

Greenfern Hydro Scheme

Monitoring Programme

Annual Report

2023/24

Technical Report 2024-14



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Taranaki Regional Council
Private Bag 713
Stratford

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Executive summary

Greenfern Industries Ltd (the Company) operates a hydroelectric power station located on Normanby Road at Okaiawa, in the Waingongoro Catchment. Utilising an existing weir across the Waingongoro River and tunnel under Normanby Road, water is diverted for electricity generation. The station is located approximately 3.2km downstream of the weir, but due to the tight meander, these structures are located only 90m apart.

This report for the period July 2023 to June 2024 describes the monitoring programme implemented by Taranaki Regional Council (the Council) to assess the Company's environmental and consent compliance performance during the period under review. The report also details the results of the monitoring undertaken and assesses the environmental effects of the Company's activities.

During the monitoring period, Greenfern Industries Limited demonstrated an overall good level of environmental performance and a good level of administrative performance, while still acknowledging that significant works and investment in infrastructure was undertaken by the new operator within the first year of management.

The Company holds three resource consents, which include a total of 41 conditions setting out the requirements that the Company must satisfy. The Company holds two consents to allow it to take and use water and to dam the Waingongoro River and one consent to use and maintain a weir and ancillary structures in the Waingongoro River. The 2023/24 monitoring year was the third year the scheme has been under management by Greenfern Industries Limited, with the scheme being inoperative between 2017/18 and 2020/21.

The Council's monitoring programme for the year under review included four compliance monitoring inspections of the site and three hydrological monitoring inspections. In addition, data collected by the Company was received and audited, while data collected by the Council upstream and downstream of the station was utilised for assessment.

Although some improvement has been made from the previous monitoring year, there has been minimal progress in implementing a number of the consent requirements, including upgrading the fish pass and monitoring of the effects of the scheme on the residual flow reach. However, in the consent with changed conditions that was issued during this monitoring period, a timeframe for the process of upgrading the fish pass has been detailed. A community meeting was organised and held during June 2024. A full year's record of abstraction and flow data was provided by the Company, with no major issues relating to water takes and flow requirements having occurred.

Due to the previous Company's performance during the 2016/17 period, coupled with the fact that it followed on from a similar performance in the 2015/16 period, a significant investigation and enforcement action was undertaken in 2017 by the Council. This culminated in the Environment Court issuing an enforcement order against the Company in November 2017. This Enforcement Order is still in place and has not been entirely complied with to date. An application to modify consent conditions to comply with the Enforcement Order was lodged in November 2022. The consent with the modified conditions was issued during February 2024. No further enforcement action was required in the 2023/24 period.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.

In terms of overall environmental and compliance performance by the consent holder over the last several years, this report shows that the consent holder's performance is improving.

This report includes recommendations for the 2024/25 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 for the period July 2023 to June 2024 by Taranaki Regional Council (the Council) on the monitoring programme associated with resource consents held by Greenfern Industries Limited (the Company). The Company operates a hydroelectric power scheme (HEPS) situated on Normanby Road at Okaiawa, in the Waingongoro Catchment.

The report includes the results and findings of the monitoring programme implemented by the Council in respect of the consents held by the Company that relate to the abstraction and use of water within the Waingongoro Catchment, to dam the Waingongoro River, and to use and maintain a concrete weir and ancillary structures. This report is the third report to be prepared by the Council to cover the Company's air, land and water discharges and their effects.

1.1.2 Structure of this report

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

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

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 2024/25 monitoring year.

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

1.1.3 The Resource Management Act 1991 and monitoring

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

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

In drafting and reviewing conditions on discharge permits, and in implementing monitoring programmes, the Council is recognising the comprehensive meaning of 'effects' in as much 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 performance

Besides discussing the various details of the performance and extent of compliance by the consent holders, this report also assigns a rating as to each Company's environmental and administrative performance during the period under review. The rating categories are high, good, improvement required and poor for both environmental and administrative performance. The interpretations for these ratings are found in Appendix II.

For reference, in the 2023/24 year, consent holders were found to achieve a high level of environmental performance and compliance for 864 (89%) of a total of 967 consents monitored through the Taranaki tailored monitoring programmes, while for another 75 (8%) of the consents a good level of environmental performance and compliance was achieved. A further 26 (3%) of consents monitored required improvement in their performance, while the remaining two (<1%) achieved a rating of poor.¹

1.2 Process description

The Normanby HEPS is located on Normanby Road, Okaiawa (Figure 1). The original Normanby HEPS was commissioned on the Waingongoro River in 1902 and operated until 1967 when it was abandoned after several major flood events. The scheme is located approximately 3km east of Okaiawa, and about 3.8km northwest of Normanby. The site is accessed via Normanby Road approximately 1.3km from the intersection of Normanby Road and Mawhitiwhiti Road. The Waingongoro River in this area typically runs from the north to the south but is subject to significant meandering. Hence, the river runs west along the north side of Normanby Road before doubling back on itself and continuing eastward on the south side of Normanby Road. This 3.2km reach is known locally as the Normanby Loop but may also be referred to as the residual flow reach.

¹ The Council has used these compliance grading criteria for more than 20 years. They align closely with the 4 compliance grades in the MfE Best Practice Guidelines for Compliance, Monitoring and Enforcement, 2018



Figure 1 Location and key features of the Normanby HEPS

The scheme, centred on this large meandering loop of the river, operates using most of the features of the original scheme, including a 33m wide, 6m high weir located in the river on the northern side of Normanby

Road. Above this weir, water is diverted via a 1.8m diameter tunnel that runs under the road to the powerhouse on the south side of the road, essentially crossing the ridge contained by the meander. The water is then discharged from the powerhouse back into the Waingongoro River, 3.1km downstream of the weir. This utilises the 18m head difference to generate electricity.

When operational, the former scheme generated between 3 and 3.5GWh per annum from an installed capacity of approximately 0.6MW. According to the original consent application, when fully recommissioned, the station would be capable of generating approximately 4.3GWh per year from an installed capacity of 2MW. It was also envisaged that the scheme would require an optimum flow of 6.3m³/s through the penstocks and turbines, with an operating range from a minimum flow of 0.5m³/s to a maximum flow of 10m³/s. There have since been some changes made to this original proposal, and as such these figures may no longer be accurate.

To date, the Company has upgraded the intake structure, installed a lamprey baffle, upgraded water flow recording devices, relined the tunnel and built a structure which supports one turbine and associated generation equipment.



Photo 1 Normanby HEPS (July 2022)

1.3 Resource consents

The Company holds three resource consents, the details of which are summarised in Table 1. Summaries of the conditions attached to each permit are set out in Section 3 of this report.

A summary of the various consent types issued by the Council is included in Appendix I, as are copies of all permits held by the Company during the period under review.

Table 1 Please see the note above regarding two table options

Consent number	Purpose	Granted	Review	Expires
Water permits				
2299-3	To dam the Waingongoro River with a 6 metre high concrete weir for hydroelectric power generation purposes	Sep 2009	June 2026	June 2029
6558-1.1	To take and use water from the Waingongoro River for hydroelectric power generation purposes	May 2018	June 2026	June 2029
Land use permit				
7078-1.2	To erect, place, use and maintain a concrete weir and ancillary structures in the Waingongoro River; and to undertake excavation and disturbance of the riverbed that is directly associated with that activity, for hydroelectric power generation purposes	Feb 2024	June 2026	June 2029

1.4 Monitoring programme

1.4.1 Introduction

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

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

The monitoring programme for the Normanby HEPS site consisted of four primary components.

1.4.2 Programme liaison and management

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

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

1.4.3 Site inspections

The Normanby HEPS was visited seven times during the monitoring period, including four compliance monitoring site inspections and three hydrological monitoring inspections. With regard to consents held for the scheme, the main points of interest were:

- the condition of the fish passage facilities including the lamprey pass;
- the condition of the intake screen and generation equipment;
- whether the station was operating;
- to assess residual flow compliance and abstraction rate;
- to check for erosion associated with the scheme; and
- to monitor maintenance and upgrade work where appropriate.

Sources of data being collected by the Company were identified and assessed, so that performance in respect of operation, internal monitoring, and supervision could be reviewed by the Council.

1.4.4 Chemical sampling

The monitoring programme may include sampling of the water quality upstream and downstream of the station when warranted; on any occasion where maintenance or upgrade works resulted in discolouration and/or the discharge of sediment. No such works were undertaken during the reported period, and as such this sampling was not undertaken.

1.4.5 Data review

The Company provided the Council with data on the amount of water abstracted from the Waingongoro River and the flow upstream of the weir. The Council assessed the abstraction data to determine whether or not the abstraction/discharge rates exceeded the consented rates, and to assess it for accuracy. Similarly, the residual flow (calculated) was assessed to determine whether sufficient flow was provided while water was being abstracted for generation.

2. Results

2.1 Inspections

Site inspections were undertaken on four occasions during the 2023/24 period; these occurred on 6 September and 4 October 2023, and 16 January and 24 June 2024.

The required Lamprey passage did not appear to have been installed during the inspection on 6 September 2023 and it was noted that heavy flows over the weir inhibited potential lamprey passage during a time of migration and spawning. Logs and wood debris were observed at the top of the weir. There were elevated flows at the time of the inspection due to heavy rainfall previously.

The lamprey baffle was viewed during the inspection on 4 October 2023 as the flow in the river was lower than the previous inspection. It was noted that no rocks had been installed above the lamprey baffle to further reduce flow, but this was no longer needed as the required timeframe for lamprey passage (1st June to 30th September) had passed. Tree debris was observed above the weir in the river on the true left bank, this was inadvertently reducing flow at this point on the weir. This would likely be flushed out during the next fresh.

The lamprey baffle was viewed and deemed effective with flow conditions during the inspection on 16 January 2024. Woody debris had been flushed or removed from the top of weir. The intake was clear, although heavy weed growth was observed around the intake and the true left side of the river.

The lamprey baffle was observed to be in place during the inspection carried out on 24 June 2024 and this was effectively reducing flow on the true left side of the river. It was noted that the consent holder could use additional boulders to further reduce the flow above the baffle. Some accumulation of debris and logs were observed above the weir however, this was significantly less debris than noted during previous inspections.

2.2 Hydrological inspections

Three hydrological inspections were completed during the monitoring period. The results of the gauging are provided in Table 2. The gauging conducted upstream of the weir was used to assess the accuracy of flow data provided by the Company.

Table 2 Gauging results upstream of weir compared to Company provided flow data 2023/24

Date	Time (NZST)	Gauged flow (L/s)	Gauged flow (L/s)	Company provided flow (L/s)	Comment
25 August 2023	13:45	6,773	6,263-7,288 (±7.6% error)	5,557	Stage 0.476m
30 November 2023	11:30	3,424	3,088-3,761 (±9.8% error)	2,137	Stage 0.385m
22 March 2024	10:00	-	-	Stage 0.253	Stage 0.290 Unable to gauge due to low flow*

*Attempted to perform flow measurement however, due to low flows the gauging section above the weir was full of river weed and severely interfered with the M9 instrument. Therefore, it was not possible to perform an accurate flow measurement.

The difference between the Company provided data and the Council's gauging exceeded the margin of error, as in previous monitoring years. This difference is difficult to quantify due to the fact that there are several sources of data with margins of error permitted. This is discussed further in Section 3.1.

2.3 Provision of consent holder data

2.3.1 Residual flow and water abstraction

The Company is required to record the water abstraction rate from the river and the flow in the Waingongoro River immediately downstream of the weir. The Company provides the abstraction records and flow data upstream of the weir. The Council have considered this acceptable for the time being. The residual flow is then calculated by the Council. During the reported period, the Company provided the abstraction and flow data within the timeframes required.

The Company is required to provide annual independent verification of flow meter accuracy to the Council. The flow meter verification report has not been provided to Council since 2020. The report received in 2020 confirmed that abstraction rate and residual flow data had achieved the required accuracy standards. A re-test was recommended to be completed by September 2022. The re-test by the third party was scheduled for beginning of 2024, but this verification re-test did not occur during the 2023/24 monitoring period.

The abstraction and residual flow is displayed in Figure 2. The abstraction rate was recorded throughout the year, with 'zero' recorded when no abstraction was occurring.

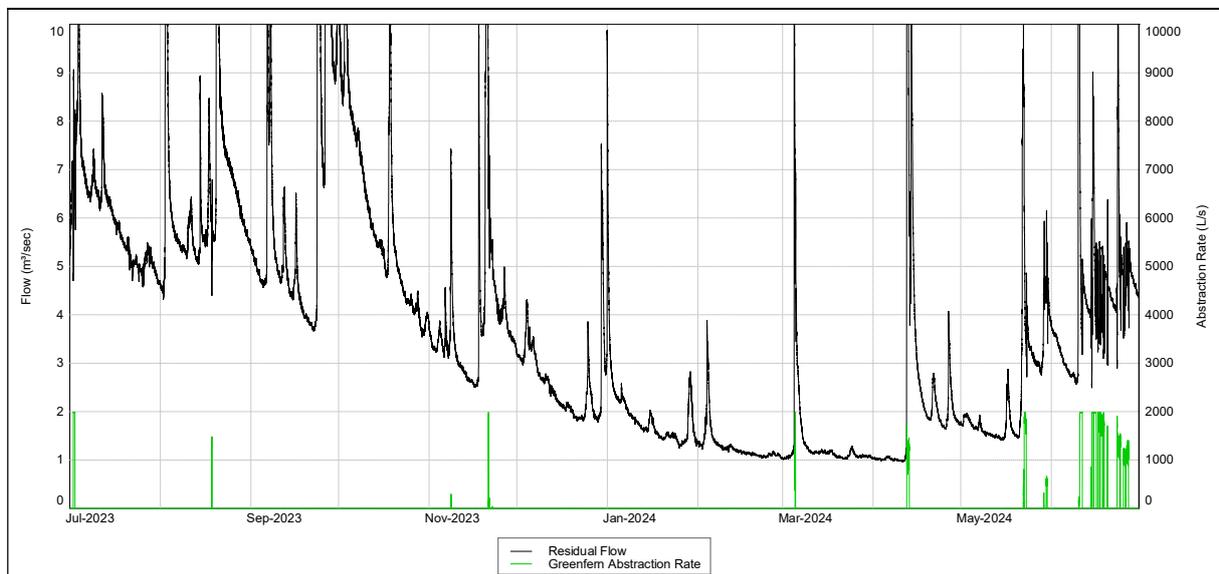


Figure 2 Abstraction and residual flow data (2023/24)

The data was assessed to determine whether the Company had complied with the residual flow requirements whilst abstracting water for generation. For the dates 1 October 2023 to 30 April 2024 residual flow was required to be above $3.5\text{m}^3/\text{s}$. If residual flow dropped below this level, abstraction would have to cease in order for the Company to comply with residual flow requirements. The data displayed in Figure 2 shows that between 1 October 2023 and 30 April 2024 the Company was not abstracting when residual flow was below $3.5\text{m}^3/\text{s}$. At all other times, if the residual flow drops below $3.0\text{m}^3/\text{s}$ the Company must cease abstraction. The data displayed in Figure 2 shows that the Company was not abstracting when residual flow was below $3.0\text{m}^3/\text{s}$. It is apparent that the Company complied with the residual flow requirements during the year under review.

2.3.2 Flushing flows

Consent 6558-1.1 requires the Company to take specific actions should specific flow conditions occur. Condition 5 requires that the station ceases to take water for eight hours on any occasion when the river flow

exceeds 14m³/s, following a continuous period of at least 15 days during which flows at the weir did not exceed 14m³/s.

A comparison of the abstraction data with the flow data for the whole monitoring year indicates that there were eight occasions where these conditions occurred (Figure 3). Of these eight occurrences the company was only taking water four times (November 2023, March, April and May 2024). The Company was compliant on all four of these instances (Figures 4-7).

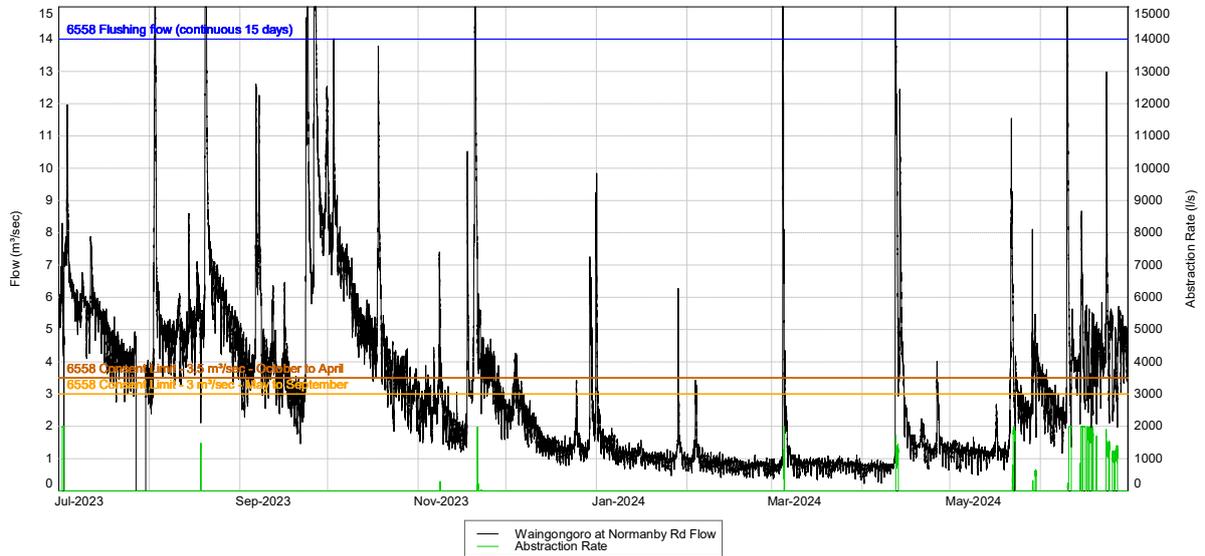


Figure 3 Abstraction and flow data showing relevant consent limits 2023/24

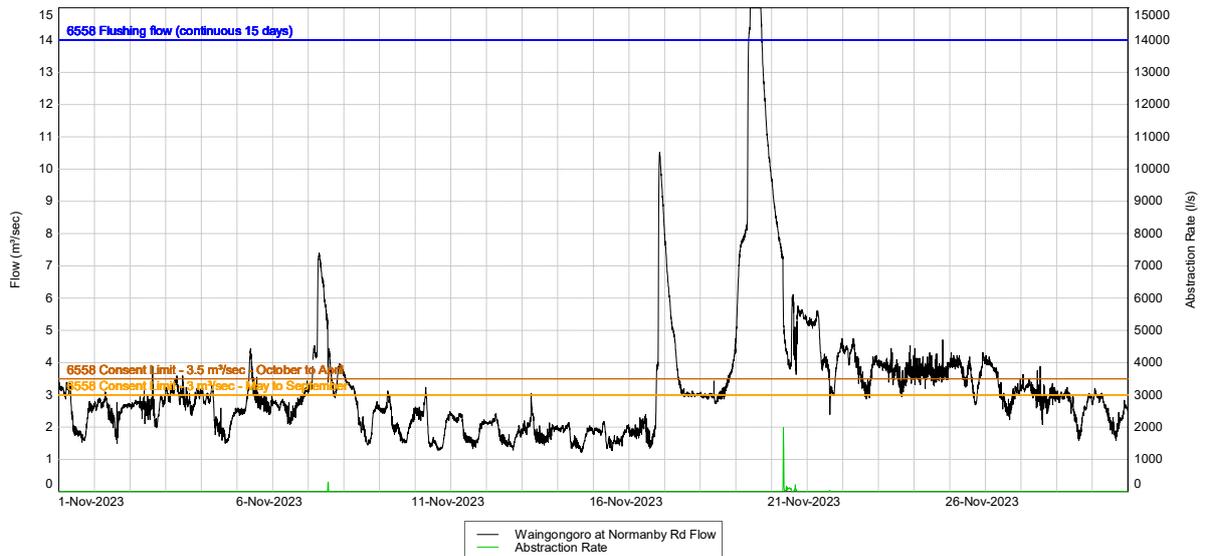


Figure 4 Abstraction and flow data showing flushing flow consent limit 20-21 November 2023

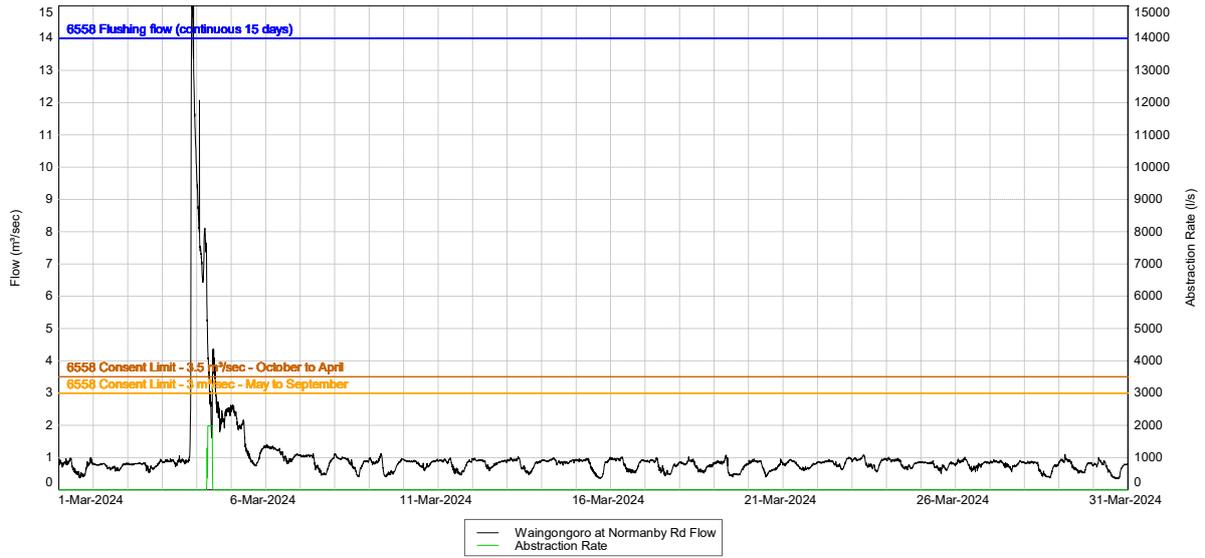


Figure 5 Abstraction and flow data showing flushing flow consent limit 4-5 March 2024

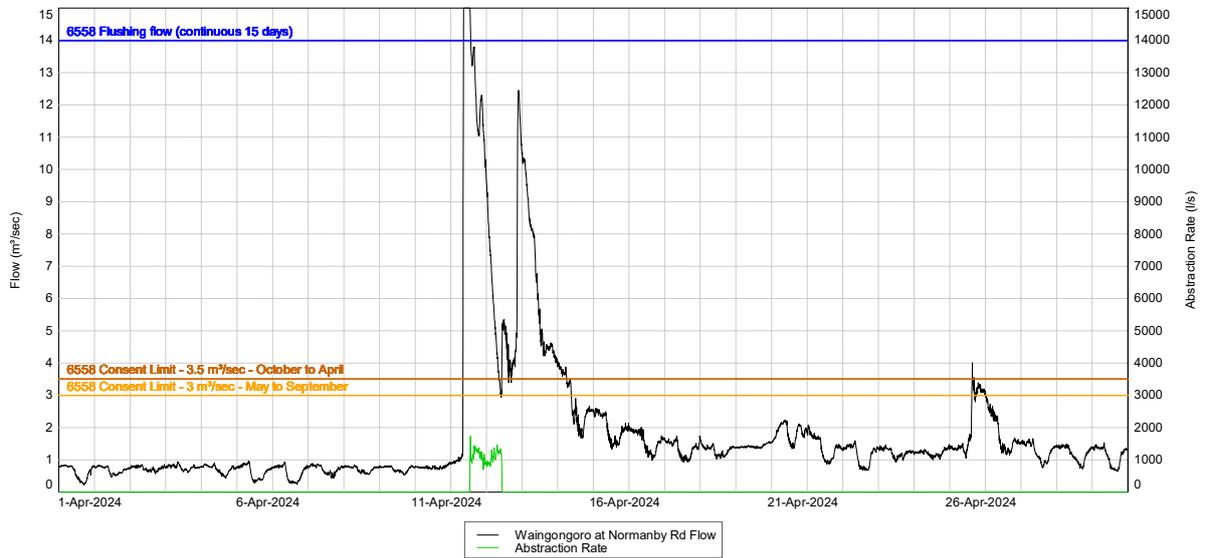


Figure 6 Abstraction and flow data showing flushing flow consent limit 12-13 April 2024

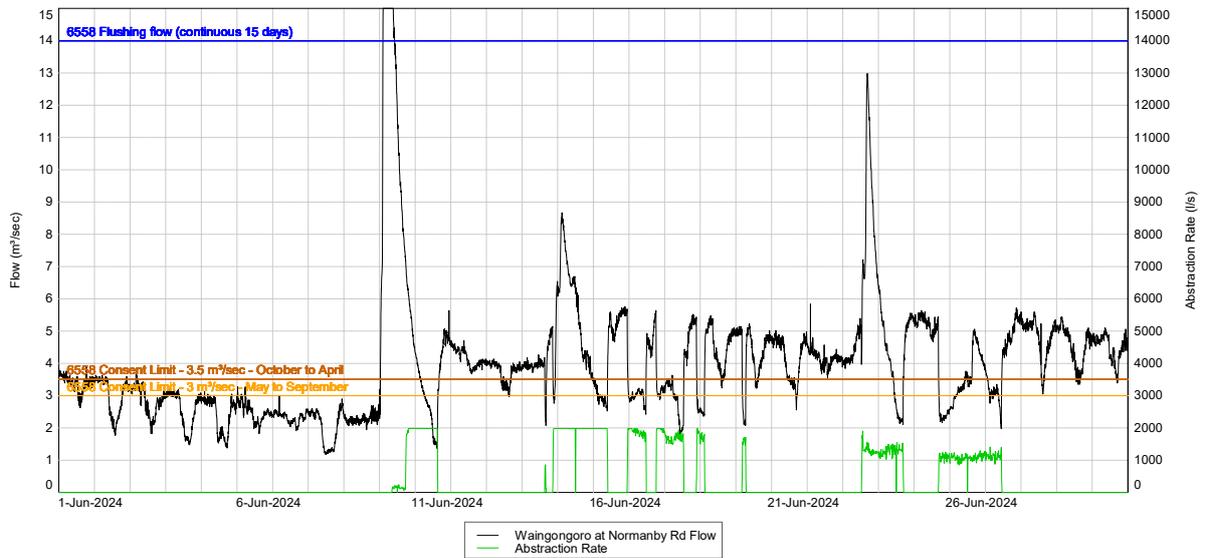


Figure 7 Abstraction and flow data showing flushing flow consent limit 10-11 June 2024

Condition 6 requires that if the flow over the weir does not exceed $6\text{m}^3/\text{s}$ during any continuous 14-day period between 1 October and 30 April, the consent holder shall, within 24 hours, stop taking so that the entire river flow passes over the weir for at least three hours. The Company complied with this requirement.

2.3.3 Surge waves

In addition to flushing flows, condition 16 requires that the start-up and shutdown of the station does not generate a change in water level in excess of 200mm in height. Starting generation causes a positive surge wave, resulting in a short-term increase in water level. The reverse occurs when generation stops, causing a short-term reduction in water level. Figure 8a shows an example of surge waves being generated following up the start-up of the power station (orange shading) and following the shutdown of the power station (blue shading). In some instances, the generation of a surge wave could not be identified, as shown by the grey shading in Figure 8b, due to the river level increasing unrelated to the power station activity.

During the year under review, no surge wave inducing a change greater than 200mm in height was recorded at SH45 station downstream of the weir. It should be noted that the SH45 recorder is located approximately 12km downstream of the station outlet, and as such the change in water level will be somewhat attenuated at this point. This means that at the station, the variation in water level will be greater.

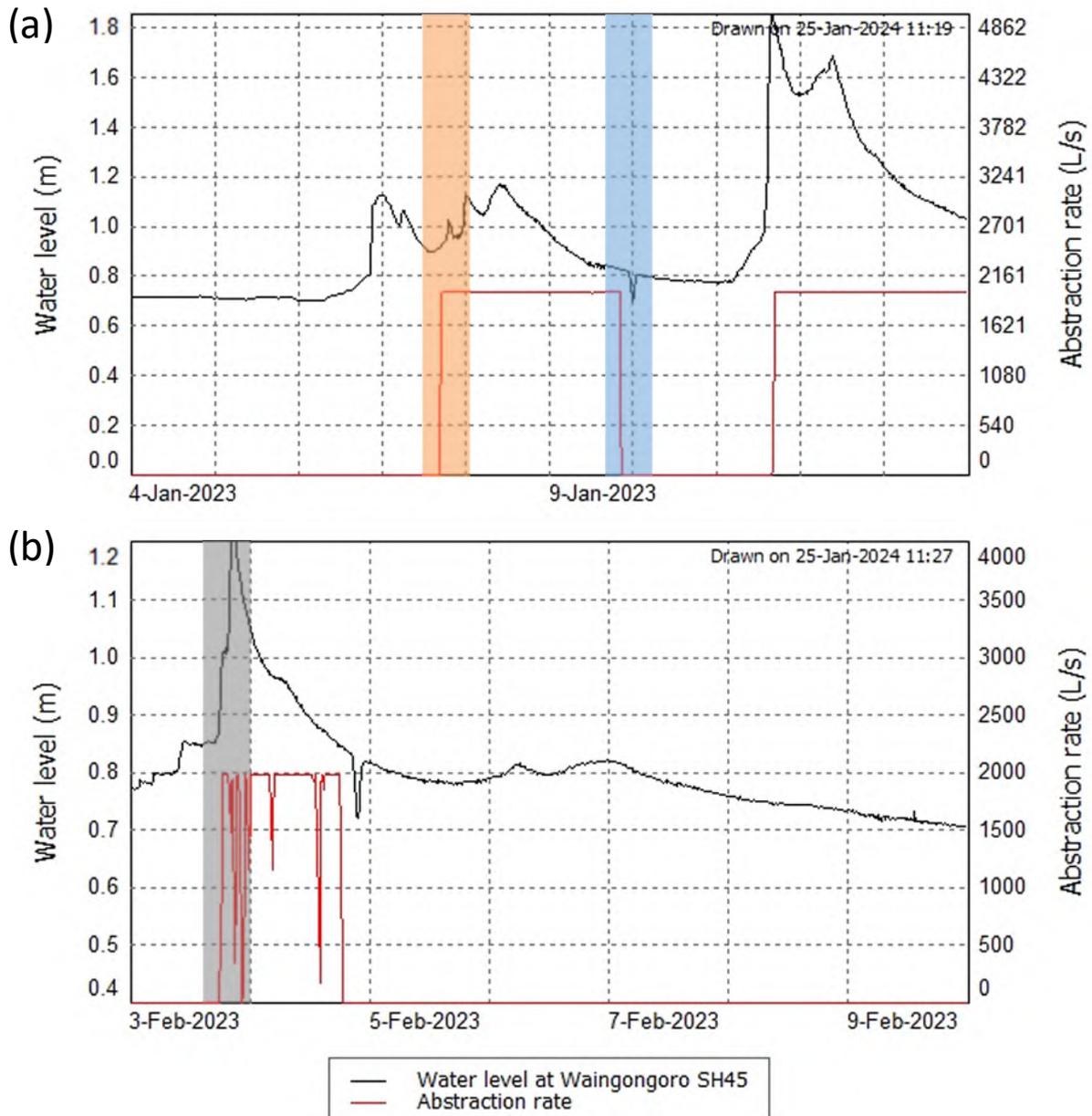


Figure 8 (a) Example of surge waves generated following the start-up and shut down of the power station. (b) Example when surge wave generation could not be identified

Note: The orange shading is a surge wave following the start-up of the power station and the blue shading following shut down. In grey is an example of a noisy signal

Finally, the Company is also required to provide a recreational flow up to 12 times a year, should they receive a written request at least 48 hours beforehand from the New Zealand Recreational Canoe Association. They are also required to keep a log of these recreational release flows to be provided to the Council. It is understood the Company did not receive any such requests during the reporting period.

2.4 Results of receiving environment monitoring

The Council did not undertake any receiving environment monitoring during the year under review. The consents held for the scheme specify the receiving environment monitoring required to be performed by the Company.

The following monitoring requirements are set out in the resource consents:

“A monitoring programme shall be developed and undertaken in reasonable consultation with submitters. The monitoring programme shall ensure that the effects of this consent are adequately determined and monitored to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council, having considered any independent expert advice he may seek.

The monitoring programme shall commence within 6 months of the consent commencing [in terms of section 116 of the Resource Management Act] and shall include an assessment of:

- a. Preparation of a “baseline report” addressing the matters listed in paragraphs b) to f) of this condition that records the representative baseline against which the effects of the scheme can be assessed. The baseline report shall:
 - I. Incorporate all reasonably available existing information, including the data submitted with the assessment of environmental effects, as well as additional data specifically obtained for the purpose of preparing the report; and
 - II. Be provided to the Chief Executive, Taranaki Regional Council before the scheme is commissioned
- b. An assessment of the impact of any increased periphyton growth, as a result of this consent, on ecological, recreation and amenity values;
- c. An assessment of the formation of any sediment accumulation immediately below the weir and its effect on ‘dam dropping’;
- d. An assessment of the impact of this consent on recreational activity [including fishing] in the residual flow reach;
- e. An assessment of the impact of this consent on trout habitat, juvenile and adult trout numbers and benthic macroinvertebrates in the residual flow reach; and
- f. An assessment of the effect of this consent on fish passage.

The monitoring programme shall be reviewed and reported on annually.”

To date no baseline data has been collected on the trout communities in the residual flow reach, and little baseline information has been collected on the recreational activity in the residual flow reach. Previously, a meeting took place on site on 6 July 2022 where representatives from the Council and the Company discussed consent requirements including environmental monitoring. It was acknowledged that the Company had upgraded infrastructure associated with the hydro scheme under its first year of new ownership in order to provide and comply with data reporting requirements, as this aspect of the operation had been inadequate under previous ownership. The need for sufficient environmental monitoring to satisfy the requirements of the consent was also discussed and was tabled as a main agenda item for a stakeholder meeting in 2022/23. The stakeholder meeting did not take place during the 2022/23 monitoring year, but did occur during June 2024. The Company representative stated that there intended to be stream monitoring undertaken by a contractor during the summer of 2024/25.

The previous operating Company had provided an erosion report as required by condition 14 of Consent 7078-1. This report, received on 21 April 2017, included some recommendations including planting willows, monitoring to determine the need for remedial action, to spray the vegetated island in the river channel and to keep it clear of vegetation in order to improve channel capacity.

2.5 Works required by consent

The resource consents held for the scheme require some physical works to be undertaken. Consent 7078-1 requires specific modification to the fish pass structure to allow for passage of brown trout, rainbow trout, torrentfish, smelt, inanga, and redfin bullies. These modifications were required to have been completed by previous owners of the hydro scheme however, given the lack of progress towards improving the fish pass, and the ongoing non-compliance, an Enforcement Order (ENV-2017-WLG-000049) was issued on 30 November 2017 (Appendix III). Paragraph 10 of this Enforcement Order makes it clear that the current owners of the Company are still subject to this Enforcement Order. Draft plans for a new fish pass were provided to the Council and other interested parties in August 2021 with these appearing fit for purpose and being given approval by the Council and Taranaki Fish and Game.

Consent 7078-1.2 was issued in February 2024. Within this consent there are specific dates by which some of the special conditions should be met. By 1 November 2024 the consent holder shall submit information concerning the target flows at which the fish pass should be effective. Additionally, to provide a discussion of design limits in terms of flood height, including how overtopping of the stop bank would impact the structure. By 1 May 2025 provide a design plan detailing how the fish pass is to be upgraded, and thereafter every 6 months to submit updates regarding the progress on the design plan. Completion of the modifications of the fish pass are required by 1 April 2026.

This consent still requires a baffle be installed from 1 June to 30 September each year to improve lamprey passage. The Company has previously installed a suitable steel baffle on the true right of the weir. In order for the baffle to be effective, flow must be reduced to the associated section of the weir. The Company maintains reduced flow to this section of the weir during the required period by engaging a contractor to place rocks upstream of the baffle. The works are repeated when rocks have been displaced by high flow events. For 2023/24 during the lamprey migration season specified in the consent (1 July to 30 September) there was one noted occasion when these rocks were not visibly present, and it is likely that the rocks had been dislodged during high flows. The Company, once made aware of the situation, engaged the contractor to check and reinstate the rocks if deemed necessary.

Consent 6558-1 requires the intake screen to have a maximum aperture dimension of 30mm. The new screen installed by the Company before the beginning of the 2021/22 monitoring period is compliant with the consent conditions. Although the intake screen can be raised for maintenance, it was always found to be secured in place during inspections. Suitable equipment is on site to clear and maintain the intake screen.

This consent also requires the station to have an emergency backup system. This system is required so that should there be a failure of transmission or generation equipment resulting in an emergency shutdown, the ramping rate condition can still be complied with. The Company has informed the Council that the site has emergency power for a period of 48 hours.

The Company is also required to undertake riparian planting and fencing of their land, and of any adjacent land where landowners provide written agreement. The Company had previously begun riparian planting in some areas.

2.6 Stakeholder meeting

Stakeholder meetings are required under consent conditions once every two years. A community meeting was held at the Okaiawa Hall on 26 June 2024. Present at the meeting were representatives from the Company, Taranaki Fish and Game, along with Council staff. Apologies were received from Ngāti Ruanui and Ngāruahine.

The Company representative explained how the Company was performing and indicated that they were under a lot of financial pressure due to problems carried over from the previous owner. He explained that current legislation in New Zealand was making it very expensive to sell medicinal cannabis, and the

Company is facing significant electricity bills because they could not abstract as much water as they required. The current pipe does not allow the abstraction of the maximum volume of 10m³/s as specified in condition 2 of Consent 6558-1.1. Moreover, the current turbine is inefficient, and its replacement is on hold pending funding, together with the issue that the turbine supply company is experiencing financial difficulties.

The Company representative expressed an intention to apply to modify condition 3 of Consent 6558-1.1 to allow for water abstraction when the flow in the Waingongoro River is no less than 2,500L/s from May 1 to September 30. The Taranaki Fish and Game representative explained that they would not support this proposal.

The Company stated the intention to engage a contractor to conduct stream monitoring during 2024/25 summer.

There was discussion about installing a station to measure residual flow below the weir, as required by condition 9 of Consent 7078-1.2. Currently, Council calculates residual flow using upstream flow data and abstraction data. Council confirm this is satisfactory for the time being. There may still be a need to install a stage station downstream of the weir to measure the height of the surge wave generated at station shutdown and start-up.

2.7 Incidents, investigations, and interventions

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 Company. During the year matters may arise which require additional activity by the Council, for example provision of advice and information, or investigation of potential or actual causes of non-compliance or failure to maintain good practices. A pro-active approach, that in the first instance avoids issues occurring, is favoured.

For all significant compliance issues, as well as complaints from the public, the Council maintains a database record. The record includes events where the individual/organisation concerned has itself notified the Council. Details of any investigation and corrective action taken are recorded for non-compliant events.

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

Table 3 below sets out details of any incidents recorded, additional investigations, or interventions required by the Council in relation to the Company's activities during the 2023/24 period. This table presents details of all events that required further investigation or intervention regardless of whether these were found to be compliant or not.

Table 3 Incidents, investigations, and interventions summary table

Date	Details	Compliant (Y/N)	Enforcement Action Taken?	Outcome
6 September 2023	During routine compliance monitoring inspection, it was noted under Consent 7078 (9) that the lamprey passage did not appear to have been installed correctly to reduce the flow. The inspection was carried out during high flows. The inspection was also during the required timeframe for lamprey migration.	N	N	<p>An explanation was received from the Company. The lamprey baffle has been permanently installed, and it is possible that with the high flows at the time of the inspection the baffle was not clearly visible.</p> <p>The Company organised the contractor to revisit the site and determine if the high flows had affected the upstream placed rocks (which slow the flow) and remediate if necessary.</p> <p>At the next routine compliance inspection during October, the baffle was clearly visible. There were no rocks installed above the baffle, but this is not considered a non-compliance as it is out of the lamprey migration timeframe stated in the Consent.</p> <p>No further action taken.</p>
2 November 2023	Complaint received regarding a number of logs/slash on top of the Normanby weir.	Y	N	<p>Inspection found debris has accumulated on the south-west bank of the structure. The consent has no conditions relating to this unless restricting flow to intake.</p> <p>No further action taken.</p>

3. Discussion

3.1 Discussion of site performance

The 2023/24 monitoring year is the third year the scheme has been under management of the current Company.

Several issues that remained unresolved under previous ownership were sufficiently rectified by the Company in its first year of new ownership. This included the intake screen being replaced with a compliant screen and being well maintained. The accuracy and reporting of abstraction and flow data was also of a high standard, having improved significantly under the new ownership. This data was provided to the Council for the 2023/24 monitoring period.

Hydrological gauging undertaken during the 2023/24 period recorded differences beyond the margin of error when compared to the Company provided flow data, similar to the previous monitoring period. It appears that the flow recorder is accurately recording changes in the river flow but may need recalibration or be suffering from interference. The margin of error is also difficult to quantify due to several margins of error associated with the different sources of data. As this is also only based on two hydrological gaugings for this monitoring year, it is possible that an increase in gaugings may contribute to a more accurate analysis of the margin of error.

Verification of the flow meter has not been carried out since 2020; a re-test was recommended to be completed in September 2022. The re-test by the third party was scheduled for beginning of 2024. This verification re-test did not occur during the 2023/24 monitoring period. The Company is due to follow up on this, in order for it to be completed.

During the second year of holding the consents, the Company lodged an application to modify consent conditions, in order to make progress on the fish passage construction. With the issuing of Consent 7078-1.2 in February 2024, there are now updated timeline requirements for completion of certain special conditions including fish passage works. However, the conditions for providing a monitoring programme remain unchanged, and this condition was not met during the 2023/24 period by the Company. The Company stated intention that stream monitoring would be undertaken during summer 2024/25. The Council continues to work with the Company in order to achieve the monitoring requirements of the consent.

The community meeting was held during June 2024, with representatives from the Company, Taranaki Fish and Game and the Council. Apologies were received by Ngāti Ruanui and Ngāruahine.

3.2 Environmental effects of exercise of consents

The Council is not aware of any monitoring of the effects of the scheme undertaken by the Company, although this was mentioned at the community meeting in June 2024. The Company stated the intention of stream monitoring to be conducted during summer 2024/25.

To date, the greatest environmental effect of the scheme is that of fish passage within the Waingongoro River. The Normanby weir presents a barrier to all but the best climbing species, and even for these species it is likely that only a small proportion of the fish arriving at the weir manage to migrate past it. The permanent baffle for lamprey passage was in place for the required period. The placing of rocks to aid with slowing the flow is not always reliable and it appears that high river flows can dislodge the rocks during the lamprey migration timeframe. The Company continue to endeavour to ensure that rocks are placed during the consented period (1 June to 30 September).

The reduction in flow currently caused by the scheme is likely to be having only a minor impact on the biological communities of the residual flow reach, as the amount of water being diverted is much less than the maximum consented rate of take of 10m³/s. Monitoring of the fish communities in relation to fish passage will likely commence following any planned upgrading of the fish pass.

An erosion report was provided by the former Company in the 2016/17 period, and this concluded that while erosion was not a significant issue, some maintenance works were recommended to prevent any further erosion. The Company previously implemented some fencing and planting of riparian margins as required by consent, although this will be an ongoing task due to the scale and cost.

The Company was compliant with the residual flow and the flushing flow requirements during the monitoring period. No surge wave exceeding the consent limits were detected at the downstream SH45 water level recorder.

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 4-6. An evaluation of the consent holder's compliance record over time is provided in Table 7.

Table 4 Summary of performance for Consent 7078-1.2 (issued 20 February 2024)

Purpose: To erect, place, use and maintain a concrete weir and ancillary structures in the Waingongoro River; and to undertake excavation and disturbance of the river bed that is directly associated with that activity, for hydroelectric power generation purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Best practicable option	Inspections of the site	Yes
2. Activity undertaken largely in accordance with application	Inspections of the site	Yes
3. Notification requirements	Notification received	N/A
4. Timing of works	Notification received and Inspections of site	N/A
5. Minimise sediment and associated effects	Inspections of site	N/A
6. Receiving environment limits	Inspections of site & sampling – no maintenance works completed during reporting period	N/A
7. Minimise area of disturbance	Inspections of site	N/A
8. Consent holder to submit information about target flows for fish passage and design limits	Due November 2024	N/A
9. Consent holder to provide design plan for fish pass upgrade	Due May 2025, with six monthly updates on progress	N/A
10. Complete modifications of fish pass as per condition 9	Due April 2026	N/A
11. Baffle to provide for lamprey passage to be constructed and installed during 1 June to 30 September annually	Inspections of site, baffle permanently installed	Yes
12. Structure not to significantly affect the passage of fish	Survey understood to be planned for summer 2024/25	N/A
13. Monitoring programme to be developed and undertaken	Monitoring programme in place with an annual review and report	No
14. Works to cease if archaeological remains discovered	Liaison with consent holder	N/A

Purpose: To erect, place, use and maintain a concrete weir and ancillary structures in the Waingongoro River; and to undertake excavation and disturbance of the river bed that is directly associated with that activity, for hydroelectric power generation purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
15. Weir and associated structures not to cause significant erosion	Inspections	Yes
16. Report investigating erosion to be provided	Report received previously in 2017	N/A
17. Biennial stakeholder meeting	Attendance at meeting, held June 2024	Yes
18. Review provision	Next option for review in June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		Good
Overall assessment of administrative performance in respect of this consent		Good

Table 5 Summary of performance for Consent 6558-1

Purpose: To take and use water from the Waingongoro River		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Notification requirement	Notification received of initial commissioning	Yes
2. Maximum rate of take not to exceed 10m ³ /s	Review of data	Yes
3. Minimum flow to be provided below the weir	Hydrological gauging, review of Council and Company data	Yes
4. All water to be discharged at powerhouse	Inspections	Yes
5. Flushing flow to be provided in specific circumstances	Review of data	Yes
6. Release flow to be provided in specific circumstances	Review of data	Yes
7. Provision of recreational flow upon request from NZ Recreational Canoe Association	Review of data, liaison with Company – no requests received	N/A
8. A log of recreational flows to be maintained and provided to Council	Receipt of log – no requests received	N/A
9. Record residual flow and abstraction rate accurately and provide records to Council	Receipt and review of data	Yes
10. Provide independent verification as to the accuracy of flow measuring devices	Receipt of verification, received 2020 However, recommended re-test (due September 2022) not undertaken to date	Yes
11. Repair and notification of equipment failure	Review of data	N/A
12. Data provided in suitable format	Review of data	Yes
13. Shutdown notification	Review of data	Yes
14. Notification of water take following shutdown	Review of data	Yes
15. Intake screen size and velocity	Inspections	Yes
16. Restriction of surge wave magnitude	Inspections, data review	Yes
17. Installation of emergency backup system	Inspections, liaison with Company	Yes

Purpose: To take and use water from the Waingongoro River		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
18. Monitoring of effects of this consent	Receipt of monitoring results	No
19. Undertake riparian planting on Company land and on adjacent land	Inspections of site and liaison with Company	Yes
20. Lapse provision	Consent exercised	N/A
21. Stakeholder meeting	Attending meeting at least every two years, held June 2024	Yes
22. Review provision	No review undertaken	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		Good
Overall assessment of administrative performance in respect of this consent		Good

Table 6 Summary of performance for Consent 2299-3

Purpose: To dam the Waingongoro River with a 6 metre high concrete weir for hydroelectric power generation purposes		
Condition requirement	Means of monitoring during period under review	Compliance achieved?
1. Monitoring programme developed and undertaken, reported on annually	Liaison with consent holder, receipt of monitoring results	No
2. Stakeholder meeting	Attending meeting at least every two years, held June 2024	Yes
3. Review provision	Next option for review in June 2026	N/A
Overall assessment of consent compliance and environmental performance in respect of this consent		Good
Overall assessment of administrative performance in respect of this consent		Good

N/A = not applicable

Table 7 Evaluation of environmental performance over time

Year	Consent numbers	High	Good	Improvement required	Poor
2021/22	2299-3, 6558-1, 7078-1	-	2	-	1
2022/23	2299-3, 6558-1, 7078-1	-	1	2	-
2023/24	2299-3, 6558-1, 7078-1.2	-	3		-

During the year, the Company demonstrated an overall good level of environmental and good level of administrative performance with the resource consents as defined in Appendix II.

3.4 Recommendations from the 2022/23 Annual Report

In the 2022/23 Annual Report, it was recommended:

1. THAT in the first instance, monitoring of consent activities at the Normanby HEPS in the 2023/24 year continue at the same level as in 2022/23.
2. THAT the residual flow compliance assessment will be automated.
3. THAT the assessment of the surge wave generated at the weir following start-up and shutdown of the power station will be reviewed.
4. THAT the surge wave height compliance assessment will be automated.
5. THAT should there be issues with environmental or administrative performance in 2023/24, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

Recommendations one and five were implemented.

For recommendation two, it has been determined that the Council are satisfied with the data supplied and calculation of residual flow for the time being.

Recommendation three and four were not deemed necessary to be implemented during this monitoring year.

3.5 Alterations to monitoring programmes for 2024/25

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

- the extent of information already made available through monitoring or other means to date;
- its relevance under the RMA;
- the Council's obligations to monitor consented activities and their effects under the RMA;
- the record of administrative and environmental performances of the consent holder; and
- reporting 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 exercising resource consents.

No planned changes have been made to the monitoring programme for 2024/25.

It should be noted that the proposed programme represents a reasonable and risk-based level of monitoring for the site in question. The Council reserves the right to subsequently adjust the programme from that initially prepared, should the need arise if potential or actual non-compliance is determined at any time during 2024/25.

4. Recommendations

1. THAT in the first instance, monitoring of consent activities at the Normanby HEPS in the 2024/25 year continue at the same level as in 2023/24.
2. THAT should there be issues with environmental or administrative performance in 2024/25, monitoring may be adjusted to reflect any additional investigation or intervention as found necessary.

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.
Bund	A wall around a tank to contain its contents in the case of a leak.
Cumec	A volumetric measure of flow, 1 cubic metre per second (1 m ³ s ⁻¹).
Fresh	Elevated flow in a stream, such as after heavy rainfall.
g/m ² /day	Grams/metre ² /day.
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.
Incident Register	The Incident Register contains a list of events recorded by the Council on the basis that they may have the potential or actual environmental consequences that may represent a breach of a consent or provision in a Regional Plan.
L/s	Litres per second.
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.
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.
NTU	Nephelometric Turbidity Unit, a measure of the turbidity of water.
Physicochemical	Measurement of both physical properties (e.g. temperature, clarity, density) and chemical determinants (e.g. metals and nutrients) to characterise the state of an environment.
Resource consent	Refer Section 87 of the RMA. Resource consents include land use consents (refer Sections 9 and 13 of the RMA), coastal permits (Sections 12, 14 and 15), water permits (Section 14) and discharge permits (Section 15).
Residual flow	Flow required to maintain fish passage and/or aquatic habitat.
RMA	<i>Resource Management Act 1991</i> and including all subsequent amendments.
SS	Suspended solids.
SQMCI	Semi quantitative macroinvertebrate community index.
Temp	Temperature, measured in °C (degrees Celsius).
Turb	Turbidity, expressed in NTU.

For further information on analytical methods, contact a manager within the Environment Quality Department.

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Appendix I

Resource consents held by Greenfern Industries Limited

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

Water abstraction permits

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. Permits authorising the abstraction of water are issued by the Council under Section 87(d) of the RMA.

Water discharge permits

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. Permits authorising discharges to water are issued by the Council under Section 87(e) of the RMA.

Air discharge permits

Section 15(1)(c) of the RMA stipulates that no person may discharge any contaminant from any industrial or trade premises into air, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising discharges to air are issued by the Council under Section 87(e) of the RMA.

Discharges of wastes to land

Sections 15(1)(b) and (d) of the RMA stipulate that no person may discharge any contaminant onto land if it may then enter water, or from any industrial or trade premises onto land under any circumstances, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Permits authorising the discharge of wastes to land are issued by the Council under Section 87(e) of the RMA.

Land use permits

Section 13(1)(a) of the RMA stipulates that no person may in relation to the bed of any lake or river use, erect, reconstruct, place, alter, extend, remove, or demolish any structure or part of any structure in, on, under, or over the bed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Land use permits are issued by the Council under Section 87(a) of the RMA.

Coastal permits

Section 12(1)(b) of the RMA stipulates that no person may erect, reconstruct, place, alter, extend, remove, or demolish any structure that is fixed in, on, under, or over any foreshore or seabed, unless the activity is expressly allowed for by a resource consent, a rule in a regional plan, or by national regulations. Coastal permits are issued by the Council under Section 87(c) of the RMA.

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

Name of
Consent Holder: Greenfern Industries Limited
 687 Inland Road
 RD 2
 Helensville 0875

Decision Date 1 September 2009

Commencement Date 1 September 2009

Conditions of Consent

Consent Granted: To dam the Waingongoro River with a 6 metre high concrete
 weir for hydroelectric power generation purposes

Expiry Date: 1 June 2029

Review Date(s): See condition 3

Site Location: Normanby Road, Okaiawa

Grid Reference (NZTM) 1706150E-5624519N

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. In conjunction with special condition 13 of consent 6558-1 and special condition 11 of consent 7078-1, a monitoring programme shall be developed and undertaken in reasonable consultation with submitters. The monitoring programme shall ensure that the effects of this consent are adequately determined and monitored to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council, having considered any independent expert advice he may seek.

The monitoring programme shall commence within 6 months of the consent commencing [in terms of section 116 of the Resource Management Act] and shall include:

- a. Preparation of a "baseline report" addressing the matters listed in paragraphs b) to f) of this condition, that records the representative baseline against which the effects of the scheme can be assessed. The baseline report shall:
 - i. Incorporate all reasonably available existing information, including the data submitted with the assessment of environmental effects, as well as additional data specifically obtained for the purpose of preparing the report; and
 - ii. Be provided to the Chief Executive, Taranaki Regional Council before the scheme is commissioned
- b. An assessment of the impact of any increased periphyton growth, as a result of this consent, on ecological, recreation and amenity values;
- c. An assessment of the formation of any sediment accumulation immediately below the weir and its effect on 'dam dropping';
- d. An assessment of the impact of this consent on recreational activity [including fishing] in the residual flow reach;
- e. An assessment of the impact of this consent on trout habitat, juvenile and adult trout numbers and benthic macroinvertebrate communities in the residual flow reach; and
- f. An assessment of the effect of this consent on fish passage.

The monitoring programme shall be reviewed and reported on annually.

Consent 2299-3

2. The consent holder shall meet as appropriate and at least every two years with staff of the Taranaki Regional Council and interested submitters to the consent to discuss any matter relating to the exercise of this resource consent, including the monitoring programme design, implementation and interpretation.
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:
 - a. annually during the month of June until the June following the third anniversary of the scheme first operating; and/or
 - b. at three yearly intervals during the month of June after the June following the third anniversary of the scheme first operating;
 - c. after receipt of monitoring reports that show adverse effects on the matters listed in condition 1 (b) - (f).

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 are of a greater scale than predicted, or which it was not appropriate to deal with at the time.

Transferred at Stratford on 10 February 2021

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: Greenfern Industries Limited
687 Inland Road
RD 2
Helensville 0875

Decision Date
(Change): 21 May 2018

Commencement Date
(Change): 21 May 2018 (Granted Date: 1 September 2009)

Conditions of Consent

Consent Granted: To take and use water from the Waingongoro River for hydroelectric power generation purposes

Expiry Date: 1 June 2029

Review Date(s): June at 3-yearly intervals

Site Location: Normanby Road, Okaiawa

Grid Reference (NZTM) 1706160E-5624470N

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 notify the Chief Executive, Taranaki Regional Council, in writing at least seven days prior to the exercise of this consent. Notification shall include the consent number and a brief description of the activity consented and be emailed to worknotification@trc.govt.nz.
2. The rate of taking shall not exceed 10 cubic metres per second.
3. The taking of water authorised by this consent shall be managed to ensure that the flow in the Waingongoro River immediately below the intake point is no less than 3,500 litres per second in the period 1 October to 30 April inclusive and no less than 3,000 litres per second in the period 1 May to 30 September inclusive. In the period 1 October to 30 April inclusive, no taking shall occur when the flow is less than 3,500 litres per second. In the period 1 May to 30 September inclusive, no taking shall occur when the flow is less than 3,000 litres per second.
4. All water taken shall be discharged back into the river adjacent to the power house.
5. If a 'flushing flow' (defined as a flow over the weir that exceeds 14 cubic metres per second) does not occur during any continuous period of 15 days, the consent holder shall facilitate a flushing flow at the next opportunity. To facilitate a flushing flow the consent holder shall ensure that on the next occasion that the river flow exceeds 14 cubic metres per second, taking shall cease for 8 hours.
6. If the flow over the weir does not exceed 6 cubic metres per second during any continuous period of 14 days between 1 October and 30 April, the consent holder shall, within 24 hours, stop taking so that the entire river flow passes over the weir for at least 3 hours. Once a release flow has occurred, the 14 day period shall restart, irrespective of the total flow which passed over the weir during the release.
7. On up to 12 occasions per year the consent holder shall regulate, or stop, taking to allow a 'recreational flow' over the weir. A 'recreational' flow shall:
 - a. be the entire flow of the river;
 - b. occur for a maximum duration of 3 hours;
 - c. only occur at the written request of a person delegated to make such requests by the New Zealand Recreational Canoe Association, received by the consent holder no less than 48 hours beforehand; and
 - d. occur at the time reasonably requested, or agreed to, by the organisation.

Consent 6558-1.1

8. A log of recreational release flows shall be maintained and provided to the Chief Executive, Taranaki Regional Council and/or the New Zealand Recreational Canoe Association upon request. Such a log shall include:
 - a. name of person making the request;
 - b. date and time the request was made;
 - c. date of release flow;
 - d. time and duration of release flow; and
 - e. maximum flow released.
9. The consent holder shall measure and electronically record at intervals not exceeding 15 minute intervals the:
 - rate that water is taken from the Waingongoro River to an accuracy of $\pm 5\%$;
 - flow in the Waingongoro River immediately downstream of the weir to an accuracy of $\pm 10\%$;

and shall provide these records to the Chief Executive, Taranaki Regional Council, at three monthly intervals or upon reasonable request.

10. The consent holder shall provide to the Chief Executive, Taranaki Regional Council independent written verification ('the Verification') as to the accuracy of both the residual flow and abstraction flow measuring devices used to undertake the measurements and recording as required by Special condition 9 of this Consent.

The verification must:

- a. be undertaken by an independent, suitably qualified person as agreed by the Chief Executive of the Taranaki Regional Council.
- b. be completed no less frequently than once yearly during each July-June period and provided to the Taranaki Regional Council no later than 30 June each year.
- c. detail the methodology and the date and results of any tests undertaken to assess the accuracy of both the residual flow and abstraction flow measuring devices.

Note: For the purposes of this condition, 'residual flow' refers to the flow in the Waingongoro River immediately downstream of the weir located at (NZTM) 1706153E-5624500N.

11. 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 and a maintenance report provided to the Chief Executive, Taranaki Regional Council within 30 days of the work occurring.
12. The records of water 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 (abstraction data only).

Consent 6558-1.1

13. On each occasion that the station does not operate for a period of 24 hours or longer (a 'shutdown') the consent holder shall notify the Taranaki Regional Council of the shutdown within 24 hours by sending an email to worknotification@trc.govt.nz. The notification shall include:
- 'Normanby Power Station' in the subject heading;
 - the consent number;
 - the date and that the shutdown commenced; and
 - the residual flow rate immediately before the shutdown takes place.

Note: For the purposes of this condition, 'residual flow' refers to the flow in the Waingongoro River immediately downstream of the weir located at (NZTM) 1706153E-5624500N.

14. On each occasion that the consent holder is going to recommence taking water for generation, after a shutdown has occurred, the consent holder shall notify the Taranaki Regional Council before taking occurs by sending notification by email to worknotification@trc.govt.nz. The notification shall include:
- 'Normanby Power Station' in the subject heading;
 - the consent number;
 - the date and time that the taking recommenced; and
 - the residual flow rate immediately before the take is recommenced.

Note: For the purposes of this condition, 'residual flow' refers to the flow in the Waingongoro River immediately downstream of the weir located at (NZTM) 1706153E-5624500N.

15. The intake shall be screened with a screen having a maximum aperture dimension of 30 mm. The maximum through screen velocity shall be 0.3 metres per second.
16. That start-up and shutdown of the power station shall not generate a change in water level (including both positive and negative surge waves) in excess of 200 mm in height downstream of the weir or power station discharge.
17. That an emergency backup system (power and communication) be installed prior to commissioning of the scheme to ensure that generation can continue to be managed during emergency situations for up to 48 hours.

Consent 6558-1.1

18. In conjunction with special condition 1 of consent 2299-3 and special condition 11 of consent 7078-1, a monitoring programme shall be developed and undertaken in reasonable consultation with submitters.

The monitoring programme shall ensure that the effects of this consent are adequately determined and monitored to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council, having considered any independent expert advice he may seek. The monitoring programme shall commence within 6 months of the consent commencing (in terms of section 116 of the Resource Management Act) and shall include an assessment of:

- a. preparation of a "baseline report" addressing the matters listed in paragraphs b) to f) of this condition, that records the representative baseline against which the effects of the scheme can be assessed. The baseline report shall:
 - i. Incorporate all reasonably available existing information, including the data submitted with the assessment of environmental effects, as well as additional data specifically obtained for the purpose of preparing the report; and
 - ii. Be provided to the Chief Executive, Taranaki Regional Council before the scheme is commissioned;
- b. an assessment of the impact of any increased periphyton growth, as a result of this consent, on ecological, recreation and amenity values;
- c. an assessment of the formation of any sediment accumulation immediately below the weir and its effect on 'dam dropping';
- d. an assessment of the impact of this consent on recreational activity (including fishing) in the residual flow reach;
- e. an assessment of the impact of this consent on trout habitat, juvenile and adult trout numbers and benthic macroinvertebrate communities in the residual flow reach; and
- f. an assessment of the effect of this consent on fish passage.

The monitoring programme shall be reviewed and reported on annually.

19. The consent holder shall undertake riparian planting on any land owned by the consent holder, and on any adjacent land where individual landowners provide written agreement, in the area that is affected by the power scheme. The purpose of the planting shall be to mitigate the environmental effects of the water take. The planting shall include fencing, planting and on-going maintenance of the riparian area for the duration of the consent.
20. 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.
21. The consent holder shall meet as appropriate and at least every two years with staff of the Taranaki Regional Council and interested submitters to the consent to discuss any matter relating to the exercise of this resource consent, including the monitoring programme design, implementation and interpretation.

Consent 6558-1.1

22. 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:
- a. annually during the month of June until the June following the third anniversary of the scheme first operating; and/or
 - b. at three yearly intervals during the month of June after the June following the third anniversary of the scheme first operating;
 - c. after receipt of monitoring reports that show adverse effects on the matters listed in condition 13 (b)-(f).

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 are of a greater scale than predicted, or which it was not appropriate to deal with at the time.

Transferred at Stratford on 10 February 2021

For and on behalf of
Taranaki Regional Council



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: Greenfern Industries Limited
687 Inland Road
RD 2
Helensville 0875

Decision Date 1 September 2009

Commencement Date 1 September 2009

Conditions of Consent

Consent Granted: To erect, place, use and maintain a concrete weir and ancillary structures in the Waingongoro River; and to undertake excavation and disturbance of the river bed that is directly associated with that activity, for hydroelectric power generation purposes

Expiry Date: 1 June 2029

Review Date(s): See condition 16

Site Location: Normanby Road, Okaiawa

Grid Reference (NZTM) 1706150E-5624519N

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. Notwithstanding any other condition of this consent the consent holder shall at all times adopt the best practicable option, as defined in section 2 of the Resource Management Act 1991, to prevent or minimise any adverse effects on the environment from the exercise of this resource consent.
2. The exercise of this consent shall be undertaken substantially in accordance with the documentation submitted in support of application 4558. In the case of any contradiction between the documentation submitted in support of application 4558 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 and at least 48 hours prior to and upon completion of any maintenance works which would involve disturbance of or deposition to the river bed 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.
4. 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.
5. 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.

Consent 7078-1

6. After allowing for reasonable mixing, within a mixing zone extending 100 metres downstream of any discharge, that discharge shall not give rise to either of the following effects in the receiving waters of the Waingongoro River:
 - a. an increase in suspended solids concentration in excess of 10 gm^{-3} , when the stream turbidity as measured immediately upstream of the discharge point in the Waingongoro River is equal to or less than 5 NTU [nephelometric turbidity units];
or
 - b. an increase in turbidity of more than 50% when the stream turbidity as measured immediately upstream of the discharge point in the Waingongoro River is greater than 5 NTU [nephelometric turbidity units].
7. The consent holder shall ensure that the area and volume of river bed disturbance shall be the practical minimum necessary to achieve its purpose. Any areas which are disturbed shall, as far as practicable, be reinstated.
8. Within one year of the commencement of this consent the consent holder shall modify the existing fish pass by:
 - Extending the bottom of the fish pass and adjusting weir heights to get a 7.9 degree gradient throughout the fish pass; and
 - Forming a rock ramp in each concrete pool that generates a central channel with emergent rocks on each side.
9. Within one year of the commencement of this consent the consent holder shall construct an angled, rounded timber baffle 2m long [or similar structure that achieves the same effect], which can be placed on the dam crest, to provide for lamprey passage past the weir. This is to be installed and operative during the lamprey migration season defined as 1 June to 30 September each year.
10. The structure authorised by this consent shall not significantly affect the passage of the following target fish species:
 - Brown trout;
 - Rainbow trout;
 - Torrentfish;
 - Smelt;
 - Inanga;
 - Redfin bullies;

as determined by a specific monitoring programme undertaken to determine fish passage in the immediate vicinity of the weir as well as changes in target fish distribution throughout the upstream catchment. Notwithstanding special condition 8 above, if monitoring confirms the fish pass is not providing adequate passage for any target fish species, further changes to the fish pass may be required within three months or a time reasonably agreed by the Chief Executive, Taranaki Regional Council.

Consent 7078-1

11. In conjunction with special condition 1 of consent 2299-3 and special condition 13 of consent 6558-1, a monitoring programme shall be developed and undertaken in reasonable consultation with submitters. The monitoring programme shall ensure that the effects of this consent are adequately determined and monitored to the reasonable satisfaction of the Chief Executive, Taranaki Regional Council, having considered any independent expert advice he may seek.

The monitoring programme shall commence within 6 months of the consent commencing [in terms of section 116 of the Resource Management Act] and shall include an assessment of:

- a. Preparation of a "baseline report" addressing the matters listed in paragraphs b) to f) of this condition, that records the representative baseline against which the effects of the scheme can be assessed. The baseline report shall:
 - i. Incorporate all reasonably available existing information, including the data submitted with the assessment of environmental effects, as well as additional data specifically obtained for the purpose of preparing the report; and
 - ii. Be provided to the Chief Executive, Taranaki Regional Council before the scheme is commissioned
- b. An assessment of the impact of any increased periphyton growth, as a result of this consent, on ecological, recreation and amenity values;
- c. An assessment of the formation of any sediment accumulation immediately below the weir and its effect on 'dam dropping';
- d. An assessment of the impact of this consent on recreational activity [including fishing] in the residual flow reach;
- e. An assessment of the impact of this consent on trout habitat, juvenile and adult trout numbers and benthic macroinvertebrates in the residual flow reach; and
- f. An assessment of the effect of this consent on fish passage.

The monitoring programme shall be reviewed and reported on annually.

12. In the event that any archaeological remains are discovered as a result of works authorised by this consent in the river bed, 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.
13. The weir and associated structures shall not cause any significant erosion of the river bed or banks.

Consent 7078-1

14. A report investigating erosion of the river bed and banks for a distance of 100 m downstream of the weir shall be provided to the Chief Executive, Taranaki Regional Council within one year of the commencement of this consent. The report shall be prepared by a suitably qualified river engineer and shall detail:
 - a. existing erosion of the river bed and banks;
 - b. the potential for further erosion;
 - c. the impact of existing and potential erosion on any land, the weir and any wāhi tapu site [including urupa];
 - d. the extent that the erosion may be caused by any structures authorised by this consent; and
 - e. recommendations for any work to mitigate erosion.
15. The consent holder shall meet as appropriate and at least every two years, with staff of the Taranaki Regional Council and interested submitters to the consent to discuss any matter relating to the exercise of this resource consent, including the monitoring programme design, implementation and interpretation.
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:
 - a. annually during the month of June until the June following the third anniversary of the scheme first operating; and/or
 - b. at three yearly intervals during the month of June after the June following the third anniversary of the scheme first operating;
 - c. after receipt of monitoring reports that show adverse effects on the matters listed in condition 11 (b) – (f).

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 are of a greater scale than predicted, or which it was not appropriate to deal with at the time.

Transferred at Stratford on 10 February 2021

For and on behalf of
Taranaki Regional Council



A D McLay
Director - Resource Management

Appendix II

Categories used to evaluate environmental and administrative performance

Categories used to evaluate 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 (that is a defence under the provisions of the RMA can be established) may be excluded with regard to the performance rating applied. For example loss of data due to a flood destroying deployed field equipment.

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

Environmental Performance

High: No or inconsequential (short-term duration, less than minor in severity) breaches of consent or regional plan parameters resulting from the activity; no adverse effects of significance noted or likely in the receiving environment. The Council did not record any verified unauthorised incidents involving 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 during investigations of incidents reported to the Council by a third party 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 during investigations of incidents reported to the Council by a third party. 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 during investigations of incidents reported to the Council by a third party. Cumulative adverse effects of a persistent moderate non-compliant activity could elevate an 'improvement required' issue to this level. Typically there were grounds for either a prosecution or an infringement notice in respect of effects.

Administrative performance

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

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

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

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

Appendix III

Enforcement order (ENV-2017-WLG-000049)

BEFORE THE ENVIRONMENT COURT

Decision No. [2017] NZEnvC 192

IN THE MATTER

of an application under ss 314 and 316
of the Resource Management Act 1991

BETWEEN

TARANAKI REGIONAL COUNCIL
(ENV-2017-WLG-000049)

Applicant

AND

RENEWABLE POWER LIMITED

First Respondent

AND

TIM MARK JOHNSON

Second Respondent

Court: Environment Judge B P Dwyer

Heard: In Chambers, under s 309 of the Resource Management Act
1991

Date of Decision: 30 November 2017

Date of Issue: 30 November 2017

ENFORCEMENT ORDERS



1. The Court, by consent, makes these enforcement orders under subsections 314(1)(a)(i), 314(1)(b)(i), 314(1)(b)(ii), 314(1)(d)(iii), 314(3) and 314(5) and section 316 of the Resource Management Act 1991 with the terms and conditions as set out below.
2. The name and address of the Respondents against whom the enforcement orders are granted are:
 - a. First Respondent: Renewable Power Limited, 22 Campbell Street, Hawera, 4610.
 - b. Second Respondent: Tim Mark Johnson, 22 Campbell Street, Hawera, 4610.

1. This Enforcement Order applies to the Normanby Power Scheme and includes the Normanby Power Station at Normanby Road, Okaiawa which is located on the land described below:

- a. Computer freehold register identifier TNA3/1320, legal description Subdivision 2 and Part Subdivision 1, Section 63 Block I Hawera Survey District and Part Subdivision 1 – 2 Section 20 Block I Hawera Survey District, comprising 1.4083 hectares more or less, Taranaki Land Registration District.
- b. Computer freehold register identifier TN140/151, legal description Lot 1 Deposited Plan 5613, comprising 195 square metres more or less, Taranaki Land Registration District.
- c. Computer freehold register identifier TN191/81, legal description Section 73-74 Block I Hawera Survey District, comprising 1621 square metres more or less, Taranaki Land Registration District.



**CHANGE OF CONDITIONS OF RESOURCE CONSENT 6558-1 -
ACCURACY OF MEASURING DEVICES**

2. The Respondents shall within 60 working days from the date of service of this Order submit, to the Taranaki Regional Council, a complete application for change of conditions of Resource Consent 6558-1 (made in accordance with all applicable requirements of section 88 of the Resource Management Act 1991) to add a condition or conditions to the Resource Consent 6558-1 that will confirm the accuracy of both the residual flow and abstraction flow measuring devices used to undertake the measurements and recording required by condition 9 of Resource Consent 6558-1 and to facilitate compliance with conditions 2, 3, 5 and 6 of Resource Consent 6558-1.

COMPLIANCE WITH CONDITIONS OF RESOURCE CONSENTS

3. The Respondents shall comply with Special Conditions 3, 9 and 13 of Resource Consent 6558-1.
4. The Respondents shall comply with Special Condition 10 of Resource Consent 6558-1 by 1 December 2017.
5. The Respondents shall comply with Special Condition 1 of Resource Consent 2299-3.
6. The Respondents shall comply with Special Condition 11 of Resource Consent 7078-1.

CHANGE OF CONDITIONS OF RESOURCE CONSENT 7078-1 – FISH PASS

7. The Respondents shall, within 60 working days from the date of service of this Order submit, to the Taranaki Regional Council, a complete application for change of Resource Consent 7078-1 (made in accordance with all applicable requirements of section 88 of the Resource Management Act 1991) to change special



conditions 8 and 10 of the Resource Consent 7078-1. The Respondents shall include with the application a Project Plan for the installation of a fish pass which shall include as a minimum (but not be limited to) the following:

- a. An overall project plan; and
- b. Completion dates for the various stages of development of the fish pass; and
- c. A date by which the project will be completed and become operational; and
- d. Outcome of the consultation process undertaken with Taranaki Fish and Game Council.

FURTHER REQUIREMENTS/MATTERS

8. The Respondents shall not restrict Enforcement Officers of the Taranaki Regional Council and/or any experts instructed by the Taranaki Regional Council (with such assistance from other people as is necessary) to enter and re-enter the Normanby Power Station Site for the purposes of checking on compliance with this Enforcement Order, provided that all persons (other than Enforcement Officers of the Taranaki Regional Council) entering the Normanby Power Station Site are accompanied by an Enforcement Officer of the Taranaki Regional Council.
9. The Respondents shall reimburse the Taranaki Regional Council, in full, for actual and reasonable costs incurred by the Taranaki Regional Council (that are not recoverable pursuant to section 36 of the Resource Management Act 1991) for:
 - a. Monitoring of this Order including inspections pursuant to this Order; and
 - b. Any costs for experts (excluding costs for experts employed by the Council) incurred by the Taranaki Regional Council.
10. This Order shall apply to the personal representatives, successors, and assigns of the Respondents to the same extent as it applies to



the Respondents.

11. Leave is reserved to the Taranaki Regional Council; the Respondents; and the personal representatives, successors, and assigns of the Respondents, to seek further directions and/or orders from the Court.

12. This Order shall take effect when it is served on the Respondents.



B P Dwyer
Environment Judge

