

**WAI 2180 TAIHAPE INQUIRY DISTRICT:
MĀORI LANDLOCKED BLOCKS**

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A report commissioned by Crown Forestry Rental Trust

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The Authors

John Neal (Researcher) gained experience in the interpretation and use of land data and records in his career at Department of Lands and Survey, DOSLI, and Land Information New Zealand. His role in those Departments was primarily in the land record system which involved understanding the use of survey plans and land records both from a historical and contemporary perspective. Part of his employment was to service the Māori Land Court in the provision of survey and title records to support Partition Orders. He qualified with NZCD, NZCE, NZLSLE and is a director of Grayson Neal Limited with an excess of 20 years' work experience on land matters throughout New Zealand. Specialist skills and experience include Crown and Local Authority land disposal, road acquisition and disposal, legal access investigation and providing solutions, land ownership investigations and land history investigation, Maori Land Court applications, and Project Management.

Jonathan Gwyn (Registered Land Surveyor) is a Licensed Cadastral Surveyor and member of Survey and Spatial New Zealand (New Zealand Institute of Surveyors). He has over 15 years' experience in topographic, cadastral, and set out surveying and civil engineering design and contract management. Since becoming licensed in 2006, he has progressed to lead the CKL Hamilton office survey team alongside leading significant survey and multi-disciplinary land development projects.

David Alexander (Researcher) acquired specialist knowledge of land titles and title dealings during 12 years' work experience with the former Department of Lands and Survey. Since then he has spent 30 years applying that titles knowledge during the preparation of research reports for the Waitangi Tribunal and the Māori Land Court. He has prepared reports for the Taihape Inquiry on the Rangitīkei River and on post-1970 environmental matters in the Inquiry District.

Introduction

In July 2018, the Wai 2180 Taihape Tribunal found that it would be of assistance to its inquiry if further technical evidence on Māori landlocked blocks in the Inquiry District was provided¹. It endorsed some proposals put forward by counsel² that the evidence should address the following matters:

- Outline of the practical realities, difficulties and opportunities for development of landlocked land;
- Outline of some suggested remedies for the situation and analysis of the pros/cons/feasibility of each;
- Reference to the national context, acknowledgement that this is a national problem as well as a regional one;
- Address issues of costs to landowners for obtaining access e.g. compensation to neighbouring land owners;
- Review of materials held by the Rangitīkei District Council on this issue; and
- Accompanied by a comprehensive map book which identifies each parcel of landlocked land in the inquiry district and the legal status of the land adjoining it.

It also added three further matters that it would like information about:

- The proportion of Māori land in this inquiry district which has no suitable legal access, and this is the only barrier to owner access to that land;
- The proportion of land without legal access where legal access cannot be provided because of physical/geographic barriers to access; and
- Any additional information as to why current legislative remedies are not working for providing legal access to landlocked Maori land in this inquiry district, and practical recommendations for overcoming this for the blocks concerned.³

The following month the Tribunal produced some preliminary findings⁴. These included that historical legislation and remedies had failed to protect Māori by providing the lands they had chosen to retain with reasonable access. The Crown has a duty of active protection that

¹ Tribunal Directions, 23 July 2018. Wai 2180 #2.6.64.

² Wai 2180 #3.3.238, Paragraph 14.

³ Wai 2180 #2.6.64, Paragraph 61.

⁴ Tribunal Memorandum-Directions, 14 August 2018. Wai 2180 #2.6.65.

obligates the Crown to protect Māori in their lands as long as they wish to retain them. It also is required to take active steps to ensure non-Māori and Māori landowners are treated equitably and fairly, and Māori are not disadvantaged. It is not fair that the present generation of Māori should be required to pay to obtain access to their lands when the Crown's form of legally recognised land title and process for partitioning had historically created the access problems. Waitangi Tribunals reporting on other district inquiries had recommended that the Crown sponsor and fund mechanisms to provide the necessary expertise, including lawyers and surveyors, to pursue applications through the courts for access to landlocked land. The Taihape Tribunal held a similar view, suggesting as one possibility that the Crown establish a contestable fund to pay the costs of creating access to landlocked land that is reasonable, practically suitable, and takes account of cultural and commercial circumstances.

Since then, the evidence filed on behalf of the Crown by Michelle Hippolite, Chief Executive of Te Puni Kōkiri, has addressed the subject⁵. She acknowledges that the legislative provisions provided by the Crown “have not been as successful as the Crown anticipated”.

The barriers the Crown has identified are:

- The substantial costs (legal, survey, compensating neighbours, fencing, forming access), which can outweigh the expected benefits of achieving access.
- Difficulties in accessing capital for attaining access (legal, land acquisition, fencing and forming access).
- A lack of capacity and expertise to navigate the steps, including specialist advice on available options.
- Difficulties gaining agreements with surrounding landowners.
- Neighbouring landowners may have economic or other incentives to continue restricting access to the landlocked Māori land.

In response, in March 2017 the Crown expanded the scope of its Whenua Māori Fund to allow it to address the landlocked nature of Māori land as one of the impediments to land development faced by Māori landowners. However, “to date very few applications to the Whenua Māori Fund have been received”. The Crown continues to search for appropriate

⁵ Wai 2180 #M28.

policy responses (legislative, funding, inter-agency agreements) to the acknowledged problems.

The reporting contractor was commissioned ⁶ by the Crown Forestry Rental Trust to prepare a gap-filling report on Māori Landlocked Blocks in the Wai 2180 Taihape Inquiry, focusing specifically on three key areas:

- The proportion of Māori land in the Taihape inquiry district which has no suitable legal access and this is the only barrier to owner access to that land;
- The proportion of Māori land without legal access where legal access cannot be provided because of physical/geographic barriers to access; and
- Any additional information as to why current legislative remedies are not working for providing legal access to landlocked Māori lands in this inquiry district and practical recommendations for overcoming this for the blocks concerned.

A team of appropriate skilled personal was formed to address these items.⁷

Based on the documents already filed on the Wai 2180 Record of Inquiry or produced by the Taihape Tribunal, the research team has taken the starting point that it is “on the table” for consideration that the Crown has a responsibility and a duty to take active measures (i.e. going beyond the provision of enabling legislation) to remedy past statutory and administrative defects of the Native/Māori Land Court that failed to ensure legal access to Māori land blocks, including partition blocks. Whether this amounts to a breach of the Crown’s obligations under the Treaty of Waitangi is a matter for legal submissions rather than for this technical report. However, this report can consider what active measures might be practical and reasonable for the Crown to take in the circumstances. Measures in legislation at the moment have a patchy record of success, and a wider range of options might allow a greater variety of solutions to be developed.

For this report we have started broadly by identifying all Māori land in the Taihape Inquiry District and examining what access provisions those land blocks have. This has allowed us to identify the following categories:

⁶ Contract document CFRT to John Neal.

⁷ John Neal from Grayson Neal Ltd, David Alexander, Researcher, and Jonathan Gwyn (Land Surveyor) with CKL Surveyors.

- Māori Land with legal access and physical access;⁸
- Māori Land with legal access but not physical access;
- Māori Land without legal access.

We have then concentrated our efforts on the access needs of the second and third of these categories, looking at some of these lands to see what would be required to provide practical access of a standard that could be legally endorsed and ordered by a Court. From this assessment we have identified and made recommendations about some possible ways forward.

We acknowledge that there is some overlap (and some differences) with the exercise carried out by Te Puni Kōkiri and reported on in Michelle Hippolite's evidence⁹. This was inevitable when the research for this report commenced before her evidence was filed. We have set out our methodology to ensure transparency.

During January 2019, shortly after the commencement of this commission, we held three hui, one with a general invitation to attend, one with representatives of Ngāti Hinemanu me Ngāti Paki Heritage Trust, and one with representatives of the Mōkai Pātea Waitangi Claims Trust. From these hui we gained a clear understanding of the intractable nature of the landlocking problems, the many unsuccessful attempts that have been tried to resolve the problems, and the impact that the lack of legal access has had for land management, land development, and cultural and spiritual connection to the land.

We do not imagine that this report can somehow magically resolve the matter. Where the land adjoining landlocked land is Māori-owned, the owners of the adjoining land are in the same position as the Crown or private owners with respect to the statutory protections they enjoy and the advisability of negotiating an access solution is with them. The authors therefore have not assumed that any adjoining Māori neighbours have shared interests or any particular duty of obligation to assist neighbours with access. It has been a longstanding problem because of the complexity of the issues, and the need for a variety of interests to

⁸ Māori LOL and LINZ LOL used in conjunction with google earth air photography and street view.

⁹ Wai 2180 #M28.

align correctly in order to identify and define a sustainable solution. We nevertheless hope that this report can contribute to the debate and to an understanding of the issues.

Legal and Physical access to Māori Land in Taihape Inquiry District

We start with some definitions:

Definition of Māori Land

For identification of Māori land we have relied primarily on Māori Land Court records, specifically www.maorilandonline.govt.nz. We have correlated the Court records with Land Information New Zealand's records on www.landonline.govt.nz. This methodology provides good coverage of Māori Freehold land. It does not reliably record General Land owned by Māori – there is no current suitable database for this.

During the cross-correlation exercise, it became apparent that the two databases contained contradictory information about several blocks of land:

Owhaoko D7B

The northern area of Part Owhaoko D7B (area 3469.9770 ha) is held in title 653206 and identifies the land as Māori freehold land. A s436 of the Māori Affairs Act 1953 created a vesting order (53 Tokaanu MB 328 - 376) 9690156.1 vesting the land in multiple owners. This northern area of Part Owhaoko D7B is not shown on the map within Maorilandonline as Māori land.

The southern area of Part Owhaoko D7B (area 13621.6520 ha) is held in title WN27B/52 together with Owhaoko D7A (area 2964.3226 ha). The title WN27B/52 is not noted as being Māori land. In Maorilandonline the southern area of Part Owhaoko D7B is shown as Māori land but Owhaoko D7A held in the same title WN27B/52 is not shown as Māori land. It would seem that the northern and southern blocks of Owhaoko D7B should be reversed pictorially from that currently shown within Maorilandonline and Owhaoko D7A remain 'not Māori land'.

There is also an island situated at the junction of the Rangitīkei River and the Waingakia Stream which appears to be part of the southern area of Part Owhaoko D7B. This is shown in LOL but not in Maorilandonline.



Maorilandonline not showing the northern area Part Owhaoko D7B (highlighted in red) as Māori land

Owhaoko D1

Owhaoko D1 was one block when ordered in 11 July 1894 held in title WN103/9. The western area of Part Owhaoko D1 was declared Crown land by proclamation 1112 (NZ Gazette 1918 p 10). The eastern area of Part Owhaoko D1 remained Māori land and is shown in Maorilandonline held in title 424613.

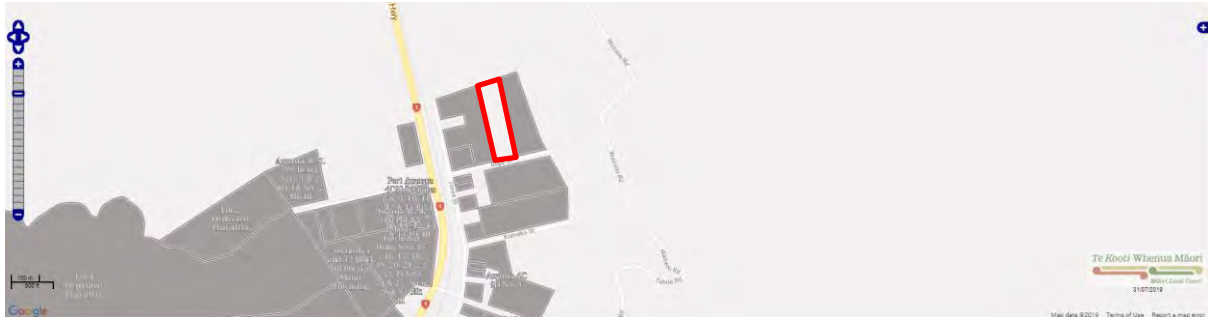
In 1985 the eastern and western area of Owhaoko D1 was the subject of a Māori Land Court Order (146A Whanganui MB 191) determining the land as Māori freehold land. The western area of Part Owhaoko D1 is not shown on the map within Maorilandonline as Māori land.



Maorilandonline not showing the western area of Part Owhaoko D1 (highlighted in red) as Māori land

Part Awarua 4C9I (Section 9 Block II Potaka Native Township)

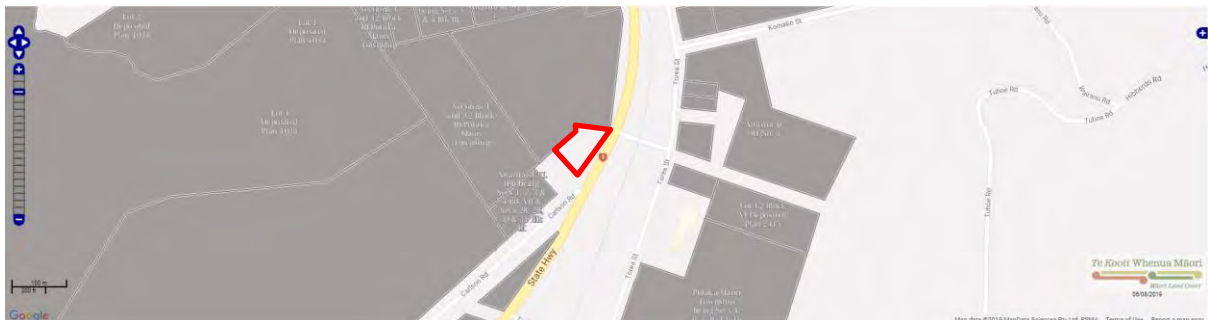
Conflicting information exists within the Maorilandonline records for Part Awarua 4C9I (Section 9 Block II Potaka Native Township), textual records record this as Māori Freehold Land whereas the map within Maorilandonline does not record this land as Māori land.



Maorilandonline not showing Part Awarua 4C9I (Section 9 Block II Potaka Native Township) (highlighted in red) as Māori land

Part Awarua 4C9K (Sections 24-26 Block III Potaka Native Township)

Conflicting information exists within the Maorilandonline records for Part Awarua 4C9K (Sections 24-26 Block III Potaka Native Township), textual records record this as Māori Freehold Land whereas the map within Maorilandonline does not record this land as Māori land.



Maorilandonline not showing Part Awarua 4C9K (Sections 24-26 Block III Potaka Native Township) (highlighted in red) as Māori land

Analysis

For the purposes of analysis later in this report, the northern area of Part Owhaoko D7B has been included as Māori land, while the southern area of Part Owhaoko D7B has been treated as a separate block within WN27B/52 and has not been included as Māori land. The eastern and western area of Owhaoko D1 has been included as Māori land. Part Awarua 4C9I

(Section 9 Block II Potaka Native Township) and Part Awarua 4C9K (Sections 24-26 Block III Potaka Native Township) has been included as Māori land.

Definition of Legal Access

Legal Access is the legal right to access land. The most common form of legal access is when a parcel of land has frontage to a public legal road. Other forms of legal access include an easement over adjoining land which is usually registered on affected titles, a right of way, or frontage to a Māori roadway.

The investigation of Taihape Inquiry District's Māori Land identified two sub-issues that had to be checked. These are access to a Limited Access Road, and access via a private crossing over the Main Trunk Railway. If there is no approved access to a Limited Access Road, or if there is no approved access across a railway line, then that would amount to a break in the chain of legality and there would be no legal access.

Limited Access Road

State Highway 1 traverses through the Taihape Inquiry District in a north to south direction which abuts land in Motukawa, Awarua, and Taraketi Blocks.

In three locations, State Highway 1 has been declared a Limited Access Road where for safety reasons access to the highway from adjoining land blocks has been restricted by the highway authority. The restriction may limit a property to one or more approved access points where the land owner can gain access to the highway. In some cases, this access point may be shared between two or more adjoining properties. Sections 88 – 98 of Transit New Zealand Act 1989 govern the establishment and control of a Limited Access Road.

The restriction on access to a Limited Access Road is a matter that is registered on the property title. For all blocks of Māori land in Motukawa, Awarua, and Taraketi Blocks which gain access to State Highway 1 where the highway is defined as Limited Access Road

(LAR), the property title has been checked,¹⁰ and the existence of the access restriction (and the number of approved access points at the time the restriction was registered)¹¹ has been recorded in the Land Table (Appendix A).

Where Māori land abuts those portions of State Highway 1 where it is not a Limited Access Road, the title is not noted in terms of the State Highway and access applies without the access limiting factor.

The fact that State Highway 1 is held as a Limited Access Road in part, does not appear to unduly restrict access into any adjoining Māori land. NZTA does regulate access primarily from a road safety aspect.

Private Level Crossings over KiwiRail railway track

KiwiRail is in the process of updating its record of all existing Private Level Crossings in New Zealand by issuing a Deed of Grant to all existing noted holders of Private Level Crossings.¹²

Existing landowners who have crossings noted in KiwiRail records with an ALCAM (Australian Level Crossing Assessment Model) number will be contacted by KiwiRail and be issued with a Deed of Grant for the crossing if the crossing is still in use and meets safety requirements.

Existing landowners who have crossings noted in KiwiRail records with an existing Deed of Grant will retain the Deed of Grant unchanged providing it is still in use. All existing landowners who use a Level Crossing to gain access to their land and that crossing is not noted in Kiwirail records, the crossing will be treated as a new application for a Level Crossing.

¹⁰ Land titles were obtained from LINZ LOL.

¹¹ Notice recorded on title.

¹² 1st July 2019 email Kiwirail to John Neal.

Of the nine Private Level Crossings in this Inquiry District which provide access over railway land to Māori land, two properties have an approved Deed of Grant. Six properties are noted in KiwiRail records as being processed to be issued with a Deed of Grant for permitted access. One property is using a crossing and appears to not have a noted Deed of Grant within KiwiRail records. The details are noted in the table below:

Awarua 4C9F1 southern portion	WN 56A/419	Plate 27 ALCAM 3717	Deed of Grant	Deed has been Granted
Awarua 4C9E southern portion	WN204/80	Plate 25 ALCAM 3716	No deed of Grant	Status and safety level needs confirming
Taraketi 1B	WNA2/49	Plate 34 ALCAM 3683	No deed of Grant	Status and safety level needs confirming
Taraketi 1C1	WN818/35	Plate 32 ALCAM 3683	No deed of Grant	Status and safety level needs confirming
Part Taraketi 1D	WN584/296	Plate 35 ALCAM 3684	No deed of Grant	Status and safety level needs confirming
Part Motukawa 1B	WN220/207	Plate 37 Noted in KiwiRail records	No deed of Grant	New application required
Part Motukawa 2B7A (has 3 portions and 3 crossings)	WN235/254	Plate 12, 13 and 14 Noted three times in KiwiRail records at 268.470km, 269.108km, 271.325km	Crossing at 268.470km, has Deed of Grant, crossing at 269.108km & 271.325km have no deed of Grant	Status and safety level needs confirming for 2 without grant of crossing

There does not appear to be any legal impediment gaining access to Māori land by way of Private Level Crossings over KiwiRail railway track in the Inquiry District.

Definition of physical access

This is access that is available to owners of Māori land so that they have an unrestricted ability to reach their lands along a route that is marked and defined on the ground. Usually the route will have been formed up to at least some degree – an unformed legal road does not constitute physical access. Whether a legal route has been formed or not has been determined from an examination of aerial photographs.¹³

A landlocked block could be accessible to a lessee where the lessee owns adjoining land over which physical access passes. That, however, does not necessarily make the access unrestrictedly available to the Māori owners, and the Māori land would not therefore enjoy physical access.

Legal and Physical Access to Māori Land in Taihape Inquiry District

All Māori land in the Inquiry District, whether it does or does not have legal or physical access, is listed in the Land Table (Appendix A).

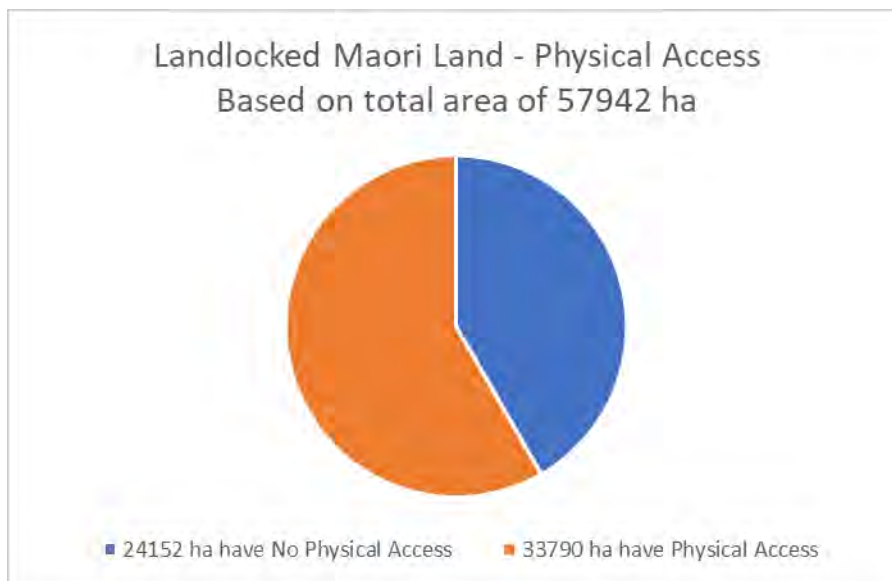
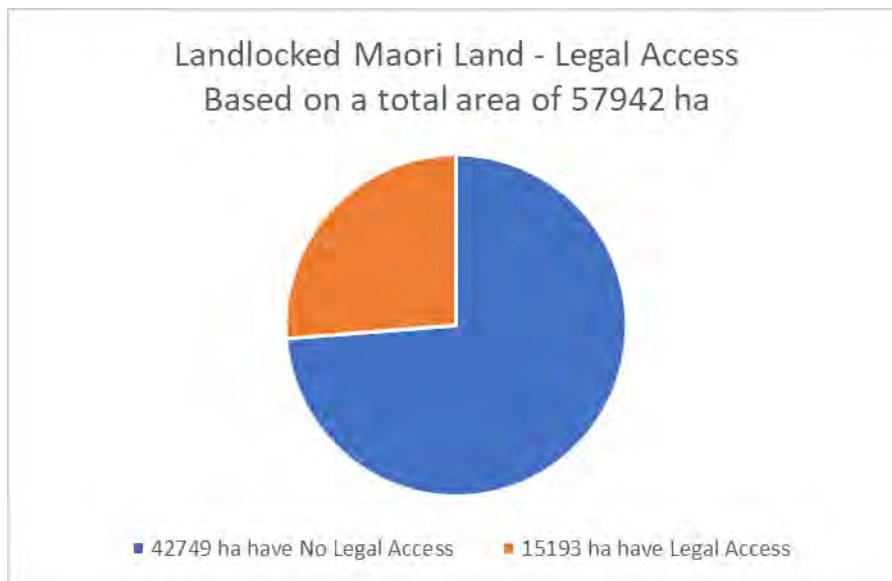
Legal and Physical Access to Māori Land

Appendix A includes all Māori-owned land blocks as identified on MLC LOL and LINZ LOL (as at 11 July 2019).

Appendix A lists 176 titles. The number of the titles that do not have legal access, or do not have physical access, are shown in the following pie charts. Areas used have been taken from titles. If a title is part-cancelled no area adjustment has been made. Where part of a title does

¹³ Google earth air photos.

not have physical or legal access the title has been treated as not having physical or legal access.



As the graphs show, close to 74% of Māori-owned land in the Inquiry District has no legal access. Close to 42% of Māori-owned land in the Inquiry District has no physical access.

Some features of the landlocked blocks

- The greatest concentration of landlocked blocks is in the northern part of the Inquiry District, in the Owhaoko and Oruamatua Kaimanawa lands. There is a smaller

concentration along the northern and north-western edge of the Ruahine Forest Park. These particular blocks are all effectively beyond the edge of the farmed landscape created by traditional types of land usage.

- There are different types of affected adjoining properties. For some landlocked blocks, which include urupa, access will have to be across other Māori freehold land, and the specialist skills of the Māori Land Court and the legislation it works under will be required to come up with a solution. Other landlocked blocks will probably need access across Crown-owned land such as the NZDF Waiouru Army Training Area (for access to some Oruamatua Kaimanawa blocks) or Ruahine Forest Park (for access to Awarua 1A3B), and the Crown will have a responsibility to agree to direct negotiations.
- For most landlocked locks, however, the affected adjoining properties are privately owned, and the Crown has traditionally declined to play an active role in finding solutions.
- Where there are concentrations of landlocked blocks, the most viable solution is likely to be a single spine route that serves a number of blocks, from which shorter side routes branch off towards individual blocks.

Can physical access be provided to landlocked blocks?

Investigative work has been done on the feasibility of provision of reasonable physical access. This investigation is the result of a desktop research project investigating the potential for access to the land locked Māori land blocks within the Wai 2180 Taihape: Rangitikei ki Rangipō Inquiry District. This assessment of the feasibility of providing practical physical access is based on high level conceptual design. Legal requirements or mechanisms to protect an access in perpetuity through the creation of Roads, Rights of Way, Access Lots, or Roadways has not been considered.

Separate block assessment reports have been supplied for each block where contour and suitable conceptual data was available. Plans showing route of possible physical are presented in the separate Map Book. Detailed assessments for each landlocked block have been set out in the separate map book forming support to this report. Terms used in those assessments are:

Definitions

Batter Slope – A uniform side slope of banks, cuttings, etc. The amount of slope or rake, usually expressed as a ratio of horizontal to vertical.

Boundaries – Method of depicting the extent of one's ownership of land. Recorded on cadastral survey plans.

Carriageway – The portion of road devoted particularly to the use of vehicles.

Chip Seal – A pavement treatment applied to the top surface of a road or access way. Comprised of sprayed on bitumen and fine aggregate.

Cross Fall – The slope, at right angles to the alignment, of the surface or any part of the carriageway.

Cut/Fill – An earthworks operation where soils are excavated (cut) and placed and compacted (fill). An example being to 'cut' through a hill and 'fill' the adjoining gully.

Digital Surface Model – A 3d model generated from Lidar surveys or similar which represents the Earth's surface including any object (i.e. trees, buildings).

District Plan – Document prepared by a Territorial Local Authority which sets a framework for managing land use and development within the District.

Geotechnics – A science that deals with the application of geology to engineering.

GIS – Geographic Information System is a system used to capture, store, manipulate, and analyse all types of geographical data.

Informal access – access track to a block of land whether vehicular or pedestrian which does not have legal protection.

LIDAR – Acronym for light detection and ranging; is a remote sensing technique that uses light in the form of pulsed laser to measure ranges.

Longitudinal Gradient – The rate of longitudinal rise or fall along a carriageway, expressed as a ratio or percentage.

Metaled Surface – Upper layer of a road formation (wearing course) constructed from compacted aggregate materials.

Pavement – The portion of a road placed above soil for the support of, and to provide a running surface for vehicular traffic.

Shoulder – The portion of road that is beyond the traffic lane that is contiguous and flush with the surface of the pavement.

Surfacing – The uppermost part of a pavement designed to resist abrasion from traffic and minimize the entry of water. Usually chip seal.

Surface Water Channel – An open drain or ditch formed for the collection and drainage of water runoff from the road’s surface.

Criteria of Practical Physical Access

The specification for practical physical access is one that is not clearly defined. Legislation does not provide a clear answer. A definition from Section 326A Te Ture Whenua Act 1993 states “reasonable access means physical access of the nature and quality that may be reasonably necessary to enable the occupier for the time being of the landlocked land to use and enjoy that land.”

In this instance we have not been able to ascertain all intended uses for the blocks in question. We have therefore turned to the Rangitikei District Council District Plan for guidance as to what would be required if such an access was to be provided to the block if subject to an action under the Resource Management Act 1991. The District Plan refers to two documents in setting access specifications:

- NZS 4404:2010 New Zealand Standard for Land Development and Infrastructure; and
- Rangitikei District Council Land Development and Subdivision Infrastructure Addendum to NZS 4404:2010, dated March 2017.

It is noted that the Rangitikei District Council Land Development and Subdivision Infrastructure Addendum to NZS 4404:2010 (RDCA) is to take precedence over NZS 4404:2010.

A summary of the design parameters for a rural road are:

	NZS 4404:2010	RDCA
Carriageway Width	5.5m	7.0m
Shoulder Width	0.5m sealed + 0.5m unsealed (each side)	1.0m (each side)

Maximum Longitudinal Gradient	10%	10%
Surfacing	Seal	Seal

The design specifications from both NSZ 4404:2010 and the RDCA are set to meet the minimum requirements of a full legal road with an open road design speed. While these specifications may be seen as desirable as they maintain consistency with the Council's current standards and would ensure that all future landowners' needs are met, the first assessments indicated that the parameters were too onerous to comply with in full for many of the blocks involved and therefore not practical in terms of the hilly terrain encountered. Consequently, we have reassessed the design parameters and have reduced the criteria to provide greater flexibility in design whilst maintaining a suitable standard of access for 6 wheeled trucks as used for commercial activities such as farming. The refined design criteria is set out below:

	Revised Design Parameters
Carriageway Width	5.5m
Shoulder Width	1.0m (each side)
Maximum Longitudinal Gradient	10%
Surfacing	Metal for gradients <10.5% Seal for gradients >10.5%

Methodology

The process used to assess the feasibility of providing practical physical access is described below:

- 1) Identify blocks that do not have legal access. 44 blocks were identified through the data comparison completed.
- 2) Locate data for each of the landlocked blocks to build a dataset for analysis. The data used and source is listed below:

- a) Cadastral Boundaries (Land Information New Zealand.)
 - b) Aerial Photography (Land Information New Zealand)
 - c) Roads and tracks as shown on the Topo50 Series Plans (Land Information New Zealand)
 - d) Digital Surface Model (Horizons Regional Council)
- 3) Build a dataset to correlate all sources of data for each block within GIS.
 - 4) Transfer data to 12d Engineering modelling software, generate 3d surface model.
 - 5) Analyse information and model access routes. The hierarchy used to priorities routes to be modelled was:
 - a) Unformed legal roads where present.
 - b) Existing informal access tracks where present.
 - c) New routes without requiring culverts and bridges.
 - d) New routes requiring culverts and bridges.
 - 6) Produce a summary for each assessed property itemising parameters used and identifying areas requiring further investigation.

Limitations and Assumptions

With the assessments being both desktop and of a high-level conceptual nature there are a number of limitations:

Quality of Digital Surface Model

The model used within 12d has been generated from Horizons Regional Council Digital Surface Model 2017. Estimated accuracies of this DSM is +/-10m.

The nature of a surface model is that this represents the visible features such as trees and vegetation rather than being a direct representation of the ground beneath. In areas where vegetation and trees are present, caution needs to be applied.

There are a number of locations where there are gaps in the data and therefore terrain cannot be verified. We have not been able to model routes for Awarua o Hinemanu and Te Koau A as it is largely in bush/forest. Due to this, a conventional survey would be needed to provide

useable topographic information. A map of track access to Awarua o Hinemanu and Te Koau A has been included in the map book.

Construction Constraints

The proposed routes have been located such that they meet the design parameters set above. No consideration has been made for geotechnical conditions and it has been assumed that in-situ materials will be adequate for cut and fill operations. Safety measures, design speed, and intersection design have not been considered.

Structures – culverts, bridges

Where large culverts and bridges have been indicated as being needed, these are indicative only. Detailed site assessments would be needed to confirm appropriate locations.

Construction Requirements

It is assumed that standard stormwater control, culverts, fencing, and revegetation will be undertaken during construction.

Pavement design, i.e. layer material types and thicknesses, will need to be determined for each block based on the proposed vehicle movements, existing ground conditions, and availability of suitable materials.

Consenting Requirements for Construction Activities

The scale of the construction activities is likely to trigger both Regional and District Council consenting requirements. It has been assumed that consents would be granted by the relevant authorities.

Consultation

We have spoken to claimants but not to adjoining landowners or public land administrators. No formal consultation has been undertaken with non-claimant landowners or informed by an understanding of the terrain on the ground, or if these options are practical.

We are aware that a number of informal arrangements exist to allow access to land that does not enjoy legal rights of access. We have not attempted to discover the details of these arrangements or the conditions of access associated with them. Nor have we examined the

extent to which these arrangements meet the needs and interests of the parties. We consider that those are matters that landlocked landowners and other parties can present directly to the Tribunal. Our inquiry has been concerned with whether or not a legal right of access exists today, and with the feasibility of providing practical access if no such right of access exists.

Findings

Below is a summary of the outcomes for each block. Further detail in the form of a plan are included in the associated map book and design summaries are attached as appendices.

Block Name	Is Practical Physical Access achievable?	Comments
Owhaoko A East	Maybe	Requires section with >10.5% gradient, large areas of fill or bridge.
Owhaoko A1B	No	Unable to find suitable route through Owhaoko A East.
Owhaoko B East	Yes	Requires section with >10.5% gradient.
Owhaoko B1B	No	Unable to access through Owhaoko B East.
Owhaoko C1	Maybe	Requires construction of significant bridge.
Owhaoko C2	Maybe	Requires construction of significant bridge.
Owhaoko C4	Maybe	Requires construction of significant bridge.
Owhaoko C5	Yes	Access from track connected to Taihape – Napier Road.
Part Owhaoko D1(both)	Yes	Requires section with >10.5% gradient.
Owhaoko D3	Maybe	Requires construction of significant bridge, extended length of >10% gradients.
Owhaoko D4B	No	Unable to find suitable route through Owhaoko D8B or D3.
Owhaoko D6 Sec 1	Yes	No issues.
Owhaoko D6 Sec 3	Yes	Track across flat farmland.

Block Name	Is Practical Physical Access achievable?	Comments
Part Owhaoko D7B	Yes	No issues.
Owhaoko D8B	Maybe	Requires section with >10.5% gradient, large areas of fill or bridge.
Oruamatua-Kaimanawa 1U	Yes	May require upgrade of existing bridge, addition of culvert. Approximately 5km >10.5% gradient.
Oruamatua-Kaimanawa 1V	Yes	May require upgrade of existing bridge, addition of culvert. Approximately 5km >10.5% gradient.
Oruamatua-Kaimanawa 1W1	Yes	May require upgrade of existing bridge, addition of culvert. Approximately 5km >10.5% gradient.
Oruamatua-Kaimanawa 2K	Yes	Significant cut and fill, retaining may be appropriate.
Part Motukawa 1B	Maybe	Crosses NIMT, would require a bridge across Hautapu River.
Part Motukawa 2B7A	Yes	Small section >10.5% gradient, Two Grants of access required from KiwiRail, one over railway corridor and one over bridge.
Motukawa 2B16B2B	Yes	Follows existing track. Small section >10.5% gradient.
Rangipo Waiu B1	Yes	Level Crossing formed ALCAM 3682 – no Deed of Grant on KiwiRail records
Rangipo Waiu B6B1	Yes	Section of track is >10.5% gradient.
Rangipo Waiu B6B2	Yes	Section of track is >10.5% gradient.
Motukawa 2F2	Maybe	Requires bridge, rail crossing. Section >10.5% gradient. Further geotechnical investigation required to either steepen batter slopes or retain slope.

Block Name	Is Practical Physical Access achievable?	Comments
Te Koau A	Maybe	DSM data is not available in this area. An existing forestry track is present but appears to be exceptionally steep.
Awarua o Hinemanu	Maybe	DSM data is not available in this area. An existing forestry track is present but appears to be exceptionally steep.
Aorangi Awarua	Maybe	Approximately 2km at 14.2% gradient.
Awarua 1A3B	Maybe	Existing bridge may need upgrading, further investigation needed in forest section to confirm actual terrain. Requires bridge to service southern portion of block.
Awarua 1DB2	Maybe	Approximately 2km at 14.2% gradient.
Awarua 2C8	Maybe	Existing track does not meet geometric specification. New alignment modelled. Requires further geotechnical investigation to reduce batter slopes. Existing bridge may need upgrading.
Awarua 2C13D	Yes	No issues.
Awarua 2C13H2	Yes	Further verification of terrain required under tree canopy.
Part Awarua 3A2J (Lot 1 DP 11254)	Yes	No Issues identified.
Awarua 3D3 Sec 17B	Yes	Did not follow existing track to improve sight distances on existing road.
Awarua 4A3C8A	Yes	No issues, follows existing track.
Awarua 4C9F1	Yes	Level Crossing formed ALCAM 3717 – has Deed of Grant on KiwiRail records
Awarua 4C15F1H1	Yes	Maximum grade 11.5%, further investigation recommended for options to retain slope. Some issues with tree canopy distorting DSM.

Block Name	Is Practical Physical Access achievable?	Comments
Lot 13 DP 5866 (Part Otamakapua 1A1 & 1B)	Yes	Need to construct bridge or culvert across stream.
Lot 14 DP 5866 (Part Otamakapua 1A1)	Yes	Existing bridge may need to be upgraded.
Otamakapua 1G	Yes	No issues.
Otamakapua 2C	Yes	No issues.
Part Taraketi 1D	Yes	Level Crossing formed ALCAM 3684 – no Deed of Grant on KiwiRail records

What practical recommendations can be made?

The claimants' views

At the three hui we attended in January 2019, we were left in no doubt that the owners of the landlocked lands considered that, in the first instance, the standard of access that their lands should have was public legal road access.

This was seen by claimants as a matter of placing them on an equal footing with most other landowners in New Zealand. When the Crown subdivided its land and granted sections to European settlers, it made sure that a network of legal roads was also laid off. These roads, colloquially known as Crown Grant roads, meant that almost every section and every title had access to a public legal road. This became the recognised standard. Māori landowners want to experience the same advantages. The most significant advantage is that the practical provision of access then becomes a communal responsibility, through local authority rating and central Government subsidy, rather than the responsibility only of those landowners that are provided with access.

It did not follow that every public legal road that was laid off by the Crown's surveyors was formed up as a road, nor that every formed road ended up being exactly positioned on every public legal road line. Different times and different circumstances can result in adjustments to the proposals devised by the first surveyors. Those matters, however, are details that should not be allowed to detract from the benefits that public legal road access provides to landowners.

Besides the notion of equality, the thinking of claimants was that public legal road access represents the least amount of restriction on their ability as landowners to access their lands. They can travel to their lands at any hour of their choosing, in a variety of forms of transport, and with no need to open and close gates through fence-lines that cross the access route.

While not universally expressed, some claimants accepted that public legal road access might be hard to achieve, because of the high costs and therefore greater difficulties involved in all parties being able to reach agreement. They were willing to adopt a more pragmatic approach that would accept the possibility of alternatives if those alternatives meant quicker resolution of the access problem.

It is probably fair to suggest that, when claimants spoke at these hui of the need for the least restrictive access to their lands, they were probably thinking in terms of large blocks whose use potential has been stymied by lack of access. They were probably not thinking of blocks which are urupa or wahi tapu, or have strong cultural connections where the absence of publicly available access might be beneficial. These matters were not explored or discussed at the hui.

We have considered it appropriate to consider a range of alternatives, rather than assess practical and reasonable access only in terms of public legal road access.

Why aren't current statutory remedies achieving traction?

There are two paths to resolution described in legislation, one in the Property Law Act 2007 and the other in Te Ture Whenua Māori Act 1993.

Sections 326-331 Property Law Act 2007 apply to both General Land and Māori Land that is landlocked. These provisions had been introduced into the predecessor legislation (Section 126B Property Law Act 1952) by amending legislation in 1975. “Landlocked land” is defined as land to which there is “no reasonable access”. “Reasonable access” is defined as:

Physical access for persons or services of a nature or quality that is reasonably necessary to enable the owner or occupier of the land to use and enjoy the land for any purpose for which it may be used in accordance with any right, permission, authority, consent, approval, or dispensation enjoyed or granted under the Resource Management Act 1991.

An owner or occupier of landlocked land can seek a court order granting access. Those with an interest in the landlocked land, those whose land would be affected by the granting of access, and the territorial local authority, are treated as interested parties. The Court has to take the following matters into consideration:

- The nature and quality of the access (if any) to the landlocked land at the time when the applicant purchased or otherwise acquired the land.
- The circumstances under which the land became landlocked.
- The conduct of the parties, including any attempts they have made to negotiate reasonable access to the landlocked land.
- The hardship that would be caused to the applicant by the refusal of an order, in comparison with the hardship that would be caused to any other person by the making of an order.
- Any other relevant matters.

Any order made can be subject to conditions. The legislation is silent about the type of access that is provided, beyond accepting that it is a legalised form of access (because the end result is a court order). There is reference to the provision of easements. The Court may decline to grant an order if it considers that the provisions of Te Ture Whenua Māori Act 1993 (TTWM) provide a better legal avenue for resolution of the matter – this suggests that if the best solution identified by the Court is a Māori roadway order or a Māori easement, or some other determination under TTWM, the matter can be referred to the Māori Land Court for that court to consider and, if appropriate, issue an order.

Sections 326A-326D Te Ture Whenua Māori Act 1993 apply only to Māori Land that is landlocked. They were introduced by an amendment to the 1993 Act in 2002, in order that some of the powers held by the High Court to order access to landlocked land could also be exercised by the Māori Land Court. The 1993 Act's definition of reasonable access is slightly different to that set out in the Property Law Act:

Physical access of the nature and quality that may be reasonably necessary to enable the occupier for the time being of the landlocked land to use and enjoy that land.

The owner of landlocked land can apply to the Māori Land Court for an order granting access. The owner of adjoining land that would be affected is a party to the court proceedings and the territorial local authority have speaking rights. The Court has to take into consideration all the matters (a) to (e) that are applicable under the 2007 Act, plus two further considerations:

- The requirements of Part 3B of the Conservation Act 1987, if the application affects a conservation area.
- Issues of public safety raised by a rail operator, if the application affects a railway line.

On the adjoining affected land the Court can order the transfer of ownership of a strip of land for access purposes into the ownership of the owners of the landlocked land, or it can order an easement in favour of the landlocked land. The order can be made subject to conditions, and costs (including compensation to other landowners) may be payable by the owners of the landlocked land.

Without invoking the landlocked land provisions of TTWM, the Māori Land Court is authorised to make access orders that create easements (Sections 315-315A TTWM), roadways (Sections 316-319), and roadways intended to become public roads (Sections 320-321).

Both statutory measures concerning landlocked lands are written as though the access problem is taken to the Court for it to arrange a solution among the interested parties. Courts can institute mediation hearings into their procedures, which can reduce the amount of court time involved in hearing proposals and counter-proposals from interested parties. However, the amount of time and energy involved is still significant, with the stress of the financial cost

a constantly-ticking burden. At the end of a prolonged process, the Court may decide, for whatever reasons, that it is not appropriate to make an order.

The statutory measures have no regard for the often long-standing nature of the access problems faced by landlocked lands. In many instances there has been a history of conflict on the ground and attempts to resolve the problems. Affected parties have frequently tried and failed to reach agreement. A court environment is not necessarily going to facilitate the finding of a solution if an atmosphere of distrust and disillusion among the parties already exists. In fact, a court is likely to be successful in only a small proportion of such cases.

A further difficulty lies in the cost of the exercise. Court cases are expensive, but the costs of the court may be insignificant compared with the costs of the legal and physical provision of access. It is implicit in the statutory opportunities that are available that the affected parties will bear the cost of laying out the access route and forming it up. No one else is volunteering to do so. In practice the landlocked Māori landowners are the most significant of the affected parties, so there is an expectation that they would pay most of the cost. Yet the landlocked nature of the Māori property has hindered its economic development and prevented the owners from gaining much income from it. The owners do not have the funds to pay their share.

The issue of where the costs fall is apparent with respect to public legal roads. Local authorities, responsible for management of the roading network, are not prepared to fund new extensions. They view a new road extension in the same manner as they would view a new road servicing a new housing subdivision. They want another party, usually those who would benefit from having the new road, to pay for construction, and only once it is constructed would the local authority be prepared to accept a handover of the road so that it became a Council responsibility. Councils also protect their position still further by testing, in terms of parameters of their own choosing, whether an addition to the road network would provide a demonstrable public benefit.

The main feature of the statutory measures currently available is that the Crown is not recognised as an interested party and is not required to be involved.

If the Crown has some duty to be involved, how could that best be achieved?

It does not make sense to expect that the Crown would be silent and uninvolved until an application is made for a court order. That would then expand the range of interested parties in the Court proceedings to include the Crown, yet in that position it is not clear what role the Crown would play vis-a-vis other parties.

More effective advantage could be achieved if the Crown became involved before a court application was made. This would involve the Crown in investing in negotiations before an application was made, with any resulting court involvement being a check of the statutory and equitable validity of any negotiated agreement, and the issue of any order establishing legal access.

One possible solution that the Crown could investigate would be to establish an agency known, for want of a better term, as a Māori Landlocked Lands Commission. The Commission would take applications from owners of landlocked land (per the medium of Māori Land Court-ordered management structures¹⁴) seeking Crown assistance, and be funded to investigate landlocked situations, prepare initial discussion documents and proposals, commission reports, and arrange negotiating hui. It would also be a suitable channel for distribution of any Crown financial contribution to be included in any agreements. If there were to be any limits on such a financial contribution, those limits could be that the contribution would be proportionate to the circumstances of historical disadvantage and proportionate to how widespread would be the benefits of the agreement.

There do seem to be examples of Commissions that can do this type of mahi. There is a Walking Access Commission that is charged with expanding the public walking track network and resolving disputes between walkers and landowners¹⁵. There is a Forest Heritage Fund that negotiates acquisitions on behalf of the Crown. There is a Ngā Whenua

¹⁴ Not only does this have to be a management organisation agreed to by the owners and endorsed by the Court, but the management organisation also has to have a mandate to pursue resolution of the landlocked status of the land.

¹⁵ Established under the Walking Access Act 2008.

Rāhui Komiti that negotiates Crown-funded kawenata (environmentally protective management covenants) on Māori Land.

Experience of such agencies shows that, by working nationally and in a variety of situations, their staff and negotiators develops skills and expertise in developing and obtaining support for agreements that can be used to advantage when dealing with other cases on other occasions as well. They may be able to provide a fresh perspective that can move parties beyond entrenched views and open up new ways of approaching longstanding access problems.

It should not be a pre-requisite that an application be made to the Māori Land Court under Section 326B Te Ture Whenua Māori Act 1993. Indeed, if any application has been made, it should be placed on hold while Crown-organised negotiations take place.

Advantages and disadvantages of different access alternatives

Notwithstanding the claimants' preference for public legal road access, the existing statutory measures do envisage other types of access provision such as easements and roadways.

If the Crown is involved in consideration of a response to a Tribunal finding or recommendation, then the option potentially becomes available of the creation of a new type of legal access provision additional to the types already available in legislation. This has not been explored in this report.

Public legal road access

- Highest standard of access provision
- Cannot be unwound except by going through a statutory process
- Least doubt about rights of use and access
- Works to best advantage if the public road is formed
- Requires transfer of land out of private ownership into public ownership
- Would have to go through local authority subdivision approval process under the Resource Management Act

- Requires boundary survey and (probably) fencing
- If formed, would have to be to public roading standards set by territorial local authorities
- Would be available to all, not just persons with a reason to visit the formerly-landlocked land
- Formerly landlocked land becomes more exposed to trespass issues (especially if it is not occupied)
- May be best suited to situations where more than one landlocked block would be serviced by the new road
- As the local authority would be responsible for ongoing maintenance, that authority would have more say about whether it should proceed as a solution; this includes the ‘demonstrable public benefit’ test
- With respect to the Owhaoko, Oruamatua Kaimanawa, and Ruahine Forest Park edge blocks, would require a change of mindset from the non-Māori owners of affected adjoining lands to imagine their lands being within rather than on the edge of the farmed landscape
- Highest initial cost
- More extensive earthworks and waterway crossings than farm tracks, so subject to greater scrutiny under Resource Management Act procedures
- Highest maintenance cost

Accessway / Roadway

- A separately defined parcel of land either in joint ownership of the landlocked landowners and the owners of the land through which the accessway passes, or in the ownership of the territorial local authority (though not with legal road status)
- Would have to go through local authority subdivision approval process
- Requires boundary survey and land transfer
- Less of an obligation on the local authority to consider formation to a public legal road standard

Easement

- An agreement between two landowners that one will allow access over their land to the other
- Right of access is exclusive to the landlocked landowners, and is not available to a wider group of interested parties (except by agreement) or to the public
- Requires boundary survey of the easement strip and registration of the easement instrument on titles
- Easement instrument would allow landlocked landowners to determine the type and standard of access (up to and including road formation) and use conditions, though the standard of access could be agreed by the parties in a separate easement agreement not forming part of the registered easement
- Easement agreement (not forming part of the registered instrument) would describe who pays what
- Less disruptive to existing land use and land management patterns than public legal road access
- Departures of the access route from the surveyed route would not be legal
- Landlocked landowners have full use of the easement right, owners of land over which the easement passes have no say beyond the agreement

Access agreement

- Written agreement as to what type of access will be provided across privately owned land to reach landlocked land
- Can be as specific or as flexible as the parties agree
- Can specify what access is agreed to in the present circumstances, and can allow for review at certain time points or when parties agree that circumstances have changed
- No survey or fencing costs, but may require legal advice during the drawing up of the agreement
- Can provide for mediation or arbitration if the parties agree
- Probably not legally enforceable, but might be able to prevent arbitrary or unilateral withdrawal by any one party

- Probably does not require a court order to implement, as usually not intended to be capable of registration, so may avoid Court involvement
- Least secure form of arrangement

Potential checklist of matters to be considered

It can sometimes assist parties to consider matters one issue at a time, in a staged sequence.

This could include the following steps in a broad sequential order:

- Are there other solutions available under Te Ture Whenua Māori Act to the landlocked nature of Māori Land that do not require the use of Sections 326A-326D? Sometimes partitions have been ordered in the past that may have made sense at the time, but which make little or no sense today. Would amalgamation or aggregation of titles resolve access concerns? Could the ordering of a Māori roadway or an easement under Sections 315-321 provide access?
- Is more than one access route necessary to provide ‘reasonable access’? This may depend on the size of the landlocked block or its topography.
- What are the present-day circumstances of use and access that an unlocking solution would have to address? Does the access to be provided need to cater for walkers, cycles, trailbikes, farm vehicles, cars, trucks, or fixed-wing aircraft, or a combination of these forms of transport? What standard of access would meet the needs of present-day circumstances?
- What are the foreseeable future circumstances that an unlocking solution should also try to address?
- Are the particular circumstances best suited to access that is open and uninterrupted to landlocked landowners (i.e. all hours, no prior permission), or access for landlocked landowners that is conditional?
- Is this a local problem requiring a local solution between two adjoining landowning parties, or do third parties (e.g. territorial local authority, Crown) need to become involved? Do the benefits of a solution involving a third party or further parties outweigh the risks of additional complexity and greater difficulty in reaching agreement?
- Are there constraints on the provision of access across adjoining land (e.g. defence use, Conservation Act restrictions on use, archaeological or heritage site restrictions,

protection of outstanding natural features and landscapes pursuant to Resource Management Act), and if so can work-arounds (e.g. alternative routes, improved design) be identified?

APPENDIX A

Legal and Physical Access to Māori Freehold Land (as at 11 July 2019)

This table looks at all Māori-owned land blocks as identified on MLO and LOL.

For each currently existing block of Māori-owned land, the survey plan describing the block is identified, and the details of legal access to the block are explained. A desk top evaluation has been completed using air photos and street view to ascertain if formed access exists from the legal road onto the land block.

Areas recorded in this appendix have been obtain from current landonline titles. If a title is part-cancelled no area adjustment has been made.

Pink shading denotes no access. Blue shading denotes some access requirements apply. No shading denotes both legal access and physical access.

All references to plans are to Wellington Land District plans, except where the prefix 'HB' indicates that a plan is a Hawke's Bay Land District plan.

[Note 1] General Land owned by a Māori Incorporation or Māori, and on this account included in Māorilandonline.

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
7	Owhaoko A East	ML 1102	491074	6733.9690	No legal access	No ¹⁶
7	Owhaoko A1B	ML 391666	479735	224.5100	No legal access	No ¹⁶
7	Owhaoko B East	ML 391666	479737	2358.6100	No legal access	No ¹⁶
7	Owhaoko B1B	ML 4226	400909	378.1787	No legal access	No ¹⁶
7	Owhaoko C1	ML 3484, 3488	464191	545.5162	No legal access	No ¹⁶
7	Owhaoko C2	ML 3484, 3488, 3489	506962	2935.8931	No legal access	Yes ¹⁷
7	Owhaoko C4	ML 3485	464448	696.4639	No legal access	Has rough formed access to western boundary over adj Owhaoko D6Sec1
7	Owhaoko C5	ML 3485, 3486, 3487	459892	1917.9064	No legal access	No ¹⁶

¹⁶ Remote from any formed road access due to rugged topography - difficult to access

¹⁷ Owhaoko C2 has rough formed access to western boundary over adjoining general land (access by permission)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Owhaoko C7	ML 3487, 3488, 3489, 3490, 3491	506915	2962.0965	Traversed by Napier-Taihape Road (legalisation records lost in 1931 earthquake and fire, HB plan 243 Red referred to on ML 3491). There is no approved survey plan defining the current formed road position.	A formed road traverses through southern part of block, generally rugged terrain. Major areas of the formed road are not within the surveyed legal definition.
	Section 4 Block XI Kuripapango SD	SO 5594	HBD3/573	3.1995	Frontage to Napier-Taihape Road Legal road by NZG 1970 p403	Yes
7	Part Owhaoko D1	ML 1363	Proc 1112, DO950760.1 ¹⁸	1592.2356	No legal access	No ¹⁹
7	Part Owhaoko D1	ML 1363	424613	1239.3497	No legal access	Yes ²⁰
7	Owhaoko D3	ML 1363	WN101/112	2316.5723	No legal access	No ¹⁹
7	Owhaoko D4B	ML 4227	398697	536.8155	No legal access	No ¹⁹

¹⁸ Copy of Court Minute and Determination Order 146A Whanganui MB 191

¹⁹ Remote from any formed road access due to rugged topography - difficult to access

²⁰ Rough formed access from adjoining general land owner WN 27B/52 (access by permission)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Owhaoko D5 Sec 3	ML 1656	WN174/6	556.4428	Legal access by NZG 2015 No 6929. SO 316147 also defines an area of formed but not legal road through block	Has direct from highway ²¹
	Part Owhaoko D5 Sec 4 and Section 1 SO 34801	ML 1679, SO 34801	WN33B/202	2226.8495	Traversed by Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 11958) and Areas A & B on SO 34801 legal road, NZG 1988 p3993 SO 316147	Has good access to western half of block. SO 316147 defines several areas of formed but not legal road through block
7	Owhaoko D6 Sec 1	ML 1648	WN176/238	2316.5723	No legal access	Yes ²²
7	Owhaoko D6 Sec 3	ML 1684	WN23A/502	556.4427	No legal access	Yes ²²
7	Part Owhaoko D7B	ML 3744	653206	3469.9770	No legal access	Yes ²²
7	Owhaoko D8B	ML 4228	398700	1875.5155	No legal access	No ²³

²¹ Part Owhaoko D5 Sec 3 WN174/6 also has a well formed road through centre of block which provides access to Owhaoko D5Sec1, D5Sec2, D6Sec2 and Part D7B to Owhaoko D5Sec3

²² Rough formed access from adjoining general land (access by permission)

²³ Remote from any formed road access due to rugged topography - difficult to access

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Timahanga 1 In two parts north and south of road	HB ML 1092	495527	1042.8749	Access to Napier Taihape Road in north eastern corner. Proclaimed road by Gaz 1971/403, HB SO 6070, also area Y on SO 9220 legal road by NZG 1991 p3322.	Yes
8	Oruamatua-Kaimanawa 1U	ML 1640	466406	967.1986	No legal access	No ²⁴
8	Oruamatua-Kaimanawa 1V	ML 1640	WN8B/1216	1505.8352	No legal access	No ²⁵
8	Oruamatua-Kaimanawa 1W1	ML 2217	WN9C/151	43.7060	No legal access	No ²⁶
9	Oruamatua-Kaimanawa 2K	ML 1581	470116	131.5228	No legal access	No direct road access ²⁷
36	Rangipo Waiu B1	ML 2353	WN253/219	268.3925	No legal access	Yes ²⁸
36	Rangipo Waiu B6B1	ML 3924	WN21B/796	216.2463	No legal access	Yes ²⁹

²⁴ Remote from any formed road access due to rugged topography - difficult to access

²⁵ Remote from any formed road access due to rugged topography - difficult to access

²⁶ Remote from any formed road access due to rugged topography - difficult to access

²⁷ Oruamatua-Kaimanawa 2K is farmed in conjunction with surrounding Ohinewairua Limited land

²⁸ Rough farm track over adjoining general land to the west (access by permission)

²⁹ Rough farm track over adjoining general land to the south (access by permission)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
36	Rangipo Waiu B6B2	ML 2355	467984	216.2463	No legal access	Yes ³⁰
37	Part Motukawa 1B	ML 1708	WN220/207	148.5196	No legal access	Yes ³¹
	Part Motukawa 2 Sec 1	SO 13967	WN48B/252	1.884	Frontage to Te Moehau Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662)	Yes
	Part Motukawa 2B4A	ML 2385	WN12D/991	21.4951	Frontage to Paengaroa Road (taken by Gaz 1899/1940, SO 14308) and to Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21235)	Yes

³⁰ Rough farm track over adjoining general land to the east (access by permission)

³¹ Access is obtained from SH 1 over railway land traversing along the western side the railway line, passes under the railway line, over a vehicle bridge across the Hautapu River to a roughly formed (legal) road leading to the block. Two Grants of access required from KiwiRail, one over railway corridor and one over bridge

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Motukawa 2B4C1 & 2B4C2B	ML 4694	WNA2/773	118.755	Frontage to Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21235)	Yes
	Part Motukawa 2B5A	ML 2424	362534	131.256	Traversed by Spooners Hill Road (taken by Gaz 1949/1705, SO 21237)	Yes
	Part Motukawa 2B5B1	ML 4350	458539	59.0445	Frontage to Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245) and State Highway 1 (taken by Gaz 1965/1046, SO 25817)	Yes
	Part Motukawa 2B5B2	ML 4350	WN563/174	59.2174	Traversed by Spooners Hill Road (taken by Gaz 1949/1705, SO 21237)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
10, 11, 12, 13, 14	Part Motukawa 2B7A	ML 2643	WN235/254	375.3864	Access to main part of block by Maori roadline across Motukawa 2B7B & 2B7C (shown on ML 2643) to Kakariki Road (Crown Grant road, SO 13571). Part of block to west of railway line SO 16009 excludes roadline from adj. reserve therefore legal access exists. (See NZG 1911 p 2238 and scientific reserve NZG 1973 p1165).	Yes Yes. Private Level Crossing formed. Noted in KiwiRail records at 271.324km – no Deed of Grant on KiwiRail records

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Motukawa 2B9A	ML 4067	377913	88.3099	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21238)	Yes
	Part Motukawa 2B9B	ML 4067	WN7C/245	87.8712	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21237 & SO 21238)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Motukawa 2B10C	ML 4388	WN222/161	100.6226	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21237)	Yes
	Part Motukawa 2B11B and Sections 11, 15, 18, 20, 22, 24 & 25 SO 412371	ML 2445, SO 412371	557194	27.863	Traversed by State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21238)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Motukawa 2B12B and Section 3 & 81 SO 412371	ML 5309, SO 412371	557195	84.0928	Traversed by State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21238)	Yes
	Part Motukawa 2B13A (Part Lot 9 DP 8927)	DP 8927	499452	10.1501	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21238)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Motukawa 2B15A	ML 4302	WN9C/1218	264.3479	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21237)	Yes
	Part Motukawa 2B15B1	ML 2064	369392	103.1716	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21237)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Motukawa 2B16B1B	ML 4079	WNA3/1074	53.5778	MLC-ordered right of way across Motukawa 2B16B1A to Stewarts Loop Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245)	Yes
15	Motukawa 2B16B2B	ML 345769	489211	0.1013	Urupa - No direct legal access	Accessed over adjoining whanau land
	Motukawa 2B16B4	ML 345769	366396	184.3704	Frontage to Stewarts Loop Road and Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Motukawa 2B17A	ML 2396	WN915/95	313.6875	Frontage to Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245, plus widening taken by Gaz 1949/1705, SO 21236)	Yes
	Part Motukawa 2B23 and Sections 5-6 Block VI Ohinewairua SD	ML 1696, SO 30291	WN52D/138	224.5068	Yes ³²	Yes
	Motukawa 2B24	ML 1696	WN52D/139	113.4637	Yes ³²	Yes
	Motukawa 2B25	ML 1696	WN52D/140	242.8114	Yes ³²	Yes

³² Frontage to Spooners Hill Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13668, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245) and Te Moehau Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662, as modified by Sec 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245), all three titles are in common ownership

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Motukawa 2B28	ML 5440	470484	116.8	Frontage to Te Moehau Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245)	Yes
	Motukawa 2B29	ML 5440	WN24B/981	80.2	Frontage to Te Moehau Road (laid off and taken by Governor's warrant of 20/3/1899, SO 13662, as modified by Section 52 Reserves and Other Lands Disposal etc Act 1907, SO 15245)	Yes
	Motukawa 2D2B1	ML 2343	458015	4.1429	Frontage to Waipuna Road, legal (Crown Grant road, SO 14824)	Yes. Access over rough track formed over adjoining legal road

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
16	Motukawa 2F2	ML 1708	477498	35.6123	No legal access	No. Block located remotely at the rear of adjoining Hihitahi Forest Sanctuary land.
18	Awarua 1A3B	ML 1332	251178	95.5058	No legal access	Yes ³³
17	Awarua 1DB2	ML 1332	469121	4751.0094	No legal access	Yes ³⁴
	Awarua 2C2A	ML 2222	WN194/230	429.6396	Traversed by Matawhero Road (taken by Gaz 1900/1128, SO 14359)	Yes
	Awarua 2C3A	ML 1607 SO 32247	WN34C/913	46.8424	Frontage to Rangitikei Valley Road (taken by Gaz 1927/2824, SO 18110), traversed by Makokomiko East Road, unformed (taken by Gaz 1900/128, SO 14360), and frontage to	No ³⁵
	Awarua 2C3B and Section 6 Block VI Pukeokahu SD	ML 1607 SO 32247	WN26C/828	1276.4728		Yes
	Awarua 2C3C	SO 14366	WN9B/713	0.1012		No ³⁶

³³ Surrounded by DOC Ruahine Forest park, foot access only by permission through Kohunui Station or public access following the Pourangaki River from end of Pourangaki Road

³⁴ Access over rough farm track on adjoining general land to the north (access by permission)

³⁵ Remote from any formed road access due to topography - would not be difficult to form access

³⁶ Remote from any formed road access due to topography - would not be difficult to form access

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Section 5 Block V Pukeokahu SD	SO 14366	WN23C/281	161.8743	Tupapa Road (Crown Grant road, SO 14366)	Yes
	Section 9 Block V Pukeokahu SD	SO 14366	WN552/93	0.4047		Yes
	Sections 8 & 10 -13 Block V Pukeokahu SD	SO 14366	WN474/222	8.9031		Yes
19	Awarua 2C8	ML 1551	WN295/8	178.4664	No legal access	No. Surrounded by general land
	Awarua 2C12A2C	ML 4084	WN406/35	78.1043	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C12C2	ML 394992	423713	0.5564	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Accessed from adjoining land to the south being Awarua 2C12C1 being general title owned by Māori owners

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Awarua 2C12C3A	ML 394992	423717	1.1131	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C12C3B	ML 394992	428913	2.2259	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Part Awarua 2C13C	ML 356634	259216	2.0234	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C13C1	ML 5178	WN15B/1237	0.4552	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C13C2A	ML 356634	249344	0.2352	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C13C2B	ML 356634	288594	1.3329	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
20	Awarua 2C13D	ML 1523	269169	2.0234	No legal access	Accessed over Part Awarua 2C13J4 Block ³⁷
21	Awarua 2C13H2	ML 4308	356786	0.1136	At Moawhango. No legal access. Frontage to 'road' (never legalized) shown on ML 1523. 'Road' is Part Awarua 2C	Accessed by track to west of block over adjoining land.
	Awarua 2C13J2B	ML 5104	WNF3/335	4.5274	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Awarua 2C13J3	ML 1523	WN22D/315	29.9138	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063)	Yes
	Part Awarua 2C13J5	ML 1523	WND4/590	0.258	At Moawhango. Frontage to Napier-Taihape Road (taken under Section 100 PW Act 1894, SO 14063), and Wherewhere Road (taken by Gaz 1900/1128, SO 14365)	Yes

³⁷ Accessed from legal road over general land owned by Maori

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Awarua 2C13J6	ML 1523	WN894/2	0.1618	At Moawhango. Frontage to Wherewhere Road (taken by Gaz 1900/1128, SO 14365)	Yes
	Awarua 2C13J7	ML 1523	291092	3.4423	At Moawhango. Frontage to Wherewhere Road (taken by Gaz 1900/1128, SO 14365)	Yes
	Awarua 2C13L	ML 1523	WN269/22	1.6255	At Moawhango. Frontage to Wherewhere Road (taken by Gaz 1900/1128, SO 14365)	Yes
	Awarua 3A2D1	ML 4085	WN9C/819	102.8509	Traversed by Pungatawa Road (taken by Gaz 1900/1128, SO 14363)	Yes
	Part Awarua 3A2D2	ML 4085	WN18D/145	285.1011	Frontage to Pungatawa Road (taken by Gaz 1900/1128, SO 14363), traversed by Kotukuraeroa Road (taken by Gaz 1900/1128, SO 14427), and traversed by unformed legal road (taken by Gaz 1902/2715, SO 14847)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
22	Part Awarua 3A2J (Lot 1 DP 11254)	DP 11254	WN21C/579	40.4433	No legal access	Yes ³⁸
	Awarua 3B2C1A	ML 356757	263544	0.4046	Frontage to Tuhoe Road (proclaimed by warrant under Section 110 PW Act 1928, SO 19343)	Yes
	Awarua 3B2C1B	ML 356757	250380	49.105	Frontage to Tuhoe Road (proclaimed by warrant under Section 110 PW Act 1928, SO 19343)	Yes
	Awarua 3B2C3B	ML 3978	WN389/94	35.0635	Traversed by legal road, (taken by Gaz 1898/1022, SO 14003)	No. Legal road is unformed and farmed. Flat land.
	Awarua 3B2J2	ML 2067	WN259/219	80.3301	Traversed by legal road, (taken by Gaz 1898/1022, SO 14003)	No. Legal road is unformed and farmed. Flat land.
	Part Awarua 3D3 Sec 1A2	ML 3835	WN432/300	15.765	Frontage to Pungatawa Road (taken by Gaz 1900/1128, SO 14363)	Yes

³⁸ Accessed from rough track over adjoining general land. Used by other landowners to gain access to general land at the rear of this block

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 3D3 Sec 4B	ML 3134	WN372/225	46.1835	Frontage to Spooners Hill Road (legal by Sec 96 NLC Act 1886, SO 13630), plus widening (taken by Gaz 1949/1105, SO 21234)	Yes
	Awarua 3D3 Sec 5	ML 1594	275318	107.0277	Frontage to Spooners Hill Road (legal by Sec 96 NLC Act 1886, SO 13630), plus widening (taken by Gaz 1949/1105, SO 21234), and traversed by Addis Road (taken by Gaz 1911/1199, SO 16343)	Yes
	Awarua 3D3 Sec 12B	ML 4825	278529	216.3272	Access via Maori Roadway across Motukawa 2B29 (ML 4790) to Te Moehau Road (laid out and taken by Governor's warrant of 20/3/1899, SO 13662)	Yes. Rough formed access
	Awarua 3D3 Sec 13	ML 1594	306481	146.3748	Frontage to Waikakahi Road (Gaz 1902/2715, SO 14847)	Yes. Rough formed access
	Awarua 3D3 Sec 14A2	ML 2635	WN288/156 WN947/26	35.3391 35.3392	Frontage to Waikakahi Road (Gaz 1902/2715, SO 14847)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Awarua 3D3 Sec 15	ML 1594	263426	0.8094	Frontage to Spooners Hill Road (legal by Sec 96 NLC Act 1886, SO 13630), plus widening (taken by Gaz 1949/1105, SO 21234)	Yes
23	Awarua 3D3 Sec 17B	ML 1865	299820	1.6187	No legal access	Yes ³⁹
	Part Awarua 3D3 Sec 17C1	ML 1865	277710	85.2319	Frontage to Spooners Hill Road (legal by Sec 96 NLC Act 1886, SO 13630), plus widening (taken by Gaz 1949/1105, SO 21235)	Yes
24	Awarua 4A3C8A	ML 1917	WN7B/1364	21.3118	No legal access	No. ⁴⁰ In midst of surrounding general land farm
	Part Awarua 4C9	ML 2084	WN190/252	852.4702	Traversed by State Highway 1 (taken by Gaz 1982/4102, SO 33056, SO 33058 & SO 33059)	Yes

³⁹ In midst of surrounding farm. Accessed from Spooners Hill Road through Pt Awarua 3D3 |Sec 17C1 from the south (maori land) Maori Trustee

⁴⁰ If access is required it would be accessed from south via Lot 2 Deposited Plan 67085. WN37C/581 (general land)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9A (Lot 1 DP 4034)	DP 4034	WN420/35	55.1384	Frontage to Rupe Street Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9A (Lot 2 DP 4034)	DP 4034	WN20A/1440	4.0729	Frontage to Rupe Street Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415	Yes
	Part Awarua 4C9A (Lot 3 DP 4034)	DP 4034	WNF3/668	26.4606	Frontage to Carlson Road (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 4C9D2	ML 4332	WN834/25	101.8138	Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes ⁴¹

⁴¹ Vehicle access to Limited Access Road, approved 073490.1 dated 1975

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
25	Awarua 4C9E	ML 2063	WN204/80	121.001	Main part has frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454). has 3 LAR, farm access granted to LAR by GN 073490.1 dated 1975. Minor part to east of railway line and has frontage to road (taken by Governor's warrant of 10/6/1896, SO 13993)	Yes - west part Vehicle access crossing formed and granted from LAR Yes - east part Private Level Crossing formed ALCAM 3716 – no Deed of Grant on KiwiRail records
26, 27	Awarua 4C9F1	ML 4309	WN56A/419	13.901	Legal access to State Highway 1 (declared to be public road by Gaz 1951/1759) is a LAR, vehicle access granted by GN 073490.1	Yes Private Level Crossing formed ALCAM 3717 – has Deed of Grant on KiwiRail records
	Part Awarua 4C9G (Section 1, 6-8, 13-16 Block VI Potaka Native Township)	ML 2250 DP 2415	614636	5.0179	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9G (Section 12 Block VI Potaka Native Township)	ML 2250 DP 2415	502998	0.9409	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415	No. Legal road is unformed and farmed. Flat land
	Awarua 4C9H1	ML 5385	WN19C/520	0.1011	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Awarua 4C9H3 (Sections 1-2, 4, 6-8, 12-15 Block V Potaka Native Township)	ML 2250 DP 2415	614635	2.7115	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes, to Sections 1, 2, 4, 6, 7 & 8 Block V No, to Sections 12 – 15 Block V. Legal road is not formed, block used as farm land. Flat land. ⁴²

⁴² Flat land, access could be formed if required

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9I (Section 1 Block IV Potaka Native Township)	ML 2250 DP 2415	501420	0.1012	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9I (Sections 1-2, 4-5 & 8-10 Block II, and Sections 2, 4-5, 8-9 & 11-21 Block IV Potaka Native Township)	ML 2250 DP 2415 ML 357230	614634	10.0768	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes, to Sections 1, 2, 4, 5, 8, & 9 Block II No, to Section 10 Block II road not formed. Flat land. ⁴³ Yes, to Sections 2, 4, 5, 8, 9, 11, 12, 16 - 19 Block IV No, to Sections 13 - 15, 20 & 21 Block IV road not formed. Flat land. ⁴⁴

⁴³ Flat land, access could be formed if required

⁴⁴ Flat land, access could be formed if required

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9J (Sections 3-4 Block III Potaka Native Township)	ML 2250 DP 2415	479889	0.8094	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9J (Sections 5-6, 9 Block III Potaka Native Township)	ML 2250 DP 2415	495762	0.9106	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9J (Sections 8-13 Block I, and Sections 7, 8 & 10-14 Block III Potaka Native Township)	ML 2250 DP 2415	495973	1.9276	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9K (Sections 15-23 & 33 Block III Potaka Native Township)	ML 2250 DP 2415 ML 358117	501198	3.5336	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9K (Sections 24-26 Block III Potaka Native Township)	ML 2250 DP 2415	WN499/180	1.2510	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9L (Section 2 Block I Potaka Native Township)	ML 2250 DP 2415	WN58B/26	0.8574	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9L (Section 1 Block I Potaka Native Township)	ML 2250 DP 2415	WN58B/27	0.9763	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9L (Section 6-7 Block II Potaka Native Township)	ML 2250 DP 2415	WN598/14	0.4047	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C9L (Section 2 Block III Potaka Native Township)	ML 2250 DP 2415	WN58B/28	0.4047	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9L (Sections 1 & 32 Block III Potaka Native Township)	ML 2250 DP 2415 ML 419255	509996	2.8662	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Part Awarua 4C9L (Sections 28-31 Block III and Sections 1-4 Block VII Potaka Native Township)	ML 2250 DP 2415 ML 419255	501184	0.967	Potaka Native Township. Township roads legalized pursuant to Section 12 Native Townships Act 1895 on deposit of plan DP 2415 on 5/5/1911	Yes
	Awarua 4C12B	ML 1871	WN224/17	64.7497	Frontage to Ridge Road (Crown Grant road, SO 14299)	Yes
	Awarua 4C12C	ML 1871	WN224/18	2.0234	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Awarua 4C15F1A2C1	ML 393986	283087	0.1692	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 4C15F1A2C2	ML 393986	276368	0.1695	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 4C15F1A2C3	ML 393986	276354	0.1692	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 4C15F1A2C4	ML 393986	276389	0.1695	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
28	Awarua 4C15F1A2C5	ML 393986	276411	3.0779	At Winiata. No legal access	No
	Awarua 4C15F1A2D	ML 4058	WN14C/593	3.3538	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	No Roadside fence could be accessed if required

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Awarua 4C15F1A2E	ML 4058	WN16A/519	3.7609	At Winiata. MLC-ordered roadline (shown on ML 4058) to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Part Awarua 4C15F1A2F	ML 4058	WN17A/1283	0.5235	At Winiata. State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 4C15F1D	ML 3627	WN6A/72	9.4443	At Winiata. MLC-ordered roadline and right of way across Awarua 4C15F1A2 (both shown on ML 4058) to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	No. Roadway not formed
	Awarua 4C15F1E	ML 3627	WN409/176	9.4444	At Winiata. MLC-ordered roadline and right of way across Awarua 4C15F1A2 (both shown on ML 4058) to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	No. Roadway not formed

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Awarua 4C15F1F	ML 3627	WN40C/787	9.4443	At Winiata. MLC-ordered roadline and right of way across Awarua 4C15F1A2 (both shown on ML 4058) to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	No. Roadway not formed
28	Awarua 4C15F1H1	ML 4427	WNE2/393	65.3567	At Winiata. No legal access	Yes ⁴⁵
	Awarua 4C15F3A	ML 3402	258513	4.0468	Frontage to Otaihape Valley Road (taken by Gaz 1903/1344, SO 14311)	Yes
	Awarua 5 and 7	ML 5447	WN27C/53	0.9966	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
	Awarua 6	ML 5447	WN27C/54	0.2196	At Winiata. Frontage to State Highway 1 (declared to be public road by Gaz 1951/1759, ML 4454)	Yes
17	Aorangi	ML 1072	219144	391.331	No legal access	Yes ⁴⁶

⁴⁵ Over adjoining Maori land, access requires adjoining maori owners approval

⁴⁶ Rough farm track over adjoining general land to the north (access by permission)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
38	Awarua o Hinemanu	HB ML 2657	327786	2561.8122	No legal access	No ⁴⁷
38	Te Koau A	HB ML 1323	HBJ1/186	1396.5701	No legal access	Yes ⁴⁸
	Part Otamakapua 1A3B (Lot 1 DP 5996)	ML 5166 DP 5996	WN5D/318	54.1014	Frontage to Orangipongo Road (taken by Gaz 1927/887, SO 18029)	Yes
	Part Otamakapua 1A1 & 1B (Lot 12 DP 5866)	DP 5866	WN727/81	105.2183	Frontage to Otara Road (taken by NZG 1895/848, SO 13260) and Mangamako Road (part taken by NZG 1895/848, SO 13260, and part Crown Grant road laid out in 1887, SO 12608)	Yes
	Sections 74 & 75 Blk IV Onga Survey District	SO 24115	WNA2/131	0.0478	Frontage to Mangamako Road (part taken by NZG 1895/848, SO 13260, and part Crown Grant road laid out in 1887, SO 12608)	Yes

⁴⁷ Remote from any formed road access due to very rough topography - would be difficult to form access

⁴⁸ Rough farm track over adjoining general land to the north (access by permission)

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
29	Lot 13 DP 5866 (Part Otamakapua 1A1 & 1B)	DP 5866	WN727/90	30.2503	Frontage to Mangamako Road (part taken by NZG 1895/848, SO 13260, and part Crown Grant road laid out in 1887, SO 12608) ⁴⁹	Yes ⁵⁰ (No direct bridge access over Mangamako Stream) (adjoins block below - different Māori owners)
29	Lot 14 DP 5866 (Part Otamakapua 1A1)	DP 5866	WN727/82	25.3434	Frontage to Mangamako Road (part taken by NZG 1895/848, SO 13260, and part Crown Grant road laid out in 1887, SO 12608)	Yes Direct bridge access over stream to public road
	Part Otamakapua 1B & 1C (Lot 15 DP 5866)	DP 5866	WN832/93	39.1609	Frontage to Otara Road (taken by NZG 1895/848, SO 13260)	Yes

⁴⁹ The Mangamako Stream falls between Lot 13 DP 5866 and Mangamako Road

⁵⁰ Access is obtained across neighbouring property; Lot 14 DP 5866 to and using the bridge to Mangamako Road

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Part Otamakapua 1A1 & 1B (Lot 16 DP 5866)	DP 5866	WN727/84	41.2779	Frontage to Otara Road (taken by NZG 1895/848, SO 13260)	Yes
	Part Otamakapua 1B & 1C (Lots 17-18 & Part Lots 19-20 DP 5866)	DP 5866	WN727/85	60.1515	Frontage to Otara Road (taken by NZG 1895/848, SO 13260)	Yes
	Part Otamakapua 1C (Lot 21 DP 5866)	DP 5866	WNF1/18	81.6453	Frontage to Otara Road (taken by NZG 1895/848, SO 13260)	Yes
	Part Otamakapua 1C (Lots 24-25 DP 5866)	DP 5866	WN727/87	44.4395	Frontage to Otara Road (taken by NZG 1895/848, SO 13260)	Yes
	Part Otamakapua 1C (Lots 27-28 DP 5866)	DP 5866	WN727/88	19.7967	Frontage to Otara Road (taken by NZG 1895/848, SO 13260) and Peka Road (taken by NZG1894/170, SO 13501)	Yes
	Part Otamakapua 1C (Lot 29 DP 5866)	DP 5866	WN727/89	4.5907	Frontage to Peka Road (taken by NZG1894/170, SO 13501)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
30	Otamakapua 1G	ML 1437	477301	0.4047	On bank of Rangitīkei River downstream of Otara bridge. No legal access	No ⁵¹
31	Otamakapua 2C	ML 742	WN471/52	4.1834	On bank of Rangitīkei River. No legal access	No ⁵²

⁵¹ Currently surrounded and farmed with adjoining Maori owned flat land, possible access may be created with adjoining owner approval

⁵² Currently surrounded and farmed with adjoining flat land, possible access may be created with adjoining owner approval

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
34	Tarakeiti 1B [Note 1]	ML 2053	WNA2/49	78.5014	Nth Part has frontage to State Highway 1 Southern Part has frontage to unformed legal road (taken by Gaz 1920/1430, SO 16935)	Yes. Access approved A019562 dated 1974 used in conjunction with adjoining land from SH 1 (LAR) Yes. Private Level Crossing formed ALCAM 3682 – no Deed of Grant on KiwiRail records
32	Tarakeiti 1C1	ML 4693	WN818/35	11.1769	Frontage to unformed legal road (Maori roadline proclaimed a public road by Gaz 1920/1430, SO 16935)	Yes. Private Level Crossing formed ALCAM 3683 – no Deed of Grant on KiwiRail records

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Taraketi 1C2	ML 4693	WN965/94	66.5379	Nth Part has frontage to State Highway 1 (laid off and taken by Governor's warrant of 3/2/1885, SO 12746)	Yes. Access used in conjunction with adjoining land from SH 1 (LAR)
	Part Taraketi 1D [Note 1]	ML 2053	WN266/218	40.418	Located to north-west of State Highway 1. Frontage to State Highway 1 (laid off and taken by Governor's warrant of 3/2/1885, SO 12746).	Yes. Vehicle access approved A019562 for WN266/218 dated 1974 used in conjunction with adjoining land from SH 1 (LAR)
33, 35	Part Taraketi 1D [Note 1]	ML 2053	WN584/296	8.0077	Located to south-east of railway line. No legal access	Yes. Private Level Crossing formed ALCAM 3684 – no Deed of Grant on KiwiRail records

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Taraketi 1E1A [Note 1]	ML 4119	WN455/140	10.1171	Frontage to State Highway 1 (laid off and taken by Governor's warrant of 3/2/1885, SO 12746)	Yes. Access used in conjunction with adjoining land Taraketi 1D from SH 1 (LAR)
	Taraketi 1G1	ML 3449	WNA1/309	1.5631	Access by Māori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No. Māori roadway not formed. Land farmed in conjunction with other adjoining land.
	Taraketi 1G2	ML 3449	WN781/3	1.5631	Access by Māori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No. Māori roadway not formed. Land farmed in conjunction with other adjoining land.

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Taraketi 1G3	ML 3449	WN778/43	1.5631	Access by Māori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No. Māori roadway not formed. Land farmed in conjunction with other adjoining land.
	Taraketi 1G4 and Taraketi 2F1A1	ML 3449 ML 4772	WNE4/216	2.5748	Access by Māori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211) and frontage to Taraketi Road (proclaimed by Gaz 1925/858, SO 17995)	No. Māori roadway not formed. Land farmed in conjunction with other adjoining land.
	Taraketi 1G5	ML 3449	WN778/87	1.5631	Access by Maori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No. Maori roadway not formed. Land farmed in conjunction with other adjoining land.

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Taraketi 1G6	ML 3449	WN783/40	1.5631	Access by Māori roadline (ML 3449 & ML 2125) to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No. Māori roadway not formed. Land farmed in conjunction with other adjoining land.
	Part Taraketi 2A2 and Sections 60, 63, 66 & Part 61 Block IX Ongo SD	ML 4764 SO 23911 SO 27970	WN18C/223	86.9894	Frontage to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	Yes
	Lot 1 DP 10629 (Note 1)	DP 10629	WN440/191 GL owned by Maori	56.6788	Frontage to Te Houhou Road (taken by Gaz 1899/953, SO 14211) Majority of legal road is not on road formation.	Yes. Physical road in part is not legal where it traverses through southern part of block.
	Taraketi 2F2A	ML 4716	WN855/28	0.4047	MLC-ordered right of way across 2F2B2 to Taraketi Road (proclaimed by Gaz 1925/858, SO 17995)	Yes

Plate #	Block Name	Descriptive Plan	Title	Title Area (ha)	Legal Access	Physical Access
	Taraketi 2F2B1	ML 5069	458006	0.8093	Frontage to Taraketi Road (proclaimed by Gaz 1925/858, SO 17995)	Yes
	Taraketi 2F2B2	ML 5069	421256	35.9205	Frontage to Taraketi Road (proclaimed by Gaz 1925/858, SO 17995) and Te Houhou Road (taken by Gaz 1899/953, SO 14211)	Yes
	Section 1 SO 17995	SO 17995	WN327/132	1.5297	Closed road (by Gaz 1925/858) adjoins Taraketi 2F2B2. Frontage to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	No Land farmed in conjunction with adjoining land Taraketi 2F2B2 - same owner
	Taraketi X	ML 5097	WN29C/286	20.9445	Frontage to Te Houhou Road (taken by Gaz 1899/953, SO 14211)	Yes

APPENDIX B

PHYSICAL ACCESS TO LANDLOCKED LAND BLOCKS ASSESSMENT

SITE (PLATE 7 IN THE MAP BOOK)

Legal Description: Owhaoko D3, Owhaoko D8B, Owhaoko D4B, Pt Owhaoko D1 (both), Owhaoko B East, Owhaoko B1B, Owhaoko A East, Owhaoko A1B, Pt Owhaoko D7B, Owhaoko C1, Owhaoko C2, Owhaoko C4, Owhaoko D6 1, Owhaoko D6 3, Owhaoko C5

Record of Title(s): WN101/112, 398700, 398697, 424613, 479737, 400909, 491074, 479735, 464191, 506962, 464448, WN176/238, WN23A/502, 459892

CURRENT STATUS OF ACCESS

Legal Access: No for every block.

Informal Physical Access: To Owhaoko C2, Owhaoko C4, Owhaoko D6 1, Owhaoko D6 3 and Pt Owhaoko D7B (northern part) is only by way of using adjoining private land when consent is given. Access to Pt D7B (southern part) is by farm access road of 3 to 4 m width, and to C5 via a 3m metal drive.

Does Legal Access provide a suitable route? N/A.

DESIGN PARAMETERS

Trafficable width of 5.5m lane and 1.0m shoulders for primary access routes reducing to 4m lanes for lesser used and steeper routes?

Maximum Grade: 10% except for the exceptional areas shown on the plans which go up to 12%

Intended Surfacing: Metal except for the exceptional steep areas shown on the plans which will be 2 coat chip sealed

Maximum batter slopes: 2H:1V

Total Road Length: 63.7km

Cut Volume: 972 900m³

Fill Volume: 556 300m³

Cut/Fill Balance: -416 500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

Air photo resolution 0.3m

ASSESSMENT OUTCOME

Practical Physical Access is achievable for all block except B1B, D4B and A1B. It may be possible to go across the top of the mountains to D4B, to a small flat area at the top of the block. It may also be possible to extend road 03 through the A East block to A no1B, but this would require access over active alluvial gravels and the steep climbs to the mountain tops.

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **DEM has trees that distort the heights over several small areas**
- **This desktop feasibility study is for potential routes only, using the above data only. Final design will require site visits and survey grade data.**
- **There will need to be at least one bridge and 4 major culverts requiring detailed investigation and design.**
- **The proposed access would cross through Ngamatea Station consisting of blocks of Maori Land and freehold titles.**
- **Earthworks optimization for volumes and extent will need to be undertaken at detail design stage with suitable geotechnical investigations and recommendations. This may lead to retaining structures in specific locations.**
- **Specific design will be need for the high-altitude access along the tops of the ranges, along with potential specialist hydroseeding with local seed material.**
- **It may be necessary to do slope stabilization work in the scree slope areas.**
- **Catchment study will be necessary to determine flood heights and stormwater management design will be necessary to control stormwater flow paths and avoid concentrating and channelising stormwater.**
- **A realistic assessment of the existing Ngamatea Station access road will need to be undertaken to see if it will meet the desired access standards for the increased traffic to the multiple blocks it will serve.**

SITE (PLATE 8 IN THE MAP BOOK)

Legal Description: Oruamatua Kaimanawa 1W1

Record of Title(s): WN9C/151

Area: 43.7060ha

Legal Description: Oruamatua Kaimanawa 1V

Record of Title(s): WN8B/1216

Area: 1505.8352ha

Legal Description: Oruamatua Kaimanawa 1U

Record of Title(s): 466406

Area: 967.1986ha

CURRENT STATUS OF ACCESS

Legal Access: No for all three sites

Informal Physical Access: Yes, there are several farm tracks around the site via several properties except for Oruamatua Kaimanawa 1W1

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Road 01 (To Oruamatua Kaimanawa 1V and 1W1)

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 11.2%

Intended Surfacing: Metal for less than 10% grade and sealing for more than 10% grade

Maximum batter slopes: 2H:1V

Length: 40.00km

Cut Volume: -2348500m³

Fill Volume: 1569500m³

Cut/Fill Balance: -779500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **The assessment is done starting from Waiouru Military Camp and it follows the existing farm track for 39km.**
- **Possible physical access crosses the Waiouru Military Camp and other general lands; Oruamatua Kalmanawa 3B, Oruamatua Kalmanawa 2E, Oruamatua Kalmanawa 2Q1, Oruamatua Kalmanawa 2B1, Oruamatua Kalmanawa 2C1, Oruamatua Kalmanawa 2C2, Oruamatua Kalmanawa 2C3, Oruamatua Kalmanawa 2C4 and Oruamatua Kalmanawa 1X2.**
- **There is a requirement of culvert at chainage 29880 as the accessway crosses the water flow path.**
- **The existing bridge at chainage 12125 is to be upgraded based on it's load bearing capacity, width and clearance to accommodate the underneath flow of water.**
- **Assessment of accessway comprise of 40000m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

Road 02 (To Oruamatua Kaimanawa 1U)

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 1500m

Cut Volume: -40500m³

Fill Volume: 15500m³

Cut/Fill Balance: -25000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **This assessment is done starting from chainage 35000 of above-mentioned assessment (Road 01).**
- **Possible physical access crosses one general land; Oruamatua Kalmanawa 1X2.**
- **Assessment of accessway comprise of 1500m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 9 IN THE MAP BOOK)

Legal Description: Oruamatua Kaimanawa 2K

Record of Title(s): 470116

Area: 131.5228ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Farmed in conjunction with adjoining land.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.4%

Intended Surfacing: Metal for less than 10.5% grade

Maximum batter slopes: 2H:1V

Length: 6.2km

Cut Volume: -187000m³

Fill Volume: 125500m³

Cut/Fill Balance: -61500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **The assessment is off Taihape-Napier Road.**
- **Possible physical access crosses four general land parcels; Lot 1 DP 7785, Pt Lot 6 DP 6088, Pt Oruamatua Kaimanawa 1B2 and Pt Lot 7 DP 6090**
- **Assessment of accessway comprise of 6200m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 10 AND 11 IN THE MAP BOOK)

Legal Description: Part Motukawa 2B7A

Record of Title(s): WN235/254

Area: 375.3864ha

CURRENT STATUS OF ACCESS

Legal Access: Yes

Informal Physical Access: Yes. Obtained over Motukawa 2B7B & 2B7C via maori roadline.

Railway level crossing yet to be permitted by KiwiRail. Access consists of a metaled/dirt track, approximately 3.0m wide.

Does Legal Access provide a suitable route: Yes

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 15.0%

Intended Surfacing: Metal

Maximum batter slopes: 1H:1V

Length: 3.7km or 3.3km

Cut Volume: 72898m³

Fill Volume: 33773m³

Cut/Fill Balance: 39124m³ Cut

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable. The access follows the existing formation along the roadline shown on ML 2643.

NOTES

- **The block is physically accessed from the north and south due to steep land in center of block.**
- **Access is obtained via an existing maori roadline (ML 2643).**

- The access crosses Lot 3 DP 18019 in order to reach the southern end of the eastern section of the block.
- The proposed access follows an existing 3.0m track along the maori roadline (ML 2643).
- A positive cut balance has been aimed for. The majority of the site is balanced in terms of cut/fill. Due to terrain constraints, large cuts have occurred between CH 84 to 345, CH 916 to 1074, CH 1418 to 1680, and CH 2885 to 3293.
- From CH 84 to 345, cut batters along the RHS have been increased to 1H:1V to reduce the total quantity of cut.
- It is assumed that between CH 84 to 345 and CH 2885 to 3293 that the model includes vegetation and hence actual cuts would not be as large as shown in the model.
- An alternative access approaching from the north has been produced in the first revision.

SITE (PLATE 15 IN THE MAP BOOK)

Legal Description: Motukawa 2B16B2B

Record of Title(s): 489211

Area: 0.1013ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes

Topography map and aerial imagery show that there is an existing track via Motukawa 2B16B4.

Will Legal Access provide a suitable route? Yes

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 11%

Intended Surfacing: Metal for less than 10% great and sealing for greater than 10%.

Length: 425m

Maximum batter slopes: 2H:1V

Cut Volume: -7500m³

Fill Volume: 3500m³

Cut/Fill Balance: -4000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access crosses one general land parcel; Motukawa 2B16B4.**
- **Assessment of accessway comprise of 425m having Batter slopes of 2H:1V but batter slopes may be increased to reduce large cut. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 16 IN THE MAP BOOK)

Legal Description: Motukawa 2F2 Block

Record of Title(s): 477498

Area: 35.6123ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes. Obtained across neighboring property; Rangipo Waiu B No. 1 and other Blocks. Access consists of an intermittently formed dirt track approximately 3.0m wide

Does Legal Access provide a suitable route: N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 12%

Intended Surfacing: Metal

Maximum batter slopes: 1H:1V

Length: 5.5km

Cut Volume: 198936m³

Fill Volume: 82964m³

Cut/Fill Balance: 115972m³ Cut

Digital Terrain Model Source: Horizons Regional council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable; however, this would require specific design with respect to grades and batter slopes.

NOTES

- **Access is obtained from State Highway 1 and would need to cross the North Island Main Trunk.**
- **A culvert or small bridge would be required to cross Waiouru Stream.**

- **The proposed access crosses two other parcels; Rangipo Waiu B No. 1 Block (Maori Land) and Subdivision 1 Run 3 SO 18808 (Defence land).**
- **A positive cut balance has been aimed for. The majority of the site is well balanced in terms of cut/fill. Due to terrain constraints, large cuts begin to occur from CH 3140.**
- **From CH 4640 to 5320, cut batters along the LHS have been increased to 1H:1V. It is expected that geotechnical inputs into these design changes and cost analysis regarding retaining will be considered.**

SITE (PLATE 17 IN THE MAP BOOK)

Legal Description: Awarua 1DB2

Record of Title(s): 469121

Area: 4720.3794ha

Legal Description: Aorangi Awarua

Record of Title(s): 219144

Area: 391.33104ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes (dirt farm tracks only to Awarua 1DB2)

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 14.2%

Intended Surfacing: Metal for less than 10% grade and sealing for more than 10% grade

Maximum batter slopes: 2H:1V

Length: 15.5km

Cut Volume: -785000m³

Fill Volume: 737500m³

Cut/Fill Balance: -47500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: No

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **The assessment is off Mangaohane Road (Taihape).**
- **Possible physical access crosses four general land; Pt Lot 1 DP 4711, Pt Lot 2 DP 4711, Mangaohane Otupae, Mangaohane D and Pt Lot 1 DP 4711**
- **Chainage 2260 – 4250 have the grade of 13.9-14.2% which is greater than the minimum required standard. So, Further assessment in this region is required.**
- **Assessment of accessway comprise of 15500m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 18 IN THE MAP BOOK)

Legal Description: Awarua 1A3B

Record of Title(s): 251178

Area: 95.5058ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes. (Just walking track).

Access to Awarua 1A3B continues to be by foot – walking east up the Pourangaki River, which goes through 1A3A, 1A3B and then into 1A3C. The nearest public road to the River is Pourangaki Road which stops well before 1A3B. There are no tracks suitable for vehicles in the vicinity of the end of Pourangaki Road that came close to 1A3B.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 7.7km

Cut Volume: -214000m³

Fill Volume: 171000m³

Cut/Fill Balance: -43000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable via walking track. Given the position and nature of this block the existing pedestrian access may be adequate.

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Existing 5m wide bridge at chainage 2490 may need to be upgraded based on its load bearing capacity.**
- **Access crosses three general land parcels; Section 13 Blk IX Ruahine SD, Section 14 Blk IX Ruahine SD and Section 2 Blk X Ruahine SD and one DOC land Awarua 1A3A.**
- **Assessment of accessway comprise of 7760m having Batter slopes of 2H:1V but batter slopes might need to be increased to 1H:1V at chainage 7200 – end to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- **As the block is divided into two parts by a river, this assessment provides physical access to the northern part and to get into southern part, a bridge is required.**

SITE (PLATE 19 IN THE MAP BOOK)

Legal Description: Awarua 2C8

Record of Title(s): WN295/8

Area: 178.4664ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes

Makokomiko Road which comes off the Taihape-Napier road ends halfway through Awarua 2C10B. There is a private track across general land (Awarua 2C10B) to get into Awarua 2C8.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 1H:1V

Length: 6.5km

Cut Volume: -495000m³

Fill Volume: 97000³

Cut/Fill Balance: 398000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Existing 5m wide bridge at chainage 2490 may need to be upgraded based on its load bearing capacity.**
- **Access crosses six general land parcels; Awarua 2C11, Awarua 2C10B, Pt Lot 1 DP 6088, Pt Lot 2 DP 6088, Lot 1 DP 7801 and Lot 2 DP 7801.**
- **Assessment of accessway comprise of 6500m having batter slopes of 1H:1V. According to the GIS data, the upgrade of the existing dirt track and unformed legal road (Makokomiko Road) to the required minimum standard is not possible with batter slope of 2H:1V. To reduce large amount of cut and fill, the assessment was done using batter slope of 1H:1V. This may lead to the requirement of retaining wall in some major places (subject to further geotechnical investigation).**
- **Also, upgrading the existing track and road will not meet the requirement of the minimum grade.**
- **To resolve above problems, the second assessment was done by not following the existing track and practical physical access is achievable within the required minimum standard.**

SITE (PLATE 20 IN THE MAP BOOK)

Legal Description: Awarua 2C13D

Record of Title(s): 269169

Area: 2.0234ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes

Currently, access to Awarua 2C13D is via existing paper road off Taihape-Napier Road and through general land Part Awarua 2C13J4.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 200m

Cut Volume: -500m³

Fill Volume: 200m³

Cut/Fill Balance: -300m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access crosses one general land parcel; Part Awarua 2C13J4.**
- **Assessment of accessway comprise of 200m having Batter slopes of 2H:1V.**

SITE (PLATE 21 IN THE MAP BOOK)

Legal Description: Awarua 2C13H2

Record of Title(s): 356786

Area: 0.1136ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes. Rough access from the west over Part Awarua 2C.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 150m

Cut Volume: -2500m³

Fill Volume: 1500m³

Cut/Fill Balance: -1000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**

- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access is within unlegalized road parcel. See ML 1523.**
- **Assessment of accessway comprise of 150m having Batter slopes of 2H:1V but batter slopes might need to be increased to 1H:1V at chainage 700 – 730 to reduce large cut. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- **Further topographic survey is required as there is tree on the way.**

SITE (PLATE 22 IN THE MAP BOOK)

Legal Description: Part Awarua 3A2J (Lot 1 DP 11254)

Record of Title(s): WN21C/579

Area: 40.4433ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes.

Topography map and aerial imagery show that there few tracks to north that extend to the block. There also appears to be unformed dirt tracks from the Kotukuraeroa Road South. This track is approximately 3.0m wide.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 9.1%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 1.2km

Cut Volume: -14000m³

Fill Volume: 15000m³

Cut/Fill Balance: 1000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **One Small 300mm culvert may be required at chainage 378.00, as new possible accessway crosses water flow path.**
- **Access crosses two general land parcels; Awarua 3A2K5B and Awarua 3A2K5C.**
- **Assessment of accessway comprise of 1191m having Batter slopes of 2H:1V but batter slopes might need to be increased to 1H:1V at chainage 700 – 730 to reduce large cut. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- **Kotukuraeroa Road South that goes off Torere Road is a legal road but needs to be upgraded to the required standard as currently it is just an unformed road with approximate width of 7.0 m. The desktop assessment shows that the upgrade of this road is possible achieving the minimum required standard.**

SITE (PLATE 23 IN THE MAP BOOK)

Legal Description: Awarua 3D3 17B

Record of Title(s): 299820

Area: 1.6187

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes

Access to Awarua 3D3 17B via Taihape-Napier Road and through The Maori Land 277710.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 8.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 200m

Cut Volume: -2000m³

Fill Volume: 1500m³

Cut/Fill Balance: -500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access crosses one general land parcel; Pt Awarua 3D3 16B2B.**
- **Assessment of accessway comprise of 200m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V at to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- **The reason for not following the existing track is to increase the minimum requirement of sight distance as the access is off Napier-Taihape road.**

SITE (PLATE 24 IN THE MAP BOOK)

Legal Description: Awarua 4A3C8A

Record of Title(s): WN7B/1364

Area: 21.3118ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: No

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 10.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 2.7km

Cut Volume: -72500m³

Fill Volume: 65500m³

Cut/Fill Balance: -7000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**

- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access crosses four general land parcels; Lot DP 431375, Section 4 Blk XIII Ohinewairua SD, Lot 1 DP 23969 and Lot 2 DP 67085.**
- **Assessment of accessway comprise of 2800m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- **This assessment provides accessway off Ridge Road North and through above mentioned properties.**

SITE (PLATE 26 IN THE MAP BOOK)

L Legal Description: Awarua 4C9F1

Record of Title(s): WN56A/419

Area: 13.9010ha

CURRENT STATUS OF ACCESS

Legal Access: Yes. From SH 1 LAR, vehicle access granted by GN 073490.1

Informal Physical Access: Yes. Private Level Crossing formed ALCAM 3717 – has Deed of Grant on KiwiRail records.

Does Legal Access provide a suitable route? Yes

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 5.0%

Intended Surfacing: Metal

Maximum batter slopes: 3H:1V

Cut Volume: -80m³

Fill Volume: 0m³

Cut/Fill Balance: 80m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**

- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Existing Railway Crossing needs to be upgraded.**
- **Assessment of accessway comprise of 70m having batter slopes of 3H:1V.**
- **The access is off State Highway 1 (Taihape) and has one existing railway crossing which needs to be upgraded.**

SITE (PLATE 28 IN THE MAP BOOK)

Legal Description: Awarua 4C15F1H1

Record of Title(s): WNE2/393

Area: 65.3567ha

CURRENT STATUS OF ACCESS

Legal Access: No

Informal Physical Access: Yes

There are several farm tracks around the site via several properties.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain] reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 11.5%

Intended Surfacing: Metal for less than 10% grade and sealing for greater

Maximum batter slopes: 2H:1V

Length: 2.0km

Cut Volume: -54000m³

Fill Volume: 45000m³

Cut/Fill Balance: -9000m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **There is unformed legal road to Section 2 Blk II Hautapu SD (neighbouring property toward northern boundary of the block). Assessment shows that the physical access via this legal road is impossible unless otherwise batter slope increased to 1H:1V. Also, the existing dirt track along this legal road leads through several trees which severely affects the assessment. Further investigation is suggested to confirm the viability of physical access in this legal road.**
- **Several assessments were done to confirm the viability through existing several farm tracks, but the assessment was unsuccessful in reaching the minimum required standards.**
- **Possible physical access crosses all the general lands toward the west of the above-mentioned legal road.**
- **There is a requirement of culvert at chainage 1975 as the accessway crosses the water flow path.**
- **Assessment of accessway comprise of 2000m having Batter slopes of 2H:1V but batter slopes might need to be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 29 IN THE MAP BOOK)

Legal Description: Lot 13 DP 5866 (Part Otamakapua 1A1 & 1B)

Record of Title(s): WN727/90

Area: 30.2503ha

CURRENT STATUS OF ACCESS

Legal Access: Yes.

Informal Physical Access: Yes. Obtained across neighboring property; Lot 14 DP 5866.

Access consists of an unformed dirt track, approximately 3.0m wide.

Does Legal Access provide a suitable route: No. The Mangamako Stream is between Lot 13 DP 5866 and Mangamako Road.

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 9.0%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 100m

Cut Volume: 101.256m³

Fill Volume: 14.467m³

Cut/Fill Balance: 86.789m³ Cut

Digital Terrain Model Source: Horizons Regional council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable.

NOTES

- **Proposed access is obtained from Mangamako Road, a small bridge would be required to cross the watercourse adjacent to the road.**
- **An alternative is to obtain access from the neighboring property, Lot 14 DP 5866.**

Legal Description: Lot 14 DP 5866 (Part Otamakapua 1A1)

Record of Title(s): WN727/82

Area: 25.3434ha

CURRENT STATUS OF ACCESS

Legal Access: Yes

Informal Physical Access: Yes. Obtained from Mangamako Road across water course by way of small bridge. Access consists of an unformed dirt track, approximately 3.0m wide.

Does Legal Access provide a suitable route: Yes.

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 9.0%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 250m

Cut Volume: 185.305m³

Fill Volume: 118.775m³

Cut/Fill Balance: 66.530m³ Fill

Digital Terrain Model Source: Horizons Regional council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable.

NOTES

- **Present access is obtained from Mangamako Road across the existing bridge. It is unknown whether this bridge would be suitable for heavy trucks.**

SITE (PLATE 30 IN THE MAP BOOK)

Legal Description: Otamakapua 1G

Record of Title(s): 477301

Area: 0.4047ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain: reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 3.7%

Intended Surfacing: Metal

Length: 150m

Maximum batter slopes: 2H:1V

Length: 150m

Cut Volume: -150m³

Fill Volume: 0m³

Cut/Fill Balance: 150m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **Access crosses one Maori land parcel; Pt Lot 15 DP 5866.**
- **Assessment of accessway comprise of 150m having Batter slopes of 2H:1V**
- **Access is off Otara Road (Kimbolton). So, requirement of minimum sight distance is achieved.**
- **As the assessment serves only one block with 7 owners, the width can be narrowed.**

SITE (PLATE 31 IN THE MAP BOOK)

Legal Description: Otamakapua 2C

Record of Title(s): WN471/52

Area: 4.1834ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: It is not clear if the site is currently accessed.

Does Legal Access provide a suitable route: [N/A]

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 5.0%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 0.5km

Cut Volume: 1885m³

Fill Volume: 1397m³

Cut/Fill Balance: 488m³ Cut

Digital Terrain Model Source: Horizons Regional council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable.

NOTES

- **Proposed access is obtained from Rangitikei Valley Road.**
- **The proposed access crosses one adjoining parcel; Section 34 Block X Ongo.**
- **A positive cut balance has been aimed for. The site is well balanced in terms of cut/fill.**

SITE (PLATE 33 IN THE MAP BOOK)

Legal Description: Part Taraketi 1D

Record of Title(s): WN584/296

Area: 8.0077ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes. Private Level Crossing formed ALCAM 3684 – no Deed of Grant on KiwiRail records

Does Legal Access provide a suitable route: [N/A]

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain; NZS4404:2010

Maximum Grade: 4.5%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 100m

Cut Volume: 63m³

Fill Volume: 2m³

Cut/Fill Balance: 61m³ Cut

Digital Terrain Model Source: Horizons Regional council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is achievable.

NOTES

- **Access is obtained from State Highway 1 and would need to cross the North Island Main Trunk.**

SITE (PLATE 36 IN THE MAP BOOK)

Legal Description: Rangipo Waiu B1

Record of Title(s): WN253/219

Area: 268.3925ha

Legal Description: Rangipo Waiu B6B1

Record of Title(s): WN21B/796

Area: 216.2463ha

Legal Description: Rangipo Waiu B6B2

Record of Title(s): 467984

Area: 216.2463ha

CURRENT STATUS OF ACCESS

Legal Access: No for all three sites

Informal Physical Access: Yes. There are several farm tracks around the site over several properties.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Road 01 (To Rangipo Waiu B1)

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 7.9%

Intended Surfacing: Metal

Maximum batter slopes: 2H:1V

Length: 3.9km

Cut Volume: -99000m³

Fill Volume: 33500m³

Cut/Fill Balance: -65500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **The assessment is off State Highway 1 (Waiouru).**
- **Possible physical access crosses the several general land parcels; Blk IX Moawhango SD, Blk XIV Moawhango SD and Subdivision 1 Run 3 Survey Office Plan 18808 (Military Camp).**
- **There is a requirement of culvert at chainage 29880 as the accessway crosses the water flow path.**
- **The existing bridge under railway crossing might need to be upgraded.**
- **Assessment of accessway comprise of 3900m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

Road 02 (To Rangipo B6B1 and B6B2)

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: 12.3%

Intended Surfacing: Metal for less than 10.5% grade and sealing for greater than 10.5%

Maximum batter slopes: 2H:1V

Length: 6.5km

Cut Volume: -268000m³

Fill Volume: 191000m³

Cut/Fill Balance: -76500m³

Digital Terrain Model Source: Horizons Regional Council 2016 DSM

ASSESSMENT OUTCOME

Practical Physical Access is: Achievable

NOTES

- **Natural ground surface derived from Horizons Regional Council 2016 DSM. So, the data accuracy is +/- 10m horizontally and the DTM is +/- 10m.**
- **These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- **This assessment is off Taihape-Napier Road (Taihape).**
- **Possible physical access crosses four general land; Pt Motukawa 2A6A, Lot 2 DP 2705, Rangipo Waiu B6C2 and Rangipo Waiu B6C1.**
- **Assessment of accessway comprise of 6500m having Batter slopes of 2H:1V but batter slopes may be increased to 1H:1V to reduce large cut and fill. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**

SITE (PLATE 38 IN THE MAP BOOK)

Legal Description: Awarua o Hinemanu

Record of Title(s): 327786

Area: 2561.8122ha

Legal Description: Te Koau A

Record of Title(s): HBJ1/186

Area: 1396.5701ha

CURRENT STATUS OF ACCESS

Legal Access: No.

Informal Physical Access: Yes.

Farm dirt track from Big hill station.

Does Legal Access provide a suitable route? N/A

DESIGN PARAMETERS

Trafficable width: 5.5m lane, 1.0m shoulders, 0.5m swale drain reference to Rangitikei DC COP, NZS4404:2010.

Maximum Grade: N/A

Intended Surfacing: N/A

Maximum batter slopes: N/A

Cut Volume: N/A

Fill Volume: N/A

Cut/Fill Balance: N/A

Digital Terrain Model Source: N/A

ASSESSMENT OUTCOME

Practical Physical Access is: Further Investigation required.

NOTES

Due to lack of suitable contour data these blocks have not been assessed for physical access. The Otago University Digital Surface Model is derived from LINZ 250 series topo maps and is an interpolation between 20m contour intervals. The accuracy of this surface is to a standard that it is not sufficient to model from to provide a meaningful answer. The surface is also a Digital Surface Model, that is it will represent the tops of trees etc and therefore be more inaccurate where the access tracks are within bush.

- Any alignment has not been modeled. So, the outcome is based upon visualization via Google Earth Pro.**
- These outcomes have been prepared for the purpose of desktop assessment of potential routes only. So, site visits have not been completed.**
- Batter slopes might need to be increased to 1H:1V to reduce large cut. This may lead to the requirement of retaining wall (subject to further geotechnical investigation).**
- Further topographic survey is required as the existing track follows through dense forest.**
- Upgrading existing track does not meet the minimum required design standard.**

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