PROPOSED TE HANGARURU TRAIL

ASSESSMENT OF ENVIRONMENTAL EFFECTS TO SUPPORT A WORKS APPROVAL AND CONCESSION APPLICATION.

Prepared by Roam Consulting for:
Ruapehu District Council and Uenuku

Issued 05 September 2023

ROAM

Disclaimer:

This document has been prepared using information and data that is sourced from external documents and information from third parties. Where possible, we have attempted to verify the accuracy of this material but accept no responsibility or liability for any inaccuracies or omissions from that material that may affect the accuracy of the assessment or recommendations made in this report. It should not be construed that we have conducted an audit of any of the information used in this report or any of the individuals, companies or organisations consulted during the course of preparing the document.

We reserve the right, but are under no obligation, to revise or amend our report if any additional information (particularly as regards the assumptions we have relied upon) which exists on the date of our report but was not drawn to our attention during its preparation, subsequently comes to light.

Initial draft to client issued:	6 April 2023
Final report issued to client:	14 April 2023
Variation II Provided to the Department	15 September 2023

Report prepared by: Rowan Sapsford

Director

Roam Consulting Limited

Executive Summary

Uenuku Charitable Trust and Ruapehu District Council (the applicants) are proposing to develop a 29km shared use (walking and cycling) trail between Horopito and Mangawhero (National Park). This trail will form part of the Mountains to the Sea Great Ride.

The applicants are currently seeking approval to develop stage 1 of the trail which is a 11.84km section between Horopito and Makatote Awa. The route of Phase 1 is shown on the map following.

The majority of the proposed trail is to be located on road and rail reserve but two sections of the proposed route will include will cross thee parcels of Public Conservation Land (PCL). A total of 566m of trail is proposed to be built on PCL. The three parcels of PCL that will be affected by the proposed trail are:

1. Manganui o te Ao Conservation Area (99m of trail proposed),
2. Mangaturuturu Viaduct Gravel Local Purpose Reserve (51 meters of trail proposed)
3. Tongariro National Park (416 meters of trail proposed).

These areas are shown in the red boxes on the following map.

The proposed trail is intended to be suitable for a wide range of walkers and cyclists and will mainly consist of a 1.5-2m trail surfaced in gravel in a manner consistent with the Departments trails throughout the area. The trail construction methodology is based around developing a sustainable trail that considers the important environmental, cultural and scenic values of the land and waters which it will traverse. A secondary consideration is the development of a trail which is resilient to erosion and use to reduce ongoing maintenance issues. Information on the design and construction of the trail can be is found in Section 3.6 and Appendix 7 of this AEE.

In addition to the trail itself, boardwalks and signage are proposed to be developed. Lengths of boardwalks are proposed to be used over areas of wet ground or in areas of high ecological sensitivity. Signs will be placed along the trail for wayfinding, safety and storytelling (i.e., to tell the important cultural, natural and historical stories of the area) purposes. There may also be cultural features (such as pou etc) to express the cultural values inherent to the site and tāngata whenua.The following structures are proposed to be developed on the affected PCL:

1. Manganui o te Ao Conservation Area - Wayfinding and safety signage,
2. Mangaturuturu Viaduct Gravel Local Purpose Reserve – 51 meters of board walking.
3. Tongariro National Park – 290m of board walking and wayfinding and storytelling signage.

Promotional filming is also planned to be undertaken during the development and ongoing use of the trail.

The applicants are seeking the following permissions from DOC:

1. Construction of the trail and associated structures (Refer DOC form 3b and works approval form 1A),
2. Maintain and manage the trail for a period of 20 years (Refer DOC form 3b)
3. Carry out promotional filming and photography on the trail for a period of 20 years (refer Form 5a)
4. Use of helicopters during trail construction to move materials etc (Refer Aircraft Form)

Note that resource consents are also being sought from Horizons regional Council and Ruapehu District Council for the development of the wider trail.

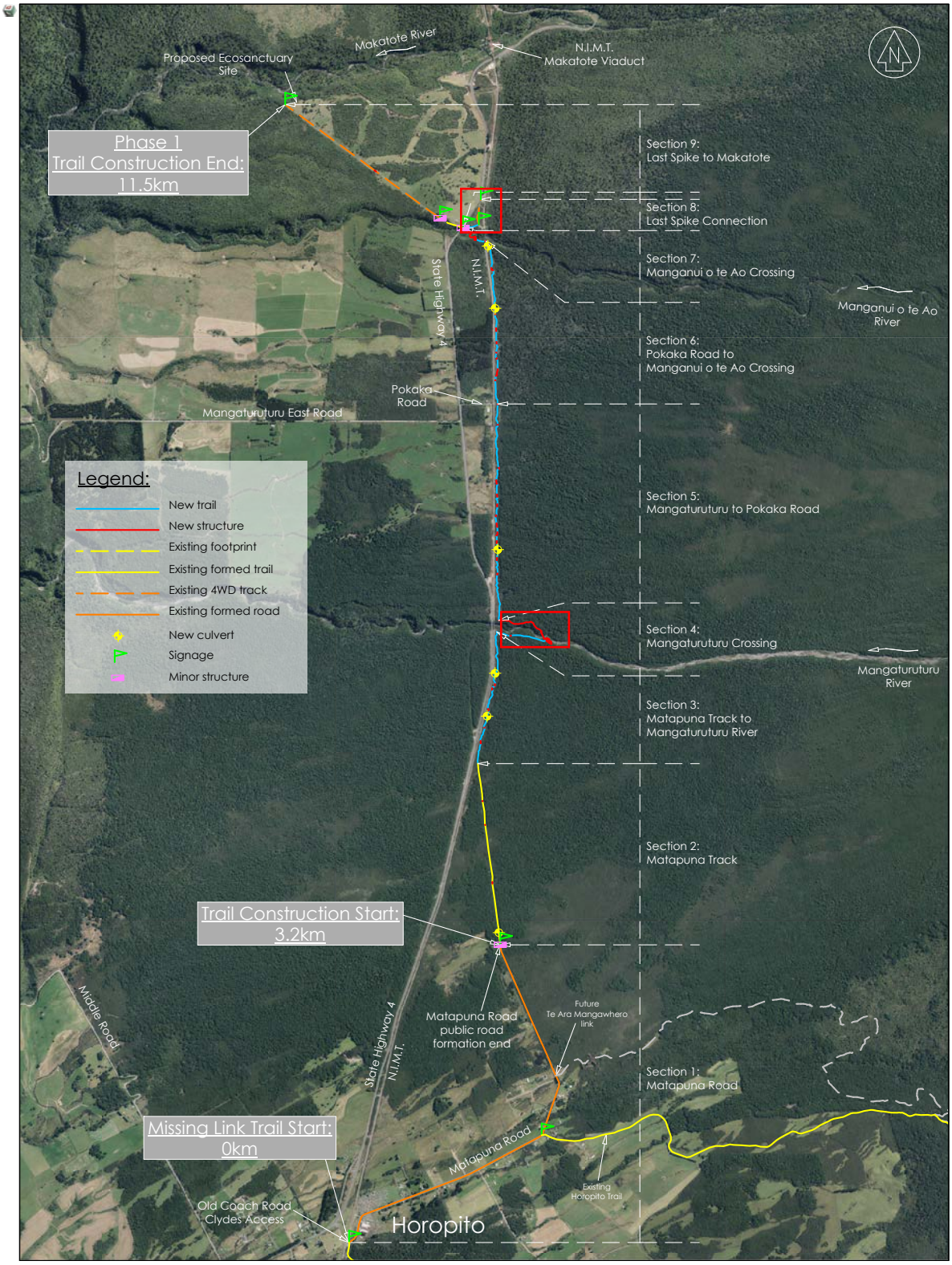


Table of Contents

Report Figures

1 Applicant Details

1.1 Full name of registered company or individual

Uenuku Charitable Trust and Ruapehu District Council

1.2 Address of Registered Office

c/o UENUKU CHARITABLE TRUST

28 Queen Street

PO Box 102

RAETIHI 4632

1.3 Contact Person

Aiden Gilbert

Chairman

chair@uenuku.iwi.nz

1.4 Applicant's Agent

Rowan Sapsford

Roam Consulting

Mobile:021 744 957

Email: rowan@roamconsulting.co.nz

2 Project Introduction

2.1 Assessment Development

Ehara taku toa i te toa takitahi, engari kē he toa takitini

This assessment has been developed collectively by the applicants Uenuku Charitable Trust (Uenuku) and Ruapehu District Council (Applicants)and key technical experts. Key cultural, ecological, landscape and engineering information has been provided to ROAM to enable a comprehensive assessment of the development to support decision makers to fully understand its effects (both positive and negative) on the environment.

For the sake of this report, the proposed trail and its effects have been broken down into its component parts to fit the legislative requirements of the statute it will be considered against. This is not indicative of the approach taken to design the trail; the design approach has considered the trail as a whole within the important cultural, physical and social elements of Ruapehu Maunga and the awa which flow from its flanks. This integrated and holistic approach is vital to ensure that the trail is designed and developed in a manner which is tika to the important values of the area where it is to lie.

2.2 Purpose of this Assessment

The purpose of this document is to provide an assessment of the potential environmental effects associated with Phase 1 of the proposed Hangaruru Trail. Phase 1 of the trail is proposed to be developed between Horopito and the Makatote awa. The proposed 11.84km of trails are part of the proposed wider extensions to the Mountains to Sea (M2C) trail that will connect Ruapehu Maunga to National Park Village and the existing sections of the Mountains to Sea trail. The route of the proposed trail is shown on Figure 1 with those sections of trail proposed to be developed on Public Conservation Lands (PCL) identified within red boxes.

The development of the trail requires statutory permissions from a range of local and central government entities including the Department of Conservation, Horizons Regional Council and the Ruapehu District Council.

Sections 4 and 8 of the proposed trail are to be developed on Public Conservation Lands (PCL) and require specific permissions from the Department under the National Parks Act and Conservation Act.

This AEE pertains to works and activities on Public Conservation Lands (PCL) only and includes consideration of the following permissions required from the Department of Conservation (The Department):

- A works approval to undertake physical works within Tongariro National Park.
- A concession to develop and manage the trail.
- A concession to build and manage structures (signs, boardwalks and cultural features).
- A concession for the use of aircraft during the construction of the trail.
- A concession to undertake photography and filming along the route of the trail (within PCL) for the purposes of promoting the trail.

An assessment of effects on the environment is required to meet the requirements of Section 17S of the Conservation Act 1987 to support the concession applications listed above. This assessment also includes the information etc required to progress a Works Approval for the development of that part of the proposed trail

that sits within Tongariro National Park as per Section 4.1.16.3 of the Tongariro National Park Management Plan (TNPMP) and other PCL which the trail is proposed to be developed.

This application sets out:

i. The background to the development – the need for the project, and other relevant background considerations

ii. A description of the proposal including its location and context within the surrounding environment

iii. Statutory Context – an overview of the Conservation Act requirements and relevant statutory management plan provisions

iv. Assessment of Effects – the assessment of the environmental effects, including any mitigation measures

v. Consultation – a description of the consultation and engagement undertaken

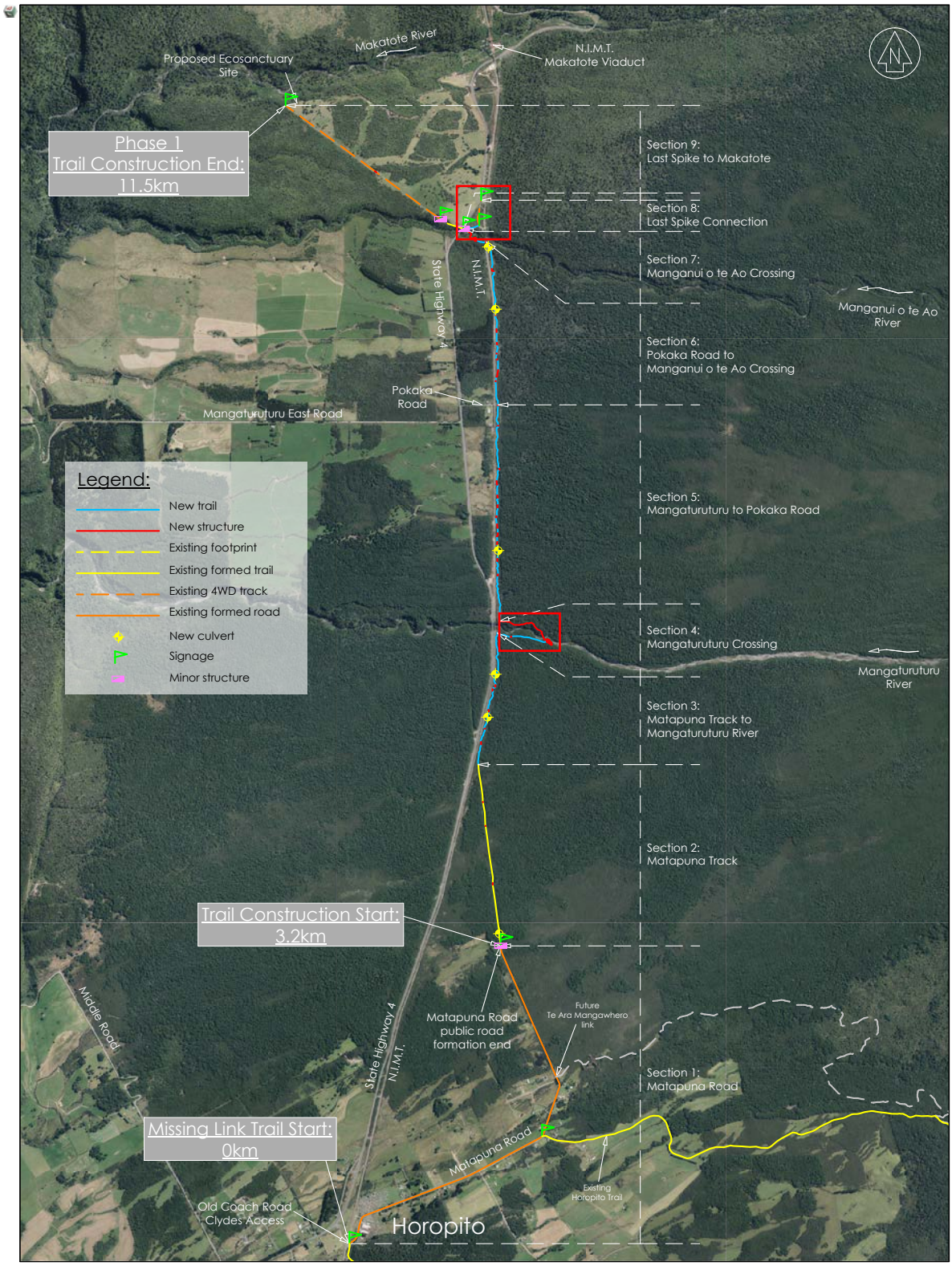


FIGURE 1 LOCATION AND ROUTE OF PROPOSED TRAILS

3 Proposal Details

The Applicants are seeking a works approval to build those parts of the trail which will be within Public Conservation Land (PCL).

The applicants are also seeking concessions to:

- Manage the trail and associated structures within PCL.
- Utilise aircraft within the PCL for the purposes of developing the trail.
- Undertake filming to record the development of the trail and promote its use when open.

3.1 Concession Timeframe

The Applicant is seeking a concession for a period of 20 years to develop and manage the proposed trail and associated structures as described. The trail and associated structures are to be owned and managed by Ruapehu District Council on behalf of the Applicants.

3.2 General Description

Extensions to the Mountains to Sea (M2C) Great Ride have been proposed by Ruapehu District Council (RDC), in conjunction with key partners including Ngāti Rangi, Uenuku and Ohakune 2000.

RDC and partners have been working with central government to enable the development of these extensions to the M2C trail. To date, this work has resulted in a partial amendment to the TNPMP enabling the consideration of the development of the trail within TNP. The parties have also secured $6.5 million from the Government (Provincial Growth Fund and New Zealand Cycle Trail Extension and Enhancement Fund) for the development of the trail. This funding has been granted based on the economic, social and health benefits associated with the proposed trail extensions.

Uenuku is taking this trail project to the next stage to enable the development of the Te Hangaruru Trail between Horopito and the Makatote Awa.

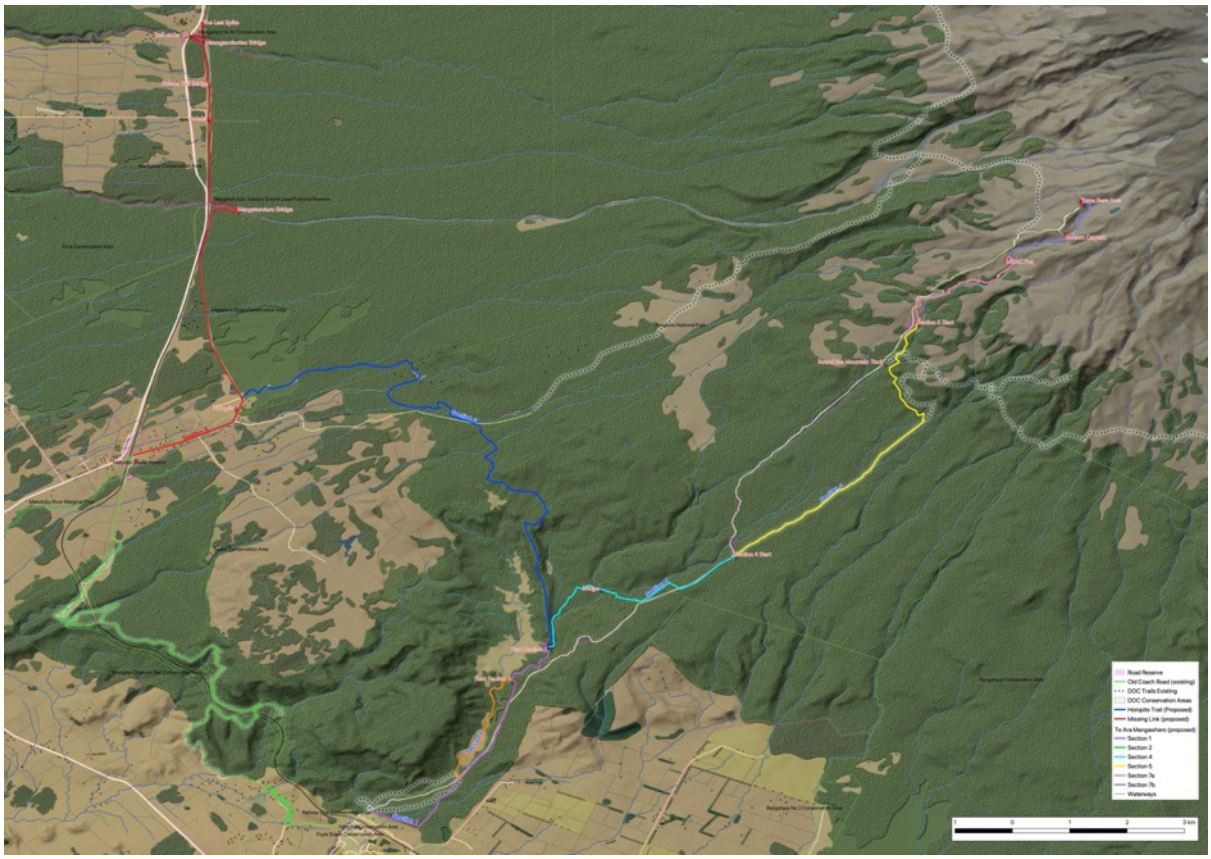
For the purposes of trail planning, the trail has been broken into three discrete sections as follows:

1. Te Ara Mangawhero is a shared use 28.2km trail located on the flanks of Mt Ruapehu, connecting Tūroa to Ohakune. The proposed grade 2–3 trail will traverse alpine, sub alpine and forested areas within the vicinity of the Tūroa Mountain Road. It will connect to the existing M2C section - 'The Old Coach Road'. This trail consists of the following sub sections:
    a. Section 1: Bennet and Punch (lower and upper)
    b. Section 2: Campground Loop
    c. Section 4: Blyth to Mangawhero
    d. Section 5: Chainshed to Old Blyth
    e. Section 7: Tūroa to Chainshed
2. Horopito Trail (Section 3)
3. Hangaruru Trail (Section 6)

These sections are shown on Figure 2.

Sections 1 - 7 of the Te Ara Mangawhero section will extend the existing M2C trail to meet the key objective of developing a single contiguous and engaging journey from Mount Ruapehu to Whanganui and the Tasman Sea. This objective will promote the Great Ride as an epic and linked journey from the upper slopes of Mount Ruapehu (located in Tongariro National Park, a dual World Heritage area) to the Whanganui River (adjoining the Whanganui National Park) and on to the Tasman Sea. It is anticipated that the development of these trails will resolve current trail legibility issues, improve trail access and differentiate it from other regional attractions through the delivery of a linked and coherent multiday ride located in iconic landscapes.

FIGURE 2 FULL MOUNTAINS TO SEA EXTENSIONS



Funding for the trail also includes a storytelling project which will facilitate local iwi to tell their stories of the important values and histories associated with the area.

The proposed extensions will:

- improve the user experience by making the wider trail easier to understand through the linking of trail gaps
- reinforce the brand by having a true trail start on Mt Ruapehu
- provide for greater marketing and economic development opportunities through the development of a more visible product close to existing communities and destinations (i.e. Tūroa, Ohakune, Horopito and National Park).

A feasibility assessment undertaken to support the 2020 PGF funding application (Appendix 2) has identified measurable benefits, including the economic benefits of out-of-region visitors using the trail, health benefits and consumer surplus benefits from local and domestic users.

The case demonstrated that the proposed trails will benefit the Ruapehu District's economy.

Ten years after the full trail extension is completed, it is forecast to attract 58,007 users per annum. Of this, 47,461 will be from outside the region including 6,548 internationals[1].

A summary of the key business case findings is shown in Figure 3.

Outcome	Regional benefits	National benefits
Users	About 7,818 locals are expected to use the trail in the year after it is completed, increasing to 10,546 by year 10. By year 5, about 35,065 New Zealanders from outside the region are expected to ride the trail, increasing to 40,913 by year 10. About 4,133 international visitors are expected to ride the trail once it is completed, increasing to 6,548 in year 10.	
Visitor expenditure	The trails are expected to generate about $2.75 million per annum in additional visitor expenditure regionally by year 10.	The proposed trails are expected to generate about $342,000 per annum in additional visitor expenditure nationally by year 10.
Construction and operational jobs	The trail is expected to generate up to 31 full time jobs over the four-year construction phase and sustain an average of 65 full time jobs each year over 10 years.	
CBA	The trail will have a net present value of $7.85 million, a benefit: cost ratio of 2.6, and an internal rate of return of 24 percent.	The trail will have a net present value of ($1.2 million), a benefit: cost ratio of 0.9, and an internal rate of return of 4 percent.
Visitor benefits	The present value of visitor spend is estimated at $12.6 million per annum.	The present value of visitor spend is estimated at $1.6 million per annum.
Health benefits	The trail is expected to contribute $0.16 million in health benefits per annum.	The trail is expected to contribute $2.2 million in health benefits per annum.
Consumer surplus	The trail is expected to contribute about $0.1 million in consumer surplus per annum.	The trail is expected to contribute about $3.7 million in consumer surplus per annum.

FIGURE 3 BUSINESS CASE SUMMARY

[1] Trail user numbers were forecast prior to the Covid-19 pandemic.

Trail development is occurring in a phased manner, with planning started for Phase 1 and Phase 3 of the trail. Phase 2 is the more sensitive part of the build and will be developed once Phase 1 has been initiated. These stages are:

1. Phase 1: Trail sections Lower Bennett and Punch and Campground (Section 1 (part) and Section 2)
2. Phase 2: Trail sections Upper Bennett and Punch, Horopito, Blyth to Mangawhero and the alpine sections.
3. Phase 3: Hangaruru Trail

<u>This application is for the development and management of those parts of the Phase 3 trail on PCL only.</u>

These sections are shown on Figure 1 in the red boxes. The length of each section of trail and its relation to PCL is shown on Figure 4.

Section ID	Description	Distance	PCL
Section 1	Matapuna Road Formed	3,211.00m	No
Section 2	Matapuna Track	1,353.00m	No
Section 3	Matapuna Track to Mangaturuturu Awa	1,056.00m	No
Section 4	Mangatuturu Awa	1,170.00m	Part
Section 5	Mangatuturu to Pokaka Road	1,578.00m	No
Section 6	Pokaka Road to Manganui-o-te Ao Awa Crossing	1,266.00m	No
Section 7	Manganui-o-te Ao Awa Crossing	265.00m	No
Section 8	Last Spike Connection	318.00m	Part
Section 9	Manganui-o-te Ao Awa to Makatote	1,606.00m	No

FIGURE 4 PHASE THREE TRAIL SECTIONS

3.3 Subject Site and Tenure

The wider proposed trail route will be located predominantly on local road reserve and rail corridor. Parts of Section 4 and 8 of the trail will be located within the Tongariro National Park and wider PCL.

The proposed trail will traverse a mix of vegetation types including Mānuka scrub, exotic grassland, podocarp forest and shrublands. The trail will also follow existing roads and farm tracks.

The proposed trails traverse a range of land tenure which is set out in Figure 5 Affected Tenure

This application relates to the described activities on Properties A, E and G.

.

Property	Status	Ownership/Management	Trail Sections

A Tongariro National Park	National Park	Crown (Department of Conservation)	Section 4
B Local Roads	Legal road	Ruapehu District Council	Sections 1, 2, 5 and 9
C Rail Corridor	Rail Corridor	Crown (Kiwirail)	Sections 2, 3, 4, 5, 6 and 7
D State Highway	Legal Road	Waka Kotahi	Section 9
E Manganui o te Ao Conservation Area	Stewardship Area	Crown (Department of Conservation)[2]	Section 8
F Whanganui Awa	River	Nga Tāngata Tiaki	Sections 2, 4 and 7
G Mangaturuturu Viaduct Gravel Local Purpose Reserve	Local Purpose Reserve	Crown (Department of Conservation)	Section 4

FIGURE 5 Affected Tenure

This application relates to the described activities on Properties A, E and G.

3.4 Permissions Required

Given the range of tenure and associated statutory management mechanisms in place, the proposal requires several statutory permissions from local and central government before it can proceed. The required permissions are as follows:

Permission and Authority	Statutory documents	Trail Sections	Activities	Description
Department of Conservation Concession	National Parks Act 1980 Conservation Act Tongariro National Park Management Plan Taupō Tongariro Conservation Management Strategy	Sections 1 - 4	Development of a shared use trail within TNP by Ruapehu District Council. Operation of the trail by Ngāti Uenuku. The trail will be owned by Ruapehu District Council. Filming of the development of the	A concession is required for third parties to develop and manage facilities on public conservation land and for use of aircraft in the development of the trail.

[2] Subject to the Deed of Settment with Uenuku Iwi

Permission and Authority	Statutory documents	Trail Sections	Activities	Description
			trail and to promote its use once open.	
Department of Conservation Major Works Approval	Department of Conservation Tongariro National Park Management Plan	Sections 1 - 4	To undertake the construction works to build the proposed trail within TNP.	A works approval is required for any physical works carried out within TNP. The nature of the works means that the application will be processed as a 'Major Works Approval' which will require public notification.
Horizons Regional Council Resource Consent – land use	Resource Management Act Horizons One Plan	Sections 1 - 4	The clearance of indigenous vegetation, undertake works around rivers and bridge construction.	Resource consent is required for the development of bridges over the Mangawhero awa and associated tributaries, clearance of indigenous vegetation and earthworks adjacent to waterways.
Ruapehu District Council Resource Consent – land use	Resource Management Act Ruapehu District Plan	Sections 1 - 9	The development of structures greater than 15m in height Development within 500m of Tongariro National Park.	Discretionary Resource consent is required for the development of the trail and associated structures.

FIGURE 6 Statutory Permissions Required

This assessment has been developed to support the permissions required from the Department only.

3.5 Details of Development

The proposal is for the development of a shared use trail and associated structures within Tongariro National Park, the Manganui o te Ao Conservation Area and the Mangaturuturu Viaduct Gravel Local

Purpose Reserve. The location of the trail is shown in **Error! Reference source not found.** with more d etail in the Construction Management Plan (Appendix 7).

The concession application is also seeking permission for the use of helicopters in the development of the trail and for filming of the trail development and promotional filming once the trail has been completed.

3.6 Trail Development

Appendix 7 is the Construction Management Plan that sets out the general conditions and monitoring requirements for all works associated with the construction of the proposed trail.

The proposed trail will be an easy, family friendly Grade 2 trail that enables a high level of access by users of a wide range of ages and abilities. As the trail is a shared use trail, its design considers dual use and dual flow of users. The design has incorporated a range of tools to facilitate safe use by people on foot and on bike.

The trail will be built 1.5m wide with an all-weather surface and where the terrain permits the trail will extend to 1.8m wide to allow easy passing and shared use. The trail design and development has been led by NZCT Accredited Master Trail Builders to ensure the development of a trail that will be built in a sustainable manner.

Design of the trail and associated outdoor structures and ongoing maintenance is to be in accordance with **SNZ HB 8630:2004 New Zealand Handbook Tracks and Outdoor Visitor Structures**, and the New Zealand cycle trail design guide https://www.mbie.govt.nz/assets/new-zealand-cycle-trail-design- guide.pdf.

This is a specification for the Department and other agencies responsible for the management of tracks and outdoor visitor structures. It provides guidance on 'track service standards' relative to visitor (user) characteristics and the type of recreational opportunity being provided, and guidance for the engineering design of structures. Many other standards relate to design and construction of various elements of outdoor structures, and these are referred to in SNZ HB 8630.

The trail will comply with the standards for a Day Visitor – Walking Track for Cyclists/Mountain-Bikers and Pedestrians.

3.6.1 Structures

In addition to the trail itself, boardwalks and signage are proposed to be developed. Lengths of boardwalks are proposed to be used over areas of wet ground or in areas of high ecological sensitivity. Signs will be placed along the trail for wayfinding, safety and storytelling (i.e., to tell the important cultural, natural and historical stories of the area) purposes. There may also be cultural features (such as pou etc) to express the cultural values inherent to the site and tāngata whenua.

The following structures are proposed to be developed on the affected PCL:

1. Manganui o te Ao Conservation Area - Wayfinding and safety signage,
2. Mangaturuturu Viaduct Gravel Local Purpose Reserve – 51 meters of board walking.

3. Tongariro National Park – 290m of board walking, cultural features and wayfinding and storytelling signage.

Information on the design of the boardwalks can be found in the Construction Management Plan (CMP) in Appendix 7. The CMP sets out key details on the trail design and development and associated structures.

The exact location and type of signage and cultural features have yet to be determined. Figure 7 shows the anticipated location of signs within TNP. Once the trail is physically developed there will be a better understanding of the nature and type of signs required. At this stage two interpretation/storytelling signs are proposed to be developed within TNP. The exact content and design of these signs has yet to be confirmed. In addition distance markers will be placed along the length of the trail including within that section within TNP. The exact location of those markers has yet to be determined. Cultural features are also likely to be established, however the exact location and design of these features have yet to be determined. The draft signage guidelines for the Mountains to Sea Trail can be read in Appendix 8. Signage and trail markers are expected to follow these guidelines.

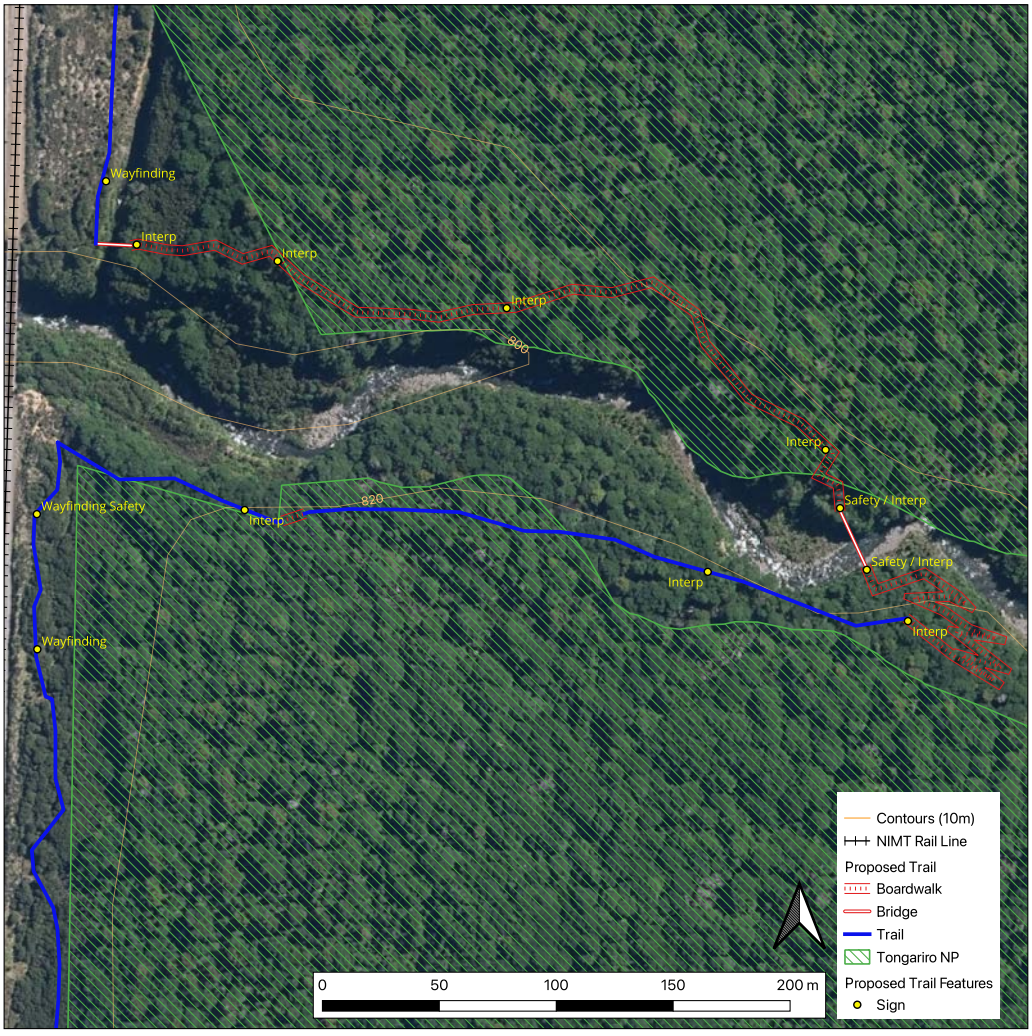


FIGURE 7 PROPOSED LOCATION OF SIGNS IN TNP

3.6.2 Use of Helicopters

Helicopters use will be to transport materials to the trail corridor with the aircraft hovering over the trail site and an underslung operation transporting materials and structures (i.e. boardwalk components and bridge construction) to the trail crew on the ground. The use of helicopters in this instance is to reduce the overall disturbance to the environment by reducing unnecessary disturbance at construction sites.

Helicopters and pilots will be used from the following companies:

- Midwest Helicopters NZ (https://www.midwesthelicopters.co.nz) using Airbus As350 B2
- Beck Helicopters (http://www.heli.co.nz) using a Bell UH1 Iroquis
- Helicopter Services Airbus AS350 B3 helicopters

Aircraft operations will be conducted in a similar manner to the Departments own operations for similar works within the Tongariro National Park.

Aircraft will not physically land on PCL.

The exact number of flights is not known as yet and will depend on matters such as weather and access to the rail corridor. Flights will be kept to the minimum required to develop the trail efficiently.

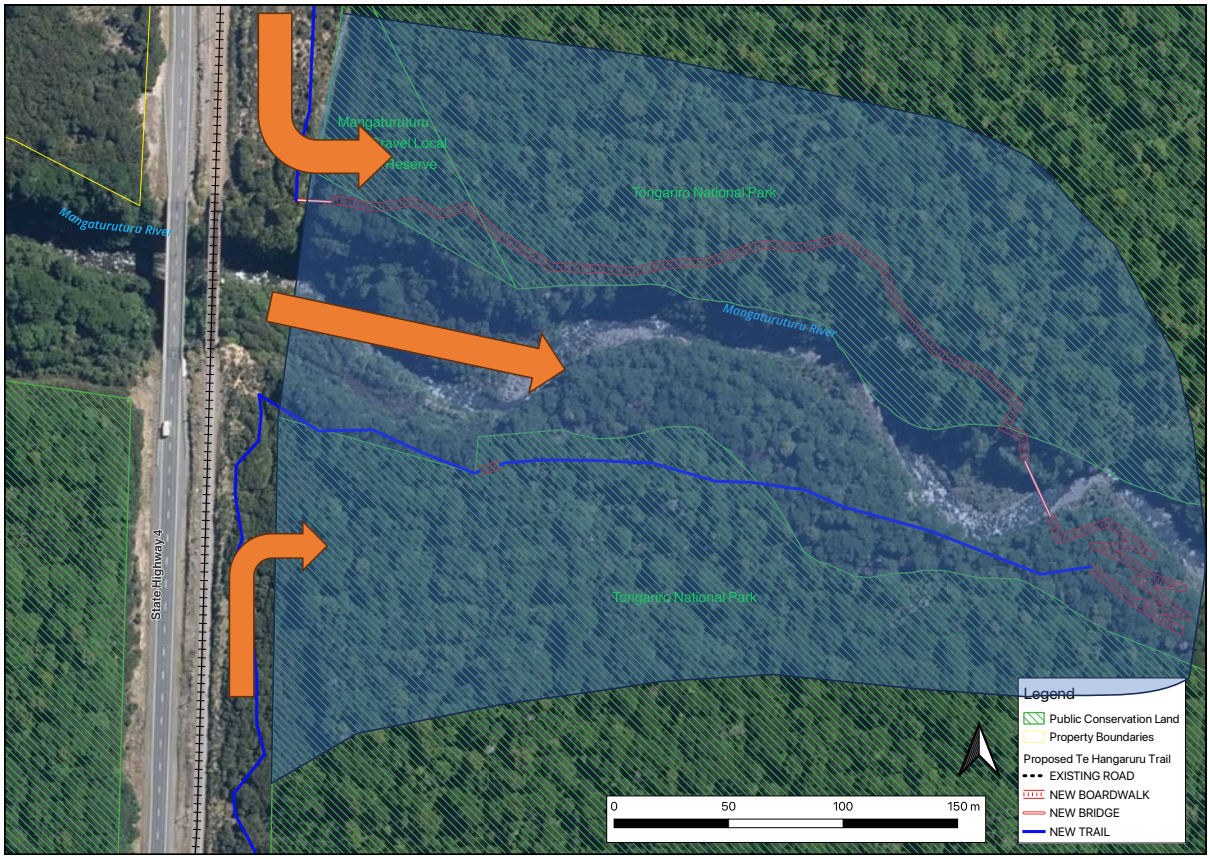


FIGURE 8 HELICOPTER OPERATIONS

The exact flight paths of each trip will depend on the nature of the work required, prevailing winds and its specific location on the proposed trail. We are hoping to use an adjacent property outside of the Park as a staging point to bring materials to the trail corridor from. The exact location of that

property has yet to be determined however materials will be flown to the trail corridor from the western edge of the Park using the shortest route posable. Aircraft will be accessing the site from the road and rail corridor as well as up the Mangaturuturu Awa.

Figure 8 shows the area (blue shaded) where aircraft are most likely to be flying over PCL to deliver materials to the trail corridor. The orange arrows illustrate the areas where aircraft are anticipated to access PCL.

It is not anticipated that aircraft will be used to construct that part of the trail on the Manganui o te Au Conservation Area.

3.6.3 Filming

The applicants would like to undertake filming of the trail development and also undertake filming to promote the use of the trail. The purpose of the filming during the development stage is to capture the story of the trails development as part of a wider process of recording the heritage of the trail. From time to time, the applicants or their representatives may wish to undertake filming on the trail for the purposes of promoting the trail to potential trail users and to provide trail users with an opportunity to purchase a memento of their trail experience. In both cases it is anticipated that filming will take place via still and video photography.

Film crews will stay on formed trails as much as possible and where it is necessary to leave formed trails they will avoid walking on sensitive habitat.

The film crew will follow the Code of Practice for Filming on Public Conservation Lands, developed by Film New Zealand and the Department of Conservation.

No drones will be used for filming on PCL.

3.7 Trail Management

Ruapehu District Council in partnership with Uenuku will manage the design and construction of the trail and will own and manage the trail during its development, until completion. The ownership of the trail and associated structures will remain with RDC.

Management and maintenance of the trail will be undertaken by Uenuku with support of RDC and the wider community. The trail development process is a key method for Uenuku to develop their trail development and management capability and capacity. The trail crew will be trained by an NZCT Accredited Master Trail Builder. Funding for trail management will come, amongst other sources, from the Ruapehu District Council Long Term Plan.

The Level of Service(LOS) for the management of the trail will be to ensure the trail meets the DOC and New Zealand Cycle Trail standards for a Grade 2 Trail. As noted above, this management will be funded through Ruapehu District rates and wider funding associated with the Mountains to Sea Trail.

Uenuku will work with RDC and the wider Mountains to Sea trail managers and owners to ensure the trail is managed and marketed to a standard that meets the New Zealand Cycle Trails and the Department's requirements.

A proactive approach to sustainable trail management will be taken. This starts with the design and build of the trail and structures. The trail will be built to be robust and resistant to key impacts that are likely to affect the trail surface and overall trail integrity. This will primarily be water management. It is important to note that the sections of trail proposed to be developed are in a relatively easy topography, meaning that water flow along the length of the trail is not anticipated to be a significant issue.

The majority of the trail is on reasonably flat country where the trail surface is to be crowned with surface slope to each side about 4%. This avoids a trenched/dished trail surface developing with use within a short timeframe. Rolling grade dips will be constructed at suitable locations to divert water off the trail and into the surrounding vegetation. Gully crossings are to be armed with local rock where water may flow due to localised heavy rainfall events.

Where the trail is to be developed across slopes, it will be sloped outwards at 4% to encourage any runoff to flow across the trail. An outward sloping trail is preferred to a crowned or inward sloping surface which could require an inside drain and use of culverts. Where run off is likely to occur, shallow swales will be placed across the trail at regular intervals to let the water cross the trail. These gully swales will be armed with local rock and will be used over culverts where possible to reduce maintenance. The finished slopes will be at an angle similar to the existing natural slopes which will result in minimal runoff.

The majority of the trail proposed on PCL is under canopy cover which will reduce the impact of direct rainfall. The native canopy cover will also significantly reduce the amount of weed growth around the trail to a negligible level. In open areas, vegetation and weed control will be undertaken on a seasonal basis.

As the route of the trail on the northern side of the Mangaturuturu awa is on damp ground and within a sensitive environment. On that basis the trail is proposed to be board walked in its entirety. A boardwalk is also proposed to be developed over an ephemeral area on the southern side of the awa.

Ongoing maintenance requirements for the boardwalks will include two-yearly checks by suitably trained inspectors and six-yearly checks by an appropriately qualified bridge engineer.

All structures on PCL are required to have an engineering design and approval to Department of Conservation standards. This includes all proposed board walks.

As the trail will form part of the Nga Haerenga Great Rides, there will be monthly feedback from the trail survey. This feedback will be assessed on a monthly basis and used to inform any maintenance works. Likewise, NZCT has quality assurance tools such as the Trail Warrant of Fitness that assesses a range of trail factors including trail surface quality. These assessments will be done regularly by a NZCT assessor and will provide additional feedback on trail management. As a Great Ride, the trail will have access to a range of additional funds. The annual Trail Manager fund provides operational costs of $45,000 (to be used across the wider M2C trail), and the Extreme Events fund provides support when sections of trail have been damaged by extreme events such as storm damage, fire, flooding or single event vandalism.

As a Great Ride, the trail will be insured under the New Zealand Cycle Trails Great Ride Insurance scheme which can be viewed HERE.

Additional information about these funds can be found here: https://www.mbie.govt.nz/immigration-and-tourism/tourism/tourism-funding/nga-haerenga-the-new-zealand-cycle-trail/nzct-funding/ .

Additional information about trail development and maintenance can be found in the Construction Management Plan in Appendix 7.

3.8 Ecological Enhancement

The trail development and management by the applicants will enable the iwi and the local communities to better fulfil their role as kaitiakitanga. This will include their pest trapping and weed control. Enabling access to this area means there is greater opportunity for active conservation initiatives by the Applicants and the wider community. A specific focus of these initiatives will be around waterways to ensure that whio have more protection from predators.

4 History of Proposal and Other Sites Considered

In 2016, a partial review of the TNPMP was initiated which involved a public consultation process under Sections 46 and 47 of the National Parks Act 1980. This review included a submission process which was advertised nationwide with public hearings held in Ohakune in 2017. The review enabled the development of those sections of Te Hangaruru that fall within the Tongariro National Park. The partial review was approved by the New Zealand Conservation Authority on 23 April 2018.

This process represented an acceptance of the appropriateness of these trails by the Department if they are developed and managed in accordance with the revised TNPMP.

The proposed trail is identified as the Mangaturuturu Link track on Map 10 of the Addendum to the Tongariro National Park Management Plan 2006-2016 as required by the Partial Review 2018.

Further feasibility and business case work was undertaken for the proposed trail to secure additional central government funding. These assessments considered the trail within the context of the amended management plan and additional on ground assessments undertaken on the Hangaruru section of the trail. A copy of this most recent feasibility assessment can be found in Appendix 2.

In 2022 the proposed trail was walked by NZCT Master Trail Builders Chad Hooten and Peter Macfarlane. They were accompanied by engineers and surveyors from Cheal Consultants based in Ohakune.

4.1.1 Te Hangaruru Section Four – Mangaturuturu

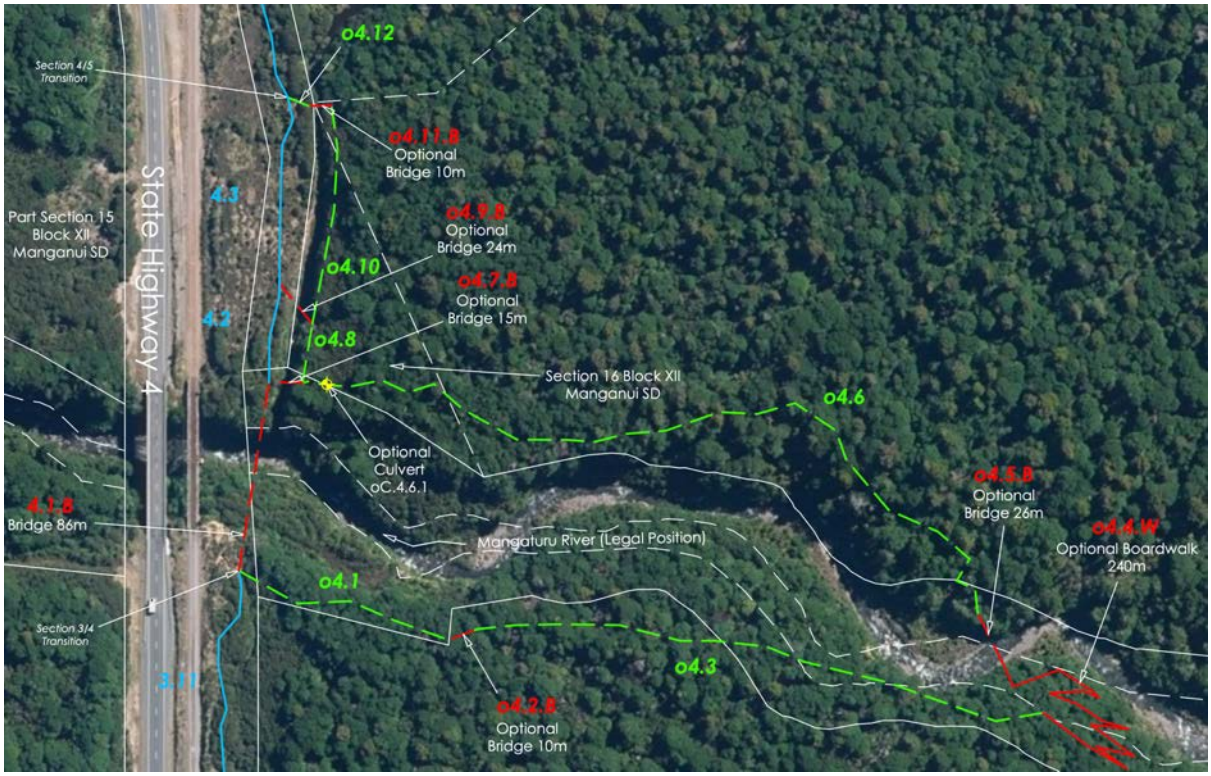
Key bridge sites were also inspected by bridging engineers from Abseil Access. As it relates to Section 4 several trail and bridge alignment options were identified as shown on Figure 9.

These included a bridge adjacent to the existing rail line to avoid the trail within the Tongariro National Park and various crossings of the tributary north of the Mangaturuturu Awa.

The route options were inspected by ecologists and representatives from Uenuku. When considering the Mangaturuturu bridge options there was strong direction from Uenuku for the trail to follow the original planned route up the Mangaturuturu. The reason was that this trail would better showcase the awa and the environment around it. This would also add greater opportunities to tell some of the important stories associated with the awa and increase awareness and understanding by manuhiri of the values of the awa. In addition, it was seen that having a bridge near the road and rail line would increase the risk of illegal use of the rail corridor and the safety risks associated with that. This route is also the same as what is indicated in the TNPMP.

On respect to the options north of the awa, the more direct route was preferred. This was to be consistent with the route set out in the TNPMP and reduce disturbance of the riparian area of the tributary. It would also remove the need to locate an additional structure (bridge) within TNP. This option was also supported by Uenuku.

FIGURE 9 SECTION FOUR BRIDGE AND ROUTE OPTIONS



A site inspection was undertaken on 19 October 2022 with local department staff to discuss the proposed route of the trail and talk through the options above.

Once the route was confirmed the detailed trail, structure and bridge design was carried out.

4.1.2 Te Hangaruru Section Eight – Last Spike

Section Eight of the proposed trail links the main trail to the Last Spike carpark adjacent to State Highway 4. The Last Spike is an important location as it is an important rail heritage site, a suitable location to act as a trail head and provides an option for an accessible easy day trip for trail users.

The Last Spike also provides an important access point to a central part of the trail. North of this point the trail heads to the site of the proposed Pokaka Sanctuary and Phase Two of the trail will extend over the Makatote Awa and north to National Park Village.

Several routes were looked at to access the Last Spike, including crossing the Maunganui o te Ao on the eastern side of the rail bridge and crossing over or under the rail lines to connect to the car park. The current route was chosen as it presented the most direct and safest (i.e. no rail crossings) link between the Last Spike and the main trail. The presence of the existing 4wd track also means that there is existing infrastructure that can be used to form part of the trail. This route also appealed to Uenuku as it crossed whenua (Manganui o te Ao Conservation Area) which has been identified as a deferred selection property as part of the Uenuku Deed of Settlement.

FIGURE 10 EXISTING 4WD TRACK IN THE MANGANUI O TE AO CONSERVATION AREA

5 Statutory Assessment

The following statutory assessment considers the requirements under the Conservation Act 1987 and the National Parks Act 1980 which are relevant to this proposal and the permissions sought.

The following statutory documents are considered directly relevant to the concession application:

- Te Awa Tupua (Whanganui River Claims Settlement) Act 2017
- National Parks Act 1980 (the Act);
- Conservation Act 1987
- Tongariro National Park Bylaws 1981;
- General Policy for National Parks 2005;
- Conservation General Policy 2005;
- Tongariro / Taupo Conservation Management Strategy 2002-2012 (CMS);
- Tongariro National Parks Management Plan 2006-2016 (TNPMP);
- Tongariro National Park Amendment 2018 (Amendment).

5.1 Te Awa Tupua (Whanganui River Claims Settlement) Act 2017

The Te Awa Tupua Act recognises the special relationship between the Whanganui River and Whanganui iwi. It also provided for the river's long-term protection and restoration by making it a person in the eyes of the law. Section 13 of the Act sets out the Tupu te Kawa which are the intrinsic values that represent the essence of Te Awa Tupua.

These values are:

> ***Ko Te Kawa Tuatahi***
>
> *(a) Ko te Awa te mātāpuna o te ora: the River is the source of spiritual and physical sustenance:*
>
> *Te Awa Tupua is a spiritual and physical entity that supports and sustains both the life and natural resources within the Whanganui River and the health and well-being of the iwi, hapū, and other communities of the River.*
>
> ***Ko Te Kawa Tuarua***
>
> *(b) E rere kau mai i te Awa nui mai i te Kahui Maunga ki Tangaroa: the great River flows from the mountains to the sea:*
>
> *Te Awa Tupua is an indivisible and living whole from the mountains to the sea, incorporating the Whanganui River and all of its physical and metaphysical elements.*
>
> ***Ko Te Kawa Tuatoru***
>
> *(c) Ko au te Awa, ko te Awa ko au: I am the River and the River is me:*

The iwi and hapū of the Whanganui River have an inalienable connection with, and responsibility to, Te Awa Tupua and its health and well-being.

Ko Te Kawa Tuawhā

(d) Ngā manga iti, ngā manga nui e honohono kau ana, ka tupu hei Awa Tupua: the small and large streams that flow into one another form one River:

Te Awa Tupua is a singular entity comprised of many elements and communities, working collaboratively for the common purpose of the health and well-being of Te Awa Tupua.

Iwi at place will also have additional values that reflect their relationship with the awa.

On review, the proposed development is consistent with these values. This view is formed based on the following points:

- The proposed development is undertaken in partnership with Uenuku. This includes the design, development and management of the trail and associated structures. Uenuku have been involved in the design process which has included consideration of the potential impacts of the development on the awa and its values to ensure its ongoing health and wellbeing. The trail development and management will continue to be guided by Uenuku *(Ko Te Kawa Tuatoru).*
- Bridge designs and construction methodology has been developed to protect the awa, this has included ensuring that there will be no disturbance of the bed or banks and putting in place sediment management plans to mitigate the risk of sedimentation of the awa (*Ko Te Kawa Tuatahi).*
- Utmost care will be taken on all of the three crossings over waterways. Some of these waterways are minor however crossing design and development will be undertaken to a high standard. *(Ko Te Kawa Tuawha and Ko Te Kawa Tuarua).*
- The trail development will support additional conservation actions to occur along the route of the trail. This includes plant and animal pest management. These activities will improve the awa and its wider environment (*Ko Te Kawa Tuarua)*

Representatives from Uenuku have provided input into the design of the trail and reviewed key documents such as the construction management plans for the bridges etc.

5.2 National Parks Act 1980 and General Policy for National Parks 2005

Approximately 350m of the proposed trail will be within the Tongariro National Park.

The purposes of national parks, as set out at Section 4 of the Act, are the preservation in perpetuity for their intrinsic worth and for the benefit, use and enjoyment of the public areas of New Zealand that contain scenery of such distinctive quality, ecological system, or natural features so beautiful, unique or scientifically important that their preservation is in the national interest[3].

The principles for national park management are set out in Sections 4, 5 and 5A of the Act and Section 6 of the Conservation Act 1987. There is a clear hierarchy of considerations for decision makers, with

[3] Derived from Section 4(1) National Parks Act 1980

the primary focus of the legislation being preservation and protection of natural and historic values in their natural state: while providing for, or fostering, recreation and public access for the benefit of users, from their interaction with the underlying natural resources.

The 2017/18 partial review of the Plan was guided by the National Parks Act and the general Policy for National Parks. The proposed amendment was considered consistent with the higher order statutory framework on the basis the activity of mountain biking is considered part of the valid recreation opportunity spectrum within the national park, and the infrastructure development associated with it maintains or enhances park values. The policy approach taken ensures a precautionary, staged approach to track development, disciplined monitoring and review of development and use, and formalised reporting and feedback to the governance entity for Tongariro National Park. The cultural values of Tongariro National Park will be sustained through the involvement in the trail by Uenuku.

On this basis, the principle of establishing a shared use trail along the alignment set out in Map 10 of the Amendment has been confirmed against national level statutory documents. This application therefore considers the detail of the proposed trail route and its construction and associated effects against the relevant provisions of the Plan and the CMS.

5.3 Tongariro National Park Management Plan

Tongariro National Park is a nationally significant area with Dual World Heritage status for cultural and geological reasons. The Park is a major tourist attraction and has sites such as the Tongariro Crossing which have high international use for outdoor recreation. The Park is nationally important for skiing with three ski areas, two of them of international standard. Other recreation opportunities include ski mountaineering, climbing, snow caving, nature study, photography, hunting and tramping.

The objective of the Tongariro National Park Management Plan in respect to recreation management is to facilitate public benefit, use and enjoyment of the Park by providing for a variety of low-impact recreational activities, where this is consistent with the primary objective of protecting the natural character of the Park.

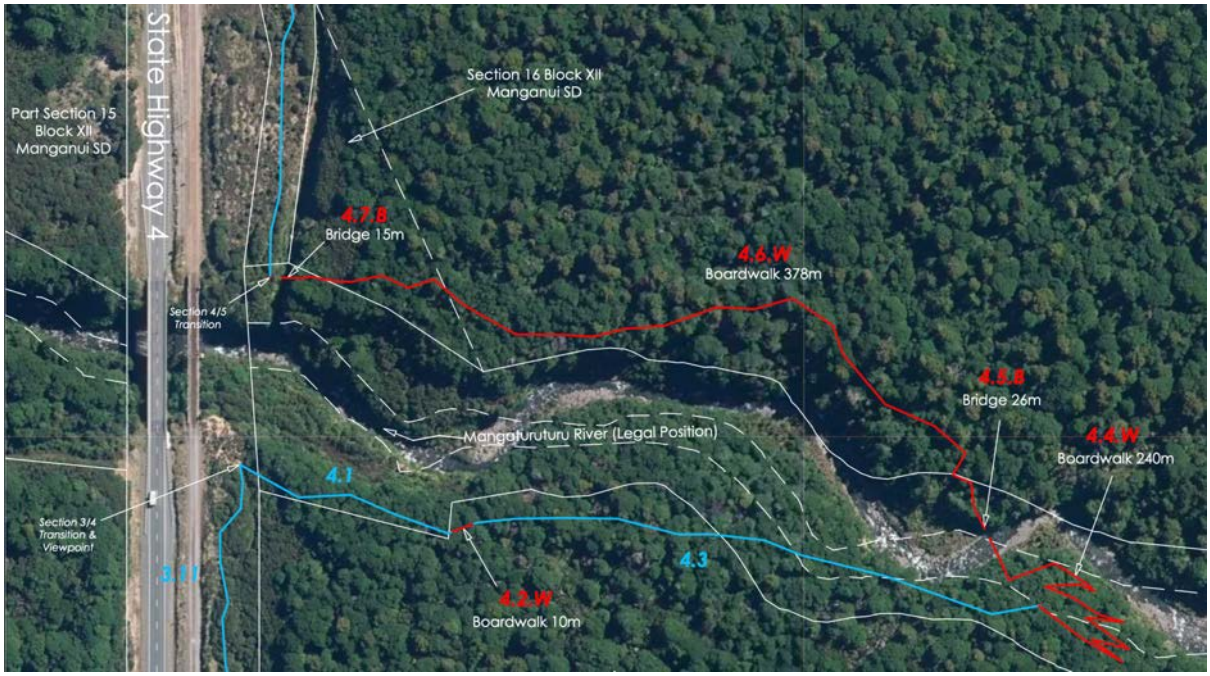
The Plan (Section 3.1) identifies eleven principles that reflect the core values of the Park as follows:

- *To protect Tongariro National Park in its natural state in perpetuity;*
- *To manage Tongariro National Park consistent with conservation legislation and General Policy;*
- *To protect the taonga – the peaks of Tongariro National Park;*
- *To ensure World Heritage obligations are met and given effect to;*
- *To give effects to the principles of the Treaty of Waitangi;*
- *To provide for co-operative conservation management;*
- *To provide for public enjoyment of natural and cultural heritage;*
- *To protect the ancestral, historical, archaeological and cultural heritage landscape of Tongariro National Park;*
- *To reflect the values of the park partners in management;*

- *To minimise infrastructure to that <u>essential</u> to provide for visitors' benefit, use and enjoyment of the park [emphasis added]; and*
- *To honour existing legal agreements.*

The key management policies and philosophies highlighted within the Plan are hierarchical in nature. They give effect to the requirements of the National Parks Act 1980. The protection ethic inherent in the Plan principles cannot be derogated from in decision making. While both documents highlight fostering recreation and essential infrastructure for visitor use and enjoyment, these things occur in the context of the overarching protection requirement.

FIGURE 11 PROPOSED TRAIL WITHIN TONGARIRO NATIONAL PARK



The Plan was amended in 2018 to specifically provide for the development of a shared use trail along the route identified in map 10 of the amendment. That route is the same as set out in this application. The amendment established specific direction in the Plan on the nature of the trail, its development, use and management. On this basis the development and management of the proposed trail has been predicated by the partial amendment of the Plan and as such the following assumptions are made:

- The concept of the trail being developed and managed by a third party is accepted, albeit in a manner in line with relevant plan policies relating to how this is to be done.
- Provisions in Section 4.1.1 of the TNPMP relating to limiting concessionaire infrastructure to amenities areas etc and whether activities could be conducted outside of the Park have been addressed through the partial amendment and do not need to be 'argued' through the trail concession.
- The concept of locating a shared use trail in the Park and people being able to ride bikes (including E-bikes) on it is has been agreed in principle.

These points do not mean that the trail is to be developed on a permitted basis, as the plan sets out the expectations around the development and management of the trail including ensuring that it does not adversely affect the important values of the Park.

A detailed assessment of the proposed trail development and its management against the relevant provisions of the Plan is set out in Appendix 3. This assessment is undertaken in a manner cognisant of the three assumptions set out above. Figure 11 shows the final route of the proposed trail within the Park. While other route options were considered (as set out in Section 4), the route aligning with that shown in the TNPMP was chosen as the final alignment.

The following assessment is of those parts of the Plan that are considered to be particularly relevant to the proposed development.

5.3.1 Plan Section 4.3.2.4 Tracks

The amendment resulted in a number of changes to Section 4.3.2.4 of the Plan. Foremost of these changes was the addition of the new objective C as follows:

To enable family-friendly mountain bike recreation opportunities where they cannot be more appropriately located outside of the national park and where they are compatible with the protection of the cultural and natural values of the park and the enjoyment of it by other recreation users.

The proposed trail is to be developed as a shared trail at a grade generally consistent with the Department's standard for Grade 2 cycle trails. This is an easy, family friendly grade that enables a high level of access by users of a wide range of ages and abilities. The detailed trail planning and design has been informed by ecological, visual and cultural assessments to ensure the trail will be compatible with the natural values of the Park. As a shared use trail, the design of the trail has been carried out to manage use of the trail by walkers and bikers and ensure their safe and enjoyable use.

Policy 4.3.2.4.4 was added into the Plan through the Amendment and requires the following:

Allow for the development and operation of shared-use of the Waitonga Falls- Blyth Track, Old Coach Road Loop Track, and Maungatururu Link Track, where:

> *a) the protection of visitor safety and enjoyment is provided for;*
>
> *b) departmental standards for Grade 2 (easy) cycle trails or equivalents are met; and*
>
> *c) the Department has sought advice from the Tongariro/Taupo Conservation Board with respect to route selection, track development and environmental impact assessment.*

Policy 4.3.2.4.6 requires that a and b should be complied with when developing the trail.

This application is for the section referred to in Policy 4.3.2.4.4 as the *Maungatururu Link Track*. As noted above, the proposed trail will be an easy, family friendly grade that enables a high level of access by users of a wide range of ages and abilities. As the trail is a shared use trail, its design considers dual use and also dual flow of users. The design has incorporated a range of tools to facilitate safe use by people on foot and on bike. These include:

1. The trail will be built 1.8m wide where the terrain permits to allow easy passing and shared use.
2. Boardwalk sections should be built to a minimum 1.2m wide.
3. Grade reversals will be used often to manage rider speed on longer straight sections of trail.
4. Long straight sections will be minimised to reduce rider speed.
5. Corners will be, where possible, open with good sightlines to ensure that all users have maximum visibility of the trail and other users.
6. The grade 2 trail means that it does not passively promote high speed use by riders.

The proposed trail is designed to meet Departmental Grade 2 Standards.

Policy 4.3.2.4.10 considers opportunities for parties other than the Department to develop the tracks and for them to be constructed, maintained and managed under a concession or management agreement. Accordingly, the tracks are proposed to be developed and managed by Ruapehu District Council and Uenuku under a concession from the Department.
As per Policy 4.3.2.4.11, independent mountain biking and e-biking will be allowed free of charge on the proposed trails.

Policy 4.3.2.4.12 sets out a number of priorities for the trail as follows:

> a) ensure the protection of visitor safety and enjoyment;
>
> b) promote awareness of park values including values of significance to tangata whenua and how to avoid adverse effects on these;
>
> c) promote awareness of desired behaviours when using a shared-use track to protect the experiences of, and avoid creating hazards for, others;
>
> d) meet departmental standards for Grade2 (easy) cycle trails or equivalents; and
>
> e) address the transfer of infrastructure assets, restoration of developed sites to original state, or reassignment of management functions upon expiry of the concession or management agreement.

Matters a, c and d are discussed above.

The trail development project has also included planning for storytelling and interpretation around the important values associated with the Park. The storytelling component will be developed as part of a later stage in the overall project. Involvement by Uenuku in the development and management of the trail means that consideration of these values will be an intrinsic part of the trail development and management process.

In respect to the transfer of infrastructure and assets, the trail infrastructure and associated assets will be owned by RDC. While the concession application is for a period of 20 years, it is not anticipated that this will be the life of the trail and associated assets. Like existing trails in the Park, the proposed

trail will have a greater lifetime than the initial term sought via the concession. On that basis restoration is not anticipated but, given the nature of the development, the trail could be restored naturally if use and maintenance of the trail is stopped. Structures, such as bridges, boardwalks and signage, are discrete items that can be deconstructed and removed from the environment without creating wider effects. It is also important to note that as tāngata whenua, Uenuku have a permanent relationship with the land.

Policy 4.3.2.4.13 sets out the following matters which the Department should do on receipt of a concession application for the trail development:

a) require consideration of the policies in *Section 4.4.1 Concessions General*;
b) seek advice from the Tongariro/Taupo Conservation Board;
c) require a project plan that demonstrates the sustainable operation of the proposed mountain bike tracks over the long term; and
d) require a full environmental impact assessment undertaken by appropriately qualified specialists.

Section 4.4 of the TNPMP contains a comprehensive set of objectives and policies relating to concessions within the Tongariro National Park. Section 4.4 asks several key questions that each concession application will need to respond to. These questions are discussed in more detail in Appendix 3. In summary, the concession application meets the requirements in Section 4.4.

Discussion on the management of the proposed trail by Uenuku and RDC is contained in Section 3.7 of this report.

As part of the trail planning process, an ecological and cultural assessment was undertaken for the trail. The ecological assessment can be found in Appendix 5 of this report. The cultural assessment was undertaken directly by Uenuku representatives on the basis on a field assessment and ongoing involvement in the design of the trail and associated assessments. These assessments have formed an integral part of the wider environmental impact assessment.

Policy 4.3.2.4.14 directs that the development of tracks should be undertaken on a staged basis as follows: (1) Old Coach Road Loop Track, (2) Maungaturuturu Link Track, (3) Waitonga Falls-Blyth Track and (4) Turoa-Waitonga Falls Track.
The trails that are proposed to be developed through this application is the Maungaturuturu Link Track. Applications for the development of the Old Coach Road Loop Track and the lower section of the Waitonga Falls – Blyth Track have been issued by the Department to Ngāti Rangi.
It is understood that the intent of this policy is to allow the Department to understand the effects of the development of the trail lower down the mountain before it is developed in more sensitive alpine and sub alpine areas. The proposed Hangaruru trail is to be developed at a lower altitude than those sections of the Te Ara Mangawhero where permissions have been lodged. This section is also discrete from the wider trail and only intrudes on a small section of TNP. The area which the trail is being proposed is also ecologically distinct to that which the Te Ara Mangawhero is proposed.

5.3.2 Plan Section 4.1.2 He Kaupapa Rangatira

He Kaupapa Rangatira is the principal means by which the Treaty principles and objectives will be implemented and achieved in the Park. It is a practical and pragmatic expression of the relationship between local iwi and the Department. This section is relevant to this application as the Applicant includes Uenuku. Of specific relevance are the following Objectives in 4.1.2:

1. 4.1.2.2.a To recognise and actively promote the exercise by iwi of tino rangatiratanga over their land and resources, and taonga of significance to them.
2. 4.1.2.2.b To identify with iwi opportunities for them to exercise an effective degree of control over traditional resources and taonga that are administered by the department, where this is not inconsistent with legislation. Note: "An effective degree of control" may vary from full authority at one end of the spectrum to a right to be consulted at the other end.
3. 4.1.2.5.a To recognise and actively promote the exercise of kaitiakitanga by iwi in respect of their land, including resources and taonga of significance to them and under the control of the department.
4. 4.1.2.5.b To facilitate the exercise of kaitiakitanga by iwi in respect of traditional resources and taonga of significance to them where these are administered by the department.
5. 4.1.2.6.a To identify with iwi the means to provide opportunities for partnership and participation in conservation management, particularly in respect of traditional land, resources, and taonga administered by the department.
6. 4.1.2.6.b To develop an active relationship of co-operation, utmost good faith, and mutual respect between the department and iwi and to reflect the importance and quality of that relationship in the culture of the department and all of its operations.

If granted, the concession will be the second concession in TNP held by iwi for the development and management of a physical asset in the Park. Currently there are skifields, motels etc owned and operated by clubs and companies, however nothing owned by iwi. With Uenuku working with Ruapehu District Council, managing the trail on the slopes of Ruapehu Maunga, a significant opportunity would be provided for the iwi to exercise kaitiakitanga and an effective degree of control of a key asset within the Park. This opportunity 'provided' to iwi by the Department would be a practical and pragmatic expression of the important relationship between iwi and the Maunga.

5.3.3 4.1.16 Works Approvals

All works undertaken within the Park, beyond basic maintenance, require approval by the Department as land administrator (a 'works approval'). The intention of that approval is to allow the Department to consider works at a broad strategic level, to consider their cumulative effects over time, and to consider the specific effects of the proposal in relation to the values of the Park.

This application is a dual works approval and concession application. This allows the Department to consider the effects of the development of the trail and its ongoing management by Uenuku. As the proposed physical works result in permanent infrastructure over 100m^2 and are outside of the amenities area then the approval needs to be considered as a 'major' application as per policy

4.1.16.3. As the application is of a scale that necessitates the development of an EIA, it will have to be notified.

Dual notification of the concession and works approval is requested in this instance to provide for a more efficient process for the Applicant, the Department and those third parties who may wish to submit on the application.

5.3.4 4.3.2.12 Mountain Biking

Section 4.3.2.12 of the Plan was amended through the partial review process. These amendments focused on enabling the use of the proposed trails by people on bikes, and concession activities relating to guided mountain biking on specified trails within the Park.

This application does not extend to wider concessions, however it is important to note that the application and works approval is for the development of a trail that will be used by people on bikes. This has informed the detailed design and route of the trails as lodged.

5.4 Tongariro-Taupō Conservation Management Strategy

The proposed trails are located within the Tongariro–Taupō CMS area. The 2002–2012 Tongariro-Taupō Conservation Management Strategy (TTCMS) covers the Tongariro National Park and surrounding area. As well as traversing parts of the TNP the proposed trail will also cross three parcels of PCL which are not within the park. These areas are the Mangaturuturu Viaduct Gravel Local Purpose Reserve (see Figure 13) and the Manganui o te Ao Conservation Area (see Figure 12).

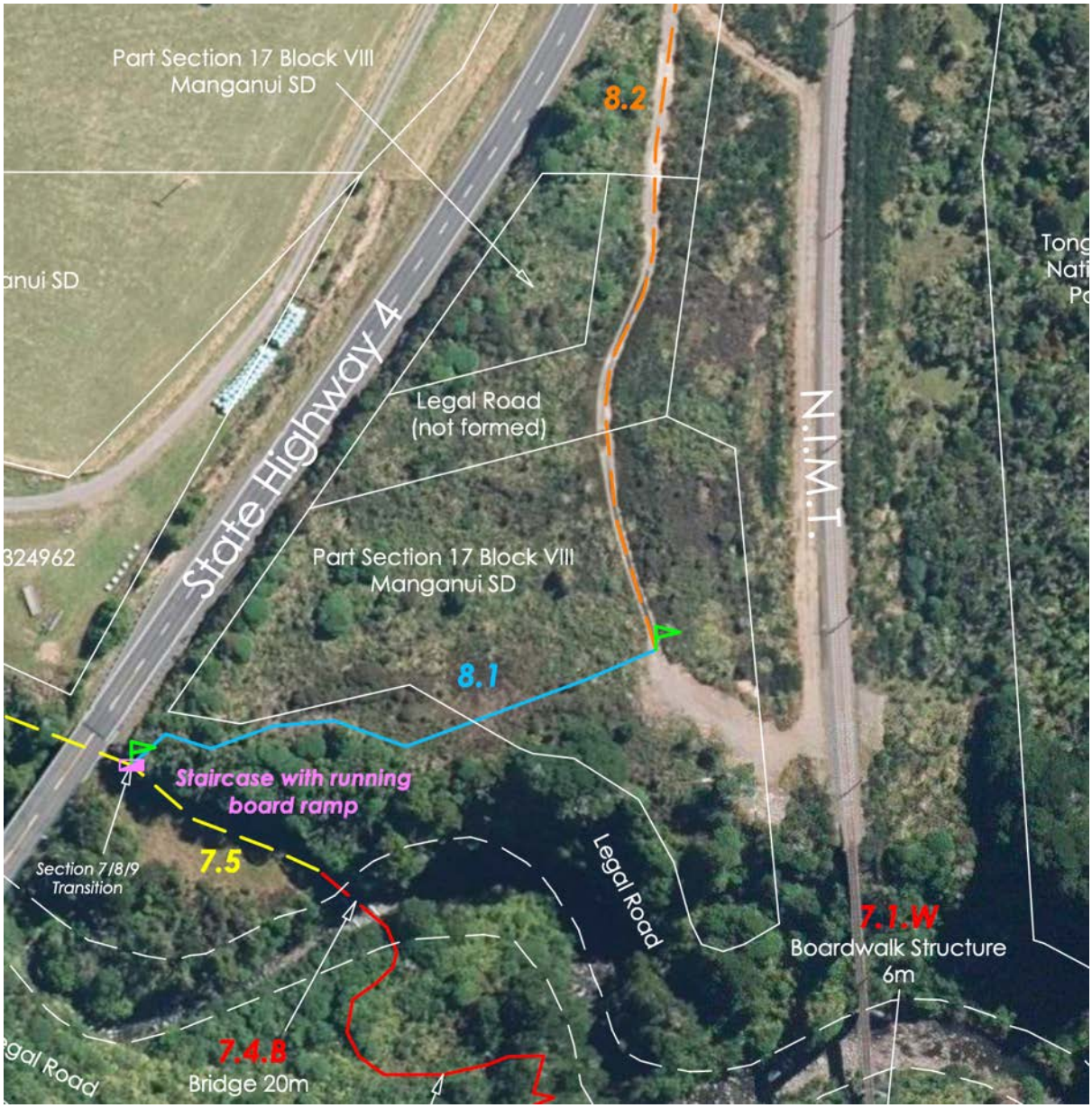
Section 2.1.2 of the TTCMS contains six key principles as follows:

- *Protection and enhancement of the natural environment;*
- *Protection of historic resources managed by the Department;*
- *Development of an effective conservation partnership with tāngata whenua;*
- *<u>Fostering recreation</u> use of public conservation land [emphasis added];*
- *Limiting non-recreation commercial use of public conservation land; and*
- *Enhancing advocacy outcomes and community relations.*

While those CMS provisions which are directly relevant to the proposed development are assessed in Appendix 4, an assessment of the application of 3.5.2.4 is set out below given its particular relevance to the development of the proposed trail and its anticipated use by bikes.

3.5.2.4 of the TTCMS contains an objective and associated polices relating to Mountain Biking. In this case we are considering mountain biking as all off-road biking. The preamble to this section notes that mountain biking has been acknowledged as a legitimate recreational use of conservation land where it is consistent with the protection of natural and historic values and conflict with visitor groups can be managed. It also notes that a range of undeveloped opportunities exists for mountain biking on and off public conservation land where natural resources are not under threat and visitor conflict is unlikely.

FIGURE 12 PROPOSED TRAIL AND THE MANGANUI O TE AO CONSERVATION AREA



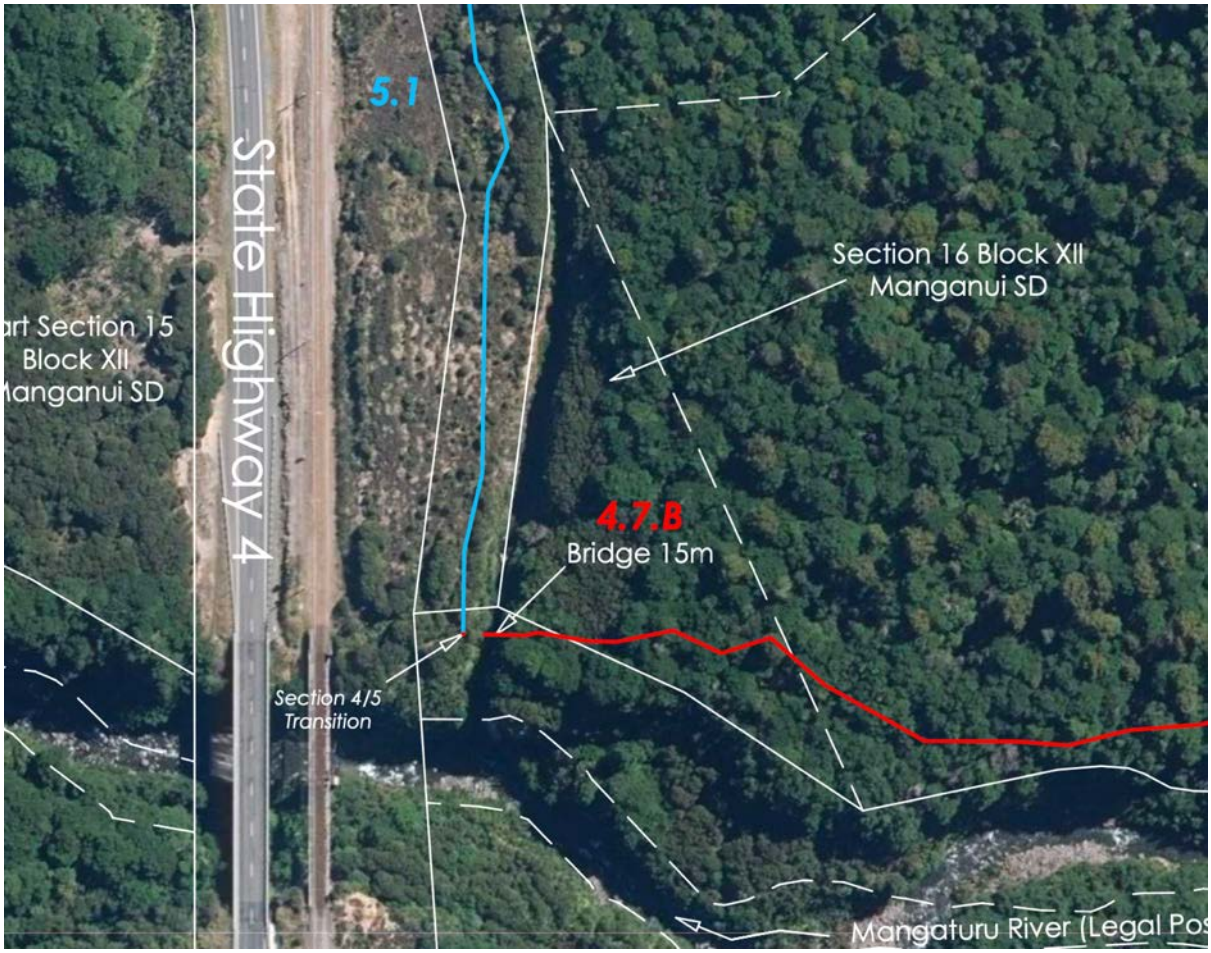
The provisions in 3.5.2.4 of the TTCMS **identify** where the use of mountain bikes are allowed and provide a framework for their consideration and any conditions of use.

The objective in 3.5.2.4 is

To provide mountain bike opportunities on public conservation land where neither natural and historic values nor the experience of other visitors are compromised.

The proposed trail will provide biking opportunities within PCL. Assessments have identified that neither natural or historic vales will be compromised. Apart from the four-wheel drive track between the Last Spike and the Maunganui o te Ao awa, there is currently no visitor access to this part of the PCL. On this basis it is considered that the experience of other visitors will not be compromised. The objective requires an assessment of the natural, historic and recreational values for any sites that are being considered for mountain biking opportunities. These assessments can be found within this report.

FIGURE 13 MANGATURUTURU VIADUCT GRAVEL LOCAL PURPOSE RESERVE



Policy 3.5.2.4.a directs that mountain bike use will not be permitted off formed and maintained roads and other tracks specified in the TNPMP. As noted above the proposed trail within the Park is on locations identified within the TNPMP. Map 10 in the Plan addendum also appears to show the Mangaturuturu link connecting to the Rail Corridor by crossing the Mangaturuturu Viaduct Gravel Local Purpose Reserve.

Policy 3.5.2.4.b requires monitoring of the impacts of physical environment and visitor experience. The use of bikes will be limited to the formed trail. The proposed trail and its effects are discussed in the wider report, however it is considered that the environmental effects of the proposed trail will be less than minor. The effects on visitor experience will be positive by virtue of creating a new recreational asset. There are no existing users of the affected part of PCL however use of the trail will be monitored through the NZCT trail survey process.

Policy 3.5.2.4.c requires use of national departmental guidelines for mountain bikes. To the best of our knowledge, this policy refers to the 2020 Department of Conservation Cycle Track Service Standards. The policy requires that any existing and new trails are consistent with these standards to ensure that the trail and associated trail structures will be safe and fit for purpose. This is an important part of the trail design process whereby all trails must be of a consistent grade and design to maximise the enjoyment and safety of users. In this instance, it is anticipated that the trails will be

Grade 2 – Easy, which also roughly aligns with the New Zealand Cycle Trails Grade 2 standard for off road trails.

Policy 3.5.2.4.d requires that Areas and specific tracks designated for mountain bike use and any controls on their use will be well publicised in any relevant material produced by the department, on road end information boards and at appropriate track ends. The trail as part of the Mountains to the Sea trail will be promoted by the Department and there will be signage at key parts of the trail including at the Matapuna Road end and the Last Spike carpark.

Policy 3.5.2.4.g states that biking will continue to be permitted on the tracks listed in Appendix 5 of the CMS. The proposed track is not identified in Appendix 5 however the policy does not specifically exclude the use of bikes elsewhere on PCL. The proposed trails in question which are proposed to be developed on PCL outside of the TNP are not on tracks listed in Appendix 5 of the CMS nor do they restrict the ability of those trails listed to continue to be used for biking.

Overall, in considering the assessment above and that contained within Appendix 4 of this report, the proposed trail is consistent with the TTCMS and the statutory purposes for which the place is held.

5.5 Statutory Assessment Conservation Summary

The key management policies and philosophies highlighted within the CMS and Plan are hierarchical in nature. They give effect to the requirements of the Conservation and National Parks Acts. The protection ethic inherent in the CMS and Plan principles cannot be derogated from in decision making. While both documents highlight fostering recreation and essential infrastructure for visitor use and enjoyment, these things occur in the context of the overarching protection requirement.

The application has been assessed against the relevant provisions of both of these plans. This assessment is set out in Appendix 3 and Appendix 4.

The project proposal is considered consistent with this framework on the basis the activity of mountain biking is considered part of the valid recreation opportunity spectrum within the national park, and the infrastructure development associated with it maintains or enhances park values. This has been confirmed through the amendment to the plan that specifically enabled these activities to occur in the location proposed through this application.

The proposed development is consistent with the policy approach set out in the Plan and CMS and ensures a precautionary, staged approach to track development.

The cultural values of Tongariro National Park have been considered through the cultural assessment, and overall it is considered that these values will be sustained and enhanced through the Applicant, Uenuku, being more active in the park as an asset manager.

6 Consideration of Other Relevant Matters

The following are relevant to the determination of the appropriateness of the proposed development.

6.1 Other Strategic Documents

The proposed trail has been recognised through the Accelerate 25 Growth Prosperous Manawatu and Whanganui document and also the 2017 Ruapehu Regional Visitor Development Plan. In both instances the proposed trails have been identified as important initiatives for the region.

The Manawatū Whanganui Economic Action Plan (2016) identified tourism as the critical Ruapehu growth opportunity. Ruapehu is a destination with the natural 'greater outdoors' and nature-based resources, landscapes and assets sought by visitors. The location has good proximity to over three million New Zealanders and is favoured by many New Zealanders as a holiday location of choice, especially for those who are interested in outdoor activities. Ruapehu is also close to the international gateways of Auckland and Wellington Airports.

The proposed trails have been identified in the Ruapehu Regional Visitor Development Plan as one of the five iconic destination-growing and experience investments of immediate importance. These projects are considered by the Ruapehu 2000 organisation as capable of delivering substantial regional economic development benefits to Ruapehu and the surrounding areas. The Plan identifies that the proposed trails are likely to result in increased jobs (through trail construction and direct and indirect servicing of users), social inclusion through effective training (as there will be a key focus on developing a local workforce) and enabling Māori to realise their full potential through significant participation in the trail development, operation and servicing.

7 Assessment of Environmental Effects

The matters that must be addressed pursuant to Clauses 6 and 7 of Schedule 4 of the Resource Management Act 1991 are detailed below.

The proposed development is considered to raise the following actual or potential effects on the environment:

- Positive Effects;
- Effects on Landscape and Visual Character;
- Effects on Ecology and Indigenous Vegetation;
- Effects on Recreation and Use

In assessing the actual or potential effects on the environment from the categories listed above, reliance has been placed on the various supporting reports and assessments as outlined throughout the application.

7.1 Positive Effects

The proposal is considered to result in positive effects as set out below:

7.1.1 Recreation Opportunities

There are significant recreation opportunities associated with the development of the trail through trail use. The 2020 Feasibility Assessment for the trail identified that about 7,818 locals are expected to use the full trail in the year after it is completed, increasing to 10,546 by year 10. By year 5, about 35,065 New Zealanders from outside the region are expected to ride the trail, increasing to 40,913 by

year 10. Note that these figures are for the full completed trail. The presence of the completed trail will enable approximately 41,000 people to use the trail for outdoor recreational purposes by foot and on bike.

7.1.2 Tourism and Economic Development

The Ruapehu District is at the tail end of the regional development stakes in New Zealand. GDP per capita is 23% below the national average. Nominal GDP dropped from a 2011 peak of $540m to $506m in 2016. The average annual employment growth between 2001 and 2016 was around minus 2%.

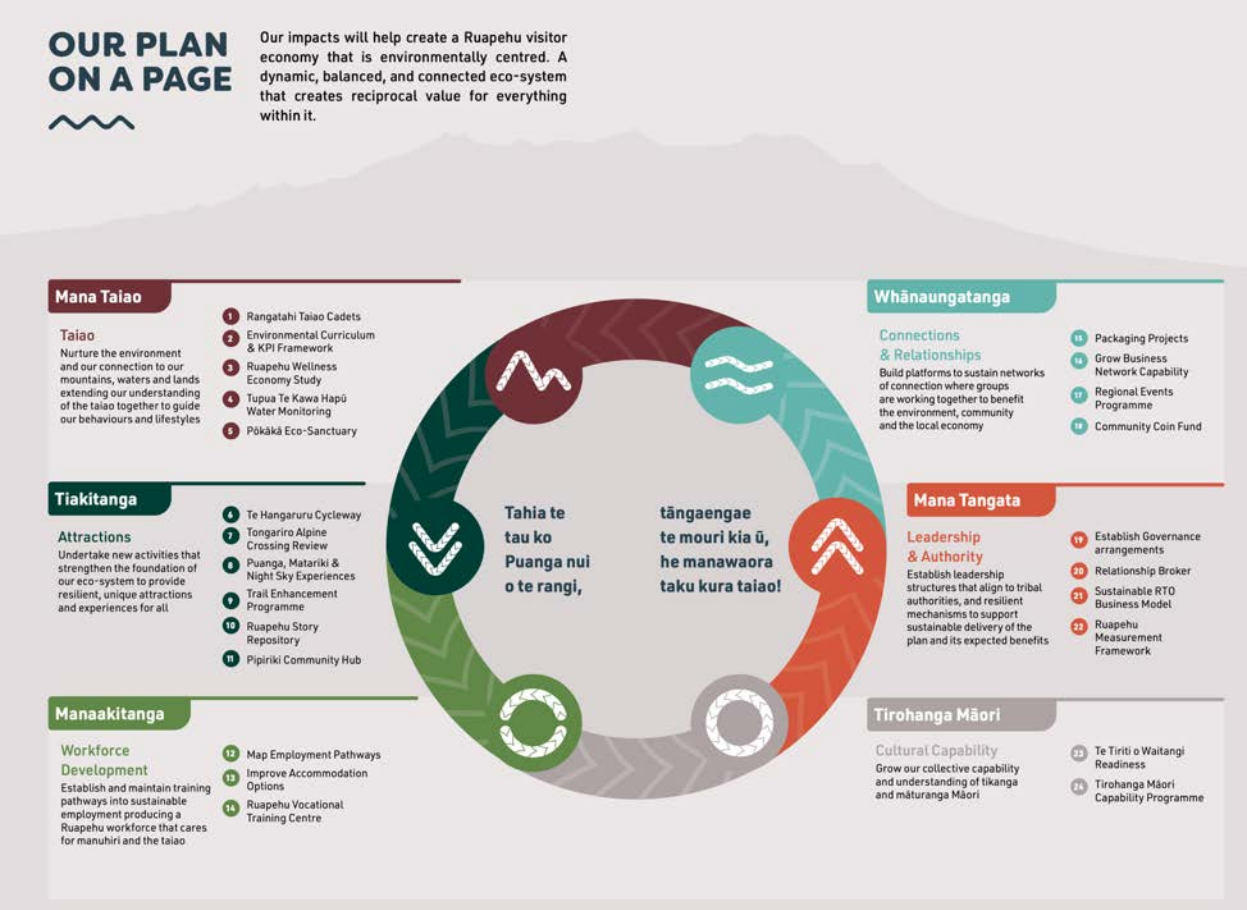
Ruapehu's resident 2016 population sits at just over 11,700 persons. This population dropped by more than 17% between 2001 and 2016 and, under a low growth scenario, will decline to under 7000 persons by 2035.

The Manawatū Whanganui Economic Action Plan (2016) identified tourism as the critical Ruapehu growth opportunity. Ruapehu is a destination with the natural 'greater outdoors' and nature-based resources, landscapes and assets sought by visitors. The location has good proximity to over three million New Zealanders and is close to international gateways located at the Auckland and Wellington Airports.

The proposed trails have been identified in the Ruapehu Regional Visitor Development Plan as one of the five iconic destination-growing and experience investments of immediate importance. These projects are considered by the Ruapehu 400 organisations as capable of delivering substantial regional economic development benefits to Ruapehu and the surrounding areas. The Plan identifies that the proposed trails are likely to result in increased jobs (through trail construction and direct and indirect servicing of users), social inclusion through effective training (as there will be a key focus on developing a local workforce) and they will enable Māori to realise their full potential through significant participation in the trail development, operation and servicing.

The proposed trail is specifically identified in Tahia Ko Puanga, the recently adopted (March 2023) Ruapehu Destination Management Plan. Te Hangaruru is identified as a Tiakitanga which is an attraction that will strengthen the foundation of the destinations eco-system to provide resilient, unique attractions and experiences for all.

FIGURE 14 TAHIA KO PUANGA PLAN SUMMARY



7.1.3 Ecological

An ecological assessment of the proposed trail has been undertaken by Wildlands Consultants. This is attached as Appendix 5 to this report.

The proposed trail will provide new opportunities for the control of pest plants and pest animals to complement existing conservation management in the local area. Pest animal control stations near the Mangaturuturu River could provide greater protection for whio. In specific locations, there are also opportunities to enhance the recovery of indigenous vegetation within previously-disturbed areas. The relative ease of access provided by the trail could improve opportunities for Uenuku and the local community to engage with conservation activities associated with the trail on the lower slopes of Ruapehu.

7.2 Ecological and Conservation Effects

An ecological assessment was undertaken by Wildlands Consultants and is attached to this assessment in Appendix 5. This assessment concludes that the proposed trail will require the construction of *c.*5.7 kilometres of new trail (Sections 3-8) and will utilise *c.*6.2 kilometres of existing trails (Sections 1-2, and 9).

7.2.1 Section 4 Mangaturuturu Crossing

New sections of trail - in Section 4 is proposed to be located within old- growth podocarp/mountain beech forest and mountain beech forest that is of very high to high ecological value. The early-mid successional vegetation types present are relatively common within Tongariro National Park and the wider central North Island, and are of high to low ecological value.

The following vegetation and habitats along the proposed trail route meet the criteria for Threatened or At Risk habitats as defined in Schedule F of the Horizons One Plan1:

- Podocarp/black beech/mountain beech forest: Threatened (Vegetation and Habitat Type 1, Section 4).
- Mountain beech forest: At Risk (Vegetation and Habitat Type 2, Sections 4 and 7).
- Riparian margin: At Risk (at proposed bridge locations).

FIGURE 15 VEGETATION AND HABITATS ALONG THE ROUTE OF SECTION 4

Section of Proposed Trail	Vegetation and Habitat Type	Ecological Value	Reasoning
4 – Mangaturuturu Crossing	1. Podocarp/Mountain Beech Forest 2. Mountain beech forest	Very high High	• Intact old-growth forest with dense understorey and emergent podocarps, particularly on the northern side of the river • Riparian vegetation and habitats • Mangaturuturu River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable). • Mangaturuturu River provides excellent habitats for indigenous freshwater fish and freshwater invertebrates • Habitat for indigenous lizards • Likely to contain threatened mistletoe and orchid species • Likely habitat for pekapeka/ bats • Excellent habitat for indigenous birds • Likely to provide at least periodic habitat for forest ringlet butterfly (At Risk)

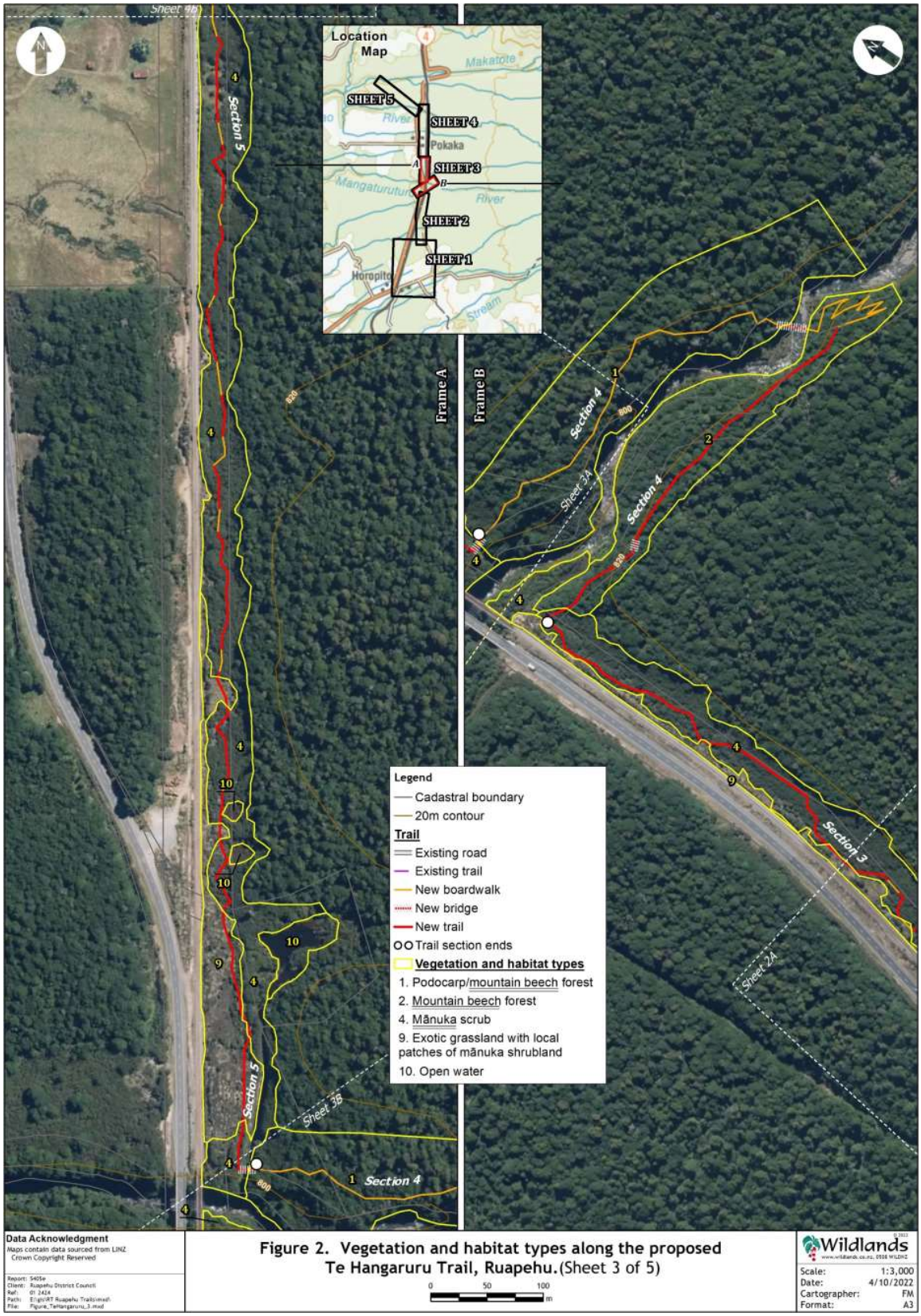
The extent of the vegetation and habitat types are mapped in **Error! Reference source not found.**. In r espect to Section 4, the Wildlands report notes the following:

Section 4 of the trail is to be within the Mangaturuturu River corridor with a small section within the boundaries of Tongariro National Park.

Podocarp/mountain beech forest (Vegetation and Habitat Type 1) on the northern side of the Mangaturuturu River is of very high ecological value. There is a high abundance of large emergent rimu, Hall's tōtara, and miro trees, some of which are likely to range from 500 to more than 1,000

years old. Epiphytes are common. This forest also has a dense and diverse understorey, with patches of Astelia fragrans and a few Gahnia procera.

FIGURE 16 MAP OF VGEGETATION TYPES SECTION FOUR



Mountain beech forest (Vegetation and Habitat Type 2) on the southern side of the Mangaturuturu River is of high ecological value. Although this area is also relatively intact old-growth forest, there are comparatively fewer emergent podocarps than on the northern side of the river and the understorey is comparatively more open.

It is likely that the forests in this section of the proposed Te Hangaruru Trail contain threatened mistletoe and orchid species, as well as provide at least periodic habitat for pekapeka/bats, as well as habitat for threatened birds and lizards, and the At Risk forest ringlet butterfly.

The Mangaturuturu River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable). This river also provides excellent habitats for indigenous freshwater fish and freshwater invertebrates.

7.2.2 Section 8 Last Spike Connection

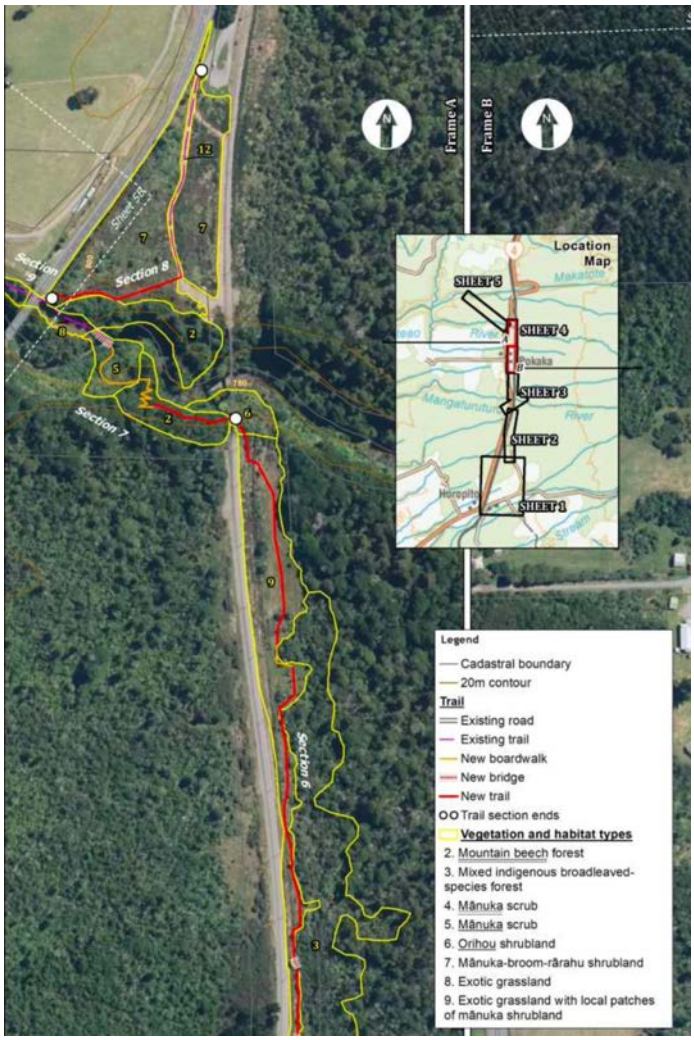
Section 8 of the trail is to be within the NIMT rail corridor, Manganui-o-te-Ao River corridor, a paper road, and part of Manganui o te ao Conservation Area1.

In addition to using a section of existing gravel track, a section of new trail is proposed to be located within mānuka-broom-rārahu shrubland (Vegetation and Habitat Type 7) which is secondary vegetation of moderate ecological value. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in the Tongariro Ecological District as well as indigenous lizards.

FIGURE 17 VEGETATION AND HABITATS ALONG THE ROUTE OF SECTION 8

Section of Proposed Trail	Vegetation and Habitat Type	Ecological Value	Reasoning
8 – Last Spike Connection	7. Mānuka-broom-rārahu shrubland 12. Existing Trail	Moderate Low	• Modified habitat and secondary vegetation • Habitat for indigenous and exotic birds • Habitat for indigenous lizards.

FIGURE 18 MAP OF VEGETATION TYPES SECTION EIGHT



7.3 Ecological Effects Summary

Potential ecological effects of constructing the first stage of the proposed Te Hangaruru trail within these areas could include the following:

- Vegetation clearance
- Construction effects on indigenous fauna
- Damage to adjacent vegetation
- Construction disturbance
- Erosion, sedimentation, and changes in hydrology
- Creation of a corridor for the movement of pest plants and animals

The proposed trail route has been designed to maximise the use of previously-disturbed areas, to avoid and minimise the potential for adverse effects on intact indigenous ecosystems. The proposed trail can be aligned to avoid the clearance of larger indigenous trees (>15 centimetres dbh), particularly podocarps and beech trees, thereby enabling the potential effects on indigenous fauna to be avoided or minimised. The trail can also be aligned to minimise disturbance of the induced wetland habitats. Numerous lengths of boardwalks are also proposed to be used in wet sites (Sections 3, 5, and 6), and/or high-value ecological areas (Sections 4 and 7), which will result in notably lesser adverse ecological effects than compared to the formation of a compacted gravel trail. The use of appropriate sensitive construction techniques and sediment management will be important, in particular to avoid adverse effects on aquatic fauna and whio at the two river crossings. With appropriate management, including the use of a trail construction protocol, all potentially adverse ecological effects can be avoided or reduced to minor or less than minor.

The proposed Te Hangaruru Trail will provide excellent opportunities to enhance the ecological integrity of the indigenous vegetation and habitats surrounding the trail footprint. Pest plant and pest animal management plans could be developed and implemented to complement existing conservation activities in the local area.

7.4 Cultural Effects

Uenuku are the applicant and have also been involved in the route design and options process. The route of the proposed trail has been inspected on foot by representatives of Uenuku iwi.

Consideration has been made of potential sites of significance to Uenuku as well as those values which are of importance. This has included consideration of the values set out in Te Awa Tupua (Section 5.1) in respect to the impacts on water ways. Key amongst the latter is the potential effects on the awa which the trail will cross. This has been factored into the design of the trail and associated structures. All bridges are to be bank to bank with no bed disturbance. The construction management plan, which includes an erosion and sediment plan, has been developed with iwi who are comfortable that it will provide the required protection to the waterways.

No formal written Cultural Impact Assessment has been developed for the proposed trail, instead Uenuku have chosen to work directly on the design of the trail to ensure that their values are respected and also reflected in the design and location of the trail.

Uenuku as applicants and being involved in the development and management of the trail will now have a more active role as kaitiaki in this part of their rohe.

7.5 Recreation Effects

There will be positive recreation effects through the creation of the trail. There is currently little to no recreational use of the site where the proposed trail is to be located. The proposed trail will result in a new recreational asset which is anticipated to be used and valued by the local community and manuhiri alike.

It is not anticipated that there will be conflict between trail users once it is built. Trail users will have good visibility of other users who may be travelling along the trail in the same or opposite direction. The grade 2 trail standards also mean there will be a low gradient and a generally wide trail which will enable passing and facilitate multidirectional use. This is an important factor as it means users are expecting to encounter others, generally altering their behaviour so they are using the trail in a more cautionary manner.

The nature of the trail and the surrounding environment is also conducive to positive use. As an easy grade trail with high scenic qualities, the trail provides for a more relaxed rider approach rather than a faster experience that may be found on purpose-built mountain bike trails. This is similar to other parts of the M2C trail and also a similar experience to that found on the Timber Trail.

7.6 Landscape and Visual effects

A landscape assessment was undertaken by Wildlands Consultants in 2022 (Appendix 6). This assessment considers the detailed whole route of the proposed Te Hangaruru trail including section four. This assessment included a review of the natural character, visual and landscape effects of the proposed trail and describes the effects of the proposed development on this section of trail as follows.

For section four the landscape report states as follows:

This new section of trail will extend about 500 metres upstream on the true left bank of the Mangaturuturu River, east towards Ruapehu (see Plates 13-16). This trail section will include various sections of boardwalk and a zigzag down to a new low level bridge at the river crossing (26 metre

span). The trail will then return west, on the true right bank of the Mangaturuturu River to the NIMT railway. Parts of this section of trail adjacent to the river are within Tongariro National Park. Old-growth beech and podocarp/beech forest is present in this section of trail. It is understood the applicant, Ngāti Uenuku, has directed that this loop be included the preferred option because it will allow visitors to experience some old-growth forest and will showcase the river valley for public education and enjoyment. This old-growth forest experience will be a unique feature along the trail.

While there may be short- and medium-term adverse effects on natural character due to vegetation clearance and earthworks, the trail will provide opportunities for education and management that are not currently available. The effects of vegetation removal and earthworks will be reduced as the trail ages, with natural regrowth occurring along the trail margins. There are likely to be more than minor short-term adverse effects that are noticeable but these effects can potentially be mitigated or remedied by careful construction.

As noted above, low impact designs and recessive colours are proposed for structures, bridges, and boardwalks. Fill slopes will revegetate relatively rapidly. However, cut slopes or faces will be more difficult to revegetate, so cut slopes should be minimised. The trail construction protocols should be followed to ensure that the trail is sensitive to the natural character and landscape, and to minimise visual effects. Visually, effects of the trail will be largely hidden from view, and are invisible from the State Highway.

This section of the trail is the only one that includes parts within the Tongariro National Park. As such, this section of trail consequently requires the highest level of care in terms of both the alignment and construction. Particular care with trail construction protocols is needed on this section.[4]

In respect to that section of Section 8 on PCL the landscape report states the following:

The section of trail near the Last Spike is on a previously-cleared terrace above the river valley and will avoid old- growth beech trees by running alongside these and utilising existing gravel tracks, where present. Landscape, natural character and visual effects will be inconsequential.

7.7 Historic Effects

The proposed trail is predominantly in previously disturbed area within road and rail corridor. Section 4 of the proposed trail is along the Mangaturuturu awa through a relatively undisturbed riparian area. While an informal track exists on the southern side of the river, there is no evidence of any human habitation or development in that area.

The wider site, including the waterways, is known to be of importance to Uenuku. As the area is within their rohe, Uenuku have historic and contemporary associations with the site. The area has been actively used by Uenuku for living, cultivation and hunting for a number of centuries. Representatives from Uenuku have inspected the site of the proposed development and are comfortable that the proposed development will not adversely affect their historical values and associations.

[4] Hart. R et al, 2022. Landscape Aspects of the Proposed Te Hangaruru Trail, Ruapehu. Contract Report No. R5405f. Wildland Consultants PP 8 - 11

On this basis it is not anticipated that there will be any sites of historical significance encountered along the route of the proposed trail.

Conditions have been incorporated into the CMP around discovery of any sites of historical significance.

7.8 Water Quality and effects on the awa

The ecological assessment (Appendix 5) identifies potential effects on waterways and aquatic habitat of the proposed development as follows:

If not managed well, the removal of indigenous vegetation, earthworks along the trail alignment, and installation of bridges and boardwalks has the potential to result in sediment run-off and erosion during heavy rain events. Chronic sedimentation of waterways can result in the degradation of freshwater habitats for indigenous fauna (including whio), as well as a general decline of water quality. Sedimentation could also lead to degradation of wetland habitats, such as the induced wetlands within Sections 2 and 3, and Sections 5 and 6 of the proposed trail, and the ponds near the trail route in Section 5. Over time, following construction of the trail, there is also potential for gravel to be eroded from the surface of the trail. This will particularly be the case if construction of the trail leads to the impediment or redirection of natural waterflows. Appropriate planning is needed to ensure that there is sufficient drainage from the trail surface without causing undesirable ponding in the surrounding natural areas.

The proposed use of carefully placed boardwalks across wet areas will have a far lesser impact on the ecological values of these habitats than other trail building methods, such as gravel trail surfaces atop of bunds. Boardwalks will enable water to continue to flow unimpeded, throughout the wetland areas. Gravel trails are not suitable for use in these wetlands because they would result in compaction of the substrate, potential major changes to the wetland hydrology, and more divisive splitting of the detrimental splitting of the wetland habitats into smaller units.

Erosion and sedimentation could have major ecological effects but, with appropriate construction techniques and management, these effects can be reduced to less than minor.

7.9 World Heritage

Tongariro National Park is one of only 29 sites in the world with dual World Heritage status. In 1990 it received World Heritage status for its natural landscape values and in 1993, under a criteria change, the special significance of the Park's mountains and cultural landscape to the Tūwharetoa and Whanganui people was recognised.

Normally, proposals within World Heritage sites are assessed against the 'statement of universal values' for the site, however the statement for this site is still being developed. In these circumstances, the proposal will need to be assessed against the values as described at the time of nomination and the natural and cultural criteria under which these sites have gained status. These are contained in the following two nomination documents:

Nomination of Tongariro National Park New Zealand for inclusion in the WORLD HERITAGE LIST, prepared for the World Heritage Committee by the Department of Lands and Survey, New Zealand, December 1986.

- Nomination of Tongariro National Park by the Government of New Zealand for inclusion in the World Heritage cultural list, May 1993
- Where proposals have the potential to impact on the values of World Heritage sites, the proposal needs to be referred to the World Heritage Centre.

On review of the World Heritage nomination documents, the values the Park was nominated for are the volcanic landscapes in the Park and the significant cultural associations and importance of the mountains to Māori. Assessments would be undertaken of the cultural, landscape and ecological values of the Park to understand the potential impact of the proposal on these values that make the Park globally important.

The development of the trail is likely to have a very localised visual effect and would not impact on the macro landscape features of the Park. Given the scale of the work proposed, the development will not have a large visual impact greater than any other trail in the Park.

The Applicant does not anticipate that the trail will adversely impact on the important iwi values and associations. This is primarily due to the involvement of local iwi throughout the process, including in route selection.

7.10 Use of Helicopters

The use of helicopters is not likely to have any associated adverse effect on the values of the Park or on other park users. The Helicopters will be working in an area which is not generally accessible to public.

7.11 Filming

The proposed filming is not likely to have any associated adverse effect on the values of the Park or on other park users. The filming will be beneficial to record the story of the trail development and also promote its use and support more people recreating in this area.

7.12 Effects Summary

Overall, the adverse effects of the proposal are expected to be minor. The activity has the potential to result in positive effects on ecological values, to enhance the recreational offerings, and to enable social and economic effects to ensue.

8 Consultation and Engagement

There has been significant engagement by the Applicant with key stakeholders throughout the planning and design of this development. The following section sets out the nature of this engagement.

8.1 Iwi

The proposed development is to take place within the rohe of Uenuku. Uenuku as co applicant has been involved in the design and planning of the trail and supports the development of the trail and associated structures.

8.2 Department of Conservation

The applicants has worked with the Department of Conservation throughout the development of these applications. This has included regular hui with local DOC staff to update them on the progress of the project and planning.

A site visit was carried out with local DOC staff on 19 October 2022 to inspect the location of the proposed trail.

8.3 Kiwirail

The applicants are seeking formal permission to develop and manage sections 3, 5, 4 and 6 of trail within the rail corridor. Section 2 is not proposed to be developed within the Rail Corridor. An Agreement In Principle for the trail has been issued by Kiwirail.

8.4 The Whanganui Awa

Uenuku are co applicants and as the people of place for the location of the proposed development, speak for the awa. As noted in Section 7.4 the impact of the proposed development was considered during the design of the proposed trail and structures. An assessment against the Te Awa Tipua, with specific reference to the values, has also been undertaken (Section 5.1). Uenuku do not wish to see any negative impact on the quality etc of the water that flows within the awa from the development and ongoing management of the trail.

This requirement has informed the bridge design and associated construction management practices which are set out in this assessment and in more detail in the CMP document in Appendix 7.

8.5 Other Parties

The following parties have also been engaged with in the planning and design of the project. All have provided written support for the project.

- Visit Ruapehu
- Ohakune 2000
- New Zealand Cycle Trails Inc
- Ruapehu Mountain Bike Club

- National Park Business Association
- Mountains to Sea Trust

The project team has also kept representatives from UNESCO World Heritage, Forest and Bird New Zealand, the Tongariro Tramping Club and Federated Mountain Clubs up to date on the project, including providing them a copy of the Wildlands Ecological Assessment. Initial comments from these parties highlighted the need to ensure that the important ecological values of the area are protected.

9 Notification

As noted in Section 5 of this report, the concept of a shared use trail in this location was publicly discussed through the partial review of the Tongariro National Park Management Plan. That process included a public submission process and public hearings. That process essentially agreed the concept of the trail while this notification looks at the detail of the trail development and management and associated effects.

9.1 Concession Notification

The Conservation Act 1987 section 17SC specifies that the Minister must publicly notify every application for—

1. (a) A lease; or
2. (b) A licence for a term (including renewals) of more than 10 years.

As the application is for a period of greater than 10 years it must be publicly notified by the Department.

9.2 Works Approval Notification

As the proposed physical works result in permanent infrastructure over 100m^2 and are outside of the amenities area then the approval needs to be considered as a 'major' application as per policy 4.1.16.3. As the application is of a scale which necessitates the development of an EIA then it will have to be notified as per policy 4.1.16.9.

10 Conclusion

A concession and Works Approval sought by Uenuku and Ruapehu District Council for the establishment of a shared use trail and associated boardwalks on those parts of Tongariro National Park and two other sections of PCL shown on Figure 1.

This trail will form part of the Hangaruru trail.

The proposed development has been considered against a number of statutory documents relevant to the permissions sought. This assessment has shown that the proposed development will be generally consistent with the requirements set out in those documents.

A number of technical assessments have also been undertaken and summarised in this report. These assessments note that the effects of the proposed development on the environment and values of the site are anticipated to be less than minor.

Uenuku are co applicants and have assessed the proposed route of the trail.

Rowan Sapsford

Roam Consulting Limited

Monday, 25 September 2023

Appendix 1. Route of Proposed Trail on Public Conservation Land (Phase 1 Sections)

cheal

www.cheal .co.nz

Rev	Date	Amendment	By	Chk	App
B	31/03/23	Boardwalk added	TJG	DS	DS
A	13/07/22	Information	CJO	DS	DS

Project Title
Ruapehu District Council:
Te Hangaruru Trail

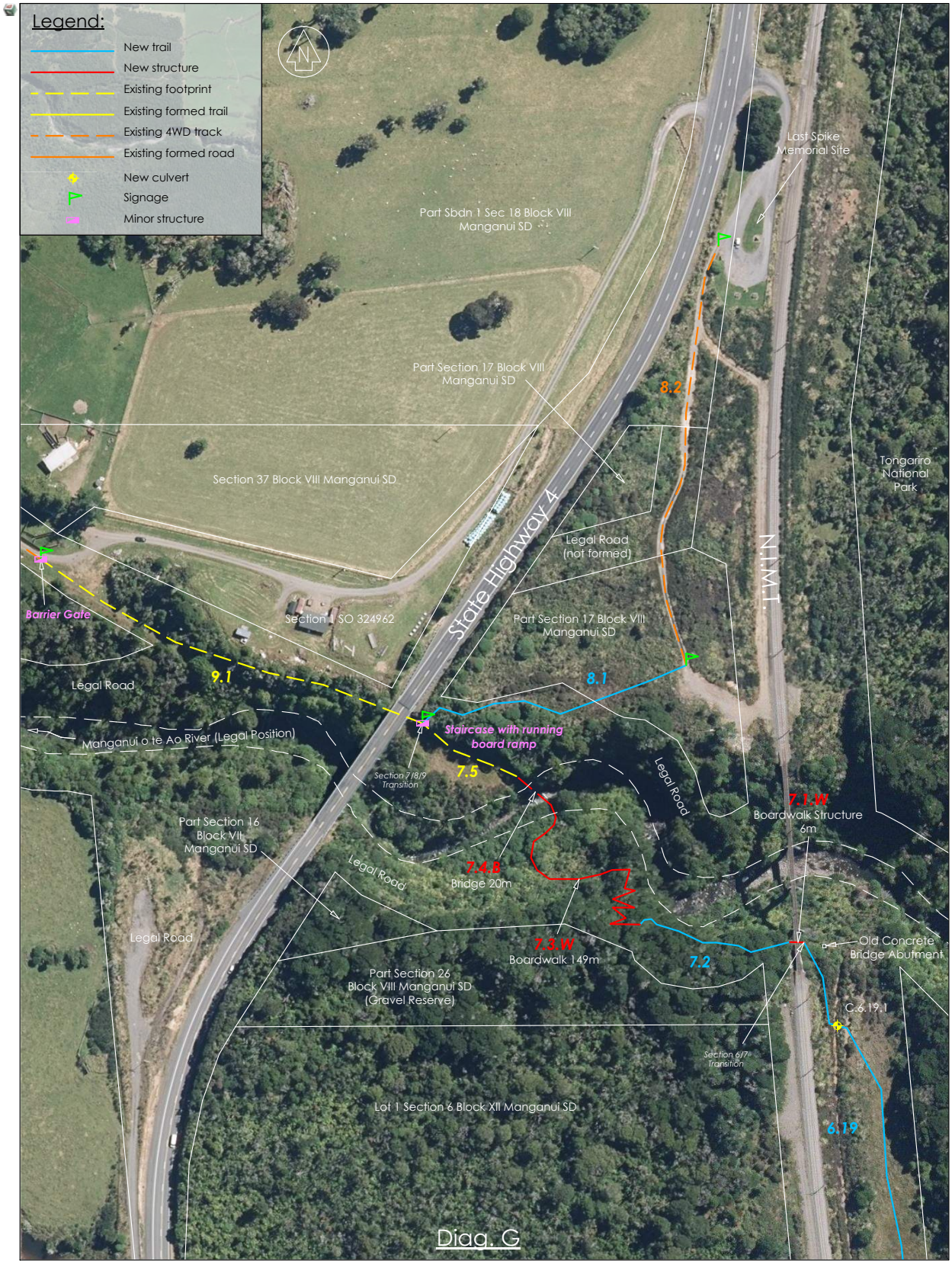
Drawing Title
Phase One Construction
Sections 4/5

Surveyed	J.Brown	May 2022	JB
Designed	C.J.Olms	03/06/22	CJO
Drawn	C.J.Olms	06/07/22	CJO
Checked	D.Sherrit	06/07/22	DS
Approved	D.Sherrit	06/07/22	DS

Status: INFORMATION

Scale A3: 1:2000 | A3

Drawing Number: 220263-106 | Rev: B



cheal

www.cheal .co.nz

Rev	Date	Amendment	By	Chk	App
A	06/07/22	DRAFT	CJO	DS	DS

Project Title
Ruapehu District Council:
Te Hangaruru Trail

Drawing Title
Phase One Construction
Section 7/8

Surveyed	J.Brown	May 2022	JB
Designed	C.J.Olmi	03/06/22	CJO
Drawn	C.J.Olmi	06/07/22	CJO
Checked	D.Sherrill	06/07/22	DS
Approved	D.Sherrill	06/07/22	DS

Status DRAFT
Scale A3 1:1500 | A3
Drawing Number 220263-108 | Rev A

Appendix 2. 2020 Feasibility Assessment

Proposed Ruapehu Trails Feasibility Assessment

Prepared by Roam Consulting for:
Ruapehu District Council

ROAM

Issued 31 March 2020

Disclaimer:

This document has been prepared using information and data that is sourced from external documents and information from third parties. Where possible, we have attempted to verify the accuracy of this material but accept no responsibility or liability for any inaccuracies or omissions from that material that may affect the accuracy of the assessment or recommendations made in this report. It should not be construed that we have conducted an audit of any of the information used in this report or any of the individuals, companies or organisations consulted during the course of preparing the document.

We reserve the right, but are under no obligation, to revise or amend our report if any additional information (particularly as regards the assumptions we have relied upon) which exists on the date of our report but was not drawn to our attention during its preparation, subsequently comes to light.

Final Report issued to Client: 31 March 2020

Report prepared by: Rowan Sapsford (BREP, Dip Rural)

Director – Roam Consulting Limited

Acknowledgements

I would like to acknowledge the contributions of the following people for their assistance and input into the development of this report.

Peter Masters, Peter MacFarlane, Chad Hooten, Murray Wilson, Dave Bamford, Jonathan Kennett, Warren Furner, Don Cameron, Gerry Dance, Mark Walter, Fil Ranga, Tim Borren, John Hutchings, Libby O'Brien, Connie Norgate, Dean Sherritt, Ross Copland, Deirdre Ewart, Marion Ross, Julian Tovey, Jonno Maxwell, Bhrent Guy

Ehara taku toa i te toa takitahi engari, he toa takitini

Executive Summary

Extensions to the Mountains to Sea Great Ride have been proposed by Ruapehu District Council, in conjunction with key partners including the Department of Conservation, Ngāti Rangi, Uenuku and the emerging Ruapehu Trails Trust.

Funding is to be sought from central government to develop two new sections of the Mountains to Sea Great Ride, being the Te Ara Mangawhero trail and the Missing Link trail. These trails will add an additional 43 km of trail and work towards providing an unbroken linked trail from the mountains to the sea.

	Te Ara Mangawhero	Missing Link Trail – Horopito to The Last Spike
Description	Situated on the flanks of Mt Ruapehu within the Tongariro National Park dual World Heritage area, it is an easy grade mountain bike trail from Turoa to Ohakune and Horopito. Includes alpine, sub alpine and forested areas. Connects to Old Coach Road and proposed Missing Link.	An easy grade mountain bike trail that skirts the base of Mt Ruapehu from Horopito to the Last Spike Memorial. It traverses native bush areas, wetlands and forested valleys. It will include two remarkable bridges that reflect the histories of the area.
Distance	32km	11km
Grade	Grade 2-3	Grade 1-2
Build Cost	$4,993,300	$2,650,888
Annual Maintenance Cost	$48,450	$13,500
	$100,000 for trust administration and management	
Projected use (Y5)	59,919	
Projected Use (Y10)	60,247	

The opportunity for the Mountains to Sea is to extend the existing trail to meet the key objective of developing a contiguous and engaging journey from Mount Ruapehu to Whanganui and the Tasman Sea. This objective will promote the Great Ride as an epic and linked journey from the upper slopes of Mount Ruapehu (located in Tongariro National Park, a dual World Heritage area) to the Whanganui River (located in the Whanganui National Park) and on to the Tasman Sea. It is anticipated that the development of these trails will resolve current trail legibility issues, improve trail access and differentiate it from other regional attractions through the delivery of a linked and coherent multiday ride located in iconic landscapes.

The proposed extensions will:

- improve the user experience by making the wider trail easier to understand through the linking of trail gaps
- reinforce the brand by having a true trail start on Mt Ruapehu
- provide for greater marketing and economic development opportunities through the development of a more visible product close to existing communities and destinations (i.e. Tūroa, Ohakune, Horopito and National Park).

Measurable benefits include the economic benefits of out-of-region visitors using the trail, health benefits and consumer surplus benefits from local and domestic users.

The Economic Case clearly demonstrates that the proposed trails will significantly benefit the Ruapehu District's economy.

The benefits from the proposed trails are realised through its users. These users are made up of local riders and out-of-region recreational users. Out-of-region users can also be split into domestic and international visitors who could use the trail for a part of the day (single-day) or for several days (multi-day).

Once fully completed, the proposed trails are forecast to attract an additional 27,100 recreational users from outside the region. International visitors will account for 3,605 (11%) of those users.

Economic benefits are presented using a social cost benefit analysis and have been prepared at a regional and national level.

Outcome	Regional benefit	National benefits
Users	About 7,818 locals are expected to use the trail in the year after it is completed, increasing to 10,546 by year 10. By year 5, about 35,065 New Zealanders from outside the region are expected to ride the trail, increasing to 40,913 by year 10. About 4,133 international visitors are expected to ride the trail once it is completed, increasing to 6,548 in year 10.	
Visitor expenditure	The trails are expected to generate about $2.75 million in additional visitor expenditure regionally by year 10.	The proposed trails are expected to generate about $0.342 million in additional visitor expenditure nationally by year 10.
Construction and operational jobs	The trail is expected to generate up to 31 full time jobs over the four-year construction phase and sustain an average of 65 full time jobs each year over 10 years.	
CBA	The trail will have a net present value of $7.85 million, a benefit: cost ratio of 2.6, and an internal rate of return of 24 percent.	The trail will have a net present value of ($1.2 million), a benefit: cost ratio of 0.9, and an internal rate of return of 4 percent[1].
Visitor benefits	The present value of visitor spend is estimated at $12.6 million.	The present value of visitor spend is estimated at $1.6 million.
Health benefits	The trail is expected to contribute $0.16 million in health benefits.	The trail is expected to contribute $2.2 million in health benefits.
Consumer surplus	The trail is expected to contribute about $0.1 million in consumer surplus.	The trail is expected to contribute about $3.7 million in consumer surplus.

For the trail to be developed as planned there will be resource consents a concession and a works approval required. Initial discussions with councils and the Department of Conservation have indicated the process for these and what will be required for a positive outcome.

A new governance entity is being developed to oversee the construction and maintenance of the new sections of trail. The focus of the Ruapehu Trails Trust will be on the sections of the Mountains to Sea from Tūroa to National Park and will include representation from the Department of Conservation, local iwi, Ruapehu District Council and the local community. This trust has yet to be established, however the key parties are currently in discussion to finalise its formation. The trust will be supported by the Department and Ruapehu District Council.

[1] This reflects the 100% government funding contribution.

Funding to construct the trails is being sought from central government through New Zealand Cycle Trails and Provincial Growth funds. There will also be a contribution from Ruapehu District Council. Ongoing operational funding will be sourced locally from the community.

There has been comprehensive engagement with iwi regarding the proposed trails. Iwi support is crucial to their development and their support has been in evidence through the progression of the Ohakune Mountain Road upgrades and the change to the Tongariro National Park Management Plan. Without iwi support in those preceding processes the trail planning would not have been able to progress through to this stage. Iwi will also play a vital role in the subsequent permissions process and in trail governance.

The proposed trails align well with local relevant statutory and non-statutory plans and strategies and they have been identified as key economic development opportunities for the Ruapehu area. This is due to their anticipated popularity with domestic and international riders and walkers.

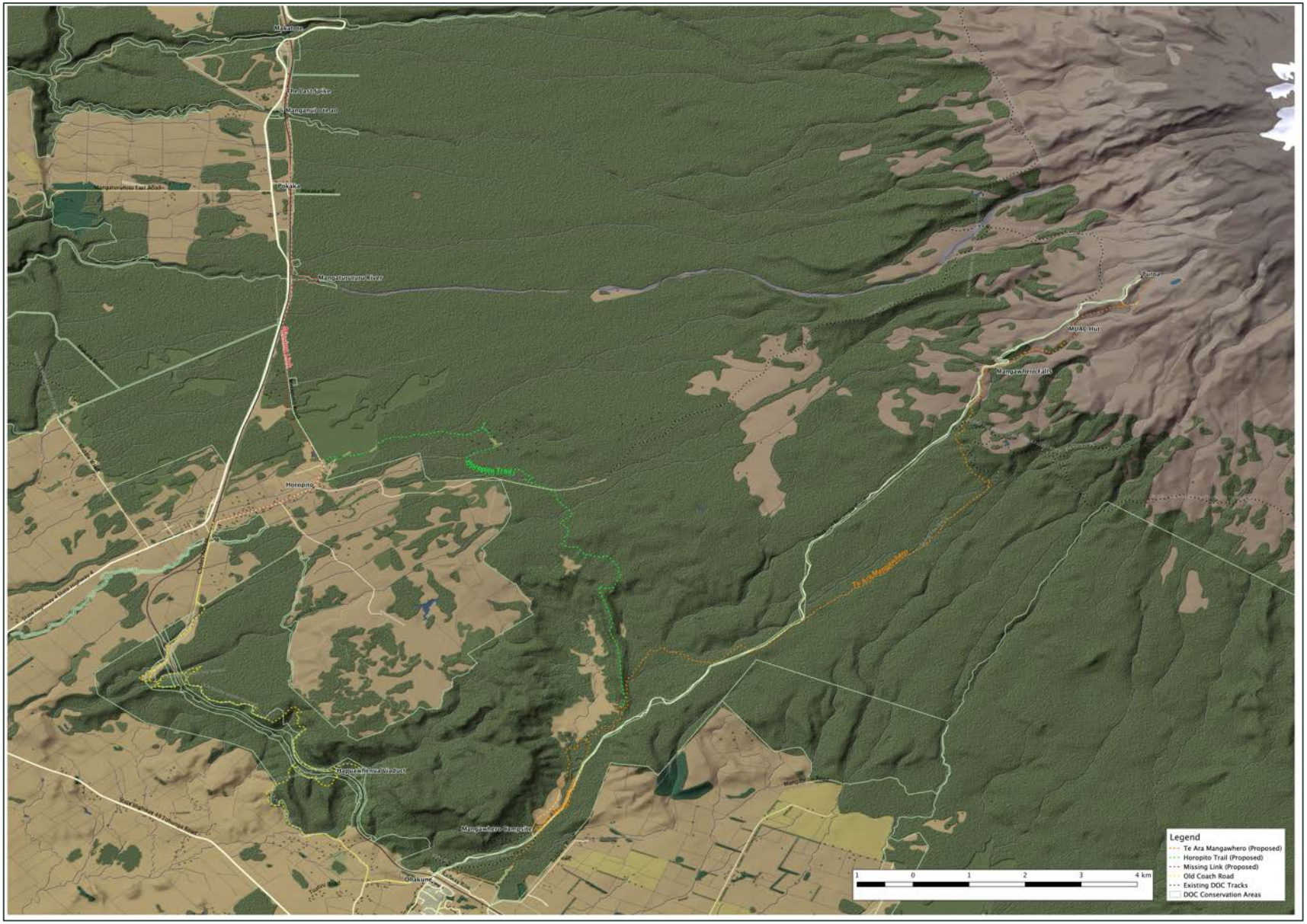


Figure 1 Location and route of proposed trails

Table of contents

Index of Figures

Index of Tables

1 Introduction and Context

1.1 Background

The following feasibility assessment has been developed specifically to support an application by Ruapehu District Council (RDC) to the New Zealand Cycleways Trust Enhancement and Extension Fund and the Provincial Growth Fund.

The assessment relates to the proposed development of the Te Ara Mangawhero trails (including the Horopito return trail) and the Missing Link trail.

Prior to the development of this report there were earlier feasibility assessments undertaken for both sets of trails.

- In 2015 a feasibility assessment was undertaken by Ruapehu District Council and TRC Tourism for the Missing Link trail.
- In 2016 a feasibility assessment was undertaken by Perception Planning Limited for the Te Ara Mangawhero trails.

This feasibility assessment does not intend to replicate those assessments and they should be read alongside this report as key reference documents. While, in some cases, it has been necessary to revise some of the recommendations or findings in these previous assessments where there has been additional research or circumstances have changed over time, the recommendations in those previous reports are still considered to be sound and relevant.

1.2 The Mountains to Sea Great Ride

The Mountains to Sea cycle trail was one of seven New Zealand Cycle Trail Quick Start projects announced by the government in 2009 and the subsequently developed Mountains to Sea trail is well established and exceeded market expectation.

The trail is 217km or 209km long dependent on whether the user starts at Ohakune or National Park. It consists of single-track riding through indigenous vegetation (including two national parks), historic coach and rail routes, gravel road, a jetboat passage down the Whanganui awa and sealed sections into Whanganui city.

Most people don't complete the whole trail but instead complete individual sections depending on their itinerary and/or accommodation base. Popular accommodation bases are National Park village, Ohakune and Raetihi, but day rides from Taumarunui, Taupō and Turangi are also evident.

The trail is governed under the Mountains to Sea Trail Partnership, a group representative of all major stakeholders (DOC, Ruapehu District Council, Whanganui District Council and iwi). Construction work

funded as Stage One was completed in 2012 and audited by NZCT representatives. Operations and maintenance of the constructed sections of the trail are managed under a Memorandum of Agreement between the partners.

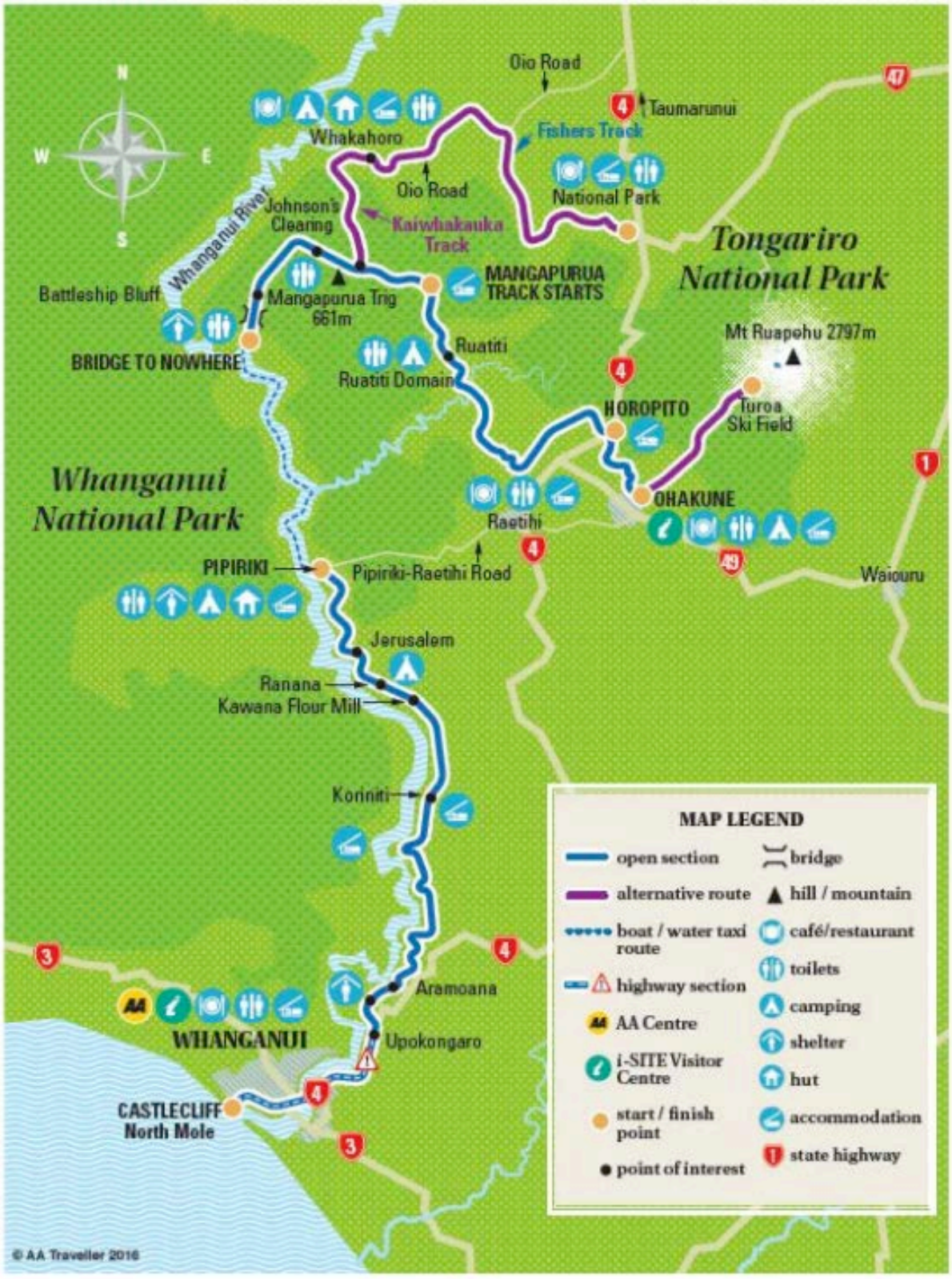


Figure 2 New Zealand Cycle Trails trail map

The Mountains to Sea cycle trail has been in full operation since 2012. Early data counts revealed a significant immediate response from a mainly domestic market, where riders visited to experience one of the early quick start cycle trail projects. Since 2012, cyclist numbers on all sections of the trail have exceeded realistic expectations forecast in the 2010 TRC Tourism Feasibility Study.

Over time, visitor trends researched and reported in the New Zealand Cycle Trail Evaluation Report written by Angus and Associates and TRC Tourism 2013 revealed a mainly domestic market driving multiple visits to the Ruapehu district to complete sections of the ride, as opposed to undertaking linear multi-day rides as part of packaged itineraries. These riders are referred to as hub and spoke riders and they are a valuable domestic market segment.

1.2.1 Concept Plan

A concept plan was developed for the trail in 2016 and was revised in November 2017. It identified the following vision for the trail:

"The Mountains to Sea Nga Ara Tuhono is one of New Zealand's must do visits for recreational mountain biking. It is truly a Great Ride that contributes positively to the wellbeing of the Ruapehu and Whanganui Districts, and to New Zealand. The trail is to be completed by connecting The Old Coach Road section of trail from Horopito to National Park Village via the 'Missing Link', extended to include a new section of trail 'Nga Ara Mangawhero' from the Turoa Ski Area on Mt Ruapehu to The Junction in Ohakune, the latter being the current formal gateway to the beginning of the trail, and completing the proposed section of trail beside SH 4 Upokongaru to the Whanganui City ride (currently approved and funded by MGR fund). The Mountains to Sea is currently part of the wider network, including the existing Heartland Rides linking Pureora Timber Trail to Mountains to Sea via Taumarunui and on to Taranaki via Whangamomona and Bell Block. There is future potential to link Ohakune to Taihape, and Whanganui to Hunterville. Investigations and feasibility work are also recommended to link Ohakune to Raetihi via the old railway branch line, and connecting Raetihi to The Mountains To Sea trail via Ameku Road to Shorts Hill."

This vision is a summary of discussions held at various community consultations, both formal and informal, undertaken by the Ruapehu District Council and MBIE as part of the Regional Growth Study Accelerate 25. Those trail sections in Whanganui and within national parks are subject to further consultation as projects develop or maintenance and enhancement are undertaken. The Regional Economic Development Plan 2016 being delivered by Accelerate25 and MBIE will also consider future recreation and tourism assets within its proposed Destination Management Product Development and Marketing Plan 2017.

To meet the vision, the concept plan identified that there were a series of problems and challenges that it would need to address. The main problems or challenges the Mountains to Sea trail needs to address to reach its full potential, and to provide what customers are looking for, include:

- being responsive to major safety challenges created by natural events such as land movement in steep backcountry environments
- maintaining the grade of the trail through volatile and changing surface conditions
- adding a heartland ride on a State Highway with little shoulder from Upokongaru to Whanganui City
- reaching agreement with local landowners for some sections of proposed trail
- working with the local business community to extend service offerings to customers
- enhancing the marketing plan and working with neighbouring trails/businesses to create packages appealing to the intended target market
- maintaining governance support and ongoing funding certainty

The concept plan included an action plan to address these challenges as follows:

- Phase 1 M2C Trails General: which had a focus on completing the section of the trail into Whanganui City and resurfacing the Mangapurua and Kaiwhakauka trail sections.
- Phase 1 MGR Mangapurua / Kaiwhakauka Maintaining Great Rides – work on fixing trail issues on the Mangaparua and Kaiwhakauka sections of the trail
- Phase 2 MGR Mangaparua Maintaining Great Rides – bluff and bridge widening
- Phase 2a Mangawhero (Ohakune Mountain Road) – route investigation, design and construction
- Phase 2b Missing Link Horopito to National Park - route investigation, design and construction
- Phase 3 Ohakune/Raetihi/ Mountains to Sea Option Link – investigating new links
- Phase 3 MGR – Kaiwhakauka – bluff widening

Phase 1 projects have either been completed or are underway. Work by the Department of Conservation on the Mangapurua and Kaiwhakauka sections is in the planning stage with physical work anticipated to start in 2020.

The proposed new trails deliver on Phase 2 and 2A of the concept plan.

2 The Proposed Trails

This feasibility report considers a 32km extension of the Mountains to Sea Great Ride. The proposed trail is considered to be a single extension to the Mountains to Sea but for the purposes of this assessment has been broken down into two discrete sections being:

- Te Ara Mangawhero Trail from Tūroa to Ohakune and Horopito
- The Missing Link from Horopito to The Last Spike

2.1 Te Ara Mangawhero

The proposed Te Ara Mangawhero (Figure 3) is a 32km shared use trail on the southern slopes of Mount Ruapehu that connects Tūroa to Ohakune and Horopito. The trail will involve the development of 15km of new trail and the upgrading, and in some cases rerouting, of 18km of trail.

The Te Ara Mangawhero trail is the latest initiative of the local community who have a rich history of developing positive community infrastructure for the benefit of locals and visitors alike.

2.1.1 The Ohakune Mountain Road

In the early 1950s the Ohakune Mountain Road Association was formed to promote the construction of an access road from Ohakune to Tongariro National Park. The purpose of the road was to give access to the snow and ski slopes from Ohakune, and also to provide a scenic drive through the native forest. After eleven years of fundraising and much voluntary labour, 12km of the road was opened (approximately to Mangawhero Falls) in 1963. It was extended by the Ministry of Works to its current 17km length a short time later.

In 1976 the Ohakune Mountain Road (OMR) was declared legal road. It is currently managed by the Ruapehu District Council as a 'Special Purpose Road' and is used to access Tūroa Ski Area and the Round the Mountain track. Cyclists riding the Mountains to Sea cycle trail use the road. Trampers using the Round the Mountain track at Tūroa need to walk on 3.5 km of Ohakune Mountain Road. The Ruapehu District Council has identified safety issues associated with the increasing number of trampers and cyclists on the road.

The Ruapehu District Council and NZTA have completed improvements to the Ohakune Mountain Road. Rather than widen the road to provide safe access for walkers and cyclists, they have opted instead to contribute $320,000 over four years towards scoping, design and construction of a walking and cycling track adjacent to the road. This contribution has received widespread support from iwi, the community and stakeholders.

2.1.2 Ohakune 2000 and the Old Coach Road

Ohakune 2000 is an incorporated society formed in 1997 to develop and promote projects for the betterment of Ohakune and surrounds. Since its formation, Ohakune 2000 has facilitated many initiatives towards the revitalisation and rejuvenation of Ohakune including the Mainstreet town centre upgrade, the Ohakune Junction redevelopment (JAAZ Project), the Mangawhero River walking and cycling track, the i-SITE redevelopment, the Ohakune skate park and the Te Pepe Pump & Jump bike

park. Ohakune 2000 is currently working on the Rochfort (Carrot) Park redevelopment in conjunction with RDC and Ohakune Growers.

In 2006, Ohakune 2000 partnered with DOC to restore the Ohakune Old Coach Road as a walking and cycling track. Ohakune 2000 contributed $750,000.00 to the project, providing access to the historic Hapuawhenua and Taonui rail viaducts. Subsequently, the Ohakune Old Coach Road became part of the Mountains to the Sea Cycle Trail in 2010.

2.1.3 Route Identification and Initial Feasibility Assessment

Ohakune 2000 has been leading investigations into the development of the proposed Ohakune Mountain Road trail. This has included consultation with iwi, former Ohakune Mountain Road builders, adjoining property owners and hunters. They have undertaken a comprehensive desktop study using underlying cadastral data, historical maps and reports. They also completed a detailed field investigation and identified a potential trail route that has been plotted using GPS.

The proposed trail will start at Tūroa base area and, using a combination of new (35%) and existing (65%) trails, will work its way down Mount Ruapehu to Ohakune. The proposed route is 32km long and includes an 11km connection from the Ohakune Mountain Road to Horopito.

This proposed route was reviewed by Evan Freshwater and Jonathan Kennett from New Zealand Cycle Trail Inc. in March 2016. They noted that the trail is likely to be enormously popular with bikers and has the potential to be a unique and significant attraction for Ohakune. However, due to the status of the area as a national park and a dual World Heritage Area, they recommended that further investigation should be undertaken by a 'master track builder' to confirm that a sustainable trail and route can be developed.

In May 2016, DOC asked Peter Masters, Peter MacFarlane and Chad Hooton of Bike Taupō to inspect the proposed route and provide feedback on the overall trail concept as well as identify any potential construction issues. This assessment process resulted in the identification of the following set of parameters to ensure a sustainable trail with a wide user base is developed:

1. The trail should be designed and constructed in a manner that respects the World Heritage values of the site and also the Tongariro National Park values.
2. The trail should be designed and constructed as a shared use trail for both walkers and bikers.
3. The trail should be designed and constructed for safe two-way use by both walkers and bikers.
4. The trail should be constructed to technical specifications that allow ease of riding by Grade 2 to 3 riders to maximise the appeal to the widest possible audience.

5. The trail should be built to a high standard throughout and provide a high-quality walking and biking experience, i.e. the impact of the trail should not detract from the surrounding environment.
6. The trail should be constructed to require minimal maintenance, i.e. with a maximum gradient of 8% to allow effective water management.
7. The track should be built to the 'Walking Track' standards (Tracks and Outdoor Visitor Structures SNZ HB 8630:2004), but with a maximum 8% grade and no steps.
8. Safer and less invasive trail options will be prioritised.
9. The trails should be built 1.8m wide where the terrain permits to allow easy passing and shared use.
10. Boardwalk sections should be built to a minimum 1.2m wide.
11. Existing trails will be used where possible, except where these fall outside the sustainable trail construction parameters identified in 4 and 6 above.
12. The track should follow the 'line of desire' to reduce the risk of walkers[2] shortcutting off the trail.
13. Culturally and ecologically important sites, where known, will be avoided.

As a result of the May 2016 assessment, sections 1 - 3 of the trail were realigned to keep the grades generally between 3% (1.62°) and 4% (2.24°) with the steepest sections at 8% (4.3°) in places. Mr Masters noted that the route would allow a very good sustainable track to be built that would require much less maintenance than many of the present tracks in the area (which have slopes of 15%-20% in some places). He also commented that the proposed track has very good access points from the Ohakune Mountain Road that will reduce construction and long-term maintenance costs.

The proposed route and associated costings were reviewed in March 2020 by Pete Masters and Chad Hooton for the purposes of this feasibility study.

2.1.4 The Proposed Route

The route shown on Figure 3 is considered to meet the trail selection parameters identified in section 2.1.3 above.

The proposed trail starts at Tūroa at 1600m ASL. The trail will descend 1000m over 19km, ending in Ohakune. An 11km trail which will connect to Horopito, transforming the Old Coach Road trail into a loop trail, will also be developed. The proposed trail descends from an alpine environment to podocarp forests,

[2] Note: given the nature of the terrain surrounding the trail (especially the upper sections which are steep and rocky), walkers have been identified as being more likely to shortcut the track than bikers.

and in some parts traverses historic logging tramways. The trail uses a lot of existing trails and is located with good access by the Ohakune Mountain Road.

2.1.5 Initial Trail Feasibility

On confirmation of the route, a feasibility assessment was undertaken in order to inform the Department of Conservation's view on proceeding with a change to the Tongariro National Park Management Plan (TNPMP).

The feasibility assessment was prepared in 2016 by Perception Planning Limited for the Department of Conservation (the Department) to inform a proposed amendment to the Tongariro National Park Management Plan (TNPMP). While a strong focus of the report was an assessment of the proposed trail against the Department's statutory instruments, it also included an assessment of the proposed route, environmental and cultural impacts and a market and economic assessment. The key outcomes of this assessment are summarised as follows:

- A partial review to the TNPMP would be required to develop the trail (this work was subsequently undertaken by the Department)
- The trail would cost approximately $5,000,000 to develop and between $20,000 - $25,000 per annum to maintain.
- The proposed trail will go from Tūroa Ski Area to Ohakune and out to Horopito via the already established and highly popular 'Old Coach Road'. It will be 32km long and be a Grade 2 trail suitable for a wide range of recreational riders. 35% of the trail will be new and the remaining 65% will be the upgrading of existing trail, including historical tram track routes.
- The trail will need to be developed to a high standard to ensure that it is sensitive to the high ecological, cultural, landscape and historic values in the area. Constructing the trail to the recommended standard will also ensure that ongoing trail maintenance costs are kept to a minimum.
- The proposed trail has the support of Ngāti Rangi and Uenuku Charitable Trust who are the iwi of the area. Iwi will be involved in the development of the trail, including the set-out process, management and storytelling components.
- Market and economic assessments identified that the trail is anticipated to have a wide and popular appeal with 17,000 riders in year 1, increasing to 34,250 by year five[3]. The predicted daily spend for users is anticipated to be $169 per day resulting in an estimated

[3] Low estimates

associated spend of $2,873,000 in the first year of completion and $5,788250 after year five.

- The Department has been working with iwi and the local community on the proposal since 2014 and both are generally supportive. Any concerns raised have been addressed through trail design and predevelopment assessments[4], and through the requirement for further works to include the details that will be assessed as part of a DOC works approvals process.
- The trail is to be managed by a local community group with the purpose of trail management and maintenance. This will allow a more efficient and cost-effective trail management process.
- The proposed trail will need to be consistent with the TNPMP and require works approval from the Department. Resource consent will be required from the Regional Council for some earthworks and bridging, however these consents are not anticipated to be difficult to acquire.
- The trail will improve safety on the Ohakune Mountain Road by providing the option for cyclists and walkers to be well separated from other road users.
- The trail will provide for much higher use of established accommodation and visitor services which have traditionally been underutilised over summer in comparison to use during the winter ski season.

As part of this application process, the feasibility assessment has been reviewed to reflect the process since its publication, and it has been incorporated into this report to ensure that it is still an accurate account of the feasibility of the proposed trail. A copy of this initial feasibility report can be viewed here. This review has identified that there has been additional growth in visitation in the area since the report was published, including growth in the use of the ski areas and surrounding trails. This growth is likely to result in a slight increase in the user numbers proposed. As noted further in this application, a partial review was undertaken of the Tongariro National Park Management Plan (TNPMP) allowing the trail to proceed, but in a sensitive manner. Recognition of the Department's trail development requirements has meant that there will need to be additional rigour in initial planning and permissions required. A trail monitoring (use and development) process will also need to be developed to give the Department the confidence to allow the development of the upper sections of the trail. This also has implications for the order of trail construction with the lower sections of trail developed first.

[4] Note that this was prior to the subsequent public submission process for the partial review of the TNPMP to enable trail development.

As a result of the feasibility work and wider community support, the trail was identified in the Manawatu Whanganui Regional Growth document, Accelerate 25[5], as an 'immediate priority'. This led to the government setting aside $2 million for the trail in 2016, subject to a NZ Cycle Trail Enhancement and Extension fund application requirements being met.

2.1.6 Tongariro National Park Management Plan Review

The Department has been engaging with the community on the proposed trail since December 2014, starting with a presentation to the Taupō Tongariro Conservation Board.

[5] Discussed further in Section 7.7 of this report.

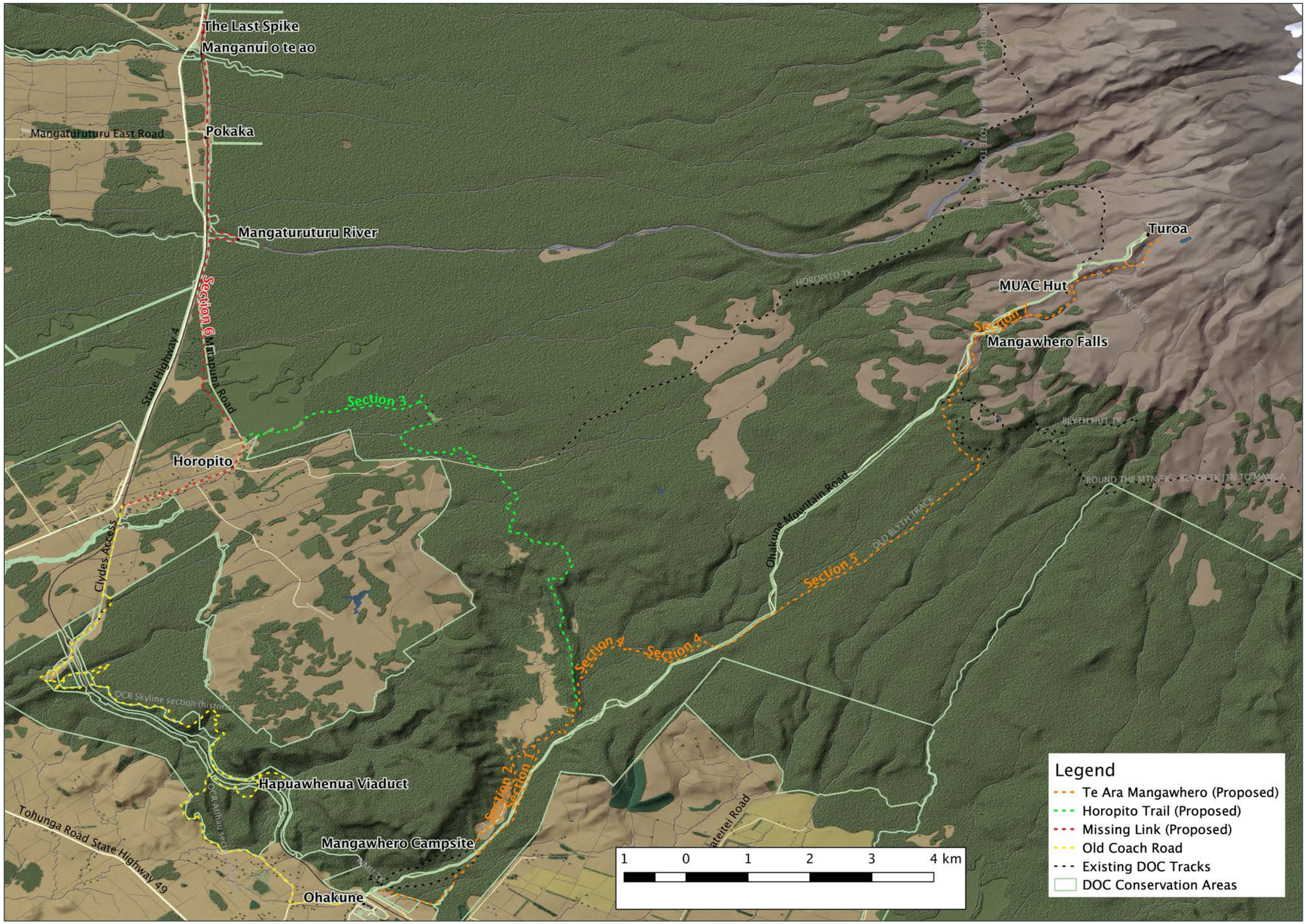


Figure 3 Proposed Trail Extensions

In 2016, the partial review of the TNPMP was initiated which involved a public consultation process under Section 46 and 47 of the National Parks Act 1980. This process included a submission process which was advertised nationwide with public hearings held in Ohakune in 2017. The review enabled the development of Te Ara Mangawhero, the Horopito Trail and those sections of the Missing Link which fall within the national park. The partial review was approved by the New Zealand Conservation Authority on 23 April 2018.

This process represents an acceptance of the appropriateness of these trails by the Department provided that they are developed and managed in accordance with the revised TNPMP.

2.2 The Missing Link

The Missing Link will be a 25km trail between Horopito and National Park. It will be an easy grade trail, the majority being Grade 1 - 2 with some short sections of Grade 3. The route will follow the existing main trunk line around the base of Mount Ruapehu to the Makatote Viaduct where it crosses wetland terrain before connecting to the historic Marton Sash and Door tramline and linking to National Park village.

The entire route from National Park village to Horopito incorporates the scenery of the North Island's sub-alpine forest. Amidst the forest windows are views over Tongariro National Park to all four mountains within the Park. Beyond the plateau is the Makatote Viaduct and pristine rivers emerging from Mt Ruapehu.

The route of the Missing Link traverses a number of areas of public conservation lands including the Tongariro National Park, the Erua Conservation Area and the Makatote Scenic Reserve. A review of this route by the Department of Conservation against the Taupō-Tongariro Conservation Management Strategy (CMS) indicated that the proposed trail may be inconsistent with the CMS document and they would not support its development until the CMS was amended to specifically allow for the trail to be developed and used by bikes.

While it is still anticipated that the full Missing Link trail will be developed in time, it is proposed that the trail should be developed from Horopito to The Last Spike initially. This section of trail avoids those sections of public conservation lands which are not specifically provided for by the review to the TNPMP.

The proposed 10km route will largely be a Grade 1 trail and include the development of a number of bridges over the Mangaturuturu and the Manganuioteao Rivers.

The features of this trail section are the built rail heritage structures and the stories of railway communities working and living along the route. Interpretation of this story will be valued by bikers and walkers and provide for the rail heritage story seeker.

The proposed cycle trail route will use a mixture of bush trails, maintained low volume rural roads, historic road and rail routes and new trail adjacent to Tongariro National Park. The trail will traverse mature beech forests, bush margins and cross deep forested gorges.

This section has a strong rail heritage story that runs its length as it travels adjacent to the main trunk line, next to viaducts and rail bridges. Its terminus at The Last Spike is a key part of that story. The Last Spike is the site at which the then Prime Minister Sir Joseph Ward ceremonially opened the North Island main trunk railway line by driving home a final polished silver spike at Manganuioteao in 1908.

These stories of New Zealand's rail and pioneer heritage not only provide a contiguous link to the wider Mountains to Sea but also provide a compelling story that makes for a more memorable and unique ride experience.

2.2.1 2015 Feasibility Process

A trail set out process was initiated by RDC and the local community in 2014. A route was identified and an initial feasibility study for the Missing Link was developed by RDC and TRC Tourism and published in February 2015. This feasibility study identified that the cost of developing the trail would be $1,719,400.00 with $553,000 of that already spent by the local community in developing the Marton Sash and Door Tramline. The feasibility study estimated 3,500 users in year 1 and 8,600 in year 5. The estimated return on investment in Year 1 was over $600,000 and by year 5 was over $1.5 million per year.

This feasibility process was used to inform the TNPMP review process discussed in Section. 2.1.6 and also to have the trail identified in the Accelerate 25 document. A copy of this initial feasibility work can be viewed here.

2.2.2 2018 – 2019 Review

As part of the development of this feasibility assessment the 2014 route and market impact assessment were reviewed. The proposed trail route was initially reviewed through a desk-based assessment and discussions with Murray Wilson (National Park), LINZ, NZTA and KiwiRail. An onsite assessment was undertaken with experienced trail builders from Bike Taupō. Through this process the proposed route was confirmed, and costings undertaken. This route is largely the same as the 2015 route, with a key difference being that the Makatote crossing is now at the site of the White Elephant Bridge, 1km downstream of the Makatote Viaduct.

The initial part of this route to the Last Spike is to be used for this process.

3 Technical Assessment

3.1 Route Identification

Initial route investigations were undertaken by local riders and members of Ohakune 2000 and the National Park Village Association. The proposed routes were also assessed by local DOC staff and in some cases NZCT representatives. Once initial trail corridors were identified, the trail was walked by experienced trail planners Peter Masters, Peter Macfarlane and Chad Hooton. They were accompanied by local riders and members of Ohakune 2000 and National Park Village Association.

The proposed route met the desired trail parameters and were adopted by the Department as part of their partial review of the TNPMP CMS.

3.2 Proposed Route of Trail

The proposed trail is broken into five sections with clear start and end destinations. Some sections include pre-existing sections of trail and others will be complete new builds or new routes.

Section	Distance	Trail Description	Tenure
Section 1 Lower Bennett and Punch Trail	4.9 kilometre Grade 2-3 trail (0.6 kilometres new and 4.3 kilometres existing)	This section utilises well-preserved existing tramlines, and links back to the Ohakune DOC field centre/Ngāti Rangi office. It also connects to the Old Coach Road	Public Conservation Land Ruapehu District Council Road Reserve
Section 2 Campground Loop	2 kilometre Grade 2-3 trail (0.3 kilometres new and 1.7 kilometres existing)	Follows existing seal and gravel track to water intake, crosses Serpentine downstream of water intake.	Public Conservation Land NZTA Road Reserve
Section 3 Horopito Link Trail	11 kilometre Grade 2 trail (2 kilometres new and 9 kilometres existing)	This track connects to Horopito and utilises sections of the existing Cowern's tram line and the Punch and Bennett tram line. This section will also use part of the formed and gravelled Matapuna Road.	Public Conservation Land

		This section also forms a loop with the Ohakune Old Coach Road.	
Section 4 Blyth to Mangawhero and Upper Bennet and Punch	3.9 kilometre Grade 3 trail (2.3 kilometres new and 1.6 kilometres existing)	This is a new section of track that follows close to the Ohakune Mountain Road, crossing the road in an identified safe area with good visibility uphill/downhill. This section also includes a potential mid trail access point and may necessitate a layby/pull off area and signage. Includes the Upper Bennett and Punch Tramway to Mangawhero River Terrace.	Public Conservation Land NZTA Road Reserve
Section 5 Chainshed to Old Blyth and Blyth	5.8 kilometre Grade 3 trail (2.3 kilometres new and 3.5 kilometres existing)	This section is set within a sub alpine beech environment and will cross the Mangawhero River approximately 500m above the Waitonga Falls, connecting to the top of the Old Blyth Track. The trail will also follow the route of the existing Blyth Track (to be upgraded and rerouted) and the Round the Mountain Trail.	Public Conservation Land NZTA Road Reserve
Section 6 Horopito to The Last Spike	10.6 kilometre Grade1-2 trail (9 kilometres new and 3 kilometres existing)	This trail follows the margins of the Tongariro National Park from Horopito to The Last Spike using sections of existing trail, the rail corridor and historic roads. It will include a number of suspension bridges over the Manganuioteau and Mangatururu Rivers.	Public Conservation Land NZTA Road Reserve Kiwi Rail Corridor Ruapehu District Council Road Reserve
Section 7 Tūroa to Chainshed	4.7 kilometre Grade 3 trail (4.6 kilometres new and 0.1	Includes the Tūroa Ski Area lease area and is an alpine environment requiring sensitive construction using boardwalks. This section will	Public Conservation Land NZTA Road Reserve

	kilometres existing)	provide users of the 'Round the Mountain' track an alternative to walking on the road. It will pass the Mangawhero Falls and provide a unique alpine experience.	

Table 1 Summary of Proposed Trail Sections

3.3 Trail Development Costing

A cost estimate to build the trail has been developed including trail development, bridges and supporting infrastructure.

The costing was undertaken by ROAM with Peter Masters and Peter Macfarlane and is considered to reflect a practical and realistic build cost for the trail. These costings include trail construction, bridging, water management, board walking and miscellaneous works.

Overhead items such as design and surveying, project management and consenting (building consents) are also estimated and costed out.

A 15% or 20% contingency has also been applied to these costs. This contingency is considered to be appropriate based on the level of investigation that has been undertaken by expert trail builders who have a good working knowledge of trail building in the area.

A key factor with this trail is that it is very accessible from local roads and settlements. This will have a significant impact on transport costs as well as day to day staff/contractor travel time and costs.

The cost of developing the trails is estimated to be $6,665,933. A summary is provided below in Table 2 with more detailed estimates found in Appendix 2

Section	Cost
Permissions	$77,000.00
Storytelling Project	$200,000.00
Project Management	$213,333.33
Lower Bennett and Punch Trail	$533,600.00
Campground Loop	$172,500.00
Horopito Link Trail	$743,475.00
Blyth to Mangawhero and Upper Bennet and Punch	$511,750.00
Chainshed to Old Blyth and Blyth	$839,400.00
Missing Link	$1,507,075.00

Tūroa to Chainshed	$1,867,800.00
Total	**$6,665,933.33**

Table 2.Trail Development Costs

3.3.1 Bridges

Bridge costs have been estimated on a lineal metre basis using standard bridge designs used on surrounding trails. The bridge over the Maunganuioteau River is anticipated to be a more technical build and a higher cost has been used. This cost was determined based on the cost and effort required to develop similar scale bridges on the Timber Trail. A key difference for the Maunganuioteau bridge, and also those in the wider trail, is that they are very accessible, being close to roads and settlements. This will significantly reduce transport costs and build efficiency.

3.3.2 Supporting Facilities

As well as the key structural components of the proposed trail, supporting facilities such as toilets, counters, signage and shelters will be required. These are important facilities that make the trail work and facilitate a positive rider experience. Such facilities are generally positioned at key nodal points along the trail where users are likely to take a break or enter or exit the trail.

In some places, these facilities will already be in place (i.e. existing toilets and carparks). However, the ability of existing facilities to cope with the estimated increase in use will need to be considered.

It is estimated that the cost of developing these facilities along the length of the trail has been factored into the sectional build cost.

3.3.3 Project Management

In addition to direct development costs, a project manager will need to operate full time to ensure that the project build progresses in an effective manner. It is anticipated that the project manager will work with a master trail builder (cost factored into sectional costs) in ensuring that the design and development practices associated with the trail are achieving a high quality and resilient trail outcome.

Project management and operations costs associated with the development of the trail are anticipated to cost $80,000 per annum.

3.3.4 Interpretation and Storytelling

An interpretation or storytelling plan will be required to guide the development of information signage and installation along the route of the proposed trails. Interpretation is an important element of the proposed trail as it will not only add to the trail experience but it will also provide an opportunity for important natural, cultural and historical stories associated with the land and the trail to be told.

The important cultural stories associated with Ruapehu Maunga can be told and this will give local iwi the opportunity to tell the important stories of their lands and sites in a meaningful and sensitive manner. Interpretation and storytelling are not limited to signage, but could also include pou, sculptures and other installations which reflect the values and stories at place.

3.4 Maintenance Costs

Once completed, the trail will cost approximately $61,950 per annum to maintain. This cost has been calculated using an average cost of $1,500 per kilometre. This is a precautionary high estimate and does not include reference to the easy access to the trail, the amount of board walking and the significant opportunities for local communities and businesses to be associated with looking after the trail.

3.5 Construction Methodology and Timeframes

Both the Te Ara Mangawhero and the Missing Link are considered as one trail development project to be undertaken by the Ruapehu MTB Trails Trust. The estimated process and timeframes to develop these trails is shown below in Figure 4 and Figure 5.

This work plan takes into consideration the resources and expertise currently available and focuses on growing local capacity and skill to ensure quality and sustainable trails are developed. They also take into account the importance of the seasonality for this build with all of the upper, and potentially snow affected, tracks proposed to be developed during the warmer months.

Trail development timeframes are also guided by the TNPMP as the revision to the TNPMP sets out an order for the development of the trail (*TNPMP Policy 4.3.2.4.14)* and requires the lower sections of the Te Ara Mangawhero to be developed first. This is so that the Department is able to monitor the trail development and management prior to the upper sections of trail being developed.

	Task	Time (months)	Start	Finish
1	Funding Confirmed (milestone)	-	1/06/20	
2	Consenting and permissions	5	29/06/20	13/11/20
3	Procurement and project establishment	2	19/10/20	11/12/20
4	Lower Bennett and Punch	5	14/12/20	30/04/21
5	Campground Loop	5	8/02/21	25/06/21
6	Horopito Link Trail	5	3/05/21	17/09/21
7	Blyth to Mangawhero and Bennett and Punch	7	28/06/21	7/01/22
8	Chainshed to Old Blyth	4	20/09/21	7/01/22
9	Horopito to Last Spike	7	10/01/22	22/07/22
10	Turoa to Chainshed	7	10/01/22	22/07/22
11	Storytelling	11	8/11/21	16/09/22
12	Trail Opening (milestone)	-	22/11/22	

Figure 4 Trail Development Schedule

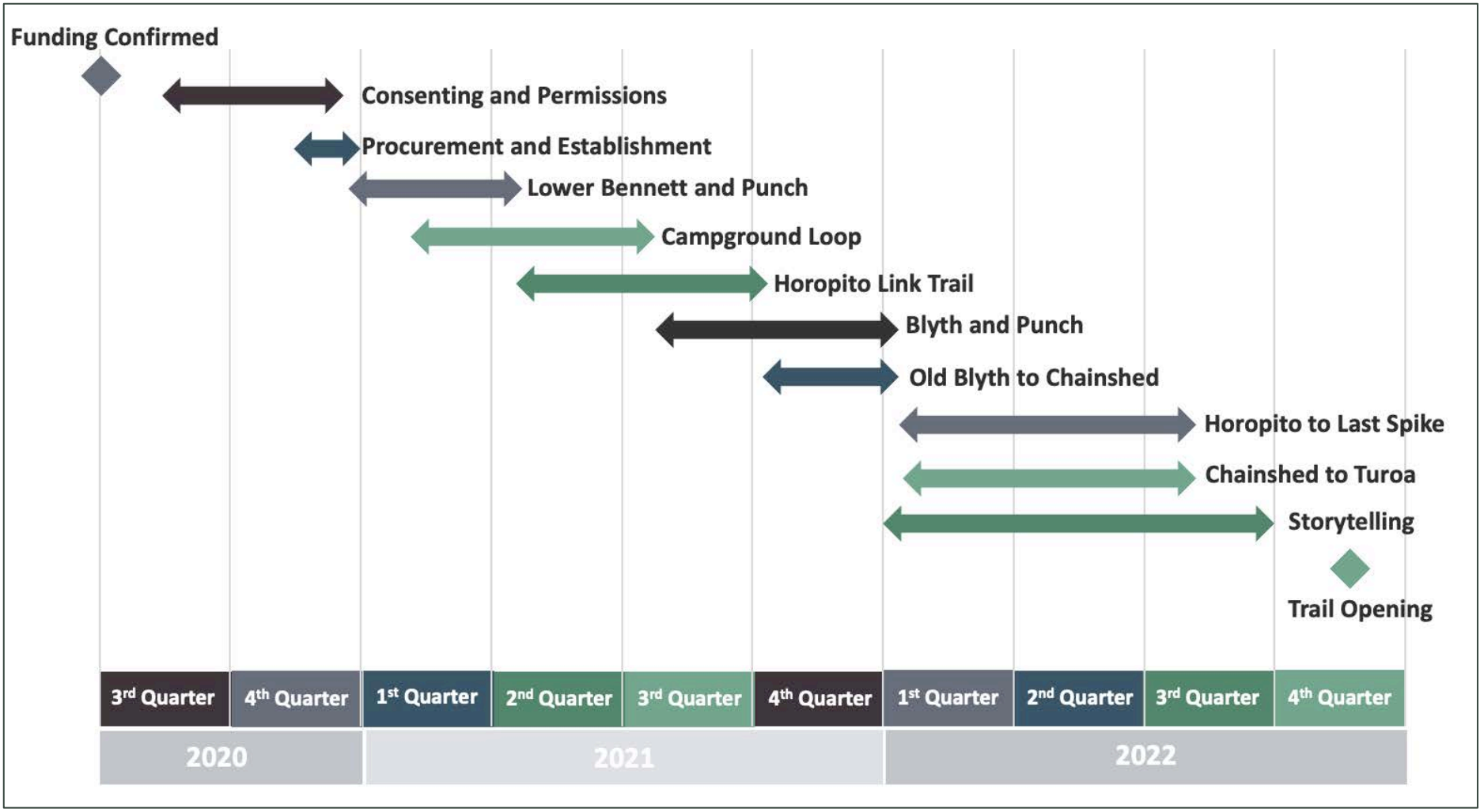


Figure 5 Trail Development Schedule

4 The Mountains to Sea Experience

The Mountains to Sea Cycle Trail is a journey from the volcanic centre of the North Island down to the Whanganui on the west coast via the Whanganui River. The NZCT website says the trail is '...suitable for all abilities of cyclists, the trail includes a mixture of off and on-road trail, which can be enjoyed in sections or in its entirety'. It recommends that trail users start from Ohakune and undertake the 217km journey (Ohakune - Horopito – Mangapurua – Pipiriki – Whanganui) as a grade 2-3 ride, or alternatively start at National Park to do the 209km journey (National Park – Whakahoro - Mangapurua – Pipiriki – Whanganui) which includes a Grade 4 section (Kaiwhakauka).

The official trail map on the NZCT website (Figure 2) identifies the starting point at Ohakune but with alternative starting points at Tūroa and National Park.

The complexity in accessing the trail was identified in the 2017 Mountains to Sea Cycle Trail Marketing Review and Action Plan report undertaken by Destination Planning Limited (the DPL report). The DPL report identified these multiple starting points to the trail as being a key factor in marketing issues and overall trail legibility;

"There are multiple truths in the marketplace. The Mountains to Sea proposition is complex and confusing with the two possible start branches and strong identities of trail sub sections creating clutter."

"The trail descriptions across different channels and maps all vary. Each description breaks the trail into different sections and uses different grading and trail distances. Some start at Turoa, others Ohakune, while some exclude the northern National Park option completely."

This is an honest and accurate summary of how the trail is perceived by users and operators, with its multiple start points and also varying trail grades. This has been exacerbated by the fact that the Mangapurua and Kaiwhakauka sections of the trail are frequently impassable after heavy rain and through winter. This is an ongoing issue with those sections of the trail that has created the impression the trail is overly technical, and in some cases unrideable, as noted in the recent Trail WOF assessment:

"The trail condition is in poor condition in many places and a test for Grade 4 riders.

This track is included in the loop based from Whakahoro and is therefore ridden as part of the Great Ride to the Bridge to Nowhere, often for riders uncomfortable with Grade 4 (anecdotal). Because of the poor track condition, the expectation that it can be ridden as part of the easier Mangapurua, has resulted in disappointment (anecdotal) and is contrary to good customer engagement."

These issues of trail legibility and quality are important and need to be taken into account when considering additions to the wider trail. Trail legibility and quality have also been identified as an issue by

New Zealand Cycle Trails Inc. who have a focus on ensuring the quality of the current rides is at a suitable level before they are extended.

4.1 Trail Legibility Issues

Ultimately the proposed trails will form an unbroken off-road route between Tūroa and National Park. They will add an additional 55km of trail to the Mountains to Sea journey and provide a start on the upper slopes of Mount Ruapehu. Current confusion about riding the trail is in part due to the multiple start points of Ohakune and National Park. The proposed trails will go a long way towards creating this single rideable route especially once the final stages of the Missing Link Section from The Last Spike to National Park are able to be developed. The Te Ara Mangawhero trail will also provide a compelling and definitive starting point for the trail at Tūroa. The development of the Missing Link (Stages 1 and 2) will be important in enabling a connected journey that forms a single compelling and rideable route from Tūroa to Castlecliff in Whanganui.

The development of the proposed trails will not stop users 'cherry picking' sections of the Mountains to Sea to ride independently of others (this occurs on most of the Great Rides where there are access points along the trail), but it will provide a greater sense of the journey which the separate sections of the Mountains to Sea are part of. This sense of the journey will also be facilitated by a more cohesive marketing effort (see Section 6.8), consistent trail interpretation and branding.

This journey will not be able to be completed at this time due to the CMS restrictions on Stage 2 of the Missing Link. The development of Stage 1 of the Missing Link to The Last Spike will enable key trails in this journey to be initiated. Advice received from the Department is that they are currently investigating the possibility of initiating a technical amendment to the CMS. This will mean that the entire Missing Link may be able to be completed in the near future.

5 Market Assessment

This market assessment process has been undertaken using the information developed for the previous feasibility assessments as a base. Both the 2015 Missing Link and the 2016 Te Ara Mangawhero feasibility assessments included assessments of the potential markets for the trails, user projections and estimates of associated spend. In both cases, these earlier assessments have been reviewed by Dave Bamford with consideration of contemporary user data and trends to ensure they are still accurate. The assessments have also been 're-cast' to identify those user groups required to fit the Martin Jenkins CBA model used by MBIE when identifying the potential costs and benefits associated with New Zealand Cycle Trails. For

the Missing Link trail, the proposed route change incorporating the White Elephant Bridge has seen the original estimates revised up.

These previous assessments also did not include consideration of the Horopito connection trail and those figures have now been added and are set out below.

5.1 Te Ara Mangawhero

It is considered that the Te Ara Mangawhero trail is likely to be very popular with walkers and bikers. According to a market-based assessment undertaken by Dave Bamford in 2016, the trail could be used by between 17,000 and 29,250 users in the first year (after full completion) and between 34,250 and 48,750 after five years. Mr Bamford's assessment was prepared with a working knowledge of the market, discussions with key people and groups and consideration of the nature of the proposed trail route and its landscape/environmental context.

This assessment was based on the following approach:

- Product definition
- Consideration of current key data
- Trend indicators and assessment
- Evaluation of comparative products
- Identification of possible markets
- Market based user estimate

This assessment made estimates based on an understanding of the product, trends and potential users. In this case, the nature of the product (the proposed trail) has a very strong bearing on the estimates. The proposed trail has a number of unique characteristics that are not found on other trails elsewhere in New Zealand, i.e. the landscape/environment context of the trail has compelling qualities that will appeal to a very wide domestic and international market.

Conservative estimates and high and low scenarios were used for the same time period as the Demand Analysis:

Market	Year 1 Low
Spring Tūroa Skiers	3,000
Winter Skiers	1,500
Round the Mountain Track	1,000
Walking Market	5,500

Market	Year 1 Low
Summer Cyclists Ohakune Holiday	3,000
Summer Cyclists Regional	2,000
Summer Cyclists North Island	1,500
Summer Cyclists International	500
Tongariro Crossing People	500
Mountains to Sea (2 Day)	1,000
Mountains to Sea (4 Day)	500
Events	500
Locals	250
Educational	250
Total	**21,000**

Table 3 Te Ara Mangawhero market assessment estimates

The feasibility of the trail should therefore be considered with the expectation that the trail will attract at least 21,000 users within the first year of it being fully completed, and 34,250 per year from the fifth year.

5.2 Horopito

As noted above, the Horopito trail was assessed separately from the Te Ara Mangawhero trail. On review, it was considered that the trail is likely to be used by those wanting to do a loop ride incorporating the Old Coach Road and as a more direct connector to Horopito and the Missing Link Trail and the wider Mountains To Sea journey. This link could be considered as a competitor to the existing Old Coach Road section as a means to connect to Horopito. The easy nature of the terrain and historic elements will appeal to some riders, however it is anticipated that the Old Coach Road will be the preferred route to Horopito. Its function as a return trail from Horopito and the Old Coach Road will make it of interest to events in the area such as the Ruapehu Express.

Market	Year 1
Spring Tūroa Skiers	150

Winter Skiers	150
Walking Market	300
Summer Cyclists Ohakune Holiday	1,000
Summer Cyclists Regional	750
Summer Cyclists North Island	250
Summer Cyclists International	250
Mountains to Sea (2 Day)	1,000
Mountains to Sea (4 Day)	500
Events	500
Locals	250
Educational	250
Total	5,350

Table 4 Horopito Link market assessment estimates

The feasibility of the trail should therefore be considered with the expectation that the trail will attract at least 5,350 users within the first year of it being fully completed. Given its role as a connection trail, its use will grow with that of the surrounding trails but at a lower rate of 3% per annum.

5.3 Missing Link

The 2015 feasibility assessment sets out the product and the associated market demand for the Missing Link trail. It identifies that it will be important as a day ride (from National Park to Horopito/Ohakune) as well as being an integral part of the wider Mountains to Sea Journey. Consideration of some of the newly proposed trail elements, notably the proposed bridges, the rail heritage sites and the unique landscape features such as the river valleys, resulted in an increase in the estimated use from the 2015 projections.

These projections have had to be revised to reflect the revised route of the Missing Link from Horopito to The Last Spike. The Missing Link to Last Spike journey has been considered as an important 10/20km Grade 1-2 trail experience that links two local destinations. The grade and distance of the trail means that it is likely to appeal to families, less experienced and also older riders on E bikes. The development of the

trail will also strengthen Horopito as a key trail 'hub' servicing the Old Coach Road, the Horopito Trail and the Missing Link.

Figure 6 Mangaturuturu River Bridge Site

The following matters were considered when reviewing user projections for the Missing Link:

- The dramatic nature of the proposed Mangaturuturu (Figure 6) and Manganuioteao (Figure 7) bridges and their marketing value.
- Proximity to the State Highway providing good vehicle access to Horopito and the Last Spike.
- The rail heritage story which can be capitalised on at key points along the trail including Horopito, Pokaka, Maunganuioteao and the Last Spike.
- The growing levels of subdivision and development at Horopito including recent investment at Smash Palace and a proposed cafe and visitor hub.
- There is a transport operator based in National Park village who is able to shuttle trail users to trail heads and signals that the same will occur at Horopito as well.
- The trail will remove some of the cycle tourers / bike packers using this trail rather than the road when travelling between Taumarunui and Ohakune.

Figure 7 Manganuioteao River Bridge Site

Three tribes take on biodiversity

Three Ruapehu tribes and conservation experts have shared with the Minister of Conservation new developments in plans for a major eco-sanctuary project.

Uenuku Charitable Trust (UCT), which represents the people of Uenuku, Tamakana and Tamahaki, is developing ideas for an "inland island" biodiversity restoration sanctuary on ancestral lands in the Erua area near National Park township. The working name for the proposal is Pokaka EcoSanctuary.

The three tribes are seeking to address growing concern about urgent conservation and ecological issues in their ancestral estate, resulting from the decimation of biodiversity following the milling of the Waimarino sub-alpine native forests at the turn of the century and, more recently, poor pest management, continued loss of species, the effects of encroaching farmlands on ecology, and the increasing footprint of tourism.

Uenuku chair Aiden Gilbert said the proposed ecological restoration project would be the first iwi-driven ecosanctuary in Aotearoa, and would be founded upon traditional kaitiakitanga (conservation

Turn to Page 2

Conservation Minister Eugene Sage, at centre, looks at possible sites for a Pokaka eco-sanctuary.

more technical trails.

- The increased investment in this area (i.e. Ruapehu Sky Waka) is likely to increase rates of summer visitation especially around target markets.
- The Last Spike is adjacent to the proposed Pokaka Eco Sanctuary being developed by local iwi.
- The trail will include a range of forest types including beech forests, mountain cabbage tree groves and native forest margin areas.
- It is an easy grade which will generally be flat to undulating with an average grade of approximately 1.5%. This grade will ensure that the trail will have high appeal to larger and more diverse markets than steeper or

There is an identified risk that, because the trail will initially finish at the Last Spike, some riders wanting to ride the full Mountains to Sea journey may choose to ride the 6km on the State Highway to Erua. This risk can be mitigated by 'promoting and packaging' the trail as an easy grade 10/20km experience and by facilitating shuttles from Ohakune, Horopito and National Park. Until the next section of the trail is developed it will not be promoted as part of the wider journey but more one of the local trails to be experienced. It is anticipated that once the wider trail is developed, this marketing will still be relevant and improved with the addition of the White Elephant bridge and Makatote overbridge etc. It is also hoped that the duration of such a risk will be short if the Department is able to progress their technical amendments to the CMS.

In addition, it is anticipated that the development of this new section of trail will remove current cycle tourers off the State Highway.

The following table shows the proposed markets that are anticipated to be using the Last Spike section of the Missing link in the first year of operation. For the sake of comparison, the projections for the full Missing Link are also included.

Market	Missing Link Full	Missing Link Stage 1 Horopito to the Last Spike	
Mountains to Sea (2 Day)	700	350	Some multiday riders will shuttle to connect to the other parts of the trail at National Park, Kaiwhakauka or Mangapurua. Others will cherry pick sections of the wider trail journey which appeals to them.
Mountains to Sea (4 Day)	250	75	
Educational	1,700	1,700	The length, grade and locations of interest along the trail are likely to appeal to school groups who visit the area – this includes use of the trail by Hillary Outdoors.
Family Groups	1,800	2,000	The length of this trail, its grade and associated marketing are likely to mean that it will be very popular with family groups.
Dedicated NZ MTBrs	1,000	500	This user group will generally prefer longer rides but its association with the other nearby trails plus the bridges etc will appeal to all riders.

Dedicated International MTBrs	200	50	Similar to the above, however they are generally after longer full day rides.
Displaced TAC Walkers	400	200	This short experience will be an option to those TAC users who are staying in the vicinity (i.e. National Park, Ohakune etc)
Locals	250	200	Likely to be a go to trail for some Horopito locals and also used regularly by those in Ohakune and National Park. Lack of contiguous connection to National Park will impact some local use.
Skiers	300	200	Likely to be a popular alternative to skiing when the mountain is closed. Will be especially popular with families etc staying locally.
Cycle Tourers	500	500	Existing cycle tourers using the SH will be deviated onto the trail.
Walking Market	1,100	1,000	As a short / day walk the 10km hike will be in reasonable demand. Travel logistics (i.e. groups with two cars) are fairly straightforward if walked in one direction only.
Total	8,200	6,500	

Table 5 Missing Link market assessment estimates

In addition to the above there is likely to be other users who may visit the last spike and then walk to the Maunganuioteau bridge (2km return) and part way down the trail etc as a short walk. Similarly, users from Horopito are likely to walk to the Mangatuturu River area and back (9km return).

The feasibility of the trail should therefore be considered with the expectation that the trail will attract at least 6,500 users within the first year of it being fully completed. Given the trail elements and experiences that it offers it is anticipated that this use will grow at a rate of 4% per annum.

6 Trail Governance and Management

6.1 Mountains to Sea Trail Governance

The overall Mountains to Sea trail is currently governed by Ruapehu and Whanganui District Councils and the Department of Conservation. These three entities meet on an irregular basis to discuss the wider Mountains to Sea journey. Recently the governance focus has been on those sections of trail above Pipirkiki with the Department and Ruapehu District Council working closely together to address key trail issues such as the Kaiwhakauka and Mangapurua sections and also trail marketing matters. Ruapehu District Council has essentially taken a lead role in trail governance due to the amount of trail in the district and the recognised benefits the trail has for their communities.

At a sectional level, trail governance is currently led by those entities who are in governance / management roles at place and include representation by local iwi and in some cases community-based stakeholders. This provides more focus to their operations and management of the sections of trail which are most relevant to them.

The development of this business case process and also an initial response from MBIE to a previous business case has prompted discussion locally on what the most effective trail management and governance model looks like for the trail. During these discussions, it was acknowledged that the current model can be improved to ensure there is greater consistency in trail management, marketing and maintenance. As a result of those discussions a new governance model for the trail has been identified and is currently being considered by the Trail Partners. This new model is shown in Figure 8**Error! Reference source not found.** below, and has been developed in consideration of the following:

- The current trail is managed by the Department, RDC and Whanganui District Council, with each of those entities managing specific sections of the trail.
- Some parts of the trail are public road (Oio, Whanganui River Road etc) and should continue to be managed by the relevant roading authority.
- The Ruapehu Trails Trust is to be established with a governance role over those sections of trail within Tongariro National Park. This is required by the Tongariro National Park Management Plan.
- The existing trail is currently viewed as a set of individual trails for management purposes but it is anticipated that this will transition to a whole of trail view in the future.

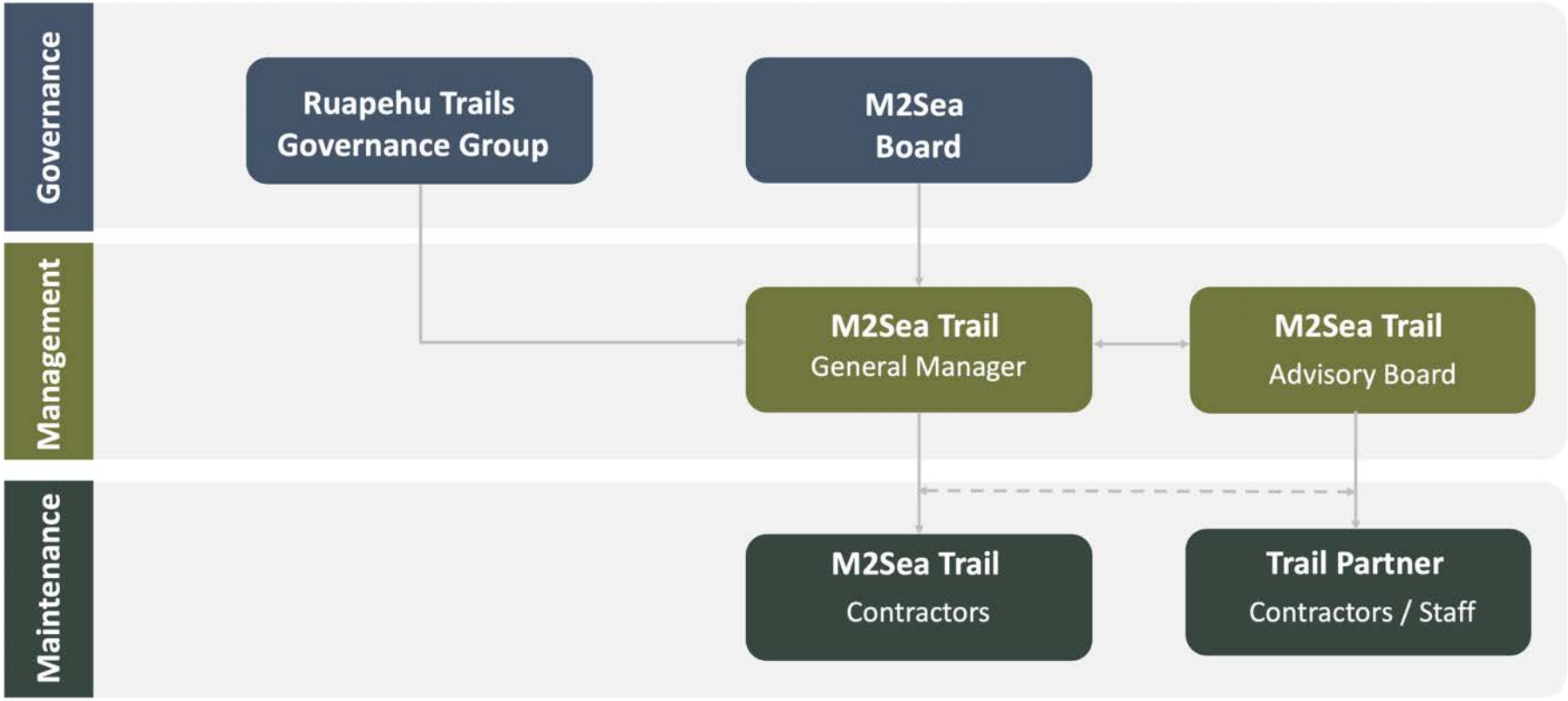


Figure 8 Proposed M2Sea Trails Trust Model

It is proposed to establish the Mountains to Sea Trail Trust to govern and manage the Mountains to Sea trail.

6.2 Mountains to Sea Trail Trust Board of Directors

The Trust will be led by a Board of Directors that will be made up of members appointed by Trail Partners as follows:

1. 1 Member appointed by Whanganui District Council
2. 1 Member appointed by Ruapehu District Council
3. 1 Member appointed by the Department of Conservation
4. 3 Members appointed by Iwi

The Board will have oversight and governance of the entire Mountains to Sea Trail and will be established by a MOU signed by the trail partners. The Board will appoint the trail General Manager and will hold mandate for decision making on budgets, levels of service etc. The Board will, facilitated by the trail GM, also hold key relationships with NZCT and other key stakeholders and partners.

6.3 Mountains to Sea Trail Trust General Manager

The General Manager (GM) will be appointed by Board and be the public face of the trail, similar to the Hauraki Rail Trail GM. The GM will have oversight over the entire trail and will be responsible for trail management and maintenance. They will also be responsible for partnerships, funding and maintaining relationships with the wider trail community. They will report to the Board and will work closely with the marketing coordinator for the trail. The GM will manage the contractors for the trail and be involved in quality management and trail planning. They will work with, and be supported by, the Trail Advisory Group which will consist of operational / management staff from RDC, WDC and DOC who provide technical and relationship support to the GM and the trail.

This position is to be funded by the District Councils and the Department initially, however it is anticipated that some of those costs will be reduced through the development of partnerships and additional funding streams in the long term.

6.4 Contractors and Procurement

Over time it is anticipated that trail contractors / crew will be managed by the GM. There will be a three-year transition period from the current contract model to the Trust managed model. These contractors will be locally based and will be trained through the proposed trail development processes for the Te Ara Mangawhero and Missing Link trails.

6.5 Ruapehu Trails Governance Group

As noted above, the proposed Trust will need to work with the yet to be established Ruapehu Trails Governance Group. The need for this group was identified during the partial review of the Tongariro National Park Management Plan. Figure 8 identifies how the proposed Trust is to work with the Ruapehu Trails Governance Group. The proposed Trust will provide direction to the Trail GM for those trails within the Park and the GM will manage contractors for those trails and report back to the Group.

6.6 Funding the Mountains To Sea Trail Trust

Funding for the establishment and running of the Trust will come from the District Councils and the Department of Conservation. Currently, Ruapehu District Council has a dedicated $50k allocation to unsubsidised maintenance, plus its investment in walking and cycling within its transport portfolio on 'on road and Heartland Ride' sections of the NZ Cycle Trail. This is estimated to be in the order of $50k per annum from its Land Transport account.

Trail maintenance in the Whanganui district is managed as part of its infrastructure network, however there are no committed funds for the establishment of the Trust.

The estimated annual maintenance costs for the proposed trails (including operational overheads) are $161,950 per annum. This is in addition to the maintenance costs for the existing sections of the Mountains to Sea trail. The maintenance costs for the trail during its establishment will be negligible and, realistically, the full maintenance costs will not be required until the proposed sections are fully developed.

There will also be costs associated with the running of the Trust and contractors. Some of this will be covered by the aforementioned maintenance costs but the role of the GM is likely to be on top of that figure. Dependent on the size of the GM role, that position could cost approximately $100,000 per year including expenses.

Both Ruapehu and Whanganui District Councils have made commitments to support this new governance model, including financial support. Letters of support can be found in Appendix 4.

6.7 Trail Management and Marketing

The proposed trails are to be managed and maintained by the Ruapehu Trails Trust. The Trust will be closely aligned (and is anticipated to merge with) the Ruapehu Mountain Bike Club that was established earlier in 2018 to manage the growing number of trails in the area. The club currently manage the Uenuku Pines Mountain Bike Park and their members undertake trail maintenance and development work on the Old Coach Road and the Marton Sash & Door Tramway track. They are supported by Ohakune 2000 (see Section 2.1.2) and have good relationships with local businesses, central government agencies (DOC

and LINZ) and local iwi. Members of the Trust also assisted in undertaking initial route assessments and setting out parts of the proposed trail.

While the exact details of how the Trust will operate is still being finalised, it will be similar to that of the Mokihinui-Lyell Backcountry and Bike Taupō Trusts, both of which are successful community-based trail managers.

The Trust will be managing the project build and will be made up of individuals selected by Ruapehu District Council to ensure that they have the skills and expertise to manage such a project.

The Trails Trust will be supported by Ruapehu District Council and provide guidance on project management and reporting. The project management and reporting will utilise the NZCT based systems, including the monthly reporting templates and risk assessment processes.

A 'Master Trail Builder' will be engaged to provide additional advice to the project manager but also technical advice and on job training to the trail crew which will include young members of the community. The role of the Master Trail Builder is seen as vital in ensuring a quality trail is developed using proper technique. This is very important considering the sensitive nature of the environment in which the trail will be built. This role will also build local capacity by training local trail crews so that they are able to build trails themselves and also maintain them into the future.

The Trust will also be supported by representatives from Bike Taupō Inc who will provide technical expertise and guidance to the Trust in all aspects of developing the trail. Bike Taupō has extensive experience in developing and managing shared use trails to a high standard and is nationally recognised for this.

This Trust will also maintain the trails. Trail maintenance for the proposed trails is anticipated to cost approximately $161,950 per annum. This includes operational costs for the trail governance entity as described above. Funding for these operational costs is anticipated to be sourced locally with contributions from the governance agencies, community grants, partnerships schemes, concessions and support from local businesses.

6.8 Trail Marketing

Marketing of the Mountains to Sea trail was identified as an issue in a 2017 marketing assessment by Destination Planning Ltd (DPL). The DPL report identifies that trail marketing was designated to the two Regional Tourism Organisations but despite some work on drafting a business plan, marketing action report and new website in 2015, there has been no formal adoption of these plans. Other than a map brochure and basic website, marketing has been operator led and reactionary since 2017. This has resulted in key operators promoting the sections of the trail they work on, leading to confusion around what the

Mountains to Sea trail is, with many users thinking it is limited to the 'Bridge to Nowhere' ride. The Old Coach Road section is also promoted separately as a short ½ or 1-day ride from Ohakune.

A similar view was expressed in the 2017 WOF process undertaken by Roger Coles. This process also identified that:

"The OCR is well promoted as a stand-alone ride. The fact that it is part of the Mountains to Sea seems incidental at times."

And for the Mangapurua trail:

"The mere name of this trail will draw in visitors wanting to experience the adventure of 'riding to the Bridge to Nowhere'! It may be the North Island's most recognised trail."

In both instances the trails are known as discrete rides. While a lot of trails have favoured sections, they are generally known within the context of the wider trail or journey that they are part of. The strength of these individual brands means that this wider context often goes unnoticed, to the detriment of the wider great ride.

The DPL report includes a series of recommendations to address marketing issues, as follows:

1. Establish a 0.5 Full Time Equivalent role dedicated to Mountains to Sea marketing coordination.
2. Consider combining this with the Timber Trail role to create a full-time position, given the significant duplication of functions and activities.
3. The role would best be housed in an RTO to simplify reporting lines and leverage complementary marketing resources.
4. Basing the person in the Ruapehu district would give them the most central access to trail operators and stakeholders.

A marketing role for the Mountains to Sea and Timber Trail has already been established and filled. That position is currently funded by Whanganui, Ruapehu and Waitomo District Councils for an average of 20 hours per week. Whanganui and Ruapehu District Councils have committed $30,000.00 per annum each for the trail marketing for the current LTP period.

It is anticipated that the trail marketing person will work closely with the Trail GM position.

This role has already adressed some of the key marketing issues associated with the current Mountains to Sea trail and provide a strong marketing platform for the proposed new sections. With a greater focus on marketing all sections of the trail as part of the wider journey, the Mountains to Sea will be better appreciated and understood by its users. This coordinated marketing effort will also address the current confusion about how to ride the trail, as discussed in Section 4.

7 Due Dilligence

7.1 Cultural Values

Mount Ruapehu and the wider Tongariro National Park hold immense cultural significance to local Māori. Recognising and protecting these important cultural values is critical to any new development within the Park. The Park is also subject to an unresolved Treaty of Waitangi claim[6].

Ngāti Rangi and Uenuku hold mana whenua over the part of the Park where the proposed trail would be built. Ngāti Tuwharetoa has also been approached regarding the proposed trail. Ngāti Tuwharetoa has indicated that, as per their tikanga, Ngāti Hikairo will leave the discussions on those matters with the Department and the affected iwi/hapu. In regard to the Tuwharetoa representative(s) on the Tongariro Taupō Conservation Board, it is expected that the Board members will support the stance of the affected iwi and/or hapu in all matters pertaining to any activity within the iwi/hapu rohe.

Both Ngāti Rangi and Uenuku have been involved in the trail advisory group to date and have indicated that they support the development of the trail in principle, specifically as it is a solution to the current safety issue of walkers and bikers using the Ohakune Mountain Road. Their key concerns are related to the cultural and environmental impacts of the trail.

A Cultural Impact Assessment must be undertaken prior to trail construction so the cultural values associated with the tupuna maunga are not compromised. This assessment should be undertaken by Ngāti Rangi as part of the works approvals process prior to any construction. To date, Ngāti Rangi has been involved in the trail planning process as an active member of the trail development working party. They have provided input into the proposed route to ensure it does not disturb important sites on the slopes of Ruapehu and acknowledge that the proposed route does avoid significant cultural sites.

Ngāti Rangi considers it important that they are involved in decision making on the future governance and management of the trail, regardless of who supervises the work. They see real opportunities for iwi and community employment resulting from the trail development that range from storytelling involvement to considering guiding and transportation initiatives on the maunga.

There is currently no formal Ngāti Rangi storytelling in the Park and they welcome the opportunity to be involved with any interpretation associated with the trail. Ngāti Rangi requires that they have control over developing and telling their stories. This could include placing Waharoa and Pou along the length of the trail.

[6] Wai 1130: Te Kahui Maunga

Monitoring and auditing the use and impact of the trail is also a key Ngāti Rangi concern. It is anticipated that the Environmental and Cultural Impact Assessments will identify which matters need to be monitored to avoid unanticipated environmental and/or cultural impacts.

Iwi can also play an important role in naming the trail to reflect its location and the importance of that location.

7.2 Ecological Values

The Department conducted a preliminary ecological impact assessment. They concluded that the impact of the new trail on the surrounding environment would be minimal because most of the trail already exists either as a walking track or historic tramline.

Their assessment included specific strategies to minimise impacts of the proposed track:

- Avoid the alpine flush area at Tūroa Ski Area (which has been achieved through the revised route).
- Investigate the alpine pond just below the Massey University Hut and avoid if possible (which has been achieved through the revised route).
- Minimise vegetation clearance where possible by restricting the width of the track to the minimum allowed.
- Avoid any trees larger than 30cm in diameter if possible as these could potentially be communal trees for bats (although they would be on the smaller end). The visual impact of the track will be minimised if large trees are kept. If this is not logistically possible, a bat ecologist should assess the likelihood of a tree being an active roost tree prior to felling.
- Undertake a survey for long-tailed bats and if they are present, any tree 15cm (diameter at breast height) or more identified as a potential roost tree by a bat ecologist needs to be assessed for long-tailed bat activity the night before it's felled.
- Undertake a full botanical assessment along the proposed track route to ensure mistletoe host species are not impacted by the development, and to identify any threatened species that have not been found to date (e.g. Dactylanthus) so the track can avoid those areas.
- If any lizard species are disturbed during construction (which is unlikely), a record should be taken and the lizard moved to a safe spot near where it was found.

The authors of the report noted this does not constitute a full ecological impact assessment as the exact route has not yet been determined. They recommended that an ecologist walk the final route to identify and mark any trees and other vegetation that should be avoided.

It is important to consider the impacts of the alternative to the trail being developed. The proposed trail is an alternative to widening the carriageway of the Ohakune Mountain Road to accommodate walkers and

cyclists. While this road corridor is not within the Tongariro National Park, it is part of landscape and ecosystems that overlap with the TNP. It is anticipated that road widening would create more than minor effects on the indigenous vegetation and habitat in that area. There would be little to no choice on the route as the road is already in place, and similarly limited opportunities to avoid sensitive areas or vegetation. This is especially pertinent for some of the larger trees that grow next to the OMR.

Any ecological assessment will also need to extend to the Missing Link. The development of that trail is over less sensitive areas, however care still needs to be undertaken. There are areas of established indigenous vegetation and wetlands where sensitive trail building will be required. In such instances an ecological based trail protocol should be adhered to.

7.3 Landscape Values

The potential effects of the proposed trails on the landscape were considered through the TNPMP review process. The Department sought advice from landscape experts, especially for those sections of trail in alpine areas on the upper slopes of Mount Ruapehu. A more detailed landscape assessment of the proposed route will have to be carried out through the resource consent and works approvals stage.

7.4 Historical Values

The new tracks between Tūroa Ski Area, Ohakune and Horopito will utilise the Bennett and Punch Tramway and the William Cowern Bush Tramway. Heritage Impact Assessments were prepared by Department staff on the potential impact of the new track on these currently unused tramways. They concluded that, if these tramways are restored as part of the proposed trail, work would need to be carried out that includes regrowth and slips cleared, drains and culverts reactivated, regular maintenance scheduled, storytelling developed, and key features restored. The following heritage character protection guidelines and recommendations will need to be followed to ensure that the values of the tramlines are not affected:

- The initial clearance of the tram route is minimal to provide access for a heritage inspection
- Heritage inspection is done by an experienced person to create a map, a GPS record and to understand heritage features
- During restoration work, maintain the character of the tramline; stick to the route; don't widen the cuttings
- Drainage culverts may be installed
- The remaining wooden sleepers and bridge beams are not practical to preserve
- Any objects discovered should be photographed and left where they are while the image is sent for identification

- Any major artefacts like log bogies and rails should be saved for possible restoration
- In particular the train wreck on the Bennett and Punch Railway should be stabilised as a key point of interest[7].
- Conversely, they noted that if the route is not developed then it is likely that the tramway route will be totally lost due to regrowth and slips.

While it has not been the subject of a historical assessment, it is noted that Blyth Track has been identified in section 4.1.9 of the TNPMP as a protected and identified historic resource, being the main bridle track to Blyth Hut prior to the construction of the OMR. Through initial route investigations it was noted that Blyth Track is severely eroded in places by water. This is due to the grade of the trail which exceeds 15% in places. The proposed trail would involve restoring the bottom section of this trail, and in some cases realigning it to a more sustainable gradient. Storytelling can also be put in place to convey the story of this trail.

Figure 9 The Last Spike Memorial

[7] The train wreck will be stabilised and has a separate work plan associated with it.

The Missing Link trail will provide an opportunity to showcase some important rail and pioneering stories to users. The proposed terminus of the Missing Link is at the Last Spike which is an important rail history site already marked with a memorial, seating, parking etc. It is proposed to further upgrade this site with toilets and additional signage and interpretation as part of the trail development. This, combined with the proposed bridge over the Maunganuioteau River adjacent to the rail viaduct, will be a strong experience element of the trail.

7.5 World Heritage Values

Tongariro National Park is one of only 29 sites in the world with dual World Heritage status. In 1990 it received World Heritage Site status for its natural landscape values and in 1993, under a criteria change, the special significance of the Park's mountains and cultural landscape to the Tuwharetoa and Whanganui people was recognised.

Normally, proposals within World Heritage sites are assessed against the 'statement of universal values' for the site, however the statement for this site is still being developed. In these circumstances the proposal will need to be assessed against the values as described at the time of nomination and the natural and cultural criteria under which these sites have gained status. These are contained in the following two nomination documents:

Nomination of Tongariro National Park New Zealand for inclusion in the WORLD HERITAGE LIST, prepared for the World Heritage Committee by the Department of Lands and Survey, New Zealand, December 1986.

- Nomination of Tongariro National Park by the Government of New Zealand for inclusion in the WORLD HERITAGE CULTURAL LIST, May 1993
- Where proposals have the potential to impact on the values of World Heritage sites, the proposal needs to be referred to the World Heritage Centre.

On review of the World Heritage nomination documents, the values the Park was nominated for are the volcanic landscapes in the Park and the significant cultural associations and importance of the mountains to Māori. Assessments would be undertaken of the cultural, landscape and ecological values of the Park to understand the potential impact of the proposal on these values which that make the Park globally important.

The development of the trail is likely to have a very localised visual effect and would not impact on the macro landscape features of the Park. Given the scale of the work proposed, the development will not have a large visual impact greater than any other trail in the Park. The proposed route has been chosen to minimise any visual effects above the treeline and uses existing tracks where possible. To ensure the trail is

developed with sensitivity towards the landscape values of the immediate area, a visual assessment is recommended as part of the works approval process.

The cultural impact discussed in Section 7.1 does not anticipate that the trail will adversely impact on the important iwi values and associations. This is primarily down to the involvement of local iwi throughout the process, including in route selection. Tuwharetoa will, however, need to be engaged with prior to the proposal advancing further.

The trail will still need to be developed in a manner that respects their values, so a cultural impact assessment is recommended as part of the works approval process. The storytelling component of the trail provides an opportunity for local iwi to tell their stories firsthand, allowing users of the area to have a better understanding of the important cultural values which are recognised by the Park's World Heritage status.

It is important to note that UNESCO advocates for buffers to World Heritage sites to ensure that adjacent development does not impact on the values that make these locations important[8]. The decision not to widen the carriageway of the Ohakune Mountain Road to accommodate walkers and bikes has meant that environmental damage to an area surrounded by the World Heritage area has been avoided.

7.6 Statutory Assessment

7.6.1 Department of Conservation

The appropriateness of developing a trail within the National Park has been discussed extensively through the Tongariro National Park Management Plan (TNPMP) review process. As noted above, the outcome of that process was an amendment to that plan which identifies the appropriateness of the trail being developed in a sensitive manner.

The Department has indicated that a concession and works approval will be required by the Ruapehu District Council (which can be transferred to the Trails Trust) prior to the development of the trail. As these applications will be for the development and management of a new asset on PCL then the processes will need to be considered through a notified process under the Conservation Act. Such processes can take quite a while and timeframes are dependent on the Departments resourcing and priorities. Conversations with the Department locally have been initiated and there is an awareness of the importance of this project and the need to ensure that the permission process occurs in a timely manner. A strong working relationship with the Department has been developed on this project and this will facilitate the development of a comprehensive assessment of effects that can be used to inform the

[8] World Heritage Papers 25. World Heritage and Buffer Zones: International Expert meeting on World Heritage and Buffer Zones. Davos, Switzerland March 2008.

concession, works approval and also resource consent processes. This working relationship will also facilitate a timely consideration process by the Department.

As noted above, the proposed trails have already gone through a management plan change. This process involved considerable public consultation and analysis of the trail and its potential impacts. Based on that process and initial due diligence undertaken it is considered that the concession and works approval will be secured, provided that trail planning and development are consistent with the provisions in the TNPMP.

7.6.2 Resource Management Act

Trail development is to occur on a range of tenures within the Manawatu Whanganui Region and the Ruapehu District. As such, the Manawatu Wanganui Regional Plan (One Plan) and the Ruapehu District Plan need to be considered.

Section 4 of the Resource Management Act excludes activity within public conservation land that is consistent with the associated management plan (National Park Management Plan, conservation management strategy etc) from requiring resource consents from District Councils. Section 4 of the Resource Management Act does not, however, exclude such activities from Regional Plan requirements.

7.6.2.1 Regional Plan Requirements

The Manawatu Wanganui Regional Council One Plan is the 'one stop shop' resource management planning document for the Horizons Region. It combines the Regional Policy Statement, Regional Plan and Coastal Plan and contains rules on matters such as earthworks, biodiversity and landscape protection. As the plan is a regional plan, works undertaken in the Park will require a resource consent[9].

It is possible that the earthworks required to construct the new sections of trail will trigger Discretionary Activity Rule 13-7 of the One Plan. This is due to the area of earthworks (more than 2,500m^2) and their location on steeper slopes and, in places, within 5m of some waterways. While the focus will be on those parts of the development that do not meet the permitted threshold, the wider effects of the activity will need to be assessed through the consent process.

Proposed bridges over the Mangawhero, Manganuioteao and Mangaturuturu Rivers will also trigger Discretionary Activity Rule 17-3 as they have a 'Natural State' value under Schedule B of the One Plan.

While vegetation clearance is also regulated in the One Plan, its definition excludes that which is undertaken within public conservation land and is consistent with a conservation management strategy, conservation management plan, or management plan established under the Conservation Act 1987 or any

[9] Section 4 of the Resource Management Act exempts activities undertaken on the public conservation lands which is consistent with a management plan or CMS from requiring land use consents from district council.

other Act specified in Schedule 1 to that Act. While there will be parts of the Missing Link developed on land outside of conservation land, it will not have the same vegetation values and will not trigger the need for any additional consents.

As the land disturbance and bridging activities are components of the same overall project, the two matters should be bundled together into the same application.

While the consent application preparation will add to the cost, it is considered that consent will be granted provided the trail building techniques described in section 2.1.3 of this report are used. Appropriate trail and bridge building techniques will not result in slope destabilisation and sedimentation of rivers and streams. Any consent lodgement will require a comprehensive Assessment of Environmental Effects, clearly noting the potential effects associated with the trail development and how these effects will be avoided, remedied or mitigated. As noted earlier, a Works Approval will be required prior to trail development. The AEE that accompanies the works approval application will be largely similar to that accompanying the resource consent application.

7.6.2.2 District Council Consents

As elements of the proposed trails will be outside of public conservation land, the Ruapehu District Plan will need to be considered. As there will be bridges and trail development occurring on such land which will not meet the set out in Section RU3 (Rural Zone) of the plan, a restricted discretionary activity consent could be required. The assessment undertaken as part of the regional consent process should more than satisfy the requirements of these rules.

7.7 Strategic Assessment

The feasibility assessment sets out the alignment of the proposals with regional strategies and plans. In addition to these, the trails have been recognised through the Accelerate 25 Growth Prosperous Manawatu and Whanganui document and also the 2017 Ruapehu Regional Visitor Development Plan. In both instances the proposed trails have been identified as important initiatives for the region.

The Manawatū Whanganui Economic Action Plan (2016) identified tourism as the critical Ruapehu growth opportunity. Ruapehu is a destination with the natural 'greater outdoors' and nature-based resources, landscapes and assets sought by visitors. The location has good proximity to over three million New Zealanders and is favoured by many New Zealanders as a holiday location of choice, especially for those who are interested in outdoor activities. Ruapehu is also close to the international gateways of Auckland and Wellington Airports.

The proposed trails have been identified in the Ruapehu Regional Visitor Development Plan as one of the five iconic destination growing and experience investments of immediate importance. These projects are

considered by the Ruapehu 400 organisations as capable of delivering substantial regional economic development benefits to Ruapehu and the surrounding areas. The Plan identifies that the proposed trails are likely to result in increased jobs (through trail construction and direct and indirect servicing of users), social inclusion through effective training (as there will be a key focus on developing a local workforce) and enabling Māori to realise their full potential through significant participation in the trail development, operation and servicing.

7.8 Tenure

The proposed routes for the trails are in mixed tenure. The vast majority of the trails are within public conservation land administered by the Department of Conservation. There are also sections of government land managed by LINZ, KiwRail, Ruapehu District Council and NZTA. In addition, there are three affected private landowners.

7.8.1 Department of Conservation

The Te Ara Mangawhero and Horopito trails are to be developed on public conservation land within the Tongariro National Park. As set out in Section 7.6.1 of this report there are still permissions to be granted for the trail development, but the Department is supportive of the trails in principle. A management agreement or concession will be required between the trail development / management entity and the Department.

A letter of support from the Department can be found in Appendix 4.

7.8.2 New Zealand Transport Authority

The New Zealand Transport Authority (NZTA) have been engaged with in developing the feasibility assessment. NZTA has indicated that they are supportive of the proposed trails as they provide an alternative for walkers and bikers using the state highway network.

7.8.3 KiwiRail

Initial discussions with KiwiRail have identified the process for gaining permissions for the development of those sections of the Missing Link that are to use the rail corridor. Guidance provided by KiwiRail (see Appendix 3) has informed the proposed trail route to ensure that there is good separation between the trail and the rail lines. A rail crossing that was initially proposed has also been removed with the trail now crossing under the rail lines at an existing bridge site north of the Last Spike. It is anticipated that the key requirements for walking/cycleways developed on the rail corridor are able to be met by the route and design of the proposed trail.

Once the project is initiated it is recommended that the in-principle agreement stage is initiated by the trail developer.

7.8.4 Ruapehu District Council

There will be a number of locations where the trail will use road corridor owned by RDC. RDC are part of the Trust and are a key supporter of the trail. RDC has indicated that the trail can be developed on their land.

7.9 Communities of Interest

7.9.1 The Department of Conservation

The project is supported by the Department of Conservation through the recent partial change to the TNPMP. The department initiated the plan change process and associated feasibility work to ensure that the trail could proceed in a manner consistent with their statutory processes. This plan change process demonstrated that the proposal aligns with the Department's statutory and also strategic positions. Local staff have been proactive in working with RDC and also the Trails Trust to facilitate their establishment. The Department is currently working with the Trails Trust, local iwi and others to establish the governance framework for the trail.

7.9.2 Iwi

Ngāti Rangi, Ngāti Hauā and Uenuku Charitable Trust are the iwi of the area where the trails are proposed to be built. All iwi have been heavily involved in the planning for this project and will be formally involved in the project governance and management. Iwi see that there will be benefits to their people through employment in the trail development, ongoing management and in providing services such as transport and guiding. They also recognise the important economic benefits the proposed trails will have for the wider community they are part of. The incorporation of the storytelling / interpretation element of the project also offers an opportunity for iwi to tell their stories and to have their connections to the area appropriately recognised. Not only is this of great significance to iwi, but it will create a more engaging and memorable experience for riders by giving them a better understanding of the immense cultural values associated with the Ruapehu area.

There has been comprehensive engagement with iwi regarding the proposed trails. Iwi support is crucial to the development of these trails and their support has been in evidence through the progression of the Mountain Road upgrades and the change to the Tongariro National Park Management Plan. Without iwi support in those preceding processes the trail planning would not have been able to be progressed through to this stage. Iwi will also play a vital role in the subsequent permissions process and in trail governance.

7.9.3 Regional Council

The Manawatu Whanganui Regional Council has also indicated that they support the project in principle, noting that the trail is a key iconic project supporting the further development of tourism opportunities in the district and wider region. As such, it is a strategic priority for the region. In addition, the Accelerate25

governance team has previously endorsed and supported the project. An email confirming that support has been attached to this application in Appendix 3.

7.9.4 Local Communities

In addition to the groups listed above, the local Ruapehu communities (including Ohakune, Horopito and National Park) have been involved in the planning for these trails for a number of years. Community groups involved include Ohakune 2000, the Ruapehu Mountain Bike Club and the National Park Business Association. Individuals and communities were also active in submitting in support of the proposed trail through the TNPMP review process.

7.10 Funding sources

7.10.1 Capital Costs

Given the level of investment required, it is not possible to fully source funding locally or from other non-government funders. As set out in Section 8, there are significant regional benefits associated with the proposed trails, and national level funding which has a goal of lifting the productivity potential of a region is considered to be the most appropriate and viable funding source. The estimated costs of developing the trail do, however, reflect a level of community support, especially by businesses with goods and services donated or provided at a reduced cost.

Funding for the trail development is sought mainly from central government with some funding support locally. This local support is in addition to funding for the preliminary work from RDC, NZTA and the Department. The local community is not in a space where they are able to commit any further funding for the development of the trail. In 2016 the previous government committed $2,000,000 from the NCT Extension and Enhancement Fund. RDC is applying for the balance of $4565,933 to be funded by the Provincial Growth Fund. Initial discussions with MBIE regarding both funds has been positive.

Source of funding	Amount sought (Excluding GST)	Status
Provincial Growth Fund	$4,565,933	Application lodged April 2020
Ruapehu District Council	$100,000	Available 2020/2021
New Zealand Cycle Trails Extension and Enhancement Fund	$2,000,000	Application lodged April 2020
Total	**$6,665,933.00**	

7.10.2 Operational Costs

As set out in section 6, it is anticipated that there will be support and funding from the local community for the maintenance and management of the trails. The annual maintenance and operational costs of the proposed trails are estimated to be approximately $161,950 per annum. It is anticipated that this will be funded via the local community, through the Trust and with local government support. Having the Trust manage and maintain the trail will mean that maintenance costs are lower than if the government was doing so, and they can also access a wider range of funding streams. Again, this places significant onus on the establishment and running of the Trust in an effective and certain manner.

8 Economic Case

The user projections estimated spend and construction and maintenance costs were provided to Martin Jenkins to be put into the Great Rides Cost Benefit Analysis model. This model was reviewed by the NZCT team and the final model and outputs sent back to the project team for review and inclusion in the feasibility assessment and business case. In running the CBA model, half of the total capital costs were applied at a regional level. This makes the CBA results comparable to those of other trails which, predominantly, have 50% local funding. That information has been used to inform the following economic case.

8.1 Regional Benefits

The Ruapehu District is at the tail end of the regional development stakes in New Zealand. GDP per capita is 23% below the national average. Nominal GDP dropped from a 2011 peak of $540m to $506m in 2016. The average annual employment growth between 2001 and 2016 was around minus 2%.

Ruapehu's resident 2016 population sits at just over 11,700 persons. This population dropped by more than 17% between 2001 and 2016 and, under a low growth scenario, will decline to under 7000 persons by 2035.

The Manawatū Whanganui Economic Action Plan (2016) identified tourism as the critical Ruapehu growth opportunity. Ruapehu is a destination with the natural 'greater outdoors' and nature-based resources, landscapes and assets sought by visitors. The location has good proximity to over three million New Zealanders and is close to international gateways located at the Auckland and Wellington Airports.

The proposed trails have been identified in the Ruapehu Regional Visitor Development Plan as one of the five iconic destination growing and experience investments of immediate importance. These projects are considered by the Ruapehu 400 organisations as capable of delivering substantial regional economic development benefits to Ruapehu and the surrounding areas. The Plan identifies that the proposed trails

are likely to result in increased jobs (through trail construction and direct and indirect servicing of users), social inclusion through effective training (as there will be a key focus on developing a local workforce) and they will enable Māori to realise their full potential through significant participation in the trail development, operation and servicing.

Outcome	Regional benefit	National benefits
Users	About 7,818 locals are expected to use the trail in the year after it is completed, increasing to 10,546 by year 10. By year 5, about 35,065 New Zealanders from outside the region are expected to ride the trail, increasing to 40,913 by year 10. About 4,133 international visitors are expected to ride the trail once it is completed, increasing to 6,548 in year 10.	
Visitor expenditure	The trails are expected to generate about $2.75 million in additional visitor expenditure regionally by year 10.	The proposed trails are expected to generate about $0.342 million in additional visitor expenditure nationally by year 10.
Construction and operational jobs	The trail is expected to generate up to 31 full time jobs over the four-year construction phase and sustain an average of 65 full time jobs each year over 10 years.	
CBA	The trail will have a net present value of $7.85 million, a benefit: cost ratio of 2.6, and an internal rate of return of 24 percent.	The trail will have a net present value of ($1.2 million), a benefit: cost ratio of 0.9, and an internal rate of return of 4 percent[10].
Visitor benefits	The present value of visitor spend is estimated at $12.6 million.	The present value of visitor spend is estimated at $1.6 million.
Health benefits	The trail is expected to contribute $0.16 million in health benefits.	The trail is expected to contribute $2.2 million in health benefits.
Consumer surplus	The trail is expected to contribute about $0.1 million in consumer surplus.	The trail is expected to contribute about $3.7 million in consumer surplus.

Table 6. Summary of economic and social benefits from the proposed trail

8.2 Outcomes

Outcomes have been calculated for the benefiting region (Ruapehu District) and New Zealand (national).

[10] This reflects the 100% government funding contribution.

Summary metrics	Regional	National
Net Present Value	$7,853,530	($1,217,176)
Benefit:Cost ratio	2.6	0.9
Internal rate of return (IRR)	24%	4%
Net Benefit Summary		
Total benefits (NPV)	$12,862,662	$7,525,823
Total costs (NPV)	$5,009,131	$8,742,999
Benefits Summary		
Visitors (NPV)	$12,577,143	$1,572,679
Health (NPV)	$166,452	$2,191,838
Consumer surplus (NPV)	$106,120	$3,701,082

Table 7.Summary cost benefit metrics

The trails are expected to result in a net economic benefit of $7.85 million to the region. This represents a positive benefit:cost ratio of 2.6 and an internal rate of return of 24 percent.

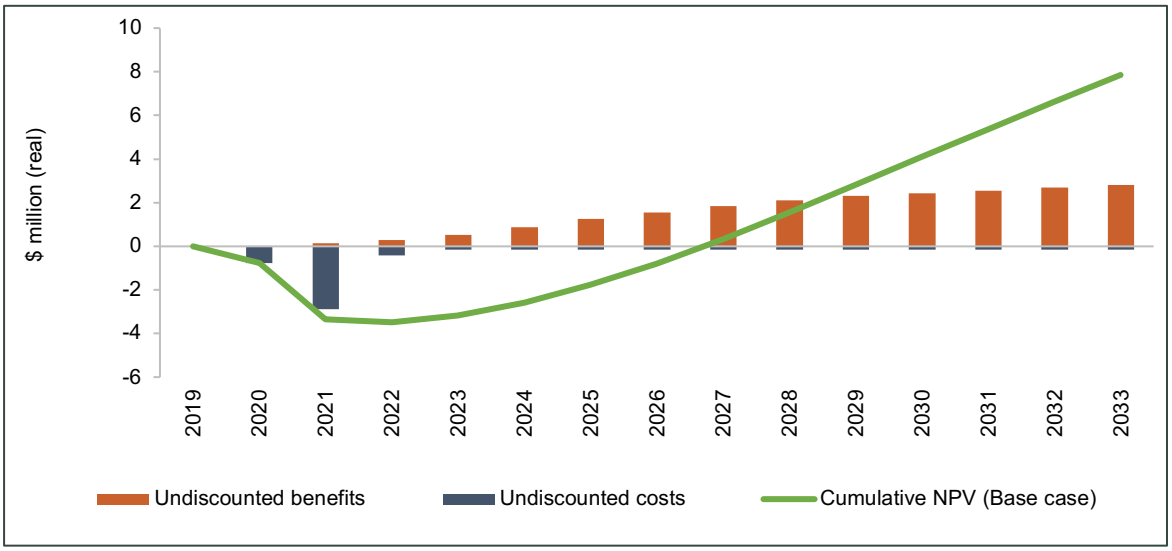


Figure 10.Annual regional costs, benefits and cumulative net present value

As shown in the graph, the largest costs occur during the construction phase and benefits start accruing from the second year when the first new extensions are opened to the public. Benefits are greater than costs from year 2.

8.3 Employment

A key objective of the Provincial Growth Fund and the NZCT Trails is to encourage job growth, particularly in the regions. Jobs are created during the construction phase of the trails and from providing services to users of the trails once they are open.

The estimated construction cost of the trails is $6.6 million incurred over three years. Many jobs will be supported during the construction phase.

The immediate employment benefits from the trails are likely to take place during construction. Jobs will be for machine operators and in bridge and underpass construction. However, more options for cycle trail users will provide business confidence for new investment in cycle hire, cycle transportation and cycle guide businesses. This will enable small to medium enterprises to employ additional full or part- time staff, making a real contribution to the district's economic performance. Improved business confidence and prospects helps to reduce unemployment levels, outward migration and dependency ratios.

There will be indirect benefits to the local (Ruapehu District) businesses, with greater occupancy and use of transport, accommodation, cafés and bike providers. This increased economic activity is likely to encourage increased investment by local businesses and assist new business investment confidence, as well as support improved property values.

The economic benefits of the proposed trail will be driven initially by the construction phase over the first year. Construction could start in the second half of 2018 once consents obtained. It is estimated that there will be up to 31 jobs created during the construction phase of the trails and an additional 96 ongoing jobs created by 2033.

Once the trails are completed, we expect additional visitors, staying longer, will generate significant new visitor expenditure in the region. This increased expenditure will support several businesses and jobs. There will also be maintenance work associated with the trail.

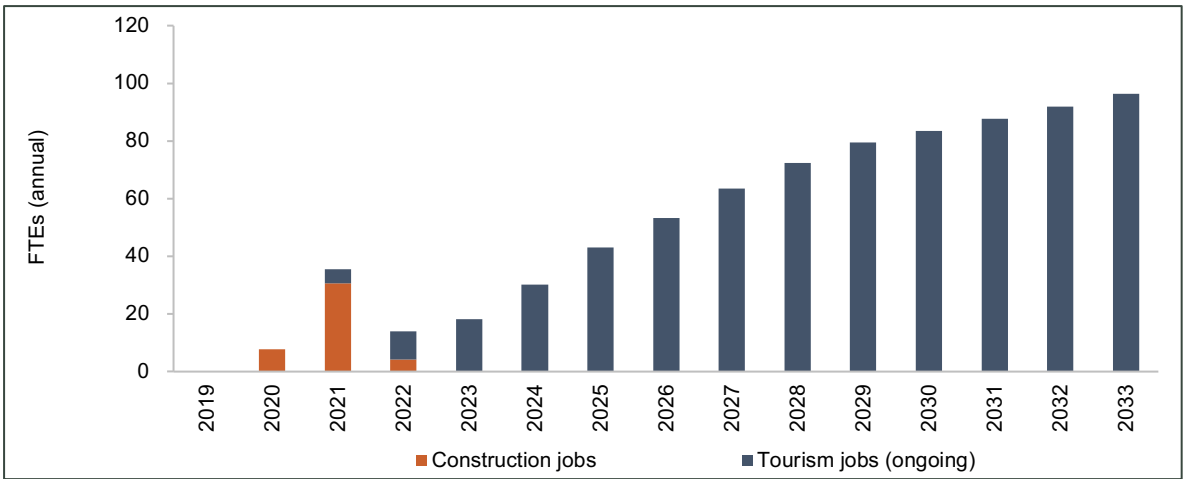


Figure 11.Jobs supported in the Ruapehu District

8.3.1 Additional visitor spend

In addition to the spend associated with the construction of the trails, based on the predicted daily spend associated with bikers who ride the Mountains to Sea Trail ($173 - $224 per day), the proposed trails are estimated to generate a net benefit from visitor expenditure to the region of $2.2 million per annum after year five and $2.8 million after year 10 (Figure 12).

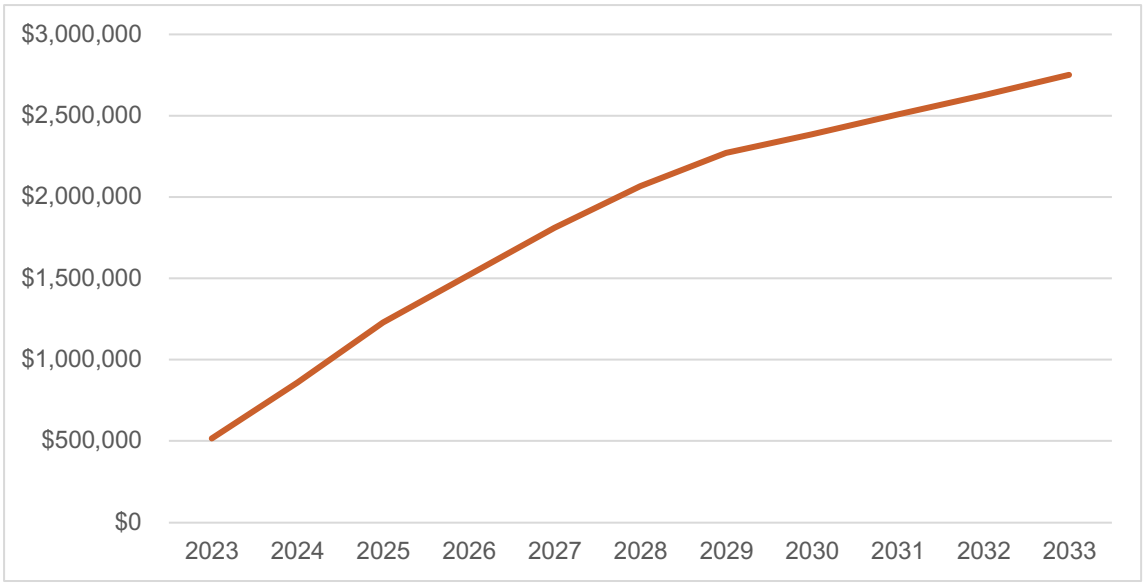


Figure 12 Regional net benefit from additional visitor expenditure

9 Recommendations

Both the Te Ara Mangawhero and the Missing Link trails will be popular rides with wide appeal. Market based projections indicate that their use will benefit the local economy through increased spending and employment opportunities. The trails will be built through unique and significant landscapes in the heart of the central North Island. The volcanic landscapes of the central North Island are not found elsewhere in

the country and currently attract high volumes of domestic and international tourists seeking outdoor experiences. The environment is rich in environmental, cultural and historical values that require a sensitive and collaborative approach to trail planning and development. This approach will need to be undertaken through the permission process required to secure works approvals and resource consents from the Department, Regional Council and District Council. It is anticipated that, assuming the appropriate levels of due diligence are undertaken in the planning phase, such permissions should be able to be obtained.

The new sections of the trail will form valuable links to the wider Mountains to Sea trail and will work to address some of the identified issues with the trail. It is anticipated these new trails will result in long-term growth in use over the wider Great Ride, provided that the proposed and existing trails are maintained, marketed and managed effectively.

To ensure that this happens, issues with trail governance for the wider and proposed trails will need to be resolved. While a governance and management model has been developed and agreed to by key parties, implementing this in an effective manner will be critical to the ongoing success of the trail. There have been issues acknowledged with trail governance and marketing in the past, however RDC, the Department and WDC have been working more actively towards implementing a more effective governance model. It is noted that the Ruapehu Trails Trust, which has been proposed as the management entity for the new trails, has yet to be formed. The formation and formalisation of that Trust should be a priority, otherwise another entity will be required to develop and administer the trails, which could be problematic.

Similarly, the Department has been actively working to resolve trail issues on the Mangapurua and Kaiwhakauka sections of the trail. They are currently undertaking works to bring the trail up to a consistent Grade 3 standard and also facilitate the future maintenance of these sections.

Local government and third party funding for trail development is limited in the District and is reliant on central government support. In 2016 the government committed $2 million to the project (through the NZCT fund) and a further application has been made for $2,577,200 from the Provincial Growth Fund. Subsequent to that application, the route of the Missing Link has been revised and re-costed. The original costs for the Te Ara Mangawhero trail were also reviewed to ensure that they reflected up to date costs. The overall project is now valued at $6,665,933. The funding for the proposed development is expected to come largely from central government, meaning the trail will have a benefit at the national level but a significant positive benefit at the regional level.

Trail maintenance is anticipated to cost approximately $161,950 per annum for the proposed new sections. This figure includes operational costs for the trail management entity. Costs are anticipated to be funded via the local community through the Trust. Having the Trust manage and maintain the trail will

mean that maintenance costs are lower than if the government was doing so, and they can also access a wider range of funding streams. Again, this places significant onus on the establishment and running of the Trust.

As well as providing key links to the Mountains to Sea trail, the proposed trails will also provide stronger links to the settlements along its route. Ohakune, Horopito and National Park will become more relevant to the journey and there will be more opportunities for those communities to provide on-trail services.

Provided that trail governance and funding matters are resolved, it is anticipated that the development of the proposed trails will have positive outcomes for the local community and also for the wider NZCT family of trails.

Appendix 1 Te Ara Mangawhero Market Based Assessment

A Market Based Assessment was undertaken with Dave Bamford which indicates that initial use would be between 17,000 and 29,250 people in the first year and 34,250 and 48,750 in the fifth year. The following is a summary of the process used:

The Product

The following product definition was established prior to the assessment being undertaken (note Section 6 – Horopito connection) and was not factored into the description of the product.

The Te Ara Mangawhero trail is a 20km grade 2-3 trail that is predominantly downhill. It will start at Tūroa which has a café, parking and toilet facilities. Tūroa is located in an alpine environment on the slopes of Mount Ruapehu, and within Tongariro National Park which has dual World Heritage status. Tūroa and the upper part of the trail provide expansive views down the mountain and south and west over the central North Island. The gradient of the trail will allow it to be walked and ridden by a wide range of users with varying ages and experiences. The proposed trail will be built on two established attractions - the Round the Mountain trail and the Mountains to Sea New Zealand Cycle Trail. The trail will descend from an alpine environment through a range of altitudinal-based habitats till it reaches Ohakune. The trail will likely take about 1.5- 2 hours for most cyclists.

Current Key Data and Resources

A consideration of the following key data sets:

- An analysis of current visitor arrivals to NZ and CNI
- An analysis of future visitor arrivals to NZ and Ruapehu
- An analysis of current cycle use in NZ and CNI
- An analysis of cycle use trends in NZ and CNI
- A comparison of TRC's demand analysis of 5 NZ Cycle Trails assessed in 2010-12 and actual numbers delivered. In summary, these demand assessments were on the lower end of the user numbers now occurring (i.e. Great Lake Trails (Taupō) and the Timber Trail)
- Mega trends from other NZ cycle trails – both urban and rural
- An analysis of Ohakune commercial cycle business data - including bike hire
- An analysis of Tūroa winter use
- Tūroa spring use and possible closed ski area days
- Tongariro Taupō Destination Management Plan
- TAC report
- MBIE Manawatu-Whanganui Growth Study

- Missing Link Report
- Pers com by the author and Dave Bamford with – Dave Mazey (RAL), Warren Furner (RDC), Jane Gamble (Mountain Bike Station Ohakune), Evan Freshwater (NZCT), Julian Tovey and Jonno Maxwell (DOC), Mark Gibson (Top Gear Cycles, Taupo), Dean Sherritt (Ohakune 2000) and Peter Masters (Bike Taupō).

Trend Indicators

The following trend indicators were considered:

- New Zealand tourism
- Local tourism
- Cycle use
- Walking for recreation
- Events

Biking:

On review of other biking products in New Zealand it was considered that the proposed trail is unique in the location and ride experience that it could offer. There are, however, other biking trails in the vicinity that do offer similar distances or have some characteristics in common. These include the following trails:

Tongariro National Park and surrounds

- The Old Coach Road (NZCT)*
- Fishers Track
- 42 Traverse
- Tukino Mountain Road
- Tree Trunk Gorge and Pillars of Hercules
- Martin Sash & Door/Erua Tramway cycleways
- Rangataua Forest

Wider Central North Island

- Mangapurua (Bridge to Nowhere)*
- Tongariro River Trail
- Great Lake Trail (NZCT)
- Timber Trail (NZCT)

* Complementary trails in that they are able to be ridden together

Walking

Given the range of walking opportunities in the Park, the proposed trail is less of a unique proposition for walkers. The Tongariro Alpine Crossing and the trails around Whakapapa (including the Tama Lakes and Northern Circuit) already allow for walking experiences within an alpine and volcanic landscape. The proposed trail will form part of the Round the Mountain Track. It is complementary to that trail and will enhance its safety by keeping walkers off the OMR. Given that the trail is serviced from Ohakune and Tūroa and it has an established transport service, it is likely to be the most popular day walk on the southern side of the mountain.

Markets

The following markets have been identified as being relevant to the proposed trail.

Market	Description
Skiers	In 2015 there were 174,439 skier days at Tūroa Ski Area and 159,289 at Whakapapa Ski Area. It is considered that there is a large overlap between ski field users and the bike market and that there will be significant appeal in riding down the mountain at the end of the ski day. In addition, season and life pass holders (especially) generally stay in the area for longer and will not ski all of those days (primarily due to weather), and the opportunity that the new trail presents will be a major attractor. This will be facilitated by direct marketing by RAL. The bike trail may also help increase both winter and summer users of the RAL lift facilities. Spring skiers are more likely to ride the trail due to the longer days, higher snow levels and better weather.
Round the Mountain	Users of the Round the Mountain Track will continue, and it is anticipated that the use in the Tūroa area will grow with the realignment of the track to Tūroa and the potential of new marketing of the trail by RAL during the summer months.
Walking Market	Numbers using the proposed trail as a day walk, either in its entirety or just sections (not Round the Mountain Track users), are anticipated to grow. This anticipated growth is due to the location of the trail, its downhill nature, the potential for storytelling, proximity to urban areas and services such as transport, and its ability to be walked as a whole or by section.
Summer Cyclists Ohakune Holiday	Those who are vacationing in Ohakune and will bring their bikes. It is anticipated that some of these potential users will be those who would have done the Old Coach Road, but it is expected that the unique nature of the trail and associated marketing will increase the numbers of people who holiday in Ohakune and will bring their bikes.
Summer Cyclists Regional	This is based on a two and a half hour drive catchment from Ohakune including the Manawatu, Whanganui, Taupō district, Rotorua and the wider Ruapehu districts (approximate population of 300,000 people).

Market	Description
Summer Cyclists wider New Zealand	Bikers from the wider North Island and South Island.
Summer Cyclists International	Those who travel to New Zealand for the purposes of riding, including Australians flying into Rotorua to ride.
Tongariro Alpine Crossing People	Those who travel to the area to walk the Tongariro Alpine Crossing and either choose to do the proposed trail instead (due to weather or spontaneous choice) or will do it as well given they are in the area (which will be facilitated by transport operators offering packages etc.).
Mountains to Sea (2 Day)	Those who will ride the Mountains to Sea ride in two days (i.e. OMR, OCR and Mangapurua).
Mountains to Sea (4 Day)	Those who will ride the Mountains to Sea trail in four days (i.e. OMR, OCR, Missing Link, Mangapurua and Pipiriki to Whanganui).
Events	Walking and running events, including adding the trail or parts of it to multisport events. The success of the recent Ruapehu Express event provides a good indication of the success of the area for such events. This market is not anticipated to include biking at this stage. This is due to the fact that it is hard to have such a trail (i.e. predominantly downhill) open to the public during such an event given the risk of conflict with other users.
Locals	Those Ohakune locals who will use the trail on a regular basis for exercise and recreation. This also includes RAL staff who may use the trail to commute home at the end of the working day.
Educational	Schools, Hillary Outdoors and army using the trail as part of field trips and exercises. The Park is currently a popular location for both and is seen as an alternative to the TAC.

Predictions

The following predictions have been undertaken based on the markets discussed earlier. In every case, conservative estimates were used. In addition, an exclusive approach was taken for each market, i.e. where there is possible for overlap, the number was reduced or a more conservative estimate was used to ensure there was no double counting. The predictions by market are shown in the table below.

Market	Year 1 Low	Year 1 High	Year 5 Low	Year 5 High
Spring Turoa Skiers	3,000	4,000	5,000	10,000
Winter Skiers	1,500	2,000	2,000	3,000
Round the Mountain Track	1,000	1,500	2,000	2,500
Walking Market	5,500	3,000	3,500	5,000
Summer Cyclists Ohakune Holiday	3,000	4,000	4,500	6,000
Summer Cyclists Regional	2,000	4,000	4,500	5,000
Summer Cyclists North Island	1,500	3,000	3,500	4,000
Summer Cyclists International	500	1,000	1,500	2000
Tongariro Crossing People	500	2,000	2,250	4,000
Mountains to Sea (2 Day)	1,000	2,000	2,250	3,000
Mountains to Sea (4 Day)	500	1,000	1,250	1,500
Events	500	750	750	1,000
Locals	250	500	500	750
Educational	250	500	750	1,000
Total	**21,000**	**29,250**	**34,250**	**48,750**

Appendix 2 Trail Development Costs

Section 1 Lower Bennett and Punch

Section	length / number	Item Cost	Cost
Development of new Trail	600m	$80.00 /m	$48,000.00
Upgrade of existing Trail	4300m	$40.00 /m	$172,000.00
Boardwalks	300m	$350.00 /m	$105,000.00
Bridges	35m	$2,000.00 /m	$70,000.00
Counter	1	$8,000.00 each	$8,000.00
Signage and Wayfinding			$30,000.00
Engineering	80 hours	$200.00 per hour	$16,000.00
Helicopter	6 hours	$2,500.00 per hour	$15,000.00
Trail Length	4,900 m		
	Sub Total		**$464,000.00**
	Contingency	**15%**	**$69,600.00**
	Total		**$533,600.00**
	Per m cost		$108.90

Section 2 Campground Loop

Section	length / number	Item Cost	Cost
Development of new Trail	300	$80.00 per m	$ 24,000.00

Upgrade of existing Trail	1700	$40.00 per m	$ 68,000.00
Boardwalking		$350.00 per m	$ -
Bridges	15m	$2,000.00 per m	$ 30,000.00
Signage and Wayfinding			$ 10,000.00
Engineering	40 hours	$200.00 per hour	$ 8,000.00
Helicopter	4 hours	2,500 per hour	$ 10,000.00
Trail Length	2,000 m		
	Sub Total		$150,000.00
	Contingency	15%	$22,500.00
	Total		$172,500.00
	Per m cost		$86.25

Section 3 Horopito Link Trail

Section	length / number	Item Cost	Cost
Development of new Trail	2,000m	$80.00 per m	$ 160,000.00
Upgrade of existing Trail	9,000m	$40.00 per m	$ 360,000.00
Boardwalking	150m	$350.00 per m	$ 52,500.00
Bridges	15m	$2,000.00 per m	$ 30,000.00
Counter	1	$8,000.00 each	$ 8,000.00
Signage and Wayfinding			$ 10,000.00
Engineering	80 hours	$200.00 per hour	$ 16,000.00
Helicopter	4 hours	$2,500 per hour	$ 10,000.00

Total length	11,000m		
	Sub Total		**$646,500.00**
	Contingency	**15%**	**$96,975.00**
	Total		**$743,475.00**
	Per m cost		**$67.59**

Section 4 Blyth to Mangawhero and Upper Bennett and Punch

Section	length / number	Item Cost	Cost
Development of new Trail	2,300m	$80.00 per m	$ 184,000.00
Upgrade of existing Trail	1,600m	$40.00 per m	$ 64,000.00
Boardwalking	100m	$350.00 per m	$ 35,000.00
Bridges	20m	$ 3,000.00 per m	$ 60,000.00
Toilet	1	$ 40,000.00 each	$ 40,000.00
Counter	1	$ 8,000.00 Each	$ 8,000.00
Signage and Wayfinding			$10,000.00
Engineering	120	$200.00 per hour	$ 24,000.00
Helicopter	8	$2,500 per hour	$ 20,000.00
Trail Length	**3,900 M**		
	Sub Total		**$445,000.00**
	Contingency	**15%**	**$66,750.00**
	Total		**$511,750.00**
	Per m cost		**$131.22**

Section 5 Chainshed to Old Blyth and Old Blyth Track

Section	length / number	Item Cost	Cost
Development of new Trail	2,300m	$80.00 per m	$184,000.00
Upgrade of existing Trail	3,500m	$40.00 per m	$140,000.00
Boardwalking	500m	$350.00 per m	$175,000.00
Bridges	50m	$3,000.00 per m	$150,000.00
Counter	1	$8,000.00 per hour	$8,000.00
Signage and Wayfinding			$10,000.00
Engineering	100 hours	$200.00 per hour	$20,000.00
Helicopter	5hours	2500per hour	$12,500.00
Trail Length	5,800m		
	Sub Total		**$ 699,500.00**
	Contingency	**20%**	**$ 139,900.00**
	Total		**$ 839,400.00**
	Per m cost		**$ 144.72**

Section 6 Horopito to Last Spike

Item	length / number	Item Cost	Cost
Existing Gravel Road	**3,000m**		

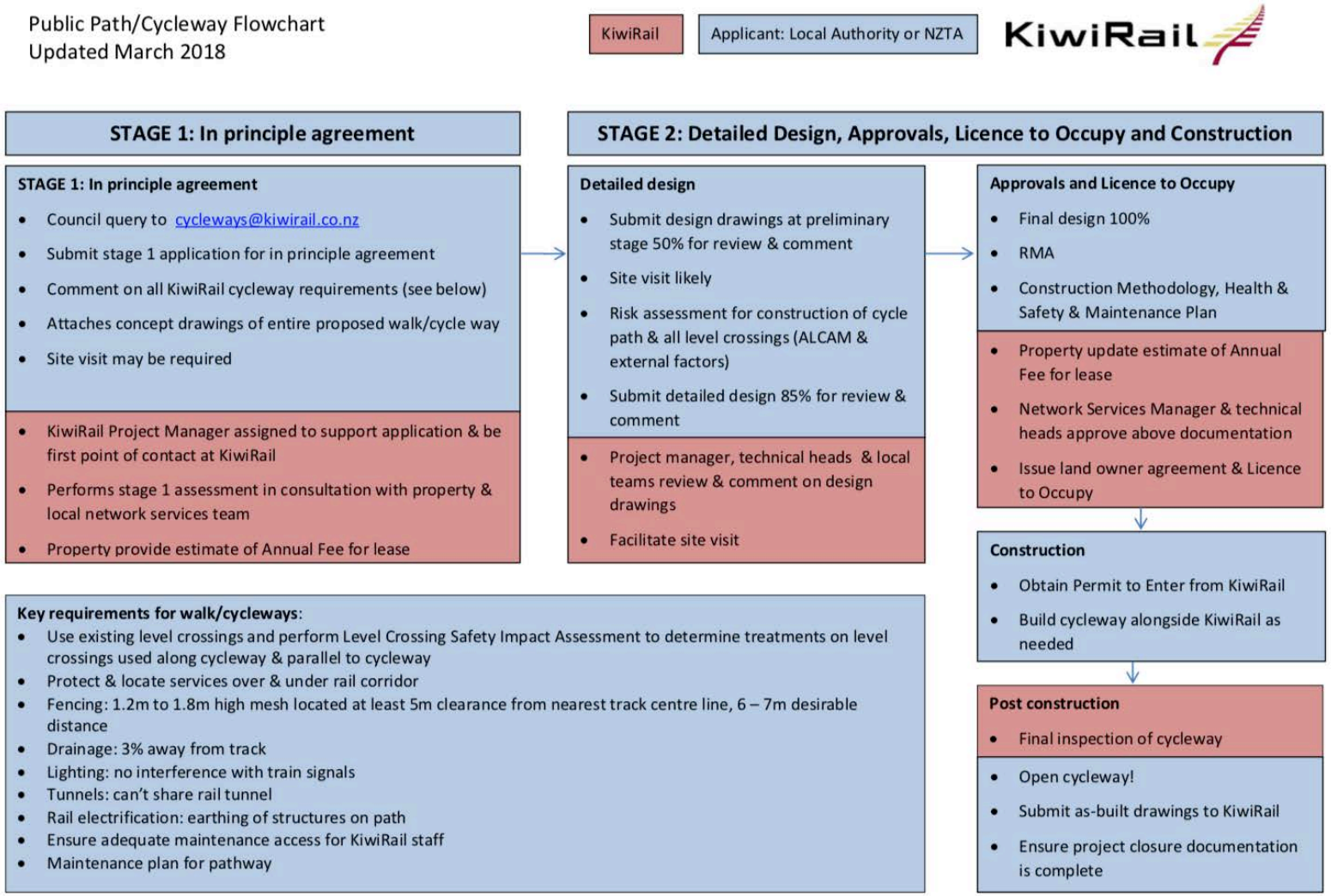
Trail	1,400m	$15.00 per m	$ 21,000.00
Bridge 1	6m	$ 3,000.00 per m	$ 18,000.00
Bridge 2	15m	$ 3,000.00 per m	$ 45,000.00
Bridge 3	5m	$ 3,000.00 per m	$ 15,000.00
small bridges	5	$ 600.00 each	$ 3,000.00
Trail	1000m	$ 40.00 per m	$ 40,000.00
Trail	1000m	$ 50.00 per m	$ 50,000.00
Bridge (Mangaturuturu)	35m	$ 3,000.00 per m	$ 105,000.00
Bridge	15m	$ 3,000.00 per m	$ 45,000.00
Trail	3000m	$ 40.00 per m	$ 120,000.00
small bridges	15m	$ 600.00 each	$ 9,000.00
Bridge	5	$ 3,000.00 per m	$ 15,000.00
Bridge (Maunganuiaoteao)	100m	$ 4,000.00 per m	$ 400,000.00
small bridges	5	$ 600.00 each	$ 3,000.00
Trail	1000m	$ 40.00 per m	$ 40,000.00
Toilets	1	$ 70,000.00 each	$ 70,000.00
Shelter / interp	1	$ 60,000.00 each	$ 60,000.00
Bridge and under trail	15m	$ 3,000.00 per m	$ 45,000.00
Fencing (rail)	1,000m	$ 16.00 per m	$ 16,000.00
Counter	1	$ 8,000.00 each	$ 8,000.00
Signage and Wayfinding			$ 50,000.00
Weed and pest control			$ 30,000.00
Engineering and Design	200 hours	$ 200.00 per hour	$ 40,000.00
Helicopter	25 hours	$2,500 per hour	$ 62,500.00

Trail length (m)	10,601		
	Sub Total		**$1,310,500.00**
	Contingency	**15%**	**$196,575.00**
	Total		**$1,507,075.00**
	Per m cost		**$142.16**

Section 7 Turoa to Chainshed

Section	length / number	Item Cost	Cost
Development of new Trail	1,500m	$110.00 per m	$ 165,000.00
Upgrade of existing Trail	100m	$60.00 per m	$ 6,000.00
Boardwalking	3,100m	$350.00 per m	$ 1,085,000.00
Bridges	60m	$3,000.00 per m	$ 180,000.00
Counter	1	$8,000.00 each	$ 8,000.00
Signage and Wayfinding			$ 10,000.00
Weed and pest control			
Engineering	200	$200.00	$ 40,000.00
Helicopter	25	2500	$ 62,500.00
Track length	4,986m		
	Sub Total		**$ 1,556,500.00**
	Contingency	**20%**	**$ 311,300.00**
	Total		**$ 1,867,800.00**
	Per m cost		**$ 374.61**

Appendix 3 Kiwi Rail Public Path/Cycleway Flowchart



Appendix 3 Support from Manawatu Whanganui Regional Council

From: **Nic Peet** Nic.Peet@horizons.govt.nz
Subject: Re: Te Ara Mangawhero PGF Application
Date: 4 October 2018 at 11:32 AM
To: Rowan Sapsford rowan@perceptionplanning.co.nz
Cc: Warren Furner Warren.Furner@ruapehudc.govt.nz

Tena koe Rowan

Please take this email as confirmation of support from Accelerate 25 for the development of Te Ara Mangawhero. The trail is a key iconic project supporting the further development of tourism opportunities in the district and wider region. As such it is a strategic priority for the region.

The Accelerate25 governance team has previously endorsed and supported the project.

Naku noa, na
Nic

Dr NIC PEET I Group Manager Strategy & Regulation
DDI 06 9522876 I M 021 227 7160 I E Nic.Peet@horizons.govt.nz
Horizons Regional Council 11-15 Victoria Avenue | Palmerston North 4410

On 4/10/2018, at 11:11 AM, Rowan Sapsford <rowan@perceptionplanning.co.nz> wrote:

> Hi Nic, I am currently in the process of submitting an application to the PGF for funding for the Te Ara Mangawhero trail between Turoa and Ohakune as well as the Missing Link to National Park. I understand from talking to Warren Furner that the regional council is supportive of this project. Is it possible to get a short letter or email confirming this support in principle. Unfortunately time frames are very short (are having to submit the application this week) as Minister Jones is keen to make an announcement next month.
>
> If you are able to fire something through that would be great otherwise we can proceed with out it.
>
> Please do not hesitate to give me a call if you require further information.
>
> Nga mihi
>
> _____
> Rowan Sapsford
>
> <PPL email signature logo.jpg>
>
> Level 1, 127 Tongariro Street
> Taupo 3330
> 07 3788 105 | 021 744 957
> perceptionplanning.co.nz
>
> <Spoken email signature logo.jpg>
> spoken.co.nz
>
> <FB logo email signature.tiff>
> We're on Facebook

Appendix 4 Letters of Support

RUAPEHU DISTRICT COUNCIL
Private Bag 1001, Taumarunui 3946, New Zealand
Telephone +64 7 895 8188 • Fax +64 7 895 3256
Email info@ruapehudc.govt.nz
Website www.ruapehudc.govt.nz

Our Ref: 718794
File: E01-0024

11 June 2019

Ministry of Business, Innovation and Employment
15 Stout Street
WELLINGTON

To Whom It May Concern

SUPPORT IN PRINCIPLE FOR PROPOSED MOUNTAINS TO SEA TRAIL GOVERNANCE STRUCTURE

Following on from the Mountains to Sea Cycle Trail Partnership group hui held in Ohakune on 24 May, Ruapehu District Council (RDC) would like to reiterate our support in principle for proposed trail governance model. This in principle support is given with the understanding that there will be further discussion amongst the parties regarding the detail of the governance model and also ensuring that Whanganui river iwi are appropriately represented.

We feel that a governance body established specifically to manage the whole trail is the best structure. It will give necessary focus on the trail its self, enable central government funds to be accessed that council and the Department of Conservation are not eligible for, will be a more effective vehicle for securing local financial support than either DOC or council.

RDC is committed to be a working part of this body to ensure that the Mountains to Sea Trail is managed to be a world class trail experience.

Please do not hesitate to contact me if you would like to discuss this matter further.

Yours sincerely

Don Cameron
MAYOR

dc: nf

WHANGANUI DISTRICT COUNCIL
TE KAUNIHERA A ROHE O WHANGANUI
OFFICE OF THE MAYOR

28 August 2019

Clive Manley
Chief Executive Officer
Ruapehu District Council
TAUMARUNUI 3946

Tena koe Clive

Support in Principle for Proposed Mountains to Sea Trail Governance Structure

Following on from the Mountains to Sea Cycle Trail Partnership governance group Hui held in Ohakune on 24 May, 2019 the Whanganui District Council and Whanganui and Partners would like to reiterate our support in principle for proposed trail governance model.

This support is given in principle with the understanding that there will be further discussion amongst the parties regarding the detail of the governance model and also ensuring that Whanganui river iwi are appropriately represented.

We feel that a governance body established specifically to manage the whole trail is the best structure. It will give necessary focus on the trail itself, enable central government funds to be accessed that council and the Department of Conservation (DOC) are not eligible for and will be a more effective vehicle for securing local financial support than either DOC or Council on its own.

Whanganui District Council and Whanganui & Partners are committed to be a working part of this body to ensure that the Mountains to Sea Cycle Trail is managed to become a world-class cycle trail experience.

Please do not hesitate to contact me if you would like to discuss this matter further.

Nāku iti noa, nā

Mayor Hamish McDouall
Mayor - Koromatua 0 Te Kaunihera o Whanganui

Kym Fell
Chief Executive
Whanganui District Council

101 GUYTON STREET • PO BOX 637 WHANGANUI NEW ZEALAND
PHONE 06 349 0001 • DDI 06 349 3086 • FAX 06 349 0000
EMAIL MAYOR@WHANGANUI.GOVT.NZ • WWW.WHANGANUI.GOVT.NZ

Department of Conservation
Te Papa Atawhai

1st April 2020

Mr Warren Furner

Regional Tourism Development Manager

Ruapehu District Council

Tena koe Warren

Department of Conservation support for Mountains To Sea Great Ride Business Case

Thank you for consulting with the Department of Conservation (DOC) on the application for funding to the Ministry for Business, Innovation and Employment for the construction of the Te Ara Mangawhero section of Nga Ara Tuhono (Mountains to Sea) cycle trail.

DOC supports the development of the remaining sections of the trail and the business case being put forward.

We will want to discuss the details of construction and sustainable future management of the trails further including the governance and management structure to manage the trails into the future. This should be done with the support of treaty partners and community.

Disclaimer For the avoidance of doubt, any support for a financial grant for the proposal by the Minister of Conservation or the Department of Conservation shall not be construed as approval, consent or authorisation of the proposal. If the proposal requires a concession or any other form of authorisation under the Conservation Act 1987 or any of the Acts specified in Schedule 1 to that Act (the conservation legislation) the proposer must apply and obtain such concession or other authorisation before undertaking the proposal. The Minister of Conservation and Director-General of Conservation shall consider any applications for concessions or other authorisations in accordance with the conservation legislation, regardless of any support for the financial grant for the proposal. The Department of Conservation shall continue to exercise its function to advocate for the conservation of natural and historic resources generally (including advocating under the Resource Management Act 1991), regardless of any support for the financial grant for the proposal.

We hope this gives the understanding you require as you progress this exciting project. We look forward to working with you in the months ahead.

Nga mihi

Connie Norgate

Operations Manager, Tongariro

Department of Conservation

UENUKU

28 Queen Street, Raetihi 4632
PO Box 102 | +64 (06) 385 4900
enquiries@uenuku.iwi.nz
www.uenuku.iwi.nz

oncern

CIPLE FOR PROPOSED MOUNTAINS TO SEA TRAIL GOVERNANCE

support in principle for the proposed mountains to sea trail governance
lows a Mountains to Sea meeting on 24 May 2019 and Uenuku Board of
on 16 June 2019.

ıpport is given on the basis that there will be further discussion among the
the governance model and that Uenuku reserves the right to withdraw its
:nuku decision making interest not be appropriately represented.

uku interest in the proposed new trails (Te Ara Mangawhero and the
:nificant and that its interest should not be diminished in any future
ure.

TE MANO O TE WHENUA TUPUA CHARITABLE TRUST
TE ARA TUPUA CHARITABLE TRUST
NGĀ PURAPURA TUPUA CHARITABLE TRUST

Appendix 3. Tongariro National Park Management Plan Assessment

Tongariro National Park Management Plan
4.4.2.6 Aircraft
The Plan has an objective relating to the use of aircraft to generally minimise their use within the Park. Policy allows aircraft to operate in the park with minimal restriction where required for park management and for activities, which would benefit park management, where undertaken by the department or a concessionaire authorised by the department to carry out these activities. Helicopters will be used to facilitate the development of the trail to enhance visitor opportunities. The helicopters will be used in areas which are not currently accessible by the public and as such will not compromise the experience of other users. The use of aircraft for trail development will only be undertaken where it will avoid greater environmental effects than if aircraft were not otherwise used. This will include flying in large structures, such as bridges. Transportation of such structures on ground and emplacing them without the use of helicopters would lead to a greater level of disturbance to the environment, specifically around water ways.
4.1.2 He Kaupapa Rangatira
The relevant objectives and policies are discussed in Section 5.3.2
4.1.3 Landscape
A landscape assessment has been undertaken for the proposed trail. This is attached as
4.1.7 Plants
An ecological assessment has been developed to inform the trail development process and is attached as Appendix 5. This assessment includes consideration of rare and endangered species and the potential effects on these species.
4.1.8 Animals
An ecological assessment has been developed to inform the trail development process and is attached as Appendix 5. The proposed development is considered to have less than minor effects on indigenous fauna. There will be no infrastructure developed on the beds or rivers. All bridges will be designed so that they do not disturb the river bed.
4.1.9 Historical Resources
The wider site, including the waterways, is known to be of importance to Uenuku. As the area is within their rohe, Uenuku have historic and contemporary associations with the site. The area has been actively used by Uenuku for living, cultivation and hunting for a number of centuries. Representatives from Uenuku have inspected the site of the proposed development and are comfortable that the proposed development will not adversely effect their historical values and associations.

On this basis, it is not anticipated that there will be any sites of historical significance encountered along the route of the proposed trail.

Conditions have been incorporated into the CMP around discovery of any sites of significance which may be discovered during development.

4.1.10 Local Authorities

A resource consent application is to be lodged with Horizons Regional Council for the wider trail. This will be to clear indigenous vegetation, build bridges and undertake earthworks adjacent to waterways.

4.1.11 Community Relations

As discussed in Section 5.3.2 of this report, the proposed trail is to be managed and maintained by Uenuku with support of Ruapehu District Council. This will result in benefits to the iwi including being able to act as more active kaitiaki within the Park. The wider community has also been actively involved in the planning of the trail since the inception of the trail concept in 2015. There is a strong level of interest in the development of the trail from local communities.

The establishment of the trail will provide additional opportunities for community conservation initiatives in the Park, specifically through the development of traplines and other pest management activities.

4.1.13 Park Interpretation and Public Information

The long term project will include a strong storytelling element. The objective of this is to share the important values of the place with trail users. This aspect of the trail experience will be developed by Uenuku at a later stage.

4.1.14.1 Volcanic Hazards

The route of the proposed track is not associated with any known historic lahar paths. As such, the probability of a lahar is low, but the consequences may be high. This risk will be managed in partnership with the Department using the same methodologies applied to the many tracks located elsewhere on the volcanic plateau.

4.1.14.2 Avalanches/Erosion

The trail set out for the trail is on relatively easy country which is vegetated. This will mean that the trail will not result in destabilising any slopes. Trail design utilises techniques to direct water off the trail so that erosion of the trail surface does not occur.

4.1.16 Works Approvals

The works approvals process is discussed in Section 5.3.3. This application is to be considered as a major works approval and contains all the information required for the Department to make an informed decision on the works proposed.

4.1.17 Waste, Discharges, Contaminants and Noise

Tongariro National Park Management Plan
The activity proposed is consistent with existing activities that already occur within the Park. The development of a trail to be used by people on foot and on bikes will not derogate from the wider visitor experience. The trail will not result in any additional waste generated in the Park with all trail users expected to follow the same rules to 'pack in and pack out' any rubbish they bring with them. No wharepaku are to be developed within the Park associated with this section of trail. Any rubbish associated with the trail development process will be removed from the Park. All proposed works will be carried out in a manner consistent with the conditions of the concession and works approval.
4.1.18 Research and Monitoring
A counter will be installed at key sections of the trail to monitor the number and frequency of trail users. As one of the Great Rides, users will be asked to fill out a survey providing feedback on their trail experience. Uenuku will work with the Department to undertake any monitoring of the ongoing use or effects of the trail and its users on the wider values of the Park.
4.2 Special Areas and Management Zones
The proposed trail and associated development will not be undertaken within any special areas and management zones.
4.3 Use Objectives and Policies
4.3.2 Recreation
The proposed trail will be freely accessible to people on foot and on bike. A counter will be installed at key sections of the trail to monitor the number and frequency of trail users. As one of the Great Rides, users will be asked to fill out a survey providing feedback on their experience on the trail. Uenuku will work with the Department to undertake any monitoring of the ongoing use or effects of the trail and its users on the wider values of the Park. The long term project will include a strong storytelling element. The objective of this is to share the important values of the place with trail users. This aspect of the trail experience will be developed by Uenuku at a later stage.
4.3.2.3 Buildings, Structures and Utility Services
There will be a number of boardwalks to be developed within the park. These structures will be of a similar design and scale to that already found within the Park. They will be constructed out of natural materials that will weather and blend in with the environment over time.

Tongariro National Park Management Plan
All structures will be developed in accordance with the relevant Departmental guidelines as set out in the construction management plan (Appendix 7). Cultural structures such as Pou may also be developed at a later stage by the applicants.
4.3.2.4 Tracks
An assessment of these provisions is set out in Section 5.3.1 of the report.
4.3.2.6 Access for People with Impaired Mobility
The trail will be developed so that it is able to be used by people who are mobility impaired. The gradient and track surface will allow the trails to be traversed by mobility impaired people who have access to off road equipment.
4.3.2.8 Day Visitors
The proposed trail will be used by a range of users. Some will continue on with the wider Mountains to Sea trail over a number of days, however the majority will use the trail for a day use experience. The trail will be developed to a standard (i.e. Grade 2) to cater for the majority of users and will also be located in close proximity to Ohakune and Horopito, meaning that their access points will be in high amenity areas outside the Park.
4.3.2.9 Tramping
The proposed new trails are shared use and will provide additional opportunities to encourage tramping in the Park.
4.3.2.12 Mountain Biking
An assessment of these provisions is set out in Section 5.3.4 of the report. The proposed trails have been scheduled for mountain bike use in the amendment to the Plan.
4.4 Concessions
Section 4.4 of the TNPMP contains a comprehensive set of objectives and policies relating to concessions within the Tongariro National Park. Section 4.4 asks several key questions that are addressed here. Can the activity be conducted outside the Park? In this case the activity is the development of a trail which is specifically mandated by the Plan. The question of whether the trail should be in the Park was considered through the Plan amendment process which confirmed its appropriateness. Can the activity be conducted in an amenities area? The activity should be undertaken along the route of the trail as set out in Map 10 of the Plan. The proposed route falls outside of the amenities area as identified in the Plan, meaning that the activity could not be conducted within an amenities area.

Tongariro National Park Management Plan

Whether the activity will benefit the Park, public use and enjoyment or safety, and whether the activity will have national or regional benefits;

The proposed trail will extend the existing Mountains to Sea trail to meet the key objective of developing a contiguous and engaging journey from Mount Ruapehu to Whanganui and the Tasman Sea. This objective will promote the Great Ride as an epic and linked journey from the upper slopes of Mount Ruapehu (located in Tongariro National Park, a dual World Heritage area) to the Whanganui River (located in the Whanganui National Park) and on to the Tasman Sea. It is anticipated that the development of these trails will resolve current trail legibility issues, improve trail access and differentiate it from other regional attractions through the delivery of a linked and coherent multiday ride located in iconic landscapes.

The proposed extensions will:

- improve the user experience by making the wider trail easier to understand through the linking of trail gaps
- reinforce the Mountains to Sea brand by having a true trail start on Mt Ruapehu
- provide for greater marketing and economic development opportunities through the development of a more visible product close to existing communities and destinations (i.e. Tūroa, Ohakune, Horopito and National Park).

These benefits are set out in the feasibility report and associated funding applications submitted to the government to secure funding to develop the trail. These measurable benefits include the economic benefits of out-of-region visitors using the trail, health benefits and consumer surplus benefits from local and domestic users.

The Economic Case clearly demonstrates that the proposed trails will significantly benefit the Ruapehu District's economy.

The benefits from the proposed trails are realised through its users. These users are made up of local and out-of-region recreational users. Out-of-region users can also be split into domestic and international visitors who could use the trail for a part of the day (single-day) or for several days (multi-day).

Once fully completed, the proposed trails are forecast to attract an additional 27,100 recreational users from outside the region. International visitors will account for 3,605 (11%) of those users.

Importantly, the development and management of the trail will give Uenuku an opportunity to take a more active role in managing assets on Ruapehu Maunga.

Whether the activity will have an effect on indigenous plants and animals, natural features, scenic values, sites of historical or cultural interest, on soil stability, on water quality, and the natural state of the park, and implications for further development that might result.

Environmental, historical and cultural effects associated with the trail development process are set out in Section 7 of the report. The assessment concludes that the level of effect associated with the activity is appropriate.

What effect the activity will have on other park users, natural quiet, other activities already taking place in the park, or the ability of staff to manage the park, and is it consistent with the reasonable demands of existing legitimate public usage;

The presence of the trail and its use has been considered by the Department through the amendment process. The trail and its use by people on foot and on bike has been legitimised through the amendment process.

The development of the trail is estimated to result in increased use of the Park by those using the trail on bike and/or foot. This increase in use will be largely focused on the route of the trail. There is currently no public access to that part of the park proposed for the trail. This is because the area is largely separated from public land by the rail corridor which is not publicly accessible.

It is not anticipated that this use will impact on the ability of Department staff to manage the Park, especially given that the trail itself is to be managed by Uenuku and RDC and not the Department.

Whether the Applicant is well-enough equipped – in terms of expertise and finance, for example – to carry through and complete the proposal in a safe and proper manner;

The Applicants will be working with experienced trail developers and managers. RDC, already manage parts of two Great Rides, the Timber Trail and parts of the Mountains to Sea. Funding for the full construction of the trail has already been secured through central government.

NZCT Master Trail Builders will be utilised to oversee the development of the trail.

4.4.3.2 Signs

Wayfinding and interpretation signs will be developed and put in place along the trail to facilitate the use of the trail and also to communicate the important stories and values to trail users. The location of key wayfinding signs is identified in the CMP in Appendix 7 of this report. The signs will be similar to other signs associated with recreation activities found in the Park.

Appendix 4. Taupō Tongariro CMS Objective Assessment

The following table assesses the proposed development against the relevant provisions in the TTCMS.

Taupō Tongariro Conservation Management Strategy
3.1.2 Management of Historic Resources
The wider site, including the waterways, is known to be of importance to Uenuku. As the area is within their rohe, Uenuku have historic and contemporary associations with the site. The area has been actively used by Uenuku for living, cultivation and hunting for a number of centuries. Representatives from Uenuku have inspected the site of the proposed development and are comfortable that the proposed development will not adversely effect their historical values and associations. On this basis, it is not anticipated that there will be any sites of historical significance encountered along the route of the proposed trail. Conditions have been incorporated into the CMP around discovery of any sites of significance which may be discovered during development.
3.1.6 Restoration / Rehabilitation
In the event that the trail and associated infrastructure is no longer required, it will be decommissioned with structures removed and the trail area allowed to regenerate back to a natural state.
3.1.8 Natural hazards
None identified associated with these sections of the trail.
3.2.2 Protected Species
An ecological assessment has been undertaken which is attached to this application. It is likely that the forests in this section of the proposed Te Hangaruru Trail contain threatened mistletoe and orchid species, as well as provide at least periodic habitat for bats, as well as habitat for threatened birds and lizards and At Risk forest ringlet butterfly.
3.5 Recreation Management
The proposed trail will introduce a new recreation asset into the TNP. This asset is expressly provided for by the TNMP via the partial amendment process. The proposed trail development will include trail counters to monitor use of the trail by people on foot and bikes.
3.5.2.1 Visitor Access
The proposed trail will be a new recreation asset which will enable an additional opportunity for public to access the conservation estate on foot and by bike. The proposed trail will enhance walking and biking access to the area. Trail planning has included consideration of the effects of this proposal in respect to the important natural and historical values of the site.

Taupō Tongariro Conservation Management Strategy
3.5.2.2 Aircraft use
Objectives and policy relation to the use of aircraft on PCL are included in section 3.5.2.2 of the CMS. The relevant Objective permits permit aircraft landings on public conservation land for management and emergency purposes and where this enhances visitor opportunities without compromising the experience of others. Helicopters will be used to facilitate the development of the trail to enhance visitor opportunities. The helicopters will be used in areas which are not currently accessible by the public and as such will not compromise the experience of other users. The use of aircraft for trail development will only be undertaken where it will avoid greater environmental effects than if aircraft were not otherwise used. This will include flying in large structures, such as bridges. Transportation of such structures on ground and emplacing them without the use of helicopters would lead to a greater level of disturbance to the environment, specifically around water ways. Hughes 300 helicopters will not be used.
3.5.2.4 Mountain Bikes
The proposed trail will be a new biking opportunity on public conservation land. The assessments included in the wider report consider the impacts of this trail on the wider natural, historic and visitor values of the area. On review, it is considered that these values will not be adversely compromised and that the recreation/visitor values will be enhanced. The proposed trail is specified in the TNMP as amended through the partial review process. As noted in the wider report, the amendment process authorised the consideration of the trails to be developed and used by people on bikes. Departmental guidance on bike trails will be used to guide the design of the proposed trails. Monitoring is to be undertaken by the Department (as per the TNPMP) in respect to any effects on the physical environment and visitor experience. Given the nature of the trail and its proposed use, it is not anticipated that there will be any ongoing effects of the trail being in place. The location, design and maintenance of the trail will be such that there will be no ongoing physical impacts from the trail. People on bikes are unlikely to stray from the trail into the wider environment. Detailed consideration of the mountain bike specific policy in the TTCMS can be found in Section 5.4 of this report.
3.6.3 Conservation Awareness
The trail will be promoted through local and national channels by the trail manager and also by New Zealand Cycle Trails as it forms part of a Great Ride. It is anticipated that trail interpretation / storytelling will include messaging about conservation and also the important cultural elements and stories associated with the trail and the wider Ruapehu Maunga.

Taupō Tongariro Conservation Management Strategy
3.7 Kaupapa Māori
The relevant objectives and policies are discussed in Section 5.3.2
3.8.2 Non-Recreation Concessions
3.8.2.4 Easements
It is noted that there are no specific provisions within the CMS document relating to the licence to establish and manage the trail. The provisions relating to Easements are the closest direction in the CMS. The objective of the easement provisions is, 'To grant easements only where they will not significantly compromise natural or historic values or public use and their purposes cannot reasonably be achieved by other means on private land.' As noted above, the right to develop the trail and have it managed by a third party is established through the amendment to the TNPMP. The wider assessment contained in this report demonstrates that the proposed trail and its management by Uenuku will not compromise the natural and historic values of the land or public use. The development of the trail will enhance public use of the land. Associated implementation policies require an EIA which sets out alternatives. This is discussed in Section 3.2 of this AEE document.

Appendix 5. Assessment of Ecological Effects

DRAFT

ASSESSMENT OF ECOLOGICAL EFFECTS FOR THE PROPOSED SHARED USE TE HANGARURU TRAIL ON THE LOWER SLOPES OF MOUNT RUAPEHU

providing outstanding ecological services to sustain and improve our environments

Wildlands

R5405e

DRAFT

ASSESSMENT OF ECOLOGICAL EFFECTS FOR THE PROPOSED SHARED USE TE HANGARURU TRAIL ON THE LOWER SLOPES OF MOUNT RUAPEHU

View south along the NIMT rail line, where the proposed route of Te Hangaruru Trail is within mānuka scrub and shrubland (Section 6.7 of the proposed trail). 23 June 2022.

Contract Report No. 5405e

November 2022

Project Team:
Angela McQuillan - Site visit, report author
William Shaw - Project management, peer review

Prepared for:
Ruapehu District Council
C/- GHD
Taumarunui

99 SALA STREET, WHAKAREWAREWA, 3010, P.O. BOX 7137, TE NGAE, ROTORUA 3042
Ph 07-343-9017; Fax 07-343-9018, email ecology@wildlands.co.nz, www.wildlands.co.nz

CONTENTS

Reviewed and approved for release by:

W.B. Shaw
Director/Lead Principal Ecologist
Wildland Consultants Ltd

1. INTRODUCTION

Ruapehu District Council are working with GHD Taumaranui and local iwi groups on the development of family-friendly, shared-use walking and mountain biking trails that will connect gaps in the Mountains to Sea (Ngā Ara Tuhono) cycle trail. Ngā Ara Tuhono is one of the 23 Great Rides of the New Zealand Cycle Trail (Ngā Haerenga). The vision for Ngā Ara Tuhono is to provide connected pathways for recreational use from Tongariro National Park, along the Whanganui River, to the Tasman Sea at Whanganui.

The proposed Te Hangaruru Trail (11.9 kilometres) that is currently under consideration is to traverse an alignment from Horopito Township to Pōkākā, then to near the southern margin of the Makatote River. The trail name "Te Hangaruru" was gifted to the trail by Ngāti Uenuku, and refers to the importance of the area as being a central part of the Uenuku rohe and also as a traditional food source which was protected as such.

Ruapehu District Council commissioned Wildland Consultants to provide an assessment of potential ecological effects of the proposed Te Hangaruru Trail[1], as part of an assessment of effects for the following permissions processes:

- Department of Conservation works approval.
- Department of Conservation concession.
- Horizons Regional Council resource consent.

This report provides an assessment of ecological effects for the proposed works, including options to avoid or minimise potential adverse effects. An assessment of the potential effects of the proposed trail on landscape values and natural character has been prepared separately (Wildland Consultants 2022).

2. PREVIOUS WORK

Wildland Consultants has previously provided the following services and reporting for the sections of the Mountains to Sea (Ngā Ara Tuhono) trail project, within Tongariro National Park:

<u>Ecology</u>

- Desktop ecological assessment of the proposed trail alignments (May 2020, Wildland Consultants 2020a).
- Attendance and verbal contributions at a hui with Ngāti Rangi and the Department of Conservation in Ohakune (November 2020).
- Attendance and technical advice on a field evaluation of the section of trail from Turoa Skifield to the Mountain Road (November 2020, Wildland Consultants 2020a).

[1] Previously referred to as the Missing Link Trail in earlier reports.

- Provision of follow-up advice on a 'trail deviation process' (November 2020, Wildland Consultants 2020c).
- Site visit and ecological assessment of the first stage of the Te Ara Mangawhero Trail (Wildland Consultants 2021).

Landscape

- Protocols for the Turoa alpine section (May 2020).
- Attendance and verbal contributions at a hui with DOC and iwi in Ohakune (November 2020).
- Attendance and technical advice on a field evaluation of the section of trail from Turoa Skifield to the Mountain Road.

Other assessments relating to landscape and ecological effects of the proposed Mountains to Sea (Ngā Ara Tuhono) trails within Tongariro National Park include Carylon (2017) and Scrimgeor *et al.* (2017).

3. CONTEXT

Existing information on the ecological context and ecological values of the project area was compiled and evaluated in Wildland Consultants (2020a).

The proposed Te Hangaruru Trail is within the western part of Tongariro Ecological District. This Ecological District contains both active and dormant volcanoes at the southern end of the volcanic plateau, including the highest mountain in the North Island, Ruapehu (2,797 metres a.s.l.), and a ring plain formed by extensive lahars. Close to two thirds of the Ecological District retains indigenous vegetation cover (Leathwick *et al*. 1995).

Much of Tongariro Ecological District is within Tongariro National Park, an area of international cultural and natural landscape significance and is recognised as a dual World Heritage Site. Iwi of the volcanic plateau have a special relationship with the maunga/mountains of Tongariro National Park.

The proposed trail is within Ruapehu District, in the Manawatū-Whanganui Region. Relevant statutory documents to the proposed trail include the Tongariro National Park Management Plan, Tongariro Taupō Conservation Management Strategy, and the Horizons (Manawatū-Whanganui) Regional Council One Plan.

4. METHODS

High resolution aerial imagery (LINZ Aerial Photographs) of the project area was obtained, overlaid with the proposed trail route, and printed at a scale suitable for field use (1:5,000).

A site visit was undertaken on 23 June 2022, in the company of Rowan Sapsford (Roam Consultants) with supervision from KiwiRail, to develop a good understanding of the

ecological values along the proposed trail route. A selection of representative locations along the proposed route of the trail were visited.

Vegetation and habitat types present within the project area were identified and described following the vegetation classification methodology of Atkinson (1985). Vegetation and habitat types and key features were mapped using the aerial photographs and digitised with ArcGIS (ArcMap V10.8.1).

All vascular plant species observed during the site visits were recorded and are listed in Appendix 1. Incidental observations of avifauna were recorded during the site visits and species observed are listed in Appendix 2. Representative photographs were taken of the vegetation and habitat types, proposed trail and bridge locations, and key ecological features.

Ecological values of the site and potential ecological effects of the proposed trail route were assessed. Options to avoid, minimise, or mitigate any adverse effects were evaluated.

5. OVERVIEW OF THE PROPOSED TRAIL

5.1 Overview

The following sections have been compiled based on information supplied by the client in June-July 2022.

The 11.9 kilometre Te Hangaruru Trail will skirt the margin of Tongariro National Park from Horopito Township (from the end of the Ohakune Old Coach Road cycle trail) to the Last Spike memorial near the Manganui-o-te-ao Viaduct, then connect to the site of a proposed ecosanctuary (Uenuku Pōkākā ecosanctuary) on the southern margin of the Makatote River.

Figure 1 provides an overview of the proposed Te Hangaruru Trail. For ease of understanding, the proposed trail has been divided into the following nine sections:

- Section 1: Matapuna Road, Horopito, *c.*3.2 kilometres.
- Section 2: Matapuna Track, *c.*1.4 kilometres.
- Section 3: Matapuna Track to Mangaturuturu River, *c.*1.1 kilometres.
- Section 4: Mangaturuturu Crossing, *c.*1.0 kilometres.
- Section 5: Mangaturuturu to Pōkākā Road, *c.*1.7 kilometres.
- Section 6: Pōkākā Road to Manganui-o-te-Ao Crossing, *c.*1.3 kilometres.
- Section 7: Manganui-o-te-Ao Crossing, *c.*0.3 kilometres.
- Section 8: Last Spike Connection, *c.*0.3 kilometres.
- Section 9: Last Spike to Makatote, *c.*1.6 kilometres.

The trail is intended to be used by public for walking and mountain biking, and will be able to be used in both directions. It will be suitable for a wide range of ages and abilities.

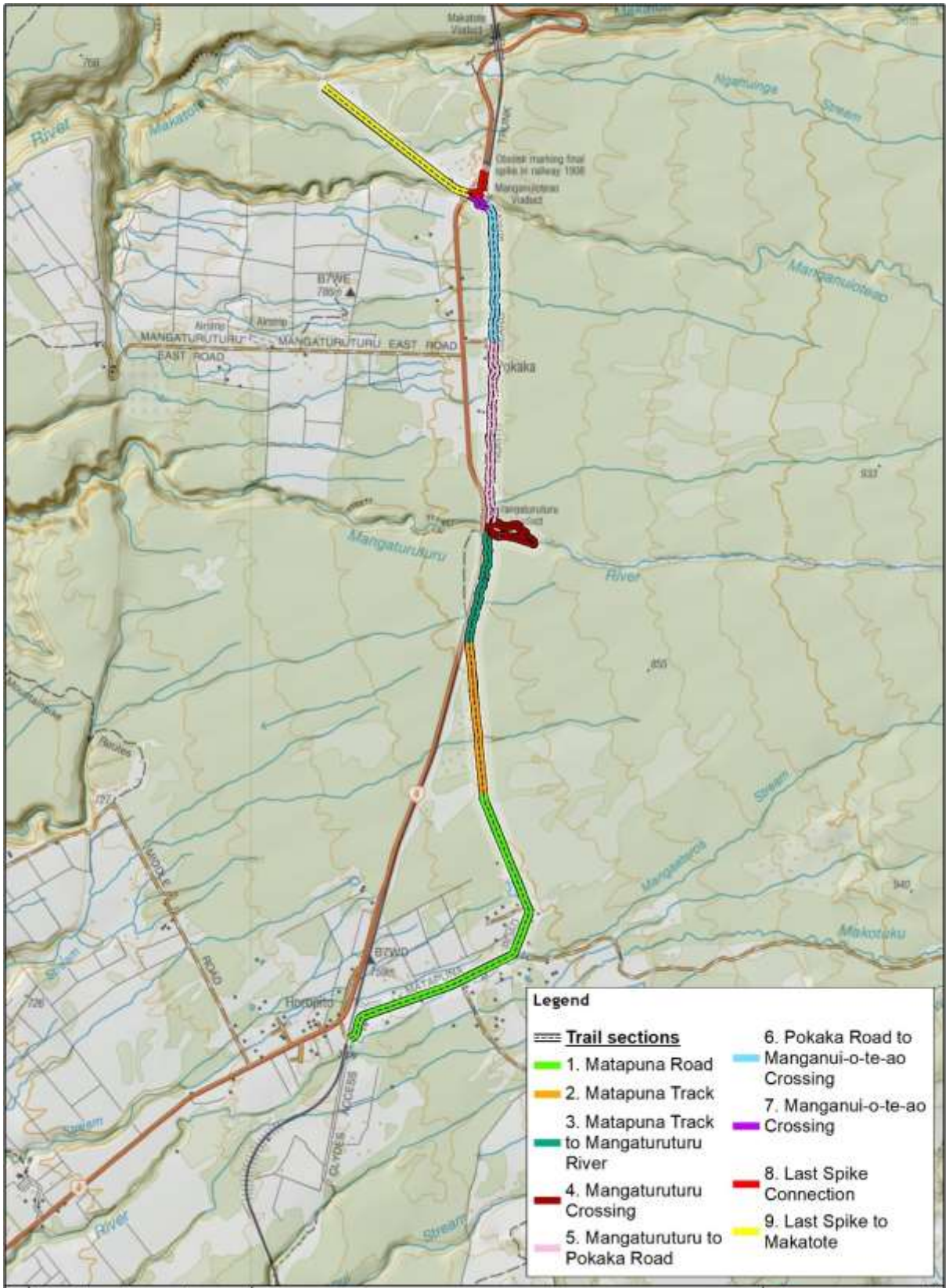


Figure 1. Overview of the proposed Te Hangaruru Trail, Ruapehu

Wildlands
Scale: 1:45,000
Date: 23/08/2022
Cartographer: FM
Format: A4

The trail will primarily be located within the North Island Main Trunk (NIMT) rail corridor, local paper roads, existing tracks roads, and historic roads. A small section is proposed within the boundaries of Tongariro National Park (Mangaturuturu River Section). Development of this trail will require the construction of bridges over the Manganui-o-te-Ao and Mangatururu Rivers.

The 11.9 kilometre Te Hangaruru Trail will require the construction of *c.*5.7 kilometres of new trail (Sections 3-8) and utilise *c.*6.2 kilometres of existing trails (Sections 1-2, and 9).

The rail corridor was cleared for rail construction in the early twentieth century, and opened for trains in 1908. Due to the difficult terrain, it was the last section of the NIMT rail line that was built. The Last Spike memorial is located near the northern end of the proposed trail and will provide the only road access to the trail from the north.

The southern end of the proposed trail links to the existing Ohakune Old Coach Road cycle trail, thereby linking Ohakune with Horopito.

Construction is intended to be undertaken by a local company to provide local upskilling and employment opportunities, particularly for members of the Ngāti Uenuku iwi. A suitably qualified and experienced trail construction manager will train and oversee kaimahi (staff) to ensure that appropriate techniques are used.

5.2 Proposed footprint

The average width of the completed trail will be 1.5 metres, extending to 1.8 metres where terrain permits to allow for easy passing and shared use. The maximum width of the trail will be two metres, including construction batters.

The trail will cross two rivers. New bridges (likely to be suspension bridges) will be installed at both of these crossings (Section 4 Mangaturuturu Crossing, 26 metre span; and Section 7 Manganui-o-te-Ao Crossing, 20 metre span). Smaller bridges will be used for stream crossings. Boardwalks will be used in areas of sensitive terrain, such as within mountain beech forest (Section 4) and wetland areas. Boardwalks will also be used to provide switch-back trail routes in areas of steep terrain (such as Section 4.4.W). Bridges and boardwalks would be *c.*1.2 metres wide. A staircase with running board ramp is proposed to provide a route up the steep slope from Manganui-o-te-Ao River to the Last Spike (Sections 7/8). The use of culverts has been minimised in the planning, although six new culverts are currently proposed. Locations of proposed bridges and other structures are shown on Figure 2 and are summarised in Appendix 3.

5.3 Construction methodology

The over-arching philosophy is that trail construction will be undertaken in a sensitive manner, with a major focus on recognising the cultural and ecological importance of the surrounding indigenous habitats and aquatic environments. A key aim will be to avoid and minimise the potential adverse effects of trail construction and ongoing maintenance on te taiao (the environment). Construction of the trail would be overseen

by a suitably qualified and experienced trail construction manager. The construction methodology is still being finalised by the project team, but will include the following steps:

- Final "setting out" of the trail route to ensure that appropriate detailed design considerations are addressed.
- The trail would be built to a Grade 2 (Easy) New Zealand Cycle Trail Design Standard (ViaStrada 2019). This means that the trail will generally be wide with gentle climbs and a smooth alignment. Although, there will likely be some steeper or narrower Grade 3 (Intermediate) sections. The design of the trail has incorporated features to enable safe shared use by people on foot and on bike, travelling in both directions. The overall maximum gradient of the trail is intended to be an average of 5%, but no greater than 8%.
- Helicopter-drop locations may be used to deliver supplies to the construction front at set locations along the route. Existing clearings or gaps in the forest canopy can be used for helicopter-drop locations. For locations less than one kilometre from roads or access points, materials will be transported using tracked low-ground-pressure dumpers.
- Vegetation clearance will be undertaken within the trail footprint using arboricultural tools, e.g. chainsaws and hand tools.
- Clearance of the trail footprint using hand tools and/or machines such as a small excavator, to a maximum size of 1.8 tonnes[1], 1.4 metres wide. Tracked, low-ground pressure machinery will be used, to minimise compaction.
- The width to be disturbed during construction is likely to be up to two metres in places. This includes the trail width (average 1.5 metres) and construction batters.
- The intention is for the trail to meander through existing indigenous vegetation. No mature indigenous trees will be removed and, where possible, indigenous trees taller than two metres will be left undisturbed and the existing root structures of mature trees will be protected from damage.
- Vegetative material that is cleared will be scattered along the trail margins, where suitable, avoiding the formation of large piles of debris.
- Where possible, the intention is to use construction methods that involve minimal or no excavation. Any soil or substrate that is removed will be used as fill for other sections of the trail (e.g. boulder mesh nets as bridge struts) or placed in areas of minimal ecological impact (such as recently disturbed areas) and then revegetated. Excess material will not be side-cast or disposed of loosely.
- Careful sediment controls will be implemented at all bridge sites, using coir logs or similar.
- On flat terrain the trail surface will be crowned with the surface sloping towards each side at a gradient of approximately 4%, which will prevent a trenched/dished trail surface developing from use over a short period of time. Generally, boardwalks

[1] A 1.2-1.8 tonne excavator is preferred over a larger excavator because a larger excavator will generally result in more severe ecological effects.

will be used on slopes. Where boardwalks are not used, outward-sloping trail surface will be used, in preference to a crowned or inward sloping surface which could require an inside drain and use of culverts. This will assist any water to run across the trail and not down the trail, thereby minimising ongoing maintenance needs.

- A compacted gravel surface will be established. Weed-free gravel (AP 60 scoria base course and AP 20 volcanic top course material) is to be sourced from a local quarry near Ohakune. Aggregate would then be spread using a mini loader.
- Boardwalks will be used in sections of sensitive terrain, such as within beech forest (Section 4) and wetland areas.
- Two suspension bridges are proposed (see Table 1). These will likely be constructed from timber and rope wire, with handrails as fall protection for pedestrians and cyclists. Both of these bridges will span entirely over the existing waterways in such a way that the waterway under the bridge is not reduced and potential effects are avoided or kept to a minimum. Where land disturbance activities are carried out, erosion and sediment control will be provided on-site during construction.
- Where possible, all boardwalks and bridges will be constructed offsite, and either carried with a small excavator, or dropped into place by helicopter. Larger bridges will be air-lifted as components and assembled on-site.

6. VEGETATION AND HABITATS

Thirteen broad vegetation and habitat types were identified along the proposed alignment. Vegetation and habitats within each section of the trail are mapped in Figure 2 and listed in Table 2, with descriptions of the types provided below. Representative photographs of vegetation and habitats are also presented.

Table 2: Vegetation and habitat types along the proposed alignment for Te Hangaruru Trail, Ruapehu.

Vegetation and Habitat Type	Section of Proposed Trail	Length of Proposed Trail (km)
1. Podocarp/mountain beech forest	4	0.41
2. Mountain beech forest	4 and 7	0.75
3. Mixed indigenous broadleaved-species forest	6	0.04
4. Mānuka scrub	2, 3, 5, and 6	2.57
5. Mānuka scrub	7	0.06
6. Orihou shrubland	7	0.02
7. Mānuka-broom-rārahu shrubland	8	0.13
8. Exotic grassland	7	0.06
9. Exotic grassland with local patches of mānuka shrubland	3, 5, and 6	1.76
10. Open water	5	0.00
11. Existing road	1	3.21
12. Existing trail	2, 8, and 9	2.90
13. Lawson's cypress forest	9	0.13
Grand Total		**12.03**

Vegetation and habitat descriptions are provided below:

1. Podocarp/mountain beech forest

Old-growth forest dominated by mountain beech (*Fuscospora cliffortioides*, *c.*15 metres tall) with scattered emergent podocarps[1], is present in Section 4, on the northern side of the Mangaturuturu River (see Plates 1-4). Some black beech (*Fuscospora solandri*) are also likely to be present in the canopy. Emergent podocarps include rimu (*Dacrydium cupressinum*), Hall's tōtara (*Podocarpus laetus*), and miro (*Pectinopitys ferruginea*). Epiphytes are common. The understorey is dense and diverse, including scattered mountain horopito (*Pseudowintera colorata*), *Coprosma dumosa*, crown fern/piupiu (*Blechnum discolor*), and mingimingi, and local *Sticherus cunninghamii*,

In shallow gullies and areas of damp ground there are patches of kakaha (*Astelia fragrans*) and a few *Gahnia procera* (see Plate 4).

This forest type is classified as At Risk in the Horizons One Plan (Schedule F[2]).

Plate 1: Podocarp/mountain beech forest in Section 4.6 of the proposed trail, on the northern side of the Mangaturuturu River. 23 June 2022.

[1] In this report, the term podocarp refers generally to the group of New Zealand tree species belonging to the conifer families Podocarpaceae and Phyllocladaceae.

[2] Horizons One Plan, Schedule F: Indigenous Biodiversity. https://www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=3343c27f-3032-4537-bddd-6d0e654c2913 Accessed on 1 August 2022.

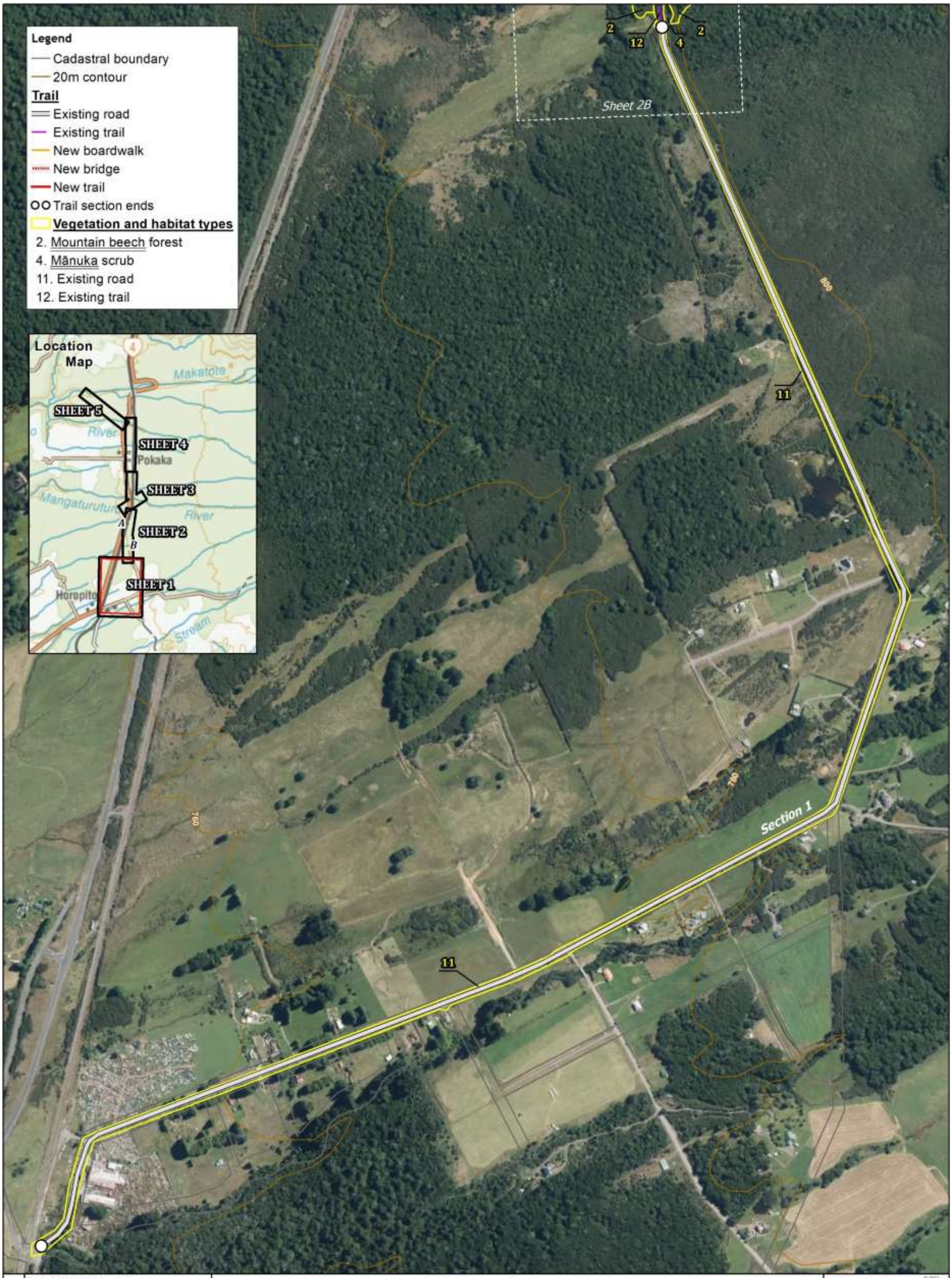
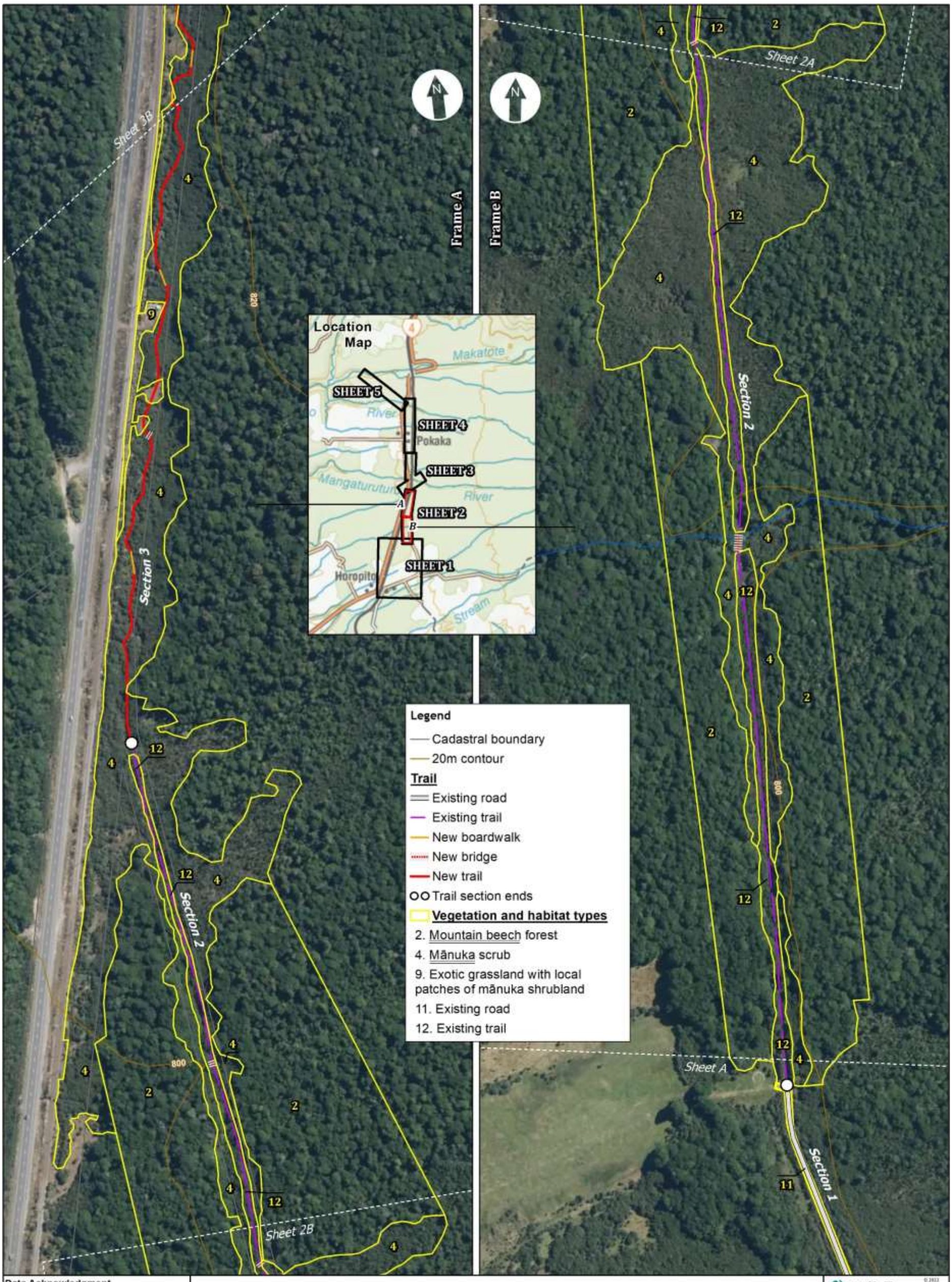


Figure 2. Vegetation and habitat types along the proposed Te Hangaruru Trail, Ruapehu.(Sheet 1 of 5)



Data Acknowledgment
Maps contain data sourced from LINZ.
Crown Copyright Reserved

Report: 5405e
Client: Ruapehu District Council
Ref: 01 2424
Path: E:\gis\RT Ruapehu Trails\mxd\
File: Figure_TeHangaruru_2.mxd

Figure 2. Vegetation and habitat types along the proposed Te Hangaruru Trail, Ruapehu. (Sheet 2 of 5)

Wildlands
Scale: 1:3,000
Date: 5/10/2022
Cartographer: FM
Format: A3

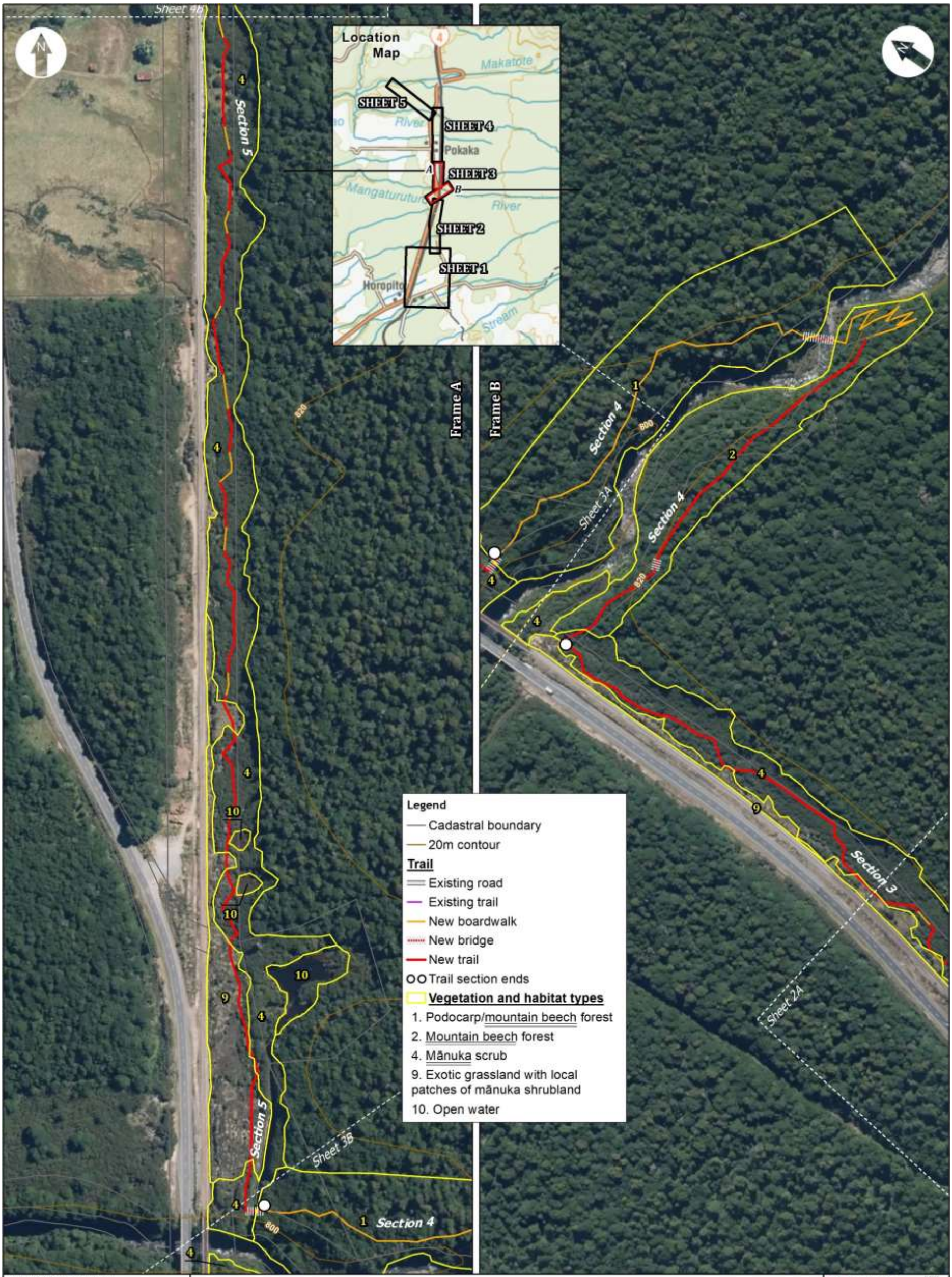
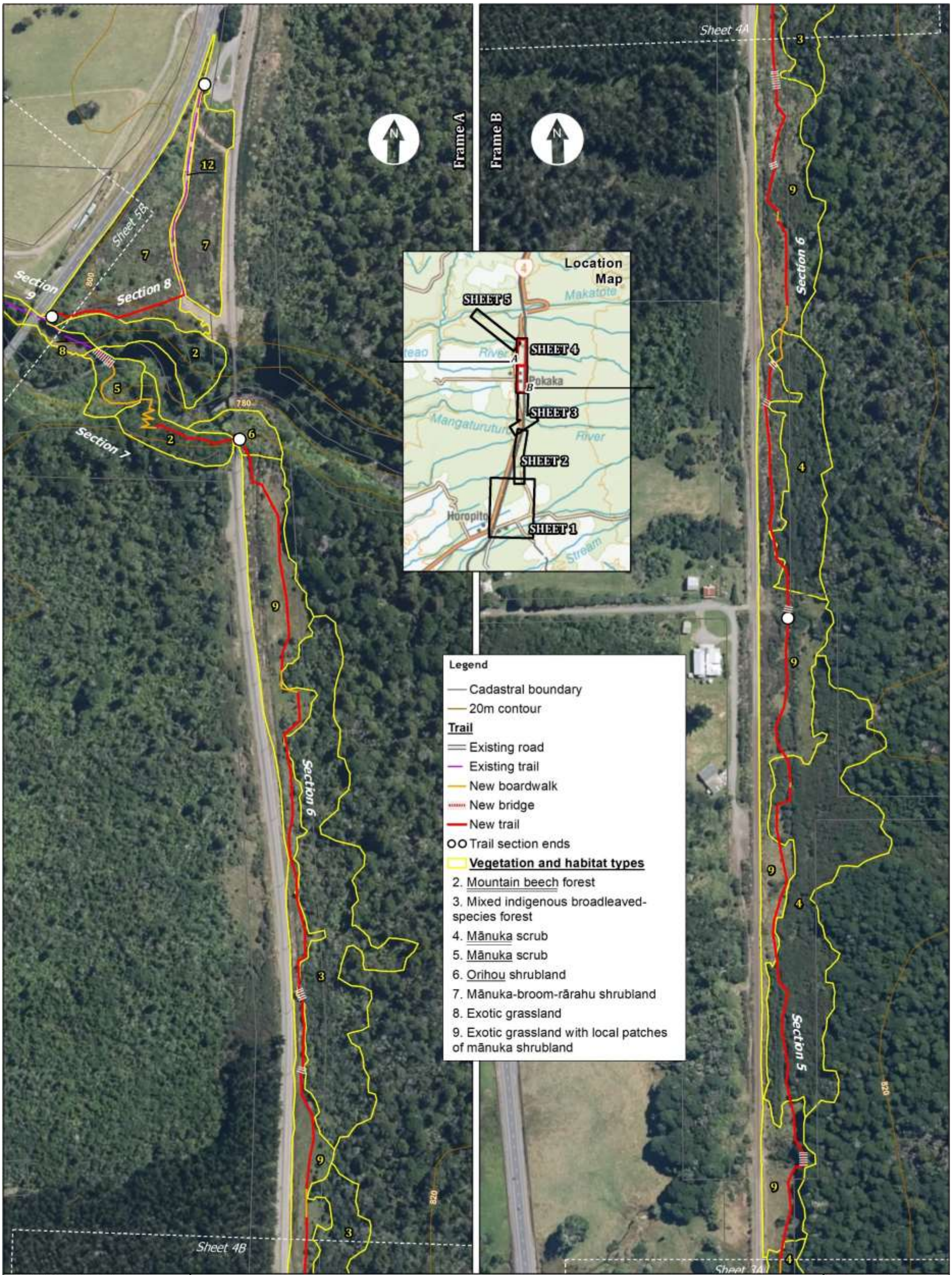


Figure 2. Vegetation and habitat types along the proposed Te Hangaruru Trail, Ruapehu. (Sheet 3 of 5)



Data Acknowledgment
Maps contain data sourced from LINZ
Crown Copyright Reserved

Report: 5405e
Client: Ruapehu District Council
Ref: 01 2424
Path: E:\gis\RT Ruapehu Trails\mxd\
File: Figure_TeHangaruru_4.mxd

Figure 2. Vegetation and habitat types along the proposed Te Hangaruru Trail, Ruapehu. (Sheet 4 of 5)

Wildlands
Scale: 1:3,000
Date: 5/10/2022
Cartographer: FM
Format: A3

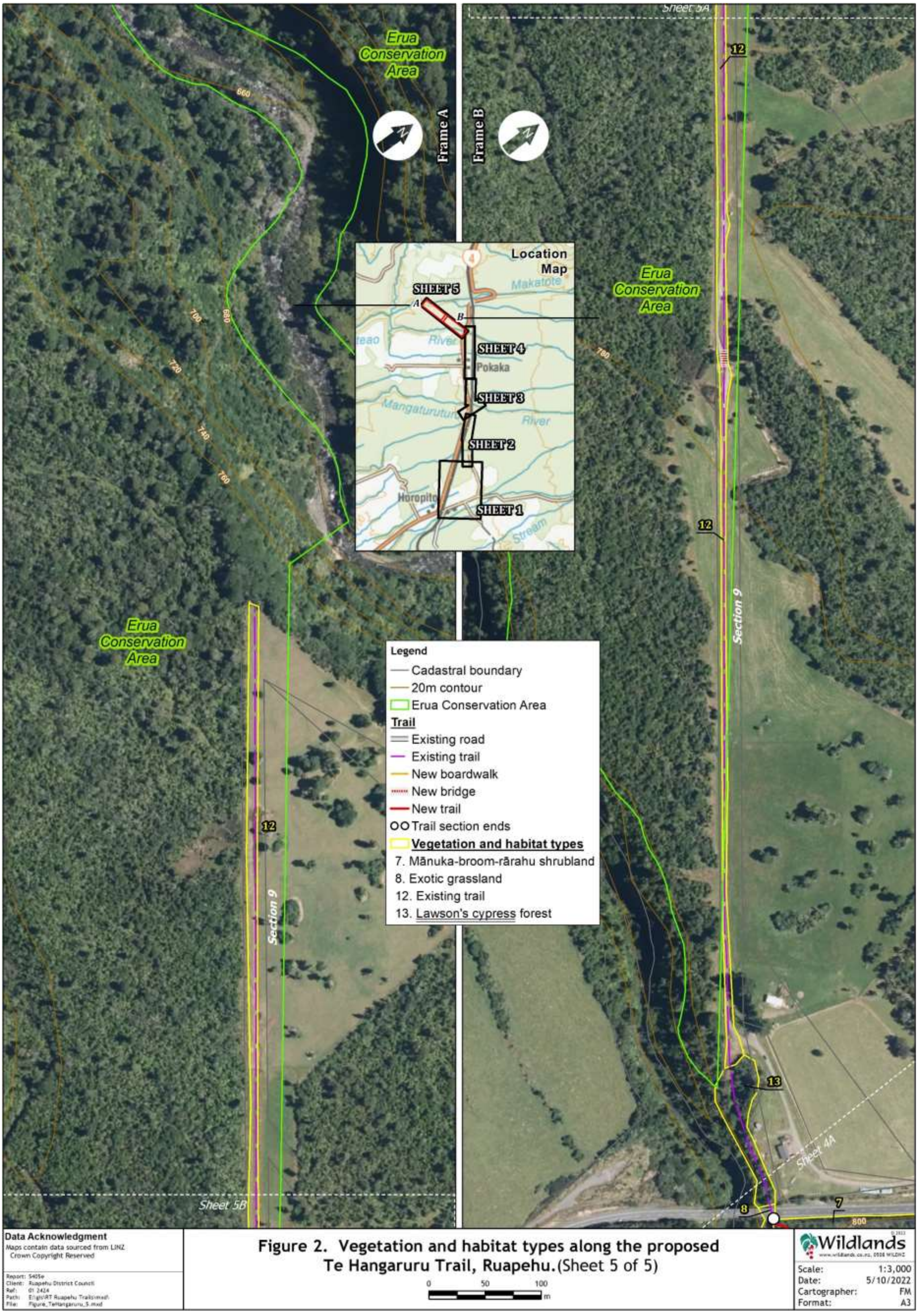


Figure 2. Vegetation and habitat types along the proposed Te Hangaruru Trail, Ruapehu. (Sheet 5 of 5)

Plate 2: Podocarp/mountain beech forest in Section 4.6 of the proposed trail, on the northern side of the Mangaturuturu River. 23 June 2022.

Plate 3: Podocarp/mountain beech forest in Section 4.6 of the proposed trail, on the northern side of the Mangaturuturu River. 23 June 2022.

Plate 4: Abundant *Astelia fragrans* in an area of damp ground within podocarp/mountain beech forest, on the northern side of the Mangaturuturu River (Section 4.6 of the proposed trail). 23 June 2022.

2. Mountain beech forest

Old-growth forest dominated by mountain beech (*c.*15 metres tall) is present in Sections 7 and 4. Some black beech are also likely to be present in the canopy.

In Section 4, mountain beech forest is present on the southern side of the Mangaturuturu River (Sections 4.1 - 4.4.W) (see Plates 5-8). There is an unofficial track (likely used for access to the surrounding National Park) that follows approximately the same route as the proposed trail along the flat area above the river in this location. Several of the large beech trees along this Section appeared to be dead (apparent canopy dieback) during the site visit. There are occasional kāmahi (*Pterophylla racemosa*, to *c.*10 metres tall) in the subcanopy. The understorey is relatively open, but includes scattered *Coprosma dumosa*, mingimingi (*Leucopogon fasciculatus*), hūpiro (*Coprosma foetidissima*), kakaha (*Astelia fragrans*), and rōhutu (*Neomyrtus pedunculata*). The groundcover is dominated by leaf litter with patches of mosses. There are a few large trees (*c.*1 metre diameter at breast height, dbh, i.e. diameter of stem measured at 1.35 metres above ground level) and saplings of rimu, Hall's tōtara, and miro (*Pectinopitys ferruginea*) near the proposed trail route. Epiphytes are relatively common.

Plate 5: View southeast from NIMT rail bridge over the Mangaturuturu River valley showing mountain beech forest in Section 4.1, and manuka scrub near the rail line in Section 3 of the proposed trail. 23 June 2022.

Plate 6: Mountain beech forest in Section 4.4.W of the proposed trail. 23 June 2022.

Plate 7: Mangaturuturu River crossing, in the location of the proposed 26 metre span bridge (Section 4.5.B, viewed from the northern side of the river). 23 June 2022.

Plate 8: Mangaturuturu River crossing, in the location of the proposed 26 metre span bridge (Section 4.5.B, viewed from the southern side of river). 23 June 2022.

In Section 7, mountain beech forest occurs on the hillside and ridge between the railway (Section 7.1.W) and the proposed bridge over the Manganui-o-te-Ao River (Section 7.3.W) (see Plates 9 and 10). The understorey is dense and includes saplings and small trees of rimu and miro. Hūpiro, mingimingi, tāwiniwini (*Gaultheria antipoda*), and kiokio (*Blechnum novae-zelandiae*) are scattered throughout. There is a local patch of *Dicksonia lanata* var. *lanata* on the ridge.

This forest type is classified as At Risk in the Horizons One Plan (Schedule F[1]).

3. Mixed indigenous broadleaved-species forest

Secondary forest (*c.*4-5 metres tall) comprising a range of indigenous broadleaved species is present within the rail corridor, adjacent to the taller old-growth podocarp-beech forest of the National Park, in Section 6 of the proposed trail. This vegetation type occurs in areas that have likely been less disturbed during construction of the NIMT rail lines than the areas of exotic grassland and mānuka (*Leptospermum scoparium* agg.) scrub and shrubland. The canopy generally includes either orihou/mountain five finger (*Pseudopanax colensoi* var. colensoi) or kāmahi as the dominant species, along with occasional horoeka (lancewood; *Pseudopanax crassifolius*), tōī/mountain cabbage tree (*Cordyline indivisa*), and whekī-ponga (*Dicksonia fibrosa*). A few patē (*Schefflera digitata*) are present, particularly alongside streams.

In the understorey there are ferns such as *Blechnum filiforme*, kiokio, prickly shield fern (*Polystichum vestitum*), and scattered saplings and small trees of Hall's tōtara, rimu, mountain horopito, as well as the canopy species.

4. Mānuka scrub

Scrub comprising dense stands of mānuka (*c.*4 metres tall) occurs in Sections 2, 3, 5, and 6 of the proposed trail (see Plates 11-16). Much of this vegetation type occurs on low-lying ground upslope of the bund for the NIMT rail line. Water draining from the slopes of Mt Ruapehu appears to collect behind this bund. As such, this vegetation type has characteristics of an "induced wetland". There are local areas of standing water and damp ground. Occasional man-made drains pass through this area that appear to have been built for the purpose of providing drainage of the rail line (see Plate 13) and Matapuna Track.

The understorey varies. In damp areas, there are patches of moss on the ground (including *Sphagnum cristatum*). *Astelia* sp. (*A. grandis* and *A. fragrans*) are common throughout, along with ground ferns including swamp kiokio (*Blechnum minus*), and *Blechnum penna-marina* subsp. *alpina* (see Plates 11 and 12). The indigenous sedges, *Schoenus pauciflorus* and *Eleocharis gracilis*, the

[1] Horizons One Plan, Schedule F: Indigenous Biodiversity. https://www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=3343c27f-3032-4537-bddd-6d0e654c2913 Accessed on 1 August 2022.

Plate 9: Mountain beech forest in Section 7.2 of the proposed trail. 23 June 2022.

Plate 10: View from the northern side of the Manganui-o-te-Ao River, of mountain beech forest in Section 7.2 of the proposed trail. NIMT rail bridge is visible on the far left. 23 June 2022.

Plate 11: Mānuka scrub within Section 5.21 of the proposed trail. Podocarp-mountain beech forest within Tongariro National Park is visible in the background. 23 June 2022.

Plate 12: Example of mānuka scrub within Section 5.1 of the proposed trail (note that blue flagging indicates the proposed route). 23 June 2022.

Plate 13: Example of an old drain within mānuka scrub at Section 5.14.W of the proposed trail. 23 June 2022.

Plate 14: Example of an area of damp ground within mānuka scrub at Section 5.3 of the proposed trail. 23 June 2022.

Plate 15: Example of a typical area with standing water within mānuka scrub at Section 3.11 of the proposed trail. 23 June 2022.

Plate 16: A gap in the mānuka scrub where toetoe and broom are present (Section 5.22 of the proposed trail). 23 June 2022.

indigenous rush *Juncus edgariae*, and the indigenous herb *Potamogeton cheesemanii* are present in and around areas of standing water. There are a few trees of kaikawaka (*Libocedrus bidwillii*, to *c.*6 metres tall) and *Myrsine divaricata* (to *c.*3 metres tall), and a few seedlings of kahikatea (*Dacrycarpus dacrydioides*). Shrubs of *Coprosma dumosa* are scattered throughout.

In drier areas, moss is less common on the ground, and *Astelia* sp. are less common. Shrubs of *Coprosma dumosa* and mingimingi are common throughout. Saplings of mountain beech are scattered in places. There are also occasional shrubs of rōhutu, hūpiro, *Coprosma tenuifolia*, tāwiniwini and *Raukaua anomalus*. *Carex solandri* and waewaekoukou (*Lycopodium volubile*) are scattered in places. There are local patches of tangle fern (*Gleichenia dicarpa*). A few saplings of Hall's tōtara (to *c.*2 metres tall) and occasional plants of the exotic shrub, *Cotoneaster franchetii*, are present.

There are occasional local gaps in the mānuka canopy where broom (*Cytisus scoparius*), exotic grasses, heather (*Calluna vulgaris*), rārahu/bracken (*Pteridium esculentum*), and toetoe (*Austroderia fulvida*) are common (see Plate 16).

5. <u>Mānuka</u> scrub

Scrub comprising mānuka (*c.*1.5 metres tall), with occasional koromiko (*Veronica stricta* var. *stricta*), and *Coprosma lucida* is present on a terrace on the southern side of the Manganui-o-te-Ao River (southern side of proposed bridge 7.4.B) (see Plate 17). There are also a few tōī/mountain cabbage tree, toetoe present. Kiokio and *Machaerina sinclairii* occur on the faces of the cliffs above the river.

Plate 17: View from the southern side of Manganui-o-te-Ao River, with <u>mānuka</u> scrub in the foreground (Section 7.4.B of the proposed trail) and exotic grassland on the northern side of the river (Section 7.5). State Highway 4 bridge is visible in the background. 23 June 2022.

6. <u>Orihou</u> shrubland

Shrubland comprising small trees of orihou/mountain five finger (*Pseudopanax colensoi* var. colensoi), intermixed with occasional mānuka, toetoe, rārahu/bracken, and whaririki/mountain flax (*Phormium cookianum* subsp. *hookeri*) occurs on the southern side of the Manganui-o-te-Ao River, on both sides of the NIMT rail bridge (Section 7.1.W) (see Plate 18). A wide range of indigenous plant species, typical of regenerating secondary vegetation in this landscape are present, including kāpuka (*Griselinia littoralis*), mingimingi, horoeka/lancewood, kiokio, tōī/mountain cabbage tree, and *Coprosma lucida*.

7. Mānuka-broom-rārahu shrubland

Shrubland comprising patches of mānuka, and broom, amongst rārahu/bracken occurs along Section 8 of the proposed trail route (see Plate 19). Gorse and blackberry are scattered throughout. There is occasional koromiko (*Veronica stricta* var. *stricta*), toetoe, and *Coprosma dumosa*. Patches of mountain beech are present along the top of the cliff alongside the Manganui-o-te-Ao River.

8. Exotic grassland

This vegetation and habitat type comprises grassland dominated by rank exotic grasses, including browntop (*Agrostis capillaris*) and cocksfoot (*Dactylis glomerata*). Small plants of broom, mānuka, and toetoe are present, particularly regenerating on the margins.

This vegetation and habitat type occurs on a flat terrace on the northern side of the Manganui-o-te-Ao River (northern side of proposed bridge, Section 7.4.B) (see Plate 17).

9. Exotic grassland with local patches of mānuka shrubland

This vegetation and habitat type comprises grassland dominated by rank exotic grasses, with frequent patches of shrubland dominated by mānuka (*c.*1-3 metres tall). Rārahu/bracken is scattered in places, particularly near the patches of mānuka shrubland (see Plates 20 and 21).

There is local heather, broom, and gorse (*Ulex europaeus*, to *c.*1 metre tall). Toetoe, shrubs of *Coprosma dumosa*, and patches of blackberry (*Rubus fruticosus* agg.) are present occasionally. A few small trees of rimu and kāmahi (both to *c.*4 metres tall) are present.

This vegetation and habitat type occurs alongside the NIMT rail line in Sections 3, 5, and 6 of the proposed trail.

Plate 18: View of old bridge abutments on the southern side of Manganui-o-te-Ao River, with orihou shrubland in the foreground (Section 7.1.W of the proposed trail). NIMT rail bridge is visible in the right-foreground. 23 June 2022.

Plate 19: View southwest across mānuka-broom-rārahu shrubland (Section 8.1 of the proposed trail) on the northern side of the Manganui-o-te-Ao River. 23 June 2022.

Plate 20: View south from the southern side of Manganui-o-te-Ao River, showing exotic grassland with scattered rārahu/bracken and heather (frost covered) (Section 6.19 of the proposed trail). Powerlines from the NIMT rail line are visible at the far right. 23 June 2022.

Plate 21: View south, showing exotic grassland with scattered rārahu/bracken and broom (frost-covered) in the foreground, and mānuka shrubland in the distance (Section 6.9 of the proposed trail). Powerlines from the NIMT rail line are visible at the far right. Old-growth podocarp-beech forest within Tongariro National Park is visible on the top left. 23 June 2022.

10. Open water

There are two shallow ponds near the proposed trail (Section 5.1, see Plate 22). At the time of the site visit, the water was partially frozen over. *Eleocharis gracilis* is present on the pond margins in places.

Plate 22: Shallow pond near Section 5.1 of the proposed trail. Old-growth podocarp-beech forest within Tongariro National Park is visible at the top left. 23 June 2022.

A third larger pond, located slightly further from the proposed trail was not visited during the site visit but is likely to have similar characteristics. Based on historical aerial imagery[1], these ponds may have been used as a water source during construction of the NIMT rail line and/or State Highway 4.

It is possible that additional species of indigenous or exotic wetland plants could be found in or around the pond margins, if a site visit was undertaken during the summer months, when flowering and fruiting structures are present.

11. Existing road

Section 1 of the proposed trail is within road reserve[2]. This section of the trail is proposed to use the margin of the existing formed seal and mainly gravel road. Matapuna Road passes through the Smash Palace car wrecking yard, residential lifestyle and rural properties (refer to the landscape assessment report for

[1] www.retrolens.co.nz Imagery dated April 1962 and May 1953. Accessed on 1 July 2022.
[2] Road Reserve is under Ruapehu District Council ownership and jurisdiction.

photographs). At the south, the proposed trail will link with the existing Ohakune Old Coach Road Trail at Clydes Access. There is no construction proposed for this section of trail.

12. Existing trail

Section 2 of the proposed trail is on an existing formed track/paper road (see Plates 23-25). Based on historical aerial imagery[1], this track has been present since at least 1953 and was a main access route to Horopito village. The existing track is well drained with ditches present on both sides in places. Vegetation present alongside the existing trail includes mānuka scrub (*c*.4 metres tall) similar to Vegetation and Habitat Type 4 (described above). Old-growth mountain beech forest similar to Vegetation and Habitat Type 2 (described above) is present away from the immediate disturbed area within the paper road.

Section 8.2 of the proposed trail is on an existing gravel track for 192 metres. This section will lead from the sealed car park area and signage at the Last Spike memorial, to eventually join with Section 7 of the trail at the Manganui-o-te-Ao River.

Section 9 of the proposed trail is on an existing four-wheel drive farm track and crosses 1.6 kilometres of pastoral farmland. Indigenous forest within part of Erua Conservation Area occurs to the southwest of this track.

Plate 23: A section of existing gravel trail in Section 2.1 of the proposed trail. Mānuka scrub is present on the margins. 23 June 2022.

[1] www.retrolens.co.nz Imagery dated April 1962 and May 1953. Accessed on 1 July 2022.

Plate 24: Site on Section 2 of the proposed trail where a new culvert will be required (C.2.1.1). 23 June 2022.

Plate 25: Orautoha Stream in Section 2 of the proposed trail where a new bridge (*c.*14 metre span) will be required (Section 2.2.B). Concrete struts from an old disused bridge are present here. 23 June 2022.

13. <u>Lawson's cypress</u> forest

A stand of Lawson's cypress (*Chamaecyparis lawsoniana*) forest (*c.*7 metres tall) is present immediately west of the SH 4 bridge over the Manganui-o-te-Ao River, and is within Section 9 of the proposed trail.

7. FLORA

A total of 96 vascular plant species, including 82 indigenous and 14 exotic plant species, were recorded during the site visit (Appendix 1).

Three indigenous vascular plant species that were recorded as naturally occurring at the site have a national-level threat classification (as per de Lange *et al.* 2018):

- Mānuka; At Risk-Declining.
- Rōhutu; Threatened-Nationally Critical.
- *Alseuosmia turneri*; At Risk-Naturally Uncommon.

Two of these species belong to the Myrtaceae plant family, which is at risk of infection by myrtle rust (*Austropuccinia psidii*) which arrived in Aotearoa New Zealand in May 2017. Myrtle rust is a fungal disease which infects plants from the myrtle family (Myrtaceae) and could potentially have devastating effects on indigenous Myrtaceae species. Therefore, the threat statuses of all New Zealand Myrtaceae have been elevated as a precautionary measure based on the potential threat that myrtle rust poses to these species. Mānuka is otherwise relatively common and widespread within Tongariro Ecological District. Rōhutu (recorded in Vegetation and Habitat Types 2 and 4) has a relatively sparse natural occurrence within this Ecological District.

Alseuosmia turneri has a restricted distribution, being limited to the south western Volcanic Plateau (Shephard 2019). Its occurrence within Vegetation and Habitat Types 1 and 2 within the vicinity of the proposed trail is typical of this species, as it generally occurs in podocarp-broadleaved and beech forest (Shephard 2019).

A further one Threatened and nine At Risk indigenous plant species have previously been recorded within the general area of the proposed trail (for more detail refer to Wildland Consultants 2020a): pua o te reinga/wood rose, a threatened root parasite (*Dactylanthus taylorii*; Threatened-Nationally Vulnerable), three At Risk orchid species, four At Risk mistletoe species, and two shrub species that are typically epiphytic: Kirk's kōhūhū *Pittosporum kirkii* and kohurangi *Brachyglottis kirkii*; both At Risk-Declining as per de Lange *et al*. 2018).

8. FAUNA

8.1 Avifauna

Nine indigenous bird species were recorded during the site visit, (Appendix 2). One of these species, toutouwai/North Island robin (*Petroica longipes*; At Risk-Declining), has a national-level threat classification (as per Robertson *et al.* 2021).

It is possible that the winter weather conditions during the site visit reduced the diversity of bird species that were observed.

One of the most important remaining populations of whio (blue duck, *Hymenolaimus malacorhynchos*; Threatened-Nationally Vulnerable) occurs in the Manganui-o-te-Ao River[1] and the adjoining Mangaturuturu River catchment (Glaser *et al.* 2010). Whio tend to nest under logs and in associated vegetation along river margins. High water quality and fast-flowing rivers, and sufficient ongoing control of introduced mammalian predators (particularly stoats, *Mustela erminea*) are key factors in the survival and success of whio. Pest animal control has been undertaken within the Manganui-o-te-Ao River catchment specifically for the protection of whio[2].

Based on the habitats present, other indigenous birds that are likely to utilise the area within the vicinity of the proposed trail, at least on an occasional basis, include (for more detail refer to Wildland Consultants 2020a):

- Kārearea (New Zealand 'bush' falcon, *Falco novaeseelandiae ferox*; Threatened-Nationally Increasing).
- Koekoeā (long-tailed cuckoo, *Eudynamys taitensis*; Threatened-Nationally Vulnerable).
- Kōtare (sacred kingfisher, *Todiramphus sanctus vagans*; Not Threatened).
- Mātātā (North Island fernbird, *Bowdleria punctata vealeae*; At Risk-Declining).
- North Island brown kiwi (*Apteryx mantelli*; Not Threatened).
- North Island kākā (*Nestor meridionalis septentrionalis*; At Risk-Recovering).
- Pīpīwharauroa (shining cuckoo, *Chrysococcyx lucidus lucidus*; Not Threatened).
- Ruru (*Ninox novaeseelandiae novaeseelandiae*; Not Threatened).
- Tītitipounamu (North Island rifleman, *Acanthisitta chloris granti*) (At Risk-Declining).
- Tūī (*Prosthemadera novaeseelandiae novaeseelandiae*; Not Threatened).

8.2 Pekapeka/bats

It is highly likely that long-tailed bats (*Chalinolobus tuberculatus*; Threatened-Nationally Critical, as per O'Donnell *et al.* 2018) and possibly central short-tailed bats (*Mystacina tuberculata rhyacobia*; At Risk-Declining) utilise habitats within Section 4 of the proposed trail alignment (Mangaturuturu Crossing), at least periodically, based

---

1 iNaturalist observation of whio/blue duck, December 2003. https://www.inaturalist.org/observations/63054545 Accessed on 19 August 2022.

2 Department of Conservation website, whio locations. https://www.doc.govt.nz/our-work/whio-forever/whio-locations/ Accessed on 19 August 2022.

on previous records within the vicinity (for more detail refer to Wildland Consultants 2020a).

8.3 Lizards

It is possible that indigenous lizards could be present in the secondary vegetation and old-growth forest habitats within the proposed trail route. The following indigenous lizard species have previously been recorded in the general vicinity of the proposed trail (threat classifications are from Hitchmough *et al.* 2021):

- Northern grass skink (*Oligosoma polychroma*; Not Threatened).
- Barking gecko (*Naultinus punctatus*; At Risk-Declining).
- Forest gecko (*Mokopirirakau granulatus*; At Risk-Declining).

Northern grass skinks are very likely to be present in any open grassy areas or in open shrubland. Barking gecko and forest gecko may be widespread in the forest, scrub, and shrubland, but are probably in very low population densities. Although unlikely, the presence of an additional five indigenous lizard species (including four At Risk species) cannot be fully ruled out. For more detail refer to Wildland Consultants (2020a).

8.4 Aquatic fauna

Rivers and streams that drain from Mt Ruapehu and the sounding area are of high ecological value. Indigenous freshwater fish species and freshwater invertebrates that are likely to occur in the Manganui-o-te-Ao River, Mangaturuturu River, and tributary streams (based on records held in the New Zealand Freshwater Fish Database[1]) include longfin eel (*Anguilla dieffenbachii*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*) (all At Risk-Declining as per Dunn *et al*. 2018), kākahi (freshwater mussels; *Echyridella menziesi*) (At Risk-Declining as per Grainger *et al.* 2018), and kōura (*Paranephrops planifrons*; Not Threatened).

Ponds and drains associated with the NIMT rail corridor (Sections 3, 5, and 6) also provide aquatic habitat.

8.5 Other indigenous fauna

The At Risk forest ringlet butterfly (*Dodonidia helmsii*; At Risk-Relict[2]) may be present, as the dominant food plant of their caterpillars is mountain cutty grass (*Gahnia procera*), which was recorded in Section 4 of the proposed trail. This plant species is abundant in the higher altitude mountain beech forest on the southern side of Mt Ruapehu (Wheatley 2017).

[1] Database accessible online at: https://niwa.co.nz/information-services/nz-freshwater-fish-database

[2] Threat status follows Hoare *et al*. (2017).

9. ECOLOGICAL VALUES

9.1 Overview

The proposed Te Hangaruru Trail (11.9 kilometres) will require the construction of *c.*5.7 kilometres of new trail (Sections 3-8) and will utilise *c.*6.2 kilometres of existing trails (Sections 1-2, and 9). The ecological values of habitats within the project area range from very high to low, as described below and summarised in Table 3.

The proposed alignment will pass through old-growth forest in Section 4 and Section 7 - podocarp/mountain beech forest (Vegetation and Habitat Type 1; Section 4) of very high ecological value; and mountain beech forest (Vegetation and Habitat Type 2; Sections 4 and 7) of high ecological value (see Table 3). The two rivers (Mangaturuturu River and Manganui-o-te-Ao River) within these sections of the proposed trail are also of very high ecological value, particularly as habitat for whio.

Other sections of the trail will generally be located in areas that have been disturbed during construction of the NIMT rail lines or the formation of roads. These early-mid successional vegetation types are otherwise common within Tongariro National Park and the wider central North Island. Mixed indigenous broadleaved-species forest (Vegetation and Habitat Type 3) is the oldest of these types and is of high ecological value. Mānuka scrub (Vegetation and Habitat Types 4 and 5; Sections 2-7), orihou shrubland (Vegetation and Habitat Type 6; Section 7), and mānuka-broom-rārahu shrubland (Vegetation and Habitat Type 7; Section 8) are of moderate ecological value; and exotic grassland (Vegetation and Habitat Types 8 and 9; Sections 3 and 5-7) is of low ecological value (see Table 3).

The following vegetation and habitats along the proposed trail route meet the criteria for Threatened or At Risk habitats as defined in Schedule F of the Horizons One Plan[1]:

- Podocarp/black beech/mountain beech forest: Threatened (Vegetation and Habitat Type 1, Section 4).
- Mountain beech forest: At Risk (Vegetation and Habitat Type 2, Sections 4 and 7).
- Riparian margin: At Risk (at proposed bridge locations).

"Induced wetlands" are scattered within Vegetation and Habitat Type 4 (Sections 2 and 3, and Sections 5 and 6). These wetlands tend to be associated with streams and/or drains that appear to have been constructed to provide drainage and ensure stable foundations for the railway and the Matapuna Track. Wetlands have resulted from the ponding of water behind the railway embankment. The wetlands were not constructed by deliberate artificial means for the intention of creating wetlands. These wetlands are therefore considered to be "natural wetlands" under the National Policy Statement for Freshwater Management 2020 (NPS-FM). There are controls on activities in and within 100 metres and 10 metres of such freshwater wetlands under the National Environmental Standards for Freshwater (NES-FW).

[1] Horizons One Plan, Schedule F: Indigenous Biodiversity. https://www.horizons.govt.nz/CMSPages/GetFile.aspx?guid=3343c27f-3032-4537-bddd-6d0e654c2913 Accessed on 11 October 2021.

Table 3: Summary of the ecological values of vegetation and habitats along the route of the proposed Te Hangaruru Trail.

Section of Proposed Trail	Vegetation and Habitat Type	Ecological Value	Reasoning
1 - Matapuna Road	11. Existing road	Low	• Modified habitats • Exotic dominant vegetation on road margins • Common species of fauna
2 - Matapuna Track	4. Mānuka scrub 12. Existing trail	Moderate Low	• Modified habitat and secondary vegetation • Induced wetlands present on track margins • Streams and drains present, including riparian vegetation and habitats • Habitat for indigenous and exotic birds • Habitat for indigenous freshwater fish and indigenous lizards
3 - Matapuna Track to Mangaturuturu River	4. Mānuka scrub 9. Exotic grassland with local patches of mānuka shrubland	Moderate Low	• Secondary vegetation with local modified areas of exotic grassland • Induced wetlands present • Habitat for indigenous and exotic birds • Habitat for indigenous lizards • Drains and streams provide aquatic habitats
4 - Mangaturuturu Crossing	1. Podocarp/mountain beech forest 2. Mountain beech forest	Very High High	• Intact old-growth forest with dense understorey and emergent podocarps, particularly on the northern side of the river • Riparian vegetation and habitats • Mangaturuturu River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable). • Mangaturuturu River provides excellent habitats for indigenous freshwater fish and freshwater invertebrates • Habitat for indigenous lizards • Likely to contain threatened mistletoe and orchid species • Likely habitat for pekapeka/ bats • Excellent habitat for indigenous birds • Likely to provide at least periodic habitat for forest ringlet butterfly (At Risk)
5 - Mangaturuturu to Pōkākā Road	4. Mānuka scrub 9. Exotic grassland with local patches of mānuka shrubland 10. Open water	Moderate Low High	• Secondary vegetation with local modified areas of exotic grassland • Induced wetlands present • Ponds, drains, and streams provide aquatic habitats • Habitat for indigenous and exotic birds • Habitat for indigenous lizards
6 - Pōkākā Road to Manganui-o-te-Ao Crossing	3. Mixed indigenous broadleaved-species forest 4. Mānuka scrub 9. Exotic grassland with local patches of mānuka shrubland	High Moderate Low	• Secondary vegetation with local modified areas of exotic grassland • Induced wetlands present • Drains and streams provide aquatic habitats • Habitat for indigenous and exotic birds • Habitat for indigenous lizards • Suitable habitat for pua o te reinga/wood rose (Threatened-Nationally Vulnerable)
7 - Manganui-o-te-Ao Crossing	2. Mountain beech forest 5. Mānuka scrub 6. Orihou shrubland 8. Exotic grassland	High Moderate Moderate Low	• Old-growth forest • Riparian vegetation and habitats • Manganui-o-te-Ao River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable) • Manganui-o-te-Ao River provides excellent habitats for indigenous freshwater fish and freshwater invertebrates • Habitat for indigenous lizards • Likely to contain threatened mistletoe and orchid species • Good habitat for indigenous birds • Likely to provide at least periodic habitat for pekapeka/ bats
8 - Last Spike Connection	7. Mānuka-broom-rārahu shrubland 12. Existing trail	Moderate Low	• Modified habitat and secondary vegetation • Habitat for indigenous and exotic birds • Habitat for indigenous lizards
9 - Last Spike to Makatote	12. Existing trail	Low	• Modified habitats • Exotic dominant vegetation on margins of existing track • Common species of fauna

9.2 Section 1 (Matapuna Road)

Section 1 of the trail is to use the margin of the existing formed seal and mainly gravel road. There is no construction proposed for this section of trail. Modified habitats on the immediate road margins are dominated by exotic grasses and herbs, and are of low ecological value. Common species of indigenous and exotic fauna may utilise the road and/or road margins at least on occasion.

9.3 Section 2 (Matapuna Track)

Section 2 of the trail is to use an existing formed track/paper road. Mānuka scrub (Vegetation and Habitat Type 4) is present on both sides of the existing formed track that is secondary vegetation of moderate ecological value. Induced wetlands are present on the track margins in places where ditches are present and the existing track surface has been formed above the surrounding area. Streams with riparian vegetation and habitats are present. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as indigenous freshwater fish and indigenous lizards.

9.4 Section 3 (Matapuna Track to Mangaturuturu River)

Section 3 of the trail is to be within the NIMT rail corridor. The trail will be predominantly located within mānuka scrub (Vegetation and Habitat Type 4) that is secondary vegetation of moderate ecological value. It will also traverse a few small clearings of exotic grassland (Vegetation and Habitat Type 9) that are in an earlier stage of regeneration and have lower ecological value. Induced wetlands are present in places that have resulted from the ponding of water behind the railway embankment. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as indigenous lizards.

9.5 Section 4 (Mangaturuturu Crossing)

Section 4 of the trail is to be within the Mangaturuturu River corridor with a small section within the boundaries of Tongariro National Park.

Podocarp/mountain beech forest (Vegetation and Habitat Type 1) on the northern side of the Mangaturuturu River is of very high ecological value. There is a high abundance of large emergent rimu, Hall's tōtara, and miro trees, some of which are likely to range from 500 to more than 1,000 years old. Epiphytes are common. This forest also has a dense and diverse understorey, with patches of *Astelia fragrans* and a few *Gahnia procera*.

Mountain beech forest (Vegetation and Habitat Type 2) on the southern side of the Mangaturuturu River is of high ecological value. Although this area is also relatively intact old-growth forest, there are comparatively fewer emergent podocarps than on the northern side of the river and the understorey is comparatively more open.

It is likely that the forests in this section of the proposed Te Hangaruru Trail contain threatened mistletoe and orchid species, as well as provide at least periodic habitat for

pekapeka/bats, as well as habitat for threatened birds and lizards, and the At Risk forest ringlet butterfly.

The Mangaturuturu River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable). This river also provides excellent habitats for indigenous freshwater fish and freshwater invertebrates.

9.6 Section 5 (Mangaturuturu to Pōkākā Road) and 6 (Pōkākā Road to Manganui-o-te-Ao Crossing)

Section 5 of the trail is to be within the NIMT rail corridor. The trail will be predominantly located within mānuka scrub (Vegetation and Habitat Type 4) that is secondary vegetation of moderate ecological value. There are areas of induced wetland along much of this route, and a few ponds near the southern end of this section. For the purpose of reducing impacts on the wetlands, in places the trail will be located within areas of exotic grassland (Vegetation and Habitat Type 9) that are in an earlier stage of regeneration and have lower ecological value. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as indigenous lizards.

9.7 Section 6 (Pōkākā Road to Manganui-o-te-Ao Crossing)

Section 6 of the trail is to be within the NIMT rail corridor. The trail will be predominantly located within areas of exotic grassland (Vegetation and Habitat Type 9) that are in an early stage of regeneration and have low ecological value. In places the trail will be within mānuka scrub (Vegetation and Habitat Type 4) that is secondary vegetation of moderate ecological value and mixed indigenous broadleaved-species forest (Vegetation and Habitat Type 3) of high ecological value. There are areas of induced wetland, and small streams and drains along this route. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as indigenous lizards. Although there are no known populations present[1], the mixed indigenous broadleaved-species forest provides suitable habitat for pua o te reinga/wood rose (Threatened-Nationally Vulnerable).

9.8 Section 7 (Manganui-o-te-Ao Crossing)

Section 7 of the trail is to be within the NIMT rail corridor and Manganui-o-te-Ao River corridor. The proposed trail will pass through an area of old-growth mountain beech forest (Vegetation and Habitat Type 2) of high ecological value. Areas where the trail is proposed to cross the river and underneath the NIMT rail line are in an relatively early stages of regeneration following disturbance and are of moderate to low ecological value (moderate value - mānuka scrub (Vegetation and Habitat Type 5) and orihou shrubland (Vegetation and Habitat Type 6); low value - exotic grassland (Vegetation and Habitat Type 8)).

[1] Based on the Bioweb Flora Database (Department of Conservation; accessed May 2020) for records of threatened flora.

The Manganui-o-te-Ao River is part of one the most important river systems for whio (Threatened-Nationally Vulnerable). This river also provides excellent habitats for indigenous freshwater fish and freshwater invertebrates.

Good habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as habitat for threatened lizards. The mountain beech forest is also likely to provide at least periodic habitat for pekapeka/ bats. It is possible that the mountain beech forest contains threatened mistletoe and orchid species.

9.9 Section 8 (Last Spike Connection)

Section 8 of the trail is to be within the NIMT rail corridor, Manganui-o-te-Ao River corridor, a paper road, and part of Manganui o te ao Conservation Area[1].

In addition to using a section of existing gravel track, a section of new trail is proposed to be located within mānuka-broom-rārahu shrubland (Vegetation and Habitat Type 7) which is secondary vegetation of moderate ecological value. Suitable habitat is present for indigenous and exotic birds that are relatively widespread in Tongariro Ecological District, as well as indigenous lizards.

9.10 Section 9 (Last spike to Makatote)

Section 9 of the trail is to be on an existing four-wheel drive farm track, within a paper road. Modified habitats on the immediate track margins are dominated by exotic grasses and herbs, and are of low ecological value. The stand of Lawson's cypress forest is also of low value for indigenous biodiversity. Common species of indigenous and exotic fauna may utilise the areas within the footprint of this section of trail at least on occasion. The part of Erua Conservation Area that occurs adjacent to this proposed trail route contains old-growth podocarp/mountain beech forest and is of very high ecological value.

10. POTENTIAL ECOLOGICAL EFFECTS

10.1 Overview

The proposed Te Hangaruru Trail on the lower slopes of Ruapehu will generally follow the NIMT line and existing trails for much of its length, where it will be located amongst regenerating secondary vegetation and habitats. The two river crossing sections (Mangaturuturu River and Manganui-o-te-Ao River) will provide an opportunity to showcase these ecologically- and culturally-significant forest and river margin habitats. The proposed route has been designed to maximise the use of previously-disturbed areas, to avoid and minimise the potential for adverse effects on intact indigenous ecosystems.

[1] Note - these areas are in the process of being transferred to Ngāti Uenuku as part of a Treaty of Waitangi settlement.

Potential ecological effects of constructing the proposed Te Hangaruru Trail could include the following:

- Vegetation clearance.
- Construction effects on indigenous fauna.
- Damage to adjacent vegetation.
- Disturbance effects on indigenous fauna.
- Erosion, sedimentation, and changes in hydrology.
- Creation of a corridor for the movement of pest plants and animals.

These matters are addressed below.

10.2 Vegetation clearance

The proposed trail route has been planned and developed using an iterative approach based on the use of previously disturbed areas as much as possible, and minimising the trail footprint within areas of high ecological value such as wetlands and old-growth forest, with the overall aim of minimising disturbance and avoiding damage to ecologically sensitive areas. For example, a previous version of the proposed trail route included a length of trail within the mānuka scrub (Section 5, south of Pōkākā Road; Vegetation and Habitat Type 4), that has since be re-aligned to be within exotic grassland (Vegetation and Habitat Type 9), due to the presence of a large local area of induced wetland habitat at that location under the mānuka scrub. Numerous lengths of boardwalks are also proposed to be used throughout the trail in wet (Sections 3, 5, and 6) and/or high-value ecological sites (Sections 4 and 7), where these will have lesser adverse ecological effects than compared to the development of a compacted gravel trail.

Despite this, development of the proposed trail will inevitably result in some removal and disturbance of indigenous plants within the trail footprint. The maximum width of the trail will be two metres, including the width of the trail (average 1.5 metres) and construction batters. The maximum length of trail that could require vegetation clearance (Sections 2-8), would be seven kilometres (note that Sections 1 and 9 have been excluded because they are to utilise existing roads/tracks). If it is assumed that this length of the Te Hangaruru Trail was constructed at a width of two metres, this could result in a maximum area of vegetation clearance and/or disturbance of up to 1.4 hectares. The following sections of this assessment are based on the clearance of up to 1.4 hectares of indigenous vegetation. Less than approximately 20% (*c.*0.3 hectares) of this would be old-growth forest of very high to high ecological value (Vegetation and Habitat Types 1 and 2[1]; Section 4 and part of Section 7). The remaining 80% (*c.*1.1 hectares) of this would be secondary vegetation of moderate to low ecological value (Sections 2 and 3, Sections 5 and 6, part of Section 7, and Section 8).

It should be noted that any vegetation clearance for the proposed trail would be of a linear nature. The adverse ecological effects of clearance of a long narrow strip of 1.4 hectares are less than the effects of clearance of a compact circular area of the same

[1] Threatened or At Risk habitats as defined in Schedule F of the Horizons One Plan.

total size, i.e. 1.4 hectares. Clearance of a compact circular area would tend to result in more major adverse edge effects than a linear strip. Edge effects are defined as changes in species abundance and community structure at the interface between two contrasting habitats (Murcia 1995). Edge effects can result from increased light and associated temperature and humidity, and wind exposure differentials between the interior and exterior of a natural area. The creation of gaps modified gaps within a habitat can also create barriers that prevent or reduce movement of fauna species. The long-narrow vegetation clearance that could result from construction of this trail is unlikely to result in severe edge effects or loss of habitat connectivity because the distance between either side of the cleared area will be a maximum of two metres (average of 1.5 metres), and as much as possible, effort will be made to ensure that a canopy cover of vegetation is maintained above the trail. Leaf litter is expected to disperse naturally across the trail and provide opportunities for ground-based indigenous fauna to move across the trail.

Nevertheless, there could be adverse ecological effects as a result of vegetation clearance within the long-narrow corridor if indigenous vegetation (of varying ecological value as explained below) is cleared and a corridor is created for the dispersal of pest plants and pest animals (see Section 10.7). As indicated above, the potential severity of adverse ecological effects differs between areas of differing ecological value.

10.2.1 Old-growth forest of very high to high ecological value

Old-growth podocarp/mountain beech forest and mountain beech forest of very high to high ecological value (Vegetation and Habitat Types 1 and 2) occurs within the proposed route of Section 4 and part of Section 7 of Te Hangaruru Trail. There could be major adverse ecological effects as a result of vegetation clearance for trail construction in these areas, if appropriate measures and trail building techniques are not used.

This vegetation has formed over many centuries and are indigenous forest types that are the result of the local topography, volcanic history, soil fertility, and climate. There are large emergent trees of rimu, Hall's tōtara, and miro, including some which may be 500-1,000 years old.

The understorey is dense and diverse, particularly in the podocarp/mountain beech forest. Threatened and uncommon plant species, such as rōhutu (Threatened-Nationally Critical) and *Alseuosmia turneri* (At Risk-Naturally Uncommon) are present in the understorey. Dense patches of *Astelia fragrans* and a few *Gahnia procera* (host plant for the At Risk forest ringlet butterfly) are also present. Understorey habitats present within these forest types likely provide very good sources of food and nesting/roosting sites for indigenous birds and lizards. Removal or damage to understorey vegetation within the proposed trail footprint could therefore result in a range of adverse ecological effects.

Removal of mountain beech trees or large podocarps, and large trees of other indigenous species, which occur within the proposed trail footprint would result in major adverse ecological effects. This is not only undesirable from an ecological standpoint, but also because these trees will be a significant feature for users of the trail.

Clearance of large trees would also result in the removal of epiphytic angiosperms, ferns, mosses, and lichens. As do the large trees, epiphytes provide valuable habitat for indigenous lizards and invertebrates, as well as foraging and nesting/roosting sites for indigenous birds and pekapeka/bats.

With appropriate management, these potential effects can be reduced to minor.

10.2.2 Secondary vegetation and modified habitats of high to low ecological value

Overall, the potential adverse effects of vegetation clearance will be less severe within the remaining vegetation and habitat types (Sections 1-3, Sections 5 and 6, parts of Section 7, and Sections 8 and 9) of high to low ecological value. This is because these habitats comprise relatively younger vegetation as well as modified habitats. There is a lesser risk that large indigenous trees will be cleared within these areas compared to the areas of very high to high ecological value old-growth forest.

The potential effects of vegetation clearance within Sections 1 and 9, will be negligible. This is because existing roads and trails (areas of low ecological value) will be used for these sections, so no clearance of indigenous vegetation will be required.

The potential effects of vegetation clearance within Sections 2 and 8, will likely be relatively minor. This is because the vegetation is present on previously-disturbed sites, is relatively young compared to that in the surrounding area, and clearance of indigenous plants will be limited to understorey species, ground ferns, shrubs, saplings, and possibly a few smaller trees (<15 centimetres dbh). In Section 2, the proposed trail will utilise the existing Matapuna Track. Although mānuka scrub (Vegetation and Habitat Type 4) is present on both sides of the track and associated with riparian vegetation at the Orautoha Stream (proposed bridge Section 2.2.B), the footprint of the proposed trail can be positioned on the existing trail foundations and aligned to avoid any notable of components of indigenous vegetation that have regenerated during the period that the Matapuna Track has been disused. In Section 8, the proposed trail will also utilise a length of existing gravel trail from the Last Spike memorial. The length of proposed trail within mānuka-broom-rārahu shrubland (Vegetation and Habitat Type 7) can be aligned to avoid any notable of components of indigenous vegetation, in particular any saplings or small trees of mountain beech that have regenerated.

There could be at least moderate adverse ecological effects as a result of vegetation clearance for trail construction in Sections 3, 5, 6, and the remaining part of Section 7, if appropriate measures and trail building techniques are not used. In general, these areas comprise secondary mānuka scrub with local modified areas of exotic grassland. There are local streams and drains, and a few ponds near the southern end of Section 5. Induced wetlands are present in places along Sections 3, 5 and 6, that have resulted from the ponding of water behind the railway embankment. Although this vegetation has developed following disturbance associated with construction of the NIMT, the patches of manuka scrub have developed a relatively advanced composition and structure and important natural values, particularly where indigenous wetland vegetation is present. Vegetation clearance for construction of the proposed trail within Sections 3, 5, 6, and the remaining part of Section 7, could result in at least moderate adverse ecological effects, particularly if key species such as indigenous wetland plants,

or any larger indigenous trees (such as those in the mixed broadleaved-species forest, Vegetation and Habitat Type 3) are lost. Clearance of key indigenous plant species within these sections of proposed trail could also result in the removal of habitat for indigenous lizards and birds. However, if the trail is planned and constructed carefully, selected parts of the wetlands could be incorporated as significant showcase features for users of the trail.

With appropriate management, these potential effects can be reduced to less than minor.

10.3 Damage to adjoining vegetation

Vegetation immediately adjacent to the trail route may be damaged during construction by physical contact. This may occur when construction materials are being transported, and during physical construction. Damage may include trampling of understorey and groundcover vegetation by people and machinery, and damage to bark or branches of adjacent trees.

Any damage to bark on adjacent trees, particularly large branches and trunks, becomes a potential site for attack by fungal pathogens and/or insects. Damage to bark or branches can also result in reduced nutrient and water uptake and loss of structural integrity (Ministry for Primary Industries 2013, New Zealand Farm Forestry Association 2009). Such damage may therefore lead to gradual declines in tree health and eventual tree death.

If construction results in damage to trees that are to be retained adjacent to the trail, decay could begin that will not have a noticeable effect on canopy health or tree stability for several decades. In general, any damage caused to ancient emergent trees will generally be worse than damage caused to shorter-lived canopy and understorey trees, shrubs, and ferns. Damage to adjoining vegetation can have moderate ecological effects, however with appropriate management, these effects can be avoided or reduced to less than minor.

10.4 Damage to tree roots

Damage to the roots of trees within the trail footprint and adjacent to it could occur during trail construction. This is particularly likely where a gravel trail surface is to be constructed because the ground surface may need to be prepared using hand tools and a small excavator[1] to create a benched trail alignment. Where boardwalks and bridges are to be constructed, there will tend to be comparatively more localised and overall less severe disturbance of the ground surface and tree roots, because supporting posts for these structures will be installed at point locations.

The extent of tree roots is strongly influenced by vegetation and soil type, with widely-spaced trees on well-drained soils having larger root mats. There are generally two key types of tree roots: lateral roots are larger diameter roots that can extend a long distance from the trunk and are important for tree stability, whilst feeder roots/surface roots obtain nutrients from the leaf litter and upper-most soil layers. For example, mature,

[1] A 1.2-1.7 tonne excavator is preferred over a larger excavator because a larger excavator will generally result in more severe ecological effects.

widely-spaced rimu trees on well-drained soils can have lateral roots extending out to twice the radius of the tree crown (Norton *et al.* 1988).

Root loss or damage is likely to reduce nutrient and water uptake efficiency, and increase the vulnerability of a tree to wind throw, fungal pathogens, invertebrate damage (Ministry for Primary Industries 2013, New Zealand Farm Forestry Association 2009). The effects of root loss can be expected to be proportional to the area of the root system of a tree that is affected. An excavated trail which passes along one side of a tree trunk could, potentially, effect 50% of the root system of a tree, if excavation results in the loss of all roots affected by the trail. This degree of root loss would be likely to have a deleterious effect on the long-term health of a tree. However, if excavation depth (or lack of excavation) allows for subsurface lateral roots to pass undamaged under the trail, the extent of feeder root loss will be limited to those roots beneath the footprint of the trail. Feeder root loss is unlikely to significantly affect tree health if all large lateral roots are retained, and if the footprint of the trail only covers a small percentage of the root system of a tree.

In general, indigenous trees within the old-growth podocarp/mountain beech forest and mountain beech forest (Section 4 and part of Section 7) are considerably more susceptible to detrimental health effects from root loss or damage, than the younger vegetation within the secondary and modified habitats (Sections 2 and 3, Sections 5 and 6, parts of Section 7 and 8).

Damage to tree roots will be particularly likely if shallow excavation is required to form the trail surface or if large lateral roots are severed. Damage to tree roots could have major ecological effects, however with appropriate management, these effects can be reduced to minor.

10.5 Erosion, sedimentation, and changes in hydrology

If not managed well, the removal of indigenous vegetation, earthworks along the trail alignment, and installation of bridges and boardwalks has the potential to result in sediment run-off and erosion during heavy rain events. Chronic sedimentation of waterways can result in the degradation of freshwater habitats for indigenous fauna (including whio), as well as a general decline of water quality. Sedimentation could also lead to degradation of wetland habitats, such as the induced wetlands within Sections 2 and 3, and Sections 5 and 6 of the proposed trail, and the ponds near the trail route in Section 5. Over time, following construction of the trail, there is also potential for gravel to be eroded from the surface of the trail. This will particularly be the case if construction of the trail leads to the impediment or redirection of natural waterflows. Appropriate planning is needed to ensure that there is sufficient drainage from the trail surface without causing undesirable ponding in the surrounding natural areas.

The proposed use of carefully placed boardwalks across areas of wetland will have a far lesser impact on the ecological values of these habitats than other trail building methods, such as gravel trail surfaces atop of bunds. Boardwalks will enable water to continue to flow unimpeded, throughout the wetland areas. Gravel trails are not suitable for use in these wetlands because they would result in compaction of the substrate, potential major changes to the wetland hydrology, and more divisive splitting of the wetland habitats into smaller units.

Movement of any stockpiled soil, or gravel, into the surrounding natural areas or waterways may result in undesirable effects. Spills may create blockages or contamination. If cement, soil, and gravel are managed appropriately, these effects are expected to be less than minor.

Hazardous substances such as oil and diesel/petrol will likely be required for machinery to be used for construction of the trail. It is important that such spills of these products are avoided.

Erosion and sedimentation could have major ecological effects but, with appropriate construction techniques and management, these effects can be reduced to less than minor.

10.6 Construction effects on indigenous fauna

Indigenous fauna that are likely to occur within the vicinity of the proposed trail and which could be affected by the removal of vegetation, particularly any larger trees, include: short-tailed bats and long-tailed bats, indigenous tree-nesting bird species such as toutouwai/North Island robin and North Island kākā, indigenous skinks and geckos, and indigenous invertebrates.

However, the removal of larger trees (>15 centimetres dbh) is to be avoided, and therefore effects on indigenous birds, bats, and invertebrates are likely to be less than minor. Most birds and invertebrates that are potentially subject to disturbance are highly mobile and will be able to deal with localised disturbance. Tree-nesting birds such as kākā generally nest in larger trees so loss of nests will be avoided.

Potential effects on whio, could include disturbance of the nests or habitat but will be limited to the location of the bridges over the Mangaturuturu River and Manganui-o-te-Ao River. As the whio population within these river catchments is one of the most important remaining populations, any adverse effects on whio would be of major significance. However, if construction of the bridges is undertaken using appropriate techniques and within well-defined, small footprints, potential effects on whio can be avoided and reduced to less than minor.

Populations of any indigenous lizards are likely to be very low and lizards are unlikely to be encountered during trail construction. Despite this, vegetation clearance has the potential to disturb, or cause injury, and/or mortality to indigenous lizards. With appropriate management, effects on indigenous skinks and indigenous geckos due to loss of vegetation or disturbance of habitats during trail construction are likely to be less than minor.

Construction of the proposed bridges over the Mangaturuturu River and Manganui-o-te-Ao River (and smaller tributary streams) could affect freshwater habitats for indigenous fish and freshwater invertebrates. For example, spillage of sediment, or fuel from machinery that is used during construction could lead to sedimentation or contamination of waterways and wetlands (see Section 10.5 for further discussion). Construction at waterways also has the potential to disturb, or cause injury, and/or

mortality to indigenous fish and freshwater invertebrates. However, with appropriate construction techniques and management, potential effects will be no more than minor.

10.7 Creation of a corridor for the movement of pest plants and animals

There is currently a limited cover and diversity of pest plant species within the route of the proposed trail. Heather, broom, blackberry, and gorse are present locally within regenerating areas alongside the NIMT rail line. Clearance of indigenous vegetation for construction of this trail could potentially create corridors for the dispersal of pest plants and animals. Seeds of pest plants may be dispersed by humans or other vertebrate species along the trail, resulting in the establishment of new populations of pest plants that already occur elsewhere in the vicinity or populations of pest plants that are new to the local area. Any shade-tolerant pest plant species that establish along the trail margin - for example tradescantia (*Tradescantia fluminensis*) - may then colonise adjacent scrub and forest habitats. Elsewhere in Tongariro National Park weeds such as heather (*Calluna vulgaris*) and gorse (*Ulex europaeus*) have spread along track margins over time.

Similarly, pest animals, including small mammals (for example, ship rats; *Rattus rattus* and stoats) and ungulates may use the trails to move between habitats along the trail.

Creation of a corridor for the movement of pest plants and animals could result in at least moderate adverse ecological effects. However, with appropriate maintenance and management, these effects can be reduced to less than minor, and the proposed trail will provide an opportunity to be used as a route for teams of people undertaking pest plant and pest animal control (discussed further in Section 12 below).

10.8 Increased human activity

Much of the length of the proposed trail is within modified areas that are currently actively used by people, such as the NIMT rail line, State Highway 4, and existing trails. An unofficial track on the southern side of the Mangaturuturu River (part of Section 4) appears to be used infrequently, by relatively low numbers of people, including hunters and Department of Conservation staff servicing pest animal control stations. However, such unofficial tracks were not observed within the part of Section 4 of the proposed trail on the northern side of the Mangaturuturu River.

An increased number of people using the trail corridor, following completion of the trail could create some further increased noise. Noise and physical disturbance may have some effects on resident indigenous birds. However, based on similar trails, the overall effects of increased human activity along the proposed trail route should be less than minor.

10.9 Overall magnitude of potential effects

While there is some potential for construction and subsequent use of the proposed Te Hangaruru Trail to have adverse ecological effects on the surrounding ecosystems, with appropriate management, all of these potential effects can be avoided or reduced to minor or less than minor.

11. OPPORTUNITIES TO AVOID OR MINIMISE POTENTIALLY ADVERSE ECOLOGICAL EFFECTS

11.1 Overview

The major focus for construction and use of the proposed trail should be to avoid or minimise potentially adverse ecological effects, particularly on the two rivers, old-growth indigenous forest associated with the rivers, and induced wetlands. Construction and maintenance of the trail should be undertaken in a sensitive manner, recognising the ecological and cultural importance of these habitats and to ensure the protection of the natural features that users of the trail will want to see and experience.

11.2 General project management and biosecurity considerations

Use Appropriate Trail Building Guidelines

The Department of Conservation's Track Construction and Maintenance Guidelines (DOC 2008), Standards New Zealand Handbook 8630 (SNZ 2004), and the New Zealand Cycle Trail Design Guide (ViaStrada 2019) provide industry best practice guidelines for the planning, construction, and maintenance of cycle trails. These guidelines (plus subsequent amendments) should be used to develop a trail construction protocol for the project.

Plan the Route Carefully

The trail alignment should be carefully planned to avoid and minimise adverse effects on indigenous vegetation. This includes rerouting of the alignment around sensitive habitats, using sections of boardwalks where suitable, avoiding damage to large lateral tree roots, avoiding clearance of trees >15 centimetres dbh, making the footprint of the trail as small as possible, and ensuring that the margins of the trail are no wider than they need to be.

Based on the site visit (23 June 2022), the proposed trail can be aligned to avoid the clearance of larger indigenous canopy and sub-canopy trees (>15 centimetres dbh), particularly podocarps and beech trees. The proposed trail can also be aligned to minimise disturbance of the induced wetland habitats. Locations for the use of boardwalks have been identified (Appendix 3) and there is flexibility in the planning to add additional sections of boardwalk if this is found to be necessary during the final layout of the route.

To ensure that only the minimum area required for the trails is cleared, the extent of proposed works should be physically marked with stakes and/or flagging tape prior to any vegetation removal and earthworks. No areas beyond this boundary should be used during construction, e.g. for temporary storage areas for equipment or for disposal of fill.

Only existing canopy gaps or disturbed areas near the trail route should be used for helicopter-delivery of supplies.

Use Reputable Contractors and Provide Ongoing Project Oversight

During construction of the trail, the project manager should undertake regular site visits to ensure that the contractors understand and are complying with the guidelines set out in this report. If these are not followed, the project manager should reserve the right to halt operations at the work site until the contractors can demonstrate that they will comply with these measures.

Only suitably qualified and experienced contractors that have (1) a reputable track record in the delivery of high-quality work, and (2) strategies to minimise environmental damage, should be engaged to undertake the construction of the trails.

Establish and Maintain High Biosecurity Standards

All contractors should be made aware of the risks of dispersing propagules or seeds of pest plants, soil-borne pathogens, and invertebrates on trail building equipment that is contaminated with soil or biological materials.

All equipment that is to be used to construct sections of the trail, should be pressure-washed before being brought to the site. Particular attention should be paid to the under-carriages and wheels of any vehicles. Inspections of equipment should be undertaken prior to the first day that contractors work at the site, to ensure compliance with these measures.

11.3 Avoid damage to large roots, trunks, and large branches of indigenous trees, and avoid damage to other indigenous vegetation

Set out below are measures to avoid damage to the roots, trunks, and branches of indigenous trees, and other indigenous vegetation when constructing the trail:

Avoid Damage to Indigenous Trees Within the Trail Corridor

- Felling of large indigenous trees (>15 centimetres dbh) should be avoided. In particular, large podocarps (including rimu, miro, mataī, Hall's tōtara) and beech trees should should be retained and protected from damage.
- Clearance of any plants of *Alseuosmia turneri*, rōhutu, and/or mountain cutty grass (*Gahnia procera*) should be avoided.
- Trimming of large trees, particularly podocarps and beech trees, should be avoided or kept to the minimum required to form the trail corridor.
- All vegetation clearance should be undertaken by hand. This will ensure that vegetation clearance is minimised, and enables felled branches to be placed into the surrounding area, and any fauna such as lizards to move into the vegetation in the surrounding area.
- If required, logs or branches can be chopped into sizeable chunks before scattering along the trail margins, but they should not be mulched.

- Physical contact with trees (large branches, and trunks in particular) should be avoided when construction materials are being transported and during construction. All equipment and machinery used during construction should be moved with care.

- Damage to the roots of indigenous trees should be avoided or kept to a minimum. It is important that large lateral roots, in particular, are not severed during trail construction. The distances within which large surface lateral roots are likely to occur for key canopy species present are presented in Table 4. In general, the trail should be at least 2-4 metres from larger indigenous trees (>30 centimetres dbh).

Table 4: Notes on trail construction near larger trees of key canopy species, where large surface lateral roots are likely to be common.

Species	Common Name	Distance Within Which Large Surface Laterals are Likely to Be Common	Notes on Trail Construction Near Large Trees
Dacrydium cupressinum	Rimu	3 metres	Highly variable surface root length. Large trees in close proximity to trail should be assessed on a case-by-case basis.
Podocarpus laetus	Hall's tōtara	4-6 metres	Separation distance of four metres should avoid large surface roots of most trees. Some larger trees may have large surface roots out to six metres.
Pectinopitys ferruginea	Miro	4-8 metres	Separation distance of four metres should avoid large surface roots for most trees. Some larger trees may have large surface roots to eight metres.
Prumnopitys taxifolia	Matai		
Weinmannia racemosa	Kāmahi	2 metres	Trail can probably be as close as 0.5-1 metres from trees less than 20 cm diameter if no large surface laterals are damaged.

- Where trail construction is constrained by an abundance of large surface roots, the trail should be realigned to avoid the roots. In places where it is anticipated that large lateral roots might extend into the footprint of the trail, a spade should be used to dig holes to assess the diameter of the roots. For roots that are larger than five centimetres, the trail should be realigned, or fill should be placed over the roots (note that only a relatively small proportion of a tree root system should ever be covered by fill) or a section of boardwalk should be used.

- If roots greater than five centimetres in diameter must be severed, no tree should have multiple large roots removed. All roots greater than three centimetres in diameter that are cut should be cleanly severed using a handsaw. Roots left with ragged or rough ends are less likely to heal, and are at greater risk from infection and ongoing decay.

- If possible, roots of indigenous trees (including trees and roots outside of the trail footprint) should not be buried under soil or track materials. That is, after any compaction of the fill material has occurred, the roots of the trees should remain at the same depth as they are currently situated. This will ensure that any erosion of

the track surface does not result in the exposure, and subsequent damage, of large tree roots.

- Boardwalks should be used in sections of sensitive terrain. All boardwalks should be permeable, and of sufficient height above the ground to allow for the natural flow of water and the persistence of a humus layer (preferably with associated ground tier plants). Structural supports for the boardwalk should be sited to avoid large surface lateral roots.

- Where the trail cuts across a slope and requires the installation of drainage, the outflows for these drains should be designed to avoid the erosion and loss of the humus layer.

Avoid Damage to Indigenous Vegetation Beyond the Trail Corridor

- Care should be taken to avoid damage to the trunks and limbs of indigenous trees that are outside the footprint of the trail, i.e. any trees that are not to be removed as part of the works.

- Any larger trees that do need to be removed for construction of the proposed trail should be felled into the corridor of the trail to avoid and/or minimise damage to the surrounding forest.

- Trampling of understorey vegetation beyond the trail footprint should be kept to a minimum. All construction activities should be undertaken with the aim of minimising the width of the disturbed area.

- Existing clearings or canopy gaps near the trail route should be used for helicopter-drop locations, if needed. Additional areas of vegetation should not be cleared for this purpose.

- Soil, rocks, or any other material, should not be pushed or dumped into the surrounding natural areas along the trail during construction. In particular, such material should not be piled on top of understorey vegetation within the indigenous forest or in wetland areas.

- Vegetative material that is cleared should be scattered along the trail margins, where suitable, avoiding the formation of large piles of debris.

- Excess soil or substrate that cannot be re-used in another part of the trail should be placed in areas of minimal ecological impact (such as recently disturbed areas) and then revegetated.

- Indigenous ground tier plants within the trail route should be removed carefully where possible and then used for site rehabilitation, to the extent practicable.

11.4 Avoid or minimise potential adverse effects on wetlands

As discussed above, the proposed trail can be aligned to minimise disturbance of the induced wetland habitats. Boardwalks are to be used in areas that are wetlands (locations of proposed boardwalks are presented in Appendix 3) and additional sections

of boardwalk will be added if it is determined to be necessary to do so, during the final layout of the trail route.

Due to the presence of wetlands, no vehicles, compactors, or tracked machinery should be used for construction of the trail in Sections 3, 5, and 6. This is important, to prevent compaction of wetland substrates.

Species that are characteristic of wetland habitats should not be cleared, damaged, or disturbed (in particular, trees of kaikawaka, kahikatea, and any other podocarps, and shrubs of *Myrsine divaricata*). Boardwalks should be routed away from them, as much as possible. Clearance of understorey vegetation in the wetland areas should be avoided and minimised as much as possible. Where clearance of understorey vegetation in the wetland areas is necessary, large clumps of *Astelia* sp. and ground ferns (such as kiokio and swamp kiokio) can be moved from the proposed trail footprint and used in rehabilitation planting of a similar area within the vicinity of the trail.

11.5 Avoid or minimise erosion and sediment run-off

Detailed guidelines for reducing erosion and sediment run-off are provided in the Department of Conservation's Track Construction and Maintenance Guidelines (DOC 2008), and include the following:

- The trail should be designed and constructed in a way that reduces the need for steep grades that are at higher risk of erosion. Where possible, switch-backs and contouring trails should be used in preference to cutting trails through steep terrain. The two steepest sections of the proposed trail are at the river crossings. The zig-zag sections of boardwalks that are proposed for the crossing over the Mangaturuturu River (Section 4) and the southern side of the Manganui-o-te-Ao River are likely to be effective at providing a gradual trail surface for users while minimising erosion and ongoing maintenance.

- Where gravel is used, trail surfaces should be compacted to ensure that they do not erode quickly due to water run-off and use. A plate compactor or small roller should be used to compact trail materials, where feasible.

- In more level terrain, the trail should be gently benched (*c.*4% grade) to allow water to drain from the trail into the trail margins.

- Soil that is excavated should not be heaped at the site for extended periods of time (i.e. greater than one week). Any loose, heaped soil should be covered with a tarpaulin if it is to be left in place for longer three days, to prevent water run-off eroding the fill.

- Stockpiles of gravel (and any cement) should be stored securely prior to use in trail construction, to prevent leakage onto the forest floor, or into waterways (including rivers, ponds, streams, drains, and wetlands).

- No cement should enter waterways.

- A plan should be prepared for the management of hazardous substances and any spills.

- Excess fill should be used to level the trail in other areas or used to construct an outer edge of the trail, rather than discarding it as loose fill.
- Trail fill should be compacted to an angle that is similar to the surrounding slope and covered with indigenous vegetation (for example, small ferns) or humus and surface litter (sourced from cleared vegetation within the trail footprint), to reduce erosion and surface run-off.
- Sediment controls such as silt traps, coir logs, barriers, and in cases of high sediment loads, silt socks that contain sterilised hay, should be placed in locations where erosion and sediment run-off is likely to occur during the construction stage of the trail.

11.6 Avoid or minimise potential adverse effects in indigenous fauna

Pekapeka/Bats

- The main priority to minimise the effects on bats is to avoid the removal of all trees >15 centimetres dbh within the footprint of the proposed trail. Based on the site visit in June 2022, it is very likely that removal of larger trees can be avoided.
- If there is no way to avoid the removal of tree(s) that are >15 centimetres dbh, then a Bat Management Framework for sites where the presence of bats is confirmed should be followed, based on the best-practise methods available at the time of construction. This Framework should be prepared by a qualified and approved bat ecologist, endorsed by the Department of Conservation, and could include 1) pre-felling visual inspections of the tree(s) for any evidence of bats, or 2) pre-felling acoustic monitoring of potential roost trees, and 3) options for the management of any bats that are killed or injured. Tree felling should only take place between 1 October and 30 April, when weather conditions are appropriate.

Indigenous Birds, Lizards, and Terrestrial Invertebrates

- To minimise effects within forest and scrub areas, a canopy should be maintained above the trail, to enable fauna to continue to be able to move across the trail.
- Adverse effects on indigenous birds, lizards, and terrestrial invertebrates will be minimised if the removal of larger trees (>15 centimetres dbh) is avoided.
- North Island brown kiwi may be present in the general area, particularly the forest in Section 4. If active burrows are located during construction, the trail should be rerouted to provide a minimum 20 metre buffer from the burrow.
- Vegetation clearance/construction workers should check work sites and machinery at the start of each work day, to ensure that kiwi are not present.
- Adverse effects on whio can be avoided by using suitable construction techniques at the bridge locations and by avoiding sediment loss into waterways (see Section 11.5).
- If chicks or eggs from the nest of an At Risk or a Threatened bird species, or a bird species that is protected under the Wildlife Act (1953) (including North Island

brown kiwi), are found within the area to be subject to vegetation clearance, work should not be undertaken within this section of the trail until the chicks have fledged or until the eggs have hatched and the chicks have fledged. Work can still proceed 10 metres or more away from a nest site.

- Where possible, the removal of indigenous trees and scrub that may provide nesting sites for indigenous birds should be undertaken outside of the main nesting period for indigenous forest birds (early spring to mid-summer). This will avoid unnecessary harm or distress to nesting adult birds, nestlings, and fledglings that may be present within the footprint of the proposed trail.

- The low number of lizards likely to be present on the narrow trail alignment means that a large-scale, targeted lizard salvage operation is not suggested. Foliage and other vegetative material that is cleared should be removed from the alignment and scattered in the adjacent forest, which will enable arboreal lizards to escape. A Lizard Discovery Protocol should be prepared by a herpetologist (lizard ecologist) and implemented if lizards are discovered prior to or during vegetation clearance and trail construction works.

- Soil invertebrates which are exposed during excavation should be relocated with the substrate they were exposed within. Upon completion, leaf litter will spread naturally over the trail surface, which will improve the opportunities for terrestrial invertebrates to move across the trail.

Aquatic Fauna

To protect the high-quality freshwater habitats in the Mangatururu River and Manganui-o-te-Ao River, and tributary streams, the following actions should be implemented, particularly during construction of the proposed bridges and boardwalks:

- Barriers to fish passage (including temporary diversions) should not be created.

- Good sediment management is critically important to avoid sediment discharges into waterways (see Section 11.5 for further details). The extent and duration of earthworks in the riparian zones should be kept to a minimum, to reduce disturbance of soil, and riparian vegetation and habitats.

- Trail construction should avoid the alteration of natural drainage patterns and natural ground surface levels.

- Any areas of vegetation that are disturbed or cleared within 30 metres of a waterway, and are not to be within the final trail footprint, should be rehabilitated and replanted with appropriate indigenous understorey and groundcover vegetation. Plants for rehabilitation plantings, if required, should be sourced from the site and include species such as kiokio, *Astelia* sp., piupiu/crown fern, and mānuka. Seedlings and saplings of indigenous trees and shrubs should also be used for revegetation, where appropriate.

- Areas that are cleared for the trail footprint, should be formed with the gravel trail surface as soon as possible to minimise soil erosion and disturbance.

- If there are large open areas that are not suitable for re-planting, or vulnerable areas that are prone to erosion, biodegradable and natural matting (e.g. coconut fibre) could be installed to help increase stability.

- Stockpiles of gravel (and any cement) should be stored securely prior to use in trail construction, to prevent leakage onto the forest floor or into waterways. Stockpiles should be removed from the site following construction.

- No large piles of soil should be left close to the streams or river, either during or following construction. This will minimise soil runoff during rainfall events and reduce the risk of overloading sediment management devices.

11.7 Education and management of trail users

The trail will provide an opportunity for the local community and visitors to Ruapehu District to further appreciate, learn about, and engage with the natural environment of Ruapehu.

The importance of biosecurity should be actively promoted with trail users. Education about pest animals and pest plants, and their control should be incorporated into trail signage, brochures, or any promotional material about the trail. It is important that all equipment and other gear used on the trail (bikes, clothing, footwear, packs) is free from seeds, plant fragments, pest animals, or excessive dirt. Promotion of biosecurity is particularly useful for these types of trails because it leads to an increased general awareness of this issue and trail users may often be from other parts of Aotearoa New Zealand and other countries (and may be recent arrivals here).

Trail signage should advise trail users to stay on the formed route and take all litter out with them to be disposed of properly. For example, any litter that is dropped from lunch snacks by trail users, could degrade the natural character of the ponds. In addition to such signage, regular trail maintenance should be planned and include collection of any litter that has been dropped, particularly around any signage or places where trail users tend to stop often, and areas of very high to high ecological value such as the old-growth forest, bridges over the Mangaturuturu and Manganui-o-te-Ao Rivers, and the ponds near southern part of Section 5.

Dogs should be prohibited from the trail. Dogs pose a threat to indigenous fauna and as such contradict one of the overall aims of the trail which is to promote and encourage the protection and enhancement of indigenous biodiversity. Exemptions can be provided for dogs to be used for pest control, biodiversity monitoring, or Search and Rescue, subject to appropriate training, certifications, and other controls, e.g. muzzles.

11.8 Trail maintenance

Upon completion (allowing six months or so for the adjacent groundcover to recover following construction), the trail should look as though it is an established and integral part of the natural environment. Actions which should be undertaken to avoid and

minimise potential ecological issues associated with maintenance of the trail are provided below:

- Any vegetation trimming required for trail maintenance should be kept to a minimum and undertaken with care, in particular to avoid damaging podocarps and any indigenous trees over *c.*30 cm dbh.
- Any trees or vegetation which falls onto the trail should be removed carefully and placed into the surrounding area. Care should be taken to avoid damaging the remaining vegetation adjacent to the trail.
- The entire route (particularly Sections 2-8) should be checked annually for any erosion of soil and humus from trail margins or tree roots adjacent to the trail. If substantial erosion is occurring that could threaten stability of trees, hillslopes, or the trail, this may need to be rectified.
- The entire route (particularly Sections 2-9) should be checked annually for presence of any weed species that are a threat to indigenous habitats, e.g. African clubmoss (*Selaginella kraussiana*) and tradescantia. Any infestations should be controlled promptly, with adequate follow-up monitoring and control to ensure eradication.

12. MITIGATION

12.1 Overview

Potential ecological effects of the construction and subsequent use of the proposed Te Hangaruru Trail can be reduced to minor or less than minor through the use of good techniques and trail management, as outlined above. There are excellent opportunities to mitigate for any residual effects through activities that enhance the ecological integrity of the indigenous vegetation and habitats surrounding the trail. Such actions include management of pest plants and sustained pest animal control, as discussed below. Members of Ngāti Uenuku and the local community could be involved in long-term maintenance and conservation activities associated with the trail.

12.2 Pest plant management

As mentioned in Section 10.7, pest plant species are currently of relatively limited cover and diversity within the proposed trail footprint. At a minimum, pest plants should be controlled where they occur on both sides of the length of the trail, to prevent further spread. The main aim should be to prevent the establishment of any infestations of pest plants within the old-growth forest in Section 4 – Mangaturuturu Crossing, and if any infestations occur alongside this section of trail, appropriate and timely control should be undertaken.

An ongoing pest plant management plan should be prepared and implemented that addresses monitoring and control priorities, and methods to contain, control, and eliminate pest plants from the trail margins. To maximise effectiveness, the pest plant management plan should be developed and implemented in coordination with the

Department of Conservation, KiwiRail, NZTA, and any other local parties who are currently controlling pest plants in the vicinity of the proposed trail.

Three of the exotic plant species present - blackberry, broom, and gorse - are listed as pest plants in the Progressive Containment pest management programme, outlined in Horizons Regional Council Regional Pest Management Plan 2017-2037 (Horizons Regional Council 2017). Other environmental pest plants present that also have the potential to spread further and negatively impact areas of indigenous vegetation alongside the proposed trail include:

- Heather.
- Spanish heath (*Erica lusitanica*).
- Montbretia (*Crocosmia ×crocosmiiflora*).
- Cotoneaster (*Cotoneaster franchetii*, see Plate 26).
- Lawson's cypress[1].

A local patch of montbretia (covering about 2 × 2 metres) is present in Section 2, on near the location of a proposed bridge (Section 2.2.B, see Plate 27). This patch of montbretia should be controlled prior to construction of the trail. The corms, rhizomes and plant material should be dug out, removed from the site and disposed of appropriately. This is important because montbretia could be spread easily by soil movement during trail construction.

Plate 26: Example of *Cotoneaster franchetii* in mānuka scrub (Vegetation and Habitat Type 4) in Section 5 of the proposed trail. This pest plant species should be included in plans for ongoing pest plant management along the trail margins. 23 June 2022.

[1] Any naturalised trees of Lawson's cypress should be controlled. It is not essential or high priority to remove Lawson's cypress that have been planted (such as within Section 9).

Plate 27: Montbretia near the location of a proposed bridge (Section 2.2.B). 23 June 2022.

12.3 Indigenous revegetation opportunities

There may be an opportunity for undertaking indigenous restoration planting at Section 8 Last Spike Connection to increase the presence of indigenous vegetation in this area[1]. Although the mānuka-broom-rārahu shrubland (Vegetation and Habitat Type 7) is likely to gradually regenerate into indigenous vegetation naturally, restoration planting could speed up this process. Local patches of broom, gorse, and blackberry could be controlled (taking care to retain and avoid damage to the existing indigenous plants) and appropriate indigenous species could be planted into the gaps that are formed.

Locally-sourced species should be used for planting that are representative of vegetation within this part of Tongariro National Park. Plants should be 'hardened off' prior to planting, to ensure that they are acclimatised to the conditions. Restoration planting should comprise a range of early and mid-successional species (such as mānuka, koromiko, toetoe, māhoe wao (*Melicytus lanceolatus*) and horoeka), which will establish a canopy cover relatively quickly.

[1] Note – this area of land is in the process of being transferred to Ngāti Uenuku as part of a Treaty of Waitangi settlement, so any further planning of such restoration planting should only be undertaken if it is in the interest of Ngāti Uenuku.

12.4 Pest animal management

As mentioned in Section 10.7, the proposed trail is likely to be used as a travel route by pest animals. As such, sustained pest animal control should be implemented along the trail margins. Long-term intensive control of introduced pest animals would improve the quality of habitats for indigenous fauna within the surrounding area. In particular any pest animal control along Sections 4, 7, and 8 could provide enhanced protection of riparian habitats for whio along the Mangaturuturu and Manganui-o-te-Ao Rivers.

To maximise the effectiveness of pest animal control, a pest animal control plan could be developed and implemented in coordination with the Department of Conservation and any other local parties who are currently controlling pest animals in the vicinity of the proposed trail. The pest animal control plan should identify priorities for monitoring and control, as well as methods, e.g. kill-traps or bait stations. There will be opportunities for local companies or community groups to sponsor or assist with the maintenance of traps.

13. CONCLUSIONS

The proposed Te Hangaruru Trail (11.9 kilometres) will be an important section of the Mountains to Sea (Ngā Ara Tuhono) cycle trail in Ruapehu District. The trail is proposed to be aligned largely within previously-disturbed areas alongside the NIMT rail line, from Horopito Township to Pōkākā, then to the southern margin of the Makatote River. The proposed trail will provide visitors and local residents with an opportunity to experience areas of cultural and historic significance, as well as enjoy the natural scenery associated with the ngahere (forest) and two major awa (rivers) on the lower slopes of Ruapehu.

The proposed trail will require the construction of *c.*5.7 kilometres of new trail (Sections 3-8) and will utilise *c.*6.2 kilometres of existing trails (Sections 1-2, and 9). New sections of trail - in Sections 4 and 7 - are proposed to be located within old-growth podocarp/mountain beech forest and mountain beech forest that is of very high to high ecological value. These sections will also include new bridges over both the Mangaturuturu River (Section 4) and Manganui-o-te-Ao River (Section 7) which are part of one the most important remaining habitats for whio. The remaining sections of the proposed trail will generally be located in areas that have been disturbed during construction of the NIMT rail lines or the formation of roads. The early-mid successional vegetation types present are relatively common within Tongariro National Park and the wider central North Island, and are of high to low ecological value. Induced wetlands are scattered within Sections 2 and 3, and Sections 5 and 6, that have resulted from the ponding of water behind the NIMT railway embankment.

A range of Threatened and At Risk indigenous plants and fauna species are known to occur within the vicinity of the proposed trail. Old-growth forest provides suitable habitat for pekepeke/bats, indigenous bird species such North Island kākā and North Island brown kiwi. Indigenous skinks and geckos may be present within the forest and regenerating secondary vegetation, but are probably in very low population densities.

The proposed trail route has been designed to maximise the use of previously-disturbed areas, to avoid and minimise the potential for adverse effects on intact indigenous ecosystems. The proposed trail can be aligned to avoid the clearance of larger indigenous trees (>15 centimetres dbh), particularly podocarps and beech trees, thereby enabling the potential effects on indigenous fauna to be avoided or minimised. The trail can also be aligned to minimise disturbance of the induced wetland habitats. Numerous lengths of boardwalks are also proposed to be used in wet sites (Sections 3, 5, and 6), and/or high-value ecological areas (Sections 4 and 7), which will result in notably lesser adverse ecological effects than compared to the formation of a compacted gravel trail. The use of appropriate sensitive construction techniques and sediment management will be important, in particular to avoid adverse effects on aquatic fauna and whio at the two river crossings. With appropriate management, including the use of a trail construction protocol, all potentially adverse ecological effects can be avoided or reduced to minor or less than minor.

The proposed Te Hangaruru Trail will provide excellent opportunities to enhance the ecological integrity of the indigenous vegetation and habitats surrounding the trail footprint. Pest plant and pest animal management plans could be developed and implemented to complement existing conservation activities in the local area.

ACKNOWLEDGMENTS

Gerrie Knoetze (GHD) arranged the project, on behalf of Ruapehu District Council and provided useful background information. Rowan Sapsford (Roam Consulting) provided client liaison, organised and led the site visit (including KiwiRail safety requirements), and provided useful background information regarding the proposed alignment of the trail. Richard Hart (Richard Hart Landscape Architect) provided useful discussion about the proposed trail. Dean Sherrit (Cheal Ruapehu) provided detailed maps and GIS files of the proposed trail route.

REFERENCES

Atkinson I.A.E 1985: Derivation of vegetation mapping units for an ecological survey of Tongariro National Park, North Island, New Zealand. *New Zealand Journal of Botany 23*: 361-378.

Carlyon G. 2017: Partial review of the Tongariro National Park Management Plan: planning assessment and advice. Unpublished report for the Department of Conservation. Report Number 2017/107. The Catalyst Group.

de Lange P.J., Rolfe J.R., Barkla J.W., Courtney S.P., Champion P.D., Perrie L.R., Beadel S.M., Ford K.A., Breitwiser I., Schönberger I., Hindmarsh-Walls R., Heenan P.B., and Ladley K. 2018: Conservation status of New Zealand indigenous vascular plants, 2017. *New Zealand Threat Classification Series 22*. Department of Conservation, Wellington. 82 pp.

DOC (Department of Conservation) 2008: Track construction and maintenance guidelines. Department of Conservation, Wellington. 204 pp.

Glaser A., van Klink P., Elliott G., and Edge K-A. 2010: Blue duck (whio) (*Hymenolaimus malacorhynchos*) recovery plan 2009-2019. *Threatened Species Recovery Plan Series No. 62.* Department of Conservation, Wellington.

Dunn N.R., Allibone R.M., Closs G.P., Crow S.K., David B.O., Goodman J.M., Griffiths M., Jack D.C., Ling N., Waters J.M., and Rolfe J.R. 2018: Conservation status of New Zealand freshwater fishes, 2017. *New Zealand Threat Classification Series 24*. Department of Conservation, Wellington. 11 pp.

Grainger N., Harding J., Drinan T., Collier K., Smith B., Death R., Makan T., and Rolfe J. 2018: Conservation status of New Zealand freshwater invertebrates, 2018. *New Zealand Threat Classification Series 28.* Department of Conservation. 25 pp.

Hitchmough R.A., Barr B., Knox C., Lettink M., Monks J.M., Patterson G.B., Reardon J.T., van Winkel D., Rolfe J. and Michel P. 2021: *New Zealand Threat Classification Series 35*. Department of Conservation, Wellington. 15 pp.

Hoare R.J.B., Dugdale J.S., Edwards E.D., Gibbs G.W., Patrick B.H., Hitchmough R.A., and Rolfe J.R. 2017: Conservation status of New Zealand butterflies and moths (Lepidoptera), 2015. *New Zealand Threat Classification Series 20*. Department of Conservation, Wellington. 13 pp.

Horizons Regional Council 2017: Regional Pest Management Plan 2017-2037. *Report number: 2017/EXT/1552*. Horizons Regional Council, Palmerston North. 82 pp.

Leathwick J.R., Clarkson B.D., and Whaley P.T. 1995: Vegetation of the Waikato Region: Current and Historical Perspective. *Landcare Research Contract Report LC9596/022*. Prepared for Environment Waikato, Hamilton.

Ministry for Primary Industries 2013: Standards and Guidelines for the Sustainable Management of Indigenous Forests. Fifth edition. Ministry for Primary Industries, Wellington. 219 pp.

Murcia C. 1995: Edge effects in fragmented forests: implications for conservation. *Trends in Ecology and Evolution 10: 58-62.*

New Zealand Farm Forestry Association 2009: Tree decays. Revised 2009, based on I.A. Hood 1986. *Forest Pathology in New Zealand No. 17*. Accessed on 30 August 2022. http://www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/forestry-diseases/Tree-decays/tree-decays/

Norton D.A., Herbert J.W. and Beveridge A.E. 1988: The ecology of *Dacrydium cupressinum*: A review. *New Zealand Journal of Botany 26*(1): 37-62.

O'Donnell C.F.J., Borkin K.M., Christie J.E., Lloyd B., Parsons S., and Hitchmough R.A. 2018: Conservation status of New Zealand bats, 2017. *New Zealand Threat Classification Series 21*. Department of Conservation, Wellington. 4 pp.

Robertson H.A., Baird K.A., Elliott G.P., Hitchmough R.A., McArthur N.J., Makan T., Miskelly C.M., O'Donnell C.J., Sagar P.M., Scofield R.P., Taylor G.A., and Michel P. 2021: Conservation status of birds in Aotearoa New Zealand, 2021. *New Zealand Threat Classification Series 36*. Department of Conservation, Wellington. 43 pp.

Scrimgeour J., Beath A., and Allison-Cooper L. 2015: Tongariro National Park Management Plan Partial Review: Preliminary Ecological Impact Assessment September 2015. Unpublished Department of Conservation Report.

Shepherd L.D., de Lange P.J., Townsend A. and Perrie L.R. 2019: A biological and ecological review of the endemic New Zealand genus *Alseuosmia* (toropapa; Alseuosmiaceae). *New Zealand Journal of Botany, 58*(1): 2-18.

ViaStrada 2019: New Zealand Cycle Trail Design Guide 5th edition. Prepared by ViaStrada for Ministry of Business and Employment. 131 pp.

Wheatley S.R. 2017: *Dodonidia helmsii* forest ringlet butterfly: Review of the literature, analysis of current data, and proposals for future conservation. Moths and Butterflies of New Zealand Trust.

Wildland Consultants 2020a: Desktop assessment of ecological effects for proposed mountain bike trails on Mount Ruapehu. *Wildland Consultants Ltd Contract Report No. 5405a*. Prepared for Roam Consulting. 30 pp.

Wildland Consultants 2020b: Landscape protocols for the Turoa alpine section of the Ruapehu Trails. *Wildland Consultants Ltd Contract Report No. 5405b*. Prepared for Roam Consulting. 4 pp.

Wildland Consultants 2020c: Trail deviation process. *Wildland Consultants Ltd Contract Report No. 5405c*. Prepared for Roam Consulting. 1 p.

Wildland Consultants 2021: Assessment of ecological effects for a proposed shared use trail on the lower slopes of Mount Ruapehu. *Wildland Consultants Ltd Contract Report No. 5405d*. Prepared for Ruapehu District Council. 66 pp.

Wildland Consultants 2022: Landscape aspects of the proposed Te Hangaruru Trail. *Wildland Consultants Ltd Contract Report No. 5405f*. Prepared for Ruapehu District Council. 26 pp.

APPENDIX 1

VASCULAR PLANT SPECIES, TE HANGARURU TRAIL ROUTE, JUNE 2022

INDIGENOUS SPECIES

Gymnosperms

Dacrycarpus dacrydioides	kahikatea
Dacrydium cupressinum	rimu
Libocedrus bidwillii	kaikawaka
Pectinopitys ferruginea	miro
Podocarpus laetus	Hall's tōtara
Prumnopitys taxifolia	mataī

Monocot. trees and shrubs

Cordyline indivisa	tōī/mountain cabbage tree

Dicot. trees and shrubs

Alseuosmia turneri	
Aristotelia fruticosa	
Aristotelia serrata	makomako, wineberry
Coprosma dumosa	
Coprosma foetidissima	hūpiro
Coprosma lucida	karamū, kāramuramu, glossy karamū
Coprosma tenuifolia	
Coriaria arborea var. *arborea*	tutu
Dracophyllum strictum	tōtorowhiti
Elaeocarpus hookerianus	pōkākā
Fuscospora cliffortioides	mountain beech
Fuscospora solandri	black beech
Gaultheria antipoda	tāwiniwini, koropuka, takapo, taupuku
Gaultheria paniculata	koropuka
Griselinia littoralis	kāpuka
Leptospermum scoparium agg.	mānuka
Leucopogon fasciculatus	mingimingi
Leucopogon fraseri	pātōtara
Melicytus lanceolatus	māhoe wao
Myrsine divaricata	
Myrsine salicina	toro
Neomyrtus pedunculata	rōhutu
Pseudopanax colensoi var. *colensoi*	orihou, mountain five finger
Pseudopanax crassifolius	horoeka, lancewood
Pseudowintera colorata	mountain horopito
Pterophylla racemosa	kāmahi

Raukaua anomalus	
Schefflera digitata	patē
Veronica stricta var. *stricta*	koromiko, kōkōmuka

Dicot. lianes

Rubus australis	tātarāmoa
Rubus cissoides agg.	tātarāmoa, tātaraheke , bush lawyer

Lycopods and psilopsids

Huperzia varia	whiri-o-Raukatauri
Lycopodium deuterodensum	puakarimu
Lycopodium volubile	waewaekoukou

Ferns

Asplenium flaccidum	makawe, ngā makawe o Raukatauri
Blechnum discolor	piupiu, crown fern
Blechnum filiforme	pānako
Blechnum minus	swamp kiokio
Blechnum novae-zelandiae	kiokio
Blechnum penna-marina subsp. *alpina*	little hard fern
Blechnum procerum	small kiokio
Blechnum vulcanicum	korokio
Dicksonia fibrosa	whekī-ponga, kurīpākā
Dicksonia lanata var. *lanata*	tuakura
Dicksonia squarrosa	whekī
Gleichenia dicarpa	tangle fern, swamp umbrella fern
Hymenophyllum dilatatum	matua mauku, filmy fern
Hymenophyllum rarum	
Hypolepis ambigua	
Notogrammitis billardierei	paretao
Notogrammitis heterophylla	
Paesia scaberula	mātātā
Polystichum vestitum	pūniu, prickly shield fern
Pteridium esculentum	rārahu, bracken
Sticherus cunninghamii	waekura

Grasses

Austroderia fulvida	toetoe
Microlaena avenacea	bush rice grass

Sedges

Carex solandri	
Carex uncinata	kamu matau a Maui, kamu
Eleocharis acuta	spike sedge
Eleocharis gracilis	

Gahnia procera	
Machaerina sinclairii	toetoe tūhara, pēpepe
Schoenus pauciflorus	bog rush, sedge tussock

Rushes

Juncus edgariae	wi, wīwī

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

Arthropodium candidum	repehina-papa
Astelia fragrans	kakaha
Astelia grandis	mauri
Astelia hastata	kahakaha
Astelia solandri	kōwharawhara
Dianella nigra	tūrutu
Phormium cookianum subsp. *hookeri*	whaririki, mountain flax
Potamogeton cheesemanii	manihi

Composite herbs

Senecio minimus

Dicot. herbs (other than composites)

Gonocarpus micranthus	piripiri

NATURALISED AND EXOTIC SPECIES

Gymnosperms

Chamaecyparis lawsoniana	Lawson's cypress

Dicot. trees and shrubs

Calluna vulgaris	heather
Cotoneaster franchetii	
Cytisus scoparius	broom
Erica lusitanica	Spanish heath
Rubus sp. (*R. fruticosus* agg.)	blackberry
Ulex europaeus	gorse

Grasses

Agrostis capillaris	browntop
Anthoxanthum odoratum	sweet vernal
Dactylis glomerata	cocksfoot
Holcus lanatus	Yorkshire fog

Monocot. herbs (other than orchids, grasses, sedges, and rushes)

Crocosmia ×crocosmiiflora	montbretia

Composite herbs

Bellis perennis	lawn daisy
Cirsium vulgare	Scotch thistle

APPENDIX 2

AVIFAUNA SPECIES, TE HANGARURU TRAIL ROUTE, JUNE 2022

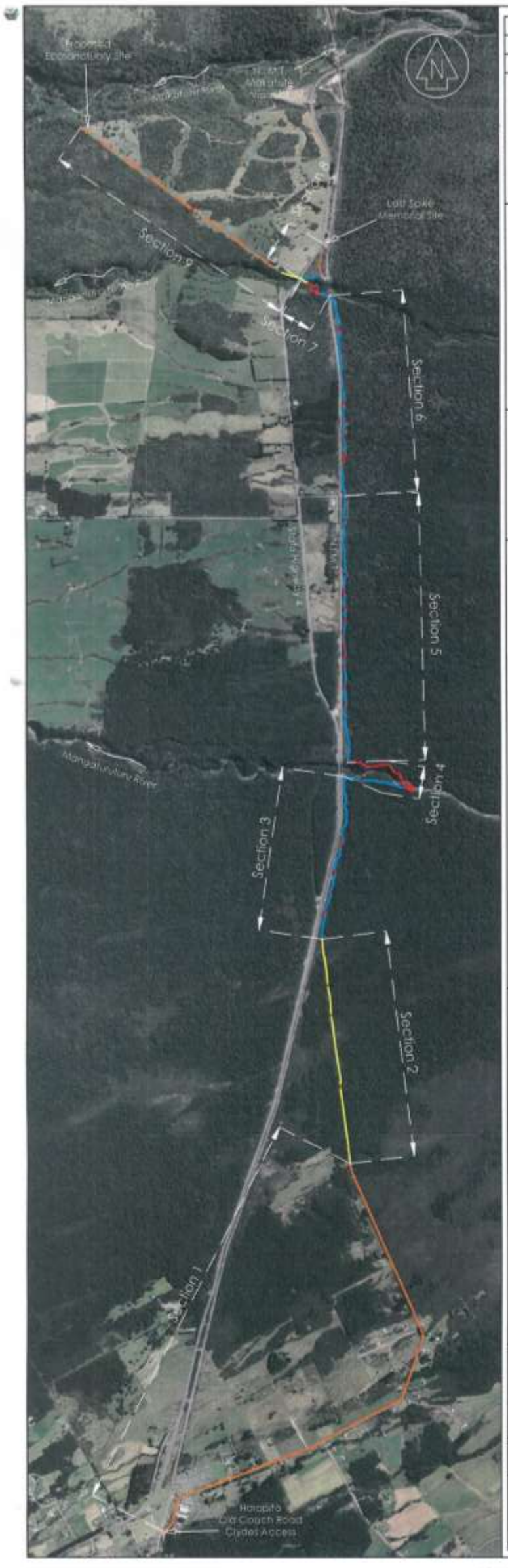
INDIGENOUS

Anthornis melanura melanura	korimako; makomako; bellbird
Circus approximans	kāhu; swamp harrier
Gerygone igata	riroriro; grey warbler
Hemiphaga novaeseelandiae	kererū; kūkupa; New Zealand pigeon
Mohoua albicilla	pōpokotea; whitehead
Petroica longipes	toutouwai; North Island robin
Petroica macrocephala toitoi	miromiro; pied tomtit; North Island tomtit
Rhipidura fuliginosa placabilis	pīwakawaka; North Island fantail
Zosterops lateralis lateralis	tauhou; silvereye; wax-eye; white-eye

APPENDIX 3

PROPOSED BRIDGES AND OTHER STRUCTURES, TE HANGARURU TRAIL[1]

[1] Provided by Cheal, on 14 July 2022.



Trail Section Details

Section	Segment	Name	Length (m)	Start Chainage (m)	End Chainage (m)	Description
1	1.1	Matapuna Road	3211	0	3211	Formed Road
2	2.1	Existing Trail	456	3211	3667	Trail Start Section 2 - 1 New Culvert
	2.2.B	Bridge	14	3667	3681	New
	2.3	Existing footprint	423	3681	4104	
	2.4.B	Bridge	4	4104	4108	New
	2.5	Existing footprint	174	4108	4282	
	2.6.B	Bridge	5	4282	4287	New
	2.7	Existing footprint	277	4287	4564	
3	3.1	New Trail	154	4564	4718	
	3.2.W	Boardwalk	20	4718	4738	New
	3.3	New Trail	105	4738	4843	
	3.4.B	Bridge	4	4843	4847	New
	3.5	New Trail	133	4847	4980	1 New Culvert
	3.6.W	Boardwalk	15	4980	4995	New
	3.7	New Trail	154	4995	5149	
	3.8.W	Boardwalk	15	5149	5164	New
	3.9	New Trail	26	5164	5190	
	3.10.W	Boardwalk	15	5190	5205	New
	3.11	New Trail	415	5205	5620	1 New Culvert
4	4.1	New Trail	104	5620	5724	
	4.2.B	Bridge	10	5724	5734	New
	4.3	New Trail	266	5734	6000	
	4.4.W	Boardwalk	240	6000	6240	New
	4.5.B	Bridge	26	6240	6266	New bridge over Mangatuhuruhuru River
	4.6.W	Boardwalk	378	6266	6644	New
	4.7.B	Bridge	15	6644	6659	New
5	5.1	New Trail	354	6659	7013	
	5.2.W	Boardwalk	12	7013	7025	New
	5.3	New Trail	105	7025	7130	
	5.4.W	Boardwalk	20	7130	7150	New
	5.5	New Trail	110	7150	7260	1 New Culvert
	5.6.W	Boardwalk	20	7260	7280	New
	5.7	New Trail	40	7280	7320	
	5.8.W	Boardwalk	30	7320	7350	New
	5.9	New Trail	37	7350	7387	
	5.10.W	Boardwalk	30	7387	7417	New
	5.11	New Trail	50	7417	7467	
	5.12.W	Boardwalk	12	7467	7479	New
	5.13	New Trail	64	7479	7543	
	5.14.W	Boardwalk	20	7543	7563	New
	5.15	New Trail	62	7563	7625	
	5.16.W	Boardwalk	20	7625	7645	New
	5.17	New Trail	79	7645	7724	
	5.18.W	Boardwalk	30	7724	7754	New
	5.19	New Trail	90	7754	7844	
	5.20.B	Bridge	11	7844	7855	New
	5.21	New Trail	331	7855	8186	
	5.22.W	Boardwalk	4	8186	8190	New
	5.23	New Trail	151	8190	8341	
	5.24.W	Boardwalk	5	8341	8346	New - Section 5/6 Transition Pokaka Road
6	6.1	New Trail	177	8346	8523	
	6.2.B	Bridge	6	8523	8529	New
	6.3	New Trail	29	8529	8558	
	6.4.W	Boardwalk	53	8558	8611	New
	6.5	New Trail	75	8611	8686	
	6.6.W	Boardwalk	9	8686	8695	New
	6.7	New Trail	42	8695	8737	
	6.8.B	Bridge	5	8737	8742	New
	6.9	New Trail	68	8742	8810	
	6.10.B	Bridge	15	8810	8825	New
	6.11	New Trail	78	8825	8903	
	6.12.W	Boardwalk	24	8903	8927	New
	6.13	New Trail	102	8927	9029	
	6.14.B	Bridge	5	9029	9034	New
	6.15	New Trail	59	9034	9093	1 New Culvert
	6.16.B	Bridge	9	9093	9102	New
	6.17	New Trail	269	9102	9371	
	6.18.W	Boardwalk	30	9371	9401	New
	6.19	New Trail	211	9401	9612	1 New Culvert
7	7.1	Structure to assess	6	9612	9618	Under N.I.M.T.
	7.2	New Trail	71	9618	9689	
	7.3.W	Boardwalk	149	9689	9838	New
	7.4.B	Bridge	20	9838	9858	New bridge over Mangamui o te Ao River
	7.5	Existing footprint	48	9858	9906	
8	8.1	New Trail	126	9906	10032	
	8.2	Existing Track	192	10032	10224	Last Spike Memorial Site
9	9.1	Existing footprint	186	9906	10092	
	9.2	Existing Track	586	10092	10678	
	9.3.B	Bridge	15	10678	10693	
	9.4	Existing Track	820	10693	11513	Proposed Ecosanctuary Site

cheal

www.cheal.co.nz

Rev	Date	Amendment	By	Chk	App
A	13/07/22	Information	CJD	DS	SH

Project Title
Ruapehu District Council:
Te Hangaruru Trail

Drawing Title
Phase One Construction
Trail Section Details

Surveyed	J.Brown	May 2022	JB
Designed	C.J.Dillon	13/06/22	CJD
Drawn	C.J.Dillon	14/07/22	CJD
Checked	D.Daniell	14/07/22	DS
Approved	D.Daniell	14/07/22	DS

Status: INFORMATION

Scale A3: 1:25000 | A3

Drawing Number: 220263-103 | Rev: A

Wildlands

Providing outstanding ecological services to sustain and improve our environments

Call Free 0508 WILDNZ
Ph: +64 7 343 9017
Fax: +64 7 3439018
ecology@wildlands.co.nz

99 Sala Street
PO Box 7137, Te Ngae
Rotorua 3042,
New Zealand

Regional Offices located in
Auckland, Hamilton, Tauranga,
Whakatane, Wellington,
Christchurch and Dunedin

ECOLOGY RESTORATION BIODIVERSITY SUSTAINABILITY

www.wildlands.co.nz

Appendix 6. Landscape Assessment

LANDSCAPE ASPECTS OF THE PROPOSED TE HANGARURU TRAIL, RUAPEHU

providing outstanding ecological services to sustain and improve our environments

Wildlands

R5405f

LANDSCAPE ASPECTS OF THE PROPOSED TE HANGARURU TRAIL, RUAPEHU

Contract Report No. R5405f

November 2022

Project Team:
Richard Hart – Report author
Angela McQuillan – Site visit and photographs
William Shaw – Peer review

Prepared for:
Ruapehu District Council
C/- GHD
Taumarunui

Reviewed and approved for release by:

W.B. Shaw
Director/Lead Principal Ecologist
Wildland Consultants Ltd

99 SALA STREET, WHAKAREWAREWA, 3010, P.O. BOX 7137, TE NGAE, ROTORUA 3042
Ph 07-343-9017; Fax 07-343-9018, email ecology@wildlands.co.nz, www.wildlands.co.nz

CONTENTS

1. INTRODUCTION – SCOPE AND BRIEF

The proposed trail is part of the 'Mountains to Sea (Ngā Ara Tuhono) Cycling and Walking Trail', specifically the Horopito to Pōkākā – Makatote section. The vision for Ngā Ara Tuhono is to provide connected pathways for recreational use extending from Tongariro National Park, along the Whanganui River, to the Tasman Sea at Whanganui. Ngā Ara Tuhono is one of the 23 Great Rides of the New Zealand Cycle Trail (Ngā Haerenga).

The proposed trail is now named Te Hangaruru[1]. The name Te Hangaruru was gifted to the trail by Ngāti Uenuku and refers to the importance of the area as being a central part of the Uenuku rohe and also as a traditional food source which was protected as such.

Wildland Consultants, have been commissioned to provide advice on landscape, natural character and visual effects of the Te Hangaruru Trail (and ecology, in a separate report). This report has been produced to accompany the consenting application and provide suggested landscape remedies and mitigation where required. This report is based on the cycle trail proposal as shown on Ruapehu District Council Drawings 220263-101 to 220263-109 Rev A, by Cheal Consultants, dated 12 July 2022.

A previous landscape report - Tongariro National Park, Proposed Ohakune trails Landscape Opinion Richard Hart dated August 2017 - outlines high level landscape planning issues, and is attached as Appendix 1. Landscape advice was also provided previously for the Mangawhero and alpine sections: "Landscape Protocols for the Turoa Alpine Section of The Ruapehu Trails" (May 2020). Various protocols were suggested to manage and minimise potential landscape and natural character effects. These can also be applied to parts of this proposal, particularly sensitive sections.

Some key structures along the trail are yet to be planned in detail, so some landscape and visual effects have been assumed. Assumptions include that structures will be visually recessive, of the minimum size required for the purpose, and be made predominantly of timber, and steel work will be dark or rusted, i.e. low reflectivity design and materials. Existing and regenerating vegetation will be managed to disguise and soften structures and the trail.

Rather than prepare a full 'Assessment of Landscape and Visual Effects', usually in accordance with the NZILA guidelines, this report addresses potential effects in a pragmatic section-by-section approach. The nature of trail construction, with changes inevitably needing to be made in-situ, for example to avoid specific trees, soft ground or for minor trail alignment changes that reduce visual effects, means that a technical landscape assessment is of relatively little value. Rather, the project has been deconstructed based on the sections proposed (1-9) and remedies and mitigation options are provided to address specific issues and localities.

Essentially, the landscape proposal is that "less is more". The trail alignment and construction should be implemented to require the minimum vegetation clearance and

[1] Previously referred to as the Missing Link Trail in earlier reports.

smallest possible footprint. Mitigation should be provided through careful crafted workmanship. For practical reasons, the trail cannot be realistically detailed along every metre of the 10.5 kilometres of alignment. Choice of constructor is key. Refer to the earlier landscape protocols for a methodology to minimise effects. It is suggested the protocols are updated for this section of trail as a condition of consent.

2. STATUTORY REQUIREMENTS

2.1 Overview

The trail proposal is well advanced with applications for vegetation clearance, structures and permissions being sought. Approval is being sought from:

- Department of Conservation for works within Tongariro National Park, and adjacent conservation lands, including any management agreement and concessions.
- KiwiRail for permission to locate and operate the trail within the rail corridor.
- Horizons Regional Council for vegetation clearance (refer ecology).
- Ruapehu District Council for structures including bridges where necessary.

2.2 Tongariro National Park and conservation estate

Te Hangaruru Trail has been aligned along existing roads, paper roads, and the North Island Main Trunk (NIMT) rail corridor. Most of the trail alignment sits outside Tongariro National Park, except for parts of Section 4 adjacent to the Mangaturuturu River (Sheet 2220263-106 – Parts 4.3 and 4.6W). Being aligned on roads, paper roads and NIMT rail land, the trail is also outside the Erua Conservation Area.

2.3 Land tenure along the Te Hangaruru trail

Cadastral surveys were undertaken by Cheal Consultants Ruapehu to confirm the Park boundaries as correct on the plans (220263-101 to 220263-109 Rev A). Section 1 is within the Matapuna Road reserve corridor. Sections 2 and 9 are on existing formed tracks/paper roads. Tongariro National Park does not cross the rail lines and the trail will be within the NIMT rail corridor in Sections 3, 5, and 6 (Sheet 220263-101). Parts of Section 4, adjacent to the Mangaturuturu River, are within Tongariro National Park and the river corridor. Section 7 - adjacent to the Manganui o te Ao River - and part of Section 8 is within paper road and river corridor. Part of Section 8 is within the Manganui o te Ao Conservation Area[1].

[1] Note: these areas are in the process of being transfered to Ngāti Uenuku as part of a Treaty of Waitangi settlement.

Conservation areas to the west of the trail include[1]; Erua Conservation area (west Matapuna Road, and Mangaturuturu), Manganui o te Ao Conservation Area (last spike rest area), and Manganui Conservation Area (near Mangaturuturu - Pōkākā).

2.4 Ruapehu District Council

Tongariro National Park, as well as the Mangaturuturu and Manganui o te Ao Rivers are mapped as Outstanding Natural Feature(s) and Landscape(s) in the Ruapehu District Plan. These rivers are subject of a National Water Conservation Order[2].

Te Hangaruru Trail has been aligned along existing roads, paper roads, and the NIMT rail corridor. It is not clear from the planning maps whether the road and rail corridors are within the Outstanding Natural Feature and Landscape. The trail traverses an Outstanding Natural Feature and Landscape within the Manganui o te Ao (see Plate 1) and Mangaturuturu riverscapes[3].

Plate 1: Kiwirail Northerner crossing the Manganui o te Ao River, with Ruapehu behind. Google image.

[1] If the reader wishes to view online mapping follow this link - https://www.doc.govt.nz/map/index.html - to open a Department of Conservation (DOC) map identifying the conservation areas in the vicinity. When the map opens:
- Click on the Base map tag and select satellite.
- Click on the DOC features tag and tick the "Public conservation areas" checkbox.
- Navigate to your area of interest and Click on any shaded area to identify the conservation type.

[2] Ruapehu District Plan Map Number B2; Rural Features Map - Ruatiti Horopito.

[3] National Water Conservation (Manganuioteao River) Order 1989. This order declares that the Manganuioteao River and its tributaries, the Mangaturuturu and Makatote Rivers, and the Waimarino and Orautoha Streams, include and provide for a) outstanding wild and scenic characteristics: b) an outstanding wildlife habitat for whio/blue duck (*Hymenolaimus malacorhynchos*): c)an outstanding recreational fishery. The order also includes various provisions to preserve and protect those rivers and streams.

2.5 Cultural landscape

UNESCO describes Tongariro National Park as follows:

"In 1993 Tongariro became the first property to be inscribed on the World Heritage List under the revised criteria describing cultural landscapes. The mountains at the heart of the park have cultural and religious significance for the Maori people and symbolize the spiritual links between this community and its environment. The park has active and extinct volcanoes, a diverse range of ecosystems and some spectacular landscapes."

Importantly, Ngāti Uenuku is both tangata whenua and the applicant. The trail alignment and developed design are being produced under their guidance and instruction. For example, the Mangaturuturu River section provides access for management and enjoyment of old-growth forest. Following a site visit, Ngāti Uenuku have confirmed that the cultural impacts of the proposed trail are expected to be minimal based on the current alignment[1].

3. COMMENTARY ON LANDSCAPE EFFECTS AND SOLUTIONS

3.1 General

Just a small section of the 10.5 kilometre trail is to be within the National Park boundary. Most of the trail is either on local paper roads, or is within the NIMT rail corridor. The rail corridor was cleared for rail construction in the early 20th Century, and opened for trains in 1908. Due to the difficult terrain, it was the last section of line to be built. The "last spike" memorial is located at the northern end of the project and provides the only road access from the north.

The southern end of the proposed trail links to the existing Old Coach Road cycle trail, linking Ohakune with Horopito. The transition is at Clydes Access off Matapuna Road, Horopito (see Plates 2 and 5).

Vegetation clearance is addressed in the ecological report by Wildland Consultants (2022).

Te Hangaruru trail will run through a spectacular landscape, passing alongside Tongariro National Park to its east, crossing the Mangaturuturu and Manganui o te Ao Riverscape Outstanding Natural Feature and Landscapes, and with the Erua Conservation Area and other conservation areas to the west. Areas of private rural land alongside the railway and State Highway 4 (SH 4) complete the experience.

3.2 Section 1: Matapuna Road, Horopito

This 3.2 kilometre long section is on road reserve[2] and utilises the existing formed seal and mainly gravel carriageway. It passes through the Smash Palace car wrecking yard,

[1] Email from Aiden Gilbert (Ngāti Uenuku Chair) to Rowan Sapsford on 24 August 2022.
[2] Road Reserve is under Ruapehu District Council ownership and jurisdiction.

residential lifestyle and rural properties (see Plates 3-4). At the south, the new trail will link with the existing Old Coach Road at Clydes Access. There is no construction and no change in natural character, landscape or visual effects along this section.

Plate 2: Existing signage at the southern end of Section 1.
Northern extent of Old Coach Road cycle trail.

Plate 3: Matapuna Road at Horopito showing existing rural character with residential entranceway. Various dwellings and buildings are visible along this section of road.

Plate 4: Smash Palace heritage car wreckers on Matapuna Road. The trail will utilise road reserve and existing formed carriageway through Horopito. Cyclists will share the road with motor vehicles and local traffic.

Plate 5: Old Coach Road Cycle trail viewing south from Horopito, at Clydes Access. The southern link to existing section of Mountains to Sea trail.

3.3 Section 2: Paper road linking Matapuna Road to NIMT – SH4

This 1.35 kilometre section of road is on an existing formed track/ paper road and passes through regrowth mānuka with wet areas and associated vegetation (see Plates 6-8); refer to Wildland Consultants (2022) for further information. Three small bridges will be constructed across wet areas and while apparent will have less than minor adverse effects and be experienced by trail users only. That is, changes will be too small to adversely affect other persons.

Plate 6: Matapuna Road end blends into the paper road (Section 2).

Plate 7: Matapuna Road link passes through and under mature established regrowth mānuka. The trail will utilise the existing track with boardwalk structures where needed. 23 June 2022.

Plate 8: Vegetation alongside the Matapuna link section will be substantially unaffected. Windfall mānuka across the trail will be cleared and minor clearance may occur at the new structure locations.

3.4 Section 3: Eastern side of NIMT – Matapuna Road link north to Mangaturuturu River

This 1.06 kilometre section runs parallel with the NIMT railway and State Highway 4 (SH 4). It passes through predominantly regenerating mānuka vegetation with some open areas of exotic grassland (see Plates 9-12). This mānuka vegetation has grown since clearance of old-growth forest for the railway line circa 1905. This section will require vegetation clearance as set out in the application and Wildland Consultants (2022). The proposed trail will be largely hidden from SH 4 within the mānuka vegetation. Landscape, natural character and visual effects are of little consequence. Effects might be discernible day-to-day effects, but will be too small to adversely affect people. It is likely that any effects will be experienced almost exclusively by trail users.

3.5 Section 4: Mangaturuturu River valley and river crossing

This new section of trail will extend about 500 metres upstream on the true left bank of the Mangaturuturu River, east towards Ruapehu (see Plates 13-16). This trail section will include various sections of boardwalk and a zigzag down to a new low level bridge at the river crossing (26 metre span). The trail will then return west, on the true right bank of the Mangaturuturu River to the NIMT railway. Parts of this section of trail adjacent to the river are within Tongariro National Park. Old-growth beech and podocarp/beech forest is present in this section of trail. It is understood the applicant, Ngāti Uenuku, has directed that this loop be included the preferred option because it will allow visitors to experience some old-growth forest and will showcase the river valley for public education and enjoyment. This old-growth forest experience will be a unique feature along the trail.

Plate 9: View north from State Highway 4 across the NIMT railway to strip of mānuka-dominant vegetation on the eastern side of the railway.

Plate 10: Typical vegetation along Sections 3, 5, and 6 beneath mānuka canopy. Off trail, this vegetation and habitat type will be unaffected. Clearance will be required to construct the trail, with prunings and surplus vegetation to be left nearby to decompose. 23 June 2022.

Plate 11: Typical mānuka-dominant vegetation with patches of exotic grass in the sections that extends from Matapuna Road link to the Manganui o te Ao River (Sections 3, 5, and 6). 23 June 2022.

Plate 12: View south from near the Mangaturuturu River rail bridge; Section 3. 23 June 2022.

While there may be short- and medium-term adverse effects on natural character due to vegetation clearance and earthworks, the trail will provide opportunities for education and management that are not currently available. The effects of vegetation removal and earthworks will be reduced as the trail ages, with natural regrowth occurring along the trail margins. There are likely to be more than minor short-term adverse effects that are noticeable but these effects can potentially be mitigated or remedied by careful construction.

As noted above, low impact designs and recessive colours are proposed for structures, bridges, and boardwalks. Any cuttings will revegetate relatively rapidly. The trail construction protocols should be followed to ensure that the trail is sensitive to the natural character and landscape and to minimise visual effects. Visually, effects of the trail will be largely hidden from view, and are invisible from the State Highway.

This section of the trail is the only one that includes parts within the Tongariro National Park. As such, this section of trail consequently requires the highest level of care in terms of both the alignment and construction. Particular care with trail construction protocols is needed on this section.

The bridges will be visually recessive. The likely use of a suspension bridge means that the bridge will be wire rope and timber and will be visually permeable. This will enable elevated views of the river and opportunities for photographers.

Plate 13: Mangaturuturu River valley, eastwards view from the rail bridge (photograph from Google, credit Jirka Bulant).

Plate 14: View southwards into the Mangaturuturu River valley from the rail bridge. Section 3 runs through mānuka vegetation at the top right. 23 June 2022.

Plate 15: Mangaturuturu River crossing, at the location of the proposed 26 metre span bridge (viewed from the northern side of river). This section of trail will pass through old-growth forest and will provide a unique experience along the trail. Effects on natural character will be potentially greater in this section. 23 June 2022.

Plate 16: View north and east into the Mangaturuturu River valley from the southern end of the rail bridge. Trail will be largely hidden under canopy of existing vegetation. Glimpses of trail users from the State Highway is possible but unlikely and at most occasional. 23 June 2022.

3.6 Sections 5 and 6: North of Mangaturuturu River to Pōkākā and north to Manganui o te Ao River

These sections of trail (2.85 kilometres) are similar to Section 3, and will mainly pass through mānuka regrowth and with parts through exotic grassland. These sections differ from Section 3 in that the State Highway splits from the railway being some 250 metres to the west. Sections 5 and 6 will require mānuka clearance as set out in the application and Wildland Consultants (2022). The proposed trail will be largely hidden from the railway within the mānuka vegetation (see Plate 17-20). The trail may be visible from the railway where it traverses low grass areas, but natural character and landscape effects will be inconsequential. While effects might be discernible on a day-to-day basis, they will be too small to adversely affect viewers/users. Effects will be experienced almost exclusively by trail users.

Plate 17: View north from the southern end of Section 5 where State Highway 4 splits from the NIMT railway. The trail will be hidden entirely from view of the State Highway to the north of here.

Plate 18: Pōkākā Road and Taylor Lodge (Section 5). Trail runs through mānuka on the eastern side of the railway. No access to the trail is proposed from Pōkākā, for safety reasons and to avoid the need for a rail crossing.

Plate 19: View south along railway lines, in Section 6. The trail will run through the vegetation to the left, east of the railway. 23 June 2022.

Plate 20: Open grass area (frosted) where the trail will be visible from the railway line (Section 6). Effects will be minor, and while noticeable for rail users, will not cause any significant adverse effects. Most of the railway line currently has vehicle tracks and linear infrastructure along its entire length. 23 June 2022.

3.7 Section 7: Manganui o te Ao River valley and river crossing

This section of Te Hangaruru trail will pass beneath the NIMT rail bridge, and cross a new suspension bridge (20 metre span) over the Manganui o te Ao River (see Plates 21-24). Beech forest is present in this section, on the southern side of the river. On the northern side of the river, the trail will continue under the State Highway 4 road bridge.

Care is needed through the river valley with protocols to be followed. The bridges will be visually recessive. A likely suspension bridge format means it will be visually permeable (wire rope and timber). This will enable elevated views of the river and opportunities for photographs.

A side trail (Section 8) will lead uphill from Section 7 on the true right bank of the Manganui o te Ao River to provide a link to the Last Spike Memorial and a carpark.

3.8 Section 8: Last Spike connection - link to north access

This 0.3 kilometre section provides for public parking and access to the trail at its north end (see Plates 25-26). The trail from the Last Spike Memorial will then join Section 7. A staircase with a running board ramp, is proposed to provide the route up the steep-sided river valley on the northeastern side of the road bridge from Section 7. The staircase will be carefully integrated into the landscape. The section of trail near the Last Spike is on a previously-cleared terrace above the river valley and will avoid old-growth beech trees by running alongside these and utilising existing gravel tracks, where present. Landscape, natural character and visual effects will be inconsequential.

Plate 21: View southwards from the rail bridge. The trail will go around the old bridge abutment and cross under the rail bridge here, before rising back into beech forest on the right side of the rail bridge. Care will be required at this location, to minimise clearance, earthworks, and ensure structures fit into the landscape. 23 June 2022.

Plate 22: View west from rail bridge into Manganui o te Ao River valley towards the State Highway 4 road bridge. The trail alignment is through beech forest (top left), zig-zagging down a forest-covered ridge (red arrow), crossing the river onto grassland on the northern side of the river (blue arrow on frosty ground). 23 June 2022.

Plate 23: Looking south towards the rail bridge across the Manganui o te Ao River (in shadow). Trail will cross under the far bridge pier and then be hidden in beech forest (top right). 23 June 2022.

Plate 24: View westwards to road bridge from the proposed bridge crossing of the Manganui o te Ao River (with beech forest ridge behind). Bridge will cross from the mānuka terrace (midground) to the grassland terrace on the far side (20 metre span bridge). 23 June 2022.

Plate 25: Google Street View image, southwards towards the Last Spike Memorial rest area, and proposed parking area. The Last Spike rest area provides public vehicle access to the trail.

Plate 26: Last Spike Memorial and sealed car park. The proposed trail will utilise existing tracks such, as shown here, for 192 metres. A new 126 metre section of trail will link to a boardwalk tower with ramps to connect with Section 7 below the road bridge. 23 June 2022.

3.9 Section 9: Manganui o te Ao to Makatote River/proposed Pokākā ecosanctuary

This is the northernmost section of the proposed trail, and this application, and will be located on an existing four-wheel drive farm track and cross 1.6 kilometres of pastoral farmland. There are inconsequential effects on indigenous vegetation and natural character (see Plate 27).

Plate 27: Section 9 will be largely hidden from State Highway 4 by existing clumps of vegetation (indigenous and exotic) on a farm. The trail runs alongside a stand of forest in the background. This vista is the most visually exposed section from SH 4. Landscape, natural character and visual effects will be inconsequential for Section 9. Note the sign for the Last Spike Memorial and rest area to the left.

4. NATURAL CHARACTER EFFECTS

Vegetation clearance for trail construction will be kept to a minimum. Natural character effects of the proposed trail will be due to vegetation clearance and changes in landform resulting from earthworks. This will include secondary effects such as changes in groundwater due to drainage or increased wetness and consequent changes in habitat and fauna. Change has occurred since the railway was built (opened in 1908) with wetlands formed along the rail corridor and the strip of mānuka-dominant vegetation. The mānuka is on previously-cleared land, that has been able to regenerate naturally into this vegetation type. It is expected that smaller scale but equivalent effects will occur along the new trail following completion.

Overall, natural character effects will range from nil on roads and paper roads, to minor effects along the rail corridor where it will be under cleared mānuka. The Mangaturuturu and Manganui o te Ao riverscape sections will have potentially more than minor effects, being adverse effects that are noticeable but these can be potentially mitigated or remedied.

Natural character effects will mirror ecological effects and can be managed with suitable conditions. Refer to Wildland Consultants (2022) for further detail and commentary.

5. LANDSCAPE EFFECTS

As described above, Tongariro National Park and the Manganui o te Ao and Mangaturuturu Rivers are all part of an Outstanding Natural Feature and Landscape. The rivers are protected with a National Water Conservation Order (1989).

Landscape character along most of the trail is forest, with some old-growth beech forest and podocarp/beech forest in the Manganui o te Ao and Mangaturuturu River valleys and mainly mānuka regrowth adjacent to the railway. The trail starts and finishes at roadside parks with associated detailing and signage. Rural farmland and the road and rail infrastructure will also be readily apparent in places. Conservation style timber dominant structures are proposed along the trail, including boardwalks, bridges, ramps and retaining as well as assorted culverts. The trail itself will have a gravel surface.

The trail will affect the scenic qualities of the Manganui o te Ao and Mangaturuturu River gorges and riparian margins (Outstanding Natural Feature and Landscape NL2.2.2.c.v), its importance in providing a habitat for the whio/blue duck (*Hymenolaimus malacorhynchos*), and its outstanding wild and scenic characteristics, and wildlife and fisheries values.

The trail will help to provide for the social or economic wellbeing of communities, provide essential utilities, infrastructure and/or services to the public, for residents, visitors and tourism.

The trail is part of a broader cycling network, the Mountains to Sea (Ngā Ara Tuhono), and so has functional requirements to be located and designed in the manner proposed.

The trail will avoid significant adverse cumulative effects on the characteristics and values of the outstanding natural features and landscapes. Note the "less is more approach", with the alignment of the trail largely outside the National Park, and sensitive construction techniques proposed (refer to proposed construction protocols).

In terms of Tongariro National Park (Outstanding Natural Feature and Landscape NL2.2.2.c.viii), particularly the volcanoes, the visual and scenic characteristics, particularly its visual prominence will be essentially unaffected. Recreational values will be enhanced. Scientific value, particularly the volcanic landscape will be unaffected. Ecological values, are addressed in Wildland Consultants (2022). Cultural values and importance to tangata and mana whenua are intrinsic to the application, with Ngāti Uenuku being the applicant.

Overall landscape effects are minor. Effects that are noticeable will not result in any significant adverse effects. A conservative and sensitive approach to land use is a dominant theme of the proposal. If the trail is built in a sensitive manner, the landscape can readily absorb the trail alongside the existing road and rail infrastructure.

6. VISUAL EFFECTS

Visual effects will be limited to road and rail users where the trail is visible. Most of the trail will be hidden under the canopy of mānuka and older forest in the river valleys.

It is likely that the movement of trail users (i.e. cycling and walking) will be the most apparent effect. This type of transport experience already occurs in the locality, with the interaction between road and rail, and will not be significant.

Overall, visual effects will be less than minor. 'Adverse' effects will comprise discernible day-to-day effects, but will be too small to adversely affect other people. Small parts of the trail may be visible from the road and the railway but this will be for fleeting moments, and will be intermittent, and will be seen in the context of other transport (road and rail) activities.

7. CONCLUSIONS

The proposed Te Hangaruru Trail route runs through a spectacular landscape, passing alongside Tongariro National Park to its east, crossing the Mangaturuturu and Manganui o te Ao Riverscape Outstanding Natural Feature and Landscapes, and with the Erua Conservation Area and other conservation areas to the west. Areas of privately-owned rural land and mixed vegetation, along with the railway and road, will complete the experience.

Overall, natural character effects will range from nil and less than minor on roads, paper roads and much of the rail corridor with small river sections potentially generating more than minor effects, being adverse effects that are noticeable but these can potentially be mitigated or remedied. This can be managed with suitable conditions such as construction protocols, as also applies to ecological effects (refer to Wildland Consultants 2022).

Overall, landscape effects will be minor but noticeable, but will not result in any significant adverse impacts. Landscape character is of large scale and will dwarf and dominate the proposed trail. The landscape can readily absorb the trail alongside the existing road and rail infrastructure.

Overall, visual effects will be less than minor, comprising adverse effects that will be discernible day-to-day effects, but too small to adversely affect other people. Small parts of the trail may be visible from the road and rail networks but this will be for fleeting moments, intermittently and be seen in the context of other transport (road and rail) activities.

Most of the trail will run parallel with the rail line within NIMT land and was previously cleared for construction of the railway in the early 20th Century. The trail is outside the operating strip of railway line and related infrastructure. Much of the rail corridor adjacent to the National Park has regrown into a cover of dense mānuka vegetation. The trail will be substantially hidden within this mānuka strip, except where it will utilise existing roads, paper roads, and farmland.

Landscape, natural character, and visual effects will generally be inconsequential. While a narrow strip of mānuka and associated vegetation will be cleared, this will be pruned away, and where possible understorey plants will be transplanted. The pruned material will decompose over time.

There are two sections of trail that are proposed within old-growth forest: the two major river valley sections: Mangaturuturu and Manganui o te Ao River crossings (Sections 4 and 7, respectively). These areas are more sensitive and will result in greater potential adverse effects, due to vegetation clearance. These sections of trail are proposed to be constructed near and between large beech and podocarp trees with dense indigenous understorey vegetation, and both involve the construction of new bridged river crossings with associated lead in boardwalks as needed for access. While there will be potential adverse effects with these sections, they will also provide trail users the opportunity to have unique experiences within the forest and associated education and enjoyment. Constructed sensitively and in accordance with agreed trail protocols, landscape, natural character and visual effects can be remedied or mitigated.

Conditions are suggested as follows:

- A trail construction protocol should be developed alongside detailed design of bridges, boardwalks, retaining and staircase structures.
- The applicant, Ngāti Uenuku, will need to ensure that the cultural landscape is suitably monitored.
- Council will need to monitor works to ensure that nature dominates, and that the trail is recessive especially in the Mangatururu and Manganui o te Ao riverscapes.
- Similarly, the Department of Conservation will need to monitor works to ensure that nature dominates and that the trail is recessive in Tongariro National Park.

ACKNOWLEDGMENTS

Gerrie Knoetze (GHD) arranged the project, on behalf of Ruapehu District Council and provided useful background information.

Rowan Sapsford (Roam Consulting) provided client liaison, organised and led the site visit (23 June 2022, including KiwiRail safety requirements), and provided useful background information regarding the proposed alignment of the trail.

Dean Sherrit (Cheal Ruapehu) provided detailed maps and plans of the proposed trail route.

Photographs and notes from the site visit on 23 June 2022 were provided by Angela McQuillan (Wildland Consultants). Where unspecified, photographs were supplied by Richard Hart.

REFERENCES

Wildland Consultants 2022: Assessment of ecological effects for the proposed shared use Te Hangaruru Trail on the lower slopes of Mount Ruapehu. *Wildland Consultants Ltd Contract Report No. 5405e*. Prepared for Ruapehu District Council.

PREVIOUS ASSESSMENT

"Tongariro National Park, Proposed Ohakune trails" Landscape Opinion by Richard Hart, dated August 2017.

LANDSCAPE PROTOCOLS

Sample protocols from Turoa section.

NATIONAL WATER CONSERVATION ORDER

National Water Conservation (Manganuioteao River) Order 1989
"This order declares that the Manganuioteao River and its tributaries, the Mangaturuturu and Makatote Rivers, and the Waimarino and Orautoha Streams, include and provide for
a) outstanding wild and scenic characteristics:
b) an outstanding wildlife habitat for the blue duck or whio (Hymenolaimus malacorhynchos):
c) an outstanding recreational fishery.
The order also includes various provisions to preserve and protect those rivers and streams."

DISTRICT PLAN EXTRACTS

Ruapehu District Plan - Outstanding Natural Features and Landscapes
Policy NL2 Ruapehu District Plan Page 3 of 5 Operative: 1 October 2013.

NL2.2.2 Policies - Outstanding Natural Feature and Landscape

To protect outstanding natural features and landscapes from inappropriate subdivision, use and development. In determining inappropriate subdivision, use and development the following will be taken into account - the degree to which the activity:

(a) NL2 Outstanding Natural Features and Landscapes - Policy

(i) Would adversely affect the values specified in Policy NL 2.2.2(c).
(ii) Is necessary to provide for the social or economic wellbeing of communities, or to provide essential utilities, infrastructure or services to the public; and
(iii) Has functional, technical and operational constraints which require it to be located and designed in the manner proposed; and
(iv) Avoids any significant adverse cumulative effects on the characteristics and values of those outstanding natural features and landscapes.

While ensuring that, in all cases, any modification of the features or landscapes is consistent with the purpose of the Act.

(c) To protect, from inappropriate subdivision, use and development, the specified values associated with the following outstanding natural features or landscapes:

(v) Manganui o te Ao River and its margins, including the Makatote and Mangatururu Rivers and their margins, the Waimarino and Orautoha Streams, and the Ruatiti Stream and its margins, specifically:

(1) Its scenic qualities provided by its river gorges and riparian margins.

(2) Its importance in providing a habitat for the blue duck.

(3) Its outstanding wild and scenic characteristics and wildlife and fisheries values. The River is protected by a national water conservation order.

The extent of the Outstanding Natural Features and Landscape notation as it applies to the Manganui o te Ao River as shown on the Planning Maps should be read as incorporating the 'riverscape' of the waterways included in the notation.

The 'riverscape' is defined to mean:

(1) Escarpment faces (eg, those high vertical walls) adjoining and adjacent to the waterway when viewed from the waterway.

(2) The river/stream bed and associated shingle banks and floodplains.

(3) Areas of vegetation whether native or exotic that adjoin the waterway and, when viewed from the waterway, form the immediate ridgeline. This could mean that in some instances areas of vegetation contained on land held in private ownership will be regarded as part of the riverscape for assessment purposes.

The Outstanding Natural Features and Landscape notation excludes any land that appears visually as grazed pastoral hill country that is distinctively different in terms of vegetation cover, land use (eg, predominantly farming activity) and landform scale to that within the 'riverscape'. The pastoral and hill country excluded from the Outstanding Natural Features and Landscape notation is that which is not unique to the area in question, and is characteristic of such pastoral and hill country found throughout the Ruapehu District.

…(viii) Tongariro National Park (particularly the volcanoes) and specifically its:

(1) Visual and scenic characteristics, particularly its visual prominence.

(2) Recreational values.

(3) Scientific value, particularly the volcanic landscape.

(4) Ecological value, particularly the mountainous ecology and the extensive tussock grasslands and wetlands supporting rare indigenous flora.

(5) Cultural values and importance to tangata whenua.

Rural Zone Rules on height (potentially affects bridges)

RU3.3.5 Height (a) The maximum height of any building shall be 15m or 2m plus the horizontal distance from the nearest site boundary, whichever is less, provided that no building shall protrude through the Obstacle Limitation Surfaces for Taumarunui Airfield defined in Appendix 7. Relevant Assessment Criteria: RU3.5.1(a) (i), (iii), (vii) and (ix).

Heritage and archaeology

The district plan lists heritage buildings and sites in appendix 4 for the locality as follows;

RM B2 - **1** White Elephant Bridge Makatote River, near Erua B NA Built c. 1886. Large wooden road bridge 160m long, and 85 feet above high water mark. By 1907 the bridge was already decaying.

RM B2 7668 **2** Makatote Tramway (Dunwoodie's Mill) State Highway 4, Erua Sec 1 Blk IX Ruapehu SD and Pt Sec 9 Blk VIII, Manganui SD B II • Metal plate (possible boiler plate) • Wooden and metal rails • Tramway bridges

RM B2 - **3** Horopito Post Office State Highway 4, Horopito Sec 4 Blk XIII Tn of Horopito West C NA

RM B2 - **4** Horopito Car Museum Matapuna Road, Horopito Sect 23 Block 1 Town of Horopito West C NA Opened in the 1940s. Used as setting for the film 'Smash Palace' in the 1970s.

RM B2 - **5** Horopito School 6433 SH4, Horopito Sect 43 Blk XVI Manganui SD B NA A tent school was opened on this site in 1908, with temporary premises opened in 1909. A permanent building was constructed in 1914, but was destroyed by a fire in 1934. Currently building constructed in 1935.

The district plan appendix 4 – schedule of heritage buildings and sites:

RM B2 7779 **115** Mangaturuturu Viaduct North Island Main Trunk Line, Horopito NZ Gazette 1910 B II Completed 1908, one month before the NIMT was completed. It is the highest altitude railway structure in NZ. Designed by Peter Seto Hay.

RM B2 7575 **116** Last Spike Memorial State Highway 4, Manganui o te Ao Pt Sec 17 Blk VII, Manganui SD B II Commemorates the completion of the NIMT.

RM B2 7778 **117** Makatote Viaduct North Island Main Trunk Line, Pōkākā, Erua NZ Gazette 1910 A I Built between 1905 and 1908. The Viaduct is the tallest and last structure to be completed on the NIMT. When originally constructed the Viaduct was ranked among the highest viaducts in the world, and the highest in NZ.

UM 10 - **118** National Park Railway Station North Island Main Trunk Line, National Park B - Highest railway station in NZ at 809m.

Locations for these are shown on Ruapehu District Maps; 54 Ruatiti Horopito – Rural, and map 55 Ruatiti Horopito – Rural Features.

Wildlands

Providing outstanding ecological services to sustain and improve our environments

Call Free 0508 WILDNZ
Ph: +64 7 343 9017
Fax: +64 7 3439018
ecology@wildlands.co.nz

99 Sala Street
PO Box 7137, Te Ngae
Rotorua 3042,
New Zealand

Regional Offices located in
Auckland, Hamilton, Tauranga,
Whakatane, Wellington,
Christchurch and Dunedin

ECOLOGY RESTORATION BIODIVERSITY SUSTAINABILITY

www.wildlands.co.nz

Appendix 7. Construction Management Plan

Trail Construction Protocol

for the

Te Hangaruru Walking and Cycling Trail

Proposed works on Public Conservation Lands

14 April 2023

ROAM

CONTENTS

Figures and Tables

1 INTRODUCTION

This document sets out the general conditions and monitoring requirements for design and works associated with the construction of Section 2 of Phase 1 of the proposed Te Hangaruru dual use walking and cycling trail.

Te Hangaruru will form part of the proposed extensions of the Mountains to Sea – Ngā Ara Tūhono – and the government's New Zealand Cycle Trail Project – Ngā Haerenga.

The proposed trail will be an easy, family friendly Grade 2 trail that enables a high level of access by users of a wide range of ages and abilities. As the trail is a shared use trail, its design considers dual use and dual flow of users. The design has incorporated a range of tools to facilitate safe use by people on foot and on bike.

The trail will be built 1.5m wide with an all-weather surface and, where the terrain permits, the trail will extend to 1.8m wide to allow easy passing and shared use.

2 DESCRIPTION OF THE SITE

The route of the wider trail is shown in Figure 1, with the areas of PCL which this plan relates to, highlighted.

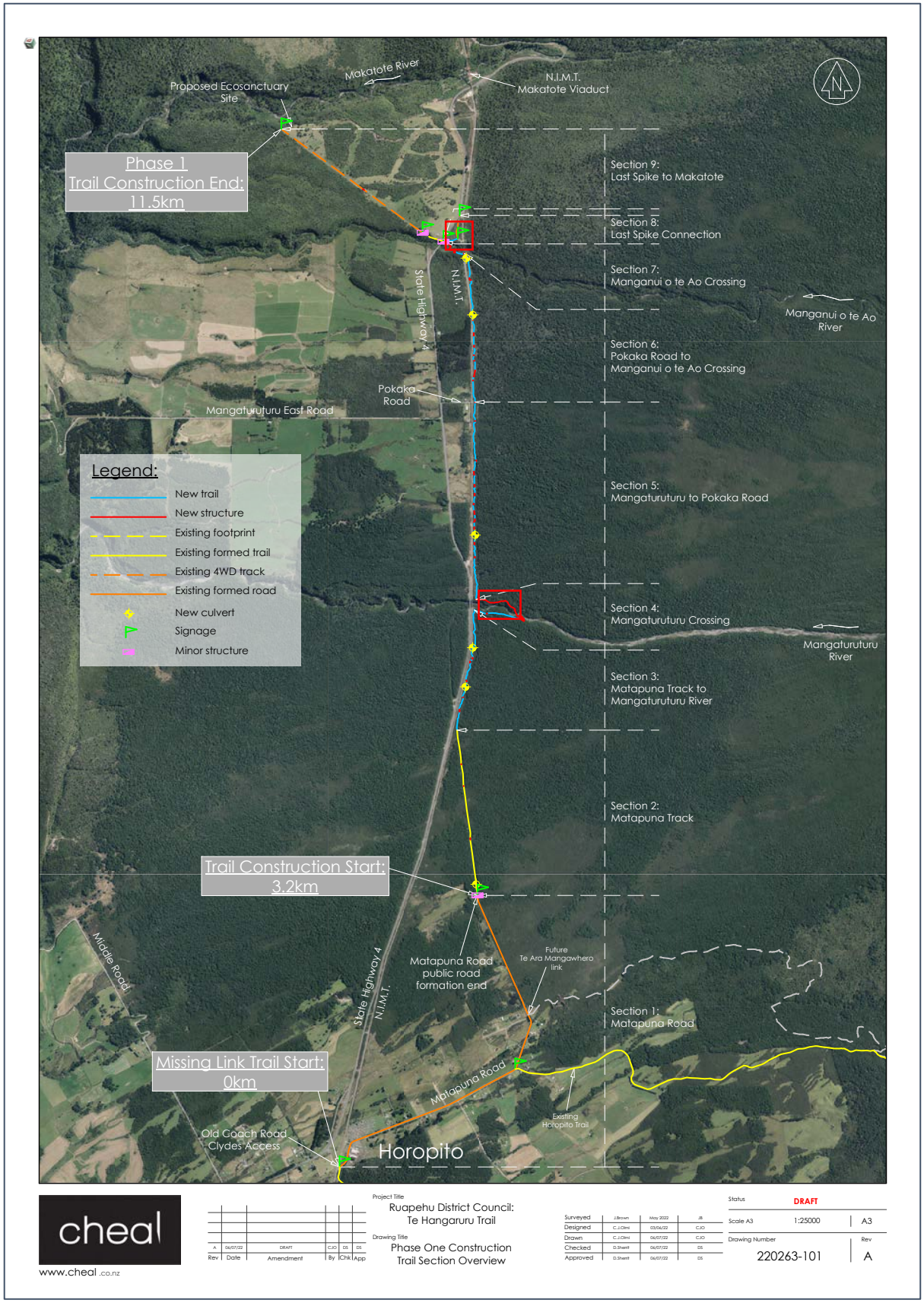


Figure 1 Phase 1 of Te Hangaruru Trail

3 Trail Design Considerations

The trail will be constructed in accordance with the New Zealand Cycle Trail's 2019 Cycle Trail Design Guide.

The key elements of these standards and general elements of sustainable trail design are set out below and in Figure 2.

Gradient	0 - 3.5 degrees for at least 95% of the trail (3.5 degrees = 6.0% = 1:17), 3.5-6 degrees for no more than 10m at a time (the less the better)
Width	Single Track: 1.5 metres wide (with adequate horizontal clearance to drops or banks/trees)

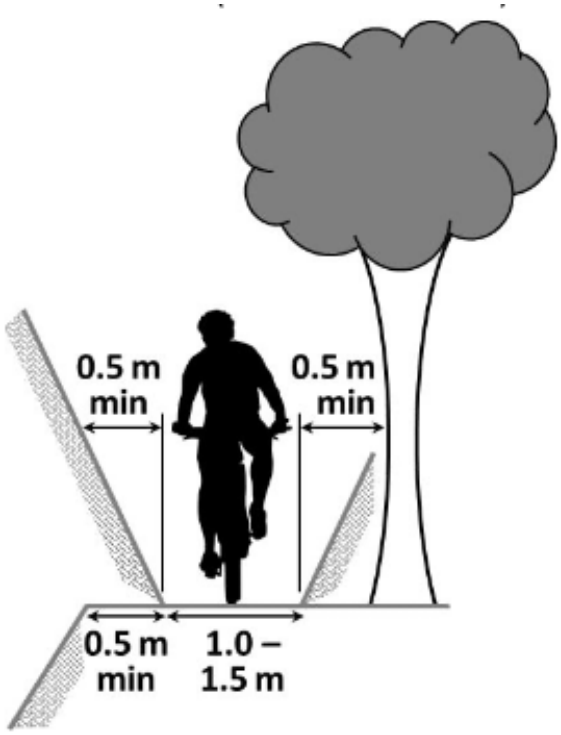


Figure 2 NZCT Trail width guidelines for Grade 2 Trails

Formation	Mono-slope with 2 - 3 degrees side slope
Surface	Compacted top-course aggregate of maximum AP30 mm

4 Trail Setout

The proposed route, along with the location of the boardwalks has been surveyed. A cad file of the route of the trail can be provided to the Department.

Prior to construction, it is recommended that each section of the track will be walked over by the Concessionaire representatives, Uenuku, contractor representatives and Department of Conservation representatives.

The boundary of the construction area must be physically marked with stakes and or flagging tape prior to works commencing and no works will take place outside of this area.

5 Construction Management

There will be up to two work teams working on trail construction at a time. Each time will consist of four Trail Crew (including a digger driver) including one team leader.

There will be a Project Manager (PM) who will have oversight over the delivery of the project. The PM will manage the two teams as well as providing oversight of the nature and quality of the work undertaken. During construction of the trail, the PM will undertake regular site visits to ensure that the trail crew understand and are complying with the conditions set out in this report.

The project will be overseen and monitored by a NZCT accredited Master Trail Builder (MTB). The MTB will work directly with the Project Manager, Team Leaders and Trail Crew. The objective of the MTB role is to ensure that the trail is developed to the NZCT standards and that those working on the trail are receiving an appropriate level of guidance and training to ensure that they are developing a trail to the expected quality.

Additionally, several subcontractors including but not limited to helicopter operators, transport providers and structure construction contractors may be on-site from time to time. All subcontractors will be managed by the project manager.

Bridge and structure development will be carried out by subcontractors who are suitably trained and qualified to undertake the work required.

In addition to hand held tools the following machinery will be used for the development of the trail:

- 2x 1.8 tonne diggers
- 2x power barrows

All trail crew will be working under a third party audited health and Safety Plan and will go through an ecological and cultural induction prior to initiating work.

The trail crew will at all times work within the conditions of the works approval and concession agreement issued by the Department.

The team structure is shown below.

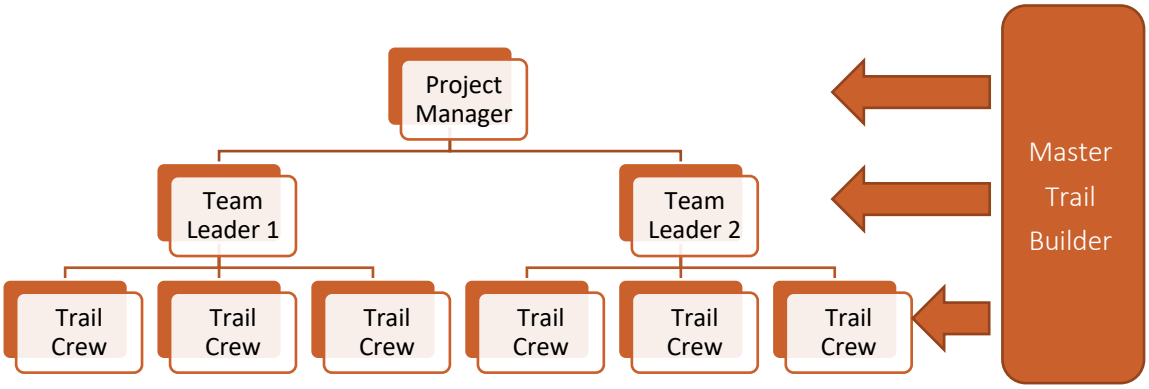


Figure 3 Trail Crew Structure

6 EARTHWORKS AND TRACK CONSTRUCTION

The trail construction methodology is based around developing a sustainable trail that considers the important environmental, cultural and scenic values of the land and waters which it will traverse. A secondary consideration is the development of a trail which is resilient to erosion and use to reduce ongoing maintenance issues.

The methodology is also focussed on the development of a trail that meets the relevant NZCT standards.

6.1 Trail Construction

The aim is to build a sustainable trail that has minimal impact, resists erosion through proper design, and blends with the environment.

It is the intent to protect the environment with minimal disturbance in the construction phase by adopting specific methodology that respects the sensitive nature of the natural landscape.

The following are the key principles of trail development that will be always applied:

1. To ensure that only the minimum area required for the trails is cleared, the extent of works will be physically marked with stakes and/or flagging tape prior to any vegetation removal and earthworks. No areas beyond this boundary will be used during construction, e.g. for temporary storage areas for equipment or for disposal of fill.
2. Trail development will be undertaken in a manner consistent with the recommendations of Wildlands Consultants in Section 11 of their assessment.
3. The overall maximum gradient is to be 6% (3.5 degrees) for 95% of the trail; up to 8% (5 degrees) for no more than 100 metres at a time, and up to 10.5% (6 degrees) for no more than 10 m at a time.
4. A small percentage of the trail will be across slopes therefore to manage water an outward sloping trail is preferred to a crowned or inward sloping surface which could require an inside drain and use

of culverts. This is to assist any water to run across the trail and not down the trail with minimal ongoing maintenance needs.

5. The majority of the trail is on flat country meaning that the trail surface is to be crowned with surface slope to each side about 4%, to avoid a trenched/dished trail surface developing with use in a short time.
6. Rolling grade dips will be constructed at suitable locations to divert water off the trail and into the surrounding vegetation.
7. Rolling grade dips will not be installed at the edge of any stream crossing to minimise sediment entering the stream bed.

6.2 Compaction

Where fill is necessary to build a base for the trail surface it shall be compacted in layers not exceeding 100 millimeters in loose thickness,

Compaction of the trail surface and outside slope fill will primarily be by digger, weighted power carrier and concrete roller. In some circumstances a plate compactor or vibrating mechanical roller will provide more effective compaction and these should be used, but in many sites the loose pumice material will not respond to such treatment without addition of water and clays. In these circumstances the surface will be left to consolidate after light rolling and with time and use This must be constantly monitored to ensure compaction by cycle and walking use is not concentrated on a single line and a raised outside berm is not developing and hindering water shedding from the trail.

6.3 Drainage and Storm Water

The soils are predominantly volcanic therefore for the most part the trail surface and its margins are free draining. In places there is a deep layer of organic material which also aids drainage.

The trail will be sloped outwards at 4% to encourage any runoff to go across trail. Where run off is likely to occur shallow swales will be placed across the trail at regular intervals to let the water cross the trail. The finished slopes will be at an angle similar to the existing natural slopes which will result in water being shed from the trail but not concentrated so that it scours the area below the trail.

Further, the following minimum trail construction standards will be used:

1. Reverse grade or rolling grade dips will be used as the main water control method on the trail and wherever possible this will be done at least every 10 meters.
2. Gully crossings are to be armed with local rock where water may flow due to localised heavy rainfall events.
3. Side drains if used shall be no less than 250 millimeters in width and 200 millimeters in depth.
4. Side drains shall be discharged using out-slope trail formation techniques and armed with local rock, if possible, with culvert pipes used as a last resort.
5. When the trail gradient is consistently up to 1 in 6, drainage will occur every 10-15 meters of trail.

6. Track drainage culvert pipes if used shall be installed with beveled flange fitting into the inside edge of side drain and with a minimum coverage of 150 millimeters of compacted earth beneath the trail surface material. A plate compactor is to be used to compact material around and over the culvert.
7. Any culvert pipes shall be black polyethylene (smooth bore) measuring at least 200mm in diameter and of appropriate length unless specified.
8. All imported fill material shall be clean soil obtained from a weed free source.

6.4 Materials Brought onto Site

Helicopter-drop locations will be used to deliver supplies to the construction front at set locations along the route. Existing clearings or gaps in the forest canopy will be used for helicopter-drop locations.

If accesses are within 1 kilometre of road or staging points tracked low ground pressure dumpers will be used to transport material to site.

If material is required to be brought from off-site it will be brought from the following sources:

9. AP60 – Scoria Pit Taura metal Supplies Ltd, Ohakune
10. AP20 – Berrys Pit, Tohunga Junction, Ohakune

6.5 Use Of Local materials

Excess material gathered through the shaping of the trail formation will be used wherever possible to provide fill. However, in some cases borrow pits may be used to gain fill needed to aid the trail formation. Borrow pits will only be used where there will not be a requirement to remove any indigenous vegetation.

6.6 Sediment Runoff

Ground disturbance will be minimal and restricted to the intended footprint of the trail or designated access / construction routes, bridge sites and surface material dump sites. The nature of the topography etc. mean that there this very low risk of sediment washing off the trail and reaching waterways.

Excess fill will be used to level the trail in other areas or used to construct an outer edge of the trail, rather than discarding it as loose fill.

Trail fill will be compacted to an angle that is like the surrounding slope and covered with indigenous vegetation (for example, small ferns) or humus and surface litter (sourced from cleared vegetation within the trail footprint), to reduce erosion and surface runoff.

All trail surfaces will be compacted to prevent surface material movement or sediment runoff.

Specific to bridge locations and earthworks near rivers or water courses, the work will be undertaken in a manner consistent with the erosion control plan set out in Appendix 4.

6.7 Boardwalks

The project will include the development of boardwalks on PCL. Ownership of all structures will be with Ruapehu the Ruapehu District Council and any building or resource consents will be in the name of Ngāti Uenuku.

Boardwalk designs can be found in Appendix 5 with the locations of boardwalks shown on the maps in Appendix 1.

Boardwalks will be used in wet areas where maintaining a dry sustainable trail surface is not possible and to protect sensitive vegetation.

7 Vegetation Clearance

Vegetation clearance and ground disturbance will be undertaken in a manner consistent with the recommendations set out in section 11.3 of Wildlands Contract Report No. 5405e. Conditions for trail development will be:

- Felling of large indigenous trees >15 centimeters diameter at breast height (dbh), particularly all podocarps and beech must be avoided.
- Where possible that track will avoid any regenerated trees with a height greater than two meters.
- Trimming of large trees especially podocarps will be avoided or minimised.
- All vegetation clearance will be undertaken by hand.
- Vegetative material that is cleared will be scattered along the track margins within 2.5 meters either side of the construction zone) where suitable.
- Large logs or branches will be chopped into sizable chunks before scattering along the track margins.
- Vegetation debris will not be mulched or formed into large piles.
- Physical contact with trees, particularly large branches, and trunks, will be avoided when construction materials are being transported and during construction.
- Damage to tree roots will be avoided or kept to a minimum.
- Large lateral tree roots will not be severed during construction. The separation distance will be 2 to 8 meters depending on species.
- Where trail construction is constrained by an abundance of large surface roots, the trail will be realigned to avoid the roots.
- Where roots are larger than five centimeters, the trail will be realigned, or fill will be placed over the roots (it only a small proportion affected) or a section of boardwalk will be used.
- If roots greater than five centimeters in diameter are to be severed no tree will have multiple large roots removed. All roots greater than three centimeters in diameter will be cut cleanly with a chainsaw.
- It possible, roots of indigenous trees including trees and roots outside the track footprint) will not be buried under soil or track materials.
- Boardwalks are permeable and of sufficient height above the ground to allow for the natural flow of water and the persistence of a humus layer, preferably with associated ground tier plants.
- Structural supports for boardwalks will avoid large surface lateral roots.

- The humus layer will remain as undisturbed as possible during track construction.
- Care will be taken to avoid damage to vegetation outside the construction corridor as follows:
    - Any larger trees needing to be removed for construction purposes will be felled lengthwise along the track route if possible.
    - No soils, gravel or other materials will be pushed or dumped into land adjoining the track
    - No excess soil or substrate that cannot be used on another part of the track will be placed in areas of minimal ecological impact.
    - Indigenous ground tier plants within the track route will be removed carefully where possible and used for site rehabilitation within the same site to the extent practicable

8 STEAM CLEANING PLANT

All plant (hand tools, electrical tools and small petrol-powered tools are exempt) to be used will be thoroughly steam cleaned (at a temperature of 140 degrees Celsius) at least 140 prior to transporting into the Park, to ensure that all seeds and other undesirable materials are removed.

9 ACCIDENTAL DISCOVERY PROTOCOL

The proposed route of the trail is away from any known wāhi tapu sites. It is possible that unknown wāhi tapu sites could be discovered during the construction of the trail.

Staff working on the trail will be trained to identify any potential wāhi tapu sites. If they find or suspect a wāhi tapu site, they will be instructed to stop work immediately and follow Uenuku policy and inform appropriate iwi leaders and the Department of Conservation. If any human remains are found the Police will also be contacted.

10 HAZARDOUS MATERIALS

Refilling of machinery or plant will be restricted to designated areas away from water courses or bodies of water, all fuel storage containers will be double bunded with anti-spill nozzles to reduce potential for spills on-site.

All machinery or plant will be serviced off-site and before transport will be steam cleaned to prevent transportation of pathogens, weed sources and soils.

Daily site meetings/briefings and training identifies risk and potential issues to ensure all potential effects are minimised and contained within the construction zone. Spill kits will be on-site for fast response to any unseen accidents.

11 PERMISSIONS

All parts of the trail will be built and maintained in accordance with relevant permission (concession, works approval and resource consent) documents that were obtained in order to develop the trail.

All conditions that form part of those permissions will be complied with in the development of the trail and associated structures.

A copy of all conditions will be kept on site at all times.

Appendix 1. Te Hangaruru Section PCL Map

cheal

www.cheal .co.nz

Rev	Date	Amendment	By	Chk	App
B	31/03/23	Boardwalk added	TJG	DS	DS
A	12/07/22	Information	CJO	DS	DS

Project Title
Ruapehu District Council:
Te Hangaruru Trail

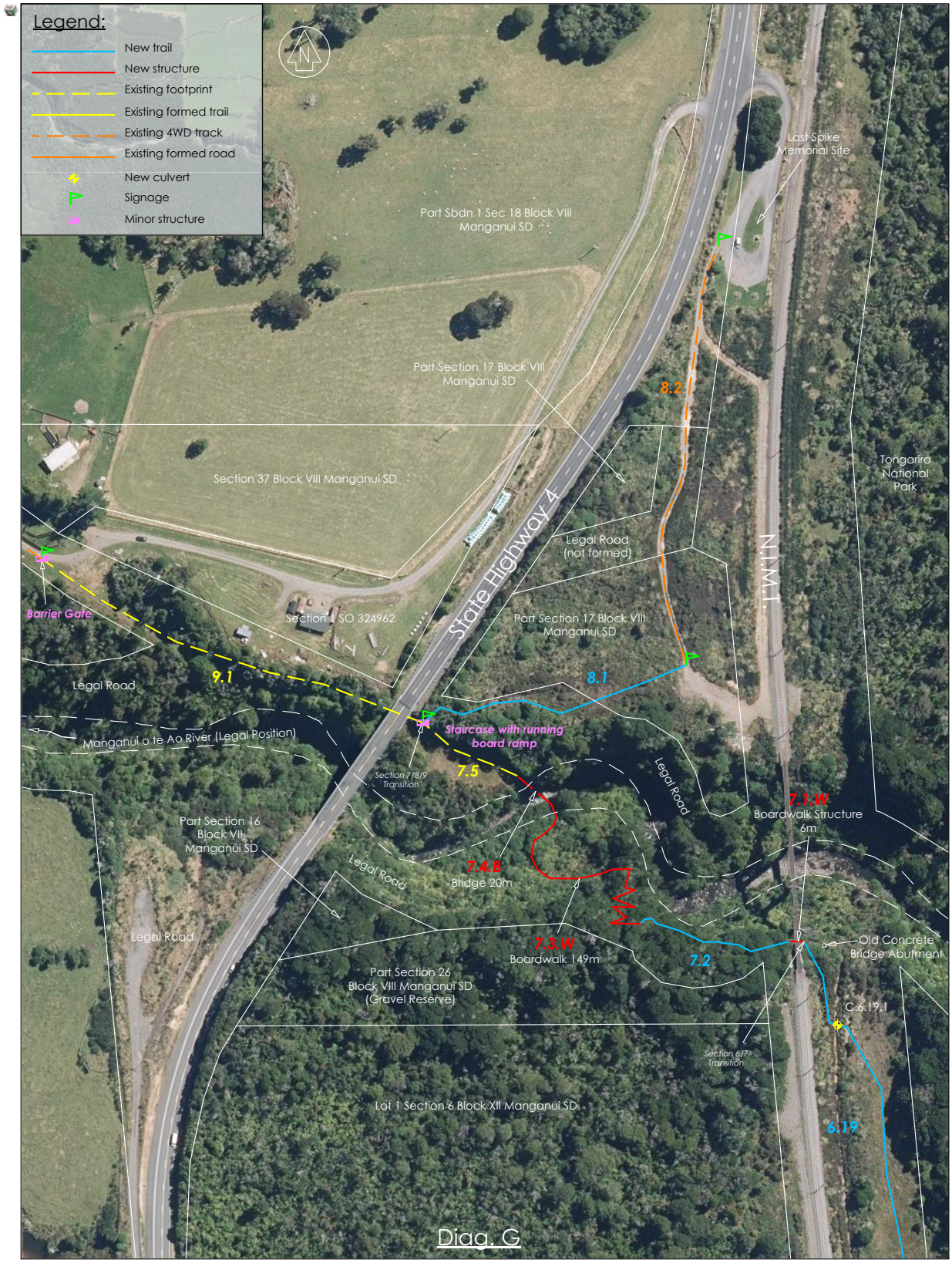
Drawing Title
Phase One Construction
Sections 4/5

Surveyed	J.Brown	May 2022	JB
Designed	C.J.Olmi	03/06/22	CJO
Drawn	C.J.Olmi	06/07/22	CJO
Checked	D.Shentl	06/07/22	DS
Approved	D.Shentl	06/07/22	DS

Status INFORMATION

Scale A3 1:2000 | A3

Drawing Number 220263-106 | Rev B



Diag. G

cheal

www.cheal .co.nz

Rev	Date	Amendment	By	Chk	App
A	06/07/22	DRAFT	CJO	DS	DS

Project Title
Ruapehu District Council:
Te Hangaruru Trail

Drawing Title
Phase One Construction
Section 7/8

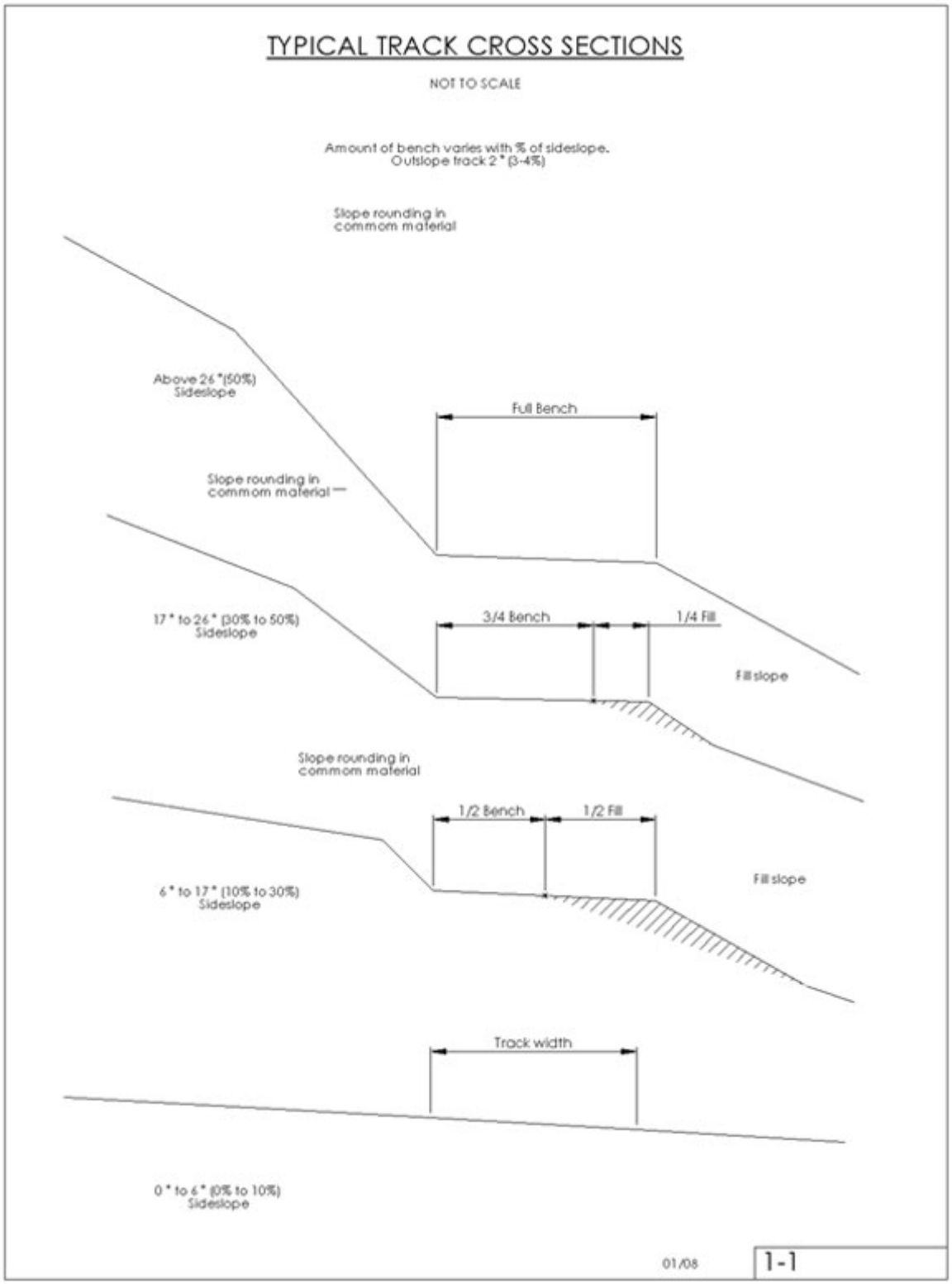
Surveyed	J.Brown	May 2022	JB
Designed	C.J.Olmi	03/06/22	CJO
Drawn	C.J.Olmi	06/07/22	CJO
Checked	D.Sherrit	06/07/22	DS
Approved	D.Sherrit	06/07/22	DS

Status DRAFT
Scale A3 1:1500 | A3
Drawing Number 220263-108 | Rev A

Appendix 2. Notes on trail construction near larger trees

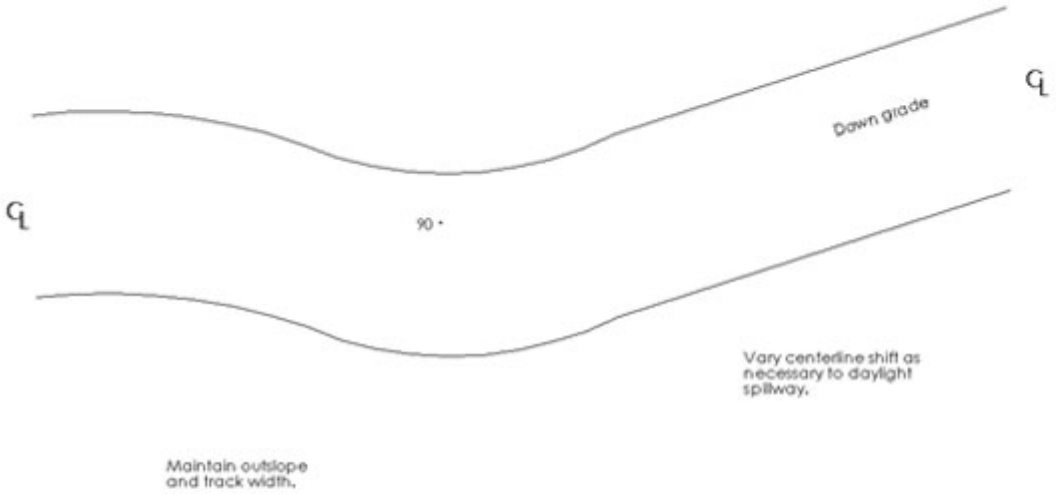
Species	Common Name	Distance within which large surface laterals are likely to be common	**Notes on Trail Construction Near Large Trees**
Dacrydium cupressinum	Rimu	3 meters	Highly variable surface root length. Large trees in close proximity to trail should be assessed on a case-by- case basis.
Podocarpus laetus	Halls Tōtara	4-6 meters	Separation distance of 4 metres should avoid large surface roots of most trees. Some larger trees may have large surface roots out to 6 metres.
Pectinopitys ferruginea	Miro	4-8 meters	Separation distance of 4 metres should avoid large surface roots for most trees. Some larger trees may have large surface roots to 8 metres.
Prumnopitys taxifolia	Mataī		
Weinmannia Kāmahi racemosa	Kāmahi	2 meters	Trail can probably be as close as 0.5- 1 metres from trees less than 20 cm diameter if no large surface laterals are damaged.

Appendix 3. Trail Construction Drawings



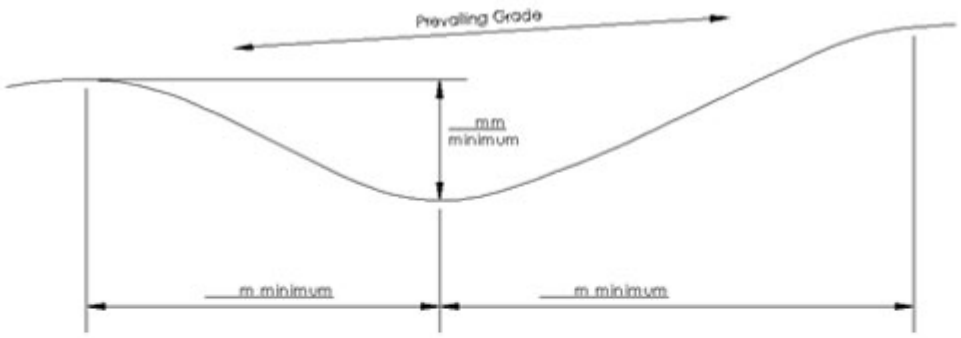
Drainage DIP

NOT TO SCALE



PLAN VIEW

Refer 'Drainage Dip' table for dimensions under Water Management

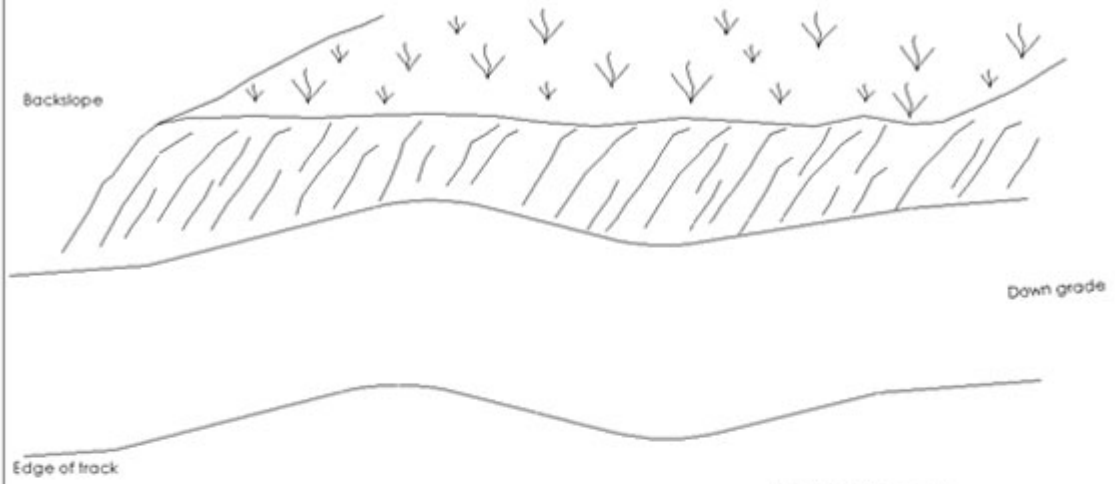


PROFILE

01/08 | 2-1

ROLLING DIP

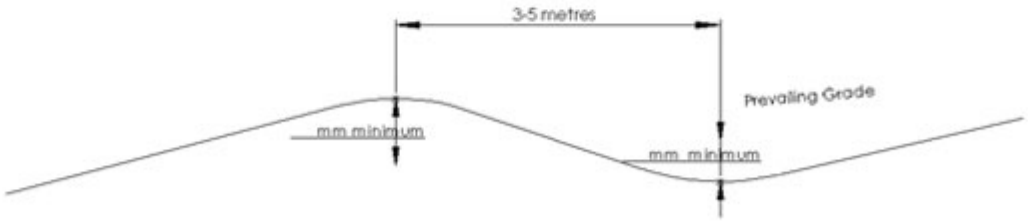
NOT TO SCALE



If spill point of dip is not to daylight, construct lead-off ditch to daylight.

Skew top and bottom of dip *

PLAN VIEW



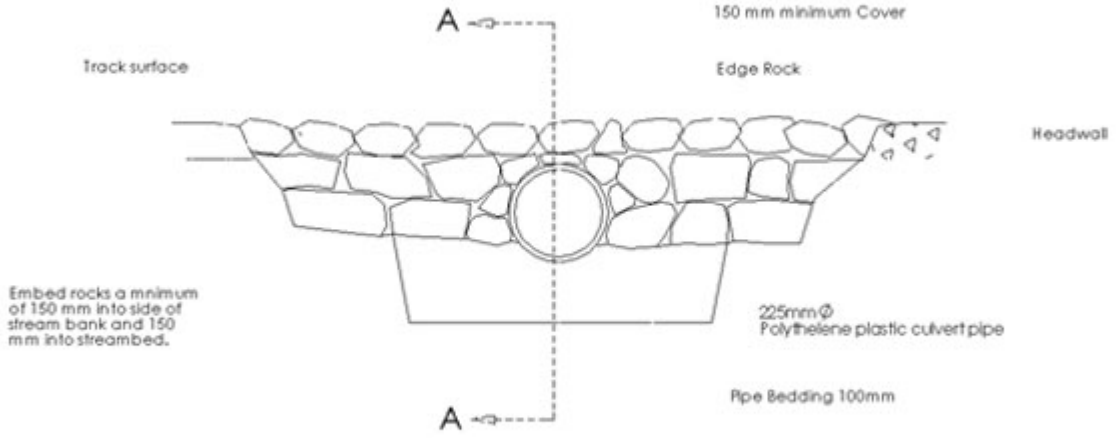
PROFILE

01/08

2-2

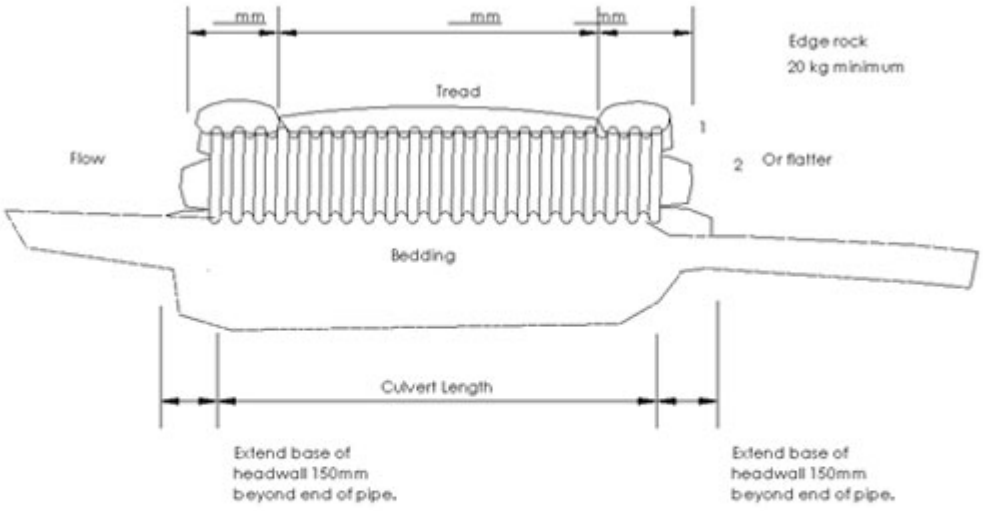
CULVERT WITH HEADWALLS

NOT TO SCALE



END VIEW

Headwall rocks:
20 kg minimum,
50% larger than
30 kg



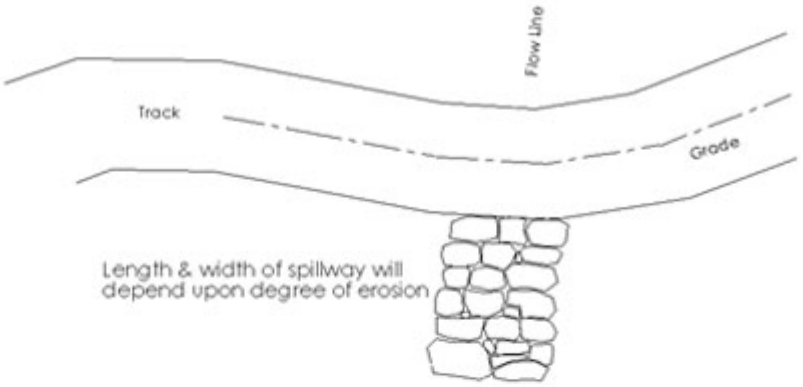
SECTION A-A

01/08

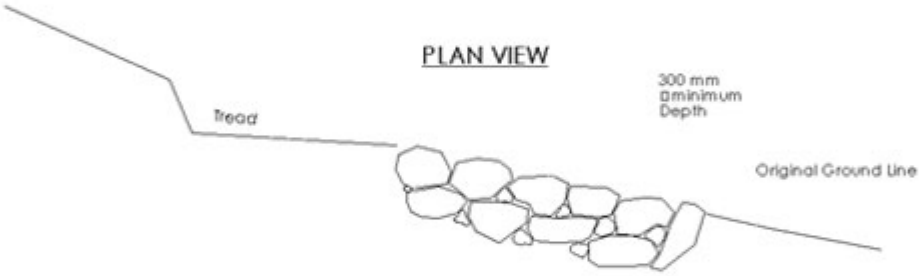
4-1

ROCK SPILLWAY

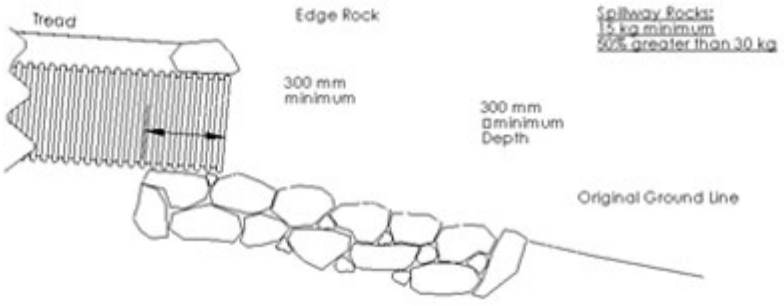
NOT TO SCALE



PLAN VIEW



TYPICAL CROSS SECTION
DRAINAGE DIP OR CROSS DRAINAGE



TYPICAL CULVERT
CROSS SECTION

01/08

4-3

Appendix 4. Erosion Sediment Control Plan

The following Erosion and Sediment Control Plan (ESCP) sets out the way by which sedimentation and erosion will be controlled. The trail is on easy topography and the edges are vegetated which will reduce the risk of issues arising. The project does involve work around multiple waterways in the construction of bridges and culverts. Those activities have the greatest risk of leading to offsite effects in relation to sedimentation of water ways if not done correctly. As well as the physical effects on the water ways there will also be cultural effects associated to pollution of waterways. The intent of this plan is to, where possible, avoid such effects from occurring.

Stabilisation and Revegetation.

As there is no intention to create stockpiles of overburden or requirement of large-scale earthworks outside the trail 2m wide footprint there is no requirement for stabilisation or revegetation.

All vegetation removed from the 2m wide footprint of new trail will be covered with an imported combination of a compacted hardened AP20 surface material or were applicable an imported compacted subbase of a AP60 Scoria.

Areas cleared for the track footprint will be formed and surfaced as soon as possible.

Margins of completed track sections will be replanted with indigenous vegetation removed during track construction where this is possible.

Sediment controls will be placed in locations where erosion and sediment run off is likely to occur.

MANAGEMENT

Roles and Responsibilities

The Project Manager shall be responsible for:

- Implementing and managing the ESCP
- Inspections of implemented ES control measures
- Reporting on inspections undertaken
- Ensuring SESC staff visit the site after rain events to undertake the process to deal with any dirty water on site.
- Updating the ESCP
- Liaison with Horizons, DOC and RDC
- Independent inspections of implemented ES control measures

Meetings

As part of the regular site meetings held between the Contractor and the Engineer, there shall be a specific agenda item for erosion and sediment control. This item shall cover:

- Results of inspections undertaken by the Contractor, Engineer and Horizons.
- Programmed erosion and sediment-controlled works including maintenance activities.
- Potential risks based upon forecasted weather patterns.
- Opportunities for innovation and improvement.

Team leaders shall also hold daily toolbox meetings with all staff on site. At this meeting there shall be a specific agenda item for erosion and sediment control. These toolbox meetings are an effective way of quickly disseminating information and obtaining feedback. A record of these meetings detailing will be forwarded to the Engineer on request.

Inspections

During construction, on the first working day of each week or on the day before and the day following any rainfall event, the contractor will inspect all ES control measures to ensure they are operating correctly and achieving the erosion and sediment control objectives.

If any ESC measure is found to not be operating correctly the following will occur:

- Cease work in the area
- Reduce the catchment area
- Construct additional ES control measures

Updating

This ESCP is a “live document” and shall be updated as necessary through the duration of the project. Any proposed changes to this ESCP are required to be submitted to DOC and or Horizons for acceptance before being implemented. At all times, the latest approved copy of this ESCP will be kept on site by with each team leader

EMERGENCY

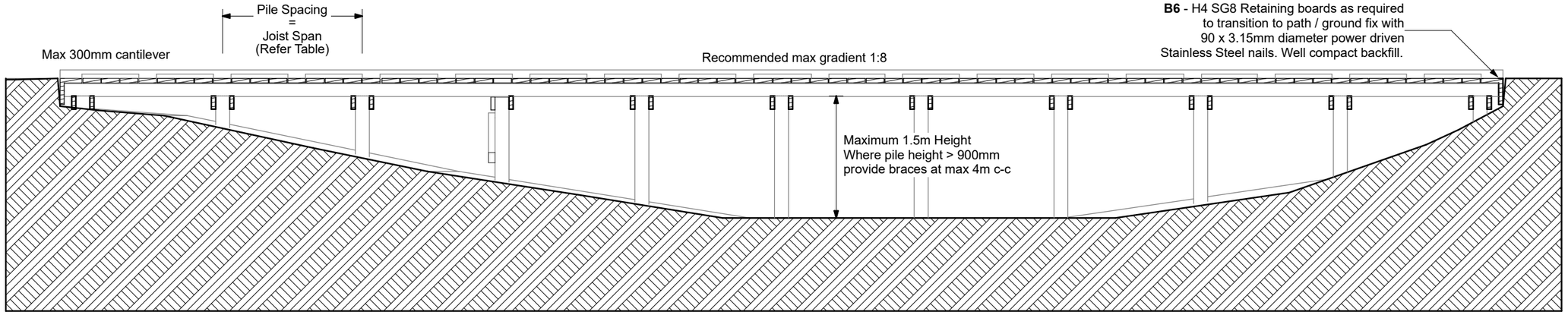
Should the site be subject to an earthquake, eruptions, extreme climatic event or human error, all ES control measures at this site shall be inspected to identify any resulting damage or failure.

Where ES control measures have been damaged or have failed, the trail crew shall as necessary:

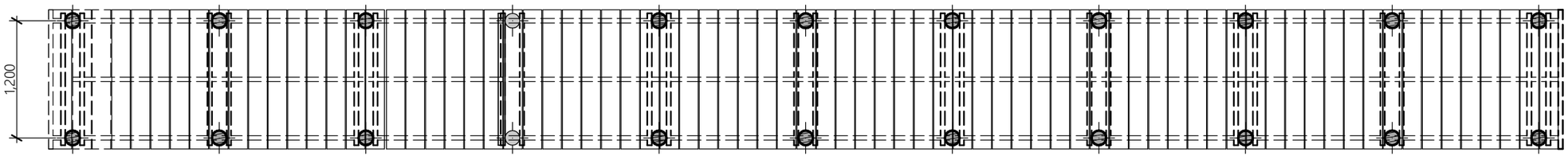
- Redirect water away from areas of damage or failure by using appropriate ES measures such as temporary silt fences diversion channels or contour drains.
- Repair or replace the ES control measure, as necessary.
- Undertake surface stabilisation.

In the event that remedial work described above is not able to remediate the damage or failure encountered then the applicants will engage a suitable SESC to advise on solutions acceptable to the Engineer and Horizons.

Appendix 5. Boardwalk Design



1 Typical Boardwalk Long Section 1:50



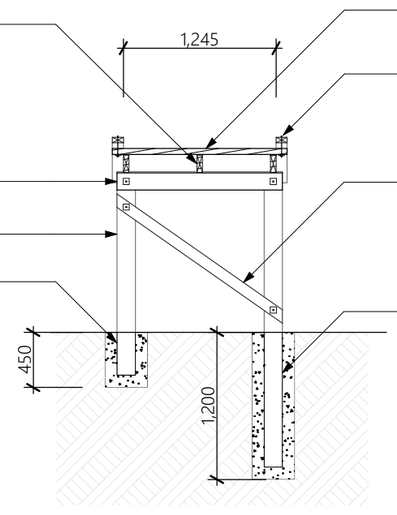
3 Typical Boardwalk Plan 1:50

B2 - SG8 H3.2 Timber Joists @ 600mm c-c. Fix to every bearer crossing with 3/90x3.15mm dia.SS power driven nails. Provide standard SS 6kN joist to bearer fixings to all joists at brace or anchor pile locations at max 4m centers. Provide solid blocking at all bearer crossings and at midspan for spans larger than 2m. Splice joists over centerline of piles with 600mm splice to one side nailed with 90x3.15mm diameter SS power driven nails at 50mm c-c around perimeter

B1 - SG8 H3.2 Timber bearers one each side of pile fix with M12 SS bolts + 50x50x3mm SS washers

P1 - 150mm SED H5 High Density Poles

Typical bored pile minimum 450mm into good ground



Typical Section
BORED PILE OPTION

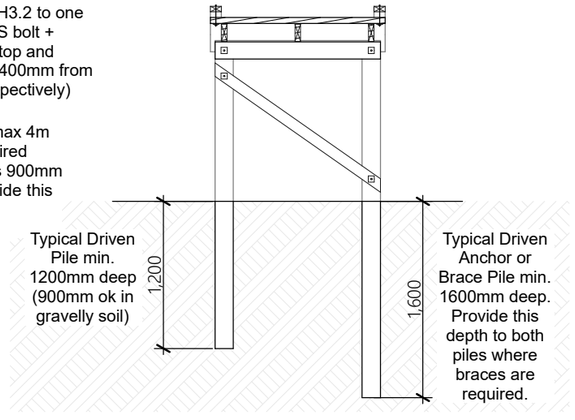
B3 - SG8 H3.2 Decking

B4 - Kerb 90x45 SG8 dressed timber H3.2 fix through **B5** - 90x45 SG8 H3.2 blocking 200mm long at 800mm centers with M12 SS coach bolts for smooth head finish with kerb

Brace - Ex. 100x75 SG8 H3.2 to one side of pile fix with M12 SS bolt + 50x50x3mm SS washers top and bottom (min 200mm max 400mm from bearer or from ground respectively)

Anchor or brace piles at max 4m centers. (Brace piles required where pile height exceeds 900mm above ground level). Provide this depth to both piles where braces are required.

Joist Depth (mm)	Joist Thick. (mm)	Joist Spacing (mm)	Joist SPAN (m)	Bearer Depth (mm)	Bearer Thick. (mm)	Bearer Bolts to Piles
140	45	600	1.5	140	45	1/M12
190	45	600	2	190	45	2/M12
240	45	600	2.5	190	45	2/M12
290	45	600	3	190	45	2/M12



Typical Section
DRIVEN PILE OPTION

Member Schedule:
B1 - Bearer - H4 - SG8 - Refer table for size
B2 - Joists - H3.2 - SG8 - Refer table for size
B3 - Decking - H3.2 - SG8 - Ex.200mm x 50mm
B4 - Kerb Block - H3.2 - SG8 - 90mm x 45mm
B5 - Kerb - H3.2 - SG8 - 90mm x 45mm dressed
B6 - Ret.Boards - H4 - SG8 - Ex.200mm x 50mm
P1 - Pole/Piles - H5 - High Density - 150mmSED
Braces - H4 - SG8 - Ex. 100mm x 75mm

Notes:

1) Where pile height above ground continuously exceeds >900mm above ground level provide two braces (one each side) longitudinally along the piles every 8m.

2) Pile hole diameter for bored piles = 350mm for "good ground" with > 300kPa ULS bearing capacity. Increase to 450mm if >200kPa ULS bearing. Consult design engineer if worse soil bearing capacity conditions are encountered. Soil bearing capacity to be determined on-site by geotechnical engineer.

3) All bolts shall have 50sq x 3mm stainless steel washers placed between timber face and all heads and nuts unless noted otherwise. The threaded protrusion past the nut shall be at least two thread pitches after tightening.

4) Where treated timber is cut, notched, bored or otherwise processed after treatment, the processed area shall be well dried and be brush-treated with a liberal application of either creosote, zinc napthenate, tbto or tbtn.

5) Cover deck boards with Tensar SS20 or Duragrid mesh, extend to within 25mm of edges and ends, fixed with SS staples @ 100crs on edges and 200crs internally.
SS staples to be a minimum of 19mm and must straddle the mesh ribs, not penetrate them. Or other approved slip resistance altertantive measures.

6) Bored Pile Hole backfill concrete shall be 20MPa at 28 days.

7) Horizontal and vertical alignment to be confirmed on-site. Recommended maximum gradient is 1:8.

8) Bolt edge distance to bearer = 50mm minimum

9) All timber piles shall be high density poles complying with table 7.1 NZS 3603:1993.

10) All fixings to be grade 316 Stainless Steel

11) Safety from falling barrier to be provided where deck exceeds 1m - 1.5m above ground level to be determined by trail alignment designer with reference to SNZHB8630:2004

12) Foundation design assumes stable ground - to be confirmed by geotechnical engineer.

13) Where ground side slope to piles exceeds 15degrees increase foundation depth by 500mm; where ground side slope exceeds 25 degrees increase foundation depth by 1m. If ground side slope exceeds 30
degrees consult design engineer.

14) Rough sawn SG8 equivalent sized timber may be used if an undressed finish is acceptable to project stakeholders. Check with project manager.

TAIAO
BE PART OF THE SOLUTION

Taiao Design

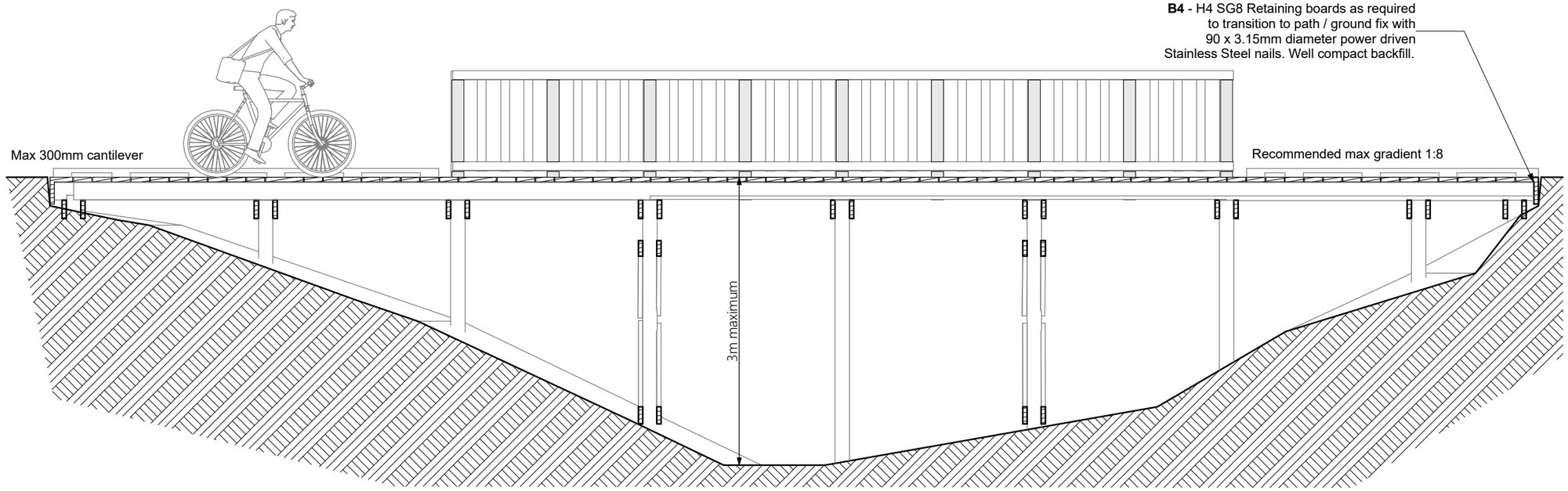
REV
SHEET
SHEET TITLE: Boardwalk Construction
REVISION #: CONSENT
Boardwalk max 1.5m above ground
ISSUED: 5/04/2023
PROJECT #: 54

Ruapehu District Council

Te Ara Mangawhero Trail
Ohakune
Ruapehu

15 Hihitahi Rise Paihia 0200
PHONE: 0226483241
MOBILE: 0226483241
team@taiao-design.com
www.taiao-design.com

C:\Users\Neville\Documents\Taiao\Jobs\54 - Te Hangaruru Trail\Te Ara Mangawhero Trail\Boardwalk 1-1.5m.pln



1 Typical Boardwalk Long Section with Barrier 1:50

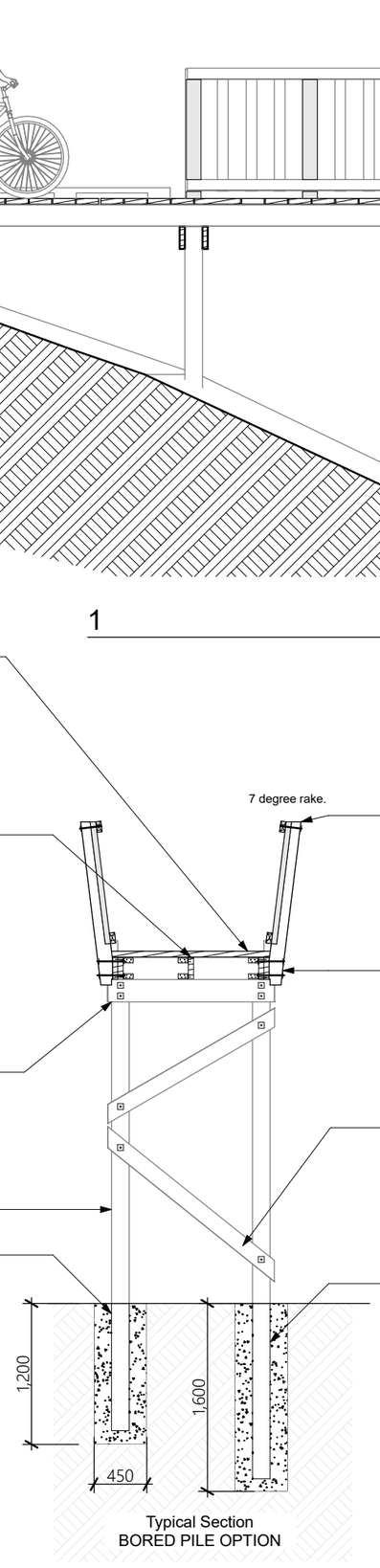
B3 - Ex. 200mm x 50mm SG8 H3.2 Decking screw fix to joists with 2 x 125mm long bugle head 14g type 17 SS screws

B2 - Minimum 190mm x 45mm SG8 H3.2 Timber Joists @ 600mm c-c. Fix to every bearer crossing with 3/90x3.15mm dia.SS power driven nails. Provide standard 6kN joist to bearer fixings to all joists at brace pile locations. Provide double joists to barrier edges and solid blocking at 1m c-c fixed with 1 pair of CPC40 SS cleats top and bottom use 75mm screws to double member. Offset blocking to not clash with barrier bolts or joist to bearer fixings; maximum offset from CL barrier post to blocking = 100mm. Splice joists over centerline of piles with 600mm splice to one side nailed with 90x3.15mm diameter power driven nails at 50mm c-c around perimeter

B1 - 190mm x 45mm SG8 H3.2 bearers one each side of pile fix with 2/M12 SS bolts + 50x50x3mm SS washers to poles. Overhang bearer min 60mm past outside line of joist to allow for 6kN bearer to pile fixings

P1 - 150mm SED H5 High Density Poles

Typical bored pile minimum 1200mm into good ground



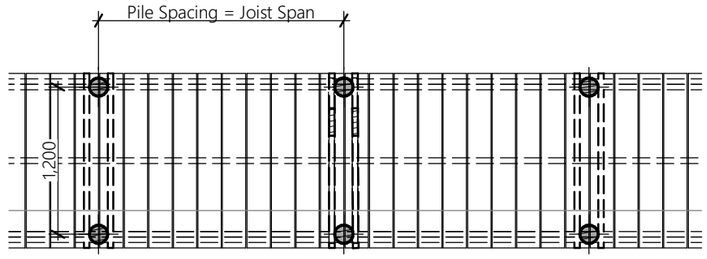
Typical Section
BORED PILE OPTION

Barrier - 125mmx125mm dressed SG8 H3.2 posts at 1m centers chamferred at base to 7deg rake; 90mm x 45mm SG8 H3.2 top and bottom rails fixed with 1/M12 SS coach bolt to post set flush to inside with 50x 50x3mm SS washer to outside. Top of bottom rail to be max 150mm above deck. 90mm x 45mm H3.2 SG8 vertical infill with approx 150mm (200mm max) openings between fixed top and bottom with 75mm SS 14g type 17 bugle screws and 2/skew SS nails.

Bolt barrier posts to edge joists with 2/M12 SS bolts + 50x50x3mm washers; 30mm edge distance top and bottom to joist.

Braces - 140x45 SG8 H3.2 to both sides of pile fix with M16 SS bolt + 50x50x3mm SS washers (min 200mm; max 400mm from bearer or from ground respectively). Max 45 degreee angle. Place bolts centrally with a minimum end distance of 128mm to end of brace.

Brace piles at max 4m centers. Provide this depth to both piles where braces are required. Increase depth for sloping ground. See note 13.



3 Typical Pile, Bearer, Joist, Decking Plan 1:50

Summary:						
Joist Depth (mm)	Joist Thick. (mm)	Joist Spacing (mm)	Joist SPAN (m)	Bearer Depth (mm)	Bearer Thick. (mm)	Bearer Bolts to Piles
190	45	600	2	190	45	2/M12
240	45	600	2.5	190	45	2/M12
290	45	600	3	190	45	2/M12

Member Schedule:
B1 - Bearer - H3.2 - SG8 - 2/190mm x 45mm
B2 - Joists - H3.2 - SG8 - Refer table for size
B3 - Decking - H3.2 - SG8 - Ex.200mm x 50mm
B4 - Ret.Boards - H4 - SG8 - Ex.200mm x 50mm
P1 - Pole/Piles - H5 - High Density - 150mmSED
Braces - H3.2 - SG8 - 2/140mm x 45mm
Handrail Barrier - H3.2 - SG8 125mm X 125mm
Handrail Top Rail - H3.2 - SG8 90mm x 45mm
Handrail Bott. Rail - H3.2 - SG8 90mm x 45mm
Handrail Infill - H3.2 - SG8 90mm x 45mm

Notes:
1) Where pile height above ground continuously exceeds >900mm above ground level provide two 100mm x 100mm H3.2 SG8 braces (one each side) longitudinally along the piles every 8m. Fix with M16 SS Bolts and 50x50x3mm SS washers to poles. Fix longitudinal brace to opposite side of transverse braces top and bottom.

2) Pile hole diameter for bored piles = 350mm for "good ground" with > 300kPa ULS bearing capacity. Increase to 450mm if >200kPa ULS bearing. Consult design engineer if worse soil bearing capacity conditions are encountered. Soil bearing capacity to be determined on-site by geotechnical engineer.

3) All bolts shall have 50sq x 3mm stainless steel washers placed between timber face and all heads and nuts unless noted otherwise. The threaded protrusion past the nut shall be at least two thread pitches after tightening.

4) Where treated timber is cut, notched, bored or otherwise processed after treatment, the processed area shall be well dried and be brush-treated with a liberal application of either creosote, zinc napthenate, tbto or tbtn.

5) Cover deck boards with Tensar SS20 or Duragrid mesh, extend to within 25mm of edges and ends, fixed with SS staples @ 100crs on edges and 200crs internally.
SS staples to be a minimum of 19mm and must straddle the mesh ribs, not penetrate them. Or other approved slip resistance altertantive measures.

6) Bored Pile Hole backfill concrete shall be 20MPa at 28 days.

7) Horizontal and vertical alignment to be confirmed on-site. Recommended maximum gradient is 1:8.

8) Bolt edge distance to bearer = 50mm minimum

9) All timber piles shall be high density poles complying with table 7.1 NZS 3603:1993.

10) All fixings to be grade 316 Stainless Steel

11) Safety from falling barrier to be provided where deck exceeds 1m - 1.5m above ground level to be determined by trail alignment designer with reference to SNZHB8630:2004

12) Foundation design assumes stable ground - to be confirmed by geotechnical engineer.

13) Where ground side slope to piles exceeds 15degrees increase foundation depth by 500mm; where ground side slope exceeds 25 degrees increase foundation depth by 1m. If ground side slope exceeds 30 degrees consult design engineer.

14) Rough sawn SG8 equivalent sized timber may be used if an undressed finish is acceptable to project stakeholders. Check with project manager.

TAIAO
BE PART OF THE SOLUTION

Taiao Design

REV 1
SHEET
SHEET TITLE: Boardwalk Construction
REVISION #: CONSENT
Boardwalk max 3m high
Barrier fixed to joists
ISSUED: 5/04/2023
PROJECT #: 54

Ruapehu District Council

Te Ara Mangawhero Trail
Ohakune
Ruapehu

15 Hihitahi Rise Paihia 0200
PHONE: 0226483241
MOBILE: 0226483241
team@taiao-design.com
www.taiao-design.com

C:\Users\Neville\Documents\Taiao\Jobs\54 - Te Hangaruru Trail\Te Ara Mangawhero Trail\Boardwalk 1.5-3m (1m Barrier).pln

PRODUCER STATEMENT – PS1
DESIGN

BUILDING CODE CLAUSE(S): B1 **JOB NUMBER:** 54
ISSUED BY: Taiao Architecture and Engineering Ltd
(Engineering Design Firm)
TO: Ruapehu District Council
(Owner/Developer)
TO BE SUPPLIED TO: Ruapehu District Council
(Building Consent Authority)
IN RESPECT OF: Te Ara Mangawhero Trail Boardwalks
(Description of Building Work)
AT: Te Ara Mangawhero Trail, Ohakune, Ruapehu
(Address, Town/City)
LEGAL DESCRIPTION: **N/A** ☑

We have been engaged by the owner/developer referred to above to provide *(Extent of Engagement)*:
Structural Design Services
in respect of the requirements of the Clause(s) of the Building Code specified above for Choose one , as specified in the Schedule, of the proposed building work.

The design carried out by us has been prepared in accordance with:

- ☑ Compliance documents issued by the Ministry of Business, Innovation & Employment *(Verification method/acceptable solution)* B1/VM1 B1/VM4 and/or;
- ☑ Alternative solution as per the attached Schedule.

The proposed building work covered by this producer statement is described on the drawings specified in the Schedule, together with the specification, and other documents set out in the Schedule.

On behalf of the Engineering Design Firm, and subject to:

- Site verification of the following design assumptions: "Ground conditions are verified by Geotechnical Engineers" .
- All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:

- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the Schedule, will comply with the relevant provisions of the Building Code and that;
- the persons who have undertaken the design have the necessary competency to do so.

I recommend the CM 2 ☑ level of **construction monitoring**.

I, *(Name of Engineering Design Professional)* Neville James Wilson , am:

- ☑ CPEng number 1015945

and hold the following qualifications BE Civil (Hons)

The Engineering Design Firm holds a current policy of Professional Indemnity Insurance no less than $200,000
The Engineering Design Firm is not ☑ a member of ACE New Zealand.

SIGNED BY *(Name of Engineering Design Professional)*: Neville James Wilson
(Signature below):

ON BEHALF OF *(Engineering Design Firm)*: Taiao Architecture and Engineering Ltd Date: 5/4/2023

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of $200,000.

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

SCHEDULE to PS1

Please include an itemised list of all referenced documents, drawings, or other supporting materials in relation to this producer statement below:

This PS1 relates to the 3 drawings listed as follows:

"Te Ara Mangawhero Trail Boardwalk max 1.5m above ground" Sheet 1 dated 5/4/23
"Te Ara Mangawhero Trail Boardwalk max 3.0m high" Sheet 1 dated 5/4/23
"Te Ara Mangawhero Trail Switchback" Sheet 1 dated 5/4/23

The design had been carried out in accordance with the design brief issued to Taiao Architecture and Engineering Ltd for the Te Hangaruru Trail by Cheal Consultants Ltd.

The design codes and alternative solutions used in the design are as follows:

SNZ HB8630:2004	**NZS3603 - Timber Structures**
New Zealand Building Code (B1/VM4)	**NZS3604 - Timber Framed Buildings**
NZS3101 – Concrete Structures	**NZS1170 – NZ Loadings Standard**
NZ Geotechnical Design Modules 1-5	

GUIDANCE ON USE OF PRODUCER STATEMENTS

Information on the use of Producer Statements and Construction Monitoring Guidelines can be found on the Engineering New Zealand website
https://www.engineeringnz.org/engineer-tools/engineering-documents/producer-statements/

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects (NZIA), Institution of Professional Engineers New Zealand (now Engineering New Zealand), Association of Consulting and Engineering New Zealand (ACE NZ) in consultation with the Building Officials Institute of New Zealand (BOINZ). The original suite of producer statements has been revised at the date of this form to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with part of the reasonable grounds necessary for the issue of a Building Consent or a Code Compliance Certificate, without necessarily having to duplicate review of design or construction monitoring undertaken by others.

PS1 DESIGN Intended for use by a suitably qualified independent engineering design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 DESIGN REVIEW Intended for use by a suitably qualified independent engineering design review professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 CONSTRUCTION Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2]

PS4 CONSTRUCTION REVIEW Intended for use by a suitably qualified independent engineering construction monitoring professional who either undertakes or supervises construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Engineering Professional
This statement is made by an engineering firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its personnel.

The person signing the Producer Statement on behalf of the engineering firm will have a professional qualification and proven current competence through registration on a national competence-based register such as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand provides additional assurance of the designer's standing within the profession. If the engineering firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent engineering professional".

Professional Indemnity Insurance
As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard practice for the relationship between the BCA and the engineering firm.

Professional Services during Construction Phase
There are several levels of service that an engineering firm may provide during the construction phase of a project (CM1-CM5 for engineers[3]). The building Consent Authority is encouraged to require that the service to be provided by the engineering firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4
Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Refer Also:

1 Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
2 NZIA Standard Conditions of Contract SCC 2011
3 Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)
4 PN01 Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org

Appendix 8. Mountains to Sea Signage Guidelines


Mountains to Sea
Ngā Ara Tūhono
RUAPEHU
OUR GREATER OUTDOORS
Ngā Haerenga
GREAT
RIDES
OF NEW ZEALAND
WHANGANUI
ALL YOU NEED (AND THEN SOME)
Department of Conservation

Signage Guidelines and Specifications

- Brand | Colours and Logos
- Trail Head Maps
- Kilometre Markers / Directional arrows
- Track Information Signs

TO COME

- Directions: Commercial Entities
- Carparks
- Toilets
- Miscellaneous Signage

Introduction:

Mountains to Sea – Ngā Ara Tūhono represents the connected pathways taking cyclists on an adventure from Tūroa to Whanganui and the many special places in between.

Consistent clear signage ensures that riders, walkers, and the public are aware of where they are on the connected pathways and inviting them to navigate this journey too. Signage achieves several things:

- Wayfinding
- Safety – users know where they are and options for next stops
- Awareness of the trail network for future exploration
- Brand awareness and engagement – so they can share their experiences consistently
- Information – advice of any permissions and requirements of use
- Facilities (such as toilets, water etc)
- Commercial operators supporting the trails

The suite of signage has been developed to complement existing tourism, Department of Conservation and roading signage. (Via NZTA and the respective district councils). These guidelines should also be considered in tandem with the NZCT New Zealand Cycle Trail Design Guide

Any additional /replacement signage should be ordered via info@mountainstosea.nz or directly from the Mountains to Sea – Ngā Ara Tūhono trail champion.

Please note the colours of each section of trail are reflected consistently in signage, trail guides and any other comms.

Colours and Logos

The suite of colours is based on the brand logo colours and to bring alive the regions we traverse (and draw out the individuality of each section of trail).
The system is designed to expand as the network of trails are added to or changed – without the necessity to re do all sections – thus avoiding any future confusion for users.

Brand Logo

Our brand reflects the importance of the maunga (Mt Ruapehu) and the awa (Whanganui River) and its tributaries. The colours reference both nature and our sense of energy.

The Trail name is Mountains to Sea. Ngā Ara Tuhono is the by-line that tells the story of our connected pathways. Ideally these should be used together.

The brand should always be used as the full width version where possible.
An alternative version (vertical) has been developed specifically for use on road edge markers – as demonstrated below)

Each trail has been allocated a unique colour which connects the elements across all communication platforms – these are detailed below.

Track Name	Sample	Hex	CMYK
Fishers Track		Hex #00CC99	
Kaiwhakauka		Hex #6A65AE	
Mangapurua		Hex #993366	
Ohakune Mountain Road		Hex#92D050	
Ohakune Old Coach Road		Hex #00488D	
Middle & Ruatiti Rds.		Hex #BB772A	
Whanganui River Road		Hex #FEB719	
Upokongaro – Tasman Sea		Hex #B1151E	
Oio Road		Hex #ED7102	0,65,100,0
Marton Sash and Door		Hex #00B0F0	
Te Hangaruru			
Te Ara Mangawhero			
Mangawhero Link Track			

Trail Head Map Signs

Trail Header Maps are placed at the entrance of all key points on the trail. Designed for a focus on navigation and information.

Note – each is marked up with appropriate "You Are Here"
In places where a section of trail is often ridden as a standalone experience as well, we may also have a second more detailed header map board for the section (i.e., Old Coach Road etc.)

Signs should also feature the survey QR code, the Great Ride logo, and any specific trail safety information.

Kilometre Markers

Kilometre markers have a safety role for trail users – if there is a need they are able to identify where they are on a trail. Additionally, they reinforce the branding of the trail

Markers are in general based on the standard NZTA road edge markers and should be installed following similar guidelines. We use these as they are robust and fit for purpose across our wide variety of trails. (Except urban routes – see below)

Note the kilometre marking is identical both sides as the count is from the northern most start point.

Examples

Placement of markers

Off Road sections:

- The official start of each section is designated by a directional marker.
- Placed each **one kilometre** (from official start of section (Start))
- Numbers start at 1km at the northern most point and ascend moving south or west (as appropriate).
- Markers are situated on the left-hand side of the trail where practical

- The official start of each section is designated by a directional marker (Start).
- Placed every **two kilometres** (from official start of trail section)
- Numbers start at 2kms and ascend southwards / westwards as appropriate.
- Markers are situated on the left-hand side of the road (heading in southwards direction.)

Trail Direction – Markers

Used when required, these are supplementary markers focused on removing any confusion and ensuring trail users are clear on the direction of a trail (both to ensure correct route and/or avoid confusion)

Once the generic marker has been placed, the appropriate trial arrow label should be applied with the direction of travel.

Wayfinding

Urban Road Sections – wayfinding

In urban settings, finger signs such as this may be used to supplement and/or guide cyclists through areas. These would be additional to any city signage and are there to clarify and give cyclists confidence they are on the right route.
(The colour band is consistent with the relevant trails section)

Key Junction Sections – additional wayfinding

In some sections of the trail, additional clarity and / or distance signage may be required. In this instance the following style shall be used.

Each fingerboard sign will base colour relates to the trail section.
(Due to space and clarity constraints the NZCT logo won't appear on these)

Track Information Boards

Used where specific information is required to be communicated

- Dark teal background and M2SNZ logo – along with relevant NZCT/RTO logo as required.
- Individual trail colour band on left hand side – with trail name is corresponding colour.

Trail Status Notification Boards

The Mangapurua is sometimes closed from the Trig to the Bridge to Nowhere. In order to ensure that users are aware, we have three locations of large signs with an Open and a Closed setting (hinged and secured in place by padlock)
These are located at the junction of Ruatiti Rd (near Middle Rd), Ruatiti/ Crotons Rd, Whakahoro (Blue Duck Station) and Mangapurua Landing

Interpretation Story Boards

(Under development)

Telling our stories is key to informing, engaging, and involving our customers/riders in the journey they are undertaking.
Interpretation boards will reflect our brand, but importantly reflect the stories we are telling. Stories may include:

- People stories (history, anecdotes, and slice of life)
- Ecology
- Geology
- Structures (especially when connected to people)

Used where specific information is required to be communicated

Core:

- Dark teal background and M2SNZ logo – along with relevant NZCT/RTO/Partner logo as required.
- Individual trail colour band on left hand side – with trail name is corresponding colour.
- High resolution photos with appropriate credits
- Stories told in easy-to-understand language.
- Boards should be bi-lingual in Te Reo Māori and English where relevant/possible.
- May include a call to action

Some stories may be told via other means, it may be carved pou, sculptures of other creative means relevant to the storyteller. The overall approach for each section will be determined by the partners involved and will be led by agreement between partners. At times these will by multi party (e.g., Whanganui River Road and / or Iwi lead trail sections)

Note Ohakune Old Coach Road has an extensive suite of storytelling.

Figure 3: Interp Sign - Sample only