

Cultural Impact Assessment Report

Mahitahi/Maitai River Municipal Supply – Nelson City Council

Chetham Consulting Ltd



This Cultural Impact Assessment report (“the Report”) has been commissioned by Nelson City Council (NCC) and undertaken by Chetham Consulting Ltd for the purposes of an application being prepared by NCC for the renewal of water takes from the Mahitahi River for Municipal water supply for Nelson.

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1. Purpose of this Paper

To provide a ‘**Combined Iwi Cultural Impact Assessment**’ (“**CIA**”) to NCC to assist them in meeting their statutory obligations under various legislation including the Resource Management Act 1991 (“**RMA**”), the Local Government Act 2002 and a range of Settlement Acts. The CIA includes:

- A description of the site and summary of the technical aspects of the proposal;
- A brief Whakapapa (history) of the site and surrounds;
- Identification of areas of cultural significance and mana whenua/tangata whenua values;
- An assessment of the nature and scale of any impacts of the proposal on mana whenua/tangata whenua values;
- An assessment on whether Iwi are considered to be adversely affected by the proposal; and
- Recommendations to avoid, remedy or mitigate any impacts to provide for the protection of Maori/Iwi values.

The CIA is based on a consultative process aimed at facilitating affected Iwi to understand the proposal, provide input into this assessment of the consent application and to collate their feedback on the cultural impacts of the proposal. The CIA provides a set of recommendations to the NCC arising from the assessment and the review of the supporting documentation supplied.

2. Introduction

The Mahitahi River municipal water take currently provides the bulk of Nelson’s water supply. The Roding River water take provides the remainder (approximately 40%). Resource consents for the Municipal Supply water take operations are due for renewal in 2017 and this Cultural Impact Assessment of the Mahitahi River water take is part of that process.

The Mahitahi river valley runs from the ranges east of Nelson city, through the central city and out into The Haven. It is a central natural feature of Nelson city and presents abundant recreational opportunities. Nine kilometers up the river is the Maitai Dam. Associated NCC owned land extends over 10,000 hectares up the Maitai Valley and beyond to the Brook and Roding reserves in adjacent valleys to the south and west.

The Mahitahi has a north and a south branch approximately 9 kms inland from the city of Nelson. Just above the natural, historical confluence of these branches a Dam was constructed in 1987 and a large reservoir is now located there.

For the municipal water take, freshwater is preferentially taken from the south branch of the river as a run of river take; that water volume is then replaced with water piped from the reservoir and put into the south branch at a point known as ‘The Backfeed’. As a last resort, when the south branch water level is deemed too low for abstraction or is in flood, water from the reservoir is used as municipal supply.

The water in the reservoir has some quality issues which NCC are looking to address as they renew the consents associated with the municipal water supply. These water quality issues are significant because, as stated above, the reservoir water is piped directly into the Mahitahi south branch to replace the water taken from that system. These water quality issues are also significant because the water in the reservoir is used for municipal water supply when required, so the better the water quality, the less treatment will be required. The water quality issues in the reservoir are:

- High dissolved metal concentrations (due to natural sedimentation and gradual build up over time. The catchment includes a mineral belt);
- Low oxygen/ anoxic conditions in the deeper strata of the reservoir lake; and
- Thermal stratification occurs, i.e. the top layer of water heats up and deeper water is cold. This can have an impact downstream of the backfeed discharge as temperature may vary from the natural temperature in the south branch.

Both the south branch intake weir and the Mahitahi Dam are barriers to fish passage, despite some remediation work having been done. Understandably, the water take is currently seen as essential to the City, however the renewing of these consents provide opportunities for improved management with better outcomes for iwi.

Ngāti Kuia, Rangitane o Wairau, Ngāti Koata, Ngāti Rarua, Ngāti Tama ki Te Tau Ihu, Te Atiawa o Te Waka a Maui, Ngāti Toa Rangatira, and Ngāti Apa Ki te Ra To have associations with this area. Their relationships are described in the Te Tau Ihu Statutory Acknowledgements 2014 document. The Statutory Acknowledgements document draws from the following settlement acts:

- Ngāti Kōata, Ngāti Rārua, Ngāti Tama ki Te Tau Ihu, and Te Ātiawa o Te Waka-a-Māui Claims Settlement Act 2014.
- Ngāti Apa ki te Rā Tō, Ngāti Kuia, and Rangitāne o Wairau Claims Settlement Act 2014.
- Ngāti Toa Rangatira Claims Settlement Act 2014.

Nelson City Council (“NCC”) is a unitary authority. They are currently engaging with Te Tau Ihu iwi on a number of infrastructure projects including the renewing of consents associated with the municipal water takes.

Cultural effects on Iwi (and their values, culture and taonga) are not defined in the Resource Management Act 1991 (RMA) and have generally been poorly defined in terms of best practice. This lack of definition has often meant that “cultural effects” are narrowly scoped and “pigeon-holed” or reduced as matters relating only to wāhi tapu or heritage seen in a “past tense” sense rather than understanding its continuous nature incorporating current events or activities as well as past. While these matters are critically important, they are only a subset of all the effects that a proposal might have on tangata whenua, their values and environmental concerns.

Chetham Consulting have used a tested matrix based methodology based on the cultural safeguards of the RMA that concentrates on firstly identifying the relationship of Iwi to the resource (in this case the Mahitahi river and surrounds), and implications for Kaitiakitanga and the Treaty of Waitangi/Te Tiriti O Waitangi. These matters are discussed in section 4 of this

report. Section 5 identifies the effects of the proposed activity on those relationships. The provisions of Part II of the RMA that require recognition and/or protection of Māori and their taonga and values and the definition of effects in the Act have been used to construct these base matrices.

Chetham Consulting have liaised with Te Tau Ihu Iwi to undertake a review of available documentation associated with the proposal and to finalise the effects matrix and confirm potential options to avoid, remedy and mitigate any adverse effects identified. These options are found in section 6 of this report where they are set out as recommendations for consideration by NCC (as both the applicant and the consenting authority). It should be noted that the information package available to inform the development of this CIA consists of an ecological report – “the Maitai River Municipal Supply Aquatic Ecology – Environmental Effects – Summary for Iwi Consultation” (“the Cawthron report”); a table summarizing the existing consents up for renewal; and an aerial map. This information was supplemented by a site visit to the south branch weir and the Mahitahi Dam on 23rd March accompanied by Ngāti Kuia representatives, the NCC project manager and NCC consultants. More recently, the final ecological report to accompany the application; “Maitai River Municipal Supply Aquatic Ecology – Summary of Environmental Effects” has been received from Cawthron.

2.1 CIA Methodology

The following “seven step” approach was employed in the preparation of this CIA:

STEP 1. UNDERSTAND AND REVIEW THE APPLICATIONS.

This step was completed by:

- Holding initial meetings with NCC Project Manager
- Receiving a copy of the proposal and supporting information
- Undertaking a technical review of the material to provide an analysis of the application and identify key potential areas of concern for mana whenua/tangata whenua;
- Undertaking a site visit accompanied by NCC Project Manager and Consultants; and
- Attending a meeting with NCC Project Manager and Consultants and Cawthron ecologist to discuss ecological effects and potential mitigation options.

STEP 2. IDENTIFY THE RELATIONSHIP OF MANA WHENUA/TANGATA WHENUA WITH THE RESOURCE, ASSESS WHETHER THE SAFEGUARDS OF THE RMA (ss 6(e), 7(a) and 8 as overarching provisions relating to cultural impacts) HAVE BEEN MET.

An information package and feedback template was prepared (see Appendix A) and circulated to the Te Tau Ihu iwi contact list provided by NCC. The feedback template is based on a series of matrix tables that attempt to identify and capture:

- The relationships between Maori, their culture AND their traditions AND ancestral land, water, sites, waahi tapu and other taonga that might be affected by the proposal
- The implications for the knowledge and practice of Kaitiakitanga by tangata whenua over their taonga of the proposal.
- Whether the principles of the Treaty of Waitangi are affected by the proposal.

Iwi also had the option of responding in their own reporting format of choice. Telephone calls, emails and responses were logged in consultation summary record (see Appendix B). Te Rūnanga o Ngāti Kuia Trust were the only iwi entity that provided a formal response (see Ngāti Kuia Cultural Effects Report – Appendix C). Follow up telephone calls confirmed that Rangitāne o Wairau Settlement Trust and Ngāti Apa ki te Rā Tō Trust would support Ngāti Kuia engagement in this instance. No response was received from Ngāti Toa Rangatira. Te Pātaka o Ngāti Koata, Ngāti Tama ki Te Waipounamu Trust, Ngāti Rārua Settlement Trust and Te Atiawa o Te Waka-a-Māui have mandated Tiakina te Taiao Ltd (“Tiakina”) to provide reports on their behalf on RMA matters. Tiakina did not provide feedback on this proposal.

The report received from Ngāti Kuia, the Te Tau Ihu Statutory Acknowledgements and relevant iwi environmental management plans informed this step which is discussed in section four of this report.

STEP 3. IDENTIFY THE EFFECTS ON TANGATA WHENUA AND THEIR VALUES

Potential effects identified in the relevant Iwi Management Plans and in the response of Ngāti Kuia have been utilised to populate the matrix table where applicable (see Appendix D). This list of effects has, in turn, been considered against the categories of effects used in the RMA definition¹ (eg. positive/negative, temporary/permanent, etc). Section 5 of this report considers the various effects on those relationships identified in section 4.

The effects identified are then considered in terms of their magnitude, ie. whether they are more than minor.

STEP 4. ASSESS WHETHER THE EFFECTS CAN BE AVOIDED, REMEDIED OR MITIGATED.

After identifying the potential for any effect within any of the categories in the effects matrix, and taking on board the comments received from iwi, an assessment is made as to whether any of the effects identified as more than minor can be avoided, remedied or mitigated. Iwi feedback was also submitted to the NCC project manager as a preliminary step to allow time to ascertain whether any recommendations made by Ngāti Kuia could be accommodated in the design of the application.

STEP 5. CONSTRUCT RECOMMENDATIONS TO THE APPLICANT.

Once the relationships of iwi to the resource/site has been identified, the effects of the proposed activity on iwi and the options for avoiding, remedying or mitigating those effects has been identified, the task of framing recommendations to the NCC in regard to those effects was

1

http://www.legislation.govt.nz/act/public/1991/0069/latest/DLM231795.html?search=sw_096be8ed81173af_6_significant+effect_25_se&p=1&sr=2

Meaning of effect

In this Act, unless the context otherwise requires, the term **effect** includes—

- (a) any positive or adverse effect; and
- (b) any temporary or permanent effect; and
- (c) any past, present, or future effect; and
- (d) any cumulative effect which arises over time or in combination with other effects— regardless of the scale, intensity, duration, or frequency of the effect, and also includes—
- (e) any potential effect of high probability; and
- (f) any potential effect of low probability which has a high potential impact.

completed. Recommendations have been drafted based on the assessment as per step 4 above and the response provided by Ngāti Kuia along with any follow up conversations with the project manager from NCC.

STEP 6. REPORT BACK TO TANGATA WHENUA

The Draft CIA report including recommendations is circulated to Te Tau Ihu iwi for comment. Any feedback received is incorporated into the final report.

STEP 7. PRESENT FINDINGS TO NCC

The finalised CIA report is presented to NCC. If required meetings with iwi and the consultant CIA writer can be initiated to discuss the findings kanohi to kanohi. Ideally, NCC should respond as to how recommendations of the report will be addressed eg. via consent conditions.

3. Description of the Proposed Activity

Nelson City Council is applying for resource consents associated with continued water abstraction from the Mahitahi River and upgrade and maintenance works associated with existing structures.

The watertake is in fact a combination of two takes,

1. A 'run-of- river' take from the south branch, the volume of which is then replaced by water piped from the Mahitahi Reservoir.
2. The North branch of the Mahitahi river has been dammed creating a large reservoir. Water is secondarily taken from this reservoir to replace the volume of water taken from the south branch. This replacement water is delivered to the south branch via a pipe known as 'the backfeed' which outlets just below the weir. Water is also taken from the reservoir directly for the municipal water supply when required. This is determined by the South branch water flows, ie. when flows are low, or the river is in flood, water is then taken from the reservoir as a last resort, for municipal supply. This reservoir water requires more treatment to bring it up to standard for domestic use.

3.1 Overview of Consents Sought

The works are outlined in brief below² (with applicable rules shown in brackets):

- Land Use consent – Maitai Dam (North Branch) and South Branch Weir (FWr.6) – Discretionary Activity.
- Water Permit – To take, use and divert water from both the Maitai Reservoir and South Branch for public water supply purposes (FWr.12) – Discretionary Activity
- Discharge Consent – To discharge water to the North Branch and South Branch (FWr.20) – Discretionary Activity

3.2 Environmental Effects outlined in the Cawthron Report:

² As communicated by Mark Lile- Landmark Lile Ltd

NCC commissioned an ecological report – “the Maitai River Municipal Supply Aquatic Ecology – Environmental Effects – Summary for Iwi Consultation” (“the Cawthron report”). From this ecological report the ongoing ecological effects of the proposed works can be broadly divided into three areas:

- a) lowered river flow rates
- b) water quality
- c) the dam and weir structures

The ecological assessment investigated the following as potential issues:

Mahitahi River Flows

- **Fish Habitat:** *Lower flows have the potential to reduce habitat available for in stream life during periods of moderate to low flow. However, to date water abstraction has been managed so that flow is usually above the recommended minimum flows even for the species of fish present most susceptible to low flows, torrentfish.³*
- **Flushing flows:** Incidence of sediment and periphyton build up and toxic blue green algae may be reduced in the upper river if water was to be released from the Mahitahi Reservoir at particular times. Such releases are not thought to be large enough to effect any of these factors in the lower Mahitahi, where nuisance algae blooms are most frequent.

River Water Quality

The Cawthron Report assessed a number of variables affected by the backfeed discharge to the south branch, including:

- **Temperature:** Appears to have a localized effect immediately downstream of the backfeed and dam spillway that could induce thermal stress for some aquatic organisms. A review of consent conditions regarding temperature is recommended.
- **Dissolved Oxygen:** Is an issue in the reservoir water due to thermal stratification.
- **Trace Metals:** The north branch is situated in a geological area that contains a variety of naturally occurring trace metals. The dam effectively works as a trap for these metals and rather than being flushed out of the system they enter the south branch via the backfeed in a more toxic dissolved form. Not all trace metals leaching from the dam are currently monitored.
- **Turbidity:** Does not appear to be a significant issue and is being monitored at the backfeed under present consent conditions.
- **Nutrients and periphyton:** There is elevated Nitrogen in the reservoir and the backfeed and this is presently not monitored.
- **Macroinvertebrates:** The Reservoir appears to be having a negative impact on macroinvertebrate communities immediately downstream from the backfeed. This is likely to be linked to the anoxic water state, the nutrients and possibly trace metals present.
- **Fish communities and fish passage:** Available evidence points to a decline in both eel

³ Cawthron Report: Maitai River Municipal Supply Aquatic Ecology - Environmental Effects - Summary for Iwi Consultation. Prepared for Nelson City Council.

and trout numbers. Of the 14 native fish present in the river, only eels have sufficient data available to comment on their status. The Mahitahi Dam and the South Branch Weir are both partial barriers to fish passage.

Key Mitigation Options recommended by the Ecological Report include:

- Reservoir Aeration
- Backfeed Management- taking account of DO, dissolved iron and manganese, and temperature consent conditions
- Fish Passage Improvement- weir modifications required, intermittent trap and transfers
- Maintaining minimum flows- either maintaining these closer to a natural level, or if unfeasible then formalizing the existing practice of maintaining levels above minimum flow levels as much as possible.



*Figure 1. South Branch Weir and the Reservoir Spillway - both major obstructions to fish passage.
Photos: R Hunter*

4. Relationship of Te Tau Ihu Iwi to the Mahitahi River

Whakatu (Nelson) is an integral part of Te Tau Ihu. “Te Tau Ihu” is a abbreviated version of the traditional name for the top of Te Wai Pounamu – “Te Tau Ihu o te Waka a Maui” (the prow of the canoe of Maui)⁴.

⁴ Nga Taonga Tuku Iho Ki Whakatu Management Plan. Ursula Passl (June 2004).

Statutory Acknowledgements

Statutory acknowledgements for each of the eight Te Tau Ihu iwi form part of the respective Treaty of Waitangi settlements with the Crown. The settlements were legislated in 2014 and were enacted on 1 August 2014. These statutory acknowledgements recognise particular cultural, spiritual, historical and traditional associations of each iwi to particular sites/areas such as the Roding River. Te Tau Ihu Statutory Acknowledgements are an attachment to the operative Nelson Regional Policy Statement, Nelson Air Quality Plan and the Nelson Resource Management Plan.

Statutory Acknowledgements are usually provided over Crown-owned portions of land or geographic features, such as lakes, rivers, wetlands, mountains or coastal marine areas. With respect to bodies of water such as lakes, rivers & wetlands, the Statutory Acknowledgement excludes any part of the bed not owned or controlled by the Crown. Statutory Acknowledgements seek to enhance the ability of Iwi to participate in specified Resource Management Act 1991 processes, with Councils being required to have regard to the Statutory Acknowledgement. This means that Councils must have regard to the effects of activities on identified 'Statutory Areas' when deciding whether a relevant Iwi is an affected party.

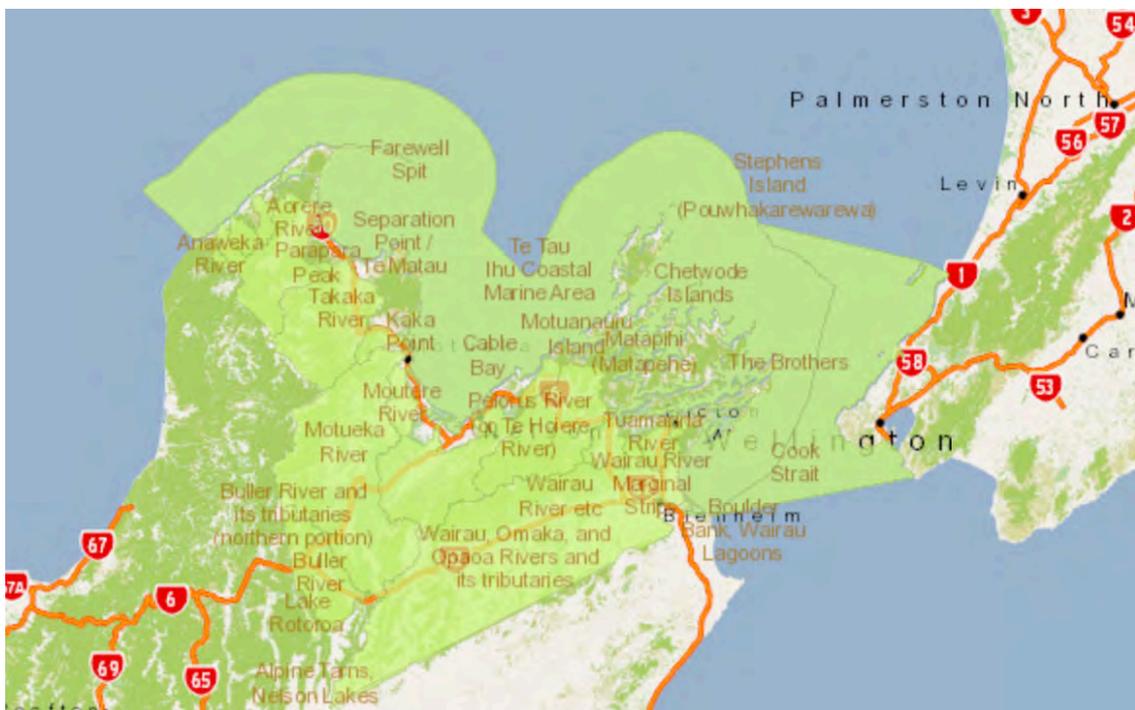


Figure 2: Combined Iwi Map – Overall Map of all Te Tau Ihu Statutory Acknowledgements

The relationship of Te Tau Ihu iwi with the location of the Mahitahi River water takes was considered in terms of the various categories listed in sections 6(e), and 7(a) of the RMA 1991 as well as the statutory associations outlined in the Statutory Acknowledgements. As such, the relationship of mana whenua/tangata whenua and their culture and traditions with Mahitahi River and other sites, waahi tapu and taonga in the vicinity of the water take was examined; including their status as Kaitiaki and practitioners of kaitiakitanga in regard to those resources.

Te Tau Ihu iwi have a further relationship – that of Treaty partner – which needs also to be considered to have a valid influence. This is discussed further in section 4.3 of this report.

Iwi Environmental Management Plans

There are four Iwi Environmental Management Plans that have been prepared in Te Tau Ihu;

The Te Atiawa Iwi Environmental Management Plan (2014); Ngāti Kuia Pakohe Management Plan (2014), the Nga Taonga Iho ki Whakatu Management Plan (2004), and the Ngāti Koata No Rangitoto Ki Te Tonga Trust Iwi Management Plan (2002) which is currently under review.⁵

The Te Atiawa Iwi Environmental Management Plan contains a section on the sustainable management of Te Wai Maori with key focus areas being:

- Water quality and quantity
- Habitat integrity
- Provision for customary practices, including access

Issues identified include the discharge of contaminants into water... “All of these discharges potentially impact on the health of the fresh water ecosystem(s) subsequently affecting mahinga kai, including watercress and tuna and other facets of the environment.”⁶

The Ngāti Kūia Pakohe Management Plan is specific to the management of Pakohe but is technically an Iwi Environmental Management Plan and is recognised as such. It seeks to maintain Ngāti Kuia historical connections to Pakohe for future generations, promote the revival of customary knowledge and practice and manage its sustainable use. The plan sets out the relationships with the various councils including NCC and other agencies such as the Department of Conservation.⁷

The Nga Taonga Iho ki Whakatu Management Plan is a collective plan prepared by five mana whenua iwi of Nelson with the assistance of NCC. Some key statements identified with respect to freshwater management include:

“Tangata whenua consider the maintenance of water quality to be vitally important for all life. Activities which reduce water quality, also reduce the mauri of the water body..... the over allocation of water, leading to reduced flows and the inability of water bodies to sustain the indigenous communities within them, is a huge concern for tangata whenua. This concern relates to the diminishing mauri of a water body and the loss of habitats supporting species such as tuna, watercress, insects and water birds. As a result tangata whenua are unable to practice their customs and traditions associated with

⁵ See <http://www.koata.iwi.nz/news-and-downloads/ngati-koata-taiao-management/>

⁶ See <http://www.teatiawatrust.co.nz/documents/Te%20Atiawa%20Iwi%20Environmental%20Management%20Plan.pdf>

⁷ See <http://www.marlborough.govt.nz/Your-Council/~media/Files/MDC/Home/Your%20Council/TangataWhenua/NgatiKuiaPakoheManagementPlan.pdf>

water, leading to a loss of matauranga (knowledge) associated with those species and habitats.”⁸

Key objectives of relevance to this application require that water bodies are healthy and maintained to a level sufficient to:

- Preserve the mauri of the water body;
- Provide for tangata whenua cultural and spiritual values and customs and traditions;
- Provide sustenance for present and future generations; and
- Increase opportunities for tangata whenua to practice customs and traditions associated with the uri (descendants) of Tangaroa.

The Ngāti Koata Iwi Management Plan contains freshwater management provisions including:

Objective 9.5 (1) Maintenance and enhancement of freshwater aquatic ecosystems and the management of the effects of activities on water quality in wetlands, lakes, rivers, groundwater and receiving coastal waters that enables:

- a) contact water recreation;
- b) food gathering;
- c) cultural integrity; and
- d) biological/ecological life supporting capacity.

Objective 9.5 (2) That the natural functioning and life supporting capacity of ecosystems is not disrupted by discharges into, the taking, use, damming and diversion of fresh surface water or groundwater.

Policy 9.6 (1) Avoid the direct or indirect discharge of contaminants into freshwater where it will modify, damage or destroy any significant ecological or spiritual value.

Policy 9.6 (2) Avoid the discharge of contaminants into freshwater where it will adversely affect:

- a) areas identified by iwi as being of special spiritual, cultural or historical significance

Policy 9.6 (6) - “Adopt a precautionary approach towards the allocation of surface and groundwater resources.”

Policy 9.6 (7) –“Avoid adverse effects on freshwater ecosystems from the taking of fresh surface water and groundwater. Generally this will mean not more than 35% of the five year – seven day low flow is allocated for abstraction.

4.1 Traditional Cultural Relationships

Te Tau Ihu iwi claim a long traditional relationship with the proposal site and surrounding area. Various iwi have held mana over both land and water resources and other taonga through generations of occupation and use.

⁸ Nga Taonga Tuku Iho Ki Whakatu Management Plan. Ursula Passl (June 2004).

There are two naming traditions identified in the Statutory Acknowledgements in relation to the Mahitahi River, one describes “Mahitahi” as an old name for whitebait (inanga) which was once found in abundance in the river. While referring to this resource it also evokes working together in unison just as the whitebait appear to follow the same path. Another naming tradition is that “Mahitahi” also relates to tūpuna working as ‘one’ with the pakohe to produce tools. Mahitahi also means ‘hard’, or ‘excellent’ in Maori. The waters of the Mahitahi were considered to have spiritual and healing properties because of their connection to Maungatapu.

The naming of water systems and land features is but one way that tangata whenua demonstrate the depth and closeness of this relationship. The waterways, and ranges and hills that surround them are named by the resident hapu in pepeha, waiata and whakatauki. For example, the following excerpt from the Statutory Association of Ngāti Kuia with the Mahitahi/Maitai River acknowledges this as follows⁹;

*“Maungatapu te Maunga
Mahitahi te Awa
Whakatu te Marae
Ngāti Kuia te Iwi”*

The Mahitahi River and surrounding wetlands and forest were rich with abundant wildlife that supported the traditional customary practices of the hapu. They were harvest sites for tuna, inanga, kokopu, korokoro (lamprey), paraki (smelt), koaro and a variety of waterfowl such as kereru, weka and Whio (Blue Ducks). Harakeke and other plants used for weaving, rongoa and timber for building were also sourced there. The Mahitahi historically provided Ngāti Kuia with easy passage from Nelson to their argillite quarry on Maungatapu as evidenced by the numerous ‘flaking’ sites recorded on the north branch of the River. Some of these sites have been destroyed or modified by the creation of the dam reservoir¹⁰. This route also provided a road or overland trails to Marlborough and other parts of the region. The confluence or “the forks” of the former north branch and the south branch was an important resting place for parties coming up and down the river and trade occurred between those bearing mined pakohe and those bringing goods and materials from the coastal markets and villages such as Matangi Awhio, at the outlet of the Mahitahi River in Whakatu (Raymond Smith, pers comm.).

In summary, traditionally, the Mahitahi River was essentially the lifeblood of Whakatu/Nelson for Te Tau Ihu iwi; a food basket, a focal point for customary harvest and practice, and a driver of trade, industry and settlement in the area.

4.2 Relationship through Kaitiakitanga

Te Tau Ihu iwi claim another level of relationship with the site - that of Kaitiaki. As Kaitiaki, the mana whenua/tangata whenua are responsible for both the knowledge (mātauranga) and the practice (tikanga) of kaitiakitanga in relation to the sustainable utilisation of resources. This relationship is a responsibility rather than a right – a duty iwi are bound by both culture and tradition to maintain. Being able to access and utilise the river environment and its resources ensures practice and transference of mātauranga and kaitiakitanga to subsequent generations.

⁹ <http://nelson.govt.nz/assets/Environment/Downloads/TeTauIhu-StatutoryAcknowledgements.pdf>

¹⁰ Ngāti Kuia Cultural Effects Report for Mahitahi and Roding River Municipal Takes (April 2016).

Therefore, the importance of keeping the river well and healthy, along with all organisms that reside within it, is paramount to iwi.

Historically, the capacity to practice kaitiakitanga was eroded by the loss of title to large tracts of ancestral land and the progressive introduction of increasing layers of government control over resources and their management. Land ownership laws, western science, fisheries controls, catchment and drainage boards, reserve and wildlife legislation and more recently district and regional councils, departments of conservation and heritage agencies have all largely had competing priorities to iwi that have impacted on the ability to effectively practice kaitiakitanga.

However, changes to resource management legislation and iwi settlements are helping to revitalise kaitiakitanga and customary practices. Local iwi, for example, are actively monitoring the cultural health of their waterways and taonga species or have aspirations to do so. Participation in this collective CIA process can also be seen as a contemporary expression of kaitiakitanga.

4.3 Relationship as Treaty Partners

The historical Treaty of Waitangi claims of Te Tau Ihu iwi have recently been settled, and provide a platform for iwi growth and revitalization in the Whakatu area. However this does not extinguish requirements to continue the partnership under the Treaty of Waitangi. The role of local government as a Treaty Partner has long been a matter of debate in terms of what obligations council's have to Māori under the RMA. Settlements create an important nexus between local government and iwi – an opportunity to build and strengthen existing relationships to achieve the purpose of the Statutory Acknowledgements and of course Section 8 of the RMA - taking into account the principles of the Treaty of Waitangi in relation to managing the use, development and protection of natural and physical resources.

Relevant Treaty principles referenced in the Nelson Resource Management Plan are:

- The principle of partnership
- The principle of the active protection of rangatiratanga
- The principle of mutual benefit

The partnership principle is addressed through early and on-going engagement with Te Tau Ihu iwi in relation to this proposal while the fact that the iwi have been the focus for addressing cultural issues recognises their rangatiratanga over their traditional lands and waters.

NCC consideration of iwi recommendations and potential options for avoiding or mitigating of adverse cultural effects offered in respect of the application would uphold the principle of mutual benefit.

5. Effects on Te Tau Ihu Iwi Culture and Values

The list of effects identified below is not set out in any order of priority or importance. They are structured under headings of the four well-beings as identified in the RMA - Environmental, Cultural, Economic and Social. Largely these issues are interconnected and overlap as certain environmental effects could just as easily be discussed under the categories of 'cultural, social or

economic' wellbeing. Before considering these individual elements, it is important to first contextualise these by looking at the "big-picture".

Past effects on the Mahitahi River have impacted on the culture and values of iwi. The iwi management plans referenced previously in this report touch on many of the historic issues that have impacted water quality in the area. These include such matters as loss of native forest cover, discharges, sedimentation, introduction of pest species, and over allocation of water leading to reduced flows and the inability of rivers to sustain the ecosystems within them. These have flow on impacts such as diminishing of mauri, loss of access to and matauranga associated with sites and species, and subsequently can impact the mana of iwi.

5.1 Environmental Effects

All water (freshwater, underground water, seawater etc) is a most sacred taonga. How water is management can affect the mauri of awa and the species that inhabit them. Te Tau lhu iwi are the kaitiaki of a variety of taonga species and resources which were formerly abundant in the vicinity. In addition to their kaitiaki responsibilities, great importance also rests on the ability of the iwi to be able to continue or restore customary practices in and around this location.

Key aspects of this proposal that have the potential to effect the mauri of the Mahitahi River and taonga species that inhabit this location relate to water quality in the reservoir and at the backfeed discharge and physical restrictions to fish passage due to the weir structure and dam spillway. These primarily relate to water quality and fish passage:

Water quality in the reservoir is affected by the accumulation of naturally occurring heavy metals such as manganese, nickel, chromium, and iron and by thermal stratification. The north branch is situated in a geological area that contains a variety of naturally occurring trace metals. The dam effectively works as a trap for these metals and rather than being flushed out of the system as would have occurred "pre dam" they enter the south branch via the backfeed in higher concentrations than would occur with natural river flow. Low dissolved oxygen is a significant issue in the lower layers of the reservoir itself but seems to resolve within 100m of the backfeed discharge indicating that this is a localized and likely minor effect. Temperature does not appear to be a factor at the backfeed discharge point but monitoring indicates a slight elevation immediately downstream of the spillway discharge pool. This localized effect is likely minor but when taken into consideration in conjunction with other effects it appears that the Cawthron recommendation to review consent conditions relating to temperature is warranted.

Aeration of the reservoir is the primary mitigation proposed to reverse the water quality issues associated with deoxygenation, however the exact method is yet to be determined. This could be via an 'in dam' oxygenation pump or through hypolimnetic aeration. According to the Cawthron report, aeration of the whole reservoir would improve the water quality within the reservoir, thus improving habitat for those species in the dam, and, at the backfeed discharge, resulting in a catchment wide restoration outcome. This is the preferred method identified by Ngāti Kuia and aligns to the provisions of the iwi management plans referred to in section 4 above.

This backfeed discharge is known to have a detrimental effect on water quality in the Mahitahi River as evidenced by declines in biotic river health indicators immediately below the backfeed and potentially for another 2-3km downstream of the reservoir.¹¹ A study by Allen et. al (2014) indicated that these effects are not only related to the discharge but also the presence of the reservoir and its alteration of seasonal runoff patterns, nutrient storage and phytoplankton supply to downstream communities. While it remains difficult to clearly establish what influence the dam and backfeed discharge are having on the Mahitahi as a whole because of a range of other anthropogenic factors, the report suggested that only addressing water quality through the back feed discharge may not remedy the observed effects on biota. The report advised that limiting the volume of water through the backfeed by sourcing a greater proportion of domestic water supply from the reservoir could help minimise these effects.

Taking water for municipal supply from the reservoir has not been favoured to date because of the higher treatment costs. While the Cawthron report did not identify significant adverse effects on the flow regime as a result of the south branch intake, the 2014 Allen report does infer that utilizing more of the reservoir water and increasing minimum flows below the dam could achieve better outcomes at the catchment level. It may be timely for NCC to start looking at this as an option in line with other sustainable methods of future proofing Nelson's water supply needs, such as developing policies that promote rainwater harvesting and water use efficiencies.

The barriers to fish passage can be mitigated to a great extent and supplemented by intermittent fish trap and transfer operations. NCC have recently undertaken fish passage remediation to assist climbing species at the dam spillway and intake structure but recognise that further improvements could be made. Iwi such as Ngāti Kuia have views on methods to achieve this and there should be ongoing dialogue between the applicant and mana whenua/tangata whenua in collaboration with Cawthron as to how this can occur.

5.2 Cultural Effects

As mentioned previously, the Mahitahi River is a tupuna awa for Te Tau Ihu iwi. Safeguarding the mauri of the river is a primary focus. Tangata whenua such as Ngāti Kuia look to cultural health indicators to interpret the status of mauri. These may include factors such as the presence of healthy kai and other indigenous flora and fauna, the presence of resources fit for cultural use, and the aesthetic qualities of resources such as the visibility of important landmarks. The cultural integrity of the river as an important landmark or component of the cultural landscape has been compromised by the weir and other related structures. Fortunately, the passage between Nelson and Maungatapu has not been affected and iwi are able to continue their annual hikoi to Maungatapu for the collection of Pakohe for traditional stone working.

The environmental effects outlined in section 5.2 can have flow on cultural effects such as the reduction in ability to practice kaitiakitanga, loss of matauranga, loss of harvest opportunities and so forth.

¹¹ Longitudinal Assessment of the Health of the Maitai River: The Influence of the Maitai Reservoir (Allen et. al, 2014). Cawthron.

The mitigation options proposed by Cawthron are supported as they are expected to improve water quality, the distribution and abundance of fish such as tuna (eel) and koaro and enhance cultural values such as mauri overall. Consideration of opportunities for iwi to practice kaitiakitanga in the context of this consent, i.e; through provision of monitoring reports, reports on trap and transfer operations and exploring possibilities to support cultural health monitoring would also provide a level of mitigation in relation to this consent.

5.3 Social and Economic Effects

Security of domestic water supply for Nelson/Whakatu is important for the wellbeing of the entire community, including iwi. Balancing against that is the fact that the social and economic wellbeing of mana whenua/ tangata whenua is also inextricably linked to ecological and cultural health.

The water takes and associated infrastructure have had significant adverse effects on customary practices and mahinga kai in the Mahitahi. Any effect or combination of effects that makes subsistence and/or cultural harvest harder or less attainable has and will continue to have a social and economic effect on iwi. At present, tuna numbers are in decline in the river. The reasons for the decline of eel and trout are unknown, but tangata whenua have signalled their desire to once again sustainably harvest tuna, to be able to take freshwater fish and watercress from the river and to swim in it. The mitigation options presented by Cawthron and outlined in the preceding section of this report should assist in progressing restoration outcomes that align with iwi aspirations.

6. Potential Measures to Avoid, Remedy or Mitigate Adverse Effects

Where an activity results in adverse effects on the environment, section 5 of the RMA requires that these be avoided, remedied or mitigated. Case law considers that the ordering of these requirements prescribes a hierarchy – if at all possible effects must be avoided. If this is not possible then they must be remedied. Where they can be neither avoided or remedied then adequate mitigation measures are required. Ngāti Kuia have made several recommendations in relation to the Mahitahi River Water Takes proposal which are embodied in the recommendations below.

Recommended measures to avoid, remedy or mitigate potential adverse effects for consideration by NCC should this consent be granted include:

- That the content and recommendations contained in this report be received and considered by NCC.
- That the full consent application; including AEE and any volunteered consent conditions is provided to Te Tau Ihu iwi when available for their review and input.
- That the applicant prioritise the evaluation of options to improve oxygenation of the Maitai Reservoir to remedy the adverse effects of the current anaerobic state of the lower level water strata, improve the dam habitat and mitigate the adverse effects the dam has had on the mauri of both branches of the River.
- That further engagement with mana whenua/tangata whenua take place in regard to

the selection and implementation of the preferred aeration method and that this method should be implemented as soon as practicable following the grant of consent.

- That the applicant provide for fish passage in line with current best practice (including maintaining wet passage areas for climbing species and potentially retreats for steep long distance climbs such as the dam spillway) for all in stream structures as soon as practicable and in consultation with iwi and Cawthron.
- That the applicant undertake intermittent fish trap and transfer operations in line with the recommendations of the Cawthron report and make provision for the involvement of iwi (if they desire) to promote kaitiakitanga and build capacity and capability. Reports of these operations are to be provided to iwi and any such operation shall ensure that no exotic species are transferred.
- That provision is made for mana whenua/tangata whenua participation in any discussions around options for enhancement of the Brown Trout fishery.
- That the applicant invite Te Tau Ihu iwi to discuss opportunities to support cultural health monitoring programme/s in the Mahitahi River.
- That the consent's current requirements for annual aquatic ecological monitoring reports are continued at least 1 x per year; and that these reports include three locations being, upstream of the south Mahitahi weir, within the natural flows of the north branch upstream of the dam lake, and immediately downstream of the confluence (the forks). The report must include fish species; invertebrates; algae and cyanobacteria and; instream vascular flora. If the reports show depleted native flora and fauna health and abundance that can be attributed to the Mahitahi water takes, the applicant must investigate a remedy as soon as practicable and in conjunction with Te Tau Ihu iwi.
- That a comprehensive list of proposed physical and chemical monitoring regimes be made available to iwi for review and comment.
- That the applicant remove any debris from the subject structures from the bed or banks of the rivers as soon as practicable following any flooding event or at any other time when debris becomes detached from the consented structures.

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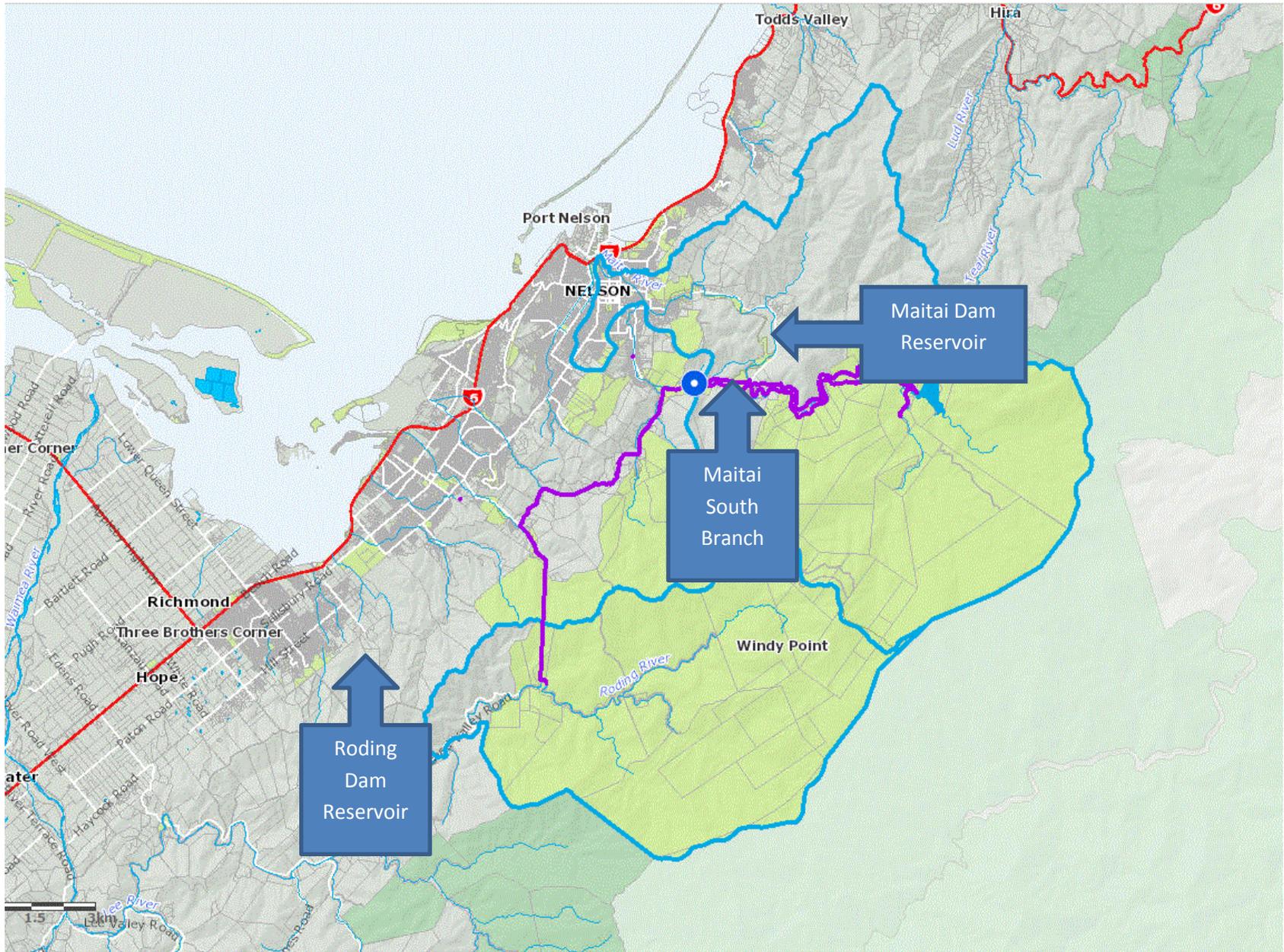
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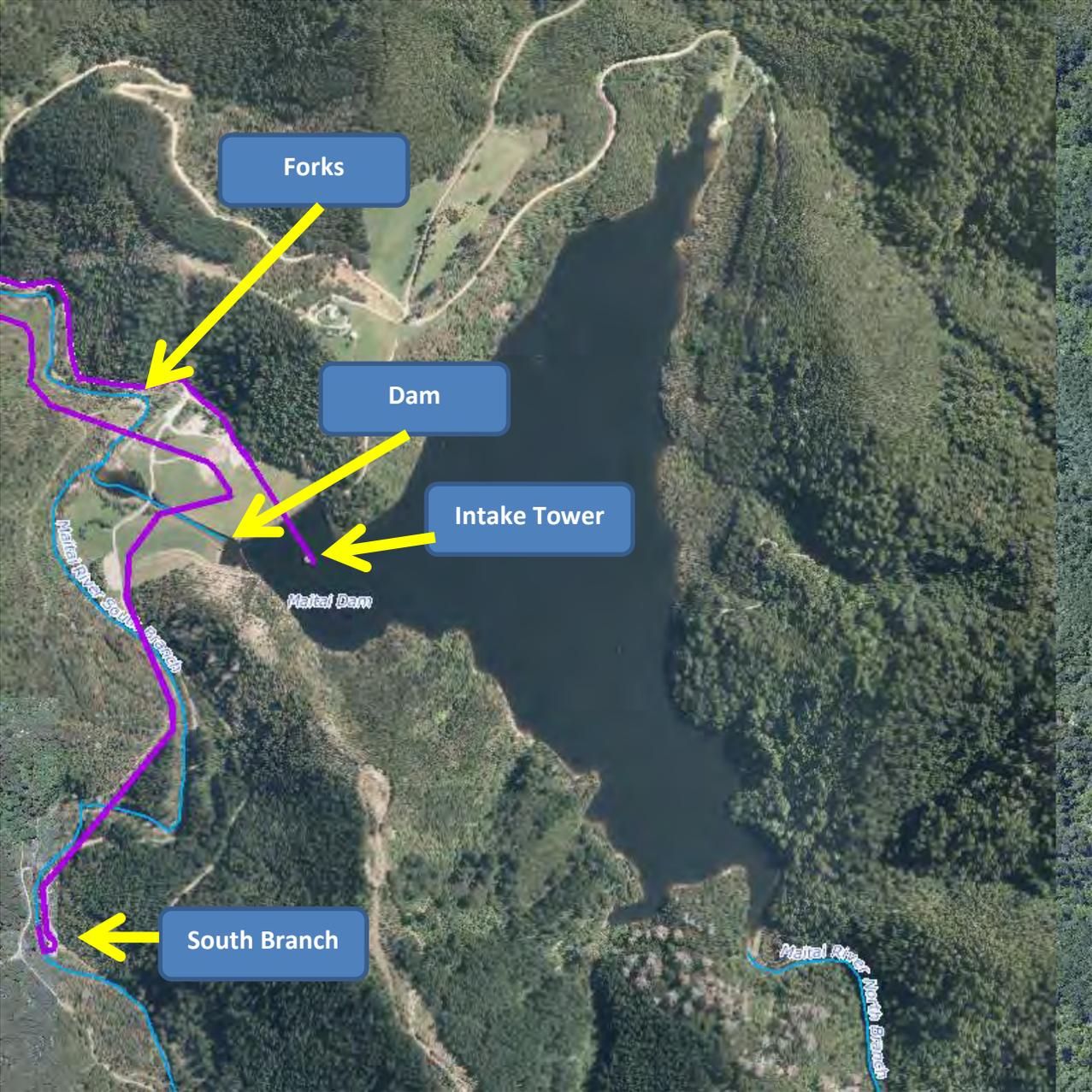
8. Appendices

Appendix A	Information Package & Feedback Templates
Appendix B	NCC CIA Consultation Record
Appendix C	Ngāti Kuia Cultural Effects Report
Appendix D	CIA Mana Whenua Relationship and Effects Matrices

Appendix A: Information Package & Feedback Templates



Maitai Dam Aerial Photo



Maitai Dam Drone Photo looking west



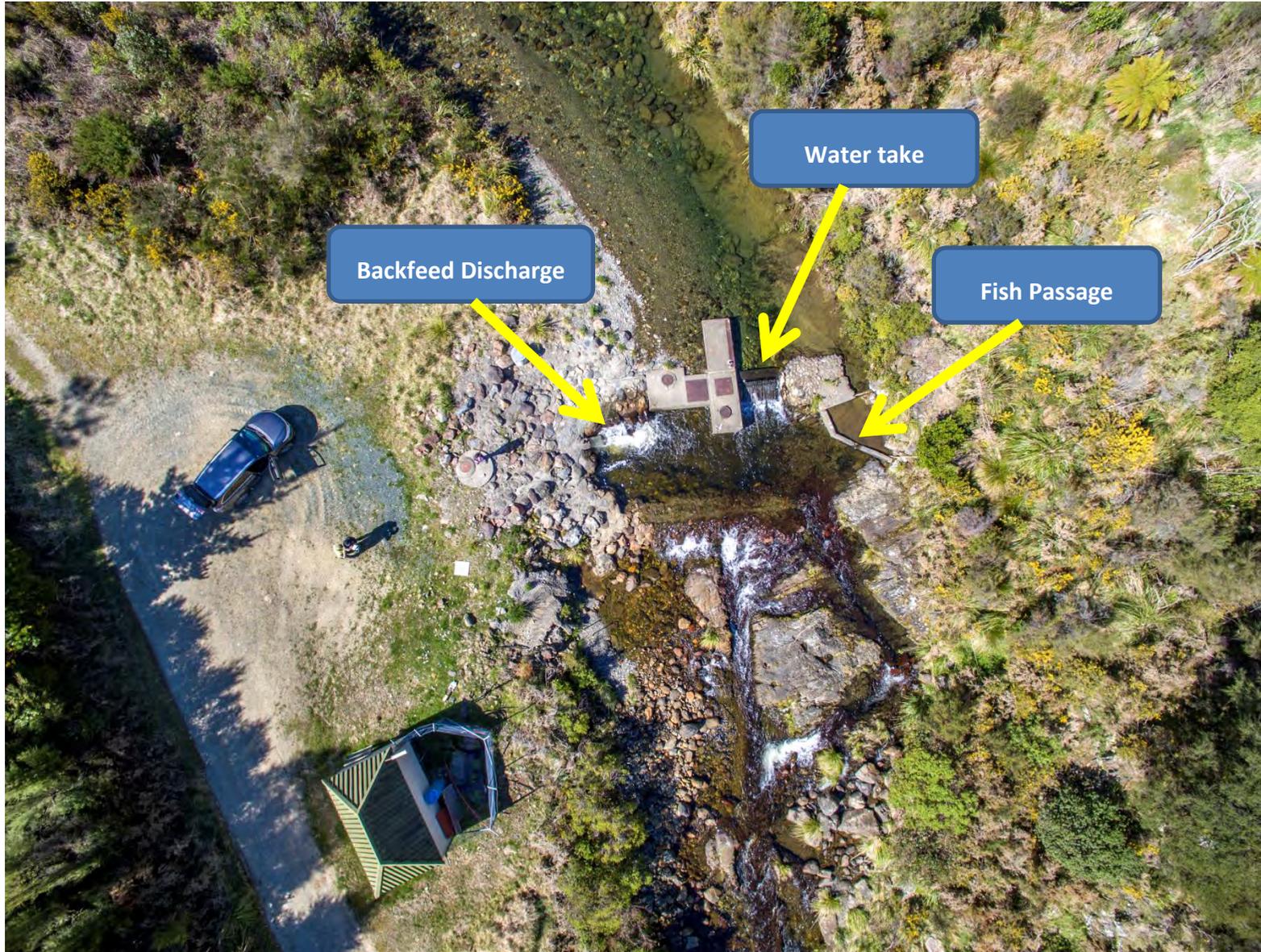
Maitai Dam Drone Photo looking east



Maitai River South Branch



Maitai River South Branch Drone photo looking south



Roding Dam Reservoir



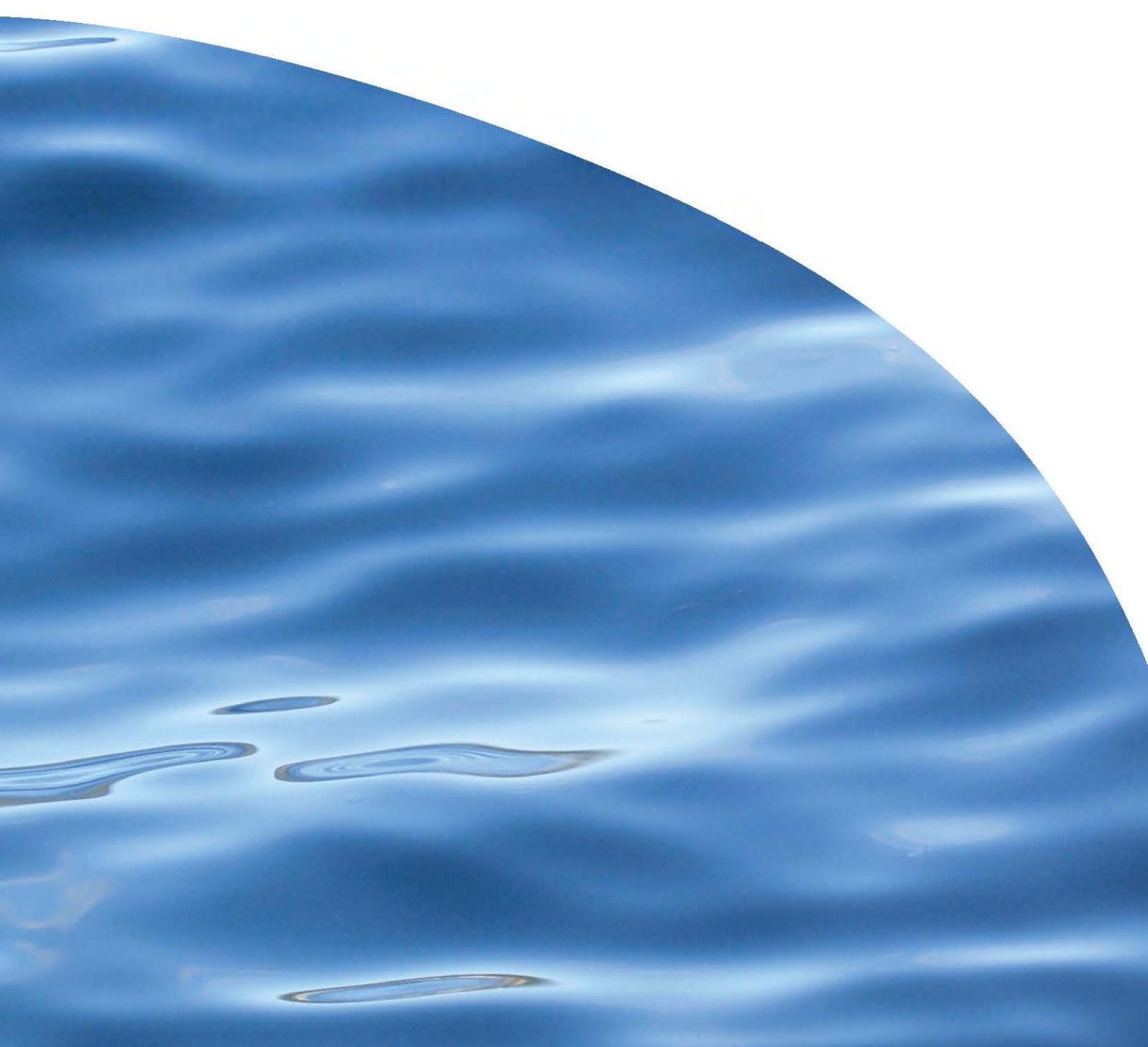
Roding Dam Reservoir Drone photo looking north





REPORT NO.2810A

**MAITAI RIVER MUNICIPAL SUPPLY AQUATIC
ECOLOGY - ENVIRONMENTAL EFFECTS -
SUMMARY FOR IWI CONSULTATION**



MAITAI RIVER MUNICIPAL SUPPLY AQUATIC ECOLOGY - ENVIRONMENTAL EFFECTS - SUMMARY FOR IWI CONSULTATION

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1. SUMMARY OF ECOLOGICAL EFFECTS AND POSSIBLE MITIGATION OPTIONS

1.1. Maitai Reservoir

The Maitai Reservoir has been operated by Nelson City Council (NCC) on the North Branch of the Maitai River just above the Forks to augment the Nelson municipal water supply since 1987. Three NCC investigations led by Cawthron assessed:

1. habitats in the Maitai Reservoir and N. Branch tributary (Kelly & Shearer 2013);
2. processes driving water and sediment quality in the reservoir (Kelly 2014);
3. options for improving water quality issues in the reservoir associated with bottom –water oxygen depletion (Kelly 2015).

Water levels in the Reservoir are operated over a reasonably narrow range and are anticipated to maintain healthy ecological conditions in the lake-edge community, which extends to around 6 m depth.

The Reservoir can be characterised as a low productivity system. However, because the Reservoir is deep it thermally stratifies¹ which contributes to deoxygenation in its bottom waters. Anoxic conditions (no oxygen) can render the reservoir more susceptible to internal recycling of trace metals and dissolved nutrients (phosphorus and nitrogen). High dissolved iron and manganese concentrations in bottom waters were evident in monitoring data. (The concentration ranges for dissolved iron could pose toxicity effects within and downstream of the Reservoir.) Nutrient concentrations were moderate. The prevalence of high dissolved metal concentrations is likely to continue without management intervention.

Biota in the Reservoir such as phytoplankton², zooplankton³, macrophytes⁴ and macroinvertebrates⁵ are characteristic of low productivity systems. Fish populations consisted of four species: common bullies, upland bullies, longfin eels, and brown trout. Koaro were found in the river and juveniles may inhabit the Reservoir, but were not detected. Anoxic conditions in the bottom waters limited fish to the shallow portions of the Reservoir, and no fish were caught below 5 m depth. The heavily skewed size class structure of longfin eels towards large (> 600 mm) adult individuals indicates that limited recruitment is occurring from juveniles migrating upstream to the Reservoir.

¹ Heats up at the surface and stays cold at the bottom. This stops any mixing of the temperature layers.

² Tiny plants suspended in the water

³ Tiny animals suspended in the water

⁴ Aquatic plants

⁵ Aquatic insects and molluscs

1.2. Maitai River flows

The effects of the construction of the Maitai Dam and associated operation of the Reservoir were examined in relation to flows in the downstream Maitai River, using long-term records from flow recorders at the Maitai Forks and Maitai Avon Terrace, as well as previously-derived flow regression functions (Hewitt and Kemp 2004).

Augmentation of summer flows by the reservoir substantially decreased the duration of low flows caused by abstraction. The pre-dam abstracted flow regime was estimated to reduce the 95 percentile low flow by 52%, relative to naturalised flows, compared to a post-dam (status quo) reduction of 9%.

The Reservoir has a moderate effect on low to median flows, with the median and 7-day mean annual low flow (7-day MALF) approximately 18% and 12% less at the Forks recorder site than the naturalised flow regime. Further downstream, the relative change in median and 7-day MALF at Avon Terrace was smaller at approximately 8% and 10%, respectively. Seasonal analyses of mean monthly median flow at Maitai Forks showed the greatest reductions in flows from the Dam occur over summer.

While there is no significant long term historical trend in rainfall for the Nelson-Tasman region, current climate change projections estimate an increase of 5-6% by 2090, with more frequent periods of very heavy rainfall. Variability due to the influence of the El Niño-Southern Oscillation and the inter-decadal Pacific Oscillation are predicted, on average, to fluctuate rainfall by up to 20% and 15%, respectively.

1.2.1. Flushing flows

Nelson City Council (NCC) has explored the feasibility of providing additional flow releases from the Maitai Dam during prolonged periods of low flow, to flush fine sediment and periphyton⁶ accumulations from the riverbed. In particular, there was interest in whether flow releases from the reservoir could help alleviate potentially toxic blue-green algal (cyanobacteria) blooms in the mid to lower river. To inform this a flushing flow analysis was conducted for two reaches of the Maitai River, based on existing hydraulic modelling datasets, in the vicinity of Smiths Ford and the Sharlands Creek confluence, respectively.

Flushing of fine sediment and periphyton from the stream bed was predicted to require approximately 9 m³/s in the Smith's Ford reach and 17 m³/s in the Sharlands Creek reach. The flow required to achieve flushing increases downstream with increasing channel capacity and reduced slope. The Maitai Dam does not have the physical infrastructure to allow release of this magnitude, although naturally-occurring flow events could be augmented by flow releases.

Flow releases of up to 3.5 m³/s from the Reservoir have the potential to increase the flushing effectiveness in the upper river by topping up floods in excess of 6 m³/s,

⁶ Slime and algae

these events occur regularly in most summers. However, they are likely to be less effective in the lower reaches because of the infrequency of natural flow events large enough ($>14 \text{ m}^3/\text{s}$) to flush the river. Therefore it is unlikely that flushing flow releases from the dam will have much impact on cyanobacteria blooms that occur predominantly in the mid to lower river.

Consideration would also need to be made around water-use efficiency, as any water used for flushing-flow releases decreases the amount of stored water in the Reservoir that are available to augment minimum flows.

1.2.2. Flow-related fish habitat

Changes to the flow regime have the potential to reduce habitat available for instream life during periods of moderate to low flow. This has been assessed in the Maitai River using in-stream physical habitat modelling (Hay and Allen 2014).

Reduction in flow below the natural MALF is likely to lead to a reduction in the amount and average quality of habitat for most species of native fish and brown trout recorded from the Maitai River. Habitat for invertebrates, which these fish feed on, is also reduced by flow reduction. Prospective minimum flows were derived from the habitat modelling results based on maintaining habitat of 'critical value', with the rationale that by providing sufficient flow to sustain the most flow-sensitive species, other significant values will also be sustained.

In the Maitai, torrentfish habitat is the most flow-demanding, with minimum flows of 228-235 l/s (at the Maitai Forks), depending on the level habitat retention applied. As a fast water specialist, torrentfish is a candidate critical value species because its habitat is sensitive to flow. Torrentfish is listed as 'Declining' in the DOC threat classification (Goodman *et al.* 2014), and the fish was traditionally caught by Māori. It is still considered taonga by some iwi.

These prospective minimum flows based on torrentfish habitat retention are higher than the existing summertime minimum flow⁷ at the Maitai Forks (175 l/s). However, in practice abstraction is managed so that flow is usually above this cited minimum. For this reason the measured 7-day MALF at the Maitai Forks is 220 l/s, and is actually quite close to the recommended minimum flows for torrentfish.

1.3. River water quality

1.3.1. Temperature

Water temperature affects all aspects of freshwater ecosystems, from its influence on the solubility of oxygen through to regulating metabolic rates and growth of most aquatic organisms. Several consent conditions are in place to mitigate local water

⁷ as was the ~300 l/s minimum flow recommended by Hayes (2003).

temperature changes potentially arising from the discharge of water from the Reservoir into the Maitai South Branch via the backfeed. Monitoring data show that these temperature consent conditions are complied with nearly all the time. However, river water temperature also tends to step up immediately downstream of the spillway discharge pool, and during summer it can be in a range likely to induce thermal stress for some sensitive aquatic organisms. However, the potential influence of the Dam on water temperature is likely to attenuate rapidly, and is unlikely to have much influence on water temperature in the mid to lower river. A review of the consent conditions regarding the temperature is recommended.

1.3.2. Dissolved oxygen

Dissolved oxygen levels greater than 6 mg/L (or 80% saturation) are considered sufficient to support sensitive fish or macroinvertebrate communities. During summer, thermal stratification in the Reservoir can result in severely reduced oxygen levels in its bottom waters. Water from the lake bottom is commonly discharged into the Maitai River via the backfeed. However dissolved oxygen levels 100 m below the backfeed discharge point have, to date, always exceeded 6 mg/L, even during summer, indicating rapid oxygenation in the river downstream of the backfeed.

1.3.3. Trace metals

The Maitai Dam is situated in a geological region that contains naturally high levels of trace metals such as nickel, chromium, iron and manganese. In the absence of the Dam, the rain events that mobilise these metals would also flush them out to sea in floods, but the Reservoir has the effect of trapping, storing and slowly releasing these metals into the Maitai River in a more toxic dissolved form. High concentrations of these heavy metals can be toxic to aquatic life. During summer, the Reservoir can discharge water high in iron and manganese, and these minerals oxidise to form precipitates when this water is released into the South Branch. Manganese and iron concentrations have generally been at or below consented limits. However, dissolved iron levels can in some cases exceed concentrations identified for protection of aquatic life. The influence of other trace metals (nickel, chromium) can also be elevated below the backfeed discharge, although there is currently no monitoring of these elements.

1.3.4. Turbidity

Turbidity (a measure of water clarity) has potential to increase in the Maitai River below the backfeed discharge, mostly related to dissolved materials in the reservoir discharge precipitating when entering an oxygen –rich environment. High turbidity can affect ecosystem functioning (e.g. poor visibility for fish). Current consent requirements demand that there is to be a change of less than 10 turbidity units (NTU) at a site 100 m below the backfeed discharge, which has always been met in consent monitoring.

1.3.5. Nutrients and periphyton

Nutrients (nitrogen and phosphorus) are potentially limiting elements for the growth of river algae. Monitoring of nutrients in the Maitai River downstream of the Reservoir backfeed is not required under current consent conditions. Allen *et al.* (2014) found evidence of elevated nutrient concentrations downstream of the reservoir backfeed. This is mostly related to higher nitrogen concentrations in the North Branch and the reservoir, with the reservoir acting as a storage pool for nutrients that are then released more gradually to the river. Elevated nitrogen from the backfeed could contribute to the greater coverage by periphyton. This is mostly filamentous algae, and not the toxic cyanobacteria blooms such as those that affect the lower reaches of the Maitai River (Wood *et al.* 2015).

1.3.6. Macroinvertebrates

Aquatic macroinvertebrates describes large (>0.5 mm in length) invertebrates such as insects, snails and worms that live in the riverbed. Macroinvertebrates play an important role in maintaining periphyton communities (through grazing), and as a food source for fish and some birds species. Macroinvertebrates are commonly used in assessments of ecological health of rivers.

Based on a range of macroinvertebrate community indices commonly used for assessing water quality, the Maitai Reservoir appears to be having a negative impact on stream biota immediately downstream of the back-feed discharge (Newton 2015). These changes are most likely associated with changes in the periphyton communities, which in turn are influenced by nutrients and possibly trace metals present in the discharge of anoxic water from the bottom of the reservoir, especially during mid to late summer.

1.3.7. Fish communities and passage

Fourteen species of native fish have been identified in the Maitai River as well as the introduced brown trout. Of these fish, eight have been recorded in the upper catchment around the Reservoir. With the exception of longfin eels, data are deficient to undertake a trend analysis on the native fish populations.

Prior to the 1990s the mid-lower Maitai River is reported to have supported a popular and productive fishery. Currently the river is not a popular fishery. Electric fishing and drift dive surveys indicate a sustained decline in the trout population over the past two decades. At present it is unclear as to the reasons for the population decline.

The popular mixed-species whitebait fishery in the tidal reach of the Maitai River is likely to be predominantly based on juvenile inanga which are a lowland river species. Therefore, there is little potential for the Reservoir (in the upper catchment) to influence this value. However, the NCC initiative to improve access for koaro to habitat upstream of the reservoir may have a modest positive impact on the fishery.

Tuna (eels) are valued for biodiversity reasons as well the customary and recreational fisheries they provide. However, there is little available information on the use or productivity of the tuna fishery in the Maitai River. Based on electric fishing records at one site juvenile eel numbers appear to be in decline since 2002. This decline occurs in parallel with a decline in trout numbers. At present it is unclear as to the reasons for the apparent decline in the juvenile eel population.

1.3.8. Fish passage

The Maitai Dam and South Branch weir are both partial barriers to fish passage, particularly for fish moving upstream. A large proportion of New Zealand's native fish species require access to and from the sea to complete their life cycles. The location of the Maitai Dam and South Branch weir in the upper catchment means they are likely an impediment only to relatively strong migrants, such as redfin bully, longfin eel and kōaro and trout, which penetrate that far upstream from the coast (Doehring and Hay 2014).

With the exception of redfin bully, all of these species have been recorded upstream of both the Maitai Dam and the South Branch weir, although the population densities above these structures are probably reduced to some extent relative to what may have existed naturally.

Nelson City Council has recently undertaken remedial work to improve fish passage opportunities at both the Maitai Dam spillway and the South Branch weir (Hay *et al.* 2015). These alterations have mainly focused on assisting native species with a relatively strong ability to climb obstacles, such as longfin eel and kōaro. Monitoring following the remedial work indicates that eel elvers⁸ are successfully climbing these structures. However, exposure to predation remains an issue for these fish as they are concentrated to predictable points to climb these structures.

⁸ juvenile eels

2. KEY MITIGATION OPTIONS

2.1. Reservoir aeration

Reversal of issues associated with deoxygenation (e.g. dissolved metals) would require intervention by increasing dissolved oxygen (DO) in the Reservoir bottom over the summer stratified period. Typically this is done through hypolimnetic aeration or aeration mixing, with documented cases for reservoirs in New Zealand and internationally to draw upon. Aeration mixing would improve both the water quality for water backfed to the Maitai River, and result in a catchment-wide restoration outcome. NCC has funded a detailed investigation in design of such a system (Kelly 2015).

2.2. Backfeed management

Management of the Reservoir outflows through implementing a 50% DO minimum for backfeed waters could also act to reduce the output of dissolved iron and manganese to the Maitai River. This could be considered as an alternative strategy to aeration, but could result in slight warming of the river during late summer, although this is thought to be minor. However some consideration of consent temperature conditions would have to be made for this option (Kelly 2015; Hay & Allen 2015).

2.3. Fish passage

Improvement in fish passage of eels and koaro over the weir and spillway has partially been completed through installing a spat rope over the length of the spillway face and a pump to keep the face wetted during periods when the reservoir levels are below the spillway crest. This appears to be facilitating better passage (indicated by ongoing infra-red video monitoring) and could result in greater fish abundances in the Reservoir and North Branch tributary. The backfeed weir modifications also appear to facilitate eels to pass the structure, with some minor adjustments needed to minimise fish becoming stranded near the backfeed attractant flow. Intermittent manual trap and transfer operations to move juvenile fish past the dam would help, since their release would not be easily predictable by predators which congregate near the slipway top and bottom areas (Doehring & Hay 2014; Hay *et al.* 2015).

2.4. Flows

Hay and Allen (2014) suggested considering increasing the minimum flow in the Maitai River below the dam, to maintain in-stream values closer to natural levels. Increasing the minimum flow to about the magnitude of the current MALF would substantially increase the level of habitat retention for torrentfish (to 59%) and other fish species. Alternatively, they suggested, the existing practise of maintaining flows

above the minimum flow level as much as possible could be continued and perhaps formalised in some way, particularly during years in which water storage in the reservoir appears to be available for this use (Hay 2014).

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The assessment of the existing (but due to expire) consents provided above has been integrated into the following activities, relevant Freshwater Plan (Appendix X NRMP) rules and status assessment.

Activity	Rule and Rule Name	Activity Status	Reason
Maitai River			
Land Use Consent: To use and maintain the existing Maitai dam in the north branch of the Maitai River, and for associated structures in the bed of the north branch	FWr.6 Instream dams	Discretionary	Instream dams on the Maitai River for the purpose of reticulated urban water supply are specifically identified as being a discretionary activity.
Water Permit To dam and divert the north branch of the Maitai River to form the Maitai Reservoir	FWr.6 Instream dams	Discretionary	Damming water on the Maitai River for the purpose of reticulated urban water supply are specifically identified as being a discretionary activity.
Discharge Permit To discharge water from the reservoir to the South Branch of the Maitai River via the spillway and overflow channel	FWr.20	Discretionary Water class?	
Water Permit To take water from the Maitai Reservoir for the purpose of urban water supply	FWr.12 Take, use or diversion of surface water	Discretionary	The existing flow regime (set out in catchment allocation) will not be reduced.
Water Permit To take water from the Maitai Reservoir for the purpose of providing compensation water into the south branch	FWr.12 Take, use or diversion of surface water	Discretionary	The existing flow regime (set out in catchment allocation) will not be reduced.
Land Use Consent: To use and maintain the existing weir in the south branch of the Maitai River, and for associated structures in the bed of the south branch	FWr.6 Instream dams	Discretionary	Instream dams on the Maitai River for the purpose of reticulated urban water supply are specifically identified as being a discretionary activity.
Water Permit To dam the south branch of the Maitai River	FWr.6 Instream dams	Discretionary	Damming water on the Maitai River for the purpose of reticulated urban water supply are specifically identified as being a discretionary activity.
Water Permit	FWr.12	Discretionary	

To take water from the south branch of the Maitai River for the purpose of urban water supply	Take, use or diversion of surface water		
Discharge Permit To discharge scour and/or compensation water to the south branch of the Maitai River.	FWr.20 Point source discharges to freshwater bodies	Discretionary Water class?	
Discharge Permit To discharge scour water from the south branch pipeline to the bed of the south branch of the Maitai River.	FWr.20 Point source discharges to freshwater bodies	Discretionary Water class?	
Discharge Permit To discharge scour water and contaminants to the north branch channel of the Maitai River	FWr.20 Point source discharges to freshwater bodies	Discretionary Water class?	
Discharge Permit To discharge mixing box overflow water to the north branch channel of the Maitai River	FWr.20 Point source discharges to freshwater bodies	Discretionary Water class?	
Discharge Permit To discharge flow enhancement water to the north branch channel of the Maitai River	FWr.20 Point source discharges to freshwater bodies	Discretionary Water class?	
Land Use Consent: To disturb the bed of the south branch Maitai River for the purpose of extracting or relocating gravel	FWr.8 Aggregate Extraction	Discretionary	Relocation of gravel within the bed = disturbance not extraction

<p>Land Use Consent:</p> <p>Other miscellaneous structures:</p> <ul style="list-style-type: none"> - sampling and measuring - itemise 	<p>FWr.4</p> <p>Maintenance, replacement, upgrade and removal of structures in the beds of rivers and lakes and their margins (excluding dams)</p>	<p>Controlled or Permitted</p>	<p>Utility structures are identified as being controlled activities or permitted if only maintained. Confirm.</p>
<p>Roding River</p>			
<p>Land Use Consent:</p> <p>To authorise, use, reconstruct and maintain the existing weir, intake building screens and all associated structures</p>	<p>FWr.6</p>	<p>Discretionary</p>	
<p>Water Permit</p> <p>To dam water in the Roding River behind the existing weir</p>	<p>FWr.6</p> <p>Instream dams</p>	<p>Discretionary</p>	
<p>Discharge Permit</p> <p>Discharge water and contaminants (gravel and sediment) over and through any of the weir structures and into the bed of the Roding River</p>	<p>FWr.20</p>	<p>Discretionary</p> <p>Water class?</p>	
<p>Land Use Consent:</p> <p>To use, reconstruct and maintain the pipeline from weir intake over the beds of the Roding River and Long Gully Stream</p>	<p>FWr.4</p> <p>Maintenance, replacement, upgrade and removal of structures in the beds of rivers and lakes and their margins (excluding dams)</p>	<p>Controlled or Permitted</p>	<p>Utility structures are identified as being controlled activities or permitted if only maintained. Confirm.</p>
<p>Water Permit</p> <p>To take water for Nelson City public water supply</p>	<p>FWr.12</p> <p>Take, use or diversion of surface water</p>	<p>Discretionary</p>	
<p>Discharge Permit</p> <p>To discharge scour water from the water supply pipeline to the bed of the Roding River</p>	<p>FWr.20</p>	<p>Discretionary</p> <p>Water class?</p>	
<p>Land Use consent</p> <p>To use, reconstruct or maintain the sluice gate at the intake end of the</p>	<p>FWr.4</p>	<p>Discretionary</p>	

diversion tunnel and at the outlet structure of the diversion tunnel in, on, over or under the Roding River, to keep the tunnel in working order.			
Water Permit	FWr.12	Discretionary	
To divert water and water containing sediment via a sluice gate through the diversion tunnel.	Take, use or diversion of surface water		
Discharge Permit	FWr.20	Discretionary	
To discharge water and water containing sediment and other contaminants from the diversion tunnel into the Roding River downstream of the existing weir.		Water class?	
Land Use	FWr.1	Discretionary	
Disturb, and excavate material from the bed of the Roding River, and deposit excavated material on the bed of the Roding River including for the purpose of moving gravel and other sediments through the diversion tunnel and to facilitate use, reconstruction or maintenance of the weir structures, and other structures.			
Land Use	FWr.1	Discretionary	
From time to time use, erect, reconstruct, place, alter, extend, remove or demolish a temporary bund in the Roding River for the purpose of trapping and settling sediment in the river during the excavation of the bed of the ponding area immediately upstream of the weir and for the purpose of facilitating the use, reconstruction or maintenance of the diversion tunnel.			
Water Permit	FWr.6	Discretionary	
From time to time dam water in the Roding River by means of a temporary bund.	Instream dams		
Land Use consent	FWr.4	Controlled or Permitted	Utility structures are identified as being controlled activities or permitted if only maintained. Confirm.
To use, reconstruct, or maintain the pipeline from the intake structure and pipeline in, on, under or over the bed of the Roding River and Long Gully Stream to the chlorinator.	Maintenance, replacement, upgrade and removal of structures in the beds of rivers and lakes and their margins (excluding dams)		

<p>Water Permit</p> <p>Take, divert and use up to 30m³/day of water from Long Gully for the purpose of operating a chlorination dosing plant</p>	<p>FWr.12</p> <p>Take, use or diversion of surface water</p>	<p>Discretionary</p>
<p>Land use</p> <p>To erect and place monitoring equipment in or over the bed of the Roding River for the purpose of measuring water level, water temperature and any other variable in the river.</p>	<p>FWr.4</p>	<p>Discretionary</p>
<p>Land Use</p> <p>To use and to reconstruct and alter/maintain two concrete fords and their associated vehicle access in, on, under or over the bed of the Roding River.</p>	<p>FWr.4</p>	<p>Discretionary</p>
<p>Land Use</p> <p>Vehicle access across fords</p>	<p>FWr.2</p>	<p>Permitted</p>

Cultural Impact Assessment Feedback Templates

RELATIONSHIP AND EFFECTS MATRICES

1. IDENTIFY THE RELATIONSHIP OF TANGATA WHENUA WITH THE RESOURCE, ASSESS WHETHER THE SAFEGUARDS OF THE RMA HAVE BEEN MET.

The matrices below are based on Part II sections 6e, 7a and 8 of the RMA 1991. They are utilised to accurately capture the broad range of relationships tangata whenua have with a site/area/resource. Not all components will apply to every application, and some values might overlap or fall within a number of these categories. We tend to think of these boxes as a “prompt” and even if not all are completed or the information is repeated across categories this will still assist with defining the key values. We have attached an example of completed matrices for your information (see Appendix B).

Matrix 1: The relationship between tangata whenua and their taonga

<i>relationships that must be recognised and provided for</i>	<i>subcategory</i>	<i>Ancestral land</i>	<i>Water</i>	<i>Sites</i>	<i>Wahi Tapu</i>	<i>Other Taonga</i>
Maori						
Culture						
Traditions						

Note: Once NCC lodges their applications the CIA will form part of the consent application documents and will go on the public record. Therefore please identify any intellectual property protocols that are required around information you are providing. Our finalised report will include a disclaimer stating what the purposes of the report are i.e. to inform a specific resource consent application, and that the intellectual property therein resides with tangata whenua, and permission must be expressly sought if anyone wishes to utilise the information for any other purpose.

Matrix 2: Implications of the proposal in terms of Kaitiakitanga

<i>particular regard must be had for</i>	<i>Knowledge of</i>	<i>Practice of</i>
Kaitiakitanga		

This table is used to identify any aspects of the matakauranga or practice of kaitiakitanga that is affected or involved in this proposed activity.

Matrix 3: Implications of the proposal in terms of The Treaty/Te Tiriti o Waitangi

<i>take into account</i> Principles of Treaty of Waitangi¹:	Are these impacted by the proposed development?
Rangatiratanga	
Partnership	
Active Protection	
Other??	

¹ The "Principles" have never been clearly defined. In the table we have utilised the Principles endorsed by NCC in their Resource Management Plan.

Matrix 4: Effects on Tangata Whenua and their Values

Use the following matrices to identify whether effects are positive neutral or negative/adverse. Where possible, score positive or adverse effects as nil (n), no more than minor (m) or significant (s).

BIOPHYSICAL/ENVIRONMENTAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative
Positive						
Neutral						
Negative/adverse						

CULTURAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative
Positive						
Neutral						
Negative/adverse						

SOCIAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative
Positive						
Neutral						
Negative/adverse						

ECONOMIC EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative
Positive						
Neutral						
Negative/adverse						

2. ASSESS WHETHER THE EFFECTS CAN BE AVOIDED, REMEDIED OR MITIGATED.

If any adverse effects are considered significant, provide advice as to how they might be;

- Avoided
- Remedied, or
- Mitigated.

NEXT STEPS:

- Once the feedback templates have been received we will draft a Cultural Impact Assessment Report incorporating information from the matrices, ie. recognising tangata whenua relationships and values, identifying effects and framing recommendations to the applicant in regard to any identified effects, along with methods for avoiding, remedying or mitigating them.
- This will be returned to you for review and comment and responses received will be incorporated into the final report to be prepared for Council.

Appendix B: NCC CIA Consultation Record

Consultation Summary Record – Mahitahi and Roding Water Takes for Municipal supply - NCC renewal of consent

Iwi	Name	Contact Details	RCA Information package sent	Response Received	Further Engagement: Yes/no	Draft CIA circulated	Response Received
Ngāti Toa Rangatira	Matiu Rei	Ph: 04 238 4952 Email: m.rei@ngatittoa.iwi.nz	01/03/16 requesting response by 11/3/16	No response		21/4/16	no
Te Runanga o Ngāti Kuia Trust	Raymond Smith	raymond@ngatikuia.iwi.nz 03 5794328	01/03/16 requesting response by 11/3/16	01/03/16 09/03/16	Email confirming Ngāti Kuia wish to participate in CIA development Email confirming available for site visit and workshop (23 March)	21/4/16	5/5/16 Email confirming Ngati Kuia concur with Draft CIA
Rangitāne o Wairau Settlement Trust	Richard Bradley/ (03) 5786180	Email: Richard@rangitane.org.nz sandra@rangitane.org.nz	01/03/16 requesting response by 11/3/16	10/03/16	Follow up telephone call to Sandra Evers. Pending availability would like to attend site visit/workshop – awaiting confirmation. Later advised endorse Ngati Kuia engagement and input in relation to this application (telephone conversation 21/3/16)	21/4/16	no
Ngāti Apa ki te Rā Tō Trust	Butch Bradley 03-578 9695 0212225064	office@ngatiapakiterato.iwi.nz	01/03/16 requesting response by 11/3/16	09/03/16	Follow up telephone call to Butch Bradley Evers. Pending availability would like to attend site	21/4/16	no

					visit/workshop - awaiting confirmation. Later advised endorse Ngati Kuia engagement and input in relation to this application (telephone conversation 21/3/16)		
Tiakina te Taiao Ltd	Frank Hippolite/ Mike Elkington	Ph: 03 546 7842 Email: frank@tiakina.co.nz Ph: 03 546 7842 Email: mikee@tiakina.co.nz	01/03/16 requesting response by 11/3/16	No response	No response received to date specific to this project. Note: that earlier engagement on other CIA's Tiakina have raised the issue of resourcing for their input into this process. NCC are in consultation with them but has not been resolved. Other discussions have confirmed that Tiakina have a strong interest in participating in CIA development – particularly in relation to the Mahitahi River	21/4/16	
Te Atiawa o Te Waka-a-Māui	Bruno Brosnan	rm@teatiawatrust.co.nz	01/03/16 requesting response by 11/3/16	No response	Tiakina mandate	21/4/16	27/4/16 Email query as to whether Tiakina had responded. Advised no

							response received to date re these applications
Ngāti Rārua Settlement Trust	Hemi Toia	admin@ngatirarua.co.nz	01/03/16 requesting response by 11/3/16	No response	Tiakina mandate	21/4/16	no
Ngāti Tama ki Te Waipounamu Trust	Leanne Manson	Ph: 03 548-1740 Email: tari@ngati-tama.iwi.nz	01/03/16 requesting response by 11/3/16	No response	Tiakina mandate	21/4/16	no
Te Pātaka o Ngāti Koata	Mathew Hippolite	Ph: 03 548 1639 Email: projects@koata.iwi.nz	01/03/16 requesting response by 11/3/16	No response	Tiakina mandate	21/4/16	no

Appendix C: Ngāti Kuia Cultural Effects Report



NGĀTI KUIA

Te Iwi Pakohe

CULTURAL EFFECTS REPORT

**Mahitahi and Roding River municipal
water takes**

for:

Nelson City Council

Prepared by:

Julia Eason of
Te Rūnanga o Ngāti Kūia Trust

Prepared for:

Chetham Consulting Ltd

Date:

6 April 2016

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1. Executive Summary

1.1 Introduction

The Nelson City Council are preparing to apply for resource consent to replace existing water permits for the take and use of water from the Mahitahi and Roding rivers for municipal supply. The bundle of consents include the damming, diverting, taking, use and discharges of water to and from the waterways.

Ngati Kuia have an opportunity to be consulted on the proposal within the scope of how the activities affect the cultural, economic and social values and aspirations of Ngati Kuia.

Ngati Kuia environment unit undertook a site visit with the applicant their agent and Chetham consulting on 23 March 2016 and this report provides feedback on that site visit and the consultation papers prepared and read to date.

It is noted the final ecological report has not yet been circulated and accordingly, ecological references are limited to those presented to date.

1.2 Purpose

The purpose of this report is provide cultural insight to Juliane Chetham of Chetham Consulting Ltd for the preparation of a Cultural Impact Assessment for Nelson City Council. This report will advise the following;

- *History (Whakapapa) of the sites*
- Identify all sites of cultural significance
- Iwi ecological values
- Suggestions for mitigation or remedy to protect Ngati Kuia values and aspirations

1.3 Objectives

1. Identify the **relationships** that Ngāti Kuia has with the Mahitahi and Roding Rivers.
2. Identify and assess the **effects** (cultural, environmental, economic and social) that the Project may have on Ngāti Kuia values and well-being.
3. To inform Chetham Consulting Ltd and its advisors of any particular **culturally significant areas and taonga** that may be affected by the Project*.
4. Provide **recommendations** to Nelson City Council regarding the avoidance, remedies or mitigation of the adverse effects of the activity which may inform the volunteered conditions in the application.

*(*It is at the discretion of Ngāti Kuia to determine the level of information that is disclosed around the location and nature of any wāhi tūpuna, cultural areas and taonga due to issues of sensitivity and security)*

1.4 Activity Description

Nelson City Council is in the process of replacing their existing water permits for the supply of municipal water from the Mahitahi and Roding Rivers. The bundle of consents are complex but primarily consist of river bed occupations for two dams and two weirs, the associated impounding of water, the taking of water from two dams and one weir being located on the north branch of the Mahitahi River, a weir on the south branch of the Mahitahi River and a dam on the Roding River.

There are overflows associated with each of the dam's weirs and discharges relating to the 'replacement' flow released from the north branch dam the south branch natural flow of the Mahitahi river.

1.5 Description of sites

The Mahitahi River starts on the tops of the Paepaetangata/Richmond ranges collecting rain water from the catchment. The catchment above the subject sites are predominantly in native vegetation in a state of regeneration and the river is in a naturalised state. Maungatapu/Parikarearea is a significant site to Ngati Kuia and is the origin/headwater of the Mahitahi catchment.

The area is used for recreation and is an easy drive from Nelson city centre. Modification of the river downstream of the application site is significant and is associated with the existing infrastructure, land use practices and stormwater run-off.

The Roding River site is markedly less accessible and is not as altered as the Mahitahi River site due to the smaller scale of the damming works, the more established nature of the existing surrounding vegetation and, the lower level of impact from recreation and domestic activities.

1.6 Issues

The applicant has identified key issues relating to the existing consents that are of relevance to Ngati Kuia.

- The diminished ecological diversity and abundance both up and downstream of the dams on the Mahitahi River.
- The quality of the water discharged from the dam to the south branch of the Mahitahi River.
- A long period of fish barriers being in place due to the activity.
- Sedimentation of the Roding dam and the potential effect on instream dynamics/habitat.

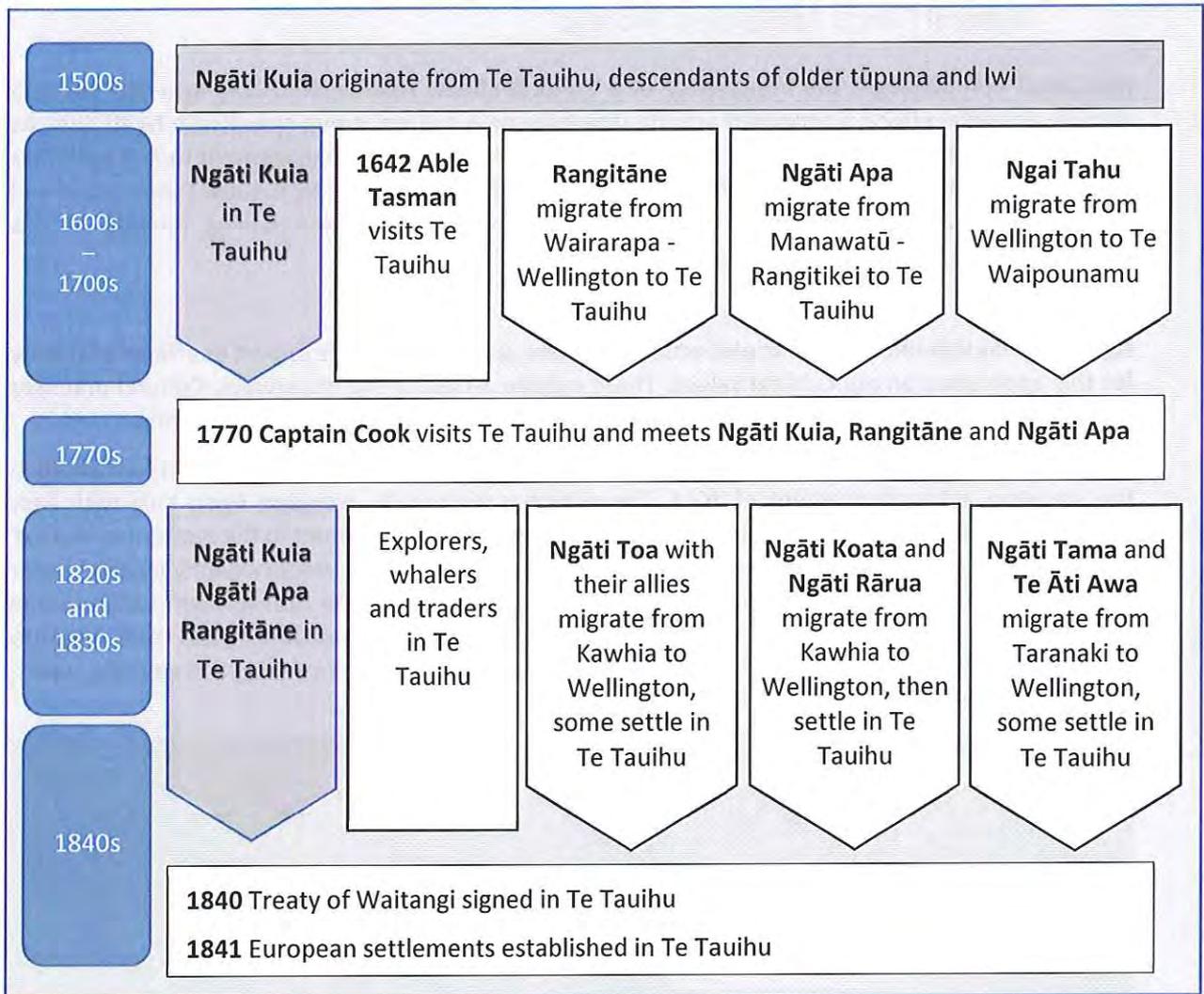
2. History

2.1 Ngāti Kuia

Ngāti Kuia originate from Te Taihū (o Te Waka a Māui – The Northern South Island). We are the descendants of the first people to explore and settle this area - Māui, Kupe and Matua Hautere. Our tūpuna (ancestors) named geographical features, found resources, fought and married other iwi, developed communities and practices that leave our unique mauri in this area. Our whakapapa includes Ngāti Māmoē, Ngāti Wairangi, Ngāti Kopia, Ngāti Tūmatakōkiri and Ngāi Tara. We also share some common ancestry and history with Rangitāne and Ngāti Apa.

Ngāti Kuia has survived the perils of time. The challenges Ngāti Kuia face today are different from those faced by our tūpuna, yet as Tāngata Whenua the obligations to those tūpuna, the land, and those who follow remains. Ngāti Kuia are bound by whakapapa (genealogy) and guided by the principles of kotahitanga (unity), whanaungatanga (kinship), whāngai (nourish) and manaakitanga (care) and must ensure that the land continues to speak. In doing this the land, as it has always done, will protect and enhance the mana (influence) of its first people – Ngāti Kuia.

2.2 Iwi Settlement Timeframe Chart



3. Ngāti Kuia Relationship to the Mahitahi and Roding Rivers

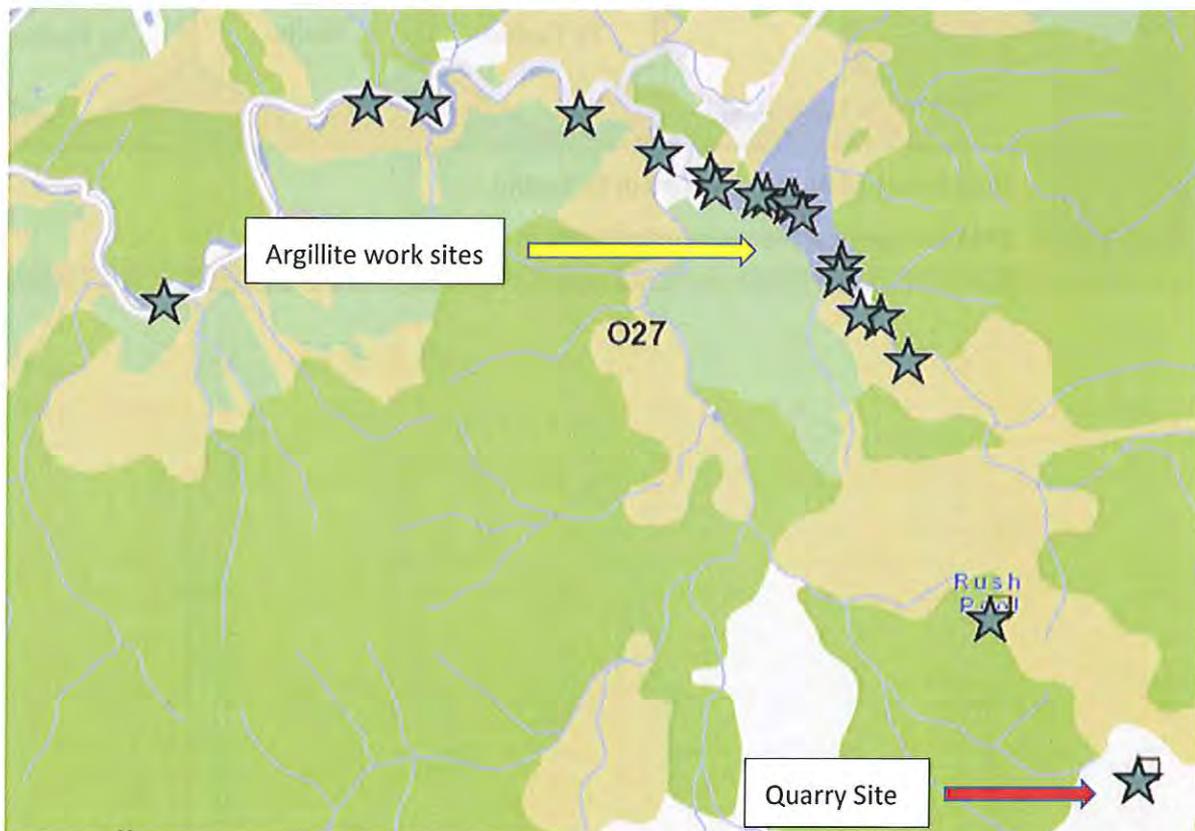
3.1 Cultural Effects Assessment Process

Ngāti Kuia acknowledges the importance of a Cultural Effects Assessment (CEA) as a tool used to identify potential effects a proposed activity may have on a cultural group specifically Ngāti Kuia. As such this 'Ngāti Kuia Cultural Effects Assessment' is an environmental management tool. It identifies the past, present, and future relationships, values and aspirations held by Ngāti Kuia. These values and aspirations should be recognised, protected and managed in decision-making relating to this application.

3.2 Ngāti Kuia Cultural Values

Ngāti Kuia has identified key principles which have been used to assess the impact or effects of activity for this application on our cultural values. These include: Mauri of the waterways, Cultural practices on or adjacent to the waterways including ongoing kaitiaki obligations and food gathering.

The Mahitahi River has a long association with Ngāti Kuia and this association has been formalised in the statutory acknowledgement of 2014. The river has historically provided Ngāti Kuia with easy passage from Nelson to their argillite quarry on Maungatapu. This is evident in the numerous 'flaking' sites recorded on what was the north branch of the River but are now predominantly located under the dam waters, see excerpt from Archsite below. Note the star in the bottom right corner is the quarry site O27/26 'Maungatapu'. The Mangatapu trail also provided valuable access from Whakatu into Te Hoiere/Pelorus valley. The river is a source of swimming, drinking cooking and cleaning water, and valuable habitat for food including eels, koura and rongoa.



The Roding River has similar values but is located further from the coast. An argillite quarry is located above the river in its headwaters O27/27 'The Rocks' which is the closest quarry to the Maungatapu site to the north.

3.2.1 Mauri

Mauri is the life force that comes from wairua - the spirit, or source of existence and all life. Mauri is the life force in the physical world. The overall purpose of resource management for Ngāti Kuia is the maintenance of the mauri of natural and physical resources, and to enhance mauri where it has been degraded by the actions of humans.

As a life principle mauri implies health and spirit. In the environment, mauri underlies all resources and the total ecosystem. In the community, mauri is of paramount importance to the wellbeing of the people. Mauri can be harmed by the actions of humans but is unaffected by natural processes such as natural disasters.

The preservation of the mauri of natural resources is paramount to Ngāti Kuia to ensure that resources may be used sustainably by present and future generations. Traditionally, rules were established to govern the use of natural and physical resources, and ensure that the mauri was protected from human actions. These rules form part of kawa and tikanga (Māori protocol) and have been passed on through the generations. For example, a rāhui may be used to safeguard the mauri of a particular resource, by enforcing a temporary restriction on use of the resource to protect the overall health and availability of the resource for both present and future generations. The RMA seeks these same outcomes; to promote the sustainable management of natural and physical resources (Section 5(1)).

There are indicators within the environment that Ngāti Kuia use to interpret the status of mauri. These include (but are not limited to) the presence of healthy kai and other indigenous flora and fauna, the presence of resources fit for cultural use, and the aesthetic qualities of resources such as the visibility of important landmarks. Other indicators can take many forms and are recalled in the kōrero pūrākau (stories) of whānau (extended family) and hapu (subtribe).

The Mauri of the rivers is degraded by the interference of the natural flows of the water by the placement of structures. This in turn has also resulted in significantly reduced fish passage since the structures were put in place. The Council has taken recent steps to improve the fish passage and remedying the adverse effect on the life sustaining capacity of the Mahitahi and Roding Rivers.

The water quality of the Mahitahi is degraded due primarily to anaerobic water being released into it from the north branch dam, this may be contributing to the lowering biodiversity of the waterway.

3.2.2 Tikanga

Cultural practices, or tikanga, were developed to maintain the mauri of the domains of Atua. They are based on the general understanding that people belong to the land and have a responsibility as kaitiaki of that land. Tikanga incorporates concepts such as tapu (sacredness) and rāhui (temporary restriction). These are forms of social control, which manage the interrelationship of people and the environment.

Tikanga were developed to specifically recognise the four planes of reality:

- Te taha tinana (the physical plane)
- Te taha hinengaro (the intellectual plane)
- Te taha wairua (the spiritual plane)
- Te taha whānau (the family plane)

Tikanga seek to unify these four planes in a holistic way. Observing tikanga is part of the ethic and exercise of kaitiakitanga.

3.2.3 Kaitiakitanga

All persons exercising powers and functions under the RMA, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to kaitiakitanga (Section 7). However, kaitiakitanga is not explained adequately in the RMA.

Kaitiakitanga is a broad notion which includes guardianship, sustainability, wise management, and resource indicators, where resources themselves indicate the state of their own mauri. Kaitiakitanga is a term that denotes the package of tikanga or practices concerning environmental management. A kaitiaki is a person and/or agent who perform the tasks of guardianship.

Kaitiakitanga is an environmental decision making system that has been developed by tāngata whenua to fulfil their responsibility towards the environment. The responsibility of kaitiaki is twofold: first, there is the ultimate aim of protecting mauri and, secondly, there is the duty to pass the environment to future generations in a state which is as good as, or better than, the current state.

Kaitiakitanga may be practiced through, but not limited to:

- The maintenance of wāhi tapu, wāhi tūpuna and other sites of importance;
- The management of fishing grounds (mahinga mātaimai);
- Observing the maramataka (lunar calendar);
- Observing the tikanga of sowing and harvest;
- Designing settlements in keeping with the environment; and
- Securing resources for present and future uses.

Kaitiakitanga is linked inextricably to tino rangatiratanga as it may only be practiced by those iwi, hapū or whānau who possess tino rangatiratanga (customary authority) in their tribal area.

Sometimes individuals, whanau or hapu, are charged with the tasks of kaitiakitanga. Kaitiaki often receive their mana or authority with respect to a particular locality, place or resource because they possess an intricate knowledge of the local environment. For example, a family or individual might be the kaitiaki for a Pā or for a fishing ground.

Ngāti Kuia have a recognised association with the Mahitahi River and, the Roding River as it forms a tributary to the Waimea River. The acknowledgement includes historic activities and uses of the waterways to sustain the lives and well being of the Ngāti Kuia People. As guardians of the resource, Ngāti Kuia are obliged to advocate and protect the life sustaining capacity of the waterways through maintaining and restoring their habitats.

3.2.4 Ki uta, ki tai -from inland to the sea

The mauri of the waterways is also viewed holistically and includes from the source of the waterway (mountains, springs and wetlands) to the sea. This reinforces the view that activities upstream also impact on the well-being of the river downstream and aligns with the integrated management of catchments. Ngāti Kuia also note the hierarchy of water use values – first to sustain the waterway itself, then to sustain human life and lastly for stock and commercial activities.

3.2.5 Mahinga Kai - the use of flora and fauna to sustain the people.

The value Ngāti Kuia place on the environment is not based on its 'existence' and desires to 'preserve' it, but also on its 'use' to Māori and its ability to sustain ngā tāngata (the people). For example many of the areas impacted by the application would have been used historically for food foraging, harvesting and collecting of rongoa (traditional medicines), among other activities, and one of the aspirations of Ngāti Kuia is to regenerate their whenua (land) to a state where these activities may once again be viable.

4. Effects on the Cultural Footprint of Ngāti Kuia

4.1 Tāngata

Whakatu (Nelson) has been a strong hold for Ngati Kuia for generations. Ngati Kuia settlements were located throughout the Nelson area and the wider Te Taihū region. Significant sites are located within these environs. Kopia is the eponymous ancestress of Ngāti Kopia, she was from Ngāti Māmoe and had a union with Wairangi, the eponymous ancestor for Ngāti Wairangi. They lived at Rangitoto and their son Pūroro married into Ngāti Kuia. Some of their descendants lived at Whakatū and at Tūauau in Waimeha. Ngai Tara also lived in the area, some of the descendants of Te Whakamana of Ngai Tara, eponymous ancestor for Ngāti Whakamana, lived at Waimeha and Whakatū. Some of the descendants of Haeamaiterangi, of Ngāti Tūmatakokiri from Rangitoto, also lived at Whakatū and Waimeha. All these people married into Ngāti Kuia. They named geographical features, explored and established the trails, worked pakohe, cultivated, harvested and fished in the area.

Their descendants Te Pipiha, Tūranga Hāpuku, Tamahau, Wakatapihi and Te Whiro were important leaders in the area in the 1820s. By the late-1830s and early-1840s Ngāti Kuia tūpuna living in the area included Kereopa Karangi, Āporo Torohanga, Hāmuera Te Kawenga, Mānihera Maihi, Wirihana Kaipara, Hēnare Te Aha, Hori Koau, Noa Te Koki, Matiaha Tūmaunga, Pāora Te Piki, Hone Amaru, Kaaro Nukuhoro, Te Rūrenga, Hōhepa Te Roiti, Hōhepa Te Kīaka and others. They were engaged in trade with the Nelson settlement, such as the flax industry and sold produce from their cultivations.

Ngāti Kuia continue to reside and use the Whakatū to Waimeha area. There are a number of Ngāti Kuia residing in Nelson, which has a Māori population of about 4,167¹.

4.2 Recommendations

- That the applicant decide upon their choice of oxygenation method for the Mahitahi River prior to the lodging of the application.
- Ngati Kuia recommend the applicant select the 'in dam' oxygenation pump method to remedy the adverse effects of the current anaerobic state of the lower level water strata. The dam habitat will be improved by the increased oxygen levels which will mitigate the adverse effects the dam has had on the mauri of the North branch of the River. Ngati Kuia believes the timeframe for the solution must be practical and 2-3 years would be appropriate for the pump system however, the alternative methods proposed could realistically be undertaken in 6 months from the grant of consent.
- The applicant must provide fish passage in line with current best practice for all in stream structures. These must be in place no less than 6 months from the grant of consent. This may include but is not limited to, wet passage for climbing stage species and Tuna. Retreats for long distance climbs identified on the spillway of the Dam and the overflow of the Roding River
- The applicant must undertake fish transfers from the lower Mahitahi River to the north bank dam on no less than 5 occasions in any one year.
- The applicant must provide a report of each of the fish transfers including, the number, size and health of tuna (eels). The presence and abundance of inanga, kokopu, torrent fish and any other native fish species collected. The weather on the day of the transfer, the location the fish were captured from and released. The time the collection started and the time the fish were released.
- Exotic species must not be transferred.
- The applicant shall undertake no less than 2 ecological reports each year on the Mahitahi River. The report must include three locations being, upstream of the south Mahitahi weir, within the natural flows of the north branch upstream of the dam lake, and immediately downstream of

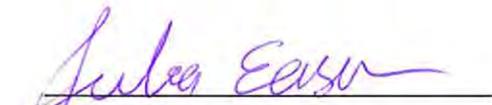
the confluence (the forks). The report must include fish species; invertebrates; algae and cyanobacteria and; instream vascular flora.

- The applicant shall undertake no less than 2 ecological reports each year on the Roding River. The report must include two locations being, upstream of the weir within the natural flows of the waterway and downstream of the water level recorder. The report must include fish species; invertebrates; algae and cyanobacteria and; instream vascular flora.
- If the reports show depleted native flora and fauna health and abundance, the applicant must propose a remedy within 3 months of the report and present that remedy to Te Tai Ihu Iwi for input and participation.
- The applicant must remove any debris from the subject structures from the bed or banks of the rivers within 2 days of the end of any flooding event or at any other time when debris becomes detached from the consented structures.
- The dams on the tributary to the Roding River currently not in use, should be removed. If a power generation method is to be installed, this should be done in a timely manner with adequate fish screening and passage.

Desired Outcomes

1. The instream fauna values of the Mahitahi and Roding Rivers will be sufficient to allow for sustainable harvesting of up to 6500 tuna (eels) exceeding 1.5 kilograms per year from the waterways. This number represents a realistic customary take of tuna by iwi members living in Nelson.
2. The water of the rivers will be of a drinkable standard.
3. That the taking of freshwater fish and kai moana from the mouth of the river will be safe for human consumption.
4. That watercress from the rivers will be safe to eat.
5. That passage between Nelson and Maungatapu is maintained for iwi to continue the collection/quarrying of Pakohe (argillite) for traditional stone working.

Signed under delegation



Julia Eason



Raymond Smith

Te Runanga o Ngati Kuia Taiao/Environment Unit

On 8 April 2016

Appendix D: CIA Mana Whenua Relationship and Effects Matrices

MAHITAHI RIVER WATER TAKES – MANA/TANGATA WHENUA RELATIONSHIP AND EFFECTS MATRICES

Matrix 1.1 Relationships

<i>relationships that must be recognised and provided for</i>	<i>subcategory</i>	<i>Ancestral land</i>	<i>Water</i>	<i>Sites</i>	<i>Wahi Tapu</i>	<i>Other Taonga</i>
Maori	<p>Mana Whenua Tangata Whenua Kaitiaki Whanau Hapu</p> <p>Te Tau Ihu Iwi</p> <ul style="list-style-type: none"> • Ngāti Apa ki te Rā Tō • Ngāti Kuia • Rangitāne o Wairau • Ngāti Koata • Ngāti Rārua • Ngāti Tama ki Te Tau Ihu • Te Ātiawa o Te Waka-a-Māui • Ngāti Toa Rangatira 	<p>Mana Whenua – through Whakapapa to the land</p> <p>Rangatiratanga (opportunity to participate, be involved and contribute to decision making)</p> <p>Kaitiakitanga (obligation and responsibility to their people (current and future generations) as custodians, protectors and guardians)</p> <p>Whakatu Marae</p>	<p>Mana Moana Rangatiratanga Kaitiakitanga</p> <p>Mahitahi/Maitai River is hugely significant and closely tied to the wellbeing of Te Tau Ihu iwi.</p> <p>The coastal marine area beyond the river mouth is of great importance to all Te Tau Ihu Iwi.</p>	<p>Mana Whenua Rangatiratanga Kaitiakitanga</p>	<p>Mana Whenua Rangatiratanga Kaitiakitanga</p>	<p>Taonga species</p> <p>The river and its associated wetlands at Whakatu were an important source of fish, eels and flax, birds, rongoa species, timber and stone/Pakohe</p>
Culture	<p>Place names Cultural identity – eg. Mahitahi named in pepeha of certain iwi</p>	<p>Cultural landscapes</p> <p>Whakapapa</p> <p>Rivers and other landmarks eg. Maunga/elements of the cultural landscape assisted travel and navigation</p>	<p>Mahitahi or River.</p> <p>Two naming traditions identified in Statutory Acknowledgements: <i>“Mahitahi” is an old name for whitebait (inanga) which was once found in abundance in the river. The name refers to this resource and also evokes working</i></p>	<p>Wāhi Tupuna Wāhi Pakohe (Pakohe quarrying and shaping sites) Resting and trading places eg. at “the forks” confluence of north and south branch of the Mahitahi</p> <p>cultural sites can retain</p>	<p>Wāhi Tupuna Wāhi Pakohe (Pakohe quarrying and shaping sites) Resting and trading places eg. at “the forks” confluence of north and south branch of the Mahitahi</p> <p><i>Tauranga waka</i></p>	<p>Histories and stories</p>

			<p><i>together in unity just as the whitebait appear to follow the same path. Another naming tradition is that originally known "Mahitahi", which is thought to relate to tūpuna working as 'one' with the pakohe to produce tools. Mahitahi means 'hard', or 'excellent' in Maori.</i></p> <p>Mauri is a binding force between the spiritual and physical; it sustains all life and is strongly present in water. The mauri of a water body is thus a measure of its life-giving capacity or physical and spiritual health. In addition, water is valued for drinking, transport, as a source of kai, and for irrigation.</p> <p>The waters of the Mahitahi are also seen as a living entity with its own mauri (life force) and mana (prestige), representative of the iwi associated with the area.</p> <p>Healing waters come down from Maungatapu</p>	<p>cultural value irrespective of whether they are physically destroyed</p>	<p><i>Mahitahi river valley was an important overland route/ traditional ara or pathways (eg. Whakapuaka)</i></p>	
Traditions			<p>Tauranga Waka (anchorage and access). Transport and trading routes (essential to</p>	<p>Placing of rahui (temporary ritual prohibition) to allow replenishment of</p>	<p>Traditions associated with Pakohe</p>	<p>Pakohe Industry</p>

			<p>travel, communication and trade)</p> <p>Habitat and spawning grounds for taonga species such as native plants, bird and fish, building and weaving materials such as raupo and flax, and precious medicines and dyes.</p>	<p>harvested resources</p> <p>Practice of tikanga and kawa which involve tapu and noa to the river and environs. Responsibilities and obligation to this place and its cultural, spiritual, historic and traditional values.</p> <p>Observing the tikanga and maintaining matauranga associated with traditional activities eg. quarrying and shaping of Pakohe</p>		
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Matrix 1.2 Kaitiakitanga

<i>particular regard must be had for:</i>	<i>Knowledge of</i>	<i>Practice of</i>
Kaitiakitanga	<p>Post colonization has been diminished through inability to practice – loss of resources and access to them...</p> <p>Western knowledge has dominated matauranga.</p> <p>Knowledge still held/maintained by</p>	<p>Revival of use of Pakohe and other taonga.</p> <p>Input into this CIA process is a form of contemporary expression of kaitiakitanga</p> <p>Not conservation but sustainability focused. Precautionary approach – bottom line</p> <p>Aspirations for further involvement in monitoring catchment health. Example indicators of health include:</p>

	kaumatua/kuia and reflected in the tikanga and kawa of the people today	<ul style="list-style-type: none"> • The instream fauna values of the Mahitahi and Roding Rivers will be sufficient to allow for sustainable harvesting of up to 6500 tuna (eels) exceeding 1.5 kilograms per year from the waterways. • The water of the rivers will be of a drinkable standard. • That the taking of freshwater fish and kai moana from the mouth of the river will be safe for human consumption. • That watercress from the rivers will be safe to eat. • That passage between Nelson and Maungatapu is maintained for iwi to continue the collection/ quarrying of Pakohe (argillite) for traditional stone working.
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Matrix 1.3 Principles of Treaty of Waitangi

<i>Principles</i>	How are these taken into account
Partnership	Enabling early and effective engagement, resourced input and feedback to this infrastructure project through CIA process
Active Protection of Rangatiratanga	Appropriate recognition of iwi, enable iwi to address cultural issues through CIA process
Mutual Benefit	Uptake of CIA recommendations in project design.

Matrix 2 Effects on Tangata Whenua and their Values

ECONOMIC EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative	High Probability	Low Probability/ High impact
Positive	Work for local contractors?		Provides 2/3 of Nelson municipal water supply. Essential for economic wellbeing of Whakatu. Provides storage, water security, can be utilised to augment low flows.	Provides 2/3 of Nelson municipal water supply. Essential for economic wellbeing of Whakatu. Provides storage, water security, can be utilised to augment low flows.	Provides 2/3 of Nelson municipal water supply. Essential for economic wellbeing of Whakatu. Provides storage, water security, can be utilised to augment low flows.			
Negative			Abstraction and backfeed discharge can lower water quality, thereby impacting the mauri of the river and taonga species. Flow on economic impacts to mana whenua through loss of ability to harvest kai species. Kai supplements incomes.	Abstraction and backfeed discharge can lower water quality, thereby impacting the mauri of the river and taonga species. Flow on economic impacts to mana whenua through loss of ability to harvest kai species. Kai supplements incomes.	Abstraction and backfeed discharge can lower water quality, thereby impacting the mauri of the river and taonga species. Flow on economic impacts to mana whenua through loss of ability to harvest kai species. Kai supplements incomes.			

ECOLOGICAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative	High Probability	Low Probability/ High impact
Positive					Improved water quality Improved fish passage Improved health of taonga species and mahinga kai			
Negative		Concrete outfall structure	Abstraction and backfeed discharge can lower water quality, thereby impacting the mauri of the river and taonga species. Loss of habitat and food for taonga species Loss of biodiversity Barriers to fish passage	Abstraction and backfeed discharge can lower water quality, thereby impacting the mauri of the river and taonga species. Loss of habitat and food for taonga species Loss of biodiversity Barriers to fish passage		Decreased water quality = Diminished mauri of water		

CULTURAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative	High Probability	Low Probability/ High impact
Positive					<p>Potential for changes to be made that will enhance mauri and improve water quality for taonga species. Opportunity for mana whenua kaitiaki involvement cultural health monitoring, fish salvage and transfer etc? -Gain of matauranga (sharing knowledge, potential for involvement in contemporary forms of katiakitanga (research, monitoring, restoration) Improved cultural harvest opportunities</p>			
Negative		North branch/dam area = loss of of access for customary harvest,	North branch/dam area = loss of of access for customary	North branch/dam area = loss of of access for customary	North branch/dam area = loss of of access for customary harvest,			

		<p>practices Diminishment of mauri of water and taonga species in vicinity of reservoir Loss of wāhi tupuna/pakohe</p> <p>Weir and dam structures affect cultural landscapes/landmarks</p>	<p>harvest, practices Diminishment of mauri of water and taonga species in vicinity of reservoir and backfeed areas</p> <p>Loss of wāhi tupuna/pakohe</p> <p>Weir and dam structures affect cultural landscapes/landmarks</p>	<p>harvest, practices Diminishment of mauri of water and taonga species in vicinity of reservoir and backfeed areas</p> <p>Weir and dam structures affect cultural landscapes/landmarks</p>	<p>practices Diminishment of mauri of water and taonga species in vicinity of reservoir and backfeed areas</p> <p>Weir and dam structures affect cultural landscapes/landmarks</p>			
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SOCIAL EFFECTS

	Temporary	Permanent	Past	Present	Future	Cumulative	High Probability	Low Probability/ High impact
Positive			Water supply security for Whakatu	Water supply security for Whakatu	Water supply security for Whakatu In relation to wider management of Mahitahi River - Ability for tangata whenua to be involved in education and advocacy programmes, research, monitoring, restoration, weed control, replanting etc Improved amenity values at locality?			
Negative			Health of waterways, wetlands etc and health of people inextricably connected.	Health of waterways, wetlands etc and health of people inextricably connected.	Health of waterways, wetlands etc and health of people inextricably connected.			

