Assessment of effects on Muaūpoko values

ŌTAKI TO NORTH OF LEVIN HIGHWAY PROJECT

FOR WAKA KOTAHI NZ TRANSPORT AGENCY

OCTOBER 2022

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MUAŪPOKO CULTURAL IMPACT ASSESSMENT

MUAŪPOKO TRIBAL AUTHORITY
LAKE HOROWHENUA TRUST

Cover artwork: *Lake Horowhenua.* 1875. A view of Lake Horowhenua and the Tararua Range from Hokio Stream. Painted by John Barr Clarke Hoyte (1835–1913). From the Auckland Art Gallery collection.

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Executive summary

The purpose of this cultural impact assessment (CIA) is to inform the Ōtaki to North of Levin/Taitoko (Ō2NL) highway project's notice of requirement (NOR) and resource consenting processes. In this document, we (Muaūpoko Tribal Authority Inc (MTA) and Lake Horowhenua Trust (LHT)) describe how we have participated in the project to date and the values we hold with the environment. We identify and assess the magnitude of residual effects the Ō2NL Project has on our values and recommend actions to manage any adverse effects to an acceptable level and meet our aspirations.

We have participated in the shaping of the Ō2NL project route selection and corridor refinement. Through this process, we supported an eastern alignment where effects on our most sensitive cultural sites and ecosystems have been avoided. We have also been involved in the corridor refinement process where we played a key role in shaping the outcomes for the material supply kaupapa. Firstly, through avoidance of a landscape-scale cutting in the whenua and Horowhenua gravels and, secondly, through avoidance of effects on our significant peaks. Our awa and whenua have been avoided to the greatest degree possible in balancing all aspects of the situation, in favour of a reciprocal relationship approach where the quarry and sand sites will be restored to a state of ecological and cultural health that is greater than the current state. As a result of this decision-making process, we have accepted that overbridges are required East of Levin/Taitoko. One of the overbridges interacts with our spiritual pathway wai mārie, and we have participated in a careful design consideration process where our values associated with the pathway which leads to our taonga, Punahau, our kaitiaki ngārara (lizards), ngata (snails) and tree forts has been integrated. This decision-making process has not been at all easy for our people. However, we have strived to make the best possible decisions with the process in front of us.

Through our engagement with Waka Kotahi, we have communicated that we are most concerned about the cumulative effects on the current poor state of our wai, especially the implications on Punahau as well as our taonga species and scared sites. Our values associated with te taiao are a strong focus of this CIA, and management measures throughout construction and during operation are critical to ensure protection of these values. Specific measures we seek include ongoing monitoring and adaptive management to ensure the ability to effectively manage stormwater and the ecological mitigation and offsetting package that protects and supports our taonga and the natural extensive waterscape which supports this rohe.

We have described our values associated with the Ō2NL environment and provided our advice on how the effects on our values, such as mana whakahaere and manaakitanga, can be provided for in a positive way that uplifts our mātauranga and our people. In particular, we are looking to create pathways and provide opportunities for decision-making and mahi for our people, whether that be in the planning, construction, kaitiakitanga or kaupapa taiao spaces.

We acknowledge the partnership we are creating with Waka Kotahi and the journey ahead to fulfilling our agreement as Te Tiriti partners.

1 Introduction

The purpose of this cultural impact assessment (CIA) is to inform the Ōtaki to North of Levin/Taitoko (Ō2NL) highway project's notice of requirement (NOR) and resource consenting processes. In this document, we (Muaūpoko Tribal Authority Inc (MTA) and Lake Horowhenua Trust (LHT)) describe the values we hold with the environment, identify and assess the magnitude of effects the Ō2NL project has on these values, and recommend actions to manage any adverse effects to an acceptable level.

1.1 Assessment context

Our assessment has been developed with reference to:

1. The latest alignment iteration (Ō2NL – DBC_A.10_Combined_21-06-2021) and the Drawing Set 310203848 (Preliminary 18.06.21). The latest version of the design as depicted in Volume III: Drawing Set.

2. The draft Design and Construction Report (DCR) included as Appendix Four of Volume II of the application.

3. The draft Cultural and Environmental Design Framework (CEDF) included as Appendix Five of Volume II of the application.

Our assessment should also be read in conjunction with the following expert technical assessments and plans that have been developed to support the Ō2NL Project:

1. Erosion and Sediment Control Report and Plan (included in as Appendix 3.c in Volume II of the application) by Mr Gregor McLean.

2. Assessment of Visual, Natural Character and Landscape Effects (Report D) by Mr Gavin Lister.

3. Assessment of Effects on Hydrology and Flooding (Report F) by Mr Andrew Craig.

4. Assessment of Effects on Groundwater (Report G) by Dr Jack McConchie.

5. Assessment of Effects on Water Quality (Report H) by Mr Keith Hamill.

6. Assessment of Effects on Terrestrial Ecology (Report J) by Mr Nick Goldwater.

7. Assessment of Effects on Freshwater Ecology (Report K) by Mr Alex James

8. Assessment of effects on Archaeology (Report L) by Mr Daniel Parker

1.2 Scope of the Ō2NL project

The Ō2NL project is the northernmost section of the Wellington Northern Corridor, located to the east of the current state highway network and the Manakau, Ōhau and Levin townships.

The Ō2NL project includes the following features:

1. Approximately 24 km of four-lane (two lanes in each direction), median-divided highway starting at Taylors Road north of Ōtaki, linking with the Peka Peka to Ōtaki (PP2Ō) Expressway, and ending just north of Levin, where it connects back to the existing State Highway 1 (SH1).

2. A grade-separated diamond interchange at Tararua Road, including a dumb-bell configuration of two roundabouts at the ramp terminals for managing traffic movements onto and off the highway, and with the local road traffic on Tararua Road.

3. Two dual-lane roundabouts where the main alignment crosses State Highway 57 (SH57)/Arapaepae Road and where it ends at SH1 at Heatherlea East Road, north of Levin. The roundabouts are anticipated to have approximately 35-m diameter islands.

4. Four-lane bridges over the Manakau, Waiauti, Waikawa and Kuku Streams and the Ōhau River, and the North Island Main Trunk (NIMT) rail line.

5. A half interchange with southbound ramps near Taylors Road and the connection to the new PP2Ō expressway. This provides access from the existing SH1 onto the Ō2NL Project for traffic heading south from Manakau/ heading north from Wellington, as well as providing an alternate access to Ōtaki via Taylors Road.

6. A separated shared use path (SUP) of a minimum width of 3.0m for walking and cycling along the entire length of the new highway (but deviating away from being directly adjacent to the highway around Pukehou (Ōtaki) that will link into shared path facilities built as part of the PP2Ō expressway (and further afield to the Mackays to Peka Peka expressway shared path), helping to significantly extend the region's cycleway network.

7. Overpasses (local road over) at Honi Taipua Road, North Manakau Road, Kuku East Road, Muhunoa East Road, Tararua Road (as part of the interchange), and Queen Street.

8. Local road reconnections at:

    a. Kuku East Road reconnection: providing access to south of Kuku East Road, to eastern side of the new highway.

    b. McLeavey Road to Arapaepae Road South: new local-road link connecting these roads on the west side of the new highway.

    c. Arapaepae Road South to Kimberley Road to Tararua Road: new local-road link connecting these roads on the east side of the new highway.

    d. Waihou Road to MacDonald Road to SH57: new local-road link connecting these roads on the east side of new highway.

    e. Koputaroa Road to Heatherlea East Road: new local-road link connecting these roads and providing access to the new northern roundabout with the new highway.

9. New local roads at Kuku East Road and Manakau Heights Road to provide access to properties located to the east of the Ō2NL project.

10. Intersection improvements at:

    a. the intersection of Tararua Road with SH1: relocate the intersection, add traffic signals and integrate with a crossing of NIMT.

11. Road lighting at conflict points (where traffic enters or exits the highway).

12. Median and edge barriers, which will typically be wire-rope safety barriers with alternative barrier types in some locations, such as bridges that require rigid barriers for containment or noise attenuation, and where TL5 barriers or Texas HT barriers will be used (with appropriate transitions from flexible to rigid barriers).

13. Stormwater treatment wetlands, swales, rock-lined channels, and sediment traps.

14. Culverts to reconnect awa (streams) crossed by the proposed works and diversions to recreate and reconnect wai (waterways).

15. Approximately 11 km of stream retirement, 11 ha of ecological mitigation wetland planting and 8 ha of ecological mitigation native forest planting.

16. A significant natural character and landscape planting package.

17. Spoil sites at various locations.

18. Five borrow sites for material supply near Waikawa Stream (three sites), the Ōhau River and south of Heatherlea East Road.

Project elements that are particularly relevant to this assessment include:

1. The design, construction, and operation of culverts, bridges, and diversion channels.

2. The design, construction and operation of stormwater treatment and detention infrastructure, including the water quality of stormwater discharges.

3. Earthworks cut and fill locations, spoil disposal sites, and erosion and sediment control methodologies/infrastructure.

4. The design and construction of noise walls and mahi toi (Māori design) elements.

5. The design and ongoing operation of lighting.

1.3 Muaūpoko organisations

Our assessment has been approved by the MTA Board of Trustees, representatives of our seven Muaūpoko hapū, and the LHT Board of Trustees, representatives of Block 11 beneficial owners.

1.3.1 Muaūpoko Tribal Authority

The MTA is the mandated organisation for the Muaūpoko Iwi. The MTA represents Muaūpoko for the purposes of the Resource Management Act 1991 (RMA) and is mandated by the Crown

for Treaty of Waitangi settlement negotiations and under the Māori Fisheries Act 2004. It is also an Iwi Aquaculture Organisation under the Māori Commercial Aquaculture Claims Settlement Act 2004.

The Muaūpoko statutory area, for the purposes of Treaty settlement processes for the Manawatū ki Porirua District Enquiry, shows the area from the main stem of the Manawatū River down to Porirua Harbour. However, the traditional Muaūpoko area of interest for RMA purposes stretches from the Rangitikei River to Turakirae (Cape Palliser) in Te Whanganui-a-Tara (Wellington Harbour). Te Whanganui-a-Tara was named for our ancestor Tara-Ika. We descend directly from Tara-Ika (also known as Tara) and we are also known as Ngai Tara ki Mua Ūpoko o te Ika a Maui. The name Muaūpoko refers to our people as those who inhabit the area that is the known as the head of the fish and therefore describes the takiwā in which we have lived for over 1,000 years.

A map of our traditional area of interest can be seen in Figure 1.

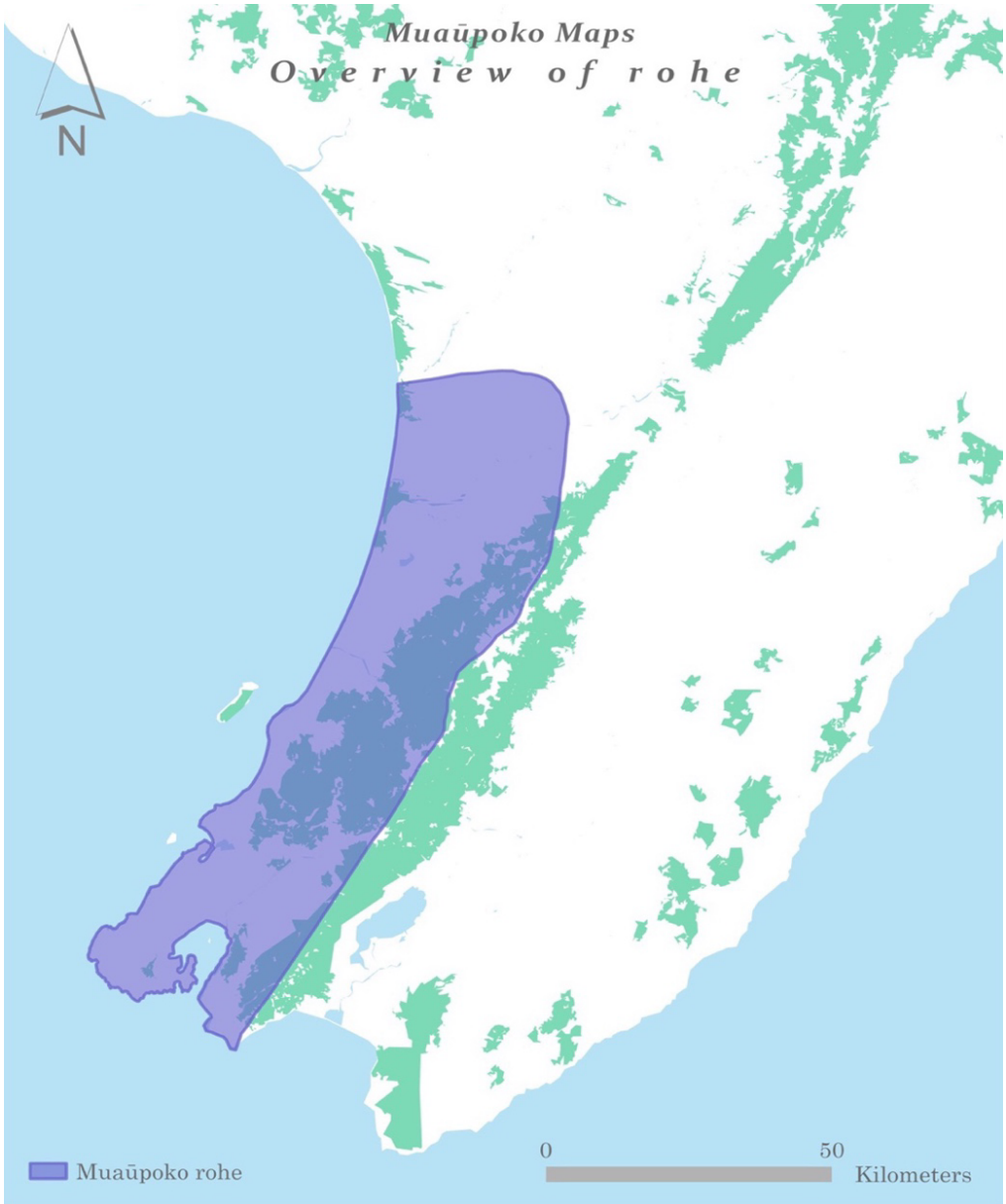

Figure 1: Muaūpoko traditional area of interest.

Our organisations constitution supports governance by a board of elected representatives, two from each of the seven existing hapū. The hapū are Ngai Te Ao, Ngārue, Ngāti Hine, Ngāti Pāriri, Ngāti Tamarangi, Ngāti Whanokirangi and Punahau.

In 2009, following a significant hui-a-iwi process, a Muaūpoko Iwi vision was developed and adopted. Respective MTA board's have adopted and upheld this iwi vision along with a a set of imperatives to enact the vision on behalf of iwi members.

The Muaūpoko Iwi vision is "Whakahono kia tu kaha Muaūpoko – Unite, stand strong Muaūpoko."

The MTA board established the first strategic framework in 2008 and this has been reviewed and refreshed regularly since then. The current strategic imperatives are as follows:

1. promote and support tino rangatiratanga for Muaūpoko whānau, hapū and iwi
2. strengthen and retain the traditional, cultural, and spiritual values of whānau, hapū and iwi of Muaūpoko
3. protect, preserve and enhance Muaūpoko tānga, assets and taonga
4. represent Muaūpoko interests and support a stronger economic, educational, health, social and cultural base for Muaūpoko people.

These are supported by 12 strategic goals:

1. support hapū cultural revitalisation initiatives and structures, work with hapū to develop an environmental strategy
2. strengthen the paepae on Muaūpoko marae
3. develop and maintain a sustainable hapū funding programme
4. develop leadership opportunities for rangatahi
5. support Muaūpoko day celebrations (for example, Waitangi Day)
6. continue to strengthen MTA governance and operational capacity, systems and procedures
7. build strong communications with members
8. contribute to and leverage existing initiatives and/or relationships aimed at protecting and enhancing Muaūpoko natural resources and the environment
9. grow and protect the Muaūpoko asset base
10. develop a comprehensive iwi health and well-being strategy
11. Represent Muaūpoko interests at local and national forums and ensure the mana of Muaūpoko is always upheld

12. Continue to develop and maintain relationships with other Iwi, stakeholders, government agencies and private-sector organisations that enhance the ability of Muaūpoko to achieve its vision.

1.3.2 Lake Horowhenua Trust

The Lake Horowhenua Trust holds the Punahau/Horowhenua lake bed and surrounding land in trust for Muaūpoko owners of any part of the Horowhenua 11 Block (see Figure 2).

The Trust comprises 11 elected trustees, as representatives of the Muaūpoko beneficial owners. It operates in accordance with a trust order put in place by the Māori Land Court on 26 November 2012 and amended on 29 September 2014.

Nationally, our position is unusual – we are one of few iwi that have managed to maintain ownership of key assets within our rohe. Our key purpose is to look after the mauri of our water, land and our highly valued fishery around Lake Horowhenua and the Hokio Stream.

In August 2013, the LHT and beneficial owners signed the Lake Horowhenua Accord, alongside the Lake Domain Board, Department of Conservation, Horizons Regional Council and Horowhenua District Council.

The vision of the accord is as follows:

> *Lake Horowhenua: he taonga tuku iho; he taonga mo te katoa. A treasure handed down from our ancestors for the enjoyment of all.*

The five parties representing Muaūpoko owners, community interests and statutory bodies agreed to work together and provide leadership, to halt the degradation of the lake and put in place remedial measures that will begin to return Lake Horowhenua to a taonga, that holds a place of pride in the Horowhenua community.

The accord and all signatory parties acknowledged the following:

- the special legal status of the trust and all beneficial owners of Lake Horowhenua, and their cultural interests in respect of current and ongoing management of the condition of the lake in their collective role as kaitiaki
- the need to recover, protect and enhance the legal interests and cultural values and practices of the owners and Muaūpoko Iwi in respect of Lake Horowhenua and its environments
- commitment to recover Lake Horowhenua for the recreational and leisure enjoyment of Horowhenua communities
- agreement to work together collaboratively to develop appropriate instruments for the attainment of the goals, including best governance and management practice that may draw from recent experiences (for example, the Waikato Tainui River Settlement and the Manawatū Accord).

The Lake Horowhenua Accord identified a range of key issues, management actions and commitments to each other which have been achieved and are ongoing.

1.4 Assumptions and exclusions

Our assessment is limited to the effects of the main project – it does not cover any future enabling works that may be required. It does not assess the effects of tolling. The proposed water take has been assessed separately and does not feature here due to timeframes to complete this CIA and uncertainties around the planning pathway the water take application will take.

We assume the project description and associated plans accurately depict the project intent and scale.

1.5 Ka mua, ka muri: Looking back in order to move forward

While we have a wide area of historic and contemporary interest and a traditional rohe, as described in section 1.3.1, the Horowhenua block is known in contemporary times as the heartland of Muaūpoko (see Figure 2), centred around our taonga Punahau.

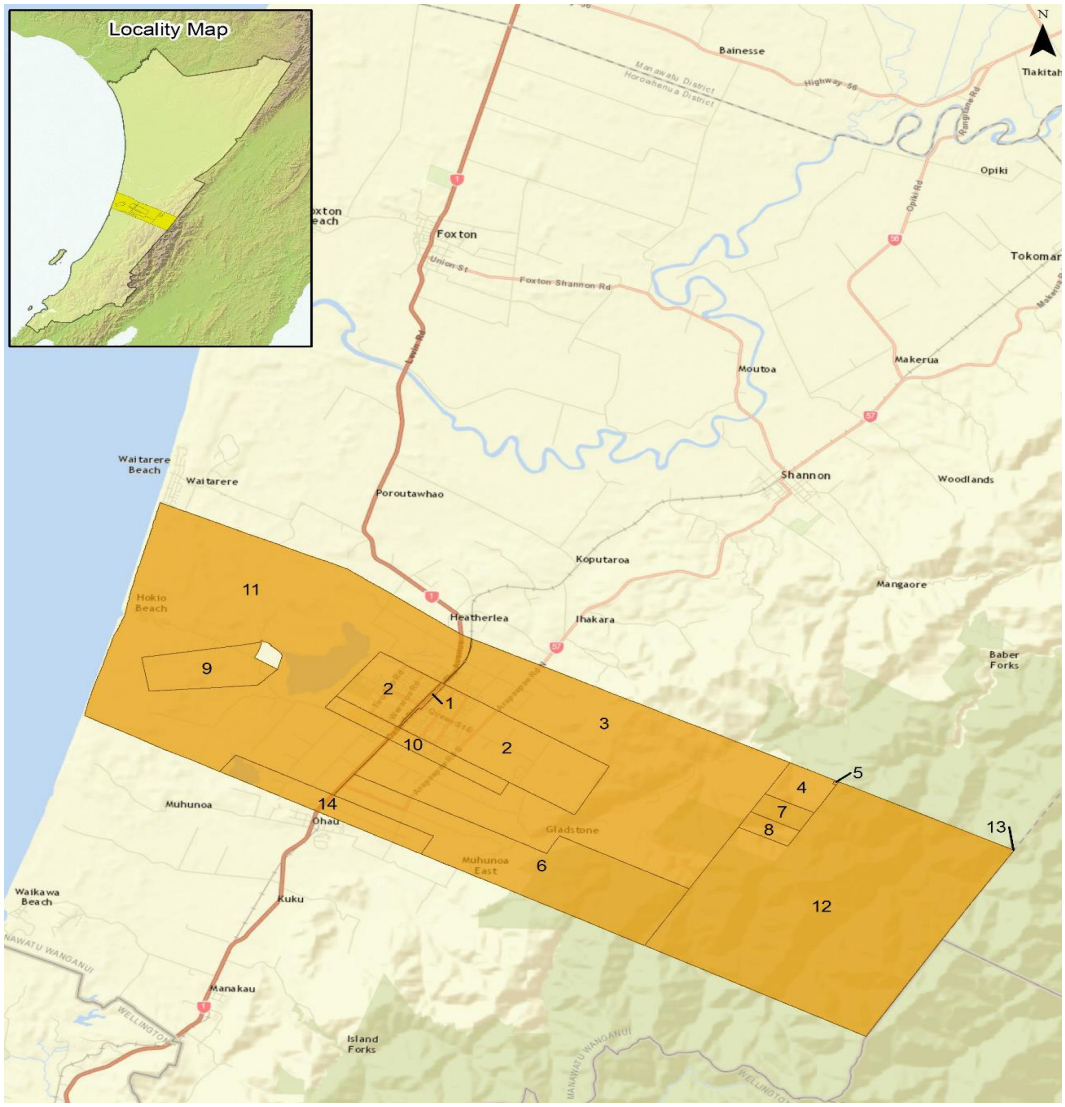

Figure 2: Muaūpoko heartland – the Horowhenua block.

These heartlands were subdivided by the Māori Land Court in 1886, as the result of pressures put on our ancestors by the Crown's acquisition tactics, the Wellington and Manawatū Railway Company's designs on the block, and, most of all, the threat posed by native land laws, which favoured partition and purchase over retention and rangatiratanga. It was Muaūpoko-owned land (along with a town development survey plan) which was used to establish the township of Levin (Taitoko as one of the Muaūpoko conditions of establishment).

Our ancestors were never opposed – as we are not opposed today – to the settlement and development of the Horowhenua District, or to the introduction of infrastructure such as roads, bridges, and railways. However, we believe, as our ancestors did, that the development of such infrastructure should provide benefits equally to Muaūpoko and Pākehā. As our region was developed, our ancestors simply sought what was agreed under Te Tiriti o Waitangi, as we do today.

The High Court[1] has extracted principles from Waitangi Tribunal and Supreme Court decisions to incorporate into the RMA context. These help to define our rights and expectations for Ō2NL which, interestingly, align strongly with the outcomes our ancestors sought during the early development of the wider Horowhenua area. These principles include:

- partnership
- mutual obligation to act reasonably and in good faith
- active protection – under this principle, the Crown has an obligation to actively protect Māori interests (this principle may also require applicants to investigate alternative options which do not affect Māori relationships with resources)[2]
- mutual benefit – this incorporates enabling aspects for both Māori and non-Māori
- development – the Treaty is to be adapted to modern, changing circumstances
- rangatiratanga – recognising iwi and hapū rights to manage resources or kaitiakitanga over their ancestral lands and waters.

Our tribe's vision for the economic development of Muaūpoko in Horowhenua included the railway, Taitoko township and a bicultural society which would provide the capital and conditions for the development of our lands.[3]

When the railway line connecting Horowhenua and the wider district to Wellington was introduced in the 1880s, our ancestor (and a nominated leader of the time) Te Keepa Rangihiwinui, encouraged our people to embrace the initiative alongside the benefits it should have brought for our people. Being aware of the costs and perils of the court and land dealings, Te Keepa held off applying for a subdivision of our lands until an agreement was negotiated with the Crown for the railway line and a township on the Horowhenua block. As such, on

[1] For example, Carter Holt Harvey v Te Runanga o Tuwharetoa ki Kawerau [2003] 2 NZLR 349 (HC).

[2] Te Runanga o Taumarere v Northland Regional Council [1996] NZRMA 77 (EC).

[3] David Armstrong, 'Muaupoko "Special Factors": Keepa's Trusteeship, the Levin Township Sale, and the Cost of Litigation', CFRT, 2015. Wai 2200 #A155, pp.3 and 8.

25 June 1886, Te Keepa proposed an agreement with the Crown that would establish a township and subdivision in Horowhenua. The agreement reached proposed:

- sell 4,000 acres for the township on both sides of the railway to the Crown at an agreed price (if the price could not be agreed it was to be determined by arbitration)
- reserve every tenth township section for Muaūpoko
- reserve to Muaūpoko Lakes Horowhenua and Papaitonga (Waiwiri), the streams running from the lakes to the sea, and a chain of land around the lakes
- share trusteeship between council and iwi of public reserves (including 100 acres "as a garden") for the town beside Lake Horowhenua, a town square, and land for schools for all people
- apply to the Native Land Court for subdivision
- name the township Taitoko.[4]

Te Keepa and our people believed these terms were agreed and, on this basis, supported the application for subdivision.[5] This innovative partnership proposal – which reflects the manaakitanga of Muaūpoko towards an irrevocably changing and diversifying community – a vision for which was a mutually beneficial bicultural society where Māori and Pākehā could thrive together (as had been evidenced in the many lease arrangements with Pākehā for Muaūpoko land to that point) – was not honoured. In addition, to paying less than half what the land for the township and railway was worth, the Crown refused to honour any of the conditions under which the township had been offered and verbally agreed. The bicultural township was dead – it became an exclusively Pākehā space. Native Minister Ballance did not want "natives mixed up in the town with Europeans".

After deducting land already alienated for the township block, railway land, and a block lost to clear Land Court debts (which had arisen as a result of trying, through Pākehā court systems, to protect the land itself), our people retained about 45,000 acres[6], however, the Crown and the courts soon blocked our path and continued to cheat us out of our land in the following decades.

The long delay in railway construction forced those seeking to open the district to look instead to roads, which could be built more quickly and cheaply by local labour. From the late 1870s, the formation of the inland road from Ōtaki to Foxton began (the forerunner to what is now State Highway 1) as settlers wanted an interior road to open large areas of undeveloped land (then still owned by our Muaūpoko ancestors) to settlement.

When works on roads in the region began in 1878, county councils sought the co-operation of those iwi who owned land along the route, including Muaūpoko. We did not oppose road or rail, we simply sought to ensure development was sensitive to our ancestors concerns and would

[4] AJHR, 1896, G-2, pp.296-297, and; Malcolm McKinnon, 'Manawatū and Horowhenua places – Horowhenua', *Te Ara – the Encyclopedia of New Zealand,* http://www.TeAra.govt.nz/en/manawatu-and-horowhenua-places/page-9 The name 'Taitoko' is said to derive either from Te Keepa's father or from his daughter and heir.

[5] Waitangi Tribunal, *Horowhenua The Muaupoko Priority Report*, Wellington, 2017, p.205, and AJHR, 1896, G-2, pp.73-74.

[6] Waitangi Tribunal, *Horowhenua The Muaupoko Priority Report*, Wellington, 2017, pp.234-37 and 239-46.

benefit all people, not just the Pākehā settlers. However, the process was fraught with issues. Manawatū County Council refused to compensate our ancestors for land taken for the road, did not undertake appropriate consultation and refused fair compensation for our labour.

The previous passages briefly describe the issues our ancestors faced when working in partnership with the Crown on major infrastructure development projects. Since then, there have been numerous further breaches of trust where our people have been exploited, from consultation and consent, to works undertaken on our lands. We are immensely proud of our ancestors for staunchly maintaining our traditions and advocating for our rights, through what must have been an extremely turbulent time.

Ōtaki to North of Levin/Taitoko is the largest infrastructure project to pass through our heartlands since the first inland road, railway and development associated with Taitoko township.

> *"We have worked hard, beyond reasonable pre-settlement and inequitably funded capacity, to meet our obligations as Treaty partners and ensure our rights and interests are provided for in the Ō2NL project[7]."*

[7] Diane Rump, Muaūpoko Chief Executive

2 Methodology

2.1 Communicating our values

We have compiled an expert team of Muaūpoko mātauranga advisors (also representing all Hapu) to oversee the development of this CIA, called Kāhui Ārahi. Kāhu Environmental, an environmental, planning and kaupapa taiao consultancy, was engaged to provide expert advice on compiling this document.

We have also been guided by advice and input from our Boards, whānau and rangatahi.

We acknowledge that the opinions of some individual hapū and whānau members may differ from those expressed in this assessment. However, we believe it supports and gives effect to the aspirations in the strategic plan[8] of the iwi and the objectives of the LHT, is best for our whānau, hapū and iwi, represents our tikanga and lore, and gives effect to our rights under New Zealand's planning frameworks.

We drew the knowledge in this CIA from the following sources:

1. oral kōrero shared by the Kāhui Ārahi Mātauranga rōpū, advisors to MTA and Lake Horowhenua Trust, and the Muaūpoko Ki Uta Ki Tai Environmental Project Team

2. MTA and Lake Horowhenua Trust Boards

3. Muaūpoko Treaty evidence and other documents of importance to us (education, planning, environment and health)

4. a series of Muaūpoko whānau consultation sessions, including rangatahi (youth) sessions, drop-in sessions held at Te Takeretanga o Kurahaupō and Waka Kotahi Taitoko Office

5. a series of site visits, workshops and meetings with Waka Kotahi

6. interpretation of other technical assessments delivered by the project

We've condensed our kōrero into a values framework shown in a table in each subsection of section 4. This framework enabled us to assess the level of the project's effects on Muaūpoko values.

2.2 Legislation considered in our assessment

During this framework development exercise, we considered integration of district, regional and national planning frameworks where they aligned with our values. For example, the principles of Te Mana o te Wai (National Policy Statement for Freshwater Management (NPSFM)) and aspects of Te Ao Māori One Plan objectives can be found therein.

This CIA can therefore be used to understand how the project aligns with the Matter of National Importance in Section 6 (e) of the RMA – the recognition and provision for the relationship of

[8] Muaūpoko Tribal Authority Board Strategic Plan https://muaupoko.iwi.nz/wp/wp-content/uploads/2014/02/Appendix-A.pdf

Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga, how particular regard has been had to kaitiakitanga (Section 7 (a) and how the principles of Te Tiriti o Waitangi have been taken into account (Section 8 RMA) from our perspective. It also contributes to the need for the project to achieve sustainable management for future generations.

2.2.1 National Policy Statement for Freshwater Management 2020

The NPSFM 2020 requires a completely different approach to freshwater management. Te Mana o te Wai is now the fundamental concept for all freshwater decision-making, and Waka Kotahi must give effect to it. Councils must also actively involve tangata whenua in all freshwater management, including decision-making. This national policy statement is of particular focus for Muaūpoko given the exemption of Horowhenua for the purposes of horticulture and the impacts on the catchment, waterways and Muaūpoko taonga; Punahau - Lake Horowhenua. Hence the criticality of this aspect in terms of the management and design of all aspects of Ō2NL. Te Mana o te Wai encompasses six key principles relating to the role of tangata whenua:

(a) *Mana whakahaere*: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

(b) *Kaitiakitanga*: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

(c) *Manaakitanga*: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

(d) *Governance*: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

(e) *Stewardship*: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

(f) *Care and respect*: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

Te Mana o te Wai also has a hierarchy of obligations that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

Other significant provisions are set out below.

Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.

Policy 3: Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

3.4 Tangata whenua involvement

(1) Every local authority must actively involve tangata whenua (to the extent they wish to be involved) in freshwater management (including decision-making processes), including in all the following:

(a) identifying the local approach to giving effect to Te Mana o te Wai

(b) making or changing regional policy statements and regional and district plans so far as they relate to freshwater management

(c) implementing the NOF (see subclause (2))

(d) developing and implementing mātauranga Māori and other monitoring.

3.5 Integrated management

(1) Adopting an integrated approach, ki uta ki tai, as required by Te Mana o te Wai, requires that local authorities must:

(a) recognise the interconnectedness of the whole environment, from the mountains and lakes, down the rivers to hāpua (lagoons), wahapū (estuaries) and to the sea; and

(b) recognise interactions between freshwater, land, water bodies, ecosystems, and receiving environments; and

(c) manage freshwater, and land use and development, in catchments in an integrated and sustainable way to avoid, remedy, or mitigate adverse effects, including cumulative effects, on the health and well-being of water bodies, freshwater ecosystems, and receiving environments; and

2.2.2 Horizons One Plan Te Ao Māori

Horizons Regional Council has yet to undertake Plan Change 3 to give effects to the NPSFM 2020. However, of note is Objective 2-1 of the Horizons One Plan.

Objective 2-1: Resource management	
(a)	To have regard to the *mauri** of *natural and physical resources*^ to enable *hapū** and *iwi** to provide for their social, economic and cultural wellbeing.
(b)	*Kaitiakitanga*^ must be given particular regard and the relationship of *hapū** and *iwi** with their ancestral *lands*^, *water*^, *sites**, *wāhi tapu** and other *taonga** (including *wāhi tūpuna**) must be recognised and provided for through resource management processes.

Policy 2-1 and Policy 2-2 of the One Plan state that:

Policy 2-1: *Hapū and *iwi** involvement in resource management**		
(h)	involvement of *hapū** or *iwi** in *resource consent*^ decision-making and planning processes in the ways agreed in the memoranda of partnership and *joint management agreements*^ developed under (a) and (f) above, and	
(i)	the Regional Council advising and encouraging *resource consent*^ applicants to consult directly with *hapū** or *iwi** where it is necessary to identify:	
	(i)	the relationship of Māori and their culture and traditions with their ancestral *lands*^, *water*^, *sites**, *wāhi tapu** and other *taonga** (including *wāhi tūpuna**), and
	(ii)	the actual and potential adverse *effects*^ of proposed activities on those relationships.

Policy 2-2: *Wāhi tapu, *wāhi tūpuna** and other *sites** of significance**	
(a)	*Wāhi tapu**, *wāhi tūpuna** and other *sites** of significance to Māori identified:
	must be protected from inappropriate subdivision, use or development that would cause adverse *effects*^ on the qualities and features which contribute to the values of these *sites**.
(d)	The Regional Council must ensure that resource users and contractors have clear procedures in the event *wāhi tapu** or *wāhi tūpuna** are discovered.

2.3 Assessing the magnitude of effects of the project on our values

We determine the magnitude of effects of the activities (including construction and ongoing operation) resulting from the proposed development on our values, both in:

1. the absence of any effects management actions
2. after any effects management actions have been applied.

Our assessment applies a six-scale classification (shown in Table 1) to the magnitude of effects on our values. Magnitude being a measure of change/alteration from the existing baseline state.

Assessing magnitude of effects takes into account:

1. the level of confidence that effects will occur in the way anticipated
2. the spatial scale and extent of the effects
3. the duration of the effect (temporary versus permanence)
4. whether the potential effect is reversible
5. the timing of the effect in relation to environmental cycles, patterns and the maramataka.

Table 1: Magnitude classification system description.

Magnitude	Description
Very high	Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; AND/OR Loss of a very high proportion of the known value or range of the element/feature.
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; AND/OR Loss of a high proportion of the known values or range of the element/feature.
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; AND/OR Loss of a moderate proportion of the known values or range of the element/feature.
Low	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; AND/OR Having a minor effect on the known value or range of the element/feature.

Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; AND/OR Having negligible effect on the known value or range of the element/feature.
Positive	Enhancement above baseline condition. Change is beneficial to values and attributes AND/OR promotes the value or range of the element/feature.

2.4 Results

To determine the final level of effects the project will have on our values, we apply a matrix approach shown in Table 2. The matrix results guide us in assessing if a net gain, very low, low, moderate, high, or very high level of impact may occur on our values. Where the effects from the project have not been reduced to an acceptable level, further avoidance, remediation, or mitigation is required, and we will be working with Waka Kotahi in an ongoing manner to ensure a pathway is set up to address these matters. If that is not possible or practical, we look to cultural offsetting or compensation applied elsewhere.

Table 2: Level of effects matrix.

		Cultural value				
		Very high	High	Moderate	Low	Negligible
Magnitude	Very high	Very high	Very high	High	Moderate	Low
	High	Very high	Very high	Moderate	Low	Very low
	Moderate	High	High	Moderate	Low	Very low
	Low	Moderate	Low	Low	Very low	Very low
	Negligible	Low	Very low	Very low	Very low	Very low
	Positive	Net gain	Net gain	Net gain	Net gain	Net gain

3 Project shaping

3.1 Route selection

The MTA and LHT have participated in the shaping of the Ō2NL highway project design process. The MTA and LHT looked at a number of potential corridors across the Horowhenua landscape considering options east and west of Punahau/Lake Horowhenua through a multi-criteria analysis.

Our people ultimately decided that the effects of the proposed highway west of Punahau would be unacceptable. West of Punahau, our ancestors are interred in the dune systems, we have many wāhi tapu and our wetlands still thrive in isolated pockets. It would have been impossible to avoid our highly sensitive sites. Our people understood the route east of the lake would have effects, but it was decided these would be to a lesser degree than the western route. The CIA describes the residual effects after avoidance has been undertaken.

3.2 Corridor refinement

We participated in the route refinement phase once the corridor had been selected east of Punahau. We undertook a cultural values assessment (CVA) which formed the basis of our CIA. Throughout this process, we ran consultation and information sessions. We considered our values associated with the landscape. We communicated these values through the CVA document. Some key outcomes include:

- **Kaitiakitanga**
  Muaūpoko has an obligation to guard and enhance the mauri of natural resources in our rohe, for the benefit of ourselves, others in the region and future generations. Protecting waterways is of utmost importance – as kaitiaki, Muaūpoko Iwi members, landowners and whānau need confidence that there will be enduring and effective mechanisms to ensure the health and safety of waters. Restoration, enhancement, and monitoring should be a core objective of the programme as well as efforts to avoid or minimise harm to native bush and taonga species.

- **Whakapapa**
  The draft preferred alignment crosses sites of significance that connect Muaūpoko to our ancestors. It is vital that the design acknowledges and celebrates our whakapapa and sites of significance. The overall route needs a name that reflects and respects our 1,000-year connection with this whenua and our enduring whakapapa which is evidenced throughout the names of the landscape. Our whakapapa connects us to Papatūānuku as our kuia, that in the project we are assaulting and scarring her and that we need to understand that. Marks on the body can be beautiful and celebrated or the opposite – we seek to celebrate connections to Papatūānuku as a principle at every opportunity possible. There must be a conscious intention to bring this principle to life. The maunga and the awa and the whenua **are** us – they are not separate.

- **Ta uta uta**
  The proposed expressway creates opportunities to create a safer, positive legacy that restores the mana of our landscape and strengthens our capability as iwi and people.

- **Wairua and mauri**
  Te Ao Māori emphasise the interconnectedness of people and the environment, of the living and the inanimate, and between the past, present and future. The alignment cuts across a number of spiritual pathways from our wāhi tapu in the Tararua Range through the Horowhenua and to the sea. By cutting north through the rohe, the alignment will also break the connections from the maunga to the moana and the lakes and create a scar across our whenua.

- **Manaakitanga**
  When complete, the expressway will make the Horowhenua road much safer and more accessible to visitors and people from other areas. However, the expressway, as currently proposed, misses opportunities to encourage visits to the region and showcase the sites and beauty of the Horowhenua. These would be chances for local businesses to flourish, Muaūpoko to show manaakitanga and make it easier for travellers to stop and visit.

- **Mana and rangatiratanga**
  Recent work by Waka Kotahi and its contractors on the State Highway network has excluded and furthermore not acknowledged our areas of interest, our historical relationship with the land, our mana, and our status as tangata whenua. These actions must not become precedents. The Ō2NL expressway is an opportunity to model Crown-iwi partnership.

3.3 Cultural Environmental Design Framework

The Cultural Environmental Design Framework is a key document which we supported to bring to life. We helped to develop principles that would shape the design of the project, that we could test ourselves on to ensure we were always adhering to our principles.

- kia māori te whenua (let it be its natural self)
- me tangata te whenua (treat the land as a person)
- kia māori te whakaaro (normalise Māori values)
- me noho tangata whenua ngā mātāpono (embed the principles in all things)
- tū ai te tangata, tū ai te whenua, tū ai te wai (elevate the status of the people, land and water)

These overarching principles flow from our tikanga and define the framework for interaction between those working on the project, the relationship between the project team, the project itself, and the natural world.

Values we endorse include:

- **te tiriti** (spirit of partnership)
- **rangatiratanga** (leadership – professionalism – excellence)
- **ūkaipotanga** (care – constructive behaviour towards each other)

- **pukengatanga** (mutual respect)
- **manaakitanga** (generosity – acknowledgement – hospitality)
- **kaitiakitanga** (environmental stewardship)
- **whanaungatanga** (belonging – teamwork)
- **whakapapa** (connections)

In practice this means we always uphold our mana and those of others. That we are kind and hospitable to the guests in our region building the project, that we commit to uplifting the project in the way that we are able and suits our engagement structures. We:

3.4 East of Taitoko/Levin

The corridor refinement process resulted in a route east of Taitoko/Levin. Our people were unaware during the early phases of a proposal to cut into the gravel headwaters of Punahau/Lake Horowhenua until a stormwater plan was presented to our representatives in early 2021. The plan discussed options on how to transport wai across an 8-m deep cutting using syphons. The full length of Horowhenua (the slipping land) or the gravel pan that transports groundwater to the lake would be cut 50 m across, along a 4 km stretch. Our people saw this is the largest drainage system for Punahau proposed by the Crown in a century.

We immediately raised our concerns with Waka Kotahi around the cutting aspect of the project – our mātauranga understands that Punahau health relies on groundwater inputs – and that any form of cutting would destroy the mauri of our lake once and for all. Our concerns were heard, triggering an intensive monitoring regime in the winter of 2021. In our view, the monitoring confirmed our mātauranga, that the groundwater is dynamic in the Horowhenua and can be particularly high in some areas, creating seasonal springs, in particular our wai mārie underground stream/Arapaepae spiritual pathway, which is discussed further in the following sections. This is unsurprising – it's a major factor in shaping Horowhenua's unique geological conditions. Given the NPSFM's proposed exemption from water quality bottom lines applied to Horowhenua, Muaūpoko are particularly concerned that individual programmes and projects will have cumulative or hidden impacts. We maintain that all impacts must be properly and

appropriately recognised due to the precarious state of Punahau and must include recognition of our mātauranga.

We achieved our goal of protecting Punahau. Protecting Punahau is absolutely non-negotiable for Muaūpoko owners and Muaūpoko people. We see this process as a positive outcome for the project whereby the adverse outcome was addressed and avoided prior to any RMA process, an important example of why tangata whenua are critical kaitiaki of the environment and participant in infrastructure development.

The MTA and LHT participated in the multi-criteria analysis (MCA) to build an evidence base against the cutting within Taitoko, Horowhenua block section, and that Te Mana o te Wai and the health and well-being of Punahau must be at the heart of this decision. Ultimately, the project adopted “no cutting” as the formal project position. Residual effects remain due to developing a roadway across Horowhenua and clearing of topsoil. Comparatively, however, these are far lesser effects and are addressed in this CIA.

As a result of the decision to build the highway at-grade, a bridge over Queen Street East or roundabout to the north were among a range of options assessed as potential ways to link Queen Street East across the highway. As Queen Street in its entirety is essentially adjacent to a Muaūpoko ancestral and culturally significant spiritual pathway – our preferred option included the roundabout to the north. This option reduced construction impacts, including visual and spiritual impacts on wai mārie underground awa, the spiritual pathway Arapaepae and our ngārara (ornate native and endangered skinks) within the Ara-paepae bush remnants. A shared walking/cycling bridge maintained along the direction of Queen Street East would promote our connections to these values. Our preferred option did have some negative effects, such as increased transport pressure on other linkages to the proposed Tara-Ika subdivision and a lack of urban design cohesiveness when connecting Taitoko with Tara-Ika. We ultimately decided to support a bridge over Queen Street East and participated in a values-based design process. Our values that have been provided for in the design of this overbridge and are incorporated into the CEDF include:

- recognition of wai mārie, the spiritual pathway and connections to maunu wahine/Waiopehu Reserve and the pathway to Punahau
- “green” linkages with the proposed sanctuary for ngārara and ngata
- avoiding any significant interruption of visual connections up Queen Street East (the overbridge is slightly offset from the road)
- inclusion of a tree fort design within the shared-use path connection to give reference to one of our ancestor’s traditional ways of living and their unique ability to innovate.

3.5 Gravel and sand supply sites

The avoidance of a cutting in the high-value gravels of Punahau left the project with a significant shortage of road-building materials, triggering a supply site investigation process. Through this process, we eliminated sites that would be culturally inappropriate for this purpose, including Poroporo ridge, O Tara Rere ridge, Arapaepae ridge and other significant peaks of cultural significance and value.

Through this process, we developed a set of principles that would drive our decision making. These principles are:

- Rangatiratanga and partnership:
    - Ensure the project's mana whenua partners are included in further site investigations and the design process. Evaluate the final design against the CEDF principles.
    - Allow further investigation of sites of significance to be avoided.
    - Include mana whenua in decision-making and provide opportunities for kaitiaki to undertake their role through restoration and rehabilitation projects.
- Protect taonga species and their habitats:
    - Avoid high-value indigenous vegetation and habitats for taonga species.
    - Provide for rehabilitation of earth-worked areas to create or restore indigenous vegetation and indigenous habitats for taonga species.
    - Integrate planting and restoration into existing and planned rehabilitation areas.
- Integrate Te Mana o te Wai and ki uta ki tai values:
    - Ensure natural flow paths and hydrology are retained, including flood risk and proximity to active river flows.
    - Existing and proposed management of the waterways is to be integrated, including plans for growth and other infrastructure projects.
    - Avoid impacts on groundwater.
- Preserve the natural shapes of te taiao and Papatūānuku:
    - Ensure final contouring responds to existing topography and landform, and ties into natural contours.
    - Provide for rehabilitation of earth-worked areas to enhance natural character.
    - Ensure the shared-use pathway is well integrated, allowing experience and, where appropriate, access through the rehabilitated area.
    - Where appropriate, provide for opportunities to engage with the wider landscape through views and physical access (as part of the Ō2NL or a future project). For example, enhance access to the river alongside the shared-use pathway including pause points and car park areas off local roads to enable appropriate (safe, culturally, and ecologically appropriate) recreation and community connections.

3.5.1 North Ōhau (Site 36)

In addition to general design principles, the North Ōhau site (Site 36) is considered a preferred site because it has opportunities to provide for:

- final contours and measures that could enhance flood management for surrounding properties

- recreation of wetland environment, including open-water areas, whilst appropriately managing flood risk

- rehabilitation planting, integrated with ecology and natural character mitigation and offsetting, reintroduction of site-specific wetland taonga species and enhancement of existing lowland forest areas

- design measures are to consider possible interpretation and expression of the project's narrative, in keeping with the overall principles, mahi toi strategy and shared-use pathway outcomes

- design measures are to consider a possible future loop trail on northern bank of Ōhau – Muhunoa East Road (to be developed by others)

- design measures are to consider opportunities for rehabilitation of existing quarry (on the true left bank opposite), to enhance the condition of the river margin and riparian habitats.

3.5.2 South Waikawa (Site 15)

In addition to general design principles, the South Waikawa (site 15) site is considered appropriate because it has opportunities to provide for:

- final contours to tie into the upper terrace, above the 100-year flood plain

- rehabilitation planting, integrated with ecology and natural character mitigation and offsetting, reintroduction of site specific taonga species, enhancement of existing lowland forest areas and contribution to river corridor habitats

- stormwater pond and shared-use pathway integration, including possible offline gathering space with access to the lower terrace and stream

- design measures are to consider interpretation and expression of the project's overall narrative, in keeping with the overall principles, mahi toi strategy and shared-use pathway outcomes.

3.5.3 North Waikawa (Site 19)

In addition to general design principles, the North Waikawa (site 19) site is considered appropriate because it has opportunities to provide for:

- final contours to tie into the upper terrace, above the 100-year flood plain

- rehabilitation planting, integrated with ecology and natural character mitigation and offsetting, reintroduction of site-specific taonga species, enhancement of existing lowland forest areas and contribution to river corridor habitats.

- A rehabilitated river terrace landscape featuring large areas of lowland indigenous forest that contributes to the Waikawa Stream habitat corridor, and an enhanced shared-use pathway and highway experience.

3.6 Spoil sites

The MTA and LHT participated in an MCA for spoil site placement across the project. For each site, we considered:

1. connections to our atua and the wider environment
2. relationships with Muaūpoko whakapapa and mātauranga
3. the mauri of the area
4. ki uta ki tai – interruptions to the connections between our maunga and moana
5. ngā wai ora – impact on the health of our waterways
6. manaakitanga – our people's priorities for protecting and uplifting the mana of the environment
7. our traditional lands, sites, travel routes and villages
8. the site's history and any key events
9. taonga species and their habitats – considering lifecycles, daily or seasonal availability of habitat and its use
10. relationship with our culture, customs, and behaviours
11. naming and importance of our tohu (environmental indicators).

Our input, in particular, resulted in a lack of sites in the Pukehou/Waitohu catchment where we reassessed another selection of spoil sites, avoiding the wetland valleys our people used as mahinga kai and ridge tops where our people camped on a seasonal basis. We believe the spoil sites in this section fit better with our criteria including minimising the impact on the landscape character and our cultural values.

3.7 Ecological offset package

Muaūpoko advisors have worked alongside Waka Kotahi to develop a set of principles for the ecological offset package. It was acknowledged that the overall purpose of the ecological response package was to establish a process for identification of a package of ecological interventions to deliver an overall net gain in ecological biodiversity (in response to the adverse effects of the project on ecology).

Four ecology workshops were attended by Muaūpoko representatives where the ecological response package was discussed and what was required to avoid, minimise, offset or compensate for the adverse effects of the Ō2NL project on terrestrial and freshwater ecology. The preparation of the ecological offset package also followed general principles of biodiversity offsetting and environmental compensation, including adherence to the mitigation hierarchy.

Principles for specific ecosystem requirements were identified and are outlined below:

Streams

- a focus on key catchments and connected stream lengths
- like-for-like where offset retirement and/or revegetation sites need to be similarly sized streams to those being affected or lost
- potential to include fish barriers in the key catchment areas.

Wetlands

- mitigation and offset options include ability to restore existing wetlands that are in poor condition, and to reinstate wetlands where they have been drained
- like-for-like, specifically needed to offset effects on rare seepage type wetlands where actions will be to restore and protect existing seepages (as this environment cannot be constructed)
- need to focus on wetlands and streams separately to make sure that all effects are offset.

Forest, tree land and scrub

- reconnect existing fragments of bush to create larger forest areas by establishing linkage plantings
- increase the size and viability of small forest remnants by enclosing with buffer plantings
- pest animal and plant control where practicable and key to addressing effects
- reinstating former hydrology for forest remnants on drained alluvial flats and terraces
- salvage of material within areas of vegetation clearance (with placement at restoration sites).

The following broad principles were discussed for assimilation into an overall package, derived from the options identified to address particular effects on streams, wetlands and terrestrial ecosystems:

- reverse historical loss and 'let the land be itself'[9]
- prioritise mitigation or offsetting close to other sites of high value to enhance benefits and link sites of high value
- ensure restoration is spread across the alignment, however, ensure it is at a scale and extent that effectively enhances ecological values

[9] CEDF principle

- include provision for cultural access for mahinga kai and restoration of sites of significance to Māori.

We participated in various informal hui as the ecological avoidance, minimisation and offset package developed. Through this process we have only two residual concerns:

1. that stream value loss must consider the whole extent of impact including erosion control structures not traditionally included as an affected area in ecological accounting

2. that effects on our ngārara and ngata were not well understood and therefore it would be impossible for us to accurately claim any effects were less than minor.

3.8 A much-needed sanctuary

Our ngata and ngārara were once common across our traditional landscape. They were considered kaitiaki of our lands and omens. The destruction of their habitat has left remnant populations hanging on and the construction of such a large-scale project has the potential to further impact these remnant individuals and populations. Because they are so rare, our concern for them is significant, the loss of a small population could reasonably cause extinction of a distinct genetic line. They are so uncommon in the landscape, it is Muaūpoko opinion that ecological surveys cannot ultimately conclude they will avoid impacting these kaitiaki. We raised our concerns around this aspect of the project early and Waka Kotahi has responded. We jointly propose the development of a much-needed sanctuary to protect our kaitiaki forevermore. It is Muaūpoko aspiration to restore their habitat and watch over them, just as they have watched over our spiritual pathway for many hundreds of years.

We propose the sanctuary:

- Installs a predator-proof fence prior to construction so any kaitiaki found in the landscape as the project develops can be relocated

- eliminates predators and pests to give our taonga the best possible chance of survival and recovery

- supports Muaūpoko to conduct the pest control and monitoring

- connects to our spiritutal pathway wai mārie

- develops a long-term sanctuary management plan (in partnership with our people) with the primary objective to restore the mauri to the land and pathway through species recovery efforts.

4 Analysis of our values

In the following sections we provide a description of our values and their state within our landscape, including the potential and actual adverse effects of the project on these values. Our kōrero has been condensed into a values framework, which is shown in a table in each section.

Throughout this process it is important to understand that our connections with our valued waterways, sites and taonga has not diminished with the passing of time or succession of generations. Our values still exist within our cultural practices and mātauranga passed down through generations, even when deforestation, drainage and stop-bank schemes may have removed physical traces of what was once present or degraded our natural resources. For this reason, the values assessed within this CIA include not only the physical presence of species and ecological qualities of waterways, but also how the project may affect our traditional, cultural and spiritual values, and our mātauranga and practices.

4.1 Our worldview

The cause giving rise to all life forms is Ranginui, the sky father, and Papatūānuku, the earth mother. We know the early stages of life as Te Kore (the void) and Te Pō (the darkness). Te Kore was the state of non- existence and emptiness, but in possession of vast potential for life. Te Pō and Te Kore have many forms representing passages of time where life was created, including the emptiness and darkness of mind; with no light there was no knowledge.

The energy of Ranginui and Papatūānuku came together and so came to be many children in Te Pō, however because of the close and continual embrace of Rangi and Papa nothing would grow. After much discussion and glimpses of what could be in the outside world, the children decided to separate their parents. Many of the children tried but it was Tāne Māhuta who finally managed to complete the separation. The separation brought in Te Ao Marama, the world of light and growth. The tears of Rangi being separated from Papa caused a great flood, even today when it rains it is said that Rangi is shedding tears for his beloved wife, the mists are her grief rising up. The world became clothed in Tāne's children – trees, birds, and insects. He realised the human form required a female whom he created and was known as Hine-ahu-one. It was Tāne who retrieved three baskets of knowledge from the highest of the twelve heavens: to kete tuatea (basket of light or present knowledge), te kete tuauri (basket of darkness or things unknown), and te kete aronui (the basket of pursuit or knowledge we currently seek).

Ruaūmoko, the youngest of gods, was still at Papa's breast when the separation occurred and was left with her as she was turned to keep her comfort in the underworld. Ruaūmoko is the god of earthquakes and volcanic activity, that constantly war against us in every age. Tāwhirimātea, god of the winds, rails against the separation of Rangi and Papa and often seeks to devastate the forests and our homes in which we need to survive. Tangaroa, god of the sea, had his children strewn by the fury of Tāwhiri across the land and depths of the ocean. This is how reptiles and fish evolved. Rongomatāne, god of cultivated foods and peaceful arts, and Haumietiketike, god of wild foods, were hidden by Papa from the wrath of Tāwhiri beneath the soil, there they stayed and remain today. Tūmatauenga, god of war, fought with Tāwhiri and then waged war on his brothers and their children for not assisting him. None escaped the attacks, their children were caught and consumed as food, removing their tapu and making way for eventual superiority of our human form.

Our creation kōrero describes how we view the world as holistically related through whakapapa, where we as tangata whenua belong and relate to the land, waterways, and oceans. It describes our understanding of the interrelationships between different realms of the environment and the nature of the natural phenomena surrounding us.

Table 3: Our values associated with our atua.

Value	State	Class	Potential and actual effects
Te Kete Aronui (Ta Uta Uta) – Our growth and knowledge	Our iwi is pre settlement and building, and our knowledge base is regenerating. It is key to our holistic health, te whare tapa wha of our people that we can be leaders and knowledge holders of all that concerns our lands, waterways and people. The knowledge transfer opportunities within the project are immense but, currently, we are missing them due to limited capacity. We constantly make this point and advocate for resolution. It is essential to authentic Treaty and project partnership, and the enactment of agreed project values	Very high	**Construction phase** Inability to pursue our growth and knowledge as an iwi in the construction phase due to capacity constraints – the potential reversible adverse effect of our people being unable to partner effectively with Waka Kotahi, participate authentically in the project and protect our rights and interests because we are under-resourced and our capacity over-burdened through historical and contemporary actions of the Crown. **Operational phase** Inability to pursue our growth and knowledge as an iwi in the operational phase due to capacity and capability constraints – the potential reversible adverse effect of our people being unable to participate authentically in the ongoing management of the project and protect our rights and interests because we are under-resourced and our capacity over-burdened through historical and contemporary actions of the Crown. The risk is enhanced if we are unable to participate fully in the construction phase.
Connections with and between our atua	The way our atua interact and our connections with our atua shape our day-to-day lives – the way we teach our tamariki, what we teach them, how we manage our homes, our marae, celebrations and tangihanga – it shapes our relationships, kai gathering practices, traditions, and the way we move around our environment.	Very high	**Construction phase** Disruption of the relationship between atua, kaitiaki and the environment during the construction phase of the project – the potential irreversible or reversible adverse effect of tipping an atua kaitiaki out of balance and scarring Papatūānuku forevermore. This could include a fish die-off from a pollution event, a significant sediment release increasing sediment deposition in our awa, the destruction of individuals with endangered species status, the disconnection of communities from each other and their marae; essentially a breach of tikanga that could have spiritual and/or physical consequences for our taonga and our identity as an iwi. **Operational phase** Disruption of the relationship between atua, kaitiaki and the environment during the operational phase of the project – the potential irreversible or reversible adverse effect of tipping an atua kaitiaki out of balance. This could include the extinction of a population because of the ongoing operation of the road, or the adverse effects of stormwater pollution of our waterways as a result of stormwater run-off over a long period of time, the disconnection of communities from each other and their marae, essentially a breach of tikanga that could have spiritual and/or physical consequences for our taonga and our identity as an iwi.

Table 4: Magnitude assessment – Our atua.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our growth and knowledge.	The inability to pursue our growth and knowledge as an iwi in the construction phase due to capacity constraints. **Confidence**: High **Scale**: Effects both MTA and LHT **Duration**: The planning and construction phases of the project **Reversible**: Yes **Timing**: Ongoing and consistent challenges at all phases of the project	High	We are kaitiaki in our rohe, we have many significant sites and our ability to manage them has been severely impacted by past Crown actions. The construction of Ō2NL is the biggest infrastructure project in our region and it will forever change our landscape. Our capacity must be holistically supported so we can authentically partner, participate and protect our values as Te Tiriti partners.	We are effectively supported through role creation to deliver a Muaūpoko Values Management Plan where our people (whānau, landowners and various Muaūpoko groups) and representatives can demonstrate and lead Muaūpoko-tanga kaupapa in the project, such as: • implementation of our tikanga in the project • participate in environmental planning and lead environmental management initiatives • participate in archaeological monitoring • participate in ecology and water-quality surveys • lead a cultural health assessment process for our iwi • record wai and taonga monitoring data in Muaūpoko's online data capture platform. We have developed our Muaūpoko Outcomes Framework and are developing a project plan to enable its execution.	Moderate

Connections with and between our atua.	Disruption of the relationship between atua, kaitiaki and the environment during the construction phase of the project. **Confidence**: Low **Scale**: Local awa, population or community **Duration**: Months, years or permanent depending on the type of disruption **Reversible**: Depends on type of disruption **Timing**: During major earthworks	High	Unexpected events, such as a heavy storm inducing ESC blowouts, accidental chemical or hydrocarbon spills, or accidental wildlife deaths remain a risk in large infrastructure projects, despite good environmental management procedures and staff training initiatives. Papatūānuku will be changed forevermore – the way we go about doing this must be in line with tikanga and we must give back to her. We have worked with Waka Kotahi to ensure our communities and marae remain connected.	We would like a minimum of four kaitiaki to oversee the Ō2NL project. Two kaitiaki should be fully on-board when enabling works begin, the final two kaitiaki should be on-board before main works start. In practical terms, this will require a small pool of kaitiaki to be trained and on-hand to provide necessary capacity to cover illness etc. We seek support to see the pool of kaitiaki are trained in best-practice environmental management techniques, as well as on-the-job training. The kaitiaki will be responsible for providing for Papatūānuku including: • karakia, as they see necessary • installing mauri stones • overseeing environmental practices • overseeing topsoil stripping etc. Robust planning and feedback procedures should be included in the, SECMP, CEMP and EMP. At a minimum, the plans should include: • Descriptions of pre-construction wildlife surveys, including nest surveys in appropriate seasons, lizard surveys prior to vegetation clearance, aquatic de-fishing, and relocation prior to works in streams. • Oversized sediment-erosion control devices where discharges are made to the most sensitive areas of wai	Moderate

				(Ōhau, Waikawa, Horowhenua, Manakau and Waiauti). • Early compulsory environmental staff training, including spill response procedures. • Protocols and resourcing for communication and inclusion of our representatives in each of the management plans.	
Operational phase effects					
Growth and knowledge.	The inability to pursue our growth and knowledge as an iwi in the operational phase due to capacity constraints. **Confidence**: Moderate **Scale**: Effects both MTA and LHT, our key iwi organisations **Duration**: The ongoing operation of the highway **Reversible**: Yes **Timing**: Ongoing	Moderate	The ongoing operation will require less engagement capacity from our representatives.	Throughout the project, we aim to build our capacity to participate in the management of the project environment. If managed well in the construction phase, this capacity can then be moved into our participation in ongoing operational management. This capacity building must be supported and is comparatively lacking due to Muaūpoko's exclusion from previous Waka Kotahi expressway sections and overall Crown actions, which have excluded and precluded Muaūpoko from developing the core capacity now assumed by Waka Kotahi and required by the MTA and LHT.	Positive
Connections with and between our atua.	Disruption of the relationship between atua, kaitiaki and the environment. **Confidence**: Low **Scale:** Downstream of Ō2NL **Duration:** Long-term **Reversible:** Yes	High	Wai is our lifeblood, and it is severely degraded in our rohe. We cannot allow further development that risks contributing to the pollution burden that we already have to clean up. Stormwater will be treated through a treatment train of sediment drop out pits, swales, and wetlands. However,	Stormwater wetlands are hydrologically neutral and able to manage up to a 1-in-100-year event. An adaptive stormwater management plan is put in place that extends for the lifetime of the	Low

	Timing:	Years after operation begins		these natural systems can become overburdened with pollutants if not managed and adequately maintained. Treatment wetlands are a relatively new tool to treat road run-off and there is a lack of quality long-term data demonstrating their effectiveness over time.	project (ongoing operation) which, at a minimum, provides: • clear, measurable objectives that demonstrate how potential adverse effects will be monitored, managed, and mitigated • monitoring upstream and downstream using appropriate indicators • a timeframe for the monitoring to be undertaken and the catchments it will be undertaken within • thresholds that trigger remedial actions before effects become significant • mechanisms that allow remediation of effects that might arise before they become irreversible • protocols for communication with Muaūpoko whānau, hapū and owners (especially the LHT).

4.2 Our whakapapa

We trace our whakapapa back to our atua, however we also recognise our ancestors who reached Aotearoa during the waka migration from our ancestral homelands in Hawaiki. We recognise Kupe (an early adventurer), Toi-te-huatahi (Toi the explorer, the father of Whātonga), and Whātonga (a captain of the Kurahaupō waka) as our eponymous ancestors.

Our story of Kupe is considered an account of our origins, in which Kupe, a chief from Hawaiki, argued with Muturangi whose pet octopus had stolen bait from his fishing lines. Kupe boarded the waka Matahourua with his companion Ngake (or Ngahue) aboard Tawirirangi (or Tawhirirangi). The pair set sail in pursuit of the octopus to Aotearoa where it was finally killed at a place known as Arapaoa. Kupe travelled on, naming places in Aotearoa along the way. The two islands in Te Whanganui-a-Tara were named for his daughters (or nieces), Matiu and Mākaro, he discovered greenstone in the South Island, later returning to Hawaiki from Hokianga. Upon his return, Kupe informed his (our) people of the new land he had discovered, one of whom was his nephew Turi, who captained the Aotea waka to these shores.

Meanwhile, the Kurahaupō waka, including Whātonga, arrived on the west coast at Tongapōrutu. Whātonga found his grandfather Toi-te-huatahi at Whakatāne, then ventured onwards to Heretaunga where he settled and sent his sons Tara-Ika and Tautoki to Te Ūpoko o te Ika (the head the fish of Maui/southern North Island) to explore and live.

A eldest son of Whātonga, Tara-Ika, is the ancestor of Ngāi Tara which creates our shared whakapapa, Ngai Tara o Mua Ūpoko o Te Ika o Maui. The half-brother of Tara-Ika was Tautoki, the father of our whanaunga Rangitāne.

Muaūpoko is translated to mean ‘head of the fish’ or ‘people of the head of the fish,’ the fish being Te Ika a Māui, the North Island of New Zealand. The fish’s head is the bottom of the North Island, where Muaūpoko are born of the land. According to some of our people, Muaūpoko are descended from tangata whenua who lived on the land preceding waka arrivals from the Pacific, referred to as Mua-o-te-tangata or Muatetangata. But for most, Muaūpoko story of origin began with the arrival of Kupe from Hawaiki on the Matahourua waka, or more recently, the migration of Whātonga on the Kurahaupo waka.

Some Muaūpoko believe the Tararua Range was named after Hotuwaipara and Reretua, the two wives of Whātonga and mothers of Tara-Ika and Tautoki, respectively. But others claim the range was named after Tara-Ika himself, who’d already been memorialized in some features of the land where he established his people. For example, Te Whanganui-a-Tara and Te Waewae Kapiti o Tara rāua ko Tautoki (Kapiti Island named by Whātonga for his two sons as a signpost for their travels and shared territory).

Our mana lives on in our traditional rohe through the names of places and through the connections of our people, stories handed down through our generations. In the following sections, we outline our mātauranga and values that describe our mana within our landscape.

Table 5: Values associated with our whakapapa.

Value	State	Class	Potential and actual effects
The discovery by our people and our names in the landscape.	Our ancestors named places throughout our traditional rohe describing significant events, people and landscape characteristics. Many names have endured and shape our world today, others are maintained within our mātauranga.	Very high	**Construction phase** Risk of rewriting our narratives – the potential reversible or irreversible adverse effect of the project overlooking, rewriting or belittling our traditional narrative and associated tikanga of our landscape during project inductions, site inductions, in project documentation and evidence generated as a result of the notice of requirement or applications for resource consent for the project. This has particularly high adverse implications for Muaūpoko given the pre-settlement status, previous changing of narrative through colonisation based on land acquisition goals and in a contemporary context from partnership that enables core capacity building. **Operational phase** Risk of rewriting narratives – the potential reversible or irreversible risk of the project overlooking, rewriting or belittling the traditional narrative of our landscape as road users pass through or move about our rohe.
Our landscape connections and cultural expression.	The connections between our maunga and moana are very pronounced in our landscape as our maunga and moana are geographically close together. Our people traditionally and still today connect with the environment ki uta ki tai.	High	**Construction phase** Severing connections ki uta ki tai – the highway is a more than 300-ha construction project that cuts through our rohe with the potential for earthworks to temporarily sever connections between our maunga and moana. Connections of particular concern are visual interruption (the spiritual impact of seeing our rohe so disturbed) and our fish taonga migration during culvert installation. The scarring on Papatūānuku. **Operational phase** Severing connections ki uta ki tai – the highway is a linear feature stretching over 24 km through our rohe. It has the potential to permanently disconnect our maunga and moana: • visually and spiritually due to the size and length of the road, and its position in the landscape • permanent or degraded ability for fish and invertebrate to migrate ki uta ki tai • increasing bird strikes as a result of planting next to the highway.

Accidental discovery of archaeological materials related to our ancestors.	Our ancestors are primarily buried in the sand dunes, however some were interred directly in their whare or at battle sites. Some of this knowledge has been lost and there remains a risk that we may encounter our ancestors and taonga within the alignment.	Very high	**Construction phase** Disturbing our ancestors' resting places – the potential irreversible effect of uncovering and disturbing the burial place of our ancestors. Others overriding our responsibilities to our ancestors – prior to 1820, our whakapapa and mana dominate the entire Ō2NL landscape. However, there is a risk others will attempt to override our tikanga and kawa when managing accidental finds that are dated after this time, including kōiwi and taonga.

Table 6: Magnitude assessment – Our whakapapa.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
The discovery by our people and their naming in the landscape.	Risk of rewriting narratives. **Confidence**: Moderate **Scale**: Effects our identity through time **Duration**: The planning and construction phases of the project **Reversible**: Yes **Timing**: Ongoing issue	High	A large body of evidence is being built to support the Ō2NL project. It is critical our narrative is communicated authentically, that our rights as mana whenua to manage our resources in a way that aligns with our mātauranga is acknowledged and described. Without this, we do not think our position as Treaty partners can be fulfilled.	Waka Kotahi work with our people and provide adequate capacity to ensure project documentation is written in a way that is respectful and authentic – our mana and mātauranga is recognised in the project documentation, inductions, conditions, and management plans. Adequate capacity enables us to respond and provide input authentically and to participate in line with Treaty principles.	Positive
Our landscape connections and cultural expression.	Severing connections ki uta ki tai. **Confidence**: High **Scale**: Project landscape scale **Duration**: Construction phase **Reversible**: Yes **Timing**: During major earthworks and stream works	Moderate	A large area of our rohe (more than 350 ha) will be disturbed for five years or more leaving a visual scar on our landscape that our people must live with. Some areas will only be open for all or part of a construction season, others will last years. Culvert installation can take weeks and sometimes up to the whole construction season, or longer for more difficult stream works. Our people work, live and undertake traditional activities within, adjacent to and in the project area. They will be concerned about the works they see going on and the effect it is having on our whenua, there will be spiritual ramifications of this work.	Fish passage is maintained, or improved, at all times of the project during stream works to ensure migrations can still take place. The only areas where fish passage is not required is if there is no suitable upstream habitat for any of our taonga species. All areas within the designation should require site-specific SECPs. These plans should be given to Muaūpoko for assessment and feedback. This is how we can ensure for our people that the project always maintains best practices, protects our wai and will support our communications. Muaūpoko are invited at least monthly to walkover the whole project.	Low

				Capacity support is provided to enable an MTA and LHT consultation process to ensure our people are kept up-to-date with works, can air their perspective, concerns and have a feedback loop to address them.	
Accidental discovery of archaeological materials related to our ancestors.	Disturbing our ancestors resting places. **Confidence**: Low **Scale**: Local **Duration**: Permanent **Reversible**: No **Timing**: During major earthworks	Moderate	We have worked with the project archaeologist to ensure all known places our ancestors lived, fought battles and were buried were avoided. Our people spent time across our landscape and there remains a small possibility that we may uncover kōiwi.	An accidental discovery procedure is developed in partnership with our people including immediate cease works, communication with our iwi leaders and kaitiaki to ensure our tikanga is followed if such an event were to occur. Our kaitiaki are enabled to be on-site wherever they deem necessary to oversee topsoil stripping, they are invited to pre-construction meetings. There will be a separate and specific requirement in regards kōiwi tangata discovery and a pre-agreed protocol for treatment of taonga.	Low
	Others overriding our responsibilities to our ancestors. **Confidence**: High **Scale**: Local **Duration**: Months to years as the find is managed **Reversible**: Potentially **Timing**: During major earthworks and beyond	High	Others migrated to our region from 1820 onward. Given the iwi in this project region are both pre-settlement, we currently have no formal (or informal) acknowledgement or protocol to manage finds that predate others' arrival in the landscape. Such discoveries are Ngai Tara ki Mua Ūpoko whakapapa. It is indisputable that finds which predate 1820 belong to our people and their ancestors. Indicators include the position our people were buried in, mātauranga and history of the site, and the nature	This effect will need to be addressed through the Heritage NZ application process (as referenced in previous value).	High

			and construction of the taonga in question.		
Operational phase effects					
The discovery by our people and their naming in the landscape.	Risk of rewriting narratives. **Confidence**: Low **Scale**: Effects our identity long-term **Duration**: The ongoing operation of the highway **Reversible**: Yes **Timing**: Ongoing	Moderate	Modern highways throughout Aotearoa recognise the key aspects of the cultural landscape they traverse. If Ō2NL traverses our landscape without appropriate recognition, then a precedent will be set that there is no marker of cultural significance. Our landscape markers must be uplifted and identified to ensure our culture and traditions are provided for as the highway disrupts our landscape, wai and cultural connections.	A mahi toi plan that identifies *at a minimum* how our Muaūpoko narrative and cultural connections with the following places will be uplifted: • our spiritual pathway (Arapaepae), wai mārie and associated values • Whakahoro, our early history and values • Ōhau naming by our ancestors and mahinga kai, wai māori values, through bridge design and around the shared-use path • Pukehou connections ki uta ki tai, the interlinked mana of Muaūpoko and Pukehou.	Positive
Our landscape connections and cultural expression.	Severing connections ki uta ki tai. **Confidence**: High **Scale**: The Ō2NL and wider landscape **Duration**: Permanent **Reversible**: No **Timing**: Project lifetime and beyond	High	Our maunga is connected to the moana through our waterways, and our ancestral and spiritual pathways. Our waterways are connected to our whenua, our ngahere, our wāhi tapu and our taonga, and especially Punahau. The construction of another 24-km hardstand area longitudinally further disrupts ki uta ki tai, the way	Each awa should be planted upstream and downstream of the highway to promote ki uta ki tai connections, minimising the horizontal dominance of the highway. Cut and fill planting should be minimised in favour of awa planting to avoid promoting the horizontal nature of the highway	Low

		our landscape is traditionally experienced. The installation of culverts can impede taonga migrations, and the presence of the roadway can promote bird strikes commonly seen along other new highways after installation of plantings and wetlands.	and promote our moana and maunga landscape features. Culverts should meet New Zealand Fish Passage Guidelines,[10] or the most up-to-date best practice, and must consider the impacts both direct and cumulative on Punahau. Fish passage should be maintained at all times during the project and beyond, avoiding any assumptions of future fluvial processes. A review of fish passage function should occur 5–10 years after construction.	

[10] https://niwa.co.nz/static/web/freshwater-and-estuaries/NZ-FishPassageGuidelines-upto4m-NIWA-DOC-NZFPAG.pdf

4.3 Te Mana o te Wai

4.3.1 Mana whakahaere

The principle of mana whakahaere considers how the relationship between our iwi, the project and the environment manifests. Mana whakahaere encompasses our right to govern, manage and participate in the project, especially when it comes to planning for our relationships with our wai. It includes creating hapū and iwi roles of decision making, not only consultation and engagement but also participation, management, and governance. This may be a difficult process, as sharing power has never been easy in the dynamics of central government; our past experiences have shown us this. The focus should be on ensuring that where there are decisions to be made, at all layers of the management system, our people are fairly represented. As the project takes shape, this means kaitiaki are integrated into construction teams on the ground and management roles, and our leaders into governance structures. Space and support should be made for this to occur.

Table 7: Values associated with our mana whakahaere.

Value	State	Class	Potential and actual effects
Mana whakahaere.	We have built a small ki uta ki tai kaitiaki team outside of Waka Kotahi's support due to our recognition for the imperative of this project. Our highly constrained pre-settlement state, alongside historic exclusion and preclusion from both Waka Kotahi and wider Crown participation, has prevented the incremental development of core capacity. The MTA now has some environmental management capability to support Muaūpoko interests and landowners. The LHT has no operational structure or support at all. Both MTA and LHT have governance structures in place and can engage with the project. Our capacity remains in deficit and we require further support to participate at a core level as well as to take our organisations into the future.	Very high	**Construction phase** Excluding our people from decision-making in the project – the potential reversible adverse effect of any alliance not recognising and giving effect to our status as Treaty partners, our rights and responsibilities to make decisions, both high-level and day-to-day, over our lands and waterways in accordance with our tikanga. **Operational phase** Excluding our people from decision-making in the ongoing operation and maintenance of the highway – the potential reversible adverse effect of any maintenance contractors not recognising and giving effect to our status as treaty partners, our rights, and responsibilities to make decisions, both high-level and day-to-day, over our lands and waterways in accordance with our tikanga.

Table 8: Magnitude assessment – Mana whakahaere.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Mana whakahaere.	Exclusion of our people from decision making in the project. **Confidence**: Moderate, based on experience **Scale**: Effects our identity as an iwi through time **Duration**: The planning and construction phases of the project **Reversible**: Yes **Timing**: Ongoing	High	Access to specialists and expertise, including earthworks companies is critical to the delivery of the project. However, there remains a risk that a contractor does not value or understand what shared decision-making looks like. Business as usual is no longer adequate – mana whakahaere, the right to govern, manage and participate as we see appropriate, is now embedded in legislation, particularly in relation to freshwater management. Waka Kotahi has a responsibility to enable our participation.	The Muaūpoko Management Plan should identify how we will partner in the project in a way that suits our Muaūpoko engagement structure, which is necessary due to past processes of exclusion of our people. In the management plan, our roles and responsibilities should be defined. The resource plan should be reasonable and congruent with the need and the current state. Our roles should be specific to our people, our values and aspirations, including opportunities for training, apprenticeships, internships and scholarships. Waka Kotahi and decision-makers should avoid trying to generalise and align Muaūpoko participation with other groups through a project lens. The mana of our iwi must be recognised in its own right and according to our values and aspirations.	Positive
Operational phase effects					
Mana whakahaere.	Risk of rewriting narratives. **Confidence**: Low **Scale**: Effects our identity long-term	High	Our decision-making role could easily fall aside after the project has been delivered, however our people and landowners (LHT) will live with this highway forevermore. Our role as	A governance rōpū will meet at intervals across the project lifetime to assess the stormwater management plan functions, the	Positive

	Duration: The ongoing operation of the highway **Reversible**: Yes **Timing**: Ongoing		decision-makers is even more critical in the long-term in order for us to address any effects that were unforeseen or need adaptive management. This could include management of the ecological areas, water-quality effects or inappropriate access issues.	health of the ecological areas and any other business that may arise.	

4.3.2 Manaaki te mauri o te taiao

Within all creation is mauri, the life force that generates, regenerates, provides resilience and upholds creation. It is the bonding thing that knits all the diverse elements together to sustain life over time.

Mauri encompasses the living health of our soils, mountains, ngahere, awa, repo, taonga species, our people, our wāhi tapu and their interconnectedness (ki uta ki tai) across the landscape.

- We can measure the physical health of our environment using indicators relating to the qualities of our soils, pollution in our awa, the health of populations, species, communities, and ecosystems. We rely on other technical assessments, freshwater ecology, terrestrial ecology, water quality and hydrology to assess the physical aspects of mauri.

- The spiritual qualities of mauri includes concepts such as tapu and noa that keep us safe, it speaks to your puku, where we have an intrinsic knowing that something is wrong or, in fact, thriving in the environment that we relate to. It also includes our ability to practice our culture and spirituality. Only our people can assess this aspect of mauri.

- Our traditional values relate to concepts such as natural character and visual values, the way the land is managed and how it looks. This is critical to our ability to connect with our whakapapa. We rely on a mixture of natural character, visual assessments and our people to inform this aspect of mauri.

Our aspirations for showing manaakitanga or uplifting the mana (mana-aki) of the natural environment and wai has shaped the principles of the Cultural Environmental Design Framework (CEDF).

Table 9: Values associated with manaakitanga and te mauri o te taiao.

Value	State	Class	Potential and actual effects
The physical, spiritual, and traditional health of our environment.	We have reviewed and participated in a range of assessments, including ecology, natural character, visual, hydrological, and water-quality assessments. These support our understanding of the current state of the mauri in the landscape. Our people have undertaken site visits to assess the state of mauri at a catchment scale, this is assessed in the following sections.	Very high	**Construction phase** Impact on mauri of the taiao – the actual adverse impact on mauri as a result of earthworks and construction of the highway whereby there is a large-scale land-use change within the project area. Of particular concern are land-use changes and impacts in the Horowhenua catchment.
"Reversing what was lost" – CEDF principle.	Drainage, stop banking schemes, intensive agriculture and horticulture dominate our landscape. Our aspiration is to reverse the loss of values from our landscape through ecological restoration.	Very high	**Operational phase** Risk of creating novel, unnatural ecological systems – the project includes a significant ecological and natural character offsetting and compensation package. There is a risk these packages could create large areas of novel ecosystems that do not develop signatures of natural/local plant community types or do not trend along the appropriate trajectory, including functions such as recruitment, forest tier development and conifer signatures, groundcover, fern, and epiphyte layers, and have mahinga kai values. They could develop severe weed and pest issues that risk the long-term viability of the restoration outcomes.

Table 10: Magnitude assessment – Manaakitanga and te Mauri o te Taiao.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
The physical, spiritual, and traditional health of our environment.	Impact on mauri of the taiao. **Confidence**: Moderate **Scale**: Effects our identity through time and our view of success of the project **Duration**: The planning, active restoration, and construction phases **Reversible**: Yes **Timing**: Prior to construction	Moderate	Our landscape will change forevermore. We wish to track the changes for our future generations and ensure the mauri of te taiao is maintained.	Muaūpoko is enabled to create a cultural health monitoring assessment framework and implement the framework prior to construction. All the project monitoring data will be uploaded into the Muaūpoko takiwā data capture system. The mahi toi strategy (which must be resourced) includes markers that welcome people onto the roadway at each roundabout – this may be through planting, carving or other forms of cultural expression.	Positive
"Reversing what was lost" – CEDF principle.	Risk of creating novel, unnatural ecological systems. **Confidence**: Low **Scale**: Effects our identity through time and our view of success of the project **Duration**: The planning, active restoration, and ongoing management phases **Reversible**: Yes **Timing**: Ongoing	Moderate	The terrestrial and aquatic offset packages assume that restoration actions achieve a gain in value. There is a risk that the trajectory of the restoration sites do not follow these assumptions and does not achieve the expected net gain.	An ecological offset monitoring plan is developed which includes, but is not limited to: • outcomes for each of the sites, the timeframes and activities, including key milestones • inputs and monitoring to be adjusted to reflect changes in the environmental trajectory • incorporation of new methods • responses to unexpected trajectories and outcomes • participation and oversight of Muaūpoko kaitiaki in the plan-making and delivery process.	Low

			Outcomes should include, at a minimum: • the elimination of the presence of regional pest plants and control of environmental weeds • the management of ungulates and hares to minimise impacts on plant growth and regeneration • infill planting, replacement planting and enrichment planting • mammalian pest control in terrestrial and wetland offset sites • protocols for communicating with our people.	

4.3.3 Kaitiakitanga

Kaitiakitanga emerges from the concepts of mauri and whakapapa. Kaitiakitanga encompasses guardianship, preservation, conservation and protection. In its simplest form, it is the act of caring for the physical, ecological and spiritual well-being of our lands and waterways. Ensuring harmony is maintained against elements that would cause imbalances.

4.3.3.1 The primary kaitiaki are our atua

Traditionally, our atua are our kaitiaki being one with the elements and responsible for their maintenance. Their actions can sometimes push and pull against harmony and balance; ultimately, however, they maintain resilience and the mauri of the environment.

4.3.3.2 Our role as kaitiaki

Traditionally, the concept of kaitiaki related purely to our atua and the spiritual and physical beings described above. For us, kaitiakitanga was just something we did as part of everyday life to stay in harmony with our surroundings. However, due to the scale and pace of destruction of our traditional waters, whenua and sites, and the impacts on our people beginning in the 1800s, the process of colonisation has severely unbalanced our world. We, as tangata whenua, now take a more critical role acting as kaitiaki to restore the imbalances. We hold kaitiaki responsibilities across our whole traditional rohe. The health and well-being of our people are intimately linked with the health of the environment – as we work to heal our whenua, so in turn, will our whenua heal us.

Table 11: Atua that we engage with as part of the Ō2NL project.

Atua kaitiaki	Atua realm	Relevance within the Ō2NL project	Our mātauranga
Tāne Māhuta	Atua of the forest and forest creatures.	Protection, clearance and reuse of ngahere or indigenous vegetation.	Protects the climate, preserves soil, supports wildlife and improves air quality.
		Protection, clearance or reuse of exotic vegetation or habitat for indigenous species.	Protects the climate, preserves soil, supports wildlife and improves air quality.
		Protection, accidental mortality of lizards or mokomoko/ngārara.	Indicators of a healthy environment. Are kaitiaki that watch over our departed spirits.
		Protection, accidental mortality of birds or manu, snails or ngata, other invertebrates (weta, pururi, worms purerehua).	Indicators of a healthy environment.
Haumietiketike	Atua of uncultivated foods – wild foods found within the ngahere, scrub and wetlands.	Aruhe or fern root, impacts on forest edges.	Known as the hair of Haumietikitiki, one of the most critical sources of wild kai, protects forest edges.
		The clearance of wetlands.	Cleanses water, is a building material, raupo seed heads used for many purposes, for water protection.
		Harakeke.	Source of sugars, flowers fill and empty with nectar with the movement of the tides.
Rongomatane	Atua of cultivated foods.	Impacts on productive soils.	Māori agriculture in the mid-1800s played a key role in the emergence of Aotearoa as a leading agricultural nation. Is severely out of balance.
Tāwhirimātea	Atua of wind and weather events.	The management of extreme weather events.	Is increasingly out of balance, contingency must be built into deigns to allow for climate change.
Tūmatauenga	Atua of human activities.	The management of people and their interactions with our whenua.	People do not respect our natural environment the way we as tangata whenua do. Activities such as smoking, managing rubbish and recycling are critically important. Our ability to keep our ancestral and spiritual connections in the pursuit of our activities must be protected.

4.3.3.3 Kaitiaki can also be spiritual or physical beings

Table 12: Kaitiaki we will engage with as part of the Ō2NL project.

Kaitiaki	Kaitiaki realm	Responsibilities within the Ō2NL project	Our mātauranga
Hine-Parawhenuamea	Kaitiaki of freshwater and flooding, rivers, lakes, waterfalls and springs.	Works in streams and rivers, such as culverts and bridges.	Culverts and bridges disrupt natural processes whereby fish and invertebrates migrate upstream and downstream. They are in opposition to natural processes ki uta ki tai, which connect our maunga to the moana.
		Monitoring of waterways for sedimentation.	Earthworks cause sedimentation of waterways. Our stony waterways, including the Ōhau and Waikawa Rivers are very vulnerable to degradation from sediment.
		Stormwater contaminant management.	Stormwater affects the mauri of our waterways, health of our lakes, our ability to collect kai, and ecological health.
		Protection and enhancement of waterways and waterbodies.	The concept of Te Mana o te Wai and kaitiakitanga requires us to leave the environment in a better state culturally, spiritually and ecologically than it was before.
		The movement of groundwater.	Punahau/Lake Horowhenua is largely fed by groundwater, the dynamics are unique, complex and localised.
Hine-Te-Ihorangi (Daughter of Kiwa, Guardian of the Pacific Ocean and Hine-Parawhenua)	Kaitiaki of the rain in all its forms.	Erosion and sediment control as rain moves through our earthworks sites.	Rain is the personification of Ranginui's tears. As we tear up Papatūānuku he will cry and create sediment run-off which can have significant impact on our waterways and waterbodies.
Hine-Pukohurangi (Daughter of Kiwa, Guardian of the Pacific Ocean and Hine-Parawhenua)	Kaitiaki of mists and fog.	Changes to landforms and the natural mist forming dynamics.	Mists are released by Papatūānuku, causing evaporation that eventually reaches the house of Tū-kapua, the guardian of clouds, completing the water cycle. Hine-Pukohurangi lives in the valleys and troughs of the landscape.

Table 13: Our values of kaitiakitanga

Value	State	Class	Potential and actual effects
Our atua as kaitiaki "Letting the land be its natural self" – CEDF principle.	The movement of wai and flow regime within our waterways are key cultural health indicators for our people. The former State Highway 57 and railway changed our landscape forevermore, cutting through and draining swamps, destroying landforms and waterways. The legacy effects exist to this day and must be avoided into the future.	Very high	**Construction phase** Forever changing our landscape and its functioning – the irreversible effects of the new highway interrupting the flow regime and drainage patterns, the values associated with wai across our landscape by: • cutting/filling earthworks on our whenua • destruction of puna and soakage to groundwater from earthworks • loss of stream length and installation of culverts.
Our role as kaitiaki.	Our people are experienced kaitiaki, we know our landscape, wai and taonga.	Very high	**Construction phase** Excluding our kaitiaki or a lack of capacity preventing our kaitiaki from fulfilling their duties – the potential irreversible effect of our kaitiaki being unable to undertake their cultural and traditional practices in their rohe in accordance with our tikanga.
			Operational phase Excluding our kaitiaki or a lack of capacity preventing our kaitiaki from fulfilling their duties – the potential irreversible effect of our kaitiaki being unable to undertake their cultural and traditional practices in their rohe in accordance with our tikanga.

Table 14: Magnitude assessment – Kaitiakitanga.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our atua as kaitiaki; "Letting the land be its natural self" – CEDF principle.	Forever changing the landscape and its functioning by interrupting the flow regime and drainage patterns across our landscape. **Confidence**: Moderate **Scale**: Effects our identity through time **Duration**: Permanent **Reversible**: No **Timing**: Large-scale construction	Very high	The movement of wai and flow regime are key indicators for our people. The former State Highway 57 and railway changed our landscape forever, cutting through and draining swamps, destroying landforms and waterways. The legacy effects exist to this day and must be avoided in the future. We have worked with the construction design team to ensure impacts on the flow regime is minimised.	Cut and fill: continue to minimise requirements for earthworks throughout the project and demonstrate/communicate this to our representatives. Destruction of puna: monitoring for puna is undertaken in the Horowhenua-Koputaroa catchment prior to earthworks beginning. For all located puna, implement a find protocol around data collection and monitoring, including where the puna is, notes on how it functions, if it can be reasonably avoided through adaptations in design, and how it is affected by earthworks over time. The protocol should include Muaūpoko's role in this process and how the information is communicated to our people. Stream loss and culvert installation, works in streams: workshops are held with our representatives prior to any works in streams to review and feed into construction methodology. The ecological offset package addresses all loss of stream values including from erosion-control structures.	Low

Our role as kaitiaki.	Excluding our kaitiaki from fulfilling their duties. **Confidence**: High **Scale**: Effects our identity through time **Duration**: Permanent **Reversible**: No **Timing**: Ongoing	Very high	Our people are experienced kaitiaki, we know our landscape, wai and taonga. There are potential irreversible effects of not supporting kaitiaki capacity or not enabling/allowing kaitiaki to undertake their cultural and traditional practices in their rohe.	Appropriate capacity building and training. Undertake karakia prior to opening of a new site. Undertake appropriate tikanga if an accident happens on the construction site or if an accidental find is made. Monitor the impact of the project on wāhi tapu and significant sites over time.	Positive
Operational phase effects					
Our role as kaitiaki.	Excluding our people from fulfilling their duties. **Confidence**: High **Scale**: Effects our identity long-term **Duration**: The ongoing operation of the highway **Reversible**: No **Timing**: Ongoing	Very high	Our people are experienced kaitiaki, we know our landscape, wai and taonga. There are potential irreversible effects of not supporting kaitiaki capacity or not enabling/ allowing kaitiaki to undertake their cultural and traditional practices in their rohe.	Appropriate capacity building and training. Undertake karakia prior to opening of the highway. Blessing of a name for the highway that is respectful of our history and tikanga. Undertake appropriate tikanga if an accident happens on the road. Obtain monitoring data and results of the impact of the project on wai over time. Delivery of raw data collected on wai and ecology to MTA to upload into their data capture system to ensure transmission of knowledge through time.	Positive

4.4 Wāhi tapu, wāhi tupuna, wāhi taonga

Wāhi tapu are sacred places and natural features important to us in the traditional, spiritual, ritualistic and mythological sense.

Wāhi taonga are places that our taonga species rely on for all or part of their life cycles. They are places our taonga breed, nest, forage for food and retreat for safety. They are placed where we gather kai, water and resources.

Wāhi tupuna are places where our ancestors are connected, where they lived and passed, and where significant events occurred and shaped parts of their everyday lives.

We maintain the knowledge and relationship with hundreds of wāhi tapu across the Horowhenua and our wider traditional landscape. They are highly interconnected features generating connection to the whenua, wai and moana. These wāhi support our position as mana whenua, manifesting a link between the past and present, our ancestors and the surrounding environment. Wāhi tapu, wāhi tupuna and wāhi taonga are an imprint of our people and our mātauranga on the whenua, both past and present. They include our:

- urupā (burial grounds)
- places where our ancestors lived and experienced their lives
- locations where significant events once occurred and still occur today
- travelling tracks and key transport routes
- natural resource collecting areas, both past and present
- cultivation clearings and food producing soils
- ritualistic areas
- temporary and permanent settlements
- fortified pā sites
- entry to the realms of kaitiaki and taniwha
- places where our taonga species thrive
- mountains and mountain peaks
- rivers, wetlands, lakes and forest areas.

The following sections describe our wāhi and values within each cultural landscape the Ō2NL project traverses.

4.4.1 Punahau / Lake Horowhenua

4.4.1.1 Rangatiratanga

We, as Muaūpoko, hold tino rangatiratanga (absolute sovereignty) over the Horowhenua block. These are our traditional lands retained and regained throughout the 1800s when our ancestors were put under immense pressure by both Pākehā settlers and others resourced by Pākehā. We maintain, as we have done throughout the entire Crown engagement process, that we are tangata whenua in the Horowhenua block. Muaūpoko owners have exclusive rights as landowners over Punahau.

4.4.1.2 Te Mana o Punahau

Lake Horowhenua is privately owned by Muaūpoko owners. It was traditionally known to Muaūpoko as Punahau (or Waipunahau), which loosely translates to “the spring of vitality”. The name highlights the once-abundant life-supporting capacity of the lake and the surrounding area. Punahau was shrouded with dense forest of pukatea, kahikatea and rata on the lake margin, and surrounded by huge wetland areas with a plentiful supply of raupō, harakeke, kākahi (freshwater mussels), īnanga (whitebait), pātiki (flounder) and tuna (eels). Native birds, such as kererū were found in their thousands[11]. These species were the main components of our ancestors’ diets. From the lake, inland to the Tararua Range stood rangatira (chiefs of the forest) of nikau, miro, karaka, tawa and rimu, among other taonga, which provided food, shelter, and other necessities for survival.

In te reo Māori, Horowhenua translates to “landslide” but the name now also applies to the rohe and the lake. The word Horowhenua was traditionally used by our ancestors to describe the gravel fan that starts in the Tararua Range and culminates at the lake. Our people understand through their mātauranga that Horowhenua linked the Tararua Range with Punahau, that the gravels contain the headwaters or lifeblood of Punahau, and the land upon which the highway project traverses is interconnected with the lake. Understanding this is at the heart of understanding Muaūpoko connection and the significance of the Ō2NL project’s cultural impact.

These waters are fed by scared lakes and sites within the Tararua Range. The gravel fan is highly porous and absorbs the majority of rainwater within the landscape. It is only in particularly heavy rainfall events that surface run-off channels form. As a result, groundwater levels are highly dynamic across the landscape and freshwater springs, known as puna, are common. The movement of water through the Horowhenua fan is dynamic in both time and space. We value the natural movement of wai. We know of a number of springs that have been lost to us – Waihou, Te Wai o Haunga and Hau Tū to name a few. Those that remain in our knowledge are extremely valuable.

Punahau, its waterways and connections are of great spiritual significance to our people as the lake waters are seen as a connecting of the underground (Papatūānuku) with the sky (Ranginui) and the resting places of our ancestors in the ranges. The mauri of our rohe and people can be monitored and measured based on the health of our lake. The wairua of our people is also connected and it is well-recognised that if the lake is not healthy or strong in mauri then the people will also suffer, and vice versa. It is understood that the hauora and strength of our

[11] O’Donnell, E, with McDonald J, Te Hekenga, p.25.

people will also feed the hauora of Punahau. Our people and our waterways are inextricably linked.

4.4.1.3 The mauri of Punahau and its decline

We have watched our landscape change over time. Drawing on historical records and our people's memories, Forbes describes the past 150 years of changes to the lake and wider environment as "rapid and overwhelming". Our people recount vibrant stories of teeming fish stocks and stunning natural scenery now tinged with pain, sadness and loss because of these rapid changes. Many of our people speak of their roles as kaitiaki of the land, rivers and streams, lakes and coastline,[12] and how they are hopeful that their roles can once again be uplifted. In the early days of colonisation, Horowhenua was known as the food basket of the North Island and it was common for people to be sent to the area to heal and recover from illness.

Adkin also provides some useful commentaries, much of which is recounted from McDonald, noting how the heavily forested hinterland was replaced by railway and roads, as was the forested inner plain and foothills with farms. The destruction of the forest cover altered river courses and wetland functions, which were once able to control heavy rainfall discharges from the mountains. Floodwaters became swift and destructive, eroding the rich alluvial flatlands.[13]

Although direct sewage discharge to Punahau ceased in 1987, large amounts of nutrients and sediment from farming and horticulture, and industrial and urban stormwater contamination from the Taitoko township and industry continues today. The lake in the summer period is regularly closed due to the presence of cyanobacteria, caused by introduced contaminants adding to accumulated discharge elements already present. About 80% of the external phosphorus load to the lake comes from the Queen Street drain, while groundwater contributes over half of the water and half the annual nitrogen load to the lake. The overuse of fertilisers and discharge of nutrient-rich water to land are leaching to groundwater maintaining high nutrient concentrations in groundwater. Stock has direct access to streams and overflowing wastewater ponds may reach our significant waterbodies. In April 2022, we experienced a major die-off event where over 2,000 fish, tuna and manu were found dying beside our lake. In the weeks leading up to the event, the lake reached a pH of 10, the most likely cause being a combination of weather and ammonia run-off from horticulture and agricultural operations. Furthermore, there are so few bush areas left, they are often small, impacted by pest and weeds and have connectivity issues. Our taonga hang on by a thread.

Pollution and destruction of forest and wetland cover has not only affected the landscape and wai, but also the people. When reminiscing about traditional mahinga kai from the land, lakes and streams, Muaūpoko are clear that the current degradation is a culmination of Crown failures to protect Muaūpoko assets and interests. Many Muaūpoko speak about how their spiritual connection and their ability to sustain themselves physically from the whenua, lakes and streams has suffered immensely since European colonisation. The wairua of our ancestors survives in the landscape. In particular, in our dune systems and Punahau.

[12] Forbes, S. (1996). *Te Waipunahau – Archaeological Survey*, (Prepared for the Lake Horowhenua Trust, Lake Horowhenua Trustees).

[13] Adkin, Horowhenua, pp.5-6.

Table 15: Our values associated with Punahau / Lake Horowhenua.

Value	State	Class	Potential and actual effects
Our rangatiratanga.	We are attempting to work collaboratively with Waka Kotahi and others in the Ō2NL project. However, through other projects, a narrative is allowed which inaccurately claims that we were enslaved and do not exist. We have repeatedly requested Waka Kotahi recognise and uplift our rangatiratanga as indisputable lake owners and traditional owners of the Horowhenua block, however they have yet to acknowledge or recognise this in our heartland in favour of maintaining a mutual position. We do not think this is acceptable from a Crown agency.	Very high	**Construction phase** Incursion by others into our heartland – the potential irreversible effect of others claiming traditional rights within the Horowhenua block, impacts Muaūpoko identity and our cultural and traditional rights as tangata whenua and mana whenua through our whakapapa and tikanga. This could happen through inaccurate evidence generated through project documentation, or ongoing management and decision-making relationships. **Operational phase** Incursion by others into our heartland – the potential irreversible or reversible effect of others to claim traditional rights within the Horowhenua block, impacting Muaūpoko identity and our cultural and traditional rights as tangata whenua/mana whenua through our whakapapa and tikanga. This could happen through ongoing management and decision-making, and reference to inaccurate project documentation.
The mana of Punahau and our fishery.	We recognise the interconnectedness of groundwater, surface water and wetlands, their connection through to the sea and the need to manage these as an integrated whole. We aspire to return Punahau and our freshwater to health and restore their mauri so they can again culturally, spiritually and physically sustain our people. We aim to ensure there is abundant mahinga kai, which is physically and culturally safe to gather and eat.	Very high	**Construction phase** The mana of Punahau; run-off and deposition of soil in our waterways and groundwater – the potential adverse effect of construction zone run-off transporting fine sediments to adjacent waterways, including Punahau. The sediment may reduce water clarity and increase deposited fine sediment concentrations which can have negative impacts on the relationship of Muaūpoko and their taonga species, the mauri of wai and the well-being of Muaūpoko. **Operational phase** The mana of Punahau; discharge of stormwater into Punahau groundwater and surface waters – the adverse effect of stormwater contaminants discharging to Punahau surface waters and groundwaters. The contaminants will have a negative impact on the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of our people.

Table 16: Magnitude assessment – Punahau / Lake Horowhenua

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our rangatiratanga.	Incursion by others into our heartland. **Confidence**: High **Scale**: The Horowhenua block, our heartland **Duration**: The life of the project construction **Reversible**: Yes **Timing**: Ongoing	Very high	Our rohe once stretched from Rangitikei through to Te Whanga-Nui-a Tara. We recognise our shared contemporary interest in our traditional rohe. However, we have maintained our ahi kā in the Horowhenua block for over 1,000 years.	Muaūpoko are recognised as mana whenua in the Horowhenua block with the rights to manage our traditional lands in accordance with our tikanga. Our rights and tikanga are uplifted in all aspects of the project. A good understanding of tikanga requires leaders within Waka Kotahi to understand who to talk to about various kaupapa and when.	Moderate
The mana of Punahau and our fishery.	Run-off and deposition of soils in our waterways and groundwater may have negative impacts on the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of our people. **Confidence**: Low **Scale**: Waterways and Punahau **Duration**: Construction phase **Reversible**: Yes (long-term) **Timing**: Throughout construction	Moderate	There are a number of small waterways that lead from the project area to Punahau, including the Queen Street, MakoMako Road and Hokio Beach Road drains. They are all ephemeral around the project. There remains a risk of sediment erosion control device overflows in heavy rainfall events.	Site-specific SECPs are provided to Muaūpoko for comment. Soakage is to ground in the Horowhenua catchment to avoid surface water discharge. The SEC monitoring is undertaken by suitably qualified professionals and is responsive to rainfall events. This information is communicated to our people. The SEC team is set up as a discrete well-resourced team that can be wholly focused on SEC and good environmental management (rather than be incorporated into earthworks teams).	Negligible

Operational phase effects					
Our rangatiratanga.	Incursion by others into our heartland. **Confidence**: High **Scale**: The Horowhenua block, our heartland **Duration**: The life of the project **Reversible**: Yes **Timing**: Ongoing	High	Our rohe once stretched from Rangitikei through to Te Whanga-Nui a Tara. Muaūpoko have maintained our ahi kā in the Horowhenua block for over 1,000 years, no others have held mana whenua here.	Muaūpoko is recognised as tangata whenua and mana whenua in the Horowhenua with the rights to manage our traditional lands in accordance with our tikanga. Our rights and tikanga are uplifted in all aspects of the ongoing operation of the project. A good understanding of tikanga requires leaders within Waka Kotahi to understand who to talk to about various kaupapa and when.	Moderate
The mana of Punahau and our fishery.	Run-off and deposition of soils in our waterways and groundwater may have negative impacts on the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of our people. **Confidence**: Low **Scale**: Waterways and Punahau **Duration**: Ongoing **Reversible**: Yes (long-term) **Timing**: Ongoing	Moderate	There are a number of small waterways that lead from the project area to Punahau, including the Queen Street, MakoMako Road and Hokio Beach Road drains. They are all ephemeral around the project. There is a risk of stormwater contamination from the treatment wetlands in heavy rainfall events.	Site-specific wetland designs are provided to Muaūpoko for comment. Soakage is to ground to avoid surface water discharge in up to a 1-in-100-year event. A permanent flowmeter is set up to understand the frequency of overflow events. Appropriate wet-weather monitoring is undertaken.	Negligible

4.4.2 Arapaepae – Our spiritual pathway

Arapaepae was a trail that crisscrossed the Arapaepae Ridge – a path where you needed to stay on course and pay attention. This trail within the Horowhenua block, which leads from Lake Horowhenua to the Tararua Range and runs adjacent to what is now Queen Street East, was used by Muaūpoko bird-snaring parties and those gathering hinau berries, hinau bark (for manufacturing dye) and aruhe (an edible fern root). The trail is said to have been first marked out by our ancestor Haere-Tu-Te-Rangi[14]. It is a place our ancestors would karakia prior to ascending Tararua Maunga – Taumata Kōrero o Arapaepae.

It is a highly valued ancestral and spiritual pathway, one that Muaūpoko spirits traverse to depart into the afterlife. It is the pathway our people take when they have passed on from the living world. The practices undertaken at our tangihanga prepare our people for this passage up through this pathway and into the heavens. We traditionally interred our people in the dune systems that sit just west of Punahau and are part of this integrated pathway. The wai mārie (waters of peace) underground stream also flows along this alignment. This pathway was also a place known for crossings between the east and west sides of the Tararua Range.

Our ngārara (*Oligosoma ornatum*) have been found within the Arapaepae bush remnants connected to our spiritual pathway. Ngārara or lizards are associated to the atua Whiro. Because of Whiro's reputation, ngārara can be bad omens and associated with death, however they can also be seen as guardians or kaitiaki to be released near the burial sites of loved ones and used as a talisman to provide protection. We see these ngārara as watching over our spiritual pathway and departed spirits. We believe the populations of ngārara in each of the remnants and our spiritual pathway is intimately interconnected and that the health of these populations will impact the strength of the wairua of our pathway.

[14] G. Adkin. Horowhenua: its Māori Placenames and their Topographic and Historical Background. 1948. 139: J. Proctor. Summary to Accompany Sites of Significance Map Book. November 2015. Wai 2200 #A183a.

Table 17: Our values associated with Ara-paepae.

Value	State	Class	Potential and actual effects
Visual and spiritual connections along Queen Street, including Queen Street East.	The connections are open and uninterrupted between the Tararua Range and Arapaepae Road. The connection through Taitoko township is less clear, more crowded from urban development, however there is a clear connection for the length of Queen Street.	High	**Construction phase** Visual connections with our maunga – the adverse effect of construction activities disrupting our connections (visual and spiritual) with our maunga. **Operational phase** Visual connections with our maunga – the adverse effect of the highway and an elevated local roadway disrupting our connections (visual and spiritual) to our maunga.
The health of our ngārara.	A neonate and more than 10 adult ngārara have been found in the Arapaepae area, indicating a population that is replacing itself and surviving through time. Our ngārara have been found in two bush remnants close together, indicating there is potential for genetic exchange.	Very high	**Construction phase** The accidental death of our ngārara associated with Arapaepae – the potential adverse effect of construction activities and earthworks in the vicinity destroying a ngārara individual. Disconnection of populations – ngārara populations are prevented from interacting through the development of a construction zone in the Arapaepae area. **Operational phase** Disconnection of populations – the adverse effect of a permanent roadway barrier between the two populations.

Table 18: Magnitude assessment – Arapaepae

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Visual and spiritual connections along Queen Street East.	Connections with our maunga. **Confidence**: High **Scale**: Discrete area of our pathway **Duration**: Temporary **Reversible**: Yes **Timing**: Construction	High	The construction zone will temporarily limit and disturb the area of our pathway that we can access.	The construction of the walking/cycling bridge is prioritised early in the construction programme to limit the length of time we cannot access our pathway.	Low
The health of our ngārara.	Accidental death and disconnection of ngārara populations. **Confidence**: Low **Scale**: Our spiritual pathway **Duration**: Temporary **Reversible**: Yes **Timing**: Construction	Very high	Ngārara are kaitiaki over departed spirits that travel this pathway on their way from the lake marae to the Ranges and up into the heavens. Construction may result in death of individuals or create loss of connections between bush remnants.	Ngārara-specific mitigation measures and, for residual adverse effects, a comprehensive offsetting and compensation package, including, but not limited to, the following measures: • Restoration planting with targeted flora in the Arapaepae bush remnants and other targeted sites to support ngārara-specific habitat and ensure connectivity is retained, such as the Ōhau and Waikawa River corridors. • An offset enhancing Waiopehu Reserve, including a predator proof fence. • Ongoing and effective pest control. • Ongoing monitoring and management using appropriate indicators and thresholds that	Low

				trigger remedial actions before effects become significant. • Integration of iwi opportunities to undertake a role as kaitiaki.	
Operational phase effects					
Visual and spiritual connections along Queen Street East.	Connections with our maunga. **Confidence**: Moderate **Scale**: Our spiritual pathway **Duration**: Affects our identity through time **Reversible**: No **Timing**: Ongoing	High	Our pathway through Taitoko has been urbanised over time, although the stretch between Arapaepae Road and the maunga is visually clear and free from urban/roadway clutter. The current state highway limits our ability to walk our traditional pathway safely, however the new highway will take much of this traffic and will become safer for us to cross and access.	A walking/cycling bridge is provided for over the new highway that celebrates our values associated with Arapaepae, our spiritual values, our ancestors who first laid the track, their settlement patterns (for example, through tree forts) and our connections ki uta ki tai. An offline lookout is provided at the top of the walking/cycling bridge, which is physically safe and designed in a culturally appropriate way using tree forts for people to connect ki uta ki tai. Mahi toi is incorporated and led by our mātauranga rōpū. It is critical that our mahi toi rōpū structure is respected through this process.	Positive
The health of our ngārara.	Permanent disconnection of ngārara populations. **Confidence**: Low **Scale**: Our spiritual pathway **Duration**: Ongoing **Reversible**: No **Timing**: Ongoing	Very high	Ngārara are kaitiaki over departed spirits that travel this pathway on their way from the lake marae to the Range and up into the heavens. Maintenance and enhancement of connectivity is important to ensure these taonga are able to complete this journey.	Ngārara-specific mitigation measures and, for residual adverse effects, a comprehensive offsetting and compensation package, including, but not limited to, the following measures: • Restoration planting with targeted flora in the Arapaepae bush remnants to support ngārara-specific habitat.	Low

		• Potential offset at Waiopehu Reserve, including a predator proof fence. • Ongoing and effective pest control. • Ongoing monitoring and management using appropriate indicators and thresholds that trigger remedial actions before effects become significant. • Reuse of rākau removed by the project in the Arapaepae mitigation/offset area. • Integration of iwi opportunities, including carving of rākau and installation around Arapaepae to undertake our role as kaitiaki.	

4.4.3 Maunu Wāhine

Maunu Wāhine (a sacred place for our women and children) and Waiopehu Reserve are also connected to Arapaepae, our spiritual pathway. Maunu Wāhine is located just west of Waiopehu Reserve but included the wider area. The site was a natural open glade in the forest surrounding the base of a large-forked rimu tree. It provided wai māori (drinking water), tuna (eels), kiekie fruits and freshwater shellfish. It was a place where people could rest on their way across the Tararua Range and where the study of rongoā took place. It is a place of study and learning – specifically for women and a place of sanctuary. Maunu Wāhine is visited by Muaūpoko women to this day where they feel a spiritual peace and sense of place and connection. While on the site, they participate in the collection of rongoā in the nearby Waiopehu Reserve.

The wai mārie is a waterway fed by a natural spring that starts close to Maunu Wāhine and travelled the spiritual pathway connecting with Punahau below ground. Through our mātauranga, we know that groundwaters are very high along Queen Street East, which was confirmed by the project through winter groundwater monitoring in 2021. These waters are part of our spiritual pathway, they embody peace and tranquillity as they connect Maunu Wāhine to the lake.

The Waiopehu Reserve is one of a few forest remnants left in the wider Horowhenua landscape. Of particular significance are the large emergent and canopy species – pukatea rākau (*Laurelia novae-zelandiae*), mātai (*Prumnopitys taxifolia*), tōtara (*Podocarpus totara*), rewarewa (*Knightia excelsa*), and tawa (*Beilschmiedia tawa*). These rangatira protect the understory and fern layer, anchor the epiphytes and provide shelter and key foods for manu, ngārara and ngata, allowing forest creatures to thrive. The ngata (*Powelliphanta traversii traversii*) lives within this remnant. It is a nationally endangered species, an absolute taonga and tohu (landscape marker) for Muaūpoko. The bush reserve contains a remnant population which relies entirely upon the reserve for its lifecycle.

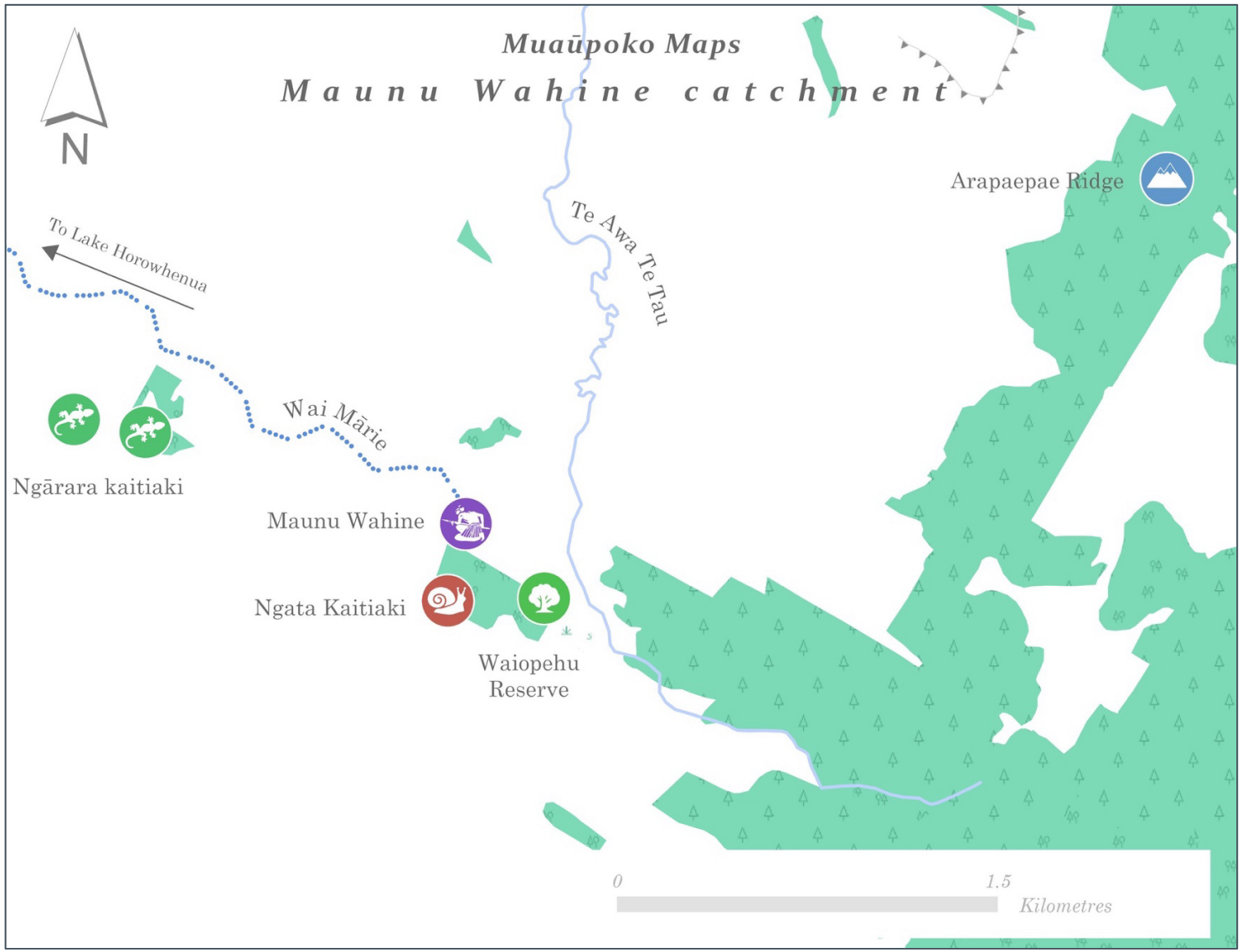

Figure 3: Maunu Wāhine catchment.

Table 19: Our values associated with Maunu Wāhine.

Value	State	Class	Potential and actual effects
The natural flow of water along our spiritual pathway wai mārie.	Historically disturbed by the removal of ngahere and construction of Queen Street East, remains an active flow of wai beneath the whenua.	High	**Construction phase** Disturbance of natural flow of wai through the landscape – the unavoidable adverse effect of disturbing wai mārie flow pathways as a result of earthworks and pavement construction, disrupting local processes, such as groundwater recharge, cleansing of wai, the recharging of the mauri and spiritual lifeforce of wai and whenua.

Table 20: Magnitude assessment – Maunu Wāhine.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction and operational phase effects					
The natural flow of water along our spiritual pathway wai mārie.	Disturbance of natural flow of wai through the landscape. **Confidence**: Low **Scale**: Affects the mauri of Punahau **Duration**: Construction and operational **Reversible**: No **Timing**: Construction	High	Wai mārie is fed by a puna around Maunu Wāhine/Waiopehu Reserve. It flows permanently below ground and ephemerally above ground. Wai mārie are traditionally our waters of peace and tranquillity, feeding the mauri or vitality of Punahau and delivering wai māori.	Wai mārie areas with surface water signatures should be fenced and planted with wetland vegetation to the greatest practical extent. Any channelised, drained areas should be widened, the banks battered and planted with wetland and riparian vegetation. The walking/cycle bridge should recognise wai mārie and its values.	Low

4.4.4 Ngā Upapa

Ngā Upapa are geomorphological features within the upper Koputaroa catchment and located within the Horowhenua block, our heartland. They are the shape of mounds and associated with wāhine. They are wāhi tapu, places our people would go for spiritual enlightenment. The mounds themselves have been physically avoided by the Ō2NL project.

The following features are associated with our cultural and spiritual practices in Ngā Upapa:

- Te Awa a Te Tau is the flow of water from Ngā Upapa where we would go traditionally for cleansing, to renew our spiritual connections to our whenua associated with Ngā Upapa.

- The project comes within 500 m of our spiritual spring, Puna o Hau, a natural puna where we attend ceremonies to this day. Rae Kura is a clay terrace where we collect clay (near the mounds) and which feed Puna o Hau. The loess soils that overlay this clay terrace are associated with Tāwhirimātea.

- Muaūpoko would traditionally undertake burning ceremonies in another area called Pā Ngā Wera. We practiced traditional burning in this wider area to fertilise and regenerate the land.

- The project crosses Wai Karito, a tributary of the Koputaroa Stream, our traditional mahinga kai site connected to puna (freshwater springs) and raupō. Today, the stream has dried up and is more ephemeral in nature but still contains exotic-dominated wetlands.

- Pā kihi is a traditional settlement site.

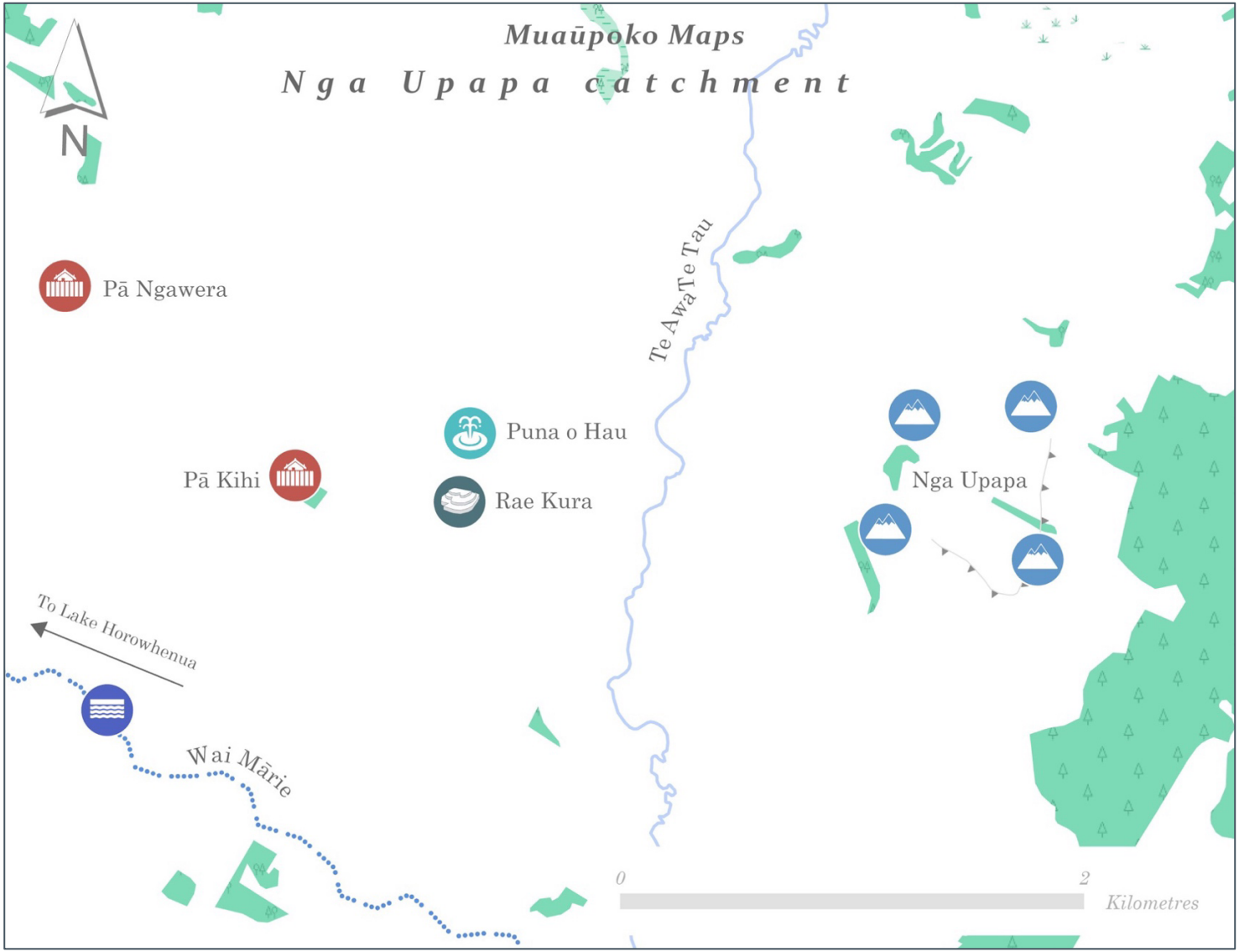

Figure 4: Ngā Upapa catchment.

Table 21: Our values associated with Ngā Upapa

Value	State	Class	Potential and actual effects
The character of Te Awa a Te Tau and its tributaries, our spiritual and traditional values.	Catchment has been cleared for agriculture, the upper tributary connected to the Waiopehu Reserve, headwaters are in pine forest and seepage wetlands within agricultural area. The stream remains sinuous and has high restoration potential.	High	**Construction phase** Destruction of the stream bed, seepage-type wetlands and their margins – the adverse effect of earthworks within tributaries of Te Awa a Te Tau affecting the natural character, our spiritual and traditional values.
The geological properties that support our puna in this catchment.	Ngā Upapa sit at the transition zone between greywacke of the Tararua Range and historically uplifted marine sands. The properties of the marine sands and clays have created our landscape rich in puna. Our knowledge of many of them has been lost.	High	**Construction phase** Disturbance of natural flow of water through the landscape and impact on Tawhirimātea – the potential adverse effect of disturbance to the flow of wai through the landscape as a result of earthworks, disrupting local processes, such as groundwater recharge, cleansing of wai, the recharging of the mauri and spiritual lifeforce of wai and whenua, and the formation of puna. Disturbance of our atua – the spiritual impact as a result of disturbance on Tawhirimātea.
The interlinkages across the landscape from maunga to moana, it connects our wāhi tapu, traditional lands and mahinga kai.	Connections are severed by extensive drainage scheme through Roto Ramarama and degraded habitat throughout Te Awa a Te Tau. Our wāhi tapu are difficult to access on private land.	High	**Operational phase** Our connections ki uta ki tai – the actual adverse effects on noise wall construction on our connections ki uta ki tai, the way we experience the environment.
Wai Karito is a raupō restoration area.	Wai Karito now has a seepage-type upper system that only flows in high rainfall events. The system contains wetlands dominated by exotic grass species and large areas are unfenced from stock. Our raupō taonga has been lost.	High	**Construction phase** The opportunity to give effect to our mātauranga – the adverse effect where the opportunity is lost to give effect to our mātauranga and mahinga kai aspirations through the restoration of a raupō-dominated community in Wai Karito that we can access as mahinga kai.

Table 22: Magnitude assessment – Ngā Upapa.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
The character of Te Awa a Te Tau and its tributaries, our spiritual and traditional values.	Destruction of the stream bed, seepage-type wetlands and their margins. **Confidence**: Moderate **Scale**: Local **Duration**: Construction **Reversible**: Yes **Timing**: Early construction	Moderate	Te Awa a te Tau (also known as Koputaroa Stream) is highly modified, however the character of the remaining stream is highly valuable. The main stem of the awa has been avoided. There are exotic wetlands in the the Wai Karito tributary that will be lost and a number of culverts will be installed.	We support the inclusion of exotic wetlands and SEV methods in the restoration offset package. We support the wetland offset sites proposed in the Koputaroa catchment. We support the natural character approaches promoting upstream and downstream planting, however we believe there is potential to focus too heavily on car users' experience over our local ki uta ki tai values and aspirations for a sanctuary. We would like the natural character/landscape plan to be revised to incorporate our cultural aspirations of ki uta ki tai. Priority must be given to funding the taonga sanctuary and its management.	Very Low
The geological properties that support our puna in this catchment.	Disturbance of natural flow of water through the landscape and our atua Tawhirimātea. **Confidence**: Low **Scale**: Te Awa a Te Tau **Duration**: Earthworks **Reversible**: No **Timing**: Construction	High	A significant puna called Puna Ōhau (belonging to our ancestor Haunui a Nanaia) exists 600 m west of the new highway around Roslyn Road. When investigations took place to consider a cutting through this landscape it was found the groundwater is very high. We expect that puna lost to our knowledge could exist in the highway designation area.	A particular focus on puna investigation before construction starts in this catchment and delivery of this information to Muaūpoko.	Moderate

Wai Karito is a raupō restoration area.	The opportunity to give effect to our mātauranga. **Confidence**: High **Scale**: Wai Karito tributary **Duration**: Ecological works phase **Reversible**: Yes **Timing**: Project opening	High	Our mātauranga is important in the way we treat our environment – it draws upon place-based values and practices distinctive to our people which we want to share with our community.	Wai Karito tributary is planted with raupō and is accessible for harvesting from the shared-use pathway (this may require redevelopment of physical properties to host raupō in places accessible to the SUP).	Positive
Operational phase effects					
The interlinkages across the landscape from maunga to moana, it connects our wāhi tapu, traditional lands and mahinga kai.	Our connections ki uta ki tai. **Confidence**: High **Scale**: Ngā Upapa landscape **Duration**: Travel through the landscape as a result of ongoing operation **Reversible**: Yes **Timing**: Construction and onwards	Moderate	The noise wall will disconnect road users from our landscape.	Implement a tāniko or similar kaupapa Māori design on the noise wall that connects to and integrates with our Ngā Upapa landscape.	Positive

4.4.5 Koputaroa

The Koputaroa catchment is characterised by seepage repo (wetlands) and deep valley streams leading to a swamp known to us by two names. Firstly, Roto Ramarama for the large stands of ramarama (*Lophomyrtus bullata)* that once surrounded the repo. And secondly, Koputaroa as the large swamp is shaped like the of wing of a hokioi bird (Haasts eagle) which our ancestors encountered when settling in the area.

The following names and values are associated with our ancestors in Koputaroa:

- Our ancestor Patira named the mid areas of the catchment waoku (the dense forest) where he would hunt for kererū and cook them at a place called Te Ahi a Patira (the fire of Patira).
- Kohitāne is a large flat area where our young men would train, and which the project passes.
- The catchment is connected to Kawiu, an existing Muaūpoko marae to the north of Punahau.

The following features are associated with our mahinga kai values in Koputaroa:

- Koputaroa is a tributary of the Manawatū River, it is connected, in particular, through the process of flooding (waipuke), where the river, in flood, would connect with Roto Ramarama/Koputaroa. Traditional flooding would regenerate the catchment with mahinga kai and nutrients to enable regeneration. Today, flooding is flashier and a concern for people in the lower catchment.
- Our harakeke taonga can be found within the catchment.
- The project traverses streams connected to O Pae (a traditional pa tuna with plentiful supply) and O Rea (a storage area for longfin, the most prized of tuna).

The following species are taonga in the Koputaroa catchment:

- pūweto/spotless crake (*Porzana tabuensis*)
- kawau/black shag (*Phalacrocorax carbo novaehollandiae*)
- weweia/New Zealand dabchick (*Poliocephalus rufopectus*)
- matuku/Australasian bittern (*Botaurus poiciloptilus*).

These wetland birds are each threatened or at-risk. They are associated with our repo/wetland taonga that characterise the mana of the catchment. Characteristics of our man-made island pā within Punahau/Horowhenua are modelled off the behaviours of our wetland taonga species.

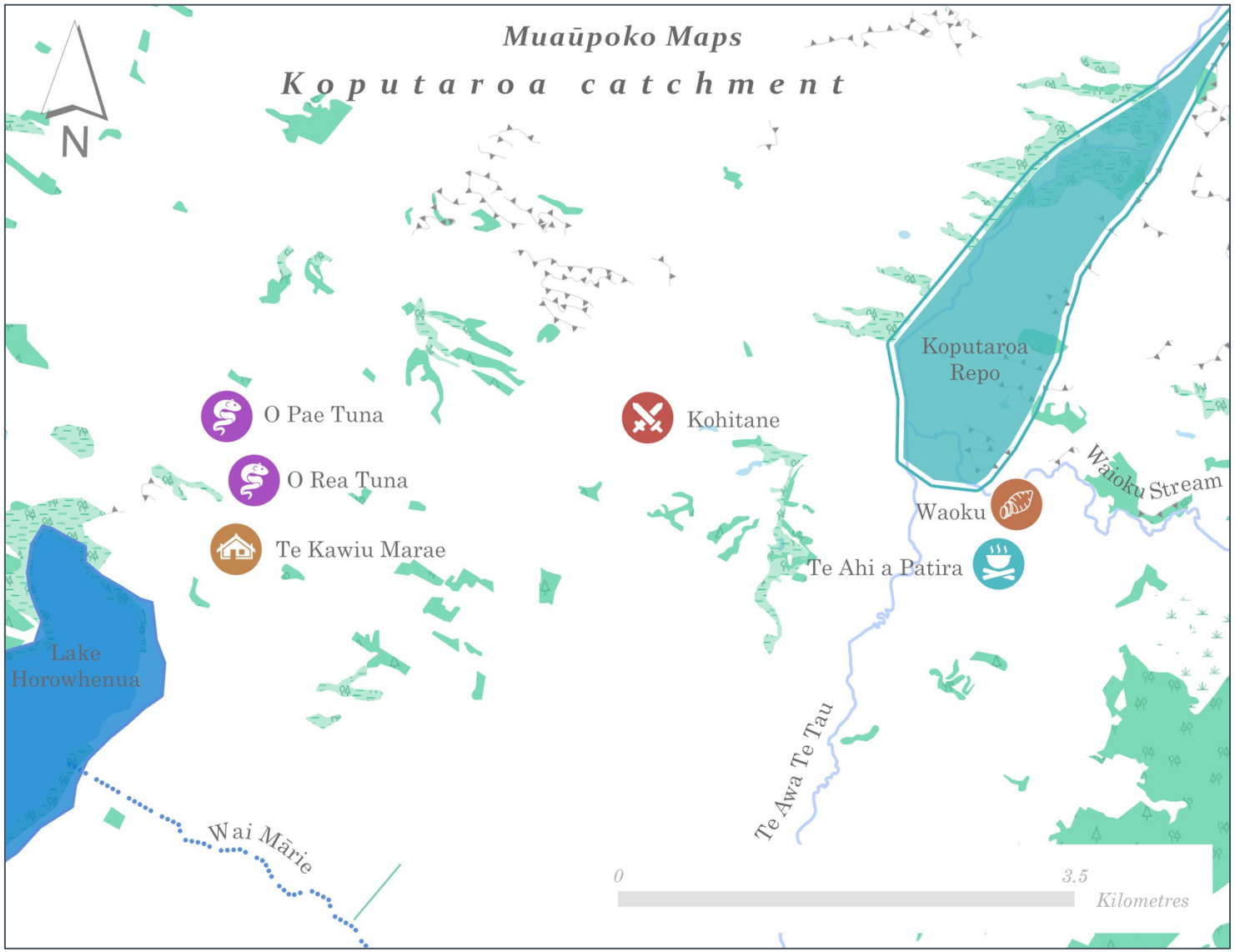

Figure 5: Koputaroa catchment.

Table 23: Our values associated with Koputaroa.

Value	State	Class	Potential and actual effects
We value the ngahere because it is a place where our taonga and mahinga kai thrive.	All remnants of waoku have been cleared.	Moderate	**Construction phase** Opportunity to restore ngahere in the Koputaroa catchment to give effect to our mātauranga – the adverse effect where the opportunity is lost to give effect to our mātauranga and mahinga kai aspirations through the acknowledgement of waoku.
We value the landscape characteristics of Koputaroa, including the valley tops that provide places for our settlement and activities.	The geological marine sediments and surface water erosion has created a unique valley landscape in Koputaroa. The nature of Kohitāne is still intact, although landforms in the wider area have been impacted by the railway and State Highway 57.	High	**Construction phase** Earthworks within the Koputaroa catchment – the adverse effects of landscape alteration from activities such as cuts, fills and using spoil sites on the nature of the landscape in the Koputaroa catchment.
Dams, ponds and deep-water areas are valued because they support our tuna populations connected to these historic mahinga kai and mauri.	We value open-water habitats despite them often being man-made. Our tupuna shaped the environment to provide hunting grounds for tuna. There are a number of open-water habitats in the Ō2NL/Koputaroa landscape, including raupō- and exotic-dominated wetlands. Most wetlands have been lost and forests clear-felled. Consequently, the flow regime is flashy and the lower catchment experiences flooding issues.	High	**Construction phase** Drainage and destruction of open-water habitats – destruction of tuna habitat through drainage and culvert installation; the permanent, irreversible loss of wetland that supports a natural flow regime and promotes mauri.
We value wetlands and waterways as places for our harakeke taonga to thrive.	Our harakeke taonga is renowned for its hard wearing, durable properties but it has been removed from our landscape. We know of only one site that can provide for our needs and provide a seed source but it is extremely difficult to access.	Very high	**Construction phase** Opportunity to restore our harakeke taonga in the Koputaroa catchment to give effect to our mātauranga – the adverse effect where the opportunity is lost to give effect to our mātauranga and mahinga kai aspirations through the restoration of harakeke toroa communities that we can access as mahinga kai.

We value our wetland taonga species, characteristic of the Koputaroa catchment.	Our wetland taonga are endangered. They are critically important to our identity as an iwi and must be provided for through the project. Existing wetlands provide “stepping stones” across the fragmented landscape for these migratory birds.	Very high	**Construction phase** Drainage and destruction of open water and wetland habitats: • destruction of wetland taonga bird habitat • reduction in connectivity between wetland habitats “stepping stones” in the Koputaroa landscape.

Table 24: Magnitude assessment – Koputaroa.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Ngahere.	Opportunity to restore ngahere in the Koputaroa catchment and give effect to our mātauranga. **Confidence**: High **Scale**: Local **Duration**: Ecological works phase **Reversible**: Yes **Timing**: Project opening	Moderate	Our mātauranga is important in the way we treat our environment. It draws upon place-based values and practices distinctive to our people that we want to share with our community.	Areas within the Koputaroa landscape are planted with canopy-forming ngahere species that are favourable to kererū, including kōwhai, kohekohe, nīkau, miro, tawa and pigeonwood/porokaiwhiri. The outcome being a ngahere with a forest tier structure.	Positive
The characteristic Koputaroa landscape.	Earthworks within the Koputaroa landscape **Confidence**: High **Scale**: Koputaroa catchment **Duration**: Project **Reversible**: No **Timing**: Construction	Moderate	Spoil/fill valley locations have been avoided and instead and will tie in the with existing valley tops.	Continue to minimise requirements for earthworks throughout the project and demonstrate and communicate this to our people. Minimise impacts on Papatūānuku, our kuia, and lifeblood.	Low
Dams, ponds, and deep-water areas.	Drainage and destruction of open-water habitats. **Confidence**: High **Scale**: Local **Duration**: Permanent **Reversible**: No **Timing**: Prior to construction	High	Our ancestors have been modifying the environment for over 800 years in order to create habitat for and store kai, especially tuna. Our ancestors had eel weirs, storage areas and prime hunting spots across the landscape, including within Koputaroa.	We support the inclusion of open water in the ecological offset model and package recommendations. We want to monitor our tuna populations and the mauri of the environment in our traditional locations to understand the health of the area and tuna population sizes. This will be part of our cultural health/mauri assessment described above.	Low

Our harakeke taonga.	Opportunity to restore our harakeke taonga in the Koputaroa catchment and give effect to our mātauranga. **Confidence**: High **Scale**: Small **Duration**: Permanent **Reversible**: No **Timing**: Prior to construction	Moderate	We treasure many varieties of harakeke. Some were intentionally bred for certain characteristics in our rohe. We would like to promote one such variety that is tough and durable, and local to our area.	Our harakeke taonga is incorporated into the planting in a way that is sensitive to our intellectual property.	Positive
Our wetland manu taonga.	Drainage and destruction of open-water and wetland habitats and their connectivity within the landscape **Confidence**: Low **Scale**: Landscape **Duration**: Ongoing **Reversible**: Yes **Timing**: Prior to construction	High	Our wetlands are rare and have mostly been destroyed for development. Small wetlands left in the landscape provide critical “stepping stones” for wetland manu that travel widely around our rohe to satisfy their lifecycle and habitat requirements. Their mana in the landscape should not be destroyed without compensation or offset.	Wetlands are created early in the construction programme to minimise the lag time before wetland ecosystems become established.	Low

4.4.6 Ohau

Haunui-a-nanaia is our ancestor from the Aotea waka, he travelled through our region naming waterways and places along his journey. His journey for us represents discovery of the area whereby the Ōhau River was named O-Hau from “of Haunui”. Our ancestor, Te Rangitakoru sung a nursery rhyme for his daughter Wharaurangi featuring our ancestor’s discovery and naming of our awa Ōhau.

Te Rangitakoru’s nursery song for his daughter, for Wharaurangi

O, my daughter when you came from afar,
And your hands were formed, and your feet,
And your face, you floated, O daughter,
In the Kurahaupo, Ruatea’s canoe,
When you embarked in the Aotea, the canoe of Turi,
You forded the whenua kura at its mouth
Thence was made the house of Rangitawi.
Let us plant the kumara,
And sow the karaka, in the land bordering the sea.
Sink deep the post,
Leave it for Ngā tuahine, from Nonoko-uri,
From Nonoko-tea, the Hererunga and Korohunga.
Hau took up some sand in the palm of his hand, and his staff.
When he crossed over the river,
Finding it was wide he called it Wanga-nui;
Splash the water, which will reach Wangae-hu.
The length of a fallen tree, is Tura-kina
Having many times lifted up his feet, Tikei.
When his heart sank within him, Manawatu.
When the wind whistled past his ears, Hokio.
The small river he called, Ohau.
When he carried his staff in a horizontal position, Otaki.
When he prayed, O daughter, it was Wai-mea.
When he looked out of the corner of his eye, Wai-kanai.
When he became weary, my daughter, he reached Wai-raka.
He repeated an incantation,
She became fixed above, and fixed below,
And she remained immovable.
My daughter, when his eyes glistened with delight,
He called the place Wai-rarapa,
It was the rejoicing of your ancestors, my daughter.
The sky became cloudless,
On account of Waitiri’s good will,
She then enticed Kaitangata out to sea:
She placed the plank across,
And drove in a post to hold on by, called Meremere.
She left to her offspring, Punga, the anchor of his canoe,
As his name, Awhema.
Enough, it is finished, O my daughter

Ko te popo a Te Rangitakoru mo tana tamahine, mo Wharaurangi

E hine aku, ki to kunenga mai I tawiti,
Ki te whakaringaringa, ki te wha-kawaewae,
Te wakakanohi-tanga, ka manu, e hine, te waka I a Ruatea,
Ko Kurahaupo, ka iri mai taua, I runga I Aotea ko te waka ia Turi,
Kau mai taua te ngutu whenua kura,
Hanga iho te whare Rangitawi;
Tiria mai te kumara,
Ka ruia mai te karaka ki te taiao nei;
Karia iho te pou tamawahinei,
Ka waiho I Nga tua hine, I a Nonoko-uri,
I a Nonoko-tea, ko te Hererunga, ko te Korohunga.
Kapua mai e Hau ko te one ki te ringa,
Ko te tokotoko. Ka witi I te awa,
Ka nui ia, ko Whanga-nui;
Tiehutia te wai, ko Wangae-hu;
Ka hinga te rākau, ko Turakina;
Tikeitia te waewae, ko Tikei;
Ka tatu, e hine, ko Manawatu;
Ka rorohio nga taringa, ko Hokio;
Waiho te awa iti hei ingoa mona ki Ohau.
Takina te tokotoko, ko Otaki;
Kamehameha, ehine, ko Wai-mea;
Ka ngahae nga pi, ko Wai-kanae;
Ka tangi ko to mapu, e hine,
Ka kite koe I a Wai-raka:
Matapoutia; poua ki runga, poua ki raro,
Ka rarau, e hine. Ka rarapa nga kanohi,
Ko Wai-rarapa—te rarapatanga o to tupuna,
E hine—ka moiki te ao,
Ko te pai a Waitiri;
Kumea kia warea Kaitangata
Ki waho ki te moana:
Hanga te paepae, poua iho, te pou
Whakamaro te rangi, ko Meremere:
Waiho te Whanau, ko te punga
O tona waka ko te Awhema.
Kati, ka waka mutu, e hine.

The following features are associated with our mātauranga of the Ōhau landscape:

- Make kia was a place the floodwaters of the Ōhau River would connect to the Waiopehu area. Our ancestors would go to this place after the floods to plant new trees for harvesting because the land would become rich and fertile. In particular, our ancestor Noa te Whata would undertake this activity.

- Mā keokeo are viewpoints of small peaks along the Tararua Range that would be used as a gauge when travelling.

- Puke tiwai/tawai is a lookout point, covered in tawai trees. This view is a monitoring point for our people.

- Te Karu o te Whenua or “the eye of the land” is a high point in the Ōhau River Reserve, surrounded by puna and the Ōhau River. There are big trees and places to climb where we can see over the land. It also is a point where tracks diverge into the ridges and hills.

- Kuha ti munga refers to the terrace above the Ōhau River and the flow of water through the terrace and gravels. Ferns and palms grow on the cliff face of gravels and are markers of the aquifer.

The following features are associated with our cultural and spiritual practices in the Ōhau:

- Wa moana is our waterhole, a large area in Ōhau River where our people swim and collect kai upstream.

- Make Retu is our spiritual power centre, that connects our people, wairua and wai. It is a place for pou and is associated with repeating sounds of flapping bird wings.

- Toka roa is a large rocky pathway. Along the path was a flat rocky area that we used for camping before entering into the Tararua Range.

The following taonga are associated with our cultural and spiritual practices in the Ōhau:

- Ngārara and ngata (wainuia) are associated with the awa margins. They are indicators of a healthy environment.

- Tuna (both longfin and shortfin), banded kokopu, kōaro, shortjaw kokopu, torrentfish and pirahau (lamprey), along with various types of bullies can be found in the Ōhau. This diverse aquatic community is precious, as our landscape is highly modified. It is an indicator of a healthy mauri. Our people continue to undertake informal cultural harvests from our awa Ōhau.

- New Zealand and banded dotterel are known to nest in the gravel bed of our awa Ōhau. Our dotterel are an integral, characteristic part of the ecosystem that we value. Our ancestors would take the eggs; they are endangered now and under strict rāhui.

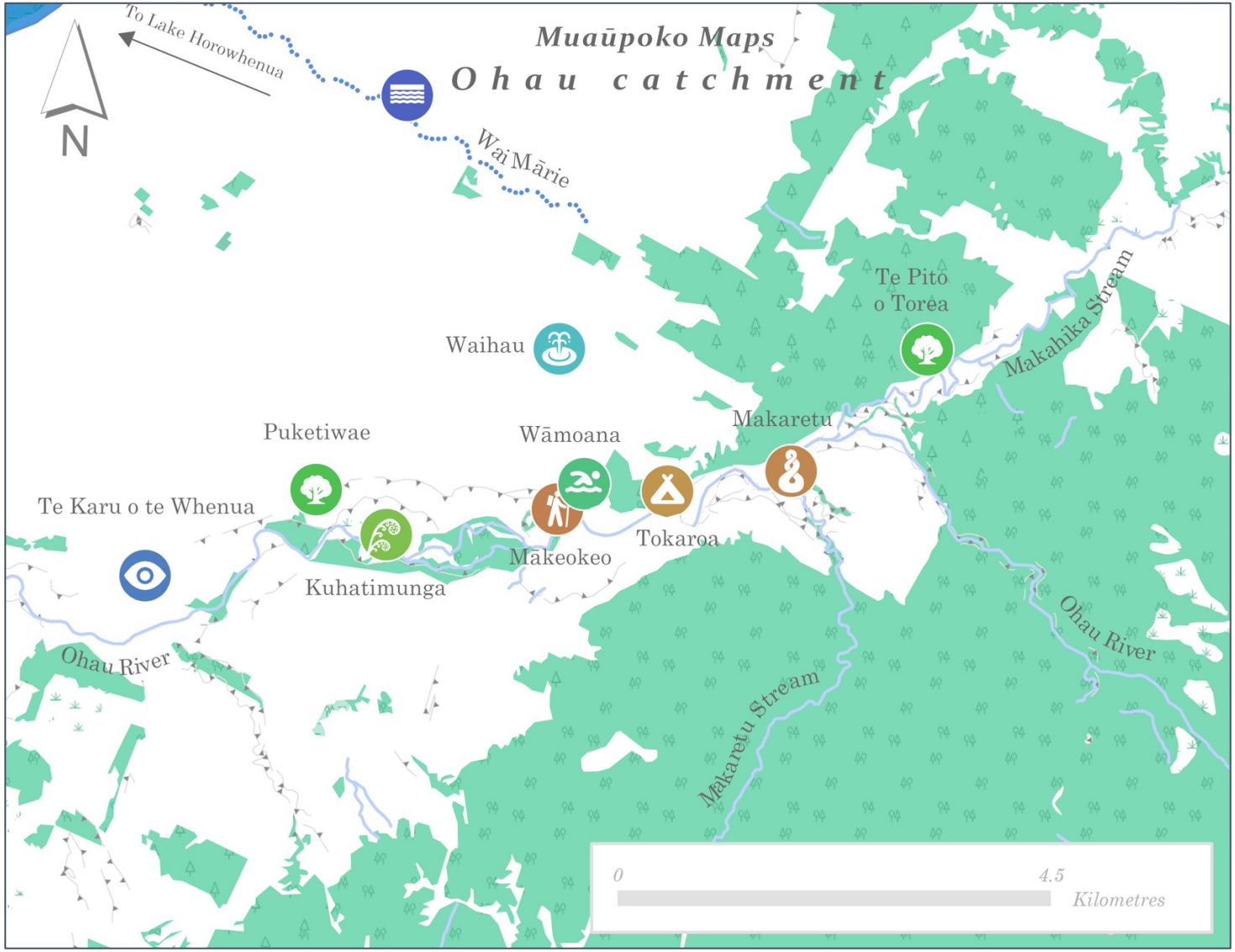

Figure 6: Ōhau catchment.

Table 25: Our values associated with Ōhau.

Value	State	Class	Potential and actual effects
The discovery and naming of Ōhau.	Our awa and a small township is named Ōhau, after our ancestor.	High	**Operational phase** Risk of rewriting narratives – the potential reversible or irreversible risk of the project overlooking, rewriting or belittling the traditional narrative of our landscape as road users pass through or move about our rohe. Outcomes of our assessment have been considered in section 4.1.
Our spiritual practices of travelling, bathing, collecting kai and conducting ceremonies.	Access to our awa is afflicted by cyanobacteria outbreaks and high *e.coli* loads, however the mauri of the wai is still strong. The awa is a peaceful place. Currently we cannot easily access the part of the awa where the project will take place. Ōhau hosts a diverse fishery, we still harvest small amounts from our awa but are careful as we believe the fishery is still vulnerable.	High	**Construction phase** The mauri of the site – the adverse effect of a four-lane highway works within a quiet and peaceful place of our wai. Access to our site – the physical impacts of heavy machinery in waterways compacting the bed of the awa and accidental fish/taonga kills. Our connections ki uta ki tai, run-off and deposition of soil or contaminants in our waterways – the potential adverse effect of construction zone run-off transporting fine sediments to adjacent waterways, including the Ōhau River and its tributaries. The sediment may reduce water clarity and increase deposited fine sediment concentrations, which has negative impacts on the relationship between our people and their taonga species, the mauri of wai and the well-being of Muaūpoko. The potential adverse effects of spills into water, including sediment, hydrocarbons and other fluids, and the effects on Muaūpoko's identity.
			Operational phase The mauri of the site – the adverse effect of a four-lane highway bridge over a quiet and peaceful place of our wai. Public access to our awa – access by the public to our spiritual places, bathing and kai collecting areas. Increasing access to Muaūpoko wāhi tapu will increase the number of people who dump rubbish, bring unwanted pets and carry out other inappropriate activities at our awa. Our connections ki uta ki tai, discharge of stormwater into Te Awa a Te Tau surface waters – the adverse effect of stormwater contaminants discharging to Te Awa a Te Tau and tributaries, impacting the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of Muaūpoko.

Our terrestrial taonga – ngārara and ngata.	Neither our ngārara nor ngata have been found in the project area, however we know them to be present along the awa through our mātauranga.	High	**Construction phase** The accidental death of our ngārara or ngata associated with Ōhau – the potential adverse effect of construction activities and earthworks in the vicinity destroying a ngārara or ngata individual. Disconnection of populations – the potential adverse effect of ngārara or ngata populations are prevented from interacting through the development of a construction zone in the riparian margins of the Ōhau River.

Table 26: Magnitude assessment – Ōhau.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our spiritual practices of travelling, bathing, collecting kai and conducting ceremonies.	The mauri of the site. **Confidence**: High **Scale**: Around the highway crossing and quarry area **Duration**: Temporary **Reversible**: Yes **Timing**: Construction	High	This stretch of the awa is subjected to a quarry operation that is not responsive to cultural values and effects on the mauri of the awa, and stock access close to awa margins. It remains a peaceful place with the sound of the awa dominating the area, the wai is fresh and our aquatic communities are healthy.	Design haul roads to maximise the distance from the awa and thereby minimise dust and noise effects on the mauri of the awa. Apply at least a 100-m no-works buffer to the edge of the gravel awa channel, except where absolutely necessary to construct the new bridge. Minimise access routes to the awa bed to the greatest practicable extent needed to install temporary and permanent bridges.	Low
	Access to our awa. **Confidence**: High **Scale**: Riverbed and riparian area **Duration**: Construction **Reversible**: No **Timing**: Whole construction duration	High	A range of construction machinery will access the bed of the awa and floodplain area. The direct effects of this can be minimised through good planning and staging in the construction phase.	Temporary bridges must be used to cross the awa, avoiding any fording. Access of heavy machinery on the gravel beds and riparian areas is restricted to protect our manu, ngārara and aquatic taonga species' nesting and foraging habitat.	Low
	Our connections ki uta ki tai, discharge of stormwater into Ōhau surface waters. **Confidence**: High **Scale**: Awa reach **Duration**: Construction **Reversible**: Yes **Timing**: Early and ongoing	High	Accidental S&EC blowouts can occur through poor management or unplanned weather events.	Minimise the amount of open ground in the Ōhau area. Oversize SEC devices. Avoid direct discharges from ESC devices requiring overland flow to discharge wai.	Low

Our terrestrial taonga – ngārara and ngata.	Accidental death and disconnection of populations. **Confidence**: Low **Scale**: Riparian margins **Duration**: Construction **Reversible**: No **Timing**: Early and ongoing access	High	Ngārara and ngata are at such low abundances in the landscape they are difficult to detect. They are also cryptic and difficult to find. There remains a significant risk that populations of ngārara and ngata could be affected by the project. Populations could become disconnected and accidental mortalities remain a risk.	Conduct pre-construction searches along the banks of awa. Translocate any individuals found to a sanctuary. Develop a sanctuary that includes predator-proof fencing, predator removal and a sanctuary management plan.	Low
Operational phase effects					
Our spiritual practices of travelling, bathing, collecting kai and conducting ceremonies.	The mauri of the site. **Confidence**: Moderate **Scale**: Awa **Duration**: Permanent **Reversible**: No **Timing**: Ongoing	Moderate	This stretch of the awa is subjected to a quarry operation that is not responsive to cultural values and effects on the mauri of the awa. The awa remains a peaceful place with the sound of the awa dominating the area.	The highway is screened with plantings when viewed from the new open-water habitat/quarry site. The quarry is restored for habitat values associated with tuna, manu, ngārara and ngata.	Positive
	Access to our awa. **Confidence**: Moderate **Scale**: Awa reach **Duration**: Ongoing **Reversible**: Yes **Timing**: Opening of the shared use pathway and beyond	Moderate	The design will allow for public access to a stretch of the awa. The public can cause effects on our cultural values, including dumping rubbish and driving alongside or within the awa.	Design to minimise any new access to the awa. Exclude vehicles, including motorbikes. Facilities such as rubbish bins and picnic tables are moved from the awa edge and floodplain, and away from carparks. Install appropriate signage that recognises the tikanga of the area.	Low
	Our connections ki uta ki tai, discharge of stormwater into Ōhau surface waters. **Confidence**: Moderate **Scale**: Wai katoa **Duration**: Ongoing operation lifetime **Reversible**: Yes **Timing**: After opening	Moderate	The mauri and water quality is declining – it must be protected into the future.	Adopt the adaptive management approach discussed in section 4.1.	Negligible

4.4.7 Waiwiri

Waiwiri is our traditional name for both the river and the lake – it was renamed Papaitonga through colonisation. Waiwiri is named for the shimmering waters of the lake, whereas Papaitonga is actually one of the islands within the lake.

Our ancestors settled around Waiwiri as the lake provided abundant resources for our people and was in close proximity to Punahau. Our pathways connected Waiwiri, Punahau, out to Hokio Beach and up into the Tararua Range. We know Hokio Beach as Hokioi – another one of our traditional names to be changed through colonisation. The beach was named Hokioi after the giant Haasts eagle our ancestors encountered when they settled the area in the early millennium.

The ngahere surrounding Waiwiri is one of the last remaining coastal dune forests on the west coast of the North Island and is where our people have studied and collected rongoā for over 20 generations.

The following features are associated with our cultural and spiritual practices in the Ōhau/Waiwiri area:

- Wero whango was a clearing our ancestors cultivated, one of many cultivation areas along the Ōhau River and around Waiwiri. Papa whanake was a campsite for people clearing land for cultivation. Once the vitality of a cultivation area was exhausted, we would move on to another area allowing the grounds to regenerate. This was done on an annual and long-term basis.

- In early times, we would cultivate fern root on a large scale using our burning practices to encourage fern root growth. Our fern root cultivation practices were driven, in particular, around 300 years ago during the Little Ice Age when our more tropical crops, such as kumara, taro and aute (paper mulberry) did not survive. We were forced to adapt, and fern root became one of our staples.

- Ika a Maui was a place where we fished for tuna called kauae pango. Kauaepango is a place where big black fish (tuna) came up the river.

Figure 7: Waiwiri catchment.

Table 27: Our values associated with Waiwiri.

Value	State	Class	Potential and actual effects
Our traditional cultivation grounds and associated sites.	It is difficult to understand the exact sites our ancestors cultivated and camped. We see the landscape as integrated and characteristically cultivated, our ancestors understood the strength of Haumia-tiketike in the Waiwiri area.	High	**Construction phase** Disturbing our ancestors resting places – the potential irreversible effect of uncovering and disturbing the burial place of our ancestors. Others overriding our responsibilities to our ancestors – prior to 1820, our whakapapa and mana dominate the entire Ō2NL landscape. However, there is a risk others will attempt to override our tikanga and kawa when managing accidental finds that are dated after this time, including kōiwi and taonga. We address this in detail in section 4.2.
The mauri of the soils around Waiwiri.	Industrial farming practices degrade the mauri of our soils and Haumia-tiketike. Cultivation of the landscape goes far back in our history, but the environment has fallen out of balance in the past century. This has a direct link with the health and well-being of our people who struggle to access healthy kai, despite traditionally connecting to the best cultivation soils in the country.	High	**Construction phase** Destruction of life-giving soils and the stronghold of Haumia-tiketike – the unavoidable adverse effect of clearing high-value soils which we use for traditional farming in our region.

Table 28: Magnitude assessment – Waiwiri.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our traditional cultivation grounds and associated sites.	Destruction of life-giving soils and the stronghold of Haumia-tiketike. **Confidence**: High **Scale**: Soils in the Waiwiri area **Duration**: Topsoil stripping **Reversible**: No **Timing**: Early construction	Low	The soils that sustained our ancestors have been acquired, partitioned and degraded. Their loss causes spiritual harm, but their properties no longer contribute to the health and well-being of our people in a meaningful way.	Reuse the soils of Haumia-tiketike in local landscaping. Maintain the soils within the local area – do not allow them to cross south of the Ōhau or north of Tara-Ika.	Negligible

4.4.8 O Tara Rere

This section covers our values associated with Otararere, Poroporo, and Awa Iti:

- Tara-rere was a place where Tara-Ika moved quickly along. Tara being one of our eponymous ancestors described earlier in this report, and rere meaning to fly or move quickly. The O Tara Rere fore hills are characterised by low slopes and wind that flies along, giving speed to one's step.

- Poroporo was a place where trees growing berry fruit could be found. Large quantities of poroporo berry, leaves and bark were harvested as rongoā for itching, sores, infections and ulcers. A track from the base of the maunga leads to the location of kai poroporo.

- These fore hills are a source of mauri stone (greywacke) used in our cultural ceremonies.

- Awa iti is a small river area referring to connection of river cutting into the Range.

Effects on our values associated with O Tara Rere have been avoided through the route selection and quarry shortlisting processes.

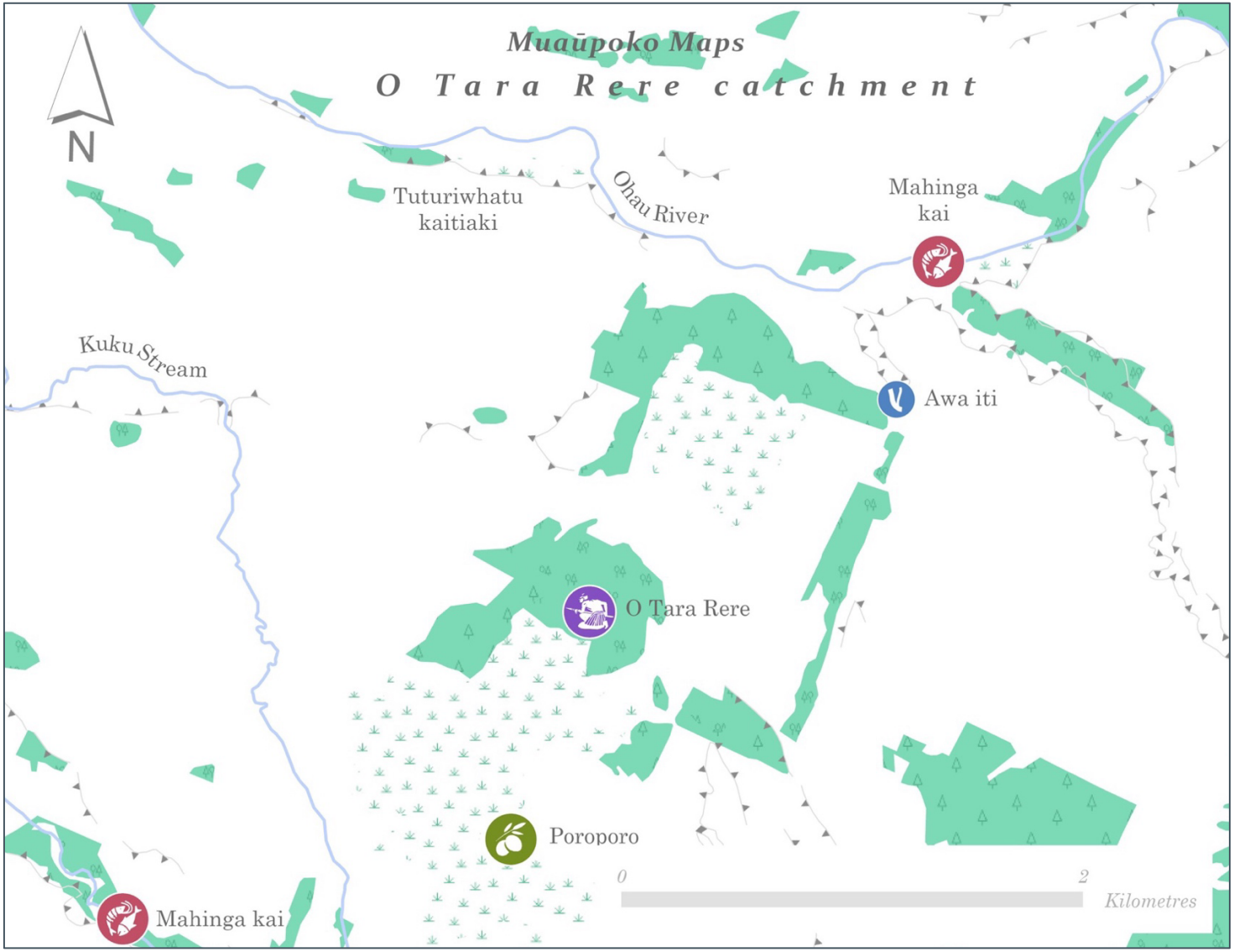

Figure 8: O Tara Rere catchment.

4.4.9 Tararua

This section covers Manakau, Whakahoro, Waikawa, and Panetewaiwai:

- For our people, this area is known as Whakahoro – Manakau was named by Ngāti Toa as they raided through our landscape. They named it Manakau or “empty of mana” intending it to be an insult.

- Whakahoro included the expansive flat coastal area from the fore hills to the coast (maunga to moana). The area had characteristically large and old birding trees and tree forts. In particular, these could be found in old-growth northern rata rākau. Our ancestors lived in these tree forts as the area contained extensive swamplands. Our connections with these tree forts in the land go back to the time of Whatonga, who encountered the ancients living like this. The tradition was carried on for many generations and was a great advantage to our people in times of traditional tribal warfare when Ngāti Kahungunu and Ngāti Apa were becoming established. Our people knew the pathways through the swamps and bush.

- Waikawa Stream and peak are connected to Parekawau, and a hill named Muaūpoko. Parekawau translates to “crest of the shag”.

- The Waikawa and Manakau Streams are mahinga kai. In particular, our ancestors maintained extensive watercress beds and our people still harvest watercress in small quantities today. Some of our people hunt for deer in the Tararua Range and foothills. Our taonga species include shortfin and longfin tuna, various bullies, giant kōkopu, shortjaw kōkopu, kōaro, torrentfish, lamprey/pirahau and īnanga.

- Panatewaiwai peak – shape of the land (pane means headwaters/source).

- The Waikawa area often slips, even with indigenous cover. The name Waikawa refers to slips muddying the water and impacting water quality in the lower area.

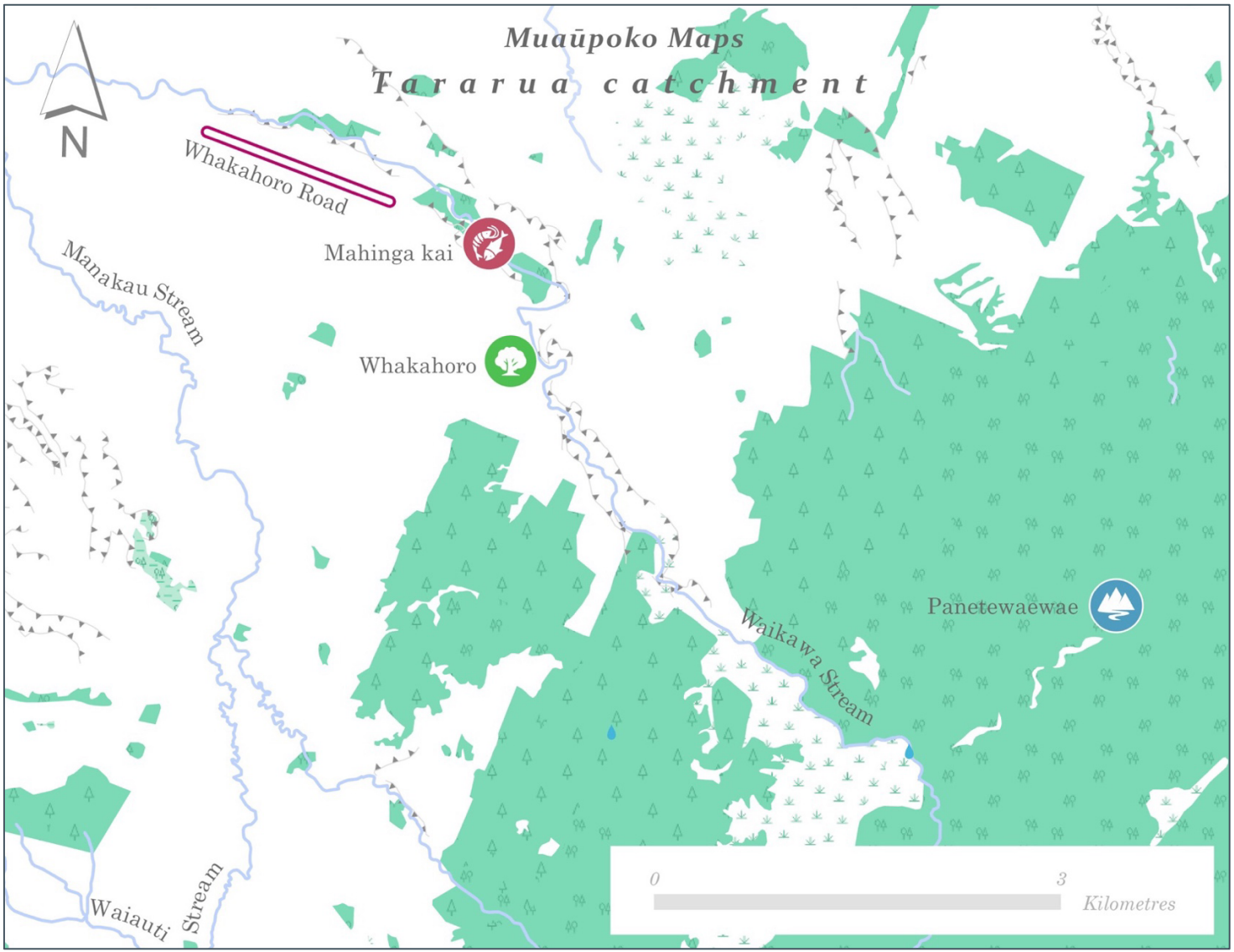

Figure 9: Tararua catchment.

Table 29: Our values associated with Tararua.

Value	State	Class	Potential and actual effects
Whakahoro – rākau rangatira and our tree forts.	Our rākau rangatira (old growth trees) have been stripped from the landscape. We have aspirations to reinstate our culture and tikanga around tree forts.	Very high	**Construction and operational phases** Opportunity to acknowledge our traditional narrative in the Whakahoro area and give effect to our mātauranga – the adverse effect where the opportunities are lost to give effect to our mātauranga, share our stories in reference to the project, give effect to our mātauranga and share it with our community.
Waikawa and Manakau awa – mahinga kai.	Our people collect watercress, hunt deer, fish and collect rongoā in the upper Range.	High	**Construction phase** Access to our hunting and collection grounds has been provided through reconnecting local roads and maintaining access during construction.
Waikawa, wai auti and Manakau awa.	Our wai is in a relatively healthy state, however, it is degrading. Sediment, nutrients and *e.coli* indicators are all generally getting worse over time[15]. The awa all have healthy fish communities and strong mauri.	High	**Construction phase** Works in water ways – the physical impacts of heavy machinery in waterways compacting the bed of the awa, releasing sediments and potential for accidental fish/taonga kills, potential adverse effects of spills into water including sediment, hydrocarbons and other fluids, and the effects on Muaūpoko's identity. The mauri of the site – the adverse effect of a four-lane highway works within a quiet and peaceful place of our wai. **Operational phase** The mauri of the site – the adverse effect of a four-lane highway bridge over a quiet and peaceful place of our wai. Our connections ki uta ki tai, discharge of stormwater into Te Awa a Te Tau surface waters – the adverse effect of stormwater contaminants discharging to Te Awa a Te Tau and tributaries, impacting the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of Muaūpoko.

[15] LAWA: https://www.lawa.org.nz/explore-data/manawat%C5%AB-whanganui-region/river-quality/waikawa/waikawa-at-north-manakau-road/

Table 30: Magnitude assessment – Tararua.

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Whakahoro – rākau rangatira and our tree forts.	Opportunity to acknowledge our traditional narrative in the Whakahoro area to give effect to our mātauranga. **Confidence**: High **Scale**: Tararua catchment **Duration**: Construction and ongoing operation **Reversible**: Yes **Timing**: Project opening	High	Our rākau rangatira (old growth trees) have been stripped from the landscape. We have aspirations to revitalise our culture and tikanga around tree forts.	Use of tree forts as a design parameter alongside the shared-use pathway. Share our traditions and history related to tree forts and Whakahoro in this location in the form of signage and mahi toi. Detailed design is incorporated into the mahi toi strategy.	Positive
Waikawa, wai auti and Manakau awa.	Works in water ways **Confidence**: High **Scale**: The awa corridors **Duration**: Full and partial construction programmes **Reversible**: No **Timing**: Summer works and low flow	Very high	Two large quarry operations will take place within the Waikawa floodplain. Major river (and temporary) crossings will be required within each of the stream environments, as well as a range of culverts in tributaries.	Monitor the upstream and downstream environment for sediment, and include remediation if any adverse effects are detected. Good management practices and review. Works in waterways after a period of low flow. Quarry rehabilitation strategy enacted.	Low
Waikawa, wai auti and Manakau awa.	Mauri of the awa **Confidence**: High **Scale**: The awa corridors **Duration**: Construction **Reversible**: No **Timing**: Summer works	High	The awa is a peaceful place with good water quality, although it is declining.	Design haul roads to maximise the distance from the awa and thereby minimise dust and noise effects on the mauri of the awa. Apply at least a 100-m no-works buffer to the edge of the gravel awa channel. Undertake pre-clearance snail surveys and release programme	Low

				prior to works. Release in the sanctuary. Minimise access routes to the awa bed to the greatest practicable extent needed to install temporary and permanent bridges. Conduct planting to connect the awa ki uta ki tai and connect ecological corridors.	
Operational phase effects					
Waikawa, wai auti and Manakau awa.	Our connections ki uta ki tai, the mauri of the awa and discharge of stormwater into Te Awa a Te Tau surface waters. **Confidence**: Moderate based on experience **Scale**: Effects our identity long-term **Duration**: The ongoing operation of the highway **Reversible**: Yes **Timing**: Ongoing	High	The awa is a peaceful place with good water quality, although it is declining.	Adopt an adaptive management plan, as discussed in section 4.1. Conduct planting to connect the awa ki uta ki tai and connect ecological corridors along the awa. Conduct planting for ngata and ngārara outcomes. Design the noise walls with tāniko to reconnect the landscape and road users with te ao Māori and our values.	Positive

4.4.10 Pukehau

Pukehau maunga is also named for our ancestor Haunuia-nanaia. Hau imparted his kawa on the landscape in this location and it has survived through our mātauranga over time. Pukehau is the place where Hau stopped and undertook a ritual to show respect for the particularly important connections between maunga and moana – the Range, Waitohu awa and repo complex. The puke in Pukehau refers to the mound/hill.

Our ancestors lived in the Moutere and Kopureherehe (forest lakes) areas and regularly travelled the region to collect resources and hunt. Encampments have been found in the project alignment adjacent to O Te Pua Swamp. Our ancestors collected freshwater and aquatic resources from the Waiaute Stream that has its headwaters to the east of Pukehau.

- O Te Pua swamp is named for the birding trees throughout the area and was a significant mahinga kai.

- Kopureherehe is a name for young tui as they fly around trying to find their song and voice – kopureherehe is another name for the belly of the tuna.

- Moutere is a name that travelled with us from Hawaiki. It is now the name of a Muaūpoko-made island with connections to our South Island whānau – the engineering of which is similar to the infamous Muaūpoko-made islands of Punahau.

- Waiaute awa is named for the paper mulberry tree that our ancestors cultivated in the Pukehau catchment. Our Polynesian whanaunga still gather the bark to make cloth to this day.

4.4.11 Pukehou

Our maunga is also known as Pukehou. Our ancestors Rangihouhia, Te Hakeke and Rangihikaka whakapapa to this area, significant whakapapa that goes back many hundreds of years. The Pukehou area's bountiful swamps, forests and rock resources sustained our people. Our whakapapa roots are deeply connected with this maunga and live on in our people and through our mātauranga.

Most excitingly, Pukehou is the place where Te Rangihouhia was shot and escaped like a kererū! Te Rangihouhia lived at Waikawa as well as at Horowhenua. He had rights there from his father, Kahoro, of Ngaitiere. The lands of Ngaitiere extended from Ōtaki to Ōhau. He had no rights at Porirua, and he never fled from Porirua to Waikawa or from Pukehou to Horowhenua.

Hoani Puhi also lived in the Waitawa area.

Te Hakeke composed waiata about our rohe called Te Rara-o-te-rangi.

HE WAIATA POPO NA TE HAKEKE

Te Rara-o-te-rangi

Kati, e Tama, te noho i to whare,
E puta ki waho ra, ka haere taua,
Nga matarae, i waho Whakaari,
Kia uiui mai, 'Ko wai to ingoa?
Mau e ki atu, Ko Te Rara-o-te-rangi,
Kei ki mai, te wareware,
Ka pau te whakanoa, e te tini, e te mano,
Moku ianei, mo te kahui pepeke,
Te roa Wairerewha,
Kei whea to tupuna?
Kia whakaputa mai,
I muri ano whakatau-potiki,
Nana i toko te rangi, i runga nei,
Ka puta koe, ki te ao marama.
Hikaka te haere, ki runga Taikoria,
Pukana o karu, ki roto Manawatu,
Kia powhiri mai, koia i to whaea,
E Rau a Te Waka, ki'paoa, to rangi,
Te rau o te huia, he noa te tinana,
Tenei to piki, he hokioi i runga,
Nga manu hunahuna,
Kahore i kitea e te tini, e te mano,
Kia takaro koe, nga takutai,
E takoto, i waho Waiwiri, i roto Waikawa,
Ka eke koe, ki runga o Pukehou,
Ka whakamau, e tama, ki waho Raukawa,
Ko nga moana ra, e whakawhana noa ra,
O Tupuna, i te kakau o te hoe,
Ngaro rawa atu ki Hawaiki

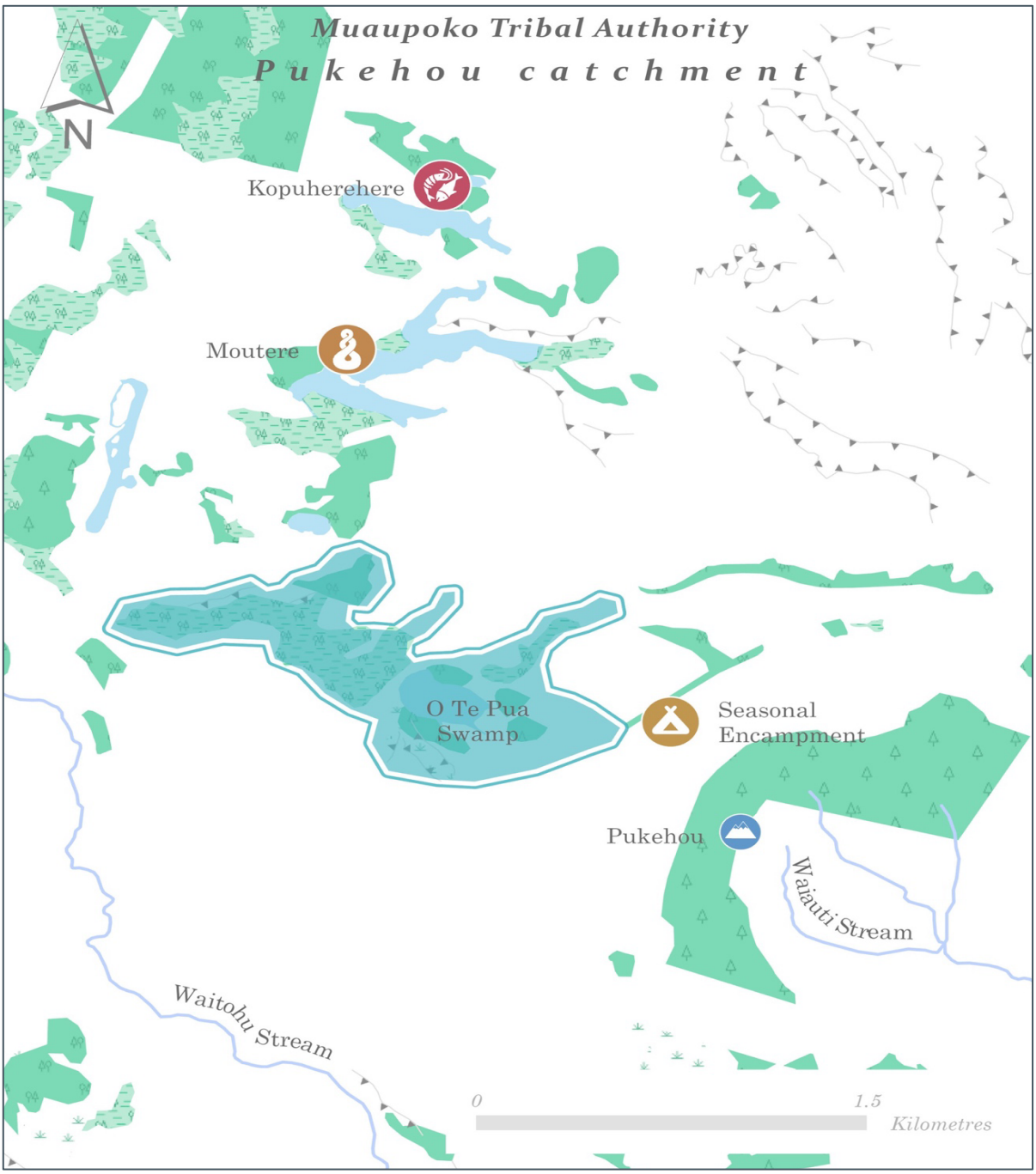

Figure 10: Pukehou catchment.

Table 31: Our values associated with Pukehau/Pukehou

Value	State	Class	Potential and actual effects
Our spiritual values.	Our values still exist in this area, and our mātauranga and teachings pass to our children.	High	**Construction phase** Disregard for our spiritual values and whakapapa connections – the potential adverse effect on our spiritual values and mātauranga being overlooked, ignored or belittled as part of the project.
Ki uta ki tai.	The catchment has been cleared of indigenous vegetation, however Pukehau and O Te Pua remain connected through wai.	High	**Operational phase** Disconnection of Pukehou and O Te Pua – the adverse effect of the four-lane highway being constructed between these two significant cultural features.

Table 32: Magnitude assessment – Pukehau/ Pukehou

Value	Activity / Effect	Magnitude WITHOUT management	Reasoning	Proposed effects management	Magnitude WITH management
Construction phase effects					
Our spiritual values.	Disregard for our spiritual values.	High	Our spiritual values and mātauranga may be overlooked, ignored or belittled as part of the project.	Undertake karakia prior to opening of a new site. Monitor the impact of the project on the maunga, wāhi tapu and significant sites over time. Include our connection through whakapapa in the design of mahi toi and share our values and whakapapa through signage.	Low
Operational phase effects					
Ki uta ki tai.	Disconnection of Pukehau and O Te Pua.	High	The highway will impede connections between the maunga and repo, disrupting the natural movement of wai.	Focus on restoration planting in the gullies to connect O Te Pua headwaters with the toe of Pukehau maunga.	Low

4.5 Level of effects assessment

Throughout this process, it has been important to distinguish between the values and connections we hold with our traditional lands, waterways and rohe, and the tino rangatiratanga, or sovereignty, we hold over the Horowhenua block.

This distinguishing factor, including the local place-based nature of our values, has meant that similar physical impacts of the development have been treated in a different way depending on the environment in which the effects are contained. This approach recognises the mana of whenua, wai, our people and overlapping iwi interests.

Overall, capacity remains the key to continued and solvable risk. Capacity will impact our ability to effectively provide for and protect our values outlined in this CIA. This is a direct result of unsettled past and contemporary Treaty breaches and is exacerbated by Waka Kotahi and other Crown agencies excluding Muaūpoko from other projects in our area of interest.

Alongside Muaūpoko pre-settlement status, this impacts our ability to build capacity and has created a perfect storm – we are now extraordinarily reliant on a few individuals to participate, protect and partner for Muaūpoko interests, lands, waterways and taonga, and perform our role as kaitiaki and tangata whenua. These issues are reflected in our results, where the overall effects on our growth, knowledge and rangatiratanga remain high, even after mitigation.

We have worked hard to address these effects and minimise them to the greatest practicable extent. These levels of effects are summarised in Table 33. Going forward, our needs centre on the Treaty principles of partnership and participation, and continued protection as the Ō2NL project develops.

Table 33: Summary level of effects assessment.

Value	Activity / Effect	Cultural value	Magnitude WITH management	Overall effect
Our worldview				
Growth and knowledge during construction.	Inability to pursue our growth and knowledge as an iwi in the construction phase.	Very high	Moderate	High
Connections with and between our atua.	Disrupts the relationships between atua, kaitiaki and the environment in the construction phase.	Very high	Moderate	High
Growth and knowledge during operation.	The inability to pursue our growth and knowledge as an iwi in the operational phase due to capacity constraints.	Very high	Positive	Net Gain
Connections with and between our atua.	Disrupts the relationships between atua, kaitiaki and the environment in the operational phase.	Very high	Low	Moderate
Our whakapapa				
The discovery by our people and their naming in the landscape.	Risk of rewriting narratives during construction.	Very high	Positive	Net Gain
Our landscape and connections and cultural expression.	Severing connections ki uta ki tai during construction.	High	Low	Low
Accidental discovery of archaeological materials related to our ancestors.	Disturbing our ancestors' resting places during construction.	Very high	Low	Moderate
The discovery by our people and their naming in the landscape.	Risk of rewriting narratives in the operational phase.	Very high	Positive	Net gain
Our landscape connections and cultural expression.	Severing connections ki uta ki tai in the operational phase.	High	Low	Low
Te Mana o te Wai				
Mana whakahaere.	Exclusion of our people from decision-making in the project during construction and operational phases.	Very high	Positive	Net gain
"Reversing what was lost" – CEDF principle.	Risk of creating novel, unnatural ecological systems during construction.	Very high	Low	Moderate

Kaitiakitanga				
Our atua as kaitiaki; “Letting the land be its natural self” – CEDF principle.	Forever changing the landscape and its functioning by interrupting the flow regime and drainage patterns across our landscape during construction.	Very high	Low	Moderate
Our role as kaitiaki.	Exclusion of our kaitiaki from fulfilling their duties during construction and operation.	Very high	Positive	Net gain
Punahau/Lake Horowhenua.				
Our rangatiratanga.	Waka Kotahi enable incursion by others into our heartland during construction and operation.	Very high	Moderate	High
The mana of Punahau and our fishery.	Run-off and depositing soils in our waterways and groundwater may have negative impacts on the relationship between Muaūpoko and their taonga species, the mauri of wai and the well-being of our people during construction and operation.	Very high	Low	Moderate
Arapaepae				
Visual and spiritual connections along Queen Street East.	During construction and operation.	High	Low	Low
The health of our ngārara.	During construction and operation.	Very high	Low	Moderate
Maunu Wāhine				
The natural flow of water along our spiritual pathway wai mārie.	Disturbing the natural flow of wai through the landscape during construction and operation.	High	Low	Low
Ngā Upapa				
The geological properties that support our puna in this catchment.	Disturbing the natural flow of water through the landscape and our atua, Tawhirimātea, during construction.	High	Negligible	Very Low
Wai Karito is a raupō restoration area.	The opportunity to give effect to our mātauranga during construction.	High	Positive	Net Gain
The interlinkages across the landscape from maunga to moana, it connects our wāhi tapu, traditional lands and mahinga kai.	Our connections ki uta ki tai in the operational phase.	High	Positive	Net Gain

Koputaroa				
Ngahere.	Opportunity to restore ngahere in the Koputaroa catchment and give effect to our mātauranga.	Moderate	Positive	Net Gain
The characteristic Koputaroa landscape.	Earthworks (cut and fill) within the Koputaroa landscape.	High	Low	Low
Dams, ponds and deep-water areas.	Drainage and destruction of open water habitats.	High	Low	Low
Our harakeke taonga.	Opportunity to restore our harakeke taonga in the Koputaroa catchment and give effect to our mātauranga.	Very high	Positive	Net Gain
Our wetland manu taonga.	Drainage and destruction of open-water and wetland habitats and their connectivity within the landscape.	Very high	Low	Moderate
Ōhau				
Our spiritual practices of travelling, bathing, collecting kai and conducting ceremonies.	The mauri of the site during construction.	High	Low	Low
	Access to our awa during construction and operation.	High	Low	Low
	Our connections ki uta ki tai, discharge of stormwater into Te Awa a Te Tau surface waters during construction.	High	Low	Low
	The mauri of the site during operation.	High	Positive	Net gain
	Our connections ki uta ki tai, discharge of stormwater into Te Awa a Te Tau surface waters during operation.	High	Negligible	Very low
Waiwiri				
Our traditional cultivation grounds and associated sites.	Destruction of life-giving soils and the stronghold of Haumia-tiketike.	High	Negligible	Very low
Tararua				
Whakahoro – rākau rangatira and our tree forts.	Opportunity to acknowledge our traditional narrative in the Whakahoro area and give effect to our mātauranga.	Very high	Positive	Net gain

Waikawa, wai auti and Manakau awa.	Works in waterways.	High	Low	Low
	Mauri of the awa.	High	Low	Low
	Our connections ki uta ki tai, the mauri of the awa and discharge of stormwater into Te Awa a Te Tau surface waters.	High	Positive	Net gain
Pukehou				
Our spiritual values.	Disregard for our spiritual values.	High	Low	Low
Ki uta ki tai.	Disconnection of Pukahau and O Te Pua.	High	Low	Low

5 Conclusions

Muaūpoko (Ngai Tara o Mua Ūpoko o te Ika o Maui) have lived on this land for 1,000 years. We are tangata whenua. The Horowhenua block is our contemporary heartland and we maintain traditional connections to the length of the Ō2NL project landscape and beyond. We wish for our position and role as tangata whenua in the Horowhenua and wider landscape to be uplifted as part of the Ō2NL project, and to be supported to have the capacity and capability to reasonably participate as a Tiriti partner. We wish to manage our whenua, wai and significant sites in line with our tikanga and to be appropriately supported to do so. In this CIA, we have identified how we wish this to be undertaken, how our values of kaitiakitanga, manaakitanga and mana whakahaere are critical to our success in protecting our interests.

We will continue to work alongside Waka Kotahi to ensure we deliver the best outcomes for our people, te taiao and the project in a way that is responsive to our worldview and our whakapapa. Most critically, Waka Kotahi must respect the way in which we are able to engage because of historic Treaty breaches, exclusion and marginalisation of our people. We have developed structures to engage with the Ō2NL project and are developing a project delivery team to action kaupapa under instruction from our iwi, MTA and LHT leaders.

In the earliest phase of this project, we jointly created a set of principles to shape the design of the project. This document is the CEDF. It reflects joint outcomes and positions. However, we also need a Muaūpoko-focused management plan to enable our people, structures and needs to be set up and addressed in the project. This management plan should address matters specific to Muaūpoko, our history, relationships and challenges, and how our aspirations will be managed.

We have genuinely applied and held ourselves accountable to the collective project values throughout the work to date and we will continue to do so.

Ngā Tuwhirotanga

Muaūpoko Tribal Authority

Lake Horowhenua Trust

Disclaimer

We have used various sources of information to write this report. Where possible, we tried to make sure that all third-party information was accurate. However, it's not possible to audit all external reports, websites, people, or organisations. If the information we used turns out to be wrong, we can't accept any responsibility or liability for that. If we find there was information available when we wrote our report that would have altered its conclusions, we may update our report. However, we are not required to do so.

This report provides an overview assessment and has not provided details where those are not currently considered to be relevant to the Ō2NL Project. Muaūpoko reserve the right to update this report through the upcoming RMA process.

VERSION	DATE	AUTHORS	COMMENTS
1		Siobhan Karaitiana (Kaupapa Taiao Specialist, independent advisor, BSc Hon Ecology)	Approved
2		Dr Jon Procter (MTA BoT, iwi leader, PhD, MSc, BSc, DipTchg, BEd)	Approved
3		Dean Wilson (MTA Environmental Manager, Lake Horowhenua Trustee, iwi leader)	Approved
4		Di Rump (MTA CEO, iwi leader, MMIL)	Approved