



CULTURAL EFFECTS ASSESSMENT REPORT:

MERIDIAN ENERGY – RUAKĀKĀ ENERGY PARK

Writers: *Juliane Chetham, MSc (Auckland); Alyssa Thomas, MIndS (Wellington) David Milner, BIEM (TWOA). (September 26th 2023)*



This Cultural Effects Assessment Report (“the Report”) has been commissioned by Meridian Energy Ltd and undertaken by Patuharakeke Te Iwi Trust Board (“PTB”) part of the Mana Whenua Engagement Process in relation to Meridian Energy Ltd (Meridian). The Report has been prepared in contemplation of Meridian making an application for resource consents necessary to enable its proposal, and is able to be relied upon for that purpose.

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1. Purpose of this Paper

- a) To present a ‘**Patuharakeke Cultural Effects Assessment**’ (CEA) to Patuharakeke Te Iwi Trust Board (“PTB”) for their approval prior to presentation to Meridian Energy Ltd (“Meridian” or “MEL”).
- b) To provide a set of recommendations from the hapū to the consent authorities and Meridian arising from the PTB Cultural Effects Assessment and the review of the supporting documentation supplied.

2. Introduction

Meridian have recently purchased blocks of land at Marsden Point where they propose to establish the Ruakākā Energy Park. A description of the site/s is provided in section 3 below.

This is the second phase of development, where Meridian Energy Limited (‘Meridian’) intends to seek resource consents for a 130MW Solar Farm. The solar farm area is approximately 200ha split over three sites. The Ruakākā Energy Park Solar Farm will be the largest energy facility north of the Auckland harbour bridge. It is expected to provide enough for half of Northland’s total power needs year-round. Meridian endeavours to continue to provide one-third of Aotearoa’s energy needs into the future, as they look to double the generation capacity of Aotearoa in the next 30 years in support of a net zero carbon nation.

Associated consents have been sought and granted to enable Meridian to establish a 100MW/200MWh grid scale Battery Energy Storage System (‘BESS’). PTB have supported these minor works occurring as no significant indigenous vegetation is to be removed. Underpinning this operational activity is a Relationship Agreement that has been entered into between the two parties that will address ways of working together going forward and wider outcomes beyond the scope of these resource consents.

2.1 CEA Process

Meridian has initiated engagement with PTB in relation to the proposal and a Terms of Reference between the parties to produce this CEA has been agreed upon. The diagram below depicts the CEA process agreed between the applicant and PTB. Members of PTB’s Taiao/Resource Management Unit (Te Pou Taiao) have visited the proposal site for a walkover on May 6th 2022 and have reviewed the Assessment of Environmental Effects and technical documentation to inform the development of this report. A resource consent was approved in June 2022 for the development of the BESS. A visit to Kea Energy’s Wairau Valley Solar Farm in Blenheim was also undertaken on 2nd June 2023 by members of the Taiao Unit and MEL staff to help inform this assessment.

This Kaupapa has been discussed at successive PTB Monthly meetings and two hapū hui held at Takahiwai marae on 6th May and 6th July 2023 where potential effects and means of avoiding or mitigating effects were canvassed. Further, the authors of this document participated in three workshops with Meridian’s project team and various experts on 18th July, 1st August and 22nd September 2023 where an evaluation of potential site layouts/design was undertaken and mitigation discussed. The Engineering Alternatives and Optimisation Report was utilised as a basis for discussion to essentially add a “cultural lens” to the analysis of options during these workshops. The outcomes of the workshops are discussed further in Section 5 below.

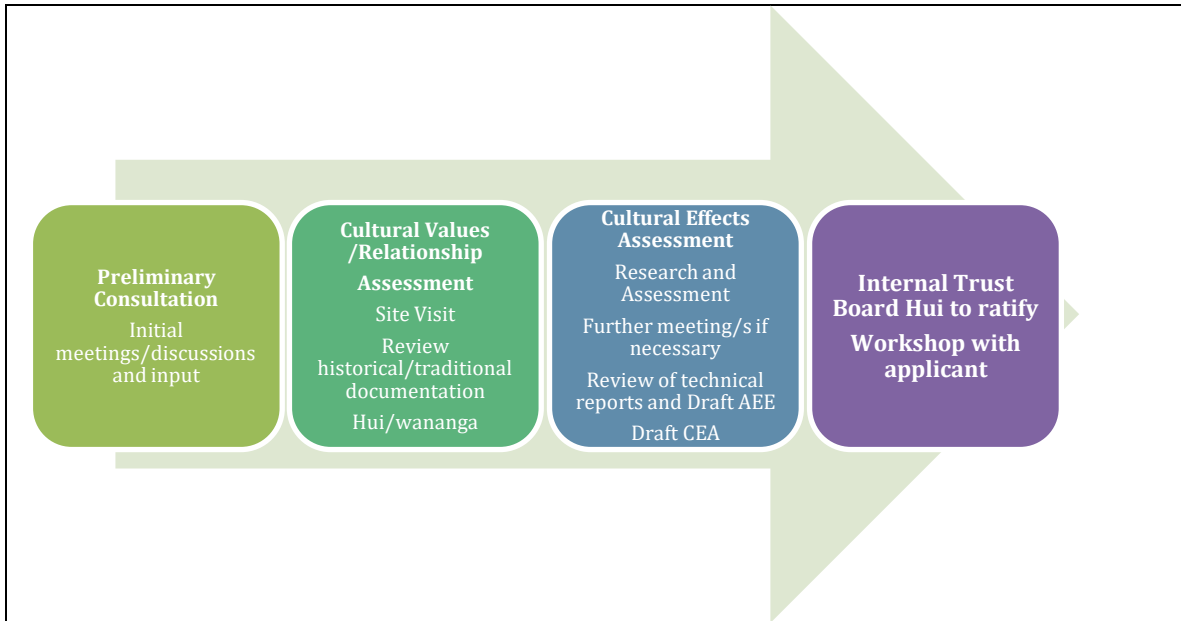


Figure 1: CEA Process

3. Description of the Ruakākā Energy Park Solar Farm Proposal

MEL are proposing to construct and operate a large-scale solar energy park across three sites between Ruakākā township and Poupouwhenua Marsden Point. The proposed development involves the construction, operation, and maintenance of the solar farm consisting of approximately 200,000 photovoltaic solar panels set across 170 hectares, which will have an installed capacity of approximately 130 MW - enough for half of Northland’s total power needs year-round. The sites subject to the proposal by Meridian are shown below.

Site 1 is a mix of exotic grassland, shrubland and wetland with the occasional shelter belt or tree and is bisected by Bercich Drain. The western two-thirds are pastoral farmland used for cattle grazing, while the eastern third is currently not managed or maintained and comprises a mosaic of opened water wetlands, rank grassland and exotic and native scrub. The disposal field for the treated wastewater for Ruakākā township is in the shrubland to the south-east of site 1B and 1C. Construction of the BESS is underway on the north-eastern corner. Site 1 is zoned Heavy Industrial in the Whangarei District Plan.

Site 2 is 41 ha of pastoral farmland used for cattle grazing, located adjacent to Port Marsden Highway (State Highway 15) and McCathie Road. Site 3 is 55 ha of pastoral farmland also used for cattle grazing located adjacent to Marsden Point Road and McCathie Road. Sites 2 and 3 are zoned as Light Industrial and Rural Production respectively, in the District Plan.



Figure 2: Ruakākā Energy Park site location¹

Sites 2 and 3 have flat topography with some large drainage channels including Drain “K” which enters the Ruakākā Awa and numerous minor channels. The vegetation is mainly exotic pastoral grasses with some exotic shelterbelt trees and the occasional native tree. Two large stormwater retention ponds, both with open water and dense rushes, are located between sites 2 and 3.²

Patuharakeke has already engaged in a consultation and assessment process regarding the BESS, located on Site 1, a storing 100MW battery which is equivalent to approximately 60,000 households’ power for 2 hours on the coldest night at peak energy use. This includes a 33kV switchboard and control room building, operations and maintenance building and parking bays that have been consented through prior consultation. A Laydown area (a flat gravel area to store materials during construction and operations and maintenance) will also be created. A tourist pull-off area is also consented, with this space to include information panels and some public car parking off Rama Road and outside the facility’s perimeter fence.

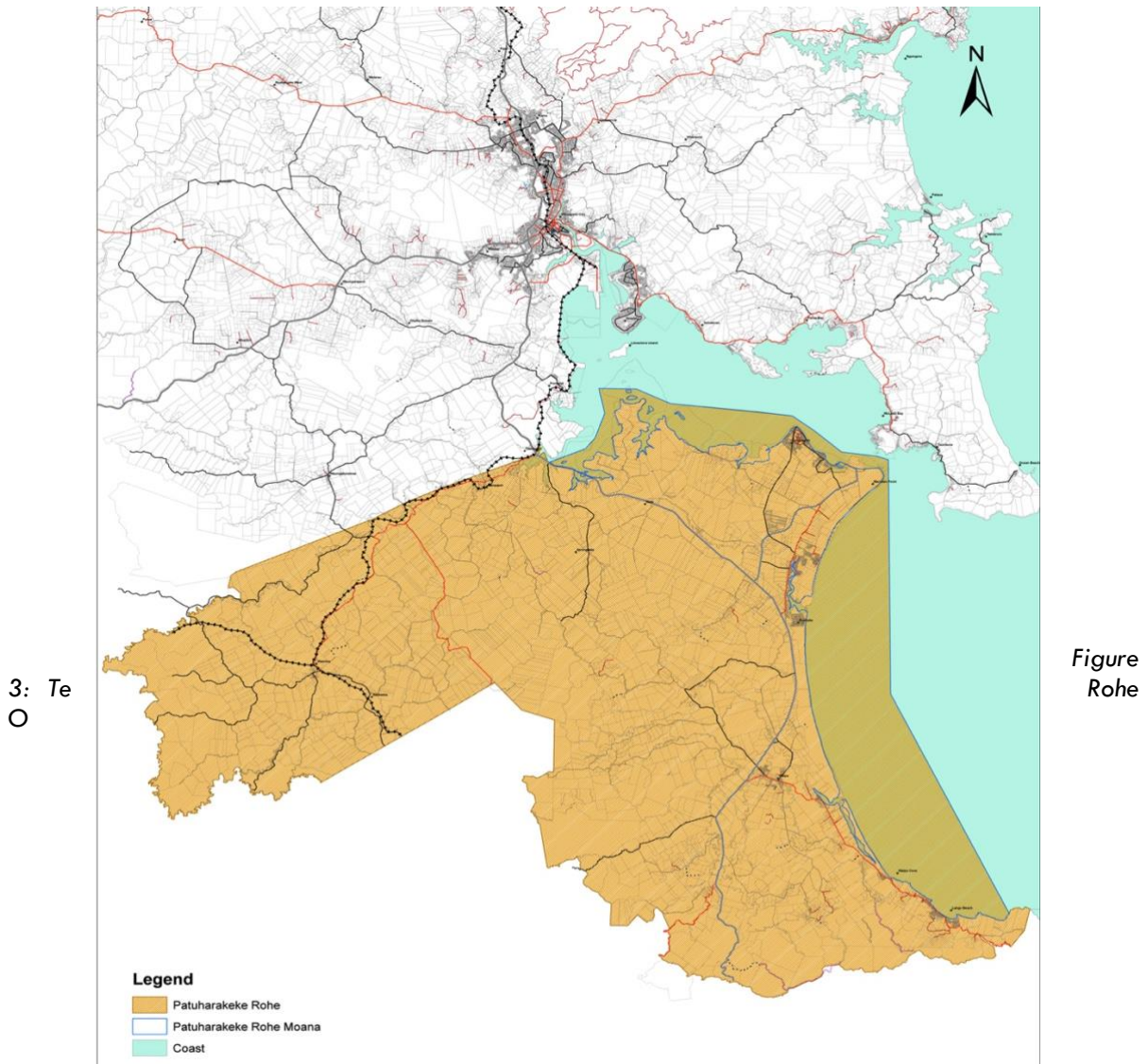
The construction works necessitating this resource consent application includes, for each site: a solar energy array with supporting infrastructure such as power inverters, internal road, underground cables, perimeter planting, culverts, drainage channels and construction and restoration of wetlands for ecological offset mitigation³.

4. Relationship of Patuharakeke to the Meridian Site and Surrounds

Patuharakeke as mana whenua of the region located south of the Whangārei Harbour have a long traditional relationship with the site and surrounding area. We have held mana or dominion over both land and water resources and other taonga in the area through numerous generations of occupation and use in Patuharakeke’s history and since settler arrival, in our responsibility as ahi kāand kaitiaki of the region. Patuharakeke’s traditional rohe is depicted in the abridged map below (marked

¹ Draft AECE version 8. Boffa Miskell.
² Draft AECE version 8. Boffa Miskell.
³ Civil Design Report. Beca Ltd.

accordingly for contemporary management purposes), illustrating that the site is located within Patuharakeke traditional rohe (see Figure 3).



Patuharakeke (abridged version for contemporary management purposes).

The relationship of Patuharakeke was considered against the various categories listed in sections 6(e), and 7(a) of the RMA 1991: that is to say the relationship of Patuharakeke and their culture and traditions with sites and wāhi tapu and wāhi tūpuna and other taonga in the vicinity; and our status as kaitiaki and practitioners of kaitiakitanga in regard to those resources.

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

4.1 The Relationship of Patuharakeke and their Culture and Traditions with their Ancestral Lands, Water, Sites, Wāhi Tapu, and other Taonga

The naming of water systems and land features is but one way that tangata whenua demonstrate the depth and closeness of this relationship. The waterways, and ranges and peaks that surround them are named in pepeha, waiata and whakatauki; as they were by our tūpuna and, as the current generation intends, they will be referred to by their mokopuna for all time to come. The name Ruakākā was known to be recorded by the old people, as reference to a particular observance which holds cultural significance to Patuharakeke and represents the multi-layered relationships between our hapū and our various iwi linkages. 'Ruakākā' applies to the limits of Ruakākā as shown on the oldest maps of the area and has historical provenance to Patuharakeke.

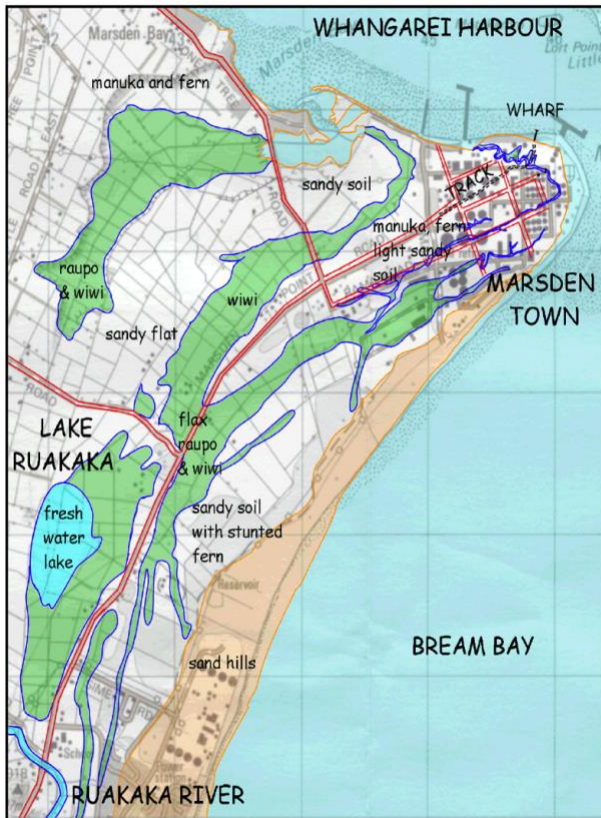
The three proposal sites sit at a low point on the alluvial Ruakākā Plains or on dune lands and are ringed by important cultural markers including maunga such as the Takahiwai and Kukunui ranges to the northeast and west and Manaia, Matariki (Mt Lion), Te Whara (Bream Head) to the north and northeast with the islands of Bream Bay (eg. Taranga and Marotiri/ Hen and Chickens) seaward to the east and the Piroa/Brynderwyn ranges to the south.

All three sites are located on peatlands or dune systems that were formally a network of wetland/swamps –throughout the Ruakākā area. These were also important sources of kai e.g. tuna, parera, kōkopu, koura, and kuaka, and harakeke muka and other plants used for raranga/weaving and rongoa were also sourced there. These important wetlands were known as the Waiwarawara to the Northwest of sites 2 and 3⁴; and Puehaenga running from the southwest and through to Rauiri Blacksmiths Creek. Puehaenga refers to water rising from two locations, or locations that are separate but rising from the same source.⁵ These kōrero correspond to early historical and archaeological evidence as illustrated in the maps below.

The historical maps clearly show the network of swamps/wetlands and dune lakes that characterized the area, prior to the large tracts of land being alienated (see below) and then drained and disced for farming. These, along with the Ruakākā River and its tributaries the Waiwarawara, Tauroa, Waipapa, and the Pukekauri/Waikauwera/Takahiwai and Rauiri streams were historically important and continue to be significant in contemporary times. Their important function as mahinga kai and mahinga mātaihai is described later in this report. Besides providing physical sustenance these were also traditional transport and communication routes for our tūpuna and neighbouring tribes when they travelled between hinterland and coastal sites seasonally. Other locations were set aside by the hapū for particular activities such as baptisms, the washing of tūpāpaku (the deceased), repositories for taonga, and yet other areas for teaching children to swim. In terms of the cultural landscape outlined above, awa were important boundary and way finding features and of course central to hapū identity.

⁴ Gudex, 2013.

⁵ Midwood, H. 2017. Personal communication.



Figures 4&5: Map of Poupouwhenua around 1910, compiled from the early survey plans, superimposed on a modern topographic map⁶ and 1854 Map of Ruakākā (From attachments to Dr Guy Gudex BOE to Waitangi Tribunal October 2013).

From the hapū perspective, while considered “artificial” waterways, Drain K and Bercich Drain that are subject to this proposal, are remnants of this former network of swamps and waterways.

Unfortunately, today these waterways are in a degraded state, the Waiwarawara for example, only within the last two decades was dammed and flooded to create Wilson’s Dam at Prescott Road to provide municipal water supply for Ruakākā. Northland Regional Council monitoring sites in the Ruakākā Catchment nearby (Tauroa Stream and Ruakākā River) have the unenviable reputation of being among the worst 25% of monitored freshwater sites in Aotearoa/New Zealand according to the LAWA website.⁷ This is extremely distressing for mana whenua as water is seen as a taonga – gifted by our tūpuna. This imposes a responsibility on us as ahi kā and kaitiaki, to ensure the resource is conserved and handed on to future generations in a similar condition. Water, like all things in the natural world is seen by mana whenua as having mauri and wairua. The continued existence of these qualities is dependent on the physical health of a water body and is also linked to the mana of the Kaitiaki people. Contamination or degradation of water has the effect of diminishing its mana and wairua, thereby resulting in a loss of mana for the Kaitiaki.

Poupouwhenua

For the most part, the three sites sit on the Poupouwhenua Block. Patuharakeke have several claims before the Waitangi Tribunal, including key claims Wai 745 and Wai 1308. These claims were presented to the Waitangi Tribunal in October 2013. A key cause of action to which our Statement of Claim relates includes the undermining of the Tino Rangatiratanga of Patuharakeke through nineteenth century land alienation and confiscation.

“The 5000 acre Poupouwhenua block was confiscated by the Crown in late 1844. This was in compensation for a settler’s house being burnt down in Matakana earlier that year by a group that included a chief from

⁶ Phillips, 2005.

⁷ LAWA, n.d.

Patuharakeke owing to a dispute about the imperfect acquisition of the land by the settler. The Auckland Provincial Governor was later quoted in the Southern Cross Newspaper that following an investigation he was satisfied that the events in Matakana had been exaggerated - but the land was still taken. The underlying purpose of the 'confiscation' was to provide land for settlers".⁸

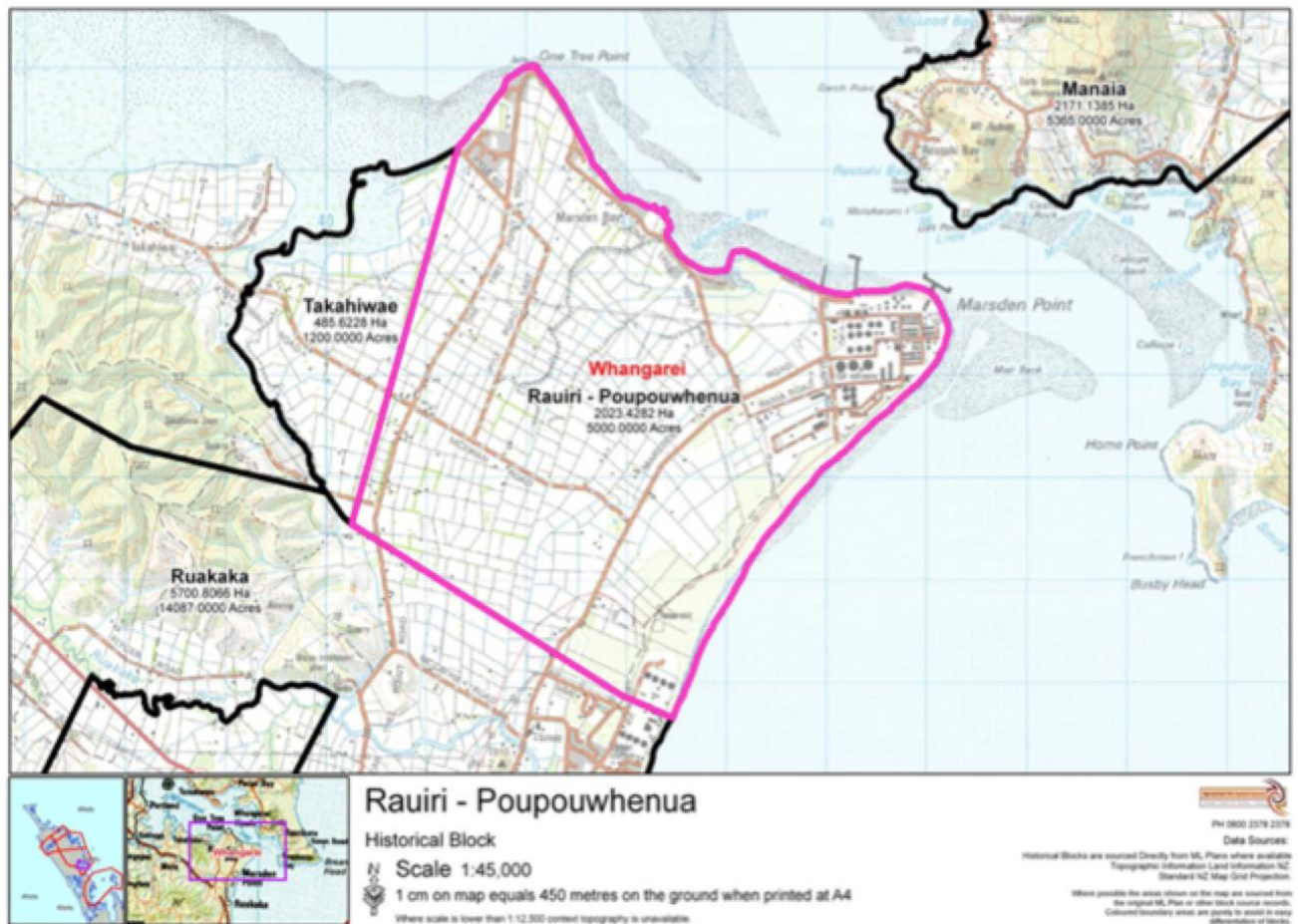


Figure 6: Poupuwhenua Block

Other historical korero handed down from kaumatua and kuia, tells of battles and seasonal migrations of descendants from in and around Whangārei Terenga Parāoa and Takahiwai. In addition, Poupuwhenua was an extremely important tauranga waka (canoe landing site) and was occupied frequently by various war parties stopping there to prepare for battles further south. Preparations included training, and discussions of tactical warfare. The number of war parties, varied between small groups of 20 to 50 to some numbering in the thousands.⁹

Kaumatua korero given on the history of the area denotes the entire coastal area of Bream Bay as a site of significance known as “Te Akau”. Similarly, “Tupehau” is the name for an area of coastline behind the Ruakākā dunes in the vicinity of this proposal.¹⁰ The foredune in the area was formerly a significant source of pingao, traditionally used to weave nets targeting small kaimoana ika such as Piper.

Patuharakeke identify a rich tapestry of signifiers of our traditional relationship with this area. This includes the relationship of Whangārei Terenga Parāoa and Bream Bay as a large food basket or ‘Pataka’. Historically, the Marsden Point area was widely utilized for customary and recreational harvesting of kaimoana and was a “jewel in the crown” of a harbour abundant with resources. Much of the area along the foreshore and dunes in the vicinity was used as a nohoanga (camping site for

⁸ Gudex, 2013.
⁹ Clarke, 2001:2.
¹⁰ Pirihi, 2013.

harvesting kai) regularly by Patuharakeke and other whanaunga from the Whangārei area up until the industrial development of the area began to restrict this practice in the 1960's.

Notwithstanding the industrial complex in this location, Patuharakeke also retain a contemporary cultural relationship with the areas surrounding the subject site. Our mana whenua, mana moana and mana tangata are based on historical connection and whakapapa, however the modern descendants of those ancestors see this as a living and contemporary relationship and not only as a traditional or historic memory.

Wāhi Tapu/Wāhi Tūpuna

There are a number of recorded archaeological sites in the vicinity as shown on the map below (Figure 7). Site Q07/309 (pit) on the hill across McCathie Road may be associated with Pitotorea /Pitorehu Pa (Q07/94) on "Water Tank/Sargeants Hill"); a Patuharakeke sentry post on the banks of the Ruakākā River which is referred to in our Sites of Significance Report to WDC and Statement of Claim to the Waitangi Tribunal. Archaeological studies and our traditional knowledge identify the Ruakākā Estuary and River and the escarpments above as a centre of dense 'prehistoric' Māori settlement, based on the number and distribution of previously recorded archaeological sites in the area. Unfortunately, little detailed information exists about this occupation from prior archaeological investigations and the majority of sites have been substantially modified or even destroyed by 20th century development.

As a result of a combination of factors, war and disease in the 18th and 19th centuries and subsequent land alienation, urban drift of tāngata whenua and loss of elder generations, much of the more detailed korero about specific Pā and other sites has been lost. Regardless, these sites, whether modified or not, remain "Nga Tapuwae o Nga Tūpuna" or "sacred footprints of our Tūpuna" and we must hold on to whatever knowledge we have left of these important components of our cultural landscape, to pass on to our future generations. An archaeological site was recently located on Site 1 and is discussed in subsequent section of this report. Further, while the three sites have been drained, modified and farmed for a very long time there remains a possibility that further unrecorded archaeological sites may be uncovered, therefore it is essential that ongoing engagement with Patuharakeke occurs.



Figure 7: Archaeological sites in the vicinity of the Ruakākā Energy Park, and existing land and built form.

Contemporary Cultural Relationships

The marae at Takahiwai approximately 5 km distance from the proposal site continues to hold its dominant position in the landscape and is a living and dynamic institution in constant use as a cultural centre for the surrounding district. Ahi kaa is maintained through the continued and unbroken residence of families of direct descendants domiciled on ancestral land. Such families maintain practices such as maintenance of the ancestral house as a living and vibrant institution and 'entity', the gathering and harvesting of traditional foods, the maintenance of the urupa and guardianship of tikanga associated with both place and people. Mana whenua still rely on the use of a wide range of species from both land and water as part of their customary relationship – including kai and rongoā materials.

Other hapū and whanau residing outside the immediate area of Patuharakeke also participate in these practices demonstrating the continued cultural, social and physical linkages to their traditional rohe and

area of origin. These linkages are maintained not only by storytelling, whakapapa, wananga, waiata and whaikōrero but also through the interaction with the physical environment.

4.2 Kaitiakitanga

Patuharakeke claim another level of relationship with the areas in the vicinity of the subject site – that of Kaitiaki. Therefore, Patuharakeke are responsible for both the knowledge (mātauranga) and the practice (tikanga) of kaitiakitanga in relation to resources and their sustainable management in perpetuity. This relationship is a responsibility rather than a right – a duty Patuharakeke are bound to by both culture and tradition to maintain.

Regrettably, the capacity to practice kaitiakitanga has been eroded over time by loss of title to large tracts of ancestral land and the progressive introduction of increasing layers of government control over resources. Patuharakeke are committed to ensuring that our Kaitiaki will play a significant future role in the monitoring and protection of the health of the catchment and the effects of any scale of development on the health of its ecosystems. This includes forming collaborative partnerships with all relevant agencies, scientific bodies, developers and the wider community to develop and implement sustainable catchment plans to restore the health of the waterways and coast.

Figure 8 below depicts the gazetted rohe moana of Patuharakeke. A primary focus for PTB has been research, monitoring and restoration of Poupouwhenua mātaītai (Mair and Marsden Bank), a significant kai moana source for whānau, and the wider community, for almost a decade. Our multi-pronged approach to kaitiakitanga of Mair/Marsden Banks has involved instigating closures under Fisheries legislation, leading a community pipi monitoring project (including a Cultural Health Indicator Framework) and applying traditional customary tools such as rāhui to all shellfish within the mātaītai. This approach to kaitiakitanga has involved a tireless exercise of fostering relationships, education, and advocacy. The overall community support and collaboration has been an outcome in itself, as has the considerable increase in hapū capacity and the revitalisation of mātauranga Māori. Along with regular surveying of the mātaītai this work has allowed PTB to assess pipi populations and patterns of recruitment and develop long term management strategies. Bercich Drain, running through Site 1, ultimately discharges to our rohe moana, in close proximity to Poupouwhenua mātaītai area.

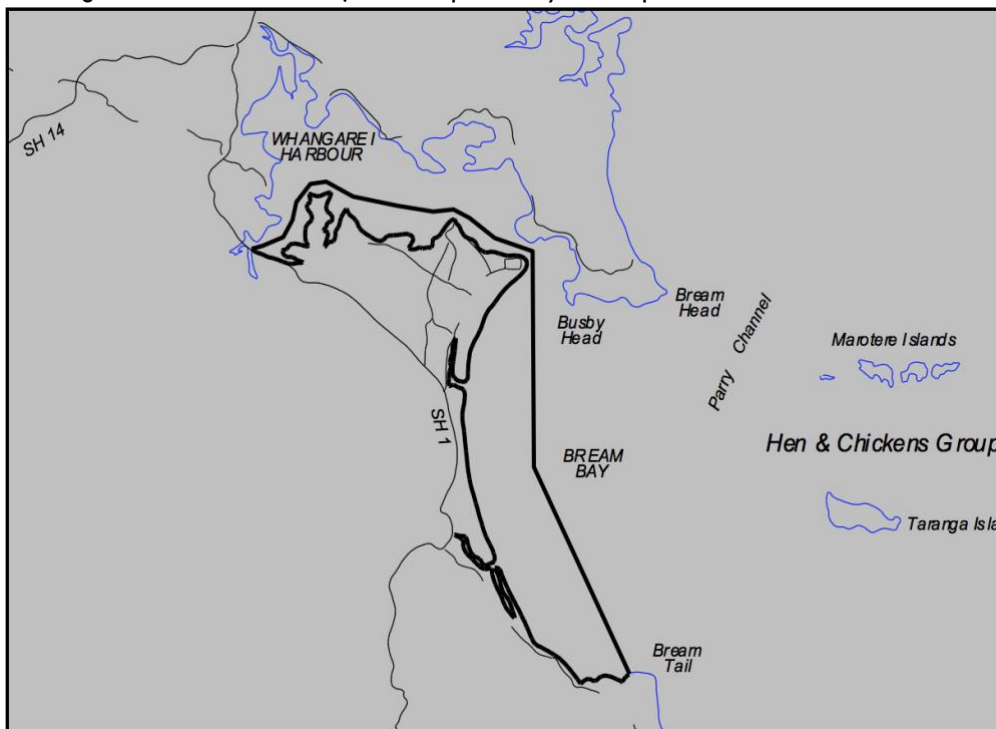


Figure 8: Patuharakeke Rohe Moana Gazetted Boundaries

4.3 Te Tiriti o Waitangi/Treaty of Waitangi

The hapū view is that the subject land is ancestral Māori land. As mentioned previously, the area upon which the proposal is located and its surrounds was obtained illegally from the original owners in our opinion, and is a focus of the Patuharakeke Statement of Claim to the Waitangi Tribunal. Some parcels of land in the area remain in the hands of the Crown and could conceivably be returned in future as redress properties. PTB watch developments in this area with great interest and fully intends to look for alternative opportunities for the return of such lands and continue to explore methods (as well as progress our claim) to achieve greater participation in its future management. Therefore Section 8 of the RMA “taking into account the Treaty of Waitangi/Te Tiriti O Waitangi in relation to managing the use, development and protection of natural and physical resources” needs consideration.

Part of the CEA exercise is to consider how Patuharakeke’s role is reflected in planning and decision making related to Meridian’s strategy and operations in relation to the Ruakākā Energy Park Solar Farm. Past experience with developments in Patuharakeke’s rohe has provided little confidence that the interests of the hapū are actively protected. There is no one defined set of treaty principles and there remain differences in opinion as to who is required to apply them in decision-making. However, PTB generally seek that relationships they enter (particularly when engaging under the RMA) are guided by Treaty Principles such as reasonable cooperation, rangatiratanga, equality, partnership and the principle of mutual benefit. These principles are partially addressed through the engagement that has occurred to date with PTB in relation to the Ruakākā BESS proposal. The fact that Patuharakeke has been the focus for addressing cultural issues recognises our rangatiratanga over our traditional lands and waters. PTB and Meridian have committed to implementation of a Relationship Agreement which will provide for ongoing dialogue and regular kanohi ki te kanohi (face to face) engagement across all organisational levels as well as joint identification of opportunities where collaboration and partnership can occur that may sit outside the scope of the RMA and consenting process. This will be essential going forward if principles of the Treaty are genuinely to be taken into account in this process and implemented appropriately.

We note that at the first hui, a whānau member asked for acknowledgement that this development is taking place on confiscated land and how that is going to be remedied. They described a history of large-scale projects that haven’t ended well for Patuharakeke, and therefore would Meridian consider a shareholding/ compensation? Meridian noted that while the government is a 51% shareholder in Meridian Energy Ltd, Meridian is not the Crown and is not involved in Treaty of Waitangi claims. The government is also not part of the operational management of Meridian and has no different rights to the remaining 49% of Meridian’s shareholders. Despite this clarification from MEL, Patuharakeke ultimately views Meridian as ‘the Crown’ and therefore regard the partnership between iwi and the Crown as outlined in te Tiriti relevant in this proposal.

5. Effects on Patuharakeke Culture and Values

The set of effects identified below is not set out in any order of priority or importance. As previously mentioned, they are structured under headings of the four wellbeings as identified in the RMA - Environmental, Cultural, Economic and Social. Largely these issues are interconnected and overlap as certain environmental effects could just as easily be discussed under the categories of ‘cultural, social or economic’ wellbeing. Past effects of development at Poupouwhenua have impacted on the culture and values of Patuharakeke. This collective experience and memory inform the views of the hapū in relation to any proposed activity. Korero from the two hui-a-hapū and workshops (listed above) has also informed the effects assessment. The Hui records and Q&A is attached¹¹. Further analysis against the framework of the HEMP¹² below and our Draft Hapū Strategic Plan¹³ informed this assessment. The Hapū Strategic Plan categorises the four wellbeings into further subsets, and identifies strategic pou or pillars that will underpin the plan. These are:

- Pou Hauora – Whānau health

¹¹ Appendix 1. Hui-a-Hapū #1 & #2 Whānau Pātai & Meridian Whakautu.

¹² Patuharakeke Te Iwi Trust Board, 2014

¹³ Appendix 2. Prepared through a series of hui-a-hapū in 2019-2020

- Pou Taiao – Environmental
- Pou Whaioranga – Economic
- Pou Ahurea - Culture
- Pou Mātauranga - Educational
- Pou Tai Tamariki-tanga – Succession

Patuharakeke Hapū Environmental Management Plan

The HEMP plan provisions relevant to this proposal are as follows:

Section 4.2: Climate Change

Issues

- a) Climate Change will impact the cultural, economic, social, and environmental wellbeing of Patuharakeke.
- b) The magnitude, nature and timing of these effects on Patuharakeke and our taonga tuku iho have not been assessed.
- c) There is a lack of preparedness planning for adaptation to the effects of climate change within Tai Tokerau and Aotearoa as a whole.

Objectives

Northland's energy needs are met predominantly from community owned renewable energy resources, generated within the region.

Policies

- a) PTB support the reduction of emissions as a response to climate change, including but not limited to:
 - i. Use of solar water heating and similar measures to reduce energy use;

Methods

- a) Patuharakeke will work proactively with all agencies and individuals who are seeking positive and pragmatic solutions and responses to climate change.
- b) PTB will not support to any development proposals in the coastal environment where climate change poses an undue risk.

Section 5.4: Soils and Minerals

Issues

- a) Extractive industries and inappropriate land use and management have the potential to diminish or destroy the mauri of mineral and soil resources in our rohe and there are potential adverse environmental, cultural and social effects.
- b) Mineral and topsoil resources are finite.
- c) Prospecting, exploration and mining activities can adversely affect areas significant to Patuharakeke including waahi tapu, waterways, mahinga kai and our cultural landscapes.
- d) Soil erosion resulting from inappropriate land uses and management.
- e) Earthworks activities need to be managed to avoid damaging or destroying sites of significance, and to avoid or minimise erosion and sedimentation.

Objectives

- a) The mauri of mineral and soil resources is protected and enhanced in ways that enable Patuharakeke to provide for our social, economic and cultural wellbeing; and that of generations to come.
- b) The sustainable use and management of mineral and soil resources without adverse impacts.

Policies

- c) Earthworks provided for as a permitted activity in council plans must meet stringent environmental performance standards.

- d) Integrated earthworks management plans are required for earthworks consent applications detailing how erosion, sediment control, possible archaeological or cultural sites and rehabilitation are to be managed, and how risks will be identified and minimised.
- e) Patuharakeke are involved in decision-making regarding any contaminated land in our rohe.

Methods

- a) PTB will advocate for the enhancement of our soils and careful handling of our minerals. In particular we request the relevant statutory authorities ensure that:
 - i. Crown Minerals Act and RMA processes are better integrated;
 - ii. activities are not permitted in areas we identify as significant;
 - iv. effective erosion and sediment control measures are implemented while soil is exposed and 80% vegetated ground cover is achieved within 3 months of earthworks being complete.
 - v. earthworks provided for as a permitted activity require notification of council and PTB, no less than 1 week prior to any work;
 - vi. payment of a bond is a mandatory condition for any earthworks;
 - vii. Land use is matched with land capability (eg soil type; slope, elevation);
 - viii. Encouragement and support for organic farming and growing methods
- b) PTB will work with permit holders to plan and implement rehabilitation programmes, costs being met by permit holders.
- c) A royalty will be payable to PTB where the extraction of a mineral resource from lands within our rohe has been agreed to.

Section 5.5: Vegetation Clearance and Commercial Forestry

Issues

- a) Vegetation clearance can have adverse effects on waterways, sites of significance, indigenous biodiversity, cultural landscapes and amenity values.

Objectives

- a) Native vegetation clearance is avoided in our rohe.
- b) Sound land management practices become the norm in our rohe with waterways, sites of significance, indigenous biodiversity and cultural landscapes protected from the adverse effects of vegetation clearance and commercial forestry operations.

Policies

- a) PTB and Councils will promote land use and land use management that avoids undue soil disturbance and vegetation clearance.
- b) PTB will oppose vegetation clearance in areas that are identified as high risk for soil erosion, areas of significant indigenous biodiversity, and culturally significant sites.
- c) PTB and Councils will promote the establishment of native forestry operations in the rohe alongside other commercial operations with the ultimate view of phasing out exotic forestry and replacing it with natives.

Methods

- a) PTB will assess applications to undertake vegetation clearance in our rohe (eg. the applicant commissions a CEA). c) PTB will continue to advocate for the protection and enhancement of indigenous forests in our rohe (eg. by way of submissions to National and Regional policy and planning documents etc).

Section 5.6: Subdivision and Development

Objectives

- b) Patuharakeke has a prominent and influential role in urban planning and development in our rohe.
- c) When subdivision and development activities occur, they are based on low impact, innovative and sustainable design.

Policies

- a) Councils and agencies will ensure that the cumulative impacts of subdivision and development on the natural and cultural landscape values of our ancestral whenua and coastal areas are recognised and avoided, including:
 - i. Effects of incremental development

Primarily, Patuharakeke are concerned with ensuring a precautionary approach is taken with any activities that have the potential to create further adverse effect on the mauri of Whangārei Te Rerenga Paraoa/Te Akau Bream Bay, Poupouwhenua, and our cultural landscapes and seascapes.

Section 6: Wai Māori/Freshwater

Objectives

- a) Water is valued as a precious resource essential to all life and is respected for its taonga value above all other values.
- b) The mauri of water is enhanced in ways which enable Patuharakeke to provide for our physical, social, economic and cultural wellbeing.
- c) All mahinga kai sites in waterways in our rohe are managed, monitored and enhanced by Patuharakeke.
- d) Water quality standards relevant to Patuharakeke are developed and implemented by agencies and monitored by kaitiaki.
- e) Healthy riparian margins for all the waterbodies in the rohe.

Policies

- j) All puna and repo will be protected from inappropriate use and development.

Methods

Water Quality

- c) PTB will take positive action to enhance waterbodies and will develop and implement a monitoring programme using cultural health indicators and other assessment tools as needed.
- d) PTB will advocate for the enhancement of all our waterbodies and will work with any party promoting or implementing positive actions to improve water quality. PTB request statutory authorities to:
 - i. promote and provide incentives for the rehabilitation, enhancement and protection of waterbodies and margins;
 - ii. prohibit drainage of naturally wet areas or wetlands including draining adjacent land;
 - iii. ensure that resource consents for works stipulate regular cultural health monitoring by resourced kaitiaki as part of compliance monitoring. Where data shows that there is an adverse effect on water quality then activities must cease.

Section 7: Tane Mahuta

Objectives

- a) The mauri of indigenous ecosystems is protected and enhanced enabling Patuharakeke to provide for our physical, social, economic and cultural wellbeing.
- f) Patuharakeke grow and encourage the use of Mātauranga Māori in the sustainable management of our biodiversity.

Policies

- a) Patuharakeke will honour their responsibility as kaitiaki of the Atua Tane Mahuta through practical and positive expression of kaitiakitanga.
- b) PTB will consider all positive initiatives that benefit indigenous biodiversity in our rohe and will participate on a case-by-case basis.
- c) Proposed activities which involve modification of existing indigenous flora or habitats of indigenous fauna are to be preceded by thorough biological audits to identify indigenous species and potential impacts.
- d) Patuharakeke will only withdraw our objection to any negative impacts on our indigenous flora and fauna after effective engagement and agreed remediation or mitigation are identified, and a timetable for implementation is agreed.
PTB will actively seek opportunities to get kaitiaki actively involved in weed and pest management.

Methods

- a) Patuharakeke will promote the use of locally sourced seeds and plants for revegetation /landscaping.
- b) PTB will advocate for the enhancement of all our indigenous flora and fauna as a high priority and will work with any party promoting or implementing positive actions to improve habitat.

- c) PTB request statutory authorities to provide for the following:
 - i. where indigenous trees are felled, or fall as a consequence of natural events, they are to be provided to Patuharakeke to be used for customary purposes, e.g. carving.
- d) Patuharakeke will continue with, and grow our cultural health monitoring programme, undertaking the following actions:
 - i. Ongoing audits of our waterways, ngahere, mahinga kai and other sites to provide a baseline to assist in our role as Kaitiaki; and against which to monitor habitat improvement initiatives;
 - ii. Identification of innovative ways to improve habitats;
 - iii. Utilisation of Maturanga Maori and cultural indicators or tohu whenever possible;
 - iv. Other education, and training opportunities that will benefit our Kaitiaki in terms of carrying out the monitoring programme; and
 - v. Seeking support (funding, sponsorship, resources, capacity building etc) from crown partners and stakeholders to implement our cultural health monitoring programme.

Section 8: Waahi Tapu Me Waahi Taonga

Objectives

- e) Patuharakeke have access to sites of cultural significance in our rohe.

Policies

- b) Our cultural landscapes and seascapes should be afforded at least as high a priority as other landscape values when being considered as part of any process under the RMA, the Conservation Act, the Reserves Act or the LGA.
- f) Any areas and sites of customary value that contribute to or are a part of our cultural landscape must be defined by Patuharakeke.
- g) Councils and PTB RMU will jointly develop customary value, cultural landscape and or cultural heritage strategies in respect of our rohe.
- h) The original names of all parts of our rohe as named by our tupuna should be used in all maps, charts, plans and other records.

5.1 Environmental Effects

Wai Māori/Freshwater Quality

Flooding

Modelling¹⁴ demonstrated that the development will generally reduce maximum water levels on adjacent properties in the 50-year with climate change and 100-year with climate change events. Water levels will increase by about 1 mm upstream of Site 1; a difference that is within the margin of modelling error. Increases were also modelled within a drain alongside Mair Rd (downstream of Site 1); however, this was contained within the drain. Velocity differences are likewise minor. The model shows that the proposed development will have a negligible effect on flooding. Site 2 is understood to have minor-to-no impacts on the surrounding environment; it is least flood prone meaning there are minimal wetlands present, there are no overhead lines or underground pipes. However, this site requires monitoring of regional stormwater open channels. Site 3, being most flood prone, is proposed to offset the wetland loss in Site 1. All three sites will require full site earthmoving activity to flatten the terrain and make it suitable for solar infrastructure. Meridian have outlined flood management due to increased impervious surfaces.¹⁵

Repo/Wetlands

The proposed Ruakākā Energy Park footprint contains small, disconnected patches of degraded wetland features that have been extensively modified as a result of historical drainage and pastoral use. As such, the National Policy Statement for Freshwater Management 2020 (NPS-FM2020) and National

¹⁴ Flood Modelling. Beca Ltd.

¹⁵ Civil Design Report. Beca Ltd.

Environmental Standard for Freshwater 2020 (NES-FW2020) require consideration in the context of this application. Boffa Miskell's AEcE summarises wetlands and their effects as follows:

A total of 19.11 ha of natural inland wetlands were identified across the three Sites, mostly in Site 1 and mostly dominated by exotic vegetation and highly degraded. Of the identified wetlands, the 4.7 ha of open water habitat has high ecological value and are ecologically significant habitat for indigenous fauna. The proposed development includes retention of ~ 2 ha of this open water habitat on Site 1. The levelling of the remainder of the Sites to enable safe piling will result in removal of ~ 17 ha of wetland. This loss of wetland extent will be offset by enlarging and enhancing the retained 2 ha open water wetland on Site 1 and constructing a large indigenous wetland on Site 3, in an area that was historically wetland prior to land clearance and drainage. As the loss of wetland habitat will be short term (~ 3 years), and the offset wetlands will have a larger total extent (~ 19 ha in total) and higher ecological value, the ecological effect of this temporary wetland habitat loss is Low. Effective implementation of a comprehensive Wetland Restoration and Management Plan, including control of animal and plant pests, is expected to increase the breeding success of birds that inhabit the site and therefore, have a positive effect on wetland and avifauna ecological values in the short to medium term.

Notwithstanding this analysis by Boffa Miskell, as ahi kā and kaitiaki responsible for the remaining wetlands on Poupouwhenua and in light of our cultural and spiritual connections to this place we note the following;

- The cumulative adverse effects of further wetland loss in the rohe are a significant matter. Coastal environment wetlands and dune lakes are increasingly rare due to cumulative removal. We are aware of the need to ensure that the offset mitigations proposed equate to the habitat lost, or will guarantee better future habitats. This is because the AEcE statements about offsetting and overall wetland quality improvements, may not be certain and may also be temporally misaligned by several years (lag time), with potential impacts on taonga species in the interim. This potential issue was discussed at Workshop 3 and it was determined that more certainty could be achieved through hapū involvement in finalization of management plans (eg. Wetland Restoration Plan) including proposed monitoring and responses.
- The 4.7 ha of open-water habitat on Site 1 has high ecological value and is ecologically significant habitat for taonga species. The proposed development includes retention of about 2 ha of this, however, as shown on table 8 of the AEcE, dune slack wetlands are rare nationally and wetlands with intact indigenous vegetation are particularly rare in the rohe. Sections 5.3.2 and 5.3.3 of the report also echo the high values of rare dune slack open waters and wetlands. Moreover, the anticipated intensified land use changes on surrounding land parcels, could increase the rarity and values of the subject wetlands and waterways.
- Te Tai Tokerau has lost 380 ha of wetland since 1996, (average loss size 9.5 ha, largest being 87 hectares). At ~17 ha existing, the wetlands proposed to be affected here are potentially significant regionally.¹⁶

Therefore while PTB very much support the wetland offset concept proposed on Site 3 and the open water area to be retained on site 1 we still have reservations about the magnitude of wetland loss.

At the hui held in May 2023, some attendees queried the feasibility of leaving the existing wetlands in place, to enhance them and build the solar panels over the top. Meridian and its ecologist noted the following: we appreciate the context and pūrākau which Pari Walker gave during this hui (and a previous March hui) on wetlands and their importance to Tangaroa and the mauri of the land. Following Pari first raising this korero in March 2023, Meridian commenced a detailed piece of work to consider whether it will be possible to retain all of the site wetlands as part of their consent application. This has included engaging with the construction market in Australia on construction safety as well as with Meridian's engineers and ecologist on other factors. Meridian noted that the investigation in response to Pari's comments has determined that:

- construction in wetlands could pose fatal construction safety risks, especially during piling;

¹⁶ The National Wetland Trust, 2020.

- operating the solar farm, including driving the site in maintenance vehicles, may not be possible through wetlands;
- it is uncertain what changes solar panel shading and operations will have on the wetland ecology and function including impacts on at risk species/taonga; and
- it will be a better ecological outcome for at risk species/taonga if new, larger wetlands are created as this will provide better (and more) habitat for a larger number of at risk species/taonga.

As mentioned previously, several further workshops were held between MEL and Te Pou Taiao and much of the focus was on wetland effects as the AECE's assessment of the wetland qualities and value methodology did not include weighting of Māori freshwater values (including application of Te Mana o te Wai). We note national policy direction is toward preserving and improving existing habitats (NPS-FM).

For these reasons during the workshops PTB and MEL used the Engineering Alternatives and Optimisation Report¹⁷ as a basis for working through the various options considered. As a key component of these workshops, MEL developed four solar layouts additional to those presented in the Engineering Alternatives and Optimisation Report. The four additional layouts were variations of Option 4 (of the Engineering Alternatives and Optimisation Report) and examined various solar farm layouts which sought to retain more wetlands on Site 1. The work undertaken by MEL included energy yield analysis and economic modelling for the four alternative Scenarios. Scenario 5 (see Figure 9 below) is one of the hybrid alternatives discussed in workshop #2¹⁸. PTB has a preference of Scenario 5 which retains more of the open water and high value wetlands on Site 1. We understand from MEL that any potential reduction in the number of panel arrays to the degree outlined in Scenario 5 may render the project economically non-viable.

However, in our view this statement should be predicated on a full understanding of what is or is not possible in terms of build out of Site 3. This level of technical investigation is yet to be undertaken and will occur as part of engaging with the construction market for project costings. At that point, solar contractors will undertake further geotechnical investigations that are specific to their proposed solar piling solution in order to validate their project costings. MEL has advised that depending on economics and geotechnical investigations, adjustments resulting in the retention of additional wetlands on Site 1 or the construction of additional wetlands on Site 3 may be possible following detailed design. PTB will continue to work with MEL through implementation of our Relationship Agreement to ascertain what can be achieved in this regard. This will assist PTB and MEL to continue to work through the effects mitigation hierarchy appropriately to avoid effects in the first instance wherever possible and jointly land on a design that minimizes wetland loss and preserves and improves existing wetlands in line with the NPS-FM and section 6 of our HEMP provisions as set out above.

¹⁷ Engineering Alternatives and Optimisation Report. Beca Ltd.

¹⁸ Produced by Brett Halkett of MEL and sent via email communication post-hui



Figure 9: Scenario 5 (Options Analysis, email communication post-hui 2)

Sediment and Geology

All erosion and sediment control (ESC) works are to be undertaken in accordance with Auckland Council's Guidance Document 005: Erosion and Sediment Control ('GD05', 2016), as adopted by NRC. Earthworks are to be undertaken across the entirety of all three sites to regrade each surface flat and enable construction of the solar panel arrays and associated infrastructure (internal roads, stormwater and electrical connections). Staged earthworks will allow areas to be contained, earthworked, and then stabilised, with a moving sequence of work areas allowing dirty water to be directed to the sediment retention ponds as required via relocating catchment perimeter controls (bunds and channels).¹⁹ PTB agrees with staged earthworks to minimise the risk of sediment erosion. All ESC will be monitored and maintained regularly to ensure operational efficiency.

Meridian states that structures are recommended to be positioned to avoid areas where thick deposits of weak or organic near surface soils are encountered. Some earthworks may be required to re-contour steeper parts of the solar farm site, especially in Site 1. The sandy soils are expected to be suitable for re-use as fill. PTB would like to have review and input into an erosion and sediment control plan before it is finalised. Surface water was observed within most of the farm drains. Groundwater levels are expected to typically be within 1m of the ground surface within low lying areas and may rise to the ground surface during prolonged wet weather. Groundwater levels are expected to typically be within 4m of the ground surface within elevated areas.²⁰ PTB asks for a groundwater contamination mitigation plan to be established.

Ki uta ki tai

¹⁹ Erosion and sediment control plan. Beca Ltd.

²⁰ Preliminary Geotechnical Assessment Report. Beca Ltd.

While it is acknowledged that Poupouwhenua has already been heavily modified by existing development, the area adjacent to and in the vicinity of the proposal sites retains some very significant natural and ecological values. This area is also an important habitat for at risk manu that are taonga species for Patuharakeke. The stretch of beach between these two points is highly valued by the hapū and wider community for recreation and gathering of other kaimoana species, such as tuatua, pāpaka (paddle crabs) and surfcasting for tamure/snapper etc.

While Bercich's Drain is now considered a highly modified watercourse, as described previously, the proposal sites were historically part of a wider connected network of repo and streams. We note in the Boffa Miskell Report that according to the PRPN this drain is classified as a river and along with Drain "K" these two watercourses have fair (moderate) quality and availability of habitat for freshwater invertebrates and fish in their current state and are assessed as having "low" and "moderate to high" ecological value overall respectively.

Patuharakeke seek to develop a project to find opportunities to improve the health of Bercich's Drain and the ultimate receiving environment of Te Akau/Bream Bay by creating a more naturally functioning waterway. This will assist in providing connectivity to the open water wetland area to be maintained on Site 1 for species such as tuna and kōkopu, macroinvertebrates and manu utilising the area. Our aspiration will require broader conversations with other landowners (eg. LVL, Channel Infrastructure) and WDC to explore a catchment type approach, however the MEL Solar Farm proposal provides an opportunity to progress improvements to Bercich Drain on Site 1. MEL are generally supportive of this aim and are currently discussing fencing and installation of a filter strip ("grass sward" of native grasses and sedges) for enhancing the habitat, filtration and values of the Bercich Drain. This will be an ongoing kōrero which Meridian intends to work on with hapū during detailed design phase.

Similarly, Drain "K" which discharges to the Ruakākā awa and mātaimai could be improved by routing it through the proposed offset wetland on the southern end of the site to provide additional filtering/polishing. We would like to further discuss the potential for this in the detailed design phase.

Other initiatives that we consider would help mitigate impacts and assist with hapū aspirations for upholding te mana o te wai and a ki uta ki tai "catchment" approach – could be exploration of secondary /dual purposes for the sites. At the workshops we discussed the potential for dual use eg. on Site 2 as an area that might provide additional area for land-based disposal options of treated effluent from the Ruakākā Waste Water Treatment Plant ("RWWTP"). This would require ongoing discussions and a collaborative approach in conjunction with PTB and WDC. Should such an option be able to be accommodated, it would provide significant support for ahi kā in our mission to avoid construction the RWWTP's consented coastal outfall in Te Akau/Bream Bay.

Climate Change

The proposal generally aligns with the HEMP climate change provisions, ie. transitioning towards Northland's energy needs being met predominantly from community owned renewable energy resources, generated within the region; activities that reduce emissions overall; and our desire to work proactively with organisations who are seeking solutions and responses to climate change.

While PTB strongly encourage moves toward renewable energy, this needs to be totally transparent. The manufacturing processes and transport and logistics chains associated with solar generation means that a carbon footprint does exist, albeit that it may be below that of other generation options. As such, PTB recommends that through the vehicle of our Relationship Agreement, we work collaboratively as partners to look at ongoing and fully informed exchanges of information with a shared goal of continual improvement as advances in technology and research occur in this space.

At the 2nd Hui-a-Hapū on 6th July 2023 whanau members had queries about Meridian's forestry programme to offset carbon emissions. Meridian confirmed that while carbon credits can be purchased, they choose to invest in native regeneration and planting sites currently supporting a mixture of natives and exotics as they believe this is a better outcome for the environment. We agree with this sentiment. To that end, PTB would like to continue to explore opportunities for native afforestation if there are parts

of Site 3 that are not developed for solar or wetland purposes. This would assist better environmental outcomes being achieved within the rohe where the solar farm will be built.

Taonga species

Vegetation to be removed is primarily exotic grassland, gorse, shelterbelt features, scrub and some generally disconnected patches of exotic-dominated Natural Wetland features (as discussed previously).

There is a kānuka forest and shrubland in the north-eastern corner of Site 1 covering an area of approximately 5ha. The kānuka is between 5m–8m in height, with good canopy cover and minimal understorey growth. The kānuka is part of a larger kānuka remnant (approximately 15ha) within the Ruakākā Dunelands Significant Natural Area (SNA). As described in the BM ecological assessment, the kānuka forest has a high ecological value, particularly due to its rarity/distinctiveness.²¹ Meridian noted it is committed to its ongoing discussions with Patuharakeke on options for the Kanuka block and new wetlands following construction, alongside other benefits from Patuharakeke's involvement in the project. However, it would be preferable for the co-development and construction of the wetlands to be sooner rather than later as there will be the potential for a loss of habitat for taonga species during construction of the project.

Meridian noted that its board members and CEO were moved by the historical background to the alienation of Poupouwhenua when they first met with PTB and want to make this project a win-win for hapū. Commitment for these discussions and solutions to see the return of whenua and physical reconnection and visibility of ahi kā on site will be achieved through the vehicle of the existing Relationship Agreement.

The AECE states that while the drains on Site 1 are unlikely to be a habitat for native freshwater fish, the drain on Site 3 is slightly larger and has a better hydrological connection with the Ruakākā River. Therefore, it may be inhabited by low numbers of native freshwater fish under current conditions but could be substantially improved under the co-development and implementation of a wetland management plan. To mitigate effects on native species, and where there is good habitat for fish, best ecological practice will be undertaken during drain clearing and associated earthworks. Also, earthworks will be restricted to dry periods where there is less water.²² As noted above, we would like to explore the potential to route this drain, known as Drain "k" through the offset wetland to be constructed at the southern end of the site.

A number of birds, including threatened or at risk species such as the matuku-hūrepo / Australasian bittern have been observed or are known to use all 3 sites and surrounds, therefore avifauna habitat has been assessed as having high to very high value across the sites. Boffa Miskell have identified the primary impact on birds will be habitat loss across all Sites (particularly in Site 1). This would occur as a result disturbance during enabling earthworks and possible temporary or permanent displacement of resident birds and a reduction in the extent of wetland habitat. The magnitude of effects on birds has been assessed as high during construction reducing to moderate during the operational phase provided appropriate mitigation measures are implemented. We refer to our previous comments with regard to wetlands and the need to address design and construction of these as soon as possible to avoid mitigation delays/lag time issues.

An issue raised during hui and subsequent workshops with MEL related to birds co-existing with solar panels and how the proposed farm might influence their behaviour or even pose a collision risk for them. Boffa Miskell have acknowledged that large solar farms are a novel feature in the New Zealand environment, and the responses of native fauna to these features and the changes to the microclimate as a result of their installation are largely unknown. It has been recorded that the reflective surfaces of

²¹ Draft AEE. Reyburn and Bryant.

²² Draft AEE. Reyburn and Bryant.

panels can present as a 'lake effect', potentially leading to collisions with the structures when fauna attempt to land, feed or drink.

However, based on overseas research the avifauna experts have concluded that the risk is low provided that appropriate management is in place. Management of potential effects on avifauna has been recommended to include;

- Vegetation clearance being required to be undertaken outside of the main breeding/nesting season for matuku-hūrepo and weweia, which is typically August to February.
- No earthworks in the vicinity of prospective nesting sites that have not been cleared prior to breeding season and staging to ensure all 3 sites are not cleared simultaneously.
- Development of a Native Bird Management Protocol.
- Development of a Pest Management Plan for implementation to enable ongoing control of mammalian predators to offset for the potential and actual effects on avifauna and help species re-establish within the sites post-construction and improve survival rates.
- A Monitoring programme including development of an Avifauna Collision Risk Monitoring Plan to include two years of post-construction surveillance at the solar farm to detect and assess the impact (if any) on avifauna due to panel collision. If monitoring accords with the prediction that the level of effect is Low or less than Low, then no further action will be required, otherwise an avifauna management plan will be developed to provide the methods and any ongoing monitoring required to ensure that the level of ecological effect on avifauna does not exceed a Low level of effect. Potential management methods included in the avifauna management plan to manage such effects will be required to be species-specific and responsive to observations made during the monitoring programme. This may include potential collision deterrent/prevention intervention methods, such as use of deterrent devices or visual warning devices to deter attempted landing on panels;; and direct manipulation of habitat onsite if mortalities were linked to particular habitat features onsite.²³
- Final project design and methodology should consider staging of works across the three sites, so not all sites are cleared simultaneously.

Further, there may be potential for mokomoko/native skinks to utilise grassland areas within the approved BESS and proposed Solar Farm area, and a lizard surveillance and salvage protocol has also been recommended prior to commencement of earthworks to minimise the likelihood of lizard mortality. We have had the opportunity to review the Lizard Management Plan (LMP) ²⁴ by Boffa Miskell dated 25 July 2023 and support the methodology proposed to mitigate potential effects on lizards. The plan is silent on how Patuharakeke can be involved in its implementation. In order to fulfil our kaitiakitanga role, we recommend any LMP conditions of consent include an invitation for PTB to participate in salvage and transfer, post-release monitoring, ongoing predator control at the release site and review of and access to any related reporting.

Potential roosting trees for pekapeka or Long-tailed bats have been identified in the vicinity of the project site. We agree with Boffa Miskell that a precautionary approach should be taken, therefore bats are assumed to be present and a bat management plan is required to ensure any potential effects on bats are low. This would include;

- An acoustic survey to determine whether bats are present on the site and if so, use of a bat roost protocol prior to felling.
- Replacement planting will be required to restore connectivity within the landscape.
- If existing potential roost trees cannot be retained, bat boxes to be provided to fill in the time lag until replacement trees reach sufficient maturity to naturally form roost features.
- Predator control will be required where retained or replacement roost features are present.

²³ During workshops the parties also discussed the possible use of limitations on angle or orientation of solar panels over defined spatial, temporal scales, or environmental conditions if collisions were able to be attributed to any of these matters. However, this potential intervention was determined not to be practicable eg. for fixed arrays the angle and orientation of the arrays cannot be changed and limitations to the tilt angles of tracked arrays could significantly effect the performance of the solar farms and again, the orientation of a tracked system cannot be changed once it is installed.

²⁴ Lizard Management Plan. Boffa Miskell.

Management plans

Meridian and their experts have listed the following management plans in the Draft AECE²⁵, and AEE²⁶ in which PTB seek to co-develop and further review:

- Wetland Restoration and Management
- Native Bird Management Protocol
- Avifauna Management Plan
- Lizard Management Plan
- Bat Management Plan
- Pest Management Plan
- Screen Planting Concept Plan
- Construction Environmental Management Plan (CEMP)
- Erosion and Sediment Control Plan

Note: some of these plans are relevant to other sections of this report (eg. social effects etc).

Environmental ethics

At both hui the topic of environmental ethics was raised. Meridian has assured PTB that there is RFI process, audits, and quarterly sustainability meetings that are opportunities for Patuharakeke to engage in, and a report can also be provided if required. Meridian monitors Quality Assurance for sourcing materials. Meridian has made a public statement that no main generation asset (battery, solar panel or wind turbine) will go to landfill. In their contracts they specify that an end-of-life solution is required for reuse or recycling. They are yet to confirm what this will look like, and PTB seek to receive a reuse, recycling or exit strategy.

Solar panels have a design life of 30 years or more. Thus, the vast majority of solar panels installed both in NZ and globally are still operating. This means that most solar panels are not currently recycled. However, there are a growing number of solar panel recyclers and an increasing amount of R&D in the recycling process. Thus, as more solar panels (including large grid scale installations) eventually reach the end of life the recycling market will inevitably increase. Recycling of solar panels is a commitment for Meridian.

Conclusions – Environmental Effects:

In the main we consider the project aligns with most relevant HEMP provisions and Te Pou Taiao aspirations for the environment as kaitiaki and ahi kā. We generally concur with the findings of the Boffa Miskell report with respect to freshwater values, effects and taonga species. We believe the proposed retention and enhancement of a minimum of 2 ha of open water pond wetland habitat on Site 1 and the 11ha offset proposed for site 3, along with other proposed planting and pest control will be of benefit to taonga species.

We have identified that effects in relation to repo and taonga such as matuku-hūrepo could potentially be more than minor. As such, Patuharakeke will need to review and provide input into the final version of the management plans listed above to ensure potential environmental effects, particularly on wetlands, are kept to a minimum and to enable us to carry out our kaitiakitanga responsibilities. Further MEL and PTB as relationship partners are committed to exploring further opportunities test the optimal layout for Site 1 or Site 3 in terms of wetland retention/creation. This will support us to uphold te mana o te wai, the intention of the NPS-FM and the provisions of Section 6 of our HEMP and mitigate the potential effects identified to an acceptable level.

5.2 Cultural Effects

Wāhi Tapu and tūpuna/Archaeological sites

²⁵ Draft AECE version 8. Boffa Miskell.

²⁶ Draft AEE. Reyburn and Bryant.

Archaeological sites are a most precious taonga to Patuharakeke; these sites place Patuharakeke in this area over a long period of time and effects on any site is of great concern to our hapū. Meridian commissioned Geometria to undertake an archaeological assessment in relation to the Ruakākā Energy Park site.

There are six recorded archaeological sites in the vicinity of Site 1 (on and within 100m of the site). All are midden and four are located near the southern boundary, with the fourth located on the other side of Port Marsden Highway opposite the BESS site. There are three recorded archaeological sites in the vicinity of Site 2 and 3, between 120 and 350m from the nearest boundary. There is one pa site, one storage pit site, and one known midden.²⁷

The assessment of Site 1, Site 2 and Site 3 notes that archaeological sites have been recorded immediately adjacent to the subject property. However, there may be unrecorded archaeological sites in the project area that are not amenable to identification from observation of the existing ground surface, and therefore an archaeological authority is recommended for any ground disturbing activity in the project area which might modify or destroy archaeological sites, or where there is cause to suspect such sites may be modified or destroyed.

At Site 2 and Site 3 of the Ruakākā Energy Park there is a low likelihood of archaeological effects.

At Site 1 of the Ruakākā Energy Park there are potential archaeological effects based on the current plans. Furthermore, midden site Q07/1501, a new archaeological find recorded July 2023, is assessed as being of moderate significance (Figure 10 below). This midden is within an area scheduled to be earthworked for the solar panel arrays and is adjacent to proposed internal access ways. The macrocarpa windbreak on the boundary with the adjacent lot to the east is to be removed and this may also affect the site if not undertaken carefully. There is a strong likelihood of other archaeological effects on features adjacent to and associated with the midden and given the presence of the site there is a moderate likelihood of other sites being present in the project area which will need to be managed appropriately. Q07/1165 midden which may be on Site 1 but could not be relocated, may also be affected.

Fortunately, during the second workshop with MEL, the discovery of midden Q07/1501 was discussed and there was agreement that this feature should be avoided and the arrays can be removed from this location. Besides decreasing cultural impacts that would result from the destruction of the site, its retention further increases the value of the eastern “corridor” of ecological and cultural significance that connects the wetland through to the kanuka block and is earmarked for potential return to and management by ahi kā kaitiaki. This will provide opportunities for the hapū to connect to the site and work to enhance the mauri of this part of the cultural landscape, along with our own ahurea cultural design and interpretation development aspirations, and is strongly supported. This provides an opportunity to provide local kōrero to the site. Preservation of such sites is increasingly important as a number in the coastal dunelands have been lost to the effects of climate change, most recently during Cyclone Gabrielle.

These findings triangulate oral kōrero passed down by our tupuna, ie. supporting the historic tradition of this area and Te Akau/Tupehau/Bream Bay as a nohoanga/ seasonal site used for harvesting and processing of kaimoana.

²⁷ Archaeological Assessment Site 1, 2, 3. Geometria Ltd.

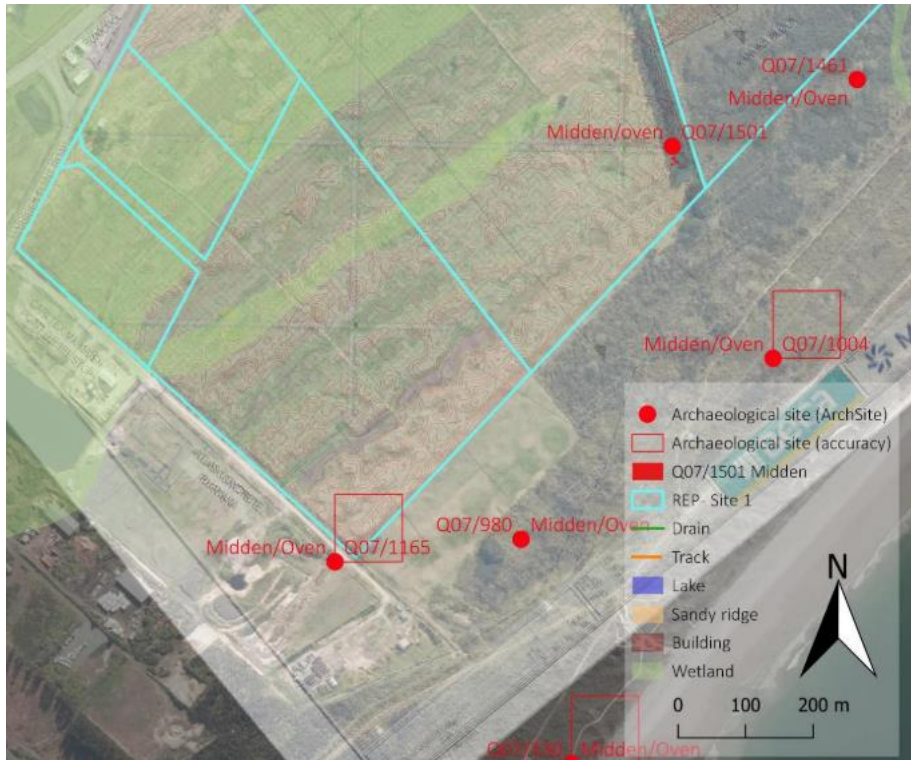


Figure 10: New archaeological site (Q07/1501) on Site 1, recorded July 2023

Overall, we agree with the recommendations of the Geometria report and further consider that should the proposal be consented, a programme should be implemented relating to the protection of the cultural and heritage landscape in Te Poupouwhenua, Te Akau and Tupehau. In line with the policy direction of our HEMP, this can provide for appropriate management of potential effects on archaeology, cultural landscape, wāhi tapu and wāhi taonga, led by PTB and informed by mātauranga Māori to cover such matters as;

- A Patuharakeke Accidental Discovery Protocol (ADP) covering discovery of Koiwi Tangata/Human Remains, artefacts and tikanga to be observed.
- Cultural Induction/Archaeological site identification training for contractors.
- Resourced kaitiaki monitoring during earthworks programme.
- A cultural heritage research and interpretation plan for Midden Q07/1501 and its surrounds

Cultural Landscapes

Potential effects are not limited to archaeological or heritage sites. Poupouwhenua is a significant ancestral site. While cultural landscape and seascape in the area is already substantially altered from a visual perspective, the adjacent dune system and beach still retains much of its character. This assessment focuses on the effects of the Ruakākā Energy Park Solar Farm on the cultural landscape. We held concerns that the solar arrays could present as a very large, uniform solid “block” or mirror, or lake, that is unable to be mitigated because the usual landscape planting requirements are incompatible with the panels due to shading. This concern partly drove our desire to visit the Kea Energy’s Wairau Valley Solar Farm in Blenheim with MEL staff. The site visit was very useful for gaining a perspective of what the panels and arrays and ancillary structures such as inverters/boxes will look like (including examples of Fixed Tilt Solar arrays and Single Axis Tracking Arrays). The Kea farm is however a 2.2 MW facility (albeit the largest currently constructed in Aotearoa) so it proved quite difficult to extrapolate what a 130MW farm will look like and it was not possible to view it from an elevated position. However, we generally concur with the findings and recommendations of the Littoralis Landscape, Visual Amenity and Rural Character Assessment²⁸ and proposed planting plan²⁹. We have indicated to Meridian that low-level planting could be incorporated along the SH15 road frontage to

²⁸ Landscape, Visual Amenity and Rural Character Assessment. Littoralis Landscape Architecture.

²⁹ Planting Concept. Littoralis Landscape Architecture.

soften the road/site interface as well, even though it is not required for the Heavy Industry zoning at Site 1 and does not appear in the proposed planting plan at this point in time.

We consider the offset wetland will have significant benefit from a cultural landscape in essentially recreating part of the traditional “Lake Ruakākā” wetland and do not foresee any impacts on viewshafts to, from or between our tūtohu or cultural landmarks.

We further note that unlike some other industries and development in our rohe, placement of the solar arrays does not constitute a permanent effect or sterilise the land for future use. They can eventually be removed if necessary or updated in the event of technological advancement and change. There remain opportunities for dual or other use on each site, whether it be sheep grazing, horticulture/agriculture and/or possibly the land-based disposal options discussed earlier.

An important component of the cultural landscape is the ahi kā within it and the continuation of customary practices and kaitiakitanga both in a traditional and contemporary sense. PTB consider that through our relationship agreement, existing mahi with Meridian associated with the BESS and future collaboration opportunities through the implementation of management plans and joint initiatives, our connections, visibility and presence within this important cultural landscape can be enhanced.

Conclusions – Cultural Effects:

Avoidance of the wāhi tūpuna (midden) recently recorded on Site 1 and adherence to the Archaeological recommendations will significantly decrease the likelihood of adverse cultural effects. Maintaining an eastern corridor connecting the kanuka block and wetlands and incorporating this heritage site will enable hapū access to care for this part of the cultural landscape. It will provide opportunities for intergenerational knowledge transfer and collaboration with other experts (eg. around archaeological research and preservation) and development of any further cultural design and interpretation that may be desired.

Secondly, from the available information, it appears as though viewshafts to our maunga, motu and other tūtohu will not be adversely impacted by the proposal. The wetland enhancement and restoration proposed will help to strengthen cultural landscape values and help revive traditional and historical landscape. This would of course further benefit from the retention of more of the wetlands on Site 1 or reinstatement of further wetlands/native vegetation (above and beyond that proposed as offset) on Site 3.



Figure 11: Photos from Site Visit to Wairau Valley Solar Farm June 2023

The loss of wetland extent and value has the potential to flow on to effects beyond te mana o te wai, to affect taonga species and in turn, our whakapapa relationships and our mana, mātauranga and tikanga as kaitiaki and ahi kā which are cultural effects with the potential to be more than minor. We have covered measures to address this in the “environmental effects conclusions” above.

Further, as recommended above MEL should resource a cultural landscape and interpretation plan and programme to be undertaken by kaitiaki to provide a vehicle (alongside other management plans) to assist in the protection of cultural landscapes throughout the construction and operation of the Solar Farm. We are confident that this can be achieved through implementation of our Relationship Agreement.

5.3 Social Effects

The marae community within our rohe does not figure highly in socio-economic status. The community is relatively isolated compared with urban areas and locals pride themselves on their independence,

resilience and strength of community. These factors combine to give this community its identity. Part of that identity includes a close association with its natural environment. These features are of high value to Patuharakeke. We wish to acknowledge that Meridian has entered into a constructive dialogue and relationship with Patuharakeke that extends across to our other entities and wider marae and kainga. MEL has worked with the Takahiwai Marae Committee to undertake an energy audit of the Marae, including assistance with current solar power system issues, and provided advice on how to enhance energy security in the event of future civil disasters and Northpower grid failures. Assistance with repairs to the kaumatua flats following cyclone damage have been offered and a fund set up for post cyclone support for Patuharakeke, Te Parawhau and Ngātiwai.

Several potential social effects cross over with environmental and cultural effects alluded to above. For example, the health of our repo, awa and Te Akau/Bream Bay and the health of our people are interconnected and inseparable. The cumulative effects of development on these resources impact the spiritual and physical health of mana whenua ahi kā.

Noise

Temporary noise effects are expected during construction and will be managed through a construction management plan (CMP). The key operational noise source would be from 28 inverters.³⁰ The proposed solar farm would only operate during daylight hours and predominantly during the Whangārei District Plan prescribed daytime period of 7am to 10pm. However, in summer, operation could start before 7am. Attenuation of some of the inverters will be considered if required to ensure compliance with the permitted activity limits within the District Plan for the subject sites' corresponding zones.

Visual effects

Meridian has provided an assessment of potential glint and glare impacts associated with Site 3 (being in the Rural Production Zone).³¹ Although most PV solar panels have anti-glare coatings to minimise glare as much as possible there is always some residual glare present.

For Site 3 the results³² indicate that two adjacent dwellings off McCathie Road could potentially be impacted by glare if no mitigation measures such as landscape plantings to screen the effect are implemented. The report recommended that mitigation measures are required either in the form of landscape plantings of 5m, or earthen bunds, or a combination of both.

As previously mentioned in respect of avifauna and cultural landscape effects, we held concerns as to how the large arrays may be perceived in the landscape. MEL has assured us there is a distinction as the installations will be low lying and separated from the ground, the ground could act independently from the panels, and therefore it won't read as a solid mass. While research in New Zealand about the "Lake effect" is low, the Mr Farrow has advised: "whilst visually consistent, the panels would follow the landform to some extent, so would not have a consistent top level. They would also be divided by spaces between each bank of panels and by access tracks, so these would further break any impression of the farm creating a 'lake'".³³ Littoralis has confirmed that visual, landscape and natural effects will not arise for Takahiwai residents. For our wider community living near Site 3, some elevated properties may experience minor to moderate effects as they will "look down" onto Site 3 and proposed screen planting will not be able to remedy this. However, these homes currently experience a wide vista including existing development and their views to Bream Bay and Whangārei Terenga Parāoa will not be impeded.

In addition to its cultural landscape value, we also strongly agree with the Littoralis assessment that the offset wetland on Site 3 "*represents a significant commitment to ecological enhancement that equally carries considerable benefits for landscape character and visual amenity values. Its position close to the adjacent Ruakākā River heightens its spatial relatedness, whilst its proximity to the Ruakākā Town Centre,*

³⁰ Assessment of Noise Effects. Marshall Day Acoustics.

³¹ Solar Glare Impact Assessment Site 3 Consent for Proposed Ruakākā Solar Farm. Velden Aviation Consulting Ltd. Based on fixed tilt and SAT (tracked systems).

³² Solar Glare Impact Assessment Site 3 Consent for Proposed Ruakākā Solar Farm. Velden Aviation Consulting Ltd.

³³ Appendix 1.

open space area and Bream Bay College is also opportune.”³⁴ The potential for public access with a boardwalk is something we would also support given the opportunity to engage the kura and our tai tamariki in education, advocacy and the wetland restoration process generally. Incorporating local kohanga, kura, and schools to participate in the implementation of the wetlands will be a key part in supporting the community.

Ethics

As mana whenua ahi kā, PTB wants to ensure there is no occurrence, whether it be direct or indirect, of modern-day slavery in the production, construction or operation of the Ruakākā Energy Park and Solar Farm. Meridian signed up to the Australian modern day slavery legislation in 2019 and have remained compliant since, with the legislation applicable to its operations in both the Australian or New Zealand market. Further, in 2023 it became a requirement for Meridian contractors to complete and comply with a modern slavery questionnaire, prior to engagement.

Provided are a list of documents held by MEL relevant to this assurance³⁵:

- a. Modern slavery policy
- b. Corporate sustainability team quarterly review
- c. BESS quarterly Env & Sust audit
- d. Stipulations within EOI and RFP packages
- e. Contractor responses
- f. Conflict minerals disclosure – from battery supplier

Conclusions – Social Effects:

Overall, we did not identify any potential social effects associated with MEL’s proposal that would be more than minor in magnitude. The ethical concerns outlined and answered above will be able to be dealt with on an ongoing basis through our Relationship Agreement. Other potential social effects we believe will be adequately covered by the management plans as proposed or are covered off under other wellbeings (eg. economic effects below).

5.4 Economic Effects

Power supply

It is acknowledged that the Ruakākā Energy Park Solar Farm will likely assist with adding increased power supply and resilience to the North Island, smooth the supply/demand distribution and possibly have some small positive benefit on regional and national power prices. This smoothing of peak periods will also help to facilitate the operation of more renewable generation in the electricity system which will mean less reliance and over time lead to elimination of the use of fossil fuel such as gas and coal to generate electricity. These effects are seen as positive and align to other sections of our HEMP, particularly section 4.2 on Climate Change which we have addressed earlier. Overall, we agree with Meridian that improving grid reliability, increasing South-North Island power flows, and storing electricity for use when demand is high and renewable energy generation is low, will assist in enabling people and communities to provide for their social, economic and cultural wellbeing. Further, through the vehicle of our Relationship Agreement we are already exploring opportunities for a more local distributed network, and marae and kāinga needs as regards energy sovereignty.

Asset resilience

During the hui-a-hapū, an issue raised by whānau was “what does asset resilience look like in extreme weather events?”³⁶ We understand it is confirmed impossible to design against a tsunami at sea level, where Site 1 sits at 2-5m elevation, Site 2 at 8m or greater, and Site 3 between 1.5m and 3.5m. Meridian has informed PTB regarding the solar farm performance in high winds and cyclone events:

- The battery site has been raised above natural ground to the level required to cope with a 1 in a 1000-year flood event.
- Meridian is choosing to install galvanised brackets on the battery containers, which will connect the

³⁴ Landscape, Visual Amenity and Rural Character Assessment. Littoralis Landscape Architecture.

³⁵ Appendix 1.

³⁶ Appendix 1.

- battery containers to their concrete foundations and secure the containers in the event of a seismic event or cyclones and reduce impacts during a tsunami.
- Solar arrays can be designed to withstand cyclonic winds.

Employment

PTB have often been critical of our experience over the last half century of industry at Poupouwhenua where we have not shared in the economic benefits gained from past development of the area. However, through implementation of the relationship agreement with Meridian, we envisage there will be opportunities to explore pathways for training and employment for our people and community as a result of this project - at least during the construction phase and potentially in a maintenance or similar capacity going forward. As per the discussion on Treaty principles in section 4.4 of this report, this kōrero should be genuine and address meaningful and mutually beneficial partnership opportunities at multiple levels with Patuharakeke as ahi kā of this area.

Meridian have stated that the workforce for solar farm construction – (over a period of approximately 12-18 months) would be significant. However, the operational team would be smaller. Meridian confirmed the following main pieces/areas of work:

- Main contractor – install solar piling and panels and inverter stations etc.
- Earthworks contractors
- Electric contractors for cabling and overhead line
- Facilities maintenance contractors

Meridian have indicated interest in discussing training and employment pathways in partnership with hapū. At the first hui, it was agreed a capabilities conversation should be held with PTB, Te Parawhau and Ngātiwai on skills within the various hapū/iwi and how these align to solar construction opportunities. It was identified in hui discussions that it is the contractors who employ labourers and trades on these projects, not Meridian. As such, another area for discussion would be around social procurement/tender/recruitment processes and how we are resourced to be involved in those to help support employment and business opportunities for whānau and local community.

Environmental monitoring

Ongoing and increased opportunities for cultural and environmental monitoring programmes as recommended above can also provide contemporary means of exercising mātauranga Māori and kaitiakitanga and assist us in maintaining the viability of our Taiao Unit and other strategic pou including the training of our rangatahi/tai tamariki. The hapū is also in the process of designing our own future native nursery and team of skilled kaitiaki able to undertake planting, fencing, pest and weed management and the like for this project and others in the rohe. Development of a partnership with Patuharakeke to implement restoration and landscaping programmes and long-term maintenance is also seen as a method of realising positive economic benefits to the hapū and local community. Meridian have also offered to host our Pou Taiao team and key staff or interested whānau from Patuharakeke, Te Parawhau and Ngātiwai at the Harapaki Wind Farm construction site to learn more about such opportunities.

Funding Opportunities

MEL has outlined that for each of their construction projects a panel of local residents, including hapū representatives is established to assess and distribute Meridian's annual "Power Up" fund towards community betterment projects. This will be set up for the Ruakākā Energy Park and Solar Farm.³⁷ We have already acknowledged the social benefits advanced through the Marae energy audit and post cyclone support that MEL have offered.

Conclusions – Economic Effects:

In economic terms there will likely be positive impacts for local businesses and job seekers (including whānau members) as a result of the construction of the solar farm. MEL are open to exploring ways to amplify this ie. by assisting with a skills/capacity audit and education and employment pathways

³⁷ Appendix 1.

planning as per our strategic pou. Other opportunities are available through funding. The potential return of the kanuka block and wetland areas to the hapū sits better as a form of cultural mitigation and helps to acknowledge the past effects of land loss and inappropriate development. Mahi associated with this will likely help to maintain the viability of PTB's Pou Taiao Unit, other Patuharakeke strategic pou themes including supporting whanau businesses, however it is whenua that will be preserved for ecological and cultural purposes, not for economic development.

The position of MEL in relation to their status as not being a Crown entity does not easily reconcile with the views of Mana Whenua who see Meridian as precisely that. Despite this, we conclude that overall the project is likely to support our Pou Whaioranga Economic Pou and ensuring an effective relationship with MEL going forward should enable us to collectively seek opportunities that will support hapū economic development.

6. Recommendations

Potential measures to avoid, remedy or mitigate adverse effects:

Where an activity results in more than minor adverse effects on the environment, section 5 of the RMA requires that these be avoided, remedied or mitigated. For the most part, the proposed methodology for construction of the Ruakākā Energy Park Solar Farm and its outcomes will avoid or mitigate potential ecological, cultural and socio-economic effects on Patuharakeke so that they will be no more than minor. This is on the proviso that;

- a) Appropriate consent conditions are imposed to ensure the recommendations of the relevant technical reports are implemented;
- b) A consent condition is included providing for co-development and further review and adaptive management of the following plans:
 - Wetland Restoration and Management
 - Native Bird Management Protocol
 - Avifauna Management Plan
 - Lizard Management Plan
 - Bat Management Plan
 - Pest Management Plan
 - Screen Planting Concept Plan
 - Construction Environmental Management Plan (CEMP)
 - Erosion and Sediment Control Plan
- c) A consent condition is included providing for co-development and implementation of a Cultural Landscape and Interpretation Plan and Programme

Notwithstanding this, we have identified that effects on wetlands (and resulting cultural effects) could potentially be greater than minor. The NPS-FM introduces offsetting to the effects management hierarchy when avoidance of effects is not practicable, to ensure no net loss of freshwater values. In order to ensure effects on repo can be managed to an acceptable level, in addition to the offsetting proposed by MEL, we recommend that;

- d) In our Relationship Agreement, MEL commit to ongoing joint discussions and agreeing on goals and outcomes with PTB to; explore the final layout of Site 1 and Site 3 at detailed design stage to ascertain if further minimization of wetland loss can be achieved in line with the NPS-FM and section 6 of our HEMP, and to discuss and agree on outcomes that meet the broader Patuharakeke Strategic Pou issues outlined in this report;

Finally, we recommend that;

- e) The content and recommendations contained in this report be received and agreed to by Meridian and the Consent Authorities.

7. Reference List

Clarke, G. M. (2001:2). *More Than Just A Little Island (A History of Matakohē Island)*.

Gudex, G. (2013). *Brief of Evidence to the Waitangi Tribunal: Te Paparahi o te Raki District Inquiry*. Whangarei, October 16 2013.

Phillips, C. (2005). Marsden B Power Station Re-Powering Project: Archaeological Assessment Report. Auckland.

Pirihi, P. (2013). *Brief of Evidence to the Waitangi Tribunal: Te Paparahi o te Raki District Inquiry*. Whangarei, October 16 2013.

Technical reports

Beca Limited. (24 May 2023). Acid Sulphate Soils Desktop Information Review.

Beca Limited. (1 June 2023). Civil Design Report: Ruakākā Energy Park Solar Farm Consent Design. Prepared for Meridian Energy Ltd.

Beca Limited. (June 2023). Civil Drawings. Prepared for Meridian Energy Ltd.

Beca Limited. (June 2023). Consent Drawings. Prepared for Meridian Energy Ltd.

Beca Limited. (2 June 2023). Engineering Alternatives and Optimisation Report - Ruakākā Energy Park Solar Farm. Prepared for Meridian Energy Ltd.

Beca Limited. (31 May 2023). Erosion and Sediment Control Plan (ESCP): Ruakākā Energy Park Solar Farm. Prepared for Meridian Energy Ltd.

Beca Limited. (31 May 2023). Preliminary Geotechnical Assessment Report: Ruakākā Energy Park Solar Farm. Prepared for Meridian Energy Ltd.

Beca Limited. (1 June 2023). Ruakākā Flood Modelling: Ruakākā Energy Park Solar Farm Consent Design. Prepared for Meridian Energy Ltd.

Beca Limited. (2 June 2023). Solar Optioneering Design Basis Report, Ruakākā Energy Park Solar Farm. Prepared for Meridian Energy Ltd.

Boffa Miskell. (9th June 2022). Assessment of Ecological Effects Ruakākā Energy Park – Battery Energy Storage System. Prepared for Meridian Energy Limited.

Boffa Miskell. (3 July 2023). DRAFT Ecological Effects Assessment [version 8]. Prepared for Meridian Energy Limited.

Boffa Miskell. (25 July 2023). Lizard Management Plan, Ruakaka Energy Park. Prepared for Meridian Energy Limited.

Geometria Ltd. (March 2022). Archaeological Assessment of the Proposed Battery, Substation and Solar Farm. Marsden Point Road, Marsden Point. Meridian Client Report (Unpublished).

Geometria Ltd. (June 2023). Archaeological Assessment of the Proposed Ruakākā Energy Park – Site 1, 2 and 3. Prepared for Meridian Energy Limited.

Littoralis Landscape Architecture. (June 2023). Landscape, Visual Amenity and Rural Character Assessment.

Littoralis Landscape Architecture. (June 2023). Attachments.

Littoralis Landscape Architecture. (June 2023). Planting Concept.

Marhsall Day Acoustics. (2 June 2023). Ruakaka Solar Farm Assessment of Noise Effect.

Meridian. (10th June, 2022). Resource Consent Application – Earthworks for Building Platform to support Grid Scale Battery, Ruakākā Energy Park, Rama Road/SH15A, Ruakākā.

Reyburn and Bryant. (July 2023). Draft AEE. Prepared for Meridian Energy Ltd.

Velden Aviation Consulting Ltd. (30 June 2023). Solar Glare Impact Assessment Site 3 Consent For Proposed Ruakaka Solar Farm. Prepared for Meridian Energy Ltd.

Websites

Patuharakeke Te Iwi Trust Board. (2014). <http://patuharakeke.maori.nz/te-taiiao-environment/hemp/>

Te Aranga. (2008). http://www.tearanga.maori.nz/cms/resources/TeArangaStrategy28Apr08_lr.pdf

LAWA. (n.d). <https://www.lawa.org.nz/explore-data/northland-region/river-quality/ruakaka-river/ruakaka-at-flyger-road/>

RMA. (1991). <https://legislation.govt.nz/act/public/1991/0069/latest/DLM230265.html>

National Wetland Trust. (2020). https://www.wetlandtrust.org.nz/wp-content/uploads/2021/02/ROOT-CAUSES-OF-WETLAND-LOSS-IN-NZ_Jan-2021.pdf

8. Appendices