



Appendix F - Landscape and Visual Assessment + Addendum and Visual Simulations

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Landscape Assessment Report

Proposed Solar Farm

The Point, Mackenzie Basin

25 May 2023



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1 Introduction

1.1 Purpose and Scope

Rough Milne Mitchell Landscape Architects (**RMM**) has been engaged by Far North Solar Farm Ltd (**the Applicant**) to assess the actual and potential landscape and visual effects of a proposed 670ha solar farm, located within Section 3 SO384036 (**the site**), which is approximately 973ha in area.

The site is accessed via a 7km gravel track off State Highway 8 (**SH8**), within the Mackenzie Basin, immediately north of the confluence of the Ōhau, Twizel, Pukaki and Tekapo Rivers, Lake Benmore and the Ōhau C Power Station.

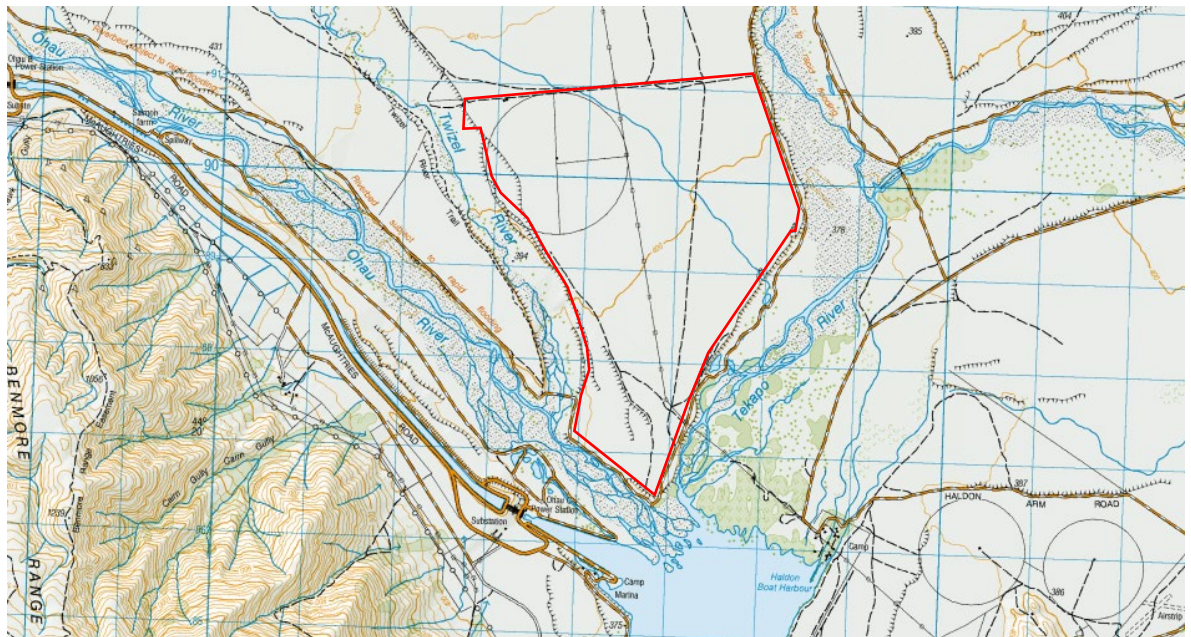


Figure 1. The site's location within the Mackenzie Basin is highlighted in red.

The site is located within the Mackenzie District, is zoned Rural and forms part of the Mackenzie Basin which is identified as an Outstanding Natural Landscape (**ONL**).

Under the Mackenzie District Plan (**District Plan**) the proposed solar farm is a *non-complying activity* because it breaches *Rule 3.4.5 - Non-farm buildings and extensions of these buildings outside of a defined Farm Base Area within the Mackenzie Basin Subzone High Visual Vulnerability area*.

Other consent requirements apply to the proposal, which are identified in the Assessment of Environmental Effects (**AEE**) Report.

The landscape assessment report is formatted as per the following:

- A description of the proposal.
- An outline of the relevant policy provisions within the Mackenzie District Plan.
- The identification and description of the receiving environment, including the site. The receiving environment is described in terms of the landscape's landform, land cover and land use and

how those landscape attributes contribute to the receiving environment's physical, perceptual and associative landscape values.

- An assessment of the actual and potential landscape, natural character and visual effects.
- An assessment against the relevant statutory provisions.
- A conclusion.

This report is accompanied by:

- Appendix 1 – Graphic Attachment (**GA**). The GA contains maps and aerial images of the site location, the relevant District Plan planning maps, plans of the proposed solar farm, solar panels and ancillary structures, exemplar images of similar solar farms in Aotearoa New Zealand and Australia, photographs of the site from within the site, and photographs of the site taken from the surrounding public places.
- Appendix 2 – Visual Simulations prepared by Virtual View Ltd, a company that specialise in preparing 3D visualisations. Eight visual simulations have been prepared which directly correspond the viewpoint location photographs in Appendix 1.

1.2 Methodology

The methodology and terminology used in this report has been informed by the Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines¹. The site and its surrounds were visited on the 8th and 9th of November 2022.

This site visit was undertaken to assist in understanding the landscape character and values within the receiving environment and assessing the proposed solar farms actual and potential landscape and visual effects.

This report is tailored to suit the nature of the project and its context including the framework of the governing legislation. The statutory documents containing provisions relevant to the proposal are found in the Resource management Act 1991 (**RMA**), the National Environmental Standard for Renewable Electricity Generation (**NES-REG**), and the District Plan. The District Plan gives effect to the RMA within the context of the site and provides the policy framework against which this landscape assessment has been evaluated.

As a non-complying activity under RMA s104D the proposal must either satisfy the objectives and policies of the District Plan or adverse effects must be no more than minor. A decision maker, before granting consent must be satisfied that either the adverse effects of the activity on the environment will be less than minor, or minor (s104D(1)(a)), or the proposed activity will not be contrary to the objectives and policies of the District Plan (s104D(1)(b)).

The table included in Figure 1 outlines the rating scales that are referred to in this report. The table included in Figure 2 is a comparative scale between the seven-point scale and the RMA s104D non-complying gateway test.

¹ 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022.

Very Low	Low	Low - Moderate	Moderate	Moderate - High	High	Very High
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Figure 1. The seven-point landscape and visual effects rating scale.

Very Low	Low	Low - Moderate	Moderate	Moderate - High	High	Very High
Less than Minor		Minor	More than Minor		Significant	

Figure 2. The comparative scale of degree of effects.²

² 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022. Page 151.

2 The Proposal

2.1 Description of the Proposal

It is proposed to locate an approximate 670ha solar farm within the 973ha site, as illustrated on **GA Sheet 9**. The solar farm will generate 420 megawatts peak (MWp), which is approximately the equivalent to the power used by 100,000 homes.

Site Selection

In terms of Aotearoa New Zealand's energy transition, the proposal poses a unique opportunity to generate power during the day, thereby allowing the hydro lakes to store more water during the day, and subsequently provide more capacity at night. Given the global warming crises, as the climate changes and droughts become more common, there is a higher risk that the nearby hydro lakes will not be able to provide continuous power and power outages will become more likely / increasingly frequent. Therefore, the proposed solar farm's co-location with the hydro power scheme will assist with providing a more resilient power generation system.

This site has been chosen as a suitable location for a solar farm because the National Grid transmission lines run through the site and provide the ability to accommodate an increased power generation sourced from the solar farm. The power generated by the 670ha solar farm can be accommodated by this transmission line, but it cannot accommodate any further power.

In addition, the site receives above average sunlight hours / irradiance and is co-located with the extensive Hydro Power Scheme within the Mackenzie Basin, which contributes to its character. Also, the site is relatively flat, therefore minimal land disturbance / earthworks is required to install the panels and associated development.

Solar Farm

The details of the proposal are set out in the documents that accompany the resource consent application. Those details are not repeated here other than to summarise the following points that are relevant to an assessment of landscape and visual effects.

The solar farm will consist of the following structures. Images of these structures, including exemplar images have been included in **GA Sheets 9 - 14** to assist in understanding what is proposed.

- An approximate 670ha solar farm will be situated within the site.
- The solar farm will consist of 736,866 solar panels situated on 28,341 solar tables extending north to south in a grid pattern, throughout the site.
- Each solar table will consist of 26 bi-facial solar panels. The solar panels measure 2.3m long by 1.1m wide and the solar tables measure approximately 2.3m wide by 30.5m long. Refer to **GA Sheet 13**.
- The solar tables are steel structures, and each table is attached to the ground by eight steel poles, centralised along its length. Each table structure is designed to move so the solar panels pivot east to west towards the sun's rays as the sun moves through the sky. In the morning the solar panels will face east, at mid-day the solar panels will be more or less horizontal and at the end of the day the solar panels will face west.

- The top of the solar table, when parallel with the ground stands approximately 1.5m above ground level. When the solar tables are tilted as far east or west as possible the top of the solar table will stand 2.2m above ground level with the bottom approximately 1.0m above ground level.
- The solar table is designed to avoid internal shading which means the pivot is restricted to prevent the solar panels facing as far east or west as possible. Instead, each table will start and finish the daily cycle in a semi-tilted position rather than full tilt to prevent shading.
- The centre of the rows of solar tables are approximately 6.0m apart. When the solar tables are parallel to the ground, there is a 3.8m gap between the rows of solar tables. When the solar tables are at their maximum eastern or western tilt, there will be a 4.0m gap between the rows of solar tables.
- The solar tables will cover approximately 33% of the 670ha area, within the 973ha site, due to spacings between each of the solar tables, space for existing transmission lines, roads, landscaping etc. Regarding this, the panels sit above the ground, and will not result in a net loss to existing landcover.
- 82 inverters will be located within the site, as illustrated on **GA Sheet 14**. The inverters convert the DC current from the solar panels to an AC current so the solar power can be transferred into the grid.
- Each inverter is situated within a 20-foot shipping container frame which is approximately 6.0m long, 2.4m wide and 2.9m high. The container frames and all parts of the inverter that can be painted will be finished in the colours black, sandstone grey, gull grey, or similar.
- Inverters have been clustered within specific parts of the site, so they are as efficient as possible. Also, they have been situated within the central part of the site where the solar tables assist in visually screening them from view. In particular, when potentially seen from the west.
- A main control room will be located within the north-west quadrant of the site and will house the switch gear, controls and other associated electrical monitoring equipment with the solar farm. The design for this building has not been prepared. However, the building will be similar in size to two shipping containers, will be finished in dark recessive colours, will be situated to allow the solar tables to assist in screening it from views.
- Thirty-one 30,000L water tanks will be located in strategic fire fighting locations throughout the site. These tanks will be partially buried, so the stand 1.5m above ground level. This means they will be the same height as the solar panels, when they are parallel to the grounds surface.
- Upgrades to the existing farm tracks may occur if the current tracks will be inaccessible in inclement weather. Upgrades to the tracks will likely consist of a compacted gravel surface.
- Earthworks will consist of trenching for the cables associated with the solar panels and inverters. All excavated material will remain on site. For reference, the solar tables will be attached to poles that are driven into the earth, therefore no earthworks are required for the poles.
- The exact location of the point of connection into the National Grid is to be determined, but it will not result in any additional power lines or the like.
- The current farm fence demarcating the boundary line will be upgraded to rabbit and hare-proof fence.
- A 1.8m tall wire-mesh security fence, with three barb wires along the top will be situated around the perimeter of the solar farm. This fence will be located 'inside' the proposed vegetation.

Landscape Mitigation

As outlined in the body of the report, the solar farm may be seen from several nearby public places to the east, south and west. The majority of these public places will be appropriately screened by way of proposed native shrub vegetation that will be located around the perimeter of the solar farm. This will consist of the following and is illustrated on **GA Sheet 9**.

- A 40m wide landscape strip around the perimeter of the solar farm.
- The vegetation within this landscape strip will consist of the following species:
 - *Plagianthus regius* subsp. *regius* – ribbonwood/mānatu
 - *Discaria toumatou* – Matagouri
 - *Olearia lineata*
 - *Corokia cotoneaster*
 - *Kunzea robusta* – Kānuka
 - *Coprosoma propinqua*
 - *Phyllocladus alpinus*
 - *Sophora microphylla*
- Further information on these plant species is included on **GA Sheet 10**.
- Plants will be of a root trainer grade or larger.
- Planting of all vegetation will start within the first or second planting season following the granting of the resource consent.
- The landscape area will be fenced off by either the rabbit and hare-proof fence around the perimeter of the site and the 2.0m tall mesh security fence around the solar farm. Additionally, all plants will be planted with pest protective sleeves.
- A slow-release fertiliser will be included with every plant, at the time of planting.
- All vegetation will be implemented with mulch, to suppress weeds and retain moisture.
- An automatic irrigation system will be set up and will be used for the first five years following the implementation of the vegetation. This is likely to be by way of a dripline or K-line sprinkler, which will utilise the existing water that is consented for the site.
- Any plant that becomes diseased or dies, will be replaced within the next planting season.

Land Management

Wildlands Ecological Report has concluded that an Ecological Enhancement Plan (**EEP**) will be prepared, including its content, and how it is implemented on site as to reduce the potential adverse effects of the solar farm on the biodiversity and ecological values of the site and Mackenzie Basin. In brief:

- The EEP will be developed and implemented to restore ecological functions and improve biodiversity, which will emphasise the restoration of indigenous vegetation and result in an increase habitat for indigenous fauna.
- The 89ha of land bordering the Tekapo, Pukaki, Twizel and Ōhau Rivers will be enhanced via the initial planting of 500,000 individual plants, with the scope for this to increase up to 890,000 plants over the project life.
- This 89ha area will include the 40-metre-wide landscape mitigation strip of planting and the plant species listed above.

- Beyond the 40-metre-wide landscape mitigation strip this 89ha area will be characterised by indigenous shrubs, tussocks, and herbs, with exposed stony gravel. This will be representative of a restored outwash plain and will also provide habitat for Threatened and At-Risk indigenous lizard and invertebrate species.
- The 670ha of land under the solar panels will no longer be irrigated, sprayed with pesticides, ploughed, drilled or fertilised for cropping or dairy grazing. Rather it will be managed, with the inclusion of light grazing to restore the indigenous vegetation throughout this area.
- Implementation of the plan will involve the use of mechanical methods for invasive species, soil cultivation, and weed control. Ongoing monitoring will be undertaken to assess the success of the restoration project.

3 Relevant Policy Provisions

3.1 National Environmental Standard for Renewable Electricity Generation.

The National Environmental Standard for Renewable Electricity Generation 2011 (**NES-REG**) sets out one objective and eight policies to enable the sustainable management of renewable electricity generation under the RMA. The NES-REG objective, as included below is relevant to the proposed solar farm.

Objective

“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 solar farm.”

3.2 Mackenzie District Plan

The Mackenzie District Plan gives effect to the RMA, in particular Section 6(b), as the site is located within an ONL.

As outlined on District Planning Map 38 the site is zoned Rural and is within the Mackenzie Basin ONL which extends across the majority of the basin, refer to **GA Sheet 6**.

The District Plan Rural Zone objectives and policies, which are included in Section 7 of this report seek the protection of the outstanding natural landscape values and of the natural processes and elements which contribute to the district’s overall character and amenity. To protect these values, proposals are to be designed and located where they avoid or mitigate their potential adverse effects which may otherwise modify or detract from areas with a high degree of naturalness, visibility, and aesthetic value.

Regarding the proposal, Ms Laila Alkamil of Williamson Water and Land Advisory has advised RMM that the proposal will be a non-complying activity. This is because under the District Plan the activity is to establish and operate an electricity generating facility, will exceed earthworks limits, and discharge stormwater into natural wetlands / surface waterbodies. Also, the colour of the solar panels and steel structures will not accord with the Mackenzie District Colour Palette, which also results in the proposal being a non-complying activity.

The District Plan objectives, policies and assessment matters that are relevant to the proposed solar farm and an assessment against them is included in Section 7 below.

3.2.1 Mackenzie District Plan - Plan Change 20

Mackenzie District Council (**Council**) is currently working through a staged District Plan Review Process to update the current District Plan.

Plan Change 20 was the first stage in this process to realise the higher-level Strategic Direction Chapter. The Natural Environment Strategic Objective gives effect to Section 6(b) of the RMA, is relevant to this assessment of landscape and visual effects and is included below.

Chapter: NE – Natural Environment

NE-O1 Natural Environment

The values of the natural environment, including those that make the District unique, contribute to its character, identity and well-being, or have significant or outstanding intrinsic values, are recognised and provided for, and where appropriate protected and enhanced. This includes, but is not limited to, values associated with the following important natural resources:

- 1. mahika kai resources;*
- 2. night sky darkness;*
- 3. outstanding natural features and landscapes;*
- 4. significant indigenous biodiversity; and*
- 5. water bodies and their margins*

4 Landscape Description

4.1 Description of the Receiving Environment

The site and the receiving environment, as illustrated on **GA Sheet 3** are situated within and form part of the Mackenzie Basin, the largest intermontane basin in New Zealand. With reference to Mr Graham Densem's Landscape Character Maps, the receiving environment is comprised of 'South Basin', 'Twizel', and 'Rhoborough', the southern end of 'Pukaki' and the western half of 'Benmore', as illustrated on **GA Sheet 5**.

The basin is a glacially derived landscape composed of fluvioglacial outwash deposits of the Otira glaciation. Google earth and Canterbury Maps Aerial imagery illustrates that the underlying outwash plain landform remains relatively intact. The soils within this wider area vary between moderately deep to shallow with varied thicknesses of loess over alluvial gravels on the outwash terraces.

Remnant vegetation on the outwash plains within the South Basin would have included short tussock and matagouri scrub.³ The present land use includes extensive grazing, including one pivot irrigator. Today the predominant land use is grazing and traditional farming practices including topdressing and pivot irrigation. The increase in exotic pasture and reduction in dryland vegetation over the past 30 years has been identified as impacting on the landscape character of the outwash plain.⁴

The site is located on the outwash plain between the Ben Ōhau Range and Lake Pukaki to the north, and the Benmore Range and Lake Benmore to the south. At a broad scale, this outwash plain is a recognisable, very large and relatively flat area of land, despite the large-scale modifications to the basin created by the Upper Waitaki hydro-electric power scheme. The Tekapo, Pukaki, Twizel and Ōhau Rivers⁵ traverse the outwash plain flowing south to feed into Lake Benmore and then into the Waitaki River.

At a smaller scale, the site is situated on the outwash plain that is bounded by the incised Pukaki and Twizel Rivers, and at the very southern point, the Ōhau and Tekapo Rivers, with three of these four rivers and Lake Benmore being Sites of Natural Significance. These braided rivers are some 10 – 20m below the outwash plain the site is situated on, separated by steep escarpment faces or small terraces stepping down to the rivers.

The ecological context of the site is described in detail in the Wildlands Report. In brief, the Wildlands Report outlines that:

- pasture now occupies much of the Pukaki Ecological District,
- the adjacent braided riverbeds have been identified as a historically rare ecosystem type and are naturally uncommon on a national basis, the rivers provide important habitat to a number of bird species and rare insects, and are under active restoration as part of "Project River Recovery", and

³ Graham Densem Landscape Architects Ltd. November 2007. The Mackenzie Basin Landscape Study: Character and Capacities.

⁴ Graham Densem Landscape Architects Ltd. November 2007. The Mackenzie Basin Landscape Study: Character and Capacities.

⁵ The District Plan has identified the Tekapo / Pukaki Rivers and the Ōhau River as Sites of Natural Significance. The District Plan has not identified the Twizel River as a Site of Natural Significance.

- the site is classified entirely as a 'critically under protected' land environment, with more than 30% indigenous vegetation left and less than 10% indigenous vegetation protected.⁶

The Wildlands Report concludes that *"the Ecological features and values adjacent to the site, associated with the rivers and their margins, are extremely high."*⁷

The water flow along these four braided rivers is relatively low, as it is controlled by spillways at Lake Tekapo, Pukaki and Ruataniwha, with most water being diverted along the Ōhau and Pukaki Canals.

The Ōhau and Pukaki Canals, which form part of the wider Upper Waitaki hydro-electrical scheme, flow from Lake Pukaki and Lake Ōhau into Lake Ruataniwha and then extend south along the toe of the Benmore Range into Lake Benmore, the largest man-made lake in Aotearoa New Zealand. The Twizel Power Station is located at the top end of the Ōhau Canal, just off SH8 and southeast of Twizel. The Ōhau B and Ōhau C Power Stations, consisting of the large dams, orange pipes, buildings and substations are located along this canal. The hydro power scheme contributes to the character of the Mackenzie Basin landscape and is an identifiable element within this ONL.

Twizel township, which was created to house the workers constructing the hydro-electrical scheme is situated on the outwash plain immediately north of Lake Ruataniwha. Twizel is accessed from SH8 and since the construction of the hydro-electrical scheme, Twizel township has become a service and tourist town. It is the largest town within the Mackenzie District and has a growing population.

The Mackenzie Basin is experienced primarily from SH8, which traverses the basin past the hydro lakes and townships at Tekapo and Twizel. It is an important scenic tourist route affording extensive views across the basin.

Twizel and the numerous campgrounds (Lake Benmore – Ōhau C, Benmore Views, Falstone, Haldon Arm) within the receiving environment are well situated as a base for the large number of the recreational opportunities in its vicinity.

Recreational activities include camping / caravanning, rowing and water skiing on Lake Ruataniwha and Lake Benmore, salmon fishing in the lakes, rivers and canals, skiing at Ōhau and Round Hill Ski fields, and mountain biking on the Alps to Ocean Trail and numerous other local trails. The clean, dry and dark sky is a recognised feature of the basin and consequently the Mackenzie Basin has been designated as a Dark Sky Reserve.

Additionally, between 1980 and 2010 the Mackenzie Basin received approximately 2,400 hours of sunshine annually⁸ and in 2022 it received 2,464 hours of sunshine⁹. It was the fifth sunniest place in Aotearoa New Zealand in 2022 and is commonly thought of as one of the sunniest places in the South Island, along with Blenheim and Nelson.

⁶ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Pages 3 – 6.

⁷ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Page 23.

⁸ <https://niwa.co.nz/education-and-training/schools/resources/climate/sunshine>

⁹ https://niwa.co.nz/sites/niwa.co.nz/files/2022_Annual_Climate_Summary_FINAL_v3.pdf

4.2 Description of the Site

The site is located at the southern point of the outwash plain bordered by the incised Pukaki and Twizel Rivers, and at the very southern point, the Ōhau River. The site is accessed off SH8, east of the Twizel River and via a 7km long gravel farm track through the Bendrose Station.

The landform within the site is generally flat, with the topography gradually descending north to south, with an approximate 30m elevation difference. The very western edge of the site contains a small scarp, separating the main outwash plain from a small terrace as the overall landform steps down to the willow lined Twizel River.

The site is predominantly used for agricultural purposes, including cropping and grazing stock. Unlike the grassland areas within the Mackenzie Basin, the site has a more verdant green colour as the grass / crops are irrigated via a pivot and / or K-line sprinklers. Based on on-site investigation the site is starkly 'green' in contrast to the dry tawny coloured grassland areas within the Bendrose Station, to the immediate north. However, the more intensive land management processes have kept the site free of wilding pine trees, unlike the Bendrose Station to the north, and many other large-scale properties within the basin which contain wilding pines.

A detailed description of the vegetation cover within the site has been included in the Wildlands Report, including outlining what small remnants of indigenous dryland and shrubland communities around the margins. In brief, the Wildlands Report outlines that:

- there are no wetlands on site, but there are several wetlands within 100 metres of the site boundary,
- the main vegetation types consist of two areas of sweet briar-matagouri shrubland, predominantly cocksfoot grassland, brassica cropland, brome-hawkweed-sheep's sorrel grassland/herbfield and Stonefield drylands,
- the site is part of an area classed as "improved pasture" by the DoC, and
- indigenous vegetation on the site is mostly confined to small pockets and scattered individual plants. The only At-Risk plant species observed within the site is tūmatakuru, which is present in the Stonefield drylands, which is considered to be ecologically significant.¹⁰

*Overall, the "ecological values on-site vary considerably subject to the character of the vegetation and habitat types that are present. Most of the site has a cover of exotic pasture and part of it is irrigated and cropped. These areas have low value for indigenous plants but are nevertheless utilised by Threatened or At Risk indigenous birds and it is possible that lizards may also be present, albeit these types are unlikely to provide significant habitat for lizards. Undeveloped gullies on the margins of the site are important habitat for indigenous plants, avifauna, lizards, and invertebrates."*¹¹

Other farming infrastructure within the site includes water tanks and sheds associated with the pivot irrigator, sheds, water tanks, containers for storage along the northern boundary of the site, temporary storage of hay bales, farm fences and farm tracks.

¹⁰ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Pages 8 and 23.

¹¹ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Page 23.

As mentioned above, a National Grid Transmission Line and its transmission towers extend north to south through the approximate centre of the site. This transmission line extends north from the Benmore Dam Power Station and extends northeast up Te Waipounamu/ the South Island.

The site, much like the majority of the land within the Mackenzie Basin is privately owned and views of and access to the site and from its perimeter are difficult to gain. The exception to this is a gravel four-wheel drive track which wraps around the east, south and western boundary of the site and affords users views over the site and the braided Tekapo, Ōhau and Twizel Rivers alongside.

Due to this, the site forms part of the expansive views over the Mackenzie Basin. As the site is predominantly devoid of built form, it contributes to the Mackenzie Basin's unspoiled openness and vastness and the long open views to the Southern Alps and other mountains encircling the basin.

From desktop analysis and on-site investigations, the site is visible from the below mentioned public places.

- State Highway 8.
- The Alps to Ocean Trail.
- McAughtries Road.
- Falston Road.
- Haldon Road.
- Haldon Arm Road.
- Pukaki, Tekapo, Ōhau Rivers.
- Lake Benmore.
- Ben Ōhau.
- The Benmore Range.

Additionally, it may be seen from numerous large farming properties located alongside these public places and the Lake Benmore – Ōhau C, Benmore Views, and Falstone Campgrounds.

Regarding the above list, as the site is relatively flat and has a very limited amount of verticality (built from or trees) it is evident that the site is not overly prominent from these locations.

The amenity experienced when travelling along the public roads and within these private places are described below in Section 6 of this report.

4.3 Landscape Values of the Receiving Environment

The landscape values of the site and the receiving environment (physical, perceptual and associative) form the baseline, along with the policy provisions, for an assessment of landscape and visual effects. The landscape values of the site and the receiving environment stem from its past and present landscape attributes (landform, landcover and land use). The landscape values that are relevant to an assessment of the proposed solar farm are listed below.

The receiving environment, which forms part of the southern extent of the Mackenzie Basin subzone in which the site is situated has been identified as an ONL. Its distinct landscape character stems from its uniqueness, wildness, colouring, openness of the vast basin landscape enclosed by the encompassing mountain ranges, and legibility (sense of formative processes). These outstanding physical, perceptual and associative values stem from:

- Its distinctive Mackenzie Country landscape character with its unique, natural, and visual qualities of the high-mountain basin environment.
- Its unspoiled openness and vastness and the long open views to the Southern Alps and other mountains encircling the basin.
- The highly legible landscape features throughout the basin, including the moraines, roche moutonnée, valleys, terraces, fans, glacial erratic and outwash plains.
- The high degree of aesthetic and experiential values afforded by the highly legible, glacially derived basin and expansive sky, large scale of the landforms including the river valleys and enclosing mountains, the scenic outlook over Lake Pukaki and Lake Tekapo to the distant mountains including Aoraki Mt Cook, the vivid turquoise blue water colour of the glacial lakes, the golden tussock-laden slopes which surround the basin and transient values contributed by the strong seasonal changes and seasonal vegetation colour.
- The high degree of shared and recognised values that are evident through inspiration works by artists and writers inspired by the landscape, being nationally important for tourism, astronomy and the plentiful recreational opportunities that are provided.

At a local scale, the site adds to most of above-mentioned landscape values. However, the outwash plain that the site is situated on is not unspoiled. This is because the land cover consists of a pivot irrigator, and is cultivated for cropping and grazing stock e.g. the greening effect has occurred on site. Also, it contains the National Grid transmission lines running north to south through the site. Positively, this existing development within the site is sparse, low lying or somewhat transparent (transmission towers) and continues to provide for long open views over the basin to the enclosing mountain ranges.

4.4 Mackenzie District Plan – Landscape Values

In addition to the above, the Appendix I, J and V in the District Plan outline the Sites of Natural Significance, Scenic Viewing Areas and Scenic Grassland Schedules and areas Visual Vulnerability. The relevant parts of these Appendices to the District Plan are included below.

4.4.1 **Appendix I - Sites of Natural Significance**

Appendix I of the District Plan identifies the Sites of Natural Significance¹².

The site is not identified as a site of Natural Significance.

The adjacent Ōhau River, Tekapo/Pukaki Rivers and Lake Benmore have been identified as Sites of Natural Significance. The below inserts describing these Sites of Natural Significance are from the District Plan.

“11 - Ōhau River (Tekapo, Pukaki, Ōhau riverbeds); SSWI (Lake Ruataniwha), (Ruataniwha Springs), (Ōhau River); WERI: Ruataniwha area includes an artificial lake with shallow margins planted with shrubs for common bird species and a spring fed stream. Parts of lake heavily used for recreation. Both areas used for cross-fostering of black stilt chicks. Springs provide excellent waterfowl habitat,

¹² Mackenzie District Plan. Appendix I – Sites of Natural Significance: Mackenzie District.

with Australasian bittern, black stilt and other waders breeding. The Ōhau is a braided river of gravel flats and islands. Wrybill breeding area and black stilt feeding and wintering area.”¹³

“45 - Tekapo/Pukaki Rivers (Tekapo/Pukaki and Ōhau Riverbeds); SSWI (Tekapo River); (Pukaki River Ponds); WERI: Wide, braided alluvial riverbeds providing important habitat for waterfowl, waders, passerines and aquatic and terrestrial insect fauna. Breeding areas for black stilts, banded dotterels, black fronted terns, black backed gulls and wrybills. Native and introduced fish species occur in high numbers. A series of artificial ponds on margin of Pukaki River also provide a habitat for waterfowl and waders.

46 - Lake Benmore - Largest artificial lake in New Zealand. Deltas of Ōhau, Twizel, Pukaki and Tekapo Rivers provide important wildlife habitat. The shallow margins, mudflats and willows are also important to waterbirds. The area is important as an overwintering and feeding area for black stilt and heavily utilised by many other waterbird species. Some islands are habitats for threatened lizards and plants.”¹⁴

4.4.2 Appendix J - Scenic Viewing Areas and Scenic Grassland Schedules

Appendix J of the District Plan¹⁵, along with the District Plan Maps identify the location, extent and describe the Scenic Viewing Areas and Scenic Grassland within the district.

The site is not located adjacent to or in proximity of a Scenic Viewing Area, therefore it does not interfere with the views gained from these identified areas. Also, the site is not within a Scenic Grassland Area.

4.4.3 Appendix V - Visual Vulnerability

The site forms part of the South Basin which has been identified as having a high degree of visual vulnerability¹⁶.

High Visual Vulnerability:

Areas of high visual vulnerability can be summarised as:

- *the wide basins;*
- *lakes and lakesides, including shorelines and lakeside hill and mountain flanks;*
- *raised mountain ranges, hills and isolated mountains;*
- *river corridors;*
- *extensive areas and intact sequences of native plant communities particularly areas of continuous natural grassland, low development levels and visual vividness.*

The visual vulnerability mapping dates back to Mr Graham Densem’s 2007 Landscape Study. Through Plan Change 13, Mr Densem prepared the “Intensification and Outstanding Natural

¹³ Mackenzie District Plan. Appendix I – Sites of Natural Significance: Mackenzie District. Page 3.

¹⁴ Mackenzie District Plan. Appendix I – Sites of Natural Significance: Mackenzie District. Page 7.

¹⁵ Mackenzie District Plan. Appendix J - Scenic Viewing Areas and Scenic Grassland Schedules.

¹⁶ Graham Densem Landscape Architects Ltd. November 2007. The Mackenzie Basin Landscape Study: Character and Capacities.

Landscape: Landscape Management of the Mackenzie Basin in Light of Court Decisions”¹⁷ Report that provides further assistance in understanding the areas and values of areas of high visual vulnerability and how to maintain the ONL values of these areas.

The 2015 Report focused on pastoral intensification, subdivision and rural residential development at a Plan Change level to assist in understanding where such activities would be more appropriate to maintain the ONL values of the Mackenzie Basin. Noting that the site is already predominantly used for cropping, an activity that is “*likely to erode ONL natural science and aesthetic values.*”¹⁸

¹⁷ Mackenzie District Plan Change 13. In Intensification and Outstanding Natural Landscape: Landscape Management of the Mackenzie Basin in Light of Court Decisions. Mr Graham Densem. November 2015 (updated).

¹⁸ Graham Densem Landscape Architects Ltd. November 2007. The Mackenzie Basin Landscape Study: Character and Capacities. Page13.

5 Potential Issues

The proposed solar farm is a *non-complying activity*. It will result in an approximate 670ha solar farm, which is slightly smaller in area when compared with Twizel township, which is approximately 730ha in area.

It will consist of long low-lying lines of solar panels running north to south through the site and their associated inverters, water tanks and control room, within the ONL of the Mackenzie Basin's, immediately north of Lake Benmore, Aotearoa New Zealand's largest manmade lake and between Tekapo, Ōhau, Pukaki and Twizel Rivers.

The potential adverse landscape and visual effects arising from the proposed solar farm may include the following:

- Effects on the openness and vastness of the Mackenzie Basin, including the long open views.
- Effects on the sense of naturalness given by the golden-brown vegetation.
- Effects on the legibility of the outwash plain and the sense of landform continuity.
- Effects on the high degree of visual coherence, apparent naturalness and spectacular nature in views, in particular when from SH8.

6 Assessment of Landscape and Visual Effects

6.1 Assessment of Visibility and Visual Effects

*“A visual effect is a kind of landscape effect. It is a consequence for landscape values as experienced in views. Visual effects are a subset of landscape effects. A visual assessment is one method to help understand landscape effects.”*¹⁹

The significance of the visual effect is influenced by the visibility, distance, duration of the view, the scale, nature and duration of the proposal, its overall visual prominence, the context in which it is seen, and the size of the viewing audience.

Whether the proposal is considered appropriate is in part determined by the visual effects on the receiving environment and whether the landscape values attributed to this setting are retained or whether, if adversely affected, effects can be satisfactorily avoided, remedied or mitigated. In general, landscape values experienced visually include rural scenic outlook (views over rural landscape), the legibility, visual coherence of the landscape and the views to the distant mountains.

6.1.1 State Highway 8

Viewpoint Location Photographs 1 – 5 on **GA Sheets 21 – 23** represent the views over the Mackenzie Basin towards the site and the proposed solar farm that are gained from SH8. A visual simulation from Viewpoint Location 3 has been prepared to assist in understanding how visible the proposed solar farm will be from SH8.

These five viewpoint locations representing the view from SH8 are from:

- Viewpoint 1 - Lake Ruataniwha Dam – 7.5kms from the solar farm.
- Viewpoint 2 - Twizel Substation – 7kms from the solar farm.
- Viewpoint 3 - Pukaki Canal Bridge – 12kms from the solar farm
- Viewpoint 4 - Pukaki River Spillway – 13kms from the solar farm
- Viewpoint 5 - Pukaki Moraine – 12.5kms from the solar farm

A high degree of amenity is experienced when travelling north and south, through the Mackenzie Basin along SH8. This is due to the broad, open, and relatively uninterrupted sweeping views over the glacially fed lakes, including the memorable turquoise blue colour, the seasonal presence of flowering lupins, and the predominately dryland grass clad outwash plains contained by the distant ring of steep often snow-capped mountains.

When travelling along the highway the townships of Tekapo and Twizel, the Pukaki Airport, the hydro canals, dam infrastructure and substations, and the National Grid power lines reduce the naturalness of the Mackenzie Basin as perceived by a road user. However, these elements remain subservient to the vastness and openness of the basin that is experienced.

¹⁹ ‘Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines’. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022. Page 135.

Extent of Visibility and Visual Effects

The northern edge of the solar farm standing 1.5 – 2.2m tall will be seen at a distance of 7.5 to 13kms away and in all situations on the far side of foreground and midground vegetation and/or rolling topography. When travelling at 100km/h along the state highway the solar farm will appear as a very thin sliver of solar panels which will be difficult to distinguish and therefore will not be a prominent element.

Glint or glare will not highlight the visibility of the panels from the road. This is because the site slopes away from the highway, and the panels tilt following the movement of the sun in which any reflectance is shone back at the source, being the sun. This is unlike a static solar panel, in which glint and glare effects may occur in the morning and evening when the sun's rays can 'skim' across the panels affecting a receptor on the opposite side of the source.

Due to the solar farm being difficult to see from SH8 and glint and glare not being of concern, it will not detract from the current outlook and amenity that a road user currently experiences. Therefore, it will have a **no to a very low degree** of adverse visual effects.

6.1.2

Alps 2 Ocean Trail

Viewpoint Location Photographs 6 and 7 on **GA Sheet 24** represent the views over the Mackenzie Basin towards the site and the proposed solar farm when travelling south along the Alps 2 Ocean trail. For reference, most people travelling the entire length of the Alps 2 Ocean trail travel in this direction. Additionally, a visual simulation from Viewpoint Location 7 (the closer of the two locations) has been prepared to assist in understanding how visible the proposed solar farm will be from this stretch of trail.

A description of how visible the solar farm will be from these two viewpoint locations representing the view from this relevant stretch of the Alps to Ocean trail is below.

- Viewpoint 6 - Pukaki Canal Road – 12.5kms from the solar farm.
- Viewpoint 7 - Pukaki / Twizel Airport – 7.3kms from the solar farm.

Similar to a SH8 road user, a high degree of amenity is experienced when travelling southeast, through the Mackenzie Basin along the Alps 2 Ocean Trail. This is due to the broad, open, and relatively uninterrupted sweeping views over Lake Pukaki's memorable turquoise blue colour, and the predominately dryland grass clad outwash plains contained by the steep enclosing mountain slopes.

When travelling along the trail, Twizel township, the hydro canals, power and sub stations and the National Grid transmission lines reduce the perceived naturalness of the Mackenzie Basin. However, they also contribute to a trail user's understanding of the power generating landscape in which they are located. However, these elements remain subservient to the vastness and openness of the basin that is experienced.

Extent of Visibility and Visual Effects

The solar farm will be visible to a similar extent as experienced from SH8. The northern edge of the solar farm standing 1.5 – 2.2m tall will be seen at a distance of 7.3 to 12.5kms away and will be seen on the far side of an existing shelterbelt in the midground of the view which screens approximately half of it. When travelling along this gravel trail, at 20 – 40km/h the very thin sliver of solar panels will be difficult to distinguish and therefore will not be a prominent element in this landscape.

Similar to the above, as the site slopes away from a trail user, glint or glare will not highlight the visibility of the panels or add to the potential degree of adverse visual effects.

Due to the solar farm being difficult to see from this stretch of trail and glint and glare not being of concern, it will not detract from the current outlook and amenity that a trail user currently experiences. Therefore, it will have a **no to a very low degree** of adverse visual effects.

6.1.3

McAughtries Road

Viewpoint Location Photographs 8 – 10 on **GA Sheets 25 – 26** represent the views over the Ōhau Canal towards the site and the proposed solar farm that are gained from McAughtries Road. Visual simulations from Viewpoint Location 8 and 9 have been prepared to assist in understanding how visible the proposed solar farm will be from this road.

These three viewpoint locations representing the view from McAughtries are from:

- Viewpoint 8 - Alongside the Canal – 1.2kms from the solar farm.
- Viewpoint 9 - Immediately Upstream of Ōhau C Power Station – 1.0km from the solar farm.
- Viewpoint 10 - Downstream of Ōhau C Power Station within close proximity of Lake Benmore Ōhau C Campground and its associated boat ramp – 1.0km from the solar farm.

McAughtries Road is not a public road as it is located within a private parcel of land associated with the Ōhau Canal which is owned by Meridian Energy Ltd. However, this road appears and is publicly accessible as it has a street sign and does not have any gates at its access point off SH8 to deter the public. Also, it provides access the only vehicle access to Falstone Road (a public road), and Lake Benmore - Ōhau C, Benmore Views and Falston Campgrounds. Therefore, for the purpose of this assessment is considered a public place.

A high degree of amenity is experienced when travelling south along McAughtries Road, alongside the Ōhau Canal. This is due to the broad, open, and relatively uninterrupted views over the Mackenzie Basin, including the tranquil and reflective Ōhau Canal, albeit a man-made structure all of which is contained by the steep and enclosing mountain backdrop of the Grampian Mountains and Kirkliston Range.

When travelling along McAughtries Road, the nearby Twizel township, the hydro canal and the two large power stations, dam infrastructure and associated substations, and the National Grid transmission lines contribute to the power generating landscape in which they are located and reduce the perceived naturalness of the Mackenzie Basin. However, these elements remain subservient to the vastness and openness of the basin that is experienced. Also, the open and irrigated paddock land immediately west of McAughtries Road and the verdant green and intensively managed grass within the site does not contribute to dryland land cover and the perceptual values of the ONL.

Extent of Visibility and Visual Effects - Viewpoint 8 and 9

Firstly, the proposed solar farm will be most readily visible from the upper stretch of McAughtries Road, north of the Ōhau C Power Station represented by Viewpoint Locations 8 and 9 when compared with the remainder of this road. This is because this stretch of road is elevated above the site allowing clear views over parts of the solar farm. Also, because this stretch of road is more frequented by the public when compared with the top of Ben Ōhau, the Benmore Range and the gravel track around the perimeter of the site.

The expansiveness of the solar farm and the amount of built form it will introduce to the landscape will draw the eye and a road users' attention away from the wider basin. It will also reduce the perceived naturalness of the basin from this stretch of road, which will adversely affect the visual amenity that a road user currently experiences. Albeit, the naturalness within the site has already been modified by intensive cropping which has reduced the naturalness of the site.

A road user will also notice the extensive native revegetation around the perimeter of the solar farm, which varies between 20m and approximately 200m wide, but mostly 70m – 100m wide. This native vegetation will positively contribute to the perceived naturalness of the basin, will visually highlight the edges of the outwash plain and in doing so will visually contain the solar farm to this defined area. As such, this 89ha area of native vegetation will be seen as contributing to the naturalness of the basin and will assist with offsetting the potential adverse visual effects.

The low-lying nature of the solar panels means that the entire solar farm will not be seen from any one vantage point, and in most instances will appear as a thin sliver of development on this outwash plain. Regarding this the solar farm will not interfere with views over the site of the wider Mackenzie Basin and the surrounding mountains, to the point that the willow trees that line the Pukaki / Tekapo Rivers are seen. Additionally, all associated structures will be placed, and in some instances partly buried to stand no taller than the panels, so the solar panels assist in screening them from view. The purpose of this is to reduce potential visual clutter that may result from these associated structures and water tanks.

The solar farm will only form part of the view from this road, and it will not interrupt the view to the south or west towards Lake Benmore or the Benmore Range. Also, the extent of the solar farm is well contained to this outwash plain, and therefore it will not be perceived as expanding beyond the site, to the east, west and south, being the more visible part of the farm.

At a wider scale, the proposal will be seen alongside the Ōhau Hydro Canal, its associated power stations dams and substations, an array of National Grid transmission lines extending across the basin and Lake Benmore, being Aotearoa New Zealand's largest dammed lake. These power generating elements, along with the associated knowledge of Mackenzie Basin being one of the sunniest locations in the country will visually assist with contextualising the solar farm in this location at a national level. This will assist with reducing the degree of potential adverse visual effects.

Overall, the proposed solar farm will have a **moderate degree** of adverse visual effects on road users travelling along the upper stretch of McAughtries Road.

Extent of Visibility and Visual Effects - Viewpoint 10

When seen from the lower stretch of McAughtries Road, represented by Viewpoint Location 10, the site is predominately screened by willows and other mature trees that line Lake Benmore. This vegetation cannot be entirely relied upon for screening purposes as it is outside the site, in which it may be removed in the future. However, clearing these trees and their seed source along Lake Benmore and the four rivers that feed into the lake would be a significant undertaking that may not realistically occur. If this were to occur though, it is likely to happen once the landscape mitigation vegetation has matured, which will visually screen the solar farm. Therefore, the proposed solar farm **will not result in adverse visual effects** when experienced from the lower stretch of McAughtries Road.

In addition to this this, the Lake Benmore Ōhau C Campground is located at the same elevation as this stretch of road, being some 300m away from this viewpoint photo. Based on the above, the proposal will not be seen from Lake Benmore Ōhau C Campground.

6.1.4

Falston Road

Viewpoint Location Photographs 11 – 13 on **GA Sheets 27 – 28** represent the views over Lake Benmore towards the site and the proposed solar farm that are gained when travelling north along Falston Road. This stretch of road is relatively flat, therefore a visual simulation from Viewpoint Location 12 has been prepared to assist in understanding how visible the proposed solar farm will be from this road.

These three viewpoint locations representing the view from McAughtries are from:

- Viewpoint 11 - McAughtries Road and Falston Road Intersection – 1.2kms from the solar farm.
- Viewpoint 12 - 45 Degree Corner along Falston Road – 1.4kms from the solar farm.
- Viewpoint 13 - Falston Road North of Shelterbelt – 1.9kms from the solar farm.

Falston Road is accessed off the southern end of McAughtries Road and provides access to Benmore Views and Falston Campgrounds, and Peak Valley Station.

A high degree of amenity is experienced when travelling north along Falston Road, alongside Lake Benmore. This is due to the lakeside setting, including the boating activities that take place on its surface and the sense of openness of the Mackenzie Basin provided by distant and enclosing mountain backdrop, including views to Aoraki Mount Cook.

Similar to when travelling along McAughtries Road, the nearby hydro canal, the Ōhau C Power Station and the National Grid transmission lines contribute to the power generating landscape in which a road user is located and reduce the perceived naturalness of the Mackenzie Basin. However, these elements remain subservient to the vastness and openness of the basin and the amenity provided by the lake.

Extent of Visibility and Visual Effects

The very southern edge of the site is seen, with the majority of the site not being seen due to lower down viewing angle.

As illustrated on Visual Simulation 12 – Year 2 (prior to mitigation vegetation maturing), the very southern extent of the solar farm will be seen. As it is seen from a relatively close location, the rows of solar tables extending north to south will be recognisable. The size and extent of the solar farm will not be perceived from this location as a road user is situated at a lower elevation to the site, which assists with mitigating the potential adverse effects. Prior to the proposed vegetation maturing, the solar farm will be seen with a midground landform backdrop and the distant mountains. Therefore, it will not be seen on skyline, which reduces its potential prominence. Also, similar to all other viewpoints, the low-lying nature of the solar farm will not interfere / screen the views to the surrounding mountains, therefore it will impact on these views or reduce to the perceived vastness of the Mackenzie Basin.

The proposed mitigation vegetation along the southern boundary of the site is estimated to reach approximately 3m tall after five years of growth. This screening vegetation will incrementally screen the lower parts of the solar farm as it matures and when 3m tall will screen the solar farm from view.

The proposed native shrub vegetation will appear as a relatively low-lying line of vegetation on the edge of the terrace, alongside the large swathes of mature vegetation at the northern edge of Lake Benmore and the confluence of the Ōhau and Tekapo Rivers. This existing mature vegetation will assist with blending the proposed vegetation into this view, to the point that it will not appear prominent or out of place.

As mentioned, the applicant wants to work with Council and Department of Conservation (**DoC**) to re-establish native vegetation on the scarp face, including where some four-wheel drive tracks are located. If this does occur, this vegetation will remedy the areas of modified soil and will assist in protecting the existing soil structure from further erosions. In doing so, the vegetated escarpment will positively contribute to the amenity experienced from Falston Road.

In addition to the above, the topography surrounding the location of the Benmore Views and Falston Campgrounds and internal vegetation assists in screening the proposed solar farm from these locations. Therefore, once the mitigation vegetation has matured, the potential views to the solar farm that may be gained will be screened from view.

Overall, the proposed solar farm will have a **low to low-moderate degree of temporary adverse visual effects** prior to the mitigation vegetation reaching 3m tall. **Once screened**, the solar farm and mitigation vegetation **will not result in adverse visual effects**.

6.1.5

Haldon Road

Viewpoint Location Photographs 14 and 15 on **GA Sheet 29** represents the views over the 'South Basin' towards the site and the proposed solar farm, Lake Benmore and the Benmore Range that are gained when travelling west along Haldon Road.

A visual simulation from Viewpoint Location 16, located along Haldon Arm Road, which is closer to the site than Haldon Road, has been prepared to assist in understanding how visible the proposed solar farm will be from both of these roads.

The two viewpoint locations that represent the view from the southern end of Haldon Road, south of Little Pass are from:

- Viewpoint 14 - West of Little Pass – 9.8kms from the solar farm.
- Viewpoint 15 – The intersection of Haldon and Haldon Arm Road – 6.3kms from the solar farm.

Haldon Road is a relatively narrow gravel road that is accessed off Dog Kennel Corner as a road user enters the Mackenzie Basin from the east, via Burkes Pass. It is approximately 40kms long, prior to reaching Haldon Arm Road, and includes travelling over Little Pass where views over the South Basin are first gained.

A moderate-high to high degree of amenity is experienced when traveling along Haldon Road. The higher degree of amenity is gained when traveling along the edge of the 'East Basin' and 'South Basin' due to the broad, open, and relatively uninterrupted sweeping views over the predominately dryland grass clad outwash plains and views to the distant and enclosing mountains. This amenity is reduced when travelling over Little Pass, including to its north, due to the enclosed nature of this area and its intensively cropped land cover.

Extent of Visibility and Visual Effects

The site and proposed solar farm are not seen from the 35km stretch of Haldon Road north of Little Pass.

Prior to the proposed mitigation vegetation maturing, the proposed solar farm will be very difficult to see when travelling south along the southern 5km stretch of this road. This is because it will be seen at a distance of 6 – 10kms away, where a road user is at a very similar elevation to the site in which the solar farm will be seen as a dark and very thin sliver or line on the outwash plain. This dark line of development will also be broken up by existing vegetation located along the adjacent rivers, that reduces the amount of built form that is potentially seen and further reduces its prominence.

Due to the difficulty to see the solar farm from this location, albeit being theoretically visible, the current views and the amenity provided by the broad, open, and relatively uninterrupted sweeping views over the predominately dryland grass clad outwash plains and the views to the distant and enclosing mountains will remain.

The solar farm will not be seen once the proposed mitigation vegetation has matured.

Overall, the proposed solar farm will have a **very low to low degree** of adverse visual effects on a road user of Haldon Road. **Once screened**, the solar farm and mitigation vegetation **will not result in adverse visual effects**.

6.1.6

Haldon Arm Road

Viewpoint Location Photographs 16 and 17 on **GA Sheet 30** represents the views over the 'South Basin' towards the site and the proposed solar farm, small parts of Lake Benmore, the Benmore Range and the southern alps that are gained when travelling west along Haldon Arm Road.

A visual simulation from Viewpoint Location 16 has been prepared to assist in understanding how visible the proposed solar farm will be from this road.

The two viewpoint locations that represent the view from Haldon Arm Road are from:

- Viewpoint 16 – Dryland Outwash Plain – 3.3kms from the solar farm.
- Viewpoint 17 - Tekapo River Terrace Edge – 2.2kms from the solar farm.

Haldon Arm Road and the amenity experienced when travelling along it is very similar to the southern end of Haldon Road, being of a high degree.

Extent of Visibility and Visual Effects

Similar to Haldon Road, prior to the mitigation vegetation maturing the solar farm will be seen as a dark and very thin sliver or line on the outwash plain. This thin sliver of visible built form is broken up by the existing vegetation located along the adjacent rivers, which reduces the amount of built form that is potentially seen and further reduces its prominence. Its prominence is also further reduced by the dark colouring of these trees as at times, the thin dark sliver of solar tables, including afternoon shading will render sections of the solar farm difficult to distinguish.

Due to the difficulty to see the solar farm from this middle stretch of Haldon Arm Road, the current views and the amenity provided by the broad, open, and relatively uninterrupted sweeping views over the predominately dryland grass clad outwash plains and the views to the distant and enclosing mountains will remain.

As a road user gets closer the site, the less elevated the road is and subsequently the less visible the site is. This is because the midground vegetation along the Tekapo River effectively screens the solar farm from view. The solar farm is also entirely screened from view by the vegetation that surrounds the stretch of Haldon Arm Road that descends the scarp face to Haldon Arm Campground. Regarding this it will not be seen from the Haldon Arm Campground.

Once the proposed mitigation vegetation has matured the solar farm will not be seen.

Overall, the proposed solar farm will have a **low degree** of adverse visual effects on a road user travelling along the central stretch of Haldon Arm Road. As they travel further west, these adverse effects reduce to **very low**. **Once screened**, the solar farm and mitigation vegetation **will not result in adverse visual effects**.

6.1.7

Pukaki, Tekapo and Ōhau Rivers

A network of gravel four-wheel drive tracks are located alongside both sides of the Pukaki and Tekapo Rivers, refer to Viewpoint Location photographs 18 – 21, on **GA Sheets 31 - 32** and along the true left bank of the Ōhau River. These roughly formed tracks are not entirely within public land as the Tekapo River and head of Pukaki River are within land parcels owned by Meridian Energy, albeit they are accessible to the public. Also, at times the gravel tracks sit within the privately owned Stations. Due to this it is likely that it is a relatively small user group who uses these tracks as they are not public places and are not advertised by DoC²⁰ as a place for four-wheel driving.

The amenity experienced when travelling along these four-wheel drive tracks is very similar to the more distant part of Haldon Arm Road, being of a high degree.

Extent of Visibility and Visual Effects

The majority of these four-wheel drive tracks are located alongside the braided rivers, on the gravel riverbed and beside their willow lined banks. In most instances these four-wheel drive tracks are situated where they are at a lower elevation to the site where topography screens the solar farm from view.

The exception to this, is the 17km gravel track located along the true right bank of the Pukaki River, with the southern 6.5kms adjacent to the sites eastern and southern boundaries.

When travelling south towards the site, from the initial 8.5kms of track, the proposed solar farm and juvenile mitigation vegetation will appear as a dark line in the midground of the view, similar to the distant locations along the state highway and the Alps to Ocean Trail. At this distance the solar farm will not be a prominent element in this landscape and will have a **very low - low degree** of effect on the amenity of a four-wheel drive track user.

When traveling along the remaining 8.5kms of track, including the 6.3kms of track adjacent to the site and prior to the proposed vegetation maturing, the solar farm will be a noticeable element within the landscape. In particular, when adjacent to the site, it will be seen at approximately 100m – 200m away and will be seen on the far side of the native mitigation vegetation that will cover this entire 100m – 200m area.

The solar farm and native planting will draw the eye and will be visually prominent due to its size, scale and the proximity it is seen from. In doing so it will detract from the current open character that is afforded by the pastoral use of the site and how this contributes to the openness of the South Basin area within the Mackenzie Basin. However, the low-lying nature of the solar farm, which is 1.5m tall (below eye level) it will not interfere / screen the views to the Benmore Range to the west or the surrounding mountains. As such, the expansiveness of the site will continue to be perceived, and it will have little impact on the views to the enclosing mountains.

As the proposed mitigation planting matures, the solar farm will become more difficult to see, with the majority of the solar farm being screened from view when the mitigation vegetation is more than 2.5m tall. In the mid to long term, only the north-west corner of the solar farm may be seen when travelling from south along this gravel four-wheel drive track, which will be seen at more than 1.8kms away when travelling alongside Bendrose Station. In the mid to long term, at this distance, the north-west corner of the solar farm will be difficult to distinguish and when seen will form a very small part of the overall view.

²⁰ <https://www.doc.govt.nz/globalassets/documents/parks-and-recreation/activity-finder/four-wheel-driving/4wd-in-mackenzie-waitaki.pdf>

Overall, the proposed solar farm will have a **moderate degree of temporary adverse visual effects** when seen from the nearby stretch of the four-wheel drive track. As the proposed mitigation planting matures these adverse effects will reduce and **once screened**, the solar farm and mitigation vegetation **will no to a very low degree of adverse visual effects**.

6.1.8 *Lake Benmore*

Visual Simulations 12 on Falston Road and 25 from the surface of the lake assists with understanding how visible the proposed solar farm and the mitigation vegetation will be at years 2 and 5.

Visual Simulation 25 has been taken from the centre of the lake, approximately 3kms from the site.

A high degree of amenity is experienced when on the surface of Lake Benmore. This is due to the lakes setting by the open mountainside to the east and the Benmore Range enclosing the lake and the long ranging views to the Southern Alps and Aoraki Mt Cook to the north. The sense of openness of the Mackenzie Basin is perceived and contributes to a lake users' amenity by the distance at which the mountains to the north are seen.

Extent of Visibility and Visual Effects

As illustrated on Visual Simulation 25 – Year 2, the proposed mitigation vegetation will screen the majority of the solar farm. There are only a few instances where the panels will be able to be seen above this vegetation. At this distance, it will be difficult to distinguish this development. Once the proposed vegetation matures, it will screen the entire solar farm from view, as illustrated on Visual Simulation 25 – Year 5.

Overall, the proposed solar farm will have a **very low degree of temporary adverse visual effects** prior to the mitigation vegetation reaching 3m tall. **Once screened**, the solar farm and mitigation vegetation **will not result in adverse visual effects**.

6.1.9 *Ben Ōhau – Greta Track*

The Greta Track is a 16km loop track providing access to the top of Ben Ōhau (1522masl), on the northern side of Lake Ōhau. This track is used by people walking (6-7 hours) and mountain biking (4-5 hours).²¹

There is no firm data on the number of people who walk or cycle this trail. However, when comparing it to other nearby trails, Strava heat map²² illustrates it as being used half as much as the Alps to Ocean Trail, more similar to the number of people walking the Te Araroa Trail west of Lake Ōhau.

A high degree of amenity is experienced from the top of Ben Ōhau, including the ridgeline that the Greta Track extends along. This is due to the elevated and expansive views gained over the South Basin within the Mackenzie Basin, including Twizel, Lake Ruataniwha, the canal system, Lake Ōhau and the open plains within the Waitaki District. All of which is visually enclosed by the distant Mountain Ranges.

Extent of Visibility and Visual Effects

²¹<https://www.doc.govt.nz/parks-and-recreation/places-to-go/canterbury/places/ruataniwha-conservation-park/things-to-do/tracks/greta-track/>

²² <https://www.strava.com/heatmap#12.19/169.95178/-44.24283/hot/all>

Visual Simulation 23 is taken from the eastern and elevated end of the Greta Track, where a trail user ascending the gully reaches the ridgeline and is able to appreciate the view. This visual simulation illustrates that the majority of the solar farm will be seen from this elevated point along the trail. Visibility of the southern half of the solar farm becomes screened from view as a trail user ascends the track to the west toward the Ben Ōhau Peak, in which some foreground screening is also afforded by adjacent topography. Only the northern half of the solar farm is visible prior to going around the peak of Ben Ōhau. The solar farm is not seen once beyond this approximately 3km stretch of trail.

When seen at 20.5kms away, the solar farm will replace the verdant green grass within the site and appear as a large dark rectangular object / singular mass sitting on top of the landscape. This colour change is apparent on Visual Simulation 23, when comparing it to the pivot irrigated circle within the site. Regarding this, the solar farm will not result in a loss of dryland grass colour due to the cropping activities that it will replace. The solar farms size and extent will draw the eye when facing east. However, it will form a relatively small part of the overall view gained to the southeast from this trail. Also, it will not impact on the views gained to the southwest or west, which are as memorable.

Similar to most other surrounding public places, the proposal will be seen alongside the hydro power scheme, and the National Grid transmission lines extending across the basin. These power generating elements, along with the associated knowledge of Mackenzie Basin being one of the sunniest locations in the country visually assist with contextualising the solar farm in this location at a national level.

The key mitigation factors that reduce the potential degree of adverse visual effects resulting from the solar farm are the modest number of people who gain this view, distance in which the solar farm is seen, the solar farm forming a relatively small part of the overall view, it being seen from short stretch of the overall trail, and it being seen in conjunction with the other large scale hydro power scheme.

Overall, the proposed solar farm will have a **moderate degree** of adverse visual effects when seen from this elevated 3km stretch of Greta Track situated on Ben Ōhau.

6.1.10 ***Benmore Range Easement Track***

The Benmore Range Easement Track, accessed south of the Wairepo Arm provides access up and along the Benmore Range ridgeline to 1756masl. The below assessment from this track is based on desktop research and on-site investigations, but not first-hand experience of the trail.

Information found on the DoC website describe this track as difficult, infrequently used and is not listed on any DoC brochures as an advertised walk to do. Information regarding Benmore Range Easement Track appears relatively limited. Information on Strava and Strava Heat Map illustrates that less than 10 people have recorded their use of the trail, and does not show up as a 'Strava Segment'²³ being a common way to illustrate a popular track.

Similar to the elevated view from Ben Ōhau, a high degree of amenity is experienced from the elevated ridgeline along the Benmore Range. This is due to the elevated and expansive views gained over the majority of the Mackenzie Basin and part of open plains within the Waitaki District, including Lake Ōhau, straight down Lake Pukaki to Aoraki Mt Cook, Lake Tekapo, Lake Benmore, Twizel township and the majority of the canal system and its hydro power scheme, Tekapo, Pukaki, Twizel

²³ www.strava.com

and Ōhau Rivers, and the outwash plains they separate. All of which is visually enclosed by the surrounding mountain ranges.

Extent of Visibility and Visual Effects

The proposed 670ha solar farm will be clearly seen at the toe of the mountainside and at a distance of approximately 5kms from a relatively small part of the elevated stretch of the Benmore Range Easement Track.

Similar to the view from Ben Ōhau, the solar farm will replace the verdant green grass within the site and appear as a large, dark rectangular object / singular mass on the landscape. It will not result in a loss of dryland grass colour due to the cropping activities that it will replace. However, unlike the distance views from the Greta Track, in this instance, as it is seen from closer proximity a person will understand the more nuanced details and layout of the solar farm, including the 89ha of native revegetation.

The size and extent of built form will draw the eye when facing east and downwards in which it will detract from the open character of the Mackenzie Basin. However, its location in this view, being at the toe of the mountainside assists in mitigating its potential effects. This is because a person will easily look over the solar farm when enjoying the more broad, open and distant views to the north and east over the basin.

When seen at the toe of the slope, the solar farm will be seen alongside the hydro power scheme, with the majority of the canals, dams and power generating infrastructure being seen from this elevated area. extending across the basin. When seeing the proposal alongside these power generating elements, along with the associated knowledge of Mackenzie Basin being one of the sunniest locations in the country will visually assist with contextualising the solar farm in this location at a national level.

When taking in the overall outlook, from this track, the solar farm will not form part of the view when facing west or south towards Lake Ōhau, Benmore Dam and Otematata.

Overall, the proposed solar farm will have a **moderate degree** of adverse visual effects when seen from the elevated section along the Benmore Range Easement Track.

6.1.11

Summary of Visual Effects

To summarise the above, the visual effects resulting from the proposed mine whilst it is operating are as follows:

- State Highway 8: **Nil to a very low degree** of adverse visual effects.
- The Alps to Ocean Trail: **Nil to a very low degree** of adverse visual effects.
- McAughtries Road – Upper Stretch: A **moderate degree** of adverse visual effects.
- McAughtries Road – Lower Stretch: **No** adverse visual effects.
- Falston Road - A **low to low-moderate degree** of temporary adverse visual effects. Once screened, the proposal will **not result in adverse visual effects**.
- Haldon Road - A **very low to low degree** of adverse visual effects. Once screened, the proposal will **not result in adverse visual effects**.
- Haldon Arm Road - A **very low to low degree** of adverse visual effects. Once screened, the proposal will **not result in adverse visual effects**.

- Pukaki, Tekapo, Ōhau Rivers – A **very low to moderate degree** of temporary adverse visual effects. Once screened, the proposal will **no to a very low degree of adverse visual effects**.
- Lake Benmore - A **very low degree** of temporary adverse visual effects. Once screened, the proposal will **not result in adverse visual effects**.
- Ben Ōhau - Greta Track - A **moderate degree** of adverse visual effects.
- Benmore Range Easement Track - A **moderate degree** of adverse visual effects.

6.2 Assessment of Landscape Effects

“A landscape effect is an outcome for a landscape value. ... Change itself is not an effect: landscapes change constantly. It is the implications of change on landscape values that is relevant.”²⁴

6.2.1 Physical Effects

The proposed solar farm is situated over 670ha of land within the Mackenzie Basin and will inevitably introduce elements of built form within the site replacing the rural character within the site with a semi-industrial and renewable power generation character.

The solar farm will be situated on the relatively flat topography of the outwash plain. Earthworks associated with the solar farm will consist of creating new access tracks throughout the site, placing cables underground in which the land cover will be immediately reinstated, and pile driving the supporting pole structures of each solar table into the ground. These changes to landform are relatively small, to the point that the legibility of the outwash plain will not be affected by these earthworks. Also, when seen, the low-lying nature of the solar farm will be in keeping with the outwash plains flat topography, therefore the landforms legibility will remain evident and intact from beyond the site.

The solar farm, as its name suggests, is a method of farming a readily available resource within the Mackenzie Basin being the 5th sunniest place within Aotearoa New Zealand²⁵. Much like the current agricultural land use of the site and neighbouring station, it will specialise in its task. Similar to a farm and the way paddocks and stock-lanes are carefully arranged, the solar farm has been arranged to optimise the best yield from the site. The grid like pattern is not a natural pattern, however it is consistent with the way in which the agricultural land cover has been manipulated within the site to maximise productivity.

The point of difference with this proposed solar farm, unlike other solar farms in Aotearoa New Zealand, is it will reduce the amount of stock grazing within the site, with the long-term task of re-establishing native vegetation throughout the entire site. There are a number of positives associated with this. With regard to landscape character, the current greening effect that the intensive agricultural land use has had on the Mackenzie Basin will be remedied. Furthermore, the solar farm will not compromise the ability to undertake agricultural or other land management activities on the neighbouring station or on the banks of the rivers.

The proposal, along with the EEP that will be prepared and implemented by Wildlands will include the planting native vegetation within 89ha, approximately 10% of the entire site. This vegetation will be located around the perimeter of the site where the ecological values of the site have been less

²⁴ ‘Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines’. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022. Page 135

²⁵ https://niwa.co.nz/sites/niwa.co.nz/files/2022_Annual_Climate_Summary_FINAL_v3.pdf

disturbed by the current agricultural activities. Additionally, the EEP will include a strategy to maintain the landcover under the solar panels with the long-term intent to re-establish native vegetation throughout this area.

The Wildlands Report has assessed the proposal with and without the proposed EEP and has concluded that *“Accurate prediction of the levels of effect with mitigation in place is difficult, but the table [Table 7] gives a broad picture of how effects can be reduced significantly with mitigation measures in place.*

*There are numerous ways by which indigenous biodiversity could be adversely affected and the ecological effects of this development could be substantial if the project is not designed appropriately...But... most of these impacts can be avoided or greatly reduced if the project is implemented thoughtfully.”*²⁶

Additionally, that *“The site would benefit from ecological enhancement, as most of it is currently highly disturbed and cultivated. Without development, it is likely to remain in a degraded state. However, development of a solar farm provides an opportunity to enhance the ecosystem and restore parts of it to be more representative of an indigenous-dominant outwash plain. The creation of shelter and basking areas for invertebrates is likely to result from the proposed development, which will provide limited benefits for some invertebrate species.*

*The applicant's intent is to design the project to avoid adverse ecological effects, and to achieve a net gain for local indigenous biodiversity. Sensitive design of the solar farm, combined with appropriate ecological management and enhancement, can achieve positive benefits for indigenous biodiversity at this site.”*²⁷

Regarding this, the EEP, which will be prepared following the granting of this consent will positively contribute to indigenous biodiversity, ecology, ecosystems and overall natural character of the site and its surrounds. These positive effects will assist in offsetting the potential adverse effects on ONL values of the ‘Southern Basin’ within the Mackenzie Basin.

One of the key characteristics of the Mackenzie Basin’s rural landscapes is its open character which stems from its openness, vastness, lack of built form which is mostly clustered in discreet areas and in part due to the prevalence of large farms / stations and landholdings.

Within the receiving environment, the amount of built form will reduce the open character of the ‘South Basin’²⁸ area, which is approximately 21,500ha in area. The 670ha solar farm will be situated on approximately 2.8% of land. Even though the solar farm remains large, this is a relatively small part of the receiving environment. Also, the reduction in open character will not impact on the wider basin as it is concentrated to this area and as assessed above, it is difficult to distinguish at best, from most public places beyond 5kms away, including the state highway.

²⁶ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Page 41.

²⁷ Wildlands Ecology and Restoration Ltd. Assessment of Ecological Effects for the Proposed Ōhau C Solar Farm Between the Lower Reaches of the Tekapo and Twizel Rivers, Mackenzie District. May 2023. Pages 42 and 43.

²⁸ Graham Densem Landscape Architects Ltd. November 2007. The Mackenzie Basin Landscape Study: Character and Capacities. Map 4 - Page 16.

6.2.2 *Associative Effects*

The Waitaki Hydro Scheme is the largest hydro power scheme in Aotearoa New Zealand which contributes to the associative values and character of the Mackenzie Basin.

The solar farm will introduce another renewable energy power source to this landscape. Regarding these associative values and the solar farm being situated in close proximity to the Ōhau Canal, Ōhau C Power Station and alongside Lake Benmore, being the largest manmade lake in Aotearoa New Zealand. Therefore, in this instance, the co-locating of the solar farm within a concentrated part of the existing energy infrastructure within the basin assists in reducing its potential adverse landscape effects.

As mentioned above, the Mackenzie Basin is one of the sunniest places in the country, with over 2,400 hours of bright sunshine every year. Due to the basin's sunny nature and long summer days, a solar farm will be in keeping with this natural resource and these associative values.

At a wider scale, the solar farm will assist in retaining the aesthetic and associated values of the dammed Tekapo, Pukaki, Ōhau, Ruataniwha and Benmore Lakes and their recreational uses. This is because the solar farm will contribute as a daytime power source, relieving the full-time use of the hydro scheme. In doing so, the lake levels will be maintained at a higher level for longer, especially during the dry summer and winter months and during droughts, which are predicted to become more frequent as our climate continues to change.

6.2.3 *Perceptual Effects*

As outlined on Appendix V of the District Plan, the site is within an area of high visual vulnerability, in which it generally has a low capacity to absorb change. This means that any changes to the character of the landscape are likely to be easily noticed and not easily mitigated.

The visibility and resulting adverse visual effects of the proposed solar farm has been assessed above in Section 6.1 of this report. In summary, it will be very difficult to see and will not be prominent from SH8, which is the main tourist road through the basin, and it will be screened by the proposed mitigation vegetation from most other public places. The three places it will be seen from, where it will result in a moderate degree of adverse visual effects is McAughtries Road a no exit road alongside the Ōhau C canal, at a distance of 20.5kms away from the Greta Track on Ben Ōhau and from the relatively used Benmore Range Easement Track.

Regarding this, the proposal, once the mitigation vegetation has matured will be sufficiently screened from all but three public places, consisting of a relatively small viewing audience.

Unlike a dwelling or residential development, large portions of the solar farm, in particular the solar panels will be seen as sitting lightly and just above ground level at 1.5m – 2.2m tall. Within this expansive landscape this is a very low height. When visible, this is highlighted by a person's ability to see across the solar farm and see the existing vegetation on the farm side of the outwash plain, outwash plains on the far side of the site and the surrounding mountains. As such, the solar farm does not interfere with the open and long ranging views over the Mackenzie Basin.

The visible changes arising from the solar farm will result in a change of character within the site, from that of an open rural pastoral character to a predominately semi-industrial and renewable power generation character. In addition to the open character of the site, the site's aesthetic values also stem from its relatively flat topography, and the steep scarp faces that dramatically descend to the adjacent rivers. Because the solar farm sits so low on the site, the visual coherence of this landform will remain intact.

Also, the solar farm will be seen as directly associated with power generation in the fifth sunniest location in Aotearoa New Zealand²⁹. Therefore, the power generation aspect of the solar farm will be perceived as in keeping with the large-scale hydro canals and the radiance of the local.

Based on the above, the proposed solar farm has been located and its associated landscape mitigation has been designed to mitigate its potential visibility from all but three public places. Unavoidably, it will be seen from McAughtries Road, Greta Track and the Benmore Range Easement Track in which its resulting adverse visual effects will be of a **moderate degree**.

Also, once the mitigation vegetation has matured, the proposal will have **no to a very low degree** of adverse visual effects on people travelling / spending time in **all other public places**. This is because the proposal will not be screened from view by the proposed vegetation or will be seen from so far away it will be difficult to distinguish.

6.2.4 *Summary of Landscape Effects*

In summary, the **proposed solar farm by itself**, due to its size and scale will have a **moderate-high** of adverse landscape effects on the Mackenzie Basin's outstanding natural landscape values. **These adverse landscape effects will be lessened** by the proposed landscape mitigation and ecological and biodiversity enhancement activities that will benefit the natural character landscape values of the basin.

Overall, the proposed solar farm and its associated landscape treatment, and ecological and biodiversity enhancement activities will have a **low-moderate to moderate degree** of adverse landscape effects on the Mackenzie Basin's outstanding landscape values.

²⁹ https://niwa.co.nz/sites/niwa.co.nz/files/2022_Annual_Climate_Summary_FINAL_v3.pdf

7 An Assessment Against the Relevant Policy Provisions

7.1 Section 7 – Rural Zone

Rural Objective 3A - Landscape Values

Protection of outstanding landscape values, the natural character of the margins of lakes, rivers and wetlands and of those natural processes and elements which contribute to the District's overall character and amenity.

Rural Policy 3A1 - Important Landscapes And Natural Features

To limit earthworks on steeper slopes, high altitude areas, and on land containing geopreservation sites to enable the landforms and landscape character of these areas to be maintained.

The site does not contain the landscape attributes mentioned in this policy. Therefore, earthworks associated with the solar farm, consisting of farm tracks, and gravel areas around the inverters will have very little impact in the landform or landscape character of the areas.

Earthworks associated with underground wires will be temporary and the land that is disturbed will be reinstated.

The poles holding the solar tables are pile driven into the ground; therefore, they do not alter landform. Also, in the long term, they could be removed without significant impact on the landform.

Rural Policy 3A2 - Scenic Viewing Areas

To limit structures and tall vegetation within scenic viewing areas to enable views of the landscape to be obtained within and from these areas.

The scenic viewing areas are illustrated on the District Planning Maps and described in Appendix J of the District Plan. As described in Section 4 above and assessed in Section 6 above, the site does not form part of or is adjacent to a scenic viewing area. Therefore, it will not interfere with the views gained from these identified areas.

Rural Policy 3A3 - Impacts Of Subdivision Use And Development

Avoid or mitigate the effects of subdivision, uses or development which have the potential to modify or detract from areas with a high degree of naturalness, visibility, aesthetic value, including important landscapes, landforms and other natural features.

The site is within the South Basin area within Mackenzie Basin's ONL, which is an important landscape at a national level.

As described in Section 4 above, the agricultural land use activities within the site and neighbouring blocks of land have reduced the naturalness of the site and the receiving environments key values that contribute to the Basin being an ONL is its openness, and the long open views gained over top of it to the enclosing mountain ranges.

The landscape and visual effects assessment in Section 6 above covers this policy and concludes that the potential adverse effects of the proposed solar farm will be mitigated and offset to a degree where overall its adverse landscape effects will be of a low-moderate to moderate degree.

In particular, the significant amount of native vegetation that will be located on the site, including the long-term reestablishment of native vegetation under the solar panels, which will be actively managed will positively contribute to the natural character of the site and the receiving environment. It will retain the legibility of the outwash plain which is an important landform within the basin. Also, once the proposed vegetation matures, only three viewing audiences, collectively being a small group of audience along McAughtries Road, Greta Track and the Benmore Range Easement Track will be adversely affected to a moderate degree. Beyond these locations all other viewing audiences will be adversely affected to a nil to very low degree.

Rural Policy 3A5 - In Harmony With The Landscape

To encourage the use of guidelines for the siting and design of buildings and structures, tracks, and roads, tree planting, signs and fences.

To encourage the use of an agreed colour palette in the choice of external materials and colours of structures throughout the district, which colours are based on those which appear in the natural surroundings of Twizel, Tekapo and Fairlie.

This policy and the Landscape Guidelines in Appendix K of the District Plan are focused on buildings, rather than solar panels but are relevant to the main control room and inverters.

The proposal will result in one main control room, 82 inverters and 31 water tanks, which are assessed in relation to the Landscape Guidelines in Appendix K below. When assessing these buildings / structures, the solar farm itself has been considered as part of the environment. This is because it alters the appearance of a large part of the immediately surrounding area, and these structures are directly associated with the solar farm, and would not be proposed or developed on their own.

Appendix K – Landscape Guidelines

Siting - The solar farm has been located within the Mackenzie Basin, an area with the fifth highest sunshine hours, situated where it will directly connect into the National Grid transmission lines and will assist with creating a more resilient power network. Rather than solely relying upon the hydro canals which struggle with sourcing water during droughts, something that is likely to occur more often with our ever-changing climate.

The solar farm has been situated and visually screened from most public places where it will only be seen from a McAughtries Road, Greta Track and the Benmore Range Easement Track, as to reduce its potential adverse visual effects, as assessed above. Within the site, the inverters and main control room have been located to reduce their visibility by surrounding them with the solar tables, rather than putting them alongside the gravel access tracks.

Design - The solar tables are a relatively low-lying structure vary in height between 1.5m tall and 2.2m tall, as the angle of the table changes following the sun's movement through the sky. For the most part, the tables will be situated in a more parallel position, at a height of 1.5m which assists in maintaining the long ranging views across the site to the surrounding mountains and other parts of the basin.

Materials and Colour - The colour of the solar infrastructure does not accord with these guidelines. Its dark appearance will assist in reducing its potential prominence, unlike a bright colour.

The external appearance of the inverters and main control room will consist of dark and recessive colours, as to reduce their potential prominence. These dark colours do not suit the regular tussock clad colour of the Mackenzie Basin. However, they will be in keeping and blend with the dark recessive solar panel colours.

Upgrades to access tracks and areas of exposed soil may exacerbate the visibility and visual effects arising from the proposal, although will not be appreciably different to upgrades that may occur if the site is farmed. Furthermore, the site is flat and the existing access tracks with the site are difficult to discern from most surrounding public places. It is proposed that following construction, all areas of disturbed soil, excluding access tracks will be reinstated with native vegetation.

Fences and Power Lines - Security fencing will not accord with these guidelines. However, they will only be seen from a relatively short stretch of the gravel four-wheel drive track that is located immediately east of the site. Once the proposed vegetation matures, this fence will be screened from view.

No powerlines are proposed. This is because the solar farm is well situated so it can connect to the nation grid powerlines that extend north to south through the centre of the site.

Tree Planting - The landscape mitigation plan and the 89ha of vegetation situated around the perimeter of the solar farm will substantially contribute to the enhancement of the ecological and biodiversity values within the Mackenzie Basin. This vegetation will complement the natural landform patterns around the perimeter of the outwash plain and immediately north of Lake Benmore. It will also assist with remedying visual scarring of the scarp face and protecting it from further erosion.

Signs – Small security and health and safety signs will be located on the security fence around the perimeter of the solar farm. When seen in the context of the solar farm and fence, which will only occur from the gravel track around the perimeter of the site, they will have very little impact on the amenity that is experienced.

Rural Objective 3B – Activities in the Mackenzie Basin's outstanding natural landscape

(1) Subject to (2)(a), to protect and enhance the outstanding natural landscape of the Mackenzie Basin subzone in particular the following characteristics and/or values:

- (a) the openness and vastness of the landscape;*
- (b) the tussock grasslands;*
- (c) the lack of houses and other structures;*
- (d) residential development limited to small areas in clusters;*
- (e) the form of the mountains, hills and moraines, encircling and/or located in, the Mackenzie Basin;*
- (f) undeveloped lakesides and State Highway 8 roadside;*

As assessed in Section 6 above, the openness of the site will be reduced due to the size and scale of the solar farm. However, due to the location of the solar farm, its low lying design being some 1.5m – 2.2m above ground level and its visibility being limited to a McLaughtries Road, Greta Track and the Benmore Range Easement Track, the openness and vastness of the Mackenzie Basin when perceived from the surrounding public places will remain largely intact.

The Wildlands Report concludes that the 89ha of native vegetation and the long-term reestablishment of native vegetation under the solar panels will enhance the natural character of the site and the receiving environment.

The proposal will not impact on the areas of undeveloped lakesides or SH8 roadside.

(2) To maintain and develop structures and works for the Waitaki Power Scheme:

(a) within the existing footprints of the Tekapo-Pukaki and Ohau Canal Corridor, the Tekapo, Pukaki and Ohau Rivers, along the existing transmission lines, and in the Crown-owned land containing Lakes Tekapo, Pukaki, Ruataniwha and Ohau and subject only (in respect of landscape values) to the objectives, policies and methods of implementation within Chapter 15 (Utilities) except for management of exotic tree species in respect of which all objective (1) and all implementing policies and methods in this section apply;

(b) elsewhere within the Mackenzie Basin subzone so as to achieve objective (1) above.

The proposal is not directly associated with the Waitaki Power Scheme, but from an energy perspective, the proposed solar farm will benefit the Waitaki Power Scheme as it will reduce its daytime use, therefore retaining higher water levels within the lakes, in particular during drier months and droughts which in turn will maintain their aesthetic values.

Policy 3B2 – Subdivision and Building Development

To ensure adverse effects, including cumulative effects, on the environment of sporadic development and subdivision are avoided or mitigated by:

(1) Managing residential and rural residential subdivision and housing development within defined Farm Base Areas (refer to Policy 3B3);

(2) Enabling farm buildings within Farm Base Areas and in areas of low visual vulnerability subject to bulk and location standards and elsewhere managing them in respect of location and external appearance, size, separation and avoidance of sensitive environments;

(3) Strongly discouraging non-farm buildings elsewhere in the Mackenzie Basin outside of Farm Base areas.

This policy matter is focused on residential and rural residential development and its potential sprawl throughout the district. Therefore, it is not applicable to the proposed solar farm.

Policy 3B3 - Development in Farm Base Areas

(1) Within Farm Base Areas in areas of high visual vulnerability subdivision and development (other than farm buildings) shall maintain or enhance the outstanding natural landscape and other natural values of the Mackenzie Basin by:

(a) Integrating built form and earthworks so that it nestles within the landform and vegetation.

- (b) Planting local native species and/or non-wildling exotic species and managing wilding tree spread.*
 - (c) Maintaining a sense of isolation from other development.*
 - (d) Built development, earthworks and access having a low key rural character in terms of location, layout and development, with particular regard to construction style, materials and detailing.*
 - (e) Mitigating the adverse effects of light spill on the night sky.*
 - (f) Avoiding adverse effects on the natural character and environmental values of waterbodies, groundwater and sites of natural significance.*
 - (g) Installing sustainable systems for water supply, sewage treatment and disposal, stormwater services and access.*
- (2) Subdivision and development (other than farm buildings) in Farm Base Areas which are in areas of low or medium visual vulnerability to development shall:*
- (a) Restrict planting to local native species and/or non-wildling exotic species*
 - (b) Manage exotic wilding tree spread*
 - (c) Maintain a sense of isolation from other development*
 - (d) Mitigate the adverse effects of light spill on the night sky*
 - (e) Avoid adverse effects on the natural character and environmental values of waterbodies, groundwater and sites of natural significance*
 - (f) Install sustainable systems for water supply, sewage treatment and disposal stormwater services and access.*

This policy matter is focused on development within Farm Base Areas. Therefore, it is not applicable to the proposed solar farm.

Policy 3B7 – Views from State Highways and Tourist Roads

- (a) To avoid all buildings and the adverse effects of irrigators in the Scenic Grasslands and the Scenic Viewing Areas;*
- (b) To require buildings to be set back from roads, particularly state highways, and to manage the sensitive location of irrigators to avoid or limit screening of views of the outstanding natural landscape of the Mackenzie Basin;*
- (c) To avoid clearance, pastoral intensification and/or agricultural conversion of Scenic Viewing Areas and Scenic Grasslands;*
- (d) Subject to Policy 3B13, to otherwise minimise the adverse visual effects of irrigation of pasture adjacent to the state highways or tourist roads.*

An assessment of the proposed solar farm as experienced from SH8 is included in Section 6 above. To summarise, the proposed solar farm will be approximately 7 – 14kms away, due to its low-lying nature it will be difficult to distinguish and therefore will not be prominent from the

short stretches of the highway where visibility can be gained. Overall, the proposal will have a **very low to low degree** of adverse visual effects.

Policy 3B8 – Renewable Energy

To recognise and provide for the use and development of renewable energy generation and transmission infrastructure and operations within the footprint of current operations or on land owned by infrastructure operators as at 1 October 2011 while, as far as practicable, avoiding, remedying or mitigating significant adverse effects on the outstanding natural landscape and features of the Mackenzie Basin.

The proposed 420 mega-watt solar farm will provide renewable energy into the national power grid, which is equivalent to powering 75,000 homes. The solar farm is within a property that has a National Grid transmission line extending north to south through its centre, within close proximity of Ōhau C Power Station and is immediately north of Lake Benmore. However, this property was not owned by an infrastructure operator prior to 1 October 2011.

As assessed in Section 6 above, the proposed solar farm will result in adverse landscape effects that are of a **low-moderate to moderate degree**.

Rural Objective 4 - High Country Land

To encourage land use activities which sustain or enhance the soil, water and ecosystem functions and natural values of the high country and which protect the outstanding landscape values of the high country, its indigenous plant cover and those natural processes which contribute to its overall character and amenity.

Rural Policy 4B - Ecosystem Functioning, Natural Character And Open Space Values

Activities should ensure that overall ecosystem functioning, natural character and open space values of the high country are maintained by:

- *Retaining, as far as possible, indigenous vegetation and habitat.*
- *Maintaining natural landforms.*
- *Avoiding, remedying, or mitigating adverse effects on landscape and visual amenity.*

The proposal will enhance the amount of indigenous vegetation within the site. Subsequently, this will increase habitat areas for birds, lizards, and other animals and invertebrates on the outwash plain.

Earthworks associated with the proposal are relatively small in size and scale, in which the outwash plains landform will be maintained. It is proposed to work alongside Council and DoC to establish native vegetation on the scarp face immediately south of the site, to assist with erosion control, as to maintain the landform and further enhance biodiversity values in this area.

The landscape and visual effects have been assessed in Section 6 above. The proposal, where possible will remedy the landcover within the site and mitigate the solar farm, in which overall the proposal will result in a **low-moderate to moderate degree** of adverse landscape and visual effects.

Rural Objective 6 - Rural Amenity and Environmental Quality

A level of rural amenity which is consistent with the range of activities anticipated in rural areas, but which does not create unacceptably unpleasant living or working conditions for the District's residents or visitors, nor a significant deterioration of the quality of the general rural and physical environment.

Nationally and internationally, solar farms of this size and scale are commonly located within rural environments and represent an additional type of production activity that features a grid pattern of built form directly associated with electricity infrastructure. However, unlike farming crops which uses the land and soil for productive use, the proposal uses the sky and climate to produce energy, and in this instance the Mackenzie Basin has the fifth highest sunshine hours in Aotearoa New Zealand.

Unlike a busy housing development, the solar farm will be a relatively static operation with very few people coming and going from the site. Due to this, the proposal will not result in a busy environment, rather it will remain relatively 'quiet' similar to that of the current pastoral use of the site. As assessed above, the solar farm will be seen from a small number of public places. When seen, in particular from the McAughtries Road beside the Ōhau C Power Station where people fish, the static appearance and quiet nature of the solar farm will not result in reverse sensitivity effects on these people, and the current pleasantness will not be affected to a significant degree.

In addition to the above, the solar farm is located away from the urban area of Twizel and SH8 being a relatively busy tourist route, with limited visibility from these public areas, and due to distance will be very difficult to distinguish. Therefore, within the wider context, the proposed solar farm has been located where its potential adverse effects on rural amenity are mitigated by a lack of visibility and being clustered with existing power infrastructure.

7.2

Section 16 – Utilities

Objective 1 - Effect On The Environment

Utilities whose functioning and operation avoid, remedy or mitigate adverse effects on their surrounding environment.

Policies

1 To avoid, remedy or mitigate adverse environmental effects created by the operation of utilities through the application of performance standards to separate incompatible activities, maintain visual amenities, safety, and the quality of the environment.

As assessed in Section 6 above, the proposed solar farm is relatively static with very few people coming and going from the site and will therefore not result in a visually busy environment, like a residential development of this size and scale. Due to this, when experienced from the surrounding public places, its operations will not exacerbate the adverse visual effects.

7.3

Summary

When taken on a balanced approach to all of the above, the proposed solar farm will not be contrary to the above listed landscape related objectives and policies.

8 Conclusion

A 670ha solar farm and 89ha of native vegetation are proposed to be located with Section 3 SO384036. The site is approximately 973ha in area, is accessed via a 7km private gravel farm track off SH8, and immediately north of the confluence of the Ōhau, Twizel and Tekapo Rivers, Lake Benmore and the east of the Ōhau C Power Station.

The proposed solar farm will sit relatively lightly on the site to the point that it does not alter the landform of the outwash plain, therefore maintaining the legibility of this landform.

The size and scale of built form will impact on the open character of the South Basin, which forms part of the Mackenzie Basin which contributes to its unique and outstanding character.

The solar farm will introduce another renewable energy power source to this landscape. At a site-specific level, the solar farm will be located within close proximity of a concentrated area of the existing hydro energy infrastructure. This co-locating will assist in reducing the solar farms potential adverse landscape effects. Additionally, at a national level, the Mackenzie Basin is one of the sunniest places in the country. Due to this, a solar farm will be in keeping with this natural resource and these associative values.

Positive landscape effects resulting from the solar farm include:

- Remedying the greening effect within the site that has resulted from the current intensive agricultural land use activities.
- The significant enhancement of the ecological and biodiversity values within the site, which will also contribute to the landscape values of the Mackenzie Basin.
- Assisting with maintaining the aesthetic and associated values of the hydro lakes including Tekapo, Pukaki, Ōhau, Ruataniwha and Benmore Lakes and their recreational uses.

Regarding visibility and visual effects, the proposed solar farm is well located so it will be difficult to distinguish from SH8, the main tourist route through the Mackenzie Basin. Also, once the mitigation vegetation has matured, the proposal will be very difficult to distinguish from The Alps to Ocean Trail, Falston Road, Haldon Road, Haldon Arm Road, Pukaki, Tekapo, Ōhau Rivers, and Lake Benmore. Once the vegetation has matured, visual effects on people travelling / spending time in these locations will be **nil to a very low degree**.

Unavoidably, the solar farm will be seen from **McAughtries Road, Greta Track** and the **Benmore Range Easement Track** in which its resulting adverse visual effects will be of a **moderate degree**.

Overall, the proposed solar farm and its associated activities will have a **low-moderate to moderate degree** of adverse landscape effects on the Mackenzie Basin's outstanding landscape values.

Addendum Landscape Assessment Report

Proposed Solar Farm
The Point, Mackenzie Basin

30 April 2025



Document Quality Assurance

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1 Introduction

1.1 Purpose and Scope

Rough Milne Mitchell Landscape Architects (**RMM**) prepared a Landscape Assessment Report, including a Graphic Attachment¹, with attached Visual Simulations (prepared by Virtual View Ltd) dated 25 May 2023 (**the Landscape Report**). The Landscape Report assessed the actual and potential landscape and visual effects of 'The Point', a proposed 670ha solar farm located within Section 3 SO384036, Mackenzie Basin (**the Site**), that is approximately 973ha in area. The Landscape Report formed part of Resource Consent Application RC230057 that Mackenzie District Council (**Council**) has publicly notified.²

Since preparing the Landscape Report, several things have happened:

- The internal layout of the solar farm has changed.
- The Substation / Grid Injection Point (**GIP**) now forms part of the proposal, rather than forming a separate proposal.
- Council is currently preparing the Proposed Mackenzie District Plan (**PMDP**) through a rolling District Plan Review process.³ Stages 1 and 2 of this process are fully operative. Therefore, it is appropriate to assess the proposal against both the Operative Mackenzie District Plan (**OMDP**) and PMDP.

Regarding the above, the purpose of this Addendum Landscape Assessment Report (**Addendum Report**) is to:

- Describe and illustrate the changes to the proposed solar farm.
- Assess the actual and potential landscape and visual effects of these changes.
- Assess the updated proposal against the relevant sections in the PMDP.

Attached to this Addendum Report is an updated **Appendix 1** - Graphic Attachment and updated. **Appendix 2** – Visual Simulations. Both depicting the updated proposal.

This Addendum Report, including Appendix 1 and Appendix 2 are to be read alongside the Landscape Report. In doing so, these reports cover off the required assessment of landscape and visual effects and an assessment on natural and physical resources, as required in Schedule 5, Section 7(b) and 7(d) in the Fast Track Approval Act 2024⁴.

¹ Rough Milne Mitchell Landscape Architects Limited. Landscape Assessment Report. Proposed Solar Farm, The Point, Mackenzie Basin. 25 May 2023.

² <https://www.mackenzie.govt.nz/rates-building-and-property/resource-consents-information-and-applications/notified-resource-consents>

³ <https://mackenzie.isoplan.co.nz/review>

⁴ Fast Track Approval Act. Page 140 - 141.

2 Proposal

2.1 Description of the Updated Proposal

2.1.1 Internal Layout

Firstly, the outer extent / perimeter of the solar farm has not changed. Nor has the 69ha of proposed rehabilitation of low-lying native vegetation, the 2.6ha Robusta reserve and the 9.5ha of Native Landscape Mitigation Planting. Total area of planting is 81.1ha. This was incorrectly calculated as 89ha in Section 2 of the Landscape Report.

The updates to the internal layout include:

- Reconfiguring the road layout and reducing the number of roads extending north to south through the site. As a result, the arrangement of solar panels / tables and the inverter locations have changed. The inverters continue to be clustered at road intersections and are in similar locations to the previous design.
- The Substation / GIP has been designed and located towards the centre of the site, immediately east of the 220kV transmission line that passes through the site.

Plans of the updated solar farm layout and Substation / GIP design are illustrated in **Appendix 1**.

2.1.2 Substation / Grid Injection Point

The substation has been designed by Transpower. It will be 99m long x 87m wide, have a footprint of approximately 8,600m² (slightly smaller than two rugby fields) and will consist of:

- A 220kV switch yard. Most of the infrastructure in the switch yard will stand up to 9.2m high. The two gantries, three mono poles with lighting rods will stand up to 22m high.
- A 33kv switchgear building.
- A facilities building.
- A control building.

The three buildings will be 3.2m high and will be finished in the colours black, sandstone grey, gull grey, or similar.

An approximate 2.6m tall security fence will be located around the perimeter of the substation.

3 Relevant Policy Provisions

3.1 Operative Mackenzie District Plan

The Assessment of Environment Effects Report (**AEE**) and subsequently the Landscape Report identified the proposed solar farm as a non-complying activity, because it breached OMDP Rule 3.4.5⁵.

On further analysis, the proposal is a discretionary activity. This is because Section 16 of the OMDP takes precedence over the Rural Zone rules⁶ when assessing utility infrastructure like a large-scale solar farm. Subsequently, resource consent is required under the OMDP as a discretionary activity under Section 16 - Rule 1.5e because solar panels that are part of a renewable generation facility are not specifically listed as permitted or discretionary activities.

The Landscape Report assessed the proposed solar farm against the relevant landscape-related objectives and policies in the Section 7 and 16 of the OMDP. That assessment is still relevant, despite the changes to the proposed solar farm, and is not repeated in this addendum.

3.2 Proposed Mackenzie District Plan

As mentioned, Council is currently preparing the PMDP through a rolling District Plan Review process. Currently, Stage 1 – Strategic Chapters and Stage 2 – Spatial Plans Implementation and Light are fully operative.⁷

Part 2 – Strategic Direction for the Natural Environment recognises that “*The District contains many natural resources of importance. These include (but are not limited to): resources valued by mana whenua for mahika kai; the Aoraki Mackenzie International Dark Sky Reserve; outstanding natural features and landscapes; indigenous biodiversity; renewable energy resources and the District’s wetlands, lakes and rivers and their margins.*”

Regarding this, the PMDP recognises the importance of protecting these values as they contribute to the “*District character and identity and its desirability as a place to live in and visit as they contribute to the community’s environmental, social, cultural and economic well-being.*” This is achieved through the Natural Environment Objective, which states (underlined for emphasis):

Chapter: NE – Natural Environment

NE-O1 Natural Environment

The values of the natural environment, including those that make the District unique, contribute to its character, identity and well-being, or have significant or outstanding intrinsic values, are recognised and provided for, and where appropriate protected and enhanced. This includes, but is not limited to, values associated with the following important natural resources:

⁵ Section 7, Rural Rules – Page 7-13. *Non-farm buildings and extensions of these buildings outside of a defined Farm Base Area within the Mackenzie Basin Subzone High Visual Vulnerability area.*

⁶ Section 16, Utility Rules, Page 16-7. *The rules contained in this part of section 16 take precedence over any other rules that may apply to utilities in the District Plan, unless specifically stated to the contrary.*

⁷ <https://www.mackenzie.govt.nz/council/strategies-plans-and-reports/strategies/district-plan-review>

1. mahika kai resources;
2. night sky darkness;
3. outstanding natural features and landscapes;
4. significant indigenous biodiversity; and
5. water bodies and their margins.

Chapter: REG – Renewable Electricity Generation

The introduction of the REG Chapter recognises the renewable energy development pressure on the Mackenzie Basin stating that “...There is also increasing interest in solar power generation in the District, due to the high amount of irradiance, particularly in Te Manahuna / the Mackenzie Basin.”

The NPS-REG directs that the development, operation, maintenance and upgrading of both new and existing renewable electricity generation activities is provided for, in order to increase the proportion of electricity generated from renewable energy sources, thereby displacing use of non-renewable energy sources and reducing carbon emissions. These activities often have a functional need or operational need to be in a particular location, but can have adverse effects on the environment, particularly in areas which have important natural values or mana whenua values. This chapter provides direction on how renewable electricity generation activities are to be provided for, while appropriately managing the potential adverse effects of these activities.”

Similar to the OMDP, the REG chapter takes precedence when assessing renewable electricity generation activities, and under REG – Table 1, the Natural Features and Landscapes (NFL) objectives and policies are not applicable / do not need to be considered when assessing REG activities. Rather, the focus of an assessment is on REG-O2 and REG-P6, as included below.

REG-O2 - Adverse Effects

The adverse effects of renewable electricity generation activities are managed in a way that recognises and provides for the national significance of renewable electricity generation activities.

REG-P6 - Other Renewable Electricity Generation Activities – Within areas of significant indigenous vegetation and significant habitats of indigenous fauna, ONLs, ONFs, riparian areas and SASM or on highly productive land

Provide for renewable electricity generation activities (not otherwise specified in REG-P3 and REG-P4) within areas of significant indigenous vegetation and significant habitats of indigenous fauna, Outstanding Natural Landscapes, Outstanding Natural Features, Sites and Areas of Significance to Māori, riparian areas, or within area of Highly Productive Land, where:

1. *there is a functional need or operational need for the activity to be in that location;*
2. *adverse effects on the values of the area are avoided as far as practicable, including through site, route or method selection, design measures and other management methods;*
3. *adverse effects on the values of the area that cannot be avoided are remedied or mitigated, where practicable;*
4. *other adverse effects (that do not affect the values of the area) are avoided, remedied or mitigated as far as practicable;*
5. *regard is had to any proposed offsetting measures or environmental compensation, where there are significant residual adverse effects that cannot be avoided, remedied or mitigated;*
and
6. *particular regard is had to the practical constraints associated with renewable electricity generation activities, including the:*

- a. *location and efficient use of existing electricity generation, transmission and distribution infrastructure; and*
- b. *the need to locate the renewable electricity generation activity where the renewable energy resource is located.*

Under REG Rule 7 chapter, the proposed solar farm requires resource consent as a discretionary activity because it is not a small-scale renewable electricity generation activity, is not otherwise listed and will be located within an ONL. An assessment of the proposal against REG-O2 and REG-P6 is included below.

4 Assessment of Landscape and Visual Effects

4.1 Assessment of Visibility and Visual Effects

4.1.1 Summary of the Visual Effects Assessment

The Landscape Report thoroughly assessed the visibility and actual and potential adverse visual effects from the surrounding public places. In summary, the Landscape Report concluded the adverse visual effects resulting from the proposed solar farm are as follows⁸:

- State Highway 8: **Nil to a very low degree.**
- The Alps to Ocean Trail: **Nil to a very low degree.**
- McAughtries Road – Upper Stretch: **Moderate degree.**
- McAughtries Road – Lower Stretch: **Nil.**
- Falston Road - A **low to low-moderate degree** of temporary visual effect, reducing to **nil** in the longer term once screen planting has matured.
- Haldon Road - A **very low to low degree** of temporary visual effect, reducing to **nil** in the longer term once screen planting has matured.
- Haldon Arm Road - A **very low to low degree** of temporary visual effect, reducing to **nil** in the longer term once screen planting has matured
- Pukaki, Tekapo, Ōhau Rivers – A **very low to moderate degree** of temporary visual effect, reducing to very low to nil once screen planting has matured.
- Lake Benmore - A **very low degree** of temporary visual effect, reducing to nil in the longer term once screen planting matures.
- Ben Ōhau - Greta Track - **Moderate degree.**
- Benmore Range Easement Track - **Moderate degree.**

4.1.2 Internal Layout Changes

When compared with the initial design, changes to the internal layout of the solar farm are immaterial. The proposed solar panels / tables are still aligned north to south, and the overall footprint is

⁸ Rough Milne Mitchell Landscape Architects Limited. Landscape Assessment Report. Proposed Solar Farm, The Point, Mackenzie Basin. 25 May 2023. Pages 31 and 32.

unchanged. The solar farm will look the same as the previous design and the nature and degree of adverse visual effect, as described above, will not change.

4.1.3 Substation / Grid Injection Point

The substation is located towards the centre of the site, immediately east of the 220kV transmission line. It is located 1.9kms away from the northern boundary, 1.4kms from the eastern boundary, 2.5kms from the site's southern corner and 1km from the western boundary. Therefore, the viewing distance to the substation from the surrounding public places is greater than the edge of the solar farm, as described in the Landscape Report.

Due to these distances, the solar panels / tables themselves and in time the proposed mitigation vegetation will visually screen the majority of the switchgear, facilities, and control buildings and most other utility infrastructure that is less than 4m high. The upper parts of gantries, masts and mono poles with lighting rods will be the more noticeable elements within the substation that may be seen, as illustrated in the Visual Simulations in Appendix 2.

That being said, these taller elements will be difficult to discern from the surrounding public places, owing to distance from viewing locations (being in excess of 2.4kms away), the slim and unobtrusive nature of these structures and the way they will be seen alongside, and in most instances behind the 220kV transmission towers and lines and amongst the solar farm itself, as the main viewing audience is along McAughtries Road to the west.

Overall, these additional structures will not exacerbate the adverse visual effects of the proposal, as assessed in the Landscape Report.

4.2 Assessment of Landscape Effects

The Landscape Report thoroughly assessed the actual and potential adverse effects on the physical, associative and perceptual landscape values and natural character of the Mackenzie Basin ONL.

As mentioned, changes to the internal layout of the solar farm and inclusion of the substation, will not materially change the nature of the proposal, as it was assessed in the Landscape Report. Therefore, the following conclusion as to the positive and / or adverse effects on landscape values is still relevant:

*In summary, the **proposed solar farm by itself**, due to its size and scale will have a **moderate-high** of adverse landscape effects on the Mackenzie Basin's outstanding natural landscape values. **These adverse landscape effects will be lessened** by the proposed landscape mitigation and ecological and biodiversity enhancement activities that will benefit the natural character landscape values of the basin.*

*Overall, the proposed solar farm and its associated landscape treatment, and ecological and biodiversity enhancement activities will have a **low-moderate to moderate degree** of adverse landscape effects on the Mackenzie Basin's outstanding landscape values.⁹*

⁹ Rough Milne Mitchell Landscape Architects Limited. Landscape Assessment Report. Proposed Solar Farm, The Point, Mackenzie Basin. 25 May 2023. Page 35

5 An Assessment Against the Relevant Policy Provisions

5.1.1 Proposed Mackenzie District Plan

Below is an assessment of the proposed solar farm against the relevant objectives and policies within the PMDP REG Chapter, noting that these policy provisions are currently under appeal.

REG-02 - Adverse Effects

The adverse effects of renewable electricity generation activities are managed in a way that recognises and provides for the national significance of renewable electricity generation activities.

REG-P6 - Other Renewable Electricity Generation Activities – Within areas of significant indigenous vegetation and significant habitats of indigenous fauna, ONLs, ONFs, riparian areas and SASM or on highly productive land

Provide for renewable electricity generation activities (not otherwise specified in REG-P3 and REG-P4) within areas of significant indigenous vegetation and significant habitats of indigenous fauna, Outstanding Natural Landscapes, Outstanding Natural Features, Sites and Areas of Significance to Māori, riparian areas, or within area of Highly Productive Land, where:

- 2. adverse effects on the values of the area are avoided as far as practicable, including through site, route or method selection, design measures and other management methods;*
- 3. adverse effects on the values of the area that cannot be avoided are remedied or mitigated, where practicable;*
- 5. regard is had to any proposed offsetting measures or environmental compensation, where there are significant residual adverse effects that cannot be avoided, remedied or mitigated; and*

Response

Regarding visibility and visual effects, the proposed solar farm is well located so it will be difficult to distinguish from SH8, the main tourist route through the Mackenzie Basin.

Once the mitigation vegetation has matured, the proposal will be very difficult to distinguish from The Alps to Ocean Trail, Falston Road, Haldon Road, Haldon Arm Road, Pukaki, Tekapo, Ōhau Rivers, and Lake Benmore. Once the vegetation has matured, visual effects on people travelling / spending time in these locations will be **nil to a very low degree**.

Unavoidably, the solar farm will be visible from parts of McAughtries Road, and the elevated areas on the Greta Track and the Benmore Range Easement Track. The solar farm cannot be screened from these locations and therefore adverse effects cannot be entirely avoided, remedied or mitigated. As assessed in the Landscape Report, the resulting adverse visual effects will be of a **moderate degree**.

A key point of difference with this proposed solar farm, unlike other solar farms in Aotearoa New Zealand, is it will reduce the amount of stock grazing within the site, with the long-term task of re-establishing native vegetation throughout the entire site. There are several positives associated with

this, including remedying the current greening effect that the intensive agricultural land use has had on the Mackenzie Basin.

Regarding this, an Ecological Enhancement Plan (**EEP**), which will be prepared following the granting of this consent will positively contribute to indigenous biodiversity, ecology, ecosystems and overall natural character of the site and its surrounds. These positive effects will assist in offsetting the potential adverse effects on ONL values of the 'Southern Basin' within the Mackenzie Basin.

Overall, the proposed solar farm will appropriately avoid adverse effects on the landscape values on the Mackenzie Basin as far as practicable, due its site selection, layout, design measures and management strategies. Where avoidance is not possible, adverse effects will be appropriately mitigated by way of native landscape mitigation / screening planting and remedying the greening effect that has occurred through current farming practices and positively contribute to the biodiversity / ecological values of the site.

6 Conclusion

When taking into consideration landscape and visual effects as assessed in the Landscape Report and subsequently in this Addendum Landscape Report, the proposed solar farm will have a **low-moderate to moderate degree** of adverse effects on the Mackenzie Basin's outstanding landscape values.



Document Information

Project		
Proposed Solar Farm		
Address		
Section 3 - SO 384036, SH6, Twizel		
Client		
Far North Solar Farm Ltd.		
Document		
Appendix 1: Graphic Attachment to Landscape Assessment Report		
Status		
For Resource Consent		
Revision		
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Prepared By		
Rough Milne Mitchell Landscape Architects Ltd		
Project Number: 22226		
Author: Zoe Cox & Paul Smith		
Peer Reviewed: Wade Robertson		

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The Receiving Environment Plan

Legend

The Site

Mackenzie Basin Subzone

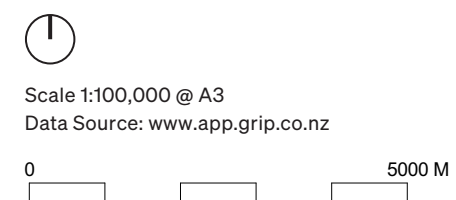
The Receiving Environment



Scale: Grid Square - 5km x 5km
Data Source: www.topomap.co.nz

Local Context Plan

Legend	
	The Site
A	Pukaki Airport
B	Twizel Substation
C	High Country Salmon Farm
D	Ohau B Power Station
E	Ohau C Power Station
F	Lake Benmore Ohau C Campground
G	Haldon Arm Campground
H	Benmore Views Campground
I	Falston Campground



Mackenzie Basin Landscape Character Areas

Legend

The Site

The Receiving Environment

This topographic map of the Mackenzie Basin illustrates various landscape character areas and boundaries. The map includes labels for districts such as Westland, Waikato, and Waimate, as well as geographical features like National Park, Mount Cook, and several lakes (e.g., Lake Tekapo, Lake Pukaki). A legend in the bottom left corner defines symbols for 'Existing Plan' (Lakeside Protection Area, Scenic Viewing Area), 'Homestead' (solid square), 'Former Homestead' (open square), and contour lines (1200m, 900m, 600m). A red outline on the map indicates 'The Site', and a blue dashed line indicates 'The Receiving Environment'. A north arrow is located near the bottom center of the map.

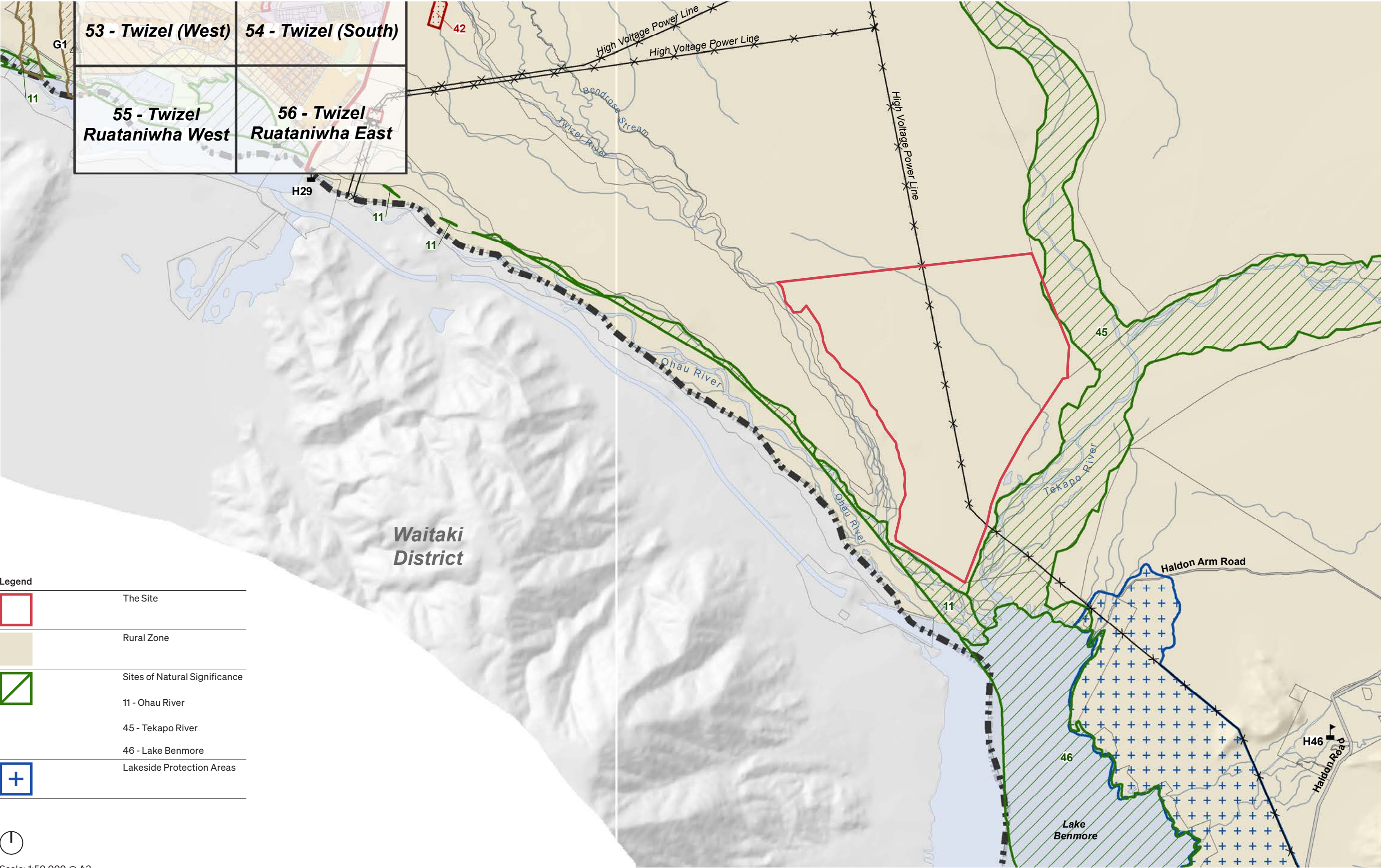
Not to Scale
Data Source: The Mackenzie Basin Landscape: Character and Capabilities.
Graham Densem Landscape Architects. November 2007.

Mackenzie Basin Landscape Map 1
MACKENZIE BASIN, TOPOGRAPHY, BOUNDARIES
December 2007

RMM

05

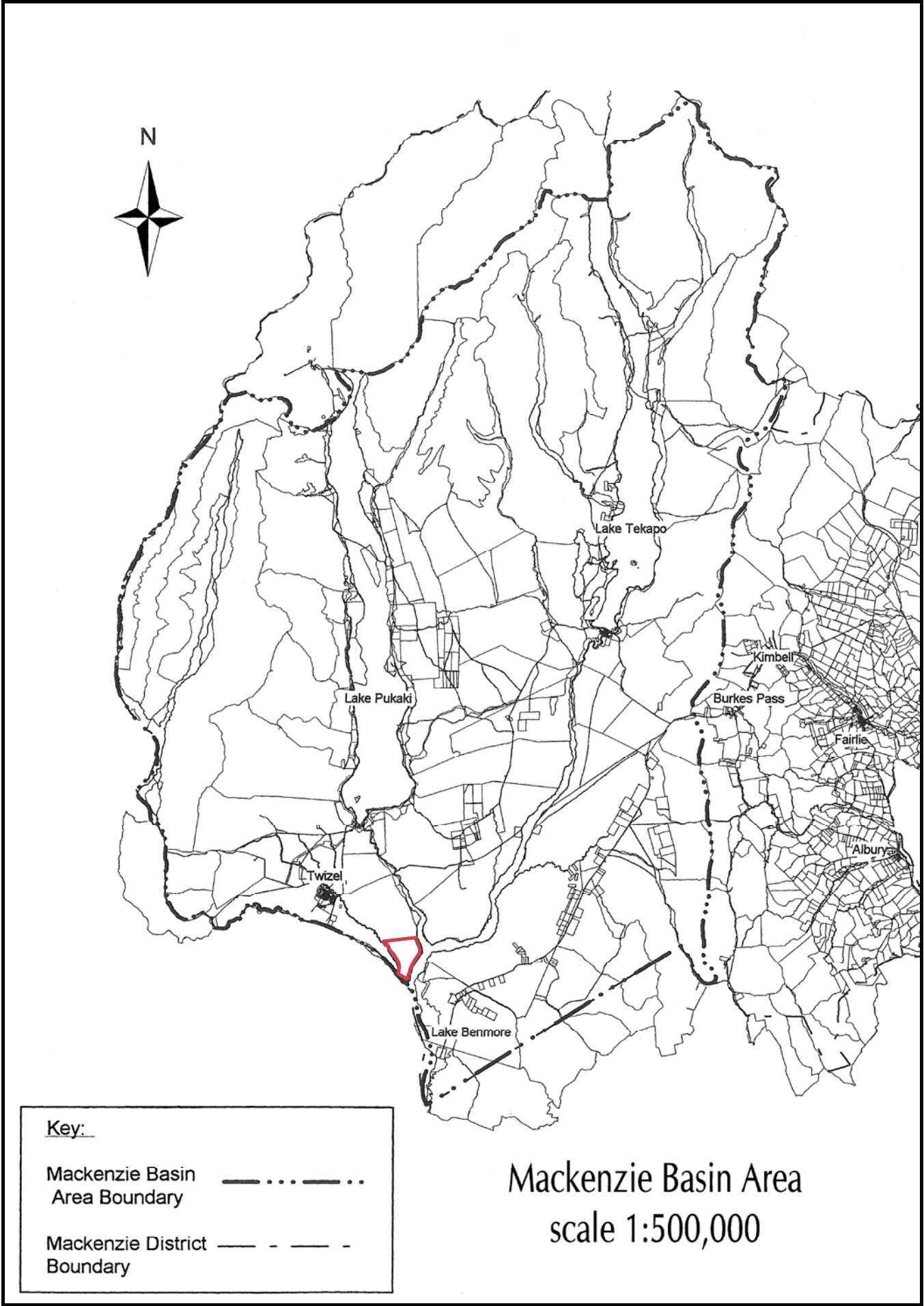
Mackenzie District Planning Map 38



Mackenzie District Plan: Appendix E - Mackenzie Basin Plan

Legend

The Site

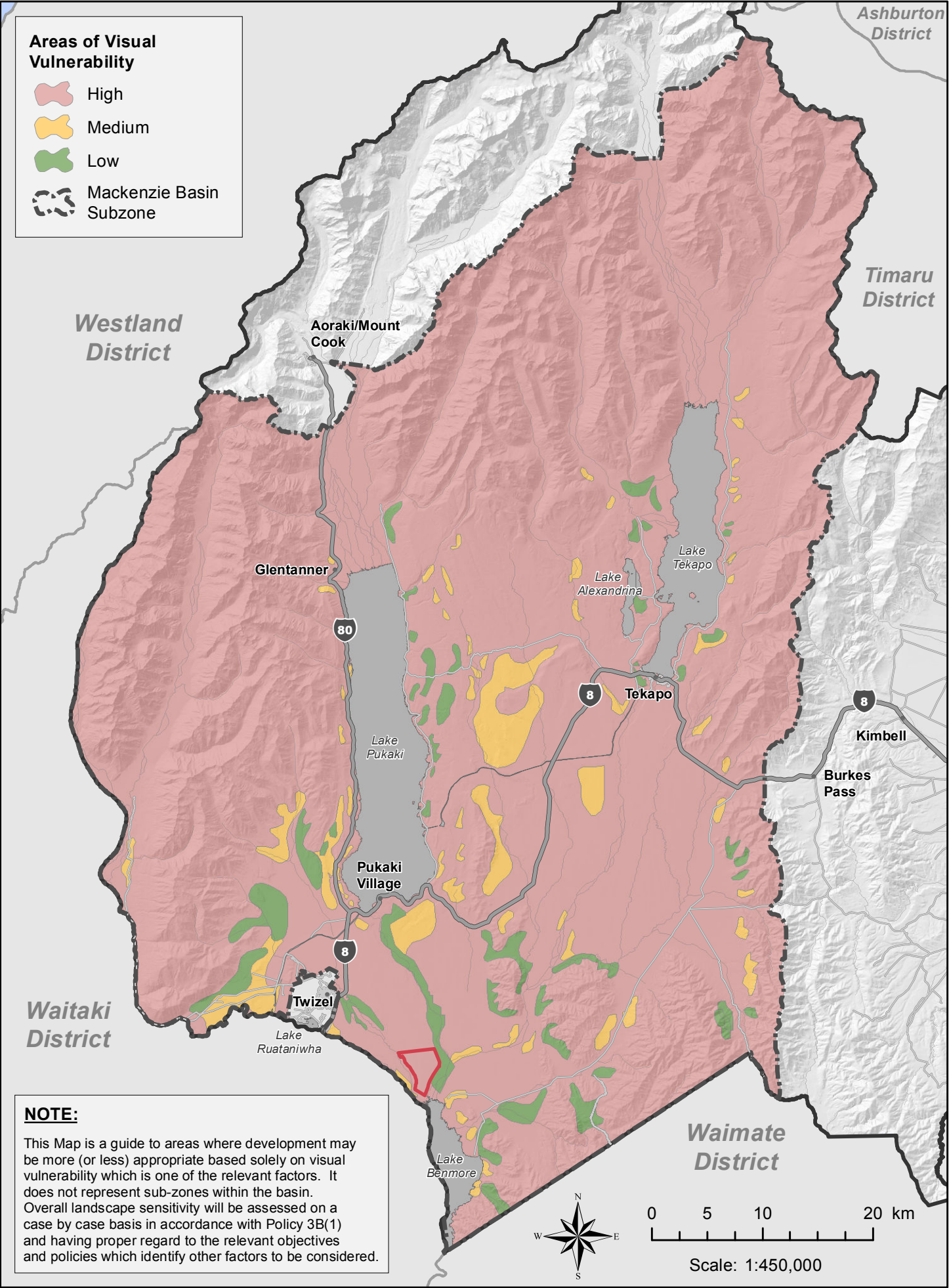


Not to Scale
Data Source: Mackenzie District Plan

Mackenzie District Plan: Appendix V - Areas of Landscape Management

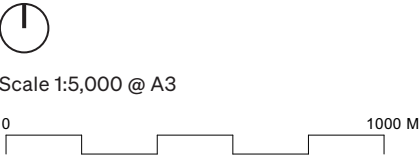
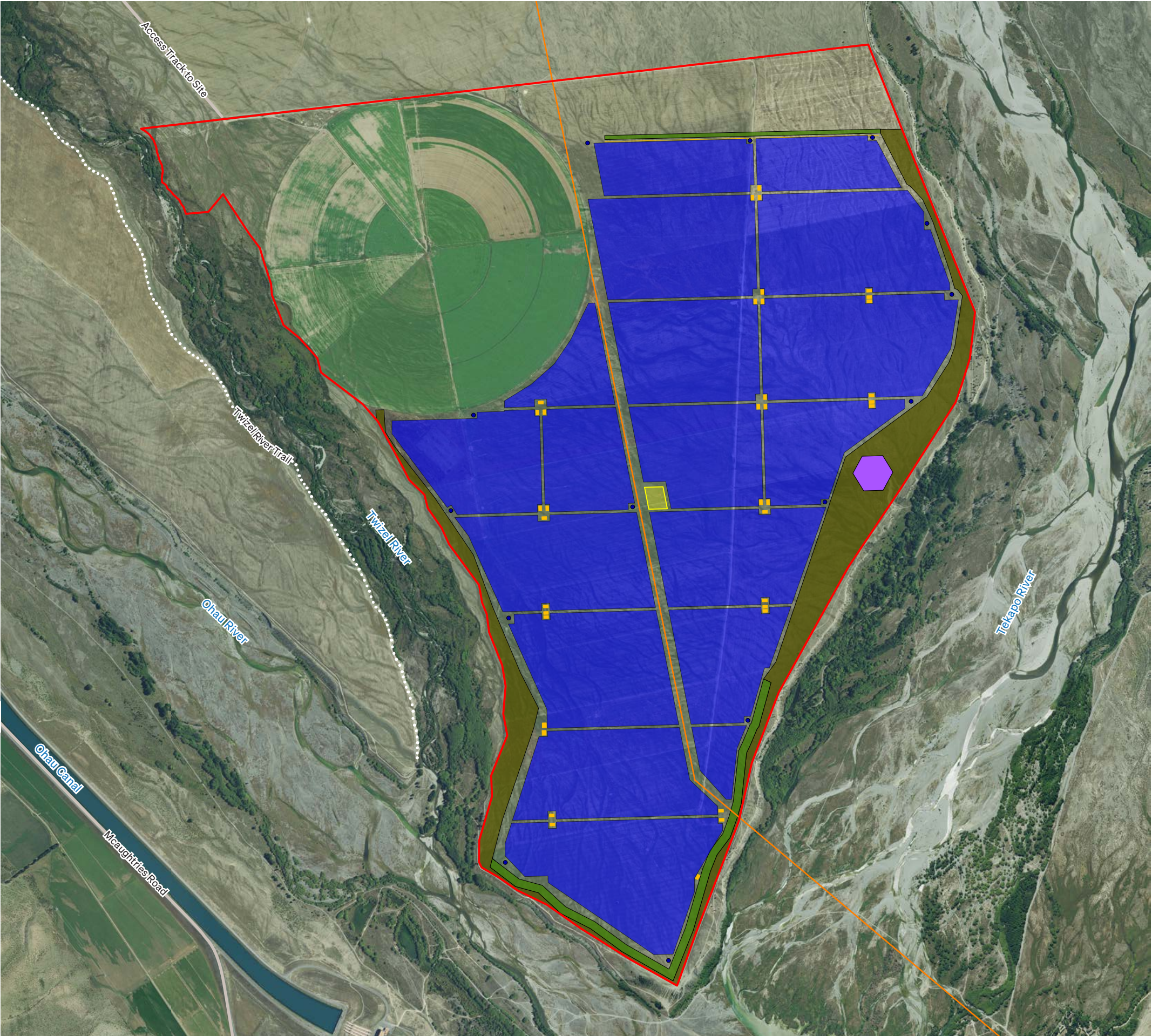
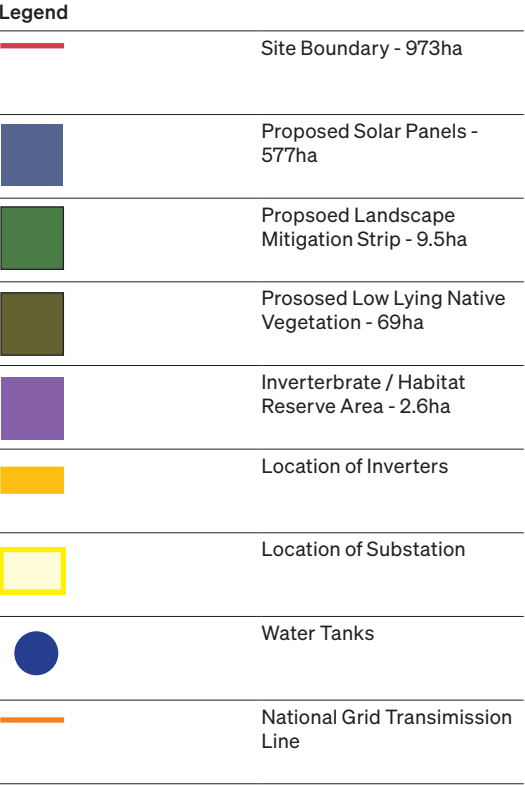
Legend

The Site



Scale: 1:450,000 @ A3
Data Source: Mackenzie District Plan

Proposed Solar Farm Plan



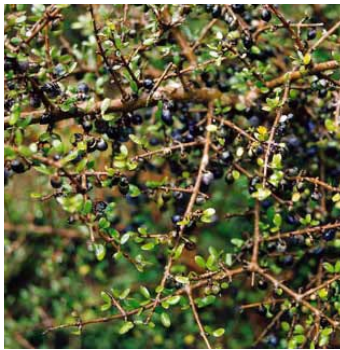
Landscape Mitigation Plant Palette



Plagianthus regius
Ribbonwood/Mānatu
Mature height: 10-12m
Fast growing



Kanuka
Kunzea robusta
Mature height: 18m
Threatened



Matagouri
Discaria toumatou
Mature height: 6m
Declining



Corokia cotoneaster
Korokio
Mature height: 3m
Withstands wind



Sophora microphylla
Kowhai
Mature height: 8m
Medium growth rate



Olearia lineata
Tree Daisy
Mature height: 8m
Grows well in tussock land



Coprosoma propinqua
Mingimingi
Mature height: 3m
Most robust Coprosma



Phyllocladus alpinus
Mountain Celery Pine
Mature height: 6m
Slow growing

Solar Panel Exemplar Images

A Example of a Solar Farm in Marlborough
B - C Examples of Solar Farms in Australia



A



B



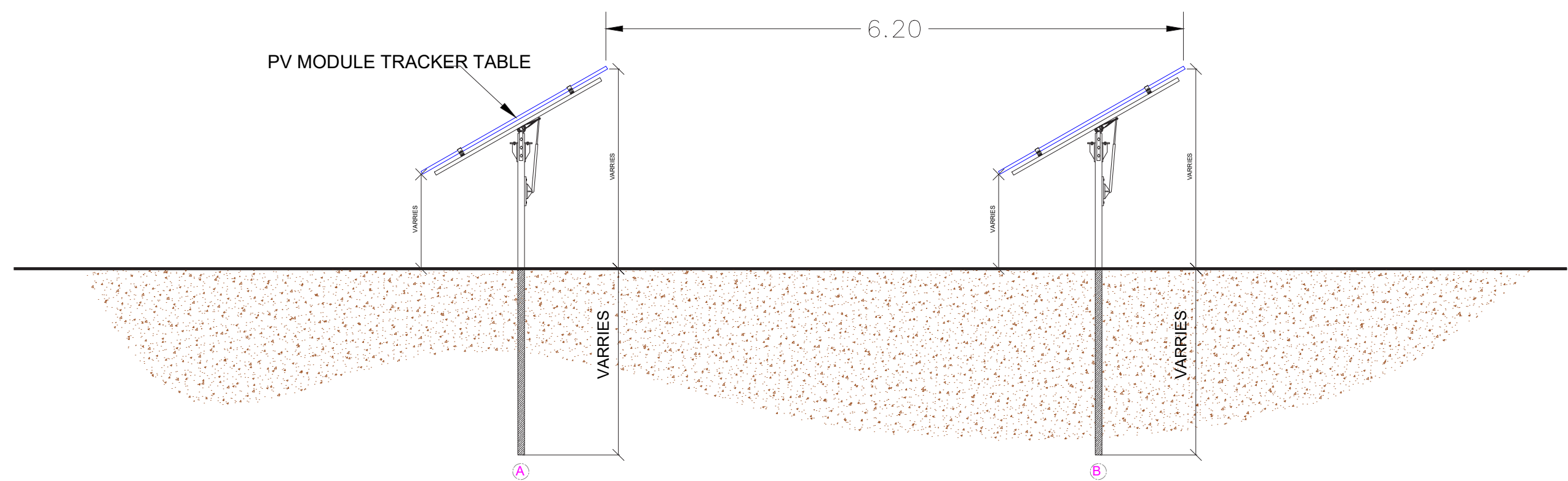
C

Solar Panel Exemplar Images

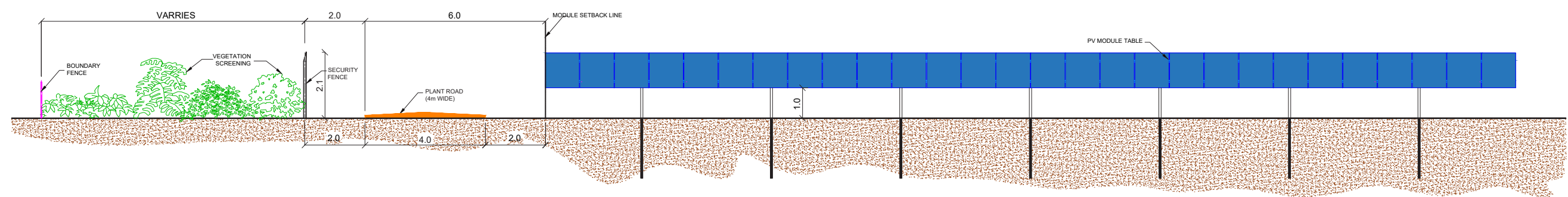
A-B Examples of Solar Farms in Australia



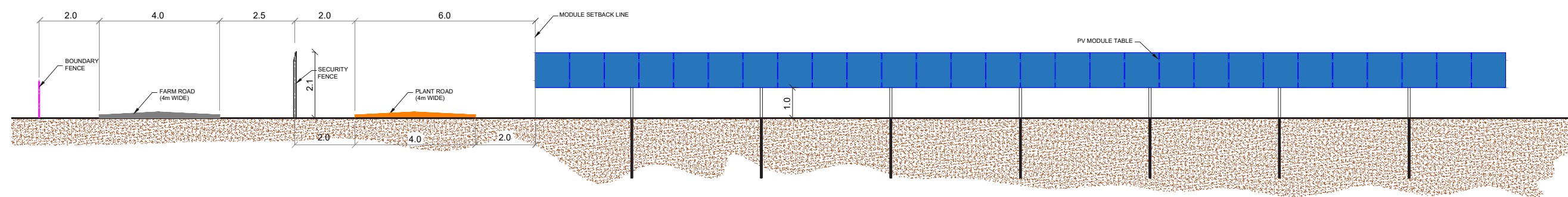
Titling Solar Table - Typical Cross Sections



Typical Cross Section Detail For Tracker Table (Side View)



Typical Cross Section Detail For Tracker Table (Front View) Through Mitigation Planting



Typical Cross Section Detail For Tracker Table (Front View) Through Farm Road

Not to Scale

Data Source: Renewable Engineering Group

Proposed Inverters

- A - B Example images of the proposed inverters which are the same size a 20 foot shipping container. Source: Far North Solar Farm Ltd.
- C Visual Simulation of a Proposed Inverter within the Solar Farm. Source: Virtual View



A

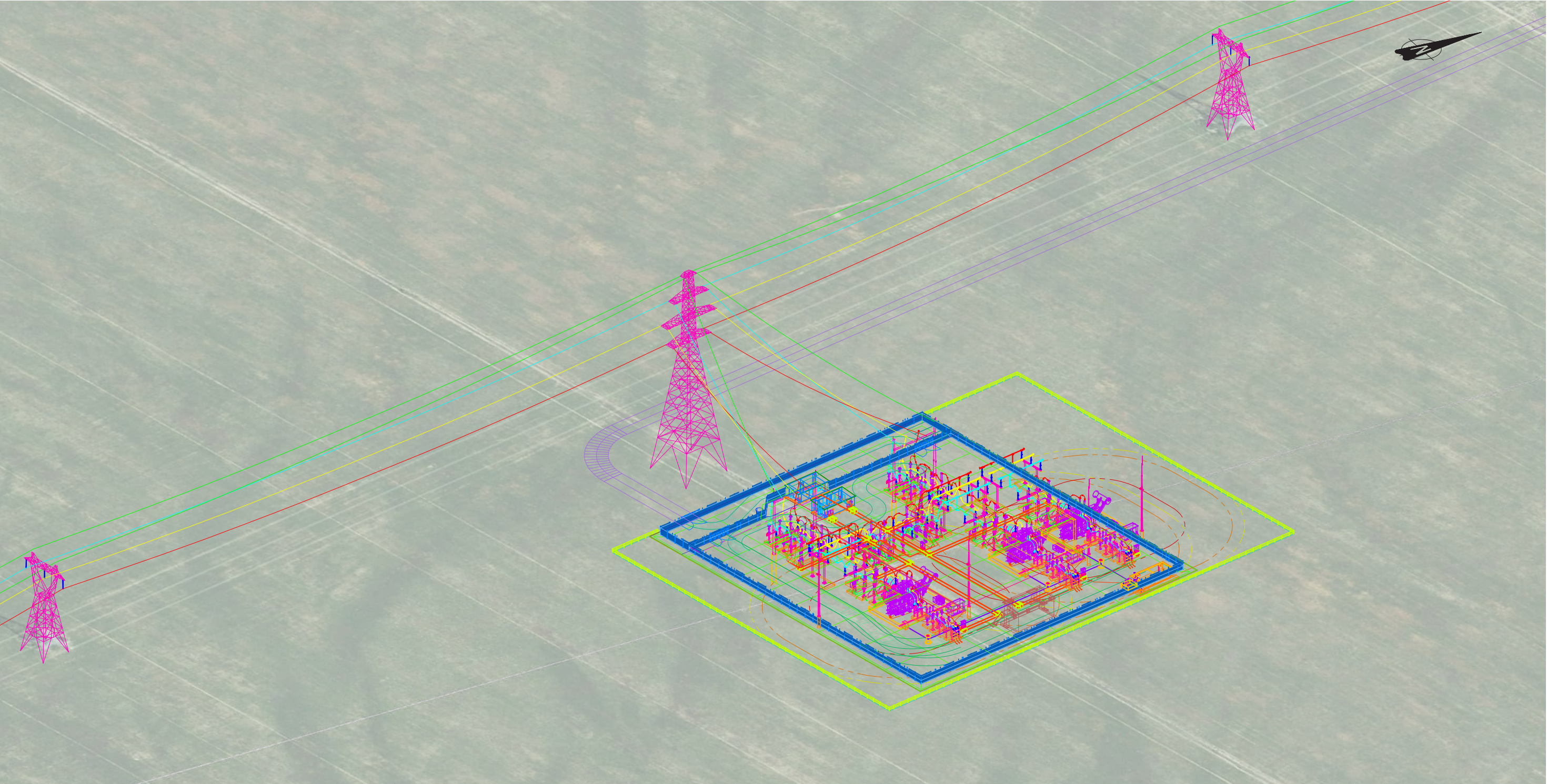


B



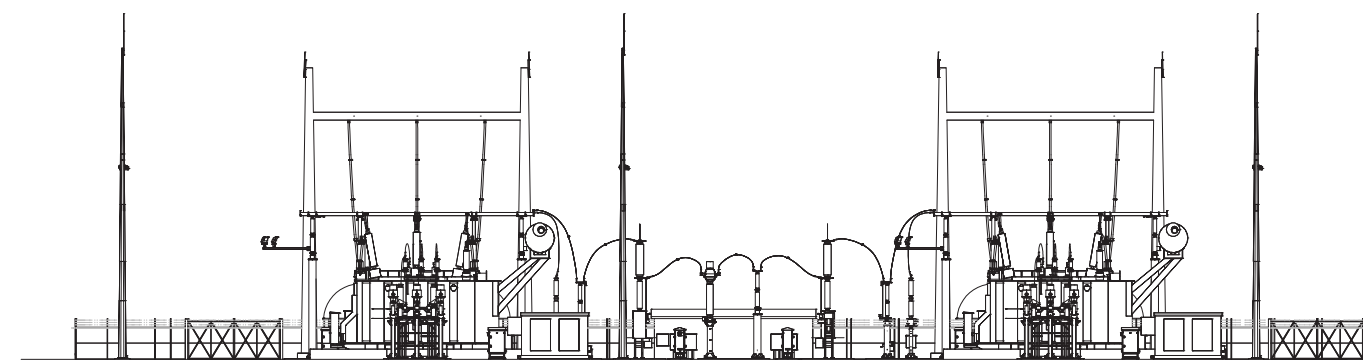
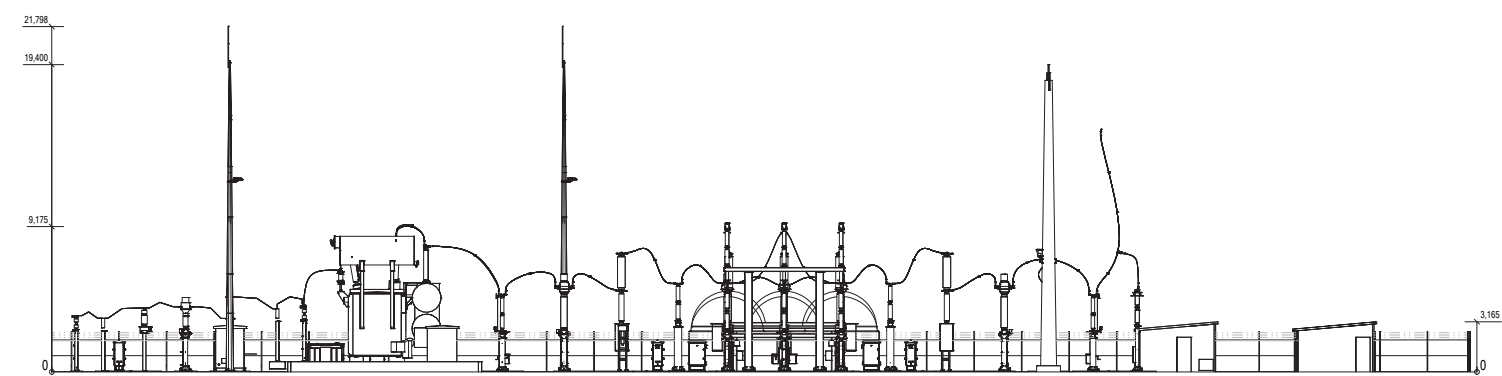
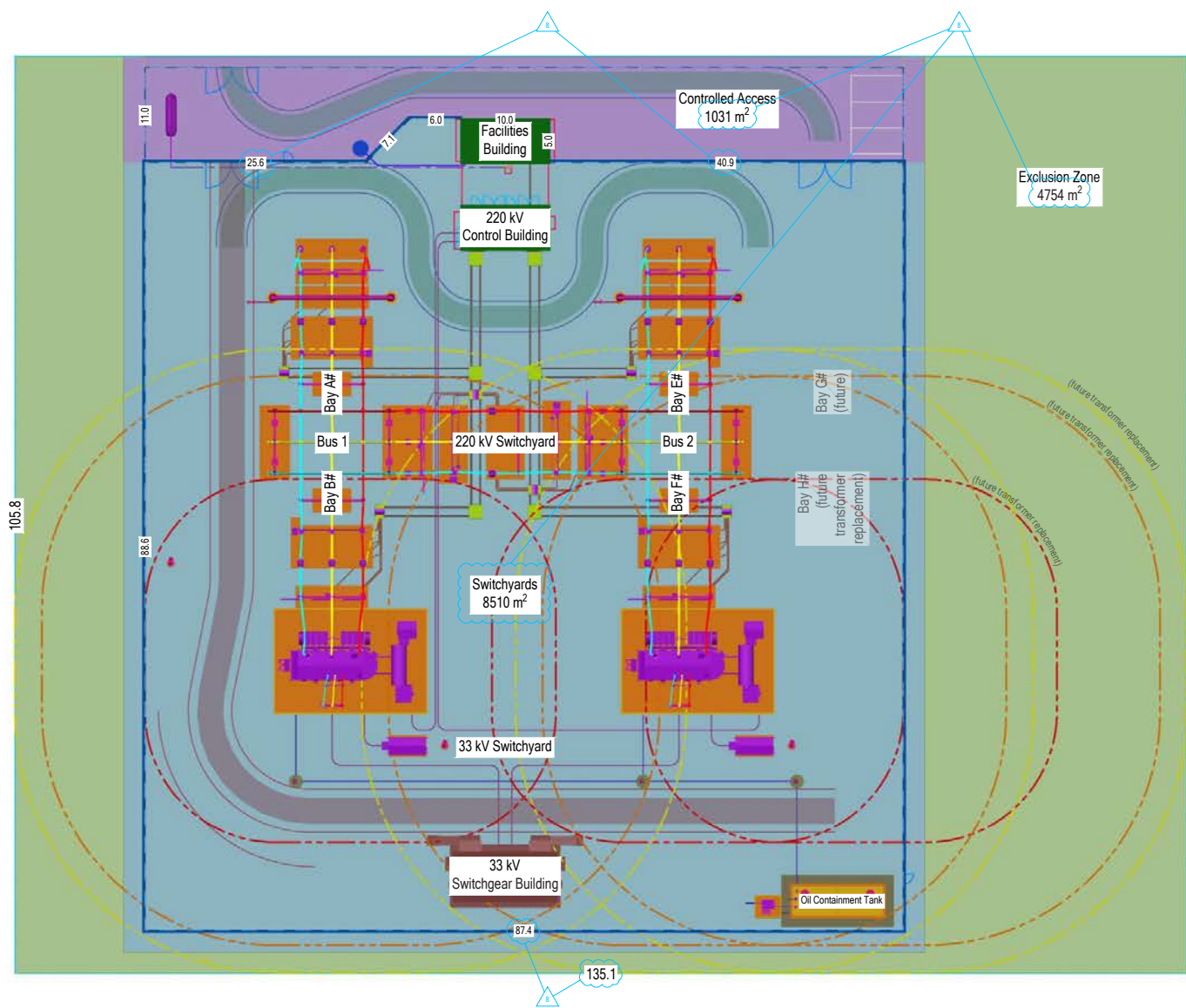
C

Proposed Substation



Data Source: Transpower Ltd.

Proposed Substation



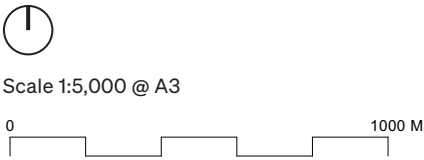
Site Photograph Location Plan

Legend

The Site

A

Site Photograph Locations

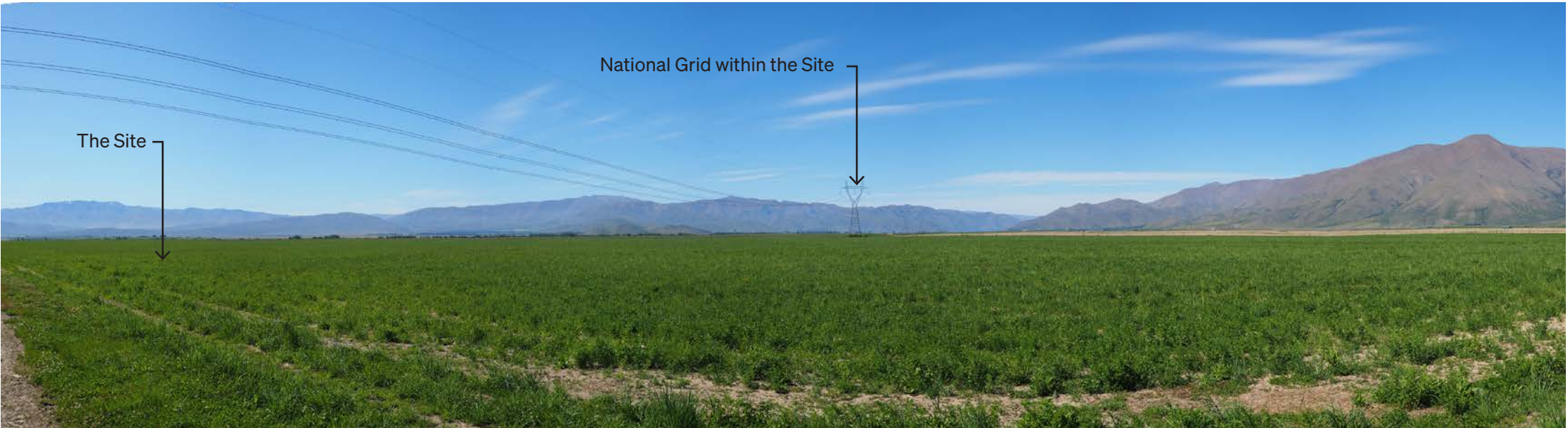


Site Photographs

Photographs A - C represent the views gained from the northern part of the site. This includes its intensive agricultural use, the neighbouring site and the wilding pines that are starting to establish, the National Grid transmission lines that extend north to south through the site and the views to the surrounding mountains enclosing the Mackenzie Basin.



A



B



C

Site Photographs

Photographs D - F represent the views gained from the central portion of the site and its intensive agricultural use, the the National Grid transmission lines that extend north to south through the site and the views to the surrounding mountains enclosing the Mackenzie Basin.



D



E



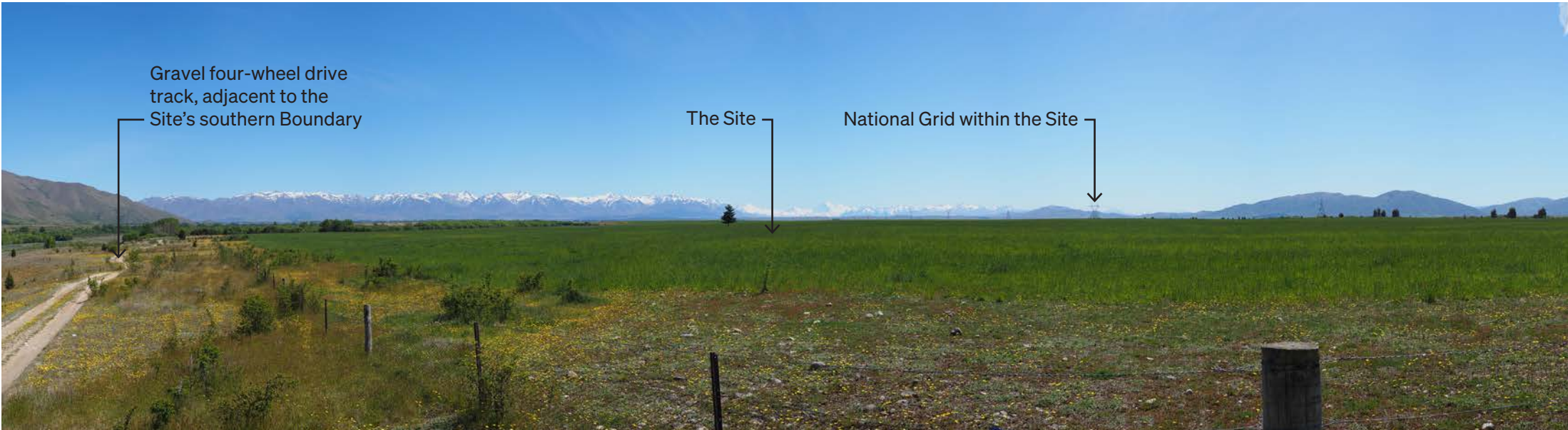
F

Site Photographs

Photographs G - I represent the views gained from the southern part of the site. This includes illustrating the proximity of the gravel four-wheel drive track around its perimeter, the intensive agricultural use of the site which is starkly different to outside the site and the willow lined river banks / escarpment faces. Also, the National Grid transmission lines that extend north to south through the site and the views to the surrounding mountains enclosing the Mackenzie Basin.



G



H



I

Viewpoint Location Plan

Legend

The Site

#

Viewpoint Locations

#

Viewpoint Locations with a corresponding Visual Simulation

This aerial map illustrates the proposed solar farm site and surrounding landscape. The site is outlined in red and located near the confluence of the Ohau River and Tekapo River. Key geographical features include Lake Pukaki, Lake Ruataniwha, Lake Benmore, and the Benmore Range. The map shows State Highway 8, the Ohau Canal, and various trails. Viewpoint locations are marked with numbered icons: 1, 2, 3, 4, 5, 6, 7, and 23. Viewpoint 23 is highlighted in yellow, indicating it has a corresponding visual simulation. The map also shows the Benmore Range and the Ohau Range. A dashed white box indicates a zoomed-in area for further detail, with a reference to page 20 for the zoomed-in view.

Scale 1:120,000 @ A3
Data Source: www.app.grip.co.nz

0

5000 M

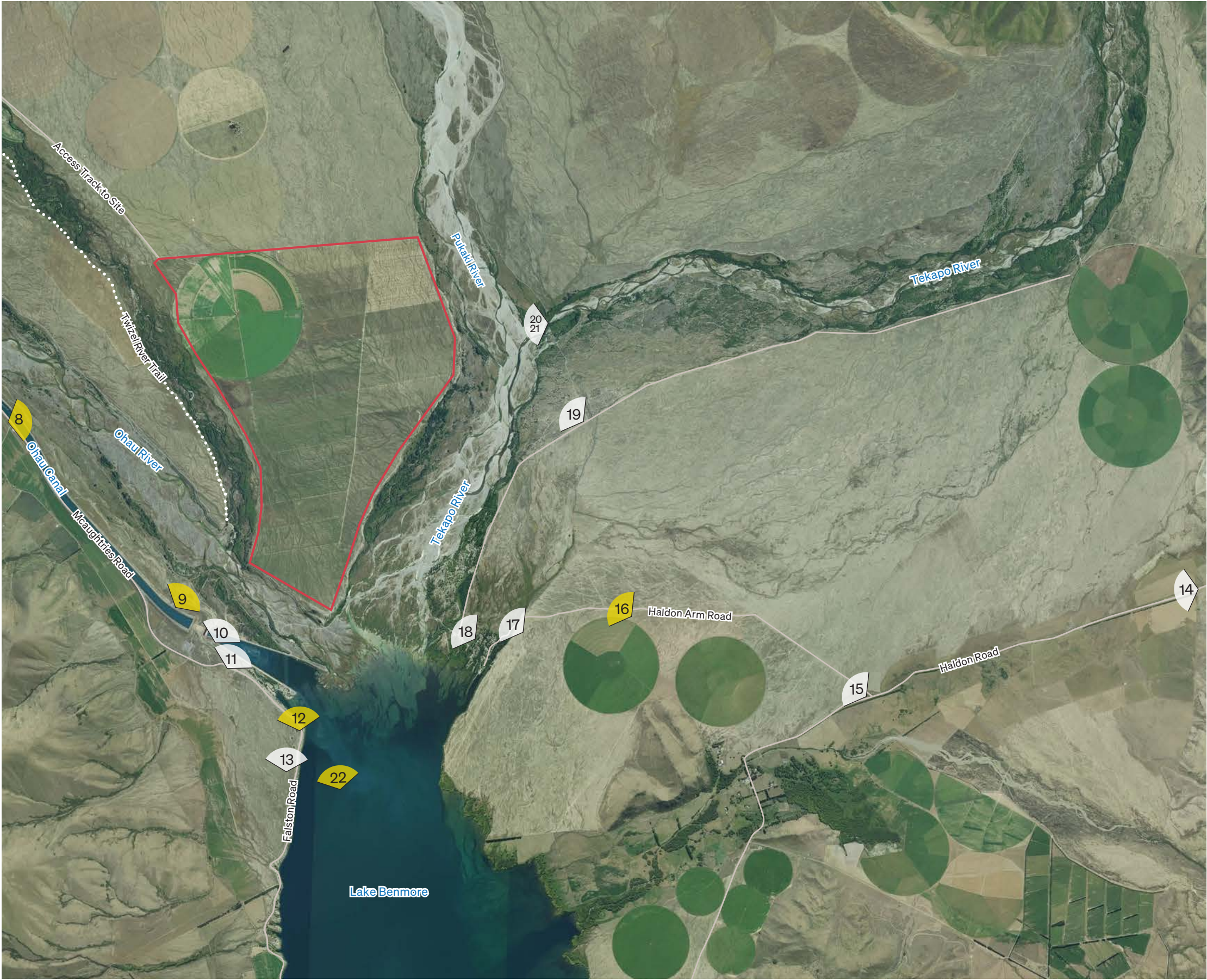
RMM

Proposed Solar Farm Ohau C, Mackenzie Basin

21

Viewpoint Location Plan

Legend	
	The Site
	Viewpoint Locations
	Viewpoint Locations with a corresponding Visual Simulation



Scale 1:50,000 @ A3
Data Source: www.app.grip.co.nz

Viewpoint Location Photographs - State Highway 8



Viewpoint Location Photograph 1: Located at the Lake Ruataniwha Dam alongside SH8. This photo illustrates the view along the Ohau River and the outwash plain towards the site and surrounding mountains,, with the solar farm being 7.5kms away.



Viewpoint Location Photograph 2: Located near the Twizel Substation alongside SH8. This photo illustrates the view over the outwash plain towards the site and surrounding mountains, with the solar farm being 7.0kms away.

Viewpoint Location Photographs - State Highway 8



Viewpoint Location Photograph 3: Located at the Pukaki Canal Bridge alongside SH8. This photo illustrates the view over the outwash plain towards the site and surrounding mountains, with the solar farm being 12kms away.



Viewpoint Location Photograph 4: Located at the Pukaki River Spillway alongside SH8. This photo illustrates the view over the spillway, Pukaki River, nearby plantation forest and the outwash plain towards the site and surrounding mountains, with the solar farm being 13kms away. The view over Lake Pukaki to Aoraki Mt Cook is in the opposite direction to this view.

Viewpoint Location Photographs - State Highway 8



Viewpoint Location Photograph 5: Located at the Pukaki Moraine along SH8. This photo illustrates the view over the outwash plain towards the site and surrounding mountains, with the solar farm being 12.5kms away.

Viewpoint Location Photographs - Alps 2 Ocean Trail



Viewpoint Location Photograph 6: Located at Pukaki Canal Road, in an elevated location to illustrate the view if the trees are removed. This photo illustrates the view over the Pukaki River, the nearby plantation forest and the outwash plain towards the site and surrounding mountains, with the solar farm being 12.5kms aways. The view over Lake Pukaki to Aoraki Mt Cook is in the opposite direction to this view.



Viewpoint Location Photograph 7: Located near Pukaki / Twziel Airport along the Alps to Ocean Trail. This photo illustrates the view over the outwash plain towards site and surrounding mountains, with the solar farm being 7.3kms aways. The view to the right (west) includes Lake Pukaki Airport and the edge of Twizel township.

Viewpoint Location Photographs - McAugtries Road



Viewpoint Location Photograph 8: Located along McAugtries Road, alongside the Ohau Canal, beside a shelterbelt on the western side of the road. This photo illustrates the view over and along the canal and the outwash plain towards site and surrounding mountains, with the solar farm being 1.2kms away.



Viewpoint Location Photograph 9: Located along McAugtries Road, immediately upstream of Ohau C Power Station. This photo illustrates the view over the Twizel River towards site and surrounding mountains, with the solar farm being 1.0kms away. The Ohau Canal and Ohau C Power Station is behind immediately behind this view, and Lake Benmore is to the right (south).

Viewpoint Location Photographs - McAugtries Road



Viewpoint Location Photograph 10: Located along McAugtries Road downstream of Ohau C Power Station. This photo illustrates the view over the top end of Lake Benmore towards the escarpment that wraps around the site and the surrounding mountains, with the solar farm being 1.0kms away. Lake Benmore Ohau C Campground, and a public boat ramp is to the right (south) of this location.

Viewpoint Location Photographs - Falston Road



Viewpoint Location Photograph 11: Located near the McAugtries Road and Falston Road intersection. This photo illustrates the view over the top end of Lake Benmore towards the site and the surrounding mountains, with the solar farm being 1.2kms away. Lake Benmore is to the right (south) of this location.



Viewpoint Location Photograph 12: Located at the 45 Degree corner along Falston Road. This photo illustrates the view over the top end of Lake Benmore towards the site and the surrounding mountains, with the solar farm being 1.4kms away.

Viewpoint Location Photographs - Falston Road



Viewpoint Location Photograph 13: Located along Falston Road, north of shelterbelt located along the western side of the road. This photo illustrates the view over the top end of Lake Benmore towards the site and the surrounding mountains, with the solar farm being 1.9kms away.

Viewpoint Location Photographs - Haldon Road



Viewpoint Location Photograph 14: Located along Haldon Road at the western end of Little Pass. This photo illustrates the first time a road user gains a view over this part of the basin when travelling along this road, with the solar farm being 9.8kms away.



Viewpoint Location Photograph 15: Located near the intersection of Haldon Road and Haldon Arm Road. This photo illustrates the view over the dryland outwash plain towards the site and enclosing mountains, with the solar farm being 6.3kms away, on the far side of the Pukaki / Tekapo Rivers.

Viewpoint Location Photographs - Haldon Road



Viewpoint Location Photograph 16: Located along Haldon Arm Road. This photo illustrates the view over the dryland outwash plain towards the site and enclosing mountains, with the solar farm being 3.3kms away, on the far side of the Pukaki / Tekapo Rivers.



Viewpoint Location Photograph 17: Located along Haldon Arm Road, near the Tekapo River terrace edge. This photo illustrates the view over the dryland outwash plain towards the site and enclosing mountains, with the solar farm being 2.2kms away, on the far side of the Pukaki / Tekapo Rivers.

Viewpoint Location Photographs - Haldon Arm Road



Viewpoint Location Photograph 18: Located along the four-wheel drive track section of Haldon Arm Road, immediately west of Haldon Arm Campground. This photo illustrates the limited long range views gained from these four-wheel-drive tracks alongside the Pukaki and Tekapo Rivers.



Viewpoint Location Photograph 19: Located along the four-wheel drive track west Haldon Arm Road, heading towards Old Iron Bridge. This photo illustrates the limited long range views gained from these four-wheel-drive tracks alongside the Pukaki and Tekapo Rivers.

Viewpoint Location Photographs - Haldon Arm Road



Viewpoint Location Photograph 20: Located on the eastern side of Old Iron Bridge. This photo illustrates the view along the Tekapo River towards the site and the Benmore Range.



Viewpoint Location Photograph 21: Located in the middle of Old Iron Bridge. This photo illustrates the view along the Tekapo River towards the site, which cannot be seen, and the Benmore Range.

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Proposed Solar Farm - The Point, Mackenzie Basin
Appendix 2: Visual Simulations

4 April 2025

Far North Solar Farm Ltd.

**The Point,
Proposed Solar Farm,
Mackenzie Basin,
Twizel**

Virtual View

Photo Simulation Information



VIRTUALVIEW
3D VISUALISATION SPECIALISTS

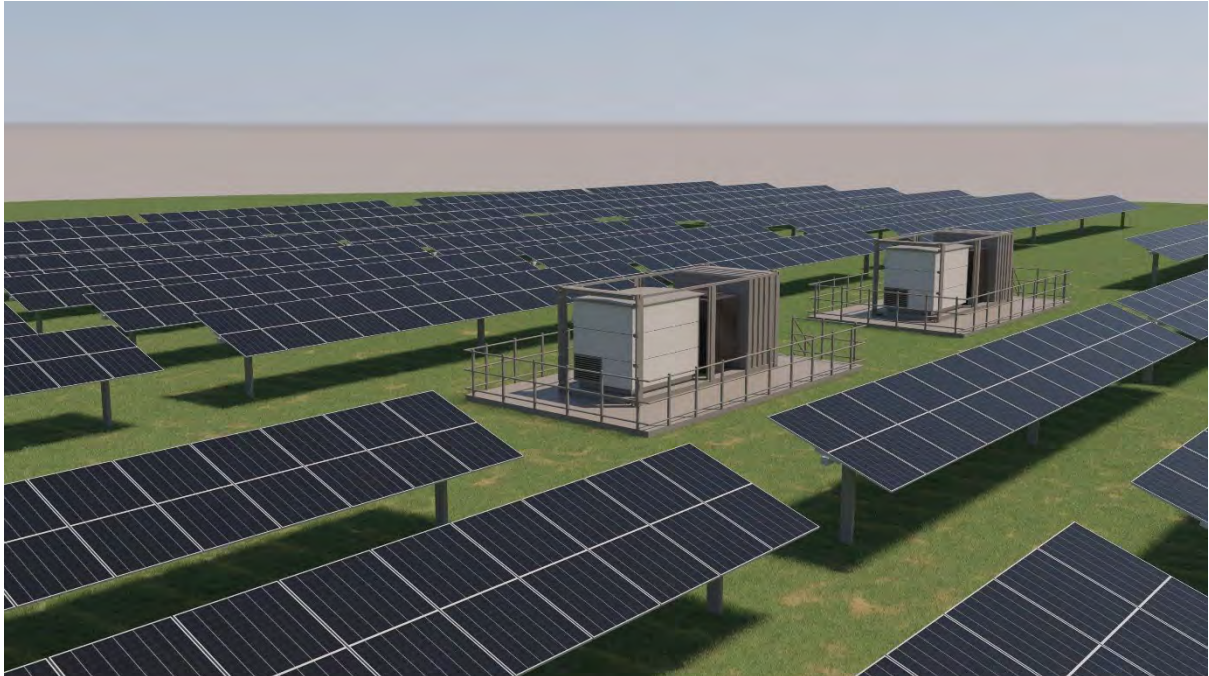
INFORMATION FOR THE PREPARATION OF THE PHOTO SIMULATIONS

1. Far North Solar Farms Ltd engaged Virtual View to produce visual simulations of a proposed solar farm in the Mackenzie basin, Twizel. The simulations have been produced from various viewpoints and show the solar farm at various times of day.
2. To create the 3D model for the simulations, Virtual View used the below data:
 - A. Paul Smith of Rough Milne Mitchell Landscape Architects Ltd (RMM) chose viewpoint locations.
 - B. Viewpoint locations were surveyed by Virtual View Ltd using a Lecia GS18 RTK Rover. The accuracy of the positions taken was 2cm.
 - C. Terrain data was downloaded from Land Information New Zealand. The terrain data included 1m Lidar digital surface model (DSM), 1m Lidar digital elevation model (DEM) and the New Zealand 8m DEM. Aerial photographs were also downloaded from Land Information New Zealand.
 - D. The above terrain data was used to make a 1m DEM terrain model for the site and surrounding area. A 1m DSM terrain model was also created to assist with camera alignment and foreground vegetation identification.
 - E. Far North Solar Farms Ltd provided the specifications for the solar panel sizes, table layouts and the overall site plan.
 - The solar panel module size is simulated at 2278mm high by 1134mm wide.
 - Solar panels are fixed to a single axis tracking table in portrait orientation. The table rotates 52 degrees + and -.
 - 1 x table layout with 26 panels has been created. The solar panels are in portrait orientation with 1 module vertically.
 - Panel tables are spaced as per the supplied plans.
 - The front edge of the solar panels is 0.62m above ground level when tilted to 60 degrees.
 - F. From the overall site plan, roads, a substation, transmission lines, inverter power stations and water tanks were also added to the 3D model.
 - Service roads are simulated at 4m wide.

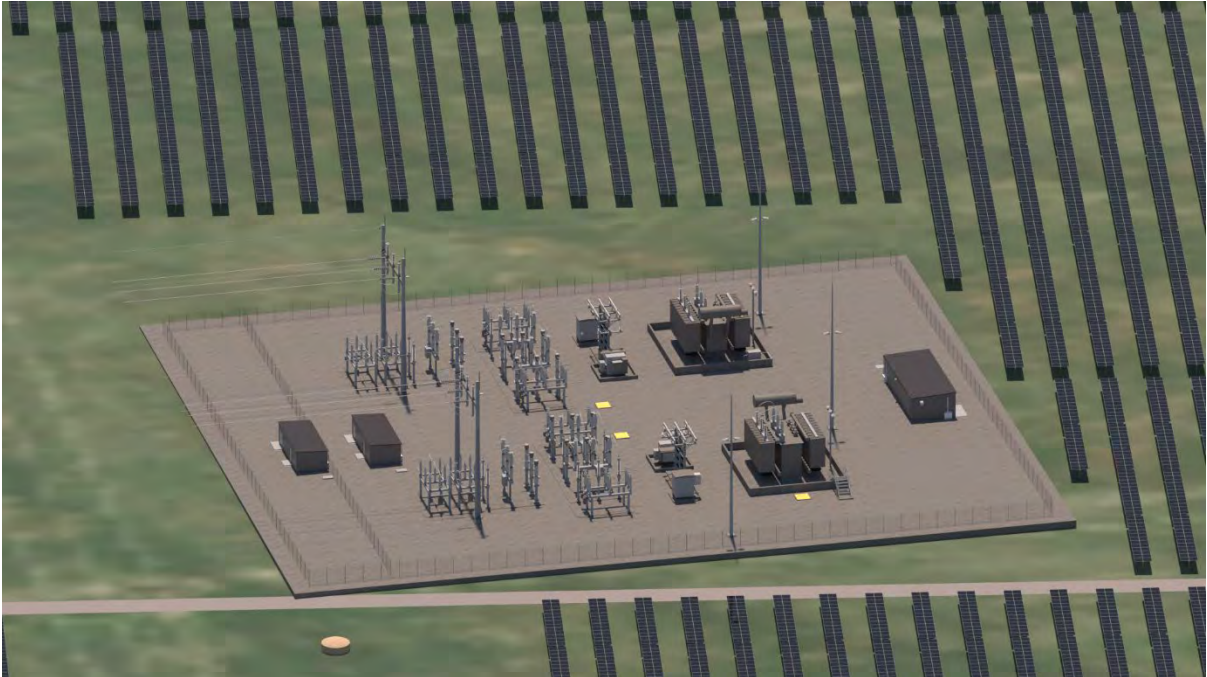
- The substation has been modelled to the supplied specifications with buildings up to 3.2m tall and poles up to 19.4m.
 - Inverter power stations are a similar size to a 20ft high cube container. 6.1x2.5x2.9m. The colours are black, sandstone grey and gull grey.
 - Water tanks are a beige colour 30,000ltr tank recessed 1.6m into the ground.
- G. The solar panels have been rotated horizontally at 5 degree increments to align with the sun angle and azimuth at the corresponding time of day.
- 0 degrees = Parallel to the ground surface.
- Negative degrees = Facing east.
- Positive degrees = Facing west.
- Below are the angles for each viewpoint:
- Viewpoint 03 = -40 degrees
 - Viewpoint 07 = -50 degrees
 - Viewpoint 08 = -30 degrees
 - Viewpoint 09 = -5 degrees
 - Viewpoint 12 = -20 degrees
 - Viewpoint 16 = +35 degrees
 - Viewpoint 23 = +52 degrees
 - Viewpoint 25 = 0 degrees
- H. Landscaping was then added to the 3D model to supplied heights and locations.
- Simulations 09, 12 and 22 include proposed landscaping at years 2 and 5. All other simulations only include proposed landscaping at year 5 due to it being on the southern side of the site and less visible.



Overview of 3D model showing digital terrain model with solar panel layout and landscaping.



Close-up view of 3D model solar panel layout components.



Close-up view of 3D modelled substation layout.



METHODOLOGY FOR THE PREPARATION OF PHOTO SIMULATIONS

September 2024

1.0 Overview

The main objective of a photo simulation is to provide an image that, as realistically as possible, conveys the modification or change caused by a proposed activity. The most appropriate technical methodology has been applied to ensure the accuracy of what is depicted, in terms of its relative position, elevation, scale, and appearance. Photo simulations can never replace the real experience of being at a location, but they are a useful tool to assist in the decision making process. To achieve a photo simulation, a 3D model is rendered into a series of two-dimensional photographs.

2.0 On-Site Photography and Reference Points

A series of photographs are taken from a specified location using a full-frame Digital SLR Camera with a 50mm lens. The camera is mounted to a tripod with a panoramic head to ensure a consistent overlap of approximately 40%.

Reference Points are also identified during the site visit. Reference points are fixed objects that are selected from within the captured photos. Reference points can include, but are not limited to, objects such as fences, buildings, trees and road signs. These objects help to accurately align the 3D model within the simulation software.

The reference points and photo position (or camera location) is accurately survey marked by using a professional surveyor or using professional survey equipment.



On Site photography - survey marked camera location.



Reference points identified and surveyed which are used for camera alignment.

3.0 Creating the Photo Panoramic

The photos captured from the site visit are then selected. Five photos from each viewpoint are used. The selected photos are colour matched to ensure consistency throughout the image and manually stitched together to form a photo panoramic. The panoramic image is then cropped to create the 124° wide panorama.



The photos are colour matched and stitched together to form a panoramic image



The completed panoramic image

4.0 The Photo Simulation Process

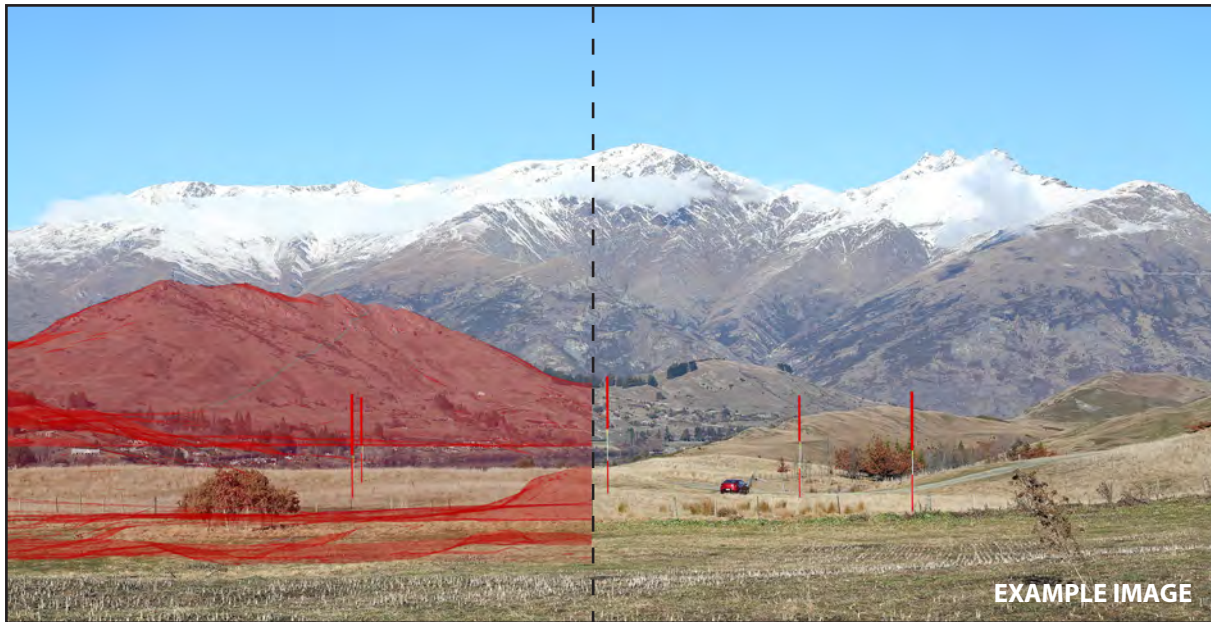
Within the simulation software the next step is to create the 3D computer model.

A series of 3D computer cameras are created. These cameras are positioned accurately to the corresponding survey marked photo position from where the photos were taken on the site visit. The computer camera depicts a real world camera, including matching the focal length of the 50mm lens.

Reference points surveyed from the site visit are then imported. Reference points within the simulation software will generally be represented as extruded cylinders.

Digital Elevation Model (DEM), Lidar data and contour data is used to create a digital terrain model of the site and surrounding area.

To replicate the 3D view through the real world camera, it is necessary to match the digital terrain model and reference points to the respective land-form and physical objects in the photo - thus ensuring an accurate horizontal and vertical alignment.



Digital terrain model and reference points used for camera alignment.

5.0 Adding The Proposed Development

The digital 3D model of the proposed development and associated design surfaces such as roads are accurately created. 3D landscaping and vegetation are created to the correct specifications.

A sunlight system is created which follows the geographically correct angle and movement of the sun over the earth at a given location. Location, date, time and compass orientation are matched to the on-site photography which allows the simulated model to reflect actual lighting conditions.

Within the 3D software, the new image is rendered containing the accurately positioned 3D model over top of the original photograph.



3D model rendered and accurately positioned in photograph

6.0 Photo Editing

Photo editing software is used to composite the proposed development. Using a combination of the digital terrain model and aerial photography the proposed development is masked into the original photo so that it appears behind any existing landforms and foreground vegetation. Proposed landscaping and vegetation is added to the photos using the same process.



Rendered model is masked within the image to appear behind existing landforms and vegetation.



Proposed vegetation and landscaping is created in 3D, rendered and added.

The masked renders of the proposed development, landforms and landscaping are combined into the original panoramic image to complete the photo simulation.



Section of rendered development within full panorama.



The completed photo Simulation

7.0 Viewing The Photo Simulation

All photo simulations comply with the New Zealand Institute of Landscape Architects' document: Visual Simulations Best Practice Guide 10.2.

For the resulting photo simulations, the viewing scale is 50 centimeters from the eye when printed at full scale A3. This scale produces an image that is 240mm high and is a comfortable viewing distance to hold at approximately an arm's length, to appreciate what the view would be in real life. (Refer to Figure 1.0 below for viewing guide).

Viewing on a digital screen should be done tentatively as there are numerous variables such as screen size, zoom level and the application being used, that can affect the scale of what would be seen by the naked eye.

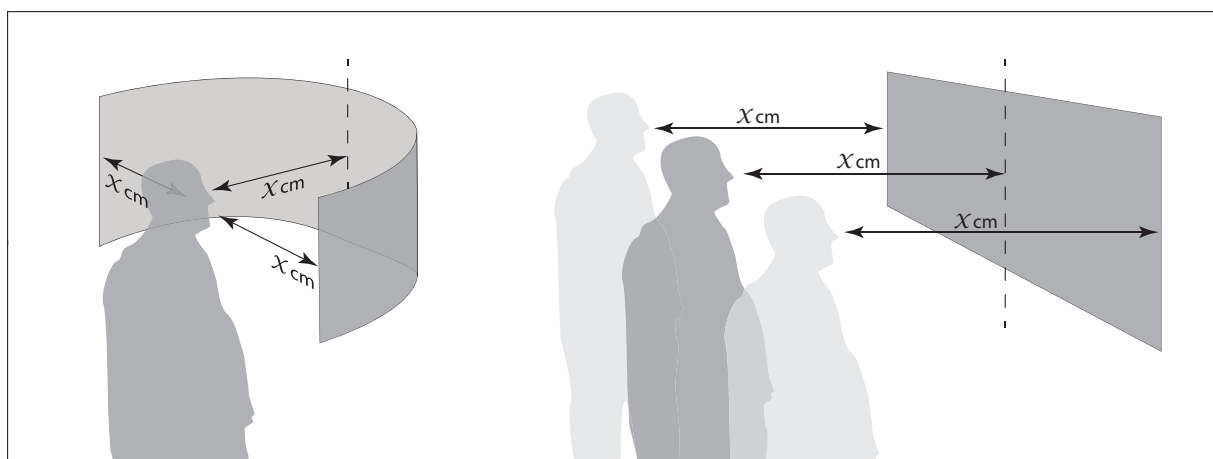


Fig 1.0 Viewing guide for printed photo simulations

Viewpoint Location Map

Far North Solar Farm Ltd
Ohau C



- Viewpoint 03
Pukaki-Ohau Canal Bridge
(E)325079.674 (N)821851.055
- Viewpoint 07
Alps 2 Ocean Cycle Trail
(E)326193.695 (N)817334.755
- Viewpoint 08
McAughtries Road
(E)328893.156 (N)807397.243
- Viewpoint 09
McAughtries Road
(E)330081.513 (N)806497.075
- Viewpoint 12
Falston Road
(E)331419.215 (N)805168.442
- Viewpoint 16
Haldon Arm Road
(E)336283.141 (N)806562.820
- Viewpoint 22
Lake Benmore
(E)332530.098 (N)803795.977
- Viewpoint 23
Greta Track
(E)310818.826 (N)816197.524



Date Printed : 28-03-2025



Viewpoint 03 - Existing



Viewpoint 03 - Proposed



Easting: 325079.674
Northing: 821851.055
Elevation : 521.628m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 16:08pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 03 - Pukaki-Ohau Canal Bridge

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 03 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 325079.674
Northing: 821851.055
Elevation : 521.628m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 16:08pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 03 - Pukaki-Ohau Canal Bridge

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 03 - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 325079.674
Northing: 821851.055
Elevation : 521.628m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 16:08pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 03 - Pukaki-Ohau Canal Bridge

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 07 - Existing



Viewpoint 07 - Proposed



Easting: 326193.695
Northing: 817334.755
Elevation : 466.593m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 17:11pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 07 - Alps 2 Ocean Cycle Trail

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 07 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 326193.695
Northing: 817334.755
Elevation : 466.593m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 17:11pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 07 - Alps 2 Ocean Cycle Trail

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 07 - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



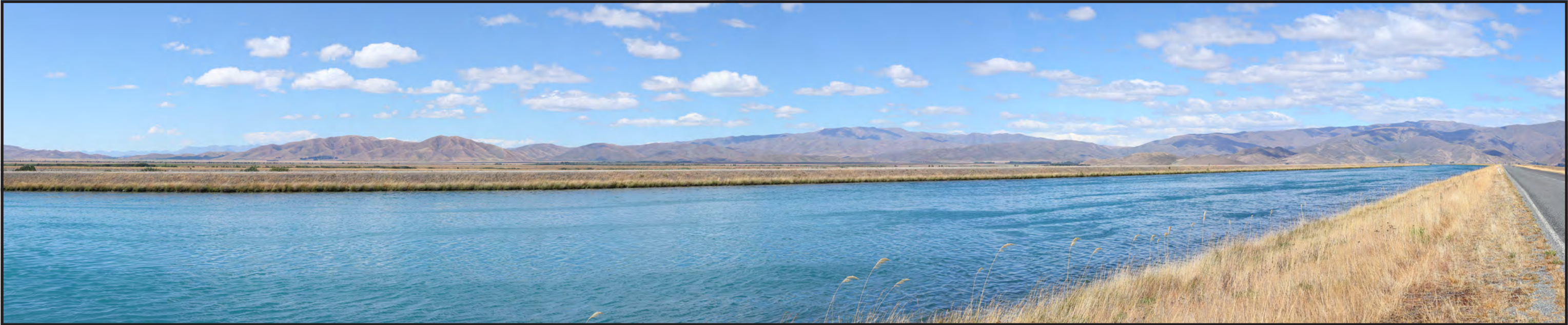
Easting: 326193.695
Northing: 817334.755
Elevation : 466.593m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 08 Feb 2023
Time of Photography : 17:11pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 07 - Alps 2 Ocean Cycle Trail

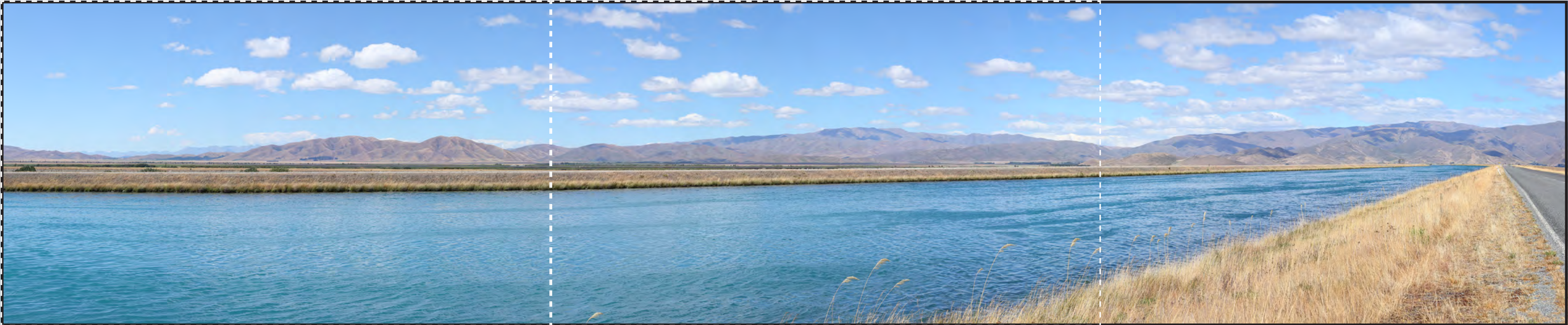
NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 08 - Existing



Viewpoint 08 - Proposed



Viewpoint 08a - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 328893.156
Northing: 807397.243
Elevation : 411.732m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 15:28pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 08 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 08a - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 328893.156
Northing: 807397.243
Elevation : 411.732m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 15:28pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 08 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 08b - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 328893.156
Northing: 807397.243
Elevation : 411.732m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 15:28pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 08 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 08b - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 328893.156
Northing: 807397.243
Elevation : 411.732m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 15:28pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 08 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09 - Existing



Viewpoint 09 - Proposed - Year 02



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09 - Existing



Viewpoint 09 - Proposed - Year 05



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09a - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09a - Proposed - Year 02

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09a - Proposed - Year 05

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09b - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09b - Proposed - Year 02

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 09b - Proposed - Year 05

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 330081.513
Northing: 806497.075
Elevation : 412.099m
Height of Camera : 1.4m
Orientation of View : NE
Date of Photography : 08 Feb 2023
Time of Photography : 14:00pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 09 - McAughtries Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 12 - Existing



Viewpoint 12 - Proposed - Year 02



Viewpoint 12 - Existing



Viewpoint 12 - Proposed - Year 05



Viewpoint 12 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 331419.215
Northing: 805168.442
Elevation : 374.023m
Height of Camera : 1.4m
Orientation of View : N
Date of Photography : 08 Feb 2023
Time of Photography : 14:45pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 12 - Falston Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 12 - Proposed - Year 02

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 331419.215
Northing: 805168.442
Elevation : 374.023m
Height of Camera : 1.4m
Orientation of View : N
Date of Photography : 08 Feb 2023
Time of Photography : 14:45pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 12 - Falston Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 12 - Proposed - Year 05

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 331419.215
Northing: 805168.442
Elevation : 374.023m
Height of Camera : 1.4m
Orientation of View : N
Date of Photography : 08 Feb 2023
Time of Photography : 14:45pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 12 - Falston Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 16 - Existing



Viewpoint 16 - Proposed



Easting: 336283.141
Northing: 806562.82
Elevation : 386.23m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 08 Feb 2023
Time of Photography : 11:27am

Far North Solar Farm Ltd - Ohau C
Viewpoint 16 - Haldon Arm Road

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 16 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 336283.141
Northing: 806562.82
Elevation : 386.23m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 08 Feb 2023
Time of Photography : 11:27am

Far North Solar Farm Ltd - Ohau C
Viewpoint 16 - Haldon Arm Road

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 16 - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 336283.141
Northing: 806562.82
Elevation : 386.23m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 08 Feb 2023
Time of Photography : 11:27am

Far North Solar Farm Ltd - Ohau C
Viewpoint 16 - Haldon Arm Road

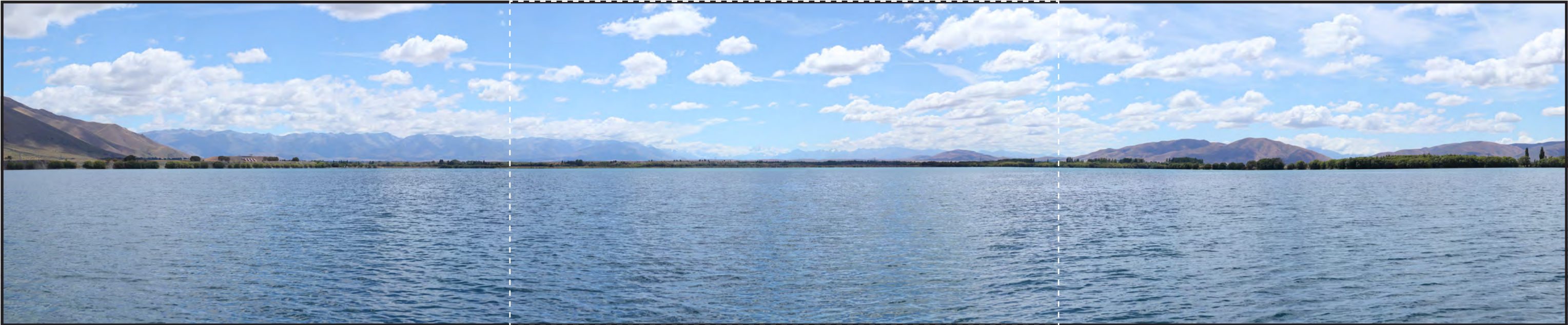
NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





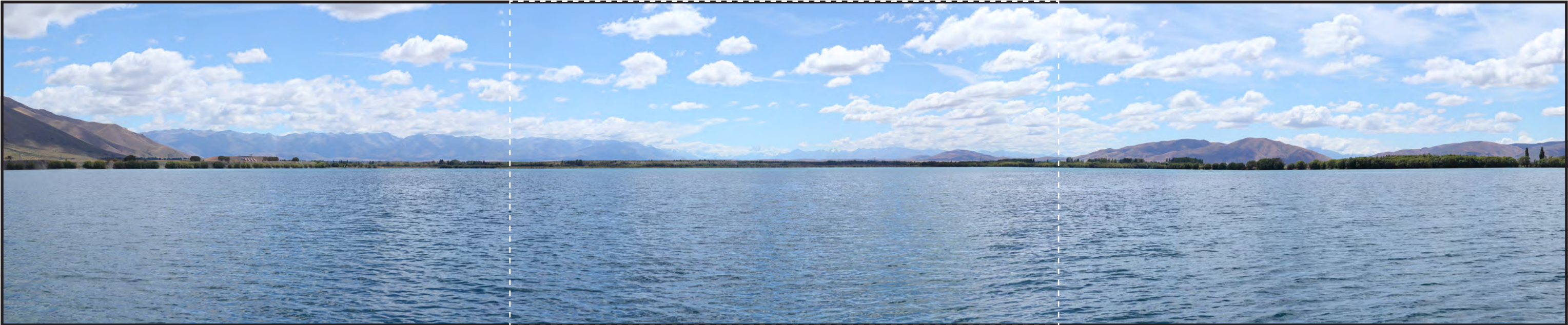
Viewpoint 22 - Existing



Viewpoint 22 - Proposed - Year 02



Viewpoint 22 - Existing



Viewpoint 22 - Proposed - Year 05



Viewpoint 22 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 332530.098
Northing: 803795.977
Elevation : 360.736m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 10 Feb 2023
Time of Photography : 13:37pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 22 - Lake Benmore

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 22 - Proposed - Year 02

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



VIRTUALVIEW
3D VISUALISATION SPECIALISTS

Easting: 332530.098
Northing: 803795.977
Elevation : 360.736m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 10 Feb 2023
Time of Photography : 13:37pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 22 - Lake Benmore

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 22 - Proposed - Year 05

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 332530.098
Northing: 803795.977
Elevation : 360.736m
Height of Camera : 1.4m
Orientation of View : NW
Date of Photography : 10 Feb 2023
Time of Photography : 13:37pm

Far North Solar Farm Ltd - Ohau C
Viewpoint 22 - Lake Benmore

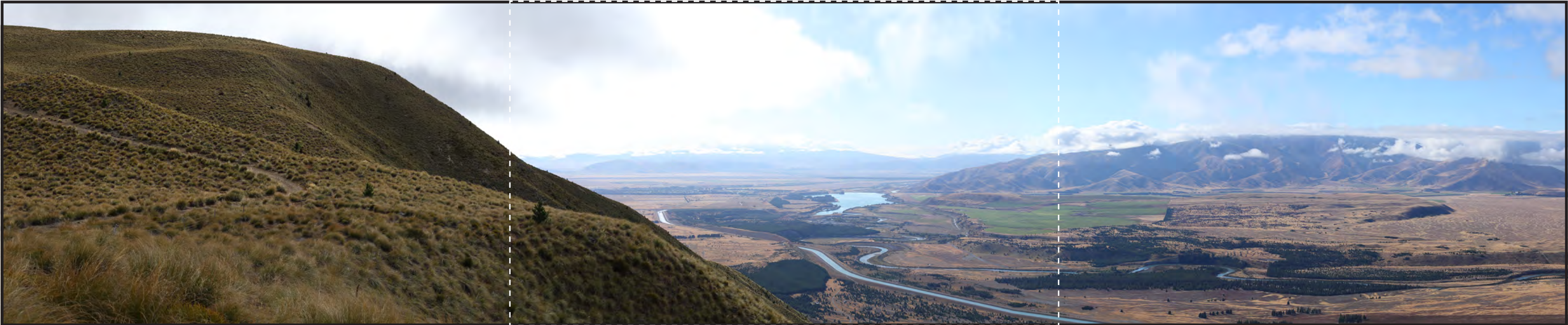
NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 23 - Existing



Viewpoint 23 - Proposed



Easting: 310818.826
Northing: 816197.524
Elevation : 1101.437m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 10 Feb 2023
Time of Photography : 9:23am

Far North Solar Farm Ltd - Ohau C
Viewpoint 23 - Greta Track

NOTES: All photos were taken by Virtual View with a Canon 5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.
Dashed white line indicates cropped viewpoint portion.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 23 - Existing

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 310818.826
Northing: 816197.524
Elevation : 1101.437m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 10 Feb 2023
Time of Photography : 9:23am

Far North Solar Farm Ltd - Ohau C
Viewpoint 23 - Greta Track

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025





Viewpoint 23 - Proposed

IMAGE TO BE VIEWED AT 50cm FROM EYE FOR CORRECT VIEWING SCALE WHEN PRINTED AT A3



Easting: 310818.826
Northing: 816197.524
Elevation : 1101.437m
Height of Camera : 1.4m
Orientation of View : SE
Date of Photography : 10 Feb 2023
Time of Photography : 9:23am

Far North Solar Farm Ltd - Ohau C
Viewpoint 23 - Greta Track

NOTES: All photos were taken by Virtual View with a Canon
5Dmk2 and a 50mm lens.
Photo positions were surveyed by Virtual View.

Version info: 0003
Date Printed: 28-03-2025

