



Memorandum

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Attention: Dave Moule, Planner

Company: Boffa Miskell Ltd

Date: 8 July 2022

From: Emma McRae, Associate Principal Landscape Architect

Message Ref: Waiterimu Solar development, Initial Landscape and Visual Comments

Project No: BM210126

Boffa Miskell Limited (BML) has been engaged by Waikato Solar Farms Limited to undertake an Assessment of Landscape Effects¹ (ALE) for a proposed solar energy development at 345 Waiterimu Road, Waiterimu, (otherwise referred to as The Site in this report). This memo provides an outline of the initial findings of the ALE and has been prepared for inclusion in an application for Ministerial referral of the project for fast-track consenting².

The Site

The Site is zoned Rural within the both the Operative and Proposed (Decisions Version) Waikato District Plan.

Two site visits were undertaken to the site on consecutive days on 20-21 September 2021 to view the site and its surroundings, and then for a more detailed site walkover.

Summary of findings

The initial analysis outlined below indicates that the Project will not have any significant adverse landscape, visual or natural character effects.

Methodology

This initial assessment considers the natural character, landscape and visual effects of the Proposed Development and has been undertaken with reference to the Quality Planning Landscape Guidance Note (Ministry for the Environment)³ and its signposts to examples of best practice, including: the UK guidelines for landscape and visual impact assessment⁴, the New Zealand Landscape Institute Guidelines for Landscape Assessment⁵ and the Draft Aotearoa Landscape Assessment Guidelines Te Tangi a te Manu⁶.

A full methodology will be outlined in the ALE, but in summary identified effects are rated using a seven-point scale which ranges from 'very low' to 'very high'. That scale, together with the corresponding meaning in terms of Resource Management effects scales (i.e. less than minor, more than minor and significant), illustrated in the following table:

¹ The assessment will consider the natural character, landscape and visual effects of the Proposed Development and will be undertaken with reference to the Draft Aotearoa Landscape Assessment Guidelines Te Tangi a te Manu. Te Tangi a te Manu recognises the term 'landscape effects' as all-encompassing, and that visual effects and natural character effects are a subset of landscape effects. The assessment will provide separate chapters to discuss landscape, visual and natural character effects, but is referred to throughout as an Assessment of Landscape Effects in accordance with the Guidelines.

² Under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

³ <https://www.qualityplanning.org.nz/index.php/node/805>

⁴ Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, 2013

⁵ Best Practice Note Landscape Assessment and Sustainable Management 10.1, NZILA

⁶ Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines [Final Draft], NZILA

Te Tangi a te Manu seven-point scale	Very Low	Low	Low-Moderate	Moderate	Moderate-High	High	Very High
<u>Resource Management Effects Scale</u>	<u>Less than Minor</u>	<u>Minor</u>		<u>More than Minor</u>			
						Significant⁷	

Landscape Context

In the wider landscape context, the site forms a part of the Eastern Hills, which constitutes the defining landscape boundary to the Waikato District and its central plains landscape. The Waikato Landscape Study (Boffa Miskell, 2016), describes the area as “Comprising the southern extent of the Hunua Ranges in the north, the character area includes hill ranges of Rataroa, Hapuakohe and Hangawera. The Hunua Ranges serve a major water catchment function with the Wairoa, Upper Mangatawhiri and Mangatangi Reservoirs being located within the District.” The study notes that land use within the southern extent of the Eastern Hills comprises large runs of grazing and dairying blocks with pockets of exotic forest on steep slopes.

The site is relatively well contained within the wider landscape, being situated within the valley formed by the Matahuru Stream, which is contained by hills to the northwest, east and south, see **Figure 1**.

Land within the site can broadly be divided into three landscape types:

- Land within the vicinity of the Matahuru Stream: land in this area is flat to undulating and falls towards the incised stream gully. Vegetation around the stream area includes native bush remnants together with numerous mature remnant totara trees, which are also scattered throughout the grazed fields in this area.
- Flat open pastoral land to the west of the Matahuru Stream: This flatter lower lying area of the site includes some hedgerow and shelterbelt boundaries, mature trees and wetland areas. The milking shed and effluent pond lie within this area.
- Land forming toe slopes of the Eastern hills: Land to the northwest of Waiterimu Road and south of the paper road which runs parallel with Waiu Road includes steeper land which forms the lower slopes of the surrounding hills.

The surrounding land uses to the site are zoned rural and used primarily for rural activities, in particular dairy farming. Other land use in the surrounding area includes around 200m north of the site, an area of plantation forestry, the Ohinewai Switching Station 1.7km to the east, and a transmission line which traverse the site. Dwellings, mostly single level are sparsely distributed throughout the valley and are frequently surrounded by shelterbelts, hedgerows, and amenity planting to provide wind protection and enclosure, refer Figure 3.

There are no Outstanding Natural Features or Landscapes or Special Amenity Landscapes within the site boundary. Around 1.6km away from the site boundary at the nearest point, Lake Waikare and nearby Lake Whangape are recognised as Outstanding Natural Features. These are separated from the site and its surrounding context by the range of hills to the west of the site. There are two small areas defined as Significant Natural Areas (SNA) located adjacent to/within the site boundary, in the northern and eastern parts of the site, see Figure 2A and 2B. The proposed development avoids disturbance in these areas and they will be retained as part of the development.

Visual context

The site has a limited viewshed. The site's location within a localised valley formed by the Matahuru Stream and surrounded by the rolling landform of the Eastern Hills, limits potential visibility from the wider area. The site is not visible from any areas of settlement. Primary views towards the site are from four rural roads with low traffic volumes which pass through and adjacent to the site: Waiterimu Road, Waiu Road, Storey Road and Mahoe Road. Views from a small number⁸ of farm dwellings on these roads towards the site are available where vegetation and topography allow. Two properties at the top of Mahoe Road have expansive

⁷ Significant adverse effects' means those of major magnitude and importance. 'Significant adverse effects' applies to particular RMA situations, namely as a threshold for the requirement to consider alternative sites, routes, and methods for Notices of Requirement under RMA s171(1)(b), the requirements to consider alternatives in AEEs under s6(1)(a) of the 4th Schedule. It may also be relevant to tests under other statutory documents such as for considering effects on natural character of the coastal environment under the NZ Coastal Policy Statement (NZCPS) Policy 13 (1)(b) and 15(b).

⁸ Subject to final assessment, this is expected to be less than 20 in number.

views out over the site, although views from the dwellings themselves are limited, Refer dwellings 5 and 6, on Figure 3.

A ridgeline to the northwest of Waiterimu Road separates the site from Lake Waikare to the east. Likewise, views from the south are contained by the ridgeline to the northeast of Tahuna Road. To the east of Storey Road, land rises towards the summit of Pororua (261m). Farm dwellings on Waugh Road, Mangapiko Valley Road and Rollo Road to the east provide the only potential mid distance views from elevated locations towards the site. To the north of the site, the valley curves and narrows, and together with vegetation cover in the area, views north of Mangapiko Valley Road towards the site are obscured. A range of representative views from these roads will be provided and discussed in the ALE.

Whilst private views are relevant, public viewpoints will be used to provide representative 'worse case' views from the majority of private dwellings. Views from dwellings may also be curtailed by building location and orientation, intervening fences, vegetation, or other buildings which cannot be properly assessed without gaining access to private property. Views from the nearest properties to the site which may experience adverse visual effects will be assessed in the ALE.

Statutory provisions

The site is located within the Rural zone of the Waikato District.

A key policy in relation to landscape and amenity values (Policy 3.4.2) is that:

“Natural features and landscapes, including locally distinctive landforms and prominent ridgelines, and general visual amenity values should be protected from inappropriate subdivision, use and development, in particular by:

- *avoiding or mitigating adverse effects on natural features such as indigenous vegetation, lakes, rivers and mountains*
- *ensuring that the visual effects of buildings can be absorbed without significant adverse effects on the landscape*
- *locating buildings and development so as to integrate them with the surrounding landscape and backdrops, to avoid dominating the landscape*
- *avoiding, remedying or mitigating as soon as practicable, the adverse visual effects of earthworks and vegetation clearance*
- *locating national grid transmission lines in ways that avoid or minimise adverse effects on visual amenity.”*

Within the Proposed Waikato District Plan the site is located within the Rural Zone, whose purposes include to enable farming activities, and maintain rural character and amenity.

Policy GRUZ-03 aims to ensure rural character and amenity is maintained and that *“The attributes of areas and features valued for their contribution to landscape values and visual amenity are maintained or enhanced.”*

A key policy for the Infrastructure (AINF-P21) chapter aims to:

“Enable the investigation, development, operation, maintenance and upgrading of renewable electricity generation activities, including domestic and community scale distributed renewable electricity generation, provided that adverse effects are avoided, remedied or mitigated.”

The Waikato Regional Policy Statement (RPS) provides the current framework for the sustainable management of the Region's natural resources. Within the RPS, Policy 12.1 is relevant to the Region's outstanding natural features and landscapes. Under this policy, Policies 12.1.1 and 12.1.2 and 12.1.3 require the identification, protection and identification of values of outstanding natural features and landscapes to tāngata whenua. Policy 12.3 requires that areas of amenity value are identified, and those values maintained and enhanced. No outstanding natural features and landscapes or special amenity landscapes identified in the RPS are located within the Site.

Proposed Development

Refer **Figures 2A** and **2B**. The proposed development involves the construction, operation and maintenance of an approximately 140MW photovoltaic solar farm. It will consist of approximately 225,000 solar panels set across a 380 ha site.

The solar farm is anticipated to be constructed of bifacial monocrystalline panels mounted on a metal tracking system aligned in North-South rows and panels will rotate East-West (+/- 120°). While detailed design is ongoing, it is currently anticipated that:

- The central axis will be approximately 1.3-2.3m high and each panel when rotated to the maximum angle will reach approximately 2.5-3.5m high.
- The rows are located 5-6.5m (pitch pole to pole) apart, 2.5-4 m (horizontal gap) when panels are positioned horizontally.
- Cabinets housing the inverters, transformer and associated equipment to convert DC energy produced by the solar panels into AC energy required by the national grid will be placed around the site and connected by buried cabling.
- The development will also include ancillary buildings, structures, access roads, cabling and infrastructure.

The site perimeter is anticipated to be made secure by the construction of 2.0metre high deer fencing and CCTV camera mounted on 2.5m high poles will be placed at certain points around the site.

A new 220kV substation will be constructed adjacent to the national grid transmission line (tower HLY-DEV-A0631) which runs across the site to connect the project to the National Grid and will be connected to the transmission network by a new section of transmission line and two supporting poles within the Site. The substation, which is to be approximately 6,000m² in area, will be accessed via nearby Waiu Road. The componentry within the new substation will generally be between 5-10m in height, with limited vertical infrastructure (gantries and telecommunications poles) being up to c.25m in height. The project will also contain an energy storage facility on a small area adjacent to the substation comprised of battery storage systems within storage cabinets.

The Project will also include environmental enhancement areas for planting of native species and screen planting, along with retaining existing mature vegetation and enhancement of existing wetland habitats and waterways. As the specific details of screening/mitigation planting (including indigenous species type which is being discussed with mana whenua) are still being determined as part of the preparation of the ALE and consent application, the visual simulations appended to this report do not include screen planting. Mitigation through strategically located tree planting will reduce visual effects from selected viewpoints.

Initial Assessment of Landscape Effects

Landscape and visual impacts result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities. All these impacts will be assessed to determine their effects on character and quality, amenity as well as on public and private views.

The form and layout of the development has been considered and mitigation measures have been included as integral measures to limit the degree of landscape character and visual effects, see Figures 2A/2B. These mitigation measures include:

- To assist with screening views and limit the perception of landscape change, screen planting is included in the following areas:
 - a 3.5m wide planted buffer along selected sections of Waiterimu and Storey Roads
 - a 5m wide planted buffer around the substation and battery storage areas along Waiu Road
 - a 3.5m wide planted buffer in other locations on the site boundary identified as being visually sensitive

- An approximately 15-17m setback of panels from the carriageway of all roads (12m from the road reserve edge)

The preliminary assessment below has taken into account this integral mitigation in place.

The project will have an adverse effect on the landscape character of the area both during construction, with earthworks, and during operation following the installation of solar panels and the substation and battery storage areas, each of which will contribute to a change in the character of the area. The level of effect would range from **low adverse** initially, gradually increasing as a greater number of panels are installed, and the substation and battery storage area are completed. The effects would then become **moderate-high adverse** as panel installation is completed and the farm becomes operational, due to the scale of change in relation to the landscape character of the area. Due to the inherent nature of a solar farm, the area will change from an undulating rural landscape to a landscape of energy infrastructure.

Visual effects are however very localised, being mainly limited to the three minor rural roads, which have low traffic volumes, immediately adjacent to the Site – Waiterimu Road, Waiu Road and Storey Road. The road corridors in the area are well vegetated, with hedgerow vegetation and mature trees along the Matahuru Stream (which will be retained within the development), assisting with screening views from the minor roads. Views from the road corridor are transient views only and with the proposed mitigation in place, will generate **moderate-high adverse to low adverse** effects during the Site operation, dependent on the nature and duration of the view. Viewpoint VS1A/VS1B is representative of a glimpsed view available through a gap in roadside vegetation towards the site from Waiterimu Road. The full ALE will include multiple visual simulations to provide a full understanding of representative views of the development. The simulation as VS1 has been provided to give an initial understanding of the proposed development in its landscape context.

For the majority of dwellings in the area, views are either mitigated by distance, screened by landform or planted with shelterbelts, hedgerows, and amenity trees; and thus views towards the Site are screened and effects will be **moderate-low adverse to very low adverse**.

There is the potential for higher adverse visual effects from a limited number of private properties. Screen planting is proposed at various locations on the site to mitigate effects in relation to the nearest properties with the most open views, thus reducing visual effects for these properties. For properties where existing screen planting is limited or planting within the site to screen views would be ineffective, it is understood that landowners will be offered tree planting to assist with mitigation. Such planting would be subject to the wishes and agreement of the aforementioned property owners and would typically involve planting of shelterbelts or stands of amenity trees between the dwelling and the development.

The Site has been highly modified through its existing land use as a dairy and beef farm. Due to the high level of landscape modification, experiential values associated with **natural character values are low**. Existing ecological values are generally low across the farm, except in the areas of identified wetland and the Significant Natural Areas (SNAs) within the site; which will not be modified as part of the proposal.

When considering the Sites' existing nature, the biotic attributes (particularly existing wetland and stream areas) are expected to improve and regenerate over time. The existing wetland areas will be fenced off from grazing animals and left to regenerate and thus provide habitat for indigenous flora species. In time, the wetland and stream habitats across the Site will increase in naturalness. Experiential attributes associated with a rural environment will reduce due to the presence of numerous structures that cover the landscape and partially obscure the natural undulation of the landforms. Overall, given the site's existing low level of natural character, the proposal is considered to have a **neutral to low beneficial** effect on natural character values.

The potential for cumulative effects has also been considered. There is no intervisibility between any consented infrastructure or development projects or other solar projects in the planning stages and the site.

Conclusions

On the basis of the above initial assessment, landscape character effects will be moderate-high adverse and visual effects are expected to range from very low adverse to moderate-high adverse, dependent on the nature and duration of the view experienced. There will be neutral to low beneficial effects on natural character.

The initial analysis therefore indicates there will not be significant adverse landscape, visual or natural character effects.