6 September 2023

Attention: Katie Martin
Whangarei District Council

Attention: Stuart Savill
Northland Regional Council

Dear Katie and Stuart

Ref. 16782.blh

RE: MERIDIAN ENERGY LIMITED – PROPOSED SOLAR FARM

Please find **attached** applications for resource consent to both the WDC and NRC.

Please note that the Patuharakeke CEA is still in draft format and will be finalised in the week following a hui planned for 15th September 2023 (a placeholder has been included in the meantime). An email from Patuharakeke confirming their acceptance of lodging without the report is **attached.**

Yours faithfully

Brett Hood
Director

Encl. Application/Patuharakeke email

Reyburn and Bryant

From: Benjamin Mossman <Benjamin.Mossman@meridianenergy.co.nz>
Sent: Wednesday, 6 September 2023 9:58 AM
To: rmu patuharakeke; Brett Hood
Cc: David Milner; Andrew Guerin; Micah Sherman
Subject: RE: [EXTERNAL] MEL /Ruakākā Energy Park Solar farm proposal - PTB CEA

Ngā mihi, Juliane!

Benjamin Mossman
Renewable Development Programme Manager
M. +64 27 6677 626

From: rmu patuharakeke <rmu@patuharakeke.maori.nz>
Sent: Wednesday, September 6, 2023 9:57 AM
To: Benjamin Mossman <Benjamin.Mossman@meridianenergy.co.nz>
Cc: David Milner <dave@kahuenviro.co.nz>; Andrew Guerin <andrew.guerin@meridianenergy.co.nz>; Micah Sherman <micah.sherman@meridianenergy.co.nz>
Subject: [EXTERNAL] MEL /Ruakākā Energy Park Solar farm proposal - PTB CEA

Kia ora Benjamin

As per our discussion this morning, I can advise that PTB have no concerns with Meridian lodging their consents for the above proposal this week without our Cultural Effects Assessment attached - on the basis that it will be provided later. The CEA is in final draft format and due to one of the authors of the document being overseas we have been unable to hold our last planned workshop to complete the assessment. We anticipate being able to provide the CEA to Meridian and the consenting authorities during the week of 18th September.

Ngā mihi
Juliane Chetham

--

Resource Management Unit
PO Box 557, Whangarei
Office: 8 Marsden Bay Drive,
Marsden Point, Ruakaka 0171
www.patuharakeke.maori.nz
facebook.com/patuharakeketeiwitrust

Application No.: ..... **PO:** .....
Office Use Only

Application for a Resource Consent – Resource Management Act 1991

This application form must be provided with applications to the council for new and replacement resource consents, and changes to the conditions on an existing resource consent.

If you would like to talk or meet with a consents officer to discuss your application prior to lodging with the council, please phone **0800 002 004** or email request to **info@nrc.govt.nz**.

PART 1: Administration Matters

1 **Full Name of Applicant(s)** *(the name(s) that will be on the resource consent document)*

Surname: .....

First Names: .....

OR

If the application is being made on behalf of a trust, the Trustee(s) who has/have signing authority for the trust must be named.

Trust Name: .....

Trustee's Name(s): .....

OR

Company Name: Meridian Energy Limited .....

Contact Person: **Andrew Guerin** .....

Email address: **andrew.guerin@meridianenergy.co.nz** .....

Please Note: ***If an email address is provided, then all correspondence for this application will be via email.***

Postal address: .....

Telephone: *(please tick preferred contact number)*

☐ Residential ..... ☐ Business .....
☑ Mobile 027 8011 255 .....

Northland REGIONAL COUNCIL
Te Kaunihera ā rohe o Te Taitokerau

2 Details of the Address for Service of documents if different from the Applicant (e.g. Consultant). This address will be used for all documents if completed.

Company Name: Reyburn and Bryant

Contact Person: **Brett Hood**

Email address: brett@reyburnandbryant.co.nz

Please Note: ***If an email address is provided, then all correspondence for this application will be via email.***

Postal address: PO Box 191, Whangarei 0140

Telephone: *(please tick preferred contact number)*

☐ Residential ☑ Business 09 438 3563

☑Mobile 021609798

3 Invoices

Charges relating to the processing of this resource consent application should be sent to:

☑ Applicant ☐ Address for service

Charges relating to the ongoing monitoring of a resource consent should be sent to:

☑ Applicant ☐ Address for service

4 Name and Address of all Owners/Occupiers of the Site relating to Application if different from the Applicant

Owner(s):

Postal Address:

Telephone: *(please tick preferred contact number)*

☐ Residential ☐ Business

☐ Mobile

Occupier(s):

Postal Address:

Telephone: *(please tick preferred contact number)*

☐ Residential ☐ Business

☐ Mobile

Please Note: ***If the applicant is not the owner of the land to which the activity relates, then it is good practice to submit the application with written approval from the landowner.***

5 Extending Timeframes

The Resource Management Act 1991 (RMA) specifies timeframes for processing resource consent applications (e.g. 20 working days for a non-notified application); however, these timeframes can be extended, if necessary, with the Applicant's agreement. If the council does not meet these timeframes, then it is required to refund 1% of the total processing cost of the application for each day it exceeds the timeframe up to a maximum of 50%.

Do you agree to the council extending RMA resource consent processing timeframes?

☐ **Yes**, provided that I can continue to exercise my existing resource consent until processing of this application is completed.
(Replacement application only. No refund is required to be paid until after the existing resource consent expires.)

☑ **Yes**, provided that the extension is for the specific purpose of discussing and trying to agree on resource consent conditions.

☐ **Yes**, provided that the application process is completed before this date (dd/mm/yy):

☐ No.

6 Deposit Fee

An initial minimum fee is payable with this application. These fees can be found on the council's website www.nrc.govt.nz – **Schedule of Minimum Estimated Initial Fees** information. Please contact council consents staff if you need assistance with determining the correct minimum initial fee.

Unless agreed to prior to lodging your application, the council will not commence processing your resource consent application until payment of the minimum initial fee is received (i.e. the statutory processing time for the application will not start).

This minimum initial fee may be paid online, by cheque, or by EFTPOS at one of the council's offices.

Instructions for paying online can be found on the council's website at "Pay online". Please use either the first six numbers of your resource consent (e.g. CONXXXXXX or AUT.XXXXXX), if known, or the Applicant's name as the Reference/Customer number when paying online.

If you do pay online, then please enclose evidence of payment so that the council is aware that the payment has been made.

If the costs of processing the resource consent application are greater than the minimum estimated initial fee, then the applicant will be required to pay the additional actual and reasonable costs of processing the application.

Note: Annual User Charges for Resource Consent Holders

Holders of resource consents will in most cases be required to pay a "Minimum Annual Charge" for administration of the resource consent once issued. There is also likely to be additional annual charges for the monitoring of the resource consent, which will be dependent on the type of activity the resource consent is for. These charges are detailed on the council's website www.nrc.govt.nz in the Annual Charges section of the council's **Charging Policy**.

7 Applications for Activities within the Coastal Marine Area (CMA)

Prior to lodging an application with the council to undertake any activity in the coastal marine area (CMA), the applicant is required under the Marine and Coastal Area (Takutai Moana) Act 2011 to notify the application to all groups who have applied for customary marine title in that location, and seek their view on the application. This notification should, as a minimum, include a summary of the application that provides sufficient detail for a group to understand what is being proposed

The council cannot accept an application to undertake an activity in the CMA unless the applicant for the resource consent provides evidence of this notification occurring. A response from customary marine title groups is not required by the council.

To ensure you meet the above requirement, you are advised to contact council consents staff to obtain a list of all of the current customary marine title applicant groups within the area where you are proposing to apply for a resource consent.

Information on customary marine titles is available on the **Ministry of Justice/Marine and Coastal Area Applications** website.

8 Consultation

The RMA does not require any person, including the applicant or council, to consult with anyone. It is, however, best practice to do so and will allow the council to make a more informed decision.

It is important to remember that consultation does not require reaching an agreement – it is to allow you and the council to be informed about a person's views. If you do consult, and there are concerns raised that cannot be resolved and you still want to go ahead with your application, then you should have made a genuine attempt to consult with that person(s) in an open and honest manner. Their views should be recorded so they can be taken into account by the council when considering your resource consent application.

PART 2: Application Details

1 Description of Activity

Please describe in detail the activity for which resource consent is being sought.

Construct, operate and maintain a solar energy farm, including solar panels, inverters and Related electrical infrastructure, and ancillary activities such as earth works, transmission lines, control buildings and substations, on three sites located at Marsden Point.

2 Location Description of Activity

Site Address: **SH15, McCathie Road, Marsden Point Road and Rama Road, Ruakaka**

Legal Description: See application A

(Legal description can be obtained from your Certificate of Title, valuation notice, or rates demand)

3 Site Plan

On a separate page *(minimum A4 size)*, please provide a site plan showing the location of the activity, site layout, and surrounding environment in relation to property boundaries. Please include any buildings or developments on the site.

These plans should be provided electronically and be of good quality, to enable use in resource consent documentation.

If you do not have access to mapping software, we recommend you use the council's **"Property and Boundaries"** map available on our website https://localmaps.nrc.govt.nz/LocalMapsGallery/.

This council map contains aerial photography and shows property boundaries and details. You can carry out a property search and print maps of aerial photography.

4 Resource Consent(s) being Applied for

Coastal Permit

☐ Mooring ☐ Marine Farm ☐ Structure

☐ Pipeline/Cable ☐ Other *(specify)*

Land Use Consent

☐ Quarry ☑ Earthworks ☐ Dam Structure

☑ Vegetation Clearance ☑ Construct/Alter a Bore ☐ Structure in/over Watercourse

☑ Other *(specify)* *NES-FW – removal of wetlands for construction of Regionally Significant Infrastructure under Regulation 45*

Water Permit

☐ Stream/Surface Take ☐ Damming ☑ Groundwater Take

☐ Diverting Water ☐ Other *(specify)* .....

Discharge Permit

☐ Domestic Effluent to Land ☐ General Discharge to Land ☐ Farm Dairy Effluent to Land/Water

☐ Air ☐ Water ☐ Other *(specify)* .....

---

5 Is this application to replace an existing or expired resource consent(s)? ☐ Yes ☑ No

If Yes:

(a) Please state the resource consent number(s):

.....

.....

(b) Do you agree to surrender the existing resource consent once a new one has been issued:

☐ Yes ☐ No

---

6 Is this application to change a condition of an existing resource consent? ☐ Yes ☑ No

If Yes, please state the resource consent number(s):

.....

.....

---

7 Please specify the duration sought for your resource consent(s) –
Only for new or replacement applications.

35 years ..... months

---

8 Do you also require consent(s) from a district council? ☑ Yes ☐ No

If Yes, please complete the following:

Type of consent required? Land Use Consent – see application AEE .....

Has it been applied for? (contemporaneously with NRC consents) ☑ Yes ☐ No

Has it been granted? *(If Yes, please attach)* ☐ Yes ☑No

PART 3: Assessment of Environmental Effects (AEE)

1 An AEE must be provided with your application that has been completed in accordance with the requirements of Schedule 4 of the RMA.

As a minimum, your AEE must include the following:

- Description of the environmental effects of the activity.
- Description of ways in which adverse environmental effects can be avoided, remedied or mitigated.
- Names of people affected by the proposal.
- Record of any consultation you have undertaken, including with affected persons (if any).
- Discussion of any monitoring of environmental effects that might be required.
- An assessment of the activity against any relevant objectives, policies, or rules in the Regional Plans.
- For a coastal permit, an assessment of your activity against any relevant objectives and policies of the New Zealand Coastal Policy Statement.
- An assessment of effects on tangata whenua and their taonga.

This AEE needs to be provided in a separate document attached to this application form.

Any activity needing a resource consent will have some environmental effects. The council will not accept an AEE that says there are no environmental effects from the activity.

You will need to complete the AEE at a level that corresponds with the scale and significance of the effects that the activity may have on the environment. Depending on the scale of the activity, you may need to get help from an expert(s) to prepare your AEE.

The council has a set of standard AEE forms for a selection of common activities. These AEE forms do not cover the relevant objectives, policies, or rules in the Regional Plans nor effects on tangata whenua. If you use one of these forms, then you will need to provide a separate assessment of these matters. These AEE forms can be found on the council's website www.nrc.govt.nz – **"Forms and Fees"**.

It is important that you provide the council with a complete and well-prepared AEE, otherwise the council may not accept your application.

If your application is for a change to a condition of resource consent under Section 127 of the RMA, then your AEE only needs to cover the effects of the change being requested.

---

2 Assessment of Effects on tangata whenua and their taonga

The Regional Plan for Northland requires that an AEE must also include an assessment of the effects on tangata whenua and their taonga if one or more of the following is likely:

- Adverse effects on mahinga kai or access to mahinga kai; or
- Any damage, destruction or loss of access to wāhi tapu, sites of customary value and other ancestral sites and taonga with which Māori have a special relationship; or

- Adverse effects on indigenous biodiversity in the beds of waterbodies or the coastal marine area where it impacts on the ability of tangata whenua to carry out cultural and traditional activities; or
- Adverse effects on taiāpure, mātaitai or Māori non-commercial fisheries; or
- Adverse effects on protected customary rights; or
- Adverse effects on sites and areas of significance to tangata whenua mapped in the Regional Plan for Northland (refer Maps |Ngā mahere matawhenua).

Your AEE must include an assessment of whether any of the above affects are likely to occur.

If they are likely to occur, then you will need to complete a Cultural Impact Assessment (CIA) and provide this with your resource consent application. The Regional Plan for Northland provides details of what must be included in this CIA, and should be referred to.

The best way to find out what the effects of your proposal may be on tangata whenua is to contact local iwi/hapū groups (who represent tangata whenua) and discuss your proposal with them. Council consents staff can provide a list of contact details for local iwi/hapū groups in the area of your proposal. You can then send a copy of your proposal to these groups and seek feedback from them prior to lodging your application. Some iwi/hapū have also developed iwi/hapū Environmental Management Plans that are useful documents that can assist to identify issues of concern to those iwi/hapū for activities occurring in their rohe. The iwi/hapū Environmental Management Plans can be obtained directly from the iwi/hapū or from the council upon request.

3 Assessment of Affected Persons

If the adverse effects of your activity on a person are likely to be minor, or more than minor, then that person is deemed to be an "affected person" for your resource consent application.

An affected person may include neighbouring land owners and occupiers, and/or organisations such as the Department of Conservation, Land Information New Zealand (LINZ), Fish and Game Council, Iwi and Hapū, and community groups.

If you do not think there will be any affected persons for your resource consent application, then you do not need to provide any details on this matter in your AEE. However, the council will still undertake an assessment of whether there are any affected persons as part of processing the resource consent application.

If there are persons you have identified who may be affected, and you have discussed your proposal with these persons, please record any comments made by them and your response, and include this information with your application. If you have written approvals from these parties, then these should be provided as well. The council has a written approval form that can be used for this purpose.

Iwi Settlement Acts

If there is an **Iwi Settlement Act** that covers the area of your application, then there may be "Statutory Acknowledgement" areas which could be adversely affected by your activity. If the location of your activity is within, adjacent to, or may have an adverse effect on, a Statutory Acknowledgement area, then you will need to assess whether the trustees of the Statutory Acknowledgement are affected persons. Information about Statutory Acknowledgements in Northland can be found on the council's webpage at "Statutory Acknowledgements in Northland".

Checklist

The following information **must** be included in your application to ensure that is not returned as incomplete under Section 88 of the RMA.

☑All applicable application form details have been completed.

☑Assessment of Environmental Effects in accordance with Schedule 4 of the RMA.

☑Assessment of effects on tangata whenua and their taonga.

☑Site plan(s). These are required to be of good quality, and preferably electronically, to enable use in resource consent documentation.

☑Evidence of payment of the required minimum estimated initial fee.

☑If you are applying for a coastal permit, evidence that you have provided notice of your application to all groups who have applied for customary marine title in the location of your application and that you have sought their view on the application. The council cannot legally accept an application without evidence of this.

Information Privacy Issues

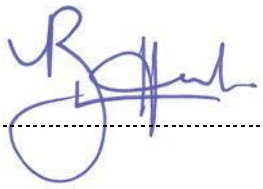
The information you provide in this application is regarded as official information. It is required under the provisions of the Resource Management Act 1991 to process this application. The information will be held by the council and is subject to the provisions of the Local Government Official Information and Meetings Act 1987, and the Privacy Act 1993. The information you provide in this application will generally be available to the public.

Under Section 88 and/or 127 of the Resource Management Act 1991 (RMA), the undersigned makes this application for resource consent(s).

1 **I/We confirm that I have authority to sign on behalf of the person(s) named as the applicant(s) for this application for resource consent.**

2 **I/We have read, and understand, all of the information contained within this application form, including the requirement to pay any additional actual and reasonable costs for the processing of the application.**

3 **I/We confirm that all of the information provided is true and correct and I understand that any inaccurate information provided could result in my resource consent (if granted) being cancelled.**

Signature(s):  **Date:** 06/09/2023

Signature(s): ..... **Date:** .....

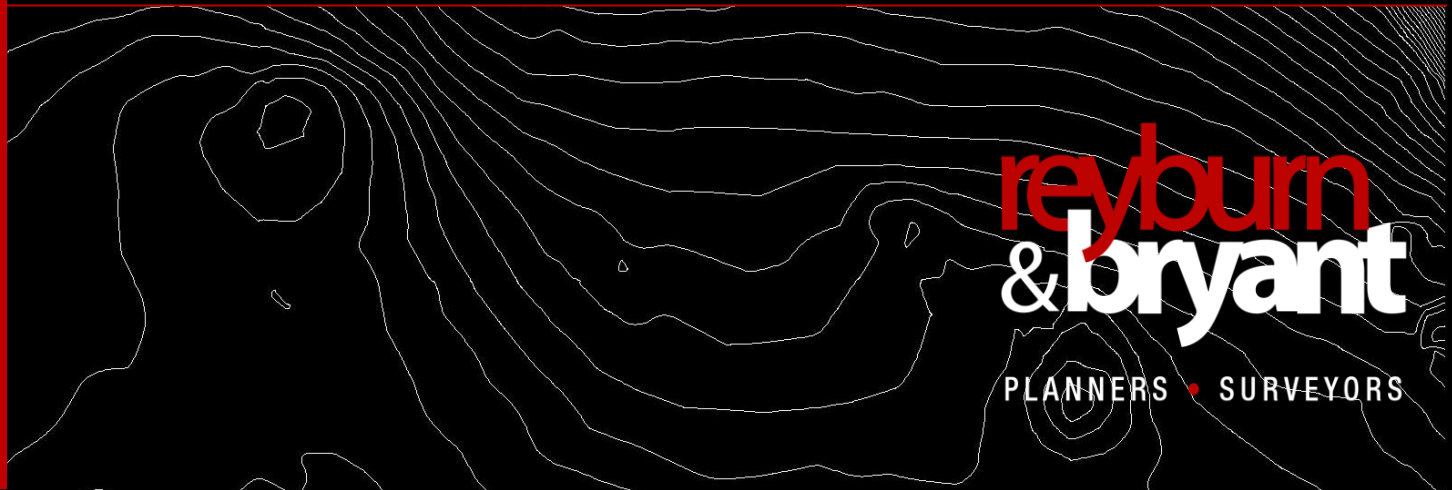
Signature(s): ..... **Date:** .....

Please note that a signature is not required if submitting application electronically.

Land use consent for proposed solar farm

MERIDIAN ENERGY LIMITED

SH15, McCathie Road, Marsden Point Road and Rama Road, Ruakākā



reyburn & bryant

PLANNERS • SURVEYORS

Land Use Consent for proposed solar farm

MERIDIAN ENERGY LIMITED

SH15, McCathie Road, Marsden Point Road and Rama Road, Ruakākā

Report prepared for:	Meridian Energy Limited (MEL)
Author	Brett Hood, *Planner/Director*
Reviewed by:	David Johnson, *Planner*
Consent authority:	Whangarei District Council Northland Regional Council
Report reference:	16782
Report status:	Final
Date:	September 2023

Reyburn and Bryant
P.O. Box 191
Whangarei 0140
Telephone: (09) 438 3563

FORM 9

APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE RESOURCE MANAGEMENT ACT 1991

To: **Whangarei District Council**
Private Bag 9023
Whangarei 0148

Northland Regional Council
Private Bag 9092
Whangarei Mail Centre
Whangarei 0148

1. **Meridian Energy Limited** (MEL) applies for all necessary resource consents to establish, operate, and maintain a solar energy farm with an approximate project size of 200ha across three sites and any ancillary activities. A range of activities form part of the development. These are described more fully in this attached AEE report and in particular Section 4.

2. The proposed solar farm is an expansion of the Battery Energy Storage System (BESS) on the corner of SH15 and Rama Road, Ruakaka which is currently under construction. The BESS includes the grid connection, operation and maintenance facility buildings, and switching station, all of which is being oversized (and was designed) to accommodate the solar farm.

3. The proposal requires resource consent as a **non-complying activity** under the Proposed Northland Regional Plan (Appeals Version). It also requires resource consent as a **discretionary activity** under the Whangarei District Plan and the National Environmental Standard for Freshwater Regulations 2020.

4. The three sites have frontage to SH15, McCathie Road, Marsden Point Road and Rama Road, Ruakākā. Property details are included in **Table 1**. They are described in detail in Section 1.3 and the sites are described in detail in Section 3 of this report.

5. MEL is the owner of the sites.

6. There are no other activities to which this application relates.

7. No additional resource consents or statutory approvals are needed for the activity to which this application relates that have not yet been applied for.

8. An assessment of effects on the environment is attached including:

   (a) The information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and

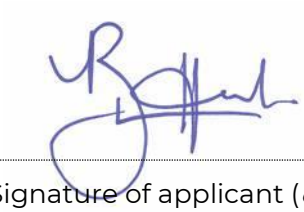
(b) The matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and

(c) Such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

9. We attach an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.

10. We attach an assessment of the proposed activity against any relevant provisions of documents referred to in section 104(1)(b) of the Resource Management Act 1991, including information required by clause 2(2) of Schedule 4 of that Act.

11. No other information is required to be included in the district or regional plan(s) or regulations.



Signature of applicant (*or* person authorised to sign on behalf of applicant)

Brett Hood

6 September 2023

Address for service:

Attention: Brett Hood

Reyburn and Bryant

Phone: (09) 4383563

Email: brett@reyburnandbryant.co.nz

Attention: Andrew Guerin

Meridian Energy Limited

Phone: 027 8011 255

Email: andrew.guerin@meridianenergy.co.nz

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ABBREVIATIONS

AEE	Assessment of Environmental Effects
BESS	Battery Energy Storage System
CE	Coastal Environment Zone (WDP)
CEL	Critical Electricity Line
CNMP	Construction Noise Management Plan
CTMP	Construction Traffic Management Plan
ESCP	Erosion and Sediment Control Plan
HIZ	Heavy Industrial Zone
HNZPT	Heritage New Zealand Pouhere Taonga
LIZ	Light Industrial Zone
LLA	Littoralis Landscape Architecture
MDA	Marshall Day Acoustics
MEL	Meridian Energy Limited
MTPP	Marsden Technology Park Precinct
NAV	Noise and Vibration Chapter
NES-CS	National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health
NES-FM	National Environmental Standard for Freshwater Management
NH	Natural Hazards Chapter
NPS-FM	National Policy Statement for Freshwater Management
NPS-HPL	National Policy Statement for Highly Productive Land
NPS-IB	National Policy Statement for Indigenous Biodiversity
NPS-REG	National Policy Statement for Renewable Energy Generation
NRC	Northland Regional Council
NTW	Network Utilities Chapter (WDP)
PRP	Proposed Regional Plan for Northland
RMA	Resource Management Act, 1991
RPS	Regional Policy Statement for Northland
RPROZ	Rural Production Zone (WDP)
SH15	State Highway 15
TRA	Transport Chapter (WDP)
TWM	Three Waters Management Chapter (WDP)
VAC	Velden Aviation Consulting Limited

WDC	Whangarei District Council
WDP	Whangarei District Plan

1. INTRODUCTION

1.1 Executive summary

Meridian Energy Limited (MEL) is seeking resource consents to construct, operate and maintain a solar energy farm, including solar panels, inverters and related electrical infrastructure, and ancillary activities such as earthworks, transmission lines, control buildings and substations, on three sites located at Marsden Point (see **Figure 1** below).

Figure 1:Location map (Source: WDC GIS).

Each of the sites have different District Plan zones being Heavy Industrial, Light Industrial, and Rural Production.

There are a range of different uses in the surrounding environment, but the predominant uses and character of the area is industrial in nature.

Projections from energy sector organisations, such as Transpower and MBIE, forecast a need to nearly double the total electricity supply in Aotearoa New Zealand by 2050. Through commitments made under the Paris Agreement in 2015, the Climate Change Response (Zero Carbon) Amendment Act 2019 and the Towards a productive, sustainable, and inclusive economy, Aotearoa New

Zealand's First Emissions Reduction Plan (ERP), the forecast demand in electricity supply must be met by renewable generation (see **Figure 2**).

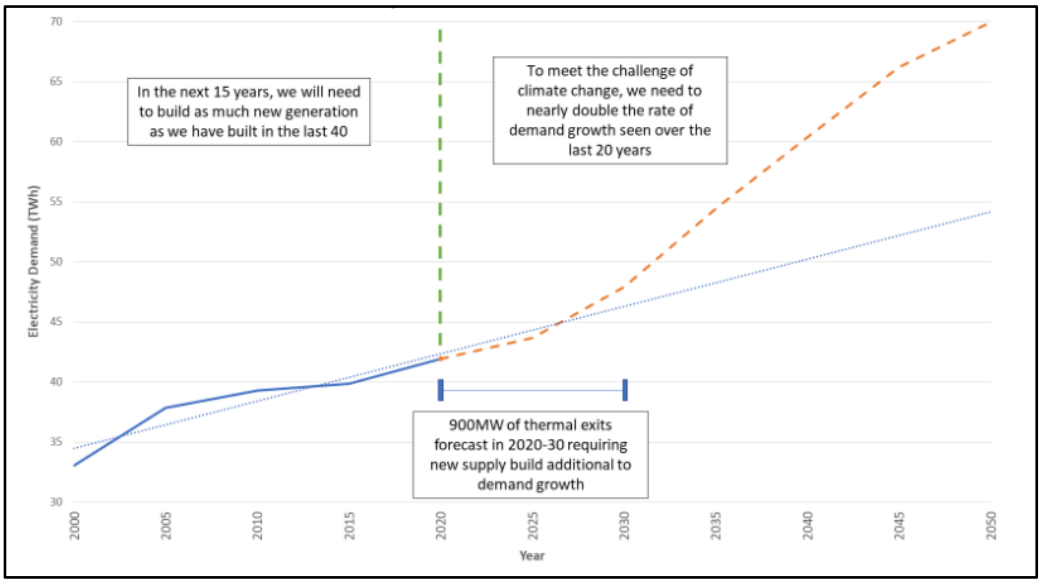


Figure 2: Electricity demand forecast, 2000-2050 (Source: Transpower)

The proposal is to establish a solar farm consisting of approximately 200,000 photovoltaic solar panels. The solar panels will be established across an area of approximately 172ha across the three sites which have a combined area of approximately 200ha. The solar farm will have a capacity of approximately 100-150MW of power.

The principal benefits from the solar farm would be the production of around 150-200GWh of electricity generation (energy) per year and would be capable of providing over half of Northland's average annual energy consumption. Electricity is central to our day-to-day life and there are frequently no substitutes, yet its availability is often taken for granted. Reliable and cost-efficient access to electricity is fundamental to the ongoing progress of both New Zealand and its economy. Its supply is also critical to the ongoing operation of communication networks and other infrastructure, as well as the operation of banks, hospitals, schools, and other public and private institutions that service the ongoing social, economic, and cultural wellbeing and health and safety of people and communities.

Solar energy will be conveyed to the recently consented Battery Energy Storage System (BESS) on the corner of SH15 and Rama Road via several inverter stations and a 33kV connection prior to injection into the grid.

Two types of solar arrays or mounting systems have been identified, being fixed tilt and single axis tracking. Either of these installation types may be used

for the solar farm. The final installation type will be determined during the construction market and detailed design phase of the project.

Access to the sites will be via several new and upgraded vehicle crossings from Marsden Point Road, Rama Road and McCathie Road. No access is proposed from SH15.

An internal service road network will provide access throughout the sites for maintenance.

Site preparation for the solar farm will affect the wetlands. The ecological effects of this will be offset by retaining and enhancing the wetland in the south-eastern portion of Site 1 and creating a new wetland on Site 3.

Most of the three sites will be subject to bulk earthworks. The earthworks design intent is to achieve a cut/fill balance which may include spreading material across the sites and/or construction of bunds. Any excess unsuitable material will be disposed off-site at a consented receiving site, with that consent to be dealt with under a future application following detailed design. Earthworks and structures will be designed to achieve hydraulic neutrality, and to avoid off-site flooding effects.

Perimeter planting, potentially in combination with earth bunds, is proposed around some areas of Site 3 (zoned Rural Production) as shown on the landscape plan included in **Appendix 1**.

Resource consents are being required from both the NRC and the WDC under the respective Proposed Regional Plan and Whangarei District Plans. Resource consents are also required from the NRC under the Resource Management (National Environmental Standards for Freshwater) Regulations 2020.

The policy framework which guides the resource consent application and Assessment of Environmental Effects includes the relevant Council statutory planning documents, as well as higher order documents being the National Policy Statement on Renewable Electricity Generation 2011, the National Policy Statement for Freshwater Management 2020, and the National Policy Statement for Highly Productive Land 2022.

The proposal gives rise to substantial positive effects, in that it will provide for additional electricity generation at a time when it is needed, and doing so in a way which contributes towards meeting Aotearoa New Zealand's renewable electricity needs and commitments outlined above. It also results in superior ecological outcomes relative to the status quo.

In addition, Meridian is a part of and contributes to the communities in which it operates. For the past 15 years, Meridian has worked with community groups and projects throughout NZ through their Power Up Community Fund. Meridian has invested more than $9 million into 1,241 projects. If this proposal proceeds to construction following approval from the Meridian Board, a fund would be established for the Ruakaka community with appropriate annual committed funding.

The project will also help to improve the resilience of electricity supply within Northland.

The potential adverse effects of the proposed solar farm arise in respect of the following matters:

- Landscape, rural character and visual amenity;
- Noise;
- Traffic;
- Ecological;
- Earthworks;
- Cultural;
- Archaeological and historic heritage;

In order to assist with the Assessment of Environmental Effects, including how the proposal gives effect to the relevant objectives and policies, a number of expert assessments have been undertaken including a civil design report, preliminary geotechnical assessment, erosion and sediment control plan, flood modelling report, traffic impact assessment, ecological effects assessment, landscape assessment, glint and glare assessment, archaeological assessment, noise assessment and a cultural effects assessment.

While the level of effect varies (including effects on visual amenity experienced from four dwellings which sit outside of the subject site), it is concluded in all expert reports, and in this Assessment of Environmental Effects, that, with the imposition of conditions to assist in the avoidance, remediation or mitigation of actual and potential adverse effects, the actual and potential adverse effects are no more than minor.

MEL undertook community consultation and stakeholder engagement during the development of this proposal. This included public meetings, visits to neighbours, meetings with mana whenua, and meetings with other key stakeholders.

1.2 Background

1.2.1 Meridian Energy Limited

MEL is New Zealand's largest electricity generator. They are a significant developer of renewable energy projects in New Zealand[1] and have overseas development and operational experience with past developments in Australia, Antarctica, the United States and Tonga.

MEL owns and manages New Zealand's two largest hydro power schemes: the Waitaki Power Scheme (from Lake Pūkaki downstream comprising 6 power stations), and the Manapouri Power Scheme. These hydro schemes produce approximately 90% of MELs generation and are critical to New Zealand's security of electricity supply.

MEL also owns and operates five wind farms in New Zealand: Te Uku (Raglan), Te Apiti (Manawatu), Mill Creek (Wellington), West Wind (Wellington) and White Hill (Southland). These wind farms generate enough electricity to power around 200,000 homes each year.

MEL is currently constructing a 176MW wind farm in Hawke's Bay (the Harapaki Wind Farm). A further MEL wind farm is also in the early stages of development at Mt Munro (Eketāhuna).

Extensive new renewable electricity generation development is necessary for the country to accelerate the transformation of the economy to clean energy sources to meet the Government targets and give effect to international obligations related to climate change.

MEL has developed a Climate Action Plan to reduce its own carbon footprint. The Climate Action Plan outlines three climate priorities: renewable generation, customer decarbonisation and managing MEL's own emissions. MEL's renewable development projects represent material opportunities to reduce gross emissions for New Zealand, and their customers by creating additional capacity to enable multi-sector decarbonisation through process heat or transport electrification for example. MEL is also committed to reducing gross emissions in their own business – this includes scope 3 emissions such as those associated with emissions from land.

MEL is listed on the New Zealand Stock Exchange and Australian Securities Exchange and is a mixed ownership model company, 51% owned by the New

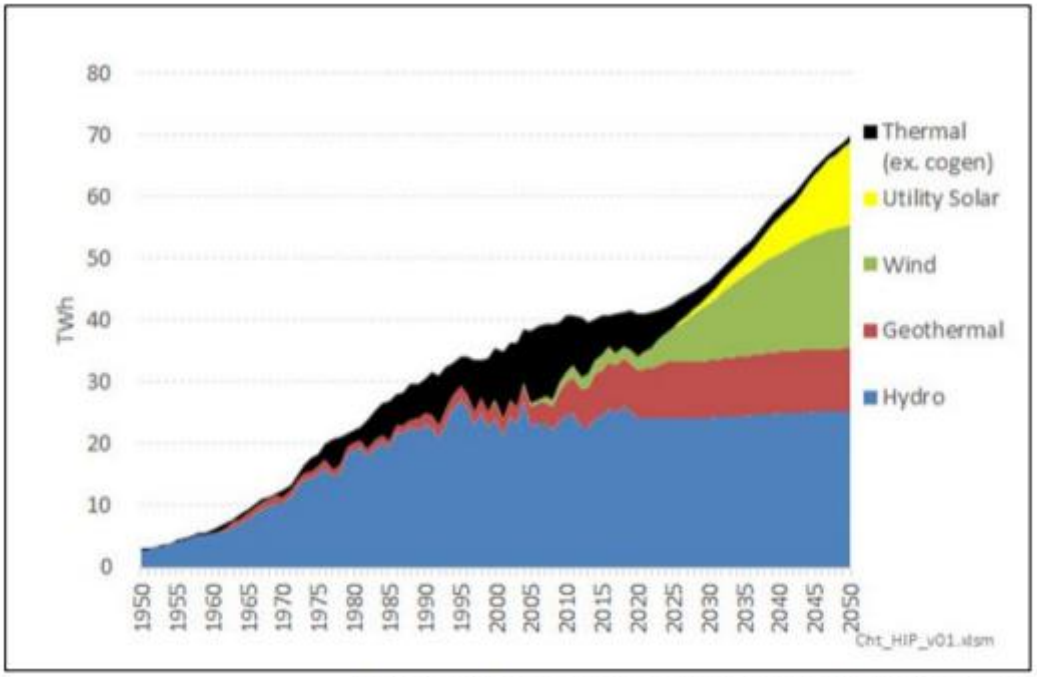
[1] MEL generates approximately 30% of the country's electricity from renewable sources.

Zealand Government. MELs core business is the generation, marketing, trading, and retailing of electricity.

1.2.2 Meeting the Demand/Scale of New Renewable Electricity Generation to Address Climate Change

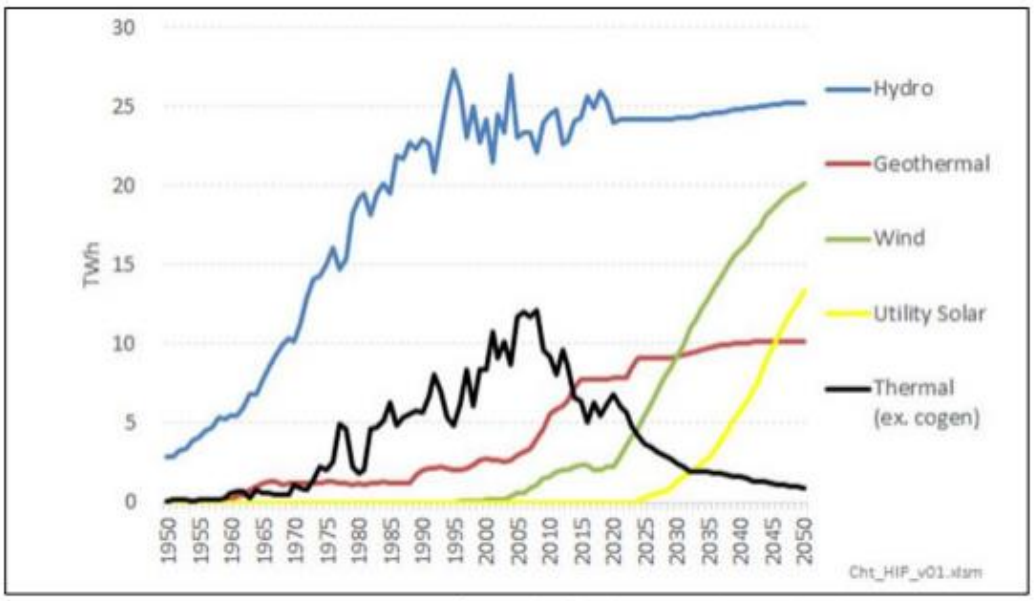
Aotearoa New Zealand faces an unprecedented need to develop new generation to meet its decarbonisation objectives. **Figures 3** and **4** below, show actual generation from 1950 through to 2020, as well as projected levels to 2050 to meet Aotearoa New Zealand's decarbonisation goals. Around 1,250 GWh of new renewable generation will be required on average each year until 2050. This is equivalent of five Ruakaka solar farms per year until 2050.

For additional context, an average of 380 GWh of new renewable generation was commissioned annually in the 30 years to 2020. As such, Aotearoa New Zealand will need to be constructing around 300% more generation every year until 2050 than it has been over the past 30 years.



Excerpt from Meridian's submission on the Natural and Built Environments Bill

Figure 3: Central Projection of Generation Levels



Excerpt from Meridian's submission on the Natural and Built Environments Bill

Figure 4

The graphs in **Figures 3** and **4** above are drawn from a report prepared by Concept Consulting to independently assess the extent of new renewable generation required to achieve climate change targets[2]. The general assessments and conclusions are in broad agreement with other similar work that has also been undertaken for the Climate Change Commission, Transpower's predictions, and modelling/assessments completed for MBIE.

1.2.3 The Ruakākā Energy Park

MEL have been exploring opportunities to establish a solar farm in the Northland Region with a view to improving regional and national resilience of energy supply. This culminated in the purchase of three sites at Marsden Point, and the consenting and construction of a Battery Energy Storage System (BESS) on the northern-most site (corner Rama Road and SH15) as the first stage of the Ruakākā Energy Park.

The location of the Ruakākā Solar Farm was determined based on functional need. Critically this included:

(1) A Reliable solar resource.

(2) The ability to pair the solar farm with the previously consented Battery Energy Storage System (a logical and planned expansion of the energy

[2] See KC Opinion dated 10 June 2022, Report by Concept Consulting, pages 2- 3. The report is contained in the bundle of material supporting the Electricity Sector Environment Group submission on the Natural Built Environments and Spatial Planning Bills.

park utilising the existing grid connection and operational buildings and facilities, all of which have been oversized to accommodate the solar farm).

(3) The proximity to the National Grid and the Bream Bay Substation. Critically, the Bream Bay Substation has sufficient capacity to enable connection of the solar farm.

(4) The ability to achieve a low impact/low disturbance design.

This project supports the New Zealand government's strategy of:

- 100% renewable electricity generation by 2030; and
- A net zero carbon future by 2050.

1.3 Property details

Applicant	Meridian Energy Limited
Landowner	Meridian Energy Limited
Location	SH15/Rama Road/Marsden Point Road (Site 1) SH15/McCathie Road (Site 2) McCathie Road/Marsden Point Road (Site 3).
Legal descriptions and records of title	**Site 1** ▪ Lot 1 DP 419151, RT 473408 ▪ Lot 2 DP 419151, RT 473409 ▪ Lot 3 DP 419151, RT 473410 ▪ Lots 1 DP 59354, NA16C/580 ▪ Lots 2 DP 59354, NA16C/581 ▪ Lots 3 DP 59354, NA16C/582 **Site 2** ▪ Lot 1 DP 386730, RT 347164 ▪ Lot 1 DP 348043 and Lot 2 DP 325771, RT 197083 ▪ Lot 2 DP 348043, RT 197084 ▪ Section 13 SO 32254, RT 159510

	Site 3 ▪ Lot 1 DP 406479, RT 422812 ▪ Pt Lot 1 DP 36288, NA1008/149 ▪ Pt Section 1 Blk VII Ruakaka SD, NA388/187 ▪ Pt Section 11 Blk VII Ruakaka SD, NA1073/185 ▪ Pt Section 54 and Sections 55 – 57 and 60 Blk VII Ruakaka SD, NA9A/2027
Site area	105.2404ha (Site 1) 41.5538ha (Site 2) 55.5794ha (Site 3) 202.3736ha (combined)
District Plan	Whangarei District Plan (WDP)
District Plan Zone	Heavy Industrial Zone (Site 1) Light Industrial Zone (Site 2) Rural Production Zone (Site 3)
District Plan Notations	▪ Marsden Technology Park Precinct (MTPP) – PREC14 ▪ Critical Electricity Lines ▪ Transpower National Grid Corridor ▪ First Gas Limited designation FGL-D1 ▪ Channel Terminal Services Limited designation CTS-1 ▪ Rail and State Highway Noise Control Boundaries ▪ Rail Vibration Alert Area ▪ Coastal Environment
Relevant Regional Plan	Proposed Regional Plan (Appeals Version)
Proposed Regional Plan Notations	▪ 10, 50 and 100 year River Flood Hazard Zones ▪ Coastal Flood Hazard Zones 0, 1, 2 and 3

	▪ Airshed ▪ Coastal Aquifer Ground Water Management Unit ▪ Coastal River Water Quantity Management Unit ▪ Priority Catchments Catchment Specific Layer ▪ Hill Country and Lowland Area
Other relevant legislation and planning documents	▪ National Environmental Standard for Contaminated Soils (NES-CS). ▪ National Environmental Standard for Freshwater (NES-F). ▪ National Policy Statement for Freshwater Management 2020 (NPS-FM). ▪ National Policy Statement for Highly Productive Land 2022 (NPS-HPL). ▪ National Policy Statement for Renewable Energy Generation 2011 (NPS-REG). ▪ Regional Policy Statement for Northland (RPS)

Table 1: Property details.

1.4 Relevant title memorials

The proposed development will take place across several titles (listed in **Table 1** above). While there are various memorials registered on these titles (including subject easements), they will not be affected by the proposal.

The titles and associated memorials are attached in **Appendix 2**.

1.5 Resource consents required

All necessary resource consents are sought from both the NRC and the WDC to enable the construction and operation of the proposed solar farm. The rules in the district, regional, and national planning documents that trigger the requirement for resource consent include:

Northland Regional Council

Table 2: Consents required from the Northland Regional Council

Rule	Consent Type	Description	Activity status
Proposed Regional Plan			
(Rule C.2.2.6) – non-complying activity.	Land use consent	Land use consent for activities in significant wetlands	Non-complying activity.
Rule C.2.2.4	Land use consent	Land use consent for activities in natural wetlands	Discretionary activity
Rule C.8.3.4	Land use consent	Land use consent for earthworks exceeding 1,000 cubic metres in a flood hazard area	Discretionary activity
Rule C.8.3.4)	Land use consent	Earthworks exceeding 50 cubic metres in a High-risk flood area	Discretionary activity
Rule C.8.3.4	Land use consent	Earthworks exceeding 200m^2 and 50m^3 within 10m of a natural wetland and river.	Discretionary activity.
Rule C.8.3.2	Land use consent	Earthworks exceeding 5,000m^2	Controlled activity
Rule C.8.4.3	Land use consent	Vegetation clearance exceeding 200m^2 within 10m of a natural wetland and river	Discretionary activity
Rule C.8.5.3	Land use consent	Land use consent for construction of a bore	Controlled activity
Rule C.5.1.12	Water permit	Land use consent for water take exceeding 10m^3	Discretionary activity
National Environmental Standard for Freshwater Management			

Rule	Consent Type	Description	Activity status
Regulation 45	Land use consent	Land use consent under Regulation 45 for earthworks and land disturbance within natural wetlands associated with specified infrastructure	Discretionary activity

Whangarei District Council

Table 3: Consents required from the Whangarei District Council

Whangarei District Plan			
Site 1			
TWM-R6	Land use consent	Land use consent for impervious surfaces.	Restricted discretionary
CE-R8	Land use consent	Earthworks exceeding 500m² in the Coastal Environment overlay area	Discretionary
Site 2			
TWM-R6	Land use consent	Land use consent for impervious surfaces.	Restricted discretionary
LIZ-R6	Land use consent	Land use consent for barbed wire topped security fence.	Restricted discretionary.
LIZ-R14	Land use consent	Farming activities where common boundaries with the Rural Production Zone are not planted in accordance with the requirements of this rule (Site 2).	Discretionary
LIZ-R8	Land use consent	Industrial activity where common boundaries with the Rural Production Zone are not planted in accordance with	Discretionary

		the requirements of this rule	
NAV.7	Land use consent	Construction noise exceeding the permitted activity standard.	Discretionary
Site 3			
RPROZ-R20	Land use consent	Land use consent to construct and operate a solar farm (including associated buildings and structures) in the Rural Production Zone	Discretionary
RPROZ-R5	Land use consent	Cumulative building coverage exceeding 20% of the site area.	Discretionary

1.6 Permitted activities

The following permitted activities are relied on for various aspects of the proposal:

Proposed Regional Plan

- Rule C.2.1.7 and C.2.1.8 Placement and removal of culverts in the bed of a river (drains)
- Rule C.3.1.1 Off-stream damming and diversion (relating to potential redirection of drain on Site 3 through the wetland area prior to discharge to the Ruakaka River).

Whangarei District Plan

Rule NH-R4 Land use consent for buildings, structures, and earthworks in a flood susceptible area

1.7 Other approvals required

1.7.1 Archaeological authority – Heritage New Zealand Pouhere Taonga

A precautionary authority is being sought from Heritage New Zealand Pouhere Taonga (HNZPT) to cover the possibility that unrecorded features are uncovered during site works.

No other approvals are required to give effect to the proposal.

1.8 Processing request

Prior to the issue of any decision for this consent, please forward the draft conditions to the agent for review and comment.

1.9 Statutory context

Section 104B of the RMA sets out specific requirements for the determination of discretionary and non-complying activities.

Section 104B Determination of applications for discretionary or non-complying activities

After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority—

(a) may grant or refuse the application; and

(b) if it grants the application, may impose conditions under section 108.

Section 104D of the RMA sets out particular restrictions for non-complying activities.

Section 104D Particular restrictions for non-complying activities

(1) Despite any decision made for the purpose of notification in relation to adverse effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—

(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(a)(ii) applies) will be minor; or

(b) the application is for any activity that will not be contrary to the objectives and policies of—

(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or

(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or

(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.

(2) To avoid doubt, section 104(2) applies to the determination of an application for a non-complying activity. activity.

Section 104(1) of the RMA sets out the matters that a consent authority must, subject to Part 2, have regard to when considering application for resource consent.

Section 104 Consideration of applications

(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2 and section 77M, have regard to–

(a) any actual and potential effects on the environment of allowing the activity; and

(ab) any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and

(b) any relevant provisions of—

(i) a national environmental standard:

(ii) other regulations:

(iii) a national policy statement:

(iv) a New Zealand coastal policy statement:

(v) a regional policy statement or proposed regional policy statement:

(vi) a plan or proposed plan; and

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

(2) When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if a national environmental standard or the plan permits an activity with that effect.

(2A) When considering an application affected by section 124 or 165ZH(1)(c), the consent authority must have regard to the value of the investment of the existing consent holder.

(2B) When considering a resource consent application for an activity in an area within the scope of a planning document prepared by a customary marine title group under section 85 of the Marine and Coastal Area (Takutai Moana) Act 2011, a consent authority must have regard to any resource management matters set out in that planning document.

(2C) Subsection (2B) applies until such time as the regional council, in the case of a consent authority that is a regional council, has completed its obligations in relation to its regional planning documents under section 93 of the Marine and Coastal Area (Takutai Moana) Act 2011.

(2D) When considering a resource consent application that relates to a wastewater network, as defined in section 5 of the Water Services Act 2021, a consent authority—

(a) must not grant the consent contrary to a wastewater environmental performance standard made under section 138 of that Act; and

(b) must include, as a condition of granting the consent, requirements that are no less restrictive than is necessary to give effect to the wastewater environmental performance standard.

(3) A consent authority must not,—

(a) when considering an application, have regard to—

(i) trade competition or the effects of trade competition; or

(ii) any effect on a person who has given written approval to the application:

(b) *[Repealed]*

(c) grant a resource consent contrary to—

(i) section 107, 107A, or 217:

(ii) an Order in Council in force under section 152:

(iii) any regulations:

(iv) wāhi tapu conditions included in a customary marine title order or agreement:

(v) section 55(2) of the Marine and Coastal Area (Takutai Moana) Act 2011:

(d) grant a resource consent if the application should have been notified and was not.

(3A) *See also* section 103(3) of the Urban Development Act 2020 (which relates to resource consents in project areas in transitional periods for specified development projects (as those terms are defined in section 9 of that Act)).

(4) A consent authority considering an application must ignore subsection (3)(a)(ii) if the person withdraws the approval in a written notice received by the consent authority before the date of the hearing, if there is one, or, if there is not, before the application is determined.

(5) A consent authority may grant a resource consent on the basis that the activity is a controlled activity, a restricted discretionary activity, a discretionary activity, or a non-complying activity, regardless of what type of activity the application was expressed to be for.

(6) A consent authority may decline an application for a resource consent on the grounds that it has inadequate information to determine the application.

(7) In making an assessment on the adequacy of the information, the consent authority must have regard to whether any request made of the applicant for further information or reports resulted in further information or any report being available.

This report focuses on the relevant matters in s104(1), specifically:

- The actual and potential environmental effects (s104(1)(a)).
- The relevant provisions of the NES-CS (s104(1)(b)(i)).
- The relevant provisions of the NES-FM (s104(1)(b)(i)).
- The relevant provisions of the NPS-FM (s104(1)(b)(iii)).
- The relevant provisions of the NPS-HPL (s104(1)(b)(iii)).
- The relevant provisions of the NPS-REG (s104(1)(b)(iii)).
- The relevant provisions of the RPS (s104(1)(b)(v)).
- The relevant provisions of the PRP (s104(1)(b)(vi)).
- The relevant provisions of the WDP (s104(1)(b)(vi)).

2. EVALUATION OF ALTERNATIVES

2.1 Introduction

A consideration of alternatives is required under the Fourth Schedule of the RMA and under various provisions of the relevant planning documents as outlined in other sections of this AEE.[3]

In formulating the project, MEL evaluated several options and alternatives to achieve the overarching project objectives being:

(1) To create an economically viable solar farm which benefits the Northland region; and

(2) To avoid adverse effects on the environment where practicable, and otherwise minimise, remedied, or offset.

2.2 Optimisation analysis

At a high level, the location of the solar farm was chosen due to its proximity to the Bream Bay Substation. Generation close to the substation reduces transmission losses and improves the reliability and resilience of the grid. Northland experiences higher than average wholesale electricity prices which is largely due to a lack of generation in the area. Additionally, for New Zealand to meet its renewable energy and decarbonisation targets, new generation is required across a broad range of locations.

Given the range of factors that contribute to efficiency and practicability, including the relatively complex nature and variability of the three sites, Beca were engaged to carry out a site optimisation exercise to determine the most efficient and practicable configuration for the project.

As described in the Alternatives and Optimisation assessment (**Appendix 3**) a range of options were assessed using multi-criteria analysis to evaluate the options against relevant criteria. This included consideration of the extent of wetland impact and associated effects (as identified in the BM ecological assessment), flood risk to assets and other properties, safety, maintainability, sustainability, cost, capacity, yield, and potential transmission routes.

The seven options considered were:

- Option 1 - No solar development on Site 1.

[3] See clause 6(1)(a), 4th Schedule, Resource Management Act, 1991

- Option 2 - Full wetlands removal on Site 1 with full offset on Site 3.
- Option 3 - Full solar development on Site 1, constructing and operating the solar farm while maintaining existing wetlands.
- Option 4 - Partial wetland removal on Site 1 to avoid most open water pond habitat, partial offset on Site 3.
- Option 5 - Partial wetland removal on Site 1 to avoid majority of wetlands, partial offset on Site 3.
- Option 6 - Partial wetland removal on Site 1 to avoid most southern open water areas, enlarging and enhancing the wetland in this area and partial offset on site 3.
- Option 7 - Partial wetland removal on Site 1 to avoid most eastern wetland areas.

The analysis also considered different array types, including fixed tilt, single axis tracking, and contour following single axis tracking, while keeping selection of the array type open for further consideration during detailed design (after consenting).

The analysis determined that Option 6 is the optimal design for a range of reasons including:

- It is an efficient and practicable option which provides significant benefits to the Northland region.
- It has high yield and capacity, which is essential to create an economically viable project and return on investment.
- Workers' safety during construction and operations are crucial factors, with Option 6 considered the safest and most manageable option.
- Maintainability of the solar farm during operations with consideration of the practicalities of operating in (and driving through) wetlands.
- Sustainability outcomes are achieved by minimising earthworks required and excavation in peat-dominated areas.
- It demonstrates a practicable extent of wetland avoidance while enhancing wetland areas, and offsetting effects to create quality ecological outcomes relative to the status quo.

The Alternatives and Optimisation report and the associated multi-criteria analysis is provided in **Appendix 3.**

3. THE EXISTING ENVIRONMENT

3.1 Physical setting

The proposed solar farm is located on three sites with a collective area of 200ha (see **Figure 5** below).

Figure 5: Proposed Solar Farm

The northern-most site (Site 1) has frontage to Rama Road, SH15, and Marsden Point Road. Site 2 has frontage to McCathie Road and SH15, and Site 3 has frontage to McCathie Road and Marsden Point Road.

3.2 Existing buildings, structures, and infrastructure

3.2.1 BESS (Site 1)

The Meridian Battery Energy Storage System (BESS) facility is located on Site 1 on the corner of Rama Road and SH15. The BESS facility is currently under construction. The final intended layout is shown in **Figure 6** below.

Figure 6: BESS site plan (Site 1)

Once complete, the BESS will include the cables under the road to the Transpower substation in preparation for the solar farm, upgrades to the substation in preparation for the solar farm, and an on-site switching station with switchgear and other equipment installed for both the BESS and solar farm, car parking, unloading and storage areas, security fencing and operations and maintenance building which is being built for both the BESS and the solar.

The BESS will be accessed directly from Rama Road.

3.2.2 Existing dwelling and accessory farm buildings (Site 3)

Site 3 contains an existing dwelling, sheds, and other farming related accessory buildings accessed from Marsden Point Road (see **Figure 7** below).

Figure 7: Dwelling and farm buildings on Site 3

3.2.3 Farm shed (Site 1)

Site 1 contains an old corrugated iron farm shed accessed from Marsden Point Road (see **Figure 8** below).

Figure 8: Farm shed on Site 3

3.2.4 Commercial building (Site 3)

There is a commercial building on Site 3. The building is occupied by electrician and veterinary businesses (see **Figure 9** below). The building is in the process of being subdivided from the MEL owned land as per the approved resource consent SD2300050.

Figure 9: Commercial building on Site 3 (being subdivided from the site)

3.2.5 Cattle Yards (Site 2)

There is a makeshift cattle yard and dilapidated farm building in the southern part of Site 2 near the McCathie Road frontage. A vehicle crossing and driveway extends a short distance from McCathie Road to this facility.

3.2.6 Stormwater ponds (between Sites 2 and 3)

There are two stormwater ponds located between Sites 2 and 3 (see **Figure 10** below).

Figure 10: Stormwater ponds (Source: WDC GIS).

These ponds are owned by the Marsden City development located on the opposite (western) side of SH15 and are for the purpose of treating and attenuating stormwater from that development.

3.2.7 Gas and petroleum pipelines (Site 3)

First Gas Limited have a gas transmission pipeline running through Site 3. This line runs from Auckland to Marsden Point and is contained within District Plan designation FGL-D1.

Alongside the First Gas pipeline is the Channel Terminal Services Limited petroleum pipeline. This line runs from Marsden Point to Wiri and is contained within District Plan designation CTS-1.

The designations are shown in **Figure 11** below.

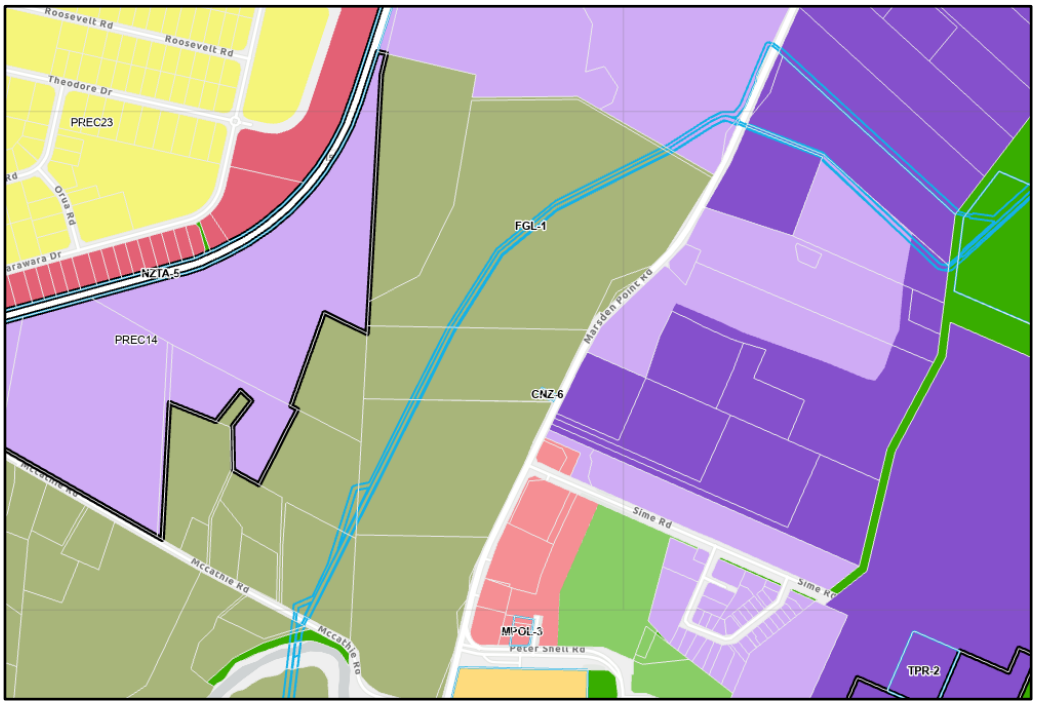


Figure 11: First Gas and Channel Terminal Services District Plan Designations in Site 3 (blue lines)

3.2.8 National Grid overhead lines (Site 3)

Two National Grid Transmission Lines traverse the southern part of Site 3 running in a north-easterly direction, exiting the site midway along the Marsden Point Road frontage on route to the Transpower substation at Rama Road. The two lines are supported by four support lattice towers located within Site 3. These lines and support structures are shown on the Civil Drawings and in **Figure 12** below.

Figure 12: National Grid Lines running north from McCathie Road (note Northpower CELs running west-east in the foreground

3.2.9 Northpower Critical Electricity Lines (Site 3)

An 11/33 kV Northpower Critical Electricity Line (CEL) traverses the southern part of Site 3 near McCathie Road (also shown in **Figure 12** above). This line runs in an east-west direction towards Marsden Point Road on route to the Northpower substation at Rama Road.

3.2.10 Other Northpower electricity lines and fibre

There are other Northpower overhead distribution lines crossing the south-western part of Site 2 as indicated on the civil drawings in **Appendix 4.**

3.2.11 WDC water line

There are 375 ⌀ mm and 250 ⌀ mm water lines running through the southern part of Site 3 as indicated on the civil drawings in **Appendix 4.**

3.3 Natural features

3.3.1 General

All three sites are predominantly grazed exotic grassland with occasional native and exotic trees, exotic hedgerows, and wetlands.

3.3.2 Kānuka forest and shrubland

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.

3.3.3 Natural inland wetlands

There are several wetlands located on the three sites covering a total area of approximately 19.11ha, although 18.78ha (98%) of the 19.11ha are located on Site 1.

BM have classified the wetland features into three categories, which are as follows:

- Exotic dominated wetlands – 13.65ha (all three sites);
- Indigenous dominated wetlands – 0.75ha (Site 1 only); and
- Open water pond habitats – 4.71ha (Site 1 only).

It is understood from the BM report that Site 1 was once part of an area of coastal duneland, and much of the landform of this system remains. The wetlands have formed in the low-lying dune slacks between the dune crests.

Most of the wetlands on Site 1 are exotic dominated wetlands (13.32ha) which BM describe as highly degraded with a moderate ecological value (due to occasional native bird use only). These wetlands meet the NPS-FM definition of a Natural Inland Wetland as they *meet the definition of a RMA wetland, determined using the wetland delineation protocols, and do not meet any of the exclusions under the NPS-FM definition, e.g., do not have more than 50% cover by exotic pasture species.*

The indigenous dominated wetlands across Site 1 have a total area of approximately 0.75ha (7,500m^2). The individual wetlands range in size from 100m^2 to 4,000m^2. BM describe them as having high ecological value due to the rarity of dune slack wetlands and natural wetlands dominated by indigenous vegetation.

There is a 4.71ha open water wetland area in the south-eastern corner of Site 1. BM describe this area as having high ecological value due to the rarity of dune slack wetlands. BM also consider it possible that they provide permanent habitat for a pair of threatened weweia, and foraging habitat/possible breeding habitat for the threatened matuku hūrepo (Australasian bittern). They therefore meet the definition of 'significant wetlands' under the PRP.

The wetlands on Sites 2 and 3 cover a total area of 0.33ha (3,300m^2). BM describe them as exotic dominated wetlands found in low-lying depressions with either shallow water or saturated soil. They range in size from 30m^2 to 570m^2.

All the wetlands on the three sites are identified in **Figures 13 and 14** below.

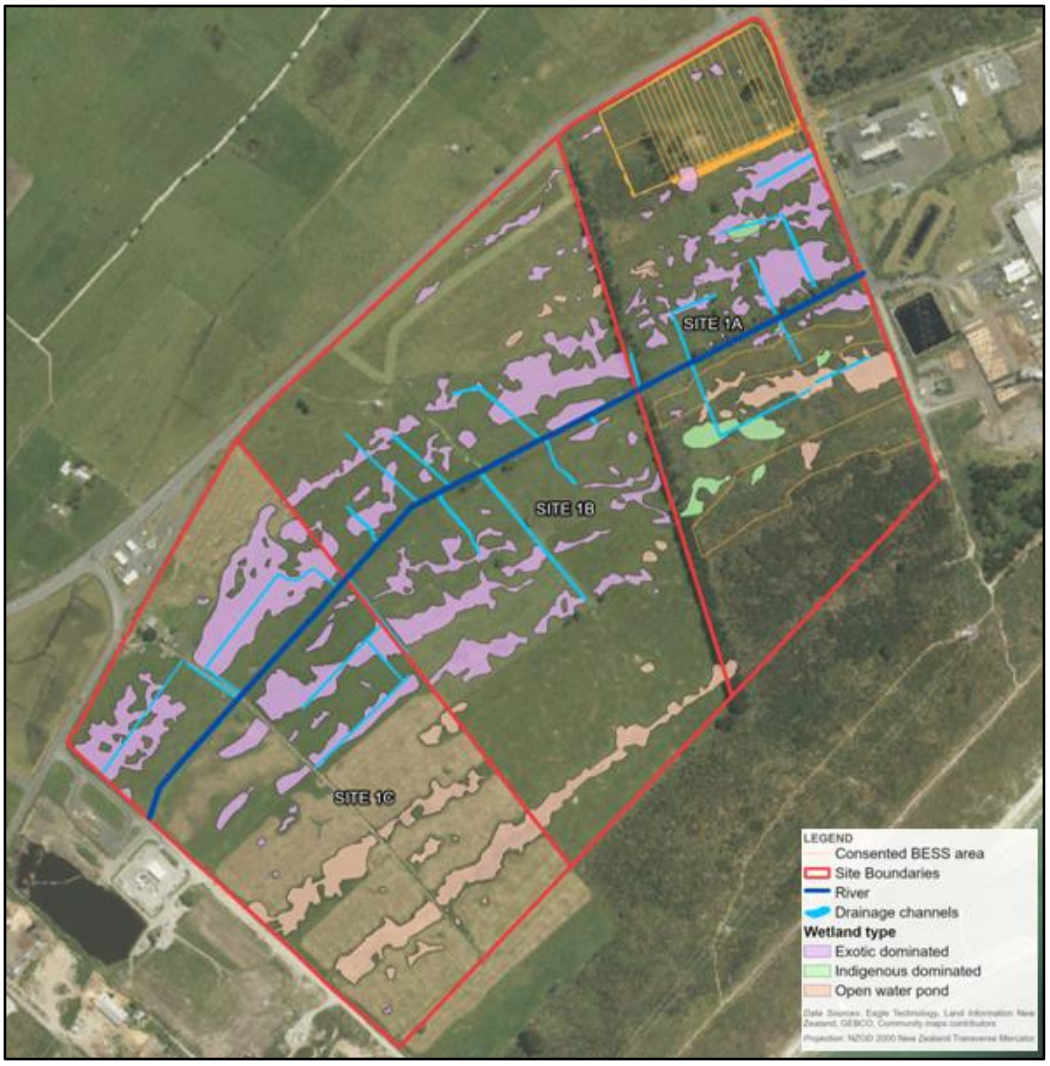


Figure 13: Site 1 ecological features (Source: Boffa Miskell ecological effects assessment).

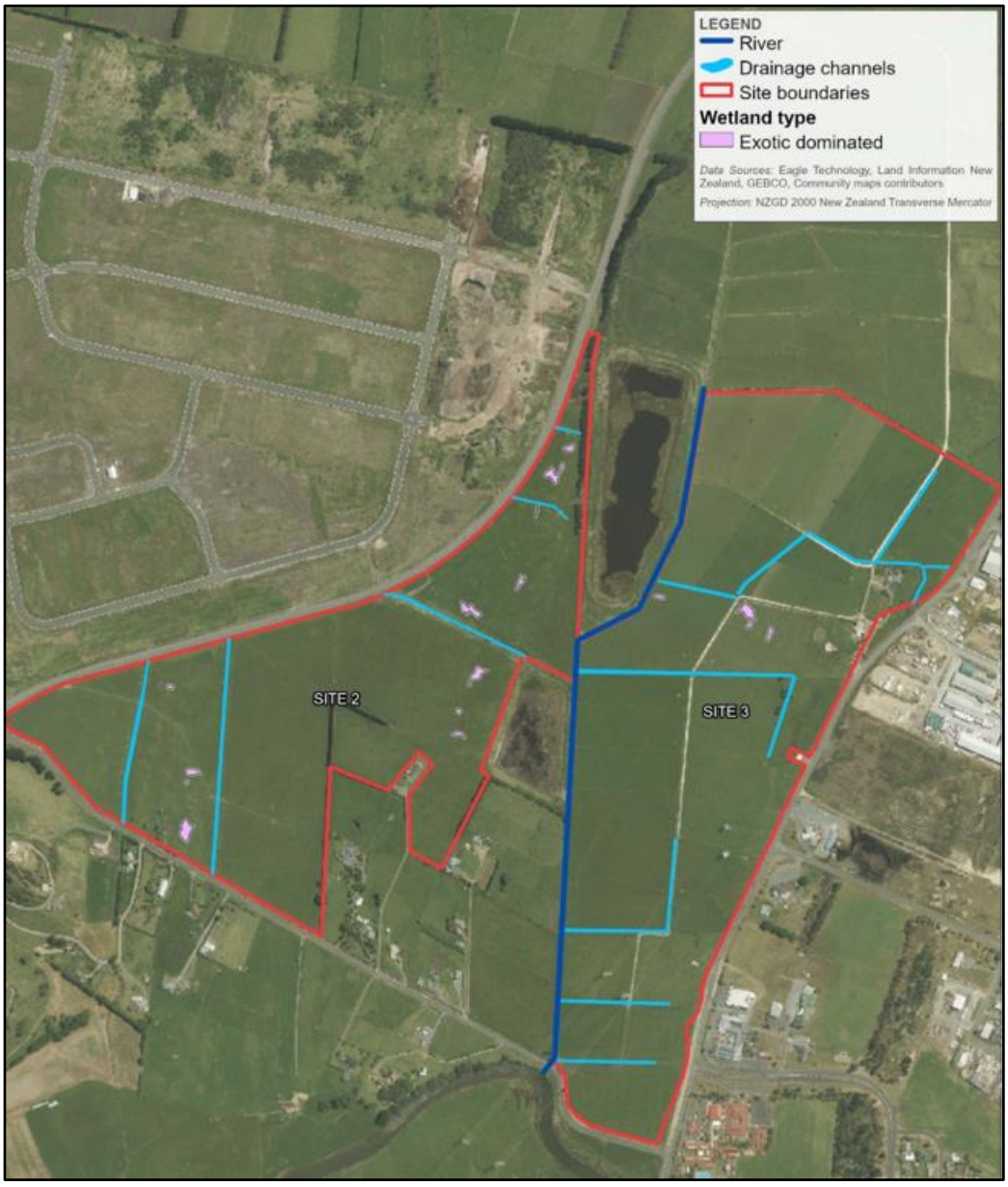


Figure 14: Sites 2 and 3 ecological features (Source: Boffa Miskell ecological effects assessment).

There is currently no pest control on any of the sites, noting that wetland bird species are highly susceptible to predation.

3.4 Topography, watercourses, and drains

3.4.1 General description

Site 1 has a gently undulating topography formed from consolidated dunes, with remnant dune crests and slacks aligned parallel to the coast. A large man-made drain (Bercich Drain) runs in a north-easterly direction through the site, with a series of drains running parallel and perpendicular. The northern part of the Bercich Drain is protected by an easement in gross in favour of the WDC (see **Figure 15** below).

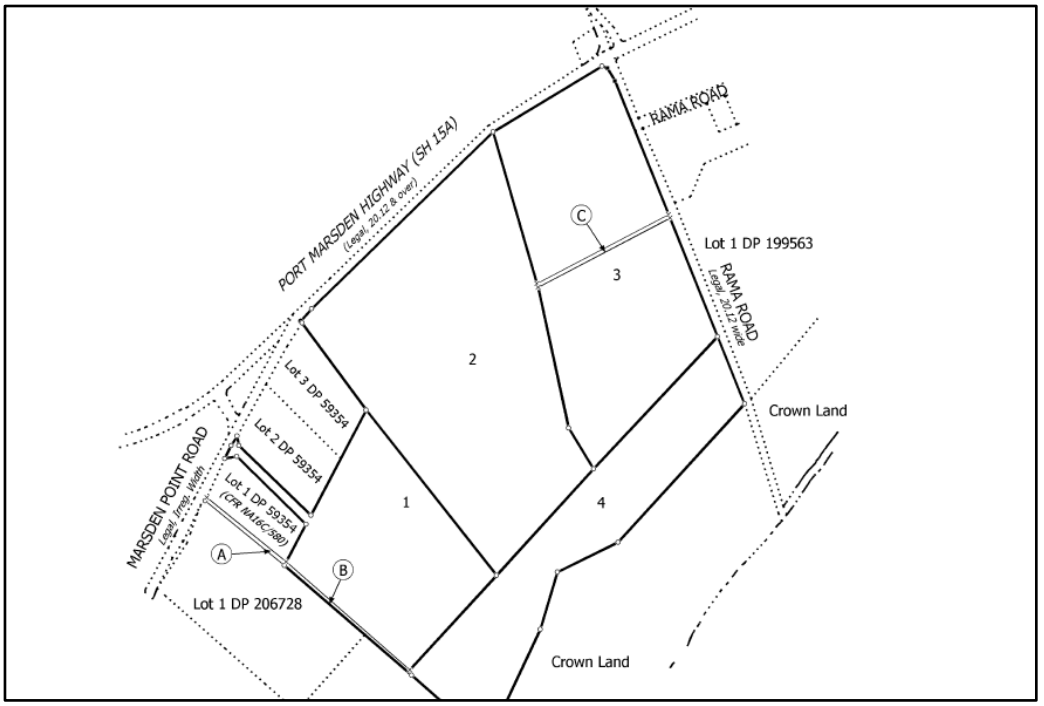


Figure 15: Existing drainage easements on Site 1 (note area 'C' over northern part of Bercich Drain).

Site 2 is predominantly flat. However, there are recently created sand and topsoil stockpiles in the southern part of the site near McCathie Road being stockpiled fill material associated with NRC (AUT.043952.01 to AUT.043952.03). The topsoil is contained in a bund, while the imported sand is located in a central stockpile (see **Figure 16** below). The sand is in the process of being exported for use at the BESS site.

Figure 16: Existing stockpiles at Site 2 (Source: Google Earth).

There are numerous man-made drains across the site, generally draining to the eastern part of the property and ultimately to the Ruakaka River.

Site 3 slopes gently to the Ruakākā River located to the south of the site. The portions of the site closest to Marsden Point Road are elevated above the rest of the site by 3-4m.

There are numerous man-made drains across the site, generally draining to an unnamed drain on the western boundary of the property and ultimately to the Ruakaka River via a culvert under McCathie Road. The unnamed drain (referred to as the K-Drain in the BM report) which mostly runs along the western boundary of Site 3 is covered by an easement in gross in favour of the WDC.

3.4.2 Status of watercourses/drains

All the watercourses across the three sites are man-made drainage channels, typically constructed before the 1950's.

Despite being man-made, the Bercich Drain (within Site 1) and the large unnamed drain on the western boundary of Site 3 meet three of the criteria for an 'intermittently flowing river or stream' under the PRP and are therefore classified as a 'river' under the PRP and the RMA.

The smaller drains only meet one of the criteria for an 'intermittently flowing river or stream' and are therefore not classified as a 'river' under the PRP or the RMA.

BM describe the Bercich Drain as having low ecological value as only the most tolerant native species inhabit the watercourse in very low numbers.

The unnamed drain within Site 3 is described as having a moderate to high ecological value due to the presence of At Risk īnanga, the strong hydrological connection with the Ruakākā River, and the potential for providing spawning habitat for īnanga.

3.5 Flood susceptible areas

Portions of all three sites are within the 10, 50 and 100 year River Flood Hazard Zones and 0, 1, 2 and 3 Coastal Flood Hazard Zones shown on the NRC flood maps (see **Figures 17 – 19** below).

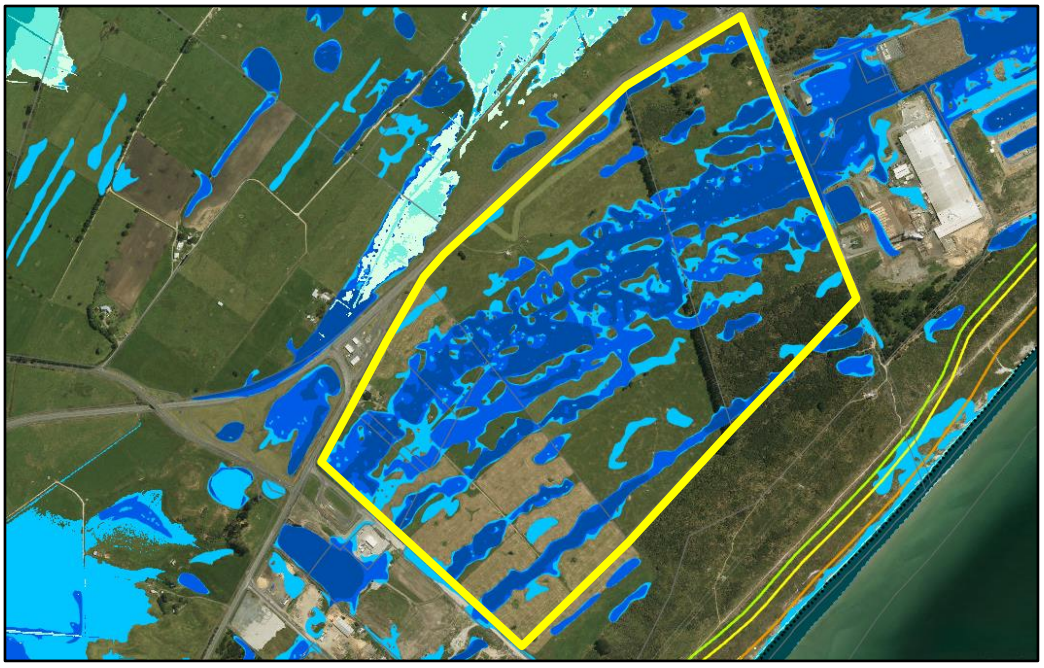


Figure 17: Flood extent for Site 1 (NRC GIS)

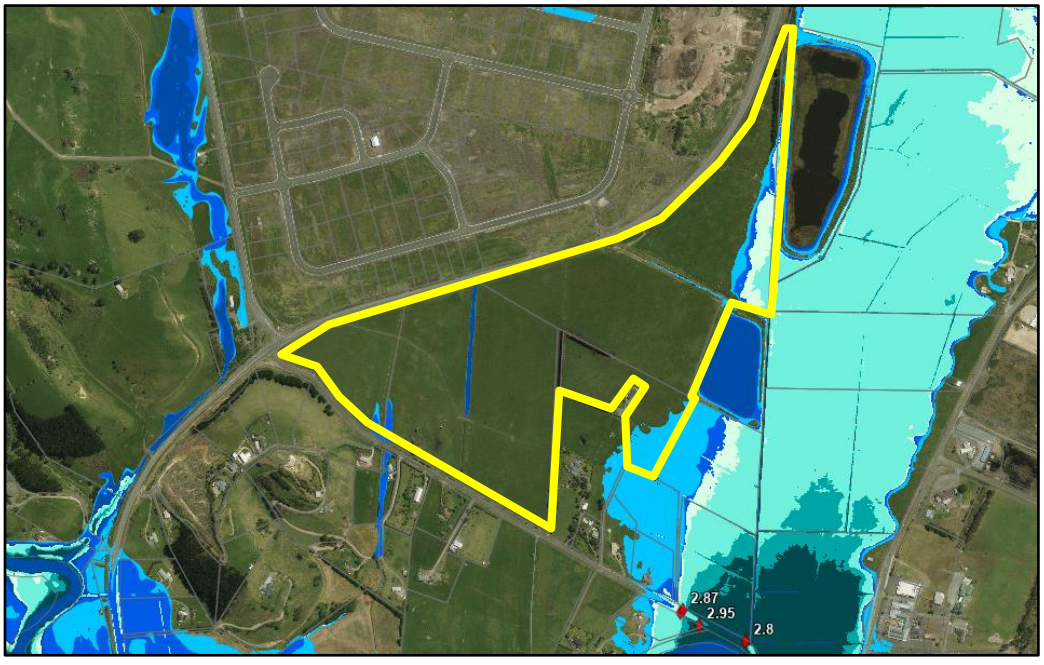


Figure 18: Flood extent for Site 2 (Source: NRC GIS)

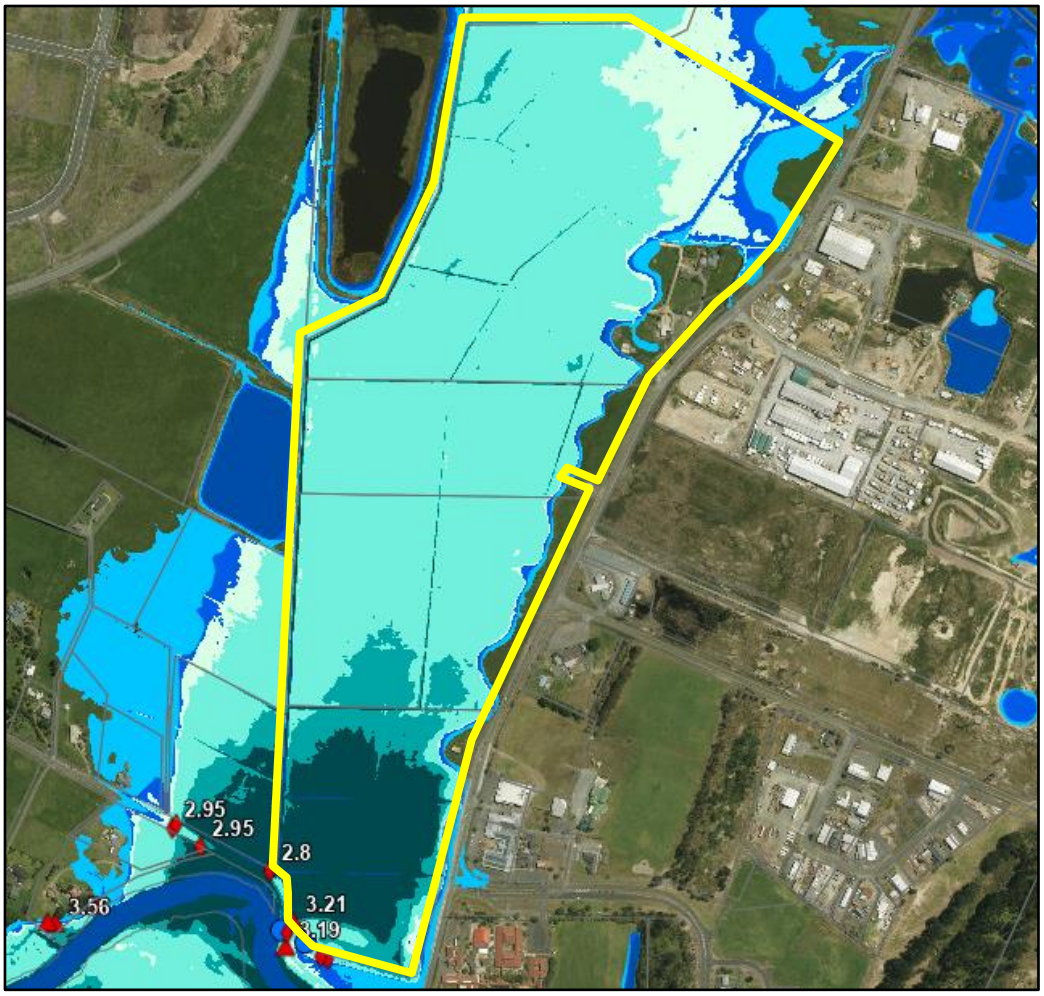


Figure 19: Flood Extent for Site 3 (Source: NRC GIS)

3.6 Soil Classification

3.6.1 Land Use Capability (LUC) soil classification

Under the LUC system, the soils across the three sites are a mix of Class 2, 3 and 6 soils. The Class 2 and 6 soils are only found on Site 2 zoned Light Industrial. The soils on the remaining land in Site 2 and on Sites 1 and 3 are Class 3 (see **Figure 20** below).

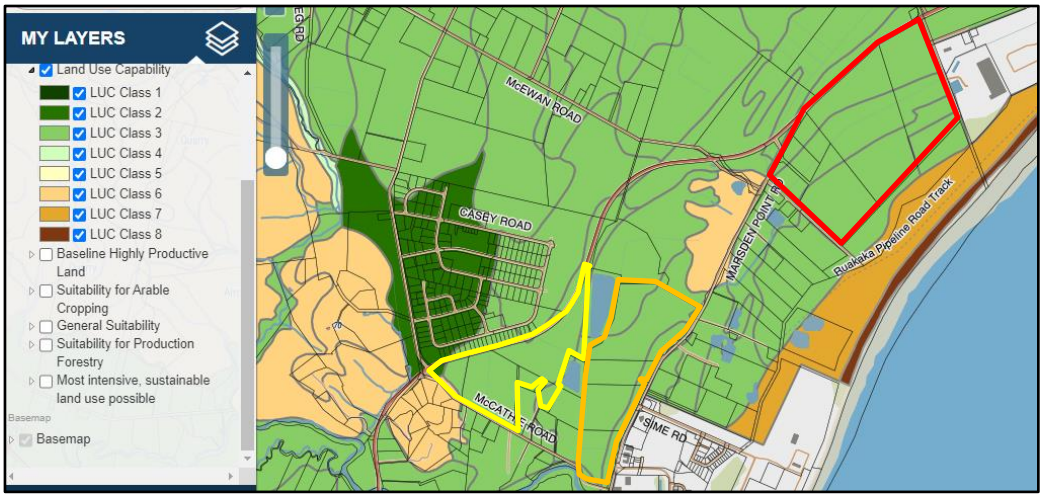


Figure 20: LUC soil classification (Source: Manaaki Landcare Research).

3.6.2 Highly Versatile Soils under the Whangarei District Plan

The WDP defines Highly Versatile Soils as:

means Land Use Capability Classes 1c1, 2e1, 2w1, 2w2, 2s1, 3e1, 3e5, 3s1, 3s2, 3s4 as mapped in the New Zealand Land Resource Inventory.

The only soils that fall within this definition are those on Site 2 zoned 'Light Industrial'.

3.7 The surrounding environment

3.7.1 Land uses

There are a range of land uses in the surrounding environment, although the predominant uses are industrial in nature. Specifically, the land adjoining the northern and southern boundaries of Site 1 is zoned Heavy Industrial. The land to the west of Site 2 contains a range of industrial and commercial uses in the Marsden City development, with the land to the north also being zoned Light Industrial and currently accommodating a sand mine and a partially completed industrial subdivision.

While Site 3 is located in the Rural Production Zone, it is surrounded on three sides by Heavy and Light Industrial uses. This industrial character is further reinforced by the Transpower transmission lines traversing the site and in the surrounding environment, the heavily trafficked SH15, and the more distant but dominant Channel Infrastructure and Northport facilities and associated structures.

The land to the immediate east of Site 1 is owned by the Whangarei District Council and is used for the land-based disposal of wastewater from the Ruakaka Wastewater Treatment plant.

The Ruakākā shopping area, containing a range of commercial and other activities, is located opposite the southern part of Site 3, as is Bream Bay College.

There are a range of rural lifestyle blocks located to the south of Site 3 in the Rural Production Zone, with this zone extending through to SH1.

The various activities and zones in the surrounding environment are shown in **Figure 21** below.

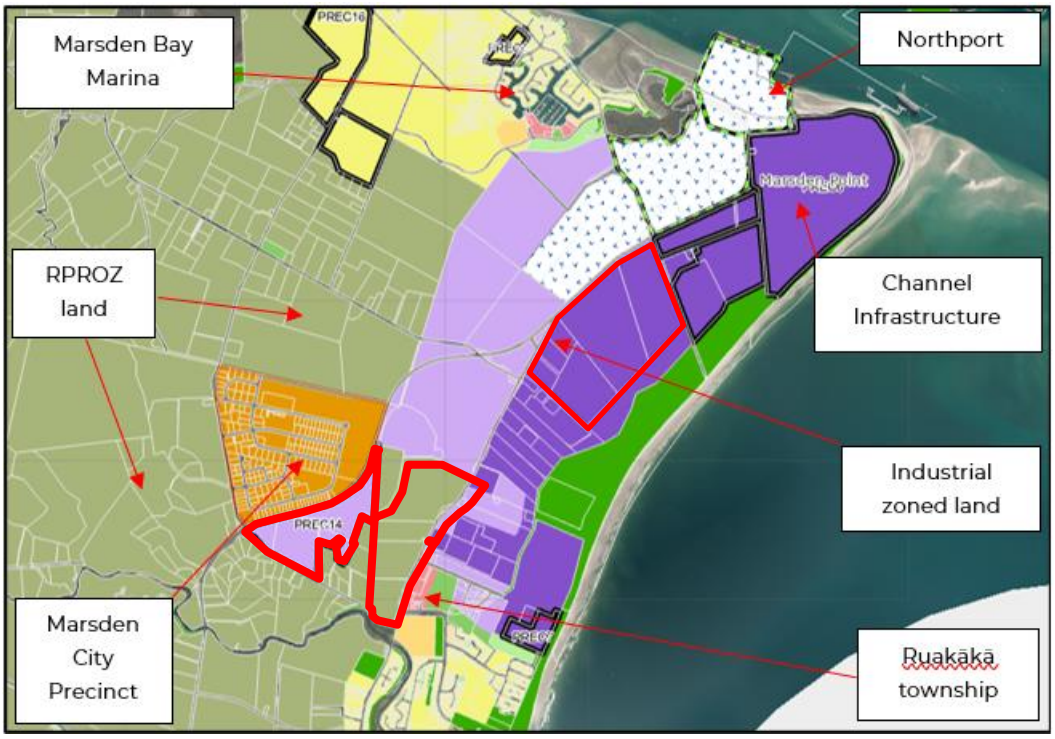


Figure 21: Activities within the surrounding environment (Source: WDC GIS) -

3.7.2 Electricity Infrastructure

There is a range of electricity infrastructure in the surrounding environment. Transpower (Bream Bay, BRM) and Northpower substations are located at Rama Road to the north of Site 1. These separate substations are subject to designations in the District Plan (Northpower (NPL-11)) and Transpower (TPR-3)).

A Transpower substation (Marsden Point, MDN) is located east of Site 3 at Sime Road. This is also subject to a designation in the District Plan (TPR-2).

A second Northpower substation, the Ruakākā Substation (NPL-10), is located at the southern end of Ruakākā on Camellia Avenue.

A series of National Grid Lines and Northpower CELs run from the substations, including through and past the subject sites.

In addition to existing (constructed) infrastructure, the former Refining NZ (now Channel Infrastructure New Zealand) holds resource consents for a 28MW solar farm on land between Mair Road and Rama Road in October 2019. These consents remain live and is therefore part of the existing environment.

The electricity infrastructure in the surrounding environment is shown in **Figure 22** below.

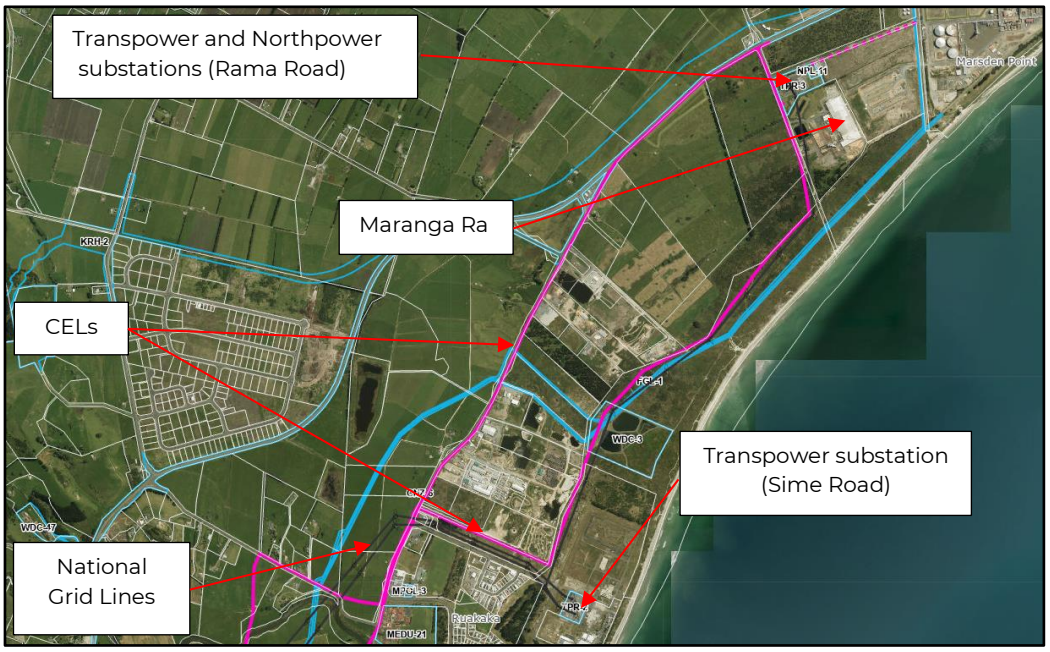


Figure 22: Electricity Infrastructure in the surrounding environment

4. PROJECT DESCRIPTION

4.1 General

The proposal is to establish a solar energy farm consisting of approximately 200,000 photovoltaic solar panels across an area of approximately 172ha, and other ancillary buildings and structures.

The location of the various components of the solar farm is shown in **Figure 23** below).

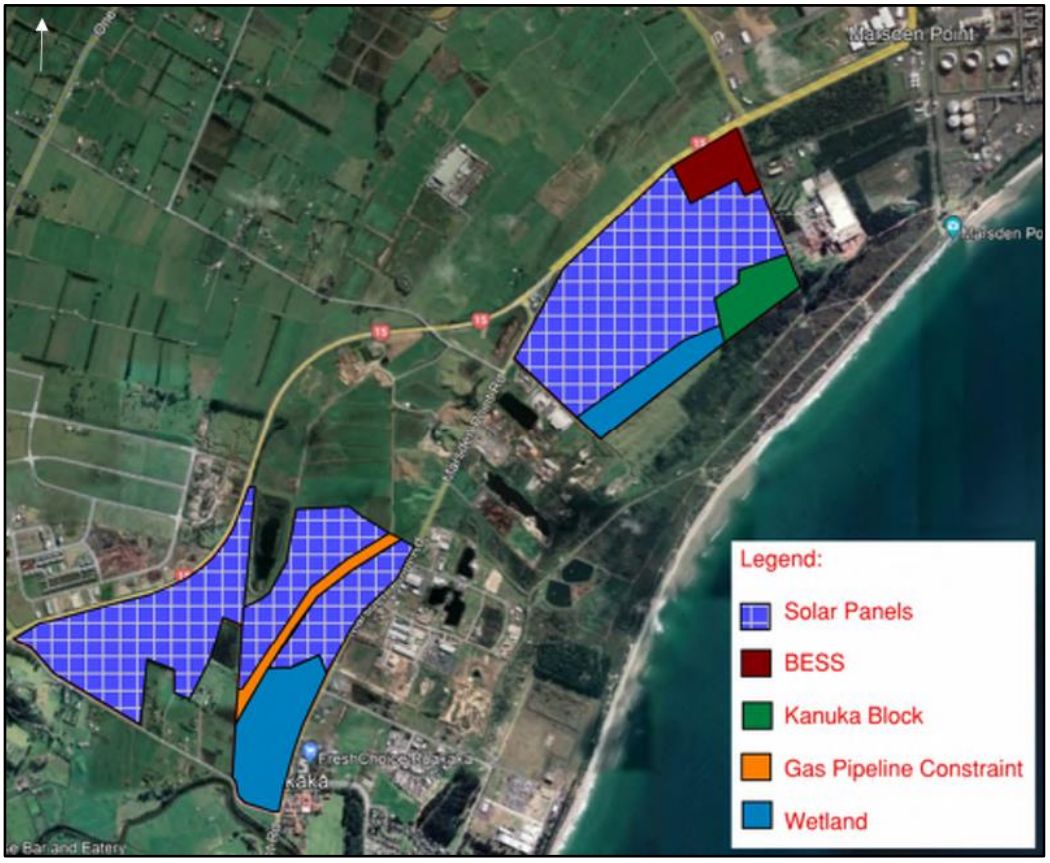


Figure 23: Aerial view of the proposed solar farm (Source: Beca Civil Design Report).

4.2 Water take for construction and maintenance activities

It is proposed to take 600m^3 per day for construction activities split between Site 1 (300m^3) and Sites 2 and 3 (300m^3). The duration of the construction phase is expected to be approximately 12-18 months.

Post construction, the take is expected to reduce to around 75m^3 per day for maintenance activities including panel cleaning (when required).

4.3 Access

4.3.1 Permanent access

Several access points are proposed to the three sites. These are addressed in the traffic effects assessment in **Appendix 5.**

The primary access to Site 1 will be through the BESS site, with no access to SH15. The existing farm crossing from SH15 to Site 1 will be permanently closed. Secondary access for infrequent maintenance will be existing site access from Marsden Point Road and new access point (primarily for construction) on Rama Road south-west of the BESS entrance.

The primary access to Site 2 is from McCathie Road, with no access to SH15. Secondary access will be from McCathie Road. The existing two crossings from SH15 through Site 2 to the two stormwater ponds will be retained as they are required for third parties to maintain their drainage assets and ponds.

There will be one primary access point to Site 3 from Marsden Point Road, including a secondary vehicle crossing to provide access to the northerly set of National Grid transmission towers. The existing access from McCathie Road will be retained to access the southern set of National Grid transmission towers and unnamed drain.

The vehicle crossings will be constructed in accordance with the requirements of the TRA Chapter of the District Plan and the WDC EES.

4.3.2 Temporary access

Temporary access vehicle crossings will be required during construction. These are in the same position as the permanent crossings.

4.3.3 Internal access roads

An internal service road network will provide access throughout each site for construction and ongoing maintenance. These roads will have a formation width of between 4m and 8m.

An indicative layout is shown on the Beca Civil Drawings in **Appendix 4**. The final layout will be determined at the detailed design phase.

4.4 Laydown areas

A laydown area is required on each site for the construction phase.

The laydown areas will be repurposed to accommodate additional solar panels, including the potential for additional solar on the laydown area for the BESS.

4.5 Culverts

Several culverts are required within the various drains located on the sites. Indicative culvert locations are shown on the Beca Civil Drawings in **Appendix 4.**

4.6 Drains and stormwater flow paths

There are several drains and watercourses located on each of the three sites.

Where the drains are covered by easements, these drains will remain in situ. Other drains will be filled or redirected, but in all instances, stormwater currently being received from other sites and public roads will be provided for in the final earthworks design.

4.7 Solar farm operations

The solar farm and BESS operations are expected to employ 4-8 FTE.

Ongoing operations and maintenance activities will include:

- Routine panel cleaning.
- Routine inspections and maintenance of the solar farm, BESS and electrical infrastructure.
- Internal access maintenance.
- Routine maintenance of drains (including the Bercich Drain on Site 1 and the unnamed drain on Site 2.
- Pest and weed control in wetland areas.
- Grass control/mowing/grazing.

4.8 Buildings and structures

The solar farm will incorporate the following buildings/structures:

4.8.1 Solar panels

The preliminary design undertaken by Beca indicates that approximately 200,000 panels will be required across the 172ha development area.

The panels are likely to be mounted on a pole and truss system.

Two potential array types have been identified, being fixed tilt and single axis tracking. Either of these installation types may be used. Each of these systems are summarised below.

Fixed tilt

Fixed tilt panels will be arranged in rows that run east to west, with the panels facing north.

The panels will be located above potential flood levels and to allow livestock to graze underneath.

Approximate heights and spacings are shown in the consent drawings in **Appendix 6.**

The basic structural detail of the fixed tilt system is shown in **Figure 24** below.[4]

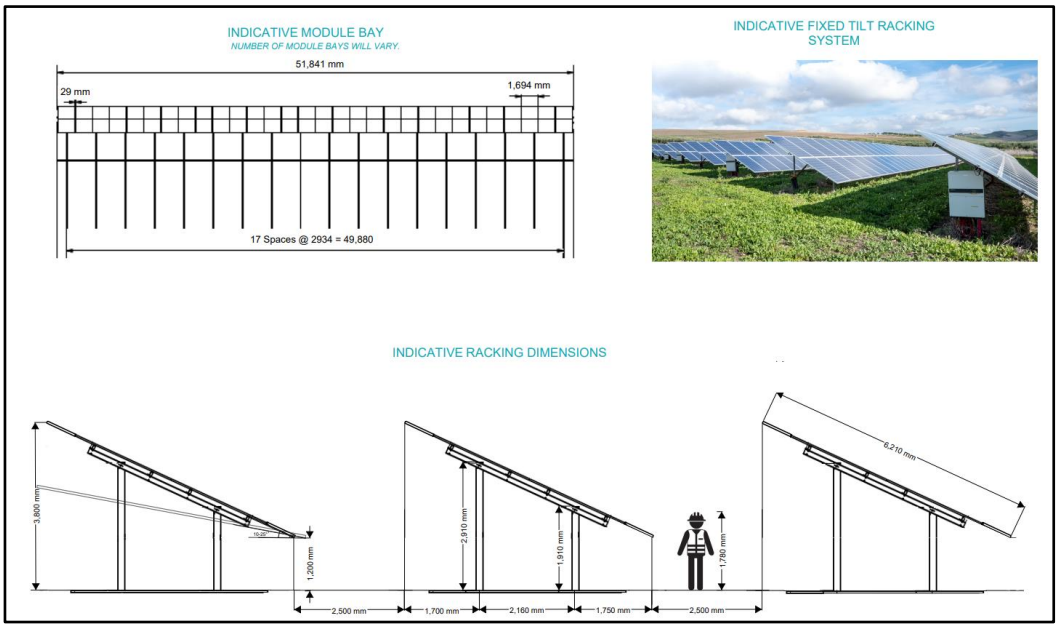


Figure 24: Fixed tilt structural details (Source: Beca Civil Drawings).

Single axis tracking

Single axis tracking panels will be arranged in rows running north to south with the panels facing east-west. The panels will move along a single axis throughout the day to maximise the exposure to sunlight. The range of rotation is +/- 60° and will likely be facilitated by small electrical motors located at the end of each row.

Approximate heights and spacings are shown in the consent drawings in **Appendix 6.**

[4] Racking heights will vary between Sites 1-3 (indicative heights for Site 1 shown in Figure 20).

The basic structural detail of the single axis tracking system is shown in **Figure 25** below.

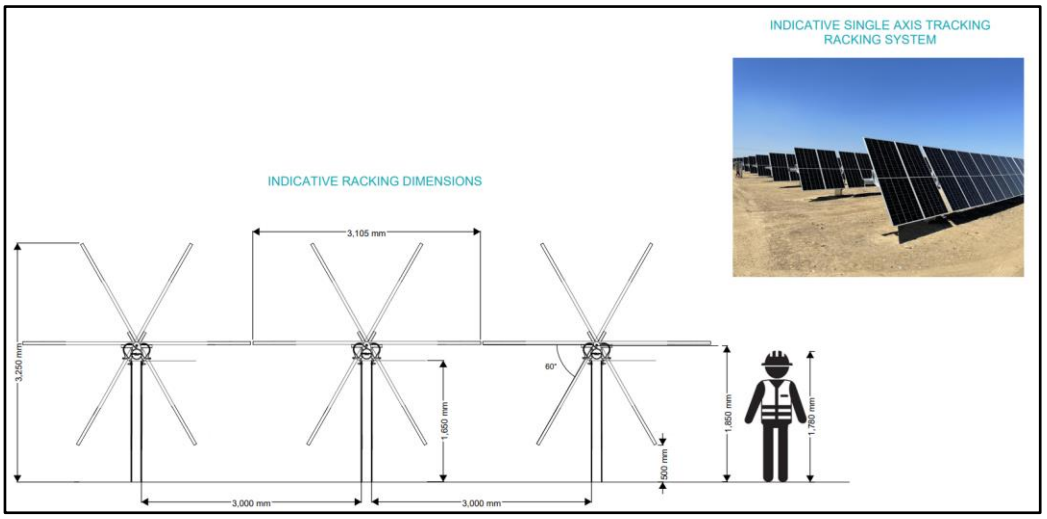


Figure 25: Single axis tracking structural details (Source: Beca Civil Drawings).

The panels have been designed to allow livestock to graze underneath and to be above the flood levels where they are located within a flood hazard area.

4.8.2 Inverters

Inverters convert direct current (DC) electricity, which is what a solar panel generates, to alternating current (AC) electricity, which the electrical grid uses.

Preliminary design carried out by Beca indicates that there will be approximately 29 invertor stations required across the three sites, with approximately 15 on Site 1, 7 on Site 2, and 7 on Site 3. The approximate locations are shown on the Civil Drawings in **Appendix 4.**

The inverters will be located adjacent to the internal access roads. Each inverter will consist of factory assembled componentry with a total area of approximately 25m^2, set on a 55m^2 platform. An indicative inverter station is shown in **Figure 26** below and on the Civil Drawings.

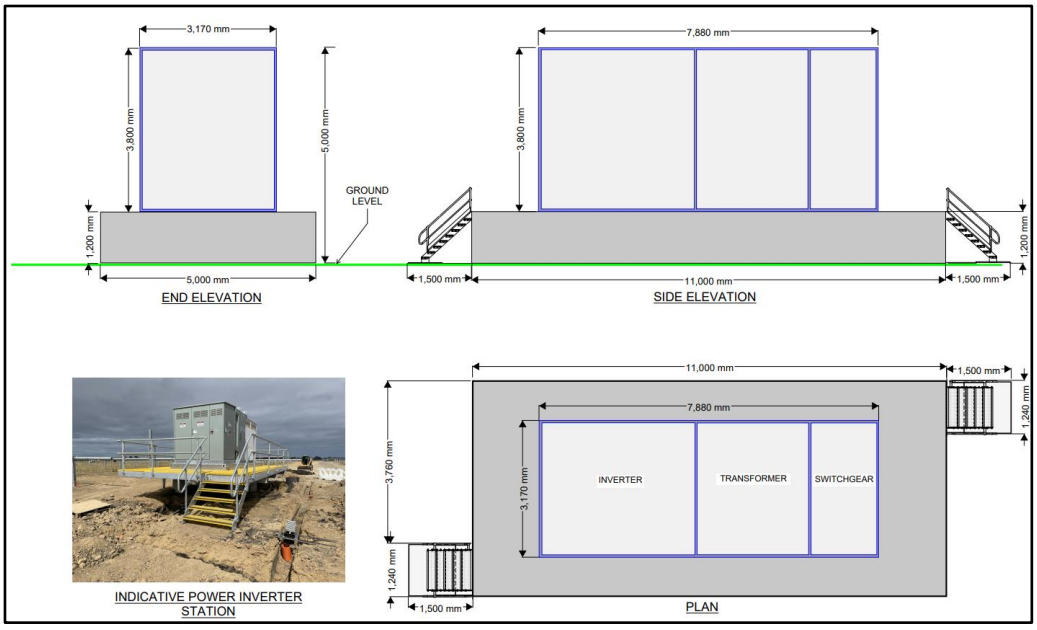


Figure 26: Indicative inverter station

4.8.3 Control Room

The main control room (and switching station) for the solar farm and BESS will be located on the BESS site, and already under construction.

4.8.4 Satellite control room

The satellite control room will be established in a small purpose-built building on Site 3. The location and plan of the building is shown in **Figure 27** below.

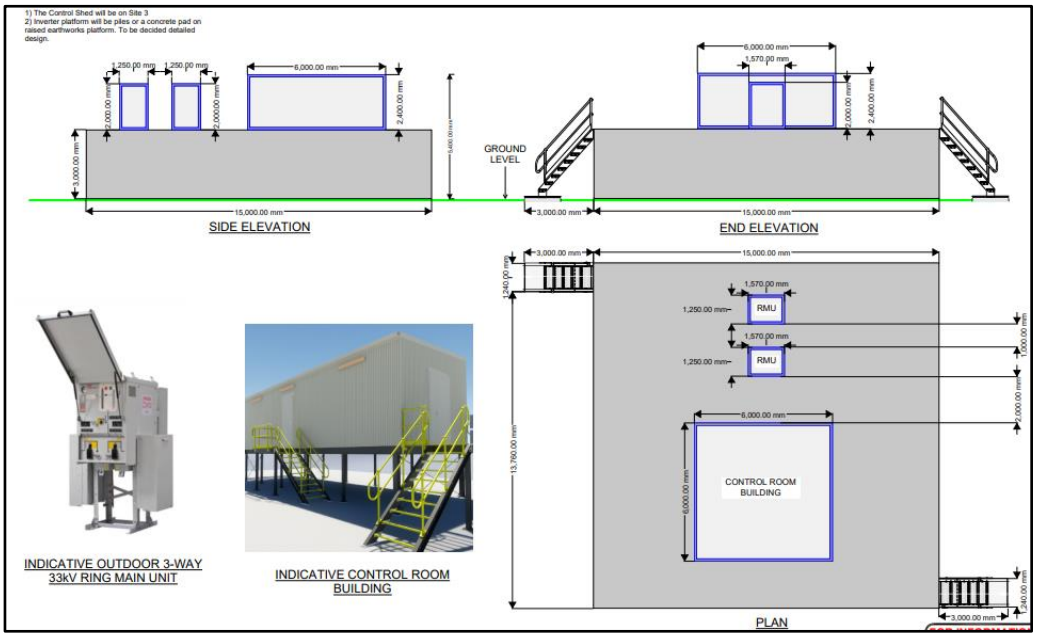


Figure 27: Satellite Control Room Building

4.8.5 Operation and maintenance centre

The existing buildings (house, garage, shed) on Site 3 are to be retained for use as a satellite operations and maintenance facility.

4.8.6 Grid interconnection

A 33kV connection will be constructed between the solar infrastructure on Sites 2 and 3 and the BESS switching station on Site 1. The line will be within the road reserve and on land owned by the applicant and will comply with the permitted activity criteria outlined in the Network Utilities Chapter (NTW) of the WDP. The final route and design will be determined as part of a comprehensive design for the solar farm prepared once consent is granted.

4.9 Removal of existing buildings

Existing sheds and other farming related buildings on Site 3, the timber and corrugated iron shed on Site 1, and the wooden structure on Site 2 will be removed. The existing dwelling on Site 3 will be retained.

4.10 Stormwater management and impervious surfaces

4.10.1 Impervious surfaces

The solar panels will be mounted on structural supports above the ground, thus presenting as a "shield" to rain falling on the ground rather than an impervious surface. As concluded in the Beca Civil Design report, the effects of sloping terrain, movement of the panels (in either fixed tilt or single axis tracking configurations) and wind influences are expected to wet the partially shielded terrain beneath the panels, therefore maintaining the pervious and porous nature of the site.

4.10.2 Flood storage and hydraulic neutrality

The earthworks profile adopted for the site will remove depression storages and alter runoff from the site. This effect has been modelled and is discussed in the Beca Flood Modelling Report in **Appendix 7.** The Beca Civil Design Report in **Appendix 8** subsequently recommends that an earth bund be constructed along Rama Road to the north-east of the site to avoid adverse effects on downstream properties.

Indicative stormwater management for all sites is shown on the Civil Drawings in **Appendix 4.**

Site 1 will continue to drain to the central Bercich Drain. Channels will be formed on the uphill side of internal access roads to intercept runoff and

convey it to the Bercich Drain. Typical details for internal access roads, channels and culverts are shown in **Figures 28** and **29** below.

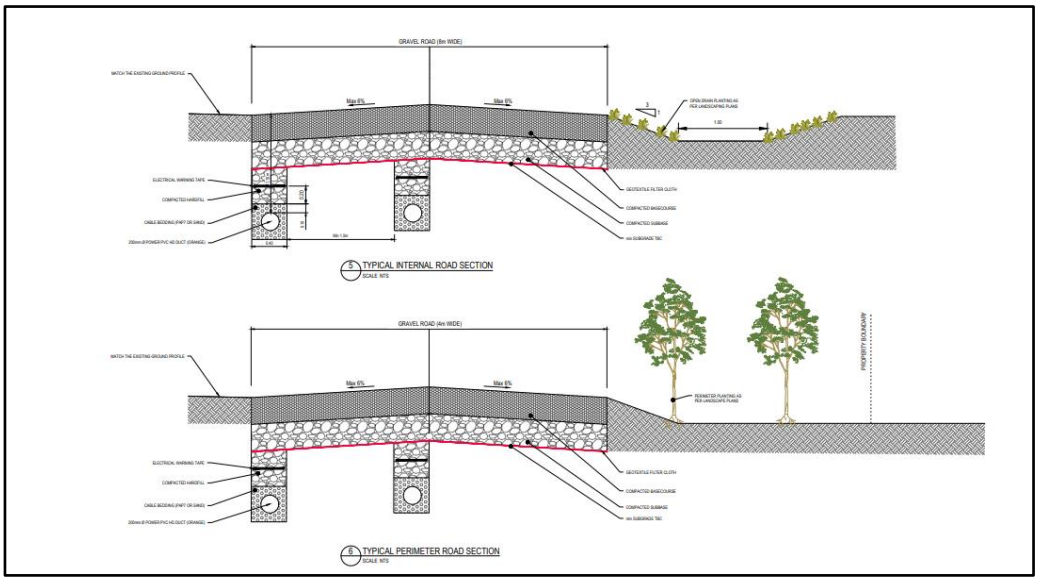


Figure 28: Internal (including perimeter) access road cross section (Source: Beca Civil Design Report)

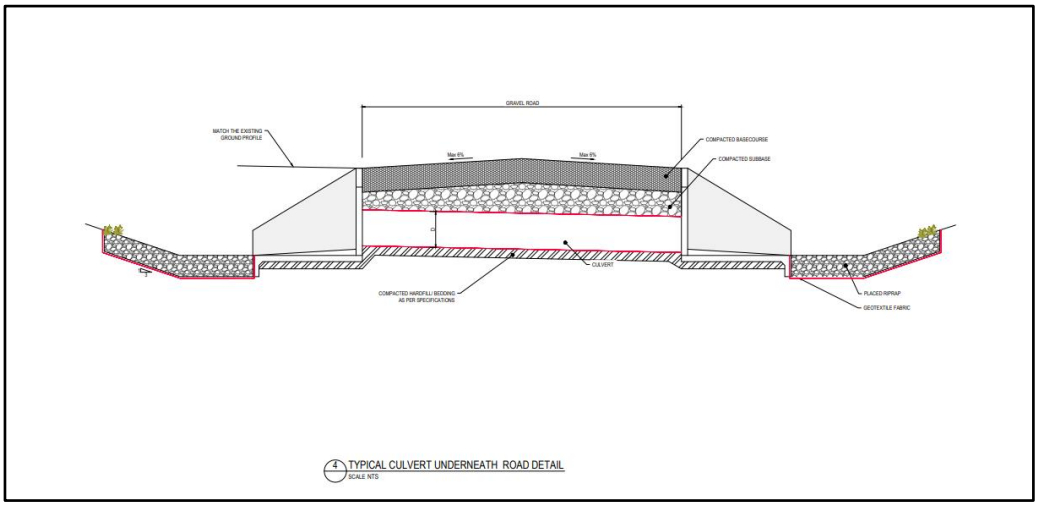


Figure 29: Access road cross section with culvert (Source: Beca Civil Design Report).

The surface runoff in Site 2 will follow the same drainage approach as that adopted for Site 1. Specifically, existing drainage channels will be maintained, and all internal access roads intercepting sheet flow will have a new channel constructed on the uphill side. Runoff volumes and peak flow rates from the site will remain similar to the pre-development state, therefore avoiding downstream impacts.

Similar to Sites 1 and 2, existing channels and flow paths will be maintained in Site 3. Site 3 contains a new wetland which will manage stormwater from the development area. The earthworks planned to construct the wetland will provide more floodplain storage to assist with achieving hydraulic neutrality.

This will have a net benefit for flood depths in the area as described in the flood effects report. The northern portion of Site 3 that does not drain towards the wetland will drain towards the west of the site and then to the Ruakākā River via the drainage channel flowing south between Sites 2 and 3.

The existing drainage channels that are covered by easements will be retained in their existing locations. The other drainage channels may be rerouted depending on the final design of the solar farm, which may require the removal of culverts in accordance with Rule C.2.17 of the PRP. Any changes made to the drainage channels will be designed to ensure stormwater from surrounding properties can enter the sites as per the existing situation.

4.11 Perimeter (security) fencing

The parts of the sites containing solar panels will be fenced. The fencing will be a 2.2m high security fence with barbed wire top. The location of the security fencing is shown on the Beca Civil Drawings.

4.12 Signage

Any signage established as part of the proposed solar farm will comply with the permitted activity criteria in the 'Signs' Chapter of the WDP.

4.13 Agricultural use

The land beneath the solar arrays on Site 1-3 will be grazed, therefore enabling a continuation of rural productive use.

4.14 Landscape planting

Landscape planting is proposed in general accordance with the Landscape Planting Plan attached in **Appendix 1** and in **Figure 30** below.

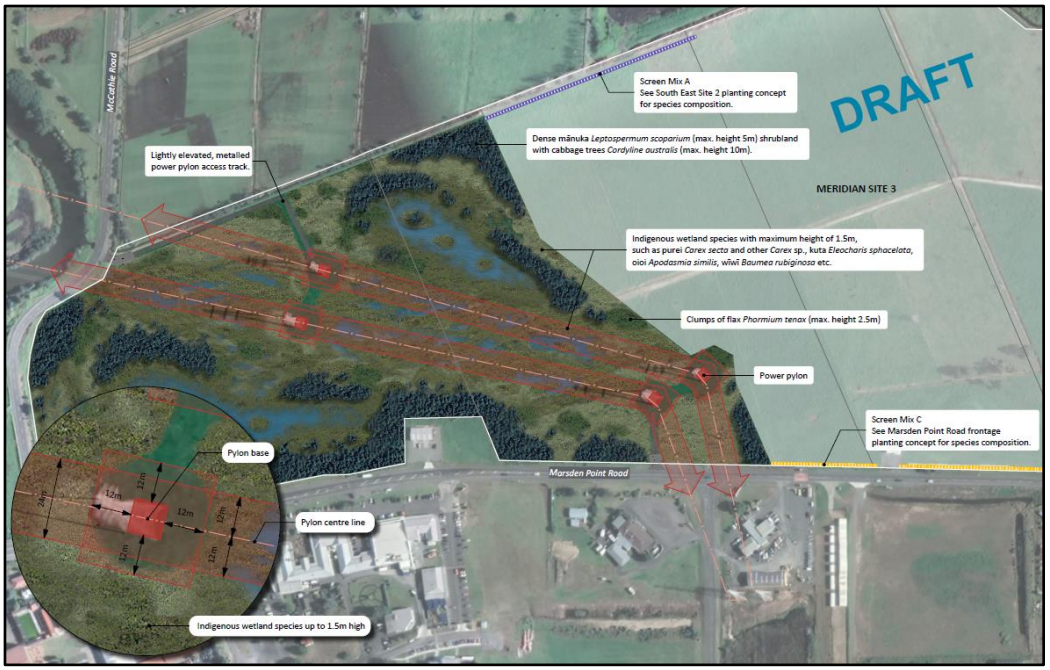


Figure 30: Landscape Planting Concept Plan (Source: LLA landscape assessment).

The planting is predominantly on the site boundaries and will be a mix of species as indicated on the Landscape Plan. It will have a minimum height of 1.8m, likely growing to around 5m in 5-6 years, and a minimum width of 2.5m.

4.15 Wetland removal and offsetting

4.15.1 Wetland removal

To facilitate the solar development of Site 1 approximately 17.06ha of wetland areas (as defined under the NES-FM) will be removed.

The wetland removal on Site 1 will result in the removal of habitat for native birds and aquatic invertebrates, introduced frogs and potentially native fish. Therefore, the following mitigation measures are proposed:

- Staged clearance;
- Avoiding important seasons (nesting seasons, spawning season for īnanga, and vegetation clearance in colder months for lizards);
- Pest control of the main mammalian predators; and
- Monitoring of the effect of the solar panels on avifauna. Any effects greater than low (i.e. minor effects) will trigger the implementation of a management plan, with species specific effect management measures.

4.15.2 Wetland creation/offset

Site 1

To partly offset wetland removal on Site 1, approximately 2.05 ha of open water wetland habitat in the southern-eastern corner of Site 1 will be retained, enlarged, and enhanced. The proposed area of this enlarged wetland will be 9.1 ha.

Site 3

In addition to the wetland enhancement on Site 1, an additional wetland will be constructed in the drained, low-lying area at the southern end of Site 3. This wetland will be approximately 11.73ha based on the proposed wetland loss and offset areas on Site 1. However, based on current calculations, the total offset wetland extent will be 18.78ha across the two sites.

The proposed wetland offset has been prepared in general accordance with the best practice guidelines in EIANZ Ecological Impact Assessment guidelines 4447 (eianz.org) and Biodiversity offsetting under the RMA Biodiversity Offsetting draft 1.7.indd (lgnz.org.nz).

Wetland Restoration Plan

A Wetland Restoration Plan (WRP) will be prepared to offset the full extent of wetlands removed during construction, and to ensure the restored wetlands are of similar or better habitat and ecological function to those that are to be removed.

The objectives of the WRP are:

(1) To replace the full extent of wetlands removed as a result of construction.

(2) To ensure the restored wetlands are of similar or better habitat and ecological function to those that are being removed.

(3) To create foraging, roosting/resting, breeding, and nesting habitat for the species known to use the sites currently, with a particular focus on matuku-hūrepo and weweia.

The WRP will be prepared in consultation with mana whenua and Transpower and will include:

- Detailed wetland design, including water depth, size, layout, catchment area and staging.
- Wetland and riparian plant species to be planted, including density, size and layout, including connections to adjacent habitat.

- Maintenance and monitoring, including ongoing pest and weed control.

4.16 Existing infrastructure

4.16.1 National Grid

The National Grid traverses the southern part of Site 3.

The solar panels will be located outside the National Grid Corridor as defined in the WDP and so no resource consent is required in respect to these lines.

Part of the proposed wetland in Site 3 will be constructed beneath the National Grid lines. To comply with the permitted activity criteria in the WDP, and consistent with Transpower recommendations arising from consultation, the wetland will be set back a minimum of 12 m from the visible outer edge of the Transpower tower foundations. Furthermore, all weather (gravelled) access will be provided to these structures as indicated in the Civil Drawings.

4.16.2 Northpower Critical Electricity Lines (CELS)

The CEL running across the southern part of Site 3 will be relocated to the adjacent McCathie Road.

It will also be necessary for the transmission line between sites 2 and 3 and the BESS to cross the CEL within Marsden Point Road somewhere near the intersection with Allis Bloy Place.

All works in the vicinity of Northpower lines will be carried out in accordance with Northpower requirements and associated regulations (including NZECP 34: 2001).

4.16.3 First Gas and Channel Terminal Services Designations

Both the solar panels and the wetland development on Site 3 will be located outside the First Gas and Channel Terminal Services Designations.

4.17 Vegetation retention and/or removal

The kānuka forest and shrubland in the northern eastern corner of Site 1 will remain unaffected.

Riparian vegetation will be removed from the Bercich Drain on Site 1 and the unnamed drain on Site 3 to improve the hydraulic efficiency of these drains. Maintenance of these drains will then be required on an ongoing basis.

Several trees scattered across all three sites will also be removed as indicated on the Civil Drawings in **Appendix 4.**

4.18 Earthworks

4.18.1 Earthworks details

Bulk earthworks will be required across all three sites to enable suitable finished ground for the solar panels and associated infrastructure. This includes the access roads, inverter stations, satellite control room, operation and maintenance centre, and the 33kV connection between Sites 2 and 3 and the BESS switching station on Site 1.

Earthworks are also necessary to enhance the existing wetland on Site 1 and to construct the new wetland on Site 3.

The earthworks area across the three sites will be approximately 190ha (94ha on Site 1, 41ha Site 2 and 55ha Site 3). Some of the earthworks will be in Flood Hazard Areas. In relation to the construction of the wetland on Site 3, earthworks will comply with NZECP34. The Construction Environmental Management Plan will be developed in consultation with Transpower to ensure this is achieved.

Additional earthworks details are shown on the Civil Drawings in **Appendix 4.**

4.18.2 Erosion and sediment control

Beca have prepared a draft Erosion and Sediment Control Plan (ESCP) for this application (see **Appendix 9**). The key recommendations are as follows:

- A finalised ESCP will be prepared after consent is issued in conjunction with the contractor. Any measures adopted will be in accordance with AC GD05.
- Stabilised construction entrances and laydown areas will be constructed early.
- The earthworks will be staged to minimise erosion.
- The earthworks catchment areas will be defined for each stage and treated via sediment retention ponds and/or water diversions (bunds and channels). Monitoring of the sediment retention pond catchment areas will be required.
- A mix of silt fences, super silt fences and decanting earth bunds will be constructed in smaller catchments where dirty water cannot be directed to the primary stormwater retention ponds.
- The constructed wetland areas on Sites 1 and 3 may be utilised as sediment treatment areas.

- All erosion and sediment control measures will be monitored and maintained regularly.

4.19 Construction management

4.19.1 Construction sequencing

An indicative construction sequence for all three sites is set out below. Further details are provided in the draft ESCP plan in **Appendix 9.**

- **Site establishment:** This includes the construction of stabilised entrances, temporary laydown areas, hardstands for inverter power stations, internal haul roads and culvert stream crossings, a workshop, site office, and perimeter fencing. Erosion and sediment control measures will also be constructed.
- **Site clearance:** The sites will then be cleared, including trees, buildings, and drains.
- **Earthmoving activities:** These will be undertaken to achieve the final ground profile for each site.
- **Construction of the internal access roads and associated infrastructure:** This will include concrete pads for the invertor power stations and power conduits under the roads as required.
- **Installation of solar panels:** This will include the construction of the piles, mounting of panels, and the DC and AC cables.
- **Earthworks to construct the wetlands:** The earthworks to construct the wetlands on Sites 1 and 3 will likely be undertaken after the solar installation. The site perimeters will also be planted where relevant.
- **Disestablishment of erosion and sediment control measures**

4.19.2 Construction effects management

To manage effects during the construction phase, the following management plans are proposed as conditions of consent.

Construction Environmental Management Plan (CEMP)

The CEMP will address the following:

- The expected duration (timing and staging) of the works;
- Details of all erosion and sediment controls, with a specific focus on ensuring that sediment does not enter the waterways or wetlands;

- Diagrams and/or plans showing the locations of any cut and fill operations (including trenching and earthworks for roads and tracks), disposal sites for unsuitable materials and the locations where erosion and silt control structures/measures are to be established;
- Details of surface revegetation of disturbed sites and other surface covering measures to minimise erosion and sediment runoff following construction;
- Measures to minimise sediment being deposited on public roads;
- Measures to ensure sediment or dust discharge from the earthworks activity does not create a nuisance on neighbouring properties;
- Measures to prevent spillage of fuel, oil and similar contaminants;
- Contingency containment and clean-up provisions in the event of accidental spillage of hazardous substances;
- Means of ensuring contractor compliance with the CEMP;
- The name and contact telephone number of the person responsible for monitoring and maintaining all erosion and sediment control measures; and
- Contingency provisions for the potential effects of large/high intensity rain events.

Consultation with Transpower will be undertaken to ensure there is compliance with NZCPE34:2001.

Construction Traffic Management Plan (CTMP)

While the surrounding roading network is sufficient to accommodate the construction traffic associated with the solar farm, it is proposed that the consent conditions require the preparation of a CTMP in accordance with Council requirements.

Construction Noise Management Plan (CNMP)

MDA acoustics have proposed the following condition in respect to construction noise:

Noise from construction activities shall, as far as practicable, not exceed the limits recommended in, and shall be measured and assessed in accordance with, New Zealand Standard NZS 6803: 1999 "Acoustics – Construction Noise". Where exceedances of the guidelines in this standard are identified as likely to occur, they shall be managed through a construction noise and vibration

management plan. All practicable noise attenuation measures shall be implemented.

MEL accepts this condition and has included it in the draft conditions of consent in **Appendix 10.**

Erosion and Sediment Control Plan

As detailed in the previous Section 4.18.2 of this report, an ESCP will be prepared prior to construction, in general accordance with the draft ESCP.

5. ASSESSMENT OF ENVIRONMENTAL EFFECTS

5.1 Introduction

This section is an assessment of the actual and potential effects on the environment of the proposal. The assessment is supported by a full range of technical reports prepared by suitably qualified and experienced experts included as appendices to the AEE. These are:

- Archaeological assessment [Geometria]
- Ecological effects assessment [Boffa Miskell]
- Engineering alternatives and options assessment [Beca]
- Civil Design Report [Beca]
- Traffic Assessment [Beca]
- Flood modelling report [Beca]
- Geotechnical assessment [Beca]
- Acid Sulphate Soils Assessment [Beca]
- Glint and Glare Assessment [Velden Aviation Consulting Ltd]
- Landscape effects assessment [Littoralis Landscape Architecture]
- Acoustic effects assessment [Marshall Day]

5.2 Cultural effects

Cultural effects assessments have been prepared by Te Patuharakeke Hapū (PTITB) (see **Appendix 11**) and Ta Parawhau (see **Appendix 12**).

The PTITB CEA considers a range of effects including:

- Environmental effects.
- Cultural effects.
- Social effects.
- Economic effects.

It also contains a number of recommendations, the majority of which have been included as proposed conditions of consent.

The Te Parawhau CEA recommended the inclusion of a healing garden, which can be accommodated as part of the detailed design phase for the wetland on Site 3.

5.3 Positive effects

The proposal will facilitate a range of positive effects. These include:

- Improving security of electricity supply (resilience) for the Northland Region.
- Supporting the New Zealand Government strategies of 100% renewable electricity generation by 2030, and a net zero carbon future by 2050.
- Significant investment in the local economy and work force during the design, consenting, construction, operational and maintenance phases.
- The combining of solar and agricultural use on Site 3 maximises the productivity and sustainable use of available resources, on land that is otherwise marginal due to its susceptibility to flooding.
- A net improvement in wetland values, including both ecological and amenity values. Amenity values are improved due to proximity to the Ruakaka town centre and improved accessibility.
- Improved water quality in the Ruakaka River through wetland filtering.

5.4 Ecological effects

5.4.1 Introduction

Ecological effects from the construction and operation of the proposed solar farm have been assessed by Boffa Miskell (BM). Specifically, the BM report assesses actual and potential effects on the wetlands, terrestrial vegetation, freshwater watercourses, avifauna, heptofauana and long-tailed bats. The conclusions from this assessment are summarised below. Further detail is provided in the BM ecological assessment in **Appendix 13.**

5.4.2 Wetland loss and offsetting

As detailed in the BM report, there are wetlands on all three sites, but the majority (98%) are located on Site 1. Many of the wetlands are proposed to be removed.

MEL commissioned an alternatives and optimisation report with the overall goal of maximising efficiency and minimising wetland loss to the greatest extent practicable. The report was informed by engineering analysis carried out by BECA in conjunction with MEL, and ecological assessment carried out by BM. Ultimately it was determined that some wetland loss was necessary on Site 1 to enable the efficient operation of the solar farm.

A detailed wetland restoration and management plan is proposed as a condition of consent to offset the loss of wetland extrent and to improve wetland values.

5.4.3 Terrestrial vegetation

The HIE ecological value kānuka forest on Site 1 will be retained in its entirety. It will be located outside the security fence, and livestock will not have access to it. The effects of the proposal on this kanuka forest are therefore positive.

Patches of exotic and native shrubs, hedgerows/shelterbelts and individual mature native and exotic trees will be removed during construction. However, BM considers that these features have a very low ecological value.

Overall, the effects on the terrestrial vegetation will be less than minor.

5.4.4 Freshwater watercourses

All of the watercourses on the sites are man-made drains. They are generally small in size, ephemeral in nature, lack connections, and have poor water quality.

While the drains on Site 1 (excluding Bercich Drain) are unlikely to be a habitat for native freshwater fish, the drains on Site 3 are slightly larger and have a better hydrological connection with the Ruakākā River. Therefore, it has been assessed that the habitat suitability of the drains on site 3, as well as the Bercich Drain, may be inhabited by low numbers of native freshwater fish. To mitigate this, a Native Fish Capture and Relocation Plan will be developed and implemented, which will restrict earthworks in drains to dry periods when there is less water, or relocation of native fish where drains provide native fish habitat. It will also set out best ecological practice for drain maintenance activities.

Many of the drains that cross the various sites will be removed and/or redirected in preparation for the solar farm. However, in most cases these will be re-established, and therefore the loss of habitat is temporary.

Culverts will be installed in accordance with the requirements of the National Environmental Standards for Freshwater regulations, recommendations of the New Zealand Fish Passage Guidelines and the permitted activity standards of the PRP.

Any effects associated with sedimentation will be mitigated through erosion and sediment controls measures. These will be confirmed in a comprehensive erosion and sediment control plan prepared before works commence in general accordance with the Beca ESCP.

Any adverse effects associated with maintaining the drains will be negligible as they will continue to be maintained in the manner that they were previously, in accordance with the permitted activity standards of the PRP.

In regard to water quality, the solar panels are sealed systems and are regularly checked. Any damaged panels will be removed/replaced. Cleaning will be with water only. Contaminants from other impermeable surfaces are expected to be minimal.

There will be an increase in the impermeable surfaces across the three sites, but this will only be slight. It is not expected to substantially alter the flow rates or flow regime in the Bercich Drain on Site 1 or the unnamed drain on Site 3. Any associated effects on freshwater ecological values will be negligible.

BM concludes that provided the monitoring and mitigation measures are implemented, adverse effects on the freshwater watercourses will be low, equating to no more than minor.

5.4.5 Avifauna

The primary effect on avifauna is from habitat loss, particularly on Site 1.

The construction works could result in injury or mortality to birds and nests if the appropriate controls are not in place. To avoid and minimise this, a Native Bird Management and Monitoring Plan will be developed and implemented, which will require as a minimum:

(1) Vegetation clearance of potential breeding/nesting habitat for cryptic wetland bird species will be undertaken outside the main breeding/nesting season for matuku-hūrepo and weweia (August to February).

(2) Clearance of other terrestrial vegetation will be undertaken outside the main breeding/nesting season for native birds using the sites, if possible. If not possible, nest checks will be done prior to vegetation clearance.

(3) No earthworks will be undertaken in the vicinity of nesting sites that have not been cleared prior to the breeding season.

(4) A Pest Management Plan will be developed and implemented to avoid and manage potential adverse effects on native bird species, and to help them re-establish on the sites post construction.

In addition to effects associated with construction, there is potential for avifauna to collide with the solar panels once they are constructed. Available data suggests the risk of this is low, but there is limited experience and research in New Zealand. Accordingly, Avifauna Collision Risk Monitoring will be included in the Native Bird Management and Monitoring Plan, an Avifauna Collision Risk Monitoring Plan will be prepared by a suitably qualified ecologist to reflect this limited experience and research. It will include two years of post-construction surveillance to detect any impact on avifauna. If the monitoring indicates the risks will be greater than low, an Avifauna Management Plan will be prepared to detail ongoing management measures.

BM concludes that provided the monitoring and mitigation measures are implemented, the adverse effects of the proposed solar farm on avifauna will be low, equating to no more than minor.

5.4.6 Herpetofauna

BM have advised that there is limited lizard habitat across the three sites. What habitat there is will be removed as part of the construction process (except for the kānuka forest).

Injury or mortality to herpetofauna is possible as a result of the construction works. To mitigate any potential effects, BM recommend a combined approach consisting of targeted lizard salvage, staged vegetation reduction and removal, habitat replacement, and predator control. Provided these measures are implemented, BM concludes that the adverse effects on herpetofauna will be very low, equating to less than minor.

Once the solar farm is established the effects will be negligible as the lizard habitat will have been largely removed from the sites. The screen planting, where proposed, may return some suitable lizard habitat to the sites in the medium to long term.

5.4.7 Long-tailed bats

BM has advised that there is potential for injury or mortality to bats during the clearance of vegetation, particularly if they are found to be residing in any trees that have been identified for removal. BM has recommended that a Bat Management Plan be prepared to detail the necessary management actions and mitigation impacts. This will include implementation of the bat roost

protocol, replacing shelterbelts or erecting bat boxes, and predator control where roost features are present. BM concludes that subject to the proposed mitigation, the adverse effects on long-tailed bats will be low to very low, equating to less than minor effects.

5.4.7 Overall ecological effects conclusion

While the proposal will result in the direct loss of lower value wetlands, the effects will be offset through wetland creation and enhancement such that they are less than minor.

Aside of the direct loss of wetland habitat, BM have confirmed that other ecological effects can be minimised through implementation of management plans. Overall, BM consider that subject to implementation of these plans, the ecological effects of construction will be less than minor.

The operational effects of the solar farm are also considered to be less than minor. However, a precautionary approach is proposed in respect to potential avifauna collisions with solar panels.

Overall, the effects of the proposal on ecological values will be less than minor, and in terms of habitat quality, positive.

5.5 Landscape, rural character, and visual effects

5.5.1 General

Potential effects on landscape values, rural character, and visual effects have been assessed by LLA. The conclusions from this assessment are summarised below. Further detail is provided in the LLA report in **Appendix 14.**

The landscape, rural character, and visual effects assessment is focussed on Site 3 (being zoned Rural Production), with solar farms being a permitted activity in the Light and Heavy Industrial zones.

5.5.2 Landscape effects

As described in the LLA report, the site has a well-defined identity through its simple, grazed land use, and it is unremarkable in landscape terms. LLA also note that the combined forces of surrounding zoning, existing adjacent industrial and commercial land use, and the imposition of elements like the high-tension power corridor considerably deflate the potential landscape values and sensitivity of both the site and its immediate context.

The site is not identified as having elevated landscape values, with the nearest Outstanding Natural Landscapes (ONL) being the Takahiwai Hills 3km to the

west, and the Bream Bay Ocean Beach 1km to the east. As noted by LLA, neither of these identified ONLs has a direct relationship with the site or faces any potential for a negative impact upon their identity or values as a result of the proposal.

The LLA report concludes that when considered in the context of the very limited landscape values attributable to the site, the adverse effects of the proposal on landscape values will be low.

5.5.2 Rural character effects

As noted by LLA, the site is somewhat of an orphan from the body of rural-zoned land clearly demarcated to the south of McCathie Road as it is surrounded on three sides by industrial and commercial zones and traversed by four transmission towers.

Compared with likely development outcomes provided for in the surrounding industrial zones, the solar farm will retain more of the characteristics of farming use. Specifically, it brings a high degree of uniformity, a sense of openness when seen from a distance, a ground cover of grass and attendant animals, and screening perimeter vegetation.

Although the conversion of pastoral farmland to a solar farm inevitably results in a loss of rural character, when put in the context of these dimensions that level of loss is not dramatic. Given this context, LLA concludes that the adverse effect of the proposal on the rural character of the site is moderate-low and low when considered in the context of the rural character of the wider setting.

5.5.3 Visual effects

LLA assesses the potential visual effects of the proposed solar farm on six main viewing groups being:

- McCathie Road residents
- Travellers on Marsden Point Road
- Travellers on McCathie Road
- Residents on the elevated “knoll” between McCathie Road and SH15.
- Residents in the Takahiwai area
- Residents and visitors to the eastern face of peaks of Whangarei Heads.

The LLA conclusions on the potential effects on each of these viewing groups are summarised as follows:

Residents on McCathie Road

This group consists of rural residential properties on the flat land on both sides of McCathie Road, south-west of Sites 2 and 3. The properties on the northern side of McCathie Road are surrounded by Site 2 (zoned Light Industrial) to the north and west, and Site 3 to the east.

79 McCathie Road is the largest of these properties, adjoining Site 2 to the west and north. It has a mature Leyland cypress hedge on the boundary with Site 2 which largely shields views. The Proposed Planting Screen Mix A as shown on the Landscape Plan will progressively replace this screen over a period of 5 – 7 years. LLA concludes the adverse visual effects will be low, reducing to very low as the plantings are established.

89 McCathie Road is located within the same enclave as 79 McCathie Road. It is slightly elevated above the land to the east. Planting is proposed on the boundaries of this site which will screen views over a period of 5 – 7 years. LLA concludes that the adverse visual effects will be low, reducing to very low as the plantings are established.

109 McCathie Road has frontage to Site 2 (to the west) and to Site 3 (to the east). A stormwater attenuation pond adjoins its northern boundary. The buildings on this site are concentrated in the south-western corner and are surrounded by mature amenity planting. This site also has pasture in the northern part of the property which is open to views of Sites 2 and 3. The boundary with Site 2 will be planted, as will the half of the boundary with Site 3 where solar panels are proposed. The other half of this boundary adjoins the proposed wetland. LLA concludes that the adverse visual effects on this property will be low, reducing to very low as the plantings are established.

An unnumbered property in the south-eastern corner of this enclave adjoins Site 3, but only the part where the wetland will be constructed. LLA concludes that the adverse visual effects on this property will be very low.

LLA notes that the dwellings on the other properties in this group are typically set back into their titles and contain a belt of planting along their frontage. Accordingly, LLA concludes that the adverse visual effects on these properties is very low.

Travellers on Marsden Point Road

The views of motorists and pedestrians travelling along Marsden Point Road are currently shaped by industrial uses to the east, and earthworks north of

Site 3. As noted by LLA, this has shifted the character from rural to industrial. LLA concludes that due to the evolving context of the surrounding environment the adverse visual effects will be moderate to low initially, reducing to low as the perimeter planting is established.

LLA also conclude that the proposed wetland in the southern part of Site 3 will generate high positive visual amenity effects for visitors to the Ruakākā town centre, and for vehicles travelling north past the McCathie Road junction.

Motorists on McCathie Road

LLA concludes that the proposal will generate high positive effects on this group, which equates to significant positive effects.

Residents on the elevated knoll

There are 6 dwellings located along the north-eastern edge of the knoll to the south of the site. LLA notes that the foreground to mid-ground of views from these properties is predominantly of Site 2, with the northern part of Site 3 (where the solar panels will be constructed) lying beyond this. LLA considers that the solar panels on Site 3 will be viewed as a subservient extension of the development on Site 2 rather than in contrasting isolation. Given this context, LLA concludes that the adverse effects on this group will be moderate-low.

Takahiwai residents

Takahiwai residents are spatially separated from the sites, and by several layers of shelterbelt planting. Views from elevated locations are blocked by orientation and intervening spurs of the surrounding landform. LLA concludes that there are no adverse visual effects on this group.

Whangarei Heads residents

LLA notes that for the majority of locations in this group, Site 3 does not present as an expanse of grazed pasture. Views are clearer from the crest of Manaia, the ridge track on Mt Aubrey, and in the forest on Mt Lion. However, LLA considers that Site 3 will be viewed as part of the extensive areas of existing industrial activities and industrial zone land. Accordingly, LLA concludes that the adverse effects on this group will be low.

5.5.4 Overall conclusions

Key conclusions in respect to effects on landscape, natural character and visual effects are as follows:

(a) Effects on landscape character will be Low.

(b) Effects on rural character will be Moderate-Low to Low.

(c) Visual effects will range between Moderate-Low to Low.

5.6 Glint and Glare

5.6.1 General

Potential glint and glare effects for residents in the surrounding environment and road users has been assessed by VAC. The conclusions are summarised below. Further detail is provided in the VAC reports in **Appendix 15.**

The glint and glare assessment is focussed on Site 3 (being zoned Rural Production), with solar farms being a permitted activity in the Heavy and Light Industrial zones (Sites 1 and 2).

5.6.2 Assessment

The VAC report concludes that while there are solar glare levels that may result in minor effects on some dwellings and road users, the proposed landscape planting will be effective in eliminating this impact. Furthermore, while existing landscaping around the dwellings was not modelled extensively due to the amount of modelling involved to capture it, VAC expect that this will also further eliminate any potential glint and glare issues.

5.7 Effects on surrounding infrastructure

5.7.1 General

The initial design phase has focused on avoiding adverse effects on existing infrastructure located within and around the subject sites, particularly the National Grid Lines, Northpower lines (including CELS), First Gas pipeline, and the CTS petroleum pipeline, located within Site 3.

5.7.2 National grid lines

MEL has consulted with Transpower in respect to the national grid lines on Site 3, notwithstanding that the proposed works are a permitted activity under the National Grid Corridor[5] rules of the WDP, the following measures will be employed to avoid adverse effects:

(1) Physical access will be provided to the four transmission towers.

(2) No earthworks will be within 12m of the transmission towers.

[5] **National Grid Corridor** means an area of 12m from the outer edge of a support structure and 12m from the centreline of the National Grid shown on the planning maps while they are owned or operated by Transpower NZ Limited.

(3) No solar panels or related infrastructure will be installed within the National Grid Corridor.

(4) Ensuring machinery working within the National Grid Corridor complies with NZECP43:2001 and Transpower requirements for working under and close to Transpower assets.

(5) The wetland species mix will be prepared cognisant of the need to avoid avifauna effects on the lines.

The permitted activity status, combined with the measures outlined above, ensure that the effects on the National Grid are negligible. A letter of support from Transpower is attached in **Appendix 16.**

5.7.3 Northpower infrastructure

MEL has consulted with Northpower regarding potential effects on lines running through sites 2 and 3, and in respect to the lines located within Marsden Point Road. A subsequent letter of support from Northpower is attached in **Appendix 16.** Intends to relocate lines in 2 and 3.

5.7.4 Gas and petroleum pipelines

The First Gas and CTS pipelines running through Site 3 are located within designations shown on the WDP maps.

No solar panels or related infrastructure will be installed within the designated area. However, it will be necessary to drive across the designated areas to access the solar farm either side of the designation. As noted in the Beca Civil Report, driving over the pipelines in a longitudinal direction can result in disjointing forces on the pipelines. Accordingly, only two perpendicular crossings are proposed over the pipelines. The final locations will be determined at the detailed design phase once the consent is issued.

The avoidance and mitigation measures outlined above will avoid adverse effects on these pipelines.

A letter of support from Firstgas is attached in **Appendix 16.**

5.8 Traffic effects

5.8.1 General

Traffic effects have been assessed by Beca. The conclusions from this assessment are summarised below. Further detail is provided in the Beca traffic effects assessment in **Appendix 5.**

5.81.2 Construction traffic

The construction phase of the project is when the highest number of traffic movements will be generated. A Construction Traffic Management Plan (CTMP) will be prepared and implemented to manage the temporary effects of construction traffic.

5.8.3 Proposed vehicle crossings

There are several existing and proposed vehicle crossings required for the construction phase. These same crossings will also become permanent crossings for the ongoing operation of the solar farm. As set out in the Beca traffic assessment, specific recommendations for each of these crossings are as set out below.

Site 1 – Rama Road

The Site 1 access from Rama Road has compliant sightlines in excess of 151m (155m to the north or south). Ongoing maintenance of vegetation to maintain the sightlines is recommended. The traffic volumes on Rama Road are low, and therefore vehicles can use the opposing lane to turn. Localised sealing is not required.

Site 1 – Marsden Point Road

The Site 1 access from Marsden Point Road does not have compliant sightlines (140m where 151m is required). However, the traffic assessment concludes that this is not a concern as turning vehicles are not expected to be travelling at the operating speeds (70km/hr).

Turning vehicles cannot use the opposing lane as Marsden Point Road has high traffic volumes, and so localised sealing will be required.

The report recommends that left in, left/right out traffic movements should be considered at this crossing as part of the CTMP.

Site 2 – McCathie Road

The Site 2 access from McCathie Road will require vegetation maintenance to achieve compliant sightlines (214m). The traffic volumes on McCathie Road are low, and therefore vehicles can use the opposing lane to turn, although Beca note that caution should be used. Localised sealing is not required. Left in/left out traffic movements should be considered at this crossing as part of the CTMP.

Site 3 – Marsden Road

The Site 3 access from Marsden Point Road achieves compliant sightlines (151m). Turning vehicles cannot use the opposing lane as Marsden Point Road has high traffic volumes. Therefore, localised sealing/widening will be required.

Left in/left out traffic movements should be considered at this crossing as part of the CTMP.

Once the solar farm is operational the number of trips will reduce significantly. Any localised widening can be removed from the entrances, and the same access points can be used for maintenance and operational purposes.

Beca conclude that the adverse effects during the construction phase of the solar farm are no more than minor due to the small number of trips generated. This will reduce once the solar farm is operational.

5.9 Noise and vibration

5.9.1 General

Potential effects of terrestrial noise and vibration from the construction, maintenance and operation of the solar farm have been assessed by MDL.

The MDL report notes measured ambient night-time level and the measured background levels are appreciably higher than what could be expected in rural areas, even during "quieter" times of the day and night. This is the existing environment upon which noise effects are assessed.

The conclusions from this assessment are summarised below. Further detail is provided in the MDL report in **Appendix 17.**

5.9.2 Construction noise

Construction of the solar farm is likely to involve the following:

- Delivery of panels, inverters, and other infrastructure, requiring trucks and small cranes
- Some earthworks using trucks, loaders and excavators
- A 'Vermeer PD10 Pile Driver' to impact drive the support piles into the ground.

It is expected that piling will take place over a period of less than 20-weeks and between the hours 7:30 to 18:00, Monday to Saturday. Therefore, the 'typical duration' construction noise limits (75 dB LAeq and 90 dB LAFmax) apply at 1m from the façades of occupied buildings.

Table 4 below shows the noise levels expected from significant equipment 1 m from the facade of a building relative to distance between the noise source.

***Table 4**: Activity specific noise levels at 1 m from a building facade (without screening)*

Item/Activity	Operating Sound Power Level (dB L_{WA})	Noise Level (dB L_{Aeq})					75dBA Limit Setback (m)
		10m	20m	40m	50m	100m	
Large Trucks	108	83	77	70	68	60	25
Excavators and other earthmoving plant	103	78	72	65	63	55	14
Vermeer PD10 Pile Driver (impact piling)	123	98	92	85	83	75	100
Concrete truck & pump	103	78	72	65	63	55	14
Truck idling	91	66	60	53	51	43	4

The piling works area is within 100 metres from the façades of several surrounding sensitive receivers (dwellings). MDA has calculated that the following receivers are likely to experience construction noise above the permitted standard.

- 32 McCathie Road ~ dist. to façade 60m
- 34 McCathie Road ~ dist. to façade 50m
- 44 McCathie Road ~ dist. to façade 60m
- 50 McCathie Road ~ dist. to façade 80m
- 79 McCathie Road ~ dist. to façade 45m
- 87 McCathie Road ~ dist. to façade 80m
- 89 McCathie Road ~ dist. to façade 15m
- 109 McCathie Road ~ dist. to façade 10m

Resource consent is sought to exceed the construction noise limits at these dwellings.

As acknowledged in the MDA report, piling works on solar farms proceeds quickly, and there are likely to be only a few days where piling occurs within 100 metres of any dwelling. MDA have recommended that a construction noise and vibration management plan be prepared to manage construction effects on near receivers. The plan will ensure that the contractor liaises with residents and advises them of when noise is likely to be elevated above the NZS6803 guidelines. The construction noise and vibration management plan will also require the contractor to avoid working during particularly sensitive

periods (often piling works in sensitive areas close to dwellings can occur during work or school hours where fewer residents are home). The requirement for a construction noise and vibration management is recommended as a condition of consent.

5.9.3 Operational noise

MDA has concluded that operational noise will comply with the permitted activity limits in the NAV chapter of the District Plan, noting that for practical reasons the proposed solar farm will only operate during daylight hours.

MDA have recommended attenuation of the inverters to minimise the risk that night-time noise levels could be above the District Plan permitted activity limit or result in any appreciable change to the existing ambient noise environment.

With attenuation in place, MDA consider that noise from the solar farm would be low overall, relative to the existing acoustic environment, and within all national and international guidelines for environmental noise levels that are typically applied within New Zealand. This would result in low risk of annoyance arising and that overall, the solar farm would be reasonable in terms of the RMA.

5.9.4 Mitigation measures

The following mitigation measures are proposed as conditions of consent.

(1) Preparation and implementation of a Construction Management Plan.

(2) The noise level from all operation of the solar farm shall meet the Whangarei District Plan noise limits (as operative when consent is granted) for any site and / or dwelling existing at the time of consent.

(3) Noise levels shall be measured and assessed in accordance with NZS 6801:2008 Acoustics – Measurement of Environmental Sound and NZS 6802:2008 Acoustics – Environmental Noise.

(4) Detailed design of the project shall include an attenuation design for inverters 16, 17, 18, 19, 20, and 21 as shown on Appendix B of the Marshall Day Report Rp 001 20230088. The attenuation design shall primarily consider selection and orientation of the inverters but may include other measures (such as the selection of non-tonal inverters or full/partial enclosure) as practicable and appropriate. The attenuation design must ensure that the noise level at any receiver complies with the night-time noise limits in Consent Condition 2 above.

5.10 Amenity values

5.10.1 General

There are a range of elements that contribute to amenity values. However, the main potential amenity impacts from the construction, operation and maintenance of the solar farm are increased noise (particularly during construction operations and visual effects). Also relevant is the amenity expectations for the various District Plan zones.

5.10.2 District Plan expectations

Solar farms are a permitted activity in the Heavy and Light Industrial Zones. Therefore, the key plan provisions for understanding effects on amenity values are those in the Rural Production Zone.

The relevant Rural Production Zone objectives and policies that related to amenity values are RPROZ-O3, RPROZ-P1, RPROZ-P2, and RPROZ-P5. These provisions seek to maintain and where appropriate protect amenity values by ensuring activities are:

1. Of a scale and character appropriate to the Rural Production Zone.
2. Sited in a location sufficiently setback from site boundaries to enable privacy, the retention of openness and access to sunlight.
3. Avoid ribbon development.

There is a focus on keeping noise to a level generally consistent with rural production activities, and similarly buildings and structures at an appropriate scale.

5.10.3 Technical assessments

Potential effects on amenity values from the construction, operation and maintenance of the solar farm are informed by the LLA Landscape and Visual effects assessment and the MDA Noise Effects Assessment.

The MDA report identifies temporary noise effects associated with the construction phase of the project. These effects will be managed as part of the construction management plan (CMP). Noise associated with the operational phase will be minimal, well within District Plan permitted activity limits, and generally commensurate with noise expected in the Rural Production Zone.

The LLA report concludes that visual effects range between Moderate Low and Low due to the low-lying nature of the structures, and the surrounding industrial land uses and zones.

5.10.4 Overall conclusions

Having considered the amenity expectations of the various District Plan zones, and the technical assessments (particularly those related to visual effects and noise), the effects of the proposal on amenity values can be managed through appropriate conditions of consent, to the extent that they are less than minor.

5.11 Stormwater effects

Stormwater falling on impervious surfaces will be managed to achieve hydraulic neutrality as per the recommendations in the Civil Design Report (**Appendix 8**). In accordance with these recommendations, the final earthworks design will avoid adverse effects on upstream and downstream properties.

Furthermore, the fundamental premise of the stormwater management for the development is to retain existing watercourses in situ where they are contained within an easement, and otherwise ensure that water currently entering the sites is provided for in the overall design.

The design approach described above ensures that the effects of additional impervious surfaces and recontouring of the land on stormwater management will be negligible.

5.12 Natural hazards

The Flood Modelling Report (**Appendix 7**) assesses the effects of the proposed earthworks on flood levels on adjacent sites.

Beca tested two events, being a 50 year average recurrence interval (ARI) with climate change, and a 100 year ARI with climate change. The results for each of the three sites are as follows:

Site 1

Earthworks on Site 1 will increase water levels by roughly 1mm, which is within the margin of error. It will also make it easier for water to reach the Bercich Drain. The bund and outlet structures proposed on the downstream (north-eastern) boundary will attenuate any flows to ensure that they do not exceed pre-development levels.

Site 2

Earthworks on Site 2 are a mixture of cut and fill, and therefore do not substantially change the flow paths or storage.

Site 3

Earthworks on Site 3 are predominantly cut and so there will be an increase in the available flood attenuation storage on the site.

The Beca flood modelling concludes that the proposed solar farm will have a negligible effect on flooding.

5.13 Archaeological effects

5.13.1 General

Potential effects on archaeology have been assessed by Geometria. The conclusions from this assessment are summarised below. Further detail is provided in the Geometria report in **Appendix 18**.

5.13.2 Effects

No archaeological deposits were encountered during the survey by Geometria. The potential for undetected subsurface remains within the project area is 'very low'.

5.13.3 Mitigation measures

The accidental discovery protocol will be adhered to being:

- If subsurface archaeological evidence should be unearthed during construction (e.g. intact shell midden, hangi, storage pits relating to Māori occupation, or cobbled floors, brick or stone foundation, and rubbish pits relating to 19th century European occupation), work should cease in the immediate vicinity of the remains and Heritage NZ and the Council should be notified.
- In the event of koiwi tangata (human remains) being uncovered, work should cease immediately in the vicinity of the remains and the mana whenua, Heritage NZ, NZ Police and Council should be contacted so that appropriate arrangements can be made.
- Because archaeological survey cannot always detect sites of traditional significance to Māori, such as wahi tapu, the mana whenua should be consulted regarding the possible existence of such sites within the project area. Furthermore, a precautionary authority should be applied for under the HNZPTA.

5.14 Effects on productive capacity of soils

As stated in Section 3.6.1, the soils across the three sites are a mix of Class 2, 3 and 6 soils. The Class 2 and 6 soils are only found on Site 2 zoned Light Industrial. The soils on the remaining land in Site 2 are Class 3. The soils on Sites 1 and 3 are also Class 3, but only Site 3 is zoned 'Rural Production'.

In relation to the productive potential and long-term capacity of the soil:

- The proposed solar panels will be mounted on racks that are supported by piles driven into the ground. The solar panels will therefore not impact the soil structure or the productive capacity of the soils.
- During the operation of the solar farm, the productive potential of the soil on Site 3 will be utilised for pasture production in accordance with the primary intentions for the zone. Sheep will graze the area around and beneath the solar panels.
- At the end of the operational life of the solar farm, the solar farm infrastructure can be removed and remain in pasture.

This approach aligns with the overarching objective of the NPS-HPL to protect highly productive land for use in land-based primary production, both now and for future generations.

5.15 Acid sulphate soils

The potential corrosive risks of acid sulphate soils have been assessed by Beca (see report in **Appendix 19**).

Acid sulphate soils were found in only 1 of 15 samples taken across Site 1. No specific testing was carried out on Sites 2 and 3.

The report contains the following recommendations that can be employed at the construction phase of the development to manage the risks posed by potential acid sulphate soils:

- Undertake sampling to determine areas that definitively contain ASS. This should include field testing and sampling for laboratory analysis. Sampling may need to be stratified to consider elevation, groundwater depths and geological information, and could be undertaken in conjunction with future geotechnical investigations.
- Based on these results, the areas which have the highest ASS risk can be mapped and a management plan, and any potential design response, established.

- A management plan could include:

– construction methodology specific to ASS,

– provisions for pH management in constructed wetlands and exposed soil within a site specific ESCP,

– guidance around material selection for infrastructure (e.g. corrosion resistant concrete, pipes and electrical conduit)

– identification and mitigation measures for the potential environmental effects associated with ASS discharges.

5.16 Geotechnical suitability

Geotechnical suitability has been assessed by Beca (see report in **Appendix 20**).

- Potential geotechnical hazards considered were:
- Soft ground
- Cemented sand
- Seismic hazards
- Acid sulphate soils (also covered in a separate report)
- Shrink swell soils
- Buried obstructions
- Slope instability
- Tsunami
- Coastal erosion

Notable identified geotechnical hazards for the development include soft and compressible soils, liquefaction in a moderate to large earthquake, hard cemented sands in Site 2 (difficult to penetrate) and buried obstructions.

The identified geotechnical hazards are not anticipated to prohibit the development of the site as a solar farm.

The report concludes that:

- Pile foundations are expected to be suitable to support photovoltaic panels. Thick deposits of weak soils, where encountered, may require relatively deep foundations. The cemented sand areas with Site 2 and buried trees (if encountered) may require pre-drilling for pile foundations.

Inverters may be supported on shallow foundations in areas underlain by sandy soils. Either piles or shallow foundations plus a hardfill raft may be needed in areas underlain by thick deposits of weak or organic soils.

- Other structures are recommended to be positioned to avoid areas where thick deposits of weak or organic near surface soils are encountered. Shallow reinforced concrete foundations are expected to be suitable. These will need to be designed to consider earthquake loads and potentially liquefaction effects.
- 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. Peat and organic soils including topsoil will not be suitable for use as structural fill, though may be used as a landscaping material or as part of potential new wetland areas for the development.

6. STATUTORY PLANNING ASSESSMENT

6.1 Relevant statutory planning documents

6.1.1 Introduction

This section of the AEE identifies the statutory framework under which the various WDC and NRC consents are to be considered and summarises the assessment of the proposal against the various national, regional, and district planning documents.

6.1.2 Statutory framework

Given the hierarchal nature of planning documents under the RMA, and the requirement for lower order documents to "give effect to" higher order documents, the principal documents are the PRP and the WDP, both of which have been prepared under the RPS. However, for completeness, all of the documents have been considered in the analysis below.

6.1.3 National Planning documents

National Policy Statement on Electricity Transmission 2008 (NPS-ET)

The efficient transmission of electricity on the National Grid plays a vital role in the well-being of New Zealand, its people and the environment. Ongoing investment in the transmission network and significant upgrades are anticipated in the NPS-ET to meet the demand for electricity. New transmission resources and upgrading of existing resources are required to meet the needs of present and future generations.

National Policy Statement for Renewable Electricity Generation 2011 (NPS-REG)

The National Policy Statement for Renewable Electricity Generation 2011 (NPS REG) sets out the objective and policies for renewable electricity generation under the Resource Management Act 1991.

National Policy Statement for Freshwater Management 2020 (NPS-FM)

The NPSFM sets a national framework for how freshwater is to be managed across the country, according to a fundamental concept, Te Mana o te Wai. Regional and district plans are required to give effect to the NPSFM according to its terms.

National Policy Statement for Highly Productive Land 2023 (NPS-HPL)

The new National Policy Statement for Highly Productive Land (NPS-HPL) contains policy direction to improve the way highly productive land is managed under the Resource Management Act 1991 (RMA). The policies include guidance to councils on how to map and zone highly productive land, and how to manage the subdivision, use and development of this non-renewable resource.

National Policy Statement for Indigenous Biodiversity

The NPS-IB came into effect on 4 August 2023. It provides national direction to help protect, maintain, and restore New Zealand's terrestrial indigenous biodiversity. However, it does not apply to the "*development, operation, maintenance or upgrade of renewable electricity generation assets and activities and electricity transmission network assets and activities*" as per Section 1.3(3).

Resource Management (National Environment Standards for Freshwater) Regulations 2020 (NES-FM)

The NESFM contains regulations for carrying out certain activities that pose risks to freshwater and freshwater ecosystems.

The standards are designed to, among other things, protect existing inland and coastal wetlands.

Resource Management (National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 (NES-CS)

The NES-CS is a nationally consistent set of planning controls and soil contaminant values. It ensures that land affected by contaminants in soil is appropriately identified and assessed before it is developed and, if necessary, the land is remediated, or the contaminants contained to make the land safe for human use.

6.1.4 Proposed Regional Plan

The PRP is a combined regional air, land, water, and coastal plan, which will replace the three existing operative regional plans.[78] This plan contains objectives, policies, and rules relating to these matters. The PRP must give effect to the national planning documents and the RPS.

The PRP was notified in 2017. All appeals have been resolved and the plan is now waiting to be declared operative.

6.1.5 Whangarei District Plan

The Whangarei District Plan manages land use and subdivision in the Whangarei District. It was prepared under the RPS and has given effect to this document.

The chapters that are relevant to the proposal are as follows:

- Rural Production Zone (RPROZ)
- Heavy Industrial Zone (HIZ)
- Light Industrial Zone (LIZ)
- District Growth and Development (DGD)
- Urban Form and Development (UFD)
- Transport (TRA)
- Three Waters Management (TWM)
- Noise and Vibration (NAV) – Operative.

The WDC has also recently notified Plan Change 1 'Natural Hazards'. The rules in this plan change do not have legal effect. However, the objectives and policies do and are addressed below.

6.2 WDP zones and overlays

6.2.1 Site 1 – SH15/Rama Road

Site 1 is zoned 'Heavy Industrial' (HIZ) under the WDP.

A Northpower Critical Electricity Line (CEL) traverses Site 1.

Portions of Site 1 are within the Rail and State Highway Noise Control Boundaries (NCB-R and NCB-SH) and the Rail Vibration Alert Area (VAA-R).

The kānuka forest and shrubland is partially within the 'Coastal Environment' (CE).

6.2.2 Site 2 – SH15/McCathie Road

Site 2 is zoned 'Light Industrial' (LIZ) under the WDP. It is also within the Marsden Technology Park Precinct (PREC14).

Portions of Site 2 are within the State Highway Noise Control Boundary (NCB-SH).

6.2.3 Site 3 – McCathie Road/Marsden Point Road

Site 3 is zoned 'Rural Production' (RPROZ) under the WDP.

National Grid Lines run through the southern half of the site.

A CEL runs through the southern part of the site.

There are First Gas (FGL-D1) and Channel Terminal Services Limited (CTS-1) designations on the site.

The relevant planning maps are attached in **Appendix 21**.

6.3 Activity status

6.3.1 Whangarei District Plan

Land use consents are required from WDC under the LIZ, PREC14, RPROZ, TWM, CE and NAV Chapters of the Whangarei District Plan (WDP). These consents are a **discretionary activity** overall.

6.3.2 Proposed Northland Regional Plan (Appeals Version)

Land use consents are required from the NRC to undertake bulk earthworks, activities in natural wetlands (including earthworks and vegetation clearance), and to abstract water under the provisions of the Proposed Northland Regional Plan (PRP). These consents are a **non-complying activity** overall.

6.3.3 NES-FM

Consent is also required from the NRC under Regulation 45 of the National Environmental Standard for Freshwater Regulations 2020 (NES-FM). This is for vegetation clearance, earthworks, and land disturbance within natural wetlands, with those works being associated with specified infrastructure. The consents required under the NES-FM have a **discretionary activity** status overall.

6.3.3 NES-CS

As per the requirements of Regulation 6 of the NES-CS, a request was made to the Whangarei District Council for the most up to date information in relation to potentially contaminated sites. The search undertaken on Council records for this property has not identified any indication of current or previous activities in the area of the site that are included on the current version of the Hazardous Activities and Industries List (HAIL) issued by the Ministry for the Environment (see **Appendix 22**). The proposal is therefore a permitted activity under the NES-CS.

6.4 NES-FM assessment requirements

Clause (6) of Regulation 45 of the NES-FM states that:

(6) A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—

(a) satisfied itself that the specified infrastructure will provide significant national or regional benefits; and

(b) satisfied itself that there is a functional need for the specified infrastructure in that location; and

(c) applied the effects management hierarchy.

Regarding 6(a), the proposed solar farm, together with the recently consented BESS development, will provide regional benefits, most notably and improved and more resilient energy supply for the Northland Region.

Regarding Clause 6(b), there is a clear functional need for the solar farm as described in Section 1.2.2 of this report.

Regarding Section 6(c), the effects management hierarchy has been applied, including the requisite requirement to avoid wetland removal where practicable.

6.5 NPS-HPL assessment requirements

Policy 3.9 of the NPS-HPL is as follows:

3.9 Protecting highly productive land from inappropriate use and development

(1) Territorial authorities must avoid the inappropriate use or development of highly productive land that is not land-based primary production.

(2) A use or development of highly productive land is inappropriate except where at least one of the following applies to the use or development, and the measures in subclause

(3) are applied:

(a) it provides for supporting activities on the land:

(b) it addresses a high risk to public health and safety:

(c) it is, or is for a purpose associated with, a matter of national importance under section 6 of the Act:

(d) it is on specified Māori land:

(e) it is for the purpose of protecting, maintaining, restoring, or enhancing indigenous biodiversity:

(f) it provides for the retirement of land from land-based primary production for the purpose of improving water quality:

(g) it is a small-scale or temporary land-use activity that has no impact on the productive capacity of the land:

(h) it is for an activity by a requiring authority in relation to a designation or notice of requirement under the Act:

(i) it provides for public access:

(j) it is associated with one of the following, and there is a functional or operational need for the use or development to be on the highly productive land:

(i) the maintenance, operation, upgrade, or expansion of specified infrastructure:

(ii) the maintenance, operation, upgrade, or expansion of defence facilities operated by the New Zealand Defence Force to meet its obligations under the Defence Act 1990:

(iii) mineral extraction that provides significant national public benefit that could not otherwise be achieved using resources within New Zealand:
(iv) aggregate extraction that provides significant national or regional public benefit that could not otherwise be achieved using resources within New Zealand.
(3) Territorial authorities must take measures to ensure that any use or development on highly productive land:
(a) minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in their district; and
(b) avoids if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development.
(4) Territorial authorities must include objectives, policies, and rules in their district plans to give effect to this clause.

The proposal accords with Clause 3.9(2)(j)(i). Specifically, it is an expansion of specified infrastructure, being the BESS on Site 1, and the solar farms proposed for the adjoining Site 2 and Site 1[6] It also accords with Clauses 3.9(3)(a)(and (b) by providing for a continuation of sustainable rural production activities beneath the solar panels.

6.6 NPS-REG objectives and policies assessment

6.6.1 Context

The NPS-REG sets out an objective and policies to enable the sustainable management of renewable electricity generation under the RMA. The stated matters of national significance to which this national policy statement applies are:

a. *the need to develop, operate, maintain and upgrade renewable electricity generation activities throughout New Zealand; and*
b. *the benefits of renewable electricity generation.*

The single objective is:

To recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation.

The NPS-REG seeks to achieve the objective through a range of policies. The policies are grouped under several sub-headings. The following provisions are directly relevant to the proposal:

a. *Recognising the benefits of renewable electricity generation activities.*
b. *Acknowledging the practical implications of achieving New Zealand's target for electricity generation from renewable resources.*

[6] The previously consented (and under construction) BESS includes the grid connection, operation and maintenance facility buildings, and switching station for the solar farm as an expansion of the BESS.

c. Acknowledging the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

6.6.2 Assessment

Policy A states that "decision-makers shall recognise the benefits and provide for the national significance of renewable electricity generation activities". The policy goes on to describe the benefits as including (relevantly) "maintaining or increasing electricity generation capacity while avoiding greenhouse gas emission", "maintaining or increasing security of electricity supply at local, regional and national levels", "using renewable resources rather than finite resources", "the reversibility of adverse effects on the environment", and "avoiding reliance on imported fuels for the purposes of generating electricity".

The proposed solar farm is in complete alignment with Policy A.

Policy B recognises the importance of retaining existing renewable electricity generation activities in order to achieve national targets for the generation of electricity from renewable sources. It notes that significant development of renewable electricity generation will be required to meet those targets.

The proposed solar farm is in complete alignment with Policy B.

Policy C1 recognises the practical constraints of operating, maintaining, and upgrading renewable electricity generation activities including the need to locate the activity where the resource is available, the efficiencies associated with the utilisation of existing infrastructure, and the need to connect renewable electricity generation activities to the national grid.

The subject site presents an ideal location for the proposed solar farm due to the combination of access to the solar resource, and the proximity to the Transpower and Northpower substations and associated transmission and distributions lines. These are aspects of the proposal that should be had regard to when considering the application, in accordance with this policy.

Policy C2 states that "When considering any residual environmental effects of renewable electricity generation activities that cannot be avoided, remedied or mitigated, decision-makers shall have regard to offsetting measures or environmental compensation including measures or compensation which benefit the local environment and community affected".

The proposed solar farm will require the removal of wetlands. The effects of this removal will be offset by the enhancement of existing wetlands and the creation of new consolidated wetlands. There are no other effects that require compensation or offsetting. Accordingly, the proposal aligns with this policy.

6.7 NPS-FM objectives and policies assessment

6.7.1 Introduction

The NPS-FM provides local authorities with direction on how to manage freshwater under the RMA. The document came into effect on 3 September 2020.

There is a single objective and 15 policies, with policies 4 and 6 (set out below) of most relevance to this application due to the proposed removal of wetlands.

Policy 4: Freshwater is managed as part of New Zealand's integrated response to climate change.

Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

In addition to Policies 4 and 6, the NPS-FM also has an implementation section, with Clause 3.22 of Subpart 3 containing a specific policy requirement for natural inland wetlands. The policy requires that the loss of natural inland wetland extent be avoided except where it arises from:

.....

(b) the regional council is satisfied that:

(i) the activity is necessary for the purpose of the construction or upgrade of specified infrastructure; and

(ii) the specified infrastructure will provide significant national or regional benefits; and

(iv) there is a functional need for the specified infrastructure in that location; and

(v) the effects of the activity are managed through applying the effects management hierarchy;

.....

6.7.2 Assessment

The proposal aligns with Policy 4 because the proposed solar farm is part of New Zealand's response to climate change, and specifically the move towards zero carbon.

The proposal responds to Policy 6 by offsetting wetland loss, such that there is no loss of wetland extent or values.

The Clause 3.22 requirements are similar to those in the NES-FM and NPS-HPL. As outlined in the assessment under these other national documents, the proposal is specified infrastructure, it will provide significant regional benefits, there is a functional need for it to be in this location, and the effects management hierarchy has been applied to offset effects that cannot be practicably avoided.

6.8 RPS objectives and policies assessment

6.8.1 Introduction

The RPS was made operative in May 2016. It identifies the issues, objectives, policies, methods, anticipated environmental results, and monitoring procedures necessary to achieve the sustainable management of Northland's natural and physical resources.

The RPS was prepared after the NPS-REG, and so it has "given effect to" this higher order document as required by the legislation.

The RPS has overarching relevance to the consideration of resource consent applications made under the PRP and WDP.

The RPS contains policy guidance on a number of matters that are relevant to the proposed solar farm. Those which have particular relevance are:

- Objective 3.4 and policies 4.1 and 4.7 'Indigenous ecosystems and biodiversity'.
- Objective 3.5 'Enabling economic wellbeing'.
- Objective 3.7 'Regionally significant infrastructure'.
- Objective 3.9 'Security of energy supply'.
- Objective 3.12 'mana whenua role in decision-making'

6.8.2 Assessment

Objective 3.1 'Indigenous ecosystems and biodiversity'

Objective 3.1 along with policies 4.1 and 4.7 seek to safeguard the ecological integrity of the Region by protecting areas of significant indigenous vegetation and habitats, and maintaining or enhancing the extent, diversity and integrity of indigenous ecosystems and habitats.

While it is proposed to remove wetlands, these are being offset in accordance with the effects management hierarchy so that there is no loss of wetland extent or value and a net gain in wetland values in the short to medium term (3-5 years). This ensures consistency with the PPS objectives and policies relating to indigenous ecosystems and biodiversity.

Objective 3.5 'Enabling economic well-being'

The RPS has a focus on improving the economic development of Northland and its communities, as emphasised in objective 3.5. This objective is

supported by policies throughout the RPS that seek to enable the sustainable use of natural and physical resources.

The proposed solar farm is important to economic well-being, primarily because it decreases reliance on electricity generated outside the region. This will increase the security of electricity supply within the region, as addressed below.

It will also facilitate the sustainable management of resources in a manner that will attract significant investment into the region. The investment will create jobs for the local economy whilst helping to lower electricity prices. Adverse effects on the environment can also be managed in accordance with the relevant policy direction of the RPS, as outlined in section 7 of this report.

The proposed solar farm is therefore consistent with this objective and the supporting policies. This is further reinforced by Objective 3.7 and Policy 5.3.1 relating to regionally significant infrastructure (addressed below).

Objective 3.7 'Regionally significant infrastructure'

As required by Policy 5.3.1, the RPS identifies regionally significant infrastructure that, through its use of natural and physical resources, can significantly enhance Northland's economic, cultural, environmental, and social wellbeing.

Appendix 3 of the RPS defines regionally significant infrastructure and this includes electricity generation facilities which supply the national grid or local distribution network. The proposed solar farm is consistent with the objective and policy.

Objective 3.9 'Security of energy supply'

Objective 3.9 together with Policy 5.4.1 seek to reduce reliance on outside sources of electricity by encouraging renewable electricity generation activities within the region. These provisions elevate the importance of renewable electricity generation activities by directing that they be "recognised and provided for". This direction is also consistent with, and gives effect to the NPS-REG.

These provisions, and those in the NPS-REG, are central to the overall consideration of the proposed solar farm resource consents under s104(1) of the RMA.

Three Waters Management (TWM)

Due to resource consent being required for impervious surfaces on Sites 1 and 2, Policy TWM-P7 is relevant being:

TWM-P7 Flooding

To reduce the risk of flood hazards or increased upstream and downstream flood levels resulting from stormwater discharges.

The proposal aligns with this policy by achieving hydraulic neutrality, and avoiding adverse effects off-site, as confirmed in the Civil Design Report in **Appendix 8.**

Objective 3.12 'Mana whenua role in decision making'

Objective 3.12 is to recognise and provide for the tangata whenua kaitiaki role in decision-making. This is being achieved through the consultation carried out by MEL, and the subsequent conditions of consent, and other commitments with tangata whenua through the MOU.

6.8.3 Conclusion

Overall, the proposal is consistent with the relevant objectives and policies of the RPS.

6.9 PRP objectives and policies assessment

6.9.1 Introduction

The PRP objectives and policies relevant to the proposed solar farm are:

- Objective F.1.9, F.1.2, and Policies D.1.1 – D.1.5 relating to effects on tangata whenua.
- D.2.2 'Social, cultural and economic benefits of activities'.
- D.2.5 and D.2.9 relating to regionally significant infrastructure
- D.2.12 'Renewable Energy'
- D.4.27 'Land preparation, earthworks and vegetation clearance'
- D.4.22 and D.4.23 relating to natural wetlands

6.9.2 Assessment

D.1.1 – D.1.5 relating to effects on tangata whenua

The relevant objectives and policies relating to tangata whenua are Objectives F.1.9 and F.1.12, supported by Policies D.1.1, D.1.2, D.1.3, D.1.4, and D.1.5.

Objective F.1.9 is a process orientated provision that is a replica of Objective 3.12 of the RPS, being to recognise and provide for the kaitiaki role of tangata

whenua in decision-making. For the same reasons outlined in paragraph 6.8.2, the process followed from project inception to lodgement is consistent with the intent of the objective, and the supporting policies D.1.1 and D.1.2.

Objective F.1.12 deals more specifically with effects and seeks to protect places of significance to tāngata whenua from *"inappropriate use and development"*. Policy D.1.5 describes what constitutes a place of significance to tāngata whenua under the PRP. While there are no mapped places of significance to tāngata whenua in the proposal footprint, there is an identified archaeological site which is being avoided.

Objective F.1.12 is supported by Policy D.1.4.[7] The general support provided by mana whenua following extensive consultation with MEL aligns with the intent of these provisions.

D.2.2 'Social, cultural, and economic benefits of activities' & D.2.5 and D.2.9 relating to regionally significant infrastructure

D.2.2, D.2.5, and D.2.9 requires the consideration of the benefits associated with Regionally Significant Infrastructure, with D.2.9 also requiring effects to be avoided, remedied, or mitigated. These provisions place heightened importance on the benefits of this proposal (outlined in Section XX) in the context of the PRP and decision making under Section 104(1)(b) of the RMA.

D.2.12 'Renewable energy'

D.2.12 requires regard to be had to the benefits of renewable energy. It also requires regard to the practical constraints associated with large scale renewable energy generation, including the need to locate where the resource exists and the need to connect to the transmission and distribution networks – these being attributes of the subject sites.

D.4.27 'Land preparation, earthworks and vegetation clearance'

The implementation of an erosion and sediment control plan in accordance with GD05 and best practice will ensure that the proposal is consistent with the outcomes sought by the relevant objectives and policies in the PRP.

D.4.22 and D.4.23 relating to natural wetlands

[7] **D.1.4 Managing effects on places of significance to tangata whenua:**
Resource consent for an activity may generally only be granted if the adverse effects from the activity on the values of Places of Significance to tāngata whenua in the coastal marine area and water bodies are avoided, remedied or mitigated so they are no more than minor.

D.4.22(2) requires effects on natural wetlands to be avoided, remedied, or mitigated, or otherwise offset under D.4.22(3) (see below):

.....

3) must provide biodiversity off-setting or environmental biodiversity compensation, so that residual adverse effects on the important functions and values of wetlands are no more than minor.

.....

D.4.23 states that the loss of natural wetlands should be avoided except where:

.....

2) the regional council is satisfied that:

a) the activity is necessary for the construction or upgrade of specified infrastructure; and

b) the specified infrastructure will provide significant national or regional benefits; and

c) there is a functional need for the specified infrastructure in that location; and

d) the effects of the activity are managed through applying the effects management hierarchy.

.....

These are the same criteria under 45(6) of the NES-FM. For the same reasons outlined in Section 6.4 of this report, the proposal aligns with these requisites and is overall consistent with this policy.

6.9.3 Conclusion

The proposal aligns with the relevant provisions of the PRP. Specifically, it achieves significant regional benefits, and manages effects in accordance with best practice – including offsetting residual effects in line with the effects management hierarchy.

6.10 WDP objectives and policies assessment

6.10.1 Context

Given the solar farms are a permitted activity in the Heavy and Light Industrial zones, and discretionary in the Rural Production Zone, the objectives and policies of the RPZ are of most relevance to this application. The District Growth and Development (DGD), TRA, TWM and NTW, Mana whenua and BH chapters are also relevant[8].

6.10.2 Assessment

[8] There are no objectives or policies in the CEL chapter of the AVWDP.

RPZ chapter

RPROZ-O3 Rural Character and Amenity

Recognise, maintain and where appropriate protect the rural character and amenity of the Rural Production Zone.

RPROZ-P1 Rural Character and Amenity

To protect the distinctive rural character and amenity of the Rural Production Zone including but not limited to:

1. A dominance of natural features including landforms, watercourses and vegetation.

a. A predominately working rural production environment, including:

i. The presence of large numbers of farmed animals and extensive areas of plant, vine or fruit crops and areas of forestry.

ii. Ancillary activities and structures (including crop support structures and artificial crop protection structures) across the landscape.

b. Seasonal activities.

c. A low intensity of development, involving a combination of domestic and rural production buildings and major structures.

d. Varying levels of noise associated with seasonal and intermittent rural production activities.

e. Relatively open space and low density of development.

f. Odours, noise and dust typical of rural activities.

g. Generally low levels of vehicle traffic with seasonal fluctuations.

RPROZ-P2 Land Use Activities

To protect rural productive land, rural character and amenity and to encourage consolidation of activities within Whangarei City by:

1. Only providing for commercial activities and industrial activities in the Rural Production Zone where it is demonstrated that the activity:

a. Has a direct connection with the rural resource and supports rural production activities and/or rural communities, including recreation and tourist based activities.

b. Requires a rural location for its operational function.

c. Will minimise the potential for reverse sensitivity effects between incompatible land use activities.

d. Will contain and manage adverse effects on-site.

e. Will contribute positively to the economy of the District.

f. Can meet and fund local infrastructure requirements.

2. Not directly regulating outdoor agricultural and horticultural activities, excluding intensive livestock farming.

3. Permitting farming and activities ancillary to farming or forestry.

4. Requiring larger allotments sizes to retain productive rural options.

RPROZ-P5 Maintain Amenity and Character

To maintain rural amenity, and character by ensuring that all new buildings and major structures and rural land uses:

1. Are of a scale and character appropriate to the Rural Production Zone.

2. Are sited in a location sufficiently setback from site boundaries to enable privacy, the retention of openness and access to sunlight.

3. Avoid ribbon development.

The RPZ chapter includes 7 objectives and 12 policies. These provisions collectively seek to:

1. Maintain and where appropriate protect amenity values.
2. Ensure noise limits to a level generally comparable to rural production activities.
3. Ensure buildings/structures are at a scale that is generally comparable to rural production activities.
4. Enable commercial and industrial activities where the effects appropriate for the environment in which they are located.

The proposal is consistent with these provisions for the following reasons:

1. The proposed buildings and structures are low, appropriately setback from boundaries, and comparable with potential agricultural/horticultural buildings otherwise permitted on the site.
2. Productive rural land uses will be retained underneath the panels.
3. There is a direct connection with the rural resource in that it requires a large area of open land with quality access to the solar resource, noting that such areas are generally only available in rural locations, and subsequently within the RPZ.
4. The proposed solar farm will support rural production activities and the rural community, all of which require electricity to operate.
5. The proposed solar farm will not facilitate any reverse sensitivity effects on existing rural activities, or activities that could be reasonably expected to establish within the surrounding environment.
6. The proposed solar farm will not place pressure on any local infrastructure.

7. The low impact design will also ensure that the land can be easily re-utilised for other productive uses if required[9].
8. The proposal will not fragment rural land[10].
9. The soils on the site are not "Highly Versatile" as per the definition under the WDP.
10. The proposed mitigation landscaping (including earth-bund) ensure that the scale and character of the proposed development is appropriate in the context of the surrounding environment[11].
11. Management plans will be employed in accordance with Council requirements and best practice during the construction phase of the project[12].

In addition to the above, the proposal is also consistent with RPZ.1.3.7, which seeks to protect and rehabilitate areas of ecological and/or biological values for the following reasons:

1. Adverse ecological effects can be managed and otherwise offset.
2. The proposed wetland enhancement plan will provide gains to ecological structure and function relative to the status quo – and no loss of extent or values.
3. Erosion and sediment control measures will be installed during the construction phase in accordance with GD05.

<u>DGD chapter</u>

The DGD chapter provides high level policy direction on several matters that are relevant to this application. The assessment of the RPZ chapter above addresses the DGD objectives and policies relating to the rural area, productive rural values, and indigenous biodiversity. Similarly, the assessment of the TRA chapter addresses the objective and policy relating to the transport network.

The DGD chapter also includes policy direction on regionally significant infrastructure. Specifically, DGD-O15 and DGD-P15 require that Council recognise and provide for the benefits associated with Regionally Significant Infrastructure. Benefits include job creation and investment in the local

[9] RPZ.1.2.1 and RPZ.1.2.5

[10] RPZ.1.2.1 and RPZ.1.2.5

[11] RPZ.1.2.3, RPZ.1.3.1, RPZ.1.3.5, and RPZ.1.3.11

[12] RPZ.1.2.3, and RPZ.1.3.1

economy, lowering of electricity prices, increased electricity generation capacity, increased security of electricity supply (resilience), and contributing to Government goals around renewable energy and reducing carbon.

DGD.O15 and DGD.P16 require that the adverse effects associated with the development and operation of Regionally Significant Infrastructure are avoided, remedied, mitigated, or offset. As outlined in section 5 of this report, this will be achieved.

Having regard to the above, the proposal is consistent with the relevant objectives and policies from the DGD chapter.

TRA chapter

The TRA Chapter objectives and policies are focussed on maintaining a safe and functional transport network. In that regard, access to the sites has been assessed by Beca and specific recommendations made in respect to each vehicle crossing. Construction traffic will be managed through a Traffic Management Plan. Operational traffic will be minimal.

Overall, the access arrangements for the proposed solar farm align with the relevant objectives and policies from the TRA chapter[13].

NTW chapter

The NTW chapter provides for the establishment of network utility activities and seeks to manage effects associated with activities establishing in proximity to the National Grid.

Despite the solar farm being located outside the National Grid Corridor and no consents being required for works in the vicinity of the National Grid, MEL consulted with Transpower – see record of consultation in Section 7 of this report. MEL has agreed to the Transpower recommendations including draft conditions which ensure no adverse effects on Transpower assets.

The proposal is consistent with the relevant objectives and policies from the NTW chapter[14].

TWPchapter

The TWP chapter contains objectives and policies relating to tangata whenua.

The proposed solar farm aligns with the provisions for the following reasons:

[13] TRA-O1, TRA-O2, TRA-O4 TRA-O5, TRA-P1, TRA-P7, TRA-P8, TRA-P9, and TRA-P10.

[14] NTW.1.2.1, NTW.1.2.2, NTW. 1.3.2 and NTW.1.3.5

- CEAs have been prepared in respect of the proposal.
- There are a range avoidance and mitigation measures (including consent conditions), and other commitments with positive outcomes through the MOU.

6.10.3 Conclusion

Due to consistency with District Plan expectations, and the proposed effects management measures, the proposal is overall consistent with the overarching policy framework of the WDP.

7. SECTION 104(c) MATTERS

7.1 General

Section 104(c) of the RMA provides for regard to be had to:

(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.

There are several matters related to climate change that the Councils should have regard to, including matters and legislation that post-date the NPSREG. These are discussed further below.

7.2 Paris agreement, 2015

Aotearoa New Zealand is a signatory to and ratified the Paris Agreement 2015 on 4 October 2016, committing the nation to reducing greenhouse gas (GHG) emissions to 30% below 2005 levels by 2030.

7.3 Climate Change Response (Zero Carbon) Amendment Act, 2019

The Climate Change Response (Zero Carbon) Amendment Act 2019 establishes Aotearoa New Zealand's 2050 GHG emissions target of net zero long-lived gases.

7.4 The declaration by parliament of a climate emergency

The New Zealand government declared a climate emergency on 2 December 2020. This is a symbolic acknowledgement at the government level that we are facing a climate change crisis, and a commitment to meet the challenge.

7.5 Climate Change Response Act (2022)

The Climate Change Response Act 2022 (CCRA) requires the preparation of a National Adaptation Plan 2022 (NAP), and Emissions Reduction Plan 2022 (ERP). These documents have been prepared and are discussed below.

7.6 Emissions Reduction Plan

New Zealand is committed to achieving a low-emissions, climate-resilient economy in accordance with *Towards a productive, sustainable and inclusive economy, Aotearoa New Zealand's First Emissions Reduction Plan (ERP)* dated May 2022. The ERP identifies the need to develop an energy strategy that considers how to ensure the electricity system is ready to meet future needs. The ERP seeks to phase out fossil fuels while "*massively ramping up renewables in transport, electricity generation and industry.*"[15] A key issue identified is to decarbonise the energy sector. The ERP notes that the energy and industry sectors are essential to the economy and the lives of New Zealanders[16].

The ERP includes specific sector plans, with the proposed solar farm falling within the 'Energy and Industry' section covered in Chapter 11.

A key action in Chapter 11 is '*Action 11.2.1 Accelerate development of new renewable electricity generation across the economy*'. There are four key initiatives in Action 11.2.1, one of which is to *"support renewable and affordable energy in communities".*

The proposed solar farm accords with the Emissions Reduction Plan and is an important step towards New Zealand's zero carbon goals, and energy resilience for the upper North Island, particularly Northland.

[15] Page 21, 2nd bullet point, ERP

[16] Page 204, 2nd paragraph, ERP

8. PROPOSED CONDITIONS OF CONSENT

Together with avoidance measures incorporated in the design, proposed conditions of consent have been prepared for both the district and regional consents to manage effects in conjunction with the recommendations of the various technical reports (see **Appendix 10**). The conditions include:

- A range of management plans:
  - Wetland restoration and management.
  - Avifauna management plan.
  - Lizard management plan.
  - Bat management plan.
  - Pest management plan.
  - Screen planting concept plan.
  - Construction environmental management plan (including noise management).
  - Erosion and sediment control plan.
- Offset wetland mitigation.
- Engineering plans – detailed design.

9. CONSULTATION

9.1 General

MEL has consulted widely with a range of key stakeholders, including mana whenua, infrastructure providers, the regional and local authorities, community groups and private landowners. Further details are provided below.

9.2 Mana whenua

9.2.1 Patuharakeke

When MEL purchased 105ha of land (Site 1) for the Ruakākā Energy Park BESS and Solar on 15 October 2021, the first action taken was to enquire with council on which mana whenua groups to consult. Council (NRC) advised that Te Patuharakeke Hapū (PTITB) held manawhenua for Site 1.

For both the BESS and solar projects together, 24 hui have occurred with PTITB including:

- One month after buying the land for Site 1 (15 November 2021), a video conference was held with Te Patuharakeke Te Iwi Trust Board (PTITB) for MEL to introduce itself as newcomers to their whenua.
- A further video conference was held between PTITB and members of MEL's executive team and board of directors in December 2021.
- Various in person hui and video conferences.
- Various emails and informal phone calls.
- A visit to a solar farm in the Marlborough region to provide Patuharakeke's Taiao Unit with an appreciation for a similar, existing solar farm's scale, componentry, and operations.
- A site blessing, sod turn ceremony and pōwhiri at Takahiwai Marae and kōrero about MEL's was held to commence works on the BESS project and to discuss further details on MEL's solar farm project.
- Two more formal, subsequent hui-a-hapū and pōwhiri occurred at Takahiwai Marae to consult with whānau on our solar development.

Discussions on the solar farm development were held at all 24 of these hui. However, given that the design and effects phase of the solar project did not kick-off formally until December 2022, the first 11 of those hui had a higher focus on the BESS development, with the remaining 12 having a stronger focus on the solar farm.

As outlined in other sections of our AEE, a Cultural Effects Assessment has been prepared by Patuharakeke for the solar farm development (refer **Appendix 11**).

9.2.2 Te Parawhau and Ngātiwai

During a solar consenting kick-off meeting between MEL, the Whangārei District Council, and the Northland Regional Council on 29 November 2022, both councils advised MEL that engagement with two additional hapū and iwi (Te Parawhau Hapū and Ngātiwai) was recommended for the solar project. Contact was made with both Te Parawhau and Ngātiwai within three weeks of this advice being provided to MEL, with hui setup with both in early 2023.

Te Parawhau Hapū

Six hui have been held with Te Parawhau since contact was made with them in December 2022, including the following:

- Two in person hui - one which was held between Te Parawhau and MEL only, and a second held between Te Parawhau, Patuharakeke and MEL.
- Attendance by Te Parawhau at the two Takahiwai Marae hui-a-hapū at which MEL presented on its solar farm development and answered questions from whānau.
- Three informal phone call discussions and various solar development emails.

Te Parawhau confirmed they were happy to generally tautoko all of the work Patuharakeke had done with MEL on the solar farm development. They have also prepared their own Cultural Effects Assessment for the solar farm development, reflective of their attendance at the two hui-a-hapū and other hui with MEL (refer **Appendix 19**).

Ngātiwai

Two hui have been held with Ngātiwai since contact was made with them in December 2022, including the following:

- One in person hui with Ngātiwai's environmental unit (Marino Armstrong and Alyssce Te Huna) and Hūhana Lyndon (who video called in) on 8 March 2023.
- A second in person hui with Simon Mitchell and Ngātiwai's environmental unit on 9 May 2023.
- Various follow-up emails after the two hui, including invitations for Ngātiwai to attend the two solar farm hui-hapū at Takahiwai Marae.
- A video conference was held between MEL's General Manager of Development, Guy Waipara, and the Ngātiwai CEO Hūhana Lyndon on 13 June 2023.

During the first hui, Alyssce Te Huna (Ngātiwai Environmental Manager) confirmed that Ngātiwai would like to be involved in a role where they support Patuharakeke through reviews and input to Patuharkeke's Cultural Effects Assessment.

Although Ngātiwai did not attend the two hui-a-hapū, MEL was able to summarise the main outcomes from the first hui-a-hapū with Ngātiwai during its 9 May 2023 hui. This included discussions on the design of the solar development. During this hui, Alyssce and Simon noted that due to resource constraints they were unsure on how they would provide input into Patuharakeke's Cultural Effects Assessment while also meeting MEL's intended timeframes for consent lodgement.

During the video call between MEL's General Manager (Guy Waipara), and Ngātiwai's CEO (Hūhana Lyndon), Hūhana advised that Ngātiwai will tautoko (support) Patuharakeke in their work on the solar development.

Patuharakeke also confirmed that in a discussion with Ngātiwai's CEO that Ngātiwai had confirmed their general support for the Patuharakeke's work with MEL, without undertaking a review of Patuharakeke's Cultural Effects Assessment.

9.3 Northland Regional Council and Whangarei District Council

MEL undertook two pre lodgement meetings with Councils' consent managers to discuss the proposed solar farm. During the first meeting (29 November 2022) MEL introduced the project and discussed processing options. Feedback was that the Councils were open to the idea of having a joint consenting process.

At the second meeting (9 May 2023) MEL outlined the project in more detail. This included providing a list of the consultants that were commissioned to undertake environmental effects assessments such as ecology, traffic, landscape and visual, and sediment management. Preliminary development plans including no build areas and wetland mitigation areas were also shared with the Councils along with an outline of early and ongoing engagement with mana whenua.

Further discussions took place on the resource consent process (including potential processing officers and technical inputs), the preliminary findings of the environmental consultants, and the engineering design response. The provision of offset wetland mitigation through restoration and developing new wetlands was also discussed.

Feedback from the Councils was that MEL would need to address the full range of RMA matters, in particular the effects of flooding on neighbouring properties, the

NPS-FM and the NES-FM, and effects on other infrastructure providers (e.g. Transpower, NorthPower and FirstGas).

9.4 Transpower

MEL met with Transpower staff (network planner, grid engineers and connection managers) on numerous occasions to discuss the proposal, and in particular the connection to the Transpower grid and the proposed offset wetland on site 3.

Discussions were focused on the proposed wetland mitigation planting and structures. Transpower concerns and the MEL responses are summarised as follows:

Item	Request	Response
1.	No structures within the National Grid Corridor (12m either side of the transmission lines) and within 12m of the foundation edge of the pylons.	The wetland concept plan shows no-build offsets from pylons and transmission lines.
2.	Planting under the National Grid Corridor (NGC) to be higher than 2m.	The proposed maximum height planting within the NGC is 1.5m as per the wetland concept planting plan.
3.	The wetland concept planting plan is developed in consultation with Transpower.	The draft consent conditions include a requirement for the wetland concept planting plan to be developed in consultation with manawhenua and Transpower.
4.	The construction management plan is drafted in consultation with Transpower.	The draft consent conditions include a requirement for Meridian to allow for a Transpower review of the draft Construction Management Plan (CMP).
5.	All weather access is provided to pylons.	4WD access (gravelled) will be provided off McCathie and Marsden Point roads. This is shown on the wetland concept planting plan.
6.	Stormwater drainage patterns and runoff characteristics arising from the works do not result in any adverse effects on the	The draft consent conditions include a requirement for Meridian to provide the CMP to Transpower

Item	Request	Response
	foundations of the pylon foundations.	for their review prior to lodging the CMP with WDC for certification.
7.	Construction to be undertaken with the NZECP34:2001 (safe distances).	This is included in the matters to be included in the CMP as per the draft consent conditions.

As a result of MEL confirming inclusion of the draft consent conditions specific to Site 3 (refer **Appendix 10**) and Transpower assets, and the updated Wetland concept planting plan, Transpower provided a letter in support of the proposed solar farm (refer **Appendix 15**).

9.5 Northpower

MEL met with Northpower on several occasions to discuss the proposal. This included a site visit to outline the location of the solar farm structures to demonstrate compliance with the District Plan minimum set back standards from the Critical Electricity Lines (CEL).

Refer to **Appendix 15** for a letter in support in principle from Northpower.

9.6 FirstGas

MEL met with the FirstGas Stakeholder Engagement Advisor where it was confirmed that that the solar farm will be constructed and operated in accordance with their requirements. This includes:

Item	Requirements	Response
1.	Any planting within the gas easement complies with the FirstGas planting guidelines	There will be no planting within the gas easement.
2.	Vehicle access over the pipeline to comply with FirstGas requirements	There are two vehicle crossings which will be constructed in accordance with FirstGas requirements.
3.	Electrical installation requirements	These requirements will be complied with which will be detailed and shared with FirstGas at the detailed design phase.

Item	Requirements	Response
4.	Solar panels to not be built over the easement	None are proposed.

Refer to **Appendix 15** for a letter in support in principle from FirstGas noting their request for ongoing involvement as part of the detailed design phase.

9.7 Project Neighbours

Letters were sent to the residents and landowners located on the north side of McCathie road between Sites 2 and 3 in February 2023. The letters provided them with some initial information about the proposed solar farm and to provide a point of contact at MEL should they have questions.

The landowners were visited in April 2023 by Mike Farrow from Littoralis (Landscape Architect) in order to assess the potential visual impact of the solar farm from their properties.

In May 2023, MEL sent out over 100 letters, via post and email, to residents, businesses, and organisations in the Ruakaka area, and in particular, those that had property or businesses in the immediate vicinity of Sites 1, 2 and 3. The letters provided recipients with an update on the BESS project, proposed solar farm, and invited them to attend the upcoming Residents and Ratepayer's Association Annual General meeting where the Meridian team presented updates on the BESS and solar projects. The letter also provided an email address and welcomed recipients to contact MEL with questions regarding the BESS and solar projects.

9.8 Ruakākā Residents and Ratepayers Association

MEL presented the BESS and solar projects at a Ruakākā Residents and Ratepayers Association committee meeting on 12 July 2022.

MEL also presented at the Ruakākā Residents and Ratepayers Association Annual General Meeting on 16 May 2023 to provide further updates on the BESS and solar projects and respond to questions from the community. This meeting was attended by approximately 50-60 members of the public after advertisement by the Association, by Bream Bay News, and by MEL in its letters to local stakeholders, iwi and hapū.

9.9 Bream Bay News & Bream Bay Coastal Care Trust

Various phone call conversations have been held between MEL and Marilyn Cox, a reporter from the Bream Bay News. MEL has provided answers to all of Marilyn's

questions and openly discussed it's plans for the BESS and solar projects. Numerous articles have been published in the news as a result of these discussions.

Marilyn also attended the two Ruakākā Residents and Ratepayers Association meetings which MEL presented at, with the minutes of those presentations provided to Marilyn.

Marilyn has confirmed in her emails with MEL that her attendance at the Ruakākā Residents and Ratepayers Association meetings was also undertaken in her capacity as a member of the Bream Bay Coastal Care Trust.

10. NOTIFICATION

10.1 Public notification

Pursuant to s95A of the RMA, the various supporting technical assessments have confirmed that effects on the environment will be avoided, mitigated, or offset, such that they are no more than minor.

Furthermore, there are no special circumstances associated with the application, the applicant has not requested notification, and there is no rule or national environmental standard that requires notification of this application.

In light of the above, the applications to both Councils can be processed without public notification.

10.2 Limited notification

Pursuant to s95B of the RMA, and having considered the requirements of s95E-G, the various technical reports have concluded that effects on the environment can be managed such that effects on individual parties/entities are less than minor, reinforced by the permitted baseline. Accordingly, the applications can be processed without limited notification.

11. CONCLUSION

This AEE report has been prepared to support the applications on behalf of MEL to establish a solar farm on three sites in Marsden Point.

The proposal is supported by multiple technical assessments. These assessments have identified a range of social, economic, cultural, and environmental benefits, including providing increased renewable energy and creation of employment and economic outcomes, and improved ecological/wetland values.

The potential adverse effects of the proposal have been assessed in detail in both Section 5 of the AEE and in the supporting technical assessments. No significant adverse effects have been identified, and effects can be avoided, mitigated, or offset so that they are no more than minor.

The assessment in Section 6 of the AEE of the Project against the relevant documents also demonstrates general consistency with the relevant national, regional, and district level statutory plans.

Consultation with a range of stakeholders, including mana whenua, Councils, infrastructure providers, and private landowners has been undertaken. Effects on these persons/entities can be managed so that they are less than minor.

The proposed conditions of consent in Section 8 of the AEE have been informed by the technical assessments and outcomes of this engagement process.

Overall, it is considered that the proposal is consistent with all relevant matters in Section 104 of the RMA.