at the Kapuni, Cold Creek and Inaha WTPs. The results indicated that the discharges were not likely to be causing any adverse environmental effects.

None of the macroinvertebrate or fish surveys indicated any adverse effects occurring due to abstraction activities or related structures. There were two incidents in regards to exceedance of abstraction rates or daily volumes during very low flow periods as a result of excessive demand which may have had temporary minor effects of the associated water bodies.

There were also several incidents of over abstraction during periods of normal flow which were less likely to have any effect and these were largely the result of equipment failure or power cuts.

Overall the South Taranaki water supply consent holders demonstrated a good level of environmental performance.

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 7-46.

3.3.1 Cold Creek WTP

Table 7 Summary of performance for Consent 1134-3

Purpose: To take water from Cold Stream to supply the Cold Creek Water Supply Scheme		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Rate of abstraction shall not exceed 59 L/s	Review of abstraction data	97%
2. Measure and record abstraction volume and flow of stream	Data received-abatement notice issued to have equipment compliant	Yes
3. Suitable format for water records	Records received	Yes

Purpose: To take water from Cold Stream to supply the Cold Creek Water Supply Scheme		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
4. Measurements transmitted in 'real time' to Council	Data received	Yes
5. Documentation to show water measuring and recording equipment installed and operational	Record received	Yes
6. Notification to Council of equipment failure	Notification received	Yes
7. Measuring and recording equipment to be accessible	Inspection	Yes
8. Restrictions on abstraction when flow below 209 L/s	Data received	Yes
9. Intake screened	Inspection	Yes
10. Best practicable option to minimise environmental effects	Inspections and liaison with consent holder	Yes
11. Report annually on efficient water use, leak detection and repair	Received	Yes
12. Annual payment of $13,333 due by 1 September 2013, 2014 and 2015	Received	Yes
13. Review provision	Next option for review in June 2018	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		Good High

Table 8 Summary of performance for Consent 5454-1

Purpose: To erect, place, use and maintain a water intake structure on the bed of Cold Creek for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance in monitoring period	Yes
2. Structure to be constructed in accordance application	Construction completed	Yes
3. Adoption of best practicable option to minimise adverse effects	No maintenance in monitoring period	Yes
4. Minimise area disturbed and reinstate areas disturbed	No maintenance in monitoring period	Yes
5. Major construction and maintenance to occur between 1 Nov and 30 Apr	No maintenance in monitoring period	Yes

Purpose: To erect, place, use and maintain a water intake structure on the bed of Cold Creek for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
6. No obstruction of fish passage	Inspection	Yes
7. Monitoring and reporting of adequacy of fish passage	Fish surveys scheduled for every 3 years	Yes
8. Structure to be removed when no longer required and area reinstated.	Structure in use	N/A
9. Review provision	No further option for review before expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 9 Summary of performance for Consent 6077-1

Purpose: To discharge filter backwash water and supernatant from the Cold Creek WTP into the Cold Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Location of discharge point	Inspection	Yes
2. Limit on discharge rate	Inspection	Yes
3. Discharge not to cause certain effects in the receiving waters	Inspection	Yes
4. Limits on chlorine, suspended solids and pH in discharge	Not assessed this year	N/A
5. Review provision	No further provision for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.2 Eltham WTP

Table 10 Summary of performance for Consent 0213-3

Purpose: To take and use water from the Waingongoro River for municipal water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume and rate	Review of abstraction data provided	Yes
2. Recording of abstraction data and provision of records to Council	Data received	Yes
3. Consent to be exercised in accordance with application	Inspection and liaison with consent holder	Yes

Purpose: To take and use water from the Waingongoro River for municipal water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
4. Quantification of reticulation system losses and reporting	Report received 1 March 2001	Yes
5. Investigation and report on blocking of intake	Report received 18 January 2002	Yes
6. Review of SC1 in 2002 to assess water conservation measures	Liaison with consent holders	N/A
7. Mitigation by riparian planting	Completed	Yes
8. Review provision	No further provision for review	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 11 Summary of performance for Consent 0989-3

Purpose: To discharge reservoir from the Eltham Water Supply Reservoir onto land adjacent to the Waingongoro River		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option to prevent or minimise adverse effects	No discharge during period under review	N/A
2. Notification of discharge 2 days prior	No discharge during period under review	N/A
3. Volume of discharge not to exceed 5,000 m^3 once per year	No discharge during period under review	N/A
4. Discharge only when flows in Waingongoro > 1,050 L/s	No discharge during period under review	N/A
5. Discharge across land, no direct discharge	No discharge during period under review	N/A
6. Consent holder to reduce volume of sediment and silt in the discharge	No discharge during period under review	N/A
7. Suspended solids in discharge not to exceed 100 g/m^3	No discharge during period under review	N/A
8. Discharge not to have effects on receiving water	No discharge during period under review	N/A
9. Review provision	Next option for review in June 2017	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		N/A N/A

Table 12 Summary of performance for Consent 1810-3

Purpose: To discharge overflow and reservoir drainage water from the Eltham water supply reservoir		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Approval required prior to emptying reservoir	No discharge during period under review	N/A
2. Periods when consent exercised minimised	No discharge during period under review	N/A
3. Minimise discharge of sediments when emptying reservoir	No discharge during period under review	N/A
4. Discharge not to cause certain effects in the receiving waters	No discharge during period under review	N/A
5. Limits on chlorine and suspended solids in the discharge	No discharge during period under review	N/A
6. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		N/A N/A

Table 13 Summary of performance for Consent 1811-3

Purpose: To discharge filter backwash from the Eltham WTP		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Proper and efficient maintenance of the settlement pond system	Inspection	Yes
2. Discharge not to cause certain effects in the receiving waters below the established mixing zone	Inspection	Yes
3. Limits on chlorine and suspended solids in the discharge	Not assessed this period	N/A
4. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.3 Hawera WTP

Table 14 Summary of performance for Consent 0146-2

Purpose: To take and use water from the Kapuni Stream for municipal water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume and rate	Review of abstraction data provided	97%

Purpose: To take and use water from the Kapuni Stream for municipal water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
2. Recording of abstraction data and provision of records to Council	Data received	Yes
3. Consent to be exercised in accordance with application documentation. Report on efficiency measures every two years	Report received	Yes
4. Reporting of events when abstraction is greater than 124.5 L/s	Data review	Yes
5. Mitigation by riparian planting	Total amount has been paid to the Taranaki Tree Trust	Yes
6. Preparation and maintenance of management plan for Kapuni Stream in conjunction with other users (within three months of granting)	Liaison with consent holder – Plan prepared in 2003 and updated in 2006	Yes
7. Annual leak detection and repair report	Report received	Yes
8. Point of abstraction	Inspection	Yes
9. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 15 Summary of performance for Consent 0933-3

Purpose: To discharge up to 227 m^3 /day of settling pond supernatant from a water treatment plant into the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	Inspections and liaison with consent holder	Yes
2. Exercise of consent in accordance with application documentation	Inspections and liaison with consent holder	Yes
3. Notification prior to exercise	Notification received	N/A
4. Permanent solution for treatment of wastes at time of upgrade in 2008	Backwash settling pond operating	Yes
5. Proper and efficient maintenance and operation of settlement system	Inspections and liaison with consent holder	Yes
6. Discharge not to have adverse effects on receiving waters	Inspection, sampling, macroinvertebrate and fish surveys	Yes
7. Limits on certain parameters in the discharge	Sampling	Minor non compliance

Purpose: To discharge up to 227 m^3 /day of settling pond supernatant from a water treatment plant into the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Lapse provision	Not applicable – consent exercised	N/A
9. Review provision	Next scheduled in 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		Good High

Table 16 Summary of performance for Consent 5596-1

Purpose: To construct, place, use and maintain two existing intake structures in the Kapuni Stream for the Hawera water supply		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No longer in use	N/A
2. Structure to be constructed in accordance with application	No longer in use	N/A
3. Construction not to occur between 1 May and 31 October	No longer in use	N/A
4. Adoption of best practicable option to minimise adverse effects on water quality	No longer in use	N/A
5. Minimise disturbance during construction and maintenance and reinstate disturbed areas	No longer in use	N/A
6. No refuelling on the streambed	No longer in use	N/A
7. No obstruction of fish passage	No longer in use	N/A
8. Maintenance of flow down fish pass to ensure fish passage	No longer in use	N/A
9. Structure not to cause erosion adjacent to or downstream of rock riprap ramp	No longer in use	N/A
10. Only material which makes up existing structure should be extracted from streambed during construction	No longer in use	N/A
11. Removal of streambed material for maintenance purposes only to occur between 1 November and 30 April	No longer in use	N/A
12. Removed material to be placed on banks of stream downstream of weir	No longer in use	N/A
13. Structure to be removed when no longer required and area reinstated.	Structure removed	Yes

Purpose: To construct, place, use and maintain two existing intake structures in the Kapuni Stream for the Hawera water supply		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
14. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		N/A N/A

Table 17 Summary of performance for Consent 7002-1

Purpose: To take and use groundwater for municipal, rural, industrial, and recreational supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Exercise of consent to be in accordance with application	Inspections of site and records	Yes
2. Notify the Council in writing at least seven days prior to exercise of consent	Notification received	Yes
3. Provide Council with results of pump testing prior to exercise of consent	Received	Yes
4. Abstraction not to exceed 4,320 m^3 per day	Review of abstraction data provided	Yes
5. Abstraction not to cause a more than 10% drop in static water level by interference	Not assessed	N/A
6. Maintain records of the abstraction from each bore	Records kept and received by Council	Yes
7. Install device to record abstraction	Inspection and data received by Council	Yes
8. Consent holder to meet monitoring costs	Liaison with consent holder	Yes
9. Lapse provision	Not applicable – consent exercised	N/A
10. Review provision	Next scheduled in 2017, if required	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 18 Summary of performance for Consent 7413-1

Purpose: To erect, use and maintain a water intake structure on the bed of the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Exercise of consent to be in accordance with application	Inspection	Yes
2. Disturbance of riverbed between 1 November and 30 April only	N/A	N/A

Purpose: To erect, use and maintain a water intake structure on the bed of the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
3. Notification prior to works and maintenance	No maintenance during monitoring period	N/A
4. Area and volume of disturbance minimised	No maintenance during monitoring period	N/A
5. Minimise sediment entering stream	No maintenance during monitoring period	N/A
6. Structure removed and area reinstated when no longer required	Structure in use	N/A
7. Consent holder to monitor and maintain fish pass	Inspection	Yes
8. Procedure if archaeological remains discovered during construction	None found	N/A
9. Lapse provision	Not applicable – consent exercised	N/A
10. Review provision	Next scheduled in June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 19 Summary of performance for Consent 7446-1

Purpose: to discharge membrane backwash water and cleaning wastewater into the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option to minimise adverse effects	Inspection and liaison with consent holder	Yes
2. No adverse effects on receiving waters	Inspection, sampling, biomonitoring	Yes
3. Allowable increase in turbidity below mixing zone	Sampling	Yes
4. Levels of contaminants in discharge	Sampling	Yes
5. Lapse provision	Not applicable	N/A
6. Review provision	Next scheduled in June 2017, if required	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 20 Summary of performance for Consent 7447-1

Purpose: To install, use and maintain an outfall structure on the bank of the Kapuni Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Exercise of consent to be in accordance with application	Inspections	Yes
2. Disturbance of riverbed between 1 November and 30 April only	N/A	N/A
3. Notification prior to works and maintenance	N/A	N/A
4. Area and volume of disturbance minimised	N/A	N/A
5. Minimise sediment entering stream	N/A	N/A
6. Structure removed and area reinstated when no longer required	Structure in use	N/A
7. Procedure if archaeological remains discovered during construction	N/A	N/A
8. Lapse provision	Consent exercised	N/A
9. Review provision	Next scheduled in June 2017, if required	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.4 Inaha WTP

Table 21 Summary of performance for Consent 1185-3

Purpose: To take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Combined take not to exceed 29 L/s, or 2,504 m^3/day	Review of abstraction records	100 % (volume) >99% (rate)
3. Gravity take preferential	Inspection and liaison with consent holder	Yes
4. Install and maintain water meter and data logger	Inspection and liaison with consent holder	Yes
5. Certification of water meter	Site inspection and NWMR compliant	Yes
6. Notification of equipment failure	No notification received	N/A
7. Intake structure maintained, and removed if no longer required	Inspection	Yes

Purpose: To take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Water meter and data logger accessible to Council staff	Inspection	Yes
9. Suitable format of water records	Review of abstraction records	Yes
10. Water records to be transmitted in 'real time' to Council	Review of abstraction records	Yes
11. Intake structure to be screened	Inspection	Yes
12. Intake structure not to block fish passage	Inspection	Yes
13. Leak detection and repair programme with annual report	Report received	Yes
14. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 22 Summary of performance for Consent 1186-3

Purpose: To take water from the Waingongoro River for Inaha rural water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Exercise in accordance with application	Inspection and liaison with consent holder	Yes
3. Maximum abstraction 2,592 m^3/day at 30 L/s	Review of abstraction data	100 % (volume) >99% (rate)
4. Measure and record abstraction rate and provide to Council	Data received	Yes
5. Maintain intake structure and remove when no longer required	Inspection and liaison with consent holder	Yes
6. Intake screened to avoid fish entrainment	Inspection	Yes
7. Intake structure shall not obstruct fish passage	Inspection	Yes
8. Report annually on efficient water use, leak detection and repair	Report received	Yes
9. Lapse provision	Not applicable – consent exercised	N/A

Purpose: To take water from the Waingongoro River for Inaha rural water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
10. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 23 Summary of performance for Consent 3927-2

Purpose: to discharge backwash wastes from the Inaha WTP into an unnamed tributary of the Mangatoki Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Proper and efficient maintenance of the settlement pond system	Inspection	Yes
2. Discharge not to cause certain effects in the receiving	Inspection	Yes
3. Limits on chlorine and suspended solids in the discharge	Sampling	Yes
4. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 24 Summary of performance for Consent 3928-2

Purpose: to discharge uncontaminated overflow water from the Inaha rural WTP		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Proper and efficient maintenance of the settlement pond system	Inspection	Yes
2. Discharge not to cause certain effects in the receiving waters	Inspection	N/A
3. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 25 Summary of performance for Consent 4102-2

Purpose: to construct a low-level weir and fish pass across the Mangatoki Stream to improve water intake efficiencies

Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	No maintenance during period under review	N/A
2. Exercise of consent in accordance with application documentation	No maintenance during period under review	N/A
3. Notification of Council prior to exercise of consent	No maintenance during period under review	N/A
4. Notification of Council prior to major maintenance works	No maintenance during period under review	N/A
5. Adoption of best practicable option during maintenance works	No maintenance during period under review	N/A
6. River bed disturbance to be minimised during maintenance	No maintenance during period under review	N/A
7. No maintenance works between 1 May to 31 Oct	No maintenance during period under review	N/A
8. Structure to be properly maintained	Inspection	Yes
9. Structure not to impede fish passage	Inspection	Yes
10. Structure to be removed and area reinstated when no longer required	Structure in use	N/A
11. Lapse Provision	Not applicable - consent exercised	N/A
12. Review provision	Next scheduled in June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 26 Summary of performance for Consent 5365-1

Purpose: To erect, place and maintain a low level intake weir in the Mangatoki Stream for Inaha rural water supply scheme purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance during period under review	N/A
2. Adoption of best practicable option to minimise adverse effects	No maintenance during period under review	N/A
3. No obstruction of fish passage	Inspection	Yes
4. Construction and maintenance to be in accordance with application	No maintenance during period under review	N/A
5. Maintain and operate safe structure	Inspection	Yes
6. Structure to be removed when no longer required and area reinstated	Structure in use	N/A
7. Review provision	No further options for review prior to expiry	N/A

Purpose: To erect, place and maintain a low level intake weir in the Mangatoki Stream for Inaha rural water supply scheme purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

3.3.5 Opunake WTP

Table 27 Summary of performance for Consent 0232-4

Purpose: To take and use water from the Waiaua River for Opunake town water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Rate of take not to exceed 2,200 m^3/day or 25.5 L/s	Review of abstraction data	Yes
2. Take mainly through 'new' intake	Inspection and liaison with consent holder	Yes
3. Rate of take through old intake up to 3,650 m^3/day or 42.2 L/s	No take through old intake	N/A
4. Notify Council if take occurs through old intake	No take through old intake	N/A
5. Installation and maintenance of water meter and data logger	Inspection	Yes
6. Water meter certification	Site inspection and NWMR compliant	Yes
7. Notify Council of equipment failure	No equipment failure	N/A
8. Water meter and data logger accessible to Council staff	Inspection	Yes
9. Suitable format of records	Review of abstraction data	Yes
10. Data to be transmitted to Council in real time from 1 December 2013	Data received	Yes
11. Best practicable option to prevent or minimise adverse effects	Inspection and liaison with consent holder	Yes
12. Annual report on leak detection and water use efficiency	Report received	Yes
13. Lapse provision	Consent exercised	N/A
14. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

Table 28 Summary of performance for Consent 5574-2

Purpose: to discharge water treatment residuals and pond drainage water from the Opunake WTP into the Waiaua River		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option to prevent or minimise adverse effects	Yes	Yes
2. Discharge not to exceed 120 m^3/day	Not assessed	Not assessed
3. Effects not to give rise in receiving waters	Inspection	Yes
4. Limits on contaminants in discharge	Sampling not undertaken in period under review	N/A
5. Lapse provision	Consent exercised	N/A
6. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 29 Summary of performance for Consent 9473-1

Purpose: to construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Intake specifications	Inspection during construction	Yes
2. Notification prior to works	Notification received	Yes
3. Minimise river bed disturbance	Inspection during construction	Yes
4. Minimise sediment discharge to river	Inspection during construction	Yes
5. Ensure screen does not entrap fauna	Not yet assessed	N/A
6. No obstruction of fish passage	Inspection	Yes
7. Financial payment	Payment received	Yes
8. Procedures for archaeological finds	Nothing found	N/A
9. Remove structure when no longer required	Structure being used	N/A
10. Lapse condition	Consent exercised	N/A
11. Reviews June 2018 and June 2024	No review option this period	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.6 Patea WTP

Table 30 Summary of performance for Consent 3388-3

Purpose: To take and use groundwater from three bores (known as Bore 1, Bore 2 and Bore 4) for Patea Township water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Total daily extraction not to exceed 1,125 m^3	Data received	100%
2. Each bore not to exceed certain abstraction rates	Data received	>99%
3. Bore 1 not to exceed 300 m^3/day	Data received	100%
4. Install flow meters	Data received	Yes
5. Install data logger	Data received	Yes
6. Inform Council of any equipment malfunction	Programme supervision	N/A
7. Provide access to equipment	Inspection	Yes
8. Adopt best practical option	Inspection	Yes
9. Measure level in Brannigan's bore	Groundwater level recorder installed	Yes
10. Consultations with Brannigan's bore owner if levels meet certain criteria	Liaison with consent holder – not necessary	N/A
11. Restrict use or provide water to Brannigan's bore owner if levels meet certain criteria	Liaison with consent holder – not necessary	Yes
12. Not to cause saltwater intrusion	Not assessed	N/A
13. Review provision	Next due in June 2016-not required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.7 Pope WTP

Table 31 Summary of performance for Consent 4446-2

Purpose: To discharge treated backwash water from the Pope Rural WTP		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Exercise in accordance with application	Inspection and liaison with consent holder	Yes
3. Maximum discharge of 6 m^3/day at 5 L/s	Not assessed	N/A

Purpose: To discharge treated backwash water from the Pope Rural WTP		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
4. Limits not to be exceeded in the discharge	Sampling – not sampled during period under review	N/A
5. Efficient operation	Inspection and liaison with consent holder	Yes
6. No effects on receiving water	Not assessed	N/A
7. Lapse provision	Not applicable – consent exercised	N/A
8. Review provision	Next scheduled in June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.8 Rahotu WTP

Table 32 Summary of performance for Consent 3696-3

Purpose: to take and use water from the Pungaereere Stream for the Rahotu community water supply scheme		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume and rate	Review abstraction data provided to Council	Yes
2. Installation and maintenance of water meter and data logger	Inspection	Yes
3. Water meter certification	Meter verified	Yes
4. Notify Council of equipment failure	No equipment failure during period under review	Yes
5. Water meter and data logger accessible to Council staff	Inspection	Yes
6. Suitable format of records	Review of abstraction data	Yes
7. Data to be transmitted to Council in real time from 1 February 2014	Data received	Yes
8. Best practicable option to prevent or minimise adverse effects	Inspection and liaison with consent holder	Yes
9. Annual report on leak detection and water use efficiency	Report received	Yes
10. Lapse provision	Consent exercised	Yes
11. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 33 Summary of performance for Consent 6038-1

Purpose: to discharge filter backwash water and settling tank waste from the Rahotu WTP into the Pungaereere Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Discharge not to cause certain effects in the receiving waters below the established mixing zone	Not assessed this period	N/A
2. Limits on chlorine and pH in discharge	Not assessed this period	N/A
3. Review provision	No further provision for review before expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.9 Wai-inu Beach water supply

Table 34 Summary of performance for Consent 3770-3

Purpose: To take and use groundwater for Wai-inu Beach water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume and rate	Review of abstraction data provided to Council	Yes
2. Installation and maintenance of water meter and data logger	Logger and meter installed-data received	Yes
3. Water meter certification	Received	Yes
4. Notify Council of equipment failure	No equipment failure during monitoring period	Yes
5. Water meter and data logger accessible to Council staff	Inspection	Yes
6. Water records to be provided by 31 July each year	Records received	Yes
7. Best practicable option to prevent or minimise adverse effects	Inspection and liaison with consent holder	Yes
8. Lapse provision	Not applicable – consent exercised	N/A
9. Review provision	Next scheduled in June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.10 Waimate West WTP

Table 35 Summary of performance for Consent 0129-3

Purpose: to discharge treated wash water from the Waimate Water Supply Scheme into an unnamed tributary of Kelly's Creek		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Adoption of best practicable option	Inspection and liaison with consent holder	Yes
2. Exercise in accordance with application	Inspection and liaison with consent holder	Yes
3. Maximum discharge rate 750 m^3/day	Not assessed	N/A
4. Installation and maintenance of erosion protection structure	Not required	Not required
5. Limits on discharge not to be exceeded	Sampling not undertaken during monitoring period	N/A
6. Efficient operation of settling ponds	Inspection and liaison with consent holder	Yes
7. No effects on receiving water	Inspection	Yes
8. Lapse provision	Not applicable- consent exercised	N/A
9. Review provision	Next scheduled in June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 36 Summary of performance for Consent 0634-3

Purpose: to take water from the Mangawhero-iti Stream for the Waimate West water supply		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Max rate of abstraction 121 L/s	Review of abstraction data provided	>99%
2. Limit on abstraction unless water is taken from Otakeho Stream at 85 L/s unless unable to achieve 85 L/s	Review of abstraction data provided	Yes
3. Installation of water meter and data logger and records of volumes abstracted	Inspections and abstraction data	Yes
4. Notification of installation of water meter and data logger	Received	Yes
5. Notification of equipment failure	No problems during monitoring period	Yes
6. Water meter and data logger accessible to Council	Inspections	Yes
7. Records of water taken in suitable format	Review of abstraction data provided	Yes

Purpose: to take water from the Mangawhero-iti Stream for the Waimate West water supply		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Flow in Mangawhero-iti Stream downstream of intake to be maintained above 32 L/s	Data provided	99%
9. Flow of Mangawhero-iti Stream recorded when less than 500 L/s	Data provided	Yes
10. Measurements to be transmitted to Council in 'real time'	Reception of telemetry	Yes
11. Staff gauge to be installed	Installed by Council	Yes
12. Sufficient stream flow measurements undertaken to maintain a 'rating curve'	Gauging undertaken by Council	Yes
13. Best practicable option to prevent or minimise adverse environmental effects	Inspections, data review	Yes
14. Annual report due 1 September	Report received	Yes
15. Five annual payments of $30,600 due 2011 to 2015	Payment received	Yes
16. Review of consent conditions	Next scheduled during 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 37 Summary of performance for Consent 0635-3

Purpose: To take water from the Mangawhero Stream to add to the flow of the Mangawhero-iti Stream for water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Max rate of take 70 L/s	Review of abstraction data provided	>99%
2. Scope of use	Review of abstraction data provided	Yes
3. Installation of water meter and data logger and records of volumes abstracted	Inspections and abstraction data	Yes
4. Notification of installation of water meter and data logger	Received	Yes
5. Notification of equipment failure	N/A	N/A
6. Water meter and data logger accessible to Council	Inspections	Yes
7. Records of water taken in suitable format	Review of abstraction data provided	Yes

Purpose: To take water from the Mangawhero Stream to add to the flow of the Mangawhero-iti Stream for water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
8. Measurements to be transmitted to Council in 'real time'	Data received	Yes
9. Best practicable option to prevent or minimise adverse environmental effects	Inspections, data review	Yes
10. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 38 Summary of performance for Consent 3911-2

Purpose: To take water from the Otakeho Stream for the Pope and Waimate West water supply schemes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction rate	Review of abstraction data provided	Yes
2. Installation of water meter and data logger and records of volumes abstracted	Inspections and abstraction data	Yes
3. Notification of installation of water meter and data logger	Received	Yes
4. Notification of equipment failure	N/A	Yes
5. Water meter and data logger accessible to Council	Inspections	Yes
6. Records of water taken in suitable format	Review of abstraction data provided	Yes
7. Best practicable option to prevent or minimise adverse environmental effects	Inspections, data review	Yes
8. Measurements to be transmitted to Council in 'real time'	Data received	Yes
9. Flows of less than 500 L/s recorded	Due June 2017	N/A
10. Review provision	Next scheduled in June 2018, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 39 Summary of performance for Consent 4826-2

Purpose: To place, use and maintain a water intake structure and associated structures on the bed of the Otakeho Stream		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance during period under review	N/A
2. Structure to be constructed in accordance with application	Construction completed	N/A
3. Adoption of best practicable option to minimise adverse effects on water quality	No maintenance during period under review	N/A
4. Minimise disturbance during construction and maintenance	No maintenance during period under review	N/A
5. Maintenance works to only occur between 1 April and 30 November	No maintenance during period under review	N/A
6. No obstruction of fish passage	Triennial fish surveys	Yes
7. Council Biologist to be present during construction of the fish pass	Biologist present	Yes
8. Structure to be removed when no longer required and area reinstated. Council to be notified prior to removal	Structure in use	N/A
9. Review provision	No further options for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

Table 40 Summary of performance for Consent 5451-1

Purpose: To erect, place, use and maintain a water intake structure on the bed of the Mangawhero-iti Stream for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance during period under review	N/A
2. Structure to be constructed in accordance with application documents	Construction completed	N/A
3. Adoption of best practicable option to minimise adverse effects on water quality	No maintenance during period under review	N/A
4. Minimise disturbance during construction and maintenance and reinstate disturbed areas	No maintenance during period under review	N/A
5. Maintenance works to only occur between 1 April and 30 November	No maintenance during period under review	N/A
6. No obstruction of fish passage	Inspection and triennial fish survey	Yes

Purpose: To erect, place, use and maintain a water intake structure on the bed of the Mangawhero-iti Stream for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
7. Monitoring programme to determine fish passage	Triennial fish surveys	Yes
8. Structure to be removed when no longer required and area reinstated	Structure in use	N/A
9. Review provision	No further options for review prior to expiry	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

Table 41 Summary of performance for Consent 5452-1

Purpose: to erect, place, use and maintain a water intake structure on the bed of the Mangawhero Stream for water abstraction		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance during period under review	N/A
2. Structure to be constructed in accordance with application	Construction completed	N/A
3. Adoption of best practicable option to minimise adverse effects on water quality	No maintenance during period under review	N/A
4. Minimise disturbance during construction and maintenance and reinstate disturbed areas	No maintenance during period under review	N/A
5. No obstruction of fish passage	Triennial fish surveys	Yes
6. Monitoring programme to determine fish passage	Triennial fish surveys	Yes
7. Structure to be removed when no longer required and area reinstated	Structure in use	N/A
8. Review provision	No further options for review prior to expiry	Yes
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

3.3.11 Waverley water supply

Table 42 Summary of performance for Consent 3313-3

Purpose: to take and use groundwater from the Fookes, Chester and Swinbourne Street bores for Waverley municipal supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Combined take not to exceed 14.2 L/s or 900 m^3/day	Review of abstraction data	100%
2. Daily maximum volume and abstraction limits for each bore	Review of abstraction data	100%
3. Bores to have permanent labelling	Inspections	Yes
4. Water meter and data logger installed and maintained on Chester and Fookes St bores	Inspections	Yes
5. Install and maintain equipment on Swinbourne St bore	Inspection	Yes
6. Install and maintain equipment on Swinbourne St bore	Inspection	Yes
7. Recording of abstraction data	Data received	Yes
8. Notice of installation of water measuring equipment	Notification received	Yes
9. Notification of non-operational measuring equipment	No problems during monitoring period	Yes
10. Best practicable option to prevent or minimise adverse effects	Inspections, review or data	Yes
11. No intrusion of salt water	Not assessed	N/A
12. Access to well provided for water measurement purposes	Inspections	Yes
13. Review of consent	Next scheduled in June 2016, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		High High

3.3.12 Waverley Beach water supply

Table 43 Summary of performance for Consent 9563-1

Purpose: To take and use water groundwater for Waverley Beach water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction rate	Not exercised	N/A
2. No intrusion of salt water	Consent not exercised	N/A

Purpose: To take and use water groundwater for Waverley Beach water supply purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
3. Bores to have permanent labels	Consent not exercised	N/A
4. Installation and maintenance of water meter and data logger	Consent not exercised	N/A
5. Water meter certification	Consent not exercised	N/A
6. Installation of water level monitoring devices	Consent not exercised	N/A
7. Water level certification	Consent not exercised	N/A
8. Water meter and data logger accessible to Council staff	Consent not exercised	N/A
9. Notify Council of equipment failure	Consent not exercised	N/A
10. Water records to be provided by 31 July each year	Consent not exercised	N/A
11. Best practicable option to prevent or minimise adverse effects	Consent not exercised	N/A
12. Lapse provision	Consent not exercised	N/A
13. Review provision	Next scheduled in June 2016-not required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		N/A N/A

3.3.13 Oaonui WTP

Table 44 Summary of performance for Consent 0231-3

Purpose: to take and use water from the Oaonui Stream for a rural community water supply scheme and the Maui Production Station		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Limit on abstraction volume and rate	Review of abstraction data provided	97%
2. Recording of abstraction data and provision of records to Council	Data received	Yes
3. Promotion of water conservation and reporting	No longer required	N/A
4. Mitigation by riparian planting	Payments up to date with Taranaki Tree Trust	Yes
5. Provision for change or cancellation	No request for change or cancellation	N/A
6. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent Overall assessment of administrative performance in respect of this consent		Good High

Table 45 Summary of performance for Consent 5453-1

Purpose: to erect, place, use and maintain a water intake structure on the bed of the Oaonui Stream for water abstraction purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification of Council prior to construction and maintenance works	No maintenance in period under review	N/A
2. Construction and maintenance to be in accordance application	No maintenance in period under review	N/A
3. Adoption of best practicable option to minimise adverse effects on water quality	No maintenance in period under review	N/A
4. Minimise riverbed disturbance and reinstate areas disturbed	No maintenance in period under review	N/A
5. Major maintenance to occur between 1 November and 30 April	No maintenance in period under review	N/A
6. No obstruction of fish passage	Inspection	Not assessed this period
7. Monitoring and reporting of adequacy of fish passage	Fish surveys scheduled for once every three years	N/A
8. Structure to be removed when no longer required and area reinstated.	Structure in use	N/A
9. Review provision	No further option for review prior to expiry	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

3.3.14 Nukumaru water supply

Table 46 Summary of performance for Consent 6451-1

Purpose: to take and use groundwater from up to two bores for the purpose of supplying the Nukumaru community rural water scheme		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Exercise of consent to be in accordance with documentation supporting application	Inspection and liaison with consent holder	Yes
2. Limit on abstraction rate and volume	Review of abstraction data provided	Yes
3. Installation of water meter	Inspection	Yes
4. Recording of abstraction data and provision of data to Council by 31 July each year	Data provided	Yes

Purpose: to take and use groundwater from up to two bores for the purpose of supplying the Nukumaru community rural water scheme		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
5. Cost of monitoring to be borne by Consent holder	Consent holder charged for monitoring	Yes
6. Lapse condition	Not applicable - consent exercised	N/A
7. Review provision	Next optional review June 2017, if required	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		High
Overall assessment of administrative performance in respect of this consent		High

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During the monitoring period, STDC demonstrated an overall good level of environmental performance and a high level of administrative performance.

During the monitoring period, OWSL demonstrated an overall good level of environmental performance and a high level of administrative performance.

During the monitoring period, NWSSI demonstrated an overall high level of environmental and a high level of administrative performance.

During the monitoring period, CCWSL demonstrated an overall good level of environmental performance and a high level of administrative performance.

3.4 Recommendations from the 2013-2014 Annual Report

In the 2013-2014 Annual Report, it was recommended:

That for 2014-2015, the monitoring programme remain similar to that of 2013-2014.

3.5 Alterations to monitoring programmes for 2015-2016

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 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 2015-2016 the monitoring programme remain similar to that of 2014-2015. A recommendation to this effect is attached to this report.

3.7 Exercise of optional review of consent

Resource consent 3313-3 provides for an optional review of the consent in June 2016. Condition 12 allows the Council to review the consent, for the purposes 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; and/or to require any data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet.

Based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued or grounds to exercise the review option.

4. Recommendations

1. THAT monitoring of South Taranaki Water supplies in the 2015-2016 year continue at the same level as in 2014-2015.

2. THAT the option for a review of resource consent(s) in June 2016, as set out in condition 12 of the consent, not be exercised, on the grounds that based on the results of monitoring in the year under review, and in previous years as set out in earlier annual compliance monitoring reports, it is considered that there are no grounds that require a review to be pursued or grounds to exercise the review option.

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.
COD	Chemical oxygen demand. A measure of the oxygen required to oxidise all matter in a sample by chemical reaction.
Condy	Conductivity, an indication of the level of dissolved salts in a sample, usually measured at 20°C and expressed in mS/m.
DRP	Dissolved reactive phosphorus.
Fresh	Elevated flow in a stream, such as after heavy rainfall.
g/m^3	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.
L/s	Litres per second.
MCI	Macroinvertebrate community index; a numerical indication of the state of biological life in a stream that takes into account the sensitivity of the taxa present to organic pollution in stony habitats.
mS/m	Millisiemens per metre.
Mixing zone	The zone below a discharge point where the discharge is not fully mixed with the receiving environment. For a stream, conventionally taken as a length equivalent to 7 times the width of the stream at the discharge point.
NH_4	Ammonium, normally expressed in terms of the mass of nitrogen (N).
NH_3	Unionised ammonia, normally expressed in terms of the mass of nitrogen (N).
NWMR	National Water Metering Regulations.
NNN	Nitrate-Nitrite Nitrogen.
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.

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Appendix I

Resource consents held by STDC, OWSL and NWSSI

Cold Creek WTP (CCWSL)

Water Permit

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

Name of Consent Holder:	Cold Creek Community Water Supply Limited 2 Havelock Street Opunake 4616
Decision Date (Change):	3 December 2015
Commencement Date (Change):	14 January 2016 (Granted Date: 10 July 2013)

Conditions of Consent

Consent Granted:	To take water from Cold Stream to supply the Cold Creek Water Supply Scheme
Expiry Date:	1 June 2030
Review Date(s):	June 2018, June 2021, June 2024, June 2027
Site Location:	620 Kiri Road, Opunake
Legal Description:	Pt Secs 4 & 5 Blk V Kaupokonui SD (Site of take)
Grid Reference (NZTM)	1686870E-5639970N
Catchment:	Taungatara
Tributary:	Cold Stream

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. Subject to condition 2 below the rate of taking shall not exceed 69 litres per second.

2. The rate of taking may be higher than 69 litres per second over specific 14 day periods provided that:

   (a) due to unusually high demand resulting from extreme weather conditions, the consent holder can not maintain the reservoir above 80% full while taking at a rate of 69 litres per second;
   (b) the rate of taking is the minimum necessary maintain the reservoir above 80% full;
   (c) the rate of taking does not exceed 79 litres per second;
   (d) before taking water under this condition the consent holder advises the Chief Executive, Taranaki Regional Council, Te Korowai o Ngāruahine Trust and Fish and Game New Zealand of the date that the specific 14 day period will commence; and
   (e) the advice given in accordance with (d) above includes specific information about water demand and weather conditions supporting the need for the additional water.

   The advice required by this condition shall be given by email to worknotification@trc.govt.nz and to an email address as advised to the consent holder by each of Te Korowai o Ngāruahine Trust and Fish and Game New Zealand.

3. The consent holder shall:

   (a) measure and record, using a tamper-proof device, the volume of water taken at intervals not exceeding 15 minutes to an accuracy of ± 5%; and

   (b) determine the flow in Cold Stream immediately downstream of the intake at intervals not exceeding 15 minutes to an accuracy of ± 10%;

   (c) measure and record the reservoir level in a form that enables the Chief Executive, Taranaki Regional Council to determine compliance with conditions 2(a) and 2(b) above.

   Note: *Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.*

4. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and

   (b) specifically record the water taken as 'zero' when no water is taken.

5. The measurements made in accordance with condition 3, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken and the flow immediately downstream of the intake.

6. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed in accordance with the manufacturer's specifications and/or current industry standards;

   (b) is being operated and maintained in accordance with the manufacturer's specifications and/or current industry standards; and/or

   (c) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;

   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and

   (iii) no less frequently than once every five years.

7. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

8. All measuring and recording equipment required by the conditions of this consent ('the equipment') shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval. In addition, the equipment shall be designed and installed so that Taranaki Regional Council officers can readily verify that it is accurately recording the required information.

9. When the flow in Cold Stream immediately downstream of the intake point is less than 209 litres/second, the taking of water shall be restricted to the minimum amount necessary to maintain the health and welfare of people and animals (i.e. garden water and other non-essential uses are prohibited).

10. The consent holder shall ensure that the intake is screened to avoid fish entering the intake or being trapped against the screen.

11. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

12. The consent holder shall, on an annual basis, provide a report detailing:
    - the work done to detect and minimise leaks;
    - water use efficiency and conservation measures undertaken; and
    - water use benchmarking data for the region and how the area supplied by this consent supplied compare.

    The report(s) shall be provided to the Chief Executive, Taranaki Regional Council before 31 August each year and cover the previous 1 July to 30 June period.

13. 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 months of June 2018 and/or June 2021 and/or June 2024 and/or June 2027, 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 3 December 2015

For and on behalf of
Taranaki Regional Council

_____

A D McLay
Director - Resource Management

Water Permit

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

Name of Consent Holder:	Cold Creek Community Water Supply Limited 2 Havelock Street Opunake 4616
Decision Date:	18 February 2015
Commencement Date:	18 February 2015

Conditions of Consent

Consent Granted:	To temporarily take water from Cold Stream to supply the Cold Creek Water Supply Scheme
Expiry Date:	01 April 2015
Site Location:	Cold Creek Intake, 620 Kiri Road, Opunake
Legal Description:	Pt Secs 4 & 5 Blk V Kaupokonui SD (Site of take)
Grid Reference (NZTM)	1686870E-5639970N
Catchment:	Taungatara
Tributary:	Cold Stream

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The rate of taking shall not exceed 8 litres/second.

2. The consent holder shall:

   (a) measure and record, using a tamper-proof device, the volume of water taken at intervals not exceeding 15 minutes to an accuracy of ± 5%; and
   (b) determine the flow in Cold Stream immediately downstream of the intake at intervals not exceeding 15 minutes to an accuracy of ± 10%.

   Note: *Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.*

3. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and
   (b) specifically record the water taken as 'zero' when no water is taken.

4. The measurements made in accordance with condition 2, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken and the flow immediately downstream of the intake.

5. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed in accordance with the manufacturer's specifications and/or current industry standards;
   (b) is being operated and maintained in accordance with the manufacturer's specifications and/or current industry standards; and/or
   (c) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

6. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

7. All measuring and recording equipment required by the conditions of this consent ('the equipment') shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval. In addition, the equipment shall be designed and installed so that Taranaki Regional Council officers can readily verify that it is accurately recording the required information.

8. When the flow in Cold Stream immediately downstream of the intake point is less than 209 litres/second, the taking of water shall be restricted to the minimum amount necessary to maintain the health and welfare of people and animals (i.e. garden water and other non-essential uses are prohibited).

9. The consent holder shall ensure that the intake is screened to avoid fish entering the intake or being trapped against the screen.

10. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

Signed at Stratford on 18 February 2015

For and on behalf of
Taranaki Regional Council

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A D McLay
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:	Cold Creek Community Water Supply Limited 2 Havelock Street OPUNAKE 4616
Decision Date:	29 November 2002
Commencement Date:	29 November 2002

Conditions of Consent

Consent Granted:	To discharge filter backwash water and supernatant from the Cold Creek water treatment plant into the Cold Stream in the Taungatara catchment
Expiry Date:	1 June 2018
Review Date(s):	June 2006, June 2012
Site Location:	State Highway 45, Rahotu
Legal Description:	Lot 1 DP 16088 Blk V Kaupokonui SD
Grid Reference (NZTM)	1686823E-5639646N
Catchment:	Taungatara
Tributary:	Cold Creek

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 discharge point shall be located at NZTM 1686823E- 5639646N.

2. The discharge rate shall not exceed 10 litres per second.

3. That after allowing for reasonable mixing, within a mixing zone extending 25 metres below the discharge point, the discharge shall not give rise to any of the following effects in the Cold Stream:

(a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
(b) any conspicuous change in the colour or visual clarity;
(c) any emission of objectionable odour;
(d) the rendering of fresh water unsuitable for consumption by farm animals;
(e) any significant adverse effects on aquatic life, habitats, or ecology.

4. That the discharge quality shall not exceed the following limits at all times:

Suspended solids	20 gm^{-3}
pH	6.5-8.5
Free available chlorine	0.1 gm^{-3}

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 2006 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.

Transferred at Stratford on 20 February 2014

For and on behalf of
Taranaki Regional Council

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A D McLay
Director-Resource Management

Land Use Consent

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

Name of Consent Holder:	Cold Creek Community Water Supply Limited 2 Havelock Street OPUNAKE 4616
Decision Date:	1 March 1999
Commencement Date:	1 March 1999

Conditions of Consent

Consent Granted:	To erect, place, use and maintain a water intake structure on the bed of Cold Creek in the Taugatara catchment for water abstraction purposes
Expiry Date:	1 June 2018
Review Date(s):	June 2001, June 2006, June 2012
Site Location:	Cold Creek, Kiri Road, Opunake
Legal Description:	SO 377 Pt Sec 5 Blk V Kaupokonui SD
Grid Reference (NZTM)	1686940E-5640150N
Catchment:	Taungatara
Tributary:	Cold Creek

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General conditions

a) That 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) That 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) That 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. That the consent holder shall notify the Taranaki Regional Council, at least 48 hours prior to the commencement and upon completion of the initial construction, and again prior to, and upon completion of, any subsequent maintenance works which would involve disturbance of, or the deposition to the riverbed or discharges to water.

2. That the stricture(s) authorised by this consent shall be constructed generally in accordance with the documentation submitted in support of the application and shall be maintained to ensure the conditions of this consent are met.

3. That during any construction or maintenance the consent holder shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into the water or onto the riverbed and to avoid or minimise the disturbance of the riverbed and any adverse effects on water quality.

4. That during any construction or maintenance the consent holder shall ensure that the area and volume of riverbed disturbance shall so far as is practicable, be minimised and any areas which are disturbed, shall so far as is practicable be reinstated.

5. That during any construction or maintenance the consent holder shall ensure that any disturbance of parts of the riverbed covered by water and/or any works which may result in downstream discolouration of water shall be undertaken only between 1 November and 30 April except where this requirement is waived by the written approval of the Chief Executive, Taranaki Regional Council.

6. That structure(s) which are the subject of this consent shall not obstruct fish passage.

7. That the consent holder shall develop and undertake a monitoring programme to determine the adequacy of fish passage 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. This monitoring information is to be forwarded to the Chief Executive, Taranaki Regional Council, upon request.

8. That 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.

9. That the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2001 and/or June 2006 and/or June 2012, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were not foreseen at the time the application was considered or which it was not appropriate to deal with at the time.

Transferred at Stratford on 20 February 2014

For and on behalf of
Taranaki Regional Council

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A D McLay
Director-Resource Management

Eltham WTP (STDC)

Consent 0213-3

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

Water 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:	15 December 1999

Conditions of Consent

Consent Granted:	To take and use water from the Waingongoro River for municipal water supply purposes at or about GR: Q20:188-014
Expiry Date:	1 June 2018
Review Date(s):	June 2002, June 2006, June 2012
Site Location:	Finnerty Road, Ngaere, Eltham
Legal Description:	Pt 31 Lot 2 DP 2918 Blk V Ngaere SD
Catchment:	Waingongoro

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent allows the abstraction of:

a) 4020 cubic metres/day [47 litres/second] on an unrestricted basis; and
b) 1500 cubic metres/day [17 litres/second] on a restricted basis as per condition 6.

2. THAT the consent holder shall install and maintain, to the satisfaction of the General Manager, Taranaki Regional Council, a measuring device capable of recording daily rates of abstraction and shall make such records available to the General Manager, Taranaki Regional Council, upon request.

3. THAT the exercise of this consent shall be undertaken in general accordance with the information supplied in support of application 534, particularly regarding the promotion of the efficiency of use of the water, and the installation of a telemetry system at the water treatment plant.

4. THAT the consent holder shall quantify the reticulation system losses by 31 December 2000 and report the results to the General Manger, Taranaki Regional Council, by 28 February 2001.

5. THAT the consent holder shall investigate and report on the blocking of the intake, and options for addressing this; the report to be received by the General Manager, Taranaki Regional Council, not later than 10 months from the date the consent is granted.

6. THAT the Taranaki Regional Council by the agreement of the consent holder, shall review condition 1(b), pursuant to section 128 of the Resource Management Act 1991, by giving notice of review during the month of June 2002, for the purpose of assessing the success of consent holder 5437 in implementing water conservation measures in reducing plant water use and to demonstrate a need for the water.

7. THAT by the agreement of the consent holder, the consent holder shall mitigate the effects of the abstraction by donating $10,000 [goods and services tax exclusive] to the Taranaki Tree Trust by 31 January 2000, for the purpose of providing riparian management in the Waingongoro catchment, in the reach above the Climie Stream, and in the Climie Stream catchment.

8. THAT the Taranaki Regional Council may review, according to section 128 of the Resource Management Act 1991, any or all of the conditions of this consent by giving notice of review during June 2002 and/or June 2006 and/or June 2012, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 15 December 1999

For and on behalf of
Taranaki Regional Council

General Manager

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 4640
Decision Date:	5 November 2012
Commencement Date:	5 November 2012

Conditions of Consent

Consent Granted:	To discharge reservoir contents from the Eltham Water Supply Reservoir onto land adjacent to the Waingongoro River at or about (NZTM) 1708817E-5639437N
Expiry Date:	1 June 2029
Review Date(s):	June 2017, June 2023
Site Location:	Finnerty Road Ngaere Eltham
Legal Description:	Lot 1 DP 11209 Blk V Ngaere SD (Discharge source & site)
Catchment:	Waingongoro

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

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 consent including, but not limited to, ensuring the discharge occurs over a period in excess of 4 days.

2. The consent holder shall notify the Council of the intention to discharge at least 2 working days prior to discharge occurring. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz.

3. The volume of the discharge shall not exceed 5000 cubic metres and shall occur no more frequently than once every calendar year.

4. The discharge shall only commence when flows in the Waingongoro River at Eltham road are greater than 1050 litres per second.

5. All reservoir contents shall be directed over land before entering the Waingongoro River. There shall be no direct discharge to the Waingongoro River.

6. The consent holder shall, as far as practicable, reduce the volume of sediment and silt in the discharge before entering the Waingongoro River, including the off-site disposal of settled solids from the bottom of the reservoir.

7. The maximum concentration of the suspended solid contained in the discharge shall not exceed 100 gm^{-3}.

8. After allowing for reasonable mixing, within a mixing zone extending 100 metres downstream of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:

    a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
    b) any conspicuous change in the colour or visual clarity;
    c) any emission of objectionable odour;
    d) the rendering of fresh water unsuitable for consumption by farm animals;
    e) any significant adverse effects on aquatic life.

9. 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 2017 and/or June 2023, 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 November 2012

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

TRK991810

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

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
Renewal Granted Date:	28 July 1999

CONDITIONS OF CONSENT

Consent Granted:	TO DISCHARGE UP TO 2,000 CUBIC METRES/DAY [50 LITRES/SECOND] OF OVERFLOW AND RESERVOIR DRAINAGE WATER FROM THE ELTHAM WATER SUPPLY RESERVOIR INTO THE MANGAWHARAWHARA STREAM IN THE WAINGONGORO CATCHMENT AT OR ABOUT GR: Q20:220-976
Expiry Date:	1 June 2017
Review Date[s]:	June 2005 and June 2011
Site Location:	ELTHAM WATER SUPPLY RESERVOIR, ANDERSON ROAD, ELTHAM
Legal Description:	PT SEC 10 BLK X NGAERE SD

Catchment:	WAINGONGORO	350.000
Tributary:	MANGAWHARAWHARA	350.040

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK991810

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT approval shall be obtained from the General Manager, Taranaki Regional Council, prior to emptying and cleaning of the reservoir.

2. THAT the consent holder shall minimise the periods when this consent is exercised.

3. THAT the consent holder shall observe all practicable measures to minimise the discharge of accumulated sediments in the reservoir to the receiving water when emptying and cleaning the reservoir.

4. THAT after allowing for a mixing zone of 25 metres downstream of the discharge, the discharge shall not give rise to any of the following effects in the tributary of the Mangawharawhara Stream:

i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
ii) any conspicuous change in the colour or visual clarity;
iii) any emission of objectionable odour;
iv) the rendering of fresh water unsuitable for consumption by farm animals;
v) any significant adverse effects on aquatic life.

5. THAT the discharge shall not exceed the following limits at all times:
i) suspended solids 20 gm^{-3}
ii) free available chlorine 0.1 gm^{-3}

6. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005 and/or June 2011, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this 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 28 July 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR—RESOURCE MANAGEMENT

TRK991811

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

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
Renewal Granted Date:	28 July 1999

CONDITIONS OF CONSENT

Consent Granted:	TO DISCHARGE UP TO 220 CUBIC METRES/DAY [20 LITRES/SECOND] OF FILTER BACKWASH FROM THE ELTHAM WATER TREATMENT PLANT VIA A SETTLING POND INTO AN UNNAMED TRIBUTARY OF THE WAINGONGORO RIVER AT OR ABOUT GR: Q20:199-008
Expiry Date:	1 June 2017
Review Date[s]:	June 2005 and June 2011
Site Location:	ELTHAM WATER TREATMENT PLANT, FINNERTY ROAD, NGAERE
Legal Description:	SEC 33 PT SEC 32 BLK V NGAERE SD
Catchment:	WAINGONGORO 350.000
Tributary:	UNNAMED TRIBUTARY

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK991811

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall properly and efficiently maintain and operate the settlement pond system. The pond shall be cleaned out to the satisfaction of the General Manager, Taranaki Regional Council, by 16 August 1999.

2. THAT after allowing for a mixing zone of 25 metres downstream of the discharge, the discharge shall not give rise to any of the following effects in the tributary of the Waingongoro River:

i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
ii) any conspicuous change in the colour or visual clarity;
iii) any emission of objectionable odour;
iv) the rendering of fresh water unsuitable for consumption by farm animals;
v) any significant adverse effects on aquatic life.

3. THAT the discharge shall not exceed the following limits at all times:
i) suspended solids 20 gm^{-3}
ii) free available chlorine 0.1 gm^{-3}

4. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005 and/or June 2011, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this 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 28 July 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR—RESOURCE MANAGEMENT

Hawera WTP (STDC)

Water 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 4640
Change To Conditions Date:	28 October 2008 [Granted: 7 June 2000]

Conditions of Consent

Consent Granted:	To take and use water from the Kapuni Stream for municipal water supply purposes at or about (NZTM) 1701447E-5630678N
Expiry Date:	1 June 2020
Review Date(s):	June 2011
Site Location:	Kapuni Stream, Palmer Road, Kapuni
Legal Description:	Adjacent to Lot 1 DP 10570 & Lot 3 DP 10570 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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. That the consent allows the abstraction of:

a) 10756.8 cubic metres/day [124.5 litres/second] on an unrestricted basis; and
b) 1343.2 cubic metres/day [15.5 litres/second] on a restricted basis as per condition 4.

2. The consent holder shall install and maintain, to the satisfaction of the Chief Executive, Taranaki Regional Council, a measuring device(s) capable of recording daily rates of abstraction and shall make such records available to the Chief Executive, Taranaki Regional Council, on a monthly basis.

Condition 3 [changed]

3. The exercise of this consent shall be undertaken in general accordance with the information supplied in support of applications 533 and 6128, particularly regarding the promotion of the efficiency of use of the water and reporting on efficiency measures every two years from the commencement of this consent.

Conditions 4 to 7 [unchanged]

4. That the water available under condition 1(b) shall only be used for those times where peak demand exceeds 124.5 litres/second. On each occasion that condition 1(b) is exercised, the consent holder shall, within seven days of the reduction of demand below 124.5 litres/second, provide a written report to the Chief Executive, Taranaki Regional Council, detailing the volumes of water abstracted, the time period during which the abstraction exceeded 124.5 litres/second, and the conservation measures adopted during that time.

5. That, by the agreement of the consent holder, the consent holder shall mitigate the effects of the abstraction by donating a minimum amount of $3,150 and a maximum of $12,000 per annum [GST exclusive and inflation adjusted], with a total contribution not to exceed $63,000 [GST exclusive and inflation adjusted] to the Taranaki Tree Trust, for the purpose of providing riparian management in the Kapuni Stream and its tributaries, preferably above Skeet Road.

6. The consent holder shall prepare and subsequently update and maintain a management plan for the Kapuni Stream between GR's: Q20:116-928 and Q20: 110-913, in conjunction with the other users, including but not restricted to the Natural Gas Corporation of New Zealand Limited and Petrochem Limited, to manage the abstraction of water from and discharge of contaminants to the Kapuni Stream. The management plan shall be submitted to the Chief Executive, Taranaki Regional Council, for approval within three months of the granting of the consent.

7. The consent holder shall undertake a leak detection and repair programme throughout the term of the consent within Hawera, Normanby, Okaiawa and Ohawe Beach townships and report on this programme annually to the Chief Executive, Taranaki Regional Council.

Condition 8 [new]

8. The point of abstraction shall remain at its current location [at or about GR: Q20:115-925 NZMSG] until the new intake to be constructed pursuant to resource consent 7413-1 is commissioned. At that time the point of abstraction shall be at the new intake [at or about 1701447E-5630678N NZTM].

Condition 9 [changed, previously condition 8]

9. The Taranaki Regional Council may review, according to section 128 of the Resource Management Act 1991, any or all of the conditions of this consent by giving notice of review during June 2011, 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 consent, which either were not foreseen at the time the application was considered or which it was not appropriate to deal with at the time, and for the purpose of assessing the implementation of the leak detection and repair programme specified in condition 7.

Signed at Stratford on 28 October 2008

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 4800
Change To Conditions Date:	1 February 2007 [Granted: 26 January 2006]

Conditions of Consent

Consent Granted:	To discharge up to 227 cubic metres/day of settling pond supernatant from a water treatment plant into the Kapuni Stream at or about GR: Q20:112-916
Expiry Date:	1 June 2023
Review Date(s):	June 2008, June 2011, June 2017
Site Location:	Palmer Road, Kapuni
Legal Description:	Lot 2 DP 3675 Lot 2 DP 10737 Lot 2 DP 15107 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 to 3 – unchanged

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 consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 4516. In the case of any contradiction between the documentation submitted in support of application 4516 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent.

Condition 4 – changed

4. The consent holder shall address the issue of a permanent solution for water treatment residuals with the construction of a new water treatment plant, planned for 2010.

Condition 5 to 9 – unchanged

5. The consent holder shall properly and efficiently maintain and operate the settlement facility to the general satisfaction of the Chief Executive, Taranaki Regional Council.

6. After allowing for a mixing zone of 25 metres downstream of the discharge, the discharge shall not give rise to any of the following effects in the Kapuni Stream:

i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
ii) any conspicuous change in the colour or visual clarity;
iii) any emission of objectionable odour;
iv) the rendering of fresh water unsuitable for consumption by farm animals; and
v) any significant adverse effects on aquatic life.

7. The discharge quality shall not exceed the following limits at all times:

Component	**Concentration**
suspended solids	20 g/m^3
free available chlorine	0.1 g/m^3
pH	6.5 - 8.5

8. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

9. 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 2011 and/or June 2017, 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 1 February 2007

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Land Use Consent

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:	1 February 2007 [Granted: 19 May 2000]

Conditions of Consent

Consent Granted:	To construct, place, use and maintain a weir and intake structure, and to maintain two existing intake structures in the Kapuni Stream for the Hawera water supply at or about GR: Q20:115-925
Expiry Date:	1 June 2017
Review Date(s):	June 2005, June 2011
Site Location:	Palmer Road, Kaponga
Legal Description:	Crown land adjoining Lot 1 & Lot 2 DP 10570 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 to 12 – unchanged

1. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to the commencement and upon completion of the initial construction and again prior to and upon completion of any subsequent maintenance works which would involve the disturbance of or deposition to the streambed or discharges to water.

2. The structures authorised by this consent shall be constructed generally in accordance with the documentation submitted in support of the application, and with the finalised engineering diagrams, and shall be maintained to ensure the conditions of this consent are met.

3. The structure authorised by this consent shall not be constructed during the period 1 May to 31 October.

4. The consent holder shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into water or onto the streambed and to avoid or minimise the disturbance of the streambed and any adverse effects on water quality.

5. The consent holder shall ensure that the area and volume of streambed disturbance shall, so far as is practicable, be minimised and any areas which are disturbed shall, so far as is practicable, be reinstated.

6. No refuelling of equipment or machinery shall take place on any area of the streambed.

7. The structures authorised by this consent shall be constructed so as not to obstruct the passage of fish.

8. The consent holder shall maintain, at all times, a sufficient flow down the fish pass to ensure that the passage of fish is not restricted.

9. The structures authorised by this consent shall be constructed so as not to cause any erosion adjacent to or downstream of the rock riprap ramp.

10. That in the construction of the weir and intake structure the applicant shall extract from the streambed only the material that makes up the existing weir/rock ramp.

11. Any removal of streambed material from above the new weir and intake structure for maintenance purposes shall only occur between 1 November and 30 April.

12. Streambed material removed pursuant to condition 11 shall be placed on dry sections of the streambed or on the banks of the stream downstream of the weir and intake structure in such a way that it can re-enter the stream while minimising adverse effects on the stream.

Condition 13 and 14 [previously condition 14 and 15] - unchanged

13. The structures authorised by this consent shall be removed and the area reinstated, if and when the structures are no longer required. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to the structure[s] removal and reinstatement.

14. That the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 2011, 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 consent, which either were 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 1 February 2007

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Water 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 4640
Change To Conditions Date:	10 February 2009 [Granted: 2 November 2006]

Conditions of Consent

Consent Granted:	To take and use up to 4,320 m^3/day of groundwater at a maximum rate of 50 l/s as a combined total from up to three water bores in a bore field at the Kapuni reservoir site for municipal, rural, industrial, and recreational supply purposes at or about (NZTM) 1701067E-5629178N
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2017
Site Location:	Kapuni reservoir site, off 1054 Skeet Road, Kapuni
Legal Description:	Lot 2 DP 6410 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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

Condition 1 to 6 [unchanged]

1. The exercise of this consent shall be undertaken in general accordance with the documentation submitted in support of application 4419 and shall ensure the efficient and effective use of water. In the case of any contradiction between the documentation submitted in support of application 4419 and the conditions of this consent, the conditions of this consent shall prevail.

2. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent.

3. Prior to the exercise of this consent, the consent holder shall provide a report to Chief Executive, Taranaki Regional Council, detailing the results of pump testing (72-hour constant discharge at 50 l/s and recovery tests) of the bores used for water supply to show (1) that the abstraction is sustainable, and (2) the effects of the abstraction on flows in the Kapuni Stream.

4. The volume of groundwater abstracted shall not exceed 4,320 cubic metres per day at a rate not exceeding 50 litres per second as a combined total from the bores in the bore field.

5. The abstraction shall not cause more than a 10% lowering of the static water level by interference in any adjacent registered water bore located beyond the boundary of the bore field.

6. The consent holder shall maintain daily records of the abstraction from each bore including date, abstraction rate and daily volume, and pumping hours, and make these records available to the Chief Executive, Taranaki Regional Council, no later than 31 July of each year, or upon request.

Condition 7 [previously condition 8]

7. The consent holder shall install and maintain a measuring device approved by the Chief Executive, Taranaki Regional Council, on each bore for the purposes of accurately recording the abstraction of water.

Condition 8 [previously condition 9]

8. This consent shall be subject to monitoring by the Taranaki Regional Council and the consent holder shall meet all reasonable costs associated with the monitoring.

Condition 9 [previously condition 10]

9. This consent shall lapse on the expiry of five years after the date of commencement of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

Condition 10 [previously condition 11]

10. 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 2011 and/or June 2017, 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 10 February 2009

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 4640
Consent Granted Date:	13 March 2009

Conditions of Consent

Consent Granted:	To discharge membrane backwash water and cleaning wastewater from the Kapuni Water Treatment Plant into the Kapuni Stream at or about (NZTM) 1700804E-5628910N
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2017
Site Location:	Skeet Road, Kapuni
Legal Description:	Lot 1 DP 18183 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 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 consent.

2. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the discharge point, the discharge shall not, either by itself or in combination with other discharges, give rise to any or all of the following effects in the receiving water:

a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
b) any conspicuous change in the colour or visual clarity;
c) any emission of objectionable odour;
d) the rendering of fresh water unsuitable for consumption by farm animals;
e) any significant adverse effects on aquatic life.

3. After allowing for reasonable mixing, within a mixing zone extending 25 metres downstream of the of the discharge point, the discharge shall not give rise to an increase in the turbidity of the Kapuni Stream of more than 50%, as determined using NTU [nephelometric turbidity units].

4. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
free available chlorine	Concentration not greater than 0.1 gm^{-3}
pH	Within the range 6.5 to 8.5
suspended solids	Concentration not greater than 20 gm^{-3}

This condition shall apply before entry of the treated wastewater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

5. This consent shall lapse on 31 March 2014, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

6. 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 2011 and/or June 2017, 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 13 March 2009

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Land Use Consent

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 4640
Consent Granted Date:	20 February 2009

Conditions of Consent

Consent Granted:	To install, use and maintain an outfall structure on the bank of the Kapuni Stream for the Kapuni Water Treatment Plant at or about (NZTM) 1700804E-5628910N
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2017
Site Location:	Skeet Road, Kapuni
Legal Description:	Lot 1 DP 18183 Blk XVI Kaupokonui SD
Catchment:	Kapuni

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 exercise of this consent shall be undertaken in accordance with the documentation submitted in support of application 6202, in particular Drawing No. 0652C010. If there is any conflict between the documentation submitted in support of application 6202 and the conditions of this consent, the conditions of this consent shall prevail.

2. Any disturbance of parts of the riverbed covered by water and/or any works which may result in downstream discolouration of water shall be undertaken only between 1 November and 30 April, except where this requirement is waived in writing by the Chief Executive, Taranaki Regional Council.

3. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to the commencement and upon completion of the initial installation and again at least 48 hours prior to and upon completion of any subsequent maintenance works which would involve disturbance of or deposition to the riverbed or discharges to water. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz. Notification by fax or post is acceptable only if the consent holder does not have access to email.

4. The consent holder shall ensure that the area and volume of riverbed disturbance shall, so far as is practicable, be minimised and any areas which are disturbed shall, so far as is practicable, be reinstated.

5. The consent holder shall take all reasonable steps to:

a. minimise the amount of sediment discharged to the stream;
b. minimise the amount of sediment that becomes suspended in the stream; and
c. mitigate the effects of any sediment in the stream.

Undertaking work in accordance with *Guidelines for Earthworks in the Taranaki Region,* by the Taranaki Regional Council, will achieve compliance with this condition.

6. Except with the written agreement of the Chief Executive, Taranaki Regional Council, the structure authorised by this consent shall be removed and the area reinstated, if and when the structure is no longer required. A further resource consent may be required to authorise the removal of the structure, and the consent holder is advised to seek advice from the Council on this matter.

7. In the event that any archaeological remains are discovered as a result of works authorised by this consent, the works shall cease immediately at the affected site and tangata whenua and the Chief Executive, Taranaki Regional Council, shall be notified within one working day. Works may recommence at the affected area when advised to do so by the Chief Executive, Taranaki Regional Council. Such advice shall be given after the Chief Executive has considered: tangata whenua interest and values, the consent holder's interests, the interests of the public generally, and any archaeological or scientific evidence. The New Zealand Police, Coroner, and Historic Places Trust shall also be contacted as appropriate, and the work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.

8. This consent shall lapse on 31 March 2014, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

9. 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 2011 and/or June 2017, 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 20 February 2009

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Inaha WTP (STDC)

Water 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 4640
Decision Date (Change):	29 May 2014
Commencement Date (Change):	29 May 2014 (Granted: 29 August 2006)

Conditions of Consent

Consent Granted:	To take water from the Mangatoki Stream in the Waingongoro catchment for Inaha rural water supply purposes
Expiry Date:	01 June 2023
Review Date(s):	June 2018
Site Location:	Inaha water supply, 1551 Upper Palmer Road, Mahoe
Legal Description:	Sec 24 Blk VII Kaupokonui SD Lot 2 DP 421857 Blk VIII Kaupokonui SD (Site of take)
Grid Reference (NZTM)	1700531E-5642453N and 1700921E-5641908N
Catchment:	Waingongoro
Tributary:	Mangatoki

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

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 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 consent.

2. The combined rate of taking shall not exceed 29 litres per second, and the volume taken in any 24 hour period ending at midnight (New Zealand Standard Time) shall not exceed 2504 cubic metres.

3. The consent holder shall use the gravity take preferentially over the pumped take. The pumped take may be used exclusively only when the gravity take is not operational due to maintenance, capital works or flood damage.

4. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking (or a nearby site in accordance with Regulation 10 of the *Resource Management (Measurement and Reporting of Water Takes) Regulations 2010*. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes, shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

    Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

5. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;

   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and

   (iii) no less frequently than once every five years.

6. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

7. The intake structures shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council. Once the abstraction licensed by this consent is no longer required, the consent holder shall remove the intake structure to the satisfaction of the Chief Executive, Taranaki Regional Council.

8. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval. In addition the data logger shall be designed and installed so that Council officers can readily verify that it is accurately recording the required information.

9. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing;

   (b) specifically record the water taken as 'zero' when no water is taken.

10. That measurements made in accordance with condition 4 be transmitted to Taranaki Regional Councils computer system to maintain "real time" records of the water taken, with a delay of no more than 2 hours.

11. The intake structures shall be screened to avoid the entrainment of fish.

12. The intake structure shall be maintained and operated so that the passage of fish is not obstructed.

13. The consent holder shall promote the efficient use of water and undertake a leak detection and repair programme through out the term of the consent for the Inaha Water Supply Scheme and report on this programme annually for the duration of this consent.

14. 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 2011 and/or June 2018 for the purposes 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 29 May 2014

For and on behalf of
Taranaki Regional Council

_____

A D McLay
Director - Resource Management

Water 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 Chief Executive Private Bag 902 HAWERA 4800
Consent Granted Date:	29 August 2006

Conditions of Consent

Consent Granted:	To take water from the Waingongoro River for Inaha rural water supply purposes at or about GR: Q20:104-070
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2018
Site Location:	Inaha Water Supply, Upper Palmer Road, Mahoe
Legal Description:	Sec 15 Blk VIII Kaupokonui SD
Catchment:	Waingongoro

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 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 consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 3450. In the case of any contradiction between the documentation submitted in support of application 3450 and the conditions of this consent, the conditions of this consent shall prevail.

3. The volume of water abstracted shall not exceed 2,592 cubic metres/day at a rate not exceeding 30 litres/second.

4. The consent holder shall install and operate a measuring device capable of accurately recording daily rates of abstraction and shall measure, record and make such records available to the Chief Executive, Taranaki Regional Council, upon request.

5. The intake structure shall be maintained to the satisfaction of the Chief Executive, Taranaki Regional Council. Once the abstraction licensed by this consent is no longer required, the consent holder shall remove the intake structure to the satisfaction of the Chief Executive, Taranaki Regional Council.

6. All intake structures shall be screened to avoid the entrainment of fish.

7. The intake structure shall be maintained and operated so that the passage of fish is not obstructed.

8. The consent holder shall promote the efficient use of water and undertake a leak detection and repair programme throughout the term of the consent for the Inaha Water Supply Scheme and report on this programme annually for the duration of this consent.

9. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

10. 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 2011 and/or June 2018, 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 29 August 2006

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

TRK993927

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

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
Renewal Granted Date:	4 June 1999

CONDITIONS OF CONSENT

Consent Granted:	TO DISCHARGE UP TO 228 CUBIC METRES/DAY OF BACKWASH WASTES FROM THE INAHA RURAL WATER SUPPLY TREATMENT PLANT INTO AN UNNAMED TRIBUTARY OF THE MANGATOKI STREAM IN THE WAINGONGORO CATCHMENT AT OR ABOUT GR: Q20:110-030
Expiry Date:	1 June 2017
Review Date[s]:	June 2005 and June 2011
Site Location:	INAHA WATER TREATMENT PLANT, PALMER ROAD, MAHOE
Legal Description:	PT SEC 3 BLK VIII KAUPOKONUI SD

Catchment:	WAINGONGORO	350.000
Tributary:	MANGATOKI UNNAMED TRIBUTARY	350.010

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK993927

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall properly and efficiently maintain and operate the settlement pond system.

2. THAT after allowing for a mixing zone of 25 metres downstream of the discharge, the discharge shall not give rise to any of the following effects in the tributary of the Mangatoki Stream:

   i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
   ii) any conspicuous change in the colour or visual clarity;
   iii) any emission of objectionable odour;
   iv) the rendering of fresh water unsuitable for consumption by farm animals; and
   v) any significant adverse effects on aquatic life.

3. THAT the discharge quality shall not exceed the following limits at all times:

suspended solids	20	gm^{-3}
free available chlorine	0.1	gm^{-3}

4. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005 and/or June 2011, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this 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 4 June 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR—RESOURCE MANAGEMENT

TRK993928

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

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
Renewal Granted Date:	4 June 1999

CONDITIONS OF CONSENT

Consent Granted:	TO DISCHARGE UP TO 3,060 CUBIC METRES/DAY OF UNCONTAMINATED OVERFLOW WATER FROM THE INAHA RURAL WATER SUPPLY TREATMENT PLANT VIA A SETTLEMENT POND INTO AN UNNAMED TRIBUTARY OF THE MANGATOKI STREAM AND THEN INTO THE MANGATOKI STREAM IN THE WAINGONGORO CATCHMENT AT OR ABOUT GR: Q20:110-030 and Q20:109-036
Expiry Date:	1 June 2017
Review Date[s]:	June 2005 and June 2011
Site Location:	INAHA WATER TREATMENT PLANT, PALMER ROAD, MAHOE
Legal Description:	PT SEC 3 BLK VIII KAUPOKONUI SD

Catchment:	WAINGONGORO	350.000
Tributary:	MANGATOKI UNNAMED TRIBUTARY	350.010

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK993928

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall properly and efficiently maintain and operate the settlement pond system.

2. THAT after allowing for a mixing zone of 25 metres downstream of the discharge, the discharge shall not give rise to any of the following effects in the receiving waters:

   i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
   ii) any conspicuous change in the colour or visual clarity;
   iii) any emission of objectionable odour;
   iv) the rendering of fresh water unsuitable for consumption by farm animals; and
   v) any significant adverse effects on aquatic life.

3. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005 and/or June 2011, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this 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 4 June 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR - RESOURCE MANAGEMENT

Consent 4102-2

TARANAKI REGIONAL COUNCIL

CHIEF EXECUTIVE
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www.trc.govt.nz

Please quote our file number on all correspondence

Land Use Consent

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:	15 June 2005

Conditions of Consent

Consent Granted:	To maintain an existing low-level weir and fish pass across the Mangatoki Stream in the Waingongoro catchment at or about GR: Q20:105-042
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2017
Site Location:	Inaha Intake Site, Palmer Road, Mahoe, Stratford
Legal Description:	Sec 24 Blk VII Kaupokonui SD
Catchment:	Waingongoro
Tributary:	Mangatoki

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

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 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 consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 3451. In the case of any contradiction between the documentation submitted in support of application 3451 and the conditions of this consent, the conditions of this consent shall prevail.

3. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent.

4. The consent holder shall notify the Chief Executive, Taranaki Regional Council, at least 48 hours prior to any maintenance works of the structure[s] or fish pass licensed by this consent which would involve disturbance of, or deposition to, the streambed or discharges to water.

5. The consent holder, during any maintenance works, shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into water or onto the streambed and to avoid or minimise the disturbance of the streambed and any adverse effects on water quality.

6. The consent holder, during any maintenance, shall ensure that the area and volume of river bed disturbance shall, so far as practicable, be minimised and any areas which are disturbed shall, so far as practicable, be reinstated.

7. No maintenance work shall be conducted during the period 1 May to 31 October unless waived in writing by the Chief Executive, Taranaki Regional Council.

8. The structure[s] authorised by this consent shall be maintained to ensure the conditions of this consent are met.

9. The structure[s] authorised by this consent shall be constructed and maintained so as not to restrict the passage of native fish and trout, to the satisfaction of the Chief Executive, Taranaki Regional Council.

10. The structure[s] authorised by this consent shall be removed and the area reinstated, if and when the structure is no longer required. The consent holder shall notify the Taranaki Regional Council at least 48 hours prior to the removal of the structures and reinstatement of the area

11. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

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 2011 and/or June 2017, 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 15 June 2005

For and on behalf of
Taranaki Regional Council

Director-Resource Management

TRK985365

TARANAKI REGIONAL COUNCIL

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47 CLOTEN ROAD
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NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

LAND USE CONSENT

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:	23 September 1998

CONDITIONS OF CONSENT

Consent Granted:	TO ERECT, PLACE AND MAINTAIN A LOW LEVEL INTAKE WEIR IN THE MANGATOKI STREAM FOR INAHA RURAL WATER SUPPLY SCHEME PURPOSES AT OR ABOUT GR: Q20:109-037
Expiry Date:	1 June 2017
Review Date[s]:	June 2005 and June 2011
Site Location:	MANGATOKI STREAM, PALMER ROAD, MAHOE
Legal Description:	PT SECS 3 & 4 BLK VIII KAUPOKONUI SD

Catchment:	WAINGONGORO	350.000
Tributary:	MANGATOKI	350.010

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK985365

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall notify the Taranaki Regional Council at least 48 hours prior to, and upon completion of, any major construction or maintenance works which might involve disturbance of, or discharges to, the stream.

2. THAT during any construction or maintenance work, the consent holder shall observe every practicable measure to prevent the discharge or placement of silt and/or organics and/or any other contaminant into the stream.

3. THAT any works or structure which are the subject of this consent shall not obstruct fish passage.

4. THAT the construction and maintenance of the weir shall be undertaken in general accordance with the information supplied in support of application 394.

5. THAT it is the responsibility of the consent holder to maintain and operate a safe structure, and the Taranaki Regional Council accepts no responsibility in this regard.

6. THAT the consent holder shall remove the weir and reinstate the area to a satisfactory standard, if and when the weir is no longer required.

7. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2005 and/or June 2011, for the purpose of ensuring that the conditions adequately deal with the environmental effects arising from the exercise of this consent, which were not foreseen at the time the application was considered and which it was not appropriate to deal with at that time.

Signed at Stratford on 23 September 1998

For and on behalf of
TARANAKI REGIONAL COUNCIL

GENERAL MANAGER

Opunake WTP (STDC)

Water 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 4640
Decision Date:	30 July 2013
Commencement Date:	20 August 2013

Conditions of Consent

Consent Granted:	To take and use water from the Waiaua River for Opunake town water supply purposes
Expiry Date:	1 June 2030
Review Date(s):	June 2018, June 2024
Site Location:	Opunake Water Supply Intake, Ihaia Road, Opunake
Legal Description:	Sec 4 Blk X Opunake SD (Site of take & use)
Grid Reference (NZTM)	1678013E-5635411N
Catchment:	Waiaua

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a) The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act 1991.

Special conditions

1. Except as provided for in conditions 2 and 3 below, the rate of taking shall not exceed 2200 cubic metres per day or 25.5 litres per second.

2. The taking shall occur through the 'new' intake authorised by consent 9473-1 (NZTM 1678013E-5635411N), except that taking may instead temporarily occur through the 'old' intake (NZTM 1678426E-5635847N):

   (a) prior to the new intake and associated treatment plant being commissioned; and

   (b) at other times if the new intake is unable to be used.

3. When taking occurs through the old intake the rate of taking may be up to 3650 cubic metres per day and 42.2 litres per second if that rate necessary to mitigate the effects of high sediment load.

4. If taking occurs through the old intake the consent holder shall advise the Chief Executive, Taranaki Regional Council as soon as practicable. Advice shall be made by emailing worknotification@trc.govt.co.nz with appropriate details including the dates that taking occurred.

5. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes, shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

6. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;

   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and

   (iii) no less frequently than once every five years.

7. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

8. The water meter and datalogger shall be accessible to Taranaki Regional Council officer's at all reasonable times for inspection and/or data retrieval.

9. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and
   (b) specifically record the water taken as 'zero' when no water is taken.

10. From a date no later than 1 December 2013, the measurements made in accordance with condition 5 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken.

11. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

12. The consent holder shall, on an annual basis, provide a report detailing:

    - the work done to detect and minimise leaks;
    - water use efficiency and conservation measures undertaken; and
    - water use benchmarking data for the region and how the area supplied by this consent supplied compare.

    The report(s) shall be provided to the Chief Executive, Taranaki Regional Council before 31 August each year and cover the previous 1 July to 30 June period.

13. This consent shall lapse on 30 September 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

14. 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 2018 and/or June 2024, for the purposes of:

    (a) discontinuing or amending the authorisation to take via the old intake; and/or
    (b) 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 30 July 2013

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Consent 5574-1

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTON ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

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:	17 January 2000

Conditions of Consent

Consent Granted:	To discharge filter backwash water and settling tank sediment from the Opunake Water Treatment Plant into the Waiaua River at or about GR: P20:877-970
Expiry Date:	1 June 2012
Review Date(s):	June 2003, June 2009
Site Location:	Opunake Water Treatment Plant, Ihaia Road, Opunake
Legal Description:	Sec 4 Blk X Opunake SD
Catchment:	Waiaua

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall properly and efficiently maintain and operate the settlement lagoon system. The settlement lagoon system shall be constructed and operational by 30 July 2000.

2. THAT after allowing for reasonable mixing, within a mixing zone extending 50 metres below the discharge point, the discharge shall not give rise to any of the following effects in the Waiaua River:

   a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
   b) any conspicuous change in the colour or visual clarity;
   c) any emission of objectionable odour;
   d) the rendering of fresh water unsuitable for consumption by farm animals;
   e) any significant adverse effects on aquatic life, habitats, or ecology.

3. THAT the discharge shall not exceed the following limits at all times:

Contaminant	**Concentration**
Suspended solids	50 gm^{-3}
Free available chlorine	0.1 gm^{-3}

4. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during June 2003 and/or June 2009, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 17 January 2000

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Land Use Consent

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 4640
Decision Date:	21 February 2013
Commencement Date:	21 February 2013

Conditions of Consent

Consent Granted:	To construct, place and use a water intake structure on the bed of the Waiaua River for water abstraction purposes
Expiry Date:	1 June 2030
Review Date(s):	June 2018, June 2024
Site Location:	Opunake Water Treatment Plant, 470 Ihaia Road, Opunake
Legal Description:	Sec 4 Blk X Opunake SD (Site of structure)
Grid Reference (NZTM)	1678013E-5635411N
Catchment:	Waiaua

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The water intake structure shall:

   a) have a 0.75 mm slot size wedge wire screen;
   b) be 300 mm in diameter;
   c) 1500 mm in length; and
   d) the bottom of the screen to sit a nominal 225 mm above the existing riverbed.

2. The consent holder shall notify the Chief Executive, Taranaki Regional Council, in writing at least 48 hours prior to the commencement and upon completion of the initial installation and again at least 48 hours prior to and upon completion of any subsequent maintenance works which would involve disturbance of or deposition to the riverbed or discharges to water. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz. Notification by fax or post is acceptable only if the consent holder does not have access to email.

3. The consent holder shall ensure that the area and volume of riverbed disturbance shall, so far as is practicable, be minimised and any areas which are disturbed shall, so far as is practicable, be reinstated.

4. The consent holder shall take all reasonable steps to:

   a. minimise the amount of sediment discharged to the river;
   b. minimise the amount of sediment that becomes suspended in the river; and
   c. mitigate the effects of any sediment in the river.

   Undertaking work in accordance with *Guidelines for Earthworks in the Taranaki Region,* by the Taranaki Regional Council, will achieve compliance with this condition.

5. The consent holder shall ensure that the water intake structure is appropriately screened to avoid the entrapment of freshwater fauna. The maximum screen slot velocity shall be no more than 0.15 m/s at design capacity.

6. The water intake structure shall not obstruct fish passage.

7. To mitigate the adverse environmental effects of this consent the consent holder shall make a single payment of $20,000 (excluding GST) to the Taranaki Regional Council as a financial contribution for the purpose of providing riparian planting and management in the Waiaua Stream catchment. The payment shall be made before 1 September 2013.

8. In the event that any archaeological remains are discovered as a result of works authorised by this consent, the works shall cease immediately at the affected site and tangata whenua and the Chief Executive, Taranaki Regional Council, shall be notified within one working day. Works may recommence at the affected area when advised to do so by the Chief Executive, Taranaki Regional Council. Such advice shall be given after the Chief Executive has considered: tangata whenua interest and values, the consent holder's interests, the interests of the public generally, and any archaeological or scientific evidence. The New Zealand Police, Coroner, and Historic Places Trust shall also be contacted as appropriate, and the work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.

9. Except with the written agreement of the Chief Executive, Taranaki Regional Council, the structure authorised by this consent shall be removed and the area reinstated, if and when the structure is no longer required. A further resource consent may be required to authorise the removal of the structure, and the consent holder is advised to seek advice from the Council on this matter.

10. This consent shall lapse on 31 March 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

11. 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 2018 and/or June 2024, 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 21 February 2013

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Patea WTP (STDC)

Water 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 4640
Decision Date:	30 May 2012
Commencement Date:	30 May 2012

Conditions of Consent

Consent Granted:	To take and use groundwater from three bores (known as Bore 1, Bore 2 and Bore 4) for Patea Township water supply purposes at or about (NZTM) 1725371E-5599179N, 1725360E-5599188N and 1725006E-5599997N
Expiry Date:	1 June 2028
Review Date(s):	June 2016, June 2022
Site Location:	Egmont Street, Patea
Legal Description:	Pt Lot 1 DP 411166 (Bores 1 & 2) & Lot 1 DP 5899 (Bore 4) Patea Dist Blk VI Carlyle SD (Site of structures)
Catchment:	Patea

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The total volume of groundwater taken from the three bores combined shall not exceed 1,125 cubic metres per day.

2. Subject to condition 3, the rate of take from each bore shall not exceed the maximum rate shown in the table below:

Bore #	Maximum rate
1	4.7 litres per second
2	3.9 litres per second
4	10 litres per second

3. The volume taken from Bore 1 shall not exceed 300 cubic metres per day unless either Bore 2 or Bore 4 is unable to be operated because of breakdown or is shut down for essential maintenance.

4. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger on each bore. The water meters and dataloggers shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

5. Within 30 days of the installation of a water meter or datalogger, and at other times when reasonable notice is given, the consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that:

   a. water measuring or recording equipment required by the conditions of this consent has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   b. water measuring or recording equipment required by the conditions of this consent has been tested and shown to be operating to an accuracy of ± 5%.

6. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

7. The water meter and datalogger shall be accessible to Taranaki Regional Council officer's at all reasonable times for inspection and/or data retrieval.

8. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of groundwater, including, but not limited to, the efficient and conservative use of water.

9. The consent holder shall measure and record the water level in the Brannigan bore (GND0076, located at grid reference 1725550E-5599498N) to an accuracy of ± 0.05 metres and at intervals not exceeding 15 minutes.

10. An assessable groundwater level indicator shall be installed on the Brannigan bore which shows when groundwater levels have reached 6 metres above the pump. Should groundwater reach this level then consultation between the owner of the Brannigan bore and the consent holder shall occur and, if necessary, the measures in condition 11 shall be implemented.

11. That the consent holder shall immediately restrict the exercise of this consent and/or provide a suitable unchlorinated alternative water supply for the Brannigan bore owner should the exercise of this consent restrict the use of the Brannigan bore.

12. The taking shall not cause the intrusion of salt water into any freshwater aquifer.

13. 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 2016 and/or June 2022, for the purposes of:

    a. 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; and/or

    b. to require any data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet.

Signed at Stratford on 30 May 2012

For and on behalf of
Taranaki Regional Council

_____

Chief Executive

Pope WTP (STDC)

Water 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 4640
Decision Date:	7 June 2011
Change To Conditions Date:	7 June 2011 [Granted: 22 November 2000]

Conditions of Consent

Consent Granted:	To take water from the Otakeho Stream for the Pope and Waimate West water supply schemes at or about (NZTM) 1691940E-5639453N
Expiry Date:	1 June 2018
Review Date(s):	June 2012
Site Location:	Mangawhero Road, Kaponga
Legal Description:	Sec 7 Blk VI Kaupokonui SD
Catchment:	Otakeho

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The rate of taking shall not exceed 85 litres per second.

2. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and datalogger. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

3. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ['the equipment']:

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

4. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

5. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

6. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and

   (b) specifically record the water taken as 'zero' when no water is taken.

7. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

8. From a date no later than 30 June 2012, the measurements made in accordance with condition 2 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken, with a delay of no more than 2 hours.

9. The consent holder shall ensure that, before 1 June 2017, all flows of less than 500 litres per second past the intake structure, are measured and recorded to an accuracy ±10% at intervals not exceeding 30 minutes for a continuous period of at least 12 months.

10. 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 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 June 2011

For and on behalf of
Taranaki Regional Council

_____

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 4800
Consent Granted Date:	9 June 2006

Conditions of Consent

Consent Granted:	To discharge treated backwash water from the Pope Rural Water Supply Treatment Plant into an unnamed tributary of the Mangawhero Stream in the Kaupokonui catchment at or about GR: P20:032-003
Expiry Date:	1 June 2023
Review Date(s):	June 2011, June 2017
Site Location:	Upper Mangawhero Road, Kaponga
Legal Description:	Pt Lot 2 DP 7928 Blk VI Kaupokonui SD
Catchment:	Kaupokonui
Tributary:	Mangawhero 2

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 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 consent.

2. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted in support of application 3452. In the case of any contradiction between the documentation submitted in support of application 3452 and the conditions of this consent, the conditions of this consent shall prevail.

3. The discharge shall not exceed 6 cubic metres per day, at a rate not exceeding 5 litres per second.

4. The discharge quality shall not exceed the following limits at all times:

Component	**Concentration**
free available chlorine	<0.1g/m^3
suspended solids	20 g/m^3
pH	6.5-8.5

5. The consent holder shall properly and efficiently maintain and operate the settling pond so as to meet the conditions of this consent.

6. After allowing for reasonable mixing, within a mixing zone extending 20 metres below the discharge point, the discharge shall not give rise to any of the following effects in the unnamed tributary of the Mangawhero Stream:

(a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
(b) any conspicuous change in the colour or visual clarity;
(c) any emission of objectionable odour;
(d) the rendering of fresh water unsuitable for consumption by farm animals;
(e) any significant adverse effects on aquatic life, habitats, or ecology.

7. This consent shall lapse on the expiry of five years after the date of issue of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

8. 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 2011 and/or June 2017, 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 9 June 2006

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Rahotu WTP (STDC)

Water 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 4640
Decision Date:	15 August 2013
Commencement Date:	15 August 2013

Conditions of Consent

Consent Granted:	To take and use water from the Pungaereere Stream for the Rahotu community water supply
Expiry Date:	1 June 2031
Review Date(s):	June 2019, June 2025
Site Location:	State Highway 45, Rahotu
Legal Description:	Lot 1 DP 15882 (Site of take & use)
Grid Reference (NZTM)	1669415E-5645831N
Catchment:	Pungaereere

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a) The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The rate of taking shall not exceed 180 cubic metres per day or 3 litres per second.

2. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking (or a nearby site in accordance with Regulation 10 of the *Resource Management (Measurement and Reporting of Water Takes) Regulations 2010*). The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes, shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

3. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

4. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

5. The water meter and datalogger shall be accessible to Taranaki Regional Council officer's at all reasonable times for inspection and/or data retrieval.

6. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and
   (b) specifically record the water taken as 'zero' when no water is taken.

7. From a date no later than 1 February 2014, the measurements made in accordance with condition 2 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken.

8. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

9. The consent holder shall, on an annual basis, provide a report detailing:

    - the work done to detect and minimise leaks;
    - water use efficiency and conservation measures undertaken; and
    - water use benchmarking data for the region and how the area supplied by this consent supplied compare.

    The report(s) shall be provided to the Chief Executive, Taranaki Regional Council before 31 August each year and cover the previous 1 July to 30 June period.

10. This consent shall lapse on 30 September 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

11. 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 2019 and/or June 2025, for the purposes 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 15 August 2013

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Consent 6038-1

TARANAKI REGIONAL COUNCIL

CHIEF EXECUTIVE
PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 06-765 7127
FAX 06-765 5097

Please quote our file number on all correspondence

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:	2 September 2002

Conditions of Consent

Consent Granted:	To discharge filter backwash water and settling tank waste from the Rahotu Water Treatment Plant into the Pungaereere Stream at or about GR: P20:794-075
Expiry Date:	1 June 2019
Review Date(s):	June 2007, June 2013
Site Location:	State Highway 45, Rahotu
Legal Description:	Lot 1 DP 15882 Blk I Opunake SD
Catchment:	Pungaereere

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

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. That after allowing for reasonable mixing, within a mixing zone extending 50 metres below the discharge point, the discharge shall not give rise to any of the following effects in the Pungaereere Stream:

(a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
(b) any conspicuous change in the colour or visual clarity;
(c) any emission of objectionable odour;
(d) the rendering of fresh water unsuitable for consumption by farm animals;
(e) any significant adverse effects on aquatic life, habitats, or ecology.

2. That the discharge quality shall not exceed the following limits at all times:

pH	6.5-8.5
Free available chlorine	0.1 gm^{-3}

3. 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 2007 and/or June 2013, 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 2 September 2002

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Wai-inu Beach Water Supply (STDC)

Water 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 4640
Decision Date:	7 May 2012
Commencement Date:	7 May 2012

Conditions of Consent

Consent Granted:	To take and use groundwater for Waiinu Beach water supply purposes at or about (NZTM) 1748362E-5586586N
Expiry Date:	1 June 2028
Review Date(s):	June 2016, June 2022
Site Location:	Nukumaru Domain Reserve, Waiinu Road, Waiinu Beach
Legal Description:	Pt Sec 150 Waitotara Dist Blk XIV Wairoa SD (Site of take & use)
Catchment:	Waitotara

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The volume of water taken shall not exceed 4 litres per second (346 m^3/day).

2. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter at the site of taking. The water meter shall be tamper-proof and shall measure and record the volume of water taken to an accuracy of ± 5%.

   Note: Water meters must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters have a limited lifespan.

3. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring equipment required by the conditions of this consent ('the equipment'):

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter;

   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and

   (iii) no less frequently than once every five years.

4. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

5. The water meter shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

6. The consent holder shall maintain a record of the water taken by recording the meter reading and the date of the reading at monthly intervals. This record shall be provided to the Chief Executive, Taranaki Regional Council, no later than 31 July of each year, or earlier upon request.

7. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

8. This consent shall lapse on 30 June 2017, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

9. 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 2017 and/or June 2023, for the purposes of:

   (a) 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; and/or

   (b) to require any data collected in accordance with the conditions of this consent to be transmitted directly to the Council's computer system, in a format suitable for providing a 'real time' record over the internet.

Signed at Stratford on 7 May 2012

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Waimate WTP (STDC)

Water 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 4640
Decision Date:	7 June 2011
Commencement Date:	7 June 2011

Conditions of Consent

Consent Granted:	To take water from the Mangawheroiti Stream for the Waimate West water supply at or about (NZTM) 1694422E-5637449N
Expiry Date:	1 June 2023
Review Date(s):	June 2018
Site Location:	Rowan Road, Kaponga
Legal Description:	Pt Sec 79 Blk X Kaupokonui SD
Catchment:	Kaupokonui
Tributary:	Mangawhero Mangawheroiti

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Council all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The rate of taking shall not exceed 121 litres per second [including any water that is taken from the Mangawhero Stream, in accordance with consent 0635, and discharged to the Mangawheroiti Stream].

2. No water shall be taken pursuant to this consent unless water is being concurrently taken from the Otakeho Stream at 85 litres per second. If, for a temporary period, the Otakeho Stream intake and diversion can not supply 85 litres per second, for example during maintenance, the consent holder shall immediately advise the Chief Executive, Taranaki Regional Council and this condition shall not apply.

3. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and datalogger. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

4. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ['the equipment']:

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

5. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

6. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

7. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and
   (b) specifically record the water taken as 'zero' when no water is taken.

8. The taking of water authorised by this consent shall be managed to ensure that the flow in the Mangawheroiti Stream, immediately downstream of the intake, is not less than 32 litres per second.

9. When the flow in the Mangawheroiti Stream is less than 500 litres per second the consent holder shall measure and record the flow of the Mangawheroiti Stream that passes downstream the intake to an accuracy of ±10% at intervals not exceeding 30 minutes.

10. From a date no later than 30 June 2012, the measurements made in accordance with conditions 3 and 9 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken and the flow past the intake, with a delay of no more than 2 hours.

11. The consent holder shall ensure that a staff gauge is installed and maintained to effectively display the water level at the weir to an accuracy of 0.005 m at all times when the flow is less than 500 litres per second.

12. If necessary to comply with condition 9, the consent holder shall ensure that sufficient stream flow measurements are undertaken to maintain a 'rating curve' that accurately translates the water level to stream flow over the weir.

    Note: Work required by special condition 12 may be undertaken by the Taranaki Regional Council and all reasonable costs recovered from the consent holder through the annual compliance monitoring programme that is in place for the activity.

13. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

14. The consent holder shall, on an annual basis, provide a report detailing:

    - the work done to detect and minimise leaks within each of the areas supplied;
    - water use efficiency and conservation measures undertaken and planned for all users of the Waimate Water Supply Scheme area; and
    - water use benchmarking data for the region compared to water use for the Waimate Water Supply Scheme.

    The report[s] shall be provided to the Chief Executive, Taranaki Regional Council before 1 September each year and cover the previous 1 July to 30 June period. The first report shall be provided by 1 September 2011.

15. The consent holder shall make five annual payments of $30,600 [GST exclusive] to the Taranaki Regional Council as a financial contribution in order to remedy or mitigate adverse effects on the environment. These payments shall be made no later than 1 September each year from 2011 to 2015.

16. 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 2018, 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 June 2011

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Water 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 4640
Decision Date:	7 June 2011
Commencement Date:	7 June 2011

Conditions of Consent

Consent Granted:	To take water from the Mangawhero Stream for the purpose of adding to the flow of the Mangawheroiti Stream and providing water for the Waimate West water supply at or about (NZTM) 1694040E-5640090N
Expiry Date:	1 June 2023
Review Date(s):	June 2018
Site Location:	Mangawhero Road, Kaponga
Legal Description:	Sec 11 Blk VI Kaupokonui SD
Catchment:	Kaupokonui
Tributary:	Mangawhero

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The rate of taking shall not exceed 70 litres per second.

2. No water shall be taken pursuant to this consent unless water is concurrently being taken from the Otakeho and Mangawheroiti Streams, at 85 litres per second and 121 litres per second, respectively. If, for a temporary period, the Otakeho and Mangawheroiti Streams can not supply 85 litres per second and 121 litres per second respectively, for example during maintenance, the consent holder shall immediately advise the Chief Executive, Taranaki Regional Council and this condition shall not apply.

3. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and datalogger. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

4. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ['the equipment']:

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or
   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

5. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

6. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

7. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and

   (b) specifically record the water taken as 'zero' when no water is taken.

8. From a date no later than 30 June 2012, the measurements made in accordance with condition 3 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken, with a delay of no more than 2 hours.

9. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

10. 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 2018, 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 June 2011

For and on behalf of
Taranaki Regional Council

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Director-Resource Management

Water 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 4640
Decision Date:	7 June 2011
Change To Conditions Date:	7 June 2011 [Granted: 22 November 2000]

Conditions of Consent

Consent Granted:	To take water from the Otakeho Stream for the Pope and Waimate West water supply schemes at or about (NZTM) 1691940E-5639453N
Expiry Date:	1 June 2018
Review Date(s):	June 2012
Site Location:	Mangawhero Road, Kaponga
Legal Description:	Sec 7 Blk VI Kaupokonui SD
Catchment:	Otakeho

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The rate of taking shall not exceed 85 litres per second.

2. Before exercising this consent the consent holder shall install, and thereafter maintain a water meter and datalogger. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

3. The consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that water measuring and recording equipment required by the conditions of this consent ['the equipment']:

   (a) has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   (b) has been tested and shown to be operating to an accuracy of ± 5%.

   The documentation shall be provided:

   (i) within 30 days of the installation of a water meter or datalogger;
   (ii) at other times when reasonable notice is given and the Chief Executive, Taranaki Regional Council has reasonable evidence that the equipment may not be functioning as required by this consent; and
   (iii) no less frequently than once every five years.

4. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

5. The water meter and datalogger shall be accessible to Taranaki Regional Council officers at all reasonable times for inspection and/or data retrieval.

6. The records of water taken shall:

   (a) be in a format that, in the opinion of the Chief Executive, Taranaki Regional Council, is suitable for auditing; and

   (b) specifically record the water taken as 'zero' when no water is taken.

7. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of water, including, but not limited to, the efficient and conservative use of water.

8. From a date no later than 30 June 2012, the measurements made in accordance with condition 2 of this consent, in a format to be advised by the Chief Executive, Taranaki Regional Council, shall be transmitted to the Taranaki Regional Council's computer system to maintain a 'real time' record of the water taken, with a delay of no more than 2 hours.

9. The consent holder shall ensure that, before 1 June 2017, all flows of less than 500 litres per second past the intake structure, are measured and recorded to an accuracy ±10% at intervals not exceeding 30 minutes for a continuous period of at least 12 months.

10. 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 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 June 2011

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 4640	
Decision Date (Change):	24 November 2015	
Commencement Date (Change):	24 November 2015	(Granted Date: 12 June 2006)

Conditions of Consent

Consent Granted:	To discharge treated washwater from the Waimate Water Supply Scheme into an unnamed tributary of Kellys Creek
Expiry Date:	1 June 2023
Review Date(s):	June 2017
Site Location:	Waimate Water Treatment Plant, 791 Rowan Road, Manaia
Legal Description:	Pt Secs 78, 79 & 81 Blk X Pt Secs 1 & 2 Pt Stream Bed Blks VI & X Kaupokonui SD (Discharge source & site)
Grid Reference (NZTM)	1695480E-5636870N
Catchment:	Kaupokonui
Tributary:	Mangawhero Kellys Creek

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

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 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 consent.

2. For a period not exceeding 40 days commencing in November or December 2015 this consent also authorises a discharge of water and contaminants from developing and testing of bores (GND5211 and GND1728). The consent holder shall advise the Chief Executive, Taranaki Regional Council of the date that this period is to commence by emailing worknotification@trc.govt.nz.

3. The exercise of this consent shall be undertaken generally in accordance with the documentation submitted for this consent and any subsequent applications to change conditions. In the case of any contradiction between the documentation submitted in support of previous applications and the conditions of this consent, the conditions of this consent shall prevail.

4. The discharge shall not exceed 750 m^3 per day, except in the following situations:

   a) During plant start-up where the discharge shall not exceed 7,500 m^3 per day for a one-off period of up to 10 days;
   b) During clarifier drain-down where the discharge shall not exceed 1500 m^3 per day, twice annually, for a maximum 24 hour period;
   c) During sludge pond dewatering where the discharge shall not exceed 1000 m^3 per day, once annually, for up to 14 days; and
   d) During the period described in condition 2, when the discharge rate shall not exceed 2478 m^3 per day.

5. The consent holder shall install and continually maintain an erosion protection structure generally in accordance with the plan prepared by CH2M Beca - Drawing No. W-DKC-0012, to ensure that the exercise of this consent does not cause any erosion or scour of the streambed.

6. Constituents of the discharge shall meet the standards shown in the following table.

Constituent	Standard
free available chlorine	Concentration no greater than 0.1 g/m^3
suspended solids	Concentration no greater than 20 g/m^3
pH	Within the range 6.5 to 8.5
iron	Concentration no greater than 2 g/m^3
manganese	Concentration no greater than 1.3 g/m^3
ammonia	Concentration no greater than 0.025 g/m^3

This condition shall apply before entry of the treated stormwater into the receiving waters at a designated sampling point approved by the Chief Executive, Taranaki Regional Council.

7. The consent holder shall properly and efficiently maintain and operate the settling ponds so as to meet the conditions of this consent.

8. After allowing for reasonable mixing, being a mixing zone extending seven times width of the unnamed tributary of Kellys Creek at the point of discharge, any discharge of contaminants shall not give rise to any of the following effects in the unnamed tributary of Kellys Creek:

a) any conspicuous change in the colour or visual clarity;
b) any emission of objectionable odour;
c) the rendering of fresh water unsuitable for consumption by farm animals;
d) any significant adverse effects on aquatic life.

9. 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 2011 and/or June 2017, 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 24 November 2015

For and on behalf of
Taranaki Regional Council

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A D McLay
Director - Resource Management

TRK995451

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

LAND USE CONSENT

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:	1 March 1999

CONDITIONS OF CONSENT

Consent Granted:	TO ERECT, PLACE, USE AND MAINTAIN A WATER INTAKE STRUCTURE AND ANCILLARY STRUCTURES ON AND OVER THE BED OF THE MANGAWHEROITI STREAM A TRIBUTARY OF THE MANGAWHERO STREAM IN THE KAUPOKONUI CATCHMENT FOR WATER ABSTRACTION PURPOSES AT OR ABOUT GR: P20:044-992
Expiry Date:	1 June 2017
Review Date[s]:	June 2001, June 2005 and June 2011
Site Location:	MANGAWHEROITI STREAM, ROWAN ROAD, KAPONGA
Legal Description:	SO 10908 PT SEC 79 BLK X KAUPOKONUI SD

Catchment:	KAUPOKONUI	355.000
Tributary:	MANGAWHERO	355.010
	MANGAWHROITI	355.014

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall notify the Taranaki Regional Council, at least 48 hours prior to commencement and upon completion of the initial construction, and again prior to, and upon completion of, any subsequent maintenance works which would involve disturbance of, or the deposition to the riverbed or discharges to water.

2. THAT the stricture[s] authorised by this consent shall be constructed generally in accordance with the documentation submitted in support of the application and shall be maintained to ensure the conditions of this consent are met.

3. THAT during any construction or maintenance the consent holder shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into the water or onto the riverbed and to avoid or minimise the disturbance of the riverbed and any adverse effects on water quality.

4. THAT during any construction or maintenance the consent holder shall ensure that the area and volume of riverbed disturbance shall so far as is practicable, be minimised and any areas which are disturbed, shall so far as is practicable be reinstated.

5. THAT during any construction or maintenance the consent holder shall ensure that any disturbance of parts of the riverbed covered by water and/or any works which may result in downstream discolouration of water shall be undertaken only between 1 November and 30 April except where this requirement is waived by the written approval of the General Manager, Taranaki Regional Council.

6. THAT structure[s] which are the subject of this consent shall not obstruct fish passage.

7. THAT the consent holder shall develop and undertake a monitoring programme to determine the adequacy of fish passage as deemed necessary by the General Manager, Taranaki Regional Council, subject to section 35(2)(d) and section 36 of the Resource Management Act 1991. This monitoring information is to be forwarded to the General Manager, Taranaki Regional Council, upon request.

8. THAT 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.

9. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2001 and/or June 2005 and/or June 2011, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 1 March 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR—RESOURCE MANAGEMENT

TRK995452

TARANAKI REGIONAL COUNCIL
PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

LAND USE CONSENT

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: 1 March 1999

CONDITIONS OF CONSENT

Consent Granted: TO ERECT, PLACE, USE AND MAINTAIN A WATER INTAKE STRUCTURE AND ASSOCIATED ANCILLARY STRUCTURES INCLUDING EROSION PROTECTION AND RIVER CONTROL WORKS UPSTREAM, AND A SWINGBRIDGE DOWNSTREAM, OF THE INTAKE STRUCTURE ON THE BED OF THE MANGAWHERO STREAM IN THE KAUPOKONUI CATCHMENT FOR WATER ABSTRACTION PURPOSES AT OR ABOUT GR: P20:041-016

Expiry Date: 1 June 2017

Review Date[s]: June 2001, June 2005 and June 2011

Site Location: MANGAWHERO STREAM, MANGAWHERO ROAD, KAPONGA

Legal Description: SO370 SEC 11 BLK VI KAUPOKONUI SD

Catchment:	KAUPOKONUI	355.000
Tributary:	MANGAWHERO	355.010

For General, Standard and Special Conditions pertaining to this consent please see reverse side of this document.

TRK995452

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall notify the Taranaki Regional Council, at least 48 hours prior to the commencement and upon completion of the initial construction, and again prior to, and upon completion of, any subsequent maintenance works which would involve disturbance of, or the deposition to the riverbed or discharges to water.

2. THAT the stricture[s] authorised by this consent shall be constructed generally in accordance with the documentation submitted in support of the application and shall be maintained to ensure the conditions of this consent are met.

3. THAT during any construction or maintenance the consent holder shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into the water or onto the riverbed and to avoid or minimise the disturbance of the riverbed and any adverse effects on water quality.

4. THAT during any construction or maintenance the consent holder shall ensure that the area and volume of riverbed disturbance shall so far as is practicable, be minimised and any areas which are disturbed, shall so far as is practicable be reinstated.

5. THAT during any construction or maintenance the consent holder shall ensure that any disturbance of parts of the riverbed covered by water and/or any works which may result in downstream discolouration of water shall be undertaken only between 1 November and 30 April except where this requirement is waived by the written approval of the General Manager, Taranaki Regional Council.

6. THAT structure[s] which are the subject of this consent shall not obstruct fish passage.

7. THAT the consent holder shall develop and undertake a monitoring programme to determine the adequacy of fish passage as deemed necessary by the General Manager, Taranaki Regional Council, subject to section 35(2)(d) and section 36 of the Resource Management Act 1991. This monitoring information is to be forwarded to the General Manager, Taranaki Regional Council, upon request.

8. THAT 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.

9. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2001 and/or June 2005 and/or June 2011, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this consent, which either were 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 1 March 1999

For and on behalf of
TARANAKI REGIONAL COUNCIL

DIRECTOR—RESOURCE MANAGEMENT

Waverley Water Supply
(STDC)

Water 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 4640
Decision Date:	23 September 2010
Commencement Date:	23 September 2010

Conditions of Consent

Consent Granted:	To take and use groundwater from the "Fookes Street" bore [GND0244] at or about (NZTM) 1739130E-5597816N and the "Chester Street" bore [GND0059] at or about (NZTM) 1740040E-5597843N for municipal water supply purposes at Waverley
Expiry Date:	1 June 2022
Review Date(s):	June 2016
Site Location:	Fookes Street & Chester Street, Waverley
Legal Description:	Pt Sec 31 SO 34857 Waverley Tn Belt [Fookes Street] Sec 28 Waverley Tn Belt [Chester Street]
Catchment:	Whenuakura

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council [the Council] all the administration, monitoring and supervision costs of this consent, fixed in accordance to section 36 of the Resource Management Act.

Special conditions

1. The volume of water taken from the 'Fookes Street' bore [GND0244] shall not exceed 500 cubic metres per day at a rate not exceeding 7.2 litres per second.

2. The volume of water taken from the 'Chester Street' bore [GND0059] shall not exceed 400 cubic metres per day at a rate not exceeding 7.0 litres per second.

3. The bores shall be easily identifiable by permanent labels, which may be welded or engraved on the casing, or on the equivalent fixed part of the well construction or associated building. The label shall show the bore number assigned by the Taranaki Regional Council [GND0059 at Chester Street and GND0244 at Fookes Street].

4. Prior to the exercise this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger on each bore. The water meters and dataloggers shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited life-span.

5. Records of the date, the time and the rate and volume of water taken at intervals not exceeding 15 minutes, shall be made available to the Chief Executive, Taranaki Regional Council at all reasonable times.

6. Within 30 days of the installation of a water meter or datalogger, and upon requests the consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that:

   a. water measuring or recording equipment required by the conditions of this consent has been installed and/or maintained in accordance with the manufacturer's specifications; and

   b. water measuring or recording equipment required by the conditions of this consent has been tested and shown to be operating to an accuracy of ± 5%.

7. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

8. At all times the consent holder shall adopt the best practicable option to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of groundwater, including, but not limited to, the efficient and conservative use of water.

9. The taking shall not cause the intrusion of salt water into any freshwater aquifer.

10. The consent holder shall ensure that there is access into the well that enables the measurement of static and pumping water levels. The access point shall be closed when not in use.

11. 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 2016 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 23 September 2010

For and on behalf of
Taranaki Regional Council

_____

Director-Resource Management

Waverley Beach Water Supply (STDC)

Water 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 4640
Decision Date:	1 May 2013
Commencement Date:	1 May 2013

Conditions of Consent

Consent Granted:	To take and use water groundwater for Waverley Beach water supply purposes
Expiry Date:	1 June 2028
Review Date(s):	June 2016, June 2022
Site Location:	Waipipi Road, Waverley
Legal Description:	Pt Run 2 & 3 Blk XI Wairoa SD (Site of take)
Grid Reference (NZTM)	1739933E-5589679N
Catchment:	Unnamed Stream 3

For General, Standard and Special conditions
pertaining to this consent please see reverse side of this document

General condition

a. The consent holder shall pay to the Taranaki Regional Council all the administration, monitoring and supervision costs of this consent, fixed in accordance with section 36 of the Resource Management Act 1991.

Special conditions

1. The total volume of water taken from the 'bore 2' (GND2224) shall not exceed 80 cubic metres per day at a rate not exceeding 1.5 litres per second.

2. The taking shall not cause the intrusion of saltwater into any freshwater aquifer.

3. The bores within the supply network shall be easily identifiable by permanent labels, which may be welded or engraved on the casing, or on the equivalent fixed part of the well construction or associated building. The numbering on the label shall be the bore number assigned by Taranaki Regional Council as follows:

   Bore 1: GND1061
   Bore 2: GND2224

4. Prior to exercising this consent the consent holder shall install, and thereafter maintain a water meter and a datalogger at the site of taking. The water meter and datalogger shall be tamper-proof and shall measure and record the rate and volume of water taken to an accuracy of ± 5%.

   Note: Water meters and dataloggers must be installed, and regularly maintained, in accordance with manufacturer's specifications in order to ensure that they meet the required accuracy. Even with proper maintenance water meters and dataloggers have a limited lifespan.

5. Within 30 days of the installation of a water meter or datalogger, and at other times when reasonable notice is given, the consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that:

   a. water measuring or recording equipment required by the conditions of this consent has been installed and/or maintained in accordance with the manufacturer's specifications; and/or

   b. water measuring or recording equipment required by the conditions of this consent has been tested and shown to be operating to an accuracy of ± 5%.

6. Prior to exercising this consent the consent holder shall install water level monitoring devices in each bore (GND1061 and GND2224). The water level monitoring devices shall be accurate to ± 0.05 metres and record levels at intervals not exceeding 15 minutes.

7. Within 30 days of the installation of the water level monitoring devices, and at other times when reasonable notice is given, the consent holder shall provide the Chief Executive, Taranaki Regional Council with a document from a suitably qualified person certifying that:

    a. water level monitoring devices required by the conditions of this consent have been installed and/or maintained in accordance with the manufacturer's specifications; and/or

    b. water level monitoring devices required by the conditions of this consent have been tested and shown to be operating to an accuracy of ± 0.05 metres.

8. The water meter and datalogger shall be accessible to Taranaki Regional Council officer's at all reasonable times for inspection and/or data retrieval.

9. If any measuring or recording equipment breaks down, or for any reason is not operational, the consent holder shall advise the Chief Executive, Taranaki Regional Council immediately. Any repairs or maintenance to this equipment must be undertaken by a suitably qualified person.

10. The consent shall maintain an abstraction record, including the date and time of abstraction, instantaneous rate and cumulative abstraction volume. The consent holder shall also maintain a record of water level in each bore, at intervals not exceeding 15 minutes, and include the date and time of measurement. All records shall be made available to the Chief Executive, Taranaki Regional Council in an approved format, by 31 July each year or earlier upon request.

11. At all times the consent holder shall adopt the best practicable option (BPO) to prevent or minimise any actual or likely adverse effect on the environment associated with the abstraction of groundwater, including, but not limited to, the efficient and conservative use of water.

12. This consent shall lapse on 30 June 2018, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

13. 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 2016 and/or June 2022 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 1 May 2013

For and on behalf of
Taranaki Regional Council

_____

Chief Executive

Oanui WTP (OWSL)

Consent 0231-3

TARANAKI REGIONAL COUNCIL

PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

Water Permit

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

Name of Consent Holder:	Oaonui Water Supply Limited R Stanley P O Box 593 NEW PLYMOUTH	**New Address:** P O Box 3157 Fitzroy New Plymouth 4347
Consent Granted Date:	22 November 2000	

Conditions of Consent

Consent Granted:	To take and use water from the Oaonui Stream for a rural community water supply scheme and the Maui Production Station at or about GR: P20:866-027
Expiry Date:	1 June 2018
Review Date(s):	June 2006, June 2012
Site Location:	Arawhata Road, Oaonui
Legal Description:	Lot 1 DP 3682 Blk VII Opunake SD
Catchment:	Oaonui

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

General conditions

a) That 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) That 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) That 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 resource consent allows the abstraction of up to 3,500 cubic metres/day at a maximum rate of up to 50 litres/second.

2. The resource consent holder shall maintain, to the satisfaction of the Chief Executive, Taranaki Regional Council, a measuring device capable of accurately recording daily rates of abstraction and shall measure, record and make such records available to the Chief Executive, Taranaki Regional Council, upon request.

3. The resource consent holder shall promote the efficient use of water and undertake a leak detection and repair programme throughout the term of the consent for the Oaonui Rural Water Supply Scheme and report on this programme by 31 May 2001, 2002, 2003, 2006, 2012 to the Chief Executive, Taranaki Regional Council.

4. The resource consent holder shall mitigate the effects of the abstraction by donating annually to the Taranaki Tree Trust $1,000 [GST exclusive] for the purposes of providing riparian management in the Oaonui Stream catchment. The amount shall be adjusted annually according to the consumer price index, or similar index, to account for the effects of inflation.

5. The resource consent holder may apply to the Taranaki Regional Council for a change or cancellation of the conditions of this resource consent, in accordance with section 127(1)(a) of the Resource Management Act 1991, to take into account operational requirements or the results of monitoring.

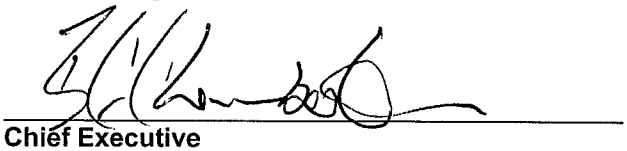
6. In accordance with section 128 of the Resource Management Act 1991, the Taranaki Regional Council may serve notice of its intention to review amend, delete or add to the conditions of this resource consent, at the resource consent holders expense, by giving notice of review during the month of June 2001, June 2002, June 2003, June 2006 and/or June 2012 for the purpose of:

(a) ensuring that the conditions are adequate to deal with any significant adverse effects 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 that time; and

(b) assessing the reports prepared under condition 3 and scheme water use efficiency.

Signed at Stratford on 22 November 2000

For and on behalf of
Taranaki Regional Council



Chief Executive

Consent 5453-1

TARANAKI
REGIONAL
COUNCIL

PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 0-6-765 7127
FAX 0-6-765 5097

Land Use Consent

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

Name of Consent Holder:	Oaonui Water Supply Limited R Stanley P O Box 593 NEW PLYMOUTH	**New Address:** P O Box 3157 Fitzroy New Plymouth 4347
Consent Granted Date:	1 March 1999	

Conditions of Consent

Consent Granted:	To erect, place, use and maintain a water intake structure on the bed of the Oaonui Stream for water abstraction purposes at or about GR: P20:865-031
Expiry Date:	1 June 2018
Review Date(s):	June 2001, June 2006, June 2012
Site Location:	Oaonui Stream, 685 Arawhata Road, Opunake
Legal Description:	Lot 29 DP 682 Blk VIII Opunake SD
Catchment:	Oaonui

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

General conditions

a) That on receipt of a requirement from the General Manager, Taranaki Regional Council (hereinafter the General Manager), the consent holder shall, within the time specified in the requirement, supply the information required relating to the exercise of this consent.

b) That 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) That 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. THAT the consent holder shall notify the Taranaki Regional Council, at least 48 hours prior to the commencement and upon completion of the initial construction, and again prior to, and upon completion of, any subsequent maintenance works which would involve disturbance of, or deposition to the riverbed or discharges to water.

2. THAT the structure[s] authorised by this consent shall be constructed generally in accordance with the documentation submitted in support of the application and shall be maintained to ensure the conditions of this consent are met.

3. THAT during any construction or maintenance the consent holder shall adopt the best practicable option to avoid or minimise the discharge of silt or other contaminants into the water or onto the riverbed and to avoid or minimise the disturbance of the riverbed and any adverse effects on water quality.

4. THAT during any construction or maintenance the consent holder shall ensure that the area and volume of riverbed disturbance shall so far as is practicable, be minimised and any areas which are disturbed, shall so far as is practicable be reinstated.

5. THAT during any construction or maintenance the consent holder shall ensure that any disturbance of parts of the riverbed covered by water and/or any works which may result in downstream discolouration of water shall be undertaken only between 1 November and 30 April except where this requirement is waived by the written approval of the General Manager, Taranaki Regional Council.

6. THAT structure[s] which are the subject of this consent shall not obstruct fish passage.

7. THAT the consent holder shall develop and undertake a monitoring programme to determine the adequacy of fish passage as deemed necessary by the General Manager, Taranaki Regional Council, subject to section 35(2)(d) and section 36 of the Resource Management Act 1991. This monitoring information is to be forwarded to the General Manager, Taranaki Regional Council, upon request.

8. THAT 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.

9. THAT the Taranaki Regional Council may review any or all of the conditions of this consent by giving notice of review during the month of June 2001 and/or June 2006 and/or June 2012, for the purpose of ensuring that the conditions are adequate to deal with any significant adverse effects on the environment arising from the exercise of this 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.

Transferred at Stratford on 19 October 2000

For and on behalf of
Taranaki Regional Council

Chief Executive

Nukumaru Rural Water Supply (NWSSI)

Consent 6451-1

TARANAKI REGIONAL COUNCIL

CHIEF EXECUTIVE
PRIVATE BAG 713
47 CLOTEN ROAD
STRATFORD
NEW ZEALAND
PHONE 06-765 7127
FAX 06-765 5097

Please quote our file number on all correspondence

Water Permit

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

Name of Consent Holder:	Nukumaru Water Scheme Society Inc P O Box 53 WAITOTARA
Consent Granted Date:	20 October 2004

NEW ADDRESS
186 Parsons Street
WANGANUI

Conditions of Consent

Consent Granted:	To take and use groundwater from up to two bores for the purpose of supplying the Nukumaru community rural water scheme at or about GR: R22:662-549
Expiry Date:	1 June 2039
Review Date(s):	June 2010, June 2017, June 2025
Site Location:	Pakaraka Road, Waitotara
Legal Description:	Lot 1 DP 26645 Lot 1 DP 85667 Secs 8, 20 Blk V Secs 4, 20 Blk VI Pt Sec 4 Blk IX Nukumaru SD
Catchment:	Waitotara
Tributary:	Ohie

For General, Standard and Special conditions pertaining to this consent please see reverse side of this document

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 exercise of this consent shall be undertaken in general accordance with the documentation submitted in support of application 3297 and shall ensure the efficient and effective use of water. In the case of any contradiction between the documentation submitted in support of application 3297 and the conditions of this consent, the conditions of this consent shall prevail.

2. The volume of groundwater abstracted shall not exceed 605 cubic metres per day at a rate not exceeding 7.0 litres per second.

3. The consent holder shall install and maintain a water meter approved by the Chief Executive, Taranaki Regional Council, for the purposes of accurately recording the abstraction of water.

4. The consent holder shall maintain weekly records of the abstraction including date, pumping hours and volume pumped, and make these records available to the Chief Executive, Taranaki Regional Council, no later than 31 July of each year, or upon request.

5. This consent shall be subject to monitoring by the Taranaki Regional Council and the consent holder shall meet all reasonable costs associated with the monitoring.

6. This consent shall lapse on the expiry of five years after the date of commencement of this consent, unless the consent is given effect to before the end of that period or the Taranaki Regional Council fixes a longer period pursuant to section 125(1)(b) of the Resource Management Act 1991.

7. 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 2010 and/or June 2017 and/or June 2025, 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 20 October 2004

For and on behalf of
Taranaki Regional Council

Director-Resource Management

Appendix II

Biomonitoring and fish survey reports

To	Job Manager, S Cowperthwaite
From	Freshwater Biologist, B Jansma
File	03-02-005-15/01; 0933;
Report No	BJ262
Doc No	1548453
Date	31 July 2015

Biomonitoring of the Kapuni Stream in relation to the Kapuni Water Treatment Plant, February 2015

Introduction

This survey of two sites in the Kapuni Stream was conducted to determine if there had been adverse effects related to the discharge of filter backwash and settling tank sediment from the Kapuni Water Treatment Plant. The survey fulfilled the biological monitoring requirements for this STDC consent monitoring programme in the 2014-2015 monitoring year. Results from surveys performed since the 2000-01 monitoring year are detailed in the references.

This survey was the sixth to follow commissioning of the Kapuni Water Treatment Plant. The new discharge point is now located just upstream of the Skeet Road bridge, and the sampling sites have consequently been changed, to enable monitoring of this new location.

At the time of the initial survey, no discharge of filter backwash and settling tank sediment had yet occurred from this new discharge point, and therefore that survey acted as a baseline survey, with which future surveys can be compared. The current survey is the fifth survey undertaken since the plant became fully operational.

Methods

The standard '400 ml kick-sampling' technique was used to collect streambed macroinvertebrates from two established sites in the Kapuni Stream in relation to the Kapuni Water Treatment Plant on 19 February 2015. This 'kick-sampling' technique is very similar to Protocol C1 (hard-bottomed, semi-quantitative) of the New Zealand Macroinvertebrate Working Group (NZMWG) protocols for macroinvertebrate samples in wadeable streams (Stark et al, 2001). The sites are described in Table 1 and Figure 1.

Samples were preserved with Kahle's Fluid for later sorting and identification under a stereomicroscope according to Taranaki Regional Council methodology using protocol P1 of NZMWG protocols for sampling macroinvertebrates in wadeable streams (Stark et al. 2001). Macroinvertebrate taxa found in each sample were recorded as:

R (rare)	= less than 5 individuals;
C (common)	= 5-19 individuals;
A (abundant)	= estimated 20-99 individuals;
VA (very abundant)	= estimated 100-499 individuals;
XA (extremely abundant)	= estimated 500 individuals or more.

Table 1 Biomonitoring sites in the Kapuni Stream in relation to the Kapuni Water Treatment Plant

Site No.	Site Code	Location
1	KPN000300	Approximately 30 metres upstream of Skeet Rd, upstream of the Kapuni water treatment plant discharge.
2	KPN000301	Approximately 30m downstream of Skeet Rd & 50m downstream of Kapuni water treatment plant discharge

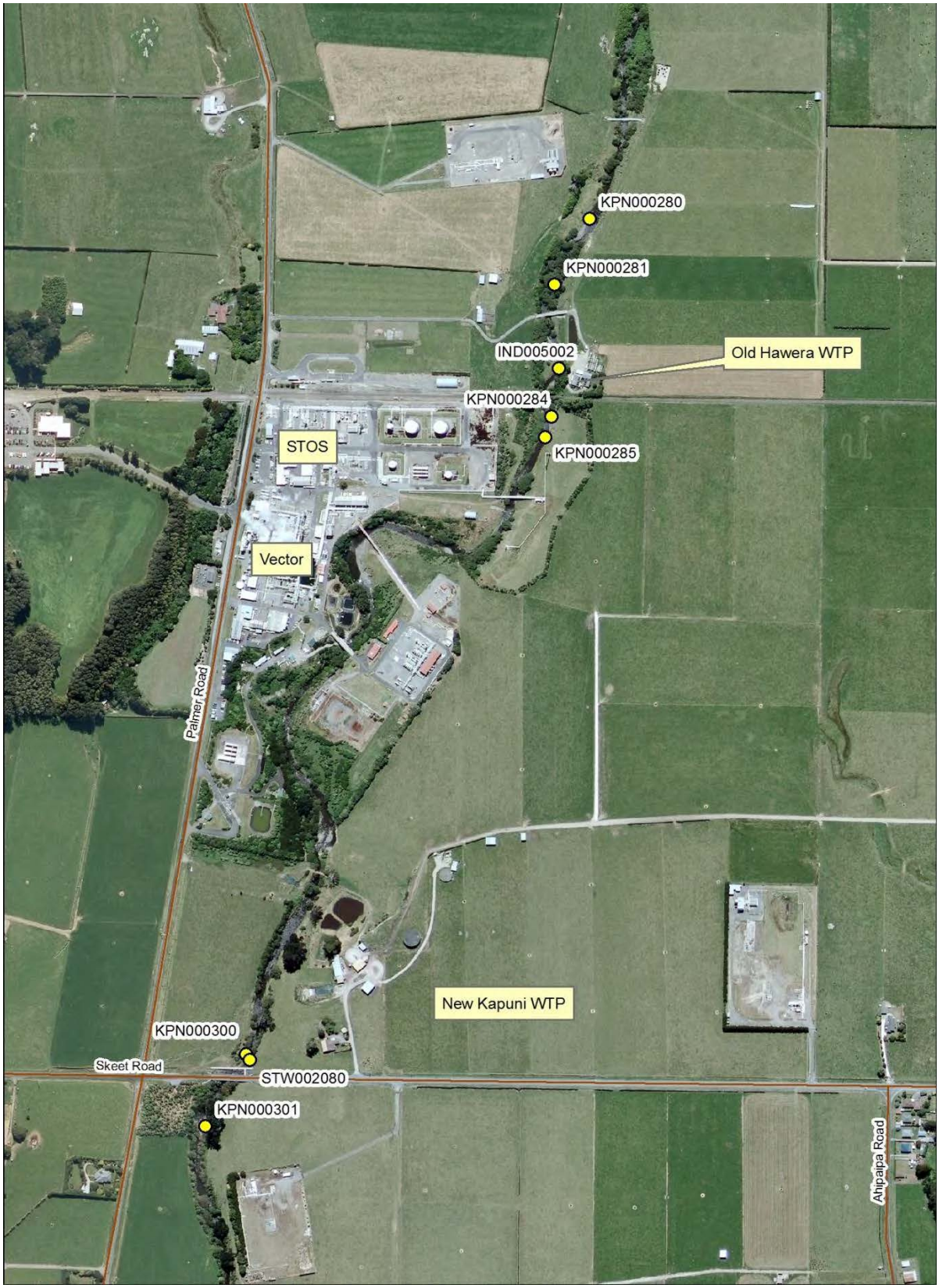


Figure 1 Aerial photo showing the location of the old and new water treatment facilities, and relevant sampling sites.

Stark (1985) developed a scoring system for macroinvertebrate taxa according to their sensitivity to organic pollution in stony New Zealand streams. Highly 'sensitive' taxa were assigned the highest scores of 9 or 10, while the most 'tolerant' forms scored 1. Sensitivity scores for certain taxa have been modified in accordance with Taranaki experience. By averaging the scores obtained from a list of taxa taken from one site and multiplying by a scaling factor of 20, a Macroinvertebrate Community Index (MCI) value was obtained. The MCI is a measure of the overall sensitivity of macroinvertebrate communities to the effects of organic pollution. More 'sensitive' communities inhabit less polluted waterways.

A semi-quantitative MCI value ($SQMCI_s$) has also been calculated for the taxa present at each site by multiplying each taxon score by a loading factor (related to its abundance), totalling these products, and dividing by the sum of the loading factors (Stark, 1998 and 1999). The loading factors were 1 for rare (R), 5 for common (C), 20 for abundant (A), 100 for very abundant (VA) and 500 for extremely abundant (XA). Unlike the MCI, the $SQMCI_s$ is not multiplied by a scaling factor of 20, so that its corresponding range of values is 20x lower.

Results and discussion

At the time of this afternoon survey, there was a clear, uncoloured flow in the Kapuni Stream and the water temperature ranged from 19.4 to 20.1°C. The survey was performed during a long period of low flow, 60 days after a fresh in excess of three times median flow and 153 days after a fresh in excess of 7 times median flow, resulting in the survey being undertaken during very low flows. The bed of the stream at both sites comprised predominantly cobbles, coarse gravel and boulders, with some fine gravel and sand. Both sites supported patchy growths of filamentous algae, and site 1 also supported patchy growths of algal mats, while site 2 only had a thin algal film on the rocks. Neither site enjoyed any shading from riparian vegetation.

It was noted during the March 2013 that a backwash discharge was causing notable discolouration downstream (Photo 1). No such discharge was observed during the current survey.

Photo 1 The backwash discharge entering the Kapuni Stream from the left, 13 March 2013

Macroinvertebrate communities

Previous biological surveys in the Kapuni Stream have generally recorded macroinvertebrate communities that would be expected in clean, mid-catchment ringplain streams. The communities have had moderate to relatively good numbers of taxa and moderately high MCI values. The results of previous surveys are summarised in Table 2, together with current results and for site 1 are illustrated in Figure 2. The full results of the current survey are presented in Table 3.

Table 2 Numbers of taxa and MCI values recorded in previous surveys performed in the Kapuni Stream in relation to the Kapuni WTP, together with current results

Site	Number of previous surveys	Numbers of taxa			MCI values		
		Median	Range	Current	Median	Range	Current
1	122	17	6-40	24	110	60-145	103
2	6	22	17-25	22	113	110-117	115

Site 1 - upstream of WTP discharge

This site has an extensive historical dataset, as a result of monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites, located upstream. This dataset extends as far back as October 1982 and can also be used as a reference for results at site 2 (KPN000301), until a suitable data record has been established there. It should be noted however, that the monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites is done so using slightly different methodology, which has the potential to produce lower taxa richness and higher MCI scores.

The macroinvertebrate community at site 1 (upstream of the water treatment plant) had a moderately high richness of 24 taxa, which was significantly higher than the median richness of all surveys conducted at this site to date (Table 2). Four 'highly sensitive' taxa were found, indicative of generally high preceding physicochemical water quality conditions and good physical habitat. The faunal community was characterised by two of these 'highly sensitive' taxa ((extra abundant mayfly (*Deleatidium*) and very abundant *Hydropsyche-Orthopsyche* caddisfly); five 'moderately sensitive' taxa (elmid beetles, dobsonfly larvae (*Archichauliodes*), free living caddisfly (*Costachorema* and *Hydrobiosis*) and cranefly (*Aphrophila*); and three 'tolerant' taxa, all midge larvae (*Maoridiamesa*, orthoclads and *Polypedilum*).

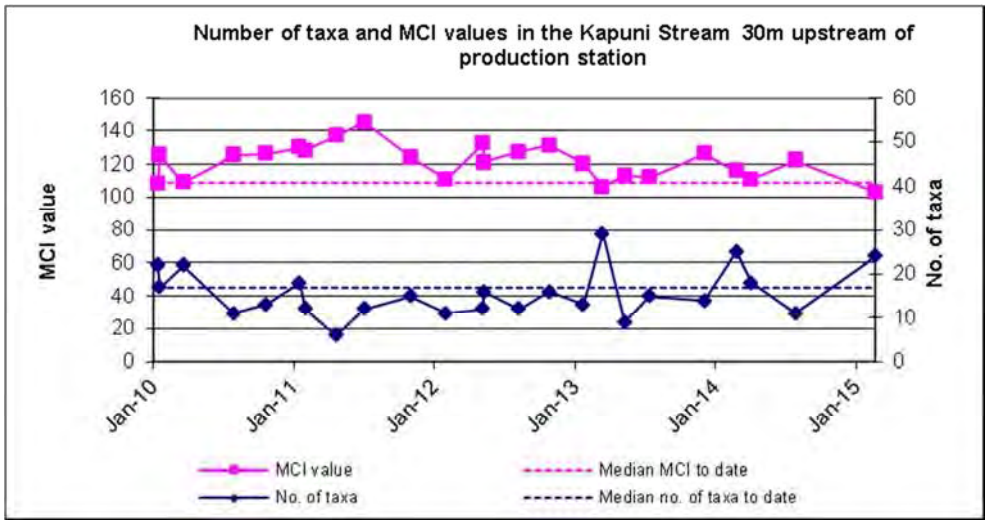


Figure 2 Numbers of taxa and MCI values in the Kapuni Stream upstream of Kapuni WTP

The reduced proportion of 'sensitive' taxa (58% of taxa numbers) comprising this community was reflected in the MCI score of 103 units, which was an insignificant seven units less than the median, but thirteen units less than that recorded in the previous survey, a statistically significant result (Stark, 1998) (Figure 2, Table 2). This reduction can be attributed to the long period of low flows that preceded this survey. In addition, this score was slightly higher than the predicted score for this site (99 units), 19.1 km downstream of the National Park boundary (Stark and Fowles, 2009, Stark, 1998).

Table 3 Macroinvertebrate fauna of the Kapuni Stream in relation STDC Kapuni WTP sampled on 19 February 2015

Taxa List	Site Number	MCI score	1	2
	Site Code		KPN000300	KPN000301
	Sample Number		FWB15159	FWB15160
NEMATODA	Nematoda	3	R	-
ANNELIDA (WORMS)	Oligochaeta	1	C	R
MOLLUSCA	*Potamopyrgus*	4	R	C
EPHEMEROPTERA (MAYFLIES)	*Austroclima*	7	C	A
	Coloburiscus	7	R	R
	Deleatidium	8	XA	XA
	Nesameletus	9	R	C
PLECOPTERA (STONEFLIES)	*Zelandoperla*	8	-	R
COLEOPTERA (BEETLES)	Elmidae	6	VA	VA
	Hydraenidae	8	-	R
MEGALOPTERA (DOBSONFLIES)	*Archichauliodes*	7	A	VA
TRICHOPTERA (CADDISFLIES)	*Costachorema*	7	A	R
	Hydrobiosis	5	A	A
	Neurochorema	6	-	R
	Hydropsyche (Orthopsyche)	9	VA	XA
	Psilochorema	6	R	-
	Beraeoptera	8	-	R
	Olinga	9	R	-
	Pycnocentrodes	5	C	C
DIPTERA (TRUE FLIES)	*Aphrophila*	5	A	A
	Eriopterini	5	R	C
	Chironomus	1	R	-
	Maoridiamesa	3	VA	C
	Orthocladiinae	2	A	C
	Polypedilum	3	A	-
	Tanytarsini	3	C	C
	Ephydridae	4	R	-
	Tabanidae	3	-	R
	Tanyderidae	4	R	-
		No of taxa	24	22
		MCI	103	115
		SQMCIs	6.9	7.9
		EPT (taxa)	10	11
		%EPT (taxa)	42	50
'Tolerant' taxa	'Moderately sensitive' taxa		'Highly sensitive' taxa	

R = Rare C = Common A = Abundant VA = Very Abundant XA = Extremely Abundant

Site 2 - downstream of WTP

Taxa richness at site 2, 30m downstream of the water treatment plant discharge, was 22 taxa, slightly lower than that recorded at site 1 (Table 2). The difference in community composition between sites was relatively insignificant as in all but one instance it was due to the presence/absence of taxa found only as rarities (less than 5 individuals per taxon) at the upstream site when they were absent/present downstream. Six 'highly sensitive' taxa were present, with the community characterised by the similar taxa as those dominant at site 1 with the addition of moderately sensitive taxon (*Austroclima* mayfly), and reduced abundance of three midge larvae taxa (Table 3). Due to increased proportion of 'sensitive' taxa in the community, the MCI score at site 2 (115 units) was twelve units higher than the score recorded at site 1 upstream, and this was a statistically significant result (Stark, 1998). This score was higher than (but not significantly so) the median of past scores from KPN00300 and similar to that recorded at this site in the previous two surveys (Figure 3). In addition, when the nature of the changes is considered, it is not considered indicative of impacts from the water treatment plant discharge. Because of the proximity of KPN000300 to this site, the historical data for this site can be used for comparison at this site, which was only sampled for the seventh time in this survey.

Only three significant changes in individual taxon abundance were recorded between sites, reflecting the similarity in community composition. The reduced abundance of two 'tolerant' taxa at site 2 was reflected in the $SQMCI_S$ score, which increased by 1.0 unit, a statistically significant improvement (Table 3).

Although this is not an expected result considering the extended period of low flow that preceded this survey, it is also not an indication of any impacts from the Hawera water treatment plant.

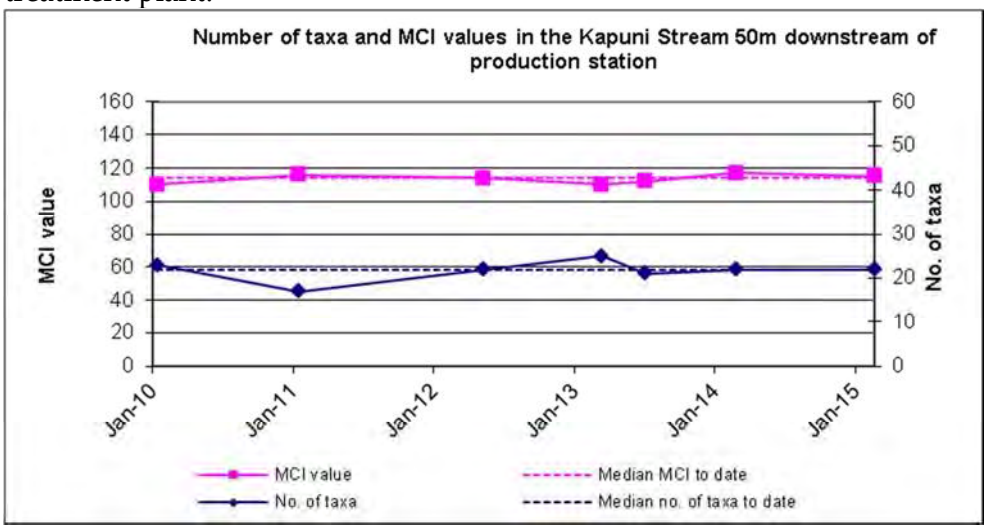


Figure 3 Numbers of taxa and MCI values in the Kapuni Stream downstream of Kapuni WTP

Summary and conclusions

The Council's standard 'kick-sampling' technique was used on 19 February 2015 at two sites to collect streambed macroinvertebrates from the Kapuni Stream to determine if there had been any adverse effects on the macroinvertebrate community of the stream from Kapuni water treatment plant backwash discharges. Samples were sorted and identified to provide number of taxa (richness) and MCI and $SQMCI_S$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_S$ takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities, particularly if non-organic impacts are occurring. Significant differences in either the MCI or the $SQMCI_S$ between sites indicate the degree of adverse effects (if any) of the discharges being monitored.

This survey was the fifth to follow full commissioning of the Kapuni Water Treatment Plant. The new discharge point is now located just upstream of the Skeet Road bridge, and the sampling sites were consequently changed, to enable monitoring of this new location. Site 1 has an extensive historical dataset, as a result of monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites, located upstream. This dataset can also be used as a reference for site 2 (KPN000301), until a suitable data record has been established here. It should be noted however, that the monitoring undertaken in relation to the Vector Kapuni and Ballance Agri-Nutrients Kapuni Ltd sites is done so using slightly different methodology, which has the potential to produce lower taxa richness and higher MCI scores.

This late summer macroinvertebrate survey indicated that the community at site 2, downstream of the discharge point, was in good health, and better than that recorded upstream at site 1, upstream of the discharge point. There is no evidence to suggest that the discharge of filter backwash and settling tank sediment had resulted in an impact on the macroinvertebrate communities of the Kapuni Stream. This is supported by the MCI score recorded downstream of the discharge being higher than the median score for the upstream site.

The macroinvertebrate communities of the Kapuni Stream contained significant proportions of 'sensitive' taxa at both sites and the communities were dominated by 'sensitive' taxa. Taxonomic richness (number of taxa) was high at the control site 1 and decreased only slightly at site 2 downstream of the discharge, although there were some changes in the presence/absence of a few taxa found as rarities (less than 5 individuals). Site 1 recorded a below average MCI score, which is considered a reflection of the long period of low flows that preceded this survey (60 days). The significant increase in MCI and $SQMCI_S$ scores from site 1 to site 2 was not an expected result considering the extended period of low flow that preceded this survey. However, it is certainly not an indication of any impacts from the Hawera water treatment plant.

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Biomonitoring of the Mangawheroiti Stream in relation to the South Taranaki District Council's Waimate West Water Supply Scheme, February 2014

Introduction

The South Taranaki District Council ('STDC') owns and operates the Waimate West Water Supply Scheme (WWWSS) which involves the abstraction of water from three streams; the Mangawheroiti Stream, the Mangawhero Stream and the Otakeho Stream. This scheme provides water for dairy farms, industry, and domestic use. The main intake for the WWWSS is on the Mangawheroiti Stream. However, the flow in Mangawheroiti Stream is supplemented by water diverted into it from the Mangawhero Stream upstream of the intake.

Consent 0634-3 authorises the taking of water from the Mangawheroiti Stream for the water supply scheme. This consent contains a Special Condition (8) that requires STDC to ensure that a minimum flow of 32 litres per second (0.032 m^3/s) is provided at all times immediately downstream of the intake structure.

This biological survey was the second of two programmed for the 2013-2014 monitoring period, the inaugural survey having been performed in January 2012 and the most recent survey undertaken in February 2014. The intention of these surveys was to monitor the health of the macroinvertebrate communities in the Mangawheroiti Stream in relation to any effects of water abstraction by the WWWSS.

Methods

This survey was undertaken on 05 February 2014 at four sites on the Mangawheroiti Stream; a control site upstream of the intake weir (1), a primary impact site approximately 40 metres downstream of the intake weir (2), a secondary impact site nearly three kilometres downstream of that intake and a tertiary impact site approximately 8.3 kilometres downstream of the intake and 340 metres upstream of the confluence with the Mangawhero Stream (Figure 1).

Table 1 Biomonitoring sites in the Mangawheroiti Stream in relation to the WWWSS

Site	Site code	GPS location	Location	Elevation (m asl)	Distance from NPk boundary (km)
1	MWI000170	E1694422 N5637468	Upstream of the intake weir	340	3.6
2	MWI000174	E1694425 N5637409	Approximately 40 metres downstream of the water intake	340	3.7
3	MWI000330	E1694186 N5635091	Approximately 3 km downstream of the water intake (580 metres upstream of Eltham Road bridge)	270	6.5
4	MWI000490	E1693732 N5631251	Approximately 8.3 km downstream of the water intake (340 metres upstream of confluence with the Mangawhero Stream)	180	11.9

The standard '400 ml kick-sampling' technique was used to collect streambed macroinvertebrates from all sites. The 'kick-sampling' technique is very similar to Protocol C1 (hard-bottomed, semi-quantitative), of the New Zealand Macroinvertebrate Working Group (NZMWG) protocols for macroinvertebrate samples in wadeable streams (Stark *et al*, 2001).

Samples were preserved with Kahle's Fluid for later sorting and identification under a stereomicroscope using protocol P1 of NZMWG protocols for sampling macroinvertebrates in wadeable streams (Stark *et al*. 2001). Macroinvertebrate taxa found in each sample were recorded as:

R (rare)	= less than 5 individuals;
C (common)	= 5-19 individuals;
A (abundant)	= estimated 20-99 individuals;
VA (very abundant)	= estimated 100-499 individuals;
XA (extremely abundant)	= estimated 500 individuals or more.

Stark (1985) developed a scoring system for macroinvertebrate taxa according to their sensitivity to organic pollution in stony New Zealand streams (MCI). Highly 'sensitive' taxa were assigned the highest scores of 9 or 10, while the most 'tolerant' forms scored 1 and 0.1 in hard bottomed and soft bottomed streams respectively. The sensitivity scores for certain taxa found in hard bottomed streams have been modified in accordance with Taranaki experience. After extensive use of the MCI, categories were assigned to the sensitivity scores, to clarify their 'relative' sensitivity e.g. taxa that scored between 1 and 4 inclusive are considered tolerant (see Table 3).

By averaging the scores obtained from a list of taxa taken from one site and multiplying by a scaling factor of 20, a Macroinvertebrate Community Index (MCI) value was obtained. The MCI is a measure of the overall sensitivity of macroinvertebrate communities to the effects of organic pollution. More 'sensitive' communities inhabit less polluted waterways.

A semi-quantitative MCI value ($SQMCI_s$) has also been calculated for the taxa present at each site by multiplying each taxon score by a loading factor (related to its abundance), totalling these products, and dividing by the sum of the loading factors (Stark 1998 and 1999). The loading factors were 1 for rare (R), 5 for common (C), 20 for abundant (A), 100 for very abundant (VA) and 500 for extremely abundant (XA). Unlike the MCI, the $SQMCI_s$ is not multiplied by a scaling factor of 20, so that its corresponding range of values is 20x lower.

Results

During this February 2014 survey, there was a low, slow, clear, and uncoloured flow at all sites except at site 2 where there was a steady flow. In the absence of a lengthy flow record for the Mangawheroiti Stream at the time of this survey, the flow data from the neighbouring Kaupokonui Stream indicated that it had been nine days since a three times median flow and 15 days since a seven times median flow. In the four weeks prior to this survey, the flow in the Mangawheroiti Stream upstream of the intake weir ranged between 221 L/s and 2913 L/s with the flow during the majority of the period below 302 L/s. The flow at the time of the survey was about 245 L/s at this recently established hydrological recording site. Water abstraction of approximately 101 L/s at the time of the survey resulted in a residual flow of 144 L/s below the weir. Water temperatures ranged from 12.9°C at site 1 and 13.0°C at site 2 adjacent to the intake, to 16.2°C at site 3 and 17.3°C at site 4.

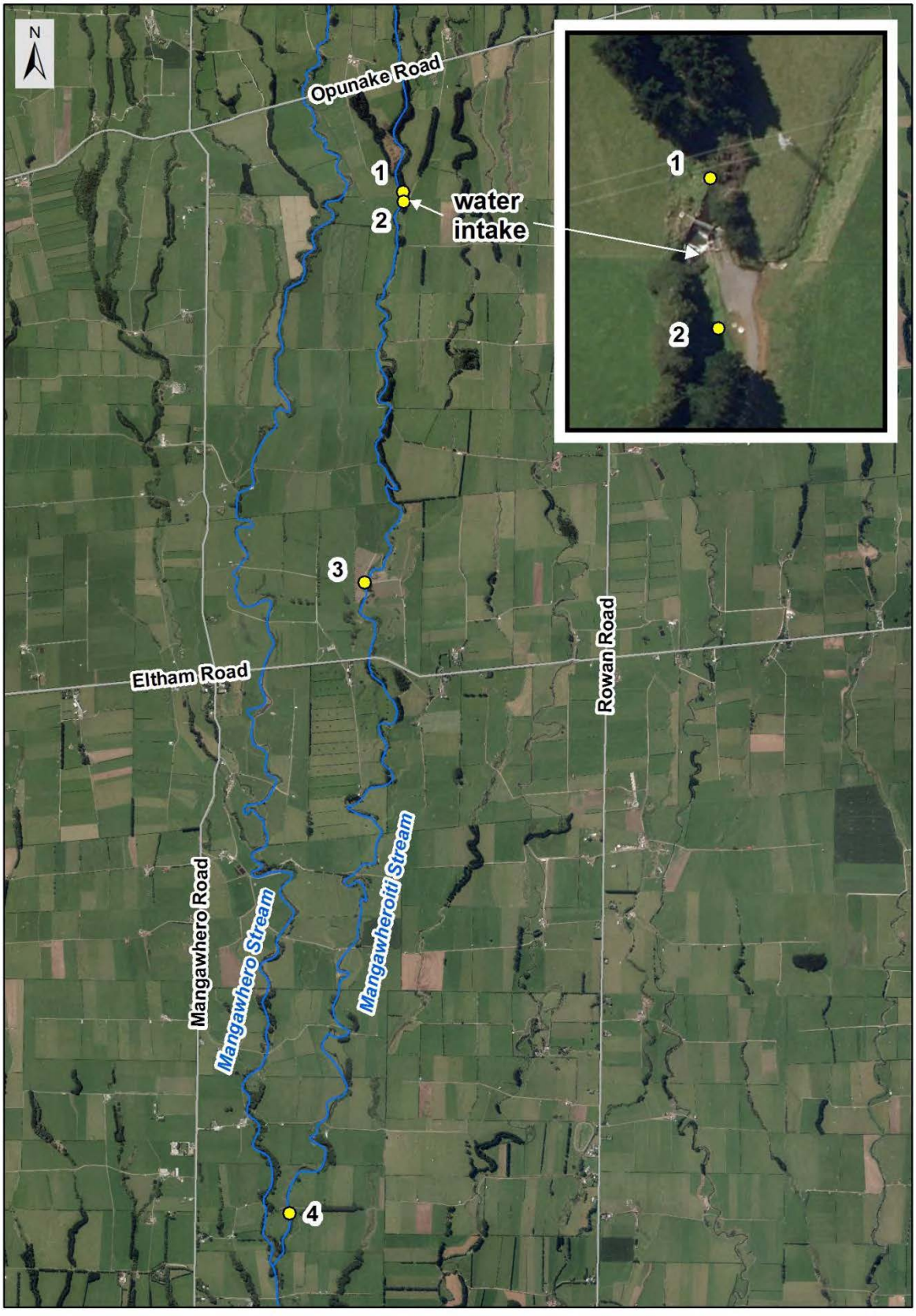

Figure 1 Biomonitoring sites related to the WWWSS intake on the Mangawheroiti Stream.

Widespread mats and patchy filaments of algae were recorded at the partially shaded control site 1 upstream of the intake weir on the Mangawheroiti Stream. Widespread moss and patchy leaves were also recorded at this site where the substrate composition predominantly consisted of cobbles with smaller proportions of silt, sand, gravels, and boulders resulting in a moderately stable bed. Iron-oxide despots were noticeable in pools and at the margins of the stream bed.

At the partially shaded site 2, 40m downstream of the intake weir, slippery mats but no filamentous algae were recorded, together with patchy moss. Macrophytes were recorded, but only at the edges of the stream. The bed substrate at this site primarily consisted of cobbles and gravels, although there was a moderate proportion of silt, sand and boulders at this site which was reflected in the moderately stable bed recorded by this survey.

Periphyton growth recorded at site 3 consisted of widespread mats and filaments. Patchy moss and macrophytes growing at the edges of the stream were also recorded at this open site. The stream bed was composed predominantly of boulders and cobbles and there were also smaller quantities of fine and coarse gravels sand and silt.

At the partially shaded site 4, upstream of the confluence with the Mangawhero Stream, widespread mats and patchy filaments of algae were recorded. Patchy moss was also present, and macrophytes were recorded growing at the edges of the stream. Cobbles were predominant at this site with some boulders, coarse and fine gravels, and smaller quantities of silt and sand.

Macroinvertebrate communities

A summary of the results from the previous survey is presented in Table 2 and from the current survey in Table 3 along with predicted MCI scores using established relationships between MCI scores and ringplain stream altitude and distance from the National Park boundary (Stark and Fowles (2009)). Equations generated from these relationships can be used to predict MCI values at a particular location on a stream or river on the ringplain.

Table 2 Summary of macroinvertebrate taxa numbers, MCI and $SQMCI_s$ values for the previous surveys performed between January 2012 and February 2014

Site	Site code	No. of surveys	Taxa numbers		MCI values		$SQMCI_s$ value	
			Range	Median	Range	Median	Range	Median
1	MWI000170	4	31-37	35	121-132	127	6.2-7.5	7.2
2	MWI000174	4	28-36	34	122-131	126	7.0-7.3	7.1
3	MWI000330	4	20-45	27	111-129	116	7.4-8.0	7.4
4	MWI000490	4	20-30	26	95-101	98	4.4-5.3	4.7

Table 3 Results of the survey of 05 February 2014 in relation to WWWSS, and predicted MCI scores (from Stark and Fowles (2009)).

Site No.	Results			Predicted MCI scores	
	No. of taxa	MCI	$SQMCI_s$	Altitude	Distance
1	38	129	7.0	119	117
2	25	125	7.4	119	117
3	24	107	4.8	112	111
4	29	101	3.9	103	104

The macroinvertebrate fauna recorded by the current survey at each of the four sites are presented in Table 4.

Table 4 Macroinvertebrate fauna recorded at four sites in the Mangawheroiti Stream in relation to the WWWSS water abstraction, 05 February 2014

Taxa List	Site Number	MCI score	Site 1	Site 2	Site 3	Site 4
	Site Code		MWI000170	MWI000174	MWI000330	MWI000490
	Sample Number		FWB14060	FWB14061	FWB14062	FWB14063
NEMERTEA	Nemertea	3	-	-	-	R
NEMATODA	Nematoda	3	-	-	-	R
ANNELIDA (WORMS)	Oligochaeta	1	C	R	R	A
	Lumbricidae	5	R	R	R	R
MOLLUSCA	*Potamopyrgus*	4	R	R	-	A
CRUSTACEA	*Paracalliope*	5	-	-	-	R
EPHEMEROPTERA (MAYFLIES)	*Acanthophlebia*	9	R	-	-	-
	Ameletopsis	10	R	-	-	-
	Austroclima	7	VA	A	VA	A
	Coloburiscus	7	VA	XA	VA	C
	Deleatidium	8	VA	XA	A	A
	Neozephlebia	7	R	-	-	-
	Nesameletus	9	C	R	C	R
	Oniscigaster	10	R	-	-	-
	Zephlebia group	7	R	-	-	-
PLECOPTERA (STONEFLIES)	*Acroperla*	5	R	-	-	-
	Austroperla	9	-	R	-	-
	Megaleptoperla	9	C	A	-	-
	Stenoperla	10	R	-	-	-
	Zelandobius	5	-	-	-	R
	Zelandoperla	8	C	A	R	R
COLEOPTERA (BEETLES)	Elmidae	6	VA	VA	A	A
	Dytiscidae	5	R	-	-	-
	Hydraenidae	8	A	A	R	R
	Ptilodactylidae	8	R	-	-	R
MEGALOPTERA (DOBSONFLIES)	*Archichauliodes*	7	A	A	R	A
TRICHOPTERA (CADDISFLIES)	*Aoteapsyche*	4	A	A	VA	XA
	Costachorema	7	-	-	C	A
	Hydrobiosis	5	C	R	C	A
	Hydrobiosella	9	R	-	-	-
	Neurochorema	6	-	-	R	-
	Orthopsyche	9	C	C	-	-
	Beraeoptera	8	VA	VA	-	R
	Confluens	5	C	-	R	-
	Helicopsyche	10	C	C	-	-
	Olinga	9	A	A	R	-
	Oxyethira	2	-	-	R	C
	Pycnocentrodes	5	-	-	C	A
	Triplectides	5	R	-	-	-
DIPTERA (TRUE FLIES)	*Aphrophila*	5	A	A	C	C
	Eriopterini	5	R	R	-	-
	Maoridiamesa	3	R	C	VA	VA
	Orthocladiinae	2	C	-	VA	VA
	Tanypodinae	5	R	-	-	-
	Tanytarsini	3	-	-	C	VA
	Empididae	3	R	R	-	C
	Muscidae	3	-	-	C	R
	Austrosimulium	3	C	-	R	C
	Tabanidae	3	-	R	-	-
	Tanyderidae	4	-	R	-	-
ACARINA (MITES)	Acarina	5	R	-	-	-
		No of taxa	38	25	24	29
		MCI	129	125	107	101
		SQMCIs	7.0	7.4	4.8	3.9
		EPT (taxa)	22	13	12	11
		%EPT (taxa)	58	52	50	38

'Tolerant' taxa | 'Moderately sensitive' taxa | 'Highly sensitive' taxa

R = Rare C = Common A = Abundant VA = Very Abundant XA = Extremely Abundant

Site 1 (upstream of intake weir)
A very high richness (38 taxa) was recorded, well above the median number (23 taxa) and one higher than the maximum (37 taxa) found by more than 176 previous surveys of National Park-sourced streams at 'control' sites between 300 and 350 m asl (TRC, 1999 (updated 2013)). This richness was the highest found to date by the four previous surveys performed at this site**.** The community was comprised of a very high proportion (82%) of 'sensitive' taxa, 15 of which were 'highly sensitive' taxa. The community was characterised by four 'highly sensitive' taxa [mayfly (*Deleatidium*), smooth cased caddisflies (*Beraeoptera* and *Olinga*) and Hydraenidae beetles]; five 'moderately sensitive' taxa [mayflies (*Austroclima* and *Coloburiscus*), elmid beetles, dobsonfly larvae (*Archichauliodes*) and cranefly (*Aphrophila*)]; and one 'tolerant' taxon [caddisfly (*Aoteapsyche*)]. The numerical dominance by 'sensitive' taxa resulted in the moderately high $SQMCI_s$ value of 7.0 units, which was 0.8 unit higher than recorded in the previous survey but similar to the median value recorded by the four previous surveys (Table 2). This was indicative of good physical habitat and preceding physicochemical water quality, typical of the upper mid-reaches of ringplain streams.

The high proportion of 'sensitive' taxa comprising the community resulted in the high MCI score (129 units) which was three units below the maximum of the range recorded by the four previous surveys and a significant 11 units above the median MCI score recorded by more than 176 surveys of 'control' sites in National Park-sourced rivers and streams between 300 and 350 m asl (TRC, 1999 (updated 2013)). It was also 10 and 12 units above predicted (Stark & Fowles, 2009) altitude and distance scores respectively (Table 3) and categorised this site as having 'very good' generic stream health and slightly better than 'expected' predictive health (TRC, 2014) for a site in the upper mid-reaches of a ringplain stream.

Site 2 (40 m downstream of intake weir)
A moderately high richness (25 taxa) was found at this site, 13 taxa fewer than at the site upstream of the weir, and two taxa more than the median richness recorded by more than 176 previous surveys at similar 'control' sites (see above and TRC, 1999 (updated, 2013)). This was the lowest taxa richness recorded to date and well below the median (34) for this site (Table 2). The community composition mainly comprised of 'sensitive' taxa (72% of richness), 10 of which were 'highly sensitive' taxa. The community was characterised by the same 10 dominant taxa at the upstream 'control' site, with the addition of two 'highly sensitive' taxa [stoneflies (*Megaleptoperla* and *Zelandoperla*)].The continued numerical dominance by 'sensitive' taxa (one 'highly sensitive' and one 'moderately sensitive' taxa in particular) resulted in a high $SQMCI_s$ value of 7.4 units, which was the highest score recorded to date (Table 2) and 0.4 unit higher than the score at the upstream site (Table 4). This was also indicative of good physical habitat and preceding physicochemical water quality, typical of the upper, mid-reaches of ringplain streams, and coincidental with minimal periphyton substrate cover.

The high proportion of 'sensitive' taxa in the composition of the community was reflected in the high MCI score (125 units), an insignificant four units below that found at the 'control' site upstream of the intake weir, 1 unit below the median score recorded by the four previous surveys and an insignificant (Stark, 1998) seven units above the median score recorded by more than 176 previous surveys at similar sites (see above and TRC, 1999 (updated, 2013)). The score was also six and eight units above predicted altitude and distance scores respectively (Stark and Fowles, 2009; Table 3). This categorised the site as having 'very good' generic stream health and 'better than expected' predictive health (TRC, 2014) for a site in the upper mid reaches of a ringplain stream.

Site 3 (approximately 3 km downstream of the intake)
Taxa richness (24) was moderate for a site in the mid-reaches of a ringplain stream; one taxa below the median richness found to date by 170 surveys of 'control' sites in National Park-sourced streams at altitudes between 250 and 299 m asl (TRC, 1999 (updated, 2013)). This richness was three taxa less than the median richness of the four previous surveys at this site (Table 2). The community comprised a moderate proportion (67%) of 'sensitive' taxa, five of which were 'highly sensitive' taxa. It was characterised by one 'highly sensitive' taxon [mayfly (Deleatidium)], three 'moderately sensitive' taxa [mayflies (*Austroclima*) and (*Coloburiscus*) and elmid beetles], and three 'tolerant' taxa [orthoclad midges, net-spinning caddisfly (*Aoteapsyche*) and chironomid midge *(Maoridiamesa*)]. The similar numerical dominance by 'sensitive' and 'tolerant' taxa resulted in a relatively low $SQMCI_s$ value of 4.8 units which was a significant (Stark, 1998) 2.6 units lower than the median found by the four previous surveys (Table 2) and a significant 2.2 units lower than recorded at the upstream 'control' site 1. This was an indication of moderate physical habitat conditions and moderate preceding physicochemical water quality, coincidental with widespread periphyton substrate cover and moderate stock damage at this site.

The moderate proportion of 'sensitive' taxa comprising this community resulted in the MCI value of 107 units, which was typically lower (by 22 units) than the score upstream of the intake weir and the lowest score recorded at this site to date (by 4 units). This current score was however an insignificant 8 units below the median score recorded by 170 previous surveys at similar sites (see above and TRC, 1999 (updated, 2013)) and within five and four units of predicted altitude and distance from the National Park boundary scores respectively (Stark and Fowles, 2009; Table 2). This score characterised the site as having 'good' generic stream health and 'expected' predictive health (TRC, 2014) for a site in the mid-reaches of a ringplain stream.

Site 4 (approximately 8 km downstream of the intake weir)
The moderately high richness (29 taxa) at this site was nine taxa more than the median taxa number found by 358 previous surveys of National Park-sourced streams at 'control' sites between 155 and 199 m asl (TRC, 1999 (updated, 2013)), and from one taxon less to nine taxa more than found by the four previous surveys at this site (Table 2). The community comprised a higher proportion (41%) of 'tolerant' taxa than in any of the three upstream sites' communities. It was characterised by the same dominant taxa as site 3 (although excluded the 'moderately sensitive' taxon (mayfly (*Coloburiscus*)), with the addition of four 'moderately sensitive' taxa [dobsonfly (*Archichauliodes*), free-living caddisflies (*Costachorema* and *Hydrobiosis*) and stony-cased caddis (*Pycnocentrodes*)] and three 'tolerant' taxa [oligochaete worms, snail (*Potamopyrgus*) and chironomid midge (Tanytarsini)]. Several significant differences in individual taxon abundances were found between adjacent sites (3 and 4) which principally involved decreasing numbers within 'sensitive' (one) taxa and increasing numbers within (three) 'tolerant' taxa. The numerical dominance of four 'tolerant' taxa in particular was responsible for the moderately low $SQMCI_s$ value of 3.9 units which was 0.8 unit lower than the median found by the four previous surveys at this site, and significantly lower (0.9 unit) than the score at the nearest upstream site, 3 (Table 4). This value was coincident with more dense filamentous algae streambed periphyton cover although there was a similar algal mat cover. The moderately high percentage of 'sensitive' taxa was indicative of relatively good preceding physicochemical water quality conditions preceding this survey.

The slight dominance of 'sensitive' taxa comprising this community resulted in a moderate MCI score of 101 units, an insignificant six units (Stark, 1998) lower than the score at site 3 (5.4 km upstream), and three units higher than the median score recorded by the four previous surveys at this site (Table 2). The current score was six units below the median score recorded by more than 358 previous surveys of 'control' sites in National Park-sourced streams situated between 155 and 199 m asl (TRC, 1999 (updated, 2013)) and two to three units lower than predicted altitude and distance from the National Park boundary values (Stark and Fowles, 2009 (Table 3)). This characterised the site as having 'good' generic stream health and 'expected' predictive health (TRC, 2014) for a site in the mid reaches of a ringplain stream.

Discussion and conclusions

The abstraction of surface water particularly for extended periods of time may result in significant adverse effects on the macroinvertebrate communities living within a waterbody by altering stream temperature, flow conditions, wetted habitat, periphyton growth, and certain aspects of physicochemical water quality. This February 2014 survey was undertaken to monitor whether the operation of the WWWSS was having an effect on the macroinvertebrate communities in the Mangawheroiti Stream downstream of the water take under summer relatively low flow conditions.

The macroinvertebrate communities recorded at sites 1 and 2 comprised very high proportions of 'sensitive' taxa and were numerically dominated by up to five very or extremely abundant 'sensitive' taxa. The composition of the communities at both sites reflected the partially shaded, relatively cool, stony nature of the stream located in the upper mid-reaches of the catchment. This resulted in relatively high and similar MCI and $SQMCI_s$ scores at both sites which were higher than the predicted scores for each site, based on altitude and distance from the National Park boundary. This was consistent with good preceding physical habitat conditions immediately upstream and downstream of the intake weir indicative of no recent significant impacts of water abstraction over a recent period of residual flow with a minimum of about 118 L/sec, and an actual residual flow of about 144 L/sec at the time of the survey.

At site 3, approximately 3 kilometres downstream of the water intake, the macroinvertebrate community again comprised a high proportion of 'sensitive' taxa which was reflected in the MCI score of 107 units. This MCI score was very similar to the predicted scores for altitude and distance from the National Park (Stark and Fowles 2009), and typically, was lower than at site 1 and site 2. This result reflected the differences in site location within the catchment and in habitat quality between sites (eg. a more intact riparian margin at sites 1 and 2 compared to site 3). The community at site 3 was dominated by relatively similar 'sensitive' taxa to site 2 including two very abundant 'moderately sensitive' taxa, however this site had the addition of two 'tolerant' taxa coincident with increases in filamentous and mat periphyton cover. Most of these dominant taxa were indicative of relatively good preceding physicochemical water quality and habitat conditions.

In the current survey, the lowest MCI and $SQMCI_s$ scores were recorded at site 4 where the community was comprised of the highest proportion of 'tolerant' taxa. This community was also numerically dominated by more 'tolerant taxa' and fewer 'highly and moderately sensitive' taxa than at the three upstream sites, a typical downstream trend in ringplain streams. There was a significant (Stark, 1998) decrease in $SQMCI_s$ score between sites 3 and 4. This was coincident with some increase in the density of filamentous algal periphyton substrate cover at site 4, a probable reflection of the cumulative impacts of increased

nutrient inputs to the stream from point source and non-point source discharges and increased water temperatures in a downstream direction through the mid-catchment under more recent lower flow, summer conditions.

The overall MCI score decline of 28 units between sites 1 and 4 over a stream distance of 8.3 km equated to a rate of decline of 3.4 units/km, which were markedly higher than the predicted rate of 1.6 units/km for the equivalent reach of a National Park sourced stream (Stark and Fowles, 2009), and the rate (2.8 units/km) found by the previous spring survey (in November 2013), but below the rate (4.2 units/km) found by the previous (summer) survey in March, 2013. The rate of decline between sites 3 and 4 (over the stream length of 5.4 km) of 1.1 units/km was an insignificant 0.4 MCI units/km higher than predicted for those equivalent reaches, indicative of minor deterioration in macroinvertebrate community health in the lower to mid-reaches of the Mangawheroiti Stream.

Summary

Macroinvertebrate sampling was undertaken on 5 February 2014, at four sites in the Mangawheroiti Stream; a control site upstream of the intake weir (1), a primary impact site approximately 40 metres downstream of the intake weir (2), a secondary impact site 3 kilometres downstream of that intake and a tertiary impact site approximately 5.6 kilometres downstream of the intake and 340 metres upstream of the confluence with the Mangawhero Stream. Sampling was performed at all four sites using the 'kick' sampling technique, a standard sampling technique used by the Council. This was undertaken to assess whether the abstraction of water from the Mangawheroiti Stream for the WWWSS had had any adverse effects on the macroinvertebrate communities of this stream. Samples were processed to provide number of taxa (richness), MCI and $SQMCI_s$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_s$ takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities, particularly if non-organic impacts are occurring. Significant differences in the MCI or the $SQMCI_s$ between sites indicate the degree of adverse effects (if any) of the activity monitored.

This summer survey did not indicate that the water abstraction for the WWWSS from the Mangawheroiti Stream had significantly affected the freshwater macroinvertebrate communities immediately downstream of the abstraction point. Relatively high MCI and $SQMCI_s$ scores were recorded at the upstream control site 1. These scores were relatively similar to site 2, located approximately 40 metres downstream of the water take. Typically there was a marked decline in MCI score between sites 2 and 3, mainly due to an increase in 'tolerant' taxa.

The results of this survey showed a significant decline in the macroinvertebrate communities in the reaches between sites 1 and 4, where the MCI rate of decline was significantly higher than predicted. This is consistent with a general trend of increasing water temperature and decreasing physicochemical water quality with decreasing altitude in ringplain streams in the region coincident with point and non-point source discharges within such reaches. Abstraction of water from the Mangawheroiti Stream may exacerbate the decline in macroinvertebrate 'health' by reducing available dilution of such discharges particularly as cumulative impacts occur in a downstream direction.

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To Job Manager, Scott Cowperthwaite
From Scientific Officers, Chris Fowles and Bart Jansma
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Biomonitoring of the Mangawheroiti Stream in relation to the South Taranaki District Council's Waimate West Water Supply Scheme, November 2013

Introduction

The South Taranaki District Council ('STDC') owns and operates the Waimate West Water Supply Scheme (WWWSS) which involves the abstraction of water from three streams; the Mangawheroiti Stream, the Mangawhero Stream and the Otakeho Stream. This scheme provides water for dairy farms, industry, and domestic use. The main intake for the WWWSS is on the Mangawheroiti Stream. However, the flow in Mangawheroiti Stream is supplemented by water diverted into it from the Mangawhero Stream upstream of the intake.

Consent 0634-3 authorises the taking of water from the Mangawheroiti Stream for the water supply scheme. This consent contains a Special Condition (8) that requires STDC to ensure that a minimum flow of 32 litres per second (0.032 m^3/s) is provided at all times immediately downstream of the intake structure.

This biological survey was the first of two programmed for the 2013-2014 monitoring period, the inaugural survey having been performed in January 2012 and the most recent survey undertaken in March 2013. The intention of these surveys was to monitor the health of the macroinvertebrate communities in the Mangawheroiti Stream in relation to any effects of water abstraction by the WWWSS.

Methods

This survey was undertaken on 15 November 2013 at four sites on the Mangawheroiti Stream; a control site upstream of the intake weir (1), a primary impact site approximately 40 metres downstream of the intake weir (2), a secondary impact site nearly three kilometres downstream of that intake and a tertiary impact site approximately 8.3 kilometres downstream of the intake and 340 metres upstream of the confluence with the Mangawhero Stream (Figure 1).

Table 1 Biomonitoring sites in the Mangawheroiti Stream in relation to the WWWSS

Site	Site code	GPS location	Location	Elevation (m asl)	Distance from NPk boundary (km)
1	MWI000170	E1694422 N5637468	Upstream of the intake weir	340	3.6
2	MWI000174	E1694425 N5637409	Approximately 40 metres downstream of the water intake	340	3.7
3	MWI000330	E1694186 N5635091	Approximately 3 km downstream of the water intake (580 metres upstream of Eltham Road bridge)	270	6.5
4	MWI000490	E1693732 N5631251	Approximately 8.3 km downstream of the water intake (340 metres upstream of confluence with the Mangawhero Stream)	180	11.9

The standard '400 ml kick-sampling' technique was used to collect streambed macroinvertebrates from all sites. The 'kick-sampling' technique is very similar to Protocol C1 (hard-bottomed, semi-quantitative), of the New Zealand Macroinvertebrate Working Group (NZMWG) protocols for macroinvertebrate samples in wadeable streams (Stark *et al*, 2001).

Samples were preserved with Kahle's Fluid for later sorting and identification under a stereomicroscope using protocol P1 of NZMWG protocols for sampling macroinvertebrates in wadeable streams (Stark *et al*. 2001). Macroinvertebrate taxa found in each sample were recorded as:

R (rare)	= less than 5 individuals;
C (common)	= 5-19 individuals;
A (abundant)	= estimated 20-99 individuals;
VA (very abundant)	= estimated 100-499 individuals;
XA (extremely abundant)	= estimated 500 individuals or more.

Stark (1985) developed a scoring system for macroinvertebrate taxa according to their sensitivity to organic pollution in stony New Zealand streams (MCI). Highly 'sensitive' taxa were assigned the highest scores of 9 or 10, while the most 'tolerant' forms scored 1 and 0.1 in hard bottomed and soft bottomed streams respectively. The sensitivity scores for certain taxa found in hard bottomed streams have been modified in accordance with Taranaki experience. After extensive use of the MCI, categories were assigned to the sensitivity scores, to clarify their 'relative' sensitivity e.g. taxa that scored between 1 and 4 inclusive are considered tolerant (see Table 3).

By averaging the scores obtained from a list of taxa taken from one site and multiplying by a scaling factor of 20, a Macroinvertebrate Community Index (MCI) value was obtained. The MCI is a measure of the overall sensitivity of macroinvertebrate communities to the effects of organic pollution. More 'sensitive' communities inhabit less polluted waterways.

A semi-quantitative MCI value ($SQMCI_s$) has also been calculated for the taxa present at each site by multiplying each taxon score by a loading factor (related to its abundance), totalling these products, and dividing by the sum of the loading factors (Stark 1998 and 1999). The loading factors were 1 for rare (R), 5 for common (C), 20 for abundant (A), 100 for very abundant (VA) and 500 for extremely abundant (XA). Unlike the MCI, the $SQMCI_s$ is not multiplied by a scaling factor of 20, so that its corresponding range of values is 20x lower.

Results

During this November 2013 survey, there was a low, steady, clear, and uncoloured flow at all sites except the upstream site (1) where there was a slower flow. In the absence of a lengthy flow record for the Mangawheroiti Stream at the time of this survey, the flow data from the neighbouring Kaupokonui Stream indicated that it had been 14 days since a three times median flow and seven times median flow. In the four weeks prior to this survey, the flow in the Mangawheroiti Stream upstream of the intake weir ranged between 260 and 2900 L/s with the flow during the majority of the period below 400 L/s. The flow at the time of the survey was about 280 L/s at this recently established hydrological recording site. Water abstraction of approximately 100 L/s at the time of the survey resulted in a residual flow of 200 L/s below the weir. Water temperatures ranged from 10.2°C at the two sites adjacent to the intake, through 12.3°C (site 3), to 13.6°C at the downstream site (4) at the time of this mid morning to midday survey.

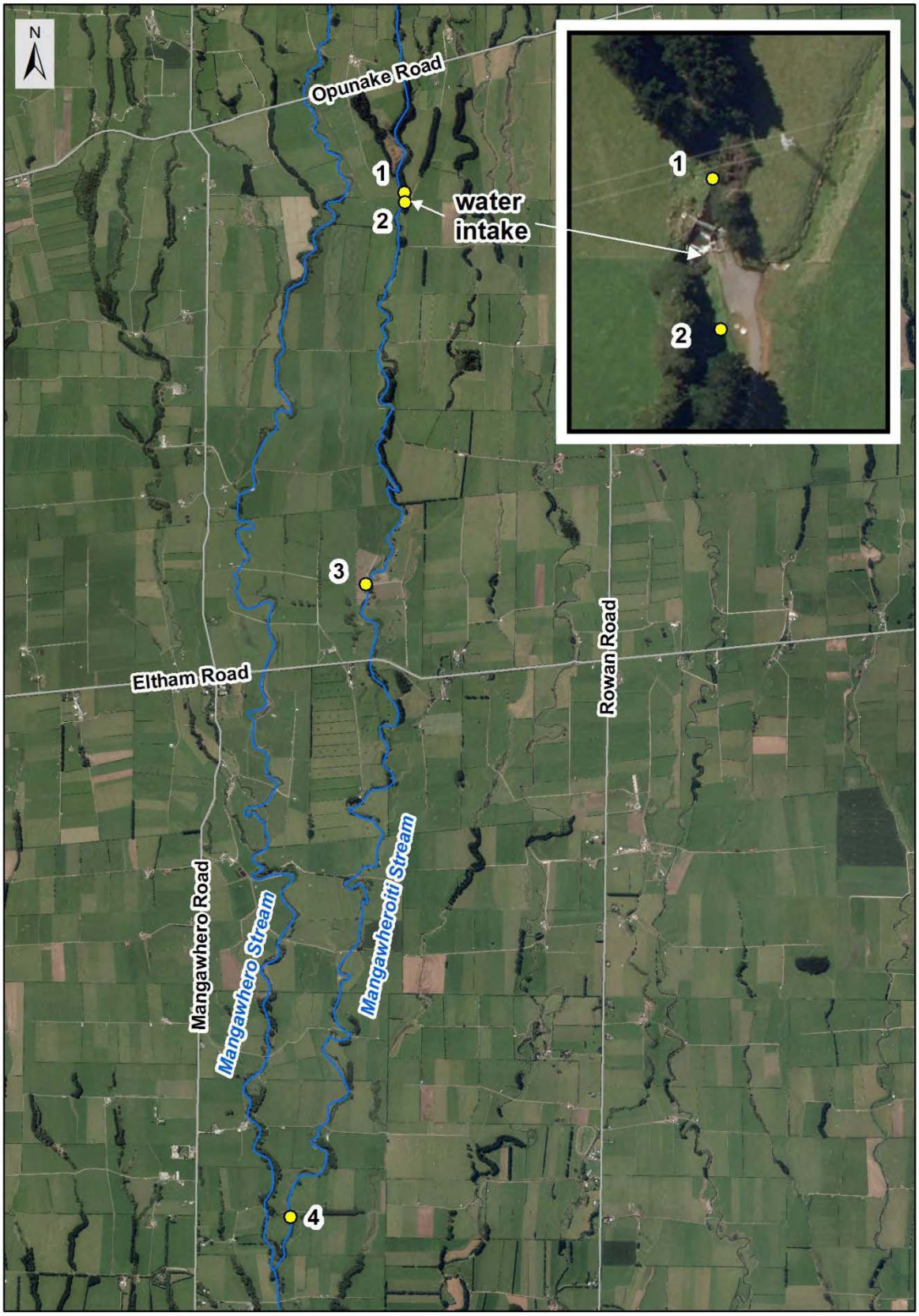

Figure 1 Biomonitoring sites related to the WWWSS intake on the Mangawheroiti Stream.

Slippery mats but no filamentous algae were recorded at the partially shaded control site (1) upstream of the intake weir on the Mangawheroiti Stream. Patchy moss and leaves were also recorded at this site where the substrate composition predominantly consisted of cobbles with smaller proportions of sand, gravels, and boulders resulting in a moderately stable bed. Iron-oxide despots were noticeable in pools and at the margins of the stream bed.

At the slightly more open site 2, 40m downstream of the intake weir, thin mats but no filamentous algae were recorded, together with patchy moss and leaves. The bed substrate at this site primarily consisted of boulders, cobbles, and gravels, although there was a moderate proportion of sand and fine gravels at this site which was reflected in the very stable bed recorded by this survey.

Periphyton growth recorded at site 3 consisted of patchy mats, moss, and filamentous algae at this open site. The cyanobacteria, *Phormidium* was noted amongst the periphyton. The stream bed was composed predominantly of boulders and cobbles and there were also smaller quantities of fine and coarse gravels, and sand, recorded at this site by the current survey.

At the partially shaded site 4, upstream of the confluence with the Mangawhero Stream, there were patchy algal mats, moss, leaves, and filamentous algae present. Cobbles were predominant at this site with some coarse and fine gravels, and boulders. Smaller quantities of silt and sand were also present.

Macroinvertebrate communities

A summary of the results from the previous survey is presented in Table 2 and from the current survey in Table 3 along with predicted MCI scores using established relationships between MCI scores and ringplain stream altitude and distance from the National Park boundary (Stark and Fowles (2009)). Equations generated from these relationships can be used to predict MCI values at a particular location on a stream or river on the ringplain.

Table 2 Summary of macroinvertebrate taxa numbers, MCI and $SQMCI_s$ values for the previous surveys performed between January 2012 and March 2013

Site	Site code	No. of surveys	Taxa numbers		MCI values		$SQMCI_s$ value	
			Range	Median	Range	Median	Range	Median
1	MWI000170	3	31-37	34	123-132	130	7.1-7.5	7.3
2	MWI000174	3	33-36	35	122-127	125	7.0-7.3	7.1
3	MWI000330	3	20-28	26	111-129	118	7.3-8.0	7.5
4	MWI000490	3	20-30	24	95-101	97	4.4-5.3	4.7

Table 3 Results of the survey of 15 November 2013 in relation to WWWSS, and predicted MCI scores (from Stark and Fowles (2009)).

Site No.	Results			Predicted MCI scores	
	No. of taxa	MCI	$SQMCI_s$	Altitude	Distance
1	36	122	6.2	119	117
2	28	131	7.0	119	117
3	45	113	6.4	112	111
4	28	99	4.7	103	104

The macroinvertebrate fauna recorded by the current survey at each of the four sites are presented in Table 4.

Table 4 Macroinvertebrate fauna recorded at four sites in the Mangawheroiti Stream in relation to the WWWSS water abstraction, 15 November 2013

Taxa List	Site Number	MCI score	1	2	3	4
	Site Code		MWI000170	MWI000174	MWI000330	MWI000490
	Sample Number		FWB13316	FWB13317	FWB13318	FWB13319
PLATYHELMINTHES (FLATWORMS)	*Cura*	3	-	-	R	-
NEMERTEA	Nemertea	3	-	-	R	-
NEMATODA	Nematoda	3	R	-	-	R
ANNELIDA (WORMS)	Oligochaeta	1	A	C	VA	VA
	Lumbricidae	5	R	R	R	R
MOLLUSCA	*Potamopyrgus*	4	R	R	C	A
CRUSTACEA	*Paracalliope*	5	R	R	-	R
	Talitridae	5	-	-	R	-
EPHEMEROPTERA (MAYFLIES)	*Acanthophlebia*	9	-	R	-	-
	Ameletopsis	10	C	R	R	-
	Austroclima	7	-	C	A	C
	Coloburiscus	7	-	VA	VA	R
	Deleatidium	8	A	A	XA	VA
	Ichthybotus	8	R	-	R	-
	Neozephlebia	7	C	-	-	-
	Nesameletus	9	A	A	A	R
	Oniscigaster	10	R	-	R	-
	Zephlebia group	7	A	C	C	R
PLECOPTERA (STONEFLIES)	*Acroperla*	5	-	-	R	-
	Megaleptoperla	9	R	-	R	-
	Stenoperla	10	R	R	-	-
	Zelandobius	5	-	-	C	A
	Zelandoperla	8	-	R	R	-
HEMIPTERA (BUGS)	*Saldula*	5	-	-	R	-
	Sigara	3	-	-	R	-
COLEOPTERA (BEETLES)	Elmidae	6	VA	VA	XA	VA
	Hydraenidae	8	-	A	A	-
	Ptilodactylidae	8	R	-	R	R
	Scirtidae	8	R	-	-	-
	Staphylinidae	5	-	-	-	R
MEGALOPTERA (DOBSONFLIES)	*Archichauliodes*	7	C	C	A	A
TRICHOPTERA (CADDISFLIES)	*Aoteapsyche*	4	R	R	A	A
	Costachorema	7	R	-	C	C
	Hydrobiosis	5	-	R	C	C
	Neurochorema	6	-	-	R	-
	Orthopsyche	9	-	R	-	-
	Plectrocnemia	8	-	-	R	-
	Beraeoptera	8	C	VA	A	-
	Helicopsyche	10	C	R	C	-
	Oeconesidae	5	R	-	-	-
	Olinga	9	C	C	C	-
	Oxyethira	2	-	-	R	A
	Pycnocentria	7	C	-	-	-
	Pycnocentrodes	5	R	R	VA	VA
	Triplectides	5	R	R	-	R
	Zelolessica	7	R	-	-	-
DIPTERA (TRUE FLIES)	*Aphrophila*	5	R	C	C	C
	Eriopterini	5	-	C	R	-
	Maoridiamesa	3	-	-	C	A
	Orthocladiinae	2	C	-	A	A
	Polypedilum	3	-	-	R	-
	Tanypodinae	5	A	C	R	-
	Tanytarsini	3	-	-	R	C
	Empididae	3	R	C	R	R
	Psychodidae	1	R	-	-	-
	Austrosimulium	3	R	-	R	C
	Tabanidae	3	-	-	R	-
	Tanyderidae	4	R	-	R	-
ACARINA (MITES)	Acarina	5	R	-	-	R
		No of taxa	36	28	45	28
		MCI	122	131	113	99
		SQMCIs	6.2	7.0	6.4	4.7
		EPT (taxa)	19	17	21	11
		%EPT (taxa)	53	61	47	39
'Tolerant' taxa	'Moderately sensitive' taxa	'Highly sensitive' taxa				

R = Rare C = Common A = Abundant VA = Very Abundant XA = Extremely Abundant

Site 1 (upstream of intake weir)
A very high richness (36 taxa) was recorded, well above the median number (23 taxa) and close to the maximum (37 taxa) found by more than 175 previous surveys of National Park-sourced streams at 'control' sites between 300 and 350 m asl (TRC, 1999 (updated 2013)). This richness was in the range found by the three previous surveys performed at this site**.** The community was comprised of a very high proportion (75%) of 'sensitive' taxa, twelve of which were 'highly sensitive' taxa. The community was characterised by two 'highly sensitive' taxa [mayflies (*Deleatidium* and *Nesameletus*)]; three 'moderately sensitive' taxa [mayfly (*Zephlebia* group), elmid beetles, and tanypod midges]; and one 'tolerant' taxon [oligochaete worms]. The numerical dominance by 'sensitive' taxa (particularly one 'moderately sensitive' taxon), resulted in the moderately high $SQMCI_s$ value of 6.2 units, but 0.9 to 1.3 units below values recorded by the three previous surveys when some 'highly sensitive' taxa were predominant (Table 2). This was indicative of good physical habitat and preceding physicochemical water quality, typical of the upper mid-reaches of ringplain streams.

The high proportion of 'sensitive' taxa comprising the community resulted in the relatively high MCI score (122 units) which was one unit below the minimum of the range recorded by the three previous surveys and an insignificant 4 units above the median MCI score recorded by more than 175 surveys of 'control' sites in National Park-sourced rivers and streams between 300 and 350 m asl (TRC, 1999 (updated 2013)). It was also 3 and 5 units above predicted (Stark & Fowles, 2009) altitude and distance scores respectively (Table 3) and categorised this site as having 'very good' generic stream health and 'expected' predictive health (TRC, 2014) for a site in the upper mid-reaches of a ringplain stream.

Site 2 (40 m downstream of intake weir)
A moderately high richness (28 taxa) was found at this site, eight taxa fewer than at the site upstream of the weir, and five taxa more than the median richness recorded by more than 175 previous surveys at similar 'control' sites (see above and TRC, 1999 (updated, 2013)). This was five to eight taxa fewer than the richnesses recorded by the three previous surveys at this site (Table 2) with a community composition mainly comprised of 'sensitive' taxa (86% of richness), 11 of which were 'highly sensitive' taxa. The community was characterised by three of the six dominant taxa at the upstream 'control' site, with the addition of two 'highly sensitive' taxa [hydraenid beetles and flare-cased caddisfly (*Beraeoptera*)] and one 'moderately sensitive' taxon [mayfly (*Coloburiscus*)]; and three fewer taxa ['moderately sensitive' mayfly (*Zephlebia* group) and tanypod midges, and 'tolerant' oligochaete worms]. The continued numerical dominance by 'sensitive' taxa (four 'highly sensitive' and two 'moderately sensitive' taxa in particular) resulted in a high $SQMCI_s$ value of 7.0 units, within the range of scores recorded by the previous three surveys (Table 2) and 0.8 unit higher than the score at the upstream site (Table 4). This was also indicative of good physical habitat and preceding physicochemical water quality, typical of the upper, mid-reaches of ringplain streams, and coincidental with minimal periphyton substrate cover.

The high proportion of 'sensitive' taxa in the composition of the community was reflected in the high MCI score (131 units), an insignificant nine units above that found at the 'control' site upstream of the intake weir, four units higher than the maximum score recorded by the three previous surveys and a significant (Stark, 1998) 13 units above the median score recorded by more than 175 previous surveys at similar sites (see above and TRC, 1999 (updated, 2013)). The score was also significantly 12 and 14 units above predicted altitude and distance scores respectively (Stark and Fowles, 2009; Table 3). This categorised the site

as having 'very good' generic stream health and 'better than expected' predictive health (TRC, 2014) for a site in the upper mid reaches of a ringplain stream.

Site 3 (approximately 3 km downstream of the intake)
Taxa richness (45) was extremely high for a site in the mid-reaches of a ringplain stream; nine taxa above the maximum richness found to date by 170 surveys of 'control' sites in National Park-sourced streams at altitudes between 250 and 299 m asl (and the maximum richness found to date at any ringplain site in the region (TRC, 1999 (updated, 2013)). This richness was 17 taxa more than the highest richness of the three previous surveys at this site (Table 2). The community comprised a high proportion (67%) of 'sensitive' taxa, thirteen of which were 'highly sensitive' taxa. It was characterised by all of the same 'highly sensitive' and 'moderately sensitive' taxa also dominant at site 2 (3 km upstream), plus three additional 'moderately sensitive' taxa [mayfly (*Austroclima*), dobsonfly (*Archichauliodes*), and stony-cased caddisfly (*Pycnocentrodes*)] and three 'tolerant' taxa [oligochaete worms, net-spinning caddisfly (*Aoteapsyche*), and orthoclad midges]. This continued numerical dominance mainly by 'sensitive' taxa resulted in a relatively high $SQMCI_s$ value of 6.2 units which was 1.1 to 1.8 units lower than the range found by the three previous surveys (Table 2) but 0.2 unit higher than recorded at the upstream 'control' site (1). This was an indication of relatively good physical habitat and preceding physicochemical water quality (under conditions of about 36% reduction in upstream flow), and better than typical of the mid-reaches of ringplain streams, coincidental with moderate periphyton substrate cover.

The relatively high proportion of 'sensitive' taxa comprising this community resulted in a moderate MCI value of 113 units, which was typically lower (by 9 units) than the score upstream of the intake weir but also from 16 units lower to 2 units higher than recorded by the three previous surveys at this site. This current score was also an insignificant 2 units below the median score recorded by 170 previous surveys at similar sites (see above and TRC, 1999 (updated, 2013)) and within two units of predicted altitude and distance from the National Park boundary scores respectively (Stark and Fowles, 2009; Table 2). This score characterised the site as having 'good' generic stream health and 'expected' predictive health (TRC, 2014) for a site in the mid-reaches of a ringplain stream.

Site 4 (approximately 8 km downstream of the intake weir)
The moderately high richness (28 taxa) at this site was eight taxa more than the median taxa number found by 358 previous surveys of National Park-sourced streams at 'control' sites between 155 and 199 m asl (TRC, 1999 (updated, 2013)), and from two taxa less to eight taxa more than found by the three previous surveys at this site (Table 2). The community comprised a higher proportion (36%) of 'tolerant' taxa than in any of the three upstream sites' communities, and fewer (three) 'highly sensitive' taxa. It was characterised by only one 'highly sensitive' taxon [mayfly (*Deleatidium*)]; four 'moderately sensitive' taxa [stonefly (*Zelandobius),* elmid beetles, dobsonfly (*Archichauliodes*), and stony-cased caddisfly (*Pycnocentrodes*)]; and six 'tolerant' taxa [oligochaete worms, snail (*Potamopyrgus*), net-building caddisfly (*Aoteapsyche*), algal-piercing caddisfly (*Oxyethira*), and midges (orthoclads and *Maoridiamesa*)]. Several significant differences in individual taxon abundances were found between adjacent sites (3 and 4) which principally involved decreasing numbers within 'highly sensitive' (five) and 'moderately sensitive' (one) taxa and increasing numbers within one 'tolerant' taxon. The numerical dominance shared between three 'sensitive' and one 'tolerant' taxa (particularly the oligochaete worms) was responsible for the moderate $SQMCI_s$ value of 4.7 units which was equivalent with the median found by the three previous surveys at this site, and significantly lower (1.7 units) than the score at the nearest upstream site, 3 (Table 4). This value was coincident with more dense filamentous algae

streambed periphyton cover although there was a similar algal mat cover. The moderately high percentage of 'sensitive' taxa was indicative of relatively good preceding physicochemical water quality conditions during the wet early spring period preceding this survey.

The relative balance between 'tolerant' and 'sensitive' taxa (but lower 'highly sensitive' taxa component) comprising this community resulted in a moderate MCI score of 99 units, a significant 14 units (Stark, 1998) lower than the score at site 3 (5.4 km upstream), and two units higher than the median score recorded by the three previous surveys at this site (Table 2). The current score was 8 units below the median score recorded by more than 358 previous surveys of 'control' sites in National Park-sourced streams situated between 155 and 199 m asl (TRC, 1999 (updated, 2013)) and four to five units lower than predicted altitude and distance from the National Park boundary values (Stark and Fowles, 2009 (Table 3)). This characterised the site as having 'fair' generic stream health and 'expected' predictive health (TRC, 2014) for a site in the mid reaches of a ringplain stream.

Discussion and conclusions

The abstraction of surface water particularly for extended periods of time may result in significant adverse effects on the macroinvertebrate communities living within a waterbody by altering stream temperature, flow conditions, wetted habitat, periphyton growth, and certain aspects of physicochemical water quality. This November 2013 survey was undertaken to monitor whether the operation of the WWWSS was having an effect on the macroinvertebrate communities in the Mangawheroiti Stream downstream of the water take under spring relatively low flow conditions after a wet early spring period.

The macroinvertebrate communities recorded at sites 1 and 2 comprised very high proportions of 'sensitive' taxa and were numerically dominated by up to three very or extremely abundant 'sensitive' taxa. The composition of the communities at both sites reflected the partially shaded, relatively cool, stony nature of the stream located in the upper mid-reaches of the catchment. This resulted in relatively high and similar MCI and $SQMCI_s$ scores at both sites which were higher than the predicted scores for each site, based on altitude and distance from the National Park boundary. This was consistent with good preceding physical habitat conditions immediately upstream and downstream of the intake weir indicative of no recent significant impacts of water abstraction over a recent period of residual flow with a minimum of about 100 L/sec, and an actual residual flow of about 180 L/sec at the time of the survey.

At site 3, approximately 3 kilometres downstream of the water intake, the macroinvertebrate community again comprised a high proportion of 'sensitive' taxa which was reflected in the MCI score of 113 units. This MCI score was very similar to the predicted scores for altitude and distance from the National Park (Stark and Fowles 2009), and typically, was lower than at site 1 and site 2. This result reflected the differences in site location within the catchment and in habitat quality between sites (eg. a more intact riparian margin at sites 1 and 2 compared to site 3). The extremely taxa rich community at site 3 was dominated by relatively similar 'sensitive' taxa including two very or extremely abundant 'highly sensitive' taxa but with the addition of three 'tolerant' taxa coincident with increases in filamentous algal and mats periphyton substrate cover. However, most of these dominant taxa were indicative of relatively good preceding physicochemical water quality and habitat conditions.

In the current survey, the lowest MCI and $SQMCI_s$ scores were recorded at site 4 where the community was comprised of the highest proportion of 'tolerant' taxa. This community was also numerically dominated by more 'tolerant taxa' and fewer 'highly and moderately sensitive' taxa than at the three upstream sites, a typical downstream trend in ringplain streams. There was a significant (Stark, 1998) decrease in both the MCI and $SQMCI_s$ scores between sites 3 and 4. This was coincident with some increase in the density of filamentous algal periphyton substrate cover at site 4, a probable reflection of the cumulative impacts of increased nutrient inputs to the stream from point source and non-point source discharges and increased water temperatures in a downstream direction through the mid-catchment under more recent lower flow, late spring conditions.

The overall MCI score decline of 23 and 32 units between sites 1 and 4 and sites 2 and 4 respectively over a stream distance of 8.3 km equated to rates of decline of 2.8 and 3.9 units/km, which were markedly higher than the predicted rate of 1.6 units/km for the equivalent reach of a National Park sourced stream (Stark and Fowles, 2009), and the rate (2.6 units/km) found by the previous spring survey (in November 2012), but below the rate (4.2 units/km) found by the previous (summer) survey in March, 2013. The rate of decline between sites 2 and 3 and sites 3 and 4 (over stream lengths of 2.8 and 5.4 km respectively) of 6.4 and 2.6 units/km were significantly 4.3 and 1.9 MCI units/km higher than predicted for those equivalent reaches, indicative of more marked deterioration in macroinvertebrate community health in these lower mid-reaches of the Mangawheroiti Stream.

These effects may have been exacerbated by a reduction in available instream dilution of any point source discharges due to the abstraction of higher quality flow upstream by the water supply scheme.

Summary

Macroinvertebrate sampling was undertaken on 15 November 2013, at four sites in the Mangawheroiti Stream; a control site upstream of the intake weir (1), a primary impact site approximately 40 metres downstream of the intake weir (2), a secondary impact site 3 kilometres downstream of that intake and a tertiary impact site approximately 5.6 kilometres downstream of the intake and 340 metres upstream of the confluence with the Mangawhero Stream. Sampling was performed at all four sites using the 'kick' sampling technique, a standard sampling technique used by the Council. This was undertaken to assess whether the abstraction of water from the Mangawheroiti Stream for the WWWSS had had any adverse effects on the macroinvertebrate communities of this stream. Samples were processed to provide number of taxa (richness), MCI and $SQMCI_s$ scores for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The $SQMCI_s$ takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities, particularly if non-organic impacts are occurring. Significant differences in the MCI or the $SQMCI_s$ between sites indicate the degree of adverse effects (if any) of the activity monitored.

This late spring survey did not indicate that the water abstraction for the WWWSS from the Mangawheroiti Stream had significantly affected the freshwater macroinvertebrate communities immediately downstream of the abstraction point.

Relatively high MCI and $SQMCI_s$ scores were recorded at the upstream control site (1). These scores were relatively similar although better than those recorded at site 2, located approximately 40 metres downstream of the water take. Typically there was a marked decline in MCI score between sites 2 and 3 although the $SQMCI_s$ score at site 3 remained relatively high due to increased numerical abundances within some 'sensitive' taxa. It was noted that these typical trends continued coincidental with the extremely rich community recorded at site 3 (45 taxa); the highest richness recorded at any site on the Taranaki ringplain or anywhere else in the region to date (TRC, 1999 (updated, 2013)).

The results of this survey showed a significant decline in the macroinvertebrate communities in the reaches between sites 1 and 4, sites 2 and 3, and sites 3 and 4, where the MCI rates of decline were significantly higher than predicted. This is consistent with a general trend of increasing water temperature and decreasing physicochemical water quality with decreasing altitude in ringplain streams in the region coincident with point and non-point source discharges within such reaches. Abstraction of water from the Mangawheroiti Stream may exacerbate the decline in macroinvertebrate 'health' by reducing available dilution of such discharges particularly as cumulative impacts occur in a downstream direction.

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Memorandum

To Scientific Officer, S Cowperthwaite
From Scientific Officer, C R Fowles
Document No. 1460136
Report No. CF634
Date January 2015

Biomonitoring of the Waiaua River in relation to the South Taranaki District Council Opunake water supply, January 2015

Introduction

This was one of two biological surveys scheduled for the 2014-15 monitoring year in relation to STDC water supply plants. This survey was associated with the abstraction of water from the Waiaua River and discharge of filter backwash to the river in its mid reaches, some 7 km upstream of Opunake township. Results of the three previous biological surveys performed in relation to this water supply are discussed in Fowles (1997, 2005, and 2011). However, severe erosion events in the headwaters of the Waiaua catchment in 1998 and 2004 impacted upon the habitats and macroinvertebrate communities over the period since the initial survey (Fowles, 2004 and TRC, 2004) and to a lesser degree in more recent years. Varying degrees of recovery have been documented (TRC, 2004) along the length of the river prior to the current survey.

South Taranaki District Council upgraded the water supply scheme in March 2014 and the water intake (subsurface) was relocated in the river at a site adjacent to the water treatment plant some 0.5 km downstream of the original intake. Therefore the previously monitored site 1 (WAA000395) was redundant for the purposes of the current survey with site 2 (WAA000398) utilised as the 'control' site upstream of the relocated (new) intake and the furthest downstream site 3 (WAA000402) used for assessment of both abstraction and WTP discharge effects.

Methods

The standard '400 ml kick sampling' technique was used to collect streambed macroinvertebrates from two of the three established sites in the mid Waiaua River in the vicinity of the Opunake water supply re-located intake and treatment plant discharge (Table 1 and Figure 1) on 19 January 2015. This 'kick-sampling' technique is very similar to Protocol C1 (hard-bottomed, semi-quantitative) of the New Zealand Macroinvertebrate Working Group (NZMWG) protocols for macroinvertebrate samples in wadeable streams (Stark et al, 2001).

Table 1 Biomonitoring sites in the Waiaua River

Site No	Site code	GPS location		Location	Altitude	Distance from National Park
		E	N		(m asl)	(km)
1	WAA000395	1678405	5635846	50 m u/s of original water supply intake	110	11.63
2	WAA000398	1678402	5635739	50 m d/s of original water supply intake	110	11.72

3	WAA000402	1677959	5635167	25 m d/s of water treatment plant discharge	95	12.86

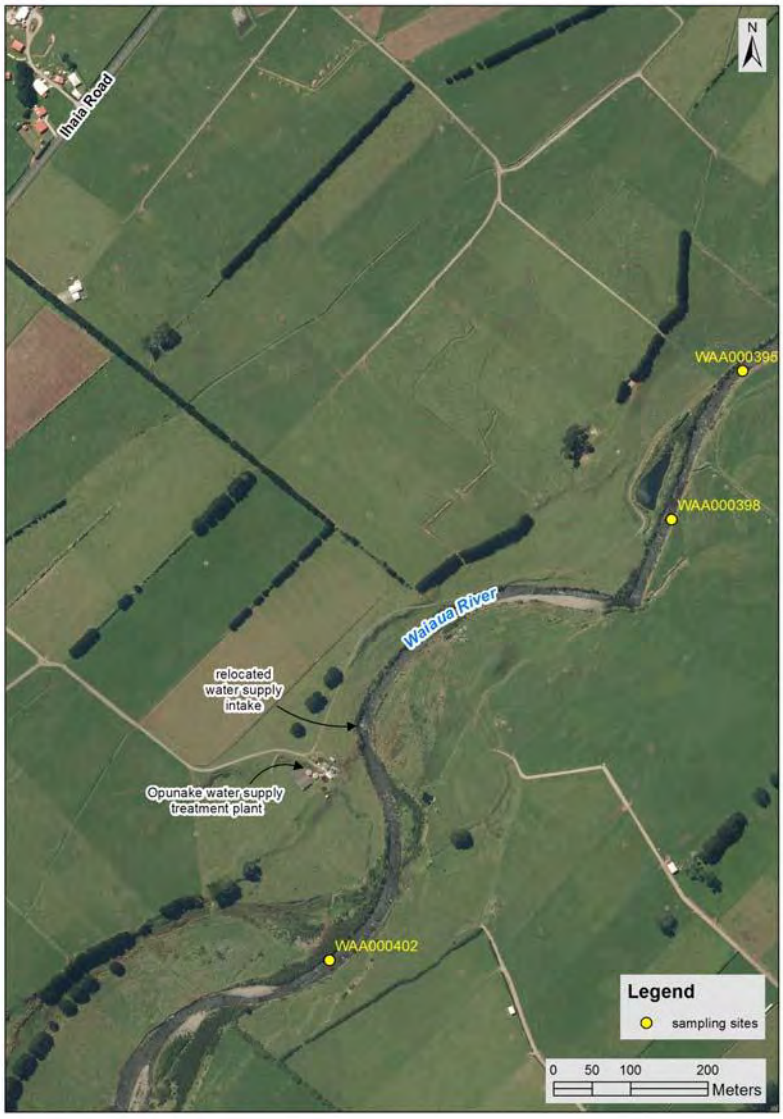

Figure 1 Biomonitoring sites in the Waiaua River in relation to the Opunake water supply

Samples were preserved with Kahle's Fluid for later sorting and identification under a stereomicroscopic according to Taranaki Regional Council methodology using protocol P1 of NZMWG protocols for sampling macroinvertebrates in wadeable streams (Stark et al. 2001). Macroinvertebrate taxa found in each sample were recorded as:

R (rare)	= less than 5 individuals;
C (common)	= 5-19 individuals;
A (abundant)	= estimated 20-99 individuals;
VA (very abundant)	= estimated 100-499 individuals;
XA (extremely abundant)	= estimated 500 or more individuals.

Stark (1985) developed a scoring system for macroinvertebrate taxa according to their sensitivity to organic pollution in stony New Zealand streams. Highly 'sensitive' taxa were assigned the highest scores of 9 or 10, while the most 'tolerant' forms scored 1. Sensitivity scores for certain taxa have been modified in accordance with Taranaki experience. Averaging

the scores assigned to the taxa found at a site, and multiplying the average by a scaling factor of 20 produces a Macroinvertebrate Community Index (MCI) value.

The MCI was designed as a measure of the overall sensitivity of macroinvertebrate communities to the effects of organic pollution. MCI results can also reflect the effects of warm temperatures, slow current speeds and low dissolved oxygen levels, because the taxa capable of tolerating these conditions generally have low sensitivity scores. Usually more 'sensitive' communities (with higher MCI values) inhabit less polluted waterways. It is generally not an index for usage with erosion impact (sedimentation) assessment, but it may be useful in the documentation of longer term recovery from such impacts.

A semi-quantitative MCI value, $SQMCI_S$ has also been calculated for the taxa present at each site by multiplying each taxon score by a loading factor (related to its abundance), totalling these products, and dividing by the sum of the loading factors (Stark, 1998 and 1999). The loading factors were 1 for rare (R), 5 for common (C), 20 for abundant (A), 100 for very abundant (VA) and 500 for extremely abundant (XA). Unlike the MCI, the $SQMCI_s$ is not multiplied by a scaling factor of 20, therefore $SQMCI_s$ values range from 1 to 10, while MCI values range from 20 to 200.

Results and discussion

This mid summer survey was performed under low recession river flow conditions, some 29 days after the most recent freshes in excess of 3 x median flow and 39 days after 7 x median flow. The river was clear and uncoloured in appearance and water temperatures ranged from 18.4°C to 18.8°C. Periphyton mats were patchy and filamentous algae widespread at site 2 with thin mats and patchy filamentous algae at site 3. Silt, sand and gravels comprised 55 to 60% of the substrate at the two sites (partly due to past headwater erosion events), with the remaining composition being cobbles and boulders. All sites were open and unshaded by vegetation although fencing of the river margins was present but bank vegetation provided minimal if any shading.

Macroinvertebrate communities

Three previous biomonitoring surveys had been performed at these three sites but site 3 (WAA000402) had been surveyed more frequently as a component of the erosion effects assessment programme. A summary of these previous biomonitoring surveys, together with current results, is provided in Table 2. The full results of the current survey are presented in Table 3.

Table 2 Summary of macroinvertebrate taxa numbers and MCI values for previous surveys performed between March 1985 and January 2011 together with results of the January 2015 survey

Site	No of surveys	Taxa numbers			MCI values		
		Range	Median	Jan 2015	Range	Median	Jan 2015
WAA000395	3	16-26	25	-	105-113	106	-
WAA000398	3	19-28	20	23	99-117	114	117
WAA000402	10	6-26	17	23	89-107	102	117

Taxa richness was identical (23 taxa) at the two sites through this (1.1 km) reach of the river. There were significant changes in community structure, as emphasised by the similarity in $SQMCI_s$ scores (0.2 unit difference). Both sites' richnesses were above the median of previous results and were six taxa above the median taxa number (17) found by more than 200 previous surveys of 'control' sites in Taranaki ringplain National Park-sourced rivers and streams at comparable elevations (80 to 124 m asl) (TRC 1999, updated 2014).

The communities at the two sites in this reach of the river were characterised by one 'highly sensitive' taxon [extremely abundant mayfly (*Deleatidium*)]; up to three 'moderately sensitive' taxa [elmid beetles, free-living caddisfly (*Hydrobiosis*), and cranefly (*Aphrophila*)]; and up to two 'tolerant' taxa [net-building caddisfly (*Aoteapsyche*) and midge (*Maoridiamesa*)]. Some of these 'sensitive' taxa have been early colonisers of erosion-affected reaches of this, and other, rivers (Fowles, 2004), while several of the 'tolerant' taxa present at these sites (Table 3) were associated with the periphyton substrate cover present at both sites. Two 'sensitive' taxa (stonefly (*Acroperla*) and mayfly (*Coloburiscus*)), abundant in this reach at the time of the 1997 (pre-erosion) survey, again were recorded in reduced numbers at the time of the current survey, probably as the result of increased sedimentation since erosion events. However, the presence of up to five 'highly sensitive' taxa through this reach was indicative of generally good physicochemical water quality conditions preceding the survey.

Table 3 Macroinvertebrate fauna of the Waiaua River in relation to the STDC Opunake water supply scheme sampled on 19 January 2015

Taxa List	Site Number	MCI score	2	3
	Site Code		WAA000398	WAA000402
	Sample Number		FWB15029	FWB15030
NEMATODA	Nematoda	3	-	R
ANNELIDA (WORMS)	Oligochaeta	1	-	R
MOLLUSCA	*Potamopyrgus*	4	R	C
EPHEMEROPTERA (MAYFLIES)	*Austroclima*	7	R	R
	Coloburiscus	7	C	C
	Deleatidium	8	XA	XA
	Nesameletus	9	R	R
PLECOPTERA (STONEFLIES)	*Megaleptoperla*	9	R	R
	Zelandoperla	8	R	R
HEMIPTERA (BUGS)	*Saldula*	5	R	-
COLEOPTERA (BEETLES)	Elmidae	6	VA	A
	Hydraenidae	8	R	R
MEGALOPTERA (DOBSONFLIES)	*Archichauliodes*	7	R	R
TRICHOPTERA (CADDISFLIES)	*Aoteapsyche*	4	VA	VA
	Costachorema	7	C	C
	Hydrobiosis	5	A	C
	Plectrocnemia	8	-	R
	Psilochorema	6	C	R
	Olinga	9	R	R
	Pycnocentrodes	5	C	C
DIPTERA (TRUE FLIES)	*Aphrophila*	5	A	A
	Maoridiamesa	3	A	C
	Orthocladiinae	2	R	-
	Tanytarsini	3	R	R
	Ephydridae	4	R	-
	Muscidae	3	R	R
		No of taxa	23	23

MCI	117	117
SQMCIs	6.9	7.1
EPT (taxa)	12	13
%EPT (taxa)	52	57

'Tolerant' taxa	'Moderately sensitive' taxa	'Highly sensitive' taxa

R = Rare C = Common A = Abundant VA = Very Abundant XA = Extremely Abundant

Community compositions were predominantly of 'sensitive' taxa (70% of both sites' taxa numbers) which were reflected in the MCI scores of 117 units. These scores were equal with (site 2), or higher than (site 3), previously recorded at these sites (Table 2). There was no difference in scores between sites 2 and 3 indicative of no significant recent impacts of water abstraction or filter backwash discharges on the macroinvertebrate communities of this reach.

These scores (117 units) categorised both sites as having 'good' stream health (TRC 2014) at the time of this summer survey. They were also a significant 21 units (site 2) to 23 units (site 3) higher than predicted MCI scores for a National Park-sourced ringplain river's sites at altitudes ranging from 110 m asl to 95 m asl; and from a significant 13 to 14 units higher than the predicted scores for these sites from 11.7 km to 12.9 km downstream of the National Park boundary (Stark & Fowles, 2009).

Conclusions

This, the fourth survey of the macroinvertebrate fauna of the mid-reaches of the Waiaua River in the vicinity of the Opunake water supply and treatment plant (following recent relocation of the water supply intake), found no significant recent impacts of the scheme on biological communities in terms of community composition and/or MCI scores under mid summer, low flow conditions.

Community richnesses more typical of those in reaches of similar ringplain streams and rivers were recorded, with no obvious recent impacts of several headwater erosion events which had been apparent in the period between the three surveys from 1998 to 2011 and that from time to time had increased sedimentation in the surveyed reach and caused subtle changes in community composition at all sites. There were minimal changes within individual taxon abundances between the two sites as reflected in the very narrow range (6.9 to 7.1 units) of $SQMCI_s$ values found over this reach of the river under conditions of moderate periphyton substrate cover.

The f MCI scores (117and 117) categorised the two sites in this reach of the stream as having 'good' biological health consistent with good physical habitat and preceding physicochemical water quality. These scores were also higher than predicted scores for ringplain sites at equivalent altitudes and higher than predicted at equivalent distances downstream of the National Park.

Summary

The Council's standard kick-sampling' technique was used at two established sites to collect streambed macroinvertebrates from the Waiaua River. Samples were sorted and identified to provide the number of taxa (richness), MCI score and SQMCIs score for each site.

The MCI is a measure of the overall sensitivity of the macroinvertebrate community to the effects of organic pollution in stony streams. It is based on the presence/absence of taxa with varying degrees of sensitivity to environmental conditions. The SQMCIs takes into account taxa abundance as well as sensitivity to pollution, and may reveal more subtle changes in communities particularly if non-organic impacts are occurring. Significant differences in either the MCI or the SQMCIs between sites indicate the degree of adverse effects (if any) of the water abstraction and/or discharge being monitored.

This mid summer macroinvertebrate survey (the fourth since sampling commenced in 1998) indicated that abstraction of water for the Opunake water supply and discharges of treated backwash from the Water Treatment Plant had not had any recent detrimental effects on the macroinvertebrate communities of the surveyed mid-reach of the Waiaua River. No significant changes in the macroinvertebrate communities were found between the upstream 'control' site and the site downstream of the abstraction point and backwash discharge.

The macroinvertebrate communities of the stream contained relatively high proportions of 'sensitive' taxa at both sites and the communities were characterised by more 'sensitive' than 'tolerant' taxa. Taxonomic richnesses (numbers of taxa) were slightly higher at the time of this summer survey in comparison with those of the few previous surveys conducted in this stream.

MCI scores indicated that the stream communities were of 'good' health, and better than the condition recorded in the equivalent reaches of similar Taranaki rivers sourced inside the National Park and those scores predicted by altitude and distance from the National Park boundary.

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