

16 June 2025  
Our job no. 719093

The Commissioner Panel

C/O  
Council Planning Officer  
Central Otago District Council  
1 Dunorling Street  
Alexandra 9320

### **Modification to Application**

Following a review of the submissions to the Mānīatoto Plains Solar Farm RC240065, Helios formally requested to Central Otago District Council that the Battery Energy Storage System (BESS) component of the solar farm proposal be removed from the application. A minute from the Commissioner Panel was then released requesting an updated application to formalise the updated application.

Changes have been made to the following Assessment of Environmental Effects to remove reference to the BESS. It is acknowledged that a number of the expert reports still reference the BESS as part of the Proposal and in the instance of the Appendix 8 Helios Solar Farm Acoustic Assessment and Appendix 10 Hazardous Substances Assessment, assessment of the BESS. For clarity, for efficiencies, these appendices have not been updated to remove all reference to the BESS. These assessments are still considered to be fit for purpose, as the removal of the BESS is considered to reduce the scale of the application. Any amendments to expert assessments (noting this would be in terms of a reduction in effects) will be addressed within the expert evidence to be circulated in accordance with the hearings timetable.

Following review of CODC communications on this application, we have also assessed a few additional and relevant objectives and policies in this AEE, which were not covered in the original AEE. Updated portions of the AEE primarily relate to sections 3, 5.15 and 6.1

An updated site plan without the BESS displayed is provided with the application - Appendix 2A.

## Application for Resource Consent

### Mānīatoto Plain Solar Farm



22 March 2024  
Our job no. 719093  
Council Planning Officer  
Central Otago District Council  
1 Dunorling Street  
Alexandra 9320

#### Attention: Resource Consents Team Leader

To whom it may concern,

#### Application for Resource Consent – Ranfurly-Naseby Road, Mānīatoto Plain Solar Farm

Please find enclosed a resource consent application on behalf of Helios OTA Op LP to install and operate a solar farm at 48 Ranfurly-Naseby Road (the Site).

This application includes a Form 9, a detailed description of the proposal, along with an assessment of environmental effects and supporting appendices.

A lodgement deposit of \$2000.00 will be paid by electronic transfer upon receipt of an invoice.

The Property Group Limited (TPG) is the agent for this application and should be the contact for any correspondence or telephone discussions.

I would appreciate being able to review draft conditions prior to consent being issued.

Please contact me should you have any questions regarding the application.

Yours sincerely

**Mishka Banhidi**

Senior Planner  
0275663155  
mbanhidi@propertygroup.co.nz

### Form 9

### Application for Resource Consent - Section 88, Resource Management Act 1991

|                           |                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>To:</b>                | Central Otago District Council                                                                                                                                                                                                                                                                                                                                                           |
| <b>Applicant:</b>         | Helios OTA Op LP                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Agent:</b>             | <p>Mishka Banhidi</p> <p>Senior Planner</p> <p>The Property Group Limited (TPG)</p> <p>0275663155</p> <p>mbanhidi@propertygroup.co.nz</p>                                                                                                                                                                                                                                                |
| <b>Address service:</b>   | <b>for</b> <p>The Property Group Limited</p> <p>Queenstown Office</p> <p>PO Box 2130</p> <p>Queenstown 9371</p> <p>Attention: Mishka Banhidi</p>                                                                                                                                                                                                                                         |
| <b>Invoice details:</b>   | <p>Sarah Brooks</p> <p>Helios Energy Ltd</p> <p>Level 11, Generator Britomart</p> <p>11 Britomart Place</p> <p>Auckland Central</p> <p>Auckland 1010</p>                                                                                                                                                                                                                                 |
| <b>Site address:</b>      | 48 Ranfurly-Naseby Road, Naseby                                                                                                                                                                                                                                                                                                                                                          |
| <b>Legal description:</b> | <p>There are six titles that form the "Site":</p> <ul style="list-style-type: none"> <li>• Section 3 Block XIX Maniototo Survey District</li> <li>• Section 33 Block II Maniototo Survey District</li> <li>• Section 10 BLK XIX Maniototo Survey District</li> <li>• Section 23 BLK VI Naseby SD</li> <li>• Section 2 BLK II Maniototo</li> <li>• Section 5 BLK XIX Maniototo</li> </ul> |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Owners of site:</b> | Geoffrey Andrew Shaw, Lauren Patricia Shaw and Polson Higgs Nominees (2011) Limited<br>Glenspec Holdings Limited                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Consent for:</b>    | To construct, operate and maintain a Solar Farm (Māniatoto Plain Solar Farm), being a Renewable Electricity Generation Activity, which is a Discretionary Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Description:</b>    | Land use consent application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Enclosed:</b>       | <p>Application and Assessment of Environmental Effects (AEE)</p> <p>Appendix 1 – Record of Title</p> <p>Appendix 2 – Plans</p> <p>Appendix 3 – Proposed Consent Conditions</p> <p>Appendix 4 - Māniatoto Solar Farm Landscape Effects Assessment and Graphic Supplement</p> <p>Appendix 5 – Māniatoto Solar Farm - Ecological Impact Assessment</p> <p>Appendix 6 - Māniatoto Solar Farm Construction Methodology</p> <p>Appendix 7 – Naseby Solar Farm Development Integrated Transport Assessment</p> <p>Appendix 8 - Helios Solar Farm Māniatoto Assessment of Noise Effects</p> <p>Appendix 9 - Māniatoto Solar Farm - Engagement Summary</p> <p>Appendix 10 - Naseby Solar Farm Hazardous Substance Assessment</p> |
| <b>Signed:</b>         |  <p><b>Mishka Banhidi</b></p> <p>Senior Planner</p> <p>0275663155</p> <p><a href="mailto:mbanhidi@propertygroup.co.nz">mbanhidi@propertygroup.co.nz</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Date:</b>           | 22 March 2024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



# Application for Resource Consent

48 Ranfurly-Naseby Road, Naseby

Mānīatoto Plain Solar Farm

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Helios OTA Op LP

March 2024

### Quality control

|                     |                                                                                     |
|---------------------|-------------------------------------------------------------------------------------|
| <b>Title:</b>       | Application for Resource Consent – Mānīatoto Plain Solar Farm                       |
| <b>Client:</b>      | Helios OTA Op LP                                                                    |
| <b>Job number:</b>  | 719093                                                                              |
| <b>Version</b>      | For client review – 12 March 2024                                                   |
| <b>Version</b>      | Final – 20 March 2024<br>Varied – 16 June 2025                                      |
| <b>Prepared by:</b> | Mishka Banhidi                                                                      |
| <b>Signature:</b>   |  |
| <b>Reviewed by:</b> | Katrina Ellis                                                                       |
| <b>Signature:</b>   |  |

### 1. Introduction

Helios OTA Op LP (Helios) hereby applies for resource consent from Central Otago District Council (Council) to construct, operate, and maintain a solar farm at 48 Ranfurly-Naseby Road, Naseby (the Site). The proposed solar farm is also known as the Mānīatoto Plain Solar Farm.

Helios is a Kiwi company established in early 2020 when the founders recognised the potential for grid-scale solar developments to make a positive contribution to the existing New Zealand energy mix. Helios believe large-scale solar generation will make a meaningful and rapid contribution to New Zealand's goal of reaching 100 percent renewable electricity generation by 2030 and will democratise Aotearoa's energy market to help deliver a more secure and affordable energy supply for the country.

The Site is zoned Rural Resource Area in the Central Otago District Plan (District Plan). The solar farm activity requires multiple resource consents for the reasons outlined in section 4 of this report. The application includes plans of the proposal which are included as Appendix 2.

### 2. Site description

#### 2.1 Location and description

The subject site 48 Ranfurly-Naseby Road, Naseby is located between Ranfurly and Naseby towards the north-east of the Central Otago District. The site is shown in Figure 1 below. Note the solar site is shown below in yellow outline, but the legal extent of this property is larger. Although surrounded by mountain ranges on the east and west, the site is located within a basin of fairly flat topography with some undulating pastoral land. The site is north-east of State Highway 86 (Ranfurly Wedderburn Road).

Access to the site is from Ranfurly – Naseby Road along the western boundary and Ranfurly Back Road along the eastern boundary.



**Figure 1: Aerial photograph of the Site (yellow outline)**

Surrounding land uses are typically agricultural with some forestry, tourism, recreation, conservation, energy, infrastructure, and residential uses. A more detailed assessment of the surrounding land uses can be found within Section 3.1 of the Landscape Effects Assessment<sup>1</sup>, appended as Appendix 4.

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<sup>1</sup> Mānīatoto Solar Farm: Landscape Effects Assessment February 2024

The subject site is largely characterised by grassland used for livestock grazing and benefits from existing boundary vegetation across the site. The site is predominantly dryland exotic pasture, and also contains shelterbelts, indigenous shrubland, constructed farm ponds, and wetlands. The site also contains multiple waterways with poor drainage that are located within the natural depressions of the topography.

The site has been utilised for farming, primarily sheep and beef grazing and contains some small-scale rural structures such as fencing and stockyards.

No residential properties are located within the proposed solar farm area, noting the dwelling at 48 Ranfurly-Naseby Road is located outside of the solar farm area.

The Ecological Impact Assessment (EIA)<sup>2</sup> appended as Appendix 5 identifies that the site has limited ecological value due to the historical removal of indigenous vegetation and its agricultural use. Shrubs at the site, though in decline, holds high ecological significance in accordance with the Otago Regional Policy Statement, and the National Policy Statement for Indigenous Biodiversity 2023 (NPS-IB).

There are two moderately large wetlands on the site (located centrally and in the southwest, hereafter referred to as the central wetland and southwest wetland) which support indigenous wetland vegetation, including species considered at risk. A number of smaller wetlands are not vegetated or support at risk species. As outlined within the EIA, all wetlands regardless of their tangible ecological values, are deemed ecologically significant due to regional and national reductions in wetland cover.

## 2.2 Zoning and Notations

The Site is zoned Rural Resource Area in the District Plan, with an overlay of “Other Rural Landscapes (ORL)”. There are no other district plan overlays or notations over the Site.

Neither Council or Otago Regional Council (ORC) map the Site as subject to any natural hazard, with the exception of some high-level seismic information that has been applied district wide. Liquefaction risk has been identified as “Domain A” – A liquefaction potential of “low to none”.

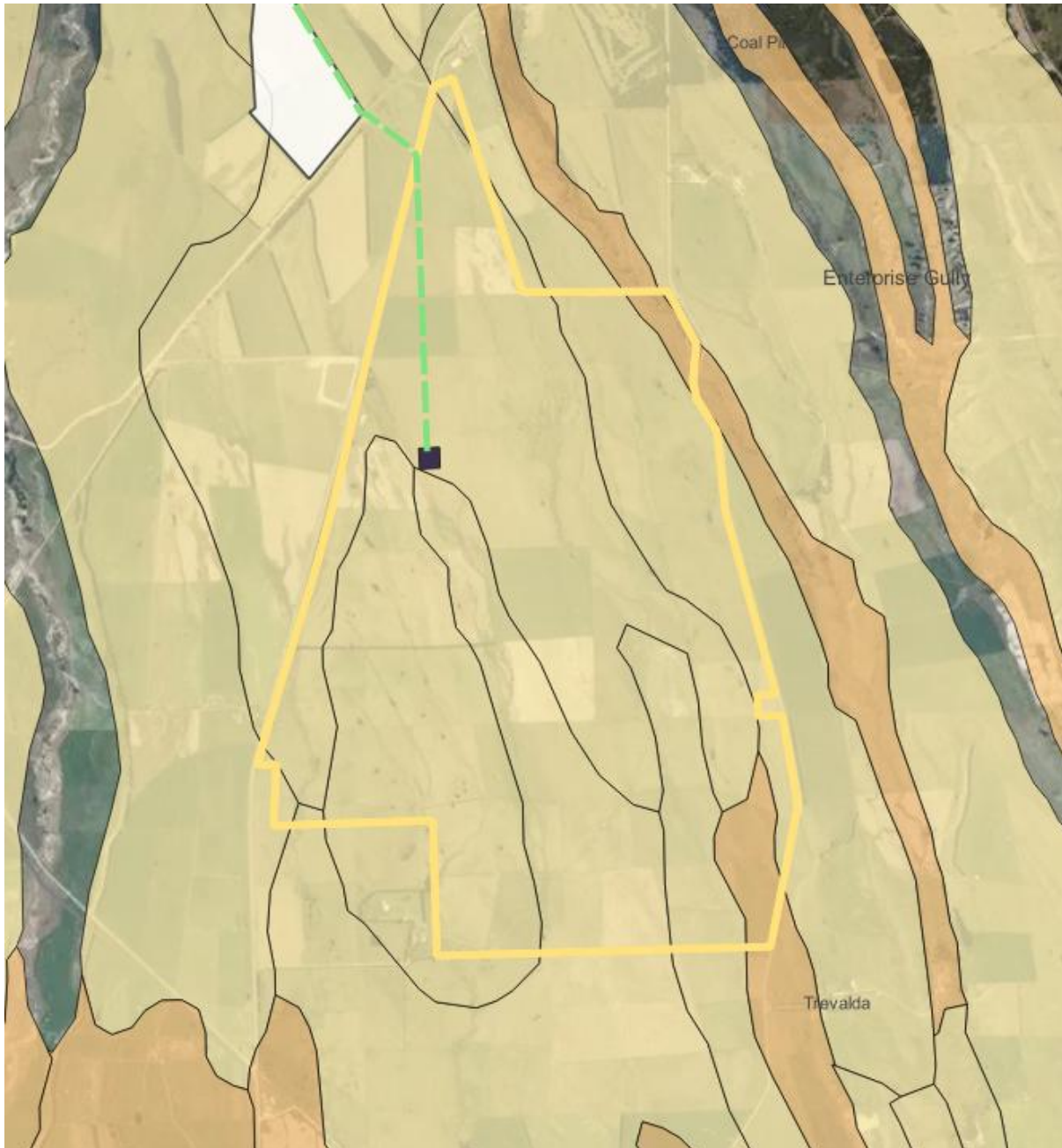
In relation to highly productive land, there is no regional mapping of Highly Productive Land under the National Policy Statement for Highly Productive Land (NPS-HPL). As such the Land Use Capability (LUC) maps are relevant. The land is subject to LUC Class 4 and LUC Class 3

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<sup>2</sup> Mānīatoto Solar Farm - Ecological Impact Assessment December 2023

soil classifications. The very small areas of LUC Class 3 land are as follows and are shown in Figure 2 below:

- Northern corner LUC Class 3 - approximately 4.422 ha and is entirely excluded from development.
- Southern corner LUC 3 - approximately 18.594 ha. Approximately 12.35 ha of this 18.594 ha area will be within the solar farm area.



**Figure 2: Extent of LUC Class 3 land within the Site**

## 2.3 Legal Description

The subject site is comprised of six land parcels with a combined area of 797.1 ha of farmland in the Central Otago District, with the solar farm located within 665 ha of leased land. The certificate of titles are appended as Appendix 1. Legal descriptions and property details of the land parcels are shown in Table 1 below.

*Table 1: Records of Title*

| Record of Title details |                                                 |          |                                                 |                                     |                                                            |            |  |
|-------------------------|-------------------------------------------------|----------|-------------------------------------------------|-------------------------------------|------------------------------------------------------------|------------|--|
| Identifier              | Legal description                               | Area     | Owner                                           |                                     | Interests                                                  |            |  |
| OT13D/517               | Section 3 and Section 10 Block XIX Maniototo SD | 132.05ha | Geoffrey Shaw, Patricia Polson Nominees Limited | Andrew Lauren Shaw and Higgs (2011) | Subject interests – none that would constrain the proposal | to various |  |
| OT13D/516               | Section 33 Block II Maniototo SD                | 227.5ha  | Geoffrey Shaw, Patricia Polson Nominees Limited | Andrew Lauren Shaw and Higgs (2011) | Subject interests – none that would constrain the proposal | to various |  |
| OT9C/187                | Section 5 Block XIX Maniototo SD                | 106.5ha  | Glenspec Holdings Limited                       |                                     | Subject interests – none that would constrain the proposal | to various |  |

## 3. Proposal

The application seeks resource consent to construct, operate and maintain an approximately 300MWac photovoltaic solar farm, and associated infrastructure including, substation and transmission line infrastructure for renewable electricity generation at 48 Ranfurly-Naseby Road, on the Mānīatoto Plain between Naseby and Ranfurly.

The proposed solar farm is to be built on land leased from two local farming families and will be connected into the National Grid via the Naseby Substation on Fennessy Road.

The general site layout of the solar farm is shown in Figure 3 below and appended in Appendix 2.



**Figure 3: Site Layout Plan**

### 3.1 Operational Solar Farm Components

## Solar Panels

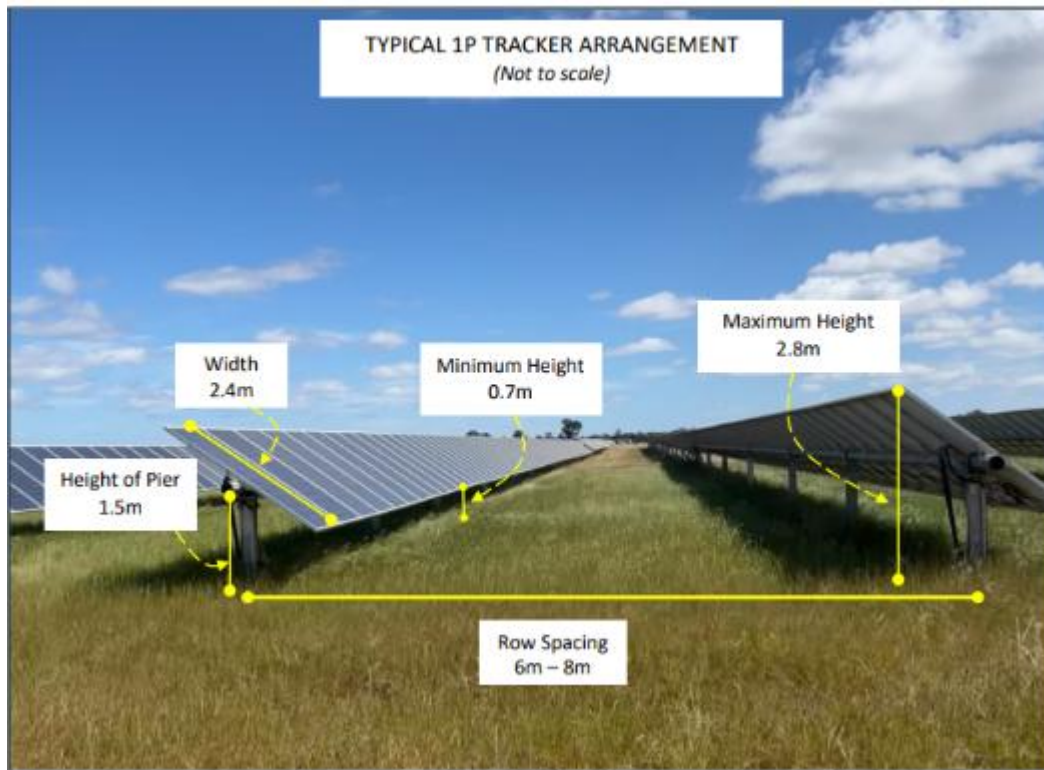
The solar farm will consist of approximately 550,810 solar panels, mounted on a tracking system. The panels will be aligned in north and south rows, and the panels will follow the movement of the sun throughout the day.

The solar panel dimensions will be:

- A maximum height above ground of approximately 2.8 m (when tilted to the maximum angle at the start and end of the day);
- A panel width of 2.4 m; and
- A minimum height above ground of approximately 0.5 m (when tilted to the maximum angle).
- A central axis (post / pole holding the panels above the ground) will be approximately 1.5 m above ground (Figure 4).

The central axis of the panel will be approximately 1.8 m high and each panel when rotated to the maximum angle will reach approximately 2.8 m above the ground at the highest point (refer

to Figure 4). The panels will be arranged in rows approximately six to eight metres apart (when measured from pole to pole), which would leave at least a 3.6 m horizontal gap between the panels when positioned horizontally.



**Figure 4: Typical dimension and layout of solar panels**

When the sun is overhead and the solar panels are tilted parallel to the ground (i.e. at their maximum site coverage), they will along with all other above ground infrastructure buildings combined cover approximately 23.3% of the Site (155 ha in total).

The solar farm has been designed to allow enough space underneath and around the panels for compatibility with sheep grazing and pasture growth with a grass mix suitable for sheep grazing.

The solar panels are transported to the site in shipping containers and assembled on-site. The panels are installed on galvanised steel piles which are pile driven into the ground. No earthworks or concrete is required for the installation of the piles and panels.

### Inverters

Seventy-three (73) inverters will be installed across the site. The inverters convert power generated by the solar panels from DC to AC current used in the electricity grid. These inverters will be distributed throughout the solar farm and used in the generation of power from the solar arrays.

The inverters will be located centrally within the site, away from shared boundaries. The dimensions of each inverter cabinet will be approximately 2.9 m high, 6.0 m long and 2.5 m wide; similar in size and bulk to 20ft shipping container units (refer to Figure 5 below). The specific make and model of inverter will be confirmed at the detailed design stage. These prefabricated structures will sit on piles approximately 600 mm above ground level. The

underlying ground will comprise compacted soil and stone. As an operational requirement to avoid overheating, this structure will be in a light grey colour palette.

Underground cabling will be installed across the site to connect the solar panel arrays with the inverters and the substation.

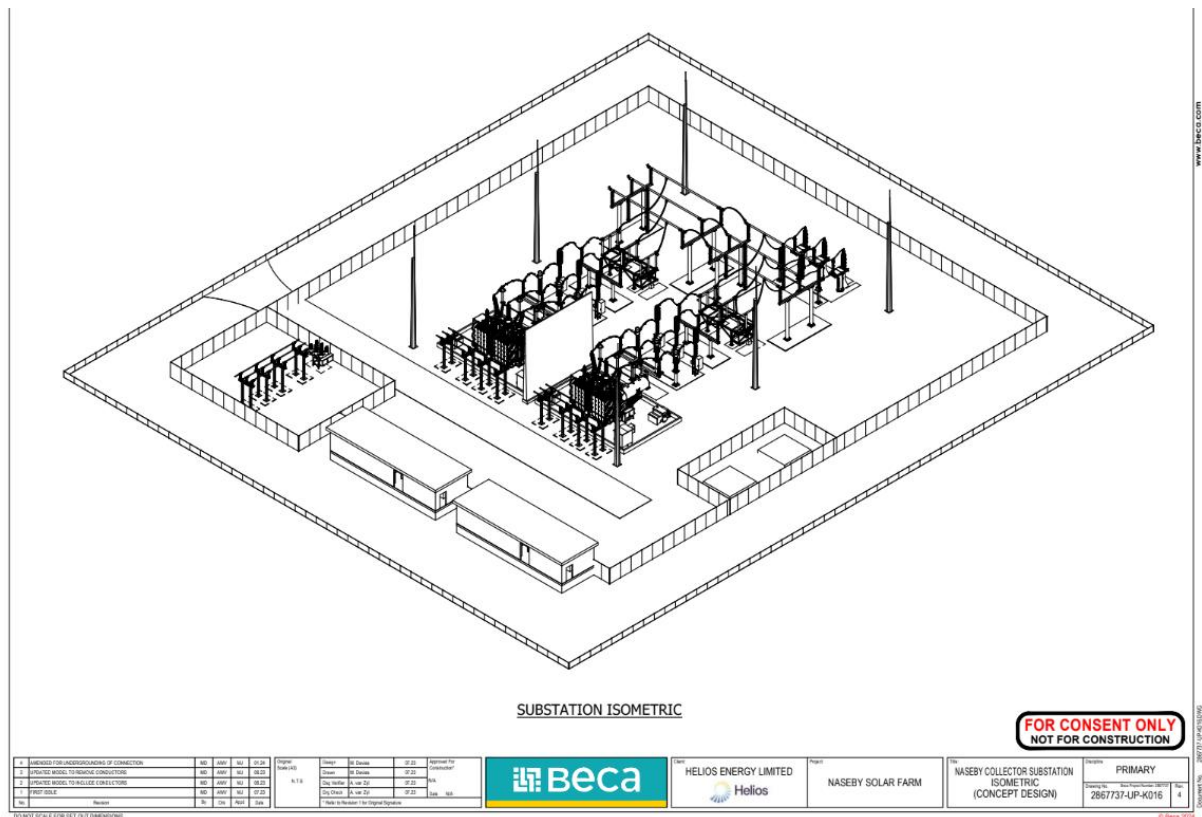


***Figure 5: A typical Inverter***

#### **Substation**

A new 33 / 220 kV substation will be constructed within the Site to collect power from the inverters throughout the site via 33kV cables and transform this to 220kV, suitable for transmission to the Transpower substation on Fennessy Road (Figure 7 below). The substation's exact layout and design is subject to future detailed design. The area previously set aside for a Battery Energy Storage System (now removed from the application) will be replaced by a general grassed utility area.

The solar farm substation will consist of a switchyard with an overall footprint of approximately 100 m x 110 m, being approximately 11,100m<sup>2</sup> (1.1 ha) in area, and will be accessed via internal site access tracks by vehicles using who enter from Ranfurly-Naseby Road.



**Figure 7: Indicative Substation Design**

The substation will generally consist of a 150 mm layer of crushed rock aggregate, with approximately 500 mm of basecourse and sub-base material below this. Switchyard equipment will be mounted on concrete foundations. The perimeter of the facility will be enclosed with a lockable security fence and a stock fence. Within the substation there will also be up to two 33kV switch rooms (each approximately 6 m x 2 m).

Two 33/220kV 150 megavolt-amperes transformers will be installed on banded foundations. An oil treatment facility will be installed within a separate enclosure onsite to treat stormwater before discharging it to land. An enclosure may be required over the capacitor banks if deemed necessary for harmonic mitigation. The capacitor banks will not contain any oil.

The 220kV transmission line to connect the site to the Transpower Naseby substation will terminate onto one 20m high A frame within the switchyard. Lightning spikes will be mounted on top which will extend to 24m high.

## Lighting

External lighting will be provided for on the site for intermittent emergency work and inspection purposes only. The substation and site office will not be lit permanently at night. Lighting will be installed to comply with the District Plan lighting standards, with lighting directed downwards and onto the buildings.

#### Site Office

A single-storey prefabricated office is proposed on the central portion of the site, near the substation building. This office building will be a standard model, generally 10.6 m long, 6.6 m wide, with an approximate area of 70 m<sup>2</sup>. The maximum height of this building will be 3.6 m. The design of this building has yet to be finalised, however building consent will be required and any servicing requirements addressed. It is noted that there is more than sufficient capacity on site for onsite stormwater and wastewater treatment.

#### Water Tanks

Twelve (12) 25,000L above ground water tanks for firefighting purposes are proposed within the substation area.

#### Fencing

Two-metre-high deer fencing will be constructed around the perimeter of the site. The fences will be constructed with timber posts and mesh wire. Fences will be setback from external property boundaries to allow sufficient space for planting.

The substation will be surrounded by a wire mesh security fence, approximately 2.5 m in height.

#### Security Cameras

Security cameras will be installed on the security fencing around the perimeter of the site. Each of the cameras will point inwards and will be directed along the fence line. The cameras will not face toward neighbouring properties.

#### Planting

##### *Screening Planting*

A Landscape Effects Assessment (LEA) and Mitigation Planting Plan has been prepared by Boffa Miskell and is attached as Appendix 4. The LEA identifies proposed mitigation planting along the boundaries of the solar farm to provide visual screening in front of the fence line. These recommendations, outlined within Section 6 of the LEA, form part of the proposal, are included as proposed consent conditions in Appendix 3 and are summarised below:

- Existing site boundary shelterbelts and vegetation are to be retained for screening purposes.
- Mitigation planting is to start in the first planting season after construction begins and finish by the end of the construction period.
- Prioritise planting along the boundaries closest to dwellings 2 and 4, as shown within the Graphic Supplement (Figures 7, 7A and 7B) of the LEA, and along the Ranfurly-Naseby Road.
- Use locally appropriate indigenous species for proposed native planting, focusing on tolerance to dry and extreme conditions and low fire-prevalence.
- Implement irrigation, monitoring, and maintenance for proposed and existing planting, including fenced wetland areas, to ensure plant health and growth.

- Prepare a Landscape Management Plan alongside the Landscape Mitigation Plan for both the establishment phase and ongoing routine monitoring and maintenance.
- Detail the mitigation and enhancement planting areas, specifying layout, species, grades, numbers, spacing, eco-sourcing, and implementation/maintenance program.
- Require occasional pruning for view maintenance and 'spot' planting to fill in any gaps that may be evident between trees.
- Undertake replacement planting with evergreen species where necessary.
- Aim for 'drifts' of tree and shrub planting with a mix of species and plant sizes, avoiding an 'avenue' effect.
- Where practical, require on-site buildings and structures to have Light Reflectivity Value (LRV) of less than 30% to blend with existing infrastructure or natural landscape tones.
- Rehabilitate disturbed soil areas progressively or immediately post-construction.
- Limit night lighting to manually operated safety lighting at main component locations.

A Landscape Mitigation Plan has been developed, refer to Figure 5A in the Graphic Supplement (Appendix 4). The Landscape Mitigation Plan identifies the type, size and location of proposed mitigation planting. A Plant Species List has also been developed which identifies the botanical and common name, grade at time of planting, height after five years of planting, mature height, width and proposed spacings. A final Landscape Mitigation Plan will be submitted to Council prior to construction for certification confirming the final layout, species, grades, numbers, spacing, eco-sourcing, a planting programme and specifications for implementation and ongoing maintenance.

#### *Mitigation planting, wetland enhancement and supplementary planting*

Vegetation removal is required over the project area to accommodate the solar farm. To remediate the loss of up to 250 matagouri, up to 100 desert broom, up to 100 porcupine shrubs, and up to 25 scrub pohuehue shrubs within the site, plantings of greater numbers of these species will be incorporated into ecological enhancement and landscape (boundary and screening) planting at the site, with these specific details found in the Landscape Mitigation Plan in the Graphic Supplement and the EIA (Appendix 5). In summary, the proposed planting measures are as follows:

- To account for time lags in the growth of new plantings and interim loss of existing shrubs that provide occasional feeding opportunities for (e.g.) indigenous birds such as grey warbler, at least double the number of plants will be established, specifically around 500 matagouri, 200 desert broom, 200 porcupine shrub, and 50 scrub pohuehue.
- Binding measures to undertake ongoing weed release, survival monitoring, and replacement of plants that do not establish / survive are also required, such as via a Vegetation Management Plan arising out of recommendations in the Project's LEA and associated Landscape Mitigation Plan.
- Because time lags and survival monitoring have been accounted for above, small grade (e.g. RX90) nursery plants could be used if larger plants cannot be obtained and provided so that survival monitoring and replacement occurs.

Helios also propose to undertake the following mitigation planting and other mitigation measures as additional measures recommended within the EIA:

- Remove crack willow and common alder from within the southwest wetland. Because of a risk of ongoing spread of these species from existing boundary plantings into wetlands, it is also proposed that these species are gradually replaced with natives or non-spreading exotic species along the existing boundary along Naseby-Ranfurly Road. For visual effects reasons, this will need to wait until new replacement screen plantings have been established and grown, to ensure screening is maintained.
- Undertake fencing along the southwest and central wetlands and supplementary planting within these wetlands and setbacks areas (total area c.31.3 ha). This planting work includes:
  - Planting appropriate wetland species to achieve ecological benefits include red tussock, purei, pūkio, *Carex kaloides*, grassland Spaniard, and bog rush.
  - Planting indigenous shrubs within the fenced 10 m wetland setback areas that also provide ecological benefits. Recommended species include matagouri, desert broom, scrub pohuehue, porcupine shrub, mikimiki (*Coprosma propinqua* var. *propinqua* and *C. intertexta*), and indigenous tree daisies (*Olearia odorata* and *O. bullata*).
  - Undertake wetland planting in scattered nodes of 5-10 plants (rather than mass planted across the entire wetland and setback area) of no less than 1% coverage (assuming 1m spacings). This will allow and accelerate natural spread based on habitat suitability. Based on a combined central and southwest wetland and setback area totalling c. 31.3 ha, 1% coverage at 1 m spacings equates to c.3100 plants.
  - As maturation of shrubs and wetland species will take many years in the interim, ongoing weed management, plant survival monitoring, and replacement of plants that do not establish / survive will be undertaken.
- Undertake ongoing removal of woody weeds within the southwest and central wetlands and wetland setback areas as necessary during the operation of the solar farm.
- Undertake predator control within the southwest and central wetlands (targeting mustelids and cats).
- The above measures will be detailed in a simple 'Wetland Enhancement Plan' to be prepared by a suitably qualified and experienced ecologist and implemented by Helios during construction and operation of the solar farm. The proposed planting will be completed in stages within the construction period and during planting seasons.

### 3.2 Site Preparation and Construction

Following early on-site investigations (including geotechnical investigations, piling tests and site surveys) and detailed design, the construction period is expected to take approximately 24 months. Due to the size of the site, construction is expected to be staged across the site. This will be followed by a period of commissioning activities. Below is a summary of the main stages. A more detailed Construction Methodology is provided in Appendix 6.

#### Site Preparation

This includes the removal of existing farm infrastructure. As the property is relatively flat, major earthworks are not required to prepare the site for the installation of the solar panels.

#### Piling and Trenching

The solar panel piles will be installed using driven ground pile methodology. No concrete foundations are required. The piles will be driven into the ground at regular intervals, with an expected depth of between 2.5 to 3 m. The piles will be galvanized steel with a matte finish.

The DC cable trenches will be approximately 0.6 m wide and 0.8 m deep. The AC cable trenches may be wider at approximately 0.8 m wide and 1.2 m deep. The trenches will be completed in sections and backfilled with thermal sand to minimise the area of earthworks exposed at any one time.

#### Foundations

As the site is flat, minimal earthworks will be required to establish foundations for the inverters and substation area. Prefabricated inverter units will be installed onto the foundations by crane.

#### Vegetation Removal

The vast majority of the site is pastoral grassed land, therefore, there will be no significant indigenous vegetation removal required. There will be the removal of some shelterbelt exotic trees located within the site, as well as the loss of natives detailed further above.

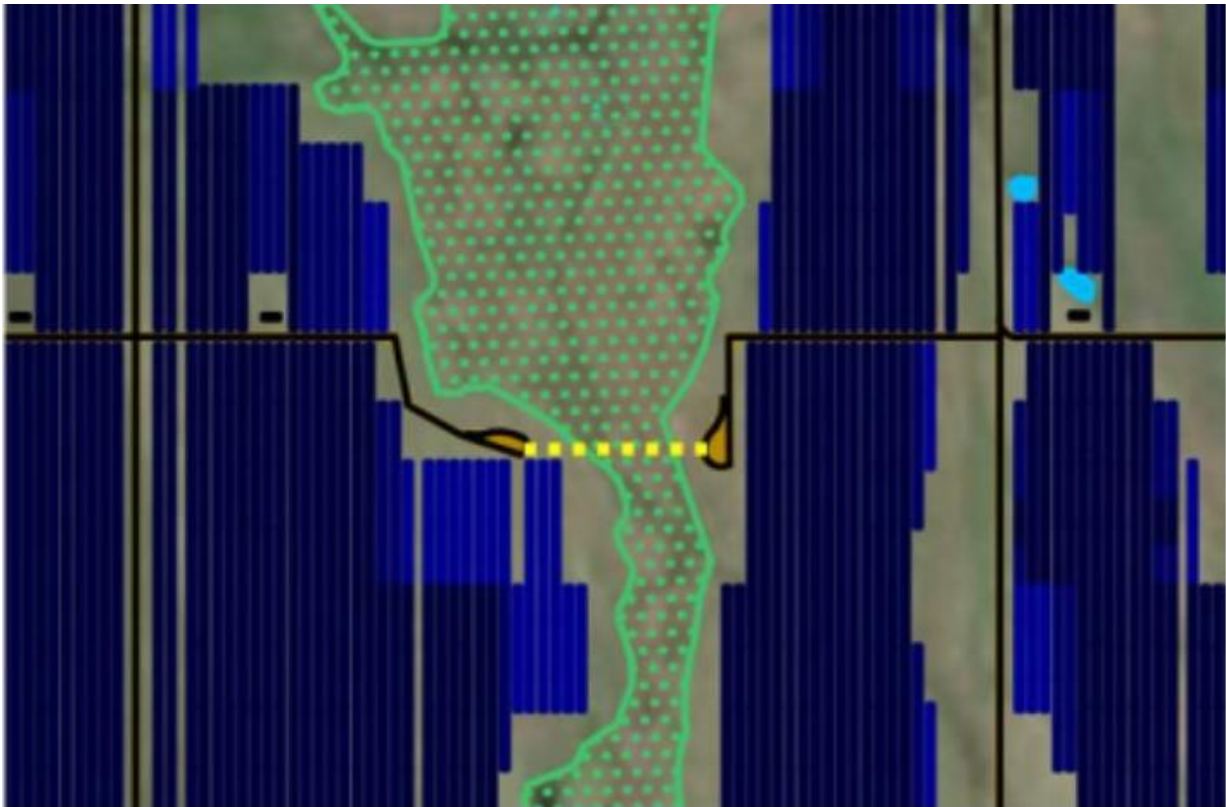
#### Earthworks

Given the large component of installation methodology required for the solar farm, only a small portion of the construction activities will involve earthworks.

Earthworks will be required for the installation of cables (AC and DC cables), internal access tracks, establishing a flat surface for the substation and inverter foundations and small areas of cut and fill to enable efficient installation of solar panels in some areas.

Earthworks will be completed in stages to minimise the amount of soil exposed at any one time. All primary access tracks will be finished in an all-weather metalled surface, with secondary access tracks to remain grassed.

Directional boring / Horizontal Directional Drilling (HDD) will enable cabling beneath the central wetland without requiring surface disturbance or works within the wetland. Two boreholes with cables in triplex (6 cables) of approximately 100 mm thickness will be drilled to approximate 2 m depth with entry and exit holes >10 m from the wetland boundary (Figure 8 below).



**Figure 8: Horizontal Directional Drilling Indicative Location with Entry and Exit Points >10m from wetland habitat**

A total of approximately 48,230m<sup>3</sup> of earthworks will be undertaken across an approximate 15 ha area. This will be a mix of cut and fill works and all material will be reused on-site.

DC trenches will have a width of 0.6 m and depth of 0.8 m. AC trenches will have a width of 0.8 m and depth of 1.2 m. Trenches will be remediated in exotic grass.

Approximately 9,274m<sup>3</sup> of thermal sand will be imported to the site for trenching purposes, as well as approximately 25,044m<sup>3</sup> of Gap 20 gravel to create flat and stable areas for the inverters, substation, and roading.

The estimated total area and volume of earthworks per project component is broken down as follows in Table 2:

Table 2: Estimated Earthworks Quantities

| Component          | Area of Earthworks | Volume of Earthworks |
|--------------------|--------------------|----------------------|
| <i>Units</i>       | <i>m2</i>          | <i>m3</i>            |
| DC Cable trenching | 21,000             | 12,600               |
| AC Cable Trenching | 10,743             | 8,595                |
| HV Cable Trench    | 1,660              | 1,992                |
| Inverters          | 1,270              | 381                  |
| Roading            | 109,116            | 21,823               |
| Substation         | 6,300              | 2,520                |
| BESS Area          | 1,600              | 320                  |
| <b>Total:</b>      | <b>151,689</b>     | <b>48,230</b>        |

All earthworks will be undertaken in accordance with appropriate sediment and erosion control measures.

In the event that, during earthworks, an archaeological find is made or kōiwi uncovered, work shall stop immediately and Aukaha shall be advised, and an appropriate course of action shall be determined in accordance with the Heritage New Zealand Pouhere Taonga Act 2014 and the appropriate iwi protocols.

### Erosion and Sediment Control Measures

The following measures are proposed to manage sediment and erosion control during the construction period:

- Any exposed earth will be backfilled as soon as practicable.
- The trenching will be completed in stages to minimise the area of exposed earth at any one time.
- All excavated soils will be kept on site to be re-used or backfilled. If any excess soil is unable to be reused on-site it will be transported to an appropriate facility for disposal.
- The relatively flat topography of the site and free draining nature of the soils mean construction phase stormwater can be managed appropriately onsite by the contractor.

### Dust Control

Earthworks will be completed in stages to minimise the amount of soil exposed at any one time. All vehicle crossings will be finished in an all-weather metal surface.

The contractor will ensure appropriate measures to manage any dust within the boundaries of the site. Appropriate measures may include deploying water carts (or alternative dust suppression mechanism).

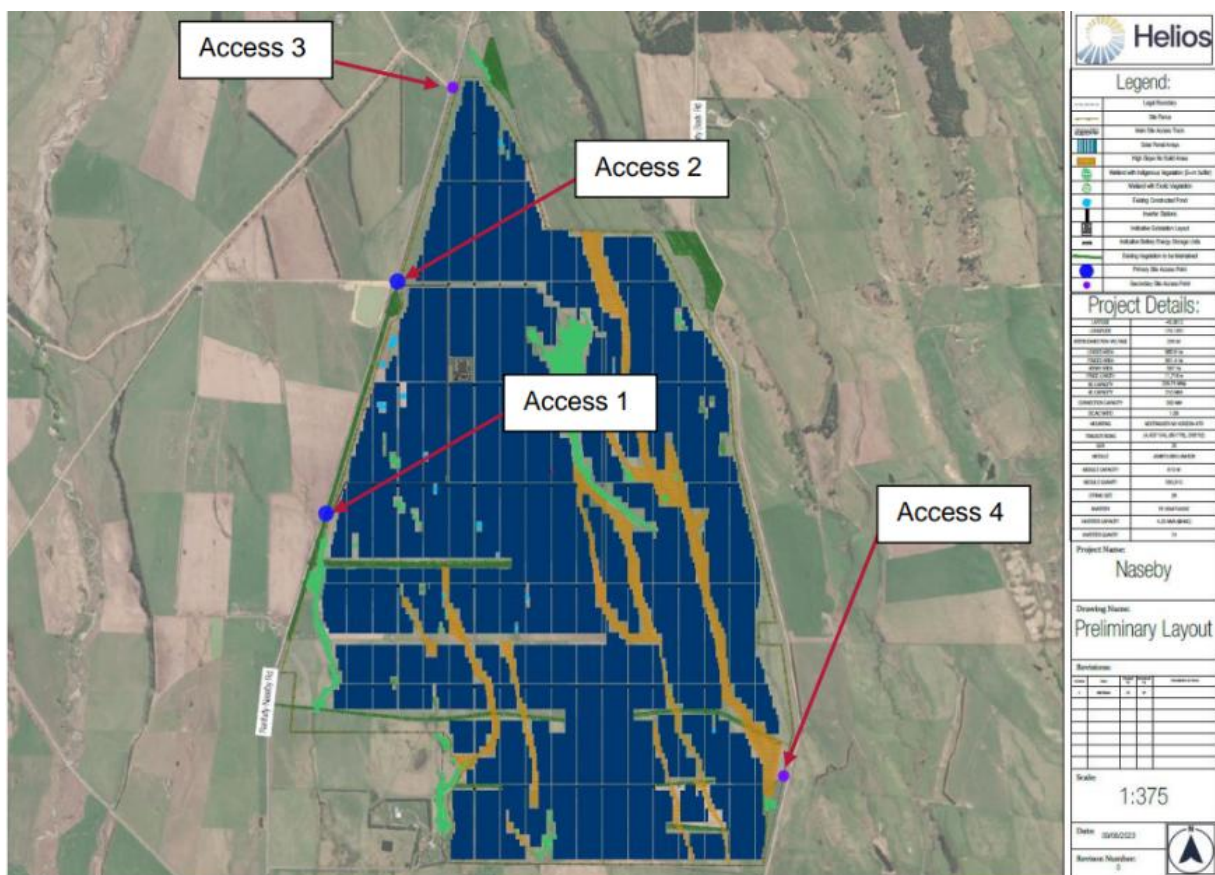
### Site Access

An Integrated Transportation Assessment (ITA) has been undertaken by Abley (refer to Appendix 7). The ITA outlines the proposed vehicle crossing upgrades, internal accessways, parking, and loading requirements for the proposed activities.

A total of four site accesses are proposed. Three will be from Ranfurly-Naseby Road (Access 1-3) and the fourth (Access 4) will be from Ranfurly Back Road. Access 1 and 2 will be the primary access points to be used by heavy vehicles during construction. It is proposed to establish an entry and exit access configuration so that construction vehicles enter the site via Access 1, unload materials onsite (including the use of temporary laydown areas), and subsequently exit the site via Access 2.

Access 3 and 4 are to be secondary access points, primarily used to gain more direct access to other parts of the site to reduce the amount of travel through the site. Access 3 and 4 will not be used by heavy vehicles.

Figure 9 below shows the locations of these accesses. All accesses will be retained once construction is completed to allow for easier access to all parts of the site when required (although Access 1 and 2 will remain the primary accesses and Access 3 and 4 will receive minimal use).



**Figure 9: Proposed Access Locations. Source: Helios Energy**

New sections of primary internal access tracks will be required (see route in Figure 9 above) which will be formed by the placement of sub-base aggregate, approximately 3.5-4.0 m wide, with necessary stormwater control. The primary access tracks will provide vehicle access to the

inverters located centrally across the site. Secondary access tracks will remain grassed to provide access between the panels and around the perimeter of the site.

Together with upgrades to existing access tracks, the total length of internal access tracks (new and existing) will be approximately 27 km.

Existing waterway crossings used to access across the site will be utilised for construction and operational vehicle access (predominantly construction). At time of detailed design, these will be further inspected to confirm whether any upgrade or new waterway crossings will be required, and additional resource consents sought if required. Therefore, at time of consent lodgement, it should be noted that works will be set back from waterways.

In addition to the above, the following measures (which are also recommended to be imposed as consent conditions) are proposed to ensure the safe and efficient operation of the roading network during the construction period (refer to the ITA in Appendix 7 and the Proposed Consent Conditions in Appendix 3):

- The contractor must follow appropriate processes to ensure disruption to the transport network is minimised during construction, and that any road reinstatement is completed to the satisfaction of Central Otago District Council. This will include preparation and approval of a temporary Traffic Management Plan (TMP) by a suitably qualified and experienced professional and obtaining an approved Corridor Access Request from the road controlling authority (Central Otago District Council). At a minimum, the TMP must address the following:
  - a) Ensure that truck drivers are advised to adhere to the speed limit and drive to the conditions during periods of adverse weather.
  - b) Ensure that truck drivers are advised of the circulation arrangements onsite, including the requirement to access the site via Access 1 and exit the site via Access 2.
  - c) Ensure that truck drivers are advised to stay on State Highway 85 (and travel through Ranfurly), so that they do not use Goff Road.
- Accesses 1, 2, 3 and 4 must be constructed in accordance with Figure 12.5 of the District Plan, with the geometry for Accesses 1 and 2 being in general accordance with that shown in the vehicle tracking.
- Accesses 1, 2 and 3 must be sealed from the edge of Ranfurly-Naseby Road to a distance not less than 5.0 m inside the property boundary.
- Only Access 1 and 2 are to be used by heavy vehicles.
- The layby area is set back sufficiently away from the gate to avoid vehicles queuing over the sealed access area.
- The use of Access 4 (and Ranfurly Back Road) must not include heavy vehicles and light vehicle movements may only consist of infrequent access to the rear parts of the solar farm.

### Laydown Area

All parking and loading areas will also be constructed to an all-weather, metallised surface with necessary stormwater control.

A main construction laydown area will be constructed in the north-western side of the site near the two primary vehicle crossings. Dust will be controlled via water carts as required.

#### Construction Traffic

The ITA (attached as Appendix 7) details the traffic movements associated with the construction and operation of the solar farm.

Construction vehicles will enter Access 1 via Ranfurly-Naseby Road, drop off goods/materials at the laydown area, and exit via Access 2.

The average daily trips during peak months for the construction of the solar farm as calculated by Abley is likely to be 24 trips per day, comprising:

- 15 heavy vehicles, travelling either to or from the site, and
- 9 light vehicles, travelling either to or from the site.

Construction activities are likely to occur from 7am to 5pm Monday to Saturday. As such construction workers are likely to arrive on site between 7am to 9am, and leave between 4pm to 6pm, which equates to up to five vehicles per 2-hour period. In terms of delivery vehicles, up to three truck movements are anticipated within any given working hour.

Since Primary Construction Access 1 and 2 will operate as one-way accesses (with Access 1 being for entry only and Access 2 being egress only), it is not necessary to design the access to accommodate two-way movement of vehicles.

Construction equipment will include JCB earth movers (trenching), rollers (compacting access track and compounds), piling machines (for solar panel installation), and a crane (for positioning of inverters etc).

#### Construction Noise and Vibration

Construction of the solar farm will involve noise from the following sources:

- Delivery of panels, inverters and other components, requiring trucks and small cranes;
- Earthworks using trucks, loaders and excavators; and
- Installation of solar panels on pile driven support piles.

The total duration of construction is expected to be approximately 24 months, Monday to Saturday between 7.30am to 5pm.

The Assessment of Noise Effects by Marshall Day Acoustics (provided as Appendix 8) has concluded that construction noise will comply with the NZS 6803:1999 75dB construction noise limits.

Regarding vibration effects, the Assessment of Noise Effects concludes that there will be no perceptible vibration.

The preparation of a Construction Noise and Vibration Management Plan has not been considered necessary or recommended by Marshall Day Acoustics due to the proposal's

compliance with the District Plan noise limits, and that there will be no perceivable vibration effects.

### Works in proximity to Waterways/ Wetlands

To assist with screening views of the solar panels and integrating the proposed development with the surrounding landscape, a combination of setbacks and screen planting are proposed. Regarding setback distances in relation to wetlands, constructed farm ponds and waterways, Table 3 below identifies the proposed setbacks which relate to construction and earthworks, i.e., of solar panels, cable trenches, accessways, inverters, and the like. These setbacks do not apply to proposed plantings for the purpose of ecological enhancement, or to perimeter fencing of wetlands.

*Table 3. Setback distances in relation to wetlands, constructed farm ponds, and waterways.*

| Feature                 | Locations within Site                                            | Construction and earthworks setback (min.) | Notes                                                                                                            |
|-------------------------|------------------------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Natural inland wetlands | Central wetland                                                  | 10 m                                       | Would also be fenced and enhanced                                                                                |
|                         | Wetland and waterway in southwest of Site                        | 10 m                                       | Setback applies from the outermost of either the wetland or waterway boundary. Would also be fenced and enhanced |
| Natural inland wetlands | Small wetlands with indigenous vegetation (various locations)    | 5 m                                        | Generally small features (c.<1000 m <sup>2</sup> ) - unfenced                                                    |
|                         | Small wetlands without indigenous vegetation (various locations) | 5 m                                        | Generally small features (c.<1000 m <sup>2</sup> ) - unfenced                                                    |
| Constructed farm ponds  | Various locations                                                | 2 m                                        | Not 'natural inland wetlands'. Unfenced                                                                          |
| Waterways               | Wetland and waterway in southwest of Site                        | 10 m                                       | Setback applies to the bank of the waterway                                                                      |
|                         | Waterway in northeast of Site                                    | 10 m                                       | Waterway located on lower terrace. Actual setback distance is c.>50 m                                            |

#### Connection to the Naseby Substation

The solar farm will be connected to the Naseby substation via a new underground 220kV transmission line. The construction of new underground transmission lines are a Permitted Activity under Rule 13.7.9 of the District Plan.

Helios will work with the District Council and other relevant authorities to obtain any other required non-RMA approvals to install the 220kV transmission line.

#### 3.3 Commissioning Activities

The commissioning process is the final stage in establishing a solar farm. This stage involves a series of tests to ensure all components including solar panels, inverters, transformers, switchgear and associated systems are installed and functioning correctly.

It also involves grid connection testing to ensure the power generated by the solar farm can be safely and effectively integrated into the electricity grid. While there are a number of electrical contractors required on site during this time, there are no prolonged or heavy construction related activities during the commissioning stage.

#### 3.4 Operation of Solar Farm

##### Staff and maintenance

Once the solar farm is operational, activity will be very limited. No staff will live or permanently work onsite as the componentry is operated / monitored remotely. However, should componentry need to be replaced, it will need to be accessed. This is likely to be infrequent. Vehicle movement within the site will typically be by quad bike or small farm utility vehicle.

Once operational, it is anticipated that traffic movements to and from the solar farm will be of a low volume and intermittent. Up to two staff members are expected to visit the site five to six times per week, which will equate to approximately 12 trips per week. It is noted that this estimate is conservative, and traffic movement levels could be lower.

The inverters have a 20-year warranty and will likely require replacing once within the operational life of the solar farm. The replacements will be like for like on the same foundations. The substation will be maintained through regular maintenance visits.

No operational or maintenance works will be undertaken on the site outside of daylight hours except for emergency inspections or maintenance.

Solar panels have a silicon based non-stick surface and are cleaned adequately via rain.

##### Sheep grazing

As noted above, the land under and around the solar panels will remain as pastoral land.

The grazing of sheep is complementary to the operation of a solar farm, due to the size of sheep being able to freely move under and shelter amongst the panels without damaging them.

Appropriate fencing will be installed within the site to prohibit sheep from accessing waterways and substation infrastructure, as well as manage their grazing areas within the solar farm site. While it is acknowledged that some farm infrastructure will be removed in order to allow the

commissioning and operation of the solar farm, sufficient farm infrastructure, such as fencing will remain, allowing for the concurrent use of grazing and energy production.

#### **Operational Noise**

An Assessment of Noise Effects has been prepared by Marshall Day Acoustics (refer to Appendix 8). Noise will be generated during daylight hours from power generation, and primarily between the hours of 7am to 10pm, with generation potentially starting before 7am in summer periods (however this will be low, as solar levels are not high then).

The solar panels will make up the majority of the site and are installed on tracker frames which tilt slowly to align the panels to the sun throughout the day. The trackers are rotated around a central horizontal axis by a DC motor (which is small and low powered, approximately 300 watts). The tracker motors make very low levels of noise and operate intermittently during daylight hours and only for a short period as they make small incremental adjustments to the trackers.

There is a low level of noise generated by the cooling fans within the inverters. However, inverters will be positioned centrally throughout the site to ensure they are located away from residential properties.

The Assessment of Noise Effects concludes that the solar farm will be designed to comply with the noise limits in the District Plan, for all periods of the day, and for all assessed scenarios of operation.

#### **Transformer and inverter hazardous substances**

Transformers and inverters contain oil for electrical insulation. It is not anticipated the oil will be drained during the lifespan of the components. As such, this oil is a passive substance. The dominant volume of oil is contained in two transformers at the proposed substation, with the remainder of oil stored in the 73 inverters across the site.

There will be fire extinguishers in appropriate locations, and appropriate personal protective equipment (PPE) for workers (as required by health and safety, and by hazardous substances regulations).

#### **Fire Safety Measures**

Helios has undertaken engagement with Fire and Emergency New Zealand (FENZ) (refer to the Engagement Summary document in Appendix 9) and have taken into account their feedback as part of the site design and on-site fire safety measures.

The proposal includes low fire risk plant species as part of the landscape design, appropriate access around the site to allow for fire trucks, and the provision of firefighting water supply via the 12 above ground water supply tanks. These measures will be incorporated into the detailed design. Further, a Fire and Emergency Management Plan will be developed between Helios, the yet to be appointed contractor, and FENZ to detail emergency service access and emergency response procedures during construction and operational phases, confirmation of on-site firefighting water supply and any other fire risk management measures and procedures.

### **3.5 Decommissioning of Solar Farm**

At the end of the operational lifespan of the solar panels, the solar farm, including the substation building and all ancillary equipment, will be dismantled and removed from the site.

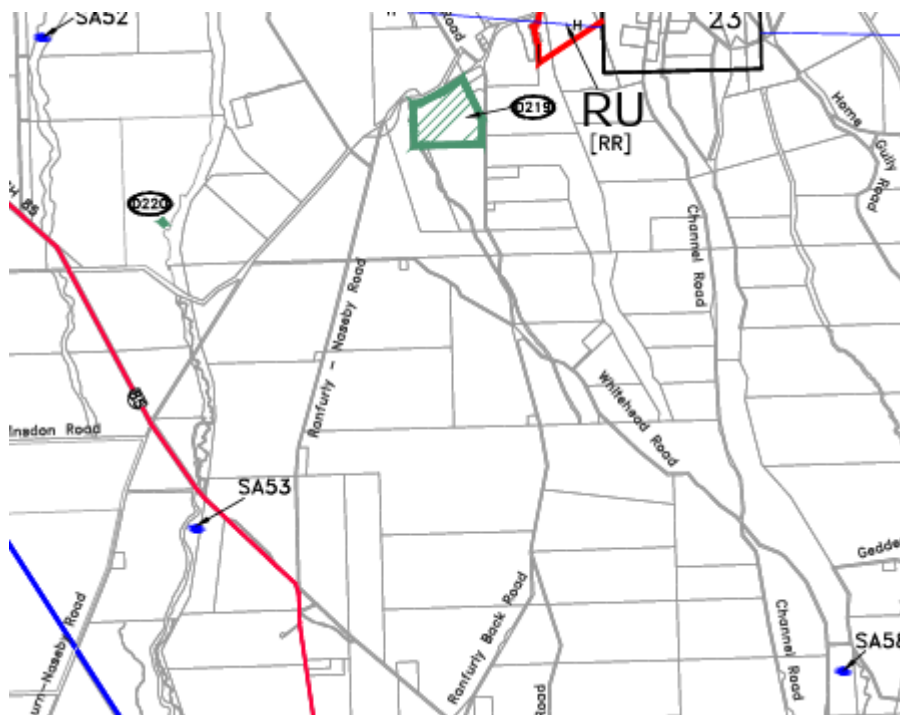
Materials will be reused or taken to an appropriate location for recycling or disposal. The site will be reinstated to its original pre-construction condition.

### 4. Statutory Framework

The following provides an assessment of the proposal against the relevant statutory framework to determine what resource consent(s) are required.

#### 4.1 Central Otago District Plan

The site is zoned Rural Resource Area in the District Plan. The site is subject to the Other Rural Landscapes (ORL) overlay. See Figure 10 below:



**Figure 10: Zoning of site (Source: Central Otago District Plan)**

The proposal falls within the definition of ‘Power Generation Facility’ which is defined as follows: “means a facility, operation or activity whose principal purpose is to generate energy, and includes hydroelectric, thermal and geothermal power stations, wind turbines and other power generation technology but excluding devices such as solar panels for the sole use of a domestic activity.”

This encompasses all works and activities directly involved with the building and operation of a new power generation facility. As stated within Section 13.7.4.(iii) this includes site preparation, earthworks, quarrying, concrete batching, plant construction, road construction and widening, traffic generation, reservoir formation, clearance, or inundation of vegetation. Power Generation Facilities are a Discretionary Activity pursuant to Rule 13.7.4(iii) of the District Plan. As such, consent is required under section 9 of the RMA due to triggering Rule 13.7.4(iii) of the District Plan.

As outlined within Section 13.7.1 of the District Plan, the rules within section 13 provide a complete code for those activities to which Section 13 applies. With the exception of Financial Contributions, Subdivision and Definitions, no other rule in any part of the District Plan shall apply.

For clarity the below table includes some relevant breaches under the Rural Resource Area. While these individual rules are not formally triggered through this application as they are captured under Rule 13.7.4(iii), the table provides useful context on the District Plan framework as it relates to the nature of this application.

*Table 4: Rural Resource Area Rules - Central Otago District Plan*

| Rule         | Description     | Comments                                                                                                                      | Compliance             |
|--------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------|
| 4.7.4(ii)(a) | Noxious Effects | The storage of 107,600l of oil within the two proposed transformers will require resource consent as a Discretionary Activity | Discretionary Activity |
| 4.7.6(c)     | Waterbodies     | Solar Panels are located within the 20m setback                                                                               | Discretionary Activity |

The relevant objectives and policies of the District Plan are addressed within Section 6.1 of this report.

### 4.2 Activity status conclusion

The overall proposal requires resource consent from the District Council pursuant to:

- **Rule 13.7.4 (iii) Discretionary Activity** consent under the District Plan for the construction and operation of a power generation facility including all associated structures and activities.

Overall resource consent is required as a **Discretionary Activity**.

### 4.3 Scope of application

This application seeks resource consent under the District Plan to establish all aspects of the proposed development, including site works, construction, operation and maintenance.

If Council is of the view that resource consent is required for alternative or additional matters to those identified in Section 4.6 of this report, it has the discretion to grant consent to those matters as well as, or in lieu of those identified in this AEE.

Additionally, if Council is of the view that the activity status of any of the matters requiring consent is different to that described in Section 4.6 of this report, Council has the ability under

Section 104(5) of the Act to process the application, regardless of the type of activity that the application was expressed to be for.

#### 4.4 Regional Water Plan for Otago - Otago Regional Council

The site is located within the Central Otago Sub-Region and within the Taieri Freshwater Management Unit (FMU). There are a number of rivers, streams and wetlands identified across the site. At this stage, no resource consent against the Otago Regional Water Plan is required.

ORC is currently in the process of developing a Land and Water Regional Plan. Early community engagement is currently underway; the Minister for the Environment has directed the Council to prepare the new plan by the end of 2023. An assessment of the Land and Water Regional Plan will be undertaken once this has been developed.

#### 4.5 National Environmental Standard for Assessing and Managing Contaminants in Soil to Project Human Health Regulations 2011 (NESCOS)

The NESCOS 2011 applies to land that currently has, or historically had, an activity or industry undertaken on it that is included in the Hazardous Activities and Industries List (HAIL). It includes resource consent requirements in relation to earthworks, subdivision and change of use of land, where there has been a HAIL.

The proposal includes both earthworks and a change of use of the site.

Based on a review of Council records, there is no known HAIL activity that has occurred on site. The subject site is not listed on ORCs Listed Land Use Register (LLUR) for sites within the Otago Region that have been subject to (HAIL) activities.

Further, Helios Ltd has discussed the HAIL list with the landowners, and they have confirmed there has been no known HAIL activity on site.

#### 4.6 National Environmental Standards for Freshwater Regulations 2020 (NES-FW 2020)

The NES-FW 2020 sets standards for certain activities that pose a threat to freshwater and freshwater ecosystems. ORC is responsible for issuing resource consents for activities that are not able to meet the standards as defined in the NES-FW. A separate resource consent application is being prepared for not meeting permitted wetland setbacks, and will be lodged with and processed by ORC in due course.

#### 4.7 Specified Infrastructure and National Significance

Under the Statutory Framework, including higher order documents, the proposed solar farm is considered specified infrastructure and of significance as follows:

The proposed solar farm will meet the definition of “*Specified Infrastructure*” under the National Environmental Standards for Freshwater<sup>3</sup>, specifically:

*“Specified infrastructure has the meaning given by the National Policy Statement for Freshwater Management”.*

The National Policy Statement for Freshwater Management<sup>4</sup>, provides a definition as follows:

*“Specified infrastructure means any of the following:*

*(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan.”*

Regionally Significant Infrastructure is addressed by Otago Partially Operative Regional Policy Statement (PORPS)<sup>5</sup> within Policy 4.3.2, as infrastructure including:

*“Renewable electricity generation activities, where they supply the National Grid or local distribution network.”*

In addition, the Proposed Otago Regional Policy Statement<sup>6</sup> provides the definition of Regionally Significant Infrastructure as:

*“renewable electricity generation facilities that connect with the local distribution network but not including renewable electricity generation facilities designed and operated principally for supplying a single premise or facility”.*

Additionally, the National Policy Statement for Renewable Electricity Generation 2011 (NES-REG) recognises renewable electricity generation activities as a matter of national significance.

Based on the above confirmations between both National and Regional policy instruments it is considered that the proposed solar farm will comfortably meet the definition of “Specified Infrastructure” referenced within the National Environmental Standards for Freshwater Regulations.

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Resource Management (National Environmental Standards for Freshwater) Regulations 2020

<sup>4</sup> National policy statement for freshwater management 2020 Section 3.21

<sup>5</sup> Partially Operative Otago Regional Policy Statement 2019 Policy 4.3.2

<sup>6</sup> Proposed Otago Regional Policy Statement 2021 - Part 1/ Interpretations/ definitions

It is also considered Specified Infrastructure under the NPS-HPL (see section 8 assessment further below).

The proposed solar farm is also considered to be of regional and national significance.

As such, through the assessment below, the project is referred to as both specified infrastructure and a matter of regional or national significance. The relevant NES and NPSs are assessed in detail in section 6 below.

## **5. Assessment of Environmental Effects**

In accordance with section 88(2)(b) and Clause 1(d) of Schedule 4 of the Resource Management Act 1991 (the Act), this assessment of environmental effects of the proposed activity has been prepared in such detail as corresponds with the scale and significance of the effects that it may have on the environment.

### **5.1 Permitted baseline and Existing Environment**

In forming the opinion for the purposes of sections 95 and 104(1)(a) of the Act, adverse effects on the environment can be disregarded if a Plan permits an activity with that effect. Power generation activities are not permitted under the District Plan, while solar panels for domestic use can be permitted. Due to the difference in scale between these activities this is of limited relevance as a permitted baseline.

While it is considered that no relevant permitted baseline is applicable to this proposal the existing environment does have relevance. The 'environment' upon which effects should be assessed is therefore the existing and reasonably foreseeable future environment. As such it is relevant to consider some the associated activities as an expected occurrence within the wider context of the rural environment. Specifically, it is not fanciful for the existing landowner as part of a farming activity, to undertake works and construct buildings up to 20 m from waterways or undertake boundary treatments such as fencing and shelterbelt plantings, all of which would be permitted. In addition, the storage of hazardous materials within volumes permitted by the District Plan, could reasonably be expected on a working farm. These activities are considered to form part of the existing environment and are relevant when considering the resultant changes proposed, particularly in terms of landscape values such as openness and pastoral character.

### **5.2 Positive effects**

The solar farm will result in significant positive effects including the following outcomes:

- The proposal supports Aotearoa New Zealand's national commitment of doubling renewable energy generation to accelerate transition to a low-emissions, high-growth economy, and

net zero carbon emissions by 2050<sup>7</sup>. Under higher order documents, solar farms such as these are a matter of national significance.

- The proposal would create enough clean, renewable electricity to power the equivalent of 70,000 typical New Zealand homes annually. This increased resilience in power supply is significant, especially given New Zealand is forecast to need 70% more power by 2050 given the rapid electrification in private vehicles, transport, and industry sectors.
- Increasing New Zealand's solar energy resource will support the national economy during periods when power from other renewable energy sources is not sufficient to meet demand, such as during periods of low rainfall in the headwaters of the country's hydroelectric schemes or periods of low wind speeds impacting wind farms.
- The proposal will optimise activities on the site through energy generation and the ability to continue sheep grazing the land around and under the solar panels, allowing for an agricultural co-use of the land.
- The construction phase will create regional employment opportunities. The project is estimated to generate 200-250 jobs for the 24 - month construction period and additional commissioning period. There will also be wider ancillary support requirements such as accommodation and catering for staff.
- Additional wetland enhancement measures (fencing and planting), noting these are additional mitigation measures proposed are above and beyond the required mitigation. This is considered to result in positive ecological effects, particularly in terms of indigenous biodiversity and the health and vitality of the wetlands and waterways.
- Section 13 of the District Plan emphasises the importance of the transmission network for meeting community needs, while also recognising the need to address negative impacts like visual effects.
- The Rural Resource Area chapter of the District Plan acknowledges that Energy Generation Facilities can enhance rural environment values.
- Section 2.3.1 of the District Plan acknowledges the role of "human endeavours" like mining, viticulture, and energy generation activities such as the Clyde Dam in shaping the landscape values of the district.
- This recognition of energy production as part of the rural environment is relevant when evaluating the suitability of the proposed solar farm and its associated environmental effects.

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<sup>7</sup> Electrify NZ, National Party, dated March 2023

- Renewable energy generation is considered to be of national significance, and the proposed solar farm will contribute to New Zealand's target of 90% of electricity from renewable sources by 2025. The development of new renewable energy regeneration is outlined in the National Policy Statement for Renewable Energy Generation 2011 (NPS-REG) is a matter of National Significance.
- The proposed solar farm will positively contribute to the development of renewable generation and improve energy resilience at the national level.
- The solar farm project ensures a rural production activity is maintained on the land, allowing compatible activities like sheep grazing alongside solar generation. Despite having 23.3% site coverage, surrounding land will remain pasture, preserving a significant portion of highly productive land. Economic benefits to landowners support continued productive land use, and after decommissioning, the land will fully return to productive use. This integrated approach sustains rural productivity and renewable energy generation.

Overall, it is considered that renewable generation activities within the rural environment of the district are well established and anticipated by the District Plan.

### 5.3 Landscape and visual effects

The landscape assessment outlines the potential impacts during both the construction and operation phases of the proposed solar farm.

During construction, disturbances such as ground disruption, vehicle movement, and equipment installation are expected, with earthworks required for various project components such as solar panels, access tracks, and the substation. Construction activities will occur sequentially over a two-year period, with efforts to mitigate impacts through careful planning and planting initiatives starting in the first planting season from commencement of construction.

Once the solar farm is operational, the landscape will undergo a significant change, transitioning from open farmland to an energy landscape marked by solar panel arrays. While the solar panels will introduce new structures, efforts will be made to integrate them into the existing rural landscape, including maintaining pasture and utilising sheep grazing to manage vegetation. Additionally, mitigation measures such as development setbacks, no-build areas, and native planting buffers will be implemented to reduce the visual impact of the solar farm. These measures have been outlined within the LEA and the proposed conditions (Appendix 3).

Overall, with the proposed mitigation planting, the solar farm is expected to have minor adverse effects on local landscape character initially, with effects anticipated to diminish over time as planting becomes more established. Adverse effects on the local landscape are anticipated to reduce to less than minor, with adverse landscape effects on the wider basin reducing to less than minor. These effects are assessed in greater detail as follows.

Boffa Miskell have undertaken a Landscape Effects Assessment (LEA), appended as Appendix 4. This assessment is adopted <sup>8</sup> for the purpose of this report. Noting where the assessment has been provided using Te tangi a te Manu 7-point methodology, this has been converted to the RMA conversion tool outlined within the LEA method statement, and is also illustrated in Figure 11 below. For example, a low-moderate landscape effect under Te tangi a te Manu corresponds to a minor adverse effect.



Figure 11: LEA Methodology Conversion Diagram

Visual Effects

The proposal has the potential to generate visual effects in terms of visual amenity and glint and glare.

Visual Amenity

Views of the landscape will largely be contained to neighbouring properties and snapshot views from roads, with more distant views available from elevated viewpoints. During construction, adverse visual effects will vary but decrease over time due to mitigation efforts. The mitigation planting, wetland fencing, and visual screening proposed will increase the indigenous vegetation and biophysical landscape values, with landscape effects reducing to minor effects over time within the immediate context and less than minor effects experienced within the wider basin and post construction landscape and visual effects on the wider environment are considered to be no more than minor, noting these effects are anticipated to reduce further over time as planting becomes more established. These mitigation works are outlined within the LEA and the proposed conditions.

<sup>8</sup> Mānīatoto Solar Farm Landscape Effects Assessment, Boffa Miskell, 28 February 2024

Section 5.3.2 of the LEA addresses the visual effects on neighbouring dwellings as private vantage points. This assessment provides an assessment of anticipated visual effects on each dwelling utilising a 7-point assessment tool. The LEA has included visual effects during the construction phase and then provided a visual effects assessment from year one, and then again year five. Based on this assessment and utilising the assessment conversion tool outlined within Te tangi a te Manu, the following can be concluded in terms of visual effects on persons.

At Year 1 there will be less than minor visual effects on 788 Ranfurly Back Road (Dwelling 3), 5 Bypass Road (Dwelling 5), 793 Channel Road and 788 Ranfurly Back Ground (Dwelling 6), 8365 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 7), 8358 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 8), 8268 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 9), 8249 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 10), 8236 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 11) 205 Gimmerburn-Naseby Road, Ranfurly (Dwelling 12), 256 Gimmerburn- Naseby Road, Ranfurly (Dwelling 13), 73 Brinsdon Road, Ranfurly (Dwelling 14), 146 Brinsdon Road, Ranfurly (Dwelling 15), 885 Ranfurly Back Road, Naseby (Dwelling 16) and 581 Ranfurly-Naseby Road (Dwelling 17).

There will be minor visual effects on 512 Ranfurly – Naseby Road (Dwelling 2) and 366 Ranfurly Back Road (Dwelling 4). By Year five, these effects would have been mitigated from established planting such that they are less than minor.

A more specific property by property assessment on these two properties is as follows:

#### 512 Ranfurly- Naseby Road – Dwelling 2

The property is located to the north of the proposed solar farm. Longer distance views (approximately 1200 m) of the proposed solar farm will be available from southeast orientated windows, decking and garden areas. Views will appear as a thick dark band broken up visually through no build areas and mitigation planting. Post construction, visual and landscape effects are considered to be minor, with effects reducing overtime as the planting becomes more established.

#### 366 Ranfurly Back Road - Dwelling 4

The property is located to the southeast of the proposed solar farm. Long distance views (900m) of the proposed solar farm will be available to the north/ northwest orientated windows, carpark and entrance garden areas. Views will appear as a thick dark band, broken up by the existing shelterbelt, rolling topography and no-build areas. Portions of the substation will likely be visible, albeit backdropped by topography and existing shelterbelts. Mitigation planting is proposed to soften and reduce the level of visibility, however due to the existing topography planting will need to reach 8 m - 12 m before screening from the carpark and garden area can be achieved.

Effects on Dwellings 2 and 4 are considered to be minor post construction (Year 1), with effects reducing overtime due to the growth of mitigation planting to less than minor (Year 5).

#### Glint and Glare

ITP Renewables have undertaken a Glint and Glare Study, which forms part of the LEA as Appendix B to the LEA.

For clarity the assessment of effects has been converted utilising the conversion outlined within Figure 11 of the LEA, where effects have been identified as “low” a conservative approach has include these as “minor” effects.

The Glint and Glare Study concludes that no significant impacts are predicted upon road safety or residential amenity and that glint effects are unlikely to occur due to the slow movement of the PV modules.

The glare effect on Ranfurly-Naseby Road and Ranfurly Back Road had a low to moderate impact (minor effects) on local traffic, concluding that mitigation is not required, however can be undertaken to reduce impact. In this instance boundary planting is proposed along Ranfurly-Naseby Road and Ranfurly Back Road as part of the wider mitigation strategy which will mitigate impacts of glint and glare.

Regarding glint, this assessment confirms that glint effects are unlikely to be experienced due to the slow movement of the panels however have addressed glare as being a likely effect.

Regarding glare, there will be less than minor or no glare effects on 512 Ranfurly–Naseby Road (Dwelling 2), 788 Ranfurly Back Road (Dwelling 3), 5 Bypass Road (Dwelling 5), 793 Channel Road and 788 Ranfurly Back Ground (Dwelling 6), 8365 Ranfurly-Wedderburn Road, Ranfurly, (Dwelling 7), 8358 Ranfurly-Wedderburn Road, Ranfurly (Dwelling 8), 8268 Ranfurly-Wedderburn Road, Ranfurly Dwelling 9), 8249 Ranfurly- Wedderburn Road, Ranfurly (Dwelling 10), 8236 Ranfurly- Wedderburn Road, Ranfurly (Dwelling 11), 205 Gimmerburn-Naseby Road, Ranfurly (Dwelling 12), 256 Gimmerburn-Naseby Road, Ranfurly (Dwelling 13), 73 Brinsdon Road, Ranfurly (Dwelling 14), 146 Brinsdon Road, Ranfurly (Dwelling 15), 885 Ranfurly Back Road, Naseby (Dwelling 16) and 581 Ranfurly-Naseby Road (Dwelling 17).

There will be minor glare effects on 366 Ranfurly Back Road (Dwelling 4).

A more specific property by property assessment is as follows:

#### Dwelling 4:

The Glint and Glare assessment model indicates an annual total of approximately 10 hours of glare, being a maximum of 15 minutes a day from 6 May to 7 July. This level of effect is identified within the LEA as “low-moderate” reducing to “low” over time with the growth of planting. Based on this, glare effects on Dwelling 4 are considered to initially be minor until vegetation is established.

Potential glare effects have been identified for Dwelling 4 through the Glint and Glare Study. However, when taking into account the location of the dwelling and existing planting onsite, these effects will be less than minor.

In conclusion, the Glint and Glare Study indicates that the proposed solar farm is not anticipated to have adverse impacts on road safety or residential amenity. Glint effects are deemed unlikely due to the slow movement of the PV modules. While glare effects are identified, they are expected to be less minor or non-existent for nearby dwellings, including those on Ranfurly-Naseby Road, Ranfurly Back Road, Channel Road, Ranfurly-Wedderburn Road, Gimmerburn-Naseby Road, Brinsdon Road, and Bypass Road. Mitigation measures, such as boundary planting along certain roads, are proposed to further minimise glare impacts, noting this is not required mitigation. Overall, the study suggests that any glare effects would be minor on the roading network, and less than minor or negligible on any person.

#### Visual effects conclusion

Overall, the findings within the Glint and Glare Study and LEA conclude that effects on the wider environment, subject to mitigation works, will be no more than minor. Visual and glint and glare effects on the above listed six dwellings will be minor initially, with effects reducing overtime (within five years) due to mitigation planting being established, noting this planting will be assured through the proposed conditions. Effects on all other persons will be less than minor or negligible.

#### 5.4 Character and amenity effects

The site has both rural character and natural character values.

##### Natural character

The LEA outlines that the solar farm project area includes modified wetlands, which contribute to its natural character. Adverse effects on natural character are anticipated to diminish overtime due to the removal of stock from wetlands and the restoration planting. Relying on the conclusions of the LEA and the proposed conditions, effects on natural character will be less than minor, with beneficial effects on natural systems.

##### Rural amenity and character

Section 5.5 and 5.2.1 of the LEA addresses the effects on rural amenity of the proposal. The assessment acknowledges the shift in rural character because of the proposed solar farm. Specifically, a shift from undulating open pastoral farmland to a large solar farm with associated energy infrastructure. The sense of open space will be reduced to the areas between solar panels and the experiential aspect of open space will be further reduced by the proposed mitigation planting. However, the presence of sheep grazing will continue as will the rural productivity use of the site. As outlined within the LEA, the proposal will result in a change in rural amenity values, however the topography, existing and proposed planting will limit these impacts to within a 1 km radius of the site, with wider views limited to elevated viewpoints upwards of 6 km away. The compatibility with other wider ranging land uses is a factor such as the existing transmission line, substation radar and Naseby Forest.

Construction impacts will be temporary and staged. Overall, it is anticipated that there will be no more than minor temporary adverse effects on the landscape character of the area during construction.

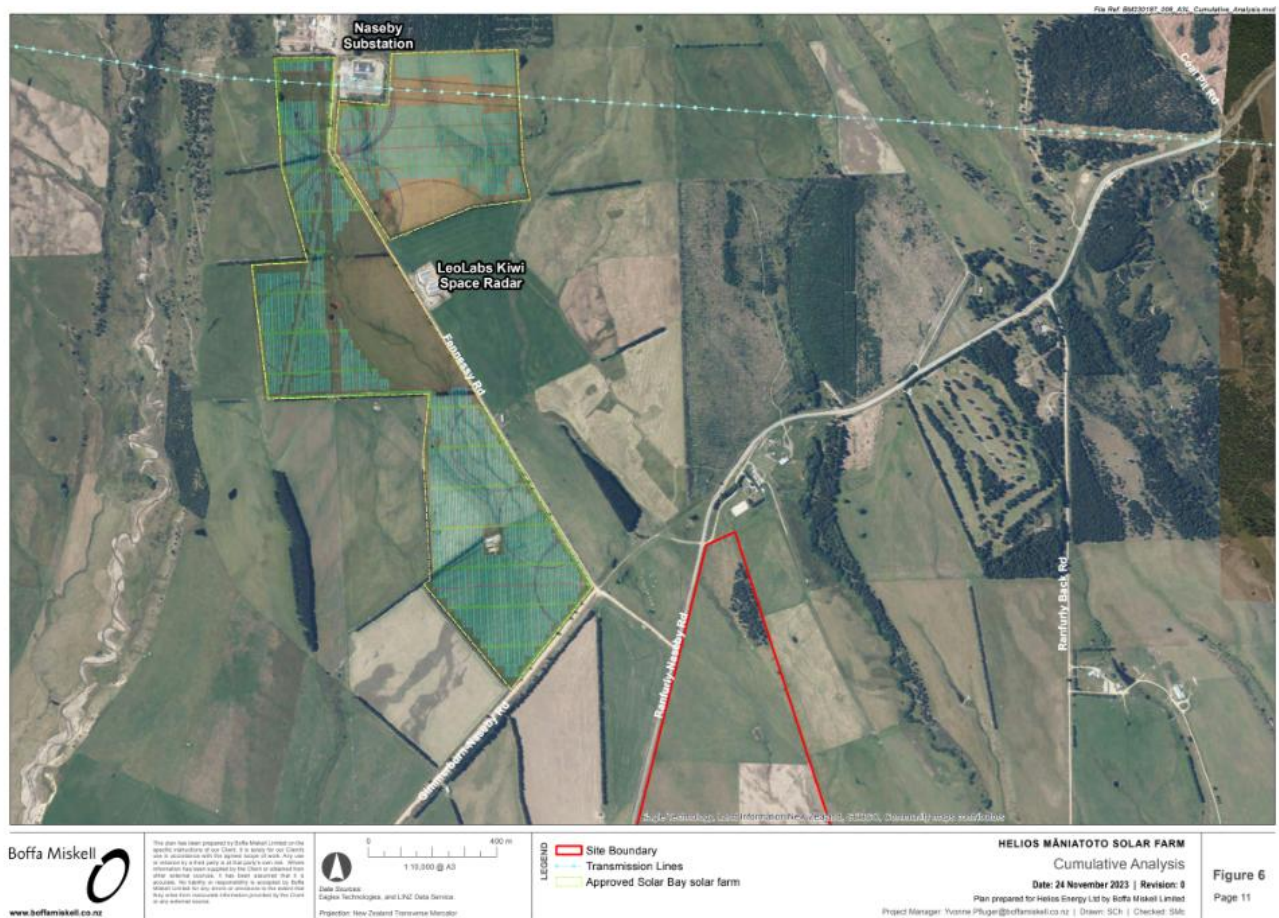
The proposed solar farm will transform the rural landscape from open farmland to one with energy infrastructure. Despite its significant scale, mitigation efforts will integrate the proposal with the surrounding mixed use rural environment. The project's impact on the immediate landscape will be moderated by existing features and proposed planting, while the solar panels' low profile and strategic placement help ground the proposal into the landscape. Although the project will change the landscape character, its adverse effects will be mitigated with the establishment of mitigation planting.

The LEA has assessed the compatibility of the proposal with the existing natural character, with the existing wetlands cited as a primary contributor to the natural character values of the site. Effects on natural character during the construction period has been assessed as no more than minor, with longer term reduction in experiential aspect of natural character anticipated, due to the change from open pastoral landscapes to the proposed solar farm. Overall, natural character will be improved overall due to the fencing of wetlands, and proposed enhancement planting outlined within the LEA, the EIA and the proposed conditions.

Overall, once mitigation planting has been established, effects on wider rural character while changed, will be no more than minor, with effects on persons being less than minor. Effects on natural character are expected to improved overtime as a result of the proposal due the proposed native planting and wetland protection, which is more akin to the natural state of the land than pastoral farming.

#### 5.5 Cumulative Effects

When considering the cumulative effects of the proposal, it is noted that resource consent (RC 220259) was granted in February 2023 for a 54.5-hectare solar farm by Energy Bay Limited at 512 Ranfurly- Nasby Road, approximately 330m north-east of the site. This is referred to as the Solar Bay solar farm. Refer to Figure 12 below for an aerial view of the respective locations of the Helios Mānīatoto Plain and Solar Bay solar farms.



**Figure 12: Cumulative Analysis - Consented Solar Bay solar farm in relation to proposed solar farm. Source: Boffa Miskell - HELIOS MĀNIATOTO SOLAR FARM GRAPHIC SUPPLEMENT.**

The construction of the Mānīatoto Plain solar farm (proposed) and the Solar Bay solar farm (consented) would introduce solar farms to the rural environment, however, would not materially alter the landscape characteristics. The LEA<sup>9</sup> notes that the Mānīatoto Plain solar farm would reinforce the pattern established by the consented environment. Both projects aim to minimise their impact on the landscape through screen planting and compatible land use activities such as sheep grazing.

<sup>9</sup> Mānīatoto Solar Farm - Landscape Effects Assessment Boffa Miskell

The cumulative effect on the landscape character is expected to be no more than minor. Visibility of the solar farms will be primarily along local access roads like Ranfurly-Naseby Road and Gimmerburn-Naseby Road, however mitigation planting will gradually screen them from view. Overall, the solar farms will blend into the existing landscape, especially where they adjoin existing infrastructure such as substations and transmission lines. Cumulative visual effects are projected to be less than minor, particularly once planting is established. This planting is outlined within the LEA and the proposed conditions.

For the reasons above, it is considered that the existing landscape has the capacity to accommodate an additional solar farm with the rural values of the area being maintained. Overall cumulative landscape effects are no more than minor, cumulative visual effects are less than minor.

#### 5.6 Building bulk and dominance effects

The proposed structures and buildings are detailed within Section 3.1 of this report, and proposed setbacks and boundary treatment and screening are detailed within section 2.3 of the LEA. Structures are located centrally within the site away from boundaries and minimise bulk as far as practicable in order to avoid cumulative visual effects on the wider landscape. While it is acknowledged that the proposed solar farm will result in a noticeable change to the landscape due to the minimal bulk of the predominant panel structures and smaller infrastructure buildings, it is anticipated that adverse bulk and dominance effects will be minimised.

While the panels will extend across the width of the site, the bulk of the panels are mitigated from external viewpoints including the public roads due to the flat nature of the topography, spacing between rows of panels and proposed mitigation screening planting. Therefore, the cumulative effects of the solar farm infrastructure in terms of bulk and scale is considered to be less than minor.

The proposal will not result in overshadowing or loss of visual privacy for the immediate community. Due to the flat nature of the site and proposed low height of structures and buildings (a maximum height of 3.6 m) there will be no risk of overshadowing. The nature of the activity will ensure that there is no loss of visual privacy for receptors in the wider locality.

Overall, bulk and location effects are considered to be less than minor on both the receiving environment and people.

#### 5.7 Noise effects

An Assessment of Noise Effects undertaken by Marshall Day Acoustics has been prepared and appended in Appendix 8. This assessment is adopted for the purpose of this report, however for clarity the findings have been summarised as follows:

The proposed solar farm anticipates noise levels ranging from 15 to 30 dBA during standard operation, with peaks reaching up to 32 dBA during maximum activity. These levels fall within the low noise spectrum overall. Compliance with the District Plan's noise limits is therefore

confirmed, with daytime noise well below the 55 dB LA10 limit and nighttime noise comfortably below the 40 dB LA10 limit.

Noise projections also indicate that the solar farm's operations will generally be quieter than the existing ambient noise levels in the area, particularly during windy conditions where it could be between 10 to 20 dB quieter.

Construction activities will comply with permitted noise rules and New Zealand construction noise guidelines, with a temporary increase in road noise anticipated during construction. This will however, remain at low levels. A number of conditions are proposed to assist with noise monitoring to give Council comfort that noise limits will be adhered to (refer to Appendix 3).

In general, solar farm construction and operational noise is acceptable when considering noise effects. The separation distance between noise sources and nearby recipients, coupled with existing natural screening, ensures that noise levels from the solar farm will be less than minor and will comply with the relevant District Plan requirements.

Overall, noise effects are considered to be less than minor on both the wider receiving environment and people.

#### 5.8 Transportation effects

An Integrated Transport Assessment (ITA) has been prepared by Abley<sup>10</sup> and is appended as Appendix 7. This assessment is adopted for the purpose of this report, however for clarity, the findings have been summarised as follows.

The site has a frontage to Ranfurly-Naseby Road along its western boundary and Ranfurly Back Road along its eastern boundary. Ranfurly-Naseby Road is a two lane / two-way road that connects Ranfurly with Naseby via State Highway 85 at the Ranfurly end. This becomes Ramor Street and then Derwent Street as the road transitions into Naseby.

Ranfurly Back Road intersects with Goff Road near the Goff Road / State Highway 85 intersection. It has a posted speed limit of 100km/hr and is classified as a Rural Road in the New Zealand Transport Agency Waka Kotahi (NZTA) One Network Framework (ONF).

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<sup>10</sup> Naseby Solar Farm Development Transport Assessment - Abley August 2023

Ranfurly-Naseby Road has a posted speed limit of 100km/h and is classified as a Rural Connector in the NZTA ONF.

A total of four site accesses are proposed. Three will be from Ranfurly-Naseby Road and the fourth will be from Ranfurly Back Road. Accesses 1 and 2 will be the primary access points to be used by heavy vehicles during construction. There are existing gates in the locations of Accesses 1, 2 and 3. There is nothing present at Access 4 and a new vehicle crossing will therefore be required.

A number of conditions are proposed to assist with transport effects including the requirement of a Construction Traffic Management Plan (CTMP) within the CMP to give Council comfort that transport requirements and mitigation efforts will be adhered to (refer to Appendix 3).

#### **Construction traffic effects**

During the construction period there will be an increase in traffic activity on the surrounding road network for the approximate 24-month construction period which will include the movement of 40ft container trucks to and from the site and light vehicles transporting staff.

As outlined in the proposal, two primary access points to the site are proposed from Ranfurly-Naseby Road to be used by heavy vehicles during construction. It is proposed that an entry and exit configuration is established so that construction vehicles enter through one access point and exit via another.

Overall adverse effects from the construction period are considered to be temporary and result in adverse effects that are no more than minor on the wider environment and less than minor effects on people.

#### **Operational traffic effects**

Traffic levels during operation of the solar farm (once constructed) will be very low. There may be up to 12 trips to site per week. While there may be instances where a slightly higher level of activity occurs, this will not be significant, and there will be no capacity or safety issues arising from any fluctuations during operation.

The ITA confirms that the level of trip generation associated with the construction and operation are able to be absorbed by the existing capacity of the transport network. All vehicle accesses will be constructed to the standards required by the District Plan, including sealing and sight distances. While it is noted that Access 3 will be located closer to the Fennessy Road / Ranfurly-Naseby Road intersection than is permitted, this is unlikely to result in road safety effects.

A CTMP will be prepared and provided to Council, and road corridor access approval from CODC will be attained prior to construction. Overall, traffic effects on the wider environment will be no more than minor, and effects on people will be less than minor.

#### 5.9 Health and safety effects (not related to hazardous substances)

No adverse risk to human health and safety has been identified with the construction and operation of the solar farm. A security fence will be erected around the site prior to construction and works will be undertaken in accordance with the Construction Methodology. The site will not be accessible to the general public. Signage will be erected on the fence in accordance with Health and Safety Regulations. As a result, health and safety effects are considered to be less than minor.

#### 5.10 Earthworks effects

Earthworks have been reduced as far as practicable through the use of a pile design for the tracking systems as proposed. The modification of the existing topography will be minimised to the maximum extent possible. Sediment laden runoff will be avoided by implementing erosion and sediment control measures in line with an Erosion and Sediment Control Plan (ESCP) recommended as a condition of consent, and through the proposed wetland planting and fencing. Subject to appropriate controls, it is considered that earthworks effects can be mitigated, and effects are considered to be no more than minor on the wider environment and less than minor on people.

The construction activity could result in temporary dust effects. In particular, the construction of the access tracks, installation of cabling and piling for solar panels will result in soil disturbance. The formed internal accessways will provide vehicle access to the inverters. Grassed tracks will be used to access the solar panel rows. The installation of the pile foundations for the tracking system are anticipated to result in less soil disturbance. A condition of consent is recommended within Appendix 3 to mitigate any dust effects.

The site will be progressively developed to ensure that the overall area of exposed soil is limited to specific areas of the site at any given time. The duration of bare exposed soil will be minimised with the immediate re-grassing of exposed surfaces once the works have been completed.

Earthworks will be completed in stages to minimise the amount of soil exposed at any one time. The contractor will deploy appropriate measures to manage any dust within the boundaries of the site. The proposed vegetated buffer around sections of the periphery of the site will provide a filter for dust when vehicles access the site for maintenance purposes.

An Erosion Sediment and Control Plan is recommended as a condition of consent and will ensure any required dust and erosion control to ensure that dust effects are considered to be less than minor on both the wider environment and people.

#### 5.11 Effects on highly productive land

The proposal includes some land that is identified as highly productive under the National Policy Statement for Highly Productive Land. Specifically, the north-eastern portion and south-eastern portion of the site contains LUC Class 3 soils. This land is currently utilised for sheep farming. The remainder of the soils are classified as LUC Class 4 (not highly productive).

The vast majority of the Site is LUC 4 Class land. While there are areas of LUC 3 soils included within the proposed development site, approximately 10.66 ha will be excluded from solar development with 12.35 ha intended to be utilised for solar development.

The hardstand areas for the inverters, substation and hardstand access tracks are the only areas where some form of ongoing land based primary production will be precluded during solar farm operation. These hardstand areas and access tracks make up less than 1.85% of the total solar farm site area, much of which is outside LUC Class 3 land. The access tracks have a dual use in providing farm vehicle access for sheep grazing.

The solar farm has been designed to enable sheep grazing as a concurrent use during operation, enabling the highly productive soils to remain available for rural production.

The proposal does not include the subdivision of land, and as such the land will continue to be three large land holdings that are able to support rural productive activities through ongoing sheep grazing co-located with the generation of renewable energy.

At the end of the solar farm's life cycle, Helios will remediate the land through removal of all solar farm buildings and structures, and reinstate the land in pasture. Planting will remain where suitable.

Overall, for the reasons discussed above, the proposal will have less than minor effects on highly productive land.

#### 5.12 Reverse Sensitivity

As part of the site selection process, in-depth consideration is given to understanding the legally established activities within the environment, as well as understanding what is permitted to establish as of right.

The solar farm activity is not considered to be a sensitive activity, nor are any of its active components. As such, the proposal will be compatible with the existing rural and rural residential environment, and it is anticipated that the solar farm will not result in the potential for reverse sensitivity effects on the surrounding environment or existing established activities. Overall, reverse sensitivity effects are considered to be negligible.

#### 5.13 Natural Hazards

The site is not subject to any known natural hazards. The site is not in close proximity to any known areas of natural hazards, with the exception of some high-level seismic information that has been applied district wide. Liquefaction risk has been identified within the Otago Regional

Council Natural Hazards Portal as “Domain A”<sup>11</sup> – A liquefaction potential of “low to none” and is unlikely to adversely affect the proposed development.

In relation to stormwater and flooding, while the proposal would result in a higher site coverage than present use as pastoral land, the total coverage of all solar farm components is 23.3% of the area of land leased for the project. Due to the elevation of the panels above ground level, there is high retention of permeable surfaces. The nature of the panels with gaps in between will ensure that levels of onsite stormwater soakage can be managed, and the proposal will not result in inundation beyond the site.

Overall adverse effects from natural hazards both on and off the site, will be less than minor.

#### 5.14 Effects on cultural values

Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga are mana whenua within the Otago region.

Aukaha is a mana whenua-owned consultancy that Helios have engaged with, as Aukaha works across Otago providing a range of services including resource management and planning on behalf of Kāi Tahu as a Treaty Partner.

Helios were in contact with Aukaha in July 2023 to outline the proposal and establish contact points for ongoing engagement. Helios is committed to discussion and incorporating feedback from Aukaha as the project progresses,

From a review of the Kāi Tahu Ki Otago Natural Resource Management Plan 2005 (KTKO NRMP) the following objectives and principles are highlighted to be of particular relevance to the project:

Section 5.2 (ii) Kā Whāika Matua - Ki Uta Ki Tai management of natural resources is adopted within the Otago region.

Section 5.3.4 Wai Māori General Policies, including:

4. To protect and restore the mauri of all water

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<sup>11</sup> Otago Regional Council Natural Hazards GIS Maps

54.To promote land use that suits the type of land and climatic conditions.

55.To encourage the exclusion of stock from waterways.

56.To oppose the draining of wetlands. All wetlands are to be protected.

A solar farm requires passive technology within a light footprint to generate clean renewable electricity. There are no emissions, and solar farms have no impact on the soil or groundwater which is complementary to the principles of Ki Uta Ki Tai and sustainable land use.

In regard to land use that suits the type of land and climatic conditions, the solar farm does not require any water takes for operation or cleaning of the solar panels, which is an important consideration in the dry environment of the Mānīatoto Plain. Sheep grazing can continue to take place under the panels, and the solar farm will be decommissioned at the end of its operational life and the land returned to its original condition. It is also noted the site is not within any of the specific catchment management areas set out within the KTKO NRMP.

In regard to water, the wetland areas identified within the site by an ecologist will be fenced for protection from sheep, and will be enhanced through new wetland planting of native species. Across the wider site it is noted that there will be an overall net increase in planting, and many of these plants will be indigenous, apart from areas where exotic species are used for their faster growing capabilities to provide screening.

It is noted the KTKO NRMP provides detail of the importance placed on protecting important vistas and high points within the landscape. The site has been carefully selected within flat topography on the plain, and many views from local roads will be screened by existing planting, with addition planting proposed where required to screen views of the solar farm to the wider environment. Views in the area to the surrounding ranges will be retained.

Further, from a review of the District Plan maps and discussions to date with Aukaha, Helios is not aware of any wāhi tapu, wāhi taonga and sites of significance to Māori. The site is not a subject to a statutory acknowledgement.

Overall, for the reasons above, it is considered that the cultural effects of the proposal will be less than minor.

### 5.15 Use and storage of hazardous substances

An assessment by Beca<sup>12</sup> has been prepared in relation to the use and storage of hazardous substances, specifically the storage of oil associated with the two power transformers and inverter transformers. This assessment is adopted for the purpose of this report and appended in Appendix 10, and the findings have been summarised as follows.

The hazardous substances that will be used and stored on site are set out within Table 5:

Table 5: Proposed Hazardous Substances

| Substance       | Max Quantities | HSNO Classification | GHS 7 Classification                                    | Physical Form | Storage Location                                                             |
|-----------------|----------------|---------------------|---------------------------------------------------------|---------------|------------------------------------------------------------------------------|
| Transformer Oil | 284,260 L      | 6.1E                | Aspiration hazard Category 1                            | Liquid        | 107,600L in two power transformers and 176,660L for 73 inverter transformers |
|                 |                | 9.1C                | Hazardous to the aquatic environment chronic Category 3 |               |                                                                              |

It is noted that the solar farm is not an office trade limited in the Third Schedule of the Health Act 1956 and that the hazardous substances will not be stored or used within 50 m of a surface water body or above a groundwater projection zone. The BESS is now removed from this application. It is noted with the removal of the BESS the proposed use of dimethyl carbonate is no longer required, as such the corresponding exceedance under schedule 19.14 is no longer breached. The recommendations outlined within Appendix 10 are however still recommended when relevant to the proposed oil storage, all works and storage will adhere to both Hazardous

<sup>12</sup> Hazardous Substance Assessment: Naseby Solar Farm, Beca Limited, 20 December 2023

Substances and New Organisms, and Health and Safety Regulations, and they continue to form part of the proposal.

Prior to the commissioning of the facility, the Beca report makes the following recommendations:

- Update hazardous substances inventories, location plans, Safety Data Sheets (SDSs), and maintenance schedules to reflect the final site layout.

Implementing this recommendation before the facility's operations commence will ensure that hazardous substance storage risks are effectively managed in compliance with both Hazardous Substances and New Organisms, and Health and Safety Regulations. A number of conditions are proposed including the requirement of an Emergency Response Plan (ERP) (refer to Appendix 3).

Based on this assessment and subjection to appropriate conditions it is considered that the adverse effects associated with the storage of hazardous materials can be successfully mitigated and that associated adverse effects will be less than minor on both the wider environment and people.

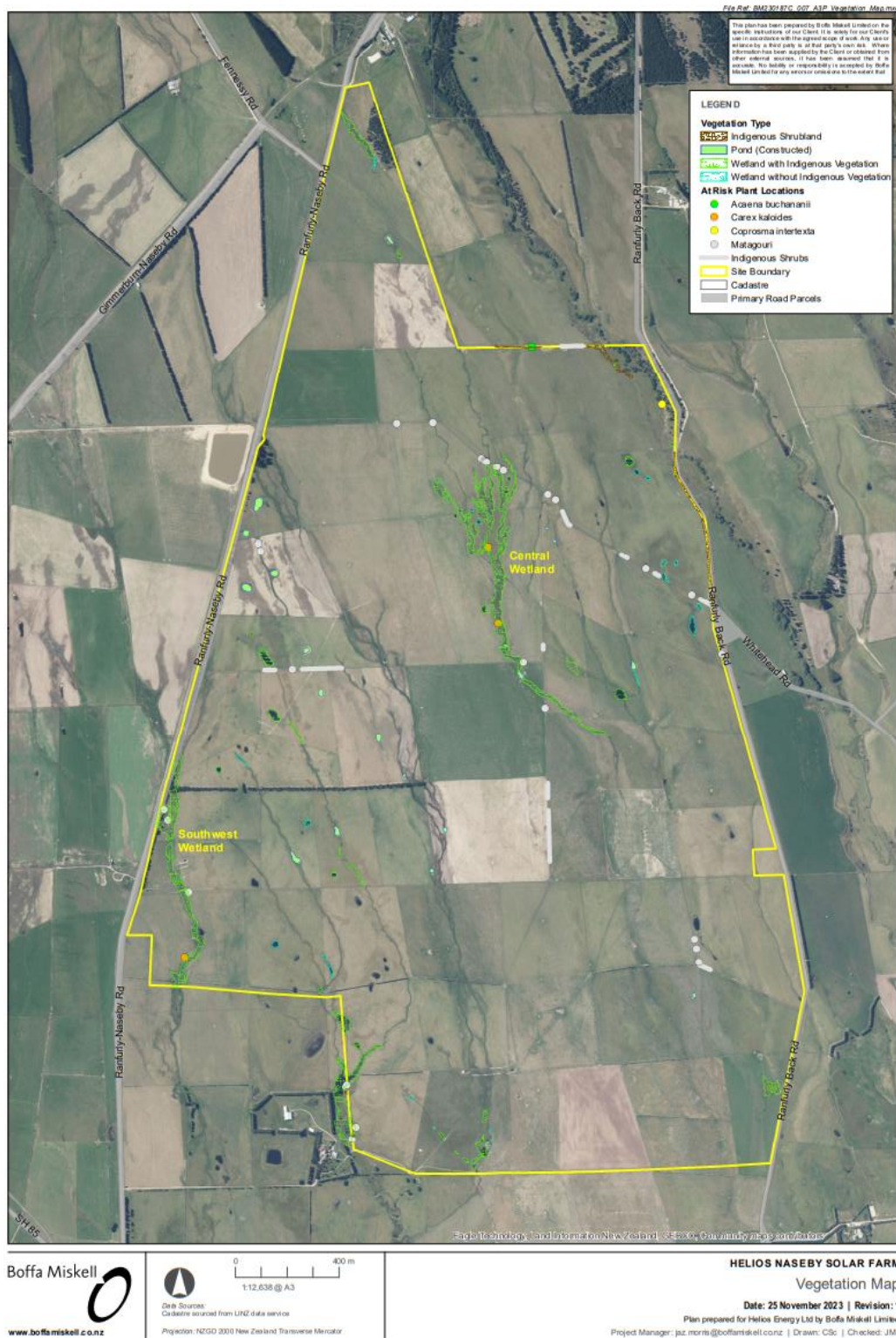
#### 5.16 Ecological effects

Boffa Miskell have undertaken an EIA,<sup>13</sup> appended as Appendix 5. This assessment is adopted for the purpose of this report and summarised as follows.

Figure 13 below details the mapped vegetation, waterways, constructed ponds, and wetlands.

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<sup>13</sup> Mānīatoto Solar Farm - Ecological Impact Assessment December 2023



**Figure 13: Vegetation, waterways, wetlands, and constructed ponds map of the Site. (Source Boffa Miskell)**

Vegetation clearance for solar panel installation, cable trenches, access roads, and other construction activities will impact exotic pastures of minimal ecological value. No adverse

ecological effects are anticipated from this clearance due to the negligible ecological value of pastoral vegetation.

Removal of relict indigenous shrubs along fence lines constitutes a high-level adverse effect at the site scale but a very low-level effect at the larger scale. Remedial plantings are proposed to mitigate this impact, ensuring no net loss of significant shrub values in the long term.

All wetlands at the site will be avoided during construction and operation, with setbacks and directional drilling used to minimise potential effects. It is noted that these setbacks are smaller than permitted by both the District Plan and the NES-FW. However careful construction works management, proposed fencing and enhancement of wetlands through planting represent a net gain in significant wetland values, and as such any adverse effects will be mitigated. As outlined within the EIA the proposed enhancement of the central and southwest wetlands represents a net gain of significant wetland values.

Construction activities may lead to habitat loss or modification for indigenous avifauna species, albeit with very low to low adverse effects anticipated. Temporary disturbance of indigenous birds during construction is expected to be minimal, subject to measures aimed at avoiding disturbance, displacement, injury, or mortality of nesting indigenous birds during the breeding season. Moreover, the potential collision risk posed by solar panels to indigenous water and wetland birds necessitates a thorough literature review before commissioning, allowing for the application of further research findings and potential post-construction monitoring or mitigation measures. The EIA recommends a 'reappraisal' of bird strike literature review to be undertaken prior to solar farm commissioning, which would allow for the findings of further research to be applied, and any post construction monitoring or similar measures could be recommended at the time. Noting the ecology assessment has not raised adverse effects in terms of bird strike as a likely issue and has instead raised this in an abundance of caution as well as the to improve best practice information on the matter. Nevertheless a recommended condition of consent to ensure this further literature review is undertaken has been included within Appendix 3

The EIA recommends additional measures beyond the required mitigating planting, aiming for an even greater net gain in ecological enhancement. These measures, which will be detailed within a proposed "Wetland Enhancement Plan", are designed to elevate the ecological values of the site, particularly the freshwater ecology of identified wetlands. A number of conditions are proposed to implement these recommendations outlined within the EIA (refer to Appendix 3).

Overall, potential adverse ecological effects from the solar farm can be avoided or mitigated, with no identified residual adverse effects greater than low-level. On balance the project is expected to result in a net gain for wetland habitats and indigenous shrubs, ensuring no net loss of significant site features. Adverse ecological effects from the proposed solar farm can be avoided or mitigated, and on balance the ecological outcomes from the proposal are considered to be positive.

#### 5.17 Conclusion

The proposal results in positive effects by contributing to New Zealand's national commitment to doubling renewable energy generation to accelerate transition to a low-emissions, high-

growth economy, and net zero carbon emissions by 2050. Locating the solar farm within the Rural Resource Area is deemed operationally necessary, noting this aligns with the acknowledgement that energy generation activities are an anticipated activity within the District's Rural Environment as outlined in the District Plan.

The long-term use of highly productive land for primary production activities will be sustained through the maintenance of ground cover and periodic sheep grazing, minimising the environmental impact on soil and water resources compared to intensive farming practices. Construction effects are temporary and can be managed and mitigated through consent conditions.

Road users may experience minor construction/temporary effects. Solar panels and structures will be set back from road boundaries, low in height, and complemented by no-build areas, and proposed planting to reduce visual impact.

Transient viewers, such as motorists, will encounter fleeting views, further diminished as screen planting matures. Amenity effects on the environment, including noise, glare, landscape, and visual impacts, will be minimal reducing over time as planting is established. Operational effects are comparable to or less than permitted activities in the Rural (Plains) Zone.

Post-construction screen planting will mitigate visual and landscape character effects, while native species will enhance water quality and biodiversity. No reverse sensitivity effects are anticipated from the solar farm development. The activity is reversible, with all infrastructure removed upon lease term expiration, with Helios required to restore the site to its original state.

Overall adverse effects on the wider environment will be no more than minor with some minor adverse effects experienced by some owner and occupiers of nearby dwellings, noting these effects will reduce over five years with mitigation.

## 6. Objectives and policies

### 6.1 Central Otago District Plan

The following objectives and policies of the District Plan are relevant to this proposal.

#### Rural Resource Area

|                        |                                                                                                                                                                                                                                                                  |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objective 4.3.1</b> | Needs of the District's People and Communities - To recognise that communities need to provide for their social, economic and cultural wellbeing, and for their health and safety at the same time as ensuring environmental quality is maintained and enhanced. |
| <b>Comment:</b>        | The proposed solar farm aims to balance the needs of the Central Otago District Community whilst ensuring environmental quality is maintained and enhanced.                                                                                                      |

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | <p>The solar farm will provide energy for approximately 70,000 homes annually, offering social and economic advantages through job creation and clean energy access.</p> <p>The solar farm will contribute to New Zealand's goal of doubling renewable energy generation to accelerate transition to a low-emissions, high-growth economy, and net zero carbon emissions by 2050. Clean, sustainable energy alternatives such as solar are essential to promote improved health outcomes for communities by reducing pollution. In this regard the proposal is providing for the social and economic wellbeing, and for the health and safety of communities on a local, regional and national level.</p> <p>The Construction Methodology further demonstrates best practice measures for ensuring the health and safety of workers through the construction, operation and decommission of the solar farm.</p> <p>Helios is in the process of engaging with local iwi via Aukaha, and are cognisant of the cultural wellbeing of the community. Helios has worked closely with ecological and landscape experts to avoid or minimise effects. Specifically in relation to wetlands and waterbodies.</p> <p>All wetlands at the Site will be fully avoided by site works and operational activities, with setbacks applied. Fencing and enhancement of the central and southwest wetlands represents a net gain in terms of significant wetland values at the site. Overall, the proposed mitigation planting and fencing will enhance the natural character and biodiversity values of the Site.<sup>1415</sup></p> <p>In essence, the proposal is cognisant of, and demonstrates the importance of, integrating community well-being with environmental responsibility in the solar farm's development and operation. The proposal is consistent with this Objective.</p> |
| <b>Objective 4.3.3</b> | <p>Landscape and Amenity Values - To maintain and where practicable enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

<sup>14</sup> Mānīatoto Solar Farm - Ecological Impact Assessment December 2023

<sup>15</sup> Mānīatoto Solar Farm - Landscape Effects Assessment Boffa Miskell

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|                        | environment, and to maintain the open natural character of the hills and ranges.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Policy 4.4.2</b>    | Landscape and Amenity Values – To manage the effects of land use activities and subdivision to ensure that adverse effects on the open space, landscape, natural character and amenity values of the rural environment are avoided, remedied, or mitigated.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Comment:</b>        | <p>The site comprises an area of improved, grazed farmland and has avoided any significant hills or ranges. There are no Outstanding or Significant landscapes or features which relate to the site. The proposal will alter the Site's rural landscape into one containing energy infrastructure. Whilst this will reduce open space, rural elements such as sheep grazing will be maintained. The proposal will further enhance the wetlands on site by removing stock and undertaking restorative planting. This will contribute to the natural character, amenity and qualities of the site over time.</p> <p>The rural amenity and outlook will change as a result. However, visibility is limited to the immediate vicinity, with effects reduced from wider elevated views. The project aligns with existing varied land uses within the district such as an energy generation, forestry, infrastructure and viticulture and the mitigation planting will soften the visual impact over time. The large areas of planting including wetland fencing and improvements proposed, will greatly increase the indigenous vegetation and biophysical landscape values in the immediate area. This will enhance natural character and landscape values, mitigating adverse effects once fully established.</p> <p>The effects on the landscape, natural character and amenity values of the rural environment can be managed such that they are mitigated, and on the open space, landscape, natural character and amenity values of the rural environment</p> |
| <b>Objective 4.3.5</b> | Water Resources – to maintain and enhance the quality of the District's water resources by avoiding, remedying or mitigating the adverse effects of land use activities adjacent to waterbodies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Policy 4.4.4</b>    | <p>Riparian Margins - To manage the effects of the use, development or protection of land within riparian margins of water bodies (including wetlands) to ensure that the natural character and amenity of water bodies and their margins are preserved, by, as far as practicable:</p> <p>(a) Maintaining bank stability,</p> <p>(b) Protecting, and where appropriate, enhancing riparian and instream habitat quality,</p> <p>(c) Maintaining and enhancing riparian vegetation, (d) Maintaining water quality,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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|                        | <p>(e) Maintaining and enhancing public access to and along the lakes and rivers,</p> <p>(f) Reducing the incidence and severity of flooding where this is achievable, and</p> <p>(g) Maintaining and enhancing the safety and efficiency of navigation on the adjacent water body where this is relevant while recognising that some activities need to locate within riparian margins to operate efficiently.</p>                                                                                                                                                                                                                                                                                                                                   |
| <b>Policy 4.4.5</b>    | Effects on Water Quality - To assist the Otago Regional Council in its role of maintaining and enhancing water quality, by ensuring allotments are adequate for effluent disposal requirements and encouraging the use of land management techniques that maintain and/or enhance the life supporting capacity of water.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Comment:</b>        | <p>The proposal will maintain and enhance the quality of the District's water resources by maintaining stability, enhancing habitat quality, and riparian margins. Fencing off waterways and undertaking riparian planting will improve water quality and the onsite riparian environment. The proposed wetland enhancement plan aims to result in an overall net gain in freshwater ecology values to enhance the life supporting capacity of water. The project balances operational needs with environmental preservation, recognising the necessity of activities within riparian margins while minimizing adverse effects and improving water quality. Overall, the proposal is constant with Objective 4.3.5 and policies 4.4.4, and 4.4.5.</p> |
| <b>Objective 4.3.6</b> | Margins of Water bodies – to preserve the natural character of the District's water bodies and their margins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Policy 4.4.7</b>    | <p>Significant Indigenous Vegetation, Wetlands, and Wildlife - To protect areas of:</p> <p>(a) Significant indigenous vegetation,</p> <p>(b) Significant habitats of indigenous fauna,</p> <p>(c) Significant wetlands,</p> <p>(d) Indigenous vegetation or habitats that support a significant indigenous freshwater fishery, and</p> <p>(e) Habitats of statutorily managed sports fish and game.</p> <p>from the adverse effects of land use activities and subdivision and to promote and encourage, where practicable, the retention, enhancement and reinstatement of indigenous ecosystems within the District.</p>                                                                                                                            |

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| <b>Comment:</b>         | <p>The proposed mitigation planting, no build areas and fencing have been designed to ensure the wetlands, waterways, and indigenous biodiversity is retained and enhanced. The large areas of planting will greatly increase the indigenous vegetation and biophysical landscape values in the immediate area. As outlined within the LEA, natural character values are anticipated to improve over time with the mitigation measures enhancing the existing natural character values. As outlined within the EIA the identified wetlands are considered significant and as such setbacks, no build areas, fencing and riparian planting have been designed to protect and enhance these areas with the ecological value anticipated to improve over time. The proposed wetland enhancement plan aims to improve the indigenous biodiversity values and health of the wetlands, above and beyond the required mitigation. On balance the ecological outcomes from the proposal are considered to be positive.</p> <p>Overall, the proposal is constant with Objective 4.3.6 and Policy 4.4.7.</p> |
| <b>Objective 13.3.2</b> | <p>Utilities:</p> <p>To enable the efficient operation and development of utilities including the transmission network while ensuring that effects on amenity, heritage, landscape values and public safety are avoided, remedied or mitigated.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comment                 | <p>Enable is a strong and directive objective, and as such this a highly relevant objective.</p> <p>The proposal includes creating a solar farm utility which will connect into the existing transmission network, As such the proposal will enable the efficient operation and development of utilities.</p> <p>As outlined in the assessment of effects, the proposal has been designed and located to avoid and mitigate effects on amenity and the landscape.</p> <p>Of note, solar farms rely on the rural resource for their location due to farms being large land holding. As such these renewable energy utilities are best located on rural zoned land. The proposal solar farm location avoids any Outstanding Natural Landscape or other classified landscape, to avoid the landscapes with higher sensitivity to development.</p>                                                                                                                                                                                                                                                     |
| <b>Objective 13.3.3</b> | <p>Development of Energy Resources:</p> <p>In the development of energy resources, to have particular regard to the use of natural and physical resources in a manner which avoids, remedies or mitigates significant adverse effects on the environment.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| Comment                 | The proposal utilises natural and physical resources. There are no significant adverse effects generated from the proposal.                                                                                                                                                                                                                                                                                                                                               |
| <b>Objective 13.3.5</b> | <p>Landscape and Amenity Values:</p> <p>To maintain and where practicable enhance rural amenity values created by the open space, landscape, natural character and built environment values of the District's rural environment.</p>                                                                                                                                                                                                                                      |
| Comment                 | Rural amenity values are maintained through the location and design of the proposal. The site can still be used for sheep grazing. As noted, ONLs and other land with a District Plan landscape classification have been avoided.                                                                                                                                                                                                                                         |
| <b>Objective 13.3.6</b> | <p>Power Generation Facilities:</p> <p>To provide for the establishment, operation, maintenance, refurbishment and enhancement of power generation facilities.</p>                                                                                                                                                                                                                                                                                                        |
| Comment                 | The proposal provides for the establishment and operation of a power generation facility.                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Policy 13.4.1</b>    | <p>Positive Contribution of Infrastructure:</p> <p>To recognise the essential and positive contribution that infrastructure and its ongoing development makes to the social, economic, and cultural wellbeing, and to the health and safety of the District's people and communities.</p>                                                                                                                                                                                 |
| Comment                 | Granting of this consent will recognise the essential and positive contribution infrastructure makes to the social, economic, and cultural wellbeing, and to the health and safety of the District's people and communities.                                                                                                                                                                                                                                              |
| <b>Policy 13.4.4</b>    | <p>Development of Utilities:</p> <p>To ensure that the design, location and operation of utilities including the transmission network, having regard to specific locational and operational efficiency requirements, recognises and provides for the following matters, where relevant:</p> <ol style="list-style-type: none"> <li>The avoidance, remedying or mitigation of the adverse effects of noise, vibration, lightspill and glare on the environment.</li> </ol> |

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|                      | <ul style="list-style-type: none"> <li>b. The avoidance, remedying or mitigation of adverse effects on landscape values.</li> <li>c. The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna and statutorily managed sports fish and game, water bodies and their margins.</li> <li>d. The avoidance, remedying or mitigation of any significant increase in risk to the safety of the public.</li> <li>e. The maintenance of the efficient operation of other utilities and infrastructure.</li> <li>f. The protection of the integrity of significant heritage values.</li> <li>g. The protection of the integrity of sites of importance to Kai Tahu ki Otago.</li> </ul> |
| Comment              | <p>The proposal has been design to:</p> <ul style="list-style-type: none"> <li>• Avoid and mitigate adverse effects of noise, vibration, lightspill and glare;</li> <li>• Avoid and mitigate adverse effects on landscape values;</li> <li>• Avoid significant indigenous vegetation and significant habitats, and mitigate potential adverse effects on fauna;</li> <li>• Avoid any significant increase to public safety;</li> <li>• Will not compromise the efficient operation of other utilities and infrastructure;</li> <li>• Not impact significant heritage values; and</li> <li>• Not impact any site of importance to Kai Tahu.</li> </ul>                                                                          |
| <b>Policy 13.4.5</b> | <p>Utility Corridors and Co-siting:</p> <p>To reduce the impact that utilities including the transmission network have on the landscape values of the District by promoting and encouraging the co-siting of utilities and the location of utilities in “corridors” where this is possible and practicable having regard to the operational and commercial efficiencies of the utility concerned.</p>                                                                                                                                                                                                                                                                                                                          |
| Comment              | <p>The proposed solar farm is located close to transmission lines for operation efficiencies, which in turn also reduces the impacts on landscape values.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Policy 13.4.7</b> | <p>Development of Power Generation Facilities</p> <p>To ensure that the development of power generation facilities avoids, remedies or mitigates:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|                      | <ul style="list-style-type: none"> <li>a. Adverse effects on ecosystems, habitats, soils and minerals.</li> <li>b. Impact on communities, infrastructure and services.</li> <li>c. Adverse effects generated during the construction phase particularly in terms of noise, lightspill, glare, vibration, dust, traffic generation and earthworks.</li> <li>d. Adverse effects on landscape and visual amenity values.</li> <li>e. Impacts on heritage values.</li> <li>f. Adverse effects on cultural values of importance to Kai Tahu ki Otago.</li> <li>g. Ongoing effects of the development including land stability issues.</li> <li>h. Potential effects on local climate.</li> <li>i. The potential impact of natural hazard events and the effect the activity itself may have on exacerbating natural hazards.</li> <li>j. Impact on public access to and along the margins of lakes and rivers or to natural and physical features.</li> </ul> |
| Comment              | The proposal, including volunteered conditions, has been designed and located to accord with the above policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Policy 13.4.8</b> | <p>Reducing the Environmental Impact of Power Generation:</p> <p>To promote the development of power generation facilities that have minimal environmental impact by encouraging investigation into a wide range of renewable energy sources and prohibiting the production of nuclear power within the District.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Comment              | The proposal, which is for renewable energy generation, strongly achieves this policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Policy 13.4.9</b> | <p>Conservation and Efficient Use of Energy:</p> <p>To promote the conservation and efficient use of energy through:</p> <ul style="list-style-type: none"> <li>a. Encouraging the use of energy efficient technology and building design.</li> <li>b. Educating the public about energy efficiency and its benefits.</li> <li>c. Encouraging industry and transport operators to adopt energy efficient management practices.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comment              | The proposed solar farm supports policy 13.4.9, promoting energy conservation and efficiency by utilising advanced solar technology. The proposal includes sun-tracking panels to maximise energy generation. The proposal facilitates New Zealand shift towards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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|                       | renewable energy, by replacing fossil fuel reliance with renewable generation, supporting national energy management goals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Policy 13.4.11</b> | <p>Reverse Sensitivity:</p> <p>To recognise that some established activities may generate noise and other effects that can disturb neighbours, by ensuring that new developments locating near such activities recognise and accept the prevailing environmental characteristics.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Comment               | <p>The proposal has been designed to be undertaken concurrently with neighbouring land uses, namely farming. The solar farm activity is not considered to be a sensitive activity. The proposal will be compatible with the existing rural and rural residential environment, and it is anticipated that the solar farm will not result in the potential for reverse sensitivity effects on the surrounding environment or existing established activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Policy 13.4.13</b> | <p>Power Generation Facilities</p> <p>To provide for the establishment, operation, maintenance, refurbishment and enhancement of power generation facilities through rules in this section of the Plan.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Policy 13.4.14</b> | <p>Renewable Electricity Generation</p> <p>To recognise the locational, operational and technical constraints associated with renewable electricity generation activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Comment               | <p>As addressed throughout this assessment the proposed solar farm aligns with both Policy 13.4.13 and Policy 13.4.14.</p> <p>Solar energy comes hand in hand with certain locational, operational and technical constraints - the Mānīatoto area offers ideal conditions for the development of solar energy, high solar irradiance, flat terrain, proximity to national grid infrastructure. The sites' location within the Rural Resource zone further supports the proposal as addressed further above.</p> <p>In order to minimise adverse effects associated with the requirements of a solar farm the proposal includes mitigation measures such as visual screening, native planting and wetland enhancement, to address landscape, ecological and community concerns.</p> <p>Overall, the proposal reflects a well-considered response to the constraints identified within the District Plan while providing for and contributing meaningfully to regional and national renewable energy goals.</p> |
| <b>Policy 13.4.15</b> | Public Access                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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|         | <p>To ensure activities make adequate provision for continued lawful public access except where a restriction is necessary:</p> <ul style="list-style-type: none"> <li>a. To protect areas of significant indigenous vegetation and/or significant habitats of indigenous fauna;</li> <li>b. To protect Kai Tahu ki Otago's cultural values;</li> <li>c. To protect public health and safety;</li> <li>d. To provide an appropriate level of security for the continued operation of existing power generation facilities; or In other circumstances that justify the restriction notwithstanding the national importance of maintaining public access;</li> <li>e. and to encourage new public access opportunities where appropriate.</li> </ul> |
| Comment | <p>No reduction in public access is proposed through the application. Currently the subject site operates as a pastoral working farm and will continue to do so alongside the proposed solar farm. It is not proposed to enable new public access through this process aligning with c and d above, alongside the wish not to compromise the existing farming activities.</p>                                                                                                                                                                                                                                                                                                                                                                      |

Overall, the proposed is consistent with the above objective and policies of the District Plan.

## 6.2 Otago Regional Policy Statement (2019)

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| <b>Objective 4.2</b> | Otago's communities are prepared for and able to adapt to the effects of climate change                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Objective 4.3</b> | Infrastructure is managed and developed in a sustainable way                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Policy 4.3.2</b>  | <p>Nationally and regionally significant infrastructure Recognise the national and regional significance of all of the following infrastructure:</p> <ul style="list-style-type: none"> <li>a) Renewable electricity generation activities, where they supply the National Grid or local distribution network;</li> <li>b) National Grid;</li> <li>c) Electricity sub-transmission infrastructure; PART B: Chapter 3 Otago has high quality natural resources and ecosystems Otago Regional Council Partially Operative Otago Regional Policy Statement, 15 March 2021</li> <li>d) Telecommunication and radiocommunication facilities;</li> <li>e) Roads classified as being of national or regional importance;</li> <li>f) Ports and airports and associated navigation infrastructure;</li> </ul> |

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|                      | <p>g) Defence facilities;</p> <p>h) Rail infrastructure;</p> <p>i) Municipal infrastructure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Comment:</b>      | <p>The solar farm will contribute to New Zealand's national commitments of doubling renewable energy generation to accelerate transition to a low-emissions, high-growth economy, and net zero carbon emissions by 2050<sup>16</sup>. Clean, sustainable energy alternatives such as solar are essential to reduce greenhouse gas emissions and reliance on fossil fuels. In this regard as the proposal is a renewable electricity generation activity, this is recognised as having national and regional significance.</p> <p>The proposed solar farm aligns with Objective 4.2 by contributing to mitigating climate change through the generation of renewable electricity. By supplying electricity to the National Grid, the solar farm supports Policy 4.3.2, contributing to national and regional renewable electricity generation activities.</p> |
| <b>Objective 4.4</b> | Energy resources and supplies are secure, reliable and sustainable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Policy 4.4.1</b>  | <p>Renewable electricity generation.</p> <p>Provide for renewable electricity generation activities, by all of the following:</p> <p>a) Recognising the benefits associated with those activities;</p> <p>b) Recognising the functional needs of those activities;</p> <p>c) Recognising the importance of the resource needs of those activities;</p> <p>d) Promoting the efficient use of existing structures or facilities; and</p> <p>e) Providing for activities associated with the investigation, identification, and development of potential renewable electricity generation sites and sources.</p>                                                                                                                                                                                                                                                |

<sup>16</sup> Electrify NZ, National Party, dated March 2023

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| <b>Comment:</b> | The solar farm directly addresses Objective 4.4 by promoting the development of sustainable and reliable energy sources. Policy 4.4.2 emphasises the importance of renewable electricity generation, which the solar farm fulfils by harnessing solar energy to produce electricity. This aligns with the broader goal of transitioning towards cleaner and more sustainable energy sources, contributing to the long-term sustainability and resilience of the energy infrastructure. |
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### 6.3 Proposed Otago Regional Policy Statement 2021

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| <b>Energy, Infrastructure and transport (EIT)</b>            |                                                                                                                                                                                                                                                                                                                                   |
| <b>EIT-EN-O1 – Energy and social and economic well-being</b> | Otago's communities and economy are supported by renewable energy generation within the region that is safe, secure, and resilient.                                                                                                                                                                                               |
| <b>EIT-EN-O2 – Renewable electricity generation</b>          | <p>The generation capacity of renewable electricity generation activities in Otago:</p> <ol style="list-style-type: none"> <li>1. Is maintained and, if practicable maximised, within environmental limits, and</li> <li>2. Contributes to meeting New Zealand's national target for renewable electricity generation.</li> </ol> |
| <b>EIT-EN-O3 – Energy use</b>                                | Development is located and designed to facilitate the efficient use of energy and to reduce demand if possible, minimising the contribution that Otago makes to total greenhouse gas emissions.                                                                                                                                   |
| <b>EIT-EN-P1 – Operation and maintenance</b>                 | The operation and maintenance of existing renewable electricity generation activities is provided for while minimising its adverse effects.                                                                                                                                                                                       |
| <b>EIT-EN-P2 – Recognising renewable</b>                     | Decisions on the allocation and use of natural and physical resources, including the use of fresh water and development of land:                                                                                                                                                                                                  |

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| <p><b>electricity generation activities in decision making</b></p>                             | <ol style="list-style-type: none"> <li>1. Recognise the national, regional and local benefits of existing renewable electricity generation activities,</li> <li>2. Take into account the need to at least maintain current renewable electricity generation capacity, and recognise that the attainment of increases in renewable electricity generation capacity will require significant development of renewable electricity generation activities</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p><b>EIT-EN-P3 Development and upgrade of renewable electricity generation activities</b></p> | <p>The security of renewable electricity supply is maintained or improved in Otago through appropriate provision for the development or upgrading of renewable electricity generation activities and diversification of the type or location of electricity generation activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <p><b>EIT-EN-P4 Identifying new sites or resources</b></p>                                     | <p>Provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for renewable electricity generation and, when selecting a site for new renewable electricity generation, prioritise those where adverse effects on highly valued natural and physical resources and mana whenua values can be avoided or, at the very least, minimised.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p><b>EIT-EN-P6 Managing effects</b></p>                                                       | <p>Manage the adverse effects of renewable electricity generation activities by:</p> <ol style="list-style-type: none"> <li>1. Applying EIT-INF-P13,</li> <li>2. Having regard to: <ol style="list-style-type: none"> <li>a. The functional need to locate renewable electricity generation activities where resources are available,</li> <li>b. The operational need to locate where it is possible to connect to the National Grid or electricity sub-transmission infrastructure,</li> <li>c. And the extent and magnitude of adverse effects on the environment and the degree to which unavoidable adverse effects can be remedied or mitigated, or residual adverse effects are offset or compensated for; and</li> </ol> </li> <li>3. Requiring consideration of alternative sites, methods and designs, and offsetting or compensation measures (in accordance with any specific requirements for their use in this RPS), where adverse effects are potentially significant or irreversible.</li> </ol> |

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| <b>EIT-EN-P7</b><br><b>Reverse sensitivity</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>– Activities that may result in reverse sensitivity effects or compromise the operation or maintenance of renewable electricity generation activities are, as the first priority, prevented from establishing and only if that is not reasonably practicable managed so that reverse sensitivity effects are minimised.</p> |
| <b>EIT-EN-P9</b><br><b>Energy conservation and efficiency</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>– Development is designed, including through roading, lot size, dimensions, layout, and orientation so that energy use is efficient, energy waste is minimised, and solar gain is optimised.</p>                                                                                                                            |
| <p><b>Comment:</b></p> <p>The proposed solar farm represents a significant opportunity to contribute positively to New Zealand's renewable energy targets and the social and economic well-being of Otago's communities. By generating renewable electricity, the project supports energy security and resilience within the region, aligning with the objectives of EIT-EN-O1. Furthermore, its location within the rural environment is deemed operationally necessary and aligned with the acknowledgement that energy generation activities are anticipated within the rural environment within the CODC District Plan.</p> <p>The solar farm aims to increase the region's renewable energy capacity, supporting national targets as stipulated in EIT-EN-O2. Additionally, the project facilitates efficient energy use and minimizes greenhouse gas emissions, aligning with the goal of reducing Otago's contribution to total emissions.</p> <p>As outlined within Policy EIT-EN-P2 the increases in renewable electricity generation capacity will require sufficient development of renewable generation activities. This gives a clear direction that the proposed RPS recognises the national, regional and local benefits of REG and that the proposed solar farm is a clearly anticipated and desired activity within the region.</p> <p>The proposal will balance operational needs with minimising adverse environmental effects with a focus on improving the onsite natural character values<sup>17</sup> and the onsite freshwater resources, particularly the identified wetlands<sup>18</sup></p> |                                                                                                                                                                                                                                                                                                                                |

<sup>17</sup> Mānīatoto Solar Farm - Landscape Effects Assessment, Boffa Miskell, 24 February 2024

<sup>18</sup> Mānīatoto Solar Farm - Ecological Impact Assessment, Boffa Miskell, December 2023

Moreover, the solar farm's development aims to increase Otago's renewable energy generation and will therefore improve the electricity security of the Region. The selection of the site prioritises locations where adverse effects on natural resources and cultural values are minimised. Noting the proposed activity is unlikely to result in reverse sensitivity concerns and can be operational concurrently with a primary land production activity on the Site with sheep grazing.

The Site has been carefully chosen to meet the functional and operational requirements of a solar farm while being located in a position to avoid adverse effects. Where adverse effects have the potential to be experienced off mitigating measure shave been employed to reduce adverse effects and, in some instances, to provide a net benefit, specifically ecological enhancement.

In summary, the proposed solar farm contributes to renewable energy generation and also demonstrates a commitment to sustainability, environmental stewardship, and community well-being, aligning with the overarching objectives and policies outlined through the Proposed Otago Regional Policy Statement.

#### 6.4 National Policy Statement for Renewable Energy Generation 2011 (NPS-REG 2011)

The NPS-REG 2011 applies to renewable electricity generation activities at all scales, and covers the construction, operation, maintenance and upgrading of new and existing structures associated with renewable electricity generation.

The NPS-REG 2011 states that:

- *renewable electricity generation, regardless of scale, makes a crucial contribution to the well-being of New Zealand, its people and the environment, and any reductions in existing REG will compromise achievement of the Government's renewable electricity target of 90% of electricity from renewable sources by 2025; and*
- *the development, operation, maintenance and upgrading of new and existing renewable electricity activities throughout New Zealand, and the associated benefits of REG, are matters of National Significance.*

The NPS-REG 2011 contains one objective as follows;

*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.*

Policies A, B, and C are most relevant to this proposal.

*Policy A - Recognising the benefits of renewable electricity generation activities*

The proposal meets the objective and Policy A as it provides a new renewable electricity generation activity which will assist in meeting the Governments national targets as follows:

- The proposal supports New Zealand's national commitments of doubling renewable energy generation to accelerate transition to a low-emissions, high-growth economy, and net zero carbon emissions by 2050<sup>19</sup>.
- The proposal would generate clean, renewable electricity to power the equivalent of 70,000 typical New Zealand homes annually. This increased resilience in power supply is significant, especially given New Zealand is forecast to need 70% more power by 2050 given the rapid electrification in private vehicles, transport and industry sectors.
- Increasing New Zealand's solar energy resource will support the national economy during periods when power from other renewable energy sources is not sufficient to meet demand. For example, during periods of low rainfall in the headwaters of the country's hydroelectric schemes or periods of low wind speeds impacting wind farms.

*Policy B - Acknowledging the practical implications of achieving New Zealand's target for electricity generation from renewable resources*

Policy B is reflected in the Proposed Otago Regional Policy Statement 2021. Specifically, policy EIT-EN-P2 which requires decision makers recognise that the attainment of increases in renewable electricity generation capacity will require significant development of renewable electricity generation activities. As discussed in section 7.3 above, the proposal will balance operational needs with minimising adverse environmental effects.

*Policy C - Acknowledging the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities*

There is a need to locate the renewable electricity generation activity where the renewable energy resource is available. The subject site has been selected due to its solar exposure and proximity to the National Grid, specifically the Transpower Naseby substation.

The selection of the site prioritises locations where adverse effects on natural resources and cultural values are minimised. Noting the proposed activity is unlikely to result in reverse sensitivity effects, and can be operational concurrently with a primary land production activity of sheep grazing on the Site.

In summary, the proposed solar farm contributes to renewable energy generation and also demonstrates a commitment to sustainability, environmental stewardship, and community well-being, aligning with the overarching objectives and policies of the NPS-REG 2011.

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<sup>19</sup> Electrify NZ, National Party, dated March 2023

#### 6.5 National Policy Statement for Highly Productive Land 2022 (NPS-HPL 2022)

The purpose of the NPS-HPL is to ensure that highly productive land is protected for land-based primary production use and is not used for other purposes which would compromise the highly productive soils.

The NPS-HPL applies to all Highly Productive Land which, until regional mapping is undertaken and included in the Regional Policy Statement, is defined as Land Use Capability (LUC) Class 1, 2 and 3 land. The majority of the site is mapped as LUC Class 4 with a smaller portion located towards the south-east of the site identified as LUC Class 3. Approximately 12.35 ha of the identified LUC 3 land is proposed for solar panel use with 10.66 ha of LUC Class 3 excluded from solar development due to topographical constraints as well as a desire to minimise the use of LUC Class 3 land.

Part 2 of the NPS-HPL 2022 sets out the objectives and policies which are identified and discussed below.

There is one objective under the NPS-HPL 2022, which is as follows:

*Highly productive land is protected for use in land-based primary production, both now and for future generations.*

There are nine policies, of which, policies 1, 2, 4, 8 and 9 are considered relevant to the proposal. These are listed below. Policies 2, 4 and 8 are considered most relevant to the proposal.

*Policy 1: Highly productive land is recognised as a resource with finite characteristics and long term values for land-based primary production.*

*Policy 2: The identification and management of highly productive land is undertaken in an integrated way that considers the interactions with freshwater management and urban development.*

*Policy 4: The use of highly productive land for land-based primary production is prioritised and supported.*

*Policy 8: Highly productive land is protected from inappropriate use and development.*

*Policy 9: Reverse sensitivity effects are managed so as not to constrain land-based primary production activities on highly productive land.*

#### **Comment:**

Although the solar farm is not a primary production activity, it should be noted that once in operation the land will still be available for the grazing of sheep and will provide a financial benefit to the landowners to facilitate the productive use of the property.

In line with Policy 1, the finite characteristics and long-term values for land-based primary production of the site is recognised through the commitment to decommission the site and fully return it to its previous condition.

The solar farm project aligns with Policy 2 by contributing to the integrated management of highly productive land. It recognises the need for sustainable land use practices that consider interactions with freshwater management and renewable energy generation. The planting of native screen buffers around parts of the site, riparian planting and fenced wetlands will assist in improving the water quality and freshwater management.

Policy 4 acknowledges the need to prioritise and support land-based primary production. The solar farm, combined with sheep grazing, represents an innovative approach to land use that maintains productivity while diversifying economic activities. The project enhances the value of the land by harnessing renewable energy resources without compromising its primary production capabilities.

The solar farm project is consistent with Policy 8 by ensuring that highly productive land is protected from inappropriate use and development. The proposed solar farm development is not considered to be an inappropriate use given the status as specified infrastructure (see below) with the loss of highly productive land mitigated and minimised. The installation of solar panels and infrastructure does not degrade the land's productive capacity but rather enhances its value by contributing to renewable energy production. Concurrent sheep grazing serves to maintain the land's economic productivity and mitigation planting and fencing improves the ecological integrity, ensuring that the use of the land remains appropriate and sustainable.

No actual or potential reverse sensitivity effects are anticipated on land based primary production activities from the proposed solar farm consistent with Policy 9.

In summary, the proposed solar farm project, in conjunction with sheep grazing, aligns with these policies by promoting integrated land management, supporting primary production activities, and protecting highly productive land from inappropriate development. The proposal is consistent with the National Policy Statement and therefore national direction.

Part 3 of the NPS HPL sets out a non-exhaustive list of things that local authorities must do to give effect to the objective and policies.

Section 3.9 of the NPS states territorial authorities must avoid the inappropriate use or development of highly productive land that is not land-based primary production, however clause 2 provides a list of activities the NPS enables on productive land. Clause 3.9(2)(j)(i) states:

*(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:*

*(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:*

The proposed activity falls within the definition of "Specified Infrastructure".

**Specified infrastructure** means any of the following:

- (a) infrastructure that delivers a service operated by a lifeline utility:
- (b) infrastructure that is recognised as regionally or nationally significant in a National Policy Statement, New Zealand Coastal Policy Statement, regional policy statement or regional plan:
- (c) any public flood control, flood protection, or drainage works carried out:
  - (i). by or on behalf of a local authority, including works carried out for the purposes set out in section 133 of the Soil Conservation and Rivers Control Act 1941; or
  - (ii). for the purpose of drainage, by drainage districts under the Land Drainage Act 1908

As outlined within Section 4.8 of this assessment the proposed activity is recognised as regionally significant within the Otago Regional Policy Statements.

The project comprises the maintenance, operation, upgrade, or expansion of specified infrastructure and there is a functional and operational need for the proposed activity to be located on HPL.

Whilst “new” specified infrastructure is not explicitly stated within this clause, it is broadly accepted that the NPS-HPL is not intended to preclude new activities that are associated with specified infrastructure. This is evidenced by the Ministry for the Environment’s Consultation Document<sup>20</sup> and consultation process (September and October 2023) confirming this is the policy intent of the NPS-HPL.

Considering, the policy intent of clause 3.9(2)(j)(i), it can be concluded that the Project is within the intended scope of the specified infrastructure exception.

It can be demonstrated that there is a ‘functional and operational need’ to be on HPL. That is:

- The solar farm needs to be close to a substation or transmission network.
- The small amount of HPL utilised (approximately 12.35 ha of panels) enables the viability of the overall development to make a meaningful impact to the generation of renewable

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<sup>20</sup> Ministry for the Environment. 2023. Managing the use and development of highly productive land: Potential amendments to the NPS-HPL – Discussion document. Wellington: Ministry for the Environment.

energy. The site lines up with the agreed lease agreement area which mirrors field boundaries to enable continued farm management and sheep grazing as complimentary activities on the solar farm site.

- Adequate flat land is required (less than a 5-degree slope).
- The HPL is free of ecological, heritage or cultural constraints, which if present would make the project untenable by a responsible developer.
- The site represents a strong solar resource with medium to high sunshine hours and limited shading from natural features such as mountains.
- The site has suitable geology to ensure stability of the steel piles upon which the solar panels are installed.

As outlined within Section 3.9(2) the measures in subclause 3.9(3) must be applied to the activity:

- (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.*

In the long term there will be no actual or cumulative loss of the availability and productive capacity of HPL in the Otago Region. This is because post decommissioning, the Site will be able to be fully reinstated and utilised for land-based primary production.

During the operation of the solar farm, the highly productive soils will be available for rural production as sheep grazing is possible under the solar panels. The solar farm layout has been purposefully designed to enable potential alternative rural land use activities (e.g. sheep grazing) which can integrate with solar generation activities. This retains an element of traditional productive rural land use.

Agri-solar practices, exemplified by the American Solar Grazing Association (ASGA) in the USA, promote the integration of grazing and solar production. This approach is supported by research from institutions like Cornell University, Oregon State University, and Ohio State University, as well as in the United Kingdom and Australia. Despite a proposed site coverage of 23.3%, the design allows for retention of pasture around the solar arrays, preserving highly productive land. Future land use possibilities include agricultural or horticultural crops benefiting from the partial shade provided by the solar panels, creating microclimates that enhance plant growth and reduce water evaporation.

As outlined within this assessment no actual or potential reverse sensitivity effects on land-based primary production activities is anticipated. The solar farm can operate concurrently with land based primary production.

The proposed solar farm is not considered to be an inappropriate use or development of the highly productive land within the site. The activity falls comfortably within the definition of specified infrastructure; there is a functional and operational need for the use and development to be on the LUC Class 3 land (Clause 3.9(2)(j)(i)); and, the project comprises the intention of clause 3.9(2)(j)(i) being the maintenance, operation, upgrade or expansion of specified infrastructure.

Overall, the proposal is considered to pass the necessary tests within Part 3 of the NPS-HPL and is not considered an inappropriate use or development on LUC Class 3 land.

#### 6.6 National Policy Statement on Electricity Transmission (NPS-ET)

The NPS-ET relates to the transmission of electricity around New Zealand via the National Grid of transmission lines and cables. It does not directly apply to electricity generation activities, rather it applies to the conveyance of electricity from these facilities around New Zealand. As such the NES-ET is of limited relevance to the solar farm proposal but will provide policy support for any required upgrades to associated transmission infrastructure beyond the site.

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

The NES-FW contains regulations relating to wetlands, rivers and streams, including provision for the natural inland wetland restoration, wetland maintenance; regulating culverts and the provision of fish passage.

The site contains a number of rivers (as broadly defined) and wetlands that meet the definition of a natural inland wetland under the NES-FW. These features are identified on the ecology mapping contained in Appendix 5.

The NPS-FM 2020 directs local authorities on how to manage freshwater under the RMA through their planning documents. It also contains an objective and several policies that are relevant to considering applications for resource consents.

Policy 3 is most relevant to this proposal and states that *'freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.'*

Clause 3.5 of the NPS-FM 2020 sets out the expected approach in order to give effect to Policy 3, and states:

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

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

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

*(c) manage freshwater, and land use and development, in catchments in an integrated and sustainable way to avoid, remedy, or mitigate adverse effects, including cumulative effects*

The proposed wetland fencing and planting is considered to result in positive effects for the catchment. The water quality of the waterways and wetlands will benefit from planted riparian buffers which will provide filters for any runoff from the land. The proposed land use is expected to result in better environmental outcomes due to the lower intensity stock grazing activity with the reduction of adverse impacts from, soil compaction, nutrient and bacterial contamination, nitrates and sedimentation. The EIA identifies additional measures beyond required mitigation planting to enhance ecological values which are proposed to be identified in a "Wetland Enhancement Plan," aimed at elevating the site's ecological values, particularly freshwater ecology. Construction activities including earthworks will avoid all wetlands, using setbacks and directional drilling to minimise adverse effects. Despite setbacks to some wetlands will be smaller than permitted under the District Plan and NES-FM, meticulous management, fencing, and wetland enhancement efforts will enable a net gain in significant wetland values, as emphasised in the EIA's proposal for central and southwest wetlands.

Overall, potential adverse ecological effects of the solar farm can be avoided or mitigated. In conclusion, adverse ecological effects can be mitigated or avoided, with positive freshwater management outcomes expected.

### 6.8 National Policy Statement for Indigenous Biodiversity

Section 1.3 (3) of the National Policy Statement for Indigenous Biodiversity states the following:

*"Nothing in this National Policy Statement applies to the development, operation, maintenance or upgrade of renewable electricity generation assets and activities and electricity transmission network assets and activities. For the avoidance of doubt, renewable electricity generation assets and activities, and electricity transmission network assets and activities, are not "specified infrastructure" for the purposes of this National Policy Statement."*

This confirms not only that the NPS-IB does not apply to the development of renewable energy but gives strong national direction in terms of the development of renewable electricity generation is prioritised within the policy context.

## 7. Consultation

Helios have undertaken an extensive pre-application engagement initiative aimed at actively involving the local community, key stakeholders and Aukaha from the outset. The key objectives of this engagement has been to inform and engage with the local community, iwi and stakeholders early in order to facilitate meaningful engagement. Steps included the following:

- Aukaha was directly contacted in July 2023 to outline the proposal and establish contact points for ongoing engagement. This engagement is ongoing and will involve the pre-

circulation of the draft of this assessment prior to Aukaha's further consideration and feedback.

- Adjoining landowners were personally informed of the proposal through phone calls, brochure distribution, face-to-face meetings, and their attendance at the community drop-in session.
- Key stakeholders, including the local MP, Mayor, Councillors, FENZ, Department of Conservation, and Forest and Bird, were notified via email and invited to engage with Helios and invited to attend a community drop-in session. In particular, Forest and Bird were provided with an Executive Summary of the EIA in March 2024 in response to their request for more ecological information.
- A community drop-in session was held on 5 October 2023, at the Mānīototo Golf Club. Approximately 35-40 people attended the session, providing feedback through forms and verbally.
- Ongoing discussions have also occurred with adjoining landowners along Naseby-Ranfurly Road and Ranfurly Back Road. This engagement has been outlined within the Mānīatoto Solar Farm Engagement Summary, appended in Appendix 9.

## 8. Notification assessment

### 8.1 Public notification – section 95A

The matters to be considered by the consent authority when deciding whether or not to publicly notify an application are set out in Section 95A of the RMA. In October 2017, Section 95A was amended to have a four-step process to determine whether to publicly notify an application.

#### Step 1 – Mandatory Public Notification in certain circumstances (sections 95A (2) and (3):

Mandatory public notification is not required as the applicant does not request public notification [s95A(3)(a)], and the application has not been made jointly with an application to exchange recreation reserve land under section 15AA of the Reserves Act [s95A(3)(c)].

#### Step 2 – Preclusion to Public Notification:

Public notification is not precluded because the activity is not subject to any rule in the District Plan that precludes public notification [s95A(5)(a)] and the activity is not for a controlled activity [s95A(5)(b)(i)], a residential activity or subdivision of land [s95A(5)(b)(ii)], a boundary activity [s95A(5)(b)(iii)], or a prescribed activity [s95A(5)(b)(iv)].

#### Step 3 - Public Notification – Rule/Adverse Effects:

Public notification is not required as the application does not include an activity that is subject to any rule in the District Plan or NES that requires public notification, and in accordance with

section 95D adverse effects on the environment will not be more than minor [s95A(8)(a) and (b)].

#### **Step 4 – Special circumstances:**

There are no special circumstances that warrant public notification under section 95A(9) because none of the circumstances of the application are exceptional or unusual.

Accordingly, it is considered that this application should be processed without public notification.

#### **8.2 Limited notification – section 95B**

Section 95B relates to limited notification of consent applications and (in summary) directs that, where notification of an application for resource consent is not required under Section 95A, the consent authority must give limited notification of the application to any affected person. Section 95B is also a four-step process to determine whether to limited notify an application.

#### **Step 1 – Customary Rights and Marine Title Groups, and Statutory Acknowledgements:**

There are no protected customary rights groups or customary marine title groups that will be affected by the proposal, and the proposal is not on, adjacent to, or likely to affect land subject to a statutory acknowledgement [s95B(2)(a) and (b) and s95B(3)].

#### **Step 2 - Preclusions to Limited Notification:**

There is no preclusion to limited notification as there is no rule in the District Plan that precludes limited notification of the application [s95B(6)(a)] and the application is for neither a district land use consent with controlled activity status or an activity prescribed by regulations made under section 360H(1)(a)(ii), which precludes limited notification [s95B(6)(b)].

#### **Step 3 – Limited Notification – Affected Persons:**

No persons have provided their written approval to this application. The directly adjoining neighbours have been considered within this assessment, Boffa Miskell have further identified and assessed dwellings in the vicinity of the site, which are displayed within Figure 14 below.



**Figure 14: Dwelling Locations (Source Boffa Miskell)**

### **Landscape and Visual Effects**

Adverse visual and landscape effects are addressed within section 6.4 of this assessment. The assessment concludes minor adverse visual and landscape effects are anticipated to be experienced by 512 Ranfurly- Naseby Road and 366 Ranfurly Back Road. Mitigation planting has been designed to reduce effects on the owners and occupiers of these properties. As part of the proposal this planting will be prioritised early in the construction period. Effects will reduce over time as planting becomes more established.

### **Other Actual and Potential Effects**

All other actual or potential adverse effects on adjoining landowners and occupiers will be less than minor.

### **Step 4 – Special circumstances:**

There are no special circumstances that exist relating to the application that warrant limited notification to any persons who have not been excluded as affected persons by the assessment above [s95B(10)]. There are no special circumstances that warrant limited notification under section 95B(10) because none of the circumstances of the application are exceptional or unusual.

### 8.3 Notification conclusion

Section 95 of the RMA sets out the requirements for the Council to consider when determining whether an application for resource consent should be notified.

The assessment in section 6 of this AEE concludes that any effects on the wider environment will be minor. An assessment of potentially affected parties has identified two adjacent sites which may be subject to effects of a minor nature, noting these effects are anticipated to reduce to less than minor (within five years) as planting becomes more established. Therefore, in accordance with the steps outlined above, the applicant would consider limited notification of the proposal to the landowner and occupiers of 512 Ranfurly – Naseby Road (Dwelling 2) and 366 Ranfurly Back Road (Dwelling 4), is required.

## 9. Statutory assessment

### 9.1 Section 104 of the RMA

#### Section 104

*In considering an application for land use consent, the consent authority must have regard to Part 2 (Purposes and Principles) of the RMA, and to the matters to be considered as set out in section 104(1). Section 104(1) states that, subject to the provisions of Part 2, a consent authority must have regard to:*

- (a) any actual and potential effects on the environment of 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.*

In respect of Section 104(1)(a), an assessment of any actual or potential effects is included in section 6 of this report. Overall, it is concluded that the resulting effects will be minor and acceptable.

The higher order planning documents specified at section 104(1)(b)(i) – (vi) of the Act have been considered in Section 6 of this report. The proposal is consistent with the renewable energy strategic direction of the Otago Regional Policy Statement, which is to encourage renewable energy generation, sustainable energy use and improve energy resilience in the Otago Region. The relevant National Policy Statements and National Environmental Standards have been assessed. The proposal meets the objectives and policies in these standards, and in particular

the National Policy Statement for Highly Productive Land and National Policy Statement for Renewable Energy Generation.

In respect of Section 104(1)(b), the document that provides the relevant statutory context is the District Plan. As discussed at Section 6 above, the proposal is generally consistent with the relevant objectives and policies of the District Plan.

There are no other matters that the consent authority should consider in the determination of this application.

#### 9.2 Resource Management Act 1991 – Part 2 Assessment

The District Plan has incorporated various plan changes in order to modernise the provisions and respond to the changing planning environment. However, the entirety of the plan is yet to be reviewed and therefore it may not have complete coverage over the proposed activities and anticipated effects. An assessment of the activity against Part 2 of the RMA is therefore considered necessary.

In achieving the purpose of the Act (Section 5) all persons exercising functions under it, shall recognise and provide for matters of national importance (Section 6), have particular regard to any other relevant matters (Section 7), and take into account the principles of the Treaty of Waitangi (Section 8).

Under Section 5 of the RMA, the proposed activity is a sustainable use of the existing rural land resource. Whilst not a primary production activity, the solar farm has a legitimate functional and operational need for its rural location. The proposal will not inhibit the land from being used for productive purposes now or in the future. The solar farm will assist in the generation of renewable energy which will provide for current and future generations without adversely affecting the life supporting capacity of the rural land resource.

The proposal will not adversely affect any matters of national importance listed under Section 6 of the RMA. The site is not within an area mapped as an outstanding natural features or landscapes and it has been established that the proposal is appropriately located within the existing rural landscape. Section 6(e) requires recognition and provision for Ngāi Tahu relationships, culture and traditions with their ancestral taonga, in decision-making. Engagement is ongoing with Aukaha.

Section 7 sets out other matters that must be had particular regard to. Of relevance to this application are the maintenance and enhancement of amenity values (s7(c)), the quality of the environment (s7(f)), the effects of climate change (s7(i)) and the benefits to be derived from the use and development of renewable energy (s7(j)). As concluded above, amenity values will be maintained while concurrently realising the benefits of renewable energy generation.

Section 8 requires that the principles of Te Tiriti o Waitangi are taken into account. Engagement with Aukaha is ongoing. A copy of the Engagement Summary with key stakeholders is included in Appendix 9.

In conclusion the proposal is in accordance with Part 2 of the RMA.

## 10. Conclusion

This application is being made by Helios for resource consent from Central Otago District Council for a power generation facility (solar farm) at 48 Ranfurly-Naseby Road, Naseby.

Section 6 details an assessment of effects and Section 7 and 8 outline the key planning considerations for this assessment. These assessments conclude that:

- The proposal contributes to New Zealand's renewable energy target without adversely affecting National Importance matters.
- Situating the solar farm in the Rural Resource Area aligns with the District Plan. Maintaining ground cover and periodic sheep grazing sustain primary production activities, minimising environmental impact. Construction effects are temporary and manageable through consent conditions.
- Road users may experience minor temporary effects until screen planting is established. Solar panels and structures will be low in height, with setbacks and planting to reduce visual impact. Transient viewers will encounter fleeting views, diminishing as planting matures. Operational effects align with permitted activities in the Rural Zone. Post-construction planting mitigates visual and landscape effects, enhancing water quality and biodiversity. No reverse sensitivity effects are anticipated, and the activity is reversible, with infrastructure removed upon lease expiration.
- The proposal has been designed to avoid wetlands and incorporates significant new planting, above and beyond the required mitigation, resulting in positive ecological and natural character benefits to the site and broader ecological values of the Mānīatoto.
- Overall, adverse environmental effects are no more than minor, with adverse effects on the properties identified in section 5 and 7 have the potential to be minor noting these effects are anticipated to reduce to less than minor (within five years) as planting becomes more established. Conditions of consent are recommended to ensure mitigation works reduce effects over time for the operational solar farm.

The proposal is consistent with the relevant statutory framework, including the provisions of the District Plan, and consistent with Part 2 of the RMA.

On this basis, it is considered that consent can be processed on a limited notified basis in accordance with Sections 104 and 104B of the RMA.

We request the opportunity to review the draft conditions prior to the decision being issued.