Appendix L

Landscape and Visual Assessment

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Kentbruck Green Power Hub

Landscape Character and Visual Impact Assessment

Prepared for NEOEN Australia Pty Ltd 3 October 2024

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Landscape Architecture

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GBD is a leading specialist in renewable energy landscape character and visual impact assessment, setting a course that others follow.

Servicing the renewable energy industry for over 18 years, GBD has gathered a wealth of unrivalled project experience in a variety of landscapes from Far North Queensland to western Tasmania.

GBD has applied acquired knowledge across multiple state planning authorities addressing planning frameworks and specific regulatory requirements for renewable energy developments.

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The methodology adopted and sources of information used are outlined in this report. GBD has made no independent verification of this information beyond the agreed scope of works and GBD assumes no responsibility for any inaccuracies or omissions.

No indications were found during our investigations that information contained in this report as provided to GBD was false.

This report was completed between March 2021 and October 2024 and is based on the conditions encountered and information reviewed at the time of preparation. GBD disclaims responsibility for any changes that may have occurred after this time. This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Cover image: Photomontage view north to north east from the Lake Mombeong to Ocean track lookout.

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Table 1 Glossary

Term	Definition
Coupe	A small area of forest within a compartment that is harvested in a single operation
Cumulative effects	The summation of effects that result from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.
Human scale indicators	Natural landscape features or constructed elements that form relatable scaled visual characteristics based on human sensory capabilities.
Landscape	A visible area of the earth's surface defined by natural or human induced change with discernible characteristic of landform, land use and human cultural overlays.
Landscape character	A distinct and consistent pattern of elements in the landscape that create an area of landscape visually different from other areas.
Magnitude	A combination of the scale, extent and duration of an effect.
Mitigation	Measures, including any processes, activity or design to avoid, reduce, remedy or compensate for adverse landscape and visual effects of a development project.
Photomontage (Visualisation)	Computer simulation or other technique to illustrate the appearance of a development.
Seascape	A combination of coastline and sea within an area defined by a mix of land-sea intervisibility.
Sensitivity	Susceptibility of a receiver to a specific type of change.
Skyline	An outline of the land as defined against the sky.
Stacking	The visual effect of multiple wind turbine rotors overlapping within a view
Topographical variety	A various arrangement of forms and features of land surfaces.
Viewshed	The total landscape/seascape area seen from a location or path of travel
Visibility	A relative determination at which the proposal can be clearly discerned and described.
Visual amenity	The value of a particular area or view in terms of what is seen.

Table 1 Glossary

Visual effect	The change in character of an available view that results from a development or the changes in visual amenity of people living beyond the project.
Visual Assessment	A process of applied professional and methodical techniques to assess and determine the extent and nature of change to the composition of existing views that may result from a development.
View location	A place or situation from which a proposed development may be visible.
Visual receiver	Individual and/or defined groups of people who have the potential to be affected by a proposal.
Visual significance	A measure of the importance or gravity of the visual effect culminating from the degree of magnitude and receiver sensitivity.

Section 1. Executive summary

1.1 Introduction

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared to consider the potential for landscape and visual impacts associated with the proposed Kentbruck Green Power Hub Project (the Project) and to address various statutory requirements of the Victorian Planning Framework and local planning policies and objectives.

1.2 Professional judgement in landscape and visual impact assessment

The process of landscape and visual impact assessment incorporates both qualitative and quantitative analysis; however, determinations of impacts are ultimately based on interpretations informed by professional judgement. The application of professional judgement is outlined in the Guidelines for Landscape and Visual Impact Assessment, 3rd Edition 2013, which notes that professional judgement is a very important part of landscape and visual impact assessment. The Guideline notes that professional judgement is applied to several other environmental topics (e.g., ecology and cultural heritage) and that judgements made should be:

- Reasonable and based on clear and transparent methods
- Based on training and experience and
- Made, in general, by suitably qualified and experienced landscape professionals.

The Guideline correctly notes that qualified and experienced landscape professionals may not agree on various aspects of a landscape and visual impact assessment which may arise from the application of different approaches or criteria; however, the core principals of receiver sensitivity and magnitude of impact should provide some consistency in determinations of impact.

1.3 Landscape characteristics

This LCVIA has determined that landscape characteristics within and immediately surrounding the Project site, as well as characteristics within the broader landscape, are visually robust and defined by strong visual forms and broadscale, consistent landscape patterns.

Whilst recognising landscape sensitivities and values applied to the landscape surrounding the Project site, the overall landscape characteristics within and surrounding the Project site are considered to exhibit visual characteristics which tend to result in a moderate to high sensitivity to accommodate change.

Landscape characteristics with a moderate sensitivity are those associated with broad, simple patterns and consistent colour and texture. These include areas with extensive tree cover such as the commercial pine plantations covering most of the Project site, as well as tree cover extending through adjoining National Parks. These landscape characteristics are also generally common within the perspective of the broader regional landscape.

Landscapes beyond the Project site display characteristics of high value and have a high degree of visual amenity and include landscape/seascape characteristics of the ocean beach, Discovery Bay, Coastal/National Parks and the Glenelg River/estuary beyond the Project site.

Landscape characteristics and the overall potential visibility of the Project has been illustrated in a series of panoramic/aerial photographs and in Zone of Theoretical Visibility (ZTV) diagrams. The ZTV diagrams demonstrate the influence of undulating sand dunes, river corridors and the volcanic landforms of Cape Bridgewater on visibility and identify areas from which the Project would, and would not, be visible.

The Project would form a new feature within the landscape and a visual landmark from seascape (water based) views but would not tend to overly conflict with existing landscape features, townships, or dramatic coastal landforms and cliffs around Cape Bridgewater. Views from areas with seascape views would be impacted by various degrees of visibility subject to prevailing weather conditions including fog, cloud, mist, and sea spray commonly experienced in coastal locations surrounding the Project site.

1.4 Visual effects

The assessment of visual effects determined that seven dwellings within 10km of the wind turbines would experience a high or moderate high visual effect, with the majority likely to experience a moderate or low visual effect. Most dwellings are unlikely to have any significant views toward ancillary electrical infrastructure including sub stations and transmission lines. Views toward the Project from the Nelson township would be largely screened and result in negligible to low impacts but rising to Moderate and High from areas in the eastern portion of the township where views would extend around 4.7km distance from Wade Street to closest wind turbine WTG24.

Whilst views from National Parks and the Glenelg River/estuary have the potential for moderate to high visual effects, the extent of tree cover, combined with topography significantly restricts opportunities to view wind turbines. Similarly, views from the ocean beach and a section of the Great South West Walk (GSWW) have the potential for moderate to high visual effect; however, sand dunes rising between 10m and 20m in height together with low coastal vegetation will screen or partially screen views toward wind turbines from sections of the ocean beach and foreshore (refer wireframe diagrams **Figures 67** to **75**). Small sections of the GSWW, around the Lake Mombeong inland track, Lake Mombeong lookout and beach sand dunes at Swan Lake, will have proximate and direct views toward wind turbines resulting in moderate high and high visual impacts.

1.5 Electrical infrastructure

An assessment of the proposed overhead 275kV transmission line, collector substations and main substation determined that existing landscape characteristics, including tree cover and a low undulating landform along most of the proposed overhead transmission line easement, would have some capability to absorb potential visual impacts. The 26.6km eastern section of the 275kV transmission line connection from the Portland Nelson Road to the Heywood Terminal Station south of Heywood, would be installed underground with any visual effects restricted to temporary construction activities.

1.6 Night time obstacle lighting

An obstacle lighting review determined that wind monitoring towers be appropriately marked in accordance with applicable guidelines (excluding strobe lighting) noted in the lighting review. The lighting review further determined that the Project is a low risk to aviation activity and therefore does not require obstacle lighting with no further mitigation required.

1.7 Cumulative impacts

A cumulative assessment identified approved and operating wind farms including Portland, Codrington and Yambuk within a 30 kilometre (km) sub regional locality of the Project. A small number of proposed and operational wind farms are in excess of 60km to the east of the Project site (refer **Figure 31**). This LCVIA determined that there would be limited opportunities for land based intervisibility between the Project site and other wind farms within a regional context.

The nearest operational wind turbine (Cape Bridgewater) would be around 20km south east of the Project site. Potential and indirect views may extend between wind turbines within the Project and wind turbines at Cape Bridgewater from coastal locations between the two wind farms. Indirect views beyond 10km would be distant and not result in a significant cumulative visual effect.

This LCVIA determined that the Project would be unlikely to result in a significant cumulative visual effect arising from indirect or direct visibility between other on shore proposed and operational wind farms

This LCVIA notes areas of potential offshore wind farm development may occur within the Southern Ocean region off Victoria and South Australia. The Southern Ocean declared offshore wind area would be around 77km from the nearest Kentbruck wind turbine, eliminating any potential for cumulative impacts.

1.8 Mitigation

Mitigation works have been recommended where **Moderate High** and **High** visual effects have been determined at dwelling locations beyond the Project site, which would result in **Low** or **Moderate** residual visual effects.

Mitigation works could also be installed to address **Moderate High** and **High** visual effects at publicly accessible locations, including those within designated landscapes, subject to consultation with external stakeholders.

On-site mitigation works would minimise visual effects associated with ancillary infrastructure including substations and the on-site quarry. The locations of ancillary structures would not result in significant visual effects.

1.9 Acceptability of landscape and visual impacts

The Development of wind energy facilities Policy and planning guidelines notes that '*a responsible authority needs to determine whether or not the visual impact of a wind energy facility in the landscape is acceptable'.* This LCVIA has assessed the potential landscape and visual effect of the Project against relevant policies and guidelines, and has determined that in our professional opinion, the level of landscape and visual effects are acceptable.

Section 2. Introduction and EES Scoping Requirements

2.1 Introduction

This LCVIA has been prepared to form part of the Environment Effects Statement accompanying a Planning Scheme Amendment for the proposed Kentbruck Green Power Hub project (the Project). This LCVIA informs the assessment of the Project site for suitability for a wind farm development within the landscape surrounding the Project, as well as considering the potential extent and degree of visual effects on people living in and travelling through, the surrounding landscape and those visiting places around the Project site for recreation and tourism.

This LCVIA has been prepared by Andrew Homewood, Director and Principal Landscape Architect at Green Bean Design Pty Ltd (GBD). Andrew has over 30 years' experience in landscape architectural consulting, and over 17 years' experience in the preparation of LCVIA reports for wind farm projects, as well as other state significant projects including high voltage transmission lines, substations, and battery energy storage systems. Andrew has been commissioned to undertake LCVIA studies for over 60 large scale renewable energy projects across Victoria, New South Wales, Queensland, South Australia, and Tasmania.

This LCVIA has been prepared with reference to the following documents and guidelines to identify and consider potential landscape and visual impacts:

- Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement, January 2020
- Development of Wind Energy Facilities in Victoria, Policy and Planning Guidelines September, Department of Transport and Planning September 2023, Section 5.1.3 Landscape and visual impact
- Ministerial guidelines for assessment of environmental effects under the Environmental Effects Act 1978 Eight edition, 2023 Department of Transport and Planning
- Glenelg Planning Scheme
- Marine and Coastal Act 2018 (Vic)
- Coastal Spaces Landscape Assessment Study (2006)
- Victorian Coastal Strategy (2014) and
- Ngootyoong Gunditj Ngootyoong Mara South West Management Plan, May 2015, Parks Victoria.

In addition, this LCVIA has also considered landscape and visual impact assessment guidance set out in:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute, and Institute of Environmental Management & Assessment, 2013
- Siting and Designing Wind Farms in the Landscape, Version 3a, NatureScot, August 2017 and
- Visual Representation of Wind Farms, Version 2.2, Scottish Natural Heritage, March 2017.

2.2 Previous studies

A Preliminary Landscape and Visual Impact Assessment (PLVIA) was prepared by GBD in July 2019. The PLVIA included:

- A description of the project and preliminary layout
- Key components of the wind farm
- A discussion of planning policies relevant to landscape and visual issues

- Identification of potential viewpoints
- Preparation of zone of visual influence diagrams
- Consideration for cumulative impacts.

2.3 EES Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement, January 2020

The Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement (Scoping Requirements) identify Landscape and Visual as a potential environmental effect to be assessed noting potential effects on local amenity values, including non-neighbouring landholders. The stated objective to 'minimise and manage potential adverse effects on landscape and visual amenity' is to be achieved through specific requirements which comprise the:

- Identification of key issues or risks
- Characterisation of the existing environment
- Assessing the likely effects
- Presenting design and mitigation measures and
- Proposing performance objective and management measures.

The following table outlines the specific requirements for Landscape and Visual in the Scoping Requirements and the response included in the LCVIA to address the Scoping Requirements.

Table 2 EES Specific Requirements for Landscape and Visual

Key Issues	LCVIA response:
Potential effects on significant landscape values and landforms in the vicinity of the project, especially national parks, other reserves and areas identified for their landscape values.	Refer Section 8 – Landscape Character Assessment
Potential for nearby residents / communities to be exposed to significant effects to the visual amenity, including blade glint and shadow flicker, from project infrastructure.	Refer Section 10 – Key views and visual effects and mitigation. Refer EES main report for results of shadow flicker and blade glint assessment prepared by GHD Pty Ltd.
Potential cumulative effects of other operating and proposed/ approved wind farms on landscape values of the region.	Refer Section 12 – Cumulative assessment
Existing environment	
Characterise the landscape character, features and values of the project area and its environs.	Refer: Section 7 – Panorama photographs and aerial images and Section 8 – Landscape Character Assessment

Table 2 EES Specific Requirements for Landscape and Visual

Key Issues	LCVIA response:
Identify public and private view sheds to and from the project and characterise visual values of the area, including dark skies.	Refer Section 8 – Landscape Character Assessment and Section 10 - Key views and visual effects
Identify the components of the project that may result in a significant visual amenity effect including turbines, powerlines and on-site quarry.	Refer Section 4 – Project description
Identify viewsheds in which the project site features, including from nearby residences (where permitted), public lookouts, tourist attractions, roads and key vantage points in the vicinity.	Refer Section 10 – Key views and visual effects and Section 9 – Zone of Theoretical Visibility and Visibility
Likely effects	
Assess the landscape and visual effects of the project, including on public and private views, and effects of blade glint and shadow flicker on neighbouring dwellings and communities. Use photomontages and other visual techniques to support the assessment.	Refer: Section 10 – Key views and visual effects, Section 9 – Zone of Visual Influence and Visibility and Appendix A, B, C and D Photomontages and Wireframes Refer EES main report for results of shadow flicker and blade glint assessment prepared by GHD Pty Ltd
Assess the potential for cumulative effects associated with the development of the project in the context of existing built infrastructures, as well as nearby operating and proposed/approved wind farm or other developments.	Refer Section 12 – Cumulative assessment
Mitigation measures	
Outline and evaluate any potential design and siting options that could avoid and minimise potential effects on landscape and visual amenity of neighbouring residences and communities and additional management strategies that may further minimise potential effects.	Refer Section 14 – Mitigation measures

Table 2 EES Specific Requirements for Landscape and Visual

Key Issues	LCVIA response:
Performance objectives	
Describe proposed measures to manage residual effects on landscape and visual amenity values, including in the context of potential rehabilitation and restoration work following decommissioning.	Refer Section 14 – Mitigation measures

Section 3. Methodology and report structure

3.1 Methodology

The methodology employed for this LCVIA is based on existing guidelines identified in the LCVIA introduction, and also on the assessment of a significant number of wind farm LCVIA undertaken by GBD across Victoria, South Australia, New South Wales, Queensland and Tasmania.

The Victorian Guideline requirements and methodology for LCVIA are identified in the following table:

Table 3 Victorian Guidelines Specific Requirements for Landscape and Visual

Key Issues	LCVIA response:
Potential effects on significant landscape values and landforms in the vicinity of the project, especially national parks, other reserves and areas identified for their landscape values.	Refer Section 8 – Landscape Character Assessment
Potential for nearby residents / communities to be exposed to significant effects to the visual amenity, including blade glint and shadow flicker, from project infrastructure.	Refer Section 10 – Key views and visual effects Refer EES main report for results of shadow flicker and blade glint assessment prepared by GHD Pty Ltd.
Potential cumulative effects of other operating and proposed/ approved wind farms on landscape values of the region.	Refer Section 12 – Cumulative assessment

In its most basic form, the key principles of visual impact assessment consider a combination of:

- Receiver sensitivity (landscape or people) and
- Potential magnitude of visual effects.

For wind farm projects the magnitude of visual effects is primarily determined through:

- Distance between wind turbines and receiver locations
- Horizontal field of view occupied by wind turbine structures and
- Vertical field of view occupied by wind turbines.

The measurement of horizontal and vertical fields of view are difficult to quantify against set criteria for potential visual impact and are often considered against the parameters of normal human eyesight. Whilst human eyesight can be objectified against horizontal and vertical field of view, it does not consider the propensity for almost continual movement of receivers in the landscape and a natural inclination to scan distant horizons. Nevertheless, formulating a professional judgement on the visual scale of a wind turbine within a particular vista is necessary step in the visual assessment process.

It is important to understand the difference between visual impact assessment and landscape visual assessment and why both types of assessments are appropriate to include in this LCVIA. Visual impact assessments assess impacts on

viewers (people) caused by developments on views from selected viewpoints, as seen by particular people. Examples include a view of the development from a residential area where it will be seen by residents, a view from a beach where it will be seen by people engaged in recreational activities or tourists visiting places or landscape features. A visual impact assessment will determine the change to the view itself caused by the addition of the development. It also determines how change will affect the experience of people who may be at a viewpoint, and how they might respond to the change. The effect of seeing a development on viewer experience depends in part on what the viewers are doing when viewing a development, and their response depends in part on who they are and how much they value the view. Enjoyment of a particular view is dependent on the viewers, and in visual impact assessment, the impact receptors are people, not the landscape or seascape.

Landscape impact assessment considers impacts on physical elements and features that make up a landscape or seascape and the aesthetic, perceptual, and experiential aspects of that landscape or seascape that make it distinctive. These impacts affect the "feel," "character," or "sense of place" of an area of landscape or seascape, rather than the composition of a view from a particular place. Landscape and seascape effects, in essence, are a measure of the degree of compatibility of the character of the development, which might be, for example, "industrial," with the character of the landscape or seascape it is in or is visible from, say, "wilderness" or "tranquil." The impact receptor is the potentially affected landscape or seascape.

The final assessment of potential landscape and visual impacts combines sensitivity and magnitude of visual effects and is ultimately a process of professional judgement. Professional judgement applies knowledge, assessment skills and relevant experience within the context of existing guidelines and technical supplements. Professional judgements applied in this LCVIA are based on reasonable and defined criteria and have been subject to peer review.

3.2 Site inspections

Site inspection works and photography were undertaken in March 2019, February 2021, September 2021, July and August 2022, and February 2023. The site inspections included various activities such as photography from key view locations and photography from uninvolved dwellings.

3.3 Report structure

This LCVIA report been structured into 15 parts as follows:

Table 4 Report structure

Report Section	Description
1 Executive summary	This section provides an overview of the main findings of the LCVIA.
2 Introduction and EES Scoping Requirements	This section provides an introductory section that describes the intent and purpose of the LCVIA in the context of planning requirements.
3 Methodology and report structure	This section sets out the structure and methodology employed in the LCVIA preparation.

Table 4 Report structure

4 Project location and description	This section describes the regional and local position of the wind farm development relative to existing landscape features and places and describes the key visible components of the project.
5 Viewshed	This section identifies the area of land surrounding the wind farm project site subject to detailed assessment in this LCVIA.
6 Legislative and planning frameworks	This section sets out the legislative and planning frameworks describe policies and provisions that apply to proposed wind farm within the viewshed.
7 Panoramic photographs and aerial images	This section illustrates the LCVIA with panorama and aerial photographs taken during the site inspection. The photographs are provided to illustrate the general appearance of typical landscape characteristics that surround the proposed wind turbines.
8 Landscape character assessment	This section describes the physical characteristics of the landscape surrounding the project site and determines the overall sensitivity of the landscape to the wind farm development.
9 Zone of theoretical visibility and visual factors	This section identifies a theoretical area of the landscape from which the wind turbines may be visible within the viewshed and describes a range of factors which may influence the wind farm visibility within the viewshed.
10 Key views, visual effects and mitigation	This section describes and determines the potential visual effect of the wind turbines on key public viewpoints within the project viewshed.
11 Night lighting	This section describes the potential effect of night lighting associated with the Project.
12 Cumulative assessment	This section describes the potential effect of alternate existing and/or known wind farm developments within proximity to the Project.
13 Pre-construction and construction	This section describes the activities associated with pre-construction and during construction which may create visual effects.
14 Mitigation	This section outlines potential mitigation measures to minimise visual effects arising from the proposed wind farm development.
15 Conclusion	Conclusions are drawn on the overall visual effect of the proposed project.

Table 4 Report structure

Appendix A	Photomontages and wireframe methodology
Appendix B	Public photomontages
Appendix C	Dwelling photomontages
Appendix D	Wireframe diagrams
Appendix E	Photomontages with blue sky insert
Appendix F	Overhead 275kV transmission line Options Assessment
Appendix G	Qualifications and experience

Section 4 Project location and description

4.1 Project location

The Project, a proposed wind farm of up to 600MW, would be located in south west Victoria and within the Glenelg Shire Council local government area. Most of the Project site is within an area that has been substantially modified for commercial forestry and timber production which includes the active management and harvesting of *Pinus radiata* or the common name Monterey pine. The total Project area would cover up to 8,370 hectares (ha) with a construction footprint of approximately 830 ha, and an operational footprint of approximately 395 ha.

The eastern and western extents of the wind farm site are used for agricultural purposes (primarily sheep grazing). The Portland Nelson Road corridor bisects portions of the wind farm site in a general north to south alignment. The Project site is bounded by commercial plantation to the north, modified pasture to the south east and west, the Discovery Bay Coastal Park to the south, and the Lower Glenelg National Park and Cobboboonee National Park to the north, east and north-east. The Project location is illustrated in **Figure 1**.

The Glenelg Planning Scheme Municipal Profile (Clause 2.01 Context) sets out a regional landscape description:

Glenelg Shire has an area of over 6,000 square kilometres and is located in the far south west of Victoria adjoining the South Australia border. Glenelg is about 350 kilometres west of Melbourne and 550 kilometres south east of Adelaide. The Traditional Owners of the region are the Gunditjmara, Bunganditj and Jarwadjali people. The Shire is characterised by a rugged coastline, dense native forests and woodlands, rolling rural plains and rivers, lakes and wetlands. The Glenelg River and estuary flows through the Shire from the Grampians, carving deep gorges in the Dundas Tablelands and Glenelg Plain before reaching the Southern Ocean at Nelson. The Shire's regional strengths include rich natural resources, a natural deep-sea port with road and rail links, prosperous fishing and primary production industries in a high rainfall area with fertile soils.

Primary production is the major land use in the Shire with timber plantations are also a major land use. The landscape is also well represented by conservation areas, which include the Cobboboonee National Park, Lower Glenelg National Park, Mount Richmond National Park, Mount Clay State Forest, Discovery Bay Coastal Park and numerous coastal, flora and fauna reserves.

4.2 Project description

The key visual components of the Project would comprise:

- Up to 105 wind turbines with up to 270 metre (m) tip height (typical examples of wind turbine structures are shown in **Plates 1** and **2** and are shorter than the proposed Project wind turbines).
- Up to three on-site collector substations
- A main substation
- Transition stations between sections of underground and overhead transmission lines (if required)
- Overhead 275kV transmission line supported by a single steel pole with a maximum height of 36m. Located within a 40m wide easement, the transmission line poles would be arranged at an approximate spacing of 300m with additional tension poles required at some changes in direction.

- Up to two permanent site compounds, operations and maintenance building with car parking for up to 30 cars at each compound location
- Up to 8 wind monitoring masts
- Permanent hardstand area at each turbine location up to 0.4ha (subject to final design)
- On site access tracks for construction, operation and ongoing maintenance
- On site quarry (adjacent to an existing quarry) and
- Project signage.

Temporary works associated with the construction of the wind farm that may be visible during construction and operational phases include:

- Temporary site office, parking and materials storage/laydown areas; and
- Mobile concrete batching plant and rock crushing facilities.

The Project indicative wind turbine layout is illustrated in **Figure 2**.

4.3 Wind turbines

The specific elements of the wind turbines typically comprise:

- Concrete foundations
- Either steel or a steel/concrete hybrid towers
- Nacelles at the top of the tower housing the gearbox and electrical generator
- Rotors comprising a hub (attached to the nacelle at around 174.5 m above ground level) with three blades and
- Three composite material blades attached to each hub with a swept area around 28,338 m^2.

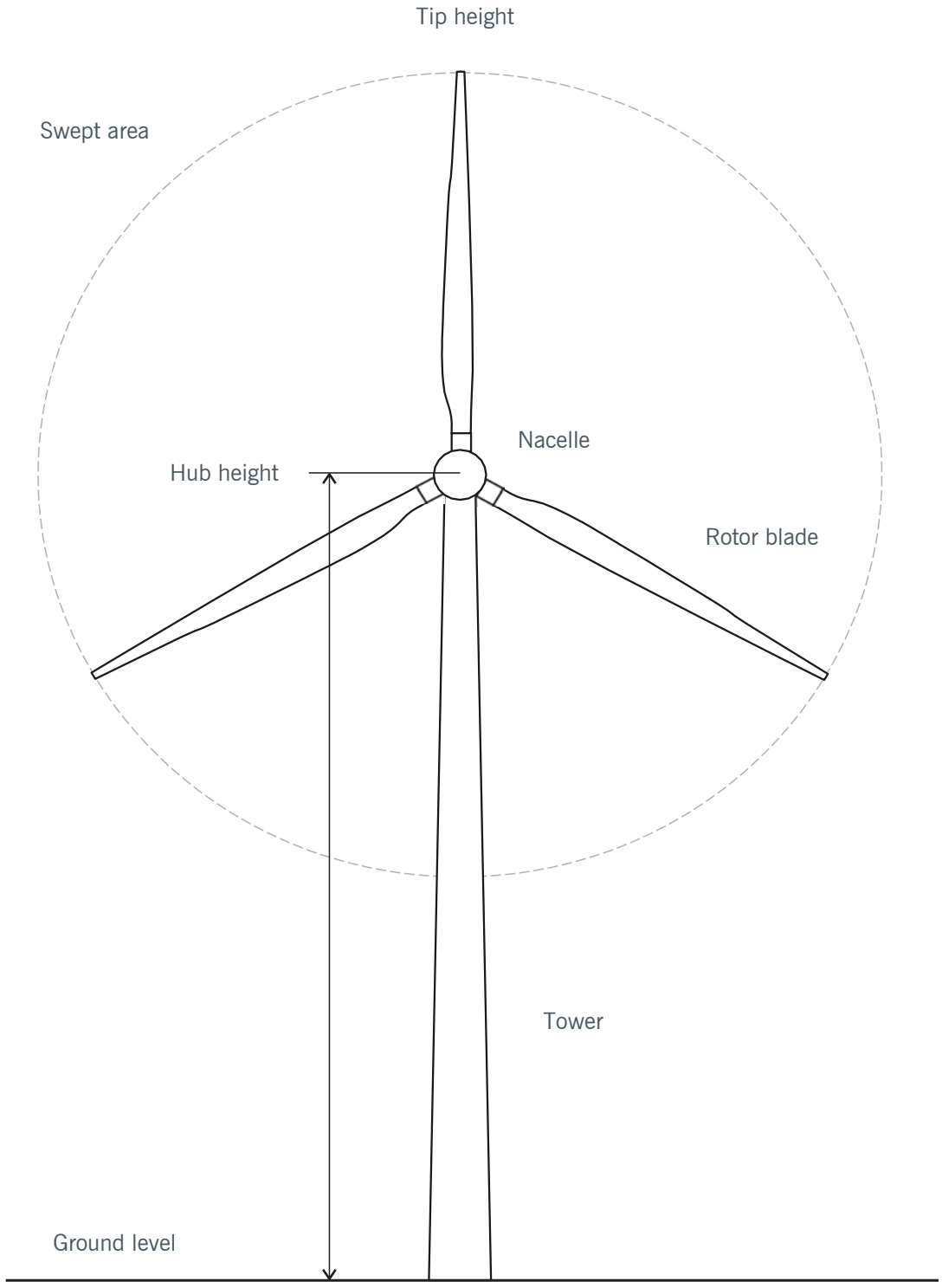
Diagram 1 illustrates a typical wind turbine structure and names the key components most relevant to this LCVIA. **Diagram 1** is schematic only and is not drawn to scale or representative of the proposed Project wind turbine.

Plate 1 – Typical wind turbine structure (139m hub height and 158 rotor diameter) Murra Warra Wind Farm, Murra Warra VIC (Image: ©GBD 2022)

Plate 2 – Typical wind turbine structure (REpower MM82 with 69m hub height and 82m rotor diameter) and hardstand, Cape Bridgewater (Image: ©GBD 2023)

Diagram 1 – Typical wind turbine components and terminology (Image: ©GBD Pty Ltd 2022)

Not to scale



4.4 Wind monitoring masts

Up to eight wind monitoring masts would be installed on-site. The permanent wind monitoring masts are expected to be of a guyed, narrow lattice or tubular steel design similar to the existing on-site wind monitoring mast within the Kentbruck plantation as shown in **Plate 3**.

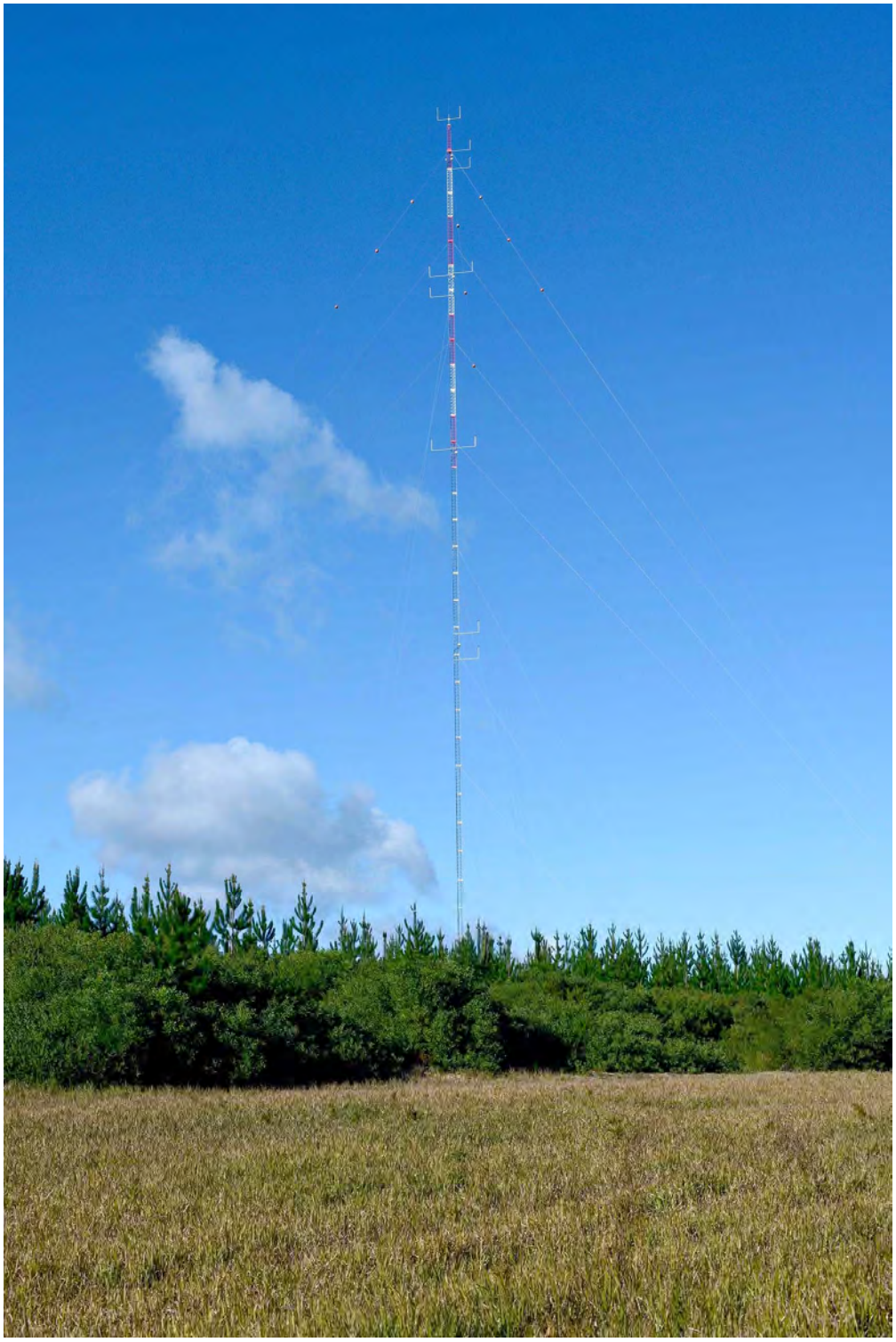


Plate 3 – Existing wind monitoring mast within the Kentbruck plantation (Image: ©GBD 2021)

4.5 On-site access tracks

There is a network of existing roads and tracks within the Project site that are used by vehicles associated with ongoing forestry operations (Refer **Plate 4** for typical example). Sections of these existing tracks and roads will be upgraded to accommodate wind farm traffic (particularly oversize and/or over-dimensional loads). New on-site access tracks will also be constructed to between 5m and 10m in width where existing access tracks are not present or not suitable for use and to provide access to wind turbine locations within the Project site during construction and operation.

Final road design would be subject to the detailed design of the wind farm and will be developed in consideration of site constraints, including minimising the potential for visual effect by considering the:

- Use of existing plantation and farm access tracks
- Overall length and extent
- Use of existing logging roads within the pine plantation
- Need for vegetation clearing
- Potential for erosion
- Extent of cut and fill and
- Potential to maximise rehabilitation at the completion of the construction phase.

Plate 4 – Existing access track through harvested pine plantation coupe (Image: ©GBD 2021)

4.6 Aviation Obstacle Lighting

The Proponent commissioned an Aviation Impact Assessment (AIA) which was completed by Chiron Aviation Consultants Pty Ltd (August 2022). The AIA included a detailed consideration regarding obstacle lighting needs and requirements for the installation and operation of obstacle lighting. The AIA concluded that there will be a low level of aviation safety risk associated with the potential for an aircraft collision without obstacle lighting on the wind turbines. The AIA concluded that no obstacle lighting is required for wind turbines. The Civil Aviation Safety Authority (CASA) has made no recommendation for the provision of night time obstacle lighting.

4.7 On-site quarry

A new limestone quarry is proposed to be established in the Project site adjacent to the existing quarry operated by Green Triangle Forest Products (GTFP), on North Livingston Road. The cemented "cap rock" quarry would operate during both construction and operation, with the extracted material to be used for hardstands and for upgrades to existing access roads or construction of new access roads.

The quarry would have a maximum footprint of 11 ha and be up to 15 m deep, with actual dimensions to be determined following a comprehensive drilling, sampling and testing program during detailed design of the Project. The total extracted volume is estimated to be up to 300,000 cubic metres (m3), with material to be extracted progressively during construction. The quarry would also be used throughout the Project's lifetime for road maintenance and would be made safe and rehabilitated at the end of its use for the Project to a suitable landform.

Primarily situated within plantation, views toward the existing and proposed adjoining quarry would be largely screened and/or filtered from the Portland Nelson road corridor. Views toward the proposed quarry post harvesting of pine trees would continue to be partially screened by the undulating landform south of the Portland Nelson Road corridor. The location of the proposed on-site quarry is illustrated in **Figure 2**.

4.8 Electrical reticulation

The Project would require new electrical reticulation that involves the construction of underground and overhead cabling throughout the wind farm site and electrical substations. A new transmission line to connect the Project to the existing transmission network is also proposed.

4.8.1 Main substation

A main electrical substation would be constructed within the Project site to connect the Project to the existing electricity network. This main substation would be located near the eastern boundary of the Project site to minimise the distance between the substation and the connection point to the transmission network at the Heywood Terminal Station. The main substation location is illustrated in **Figure 2**.

The main substation would have a footprint of up to 3.3 ha with a maximum height of approximately 40m. It would contain protection equipment and a control room with communications equipment, with tanks for storing water and oil for maintenance of the collector and main substation equipment. The substation would be constructed on a hardstand, with appropriate contamination/stormwater controls used around the oil tanks such as bunding and concrete slabs. The substation would be fully enclosed in security fencing with sufficient space for a fire break and on-site landscape screening around the perimeter.

4.8.2 Collector substations

Up to three collector substations would be constructed within the wind farm site to facilitate collection and distribution of electricity generated from the wind turbines into the existing electricity network. Indicative locations of the collector substations are illustrated in **Figure 2**.

The collector substations would have a footprint of up to 1 ha with a maximum height of approximately 35m. Each substation would contain a range of electrical equipment including step-up transformers, protection equipment (including lightning protection), and a high voltage bus bar connecting to the high voltage overhead powerline. The collector substations would be constructed on hardstands, with the transformers mounted on concrete slabs. The collector substations would be fully enclosed in security fencing with on-site landscape screening where considered appropriate and necessary to minimise potential visual effects.

4.8.3 On-site wind farm powerlines

The Project would involve the installation of up to 190km of underground powerlines (33 kV or 66 kV) connecting the wind turbines to the collector substations, and up to 27.8km of high voltage powerline connecting the collector substations to the main wind farm substation.

The proposed high voltage transmission line would likely be 275 kV (subject to detailed design) and would run overhead along Portland-Nelson Road from the western collector substation to the eastern collector substation. From there two options are being considered:

- The powerline would continue overhead along Portland-Nelson Road to a transition station at the Portland-Nelson Road / Sandy Hill Road intersection
- The powerline would transition to underground at the collector substation and run beneath existing roads in the GTFP pine plantation to the Portland-Nelson Road / Sandy Hill Road intersection.

From the Portland-Nelson Road / Sandy Hill Road intersection it would pass beneath Portland-Nelson Road then continue underground to the main substation. The proposed alignment of the powerline, including the options described above, is shown in **Figure 2**.

The underground route through the GTFP plantation is the preferred option for a range of reasons, including minimising impacts on native vegetation, minimising bird and bat collision risks, and minimising traffic disruption along Portland-Nelson Road.

4.8.4 Transmission line

The Project would require a new 275kV transmission line to connect the Project to the existing transmission network. The proposed transmission line route is approximately 26.6 km in length and would extend underground from the main substation at the eastern boundary of the Project site to the existing Heywood Terminal Station. The transmission line would bisect Cobboboonee National Park and Cobboboonee Forest Park for approximately 17.6 km, where it would be installed under the Boiler Swamp Road.

After exiting Cobboboonee Forest Park the underground line would continue for 1.2 km through freehold agricultural land. After crossing the Surrey River, the transmission line would continue underground until its connection point into the Heywood Terminal Station.

The underground route through Cobboboonee National Park / Forest Park has been delineated into a 6.5 m-wide construction footprint to minimise impacts on native vegetation within the Boiler Swamp Road corridor. Once the transmission line exits Cobboboonee Forest Park, the construction footprint would be approximately 9m wide as it continues through freehold land until it reaches Heywood Terminal Station.

Plates 5, **6** and **7** illustrate views toward typical overhead pole and wire structures associated with the Victorian Murra Warra and Mortlake wind farm developments. **Plate 8** illustrates the main substation and O&M buildings at the Murra Wind Farm.

Plate 5 – View toward a double 220kV transmission line at Murra Warra wind farm (Image: ©GBD 2022)

Plate 6 – View toward existing wind farm transmission line infrastructure, Mortlake (Image: ©GBD 2023)

Plate 7 – View toward existing transmission line infrastructure including angle poles, Mortlake (Image: ©GBD 2023)

Plate 8 – Main substation and operations centre, Murra Warra Wind Farm, Murra Warra VIC (Image: ©GBD 2022)

4.9 Construction

There are potential visual effects that could occur during the project construction phase. The wind farm construction phase is likely to occur over a period of around 2 to 2.5 years, although the extent and nature of pre-construction and construction activities will vary at different locations within the project area. The key pre-construction and construction activities that will be visible from areas surrounding the proposed wind farm include:

- Various civil works to upgrade local roads and access points
- Construction compound buildings and facilities
- Construction facilities, including portable structures and laydown areas
- Various construction and directional signage
- Mobilisation of rock crushing equipment and concrete batching plant (if required)
- Excavation and earthworks and
- Various construction activities including erection of wind turbines, monitoring masts and terminal substation with associated electrical infrastructure works.

Construction activities, some of which will result in physical changes to the landscape, are generally temporary in nature and for the most part restricted to various discrete areas within or beyond the immediate wind farm Project site.

Plate 9 – Murra Warra wind farm under construction (Image: ©GBD 2017)

Plate 10 – Site entry signage, Sapphire Wind Farm NSW (Image: ©GBD 2018)

4.10 Decommissioning

At the end of the operational life of the Project, the wind farm would either be decommissioned or upgraded with new turbines and ancillary infrastructure. Upgrading (repowering) the Project would extend the operational period of the Project and be subject to varied or additional approvals.

Key decommissioning activities would include:

- Removal of all above-ground non-operational equipment
- Removal and clean-up of any residual contamination
- Rehabilitation of all storage areas, construction areas, access tracks and other areas affected by the Project, if those areas are not otherwise useful to the ongoing use or decommissioning of the wind farm and pine plantation. The site would be rehabilitated in consultation with the relevant landowners.

Section 5. Viewshed

5.1 Viewshed

This LCVIA defines the viewshed as a geographic area surrounding the Project site where key project elements such as wind turbines, transmission lines and substations may be visible. Viewsheds can extend for long distances beyond wind farm Project sites across mixed use areas including large tracts of unoccupied agricultural or natural landscapes. Viewsheds may include a range of key view locations subject to high, moderate or low visual effects.

This LCVIA has adopted the following offset distances from the wind turbines to illustrate and determine potential visual effect:

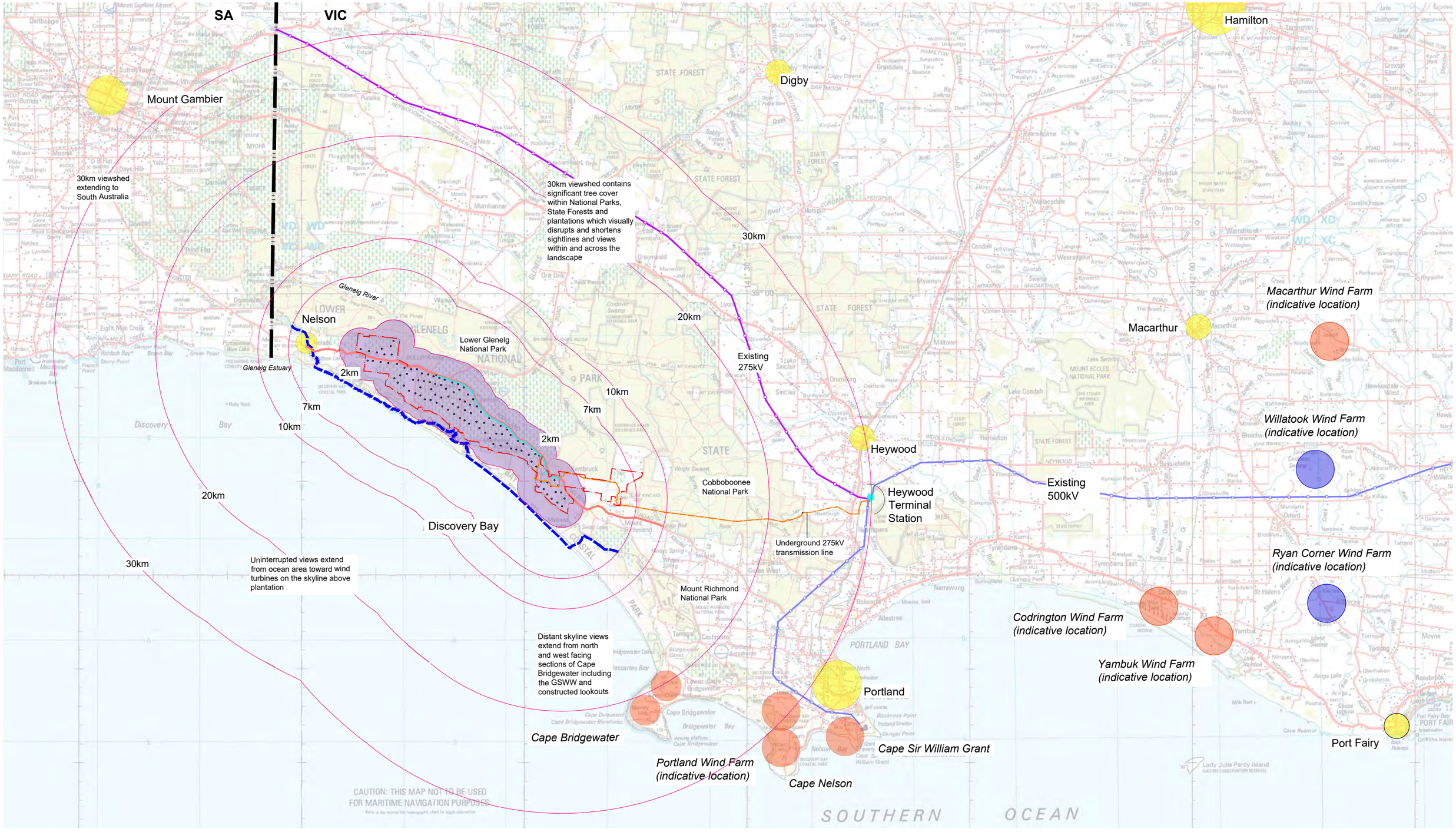
- Zone of Theoretical Visibility diagrams up to 20km from the wind turbines (refer **Figures 25** and **26**)
- Identification of named lookouts up to 20km from the wind turbines (refer **Figure 29**)
- Assessment of key view locations (including dwellings) up to 10km from the wind turbines (refer **Figures 29**
- and **30**) and
- Identification of other wind farm projects up to 60km from the Project site (refer **Figure 31**).

The extent of viewshed will vary between wind farm projects and are influenced and informed by several criteria including the height of the wind turbines together with the nature, location and height of landform or vegetation that may limit and influence the extent of wind farm visibility.

The landform surrounding the project offers some variability in height (offering various degrees of screening) as illustrated in the ZTV diagrams. When combined with extensive areas of forest within the National Parks and pine plantations (between the coast and the Princes Highway and east toward the Henty Highway), the potential for significant visual effects to occur beyond 20km is considered low.

It is important to note that wind turbines may be visible from landscape areas far beyond 10km and potentially up to 50km in ideal viewing conditions (Wind Turbine Visibility and Visual Impact Threshold Distances in Western Landscapes, Sullivan and Richmond May 2012). However, within the general parameters of normal human vision, a wind turbine at a maximum height of 270m to tip of rotor blade would occupy a relatively small proportion of a person's field of view from distances in excess of 10km and result in a relatively lower level of perceived visual effects, and more so when tree cover across agricultural land, within National Parks or plantations is located within foreground to middle ground locations between a viewer and wind turbines.

LCVIA's prepared for previously approved Victorian wind farm Projects have stated that wind turbines (with a 230m maximum tip height) *'located toward the outer edge of a 13 to 26km range, in all but exceptionally clear lighting conditions will become increasingly imperceptible'* (Golden Plains Wind Farm LVIA, XURBAN April 2018*).* In our experience, wind turbines may be perceptible beyond 26km with less than exceptional lighting conditions; however, the more pertinent point is that wind turbines visible at long distant views will not dominate views and are more likely to be absorbed or screened by vegetation between the wind turbines and visual receiver.



Base map source: © Commonwealth of Australia (Geoscience Australia) 2021

Legend

- Indicative wind turbine layout
- 20km — Distance from Project wind turbine
- Other proposed wind farm localities
- Existing 275kV transmission line
- Proposed transmission line above ground
- Proposed transmission line under ground
- 2km wind turbine viewshed
- Township/locality
- Other operational wind farm localities
- Existing 500kV transmission line
- Great South West Walk within 7km of wind turbines

0m — 10km

Figure 1
Regional locality

GBD
Landscape architecture

Section 6. Legislative and planning frameworks

6.1 Introduction

This LCVIA has identified state and local planning policies, as well as controls and policy guidelines applicable to landscape and visual aspects of the Project. The relevant and key planning policies, controls and guidelines are outlined below.

6.1.1 Planning Policies

- Victorian State Planning Policy Framework – relevant Clause 19.01.2S Renewable Energy

The State Planning Policy Framework at Clause 19.01-2S, Renewable Energy, sets out objectives, strategies, and policy guidelines for the provision of renewable energy facilities including the development of wind energy facilities in a manner that ensures appropriate siting and design considerations are met.

6.1.2 Clause 12.05-2S Landscapes

Objective

To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.

Strategies

Ensure significant landscape areas such as forests, the bays and coastlines are protected.

Ensure development does not detract from the natural qualities of significant landscape areas.

Improve the landscape qualities, open space linkages and environmental performance in significant landscapes and open spaces, including green wedges, conservation areas and non-urban areas.

Recognise the natural landscape for its aesthetic value and as a fully functioning system.

Ensure important natural features are protected and enhanced.

Both the Objective and Strategies set out in Clause 12.05-2S have been considered in this LCVIA.

6.1.3 Planning Controls

- Particular Provisions – relevant Clauses 52.32 Wind Energy Facility (as outlined in 6.5 below)
- Zoning and Overlays (as outlined in 6.3 and 6.4 below)

6.1.4 Relevant guidelines

- Policy and planning guidelines for development of wind energy facilities in Victoria, September 2023.

These are discussed in more detail in the following sections.

6.2 Local Planning Policy Framework – Glenelg Planning Scheme

The Glenelg Planning Scheme sets out Council's objectives for the Glenelg Shire with regard to land use, development and protection of land via the State Governments Planning Policy Framework and the Municipal Planning Strategy.

The Glenelg Planning Scheme references numerous Clauses in relation to objectives, strategies and policy guidelines to address Council's strategic planning objectives. The most relevant of these in relation to wind energy projects and the assessment of landscape and visual effects include:

6.3 Zoning

The Project is predominantly located within the Farming Zone (FZ1) as defined in the Glenelg Planning Scheme Clause 35.07. The Farming Zone does not specifically refer to landscape and visual matters in its purpose. However, the Decision Guidelines in clause 35.07-6 do require a consideration of impacts the design and siting of works may have on 'vistas' and on the 'character and appearance of the area or features of architectural, historic or scientific significance or of natural scenic beauty or importance.

Other zones immediately adjacent to and surrounding the Project site include:

- Public Conservation and Resource Zone (PCRZ)
- Township Zone (TZ1)
- Transport Zone (TRZ2)
- Transport Zone (TRZ1) and
- Public Use Zone (PUZ1).

6.4 Overlays

Overlays occur within, adjacent to or beyond the Project site. These include:

Significant Landscape Overlay SLO1

Environmental Significance Overlay ESO1, ESO2 and ESO3

Bushfire Management Overlay (BMO)

6.5 Glenelg Planning Scheme, Clause 42.03 Significant Landscape Overlay (SLO)

Significant Landscape Overlays (SLO) are implemented to identify, conserve, and enhance the character of significant landscapes. There are three such overlays which apply to or are near the Project site.

A portion of the Project site (around 1,311 ha) and up to 12 wind turbines are located within SLO1 as defined in the Glenelg Planning Scheme. The Glenelg Planning Scheme attributes SLO1 (refer **Figure 3** for the SLO1 locality) to the Glenelg River Estuary and Surrounds and outlines the nature and key elements of the landscape, and landscape character objectives to be achieved.

6.6 Schedule 1 to Clause 42.03 Significant Landscape Overlay

Shown on the planning scheme map as SLO1. Glenelg River Estuary and Surrounds

6.6.1 Clause 1 Statement of nature and key elements of landscape

The Glenelg River Estuary and surrounds is a regionally significant landscape as the confluence of the Glenelg River estuary, the Southern Ocean, and the coastal edge. The Glenelg River Estuary has a wild and windswept character

that is dominated by the intersection of its strong landscape elements, including the sea, beaches, sand dunes, and remnant vegetation.

It is open and uncluttered, with the settlement of Nelson nestled discreetly within the landscape, its buildings largely concealed by vegetation. The strong coastal edge is dominated by sandy beaches, providing a contrast with the dunes and lakes behind. This type of landscape is increasingly rare on the Victorian coast.

The landscape's visual significance is enhanced by environmental and visitor attractions. The Glenelg River Estuary is the longest in Victoria extending 75 kilometres from its mouth near Nelson and flowing through the Lower Glenelg National Park and the Discovery Bay Coastal Park. It is a Ramsar wetland of international significance with a gazetted boundary under the Environment Protection and Biodiversity Conservation Act 1999.

Nelson is the starting point for one of the most well-known long distance walks in Victoria, the Great South West Walk. In addition, the Glenelg River Heritage Area is listed under the Heritage Rivers Act 1992 for high natural, cultural and landscape values.

6.6.2 Clause 4 Application requirements

The following application requirements apply to an application for a permit under Clause 42.03, in addition to those specified elsewhere in the scheme and must accompany an application, as appropriate, to the satisfaction of the responsible authority:

- *A detailed site evaluation which considers the existing landscape context including topography, vegetation (species, location and character), and views to the site from roads, settlements, publicly accessible waterways, recreation, and tourism locations.*
- *A landscape plan that demonstrates the use of species appropriate for the locality, including non-invasive native/exotic plants that are a feature of the character of the area, and how the affected area will be remediated after development.*

6.6.3 Clause 5 Decision guidelines

The following decision guidelines apply to an application for a permit under Clause 42.03, in addition to those specified in Clause 42.03 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority:

- *Whether the development encroaches into or is visible within 500 metres of scenic coastal viewpoints, lookouts, and the Great South West Walk (outside the urban area of Nelson).*
- *Whether the development is designed and sited:*

- *low on slopes;*
- *amongst vegetation; and has a form conforming to the topography of the land retaining natural and/or rural character.*

- *Whether development sited outside of the urban area of Nelson:*

- *retains views and vegetation.*
- *intrudes into undeveloped areas visible from the Portland-Nelson Road, Beach Road, and the Glenelg River.*

- *Whether development located within the urban area of Nelson is set back a sufficient distance:*
  - *from the Glenelg River so that it is not visible behind indigenous vegetation from the river edge.*
  - *to allow for the protection or rehabilitation of a substantial area of riparian vegetation.*
- *Whether buildings near the Glenelg River Estuary are low scale.*
- *Whether development within the coastal strip is:*
  - *sited on the inland slope of dunes and does not protrude above the dune ridgeline;*
  - *sufficiently set amongst existing vegetation and maximises the retention of indigenous coastal vegetation;*
  - *using appropriate indigenous vegetation to integrate the development into the landscape; designed to follow the natural contours or step down the site;*
  - *sited to avoid visually dominant elevations;*
  - *minimising overlooking of the foreshore; and*
  - *avoiding access into highly visible or undisturbed areas.*
- *Whether development has regard to Coastal Spaces Landscape Assessment Study (Planisphere, 2006), in particular the relevant Character Area Paper.*

A consideration and response to the SLO1 Decision guidelines is provided in this LCVIA at Section 8.7.

The Project and proposed wind turbines are not located within SLO2 Bridgewater Lakes and Surrounds or SLO3 Cape Bridgewater and Cape Nelson

6.7 Bushfire Management Overlay

A consideration of the Bushfire Management Overlay (BMO) has been included in this LCVIA as far as it relates to the potential installation of landscape screening mitigation within BMO and Bushfire Prone Areas, and any limitations the BMO may place upon the efficacy of on-site and off-site landscape works.

The Glenelg Planning Scheme (Clause 44.06 Bushfire Management Overlay) references the extent of the BMO as shown on the planning scheme map (https://mapshare.vic.gov.au/vicplan/). The planning scheme map indicates that most dwellings (beyond the Nelson TZ) that are proximate (within 3km to 4km) to the Project site are not located within the BMO. Several dwellings at greater distances (more than 5km) to the Project site (and less likely to require landscape mitigation works due to existing screening) have been identified within the BMO area. **Table 26**, identifying dwellings within 10km of the wind turbines notes where dwellings are located within the BMO. All dwellings within 10km of the wind turbines are located within an area noted as Bushfire Prone on the planning scheme map.

The Glenelg Planning Scheme (Clause 53.02-5) Table 6 Vegetation management requirement identifies the provision and management of vegetation within defendable space which, as relevant to this LCVIA, includes:

- *Within 10 metres of a building, flammable objects must not be located close to the vulnerable parts of the building.*
- *plants greater than 10 centimetres in height must not be placed within 3 metres of a window or glass feature of the building.*
- *shrubs must not be located under the canopy of trees.*
- *individual and clumps of shrubs must not exceed 5 square metres in area and must be separated by at least 5 metres.*
- *trees must not overhang or touch any elements of the building.*
- *the canopy of trees must be separated by at least 5 metres.*
- *there must be a clearance of at least 2 metres between the lowest tree branches and ground level.*

These vegetation management requirements will be adopted for proposed on-site and off-site landscape mitigation works where applicable to dwellings or on-site ancillary Project structures located within the BMO area.

6.8 Particular provisions

The Glenelg Planning Scheme (Clause 52.32 Wind Energy Facility) requires an application for a wind energy facility to include information that relates to potential landscape and visual impacts. In general, Clause 52.32-4 Application requirements includes provision of the following information:

- *The landscape of the site*
- *Views to and from the site, including views from existing dwellings and key vantage points including major roads, walking tracks, tourist routes and regional population growth corridors*
- *A site plan, photographs or other techniques to accurately describe the site and surrounding area.*
- *Accurate visual simulations illustrating the development in the context of the surrounding area and from key public view points.*
- *A description of how the proposal responds to any significant landscape features for the area identified in the planning scheme.*
- *An assessment of:*
    - *the visual impact of the proposal on the surrounding landscape; and*
    - *the visual impact on abutting land that is subject to the National Parks Act 1975 and Ramsar wetlands and coastal areas.*

The Decision guidelines under clause 52.32-5 notes that the responsible authority must consider as appropriate:

- *The impact of the development on significant views, including visual corridors and sightlines.*

This LCVIA has considered and addressed the relevant application requirements and decision guidelines set out in Clause 52.32.

6.9 Policy and planning guidelines for development of wind energy facilities in Victoria, September 2023.

The purpose of the guidelines is to set out:

- *a framework to provide a consistent and balanced approach to the assessment of wind energy projects across the state*
- *a set of consistent operational performance standards to inform the assessment and operation of a wind energy facility project and*
- *guidance as to how planning permit application requirements might be met.*

The guideline states that '*the Victorian Government recognises that the Victorian community places a high value on landscapes with significant visual amenity due to their environmental, social and economic benefits. Strategic planning plays an important role in identifying and managing these important landscapes'*. The guideline identifies the Coastal Spaces Landscape Assessment Study (2006) as a strategic landscape study that identifies visually significant landscapes surrounding the Project site. This study is required to be considered by decision makers for wind energy facility planning permit applications. Section 5.1.3 (Landscape and visual impact) of the guideline sets out matters to be considered in assessing permit applications for wind energy facilities. These matters include:

- the degree of visual impact (outlined in Section 9 of this LCVIA)
- visual impact characteristics (outline in Section 3 of this LCVIA)
- the features of the landscape (outlined in Section 7 of this LCVIA)
- State and local government planning policy (outlined in Section 5 of this LCVIA) and
- Visual impact mitigation (outlined in Section 13 of this LCVIA).

6.10 Marine and Coastal Act 2018 (Vic) (the Act)

The Act requires a Marine Coastal Policy to set out policies for planning and managing the marine and coastal environment and provides guidance to decision makers in achieving the Act's objectives. Amongst these objectives is a consideration of natural features and landscapes (including seascapes) and recognition of the importance of coastal landscapes.

Under the Marine and Coastal Act 2018 (Vic), the marine and coastal environment includes all private and public land and waters between the outer limit of Victorian coastal water and five kilometres inland of the high-water mark of the sea. This would include the Project site. The Act sets a range of objectives and guiding principles which apply to the marine and coastal environment, which are reflected in the Marine and Coastal Policy and Marine and Coastal Strategy. This LCVIA has undertaken an assessment of the landscape within the marine and coastal landscape environment including key public visual corridors, from named lookouts, Marine Parks, and National Parks.

It is important to note that the area surrounding the Project has not been declared a distinctive area and landscape in the Planning and Environment Act 1978 (Vic) and these objectives and policies need to be weighed against other factors contemplated in the statutory framework, such as those related to ecologically sustainable development, and particularly the benefits of the Project by reducing carbon emissions.

6.11 Coastal Spaces Landscape Assessment Study (2006) (Department of Sustainability and Environment)

The Coastal Spaces Landscape Assessment Study was commissioned by the Victorian Government in December 2004 as part of the Coastal Spaces Initiative. The study focuses on the coastal areas of Gippsland (Bass Coast to the NSW border), the Bellarine Peninsula and the coast west of Warrnambool to the South Australian border. The study identifies and maps individual landscape characteristics within these coastal regions, identifies significant landscapes and provides an implementation framework to assist local government and other agencies in managing development impacts within coastal landscapes.

The Coastal Spaces Landscape Assessment Study notes Character Areas 1.1 Far West Coastal Hills and 1.2 Discovery Bay Dunes and Hinterland as occurring within or proximate to the Project site.

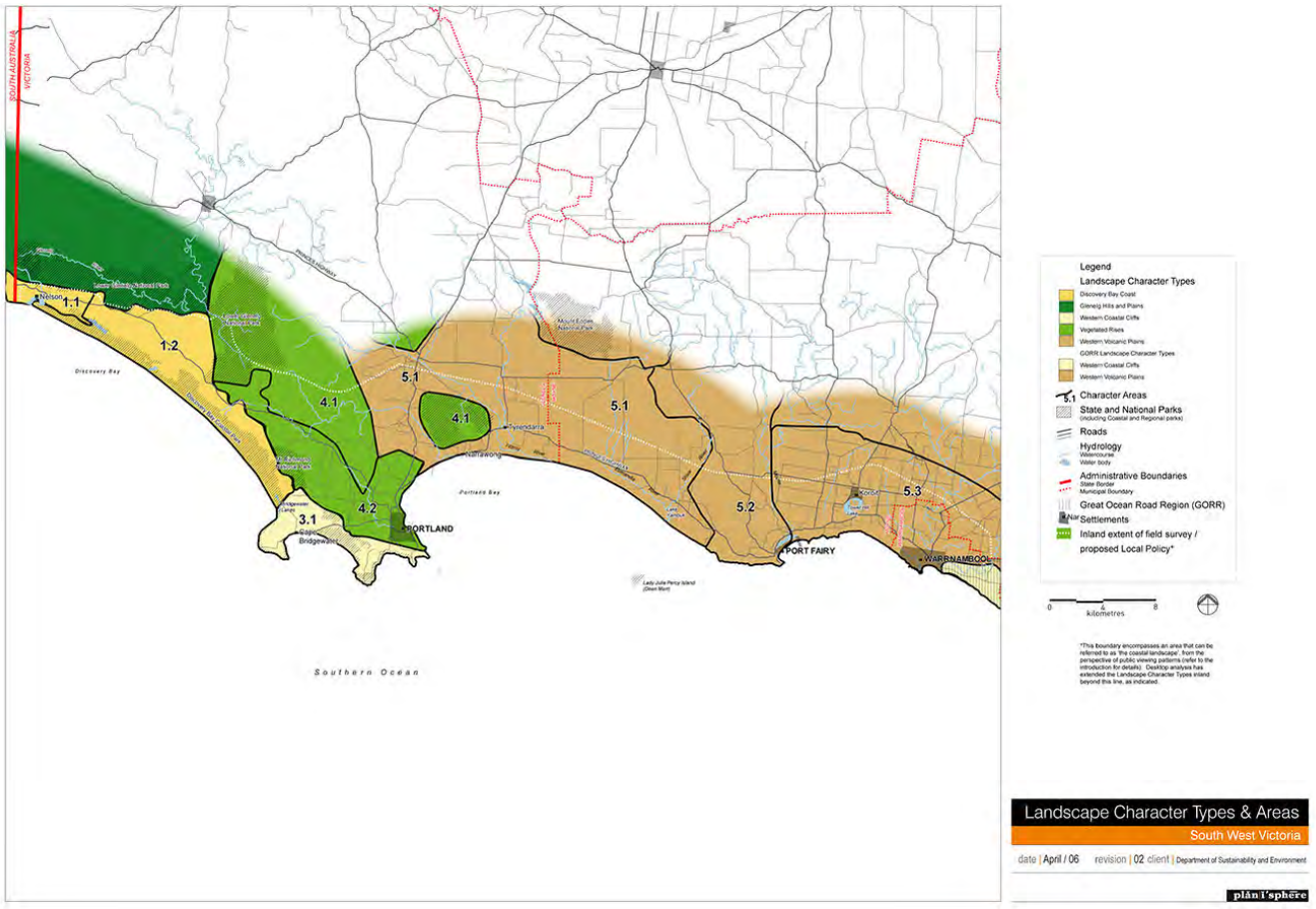


Diagram 2 – South West Victoria – Landscape Character Types and Areas (Source: Coastal Spaces Landscape Assessment Study September 2006)

6.11.1 The Far West Coastal Hills

This small Character Area near the border of South Australia abuts the coast and contains scenic landscape features including the Glenelg River. The coastal edge is dominated by wide sandy beaches and vegetated sand dunes with lakes behind. The mouth of the Glenelg River creates a scenic setting for the Nelson township and is a significant water feature that opens out to the sea via Oxbow Lake. Inland, the area is characterised by open pastures in an undulating landscape with scenic copses of wind-pruned native vegetation.

6.11.2 The Discovery Bay Dunes and Hinterland are noted as:

Characterised by a long coastal edge and a large inland area dominated by pine plantations, this Character Area is unique for its large-scale active dune system that extends from east of the settlement of Nelson to the Bridgewater Lakes west of Cape Bridgewater. The undulating topography is completely dominated inland at the west of the Character Area by pine plantations and other vegetation that mostly filters or blocks views from roads. Roadsides occasionally provide scenic views to Mount Richmond and larger dunes near the coast. There are no major settlements in the Character Area and much of itis free of built development, despite inland sections being highly modified by pine plantations.

The Coastal Spaces Landscape Assessment notes the Glenelg River Estuary & Surrounds as having Regional Significance, stating that this area is:

- *Visually significant as the confluence of the Glenelg River estuary, the Southern Ocean and the coastal edge*
- *Characterised by a strong intersection of landscape elements – sea, beaches, sand dunes and remnant vegetations*
- *Valued by the community as a wetlands habitat and as one extremity of the Great South West Walk.*

The Coastal Spaces Landscape Assessment also notes the Discovery Bay Coast as having State Significance stating that this area is:

- *Visually significant for the dramatic sweep of its long dune backed bay with its rugged open beaches and sense of remoteness*
- *Characterised by a vast mobile dune system extending some three kilometres inland*
- *Valued by the community for its wild untamed character.*

The Coastal Spaces Landscape Assessment Study also identifies landscapes of state significance including the Discovery Bay Coast and Bridgewater Lakes and Surrounds which are located within the Projects immediate viewshed.

Discovery Bay Coast

The Discovery Bay Coast is of state significance for the dramatic sweep of its long dune-backed bay, with its rugged, open beaches, and sense of remoteness. The landscape features include a vast mobile dune system up to 40 metres high, extending some three kilometres inland. It has a wild, natural coastal edge and is almost entirely free of development and settlements, with coastal heath and sedge vegetation prevailing across the coastal reserve. Discovery Bay is an intact and representative example of this Landscape Type in Victoria. It attracts visitors from around the State, including many people attracted by the Great South West Walk that runs directly through the area. The

landscape is included in the Register of the National Estate for its geological and geomorphological features, and fossils have been found here that have led to the discovery of previously unknown species. The area is also said to contain some of the most significant Aboriginal archaeological sites in south-eastern Australia.

Bridgewater Lakes and Surrounds

Bridgewater Lakes is of state significance for its outstanding visual and scenic qualities. The intersection of lakes, dunes, steep topography and wild coastline combine to make this landscape highly valued by communities alike. The landform is particularly noteworthy, with its combination of densely vegetated dunes adjacent to cleared pastures, the lakes, and occasional stands of trees. The undulating topography of Bridgewater Lakes and surrounds lends itself to fine views across cleared pastures. The landscape has strong cultural and historic associations. It is listed on the Register of the National Estate for its Aboriginal cultural values, including rock shelters and ceremonial sites, and it is believed that the first settlement in the Portland area may have been next to the southern lake. The Bridgewater Lakes are also significant as dune-blocked lakes fed by fresh groundwater, and the area is known for its caves of scientific and educational importance. The Great South West Walk passes through this landscape.

6.12 South West Landscape Assessment Study, June 2013, Department of Planning and Community Development

The South West Landscape Assessment Study (SWLAS) was commissioned by the former Department of Planning and Community Development. The SWLAS was undertaken to *'better understand and assess the visual character and significance of the wide range of landscape types, which include the volcanic plains and cones that dominate much of the area, to the Great Dividing Range in the north, and the Grampians in the central west. The study will be used to better inform planning scheme policy to assist planning decision making, and to ensure landscapes of importance are adequately protected and management into the future'.*

This LCVIA notes that the Project site is located beyond the SWLAS study area and that recommendations included in the SWLAS do not apply to the coastal landscape encompassing the Project site. In any event, it is not referenced in the Glenelg Planning Scheme, nor is it a strategy or guideline that is required to be considered by the planning scheme.

6.13 Planning considerations

The relevant and key planning policies, controls and guidelines identified in this LCVIA contain a range of objectives and strategies to recognise and protect significant landscape characteristics and scenic qualities valued by the local community and visitors to the area. The LCVIA notes that wind turbines are large scale structures likely to be visually prominent from some view locations and dominate views. The wind farm has potential to change the perceived visual characteristics of the landscape including those of the SLO1 and result in a 'wind farm landscape'. This would likely be exacerbated by additional offshore wind farm developments within and in proximity to Discovery Bay. The Minister for Planning will need to take this into consideration when assessing the Project and associated planning scheme amendment.

Glenelg River
42 m
Nelson
Lower Glenelg National Park
Lower Glenelg National Park
Lower Glenelg National Park
2km
7km
10km
Discovery Bay
Discovery Bay Coastal Park
Indicative onsite quarry location
Indicative wind farm project site
Main substation
2km
7km
10km
20km
30km
Greenwald
Lyons
C195
Drumborg
Existing 275kV
Cobboboonee National Park
Cobboboonee National Park
Cobboboonee National Park
Cobboboonee Forest Park
Heywood
Heywood Terminal Station
Narrawong Flora Reserve
Mount Richmond
Mount Richmond National Park
Gorae West
Gorae
Existing 500kV
Allestree
Portland Nelson Rd

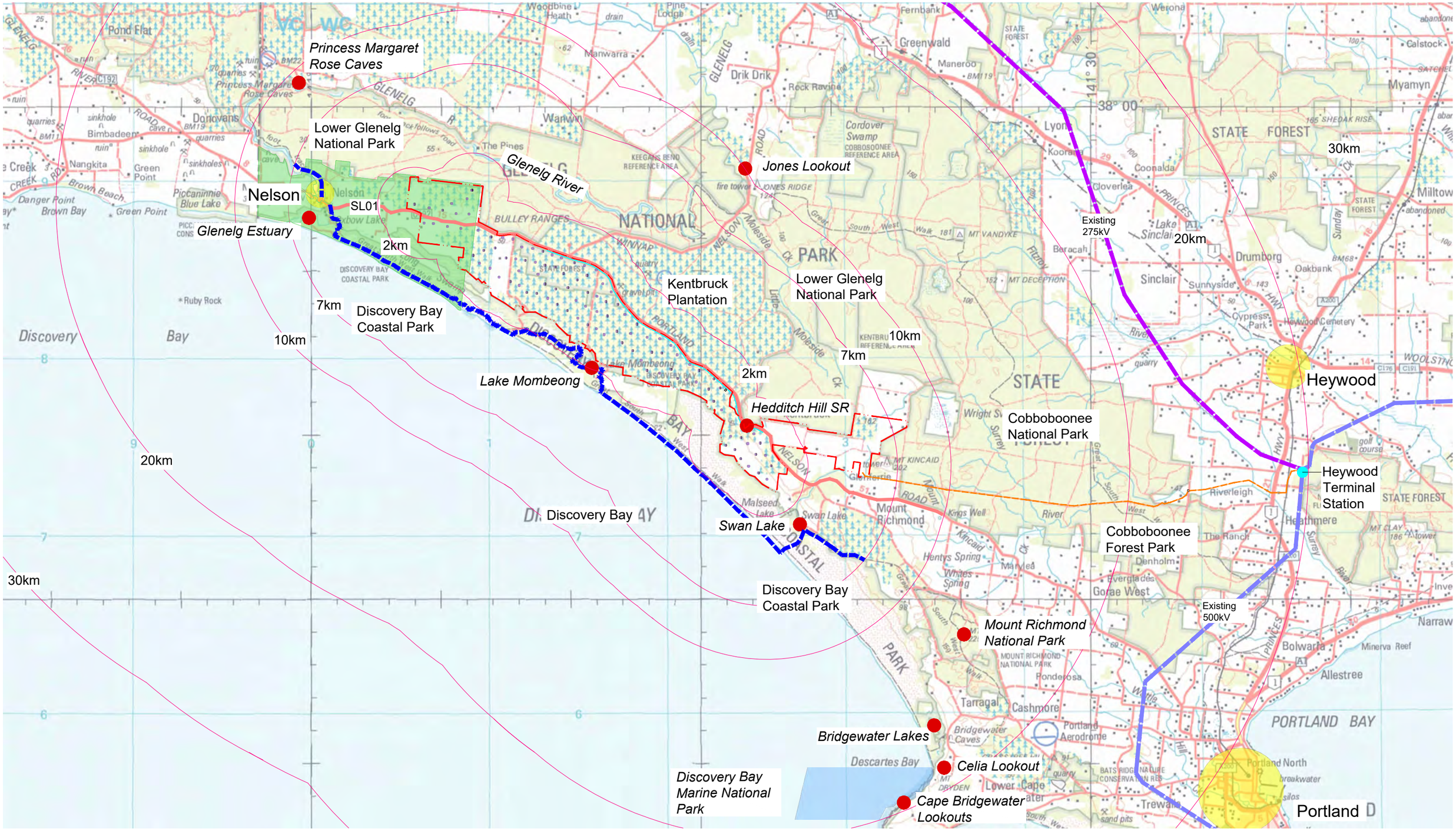
Legend

- Proposed wind turbines indicative layout
- Distance from proposed wind turbine
- Portland Nelson road corridor
- Existing overhead transmission lines
- Main substation
- Collector substation
- 2km wind turbine viewshed
- Township/locality
- Great South West Walk (indicative alignment within 7km of wind turbine)
- Proposed overhead transmission line
- Proposed underground transmission line

0m 5km

Figure 2
Project layout

GBD
Landscape architecture



Legend

- Indicative wind turbine layout
- Indicative wind turbine offset (10km)
- Portland Nelson road corridor
- Significant Landscape Overlay SLO1
- Existing overhead transmission lines
- Indicative Project site
- Township/locality
- Indicatve Great South West Walk within 7km of wind turbine
- Landscape feature or locality as noted
- Proposed overhead transmission line
- Proposed underground transmission line

0m 5km

Figure 3
Landscape designations and localities

GBD
Landscape architecture

Princess Margaret Rose Caves
Lower Glenelg National Park
Glenelg River
Nelson
SL01
Glenelg Estuary
2km
7km
Discovery Bay Coastal Park
10km
Lake Mombeong
Cobboboonee National Park
Swan Lake
Cobboboonee Forest Park
7km
Discovery Bay Coastal Park
Mount Richmond National Park
10km
SL02
Bridgewater Lakes
Celia Lookout
Discovery Bay Marine National Park
SL03
20km
Cape Bridgewater and Cape Nelson

Base map source: © Commonwealth of Australia (Geoscience Australia) 2021

Legend

- Proposed wind turbine (indicative layout)
- Distance from Project wind turbine
- Portland Nelson road corridor
- Significant Landscape Overlays
- Proposed overhead transmission line
- Indicative wind farm project site
- Township/locality
- Great South West Walk (indicative alignment)
- Landscape feature or locality
- Proposed underground transmission line

0m 4km

Figure 4
Significant Landscape Overlays SLO1, SLO2 and SLO3

GBD
Landscape architecture

Section 7. Panoramic photographs and aerial images

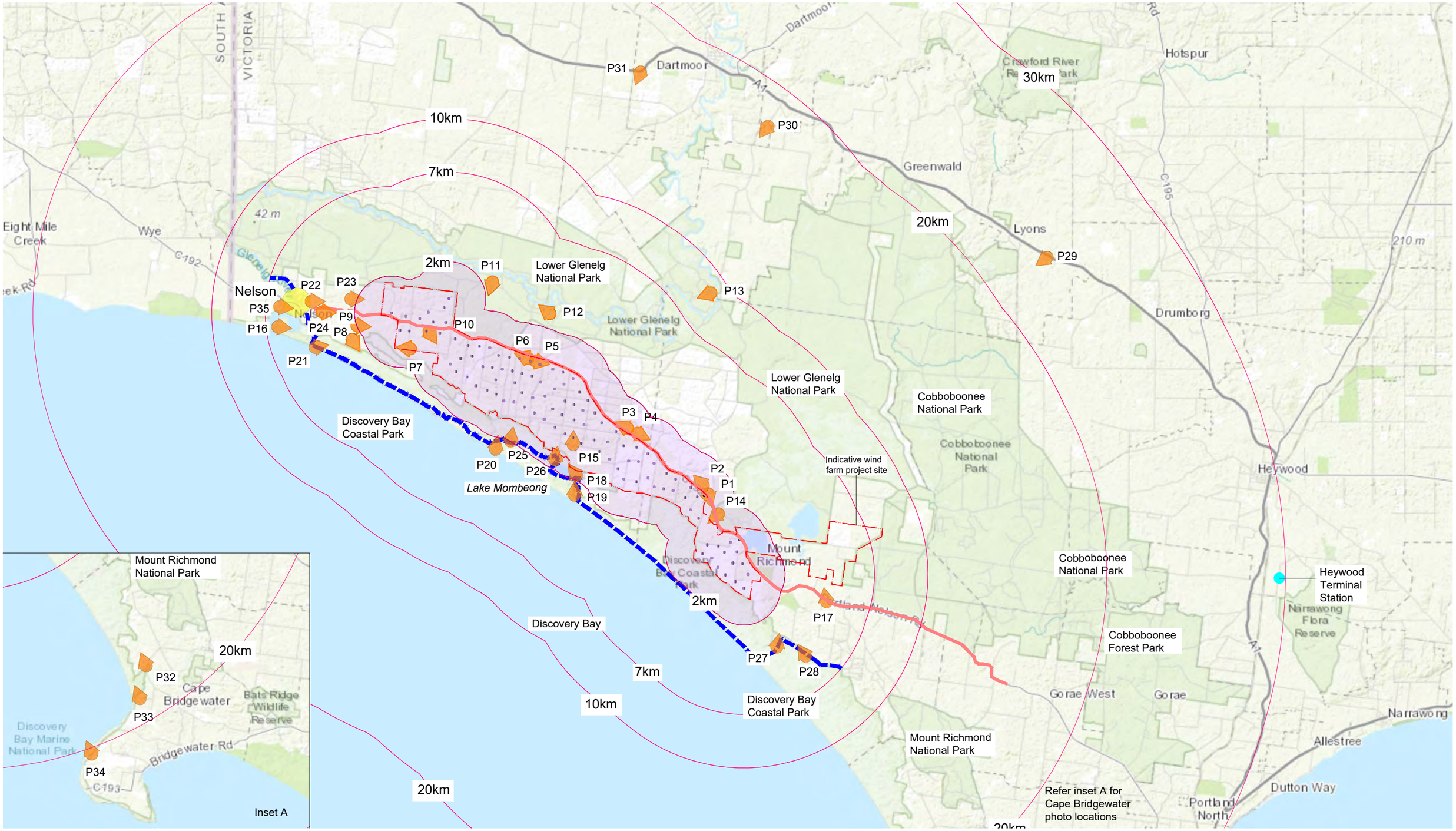
7.1 Panoramic photographs and aerial images

A series of individual and panorama digital photographs and aerial images were taken during the site inspection to illustrate existing views near the Project and to give a sense of the overall site in its broader landscape setting and characteristics. Photo locations were selected to illustrate the variety of landforms and vegetation types found within the viewshed. The panorama photographs were digitally stitched together forming a segmented panorama image to provide a visual illustration of the existing view from each photo location. Photographs presented in this section are informative only and do not illustrate the appearance of the Project wind turbines; however, the general extent of potential wind turbine visibility has been illustrated on each of the panorama photographs. The proposed wind turbines are illustrated in the photomontages included in the Appendices of this LCVIA report. Each panorama photograph references the associated landscape character area as described and assessed in Section 8 Landscape Character Assessment.

The panorama photographs were taken with a Nikon D850 digital SLR camera with a full frame sensor and a prime 50mm focal length lens. The photographs were taken as a combination of hand held and tripod mounted images; however, all photographs for the purpose of photomontages were taken with the camera tripod mounted with additional GPS data recorded together with start and end bearings for each panorama.

The aerial photos were taken with a DJI Mavic Pro, flown to a maximum height of 120m above ground level in accordance with Civil Aviation Safety Authority requirements. The aerial photos provide extensive views and vistas that are not available from ground level due to tree cover within and surrounding the site. The aerial photos provide imagery that illustrates local and distant landscape characteristics as well as the locality of key view locations and the extent/nature of potential screening elements. The aerial photos offer an elevated oblique view and do not portray views toward the landscape as typical from ground based locations.

The panoramic and aerial photographs presented in this LCVIA have been annotated to identify local features within and beyond the Project site. The panorama photograph and aerial image locations are illustrated in **Figure 5** and **Figure 18** and the photographs illustrated in **Figures 6** to **17** and **Figures 19** to **22**. The panorama photographs presented in **Figures 6** to **17** were taken from public land.



Legend

- Proposed wind turbine (indicative layout)
- 2km wind turbine viewshed
- 10km — Distance from proposed wind turbine
- Township/locality
- Portland Nelson road corridor
- Great South West Walk (indicative alignment within 7km of wind turbine)
- P12 — Ground photo location
- Indicative Project site

0m 5km

Figure 5
Ground photo locations

GBD
Landscape architecture

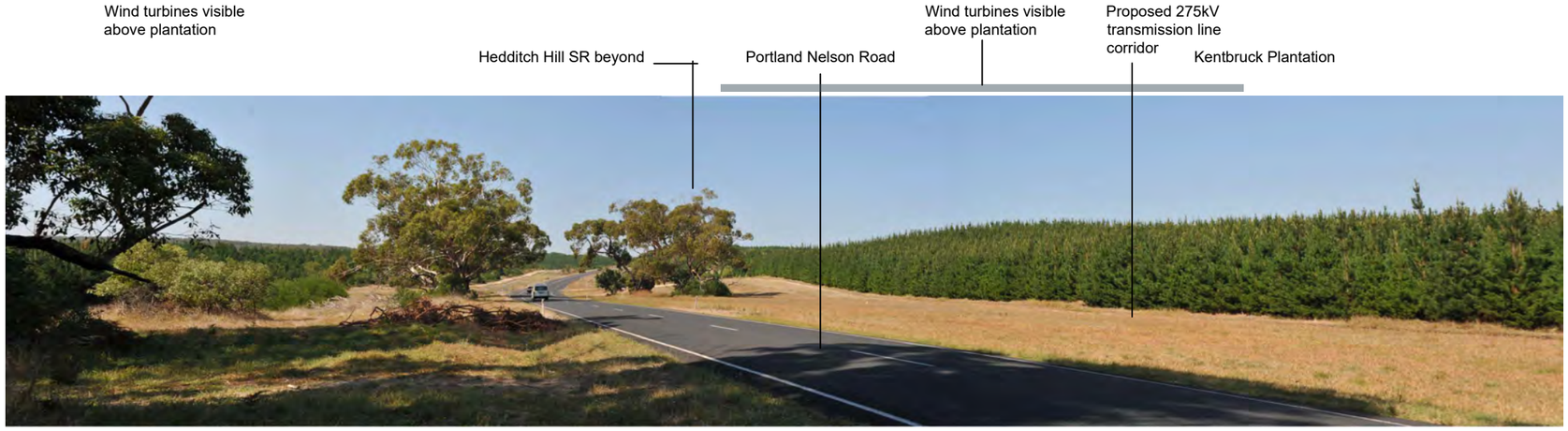


Photo Location P1- View south to south east from the Portland Nelson Road corridor (typical of Landscape Character Area 7 - Pine plantation)

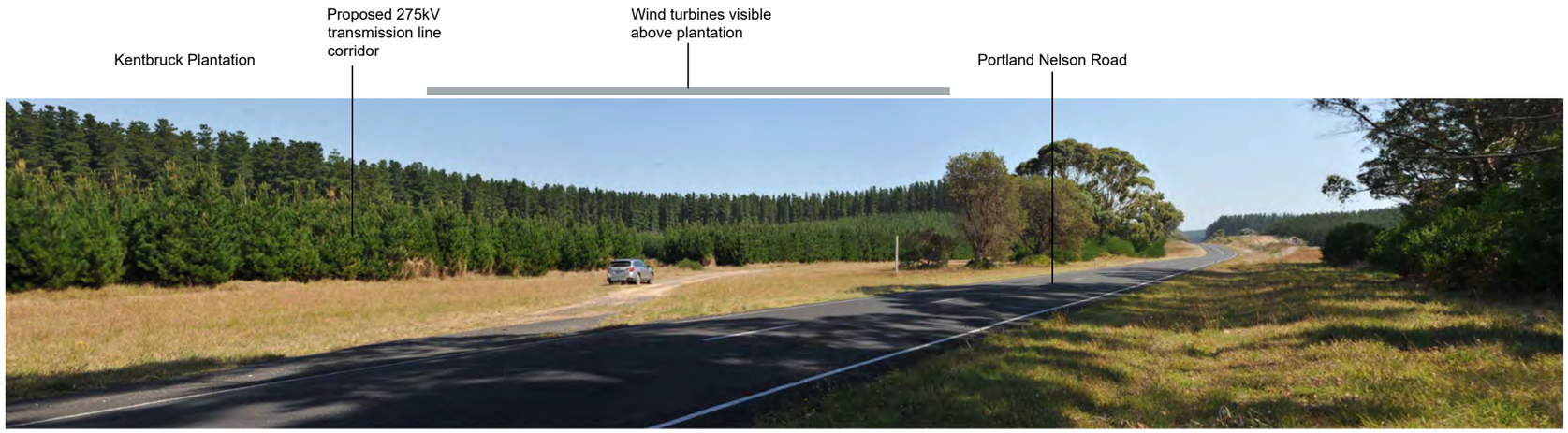


Photo Location P2- View west to north west from the Portland Nelson Road corridor (typical of Landscape Character Area 7 - Pine plantation)

Photo Location P3- View west from the Portland Nelson Road corridor (typical of Landscape Character Area 7 - Pine plantation)

Figure 6
Photo sheet 1

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment

GBD
Landscape architecture

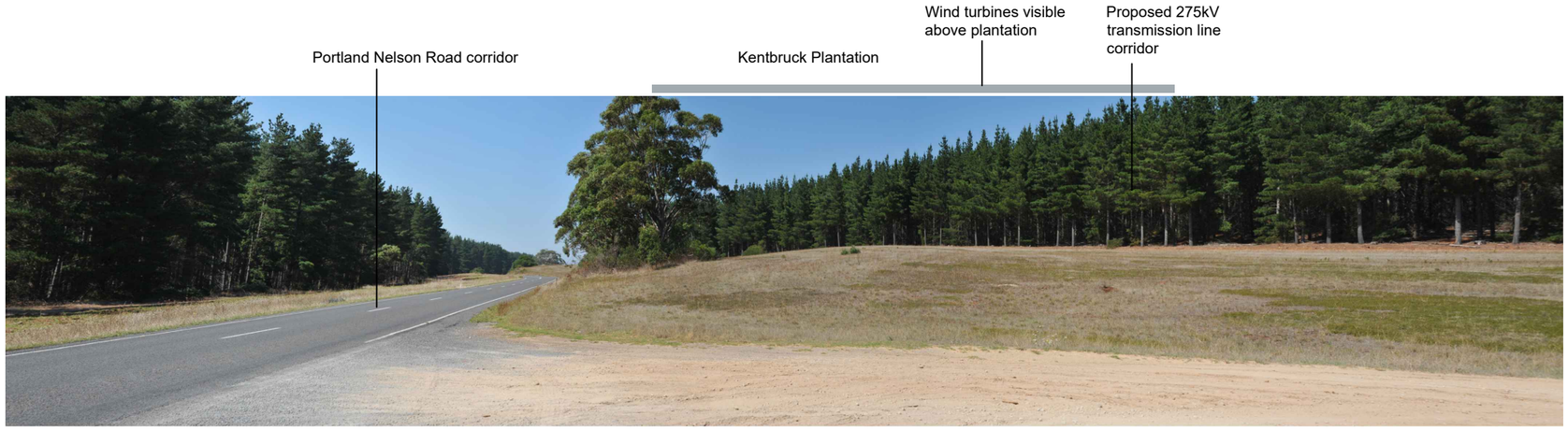


Photo Location P4- View north west from the Portland Nelson Road (typical of Landscape Character Area 7 - Pine plantation)

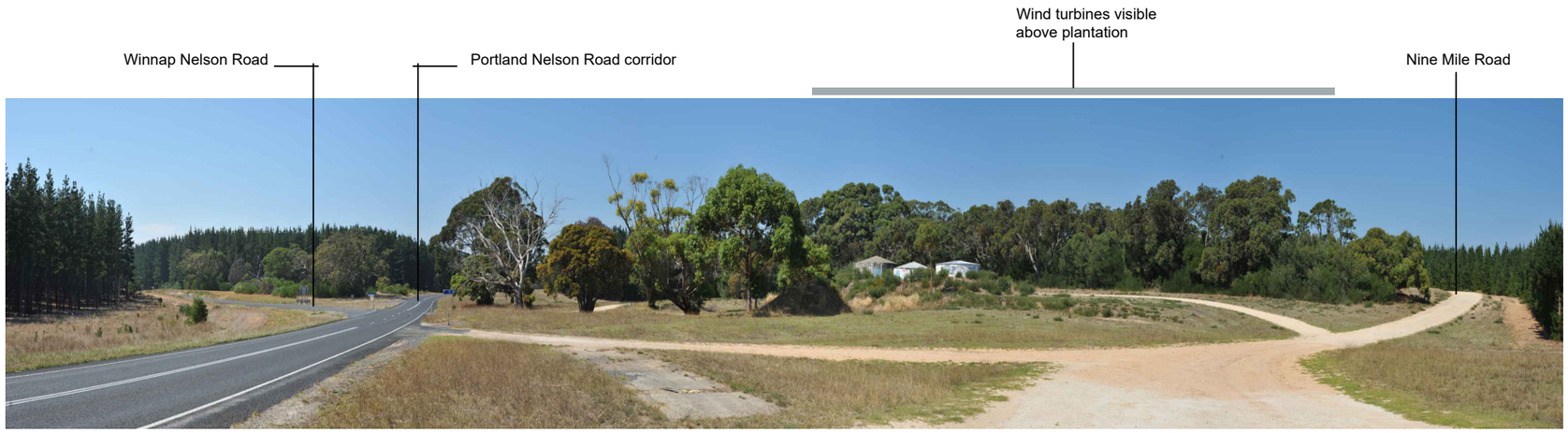


Photo Location P5- View east to south east from the Portland Nelson Road (typical of Landscape Character Area 7 - Pine plantation)

Photo Location P6- View west to north west from the Portland Nelson Road (typical of Landscape Character Area 7 - Pine plantation)

Figure 7
Photo sheet 2

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

Vegetated/pastoral sand dunes south of Portland
Nelson Road screening views to ocean

Photo Location P7- View west from Johnsons Road (typical of Landscape Character Area 6 - Open pasture and Landscape Character Area 2 - Sand dunes)

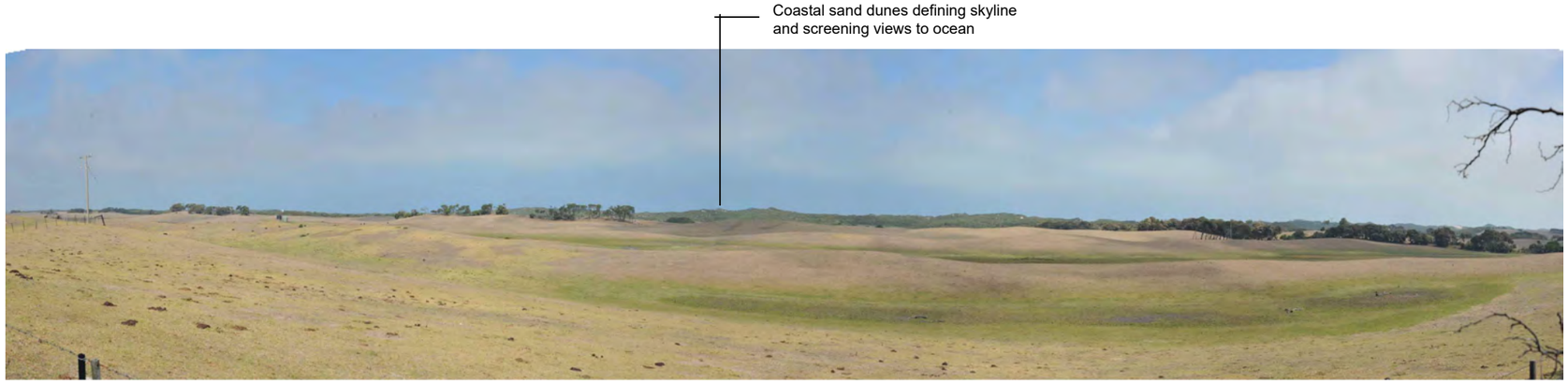


Photo Location P8- View south east from Millhouse Road (typical of Landscape Character Area 6 - Open pasture)

Photo Location P9- View east to south east from Millhouse Road (typical of Landscape Character Area 6 - Open pasture)

Figure 8
Photo sheet 3

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

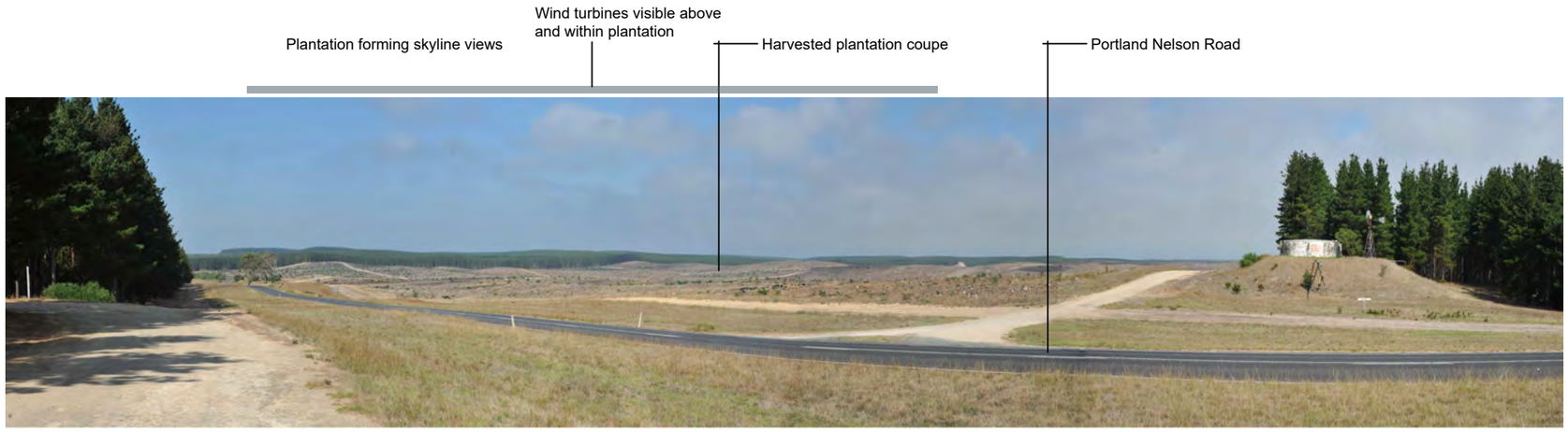


Photo Location P10- View south east from truck stop on Portland Nelson Road (typical of Landscape Character Area 7 - Pine plantation)

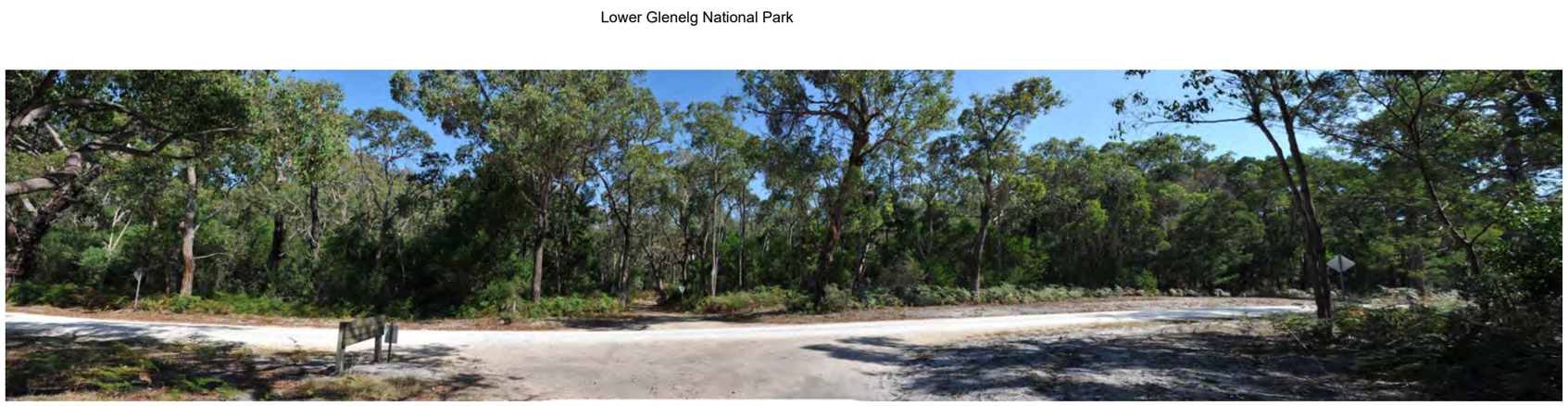


Photo Location P11- View south toward the River Road, Lower Glenelg National Park (typical of Landscape Character Area 5 - National Parks Woodland)

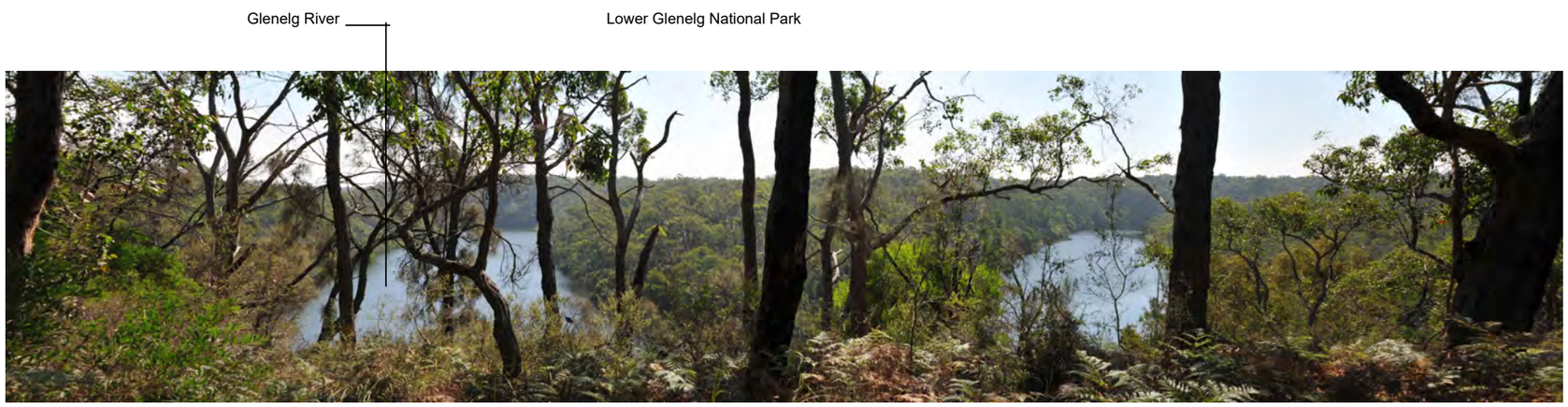


Photo Location P12- View north from River Road, Lower Glenelg National Park (typical of Landscape Character Areas 5 and 3 National Park Woodland and Glenelg River)

Figure 9
Photo sheet 4

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

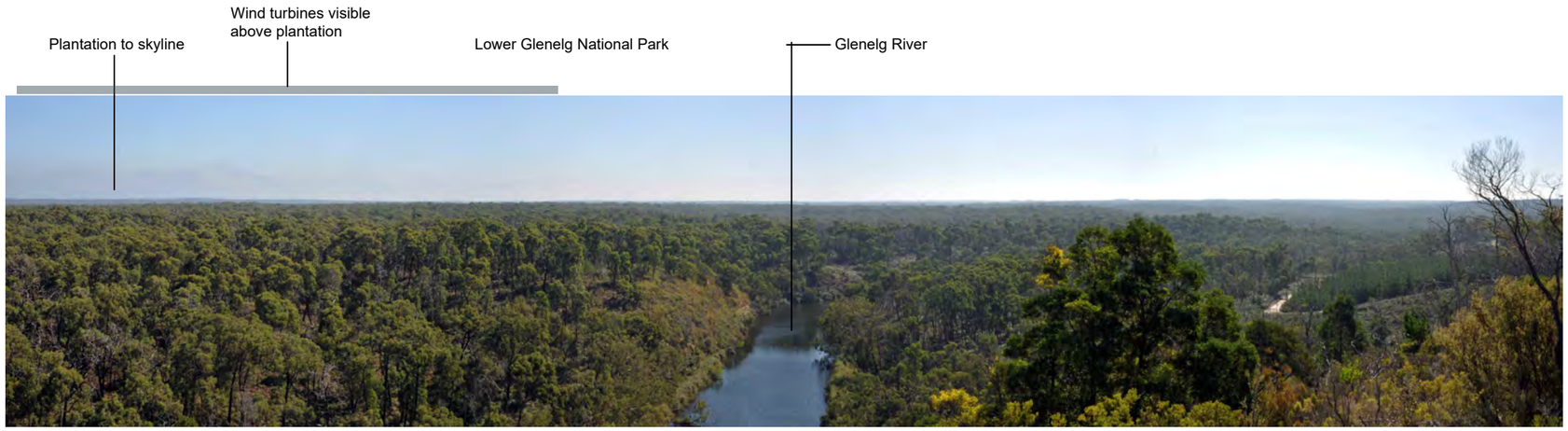


Photo Location P13- View west to south west from Jones Lookout (typical of Landscape Character Areas 5 and 3 National Park Woodland and Glenelg River)

Photo Location P14- View south to south west from Hedditch Hill Scenic Reserve (typical of Landscape Character Areas 7 and 2 - Pine plantation and Sand dunes)

Photo Location P15- View north along Dry Block Road within Kentbruck Plantation
(typical of Landscape Character Area 7 - Pine plantation)

Figure 10
Photo sheet 5

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

Photo Location P16- View north to east south east from Beach Road picnic area (typical of Landscape Character Area 4 - Glenelg Estuary and oxbow lake)

Photo Location P17- View west to north east from Portland Nelson Road (typical of Landscape Character Area 6 - Open pasture)

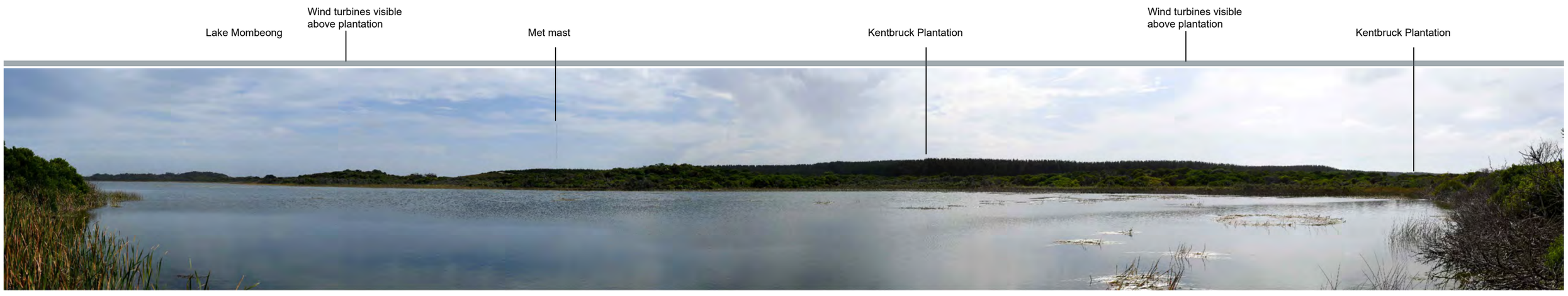


Photo Location P18- View west to north east from Lake Mombeong (typical of Landscape Character Areas 2 and 7 - Lakes and Pine Plantation)

Figure 11
Photo sheet 6

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

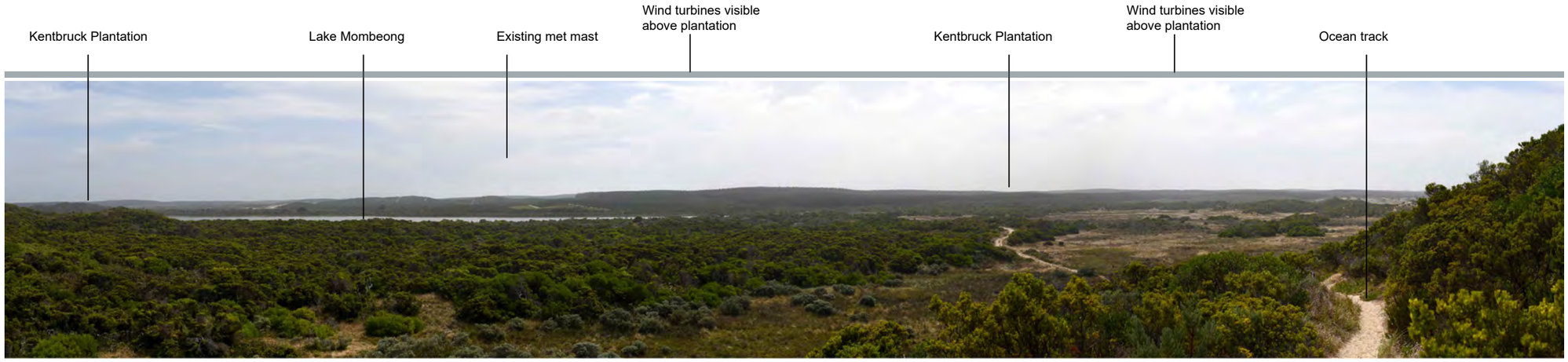


Photo Location P19- View west to north east from Ocean path lookout typical of Landscape Character Area 2 - Lakes, Sand dunes)

Discovery Bay (Great South West Walk along foreshore below dunes)

Photo Location P20- View north west to south east from Ocean Beach, Discovery Bay - below Nobles Rock Track (typical of Landscape Character Area 2 - Beach and Sand dunes)

Discovery Bay (Great South West Walk along foreshore below dunes)

Photo Location P21- View north to south east from Ocean Beach, Discovery Bay - south of Oxbow Lake, Nelson (typical of Landscape Character Area 2 - Beach and Sand dunes)

Figure 12
Photo sheet 7

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

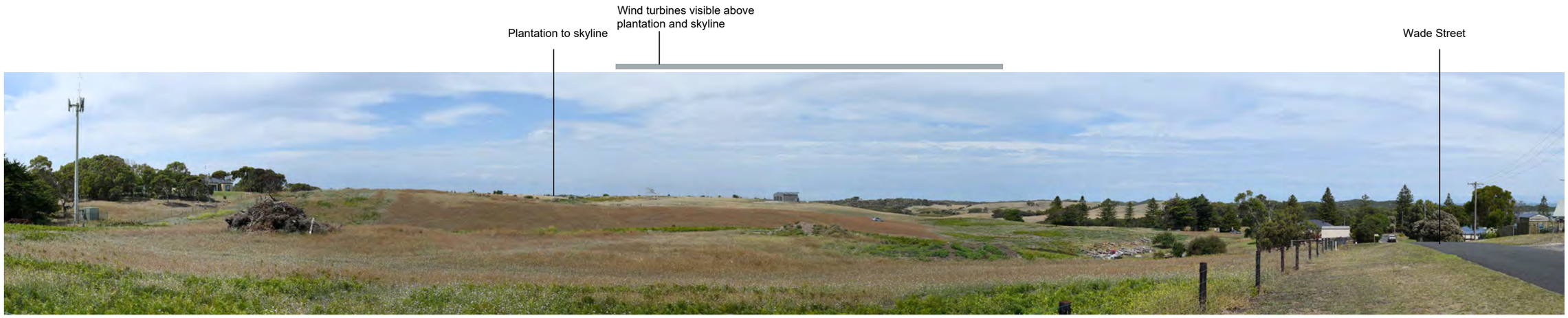


Photo Location P22- View north east to south from Wade Street, Nelson (typical of Landscape Character Area 1 and 6 - Nelson township (fringe) and Open pasture)

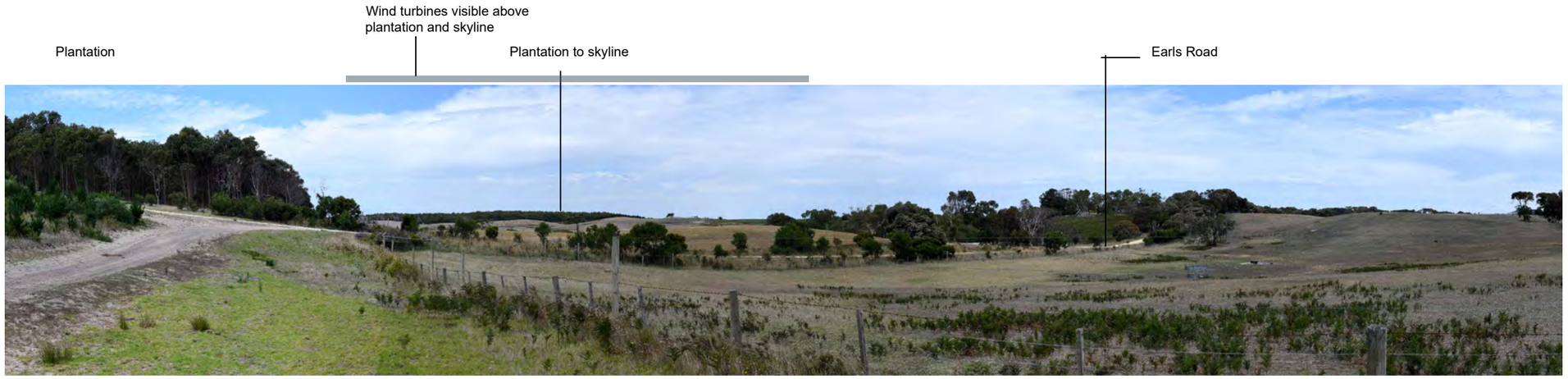


Photo Location P23- View east to south east from Earls Road (typical of Landscape Character Area 6 - Open pasture)

Photo Location P24- View north east to south east from Portland Nelson Road, Nelson (typical of Landscape Character Area 1 - Nelson township)

Figure 13
Photo sheet 8

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

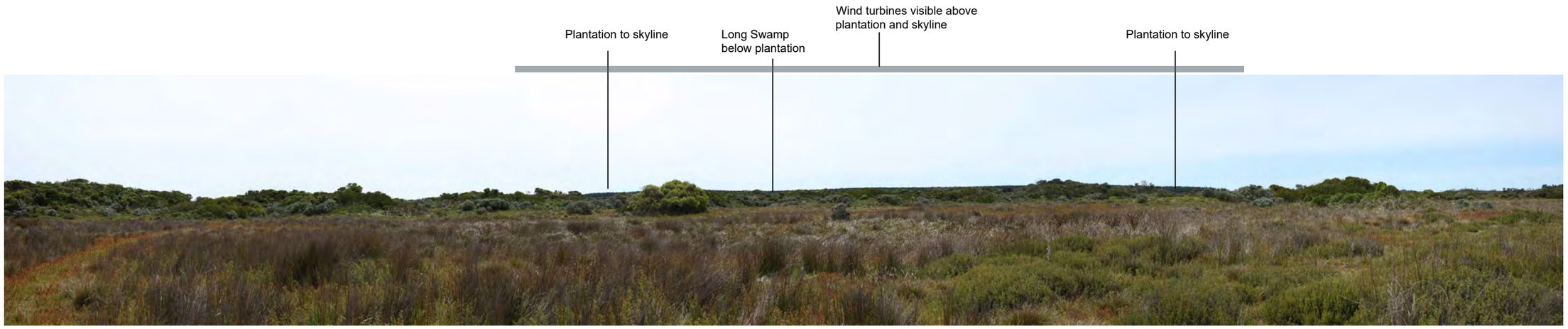


Photo Location P25- View north to east from the Great South West Walk Lake Mombeong Track (typical of Landscape Character Area 2 - Sand dunes and Lakes)

Photo Location P26- View north east to south east from the Great South West Walk Lake Mombeong Track (typical of Landscape Character Area 2 - Sand dunes and Lakes)

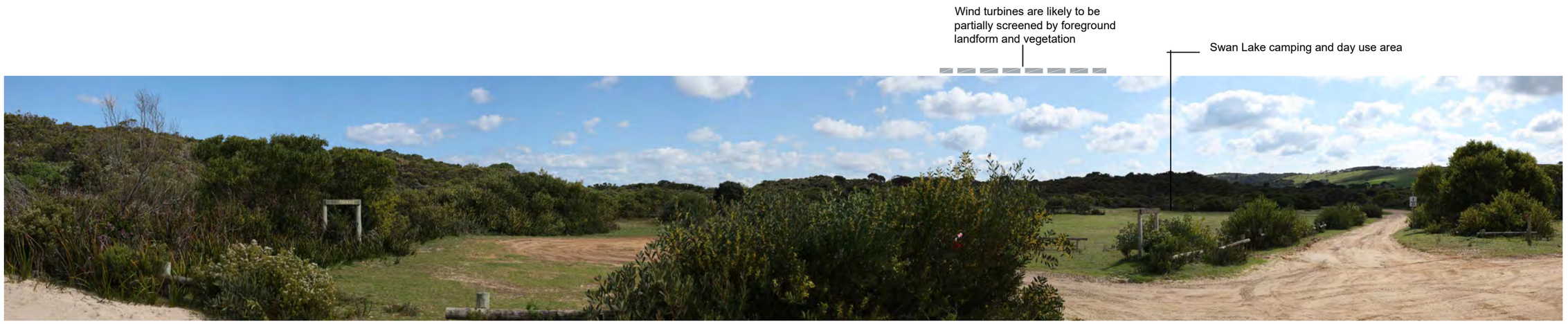


Photo Location P27- View north west to north east from the Swan Lake Campground (typical of Landscape Character Area 2 - Sand dunes and Lakes)

Figure 14
Photo sheet 9

Indicative horizontal extent of wind turbine visibility

Partial visibility and horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

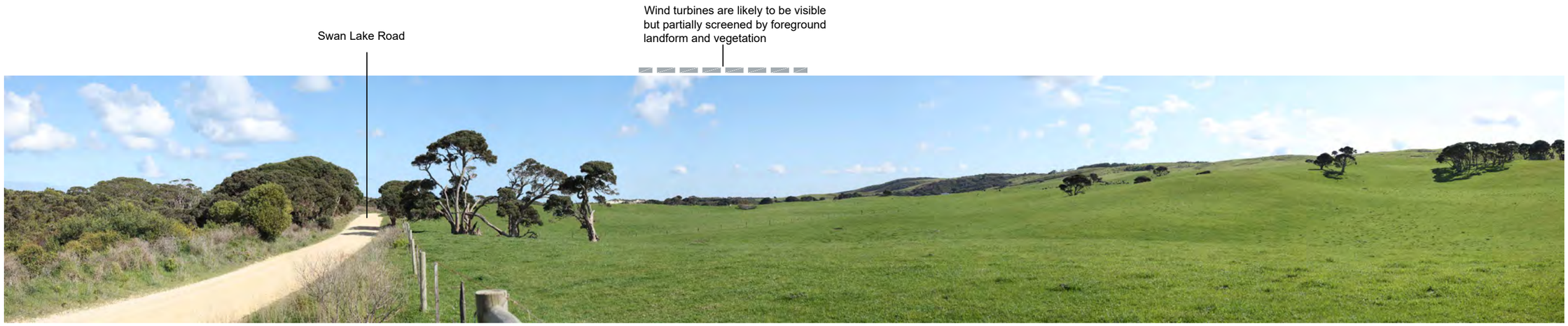


Photo Location P28- View west to north west from Swan Lake Road (typical of Landscape Character Area 6 - Open pasture)

Photo Location P29- View south east to south west from Princes Highway (typical of Landscape Character Area 6 - Open pasture)

Photo Location P30- View south east to west from Wilson Lane, Winnap (typical of Landscape Character Area 6 - Open pasture)

Figure 15
Photo sheet 10

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

Photo Location P31- View east to south west from Princes Highway (typical of Landscape Character Area 6 - Open pasture)

Photo Location P32- View north toward Mount Richmond National Park (typical of Landscape Character Area 2 - Sand dunes and Lakes)

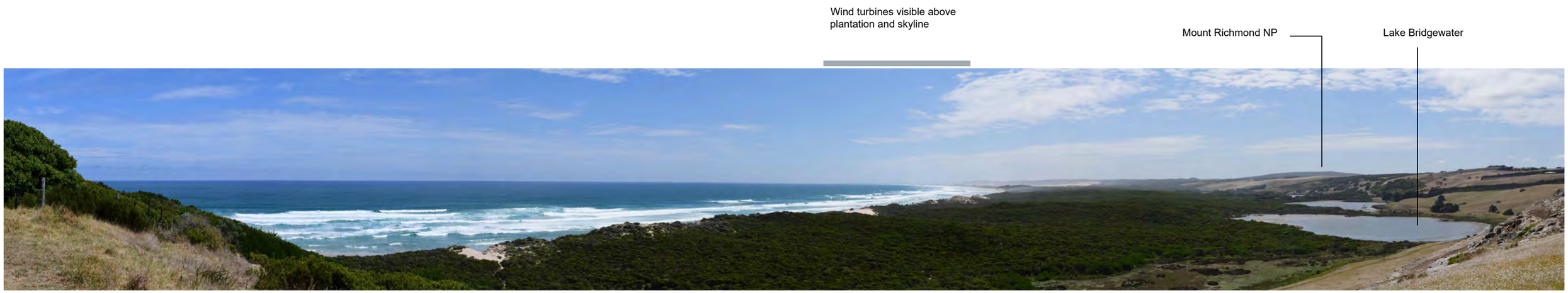


Photo Location P33- View west to north east from Celia Lookout, Discovery Bay Road (typical of Landscape Character Area 2 and 8 - Sand dunes and lakes).

Figure 16
Photo sheet 11

Indicative horizontal extent of wind turbine visibility

Partial visibility and horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

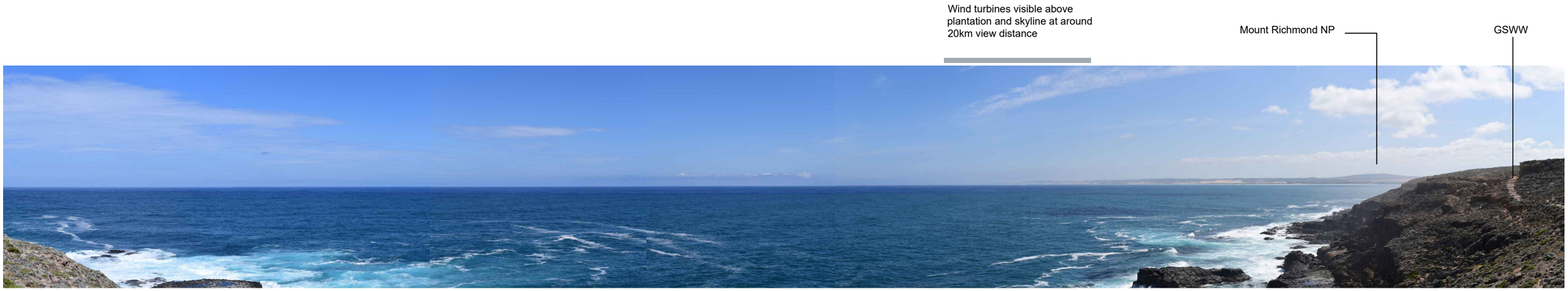


Photo Location P34- View west to north from GSWW, Green Pool Lookout - Cape Bridgewater

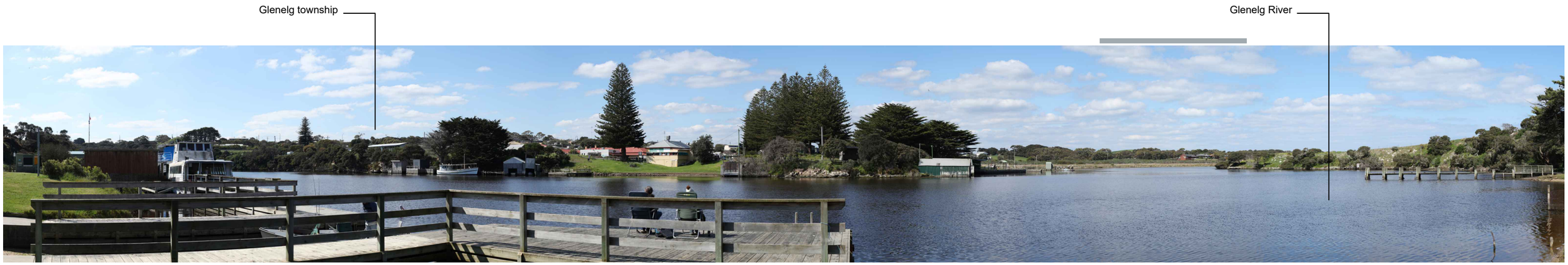


Photo Location P35- View east from Old Bridge Road wharf, Nelson (typical of Landscape Character Areas 1 and 3 - Nelson township and Glenelg River)

Figure 17
Photo sheet 12

Indicative horizontal extent of wind turbine visibility

Refer Section 8 for landscape character and landscape sensitivity assessment.

GBD
Landscape architecture

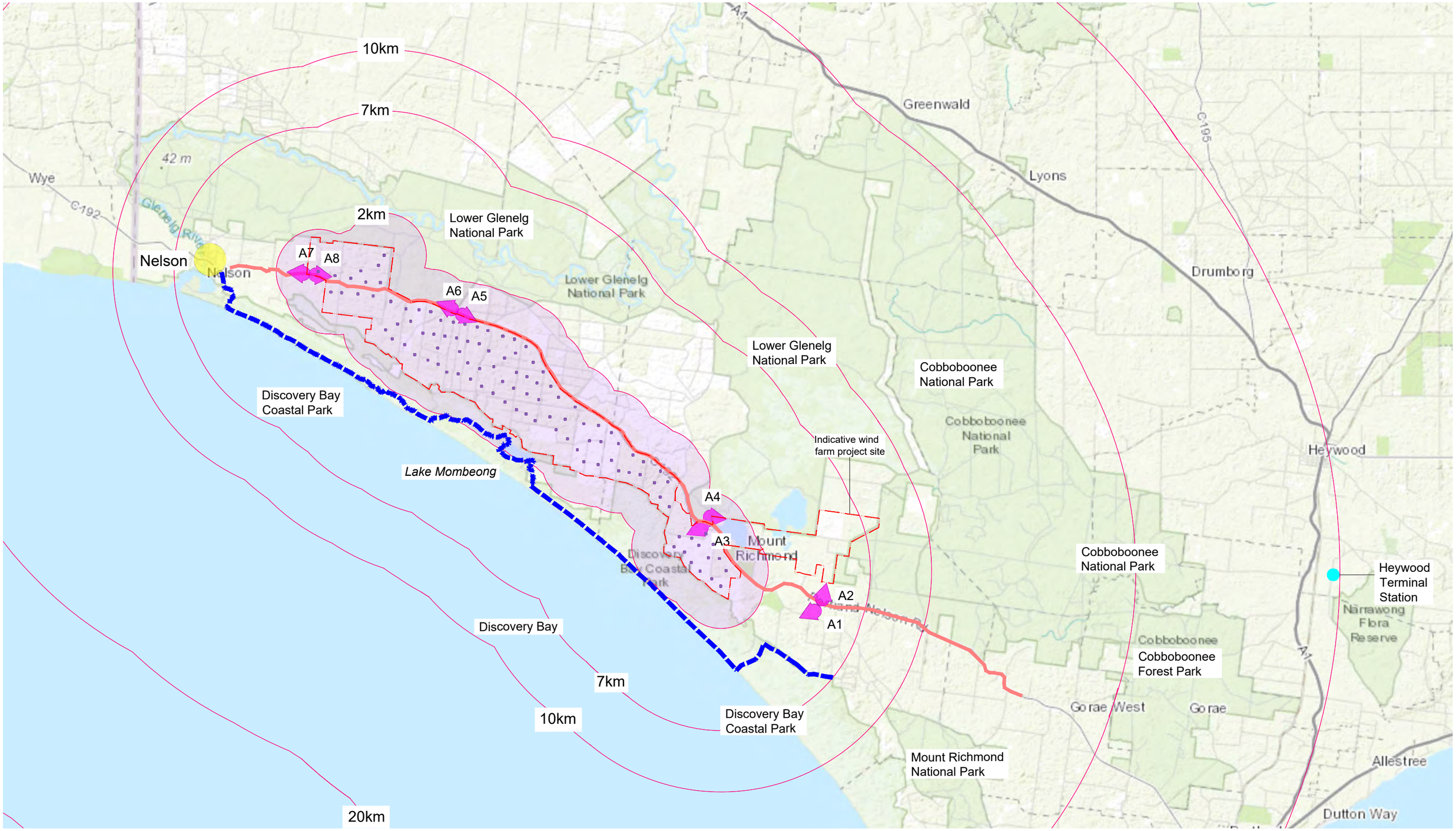
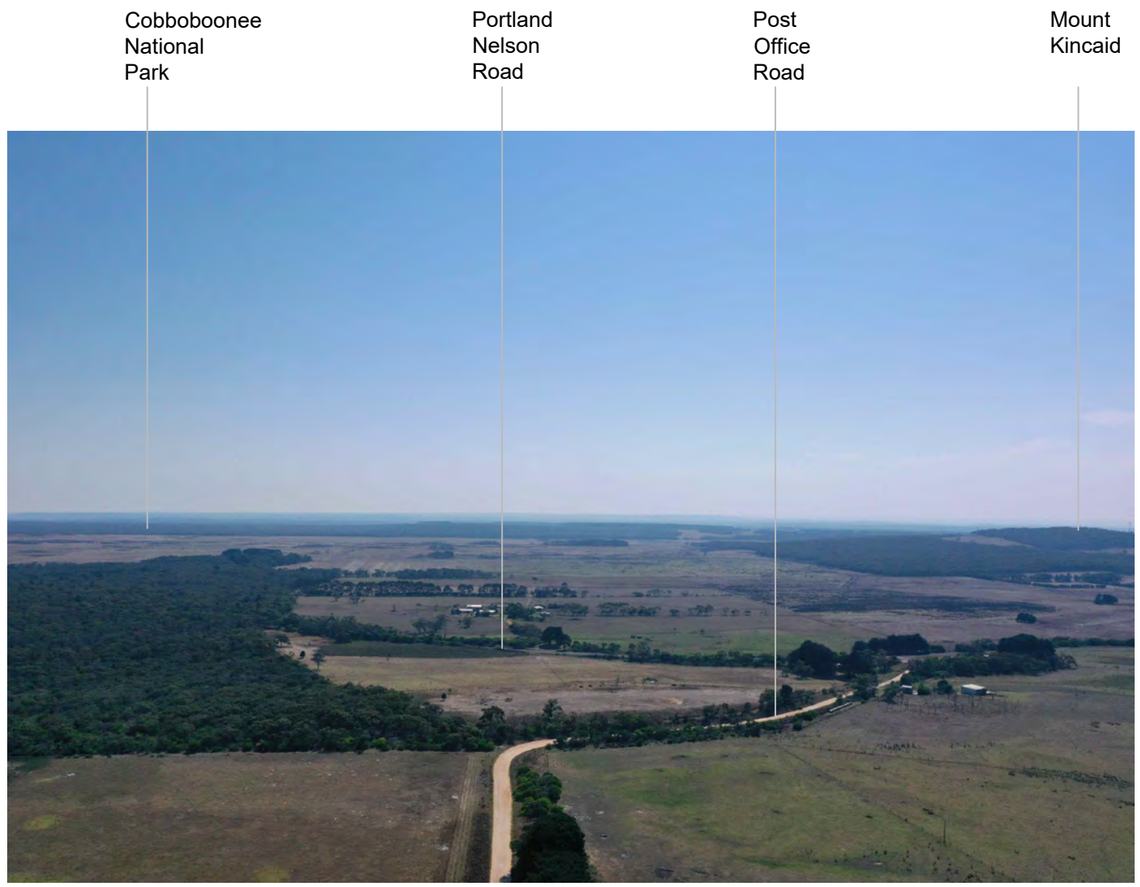


Figure 18
Aerial photo locations

GBD
Landscape architecture

Aerial Photo Location A1- View south to south west above
Post Office Road toward Telegraph Road and Discovery Bay beyond



Aerial Photo Location A2- View north to north east above Post Office Road

Figure 19
Aerial photo sheet 1

Refer Section 8 for landscape character and landscape sensitivity assessment.

Aerial photos offer an elevated oblique view illustrating views of landscape character toward and surrounding the Project site but do not represent typical views from ground based locations.

Aerial Photo Location A3- View south west above Portland Nelson Road and Hedditch Hill Scenic Reserve

Aerial Photo Location A4- View east above Portland Nelson Road and Hedditch Hill Scenic Reserve

Refer Section 8 for landscape character and landscape sensitivity assessment.

Aerial photos offer an elevated oblique view illustrating views of landscape character toward and surrounding the Project site but do not represent typical views from ground based locations.

Figure 20
Aerial photo sheet 2

GBD
Landscape architecture

Aerial Photo Location A6- View west from above Portland Nelson Road corriodor

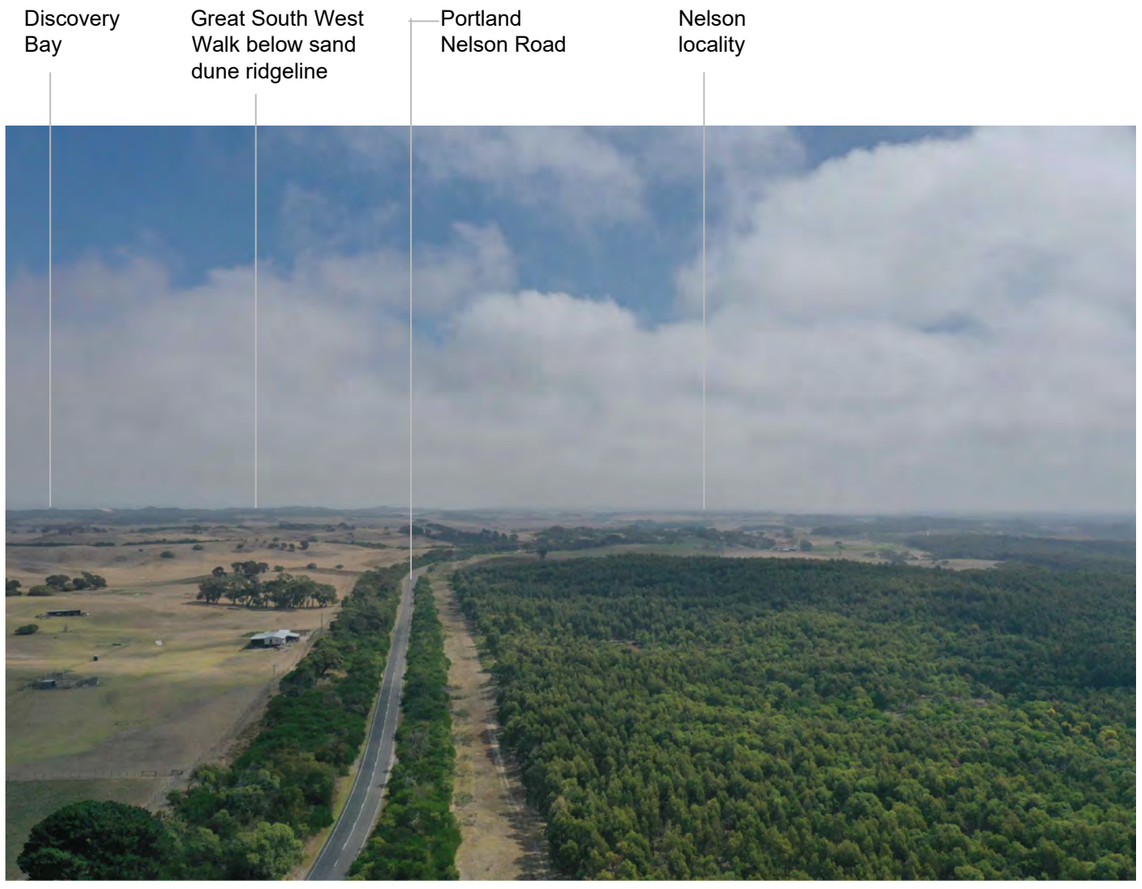
Aerial Photo Location A7- View east from above Portland Nelson Road corriodor

Figure 21
Aerial photo sheet 3

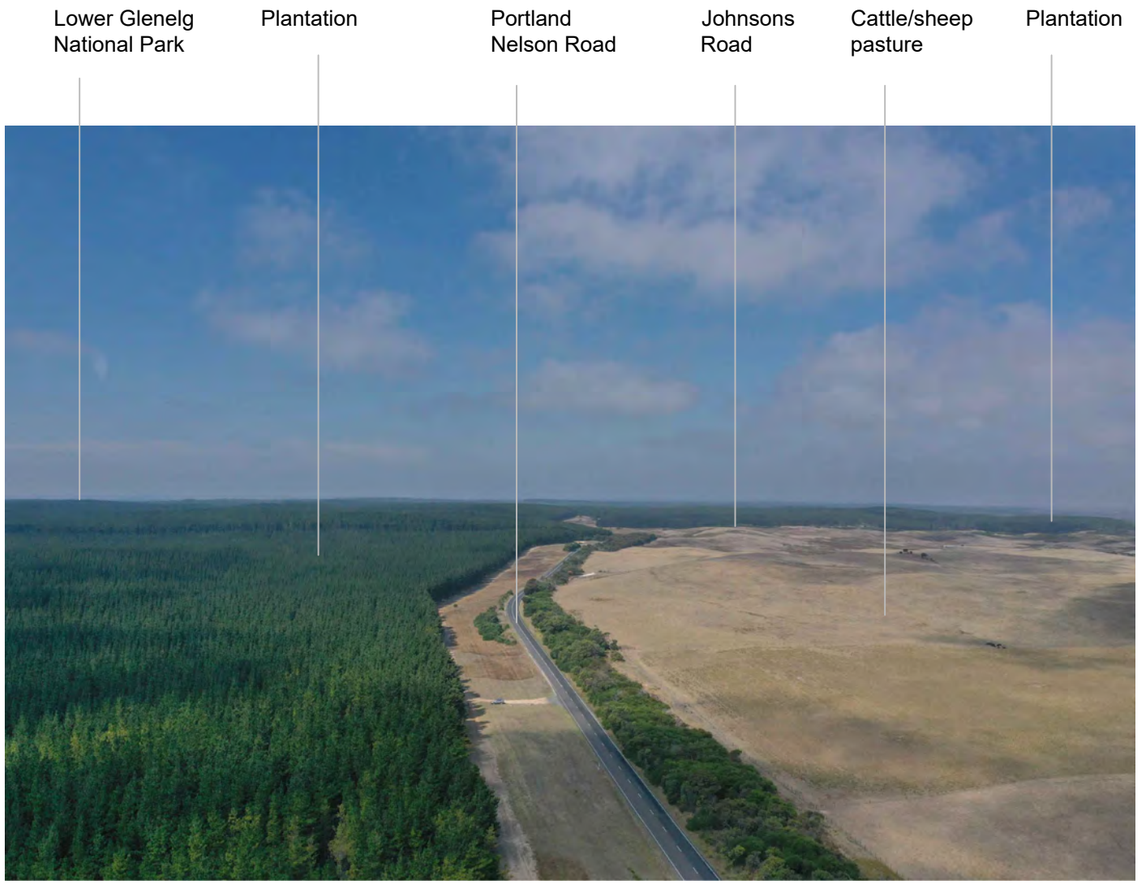
Refer Section 8 for landscape character and landscape sensitivity assessment.

Aerial photos offer an elevated oblique view illustrating views of landscape character toward and surrounding the Project site but do not represent typical views from ground based locations.

GBD
Landscape architecture



Aerial Photo Location A7- View west from above the Portland Nelson Road



Aerial Photo Location A8- View east to south east from above the Portland Nelson Road

Figure 22
Aerial photo sheet 4

Refer Section 8 for landscape character and landscape sensitivity assessment.

Aerial photos offer an elevated oblique view illustrating views of landscape character toward and surrounding the Project site but do not represent typical views from ground based locations.

GBD
Landscape architecture

Section 8. Landscape Character Assessment

8.1 Landscape Character Area

As part of the LCVIA process it is important to understand the nature and sensitivity of different components of landscape character, and to identify them in a clear and consistent process. For this LCVIA, landscape character is defined as '*the distinct and recognisable pattern of elements that occur consistently in a particular type of landscape'* (The Countryside Agency and Scottish Natural Heritage 2002). The pattern of elements includes characteristics such as landform, vegetation, land use and settlement.

This LCVIA has identified seven Landscape Character Areas (LCA's), which generally occur within the project viewshed. The LCA's represent areas that are relatively consistent and recognisable in terms of their key landscape elements and physical attributes, which may include a combination of topography/landform, vegetation/landcover, land use and built structures (including settlements and local road corridors). The Landscape Character Areas are illustrated in **Figure 23**.

The LCA's are not definable as discrete areas, and characteristics within one LCA may well occur within adjoining or surrounding LCA's. The LCA's have not been assessed, described or illustrated as singular 'landscape units'. For this LCVIA the LCA's have been identified (predominantly from the Coastal Spaces Landscape Assessment Study) as:

- *LCA 1* – Nelson township
- *LCA 2* – Beach, sand dunes and lakes
- *LCA 3* – Glenelg River
- LCA 4 – Glenelg Estuary and Oxbow Lake
- *LCA 5* – National Parks (woodland)
- *LCA 6* – Open Pasture
- *LCA 7* – Pine plantation

8.2 Landscape character assessment

Understanding a particular landscape's key characteristics and principle visual features is important in defining regional distinctiveness and sense of place and to determine a region's sensitivity to change. The criteria applied in the determination of landscape character assessment and the ability of a landscape to accommodate change are outlined in **Table 5**. These criteria are based on established industry practice employed in the assessment of wind farm developments and have been adopted for numerous wind farm assessments across Australia and within Victoria.

The criteria are broadly outlined in the National Wind Farm Development Guidelines (Draft v2.4), Section 6.1 Landscape Character Units, and covered in more detail within the Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute and Institute of Environmental Management & Assessment, 2013 – Chapter 5 Assessment of landscape effects.

Whilst landscape character assessment is largely based on a systematic description and analysis of landscape characteristics, this LCVIA acknowledges that some individuals and other members of the local community may place different values on the local landscape.

Table 5 Criteria for the assessment of landscape character

Landscape Character Assessment Criteria

Characteristic	Aspects indicating lower sensitivity to the wind farm development	↔	Aspects indicating higher sensitivity to the wind farm development
Landform and scale: patterns, complexity and consistency	Large scale landform Simple Featureless Absence of strong topographical variety	↔	Small scale landform Distinctive and complex Human scale indicators Presence of strong topographical variety
Landcover: patterns, complexity and consistency	Simple Predictable Smooth, regular and uniform	↔	Complex Unpredictable Rugged and irregular
Settlement and human influence	Concentrated settlement pattern Presence of contemporary structures (e.g. utility, infrastructure or industrial elements)	↔	Dispersed settlement pattern Absence of modern development, presence of small scale, historic or vernacular settlement
Movement	Prominent movement, busy	↔	No evident movement, still
Rarity	Common or widely distributed example of landscape character area within a regional context	↔	Unique or limited example of landscape character area within a regional context
Intervisibility with adjacent landscapes	Limited views into or out of landscape Neighbouring landscapes of low sensitivity Weak connections, self-contained area and views Simple large-scale backdrops	↔	Prospects into and out from high ground or open landscape Neighbouring landscapes of high sensitivity Contributes to wider landscape Complex or distinctive backdrops

8.3 Landscape sensitivity

The scale of sensitivity for the landscape character area is described below and considered against each characteristic identified in **Table 5**.

The overall sensitivity for the landscape character area has been determined against the following ratings of Negligible through to High:

Negligible – where the characteristics of the landscape character area will not be impacted or visibly altered by the proposed Project.

Low – where the majority of the landscape character area characteristics are generally robust and will be less affected by the proposed Project. The degree to which the landscape may accommodate the Project will not significantly alter existing landscape character.

Moderate – where distinguishable characteristics of the landscape character area may be altered by the proposed Project, although the landscape character area may have the capability to absorb some change. The degree to which the landscape character area may accommodate the proposed Project will potentially result in the introduction of prominent elements to the landscape character area, which may be accommodated to some degree.

High – where key characteristics of the landscape may be impacted by the Project and could result in major and visually dominant alterations to perceived characteristics of the landscape character area, which may not be fully mitigated by existing landscape elements and features. The degree to which the landscape may accommodate the proposed Project will result in several perceived uncharacteristic and significant changes.

8.4 Landscape sensitivity assessment

The following section of this LCVIA provides an analysis of landscape sensitivity within the viewshed and considers each of the 7 LCA's illustrated on **Figure 23**.

Legend

- Proposed wind turbine (indicative layout)
- 2km and 10km wind turbine distance
- LCA1 Nelson township
- LCA2 Beach, sand dunes and lakes
- LCA3 Glenelg River
- LCA4 Glenelg Estuary and Oxbow Lake
- LCA5 National Parks (woodland)
- LCA6 Open pasture
- LCA7 Pine plantation

0m 5km

Figure 23
Landscape Character Areas

GBD
Landscape architecture

8.4.1 LCA 1 Nelson township

Nelson is a small town with around 200 inhabitants and is located around 5km to the west of the Project site. The town extends to the east and west of the Glenelg River and is connected by a bridge spanning the river north of the estuary and Oxbow Lake. The town is supported by tourism offering fishing and other river/land based activities.

Table 6 – LCA 1 – Nelson township -Landscape Sensitivity

	Lower Sensitivity		↔		**Higher Sensitivity**
	Low	**Low to Mod**	**Moderate**	**Mod to High**	**High**
Landform and Scale			■		
	The township and dispersed rural settlements are generally surrounded and contained by gently sloping and low undulating landform resulting in an overall **small scale** rural agricultural and riverine environment.				
Landcover		■			
	The overall landscape pattern is defined by human scale indicators including houses, shops and roads together with a variety of built structures which create some **diversity and contrast** in pattern. There are generally no natural elements that result in the presence of strong topographical variety.				
Settlement and human influence		■			
	Dwellings are dispersed and sparse beyond the main settlement of Nelson and are generally associated with individual farms and rural structures.				
Movement		■			
	Movement occurs within the township along local roads within urban areas and main roads leading to and away from Nelson. Movement around the estuary and river occurs around recreational areas and on water activities.				
Rarity		■			
	Small scale settlements are **dispersed** across the landscape beyond the viewshed, as well as the broader regional area of the Glenelg Shire.				
Intervisibility			■		
	Intervisibility is **limited** where views are partially contained by buildings and structures within the township or a low undulating pasture (dune) landscape to the east. Views from elevated areas of Nelson, or those fringing the river, extend beyond and across adjoining landscape areas including the river, estuary and Oxbow Lake.				
Overall Sensitivity Rating	Moderate				

8.4.2 LCA 2 Beach, sand dunes and lakes (coastal edge)

Beach, sand dunes and lakes forming the coastal edge incorporating the Discovery Bay Coastal Park and a section of the GSWW extend in a general south west alignment from Nelson to Mount Richmond. The sand dunes and lakes are bordered by open pasture to the north and pine plantation which extends toward the Mount Richmond National Park.

Table 7 – LCA 2 – Beach, sand dunes and lakes – Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and Scale				■	
	Beach landforms are generally **simple** along the coastal fringe and take in views across extensive areas of ocean; however, the landscape becomes more **complex** and **distinctive** across adjoining sand dunes and wetland areas.				
Landcover			■		
	Landcover through this LCA is **simple** but **irregular** comprising low growing natural vegetation across sand dunes and around lakes.				
Settlement and human influence				■	
	Settlement is **dispersed** with limited evidence of **utility infrastructure** and agricultural elements.				
Movement				■	
	There is **limited** evidence of movement within the LCA with occasional traffic along roads/track leading to the Ocean beach and occasional agricultural or forestry machinery working in fields and plantations beyond the coastal fringe. Occasional traffic travels along access tracks and parking facilities to access the ocean foreshore or campground sites within National/Marine Parks.				
Rarity				■	
	The key landscape elements within this LCA are **represented** within the study and wider local area of the coastal edge; however, the extent and nature of sand dunes and lakes are noted as being generally restricted to Discovery Bay.				
Intervisibility				■	
	Views into and out of this LCA are **limited** and **restricted** by sand dune landform and vegetation which partially **restricts** opportunities for long distant views. Occasional opportunities exist to gain views across the dunes and lakes from pathways between the plantations and the beach. Views along the beach areas and across water are extensive and are framed against the undulating sand dunes.				
Overall Sensitivity Rating	Moderate High				

8.4.3 LCA 3 Glenelg River

The Glenelg River forms a central feature through the Lower Glenelg National Park carving a meandering course through limestone rocks. The river is flanked (and largely hidden from view) by forest extending north and south of the corridor. The river supports passive recreation within the National Park, flowing north west then south to Nelson and the river mouth to the ocean.

Table 8 – LCA 3 – Glenelg River – Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and Scale					■
	The river follows a **small scale** and **distinctive** landscape with some degree of **topographical variety** created by limestone bank rising above the river corridor.				
Landcover				■	
	Landcover is predominantly **simple and predictable with** timbered areas on surrounding slopes creating some **diversity and contrast** in pattern.				
Settlement and human influence					■
	Evidence of settlement is generally absent with **occasional** and **dispersed** camping sites located along the river frontage.				
Movement				■	
	Movement is generally **limited** to water-based activities, but overall is still.				
Rarity					■
	The Glenelg River corridor forms a **limited example** of a landscape character type found within south west Victoria.				
Intervisibility				■	
	Views into and from the river corridor are largely restricted by tree cover within the Lower Glenelg National Park.				
Overall Sensitivity Rating	High				

8.4.4 LCA 4 Glenelg Estuary and Oxbow Lake

The Glenelg Estuary and Oxbow Lake are located around 5km to the west of the Project site and south of the Portland Nelson Road.

Table 9 – LCA 4 – Glenelg Estuary and Oxbow Lake- Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and Scale		■			
	The landform is **simple** containing **few distinct features** and has an **absence of any strong topographical elements**.				
Landcover				■	
	Landcover is predominantly **simple and predictable** within areas beyond the estuary and Oxbow Lake and comprise both natural vegetation and cultivated pasture landscapes.				
Settlement and human influence			■		
	Settlement is **occasional** and **dispersed** in areas adjoining the estuary and Oxbow Lake				
Movement			■		
	Movement is generally **limited** to boats on the estuary and vehicles on local roads surrounding the estuary, the Beach Road picnic area and visitation to the conservation reserve.				
Rarity					■
	The estuary and Oxbow Lake are unique examples of landscape character within the region.				
Intervisibility		■			
	The level of intervisibility between this landscape and adjoining areas is, overall, **limited** as views from within this landscape are constrained by a combination of landform and vegetation surrounding the estuary.				
Overall Sensitivity Rating	Moderate High				

8.4.5 LCA 5 National Parks (forest)

The Lower Glenelg, Cobboboonee and Mount Richmond National Parks are located north and south east of the Project site with large areas of forest extending across the landscape toward and beyond the Glenelg River corridor.

Table 10 – LCA 5 – National Parks (forest) – Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and Scale				■	
	The National Parks contain a variety of landform types which can form **distinctive and complex** elements including limestone cliffs alongside the Glenelg River corridor creating some **topographical variety**.				
Landcover		■			
	Landcover is generally defined by large tracts of tree cover extending across the National Parks providing **simple** and **predictable** patterns.				
Settlement and human influence				■	
	There is a general lack of settlement, with human influence limited to day use and camping site locations along the river.				
Movement				■	
	Movement is generally **limited** to local roads and access tracks within the National Parks.				
Rarity		■			
	The National Parks (and forested areas) extend across portions of the landscape within the viewshed and beyond forming landscape elements found within a broader regional context within south west Victoria.				
Intervisibility		■			
	Intervisibility is **limited** where views beyond the LCA are largely screened and contained by tree cover.				
Overall Sensitivity Rating	Moderate High				

8.4.6 LCA 6 Open Pasture

Open pasture extends to the east and west of the Project site and occurs within a mosaic of landscape elements between the coastal edge, plantation and National Parks.

Table 11 – LCA 6 – Open Pasture – Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and scale		■			
	Pasture is generally observed as a **small** to moderate **scale** landscape with both **level** (to the east) and **gently sloping/undulating landforms** (to the west). The structure of the landform is **simple** containing few distinct features and has a general **absence of any strong topographical elements**.				
Landcover		■			
	Landcover is predominantly **simple and predictable** within the context of widespread areas of pasture across the broader regional area of the Glenelg Shire. The overall landscape pattern created by pasture within this landscape is **smooth, regular and uniform**, although mosaics of timbered stands on adjoining landscape areas create some **diversity and contrast** in pattern.				
Settlement and human influence			■		
	There is a **general absence of settlement** within pasture areas with a small and dispersed number of rural dwellings and agricultural structures (some abandoned). Human influence within the landscape includes roads, minor access tracks and fences occurring throughout.				
Movement				■	
	A **lack of any significant movement** gives this LCA an overall still character.				
Rarity		■			
	Open pasture is **dispersed** across the viewshed, as well as the broader regional area of the Glenelg Shire.				
Intervisibility		■			
	Intervisibility is partially **limited** as views from within this landscape area are contained by roadside tree cover and extensive pine plantations.				
Overall Sensitivity Rating	Low to Moderate				

8.4.7 LCA 7 Pine plantation

Pine plantation is a dominant feature within the viewshed and extends to the broader regional landscape.

Table 12 – LCA 7 – Pine Plantation – Landscape Sensitivity

	Lower Sensitivity		↔		Higher Sensitivity
	Low	Low to Mod	Moderate	Mod to High	High
Landform and scale		■			
	Plantation areas occur across a small range of landform types that are generally defined by gently sloping or undulating landform resulting in a **moderate scale** landform. The landform is **simple** containing **few distinct features** and has an **absence of any strong topographical elements**.				
Landcover		■			
	Landcover is predominantly **simple and predictable** within the context of similar plantation areas within the south west of Victoria. The overall landscape pattern created by plantation areas creates **diversity and contrast** to the **smooth, regular and uniform** grass pasture and cultivated areas within this landscape. The darker coloured foliage of plantation areas contrasts against the surrounding backdrop of lighter toned pastures and cultivated areas.				
Settlement and human influence		■			
	Settlement is **sparse** and **dispersed** surrounding plantation areas with most dwellings visually screened from surrounding landscape areas. The main influences of human activity are the effects of **commercial forestry** within the landscape.				
Movement			■		
	Movement is generally **limited** to publicly accessible local roads and access tracks within the plantation areas. Movement is more noticeable during harvesting and planting stages within areas of the plantation in private land.				
Rarity		■			
	Plantation areas occur across portions of the Glenelg Shire from moderate sized areas to smaller discrete parcels and are a more **widely distributed** landscape area within a regional context.				
Intervisibility		■			
	Intervisibility is **limited** where views are partially contained by buildings and structures, although views from elevated areas of the settlement extend beyond and across adjoining landscape areas.				
Overall Sensitivity Rating	Low to Moderate				

8.5 Landscape sensitivity summary

This LCVIA has determined that the landscape within the Project viewshed has a Moderate High landscape sensitivity to change and represents landscape characteristics that are reasonably typical of types found in the Glenelg Shire and more broadly within south west Victorian marine and coastal landscape.

As a landscape with a Moderate High sensitivity to change, some landscape characteristics will be altered by the Project; however, the landscape will have some capability to accommodate and absorb change. This capability is largely derived from the presence of predominantly broad, consistent and visually contiguous landscape characteristics formed by extensive stands of pine plantation within and beyond the Project site.

In addition to areas of Moderate High landscape sensitivity, this LCVIA has also determined landscape characteristics that indicate a Higher sensitivity, most notably within the coastal zone (beach, sand dunes and lakes/swamps) where some landscape characteristics may be impacted by the Project and potentially result in visual changes to perceived characteristics which may not be fully mitigated by existing landscape elements or features.

This LCVIA notes that portions of the Glenelg Shire landscape have been modified by agricultural improvement for pasture and arable production as well as urban and industrial development. The Project site (as well as areas beyond the site) are noted as modified landscape, supporting commercial pine plantations.

Irrespective of the extent and nature of modifications to the landscape, it is not correct to assume that the landscape surrounding the Project site should be any less valued due to human modification. Physical change in the appearance of the landscape is an ongoing and constant process from both human and environmental influences that can result in both positive and negative effects.

8.6 Landscape values

The purpose of considering landscape values is to identify what, if any, changes to landscape features or characteristics may impact upon people's association with the landscape. Landscape values have been considered as a set of professional judgements and literary reviews on the importance to society of the local and regional landscape surrounding the Project. People's association with landscape may extend across a range of interest areas such as geology, heritage, environment, cultural, spiritual or recreational issues.

Whilst the landscape is likely to hold more significant value at a local level, for those who reside and work within the landscape surrounding the Project site, there are several references to landscape designations or policies which recognise intrinsic landscape values at a broader level. Whilst this LCVIA has not identified any 'iconic' landscape elements (including constructed or natural features) that occur within the local or regional landscape, there are elements recognised at a national level (such as the Glenelg River and Ramsar Sites) which have broader scientific and public values attached to them. Local landscape values are also recognised through the designation of National Parks, Coastal Parks and Marine Parks as well as several smaller flora and scenic reserves.

The majority of land within the Project site is privately owned (with some areas of the Kentbruck Plantation accessible by permit) and, at a local and regional scale, opportunities for the public to access and explore this landscape, or to obtain more distant and panoramic views is more likely to occur on a day to day basis from existing rights of way such as road corridors, including beach access, or a small number of named lookouts including Jones Lookout around 10 km to the north of the Project site and Celia Lookout at the western end of Discovery Bay Road. This LCVIA recognises that views from landscapes with high landscape values will occur from the coastal edge including in the vicinity of

beach, sand dunes and lakes and camping sites located within these areas, as well as areas around the Glenelg Estuary/Nelson within the SLO1, as well as more distant views from Bridgewater Lakes and sections of the GSWW around the Cape Bridgewater peninsula. The consideration of landscape values do not necessarily reflect the cultural and spiritual values of Traditional Owners which are subject to separate specialist studies and as discussed in the Ngootyoong Gunditj Ngootyoong Mara South West Management Plan (May 2015), Parks Victoria.

8.7 Clause 42.03 Schedule 1 5.0 Decision guidelines

The following decision guidelines apply to an application for a permit under Schedule 1 to Clause 42.03 Significant Landscape Overlay in addition to those specified in Clause 42.03 and elsewhere in the scheme which must be considered, as appropriate, by the responsible authority. This LCVIA has considered the Decision guidelines and provides responses in **Table 13.**

Table 13 – Clause 42.03 Schedule 1 5.0 Decision guideline responses

Decision guideline	LCVIA response
Whether the development encroaches into or is visible within 500 metres of scenic coastal viewpoints, lookouts, and the Great South West Walk (outside the urban area of Nelson).	Wind turbines within SLO1 will be located beyond 500m of scenic coastal viewpoints, lookouts and the Great South West Walk outside of the urban area of Nelson and therefore will not be visible within 500m of these viewpoints.
Whether the development is designed and sited low on slopes.	Wind turbines within SLO1 are located on gently sloping land and not low on slopes.
Whether the development is designed and sited amongst vegetation; and has a form conforming to the topography of the land retaining natural and/or rural character.	Wind turbines within SLO1 are located amongst vegetation associated with the surrounding pine plantations and will conform to the topography of the land but will change the character of the modified plantation landscape character.
Whether development sited outside of the urban area of Nelson retains views and vegetation.	Whilst wind turbines proposed within SLO1 will be visible elements within the landscape they will not block views beyond the Project site or SLO1.
Whether development sited outside of the urban area of Nelson intrudes into undeveloped areas visible from the Portland-Nelson Road, Beach Road, and the Glenelg River.	The wind turbines within SL01 are in a semi developed landscape modified to produce forestry timber. Wind turbines within SLO1 will be visible from portions of the Portland Nelson Road and Beach Road (toward the Glenelg Estuary) but will be significantly screened by tree planting around the Glenelg River or built development with the Nelson TZ.
Whether development located within the urban area of Nelson is set back a sufficient distance from the Glenelg River so that it is not visible behind indigenous vegetation from the river edge.	Wind turbines within SLO1 will not be visible from behind indigenous vegetation from the river edge.

Table 13 – Clause 42.03 Schedule 1 5.0 Decision guideline responses

Decision guideline	LCVIA response
Whether development located within the urban area of Nelson is set back a sufficient distance: to allow for the protection or rehabilitation of a substantial area of riparian vegetation.	Wind turbines within SLO1 will not require protection or rehabilitation of substantial areas of riparian vegetation.
Whether buildings near the Glenelg River Estuary are low scale.	The Project will not include any buildings to be constructed near the Glenelg River Estuary.
Whether development within the coastal strip is sited on the inland slope of dunes and does not protrude above the dune ridgeline.	Wind turbines within SLO1 will not be located on the inland slope of active dune systems or protrude above dune ridgelines when viewed from key view locations.
Whether development within the coastal strip is sufficiently set amongst existing vegetation and maximises the retention of indigenous coastal vegetation	Wind turbines within SLO1 will be set amongst the pine plantation and will maximise retention of indigenous coastal vegetation.
Whether development within the coastal strip is using appropriate indigenous vegetation to integrate the development into the landscape; designed to follow the natural contours or step down the site.	Appropriate indigenous vegetation will be used where appropriate to screen views toward wind turbines within SLO1 from uninvolved dwelling locations as outlined in this LCVIA.
Whether development within the coastal strip is sited to avoid visually dominant elevations	Wind turbines within SLO1 will avoid visually dominant elevations, which are largely limited within the extent of the Project site.
Whether development within the coastal strip is minimising overlooking of the foreshore.	Wind turbines within SLO1 will not be visible from the ocean foreshore.
Whether development within the coastal strip is avoiding access into highly visible or undisturbed areas.	The wind turbines within SLO1 are located on private land which is not accessible to the public.
Whether development has regard to Coastal Spaces Landscape Assessment Study (Planisphere, 2006), in particular the relevant Character Area Paper.	This LCVIA has been prepared with regard to the Coastal Spaces Landscape Assessment Study.

The location of wind turbines within the SLO1 do not conflict with the Clause 42.03 Schedule 1 5.0 Decision guidelines in the Glenelg Planning Scheme.

Section 9. Zone of Theoretical Visibility

9.1 Zone of Theoretical Visibility (ZTV)

The ZTV diagrams are used to identify theoretical areas of the landscape from which wind turbines, or portions of turbines, may be visible from areas within and surrounding the Project site. They are useful for providing an overview as to the extent to which the Project wind turbines may be visible from surrounding areas.

9.2 ZTV Methodology

The ZTV methodology is a purely geometric assessment where the visibility of the wind turbines is determined from carrying out calculations based on a digital terrain model of the Project site and the surrounding terrain.

Calculations have been made to determine the visibility of the wind turbines from:

- blade tips (essentially a view toward any part of the wind turbine rotor, including views toward the tips) and
- hub height (view between the nacelle and tip of blade).

The ZTV assessment methodology is very conservative as:

- the screening effects of any structures and vegetation (including extensive areas of trees within surrounding plantations and National Parks) above ground level are not considered in any way. Therefore, the Project may not be visible at many locations indicated on the ZTV diagrams due to the local presence of trees, buildings or other screening materials.
- additionally, the number of turbines visible from any location is also influenced by prevailing weather conditions. Inclement or cloudy weather would tend to mask the visibility of the wind turbines.

Accordingly, while a ZTV diagram is a useful visualisation tool, it is very conservative in nature and the level of visibility as illustrated in the ZTV diagram is unlikely to occur from all view locations within the viewshed.

A diagram illustrating the tip of blade and hub height visibility is illustrated in **Figure 24** and the ZTV diagrams are shown in **Figures 25** and **26**.

The tip of blade and hub height ZTV illustrate the extent of similar areas of potential visibility and highlight the extent and influence of landform surrounding the Project site; however, the ZTV do not illustrate the influence and significant degree of screening provided by tree cover within the pine plantations and National Parks adjoining the Project site. Whilst the pine plantations provide screening from some proximate view locations this LCVIA notes that coupe plantation harvesting may remove pine trees that provide potential screening to some proposed structures within the Project site. It is noted that the harvesting of any particular coupe will occur once within an approximate 30 year cycle with replacement stock growing at approximately 1m in height per year to re-establish screening within a number of years.

9.3 Visibility

The level of wind turbine visibility of the Project would result from several factors including, but not limited to:

- Distance between view location and wind turbine
- Directional movement (travelling toward or away from wind turbines)

- Relative position and backdrops and
- Climatic and atmospheric conditions

9.3.1 Distance

With an increase in distance, the proportion of a person's horizontal and vertical view cone occupied by a visible turbine structure, or group of turbine structures, would decline. **Figure 27** illustrates the effect increasing view distance on the scale and visibility of wind turbines.

As the view distance increases so do the atmospheric effects resulting from dust particles and moisture in the atmosphere, which makes the turbines appear to be grey thus potentially reducing the contrast between the wind turbines and the background against which they are viewed.

Figure 28 has been prepared to illustrate the influence of distance on the perceived height of wind turbines. A single frame photo of the Murra Warra wind turbines, at a 211m tip height, was taken adjacent to the constructed wind farm. The distance between Murra Warra wind turbines and the photo location are noted on the figure and demonstrates the overall reduction in perceived height as view distance increases.

9.3.2 Movement

The visibility of the wind turbines would vary between the categories of static and dynamic view locations. In the case of static views, the relationship between a wind turbine and the landscape would not tend to vary greatly. The extent of vision may be relatively wide as a person would tend to scan back and forth across the landscape where panoramic views are available.

In contrast, views from a moving vehicle are dynamic as the visual relationship between wind turbines is constantly changing as well as the visual relationship between the wind turbines and the landscape in which they are seen. The extent of vision available from a vehicle can be partially constrained by the vehicle interior at proximate distances.

9.3.3 Relative position

In situations where the view location is at a lower elevation than the wind turbine structure most of it would be viewed against the sky. The degree of visual contrast between a white coloured turbine and the sky would depend on the presence of background clouds and their colour. Dark grey clouds would contrast more strongly with white turbines than a background of white clouds.

The level of contrast is also influenced by the position of the sun relative to the individual wind turbines and the view location. Where the sun is located in front of the viewer, the visible portion of the wind turbine would be seen in shadow. Where the background to the wind turbine is dark toned the visual contrast would be reduced.

Where the sun is located behind the view location then the visible portion of the wind turbine would be in full sun. If the background is also light toned, such as white clouds, then the contrast is less when compared to a dark background.

9.3.4 Climatic and Atmospheric Conditions

Local climatic and atmospheric conditions have the potential to influence the visibility of the Project from surrounding view locations, and more significantly, from middle ground and distant view locations.

Rainfall would tend to reduce the level of visibility toward the Project from several surrounding view locations, with the degree of visibility tending to decrease over distance. Rain periods may also reduce the number of visitors travelling through the areas from which the Project may be visible, and potentially decrease the duration of time spent at a particular public view location with a view toward the Project.

Cloud cover would also tend to reduce the level of visibility of the Project and lessen the degree of contrast between the wind turbine structures and the background against which the wind turbines may be visible.

On clear or partly cloudy days, the position of the sun would also influence the degree of visibility of the Project. The degree of effect would be largely dependent on the relationship between the position and angle of the sun relative to the view location. Late afternoon and early evening views toward the west would result in the wind turbines silhouetted above the horizon line, and with increasing distance would tend to reduce the contrast between the wind turbine structures and the surrounding landform.

Long term climate statistics gathered between 1982 and 2023 from the Portland Airport (around 21km south east of the Project site) recorded an annual mean number of 159 cloudy days and 40 clear days (around 1 clear day for every 4 cloudy days). Opportunities to view wind turbines within the Project are therefore more likely to occur on cloudy days than clear days (http://www.bom.gov.au/climate/averages/tables/cw_090171.shtml)

9.4 Commercial plantations

The Project site is located within a commercial pine plantation where an annual cycle of activities takes place. Some of the activities would be visible, and others less so. General plantation activities include:

- Land preparation for planting (around one year post harvesting)
- Road and track construction and maintenance
- Thinning, harvesting and transport
- Weed control and
- Fuel reduction burns and fire break maintenance.

Access to the plantation area is restricted by permit; however public access is available to the coastal edge via the Lake Mombeong campsite and Nobles Track.

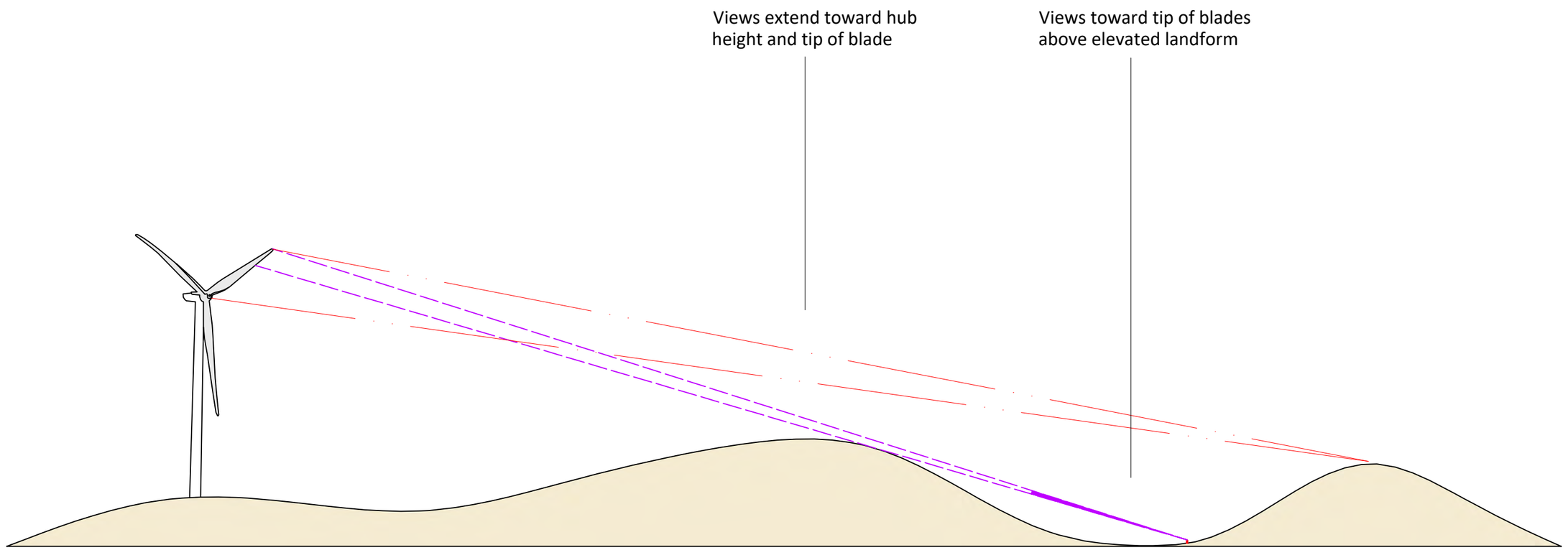
This LCVIA recognises that thinning and harvesting operations will result in the compartmental removal of pine trees and screening potential across portions of the Project site over the life of the Project.

Pine tree thinning generally takes place at around 10-13 years and 18-20 years and a final harvest at between 30 and 35 years which is within the general operation life span of a wind farm. Harvesting operations will generally be carried out in discrete coupes and will therefore likely avoid opening up broadscale views toward wind turbines within the Project site.

Pine tree replanting, at typically one year post harvest, will provide screening toward portions of wind turbines as well as smaller scale ancillary electrical infrastructure such as collector substations and the onsite quarry operations. The wind turbine minimum lower blade swept height would pass around 30 to 35 m above the pine trees prior to harvest. Commercial programs for harvesting and replanting were not available at the time of this LCVIA preparation.

9.5 Skyline views

Skyline views can form significant visual features within viewsheds and more so within proximity to coastal areas where landform may form a strong contrast with adjoining seascape vistas. Skyline views will be influenced by the location and elevation of receptors. The Project is more likely to form skyline views from mid to long distant locations such as Jones Lookout to the north east, the western portions of the Cape Bridgewater peninsula and from the Celia Lookout south of Bridgewater Lakes. The existing skyline does not contain distinctive landform features, landmarks or prominent built features and presents as a simple and largely uniform feature. Although the wind turbines would not be visually dominant in scale from distant view locations, the number of visible wind turbines and simple landform extending along the skyline may result in some loss of landscape value.



'Tip of blade'

View toward 'tip of blade' - where views extend toward any part of the turbine including views toward the tip of blades above elevated landform and ridgelines.

'Hub height'

View toward 'hub height' - where views extend toward the wind turbine hub blades swept path above hub.

Figure 24
Zone of theoretical visibility

SA
VIC
Princess Margaret Rose Caves
Glenelg River
Nelson
Lower Glenelg National Park
Jones Lookout
Indicative onsite quarry location
Lake Mombeong
Discovery Bay
Discovery Bay Coastal Park
Swan Lake
Indicative wind farm project site
Indicative main substation
Cobboboonee National Park
Mount Richmond National Park
Existing 275kV
Existing 500kV
2km
7km
10km
20km
R1
R2
R3
R5R8
R6
R7
R10
R18
R21
R27
R31
R34
R40
R55
R62
R64
R67
R73
R81
R82
R91
R95
R675
R678
R679
R680
R713
R714
R715
R716
R717
R718
R719
R720
R721
R722
R723
R724
R725
R726

Legend

ZVI map colour scale

Visible WTG hubs at 1.6 m agl:

- <= 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100
- 100 - 105

R95 Dwelling

Urban centre

Portland Nelson Road corridor

Great South West Walk within 5km of wind turbine

Proposed overhead transmission line

Proposed underground transmission line

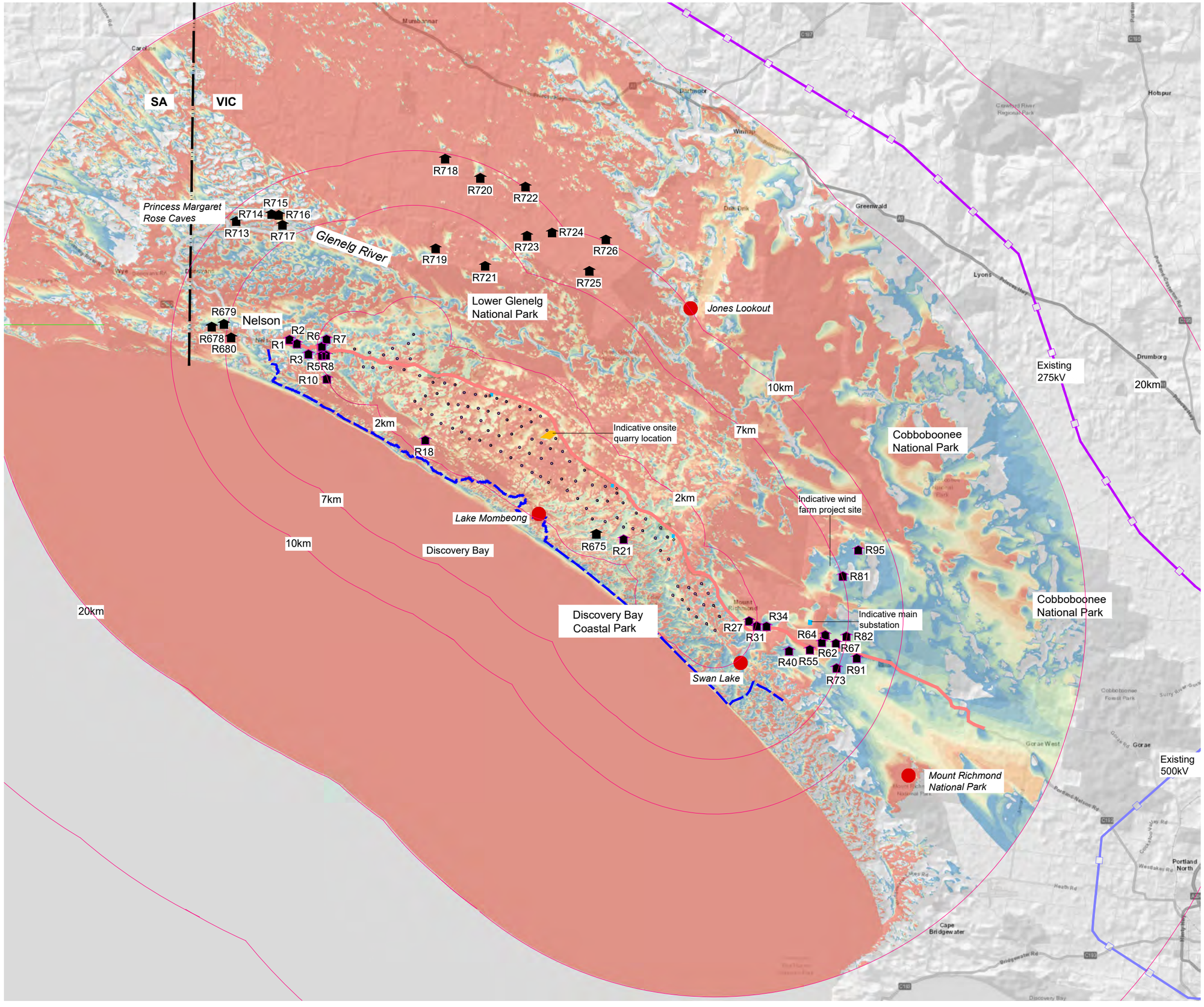
Existing overhead transmission lines

Note: The extent of visibility illustrated in this ZTV is based on ground contours and does not take into account the screening influence of tree cover or other above ground structures.

0m 5km

Figure 25
Zone of theoretical visibility - hub height

GBD
Landscape architecture



Legend

ZVI map colour scale

Visible WTG tips at 1.6 m agl:

- <= 10
- 10 - 20
- 20 - 30
- 30 - 40
- 40 - 50
- 50 - 60
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100
- 100 - 105

R95 Dwelling

Urban centre

Portland Nelson Road corridor

Great South West Walk within 5km of wind turbine

Proposed overhead transmission line

Proposed underground transmission line

Existing overhead transmission lines

Note: The extent of visibility illustrated in this ZTV is based on ground contours and does not take into account the screening influence of tree cover or other above ground structures.

0m 5km

Figure 26
Zone of theoretical visibility - tip of height

GBD
Landscape architecture

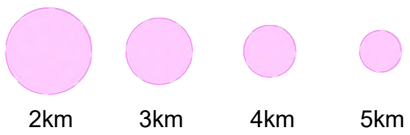
Image 1 Modelled wind turbine 240 metre tip height - view distance 2 km

Image 2 Modelled wind turbine 240 metre tip height - view distance 3 km

Image 3 Modelled wind turbine 240 metre tip height- view distance 4 km

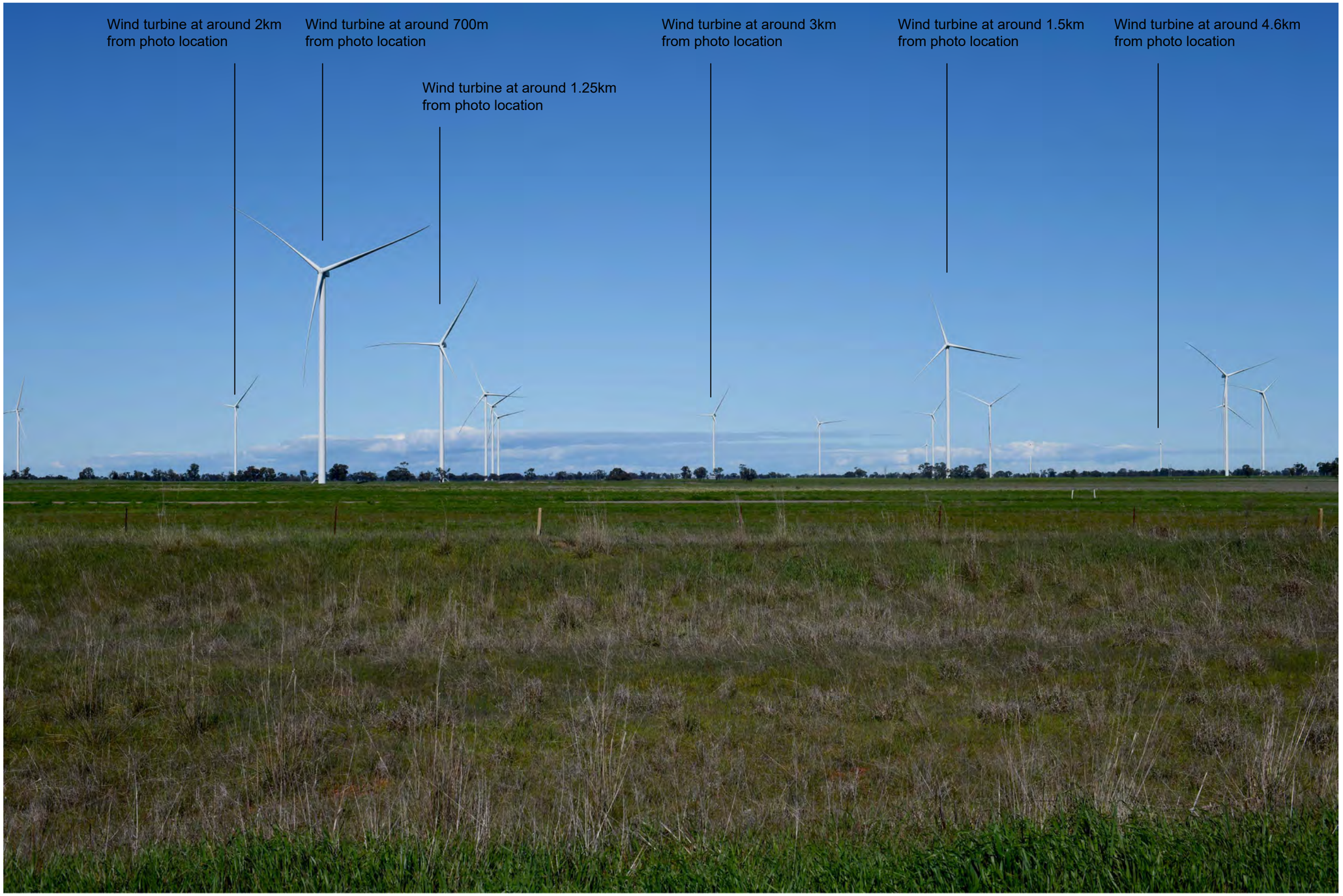
Image 4 Modelled wind turbine 240 metre tip height - view distance 5 km

Camera: Nikon D700, 50mm prime lens



Whilst the wind turbine modeled in this figure is 30m below the proposed Project wind turbine tip height, the principle of diminishing visible height (and magnitude) over distance would result in a similar visual effect.

Figure 27
Wind turbine visibility



View south from Barrat Road toward Murra Warra wind turbines
GDA94, Zone 54, E: 621714 N: 5971935
Camera Nikon D850, 50mm focal length
Date 9 August 2022, Time 12:10pm
Murra Warra wind turbine: rotor diameter 144m, hub height 139m and tip height 211m

Image source GBD Pty Ltd, August 2022

Figure 28
Murra Warra Wind Farm - view south from Barrat Road toward exiting wind turbines

Section 10. Key views and visual effects

10.1 Introduction

The overall determination of visual effects resulting from the construction and operation of the wind turbines would result primarily from a combination of receptor sensitivity and the magnitude of visual effects.

A determination of visual effects from the combination of receptor sensitivity and the magnitude of visual effect is a well-established methodology and has been applied extensively on wind farm LCVIA in Victoria and across Australia. The standard methodology is set out in industry and best practice guidelines including the Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute, and Institute of Environmental Management & Assessment, 2013 – Chapter 6 Assessment of visual effects.

10.2 Sensitivity of visual receivers

Judging the sensitivity of visual receivers needs to consider the occupation or activity of people experiencing the view at particular locations and the extent to which their attention or interest is focussed on views toward the wind turbines or electrical infrastructure within and surrounding the Project site.

10.3 Magnitude of visual effects

Judging the magnitude of visual effects has considered the:

- Distance and resultant scale of the change in the view with respect to the loss or addition of features in the view
- Changes in landscape composition, including the proportion of the view occupied by the Project
- Degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements and characteristics in terms of form, scale and mass, line height, colour, and texture
- Nature of the view of the proposed development, in terms of the relative amount of time over which it would be experienced and
- Whether views from receiver locations would be screened to any degree by existing vegetation or other above ground structures.

View distance and the resultant change in wind turbine scale are illustrated in **Figures 27** and **28.** Wind turbines at around a 7km view distance are clearly visible; however, the overall wind turbine scale presents a less dominant visual element within the available field of view. As the overall scale of wind turbine structures diminish with distance the greater the potential for screening where trees are located between the receiver and the wind turbine. The overall height of planting required to screen wind turbines decreases as it moves nearer to the receiver. The consideration of distance magnitude criteria has determined that wind turbines occupying around 2% or less of a person's vertical field of view are unlikely to result in a significant visual effect.

Tables 14 and **15** set out definitions and criteria for sensitivity and magnitude.

The combination of sensitivity and magnitude would provide the rating of visual effect for viewpoints. **Table 16** sets out the relative visual impact grading values which combines issues of sensitivity and magnitude for the project.

Table 14 – Receiver location sensitivity

View Category	Sensitivity
Dwellings	***Highest Sensitivity***
Areas of high scenic value (National Parks or designated landscapes)	~
Public recreational areas/lookouts	~
Rural employment/farming	~
Motorists	~
Business (commercial)	~
Industrial areas	*Lower Sensitivity*

Table 15 – Magnitude assessment criteria

Criteria	Definition
Distance	
Very short	<2 km (greater than 8 degree vertical field of view at less than 2km)
Short	2 km – 7 km (around 8 degree vertical field of view at 2km)
Moderate	7 km – 10 km (around 2.2 degree vertical field of view at 7km)
Long	10 km+ (around 1.5 degree vertical field of view at 10km)
Duration of effect	
High	> 2 hours (e.g. long terms views from dwellings, recreational/camping or GSWW)
Moderate	30 – 120 minutes (e.g. moderate term views, recreational, visits to lookouts)
Low	10 – 30 minutes (e.g. short term views from roads between Nelson and Portland)
Very low	< 10 minutes (e.g. very short term views from local roads)
Degree of screening	
High	Screening effectively blocks views toward wind turbines
Moderate	Screening partially screens views toward wind turbines
Low	Screening filters some views toward wind turbines
Very low	Limited or no screening toward wind turbines

An overall determination of potential visual effect at each key view location has been assessed and determined against the visual impact grading matrix in **Table 16** below. The levels of sensitivity and magnitude of visual effects outlined in **Table 16** are **used as a guide** to determine levels of visual effect and are not absolute.

Whilst a receiver location may have both a high sensitivity and high magnitude, which result in a high visual effect; the visual effect may be offset and mitigated by screening, through tree cover or intervening landform surrounding or beyond the receiver location.

Each key view location has also been assessed to determine if potential mitigation works (including soft landscape treatments to minimise the extent of visual effects) would be reasonable and feasible in both application and desired outcomes. Mitigation measures also include the removal of wind turbines through the Project design development stages in response to visual assessment reviews and feedback as noted in Section 14.3.

Dwelling locations up to 10km from the wind turbines are illustrated in **Figure 29** and **Figure 30**. Non-dwelling structures, such as agricultural sheds, within 10km of the proposed wind turbines have not been assessed.

Table 16 Visual effect grading matrix

			Scale or magnitude of visual effects			
			High	Moderate	Low	Negligible
			Very short distance view over a long duration of time. A high extent of wind turbine visibility would tend to dominate the available skyline view and significantly disrupt existing views or vistas. Total loss or major change to pre-development view or introduction of elements which are uncharacteristic to the existing landscape features.	Short to moderate distance views over a moderate duration of time. A moderate extent of wind turbine visibility would have the potential to dominate available views with visibility recessing over increasing distance. Partial alteration to pre-development view or introduction of elements that may be prominent but not uncharacteristic with the existing landscape.	Moderate to long distance views over a low to moderate duration of time. Wind turbines in views, at long distances or visible for a short duration not expected to be significantly distinct in the existing view. Minor alteration to pre-development view or introduction of elements that may not be uncharacteristic with the existing landscape.	Visible change perceptible at a very long distance, or visible for a very short duration, and/or is expected to be less distinct within the existing view. Very minor loss or alteration to pre-development view or introduction of elements which are not uncharacteristic with the existing landscape features.
Sensitivity of visual receptor		**Indicator**				
	High	People with a proprietary interest and prolonged viewing opportunities such as those in dwellings or visitors to attractive and/or well-used recreational facilities. Views from a regionally important location whose interest is specifically focussed on the landscape e.g., from lookouts or areas/campgrounds within National Parks.	High	High-moderate	Moderate	Negligible
	Moderate	People with an interest in their environment e.g., visitors to environmental areas, bush walkers, and horse riders etc…those travelling with an interest in their surroundings	High-moderate	Moderate	Moderate-low	Negligible
	Low	People with a passing interest in their surroundings e.g., those travelling along local roads between townships, or people whose interest is not specifically focussed on the wider landscape e.g., service providers or commuters.	Moderate	Moderate-low	Low	Negligible
	Negligible	People with no specific interest in their surroundings or those with occasional and transient views travelling at speed along highways or from a place of work where attention may not be focussed on surrounding views.	Negligible	Negligible	Negligible	Negligible

10.4 Key public viewpoints

The following assessment considers the potential visual effect of the Project on key public viewpoints surrounding the Project site excluding private dwellings which are assessed in **Table 27**.

This LCVIA acknowledges that the practicalities of preparing a LCVIA does not extend to assessing every public viewpoint in the landscape from which the Project may be visible. However, every effort has been made to include significant and key viewpoints where wind turbines, or other Project infrastructure visibility, may result in a change to scenic amenity from sensitive or established viewpoints where people are likely to visit. This assessment, based on the current project layout, has determined the visual effect on views from:

- Nelson township and public spaces including locations within SL01
- Glenelg Estuary and surrounds, including locations within SL01
- Publicly accessible locations (e.g., open spaces, recreational areas and National Parks)
- Ocean beach/foreshore, the GSWW and Discovery Bay Coastal Park, including locations within SL01
- Lake Mombeong campground/lakes and swamps
- Swan Lake campsite
- Named Lookouts
- Local road corridors, including sections within SL01
- Agricultural land, including areas within SL01 and
- Residential dwellings, including dwellings within SL01.

10.5 Detailed Viewpoint Assessment

A detailed assessment of potential visual effects has been prepared against the methodology and criteria outlined above and as described in the following sections.

10.6 Views from the Nelson township and associated public spaces located within SL01 (refer Figure 36, photomontage kk10)

The approach to Nelson along the Portland Nelson Road (from an east and west approach) demonstrates the degree to which the township is comfortably nestled into the landscape alongside the Glenelg River and estuary. Views toward the township, and outward from the township, are subject to various degrees of interruption through the coastal dune landscape, native vegetation, and pine plantations.

Wind turbines within the western portion of the Project site would be visible from elevated areas within the eastern portion of Nelson including dwellings along elevated land on Wade Street. However, views towards the Project site from most dwellings in Nelson, would be partially restricted or completely screened by built structures within the urban area, as well as a surrounding, gently undulating landform beyond the Glenelg River corridor and estuary.

Potential views toward the Project site would also tend to be disrupted by discrete areas of vegetation both within and beyond Nelson, along residential streets, within private gardens as well as significant tree cover alongside the Portland Nelson Road and Glenelg River corridors. Given the potential for screening, the Project site would be unlikely to have any significant visual effect on most people living, working in, or visiting the Nelson township.

Table 17

Visual effect grading – Nelson township and public spaces

Sensitivity of visual receiver	High
Magnitude of visual effects	Negligible Low (from areas screened by surrounding development or vegetation) Moderate High (from Wade Street elevated areas with an open easterly aspect)
Visual Effect	Negligible to Low (where screening exists) Moderate High (where wind turbines visible from Wade Street)

Mitigation

Potential opportunities to mitigate views from areas within the Nelson township, including public spaces (parks and community areas) would be limited given the reasonably high degree of existing screening within the Nelson TZ area. Off-site planting would be appropriate to individual dwellings with Medium High visual effect where property owners opt in to an offer for off-site planting.

10.7 Views from the Glenelg Estuary within SL01 (refer Figure 44, photomontage pl11)

Views from publicly accessible areas surrounding the estuary would also be partially restricted by a combination of landform and low coastal vegetation. Opportunities may exist for views toward upper sections of wind turbines (blades and potentially hubs) from some locations including the picnic area at the end of Beach Road and some parts of the conservation reserve. The closest wind turbines would be around 6km from the picnic area and unlikely to form a significantly dominant visual element within the available view.

Table 18

Visual effect grading – Glenelg Estuary

Sensitivity of visual receiver	High
Magnitude of visual effects	Moderate
Visual Effect	Moderate High

Mitigation

The general open nature and extent of existing views across the estuary from publicly accessible locations, presents limited scope to introduce potential mitigation measures to screen views toward wind turbines within the Project site. It is also considered undesirable to introduce screening that might foreshorten or block views toward waterbodies and landscape surrounding the Glenelg Estuary.

10.8 National Parks (Lower Glenelg, Cobboboonee and Mount Richmond) and Glenelg River including areas within SL01

Publicly accessible locations, other than road corridors, include various public open spaces, walking tracks and conservation areas. Publicly accessible spaces are largely those associated with, and located within, surrounding National Parks and conservation areas. The influence of both distance and existing native vegetative cover is likely to partially and/or completely screen potential views toward the Project site. This includes popular camping sites and day use areas located along the Glenelg River within the Lower Glenelg National Park where surrounding tree cover will screen all views toward the wind turbines (refer **Figure 29** – Key view locations).

Views toward the Project site from the majority of the GSWW (around 250km), including some areas proximate to the Project site within the Lower Glenelg or Cobobboonee National Parks, are likely to be completely screened by extensive stands of native vegetation and tree cover.

Table 19

Visual effect grading – publicly accessible locations

Sensitivity of visual receiver	High
Magnitude of visual effects	Low
Visual Effect (where visible)	Low (due to tree cover)

Mitigation

The extent of existing native vegetation within surrounding National Parks and conservation areas will mitigate and screen most views toward the Project site and wind turbines from view locations within them including campgrounds and day use areas along the Glenelg River. No additional mitigations measures are considered necessary.

10.9 View from ocean beach foreshore and inland lake track (GSWW) including areas within SL01 (refer Figure 46, photomontage pl18)

The ocean beach foreshore, and part route of the GSWW, extends for around 30km north west to south east approximately parallel to the Project site. The wind turbines are set back around 3km from the beach/foreshore and visually separated in some locations from the beach by a series of large to moderately sized sand dunes (between 10m and 20m in height) which extend along a significant portion of the foreshore. The height of the sand dunes begins to drop in the southern section of the foreshore (below Swan Lake). Wireframes (refer Appendix D **Figures 66** to **75**) indicate that views toward wind turbines from the northern section of the ocean beach foreshore (accessed

from Nelson) would be screened by sand dunes. The GSWW crosses the dunes extending inland along the Lake Mombeong inland track for around 7km. Views toward wind turbines from the inland track extending south of the Lake Mombeong, may provide opportunities for views toward wind turbines as illustrated in the photomontages, however some screening potential may be provided by coastal vegetation extending along portions of the inland track.

Table 20

Visual effect grading – ocean beach foreshore and inland track toward Lake Mombeong

Sensitivity of visual receiver	High
Magnitude of visual effects	Moderate from ocean foreshore and Negligible where blocked by dunes. High from proximate views on the inland track
Visual Effect	Moderate where partially screened by sand dunes and Negligible where blocked. High from sections of the inland track (GSWW).

Mitigation

Wind turbine setbacks from the Ocean Beach and intervening sand dunes act to mitigate views toward wind turbines from long stretches of the ocean foreshore. Whilst portions of wind turbines blades will be visible above sand dunes from some locations along the ocean beach, and long distance views toward wind turbines will occur along the coastline, it is not considered feasible to block out all views toward wind turbines where they are not considered to result in a significant level of visual effect.

There is a greater degree of potential to address views toward wind turbines from inland sections of the GSSW by means of mitigation and offset works. Mitigation works to be undertaken in consultation and conjunction with Parks Victoria and the GSWW committee might consider additional planting strategies to increase levels of screening at specific sensitive locations and/or to install/upgrade existing infrastructure to benefit people using the inland track as a mitigation offset.

10.10 Lake Mombeong campsite, lakes and swamps (refer Figure 54, photomontage pl27)

Views from the Lake Mombeong campsites/day use area and associated walking tracks around the lake, as well as tracks leading to and from the ocean beach (including the constructed lookout), will extend toward wind turbines located in the Kentbruck plantation extending through the central portion of the Project site. Lower portions of the wind turbines (towers) will be screened by trees (but exposed for a period following harvesting), with upper portions (face of rotor and hubs) visible above the skyline formed by a backdrop of plantation trees. Whilst offset to around

2km from the campsite/day use areas, the wind turbines will form visible and dominant elements within the view from this location.

Table 21

Visual effect grading – Lake Mombeong campsite

Sensitivity of visual receiver	High
Magnitude of visual effects	High
Visual Effect	High

Mitigation

Some potential visual effects may be mitigated through strategies to identify and screen sensitive view locations within the Mombeong campsite and surrounding area. Mitigation works to be undertaken in consultation and conjunction with Parks Victoria and the GSWW committee might consider additional planting strategies to increase levels of screening at specific sensitive viewpoint and/or to install/upgrade existing infrastructure to benefit people at Lake Mombeong or those travelling between the lake and ocean beach. However, it is likely that mitigation strategies will have some limitations at Lake Mombeong due to wind turbine proximity and extensive visibility from elevated viewpoints crossing the sand dunes.

10.11 Swan Lake campsite (refer Figure 48, photomontage pl20)

Views from the Swan Lake campsites/day use area and associated walking tracks around the campsite (around 3km from the closest wind turbine), as well as tracks leading to (and from) the ocean beach, will extend toward wind turbines located in the Kentbruck plantation extending through the eastern portion of the Project site. Portions of some wind turbines (towers and hubs) will be screened by landform and tree cover with upper portions (face of rotor and hubs) visible above the skyline formed by a backdrop of gently undulating and sloping landform and tree cover.

Table 22

Visual effect grading – Swan Lake campsite

Sensitivity of visual receiver	High
Magnitude of visual effects	Moderate High
Visual Effect	Moderate High

Mitigation

Mitigation works would be unlikely to assist in a significant reduction of visual effects from the Swan Lake campsite where local landform and vegetation already provides some degree of screening toward the Project site and wind turbines. However, potential mitigation works may be considered in consultation with Parks Victoria and the GSWW committee to consider additional planting strategies to increase levels of screening at specific sensitive viewpoint

and/or to install/upgrade existing infrastructure to benefit people at Swan Lake or people travelling between the Swan Lake campsite and ocean beach.

10.12 Named lookouts (refer Figures 50 and 56, photomontages pl25 and pl29)

There are a small number of named (constructed) lookouts surrounding the Project site (refer **Figure 3**) where vantage points extend to broad landscape vistas that would include views toward the Project wind turbines. These include:

- Green Pool lookout located on the GSWW at Cape Bridgewater around 20.7km from nearest wind turbine (refer **Figure 17** photo location P34)
- Celia lookout located at the western extent of Discovery Bay Road around 18.5km from nearest wind turbine (refer **Figure 16** photo location P33)
- Jones lookout on the Winnap Nelson Road (south of Drik Drik) around 9.8km from nearest wind turbine (refer **Figure 10** photo location P13)
- Lake Mombeong to Ocean Beach track lookout around 2.7km from nearest wind turbine (refer **Figure 12** photo location P19)
- Hedditch Hill Scenic Reserve lookout on the Portland Nelson Road around 1km from nearest wind turbine (refer **Figure 10** photo location P14)

The lookouts are located at a range of distances from the wind turbines, from around 1km at Hedditch Hill Scenic Reserve lookout to around 21km from Cape Bridgewater at the Green Pool lookout. Whilst view distance will reduce the overall scale of wind turbines, the view from distant lookouts, including Jones Lookout and views from the Cape Bridgewater peninsula will be subject to some visual change where wind turbines will form noticeable vertical elements along the existing visual horizontal line between landform and sky.

Closer lookouts, or lookouts that offer views toward landscape/seascape with a greater degree of visual characteristic (pattern, colour and landform), are likely to experience a higher level of potential visual impact. More distant lookouts with views extending across broader visual catchments will experience landscape is as a simpler combination of pattern and colour, for example where plantation trees form the greater extent of backdrop to views. Visible wind turbines within a simpler landscape context are less likely to result in higher levels of potential visual impact.

Table 23

Visual effect grading – Named lookouts (Lake Mombeong and Hedditch Hill SR)

Sensitivity of visual receiver	High
Magnitude of visual effects	Moderate High to High
Visual Effect	High

Table 24

Visual effect grading – Named lookouts (Celia Lookout, Jones Lookout and Cape Bridgewater)

Sensitivity of visual receiver	High
Magnitude of visual effects	Low Moderate
Visual Effect	Moderate

Mitigation

Named lookouts offer opportunities to gain long distance and wide ranging views toward landscape and seascape areas within and beyond the Project site. Whilst wind turbines will be visible from several named lookouts, it is not considered appropriate to screen and curtail views from named lookouts.

10.13 Views from local roads including section within SL01(refer Figure 53, photomontage pl26)

View toward wind turbines and ancillary electrical works would occur from sections of the Portland Nelson Road corridor. Views would generally be restricted to upper portions of the wind turbine structures where screened by plantation trees, with greater extent of visibility following harvesting and/or recent re-planting. The dynamic and constantly changing nature of views (through direction and distance) from vehicles travelling along local roads will tend to be transitory in nature and generally short term.

Table 25

Visual effect grading – local roads

Sensitivity of visual receiver	Low
Magnitude of visual effects	Moderate
Visual Effect	Low Moderate

Mitigation

Mitigation works would be unlikely to result in a significant reduction of visual effect from local road corridors. Several local roads including the Portland Nelson Road have existing dense tree planting alongside the road corridor, including native tree planting between the Project site and Nelson. Mitigation is not proposed for view locations from local roads.

10.14 Views from agricultural land including areas within SL01

The Project would have the potential to impact people engaged in predominantly farming activities. Ultimately the level of impact would depend on the type of activities engaged in as well as the location of the activities together with the degree of screening provided by local vegetation within individual properties.

Table 26

Visual effect grading – agricultural land

Sensitivity of visual receiver	Low
Magnitude of visual effects	Moderate
Visual Effect	Low Moderate

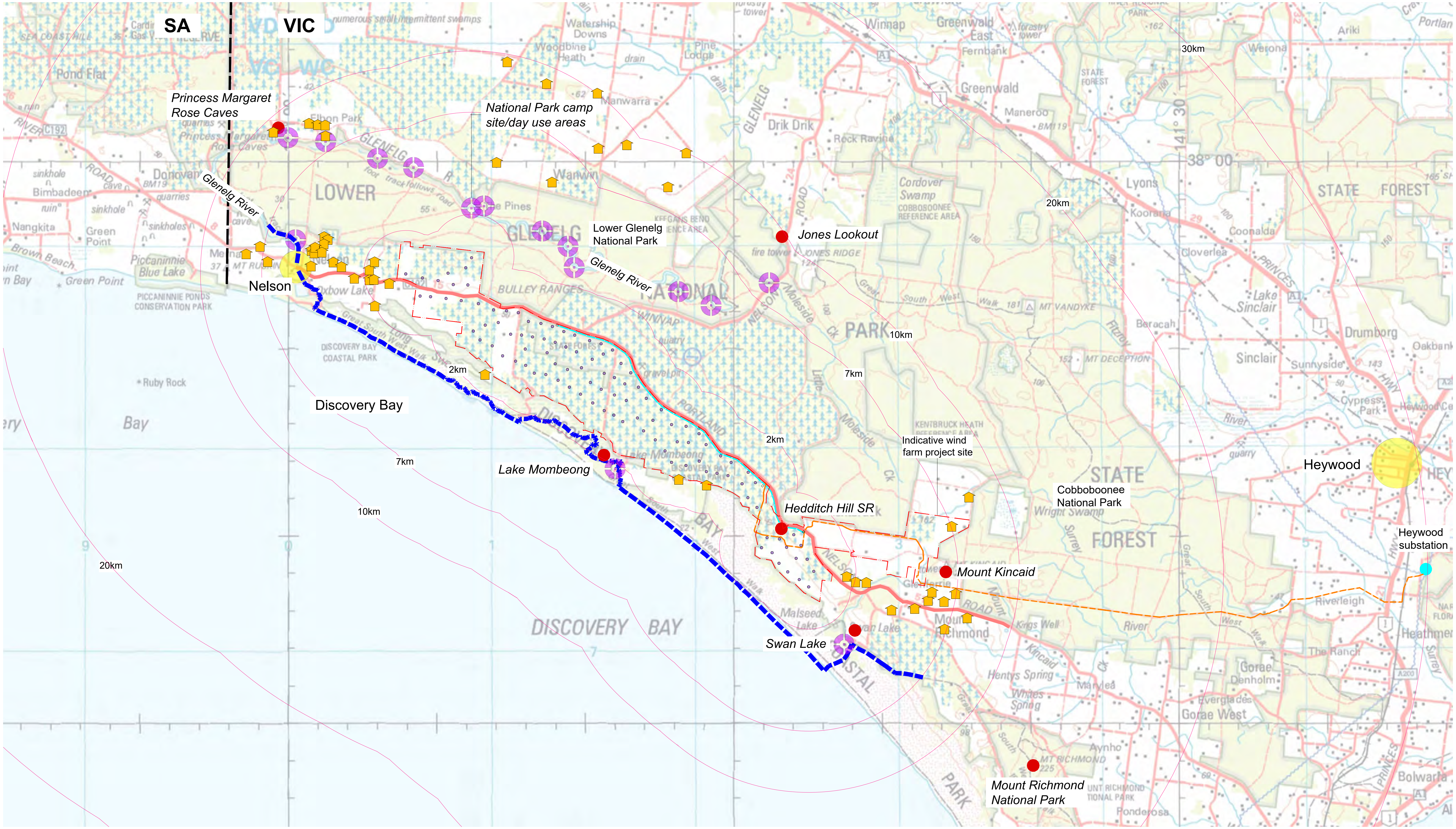
Mitigation

Mitigation works would be generally unfeasible and unlikely to result in a significant reduction of visual effect from agricultural land (predominantly pasture) beyond the Project site. Mitigation is not proposed for view locations from agricultural land.

10.15 Views from uninvolved dwellings including those within SL01

Key view locations and uninvolved dwellings are illustrated in **Figures 29** and **30** and include dwellings on properties that are not associated with the proposed Project.

The site inspection noted that several dwellings within the landscape surrounding the wind turbines are screened by tree and/or windbreak shelter planting. It is possible that not all dwellings would have direct or significant views toward the proposed wind turbines and associated infrastructure. An assessment of potential visibility, existing screening, mitigation and the residual visual effect on dwellings within 10km of the Project wind turbines is presented in **Table 27**.



Base map source: © Commonwealth of Australia (Geoscience Australia) 2021

Legend

- Proposed wind turbine (indicative layout)
- National Park camping site and/or day use area
- Distance from turbine
- Township/locality
- Portland Nelson and Winnap Nelson Roads
- Great South West Walk within 7km of wind turbine
- Landscape feature and/or locality
- Dwelling within 10km of wind turbine
- Proposed overhead power line
- Proposed underground power line

0m 5km

Figure 29
Key view locations

GBD
Landscape architecture

Dwellings West

Dwellings East

Legend

Proposed wind turbine (indicative layout)

10km Distance from turbine

Portland Nelson and Winnap Nelson Roads

Landscape feature and/or locality

Proposed overhead power line
Proposed underground power line

National Park camping site and/or day use area

Township/locality

Great South West Walk within 7km of wind turbine

R18 Dwelling within 7km of wind turbine

0m 5km

Figure 30
Residential dwelling detail (east and west)

GBD
Landscape architecture

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
Dwellings within 10km of a proposed wind turbine							
R1 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	3.8km	High	High	High	The dwelling is located off Lasletts Road around 250m north of the Portland Nelson Road corridor. The dwelling is orientated north to south with primary views likely directed away from the Project site. Moderate distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines above plantation trees beyond pastoral land in the foreground. Views from the dwelling are largely open with limited screening to the south and east of the dwelling. **Mitigation** Low tree and shrub planting would filter and obscure views toward wind turbines from the east to south east area of the dwelling. Screen planting would be located outside of the BMO.	Visual effect: Moderate High Residual visual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R2 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	3.3km	High	Moderate	Moderate High	The dwelling is located around 140m north of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with main views directed away from the wind turbines. A dense stand of trees extends south from the dwelling to the road corridor providing a degree of screening toward wind turbines within the south west portion of the Project site including wind turbines located within open grazing land. Moderate distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north of the Portland Nelson Road corridor. Views from the dwelling are partially limited due to tree screening to the east of the dwelling.	Visual effect: Moderate Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional tree planting would assist to obscure views toward wind turbines from the east to south east area of the dwelling however existing tree planting may be adequate to screen potential views. Screen planting would be located outside of the BMO.	
R3 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	2.75km	High	Low to Moderate	Moderate	The dwelling is located around 250m south of the Portland Nelson Road corridor. The dwelling is generally orientated east to west with main views extending east to north east toward wind turbines within the western portion of the Project site. Short distance views from the dwelling and curtilage would extend toward wind turbines within the north western portion of the Project site, including wind turbines within plantation to the north of the Portland Nelson Road corridor. The landform rises gently to the east	Visual effect: Low Moderate Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						of dwelling (up to around 30m AHD), undulating across a series of low rounded slopes. Landform would provide some degree of screening toward some portions of wind turbine structures. Views from the dwelling are generally open with a small number of mature trees scattered around the dwelling. **Mitigation** Additional tree and shrub planting would assist to obscure views toward wind turbines from the east to south east of the dwelling; however, landform may be adequate to screen potential views. Screen planting would be located outside of the BMO.	
R4 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	2.3km	High	Low to Moderate	Moderate	The dwelling is located around 70m north of the Portland Nelson Road corridor and is largely screened by a band of tree planting alongside the tree corridor. The dwelling is elevated on a small rise providing elevated	Visual effect: Moderate High

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						views toward the coast and back toward the Nelson estuary. Short distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north and south of the Portland Nelson Road corridor, as well as wind turbines within grazing land. Views from the dwelling are generally open with a small number of low trees/shrubs scattered around the dwelling. Taller tree planting alongside Earls Road may provide some degree of screening toward the Project site. **Mitigation** Additional tree planting would assist to obscure views toward wind turbines from the east to south east area of the dwelling; however, existing tree cover to the east of the dwelling may be adequate to screen some	Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						potential views. Screen planting would be located outside of the BMO.	
R5 Dwelling within SL01 Refer Appendix C photomontage locations 1 and 2 **Figures 60**, **61, 62** and **63**	**Uninvolved landowner** Sensitivity: High	2.1km	High	Moderate	Moderate	The dwelling is located around 130m south of the Portland Nelson Road corridor and screened from the road by tree cover alongside the road corridor and scattered tree planting extending from the road toward and beyond the dwelling. The dwelling is orientated north east to south west to take advantage of views toward the coast. Short distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north and south of the Portland Nelson Road corridor, as well as wind turbines within grazing land. Views from the dwelling are partially restricted by tree cover east of the dwelling.	Visual effect: Moderate High (driveway) Low (dwelling) Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional tree planting would assist to obscure views toward wind turbines from the driveway leading to the dwelling. Screen planting would be located outside of the BMO.	
R6 Dwelling within SL01 Refer Appendix C Photomontage **Figure 64** and **65**	**Uninvolved landowner** Sensitivity: High	2km	High	Moderate	Moderate	The dwelling is located off Earls Road, around 90m north of the Portland Nelson Road corridor. The dwelling is orientated north east to south west and located within scattered mature tree planting. Short distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north and south of the Portland Nelson Road corridor, as well as wind turbines within grazing land. Views from the dwelling are partially restricted by tree cover east of the dwelling.	Visual effect: Moderate High Residual visual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional tree planting would assist to filter views toward wind turbines from the dwelling and curtilage. Screen planting would be located outside of the BMO.	
R8 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	2.5km	High	Moderate to High	Moderate to High	The dwelling is located around 80m south of the Portland Nelson Road corridor and generally orientated north to south. Short distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north and south of the Portland Nelson Road corridor, as well as wind turbines within grazing land. Views from the dwelling are partially open with scattered tree cover/screening surrounding the dwelling. A more significant band of tree cover extends	Visual effect: Moderate High Residual visual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						along the Portland Nelson Road corridor which provides screening toward the dwelling. **Mitigation** Additional tree planting would supplement existing tree planting along the Portland Nelson Road corridor and potentially assist to filter views toward wind turbines from the dwelling and curtilage. Screen planting would be located outside of the BMO.	
R10 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	2.2km	High	High	High	The dwelling is located off Millhouse Road around 1.4km south of the Portland Nelson Road corridor. Short distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation to the north and south of the Portland Nelson Road corridor, as well as proximate wind turbines within grazing land. Views from the dwelling are largely open with	Visual effect: High Residual visual effect: Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						limited tree cover/screening surrounding the dwelling. **Mitigation** Additional tree planting would supplement existing tree planting along the Portland Nelson Road corridor and potentially assist to filter views toward wind turbines from the dwelling and curtilage. Screen planting would be located outside of the BMO.	
R18 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	1.3km	High	High	High	The dwelling is located around 3.4km south of the Portland Nelson Road corridor and south of the Kentbruck plantation and the Spruce Track. Short distance views from the dwelling and curtilage are largely constrained by tree planting within the dwelling curtilage and within plantation areas extending beyond the dwelling. Views toward wind turbines are likely to be significantly screened and potentially screened beyond plantation	Visual effect: Moderate Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						harvesting due to non-plantation trees within the dwelling curtilage. **Potential mitigation** Additional tree planting would supplement existing tree planting along the Portland Nelson Road corridor and potentially assist to filter views toward wind turbines from the dwelling and curtilage.	
R21 (Associated) Dwelling with agreement for laydown area	**Non-associated landowner** Sensitivity: High	1.1km	High	Moderate to High	High	The dwelling is located on the south side of the Kentbruck Plantation, around 2.5km south of the Nelson Portland Road corridor and accessed from South Road. Short distance views would extend from the dwelling and curtilage toward wind turbines to the north west through to south east. Views from the dwelling are partially open, with low coastal vegetation surrounding the dwelling and agricultural sheds/structures beyond.	Visual effect: High Residual visual effect: Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional tree or shrub planting may supplement existing tree planting beyond the dwelling and potentially assist to filter views toward wind turbines from the dwelling and curtilage. The dwelling is located within the BMO therefore any planting for mitigation would need to be installed in accordance with the BMO requirements for vegetation offsets.	
R27 Dwelling	**Uninvolved landowner** Sensitivity: High	1.77km	High	Moderate to High	High	The dwelling is located around 125m north of the Portland Nelson Road corridor and generally orientated north to south. Short distance views from the dwelling and curtilage toward wind turbines within the Project site will be screened by dense native tree cover and a gently undulating landform to the south through to north west of the dwelling. **Mitigation:**	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation works will not be required for this dwelling due to screening through a combination of landform and existing tree cover.	
R31 Dwelling	**Uninvolved landowner** Sensitivity: High	2km	High	Moderate to High	High	The dwelling is located around 118m north of the Portland Nelson Road corridor and generally orientated north to south. Short distance views from the dwelling and curtilage toward wind turbines within the Project site will be screened by dense native tree cover and a gently undulating landform. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
R34 Dwelling	**Uninvolved landowner**	2.2km	High	Low to Moderate	Moderate to High	The dwelling is located around 250m north of the Portland Nelson Road corridor and generally orientated north to south. Short distance views from the dwelling and curtilage	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
	Sensitivity: High					toward wind turbines within the Project site will be screened by dense native tree cover and a gently undulating landform. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R40 Dwelling	**Uninvolved landowner** Sensitivity: High	4km	High	Low to Moderate	Moderate to High	The dwelling is located on Telegraph Road, around 1km south of the Portland Nelson Road and is generally orientated in a north to south alignment. Views from the dwelling and curtilage toward wind turbines within the Project site will be screened by native tree cover and a gently undulating landform. **Mitigation** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Low Moderate Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R55 Dwelling	**Uninvolved landowner** Sensitivity: High	5km	High	Moderate High	Moderate High	The dwelling is located around 50m south of the Portland Nelson Road and orientated in a general north to south alignment. Views from the dwelling and curtilage toward wind turbines within the Project site will be screened by native tree cover and a gently undulating landform. Views from the dwelling may extend north across the Portland Nelson Road corridor toward the proposed main substation and O&M building location. **Mitigation** On-site landscape works would assist to obscure views toward the main substation and O&M building location from the north of the dwelling. Alternatively off-site landscape works may also provide a high level of screening to the dwelling. The dwelling is located outside of the BMO.	Visual effect: Moderate Residual visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R62 Dwelling	**Uninvolved landowner** Sensitivity: High	5.5km	High	Moderate to High	Moderate to High	The dwelling is located to the north and around 320m from the Portland Nelson Road corridor and orientated in a general north east to south west alignment. Views toward wind turbines within the Project site will be screened by native trees surrounding and beyond the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	Visual effect: Negligible
R64 Dwelling	**Uninvolved landowner** Sensitivity: High	5.7km	High	Moderate High	Moderate High	The dwelling is located to the north and adjoining the Portland Nelson Road corridor and orientated in a general north to south alignment. Views toward wind turbines within the Project site will be screened by native trees surrounding and beyond the dwelling. **Mitigation:**	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	
R67 Dwelling	**Uninvolved landowner** Sensitivity: High	6.5km	High	Moderate	Moderate High	The dwelling is located around 149m north of the Portland Nelson Road and orientated in a general northwest to southeast alignment. Views toward wind turbines within the Project site will be screened by native trees and landform to the west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	Visual effect: Negligible
R73 Dwelling	**Uninvolved landowner** Sensitivity: High	6.9km	High	Moderate	Moderate	The dwelling is located on the AR Compton Road around 965m south of the Portland Nelson Road and generally orientated in an east to west alignment. Views toward wind turbines within the Project site will be screened by tree cover surrounding the	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						dwelling as well as plantation tree planting between the dwelling and the Portland Nelson Road corridor. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	
R81 Dwelling	**Uninvolved landowner** Sensitivity: High	7km	High	Moderate	Moderate	The dwelling is located around 4km north of the Portland Nelson Road and accessed via Blacks Road to the east of the dwelling. Views toward wind turbines within the Project site will be screened by extensive woodland tree cover beyond the dwelling as well as a gently undulating landform between the dwelling and the Portland Nelson Road corridor. **Mitigation:**	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	
R82 Dwelling	**Uninvolved landowner** Sensitivity: High	7km	High	Moderate	Moderate	The dwelling is located around 700m north of the Portland Nelson Road and accessed via Blacks Road to the east of the dwelling. Views toward wind turbines within the Project site will be screened by woodland tree cover west of the dwelling as well as a gently undulating landform between the dwelling and the Portland Nelson Road corridor. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	Visual effect: Negligible
R91 Dwelling	**Uninvolved landowner**	7.7km	High	Moderate	Moderate	The dwelling is located around 50m south of the Portland Nelson Road corridor orientated in a general north to south alignment. The dwelling is surrounded by scattered and dense	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
	Sensitivity: High					stands of tree cover associated with the Cobboboonee National Park to the north of the Portland Nelson Road. Views toward wind turbines from the dwelling would be screened by existing tree cover. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	
R95 Dwelling	**Uninvolved landowner** Sensitivity: High	9km	High	Moderate	Moderate	The dwelling is located to the west of Blacks Road, around 5.6km north of the Portland Nelson Road. The dwelling is generally orientated north to south and situated between tree cover alongside the Blacks Road corridor and a band of mature tree planting to the west of the dwelling. Views toward wind turbines within the Project site will be screened by woodland tree cover west of the dwelling as well as a gently undulating	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						landform between the dwelling and the Portland Nelson Road corridor. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening surrounding and beyond the dwelling.	
R674 Working shed within SL01	**Uninvolved landowner** Sensitivity: High	1km	High	Moderate High	Moderate to High	The working shed is located south of the Portland Nelson Road and approximately 512m west of the Project site. The shed is located to the south of a tree planting belt adjoining the road corridor which may provide some degree of screening toward proximate wind turbines within the western portion of the Project site located north of the Portland Nelson Road corridor. Views will extend toward wind turbines to the south of the Portland Nelson Road corridor within a generally direct and open aspect. **Mitigation**	Potential visual effect: Moderate High Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Tree planting would obscure views toward wind turbines from the east to south east area of the dwelling however existing tree planting may be adequate to screen potential views.	
R675 Dwelling	**Uninvolved landowner** Sensitivity: High	655m	High	Moderate High	Moderate to High	The dwelling is located to the south of the Kentbruck Plantation and accessed from the South Road from Carters Road around 2.6km south of the Portland Nelson Road. The dwelling is surrounded by native tree cover as well as a significant extent of plantation to the north of the dwelling. Whilst wind turbines are proximate to the dwelling location, it is likely that tree cover will provide screening to most wind turbines. Tree cover surrounding the dwelling would also continue to provide some level of screening following plantation harvesting; however, views from local roads would provide more significant views toward wind turbines following pine plantation harvesting operations.	Visual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional mitigation works are unlikely to assist in providing any additional level of screening from the dwelling due to the extent and location of existing native tree cover surrounding the dwelling. The dwelling is located within the BMO.	
R678 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	8.2km	High	Moderate High	Low to Moderate	The dwelling is located around 2.6km west of the Glenelg River and to the south of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with potential views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling toward wind turbines within the western portion of the Project site would be partially obscured by a low undulating landform extending east of the dwelling. **Mitigation**	Visual effect: Low Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Tree planting to the east of the dwelling would provide some degree of screening to distant wind turbines within the Project site. The dwelling is located outside of the BMO.	
R679 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	7.2km	High	Moderate High	Low to Moderate	The dwelling is located around 1.8km west of the Glenelg River and to the north of the Portland Nelson Road corridor. The dwelling is generally orientated north east to south west with potential views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling toward wind turbines within the western portion of the Project site would be partially obscured by a low undulating landform rising to the east of the dwelling. **Mitigation** Landscape mitigation works are unlikely to assist in providing any additional level of screening from the dwelling due to relatively	Visual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						low visibility of wind turbines within the Project site. The dwelling is located outside of the BMO.	
R680 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	6.8km	High	High	Low to Moderate	The dwelling is located around 1.8km west of the Glenelg River and to the north of the Portland Nelson Road corridor. The dwelling is generally orientated north east to south west with potential views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling toward wind turbines within the western portion of the Project site would be partially obscured by scattered tree planting and a low undulating landform rising to the east of the dwelling. **Mitigation** Landscape mitigation works are unlikely to assist in providing any additional level of screening from the dwelling due to relatively	Visual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						low visibility of wind turbines within the Project site. The property is partially located within the BMO.	
R705 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.9km	High	High	Moderate to High	The dwelling is located east of Wade Street and adjacent to the Portland Nelson Road corridor. The dwelling is generally orientated east to west with potential views from the dwelling toward the wind turbines. Moderate distance views from the dwelling toward wind turbines within the western portion of the Project site would be partially screened by a low undulating landform rising east of the dwelling as well as planting to the east side of the dwelling. **Mitigation** Tree or shrub planting to the east of the dwelling may assist and supplement existing planting to filter and screen views toward the	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Project site and wind turbines. The dwelling is located outside of the BMO.	
R706 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.8km	High	Low Moderate	Moderate to High	The dwelling is located east of Wade Street around 410m north of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with main views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling and curtilage toward wind turbines within the western portion of the Project site would be partially screened by scattered tree planting to the east of the dwelling. **Mitigation** Additional tree planting to the east of the dwelling may assist and supplement existing planting to filter and screen views toward the Project site and wind turbines. The dwelling is located within the BMO. Any proposed off-site	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						landscape mitigation works would need to be installed in accordance with the BMO offsets for vegetation beyond buildings.	
R707 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.9km	High	Moderate High	Moderate to High	The dwelling is located east of Wade Street around 490m north of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with main views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling and curtilage toward wind turbines within the western portion of the Project site would be partially screened by scattered tree planting to the east of the dwelling. **Mitigation** Additional tree planting to the east of the dwelling may assist and supplement existing planting to filter and screen views toward the Project site and wind turbines. The dwelling is	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						located within the BMO. Any proposed off-site landscape mitigation works would need to be installed in accordance with the BMO offsets for vegetation beyond buildings.	
R708 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.8km	High	Moderate	Moderate to High	The dwelling is located west of Vause Road around 500m north of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with main views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling and curtilage toward wind turbines within the western portion of the Project site would be partially screened by scattered tree planting to the east of the dwelling. **Mitigation** Additional tree planting to the east of the dwelling may assist and supplement existing planting to filter and screen views toward the	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Project site and wind turbines. The dwelling is located within the BMO. Any proposed off-site landscape mitigation works would need to be installed in accordance with the BMO offsets for vegetation beyond buildings.	
R709 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.3km	High	Low Moderate	Moderate to High	The dwelling is located at the eastern extent of Vause Road around 500m north of the Portland Nelson Road corridor. The dwelling is generally orientated north to south with main views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling and curtilage toward wind turbines within the western portion of the Project site would be partially screened by agricultural buildings and scattered tree planting to the east of the dwelling. **Mitigation** Additional tree planting to the east of the dwelling may assist and supplement existing	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						planting to filter and screen views toward the Project site and wind turbines. The dwelling is located within (or proximate to) the BMO. Any proposed off-site landscape mitigation works should be installed in accordance with the BMO offsets for vegetation beyond buildings.	
R710 Dwelling within SL01	**Uninvolved landowner** Sensitivity: High	4.1km	High	Moderate High	Moderate to High	The dwelling is located off Huebner Road around 1.4km north of the Portland Nelson Road corridor. The dwelling is generally orientated north east to south west with main views from the dwelling directed away from the wind turbines. Moderate distance views from the dwelling and curtilage would extend toward wind turbines within the western portion of the Project site, including wind turbines within plantation and grazing land. Some partial screening may be provided by tree planting to the eastern side of the dwelling.	Visual effect: Moderate Potential residual effect: Low

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Additional tree planting to the east of the dwelling may assist and supplement existing planting to filter and screen views toward the Project site and wind turbines. The dwelling is located outside of the BMO.	
R712 and R711 Nelson Parks Office and general working areas within SL01	**Uninvolved landowner** Sensitivity: High	4.5km	High	Low Moderate	Moderate	The Nelson Parks Office is located to the north of Huebner Road and to the east and north east of the Nelson landfill and Nelson Cemetery locations. The Parks Office and depot are screened tree cover which will obscure views toward the wind turbines. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
R713	**Uninvolved landowner**	9.6km	High	Moderate High	Moderate	The Princess Margaret Rose Cave complex is located to the north and above a bend in the	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
Dwelling and accommodation at Princess Margaret Rose Cave	Sensitivity: High					Glenelg River corridor. Various buildings within the complex are surrounded and screened by relatively dense native tree cover which would screen most views toward the Project site. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R714, R715 and R716 Dwellings	**Uninvolved landowners** Sensitivity: High	8.7km	High	Moderate High	Moderate	The three adjoining dwellings are located to the north of the Glenelg National Park, above the Glenelg River and accessed from Currawong Road. Views toward the Project site and wind turbines will be screened by a combination of tree cover surrounding the dwellings and extensive native tree cover to the south east of the dwelling. **Mitigation:**	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R717 Dwelling	**Uninvolved landowner** Sensitivity: High	8km	High	Low	Moderate	The dwelling is located to the north of the Glenelg National Park, above the Glenelg River and accessed from Sandy Waterholes Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover to the south and south east of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
R718 Dwelling	**Uninvolved landowner** Sensitivity: High	9.8km	High	High	Moderate	The dwelling is located to the north of the Glenelg National Park and Glenelg River and accessed from Wilsons Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						and plantation to the south and south west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R719 Dwelling	**Uninvolved landowner** Sensitivity: High	4.9km	High	High	Moderate	The dwelling is located to the north of the Glenelg National Park and Glenelg River and accessed from Wanwin Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover and plantation to the south and south west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R720 Dwelling	**Uninvolved landowner** Sensitivity: High	9.4km	High	High	Moderate	The dwelling is located to the north of the Glenelg National Park and Glenelg River and accessed from David Down's Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover and plantation to the south and south west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
R721 Dwelling	**Uninvolved landowner** Sensitivity: High	5.4km	High	High	Moderate	The dwelling is located to the north of the Glenelg National Park and Glenelg River and accessed from Wanwin Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover and plantation to the south and south west of the dwelling.	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation: Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R722 Dwelling	**Uninvolved landowner** Sensitivity: High	9.9km	High	High	Low Moderate	The dwelling is located to the west of Drik Drik and to the north of the Glenelg River and accessed from Henkes Road around 4km south of the Princes Highway. Views toward the Project site and wind turbines will be screened by a combination of undulating landform, native tree cover and plantation to the south and south west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
R723 Dwelling	**Uninvolved landowner**	8km	High	Moderate High	Low Moderate	The dwelling is located to the west of Drik Drik and to the north of the Glenelg River and	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
	Sensitivity: High					accessed from Henkes Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover and plantation to the south and south west of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R724 Dwelling	**Uninvolved landowner** Sensitivity: High	9.1km	High	High	Low Moderate	The dwelling is located to the west of Drik Drik and to the north of the Glenelg River and accessed from Wanwin Road. Views toward the Project site and wind turbines will be screened by a combination of native tree cover and plantation to the south and south west of the dwelling.	Visual effect: Negligible

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation: Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	
R725 Dwelling	**Uninvolved landowner** Sensitivity: High	8.1km	High	High	Low Moderate	The dwelling is located to the south west of Drik Drik and to the north of the Glenelg River and accessed from Croziers Road. Views toward the Project site and wind turbines will be screened by native tree cover to the south of the dwelling. **Mitigation:** Mitigation works will not be required for this dwelling due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
D1 dwellings within the Nelson TZ and SL01 to the west of Wade Street	**Uninvolved landowners** Sensitivity: High	4.7kmm	High	Moderate High	Low Moderate	Dwellings located within the Nelson TZ, between Wade Street and west toward the Glenelg River will have limited and predominantly restricted views toward the	Visual effect: Nelson TZ zone:

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
extending to the Glenelg River corridor.						Project site or wind turbines. This would be due to several factors including: • Dwellings and other built structures blocking views from neighbouring properties • Scattered tree cover within private properties and denser forested areas north of the Portland Nelson Road • Landform dropping gently toward the Glenelg River corridor. The exception to the above are around 3 dwellings located along the western side of Wade Street between Neil Black Street E and Meredith Street where views may extend toward some turbines within the west portion of the Project site. **Mitigation** Off-site mitigation works may be available to the east of the Wade Street dwellings subject to discussion with Council.	Negligible to Low Wade Street dwellings: Moderate High Potential residual effect: Low Moderate

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
D2 dwellings within the Nelson TZ and SL01 located to the east and west of Beach Road south of the Portland Nelson Road.	**Uninvolved landowners** Sensitivity: High	4.7km	High	Moderate High	Low Moderate	Dwellings located within the Nelson TZ, along Beach Road south of the Portland Nelson Road, will have limited and predominantly restricted views toward the Project site or wind turbines. This would be due to tree screening surrounding and beyond the dwellings. **Mitigation:** Mitigation works will not be required for these dwellings due to existing screening through a combination of landform and tree cover.	Visual effect: Negligible
D3 dwellings within the Nelson TZ and SL01 located to the west of the Glenelg River.	**Uninvolved landowners** Sensitivity: High	5.3km	High	Moderate High	Low Moderate	Dwellings located within the Nelson TZ, to the west of the Glenelg River will have limited and predominantly restricted views toward the Project site or wind turbines. This would be due to several factors including:	Visual effect: Negligible to Low Moderate from 2 dwellings

Table 27 – Dwelling visual effect matrix (Refer **Figures 29** and **30** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to closest turbine	Potential duration of effect	Extent of visibility (ZTV tip height)	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						• Dwellings and other built structures blocking views from neighbouring properties • Scattered tree cover within private properties and denser forested areas north of the Portland Nelson Road. A small number of dwellings with some minor elevation above the river (north of Old Bridge Road) may have views toward wind turbines where unobstructed by other dwellings or vegetation.	north of Old Bridge Road. Residual visual effect: Low

10.16 Summary of the dwelling visual effect (within 10km of wind turbines)

This LCVIA identified a combined total of 50 uninvolved dwellings within 10km of the proposed wind turbines (excluding consolidated dwellings within the Nelson TZ – D1, D2 and D3).

An assessment of the 50 uninvolved dwellings determined:

- 5 dwellings would experience a high visual effect
- 2 dwellings would experience a moderate high visual effect
- 8 dwellings would experience a moderate visual effect
- 6 dwellings would experience a low moderate visual effect
- 2 dwellings would experience a low visual effect
- 27 dwellings would experience a negligible visual effect.

The field assessment for most dwelling locations was undertaken from the closest publicly accessible location including roads, with a conservative approach adopted where there was no opportunity to confirm the actual extent of available view from areas immediately surrounding the dwelling. It is anticipated that some visibility ratings would be less than those determined subject to a process of verification of existing screening from private property.

The number of dwellings likely to experience a negligible visual effect partly results from the extent of tree cover (both native and plantation) that surrounds and extends beyond dwelling locations out to 10km.

This LCVIA determined that dwellings with a Moderate High to High visual effect would have a Low to Moderate residual visual effect subject to the implementation of mitigation measures as noted in Table 27.

10.17 Potential wind turbine visual effect from beyond 10km

Most dwellings located beyond 10km of the wind turbines are unlikely to be significantly impacted by the wind turbines (as illustrated in the ZTV diagram **Figures 25** and **26**). Many dwellings beyond 10km include varying extents of tree planting within proximity to dwellings which has the potential to offer greater screening significance as the viewing distance from the wind turbines increases and visual scale of the wind turbines decreases.

The substations associated buildings and electrical infrastructure would not be out of character with other moderate to large scale agricultural and existing electrical infrastructure located within the broader landscape beyond the Project site.

10.18 Ancillary infrastructure items

Uninvolved dwellings are unlikely to have views toward ancillary items including the collector substations along the Portland Nelson Road corridor and the proposed quarry and are either visually contained within the Portland Nelson Road corridor, or locally screened by plantation trees that partly surround ancillary items.

10.19 Preferred overhead 275kV transmission line route (along the Portland Nelson Road corridor)

The preferred overhead alignment of 275kV transmission line would be located within visually constrained areas, including those delineated by narrow view corridors created by plantation trees adjoining the Portland

Nelson Road. The plantation trees would form a visually absorbing consistent dark backdrop to electrical infrastructure alongside the Portland Nelson Road corridor with views largely restricted to passing traffic.

The preferred 275kV transmission line will be located underground to the east of the Portland Nelson Road at Sandy Hill Road intersection to the main substation location and continue underground to the proposed connection at the Heywood Terminal Station. The potential for visual effects for underground sections of the preferred 275kV transmission line would be limited to temporary construction stages.

The overhead 275kV transmission line and 3 on-site collector substations would have an overall low visual effect where viewed from vehicles travelling along the Portland Nelson Road corridor and a low moderate temporary visual effect following plantation tree harvesting. The overhead section of the 275kV transmission line would not be visible from any residential dwellings within 10km of the 275kV transmission line.

Section 11 Night lighting – ancillary structures

11.1 Existing light sources

Some existing night time light sources occur within the Project viewshed and include residential, general amenity and road lighting associated within surrounding urban areas; however, most of the wind farm Project site has no illumination and presents a dark sky environment.

Local and domestic lighting is associated with rural dwellings within 10km of the wind turbines, but lighting is unlikely to be visually prominent and does not emit any significant illumination beyond immediate areas surrounding residential and agricultural buildings.

Vehicle headlights and tail lights travelling along the Portland Nelson Road, Winnap Road and more distant highways provide dynamic and temporary sources of light.

11.2 Potential light sources – ancillary structures

Potential light sources associated with the wind farm ancillary structures would include low intensity night lights for the main substation, control room and auxiliary buildings. Most lighting would be temporary and in use for emergency maintenance, safety, and security purposes. Lighting associated with the Project would not include flood or broad area lighting installations.

11.3 Potential receiver locations and impact

Potential receiver locations that may be impacted by night time lighting include residents and motorists. Night time lighting would not be visible from sensitive visual areas including the ocean beach, camping areas or landscape surrounding the Glenelg Estuary.

Night time lighting associated with the wind farm is unlikely to have a significant visual impact on most public receiver locations. Whilst the main substation/control low intensity security or maintenance lighting may be visible to motorists travelling along the Portland Nelson Road or local roads, the duration of visibility would tend to be very short and partially screened by vegetation along some sections of road corridors as well as influenced by the direction of travel.

Irrespective of the total number of visible lights, lighting is more likely to be noticeable from exterior areas surrounding dwellings rather than from rooms within dwellings, where internal lighting tends to reflect and mirror views in windows, or where exterior views would be obscured when curtains and blinds are closed.

11.4 Night lighting mitigation

Impacts of ancillary lighting may be mitigated by ensuring that installed lighting meets the requirements of Australian Standard AS 4282:2019: Control of the obtrusive effects of outdoor lighting. To assist in the mitigation of night lighting associated with ancillary structures the following should be considered:

- Security lighting throughout the wind farm, switching station and the substation should be minimised to decrease the contrast between the wind farm and the surrounding night time environment
- Motion detectors should be used to activate night time security lighting when required
- Ancillary lighting is to be designed to ensure it does not spill onto nearby roads or dwellings

Both on-site and off-site landscaping may be installed as a means of screening views toward ancillary lighting within the Project site.

An AIA lighting review determined that the Project is a low risk to aviation activity and therefore does not require obstacle lighting with no further mitigation required

Section 12 Cumulative assessment

12.1 What is Cumulative Assessment?

A cumulative landscape and visual effect may result from a wind farm being constructed in conjunction with other existing or proposed wind farm developments or other large-scale infrastructure projects and may be either associated or separate to it.

Separate wind farm or other developments may occur within the viewshed of the proposed wind farm or may be located within a regional context where visibility is dependent on a journey between different wind farms.

'Direct' cumulative visual effects may occur where two or more winds farms, or other infrastructure developments have been constructed within the same locality and may be viewed from the same view location simultaneously.

'Indirect' cumulative visual effects may occur where two or more wind farms or other infrastructure developments have been constructed within the same locality and may be viewed from the same view location but not within the same field of view (i.e., the viewer must turn their head in order to view both wind farms).

'Sequential' cumulative visual effects may arise because of multiple wind farms or other infrastructure developments being observed at different locations during a journey (e.g., from a vehicle travelling along a highway or from a network of local roads), which may form an impression of greater magnitude within the construct of short term memory.

12.2 Other wind farm developments (regional locality)

There are three wind energy developments that are currently operational within the same regional context as the Project. These are identified in **Table 28**, with the Portland (Cape Bridgewater and Cape Nelson South) wind farms illustrated in **Figure 31**.

Table 28 – Regional Wind Farm Developments

Other Wind Farm	Turbine tip height	Status	Number of turbines	Approximate distance to Project site
Codrington	79m	Operating	14	51km
Yambuk	105m	Operating	20	57km
Portland Wind Energy Project Cape Bridgewater, Cape Nelson North and Cape Nelson South	135m	Operating	29, 11 and 22	19.5km

12.3 The Project and other wind farm visibility

The potential for the Project wind turbines to be visible from residential and other view locations together with other wind farm turbines are considered in **Table 29**.

Table 29 - The Project and other wind farm visibility

Other wind farm development	View description between the Project and other wind farm	
	'Direct' Views	**'Indirect' Views**
Yambuk	There will be no direct views between the wind farms where views will be blocked by landform and vegetation.	There will be no indirect views between the wind farms where views will be blocked by landform and vegetation.
Codrington	There will be no direct views between the wind farms where views will be blocked by landform and vegetation.	There will be no indirect views between the wind farms where views will be blocked by landform and vegetation.
Portland Wind Energy Project Cape Bridgewater, Cape Nelson North and Cape Nelson South	Generally direct views between the wind farms will be largely restricted by distance and vegetation. Views may extend between wind turbines located on Cape Bridgewater and the Project; however, wind turbines would be separated by a distance around 20km.	Restricted potential for indirect views between wind farm projects due to distance. Views may extend between wind turbines located on Cape Bridgewater and the Project; however, wind turbines would be separated by a distance around 20km.

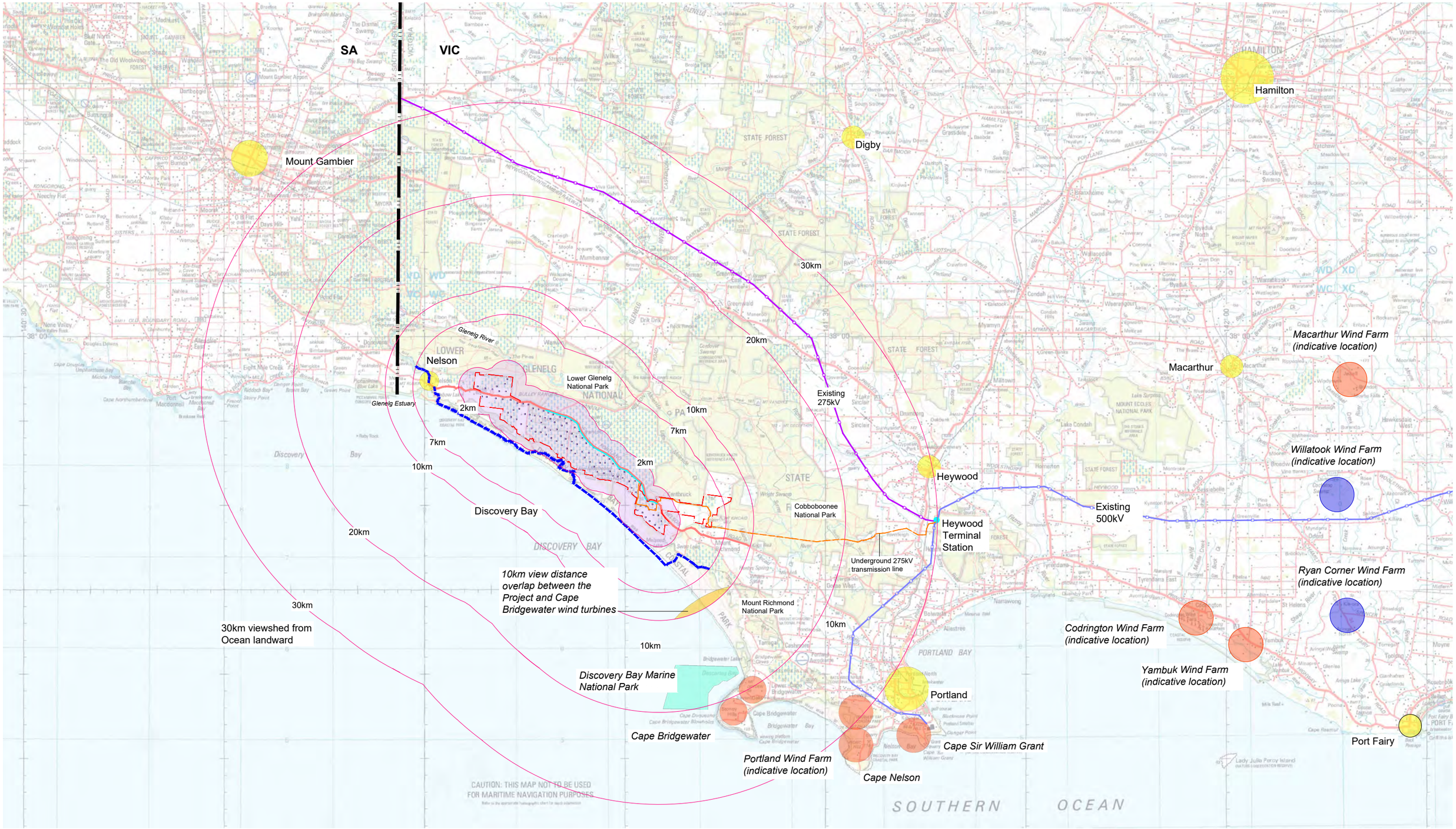
Overall, the Project is not predicted to significantly increase the magnitude of cumulative visual effect for most dwelling locations surrounding the Project site. The potential for the occurrence of 'direct' and 'indirect' cumulative visual effect is mitigated by the screening or partial filtering of views toward approved and existing wind farms.

The closest wind turbines at Cape Bridgewater Wind Farm, are approximately 20km from the Project wind turbines with an equidistant view point around 10km as illustrated in **Figure 31**. This LCVIA has determined that wind turbines at a view distance of 10km or greater would occupy less than 2% of a person's vertical field of view and would not result in a significant visual effect.

Sequential views from local roads would be mitigated to some extent by undulating landform and tree cover alongside road corridors and the transitory nature of short-term dynamic views, and the fact that these wind farm projects are not located along a single highway or thoroughfare.

12.4 Offshore wind farms

This LCVIA notes areas of potential offshore wind farm development may occur within the Southern Ocean region off Victoria and South Australia. The Southern Ocean declared offshore wind area (declared 6th March 2024) covers an area around 1,030km^2 and located a minimum 15km offshore between Yambuk and Warnambool. The declared offshore wind area would be around 77km from the nearest Kentbruck wind turbine, eliminating any potential for cumulative impacts due to distance.



Base map source: © Commonwealth of Australia (Geoscience Australia) 2021

Legend

- Proposed wind turbine (indicative layout)
- 20km — Distance from proposed wind turbine
- Other proposed wind farm localities
- Existing 275kV transmission line
- Proposed overhead 275kV transmission line
- Proposed underground 275kV transmission line
- 2km wind turbine viewshed
- Township/locality
- Other operational wind farm localities
- Existing 500kV transmission line
- Indicative Great South West Walk within 7km of wind turbines

0m — 10km

Figure 31
Cumulative visual impacts

GBD
Landscape architecture

Section 13 Pre-construction and construction

13.1 Potential visual effect

There are potential visual effects that could occur during both pre-construction and construction phases of the Project. The Project construction phase is likely to occur over a period of around 2 to 2.5 years, although the extent and nature of pre-construction and construction activities would vary at different locations within the Project area.

The key pre-construction and construction activities that would be visible from areas surrounding the proposed wind farm include:

- Ongoing detailed site assessment including sub surface geotechnical investigations
- Various civil works to upgrade local roads and access point
- Temporary construction compound buildings and facilities
- Temporary construction facilities, including portable structures and laydown areas
- Various temporary construction and directional signage
- Mobilisation of rock crushing equipment and concrete batching plant (if required)
- Onsite quarry (refer Section 4.7)
- Excavation and earthworks and
- Various construction activities including erection of wind turbines, monitoring mast and electrical infrastructure works.

Most pre-construction and construction activities, some of which would result in physical changes to the landscape (which have been assessed in this LCVIA report), are generally temporary in nature and for the most part restricted to various discrete areas within or beyond the immediate wind farm Project area. Most of the pre-construction and construction activities would be unlikely to result in an unacceptable level of visual effect for their duration and temporary nature.

Plates 11 to **15** illustrate typical construction activities during preparation and installation of wind turbines:

Plate 11 Cable laying equipment (Image: ©GBD 2023)

Plate 12 Typical crane plant utilised in wind turbine construction (Image: ©GBD 2023)

Plate 13 Typical storage and laydown area (Image: ©GBD 2023)

Plate 14 Typical contractors site office and amenities compound (Image: ©GBD 2023)

Plate 15 Typical view toward wind turbines under construction (Image: ©GBD 2023)

Section 14 Mitigation

14.1 Introduction

The consideration and application of mitigation measures are a standard approach for proposed Victorian wind farm developments. The British Landscape Institute states 'the purpose of mitigation is to avoid, reduce, or where possible remedy or offset any significant negative (adverse) effects on the environment arising from the proposed development' (2012).

14.2 Mitigation limitations

There are several limitations to mitigation strategies applicable to wind energy facilities and this LCVIA recognises that large scale wind energy facilities are likely to result in unavoidable visual impacts in the current landscape and Project context. Wind turbines are large scale constructed elements with a form and line that will contrast with the relatively simple landscape forms and lines that adjoin and extend beyond the Project site.

The efficiency of the Project is dependent on a range of technical factors, and the potential for visual impacts must be balanced against other requirements. This LCVIA considers that mitigation measures should be implemented where visual impact outcomes are significant and result in Moderate High to High visual effects where wind turbines would be highly visible and have the potential to dominate views within the landscape. A level of acceptance for unavoidable low to moderate visual impacts should be considered appropriate without the need for mitigation as has been applied to several preceding Victorian wind energy projects including the approved Willatook, Delburn and Golden Plains Wind Farm projects.

14.3 SEE and EES wind turbine layout comparison

The Project wind turbine layout has been through several revisions between the SEE and EES LCVIA preparation. Overall changes to wind turbine layout are illustrated in **Figure 32** and have occurred in response to various environmental considerations as well as feedback regarding potential landscape and visual effects. The principal areas of wind turbine layout change with potential beneficial landscape and visual outcomes are noted on **Figure 32** as areas A1 to A6.

The removal of around 10 wind turbines area A1, to the north of the Portland Nelson Road corridor, decreases the overall number of wind turbines within SLO1 and benefits offset from the Lower Glenelg National Park and Glenelg River corridor. The removal of wind turbines from this location also reduces overall visual effect for dwellings and parts of the Nelson township.

The removal of around 17 wind turbines from area A2 also decreases the overall number of wind turbines within SLO1 and reduces overall visual effect for dwellings and parts of the Nelson township. The removal of these wind turbines also increases offset from the ocean foreshore, dunes and lakes.

The removal of around 6 wind turbines within area A3 increases the offset distance between wind turbines and the ocean foreshore and Lake Mombeong inland track benefiting people walking along the GSWW.

The removal of around 10 wind turbines from within area A4 increases the offset distance from the Lake Mombeong track and campground as well as the Lake Mombeong lookout between the campground and ocean foreshore.

The removal of around 3 wind turbines from area A5 improves the sight line from Hedditch Hill through a narrow vista towards the foreshore and ocean.

The removal of around 18 wind turbines from area A6, within the east portion of the Project site, decreases and largely removes, the overall level of visual effect for several dwellings located along the Portland Nelson Road corridor and surrounding the Project site. The removal of wind turbines from the east portion of the Project site also reduces the overall number of wind turbines visible from more distant view locations and lookouts around Mount Richmond and Cape Bridgewater.

Overall, the reduction in number of wind turbines between the SEE and EES layouts will assist in mitigating landscape and visual effects from several key view locations surrounding the Project site.

14.4 Planning considerations

The Project Specific Requirements include mitigation as a key requirement to:

Outline and evaluate any potential design and siting options that could avoid and minimise potential effects on landscape and visual amenity of neighbouring residences and communities and additional management strategies that may further minimise potential effects.

The Glenelg Planning Scheme includes a Decision guideline (Cl 52.32-5) to consider the Policy and Planning Guidelines for Development of Wind Energy Facilities in Victoria (September 2023). The Policy suggests several potential mitigation measures to minimise the potential impact of wind energy facilities on a landscape. Those relevant to landscape and visual impacts include:

- *siting and design to minimise impacts on views from areas used for recreation and from dwellings*

  Wind turbines have been sited to minimise potential impacts on views from dwellings and recreational areas as far as practicable and where achievable/reasonable given design constraints and other Project technical requirements within the Project site.

- *locating arrays of turbines to reflect dominant topographical and/or cultural features, such as ridgelines, the coastline, watercourses, windbreaks or transmission lines*

  The wind turbines have been largely arranged through plantation areas on slopes of low to moderate sized undulating sand dunes. The wind turbine arrays follow the general landform and topographic features and located to consider potential impacts on sensitive view locations. This LCVIA notes the difficulties that undulating coastal localities can present for wind turbine layouts when wind turbines may be seen from different directions, at different elevations and spacings.

- *using turbine colour to reduce visual impacts from key public viewpoints*

  Wind turbines are commonly installed in a white to off white colour across Australia as well as most other countries around the world. This industry standardised colour has likely been adopted for several reasons. White is a neutral colour and whilst visible against blue sky backdrops it will tend to blend readily on cloudy or partly cloudy days. The white colour also assists with protecting wind turbine infrastructure by reflecting ultraviolet rays rather than absorbing them which helps to protect the generator from overheating. Wind turbines are also painted white to

provide contrast between the wind turbine structures and the ground when viewed from aircraft flying above the wind farm.

Plate 16 illustrates 'white' wind turbines with apparent colour differences (grey and white). This demonstrates the effect of partial cloud cover and shading on visible wind turbine colour. **Plate 17** illustrates wind turbines at the Windy Hill Wind Farm in Far North Queensland. The wind turbines have been painted with concentric bands of green paint, from dark green at the base to light green for approximately one third of the tower height. The success of painting the wind turbine tower is dependent on the viewpoint location, elevation and backdrop against which the wind turbine is visible.

Plate 16 – Wind turbines at Crookwell 2 Wind Farm NSW (Image: ©GBD 2018)

Plate 17 – Wind turbines with coloured base Windy Hill Wind Farm QLD (Image: ©GBD 2017)

Painting wind turbines

- *limiting night lighting required for the safe operation of a wind energy facility and aviation safety*

  Permanent project lighting associated with the O&M facility and terminal station and temporary lighting associated with construction areas is to be installed in accordance with Australian Standard AS 4282: Control of the

  obtrusive effects of outdoor lighting. These measures include:

- ensuring lighting is baffled and directed to the ground
- installing motion-trigger mechanisms to reduce the duration of lighting
- installing perimeter landscaping to intervene in views to lighting from identified sensitive receptors (residential dwellings).

- *reducing the number of wind turbines with obstacle lights while not compromising aviation safety*

  The AIA concluded that no obstacle lighting is required for wind turbines; however, any requirement to install obstacle lighting would be in accordance with CASA regulations.

- *mitigating light glare from obstacle lighting through measures such as baffling (fittings that absorb or screen light glare)*

  Whilst wind farm obstacle lighting will not result in light 'glare, views toward obstacle lighting from proximate sensitive view locations may be mitigated the application of shielding to the wind turbines. This would be addressed subject to a requirement to install night time obstacle lighting.

- *selecting turbines that are consistent in height, appearance and rotate the same way*

  Selected wind turbines would be consistent in visual form and design, comprising similar basic components of towers, hubs and blades. Most current wind turbines rotate in a clockwise direction. Adopting wind turbines that rotate in different directions would result in engineering challenges with the creation of turbulent airflow.

- *spacing turbines to respond to landscape characteristics*

  The wind farm design and wind turbine layout respond to a range of technical and environmental requirements, as well as landuse/commercial operations around the plantation and regulatory requirements. Where possible, wind turbine spacing, and the overall layout, has considered strategies to minimise impacts on the characteristics of the landscape surrounding the Project site. This includes establishing offsets from sensitive locations such as campgrounds and ocean foreshore as well as removing wind turbines from key visual connections between land and sea (as noted from Hedditch Hill Scenic Reserve, sand dunes and ocean).

- *undergrounding electricity lines wherever practicable*

  Preferred options for the placement of electricity lines include undergrounding internal cables as well as the connection between the Portland Nelson Road to the main substation at the Operations and Maintenance facility and from this facility to the Heywood Terminal Station.

- *minimising removal of vegetation*

  The Project will minimise the removal of vegetation from the Project site; however, this LCVIA notes that vegetation removal is an ongoing function of the pine plantation management and operation within which the Project is located.

- *avoiding additional clutter on turbines, such as unrelated advertising and telecommunications apparatus*

  The wind turbines would not include unrelated advertising and/or telecommunications apparatus.

14.5 Public view locations

Public view locations including scenic lookouts, National Park campsites and sections of the GSWW (Lake Mombeong inland track and sand dunes south of Swan Lake) would include views toward wind turbines at a range of distances and directions. Options to mitigate Moderate-High and High visual impacts at these locations would be limited given the extent of visibility toward the Project site and/or proximity of wind turbines to sensitive view locations. These locations are considered in more detail in Section 11 Key Views and Visual Effects. A strategy should be developed in coordination with Parks Victoria to investigate and implement options to mitigate impacts at these locations or improve the sites in other ways to offset impacts.

14.6 Onsite and offsite landscape works

Onsite and offsite landscape works would be considered to reduce the visual impact of the wind turbines and associated ancillary infrastructure where determined to result in a Moderate High or High visual effect on uninvolved residential view locations within 10km of a wind turbine or ancillary infrastructure location as noted in **Table 27**.

The implementation of landscaping works would be based on a reasonable and feasible approach to provide substantive screening of wind turbines, and to offer property owners the opportunity to opt in, or out of landscaping mitigation works to cater for individual visual mitigation preferences.

Any landscaping mitigation works for properties located within a Bushfire Management Overlay must not increase bushfire risk to the dwelling or broader landscape and should be carried out in accordance with the relevant sections of the *Glenelg Planning Scheme 53.02 Bushfire Planning and 53.02-5 Table 6 Vegetation Management Requirement*.

An Off-Site Landscaping Programme would be documented in accordance with any relevant permit conditions and submitted for endorsement by the responsible authority prior to construction.

Lower Glenelg National Park

Lower Glenelg National Park

A1

Nelson

Glenelg River

Lower Glenelg National Park

A2

Lower Glenelg National Park

Cobboboonee National Park

A3

A4

Discovery Bay

A6

A5

Indicative wind farm project site

Mount Richmond

Discovery Bay Coastal Park

Main substation

Portland-Nelson-Rd

Discovery Bay Coastal Park

Legend

EES Project wind turbine layout January 2024

Refer LCVIA section 14.3 for area notes

Great South West Walk (indicative alignment within 7km of wind turbine)

SEE Preliminary wind turbine layout July 2019

Township/locality

0m 2.5km

Figure 32
SEE and EES wind turbine layout comparisons

GBD
Landscape architecture

Section 15. Conclusions

The following conclusions summarise key findings from the LCVIA addressing the Project Scoping Requirements, the Glenelg Planning Scheme and the Development of Wind Energy Facilities in Victoria, Policy and Planning Guidelines September 2023.

15.1 Project Scoping Requirements

This LCVIA notes the Project and associated ancillary infrastructure is located within Farming Zone which includes landscape subject to modifications This LCVIA determined that the Project site and immediate surrounding landscape character has an overall Moderate High sensitivity level, with Higher levels of sensitivity extending along the coastal zone, and Moderate to Moderate High sensitivity around the Glenelg Estuary and Glenelg River. The Project will have potential to impact landscape values associated with coastal environments including landscape characteristics within National/Marine Parks and other reserves.

15.2 Significant Landscape Overlay SLO1, SLO2 and SLO3

The Project site would include a portion of land within SLO1 to the east of the Nelson township and impart landscape and visual impacts upon some of the key landscape character objectives of SLO1 (outlined in Section 6 of this LCVIA). However, the portion of SLO1 occupied by wind turbines is not considered to have a direct visual link with the Glenelg Estuary or Glenelg River, where surrounding forests/plantations, tree cover along the Portland Nelson Road corridor and low undulating coastal sand dunes, interact to limit viewsheds and vistas toward key landscape features or localities. This LCVIA addressed the Glenelg Planning Scheme Schedule 1 Decision guidelines for SLO1 and determined that in general, wind turbines within SLO1 would not contradict the decision guidelines.

The Project would be visible from areas of landscape defined by SLO2 and SLO3 Overlays, and whilst noticeable within views from named lookouts and areas extending along the coastal zone, the Project is not considered to impact upon or contradict visual landscape character requirements or decision guidelines for SLO2 and SLO3.

This LCVIA determined that wind turbines within SLO1 would be visible from around 7 dwellings to the west of the Projects site, and result in a **Moderate High** to **High** visual effect, with a residual Low to Moderate visual effect subject to mitigation.

15.3 Nelson township

The Project will not have a significant visual effect on the character of the Nelson township where views toward most of the Project site from dwelling locations and township public view locations would be screened by adjoining structures, tree cover and undulating landform. Some views from dwellings along the eastern edge of the Nelson township (Wade Street) would have views toward wind turbines at around 5km in distance.

The overall visual effect on views from the Nelson township would be **Negligible Low**. A small number of dwellings along Wade Street to the east of the Nelson township may experience a **Moderate High** visual effect with a residual Low to Moderate visual effect subject to mitigation.

15.4 Glenelg Estuary

Views from publicly accessible areas surrounding the estuary would be partially restricted by a combination of landform and low coastal vegetation. Opportunities may exist for views toward wind turbines from the end of Beach

Road and some parts of the Discovery Bay Conservation Reserve. The closest wind turbines would be around 6km from the picnic area and unlikely to form a significantly dominant visual element within the view.

The overall visual effect on views from the Glenelg Estuary would be **Moderate High**.

15.5 National Parks (Lower Glenelg, Cobboboonee and Mount Richmond) and Glenelg River

Some areas, including sensitive view locations within the Lower Glenelg National Park and the Glenelg River environs, would have a greater ability to absorb the Project through extensive areas of native tree cover screening views from sensitive locations including campgrounds and day use areas along the Glenelg River corridor as well as other localities within adjoining National Parks. Similarly, views toward the Project from within the Cobboboonee and Mount Richmond National Parks would be substantially screened by extensive tree cover.

The overall visual effect from National Parks with extensive tree cover would be **Low**.

15.6 View from ocean beach foreshore and inland lake track

The Project site would be visible from sections of the GSWW, including an approximate 30km length along the Discovery Bay foreshore south of the Project site. The Project would also be visible from the Lake Mombeong inland track and from the GSWW as it crosses sand dunes from the ocean foreshore toward the Swan Lake campground. Planting and screening views toward the Project site from the Lake Mombeong inland track and sand dunes is not considered desirable or largely achievable, and therefore mitigation options are considered limited at these locations.

Whilst views to upper portions (hubs and blades) of wind turbines would be visible from the ocean foreshore, views toward wind turbines from the foreshore (from around the high water mark), would be largely screened by sand dunes (and associated vegetation) rising above the ocean foreshore. Moving away from the high water mark toward the ocean would potentially increase wind turbine visibility.

This LCVIA notes the Project would not be visible from significant portions of the GSWW due to distance and intervening landforms and vegetation. The overall visual effect of the Project (where visible) from the GSWW would range from **Moderate** to **Moderate High**. Mitigation works to be undertaken in consultation and conjunction with Parks Victoria and the GSWW committee might consider additional planting strategies to increase levels of screening at specific sensitive locations and/or to install/upgrade existing infrastructure to benefit people using the inland track as a mitigation offset.

15.7 Lake Mombeong campground

Views toward wind turbines would extend from Lake Mombeong campground, day use areas and pathways toward and around the lake and from the track/lookout to the ocean beach. The wind turbines would form dominant elements within these views. Wind turbines would also be visible from some portions of the Nobles Rock Track whilst travelling from the ocean toward the plantation and Lake Mombeong.

The overall visual effect on views from the Lake Mombeong campground and surrounding day use areas and public path network would be **High**. Mitigation works to be undertaken in consultation and conjunction with Parks Victoria and the GSWW committee might consider additional planting strategies to increase levels of screening at specific sensitive locations and/or to install/upgrade existing infrastructure to benefit people using the inland track as a mitigation offset.

15.8 Swan Lake campground

Views toward wind turbines from the Swan Lake campground, day use area and local tracks would be partially screened by landform and vegetation beyond the campground locality. Wind turbine visibility will increase to the west of the campground including views from coastal sand dunes between the Swan Lake campsite and ocean beach.

The overall visual effect from the Swan Lake campground and surrounds would be **Moderate High**. Mitigation works to be undertaken in consultation and conjunction with Parks Victoria and the GSWW committee might consider additional planting strategies to increase levels of screening at specific sensitive locations and/or to install/upgrade existing infrastructure to benefit people using the inland track as a mitigation offset.

15.9 Named lookouts

This LCVIA identified 5 named lookouts surrounding the Project site (noting that many other informal and local lookout points will exist). Named lookouts provide a range of opportunities to view the Project site and surrounding landscape/seascape at various distances and from alternate directions.

The overall visual effect from the named lookouts identified in this LCVIA would range from **Moderate High** to **Moderate** for lookouts at greater distances.

15.10 Local roads and agricultural land

Views toward the Project site from the Portland Nelson Road corridor, other local roads and areas of agricultural land will offer a range of transitory views which will be subject to direction of travel and the potential screening influence of vegetation alongside road corridors and occasional scattered vegetation through landscape pasture.

Views from agricultural land and road corridors through the Project site are subject to lower levels of sensitivity where views are temporary, indirect and influenced by the extent of vegetation and tree cover surrounding the Project site.

The overall visual effect on views from local roads and agricultural land would be **Low Moderate**.

15.11 Dwellings

This LCVIA identified 50 non-involved dwellings within 10km of the Project wind turbines, excluding consolidated dwelling locations D1, D2 and D3 within the Nelson township. The LCVIA determined that most dwellings (43 in total) would not have direct views toward the Project site, wind turbines or ancillary infrastructure, or would experience visual effects up to and including a Moderate rating. This LCVIA determined that 7 dwellings would experience **Moderate High** to **High** visual effects, with potential to be mitigated through offsite landscape works.

This LCVIA recommends that the 7 dwellings with a **Moderate High** to **High** visual effect be given the opportunity to opt in to an offsite landscape screening program as detailed in Section 8. This LCVIA has determined that dwellings with a Moderate High to High visual effect may have a residual visual effect of Low to Moderate subject to implementation of mitigation measures.

15.12 Electrical infrastructure

Direct views toward electrical infrastructure, including the on-site collector substations, main substation and 275kV overhead transmission line would tend to be limited to the Portland Nelson Road corridor. A high visual absorption capability provided by existing tree cover within and beyond the plantations would tend to mitigate the extent and level of visual effect. Views from sensitive landscape areas and uninvolved dwellings would also tend to be mitigated

by existing tree cover and the influence of landform. Any direct views from dwellings toward the main substation site would be addressed through on-site or off-site landscaping works.

The overall visual effect on views from electrical infrastructure would be **Low Moderate**.

15.13 Lighting

Temporary and safety night lighting associated with Project electrical infrastructure (substations) and office/maintenance buildings would be largely filtered or screened from most surrounding view locations and not considered significant enough to directly impact upon the dark sky night time experience within or beyond the Project site.

An obstacle lighting review determined that wind monitoring towers be appropriately marked in accordance with applicable guidelines (excluding strobe lighting) noted in the lighting review. The lighting review further determined that the Project is a low risk to aviation activity and therefore does not require obstacle lighting with no further mitigation required.

The overall visual effect on views from temporary and safety night lighting would be **Low**.

15.14 Cumulative

Cumulative visual impacts from existing onshore wind farm projects will be largely mitigated by landform and tree/forest screening or, as noted for the Portland wind farms, mitigated by distance between wind farm projects.

The closest wind turbines at Cape Bridgewater Wind Farm, are approximately 20km from the Project wind turbines with an equidistant view point around 10km. This LCVIA has determined that wind turbines at a view distance of 10km or greater would occupy less than 2% of a person's vertical field of view and would not result in a significant visual effect.

The overall visual effect from potential cumulative visual impacts would be **Low**.

15.15 Mitigation

Mitigation works have been recommended where Moderate High and High visual effects have been determined at dwellings surrounding the Project site as noted in **Table 27**. The implementation of landscape mitigation works would mitigate visual effects to Low or Moderate. Opportunities for landowners to opt in to off-site mitigation works would be provided and documented within an off-site landscape management plan.

This LCVIA has identified publicly accessible locations, including those within designated landscapes, subject to Moderate High and High visual effects where mitigation works could be installed to address visual effects in consultation with external stakeholders.

On-site landscape mitigation works would minimise visual effects associated with ancillary infrastructure including substations and on site quarry. Ancillary structures would not result in significant visual effects.

15.16 Acceptability of landscape and visual impacts

The Development of wind energy facilities Policy and planning guidelines notes that '*a responsible authority needs to determine whether or not the visual impact of a wind energy facility in the landscape is acceptable'.* This LCVIA has assessed the potential landscape and visual effect of the Project against relevant policies and guidelines, and has determined that in our professional opinion, the level of landscape and visual effects are acceptable.

Appendix A Photomontage and wireframe methodology

A.1 Photomontages and wireframes

Photomontages and wireframes have been prepared to illustrate the general appearance of the proposed wind turbines following construction. Thirteen photomontages and twelve wireframe locations were selected to illustrate the proposed wind turbines from view locations in surrounding areas.

The photomontage locations were selected following a review of ZTV maps, together with a site inspection to identify potential representative viewpoints. The photomontage locations were selected from surrounding road corridors and at a range of distances between the viewpoint and wind turbine to illustrate the potential influence of distance on visibility. The photomontages are presented at around 90 degrees and a detailed 40-degree field of view. The 90-degree photomontage includes an extended panorama view to provide context within the photomontage. The 40-degree view angle photomontage illustrates a view within the human central cone of binocular vision and provides a greater level of detail.

The photomontage and wireframe locations are illustrated in **Figure 33** and **Figure 66** and presented in **Figures 34** to **59** and **Figures 67** to **75**.

The wireframes do not include, or illustrate, the location of tree planting between the wire frame viewpoint and the wind turbines. The wireframes are therefore considered to be very conservative in both the extent of view and visibility of wind turbines illustrated in each wireframe.

A.2 Photomontage and wireframe preparation

The photomontages and wireframes have been prepared with regard to the general guidelines set out in the Visual Representation of Wind Farms Guidance Version 2.2, NatureScot February 2017.

Site photography was undertaken with a Nikon D850 and/or Canon EOS DSR full frame digital camera with a 50mm prime lens. The Nikon D850 does not have an internal GPS system and location coordinates are not provided in individual photograph metadata files. Photo location coordinates were recorded with a Garmin Montana 680t handheld GPS or through an iPhone Map App coordinate system.

Site photography was undertaken by GBD and Goodman Photography (Portland), with landform and turbine modelling prepared by DNV Australia Pty Ltd. GBD coordinated and prepared the final figures included in this LCVIA.

The wireframes and photomontages were generated through the following steps:

- A digital terrain model (DTM) of the Project site was created from a terrain model of the surrounding area using digital contours
- The site DTM was loaded into the Wind Pro software package (EDM International version 3.6)
- The layout of the wind farm and 3-dimensional representation of the wind turbine was configured
- The location of each viewpoint (photo location) was configured in Wind Pro – the sun position for each viewpoint was configured by using the time and date of the photographs from that viewpoint
- The view from each photomontage location was then assessed in Wind Pro. This process requires accurate mapping of the terrain as modelled, with that as seen in the photographs. The photographs, taken from each photomontage location were loaded into Wind Farmer and the visible turbines superimposed on the photographs

- The photomontages were adjusted using Photoshop CS3 to compensate for fogging due to haze or distance, as well as screening by vegetation or obstacles and
- The final image was converted to JPG format and imported and annotated as the final figure.

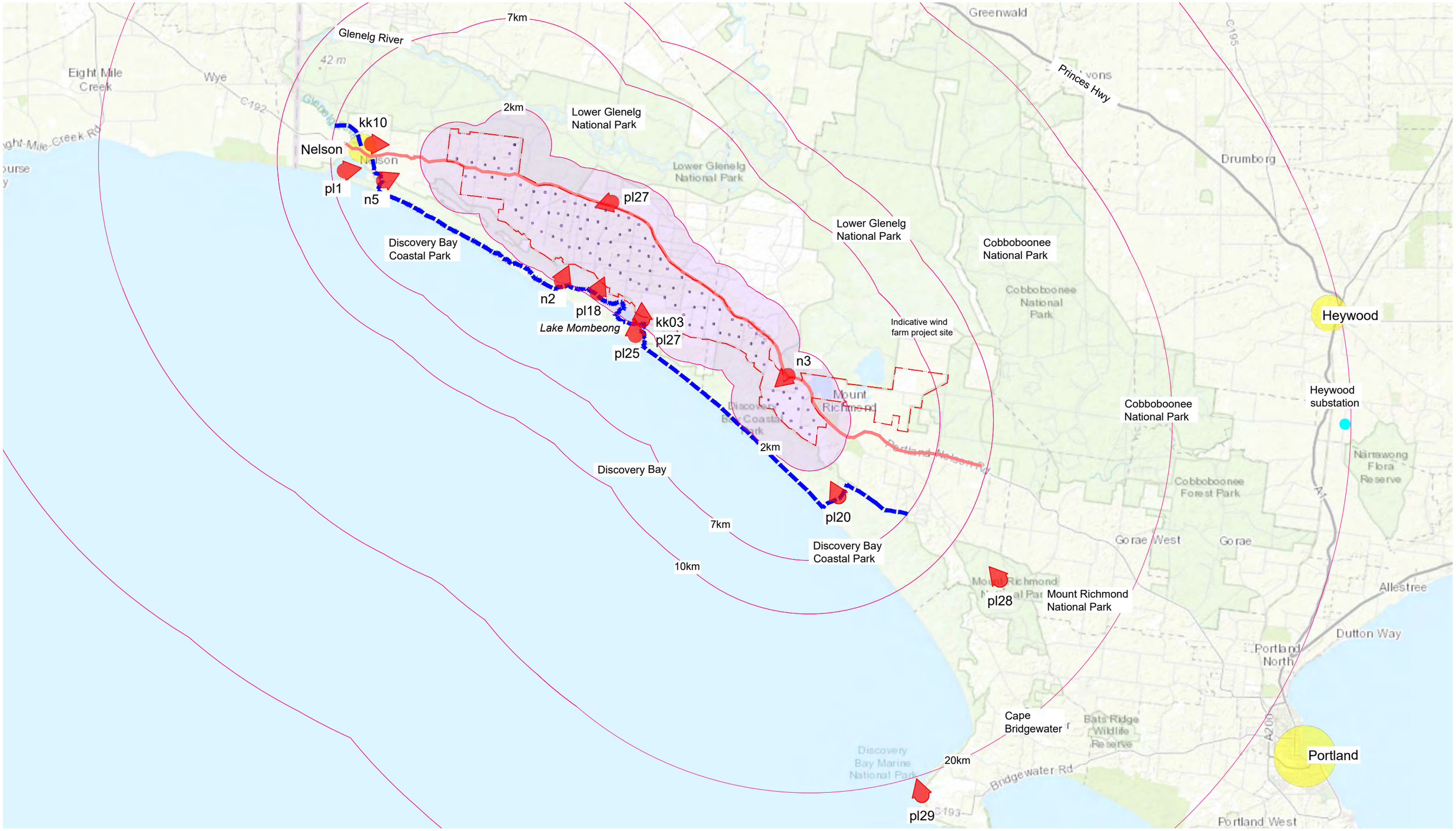
Photomontages prepared from the public view locations have been digitally enhanced to replace sky backgrounds recorded during site photography with blue backgrounds. The blue sky enhancement presents a maximum contrast between wind turbines and sky; however, wind turbines have been modelled and coloured to represent shading in accordance with the time of day the panorama photograph was taken. Blue sky enhancements have been undertaken at the request of the Technical Reference Group.

The photomontage and wireframes were prepared to illustrate most wind turbines with the face of the rotors aligned toward the panorama photo location in accordance with best practice. Operating wind turbines will orientate to face the prevailing wind direction and, noting that the wind direction changes, will not always be observed toward the full rotor face.

The horizontal and vertical field of view within most of the wireframes and photomontages exceeds the parameters of normal human vision. However, the eyes, head and body can all move and under normal conditions a person would sample a broad area of landscape within a panorama view. Rather than restricting the extent of each wireframe and photomontage to a single photographic image, a broader field of view is presented to illustrate the extent of the wind turbines more fully.

Whilst a photomontage can provide an image that illustrates an accurate representation of a wind turbine in relation to its proposed location and scale relative to the surrounding landscape, this VIA acknowledges that large scale objects in the landscape can appear smaller in photomontage than in real life and is partly because a flat image does not allow the viewer to perceive any information relating to depth or distance.

Appendix B Public photomontages



Legend

- Proposed wind turbines indicative layout
- 2km wind turbine viewshed
- Distance from proposed wind turbine (10km)
- Township/locality
- Portland Nelson road corridor
- Great South West Walk (indicative alignment within 7km of wind turbine)
- Indicative wind farm project site
- pl1 Photomontage location indicative location

Figure 33
Photomontage locations

GBD
Landscape architecture

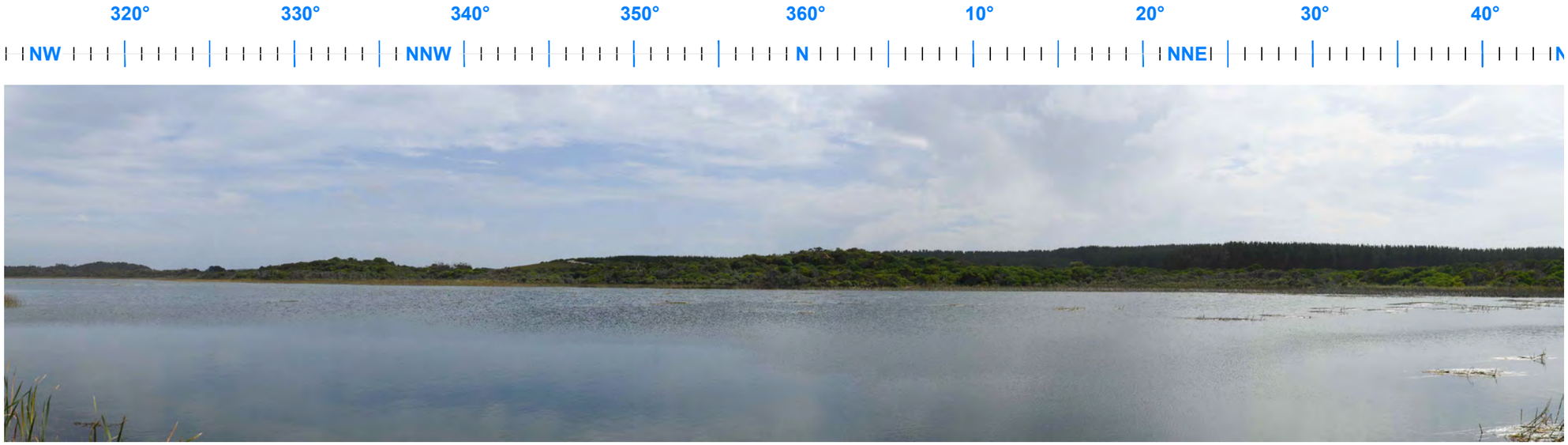
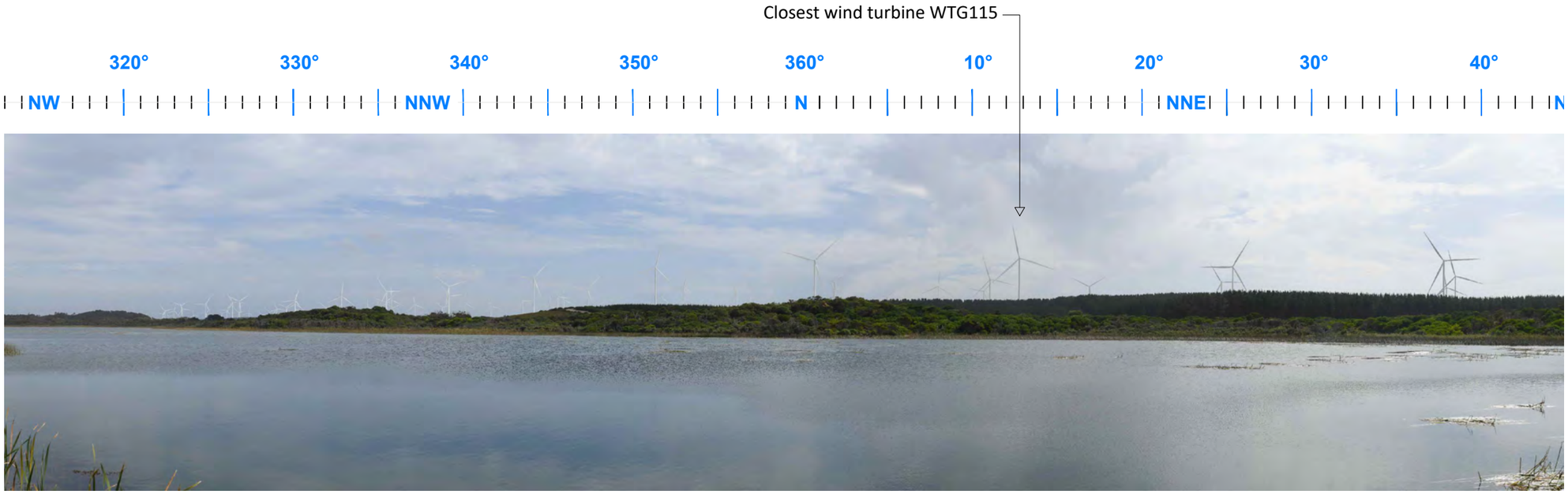


Photo location kk03 - Existing view north west to north north east from Lake Mombeong viewing deck.



Photomontage kk03 - Approximate 90° field of view north west to north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km

General Notes:

Coordinates:
Easting 516287, Northing 5779359

Photo date:
28th February 2021, 11.16pm

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage kk03 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

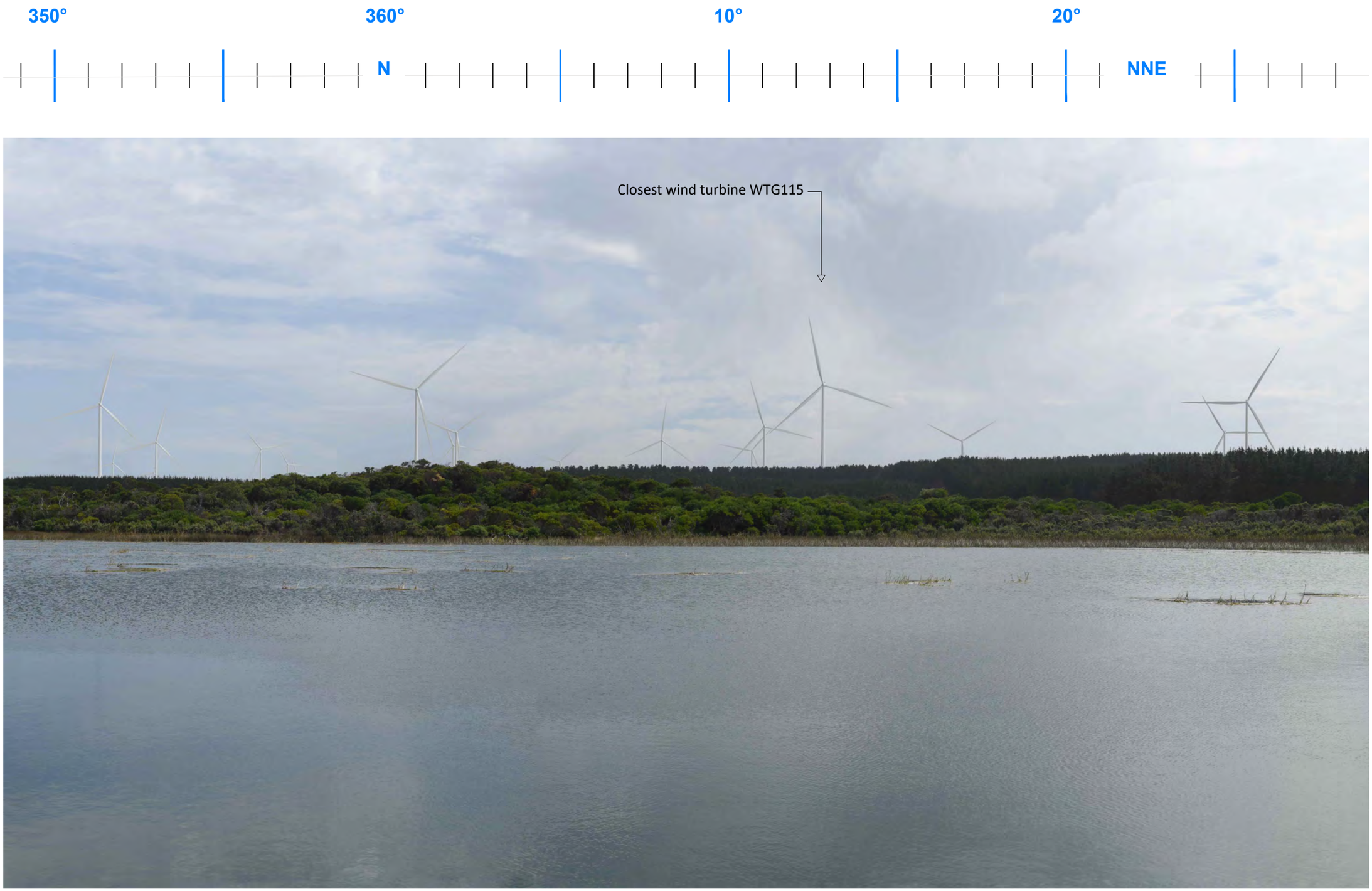
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 34
Photomontage kk03 Lake Mombeong - 90 degree field of view

GBD
Landscape architecture



Photomontage kk03 - Approximate 40° field of view west north west to north north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km

Figure 35
Photomontage kk03 Lake Mombeong - 40 degree field of view

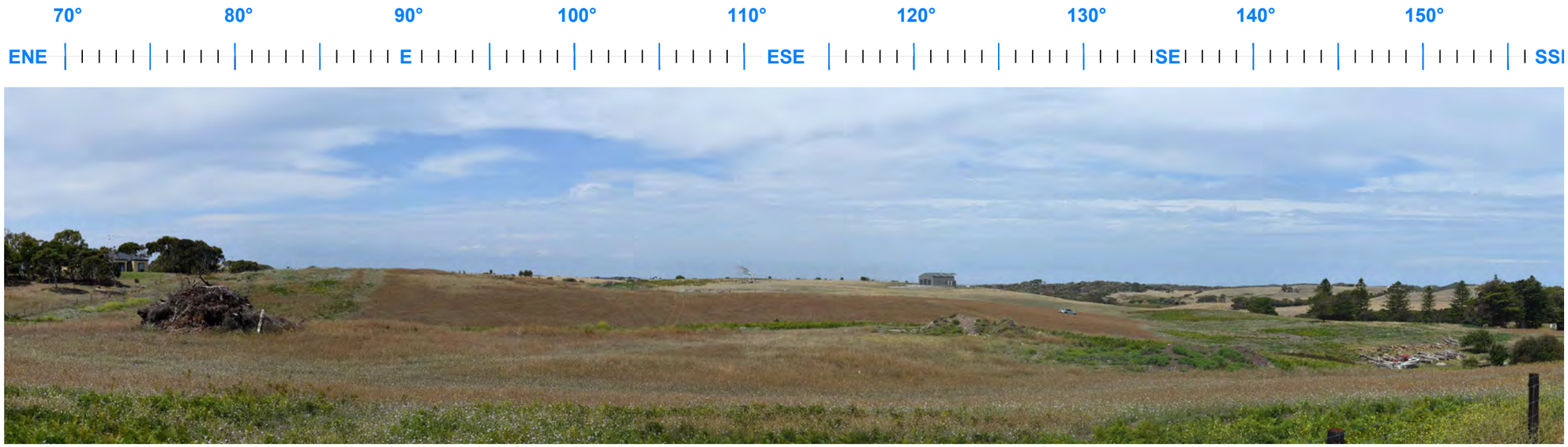
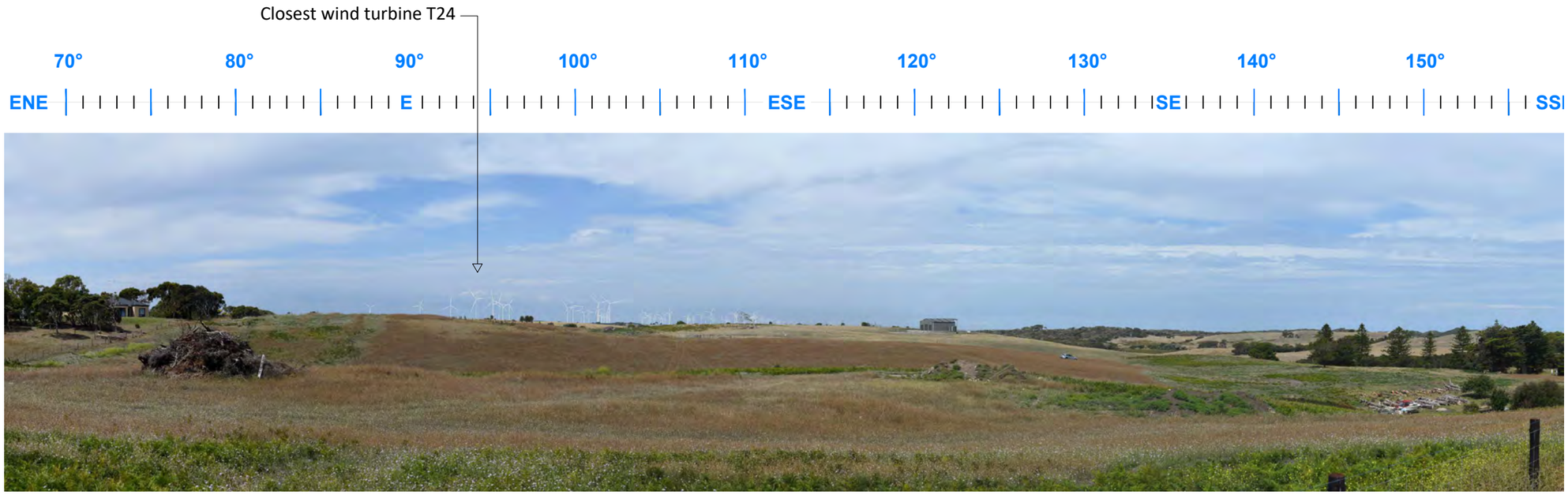


Photo location kk10 - Existing view north east to south east from Wade Street, Nelson.



Photomontage kk10 - Approximate 90° field of view east north east to south south east from Wade Street, Nelson. Approximate distance to closest visible wind turbine 4.7km

General Notes:

Coordinates:
Easting 501041, Northing 5788953

Photo date:
28th February 2021, 14.46pm

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage kk10 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 36
Photomontage kk10 Wade Street, Nelson - 90 degree field of view

GBD
Landscape architecture

Photomontage kk10 - Approximate 40° field of view north east to south east from Wade Street, Nelson. Approximate distance to closest visible wind turbine 4.7km

Figure 37
Photomontage kk10 Wade Street, Nelson - 40 degree field of view

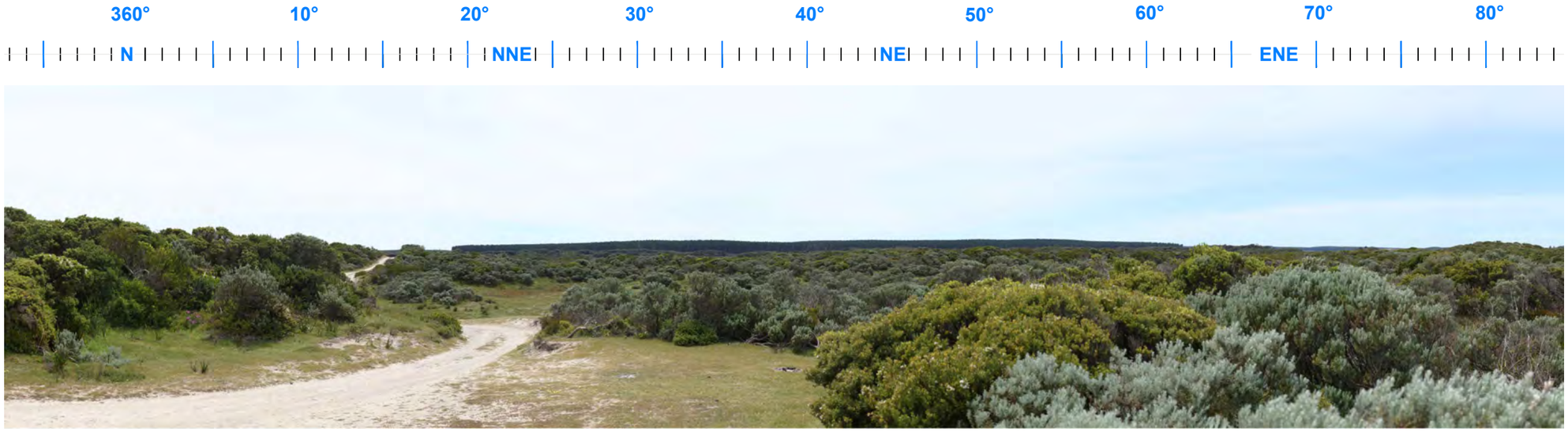
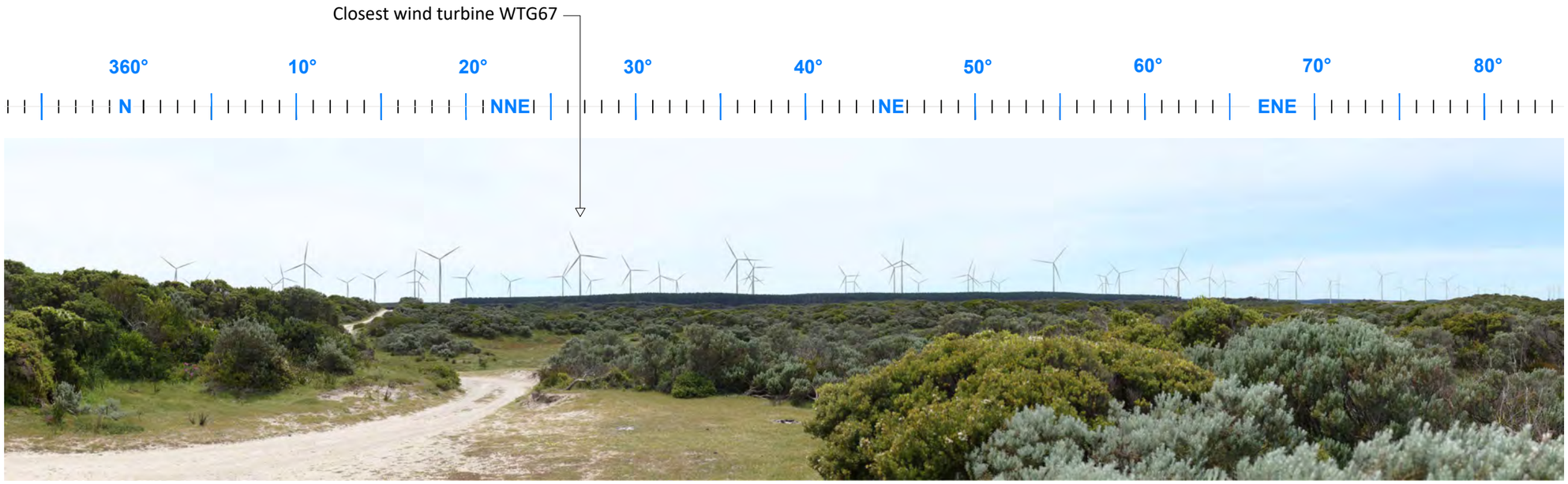


Photo location n2 - Existing view north to east from the Noble Rock track car park.



Photomontage n2 - Approximate 90° field of view north to east from the Noble Rock track car park . Approximate distance to closest visible wind turbine 2.4km

General Notes:

Coordinates:
Easting 511538, Northing 5781337

Photo date:
20th October 2021, 1.13pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n2 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

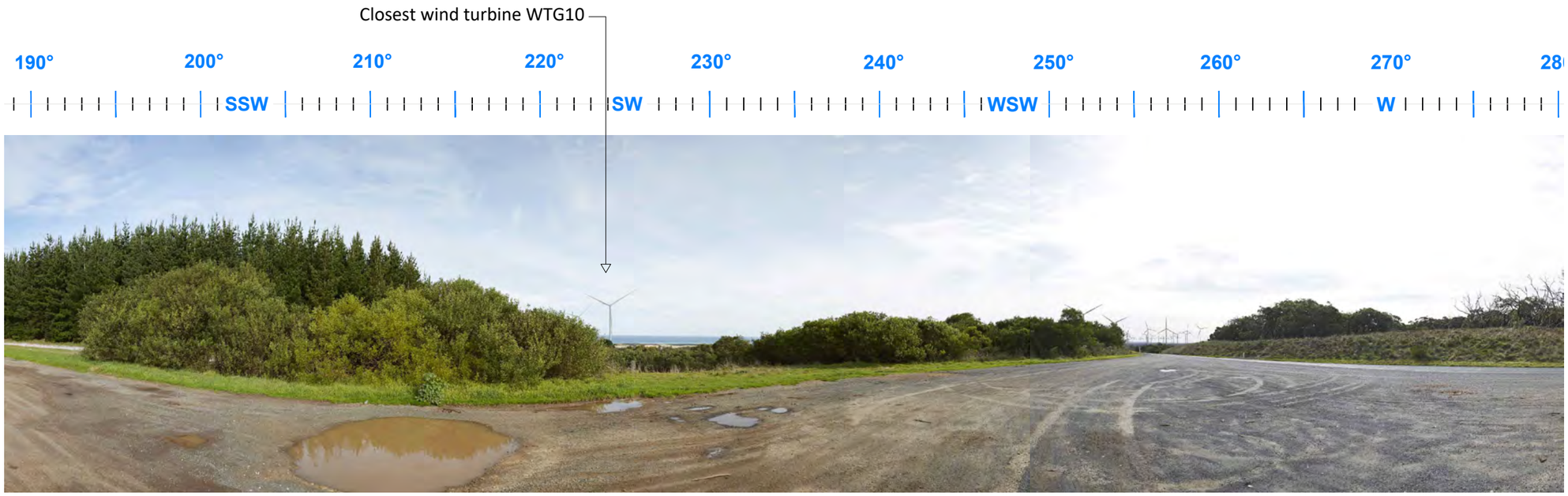
Figure 38
Photomontage n2 Noble Rock car park - 90 degree field of view

GBD
Landscape architecture

Photomontage n2 - Approximate 40° field of view north to east from the Noble Rock track car park . Approximate distance to closest visible wind turbine 2.4km

Figure 39
Photomontage n2 Noble Rock car park - 40 degree field of view

Photo location n3 - Existing view south to west from Hedditch Hill.



Photomontage n3 - Approximate 90° field of view south to west from Hedditch Hill. Approximate distance to closest visible wind turbine 1.04km

General Notes:

Coordinates:
Easting 524482, Northing 5776227

Photo date:
16th September 2021, 12.46pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n3 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

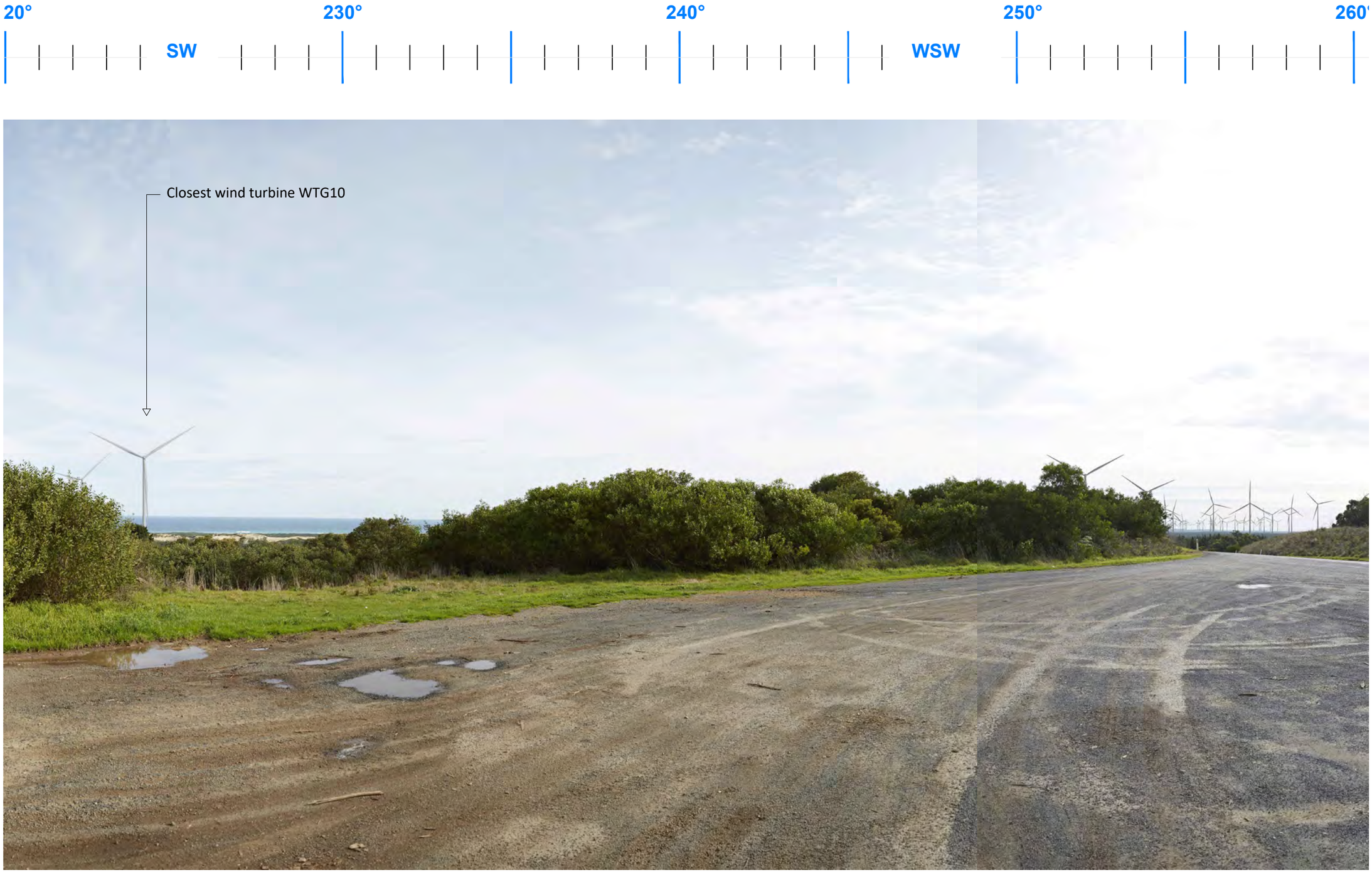
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 40
Photomontage n3 Hedditch Hill - 90 degree field of view

GBD
Landscape architecture



Photomontage n3 - Approximate 40° field of view south west to south west from Hedditch Hill. Approximate distance to closest visible wind turbine 1.04km

Figure 41
Photomontage n3 Hedditch Hill - 40 degree field of view

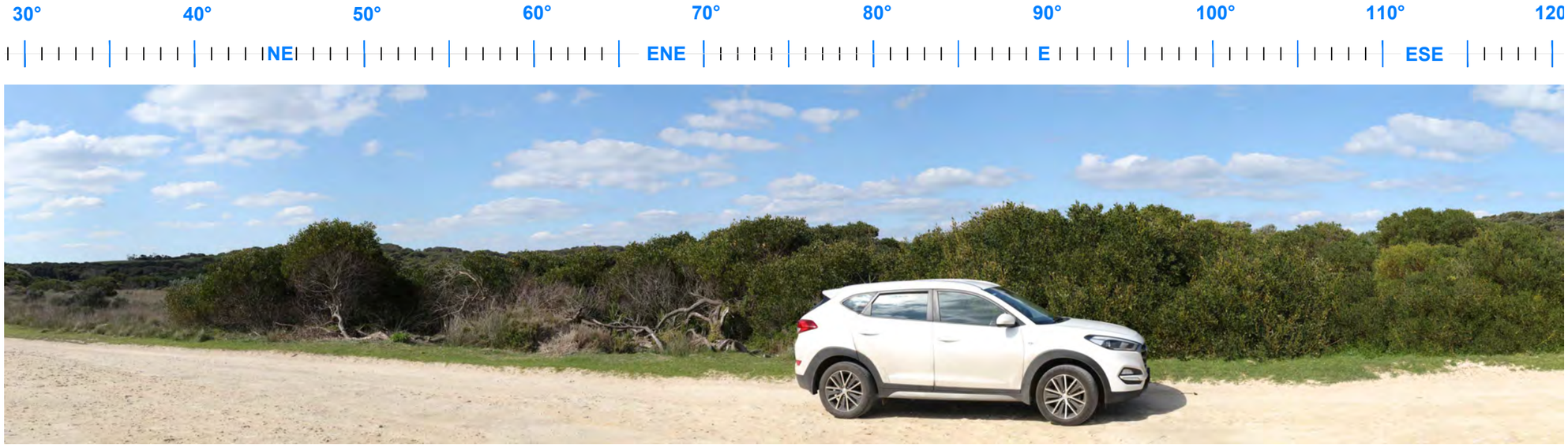
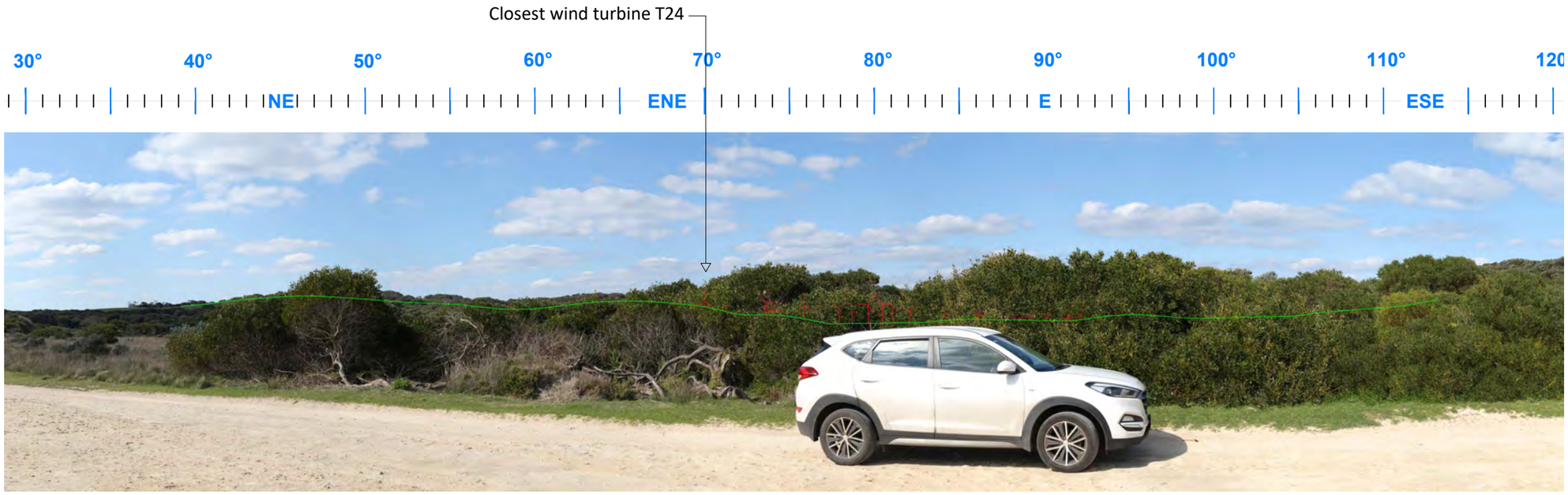


Photo location n5 - Existing view east north east to east south east from ocean track car park Nelson.



Photomontage n5 - Approximate 90° field of view south to west from ocean track car park Nelson. Approximate distance to closest visible wind turbine 4.9km

General Notes:

Coordinates:
Easting 501339, Northing 5787019

Photo date:
16th September 2021, 3.46pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n5 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

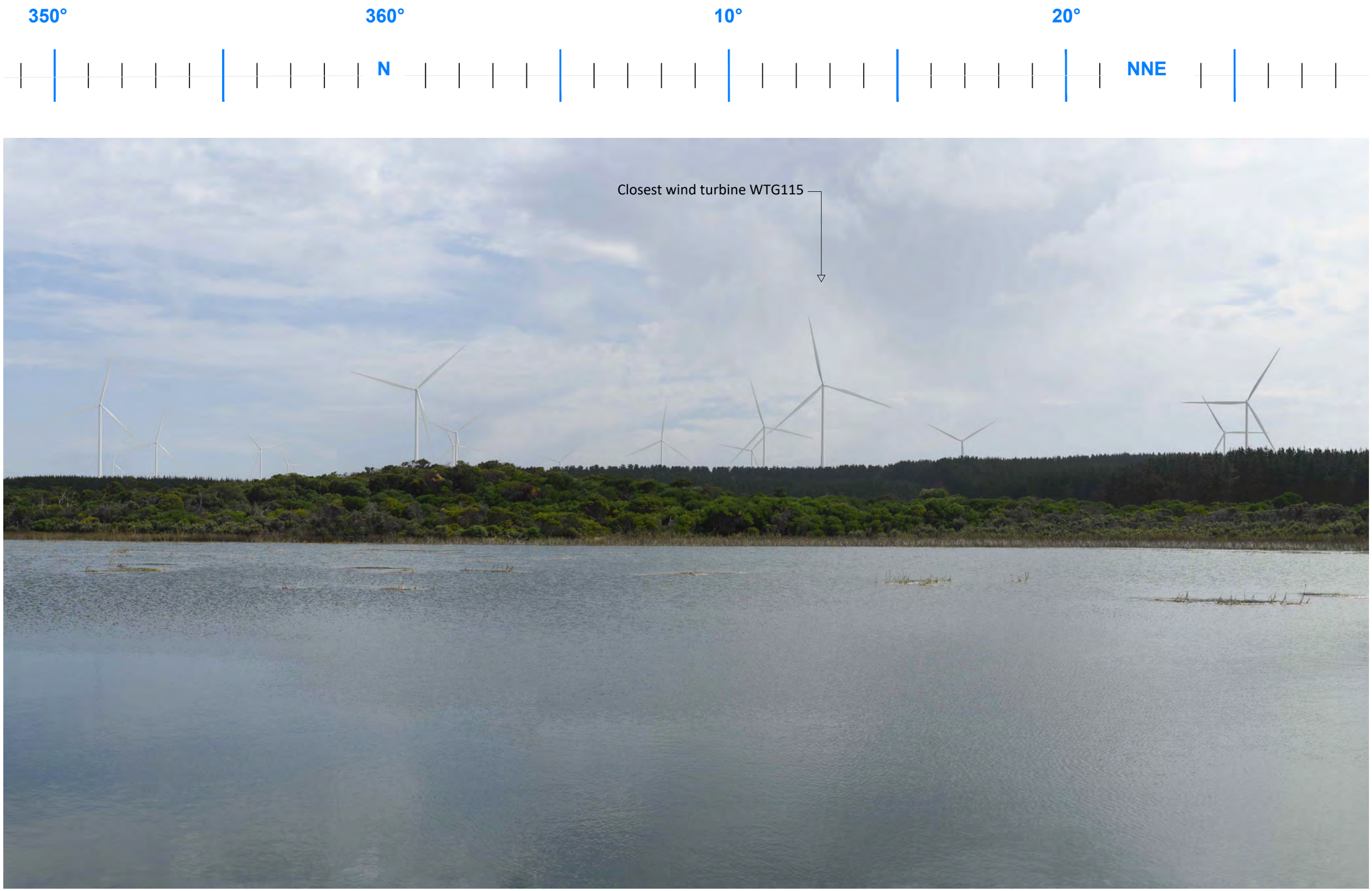
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 42
Photomontage n5 Ocean track car park - 90 degree field of view

GBD
Landscape architecture

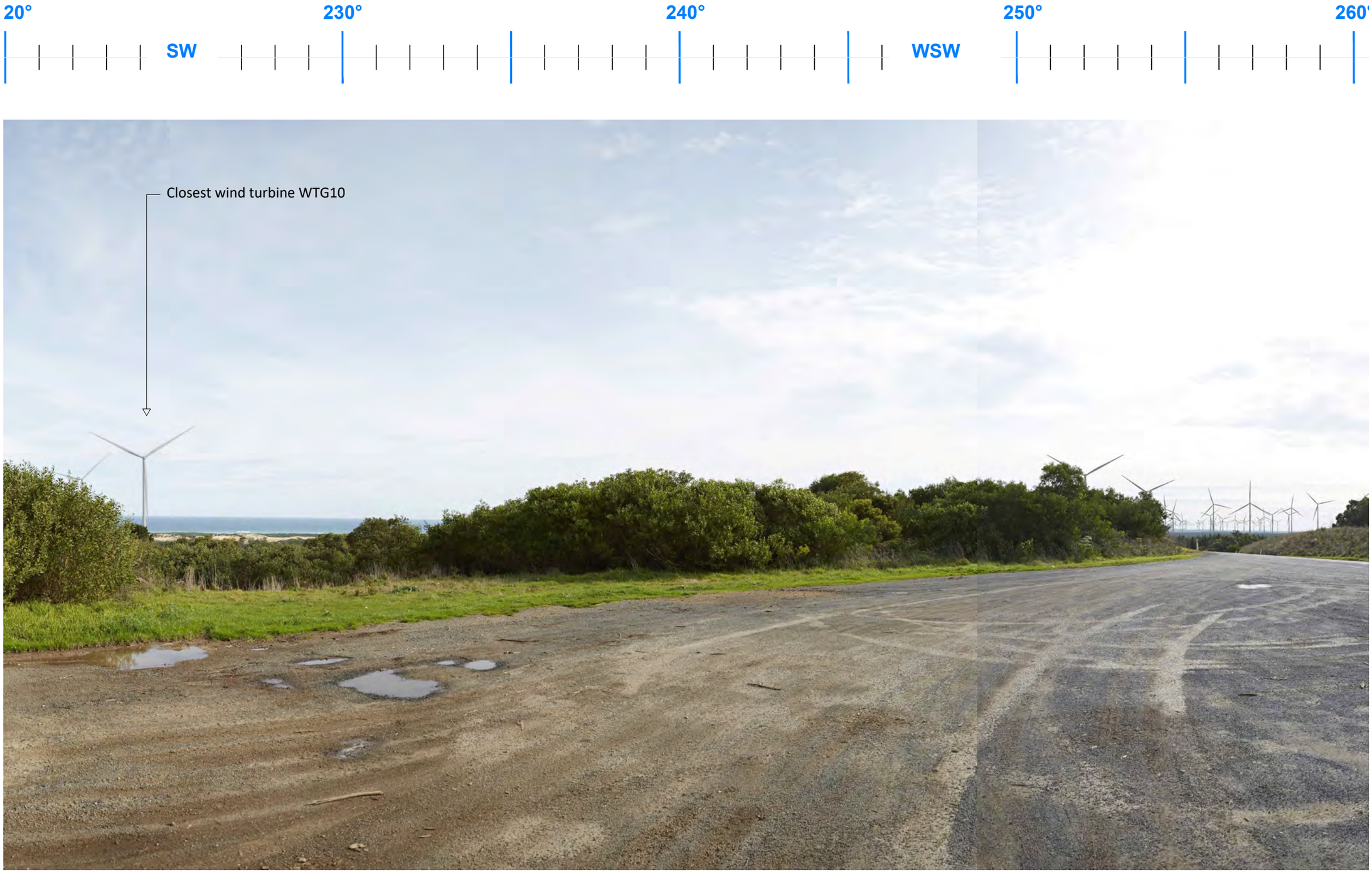


Photomontage kk03 - Approximate 40° field of view west north west to north north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km

Figure 35
Photomontage kk03 Lake Mombeong - 40 degree field of view

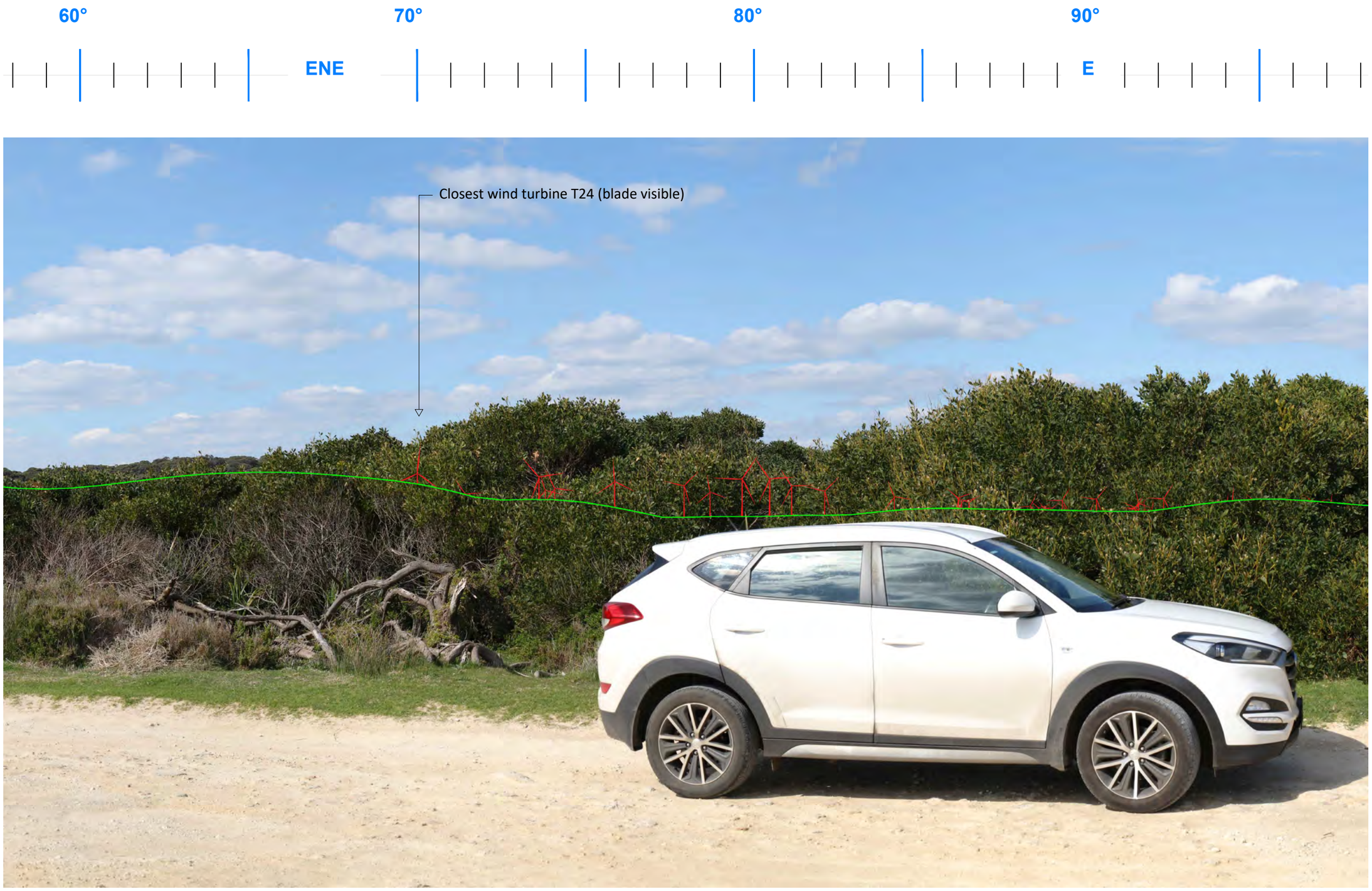
Photomontage kk10 - Approximate 40° field of view north east to south east from Wade Street, Nelson. Approximate distance to closest visible wind turbine 4.7km

Figure 37
Photomontage kk10 Wade Street, Nelson - 40 degree field of view



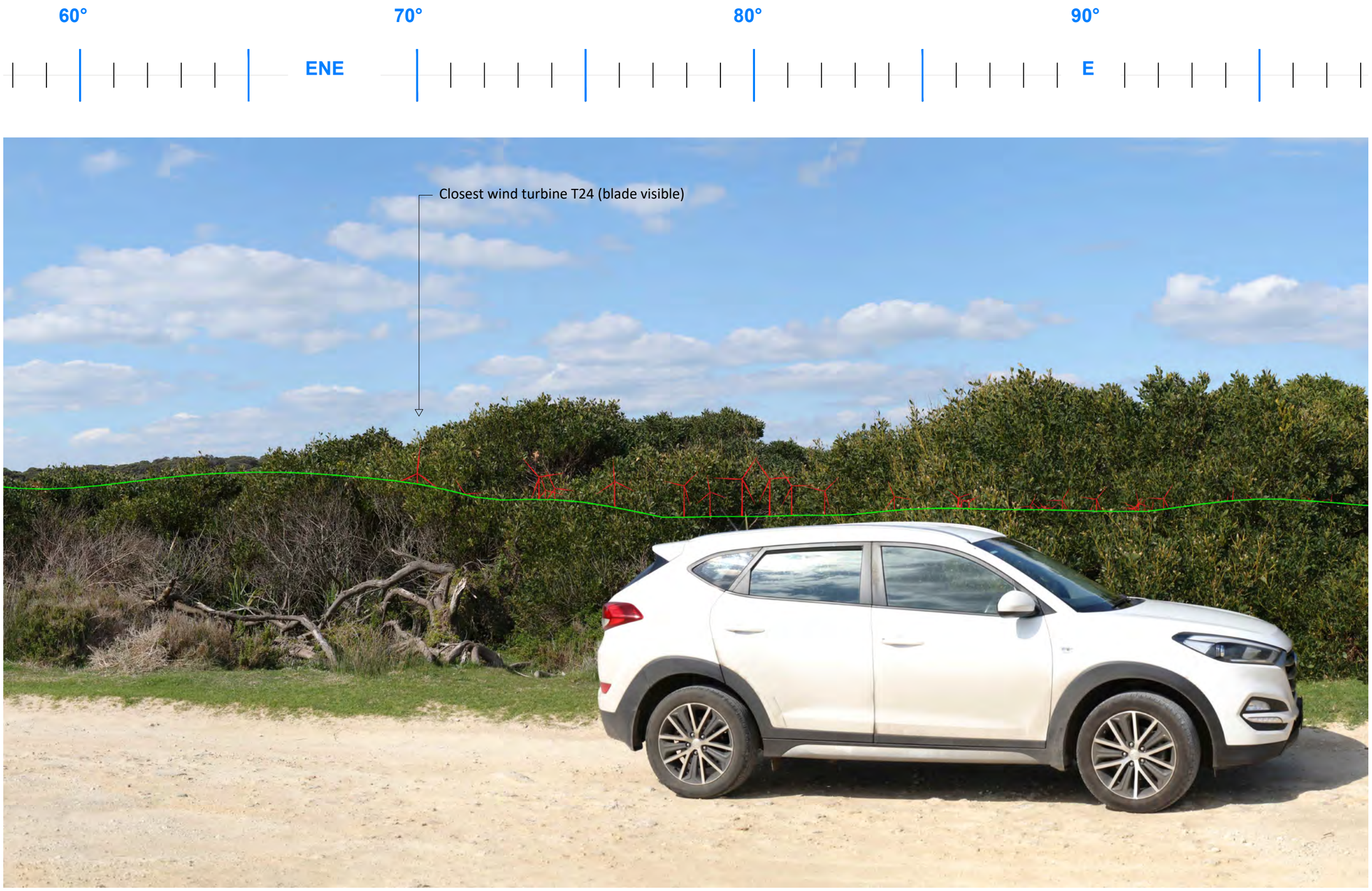
Photomontage n3 - Approximate 40° field of view south west to south west from Hedditch Hill. Approximate distance to closest visible wind turbine 1.04km

Figure 41
Photomontage n3 Hedditch Hill - 40 degree field of view



Photomontage n5 - Approximate 40° field of view east north east to east from ocean track car park Nelson. Approximate distance to closest visible wind turbine 4.9km

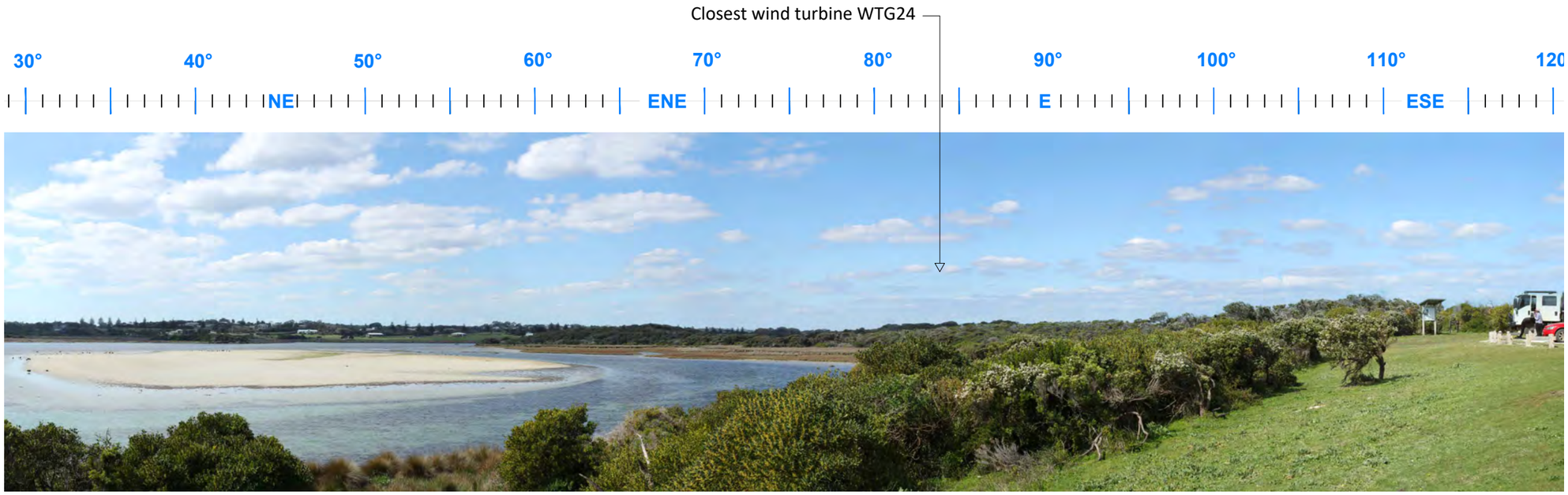
Figure 43
Photomontage n5 Ocean track car park - 40 degree field of view



Photomontage n5 - Approximate 40° field of view east north east to east from ocean track car park Nelson. Approximate distance to closest visible wind turbine 4.9km

Figure 43
Photomontage n5 Ocean track car park - 40 degree field of view

Photo location pl1 - Existing view north east to east south east from Estuary Beach picnic area Nelson.



Photomontage pl1 - Approximate 90° field of view south to west from Estuary Beach picnic area Nelson. Approximate distance to closest visible wind turbine 6.4km

General Notes:

Coordinates:
Easting 499484, Northing 5787951

Photo date:
16th September 2021, 3.28pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl1 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 44
Photomontage pl1 Estuary Beach picnic area - 90 degree field of view

GBD
Landscape architecture

Photomontage pl1 - Approximate 40° field of view east north east to east from Estuary Beach picnic area. Approximate distance to closest visible wind turbine 6.4km

Figure 45
Photomontage pl1 Estuary Beach picnic area - 40 degree field of view

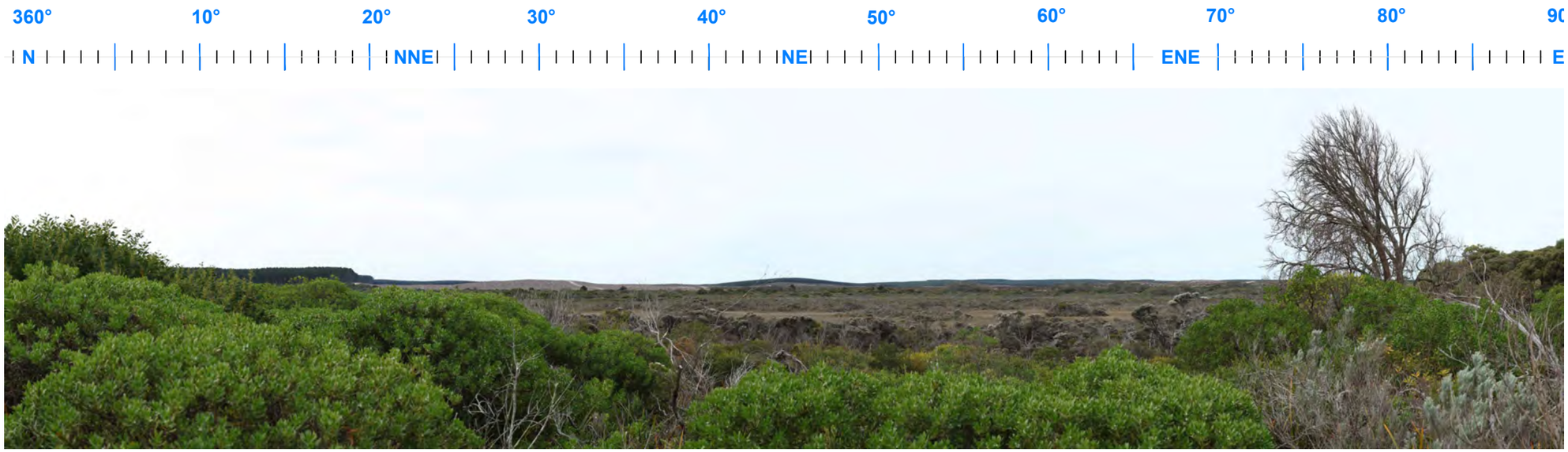
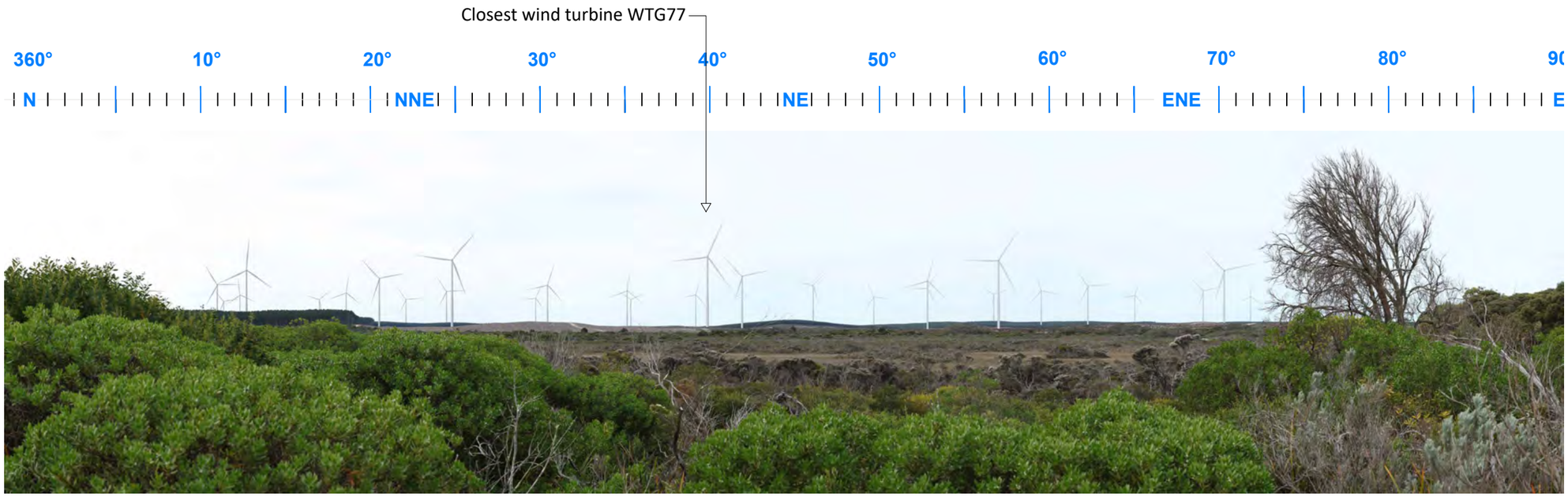


Photo location pl18 - Existing view north to east from Lake Mombeong inland track.



Photomontage pl18 - Approximate 90° field of view north to east from Lake Mombeong inland track. Approximate distance to closest visible wind turbine 1.9km

General Notes:

Coordinates:
Easting 513913, Northing 5780708

Photo date:
20th October 2021, 4.24pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl18 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

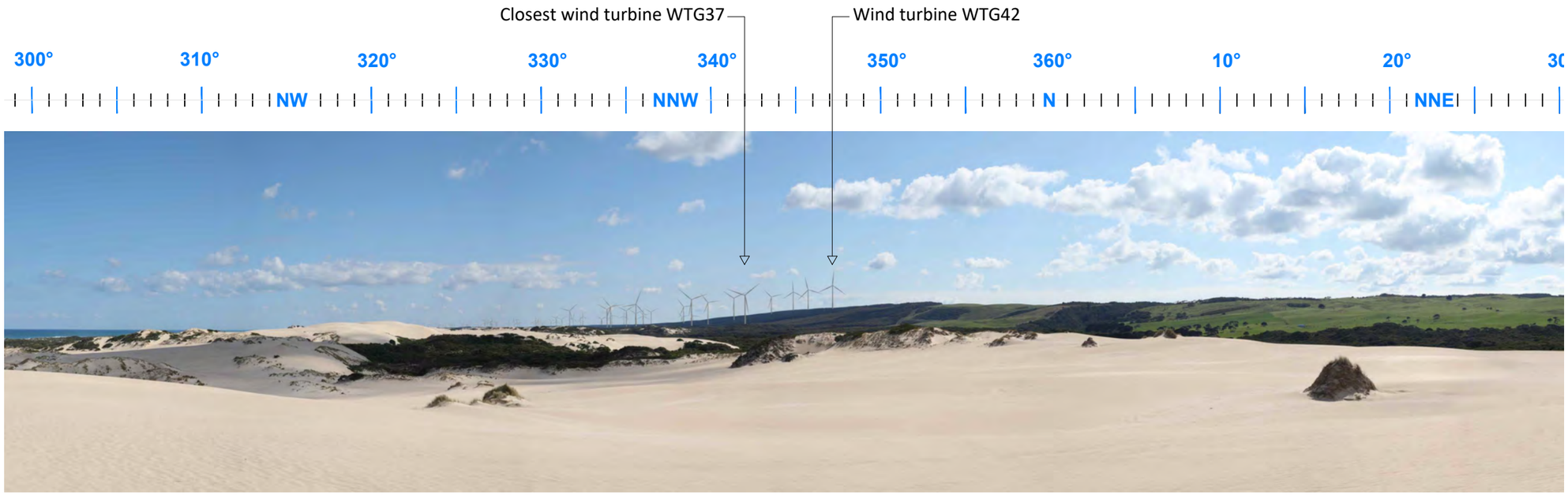
Figure 46
Photomontage pl18 Lake Mombeong inland track - 90 degree field of view

GBD
Landscape architecture

Photomontage pl18 - Approximate 40° field of view north north east to east north east from Lake Mombeong inland track. Approximate distance to closest visible wind turbine 1.9km

Figure 47
Photomontage pl18 Lake Mombeong inland track - 40 degree field of view

Photo location pl20 - Existing view north west to north north east from sand dunes Swan Lake.



Photomontage pl20 - Approximate 90° field of view north to east from sand dunes Swan Lake. Approximate distance to closest visible wind turbine 3.56km

General Notes:

Coordinates:
Easting 526838, Northing 5769678

Photo date:
16th September 2021, 11.54am

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl20 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 48
Photomontage pl 20 Sand dunes south of Swan Lake campsite - 90 degree field of view

GBD
Landscape architecture

Photomontage pl20 - Approximate 40° field of view north west to east north north west from sand dunes Swan Lake. Approximate distance to closest visible wind turbine 3.56km

Figure 49
Photomontage pl20 Sand dunes south of Swan Lake campsite - 40 degree field of view

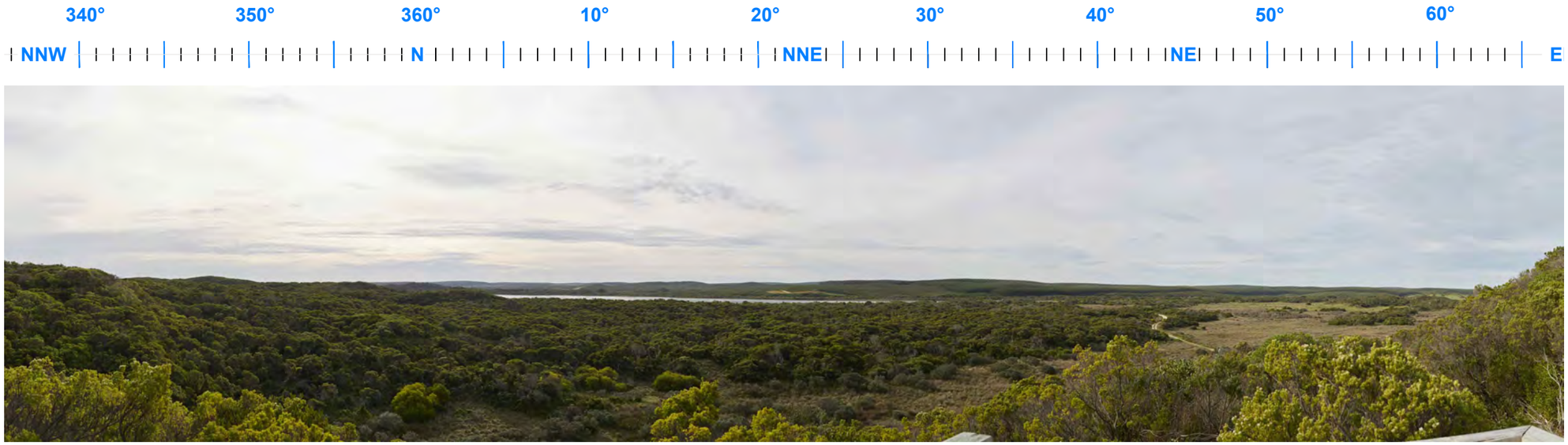
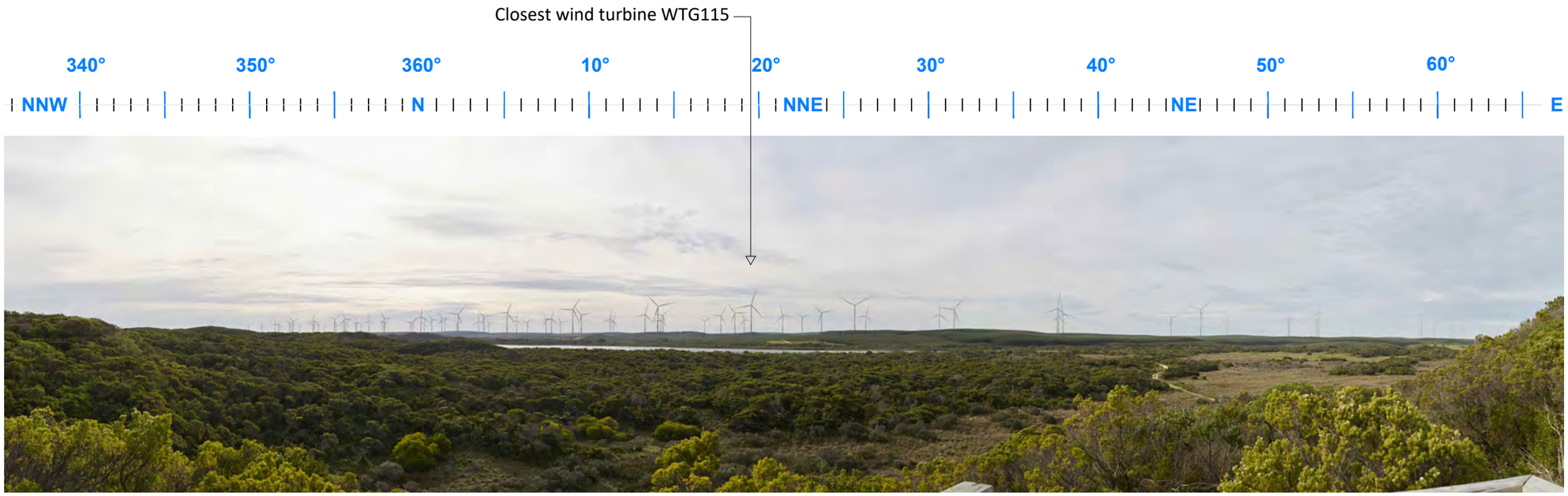


Photo location pl25 - Existing view north west to north north east from Lake Mombeong lookout.



Photomontage pl25 - Approximate 90° field of view north to east from Lake Mombeong lookout. Approximate distance to closest visible wind turbine 2.52km

General Notes:

Coordinates:
Easting 515784, Northing 5778823

Photo date:
2nd August 2022, 2.58pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl25 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

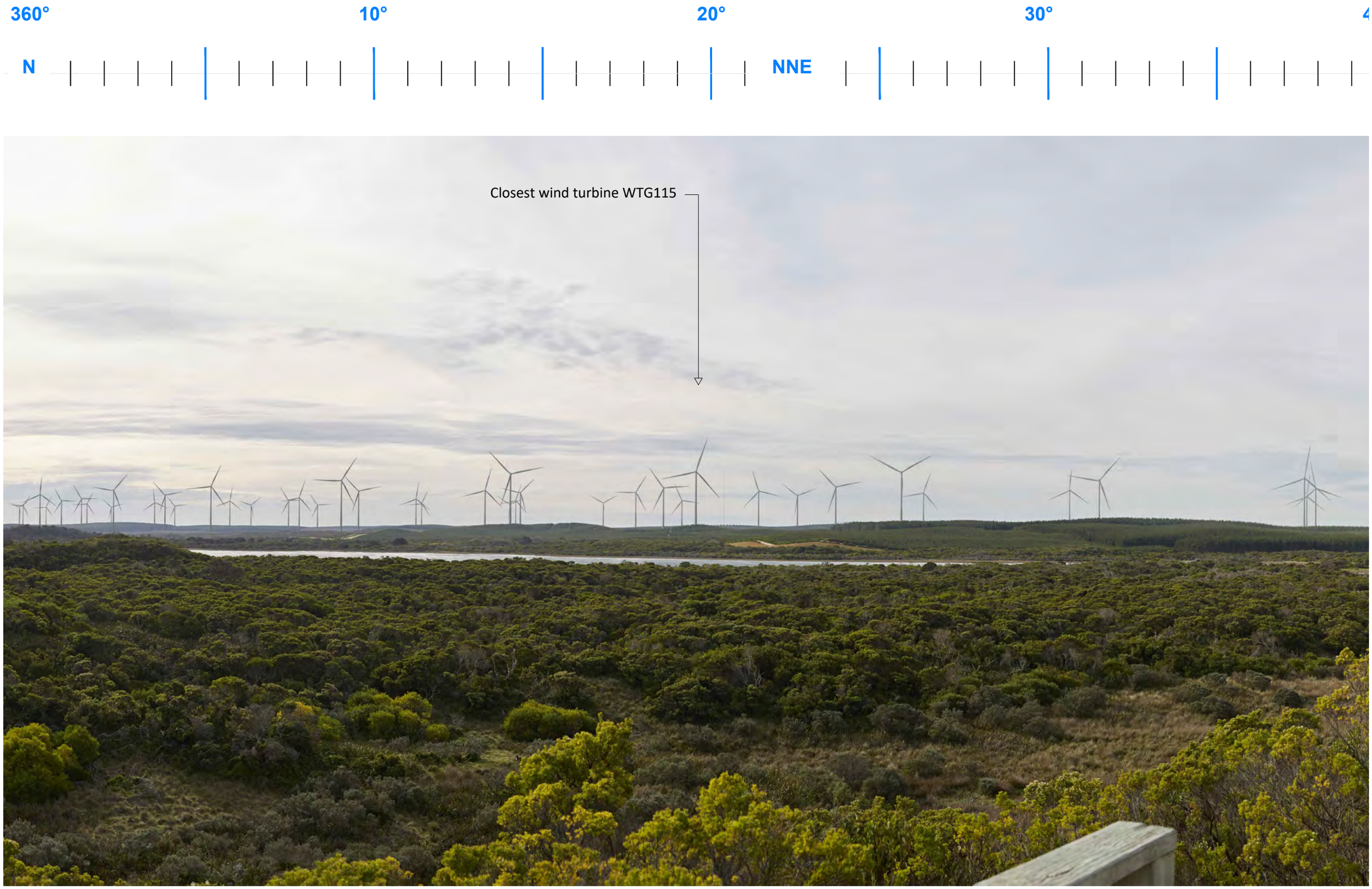
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 50
Photomontage pl 25 Lake Mombeong lookout - 90 degree field of view

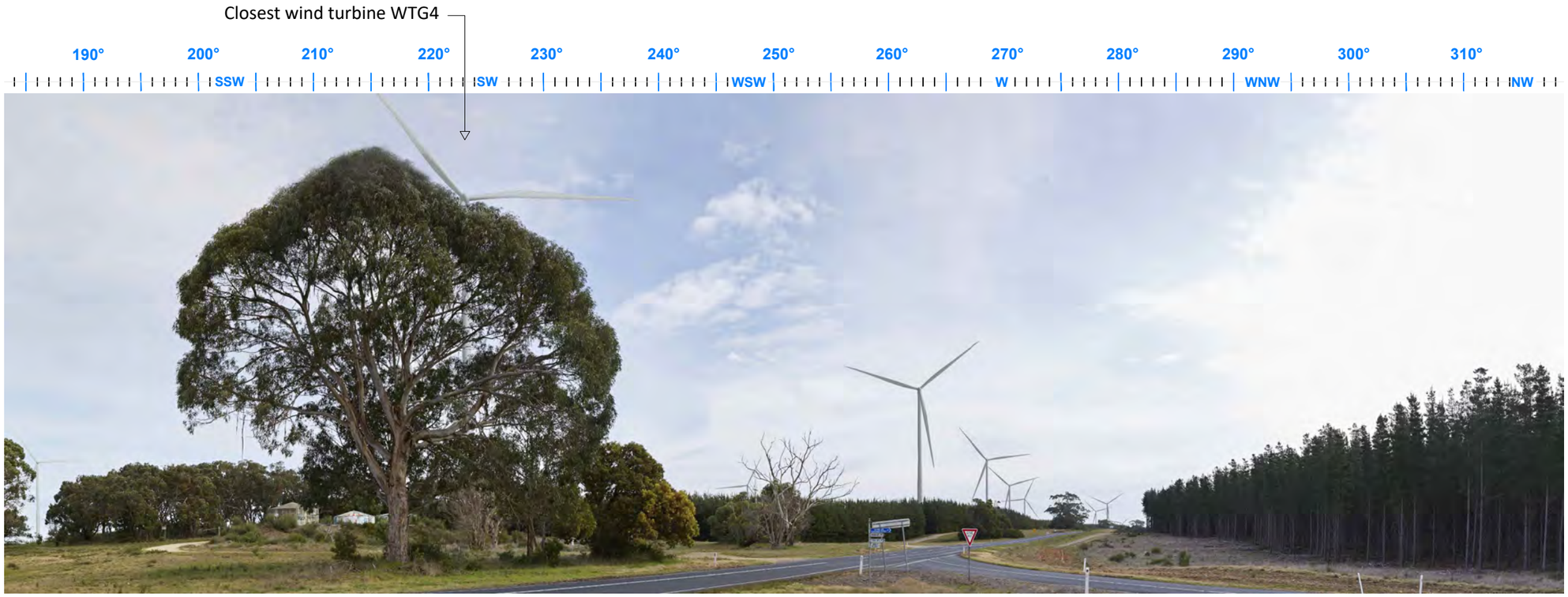
GBD
Landscape architecture



Photomontage pl25 - Approximate 40° field of view north to north east from the Lake Mombeong lookout. Approximate distance to closest visible wind turbine 2.52km

Figure 51
Photomontage pl 25 Lake Mombeong lookout - 40 degree field of view

Photo location pl26 - Existing view south south west to north west from Portland Nelson Rd and Winnap Road intersection.



Photomontage pl26 - Approximate 120° field of view south south west to north west from Portland Nelson Rd and Winnap Road intersection.
Approximate distance to closest visible wind turbine 332m

Figure 52
Photomontage pl 26 Portland Nelson Road and Winnap Road intersection - 90 degree field of view

General Notes:

Coordinates:
Easting 514538, Northing 5785862

Photo date:
2nd August 2022, 2.31pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl26 is illustrated at a view angle of around 120 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

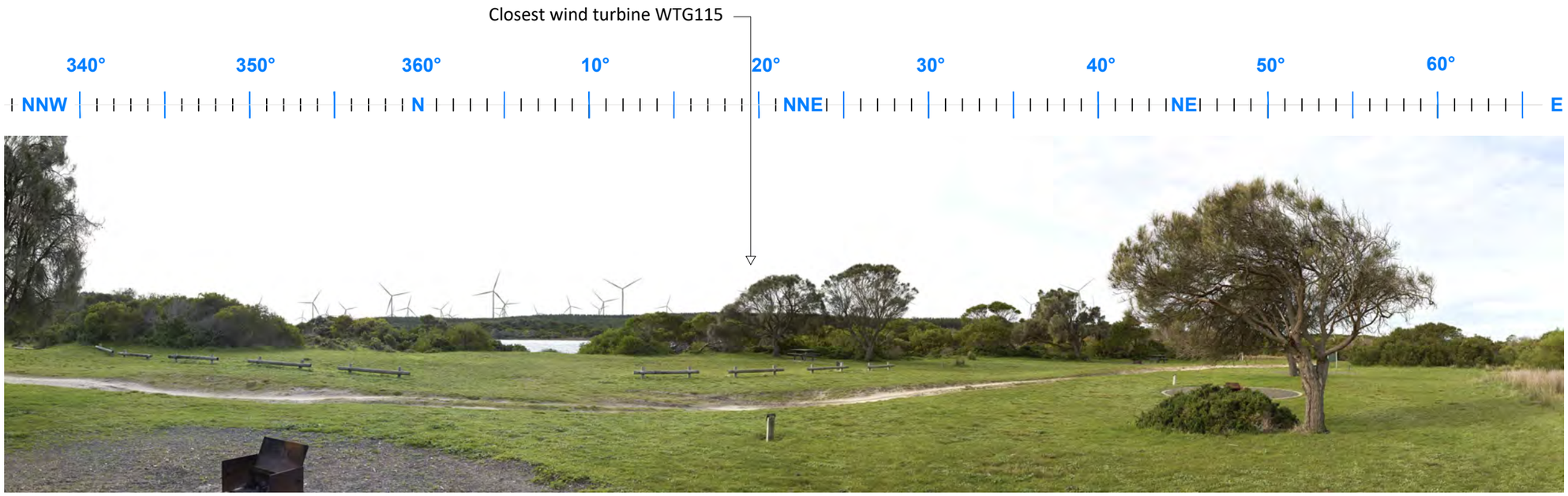
GBD
Landscape architecture

Photomontage pl26 - Approximate 40° field of view north to north east from the Portland Nelson Rd and Winnap Road junction.
Approximate distance to closest visible wind turbine 2.52km

Figure 53
Photomontage pl 26 Portland Nelson Road and Winnap Road intersection - 40 degree field of view

GBD
Landscape architecture

Photo location pl27 - Existing view north north west to east north east from Lake Mombeong campsite.



Photomontage pl27 - Approximate 90° field of view north north west to east north east from Lake Mombeong campsite.
Approximate distance to closest visible wind turbine 2.11km

General Notes:

Coordinates:
Easting 516268, Northing 5779302

Photo date:
2nd August 2022, 2.48pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl27 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

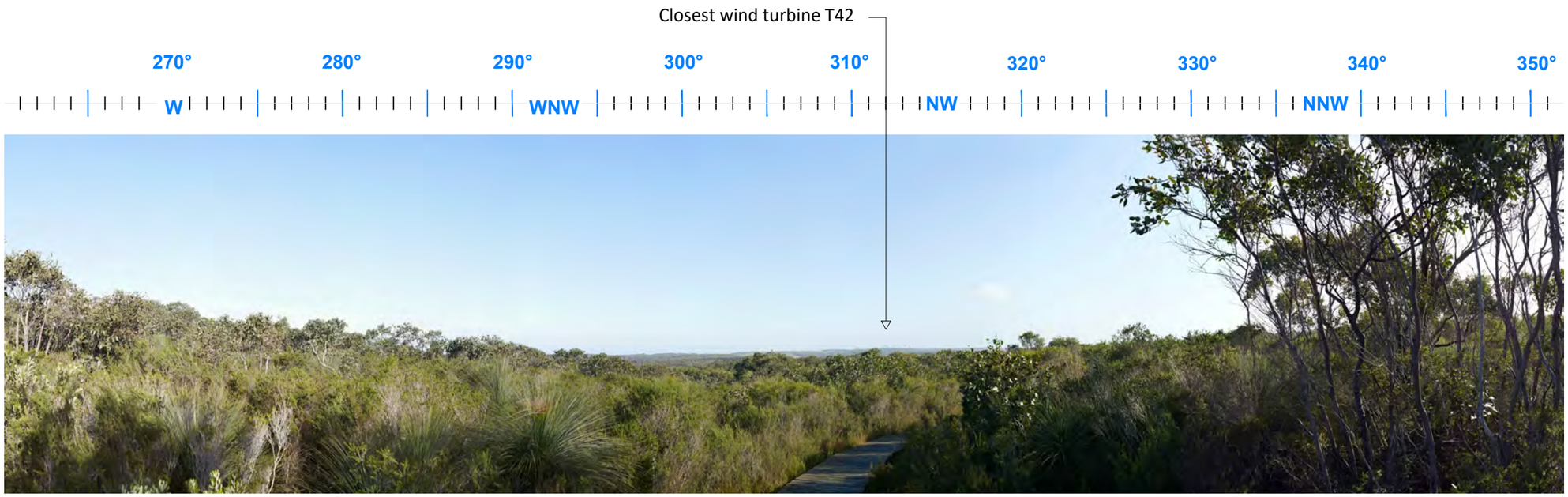
Figure 54
Photomontage pl 27 Lake Mombeong campsite - 90 degree field of view

GBD
Landscape architecture

Photomontage pl27 - Approximate 40° field of view north from the Lake Mombeong campsite. Approximate distance to closest visible wind turbine 2.11km

Figure 55
Photomontage pl 27 Lake Mombeong campsite - 40 degree field of view

Photo location pl28 - Existing view west to north north west from Mount Richmond West Track.



Photomontage pl28 - Approximate 90° field of view west to north north west from Mount Richmond West Track.
Approximate distance to closest visible wind turbine 13.95km

General Notes:

Coordinates:
Easting 536384, Northing 5764518

Photo date:
4th August 2022, 10.21am

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl28 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

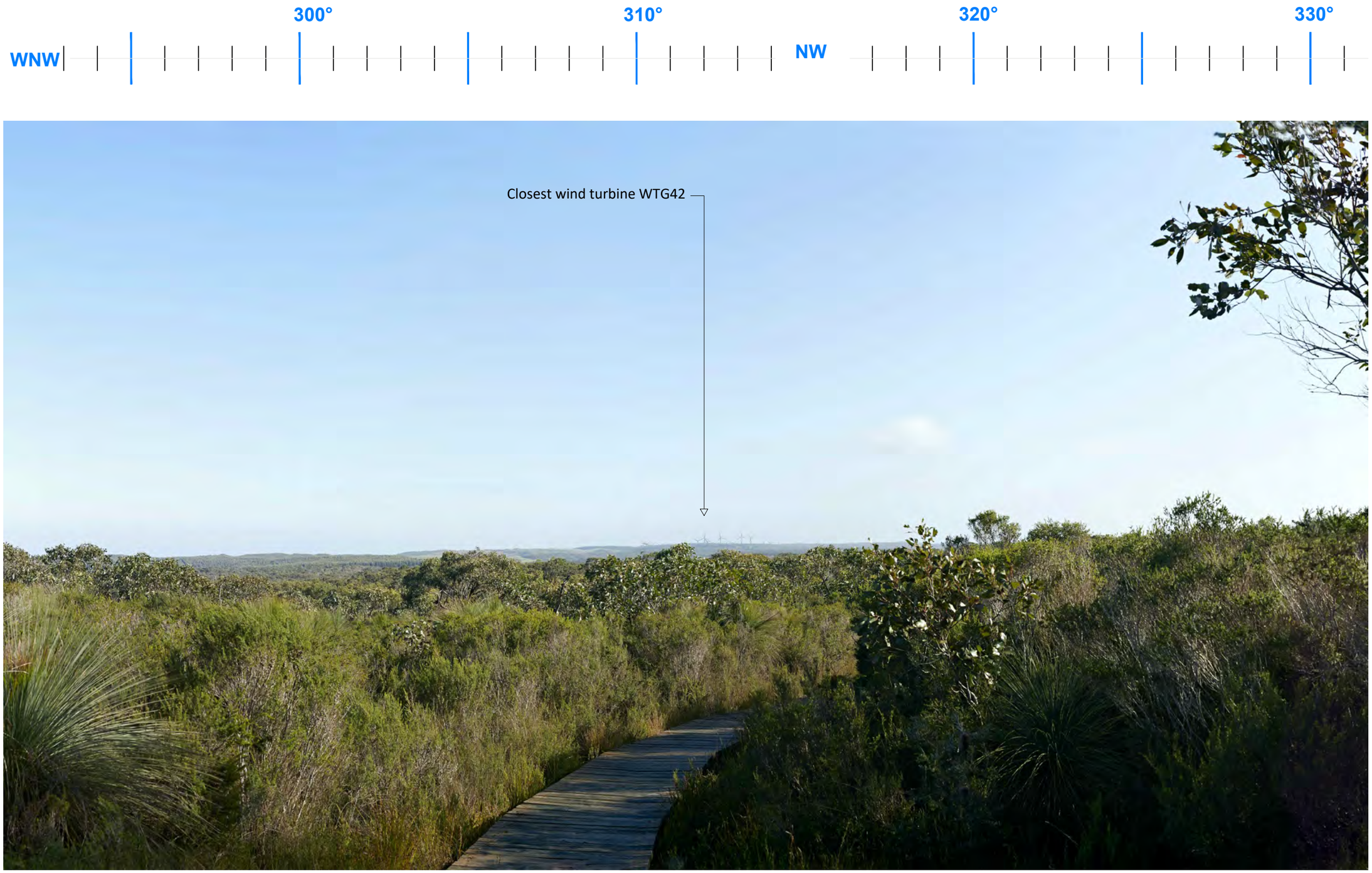
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 56
Photomontage pl 28 Mount Richmond West Track - 90 degree field of view

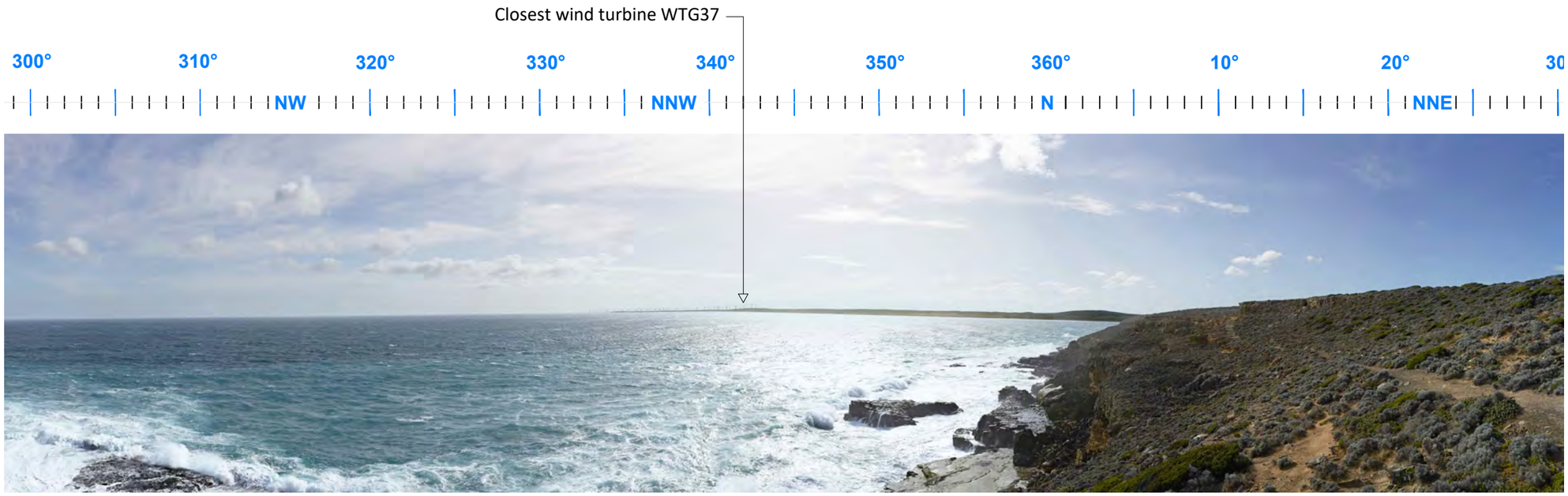
GBD
Landscape architecture



Photomontage pl28 - Approximate 40° field of view west north west to north north west from Mount Richmond West Track.
Approximate distance to closest visible wind turbine 13.95km

Figure 57
Photomontage pl 28 Mount Richmond West Track - 40 degree field of view

Photo location pl29 - Existing view north west to north north east from Green Pool lookout.



Photomontage pl29 - Approximate 90° field of view north west to north north east from Green Pool lookout.
Approximate distance to closest visible wind turbine 20.40km

General Notes:

Coordinates:
Easting 532060, Northing 5753631

Photo date:
4th August 2022, 1.05pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl29 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

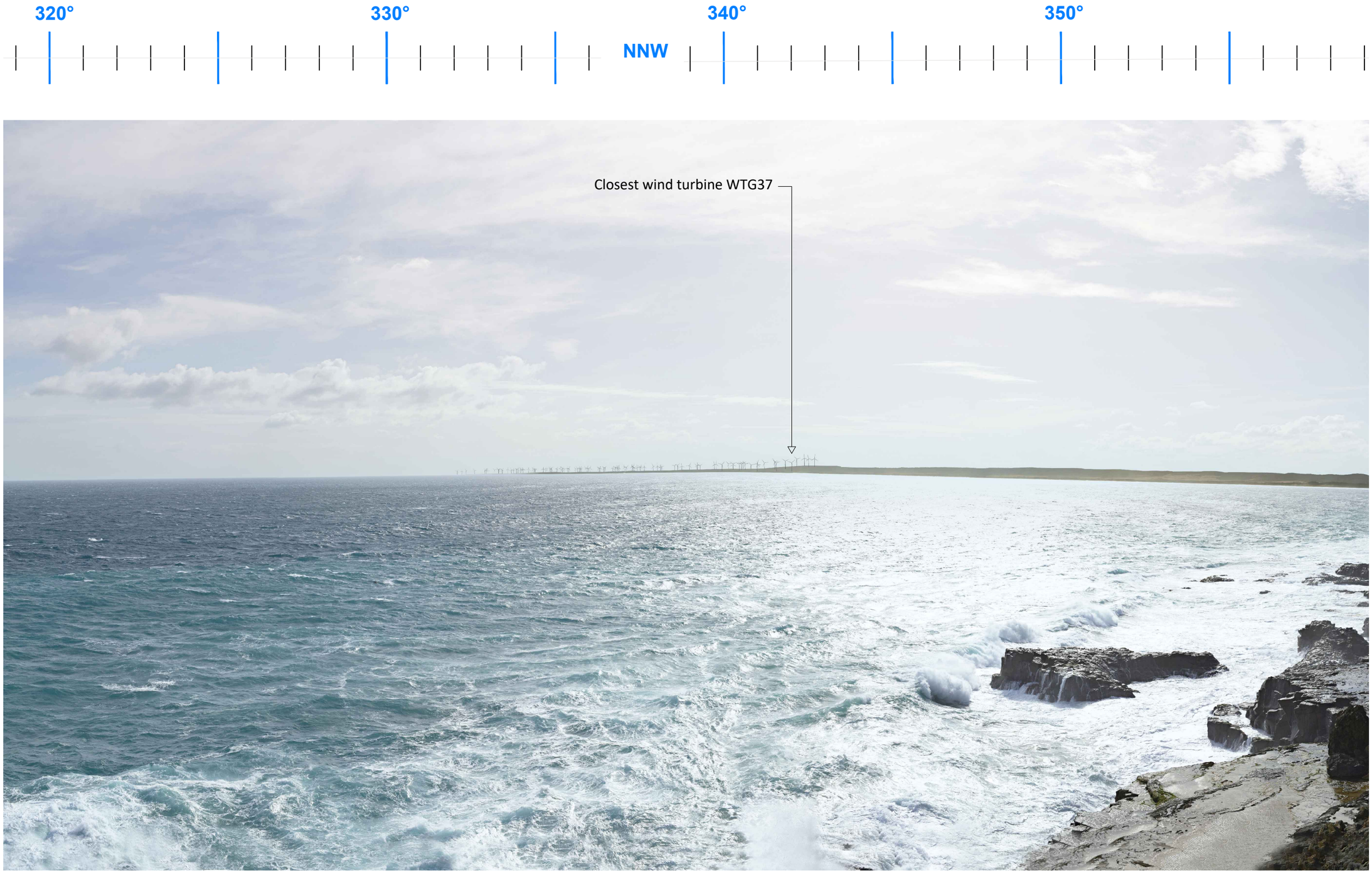
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 58
Photomontage pl 29 Green Pool lookout, Cape Bridgewater - 90 degree field of view

GBD
Landscape architecture

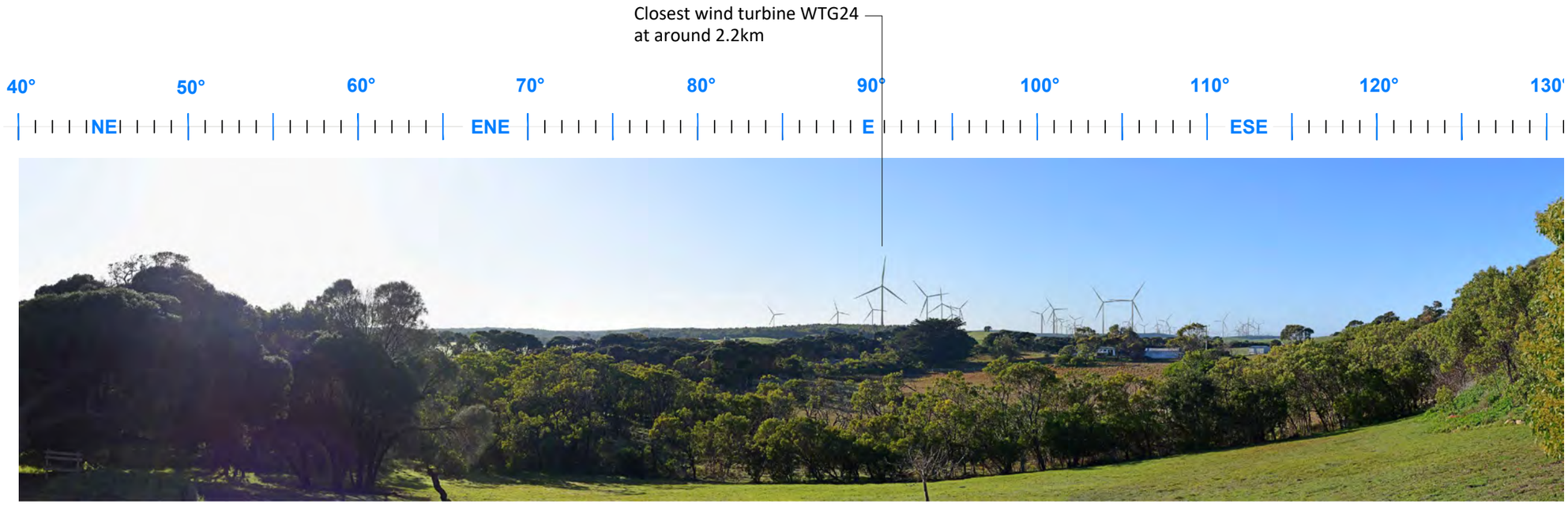


Photomontage pl29 - Approximate 40° field of view north west to north from Green Pool lookout. Approximate distance to closest visible wind turbine 20.40km

Figure 59
Photomontage pl 29 Green Pool lookout, Cape Bridgewater - 40 degree field of view

Appendix C Dwelling photomontages

Dwelling 5, location 1 - Existing view north east to south east from driveway.



Dwelling 5, location 1 - Proposed view north east to south east from driveway.

General Notes:

Coordinates:
Easting 503797, Northing 5788534

Photo date:
6th July 2022, 09.44am

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

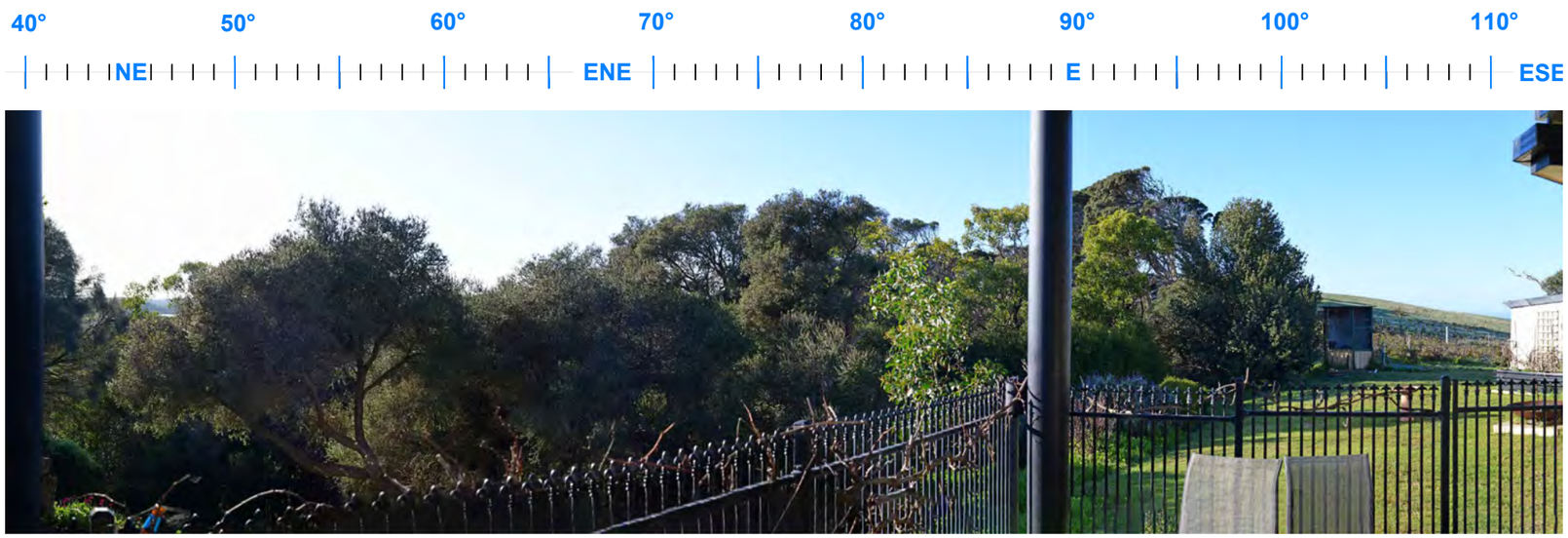
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 60
Photomontage Dwelling 5 location 1

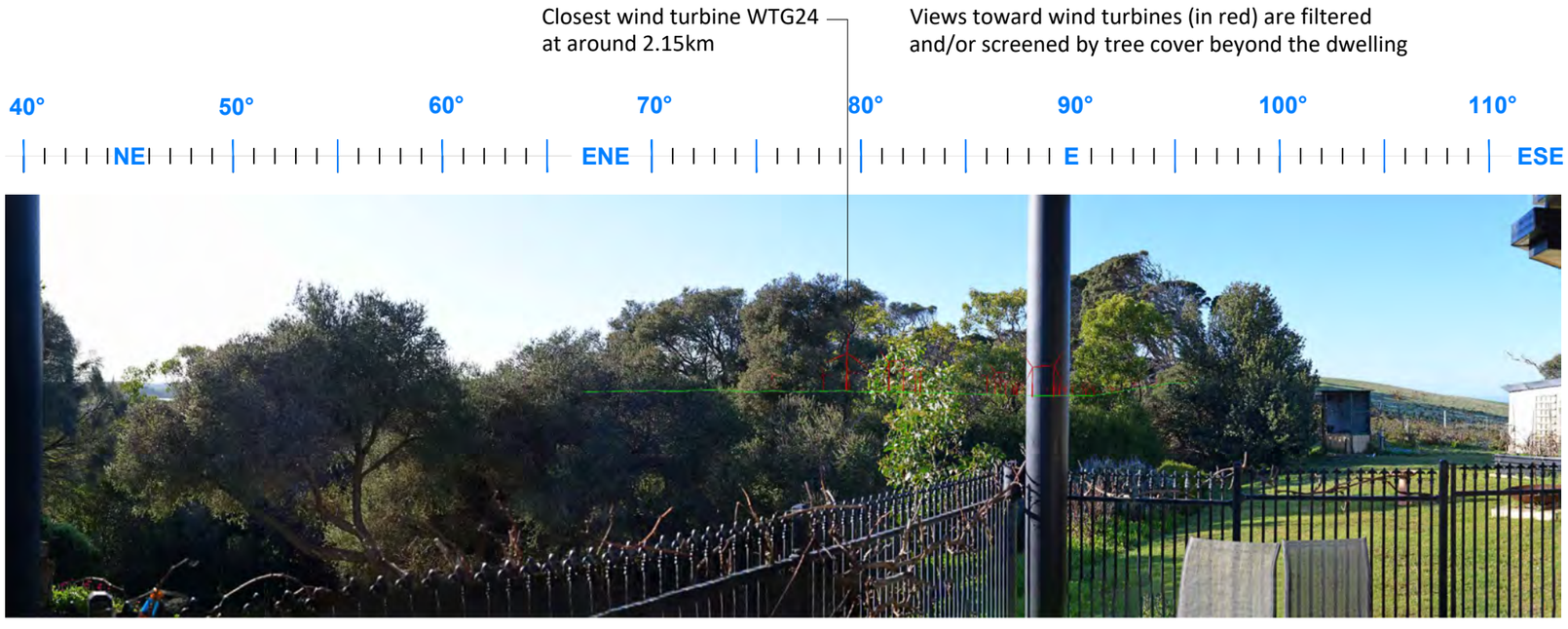
GBD
Landscape architecture

Dwelling 5, location 1 - Proposed view east to south east from dwelling access driveway.

Figure 61
Dwelling 5, location 1 - 40 degree field of view



Dwelling 5, location 2 - Existing view north east to east south east from dwelling.



Dwelling 5, location 2 - Proposed view north east to east south east from dwelling.

Figure 62.
Photomontage Dwelling 5 location 2

eru ree er u e rer iu ee

General Notes:

Coordinates:
Easting 503818, Northing 5788455

Photo date:
6th July 2022, 09.49am

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

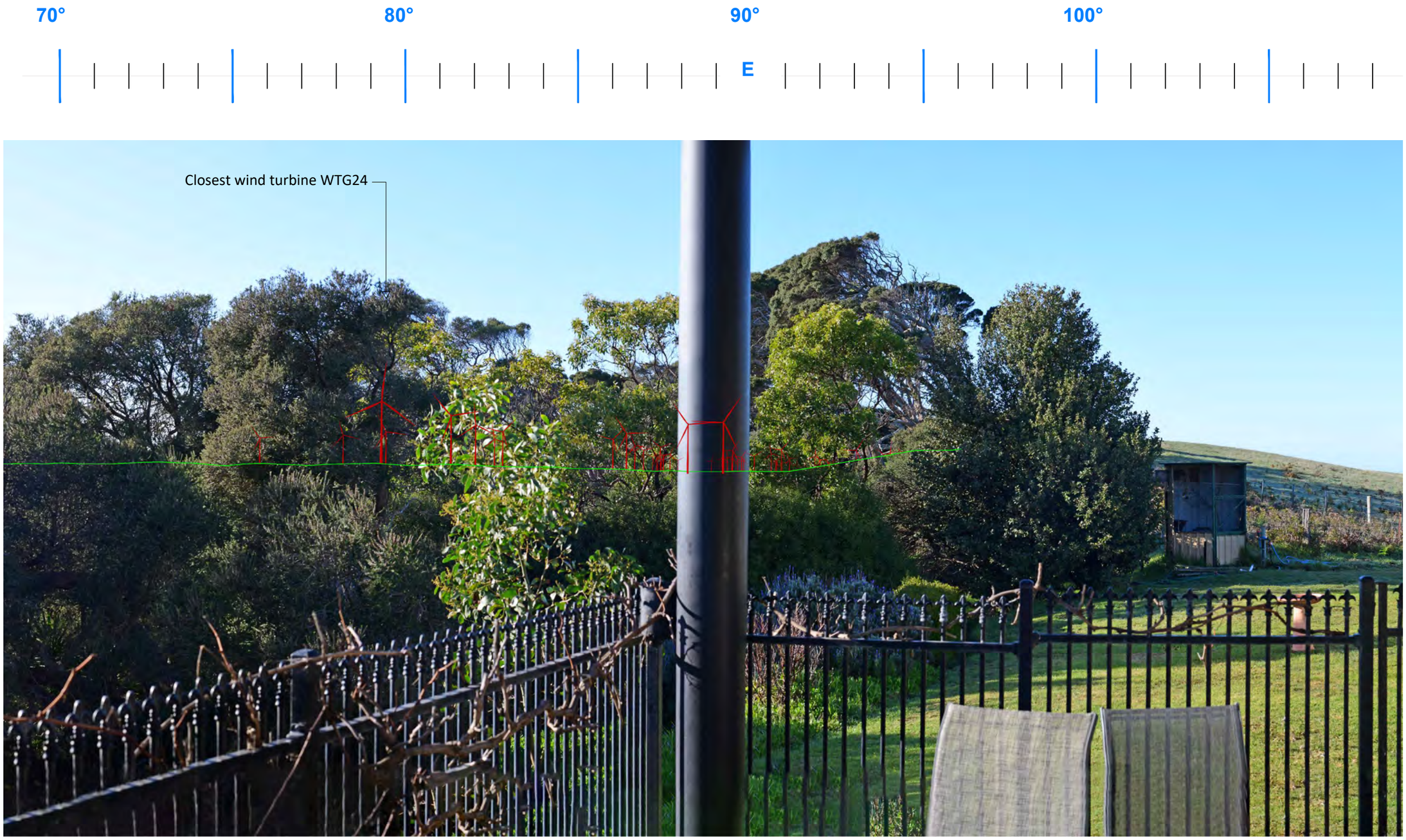
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

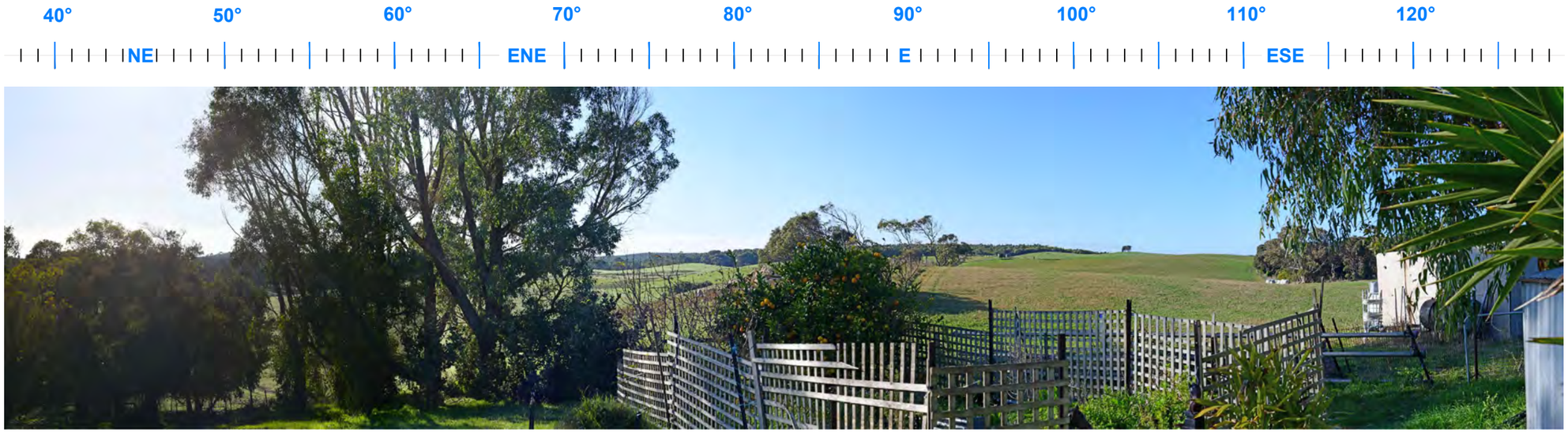
This visualisation is considered indicative only due to a lack of sufficient, reliable, far-field reference points, the significant amount for foreground objects (trees, etc.) covering views of the ground terrain, near field hills mostly shrouding the view (i.e. any inaccuracy in the digital terrain will be amplified when determining line-of-sight to the wtgs), and only a very small amount of the far horizon visible.

GBD
Landscape architecture

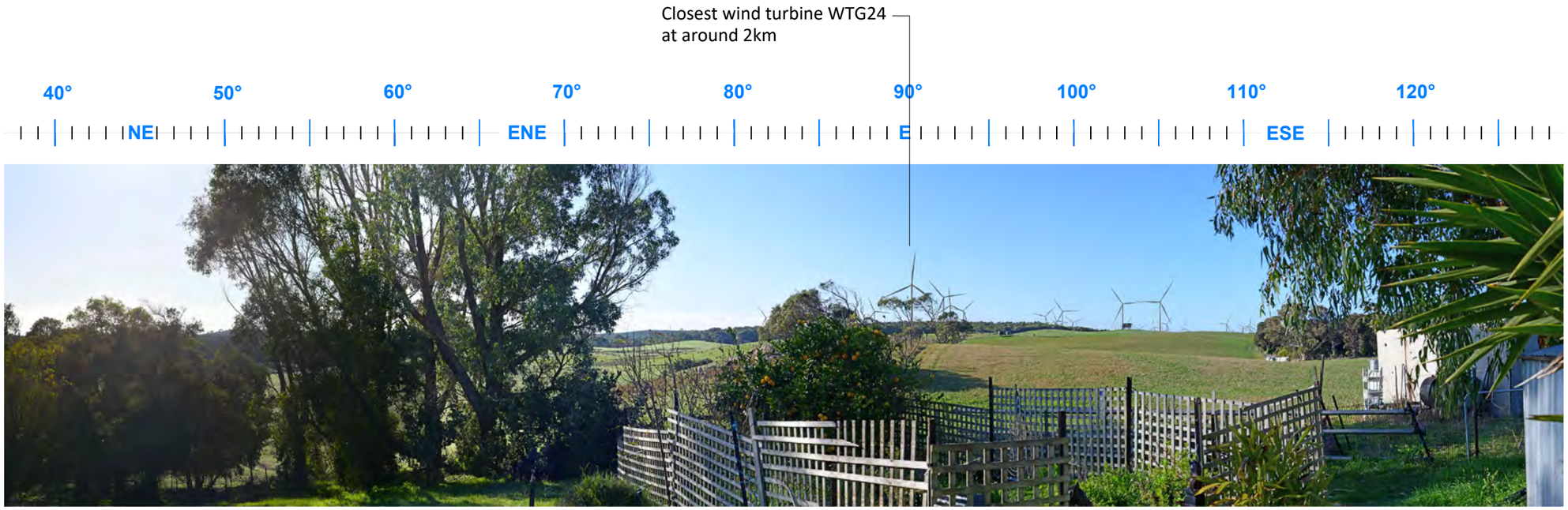


Dwelling 5, location 2 - Proposed view east to south east from dwelling exterior

Figure 63
Dwelling 5, location 2 - 40 degree field of view



Dwelling 6, location 1 - Existing view north east to south east from garden.



Dwelling 6, location 1 - Proposed view north east to south east from garden.

General Notes:

Coordinates:
Easting 503920, Northing 5788686

Photo date:
6th July 2022, 10.14am

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 64
Photomontage Dwelling 6 location 1

GBD
Landscape architecture

Dwelling 6, location 1 - Proposed view east to east south east from garden.

Figure 65
Dwelling 6, location 1 - 40 degree field of view

Appendix D Wireframes

Lower Glenelg National Park

10km

7km

2km

Lower Glenelg National Park

Lower Glenelg National Park

Cobboboonee National Park

Indicative onsite quarry location

Indicative wind farm project site

Main substation and O/M buildings (indicative location)

Nelson

Discovery Bay

Mount Richmond

wf1

wf2

wf3

wf4

wf5

wf6

wf7

wf8

wf9

wf10

wf11

wf12

wf13

wf14

WT103 WT24 WT93 WT45 WT99 WT20 WT113 WT44 WT118 WT68 WT19 WT01 WT31 WT71 WT41 WT70 WT40 WT29 WT117 WT07 WT78 WT100 WT43 WT69 WT114 WT04 WT09 WT05 WT102 WT85 WT15 WT58 WT26 WT06 WT110 WT22 WT59 WT30 WT127 WT53 WT109 WT54 WT66 WT48 WT16 WT67 WT02 WT128 WT03 WT108 WT23 WT25 WT51 WT52 WT104 WT28 WT56 WT79 WT32 WT91 WT98 WT80 WT77 WT18 WT49 WT73 WT61 WT111 WT115 WT82 WT87 WT81 WT17 WT96 WT60 WT124 WT120 WT88 WT62 WT119 WT63 WT55 WT27 WT64 WT39 WT92 WT72 WT11 WT97 WT112 WT12 WT10 WT123 WT84 WT33 WT34 WT83 WT50 WT35 WT14 WT126 WT42 WT13 WT37

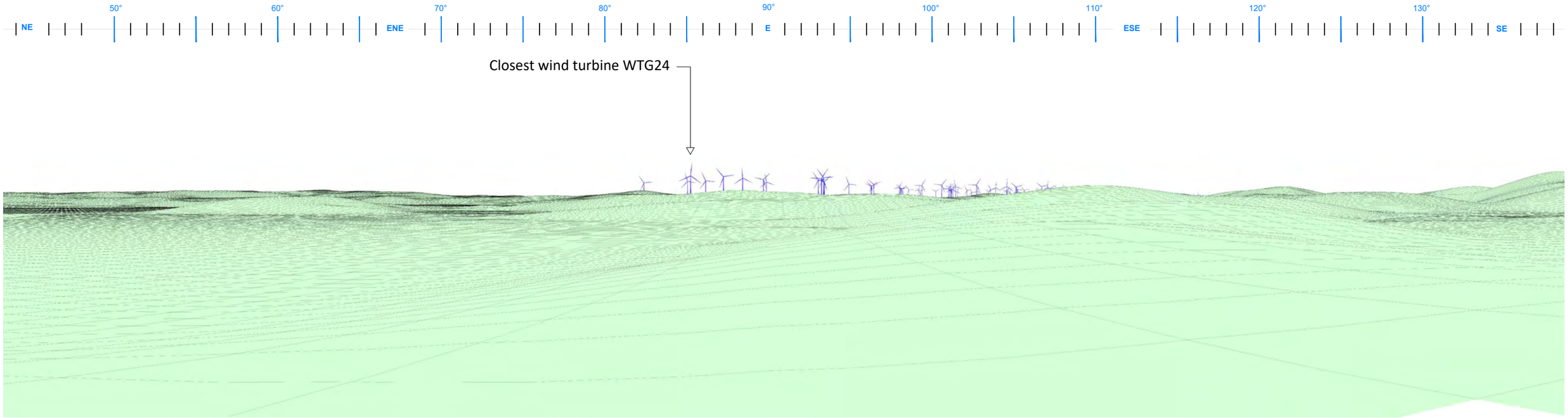
Legend

- Proposed wind turbine indicative layout
- Distance from proposed wind turbine
- Portland Nelson road corridor
- Proposed overhead transmission line
- Proposed underground transmission line
- Wireframe location (indicative only)
- Township/locality
- Great South West Walk (indicative alignment within 7km of wind turbine)
- Indicative wind farm Project site

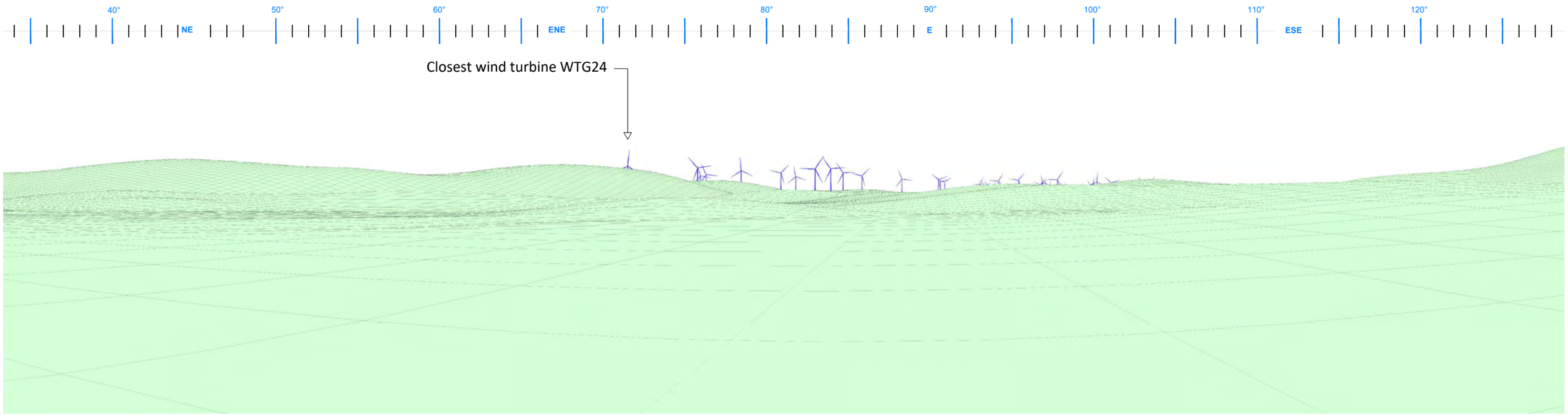
0m 2.5km

Figure 66
Wireframe diagram locations

GBD
Landscape architecture



wf1 - (E:499485, N:5787950) Proposed view east north east to east south east from Discovery Bay Estuary Beach . Approximate distance to closest visible wind turbine WTG24 at 6.4km

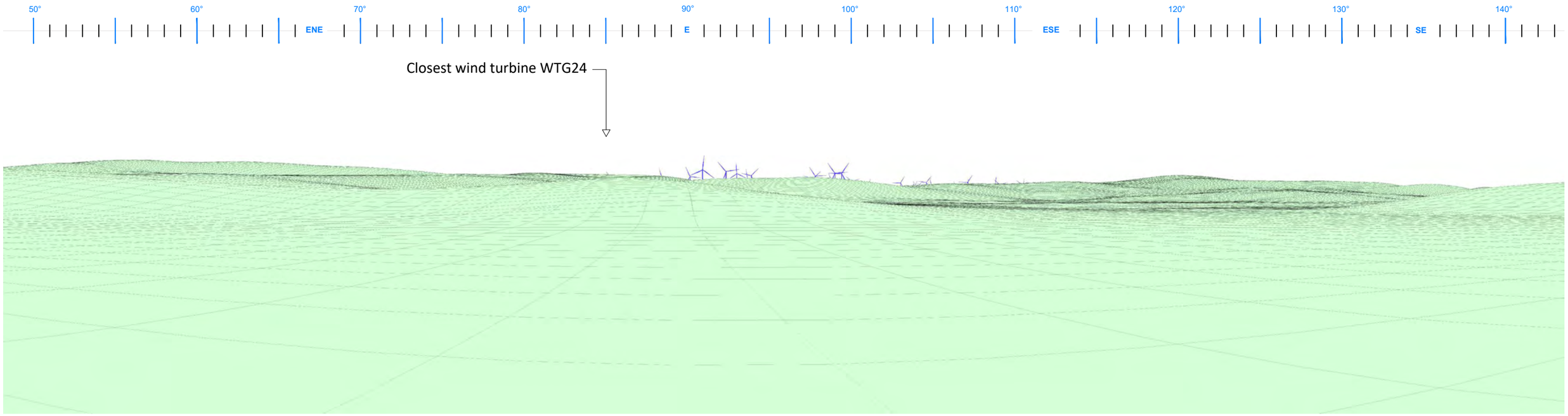


wf2 - (E:501339, N:5787019) Proposed view north east to east south east from ocean beach track car park. Approximate distance to closest visible wind turbine WTG24 at 4.9km

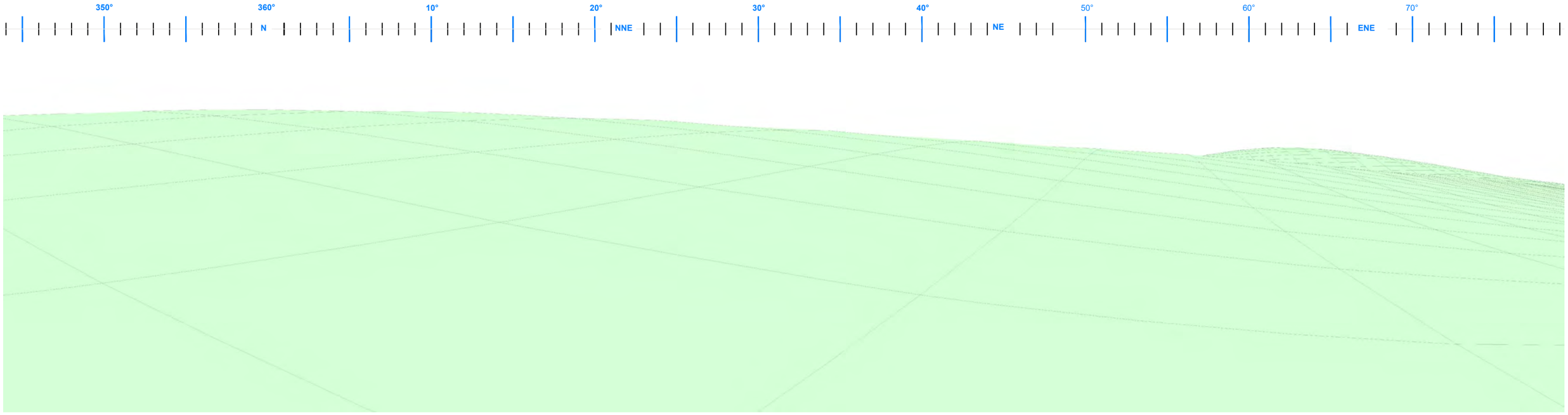
Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 67
Wireframe diagrams wf1 and wf2

GBD
Landscape architecture



wf3 - (E:500424, N:5788697) Proposed view east north east to east south east from Old Bridge Road wharf, Nelson. Approximate distance to closest visible wind turbine WTG24 at 5.3km

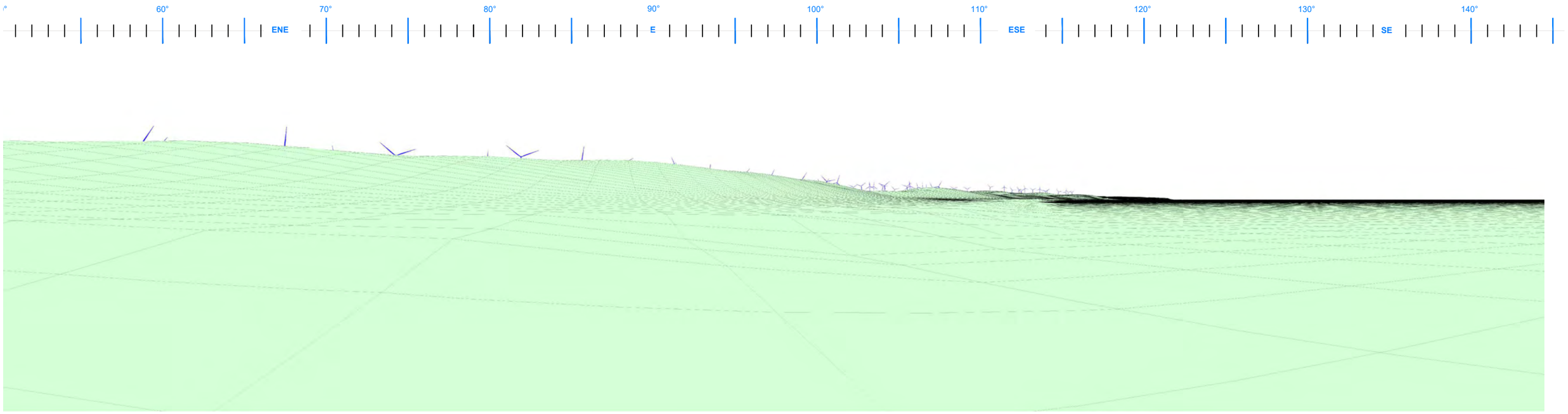


wf4 - (E:503862, N:5785473) Proposed view north to north east from Great South West Walk along ocean beach. Wireframe indicates that no wind turbines will be visible from this location.

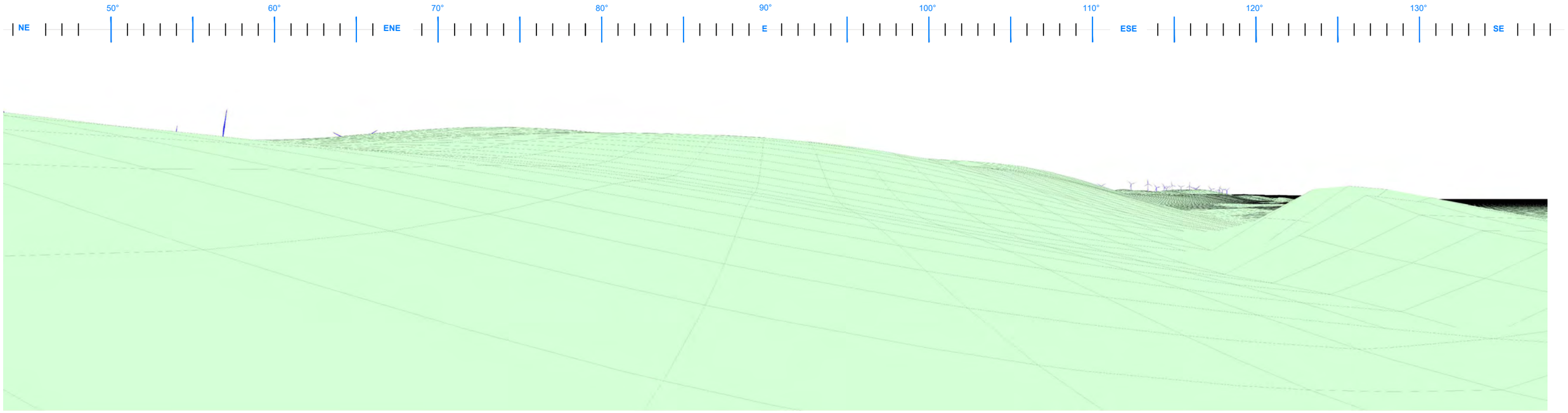
Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 68
Wireframe diagrams wf3 and wf4

GBD
Landscape architecture



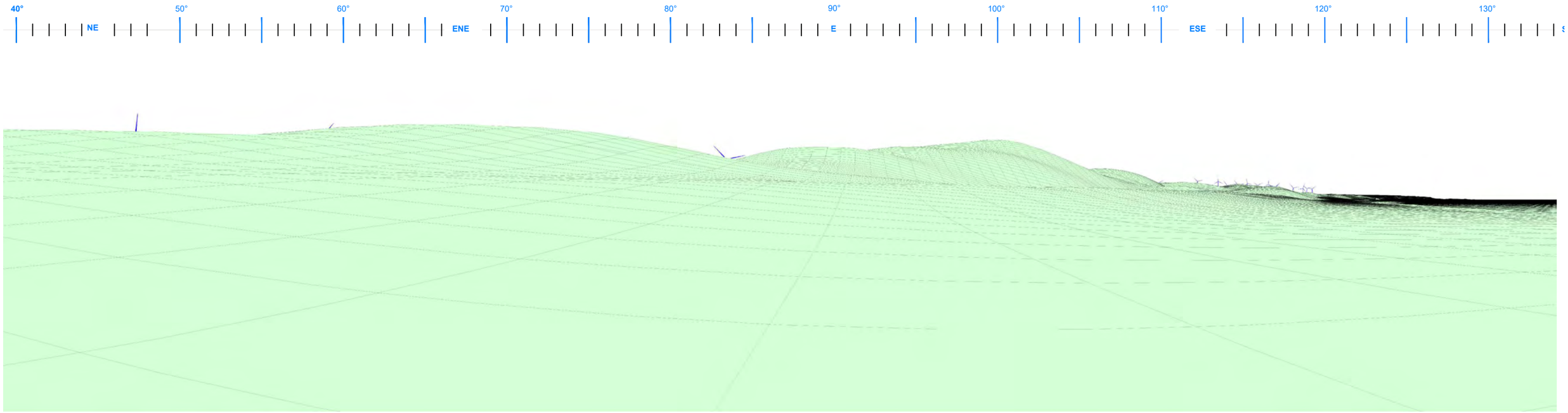
wf5 - (E:506496, N:5783972) Proposed view north north east to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.28km



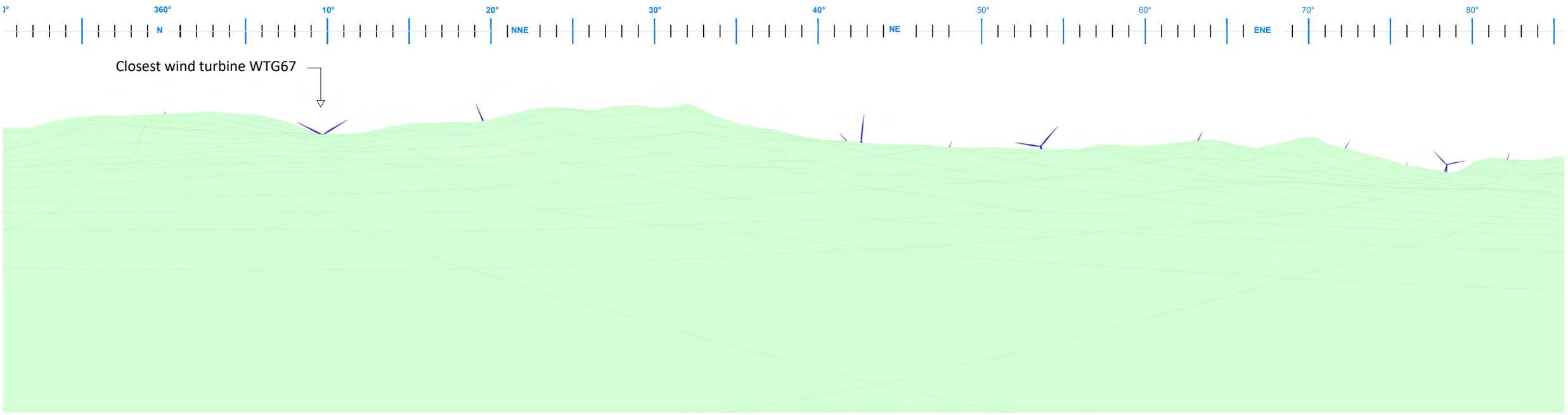
wf6 - (E:509002, N:5782489) Proposed view north to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 69
Wireframe diagrams wf5 and wf6



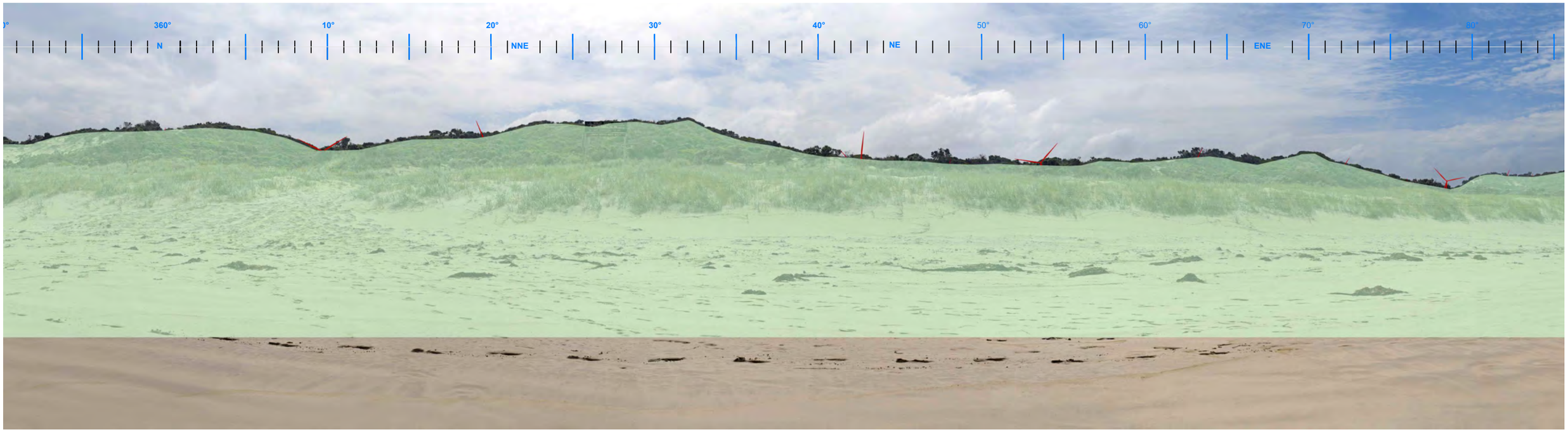
wf7 - (E:511445, N:5781104) Proposed view north east to south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3km



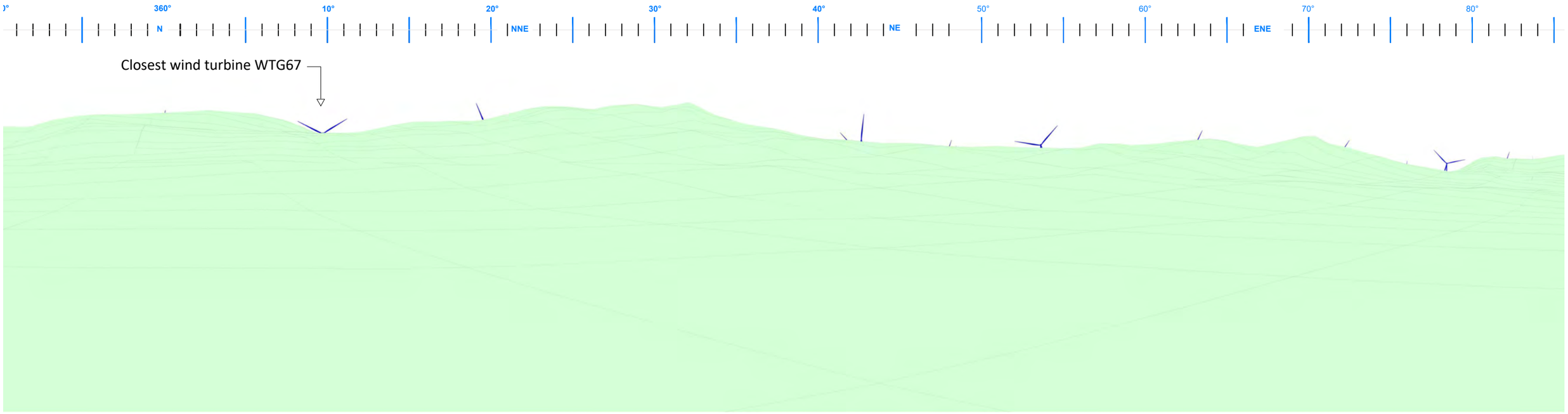
wf8 - (E:511412, N:5781103) Proposed view north to east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.95km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 70
Wireframe diagrams wf7 and wf8



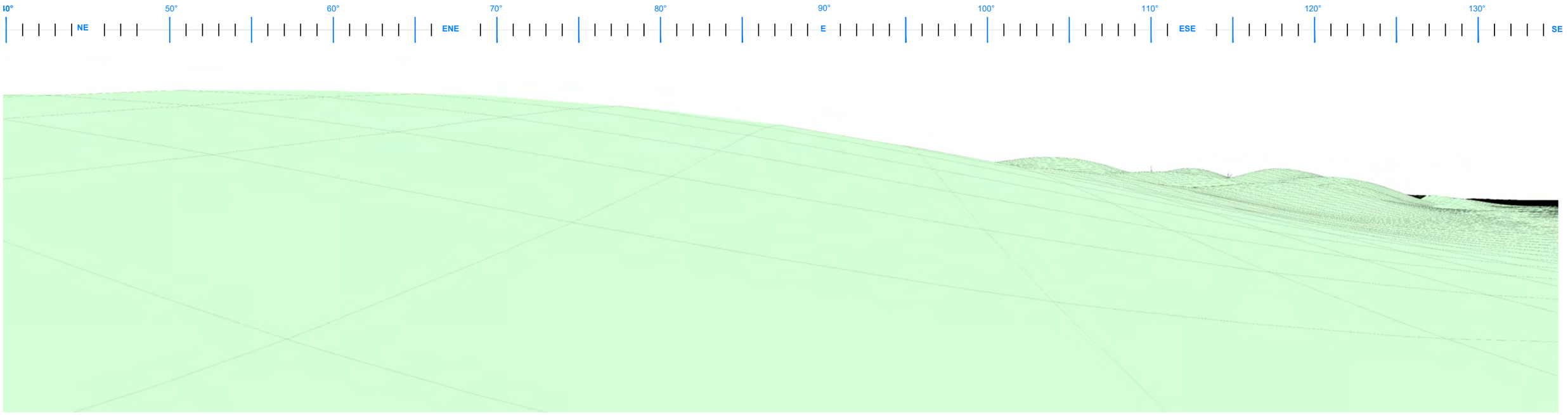
wf8 - (E:511412, N:5781103) Proposed view north to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.95km
Existing site panorama photograph with digital elevation model overlay illustrating vegetation above sand dune landform.



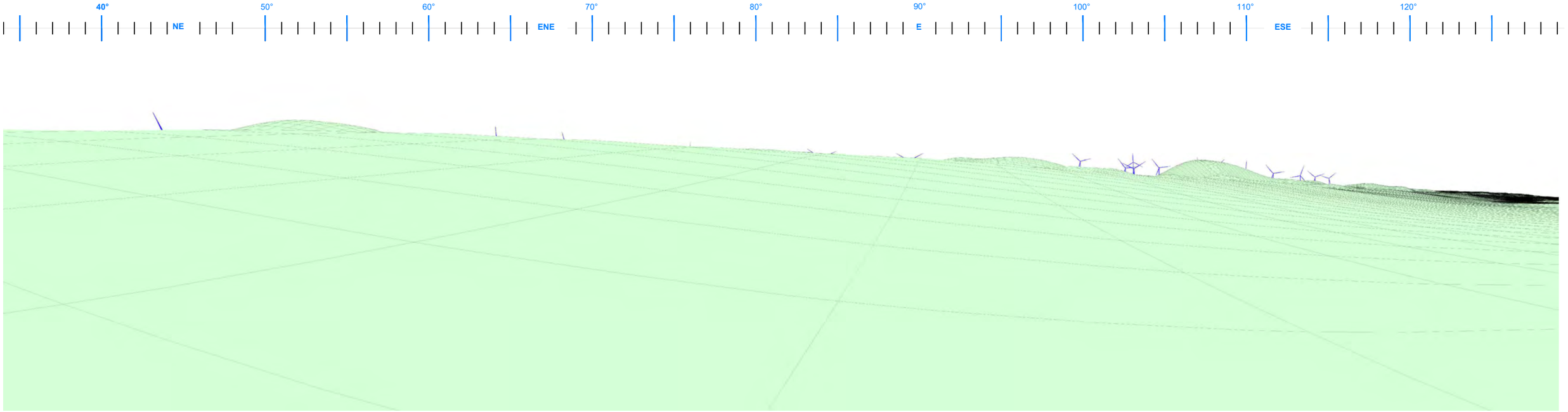
wf8 - (E:511412, N:5781103) Proposed view north to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.95km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 71
Wireframe diagram wf8 with panorama photo overlay



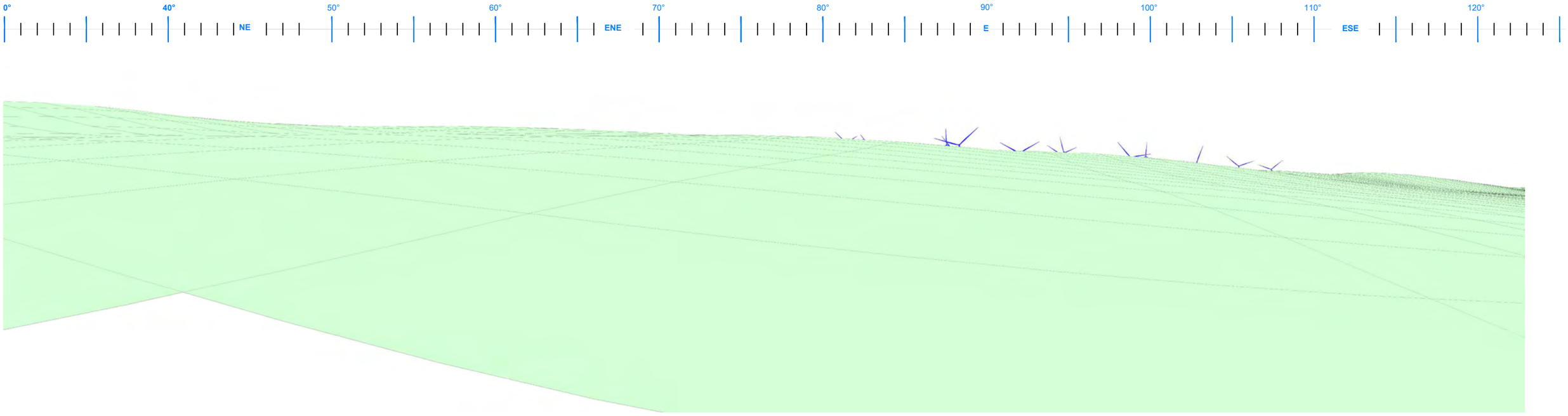
wf9 - (E:515396, N:5778537) Proposed view north east to south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 9km



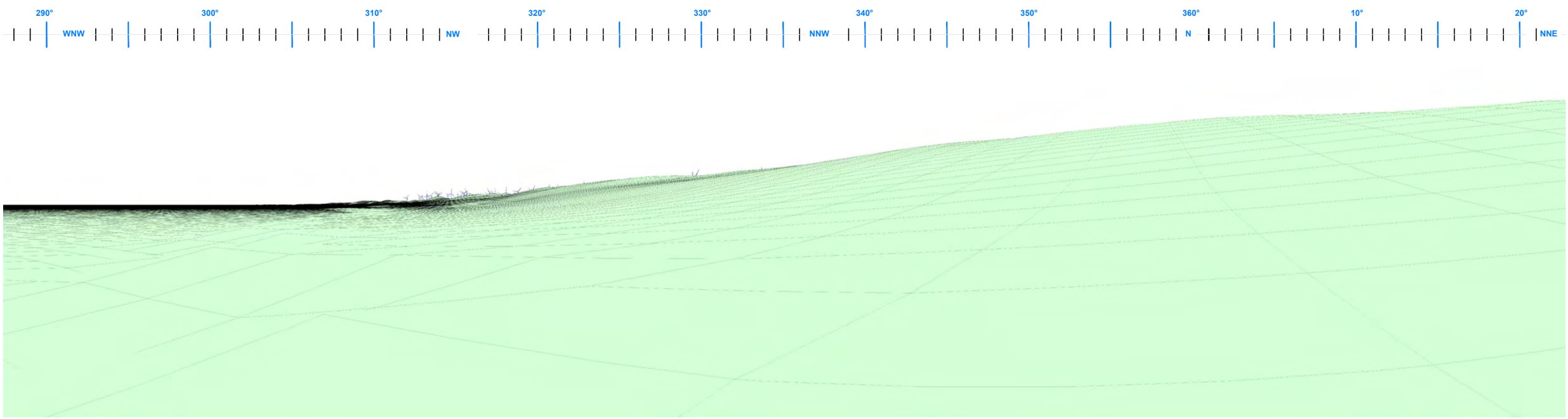
wf10 - (E:517866, N:5776809) Proposed view north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 72
Wire frame diagrams wf9 and wf10



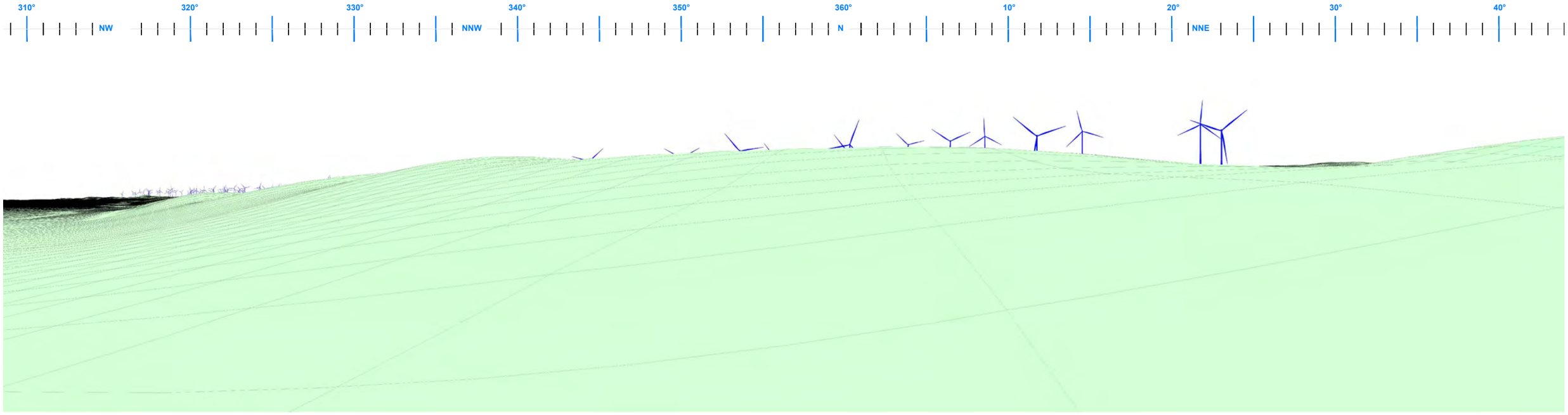
wf11 - (E:520321, N:5774925) Proposed view east north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.3km



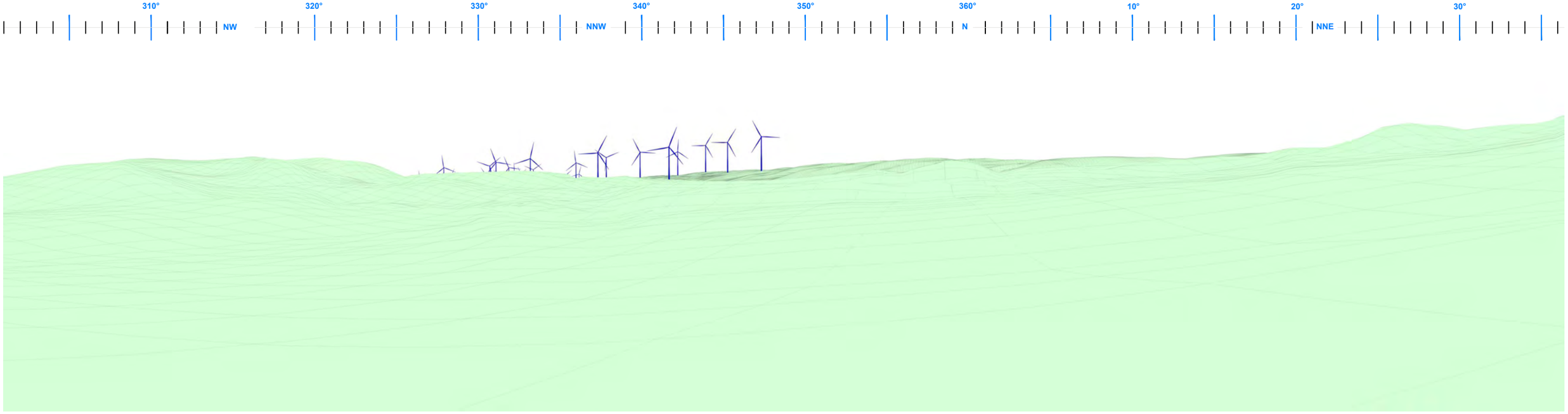
wf12 - (E:522543, N:5772914) Proposed view north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 7km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 73
Wireframe diagrams wf11 and wf12



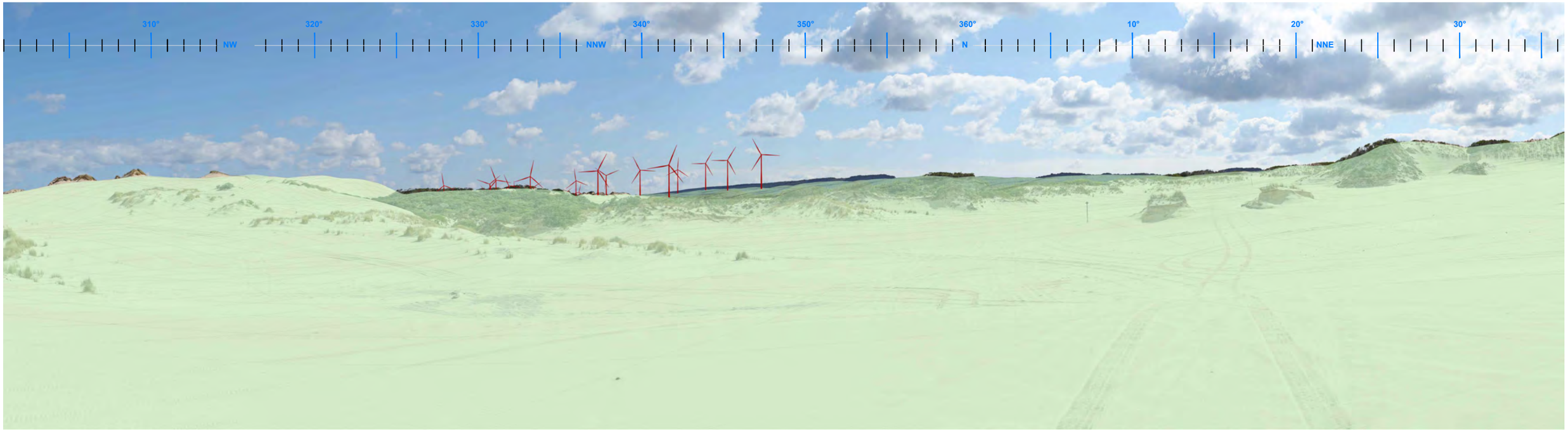
wf13 - (E:524789, N:5770789) Proposed view north west to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.5km



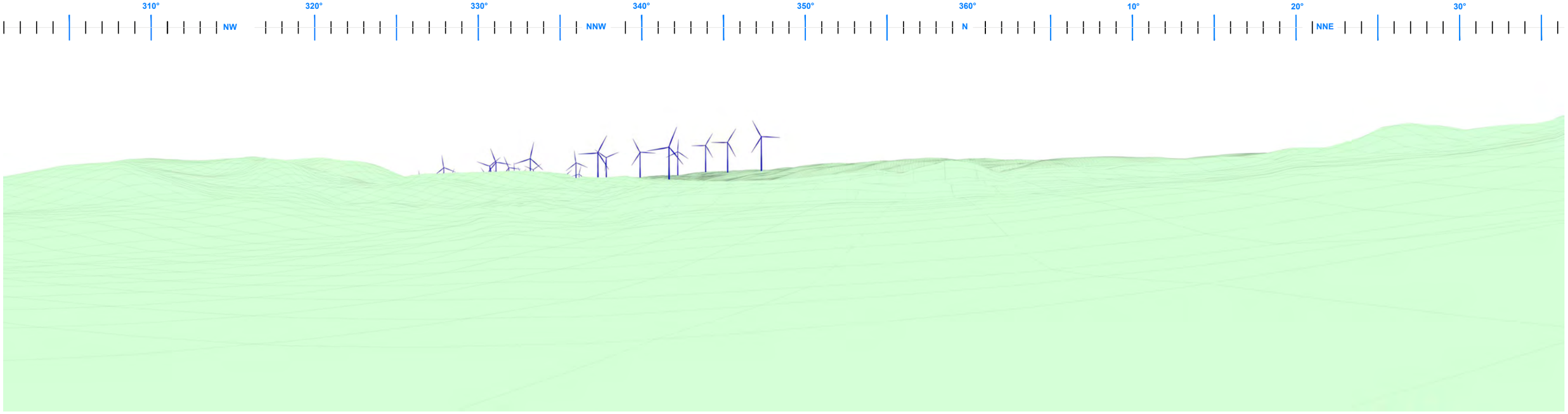
wf14 - (E:526838, N:5769678) Proposed view north west to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.5km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 74
Wireframe diagrams wf13 and wf14



wf13 - (E:524789, N:5770789) Proposed view north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.5km
Existing site panorama photograph with digital elevation model overlay illustrating vegetation above sand dune landform.



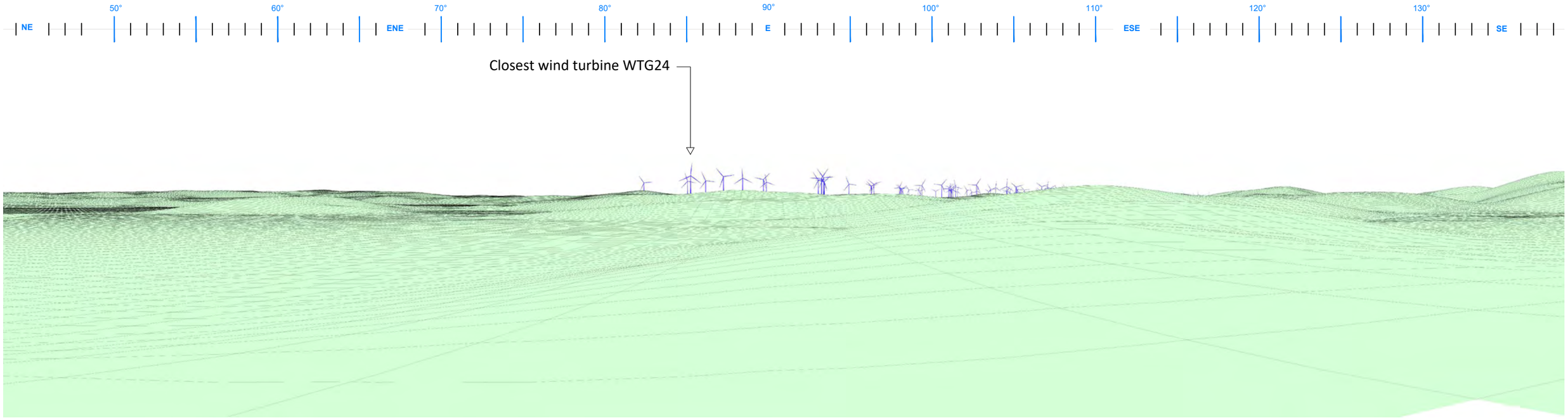
wf14 - (E:526838, N:5769678) Proposed view north west to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.5km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

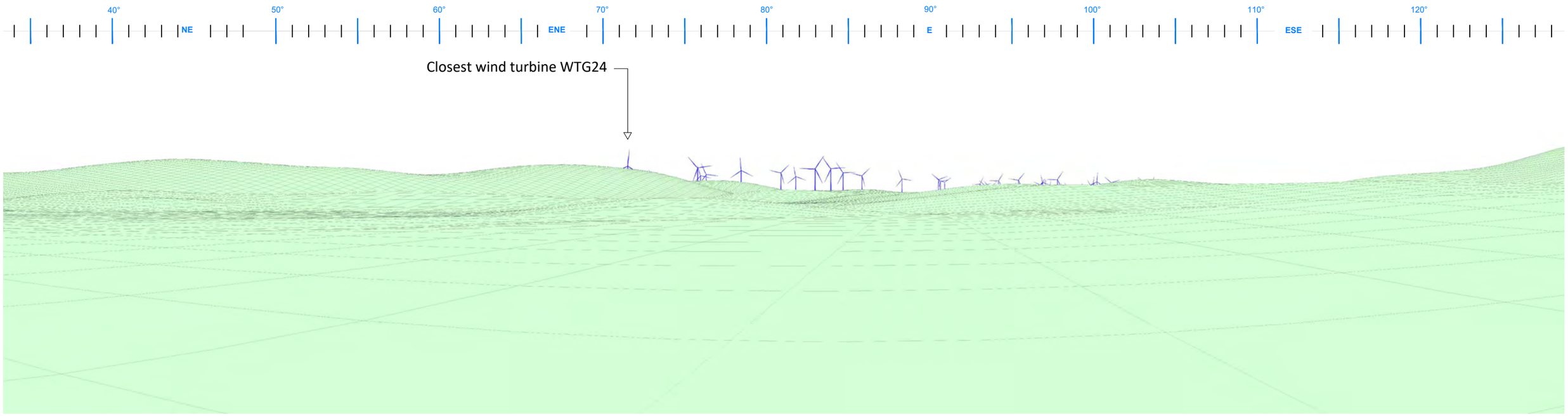
Figure 75
Wireframe diagrams wf13 and wf14

GBD
Landscape architecture

Appendix E Photomontages with blue sky insert



wf1 - (E:499485, N:5787950) Proposed view east north east to east south east from Discovery Bay Estuary Beach . Approximate distance to closest visible wind turbine WTG24 at 6.4km

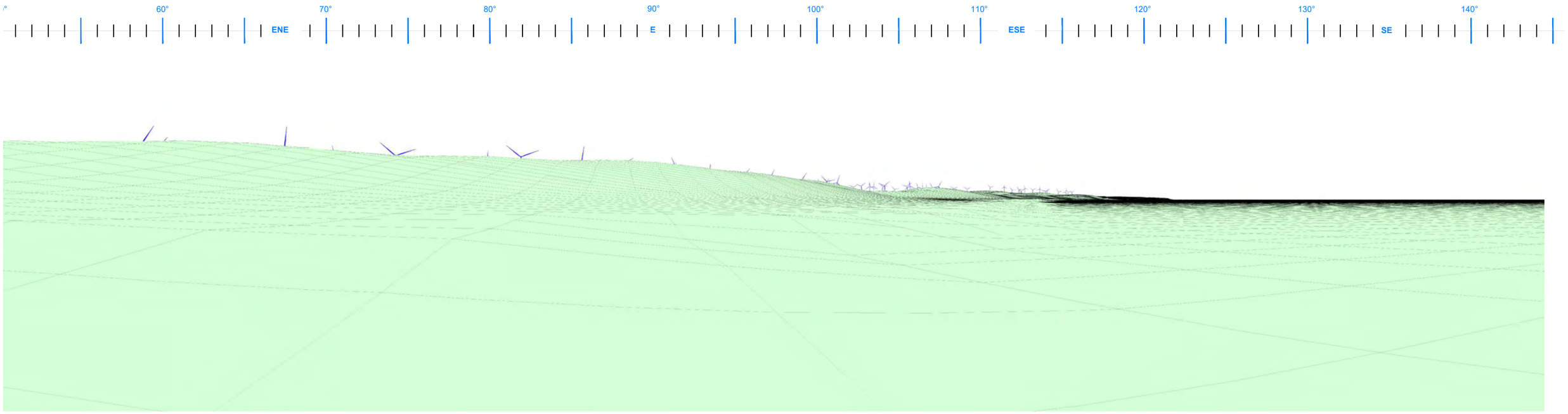


wf2 - (E:501339, N:5787019) Proposed view north east to east south east from ocean beach track car park. Approximate distance to closest visible wind turbine WTG24 at 4.9km

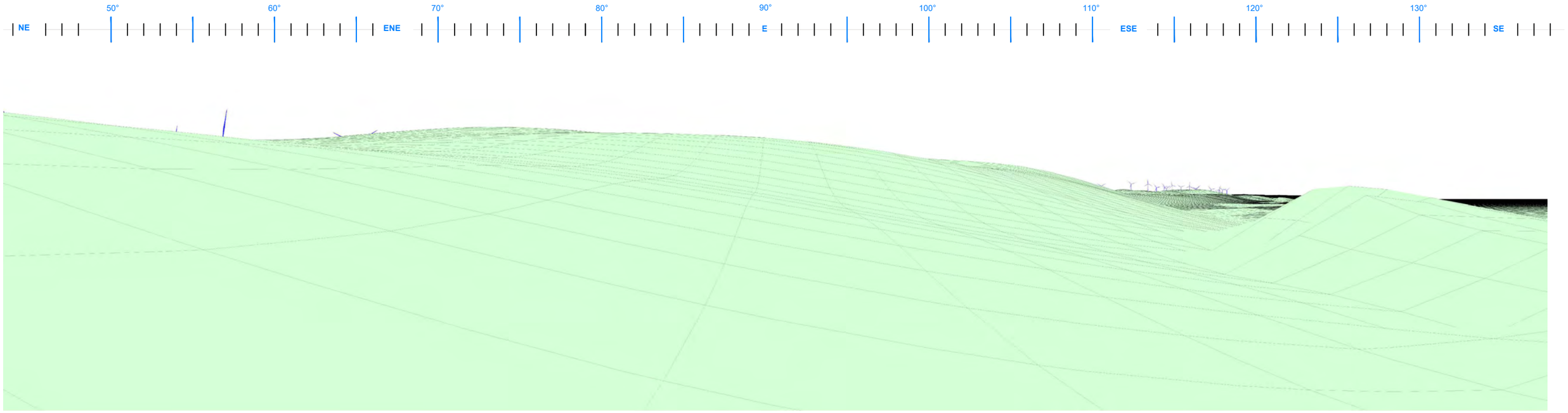
Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 67
Wireframe diagrams wf1 and wf2

GBD
Landscape architecture



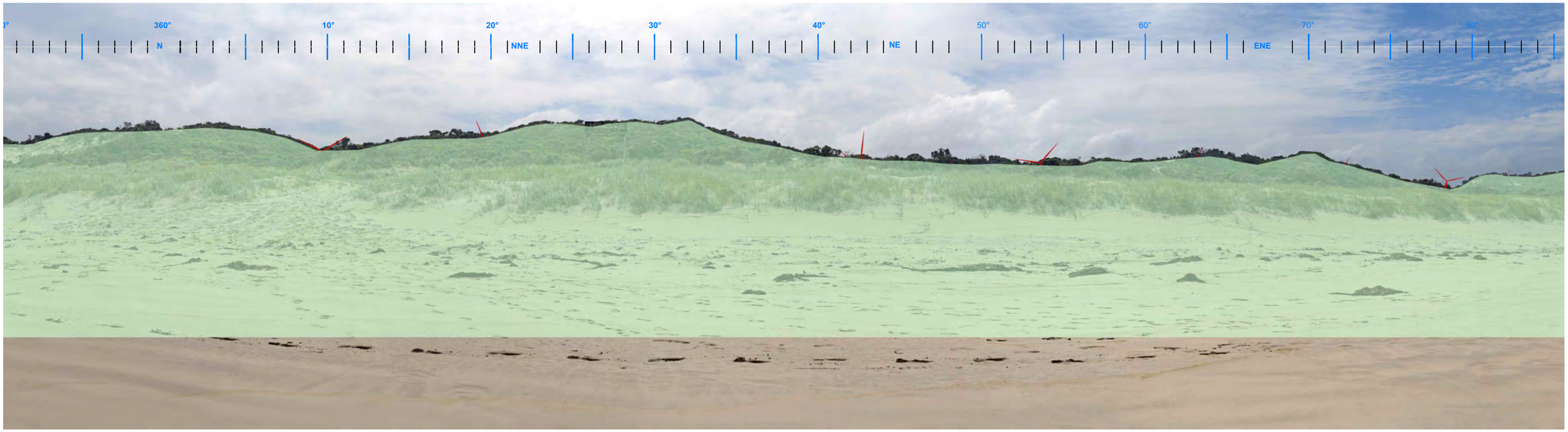
wf5 - (E:506496, N:5783972) Proposed view north north east to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.28km



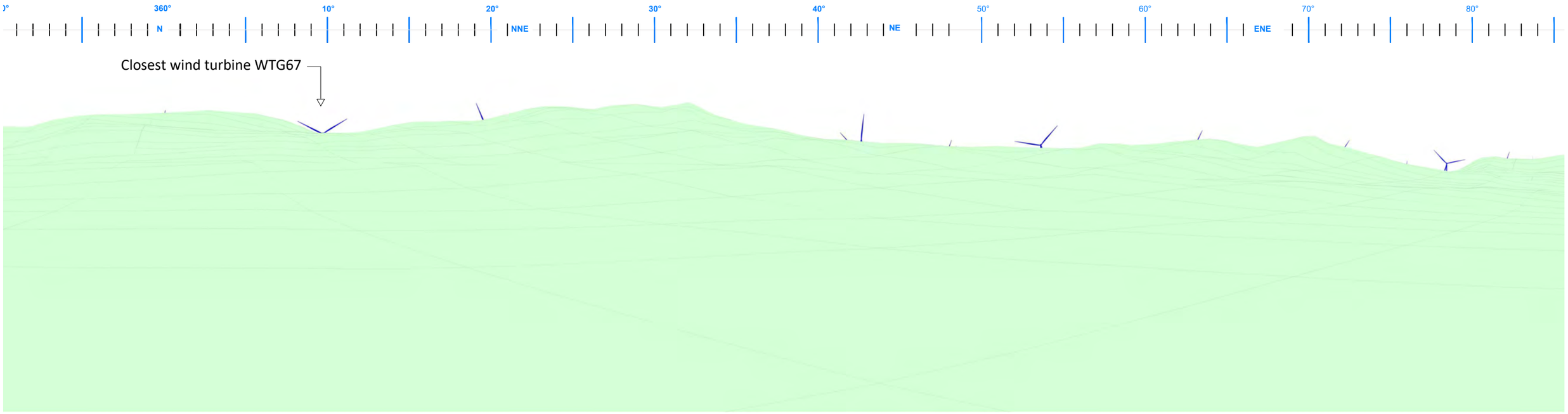
wf6 - (E:509002, N:5782489) Proposed view north to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 69
Wireframe diagrams wf5 and wf6



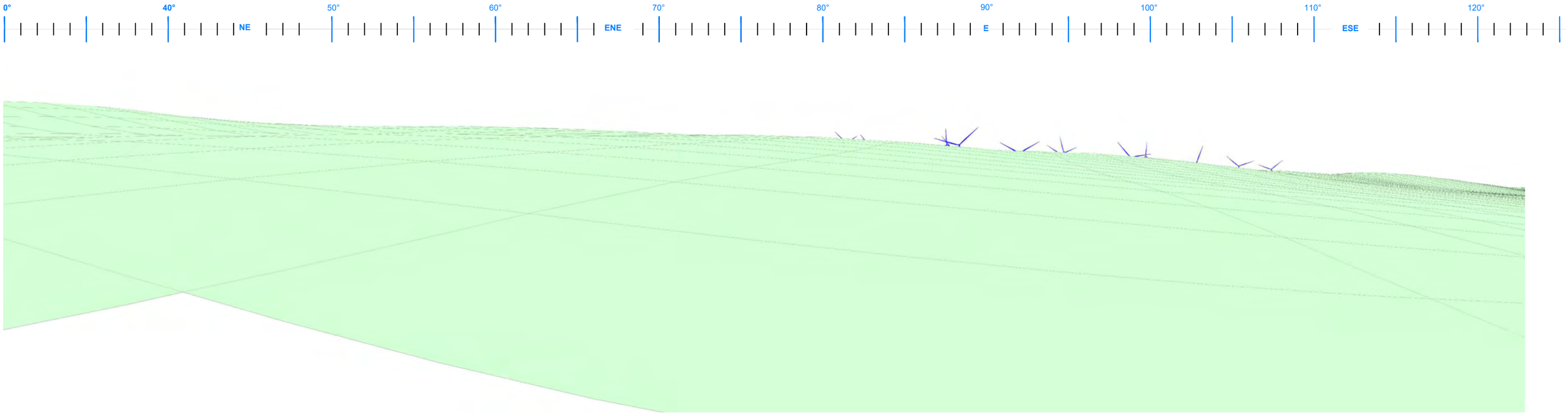
wf8 - (E:511412, N:5781103) Proposed view north to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.95km
Existing site panorama photograph with digital elevation model overlay illustrating vegetation above sand dune landform.



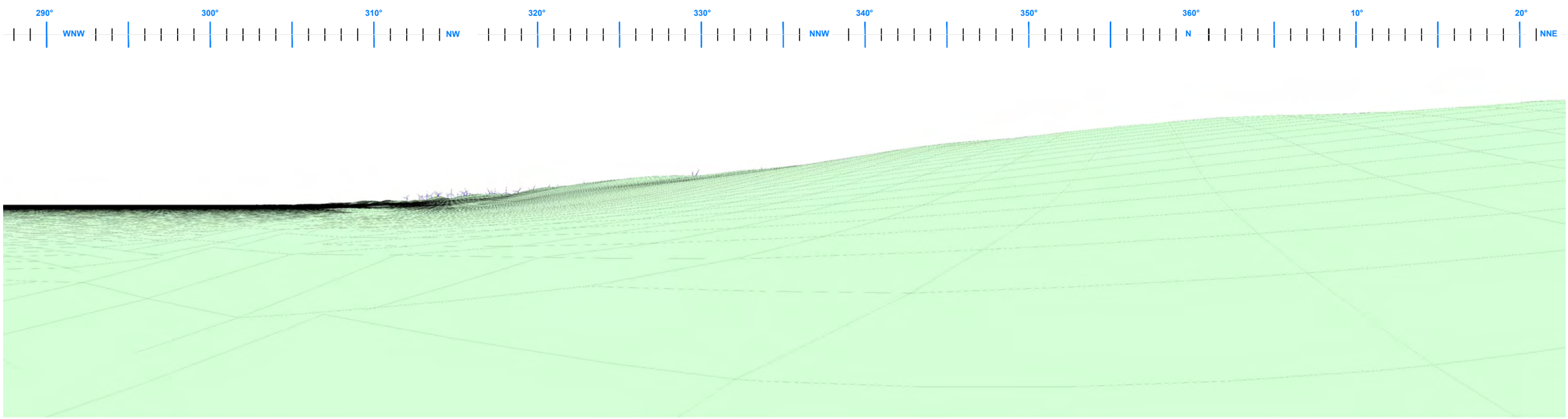
wf8 - (E:511412, N:5781103) Proposed view north to east north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.95km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 71
Wireframe diagram wf8 with panorama photo overlay



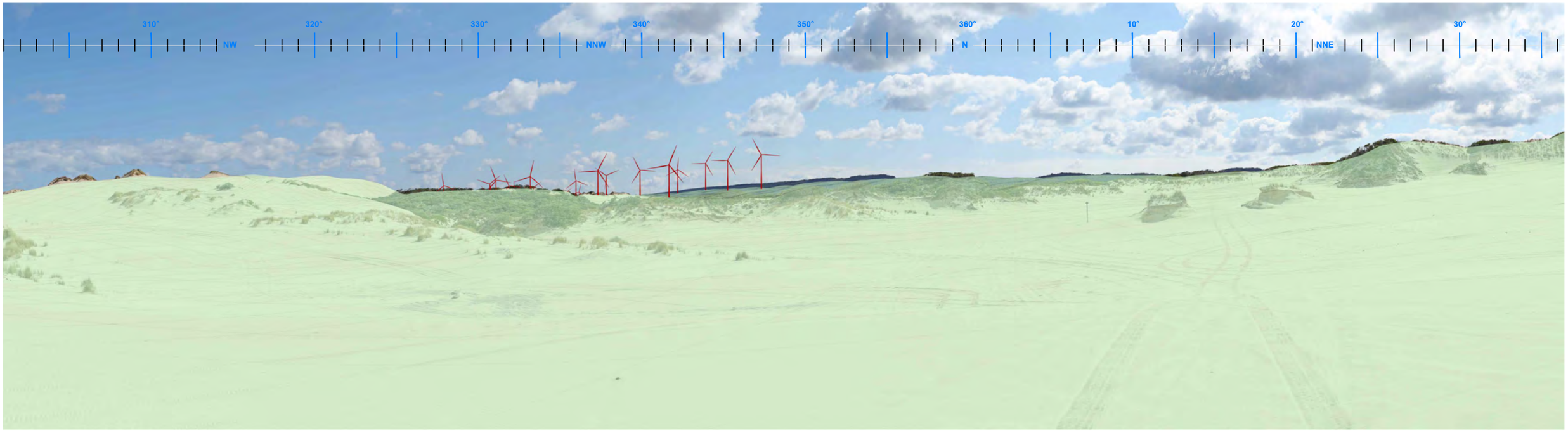
wf11 - (E:520321, N:5774925) Proposed view east north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.3km



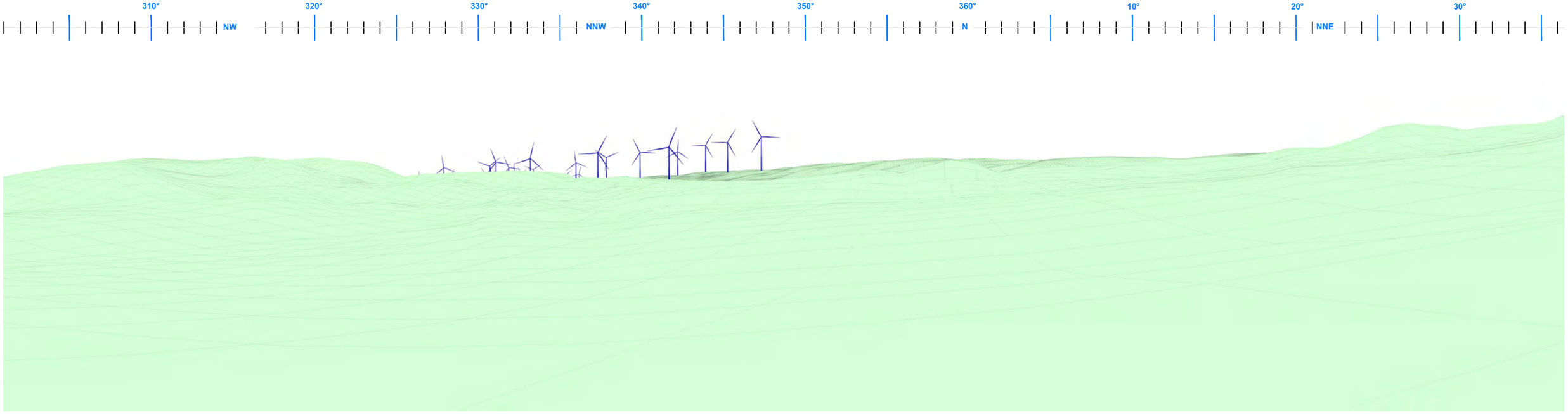
wf12 - (E:522543, N:5772914) Proposed view north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 7km

Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 73
Wireframe diagrams wf11 and wf12



wf13 - (E:524789, N:5770789) Proposed view north east to east south east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 2.5km
Existing site panorama photograph with digital elevation model overlay illustrating vegetation above sand dune landform.

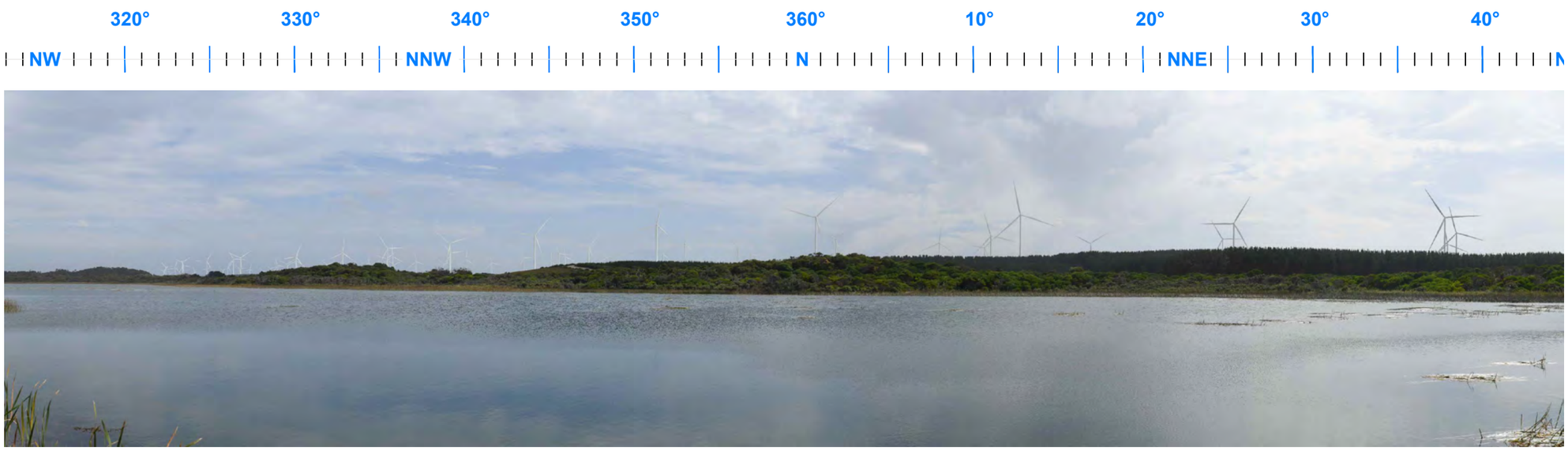


wf14 - (E:526838, N:5769678) Proposed view north west to north east from Great South West Walk along ocean beach. Approximate distance to closest visible wind turbine around 3.5km

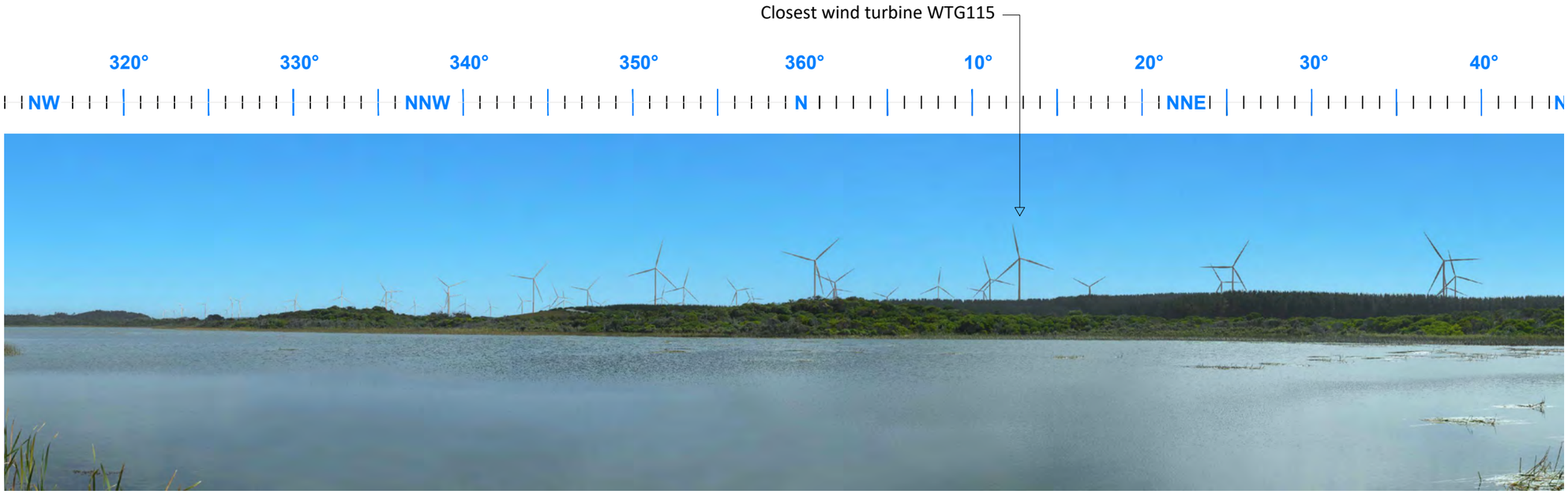
Notes:
Views toward wind turbines or portions of wind turbines below the green wire frame are likely to be screened by landform.
The wire frame model does not account for existing vegetation or built structures which may screen views toward the wind turbines.

Figure 75
Wireframe diagrams wf13 and wf14

GBD
Landscape architecture



Photomontage kk03 - Approximate 90° field of view north west to north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km



Blue sky photomontage kk03 - Approximate 90° field of view north west to north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km

General Notes:

Coordinates:
Easting 516287, Northing 5779359

Photo date:
28th February 2021, 11.16pm

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage kk03 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

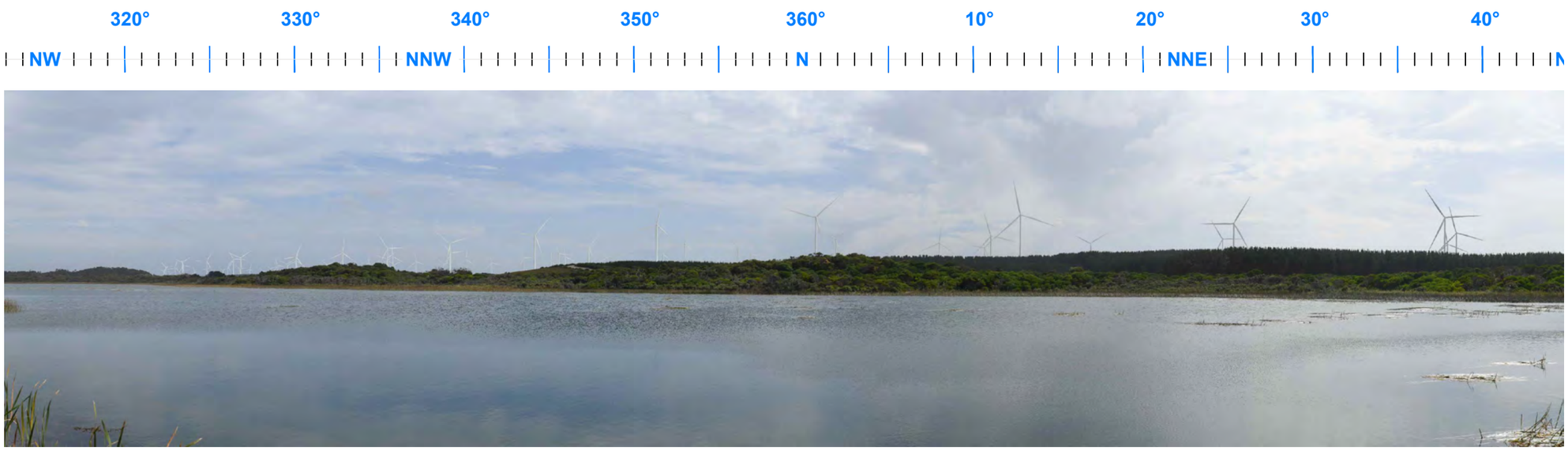
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

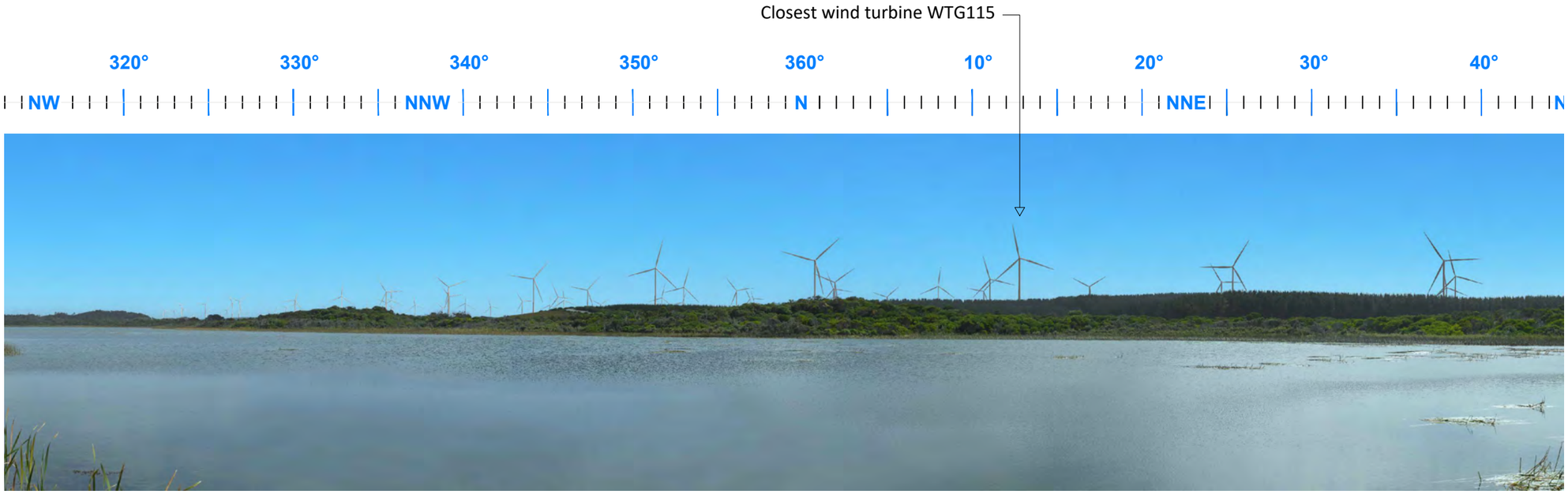
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 76
Photomontage kk03 Lake Mombeong - 90 degree field of view

GBD
Landscape architecture



Photomontage kk03 - Approximate 90° field of view north west to north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km



Blue sky photomontage kk03 - Approximate 90° field of view north west to north east from Lake Mombeong viewing deck.
Approximate distance to closest visible wind turbine 1.86km

General Notes:

Coordinates:
Easting 516287, Northing 5779359

Photo date:
28th February 2021, 11.16pm

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage kk03 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

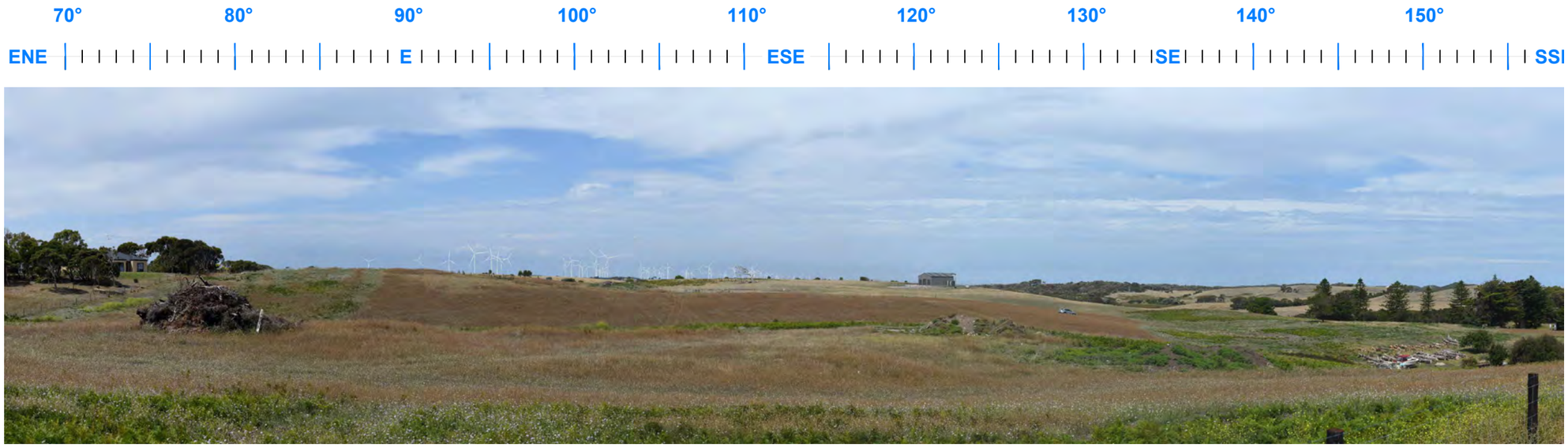
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

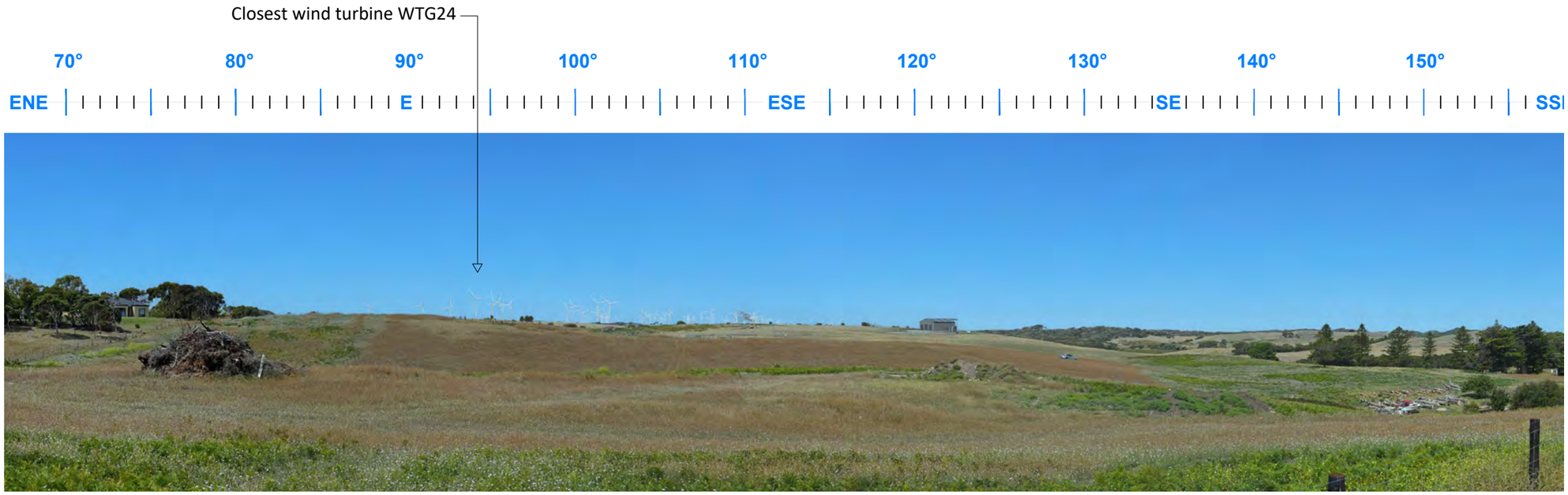
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 76
Photomontage kk03 Lake Mombeong - 90 degree field of view

GBD
Landscape architecture



Photomontage kk10 - Approximate 90° field of view east north east to south south east from Wade Street, Nelson. Approximate distance to closest visible wind turbine 4.7km



General Notes:

Coordinates:
Easting 501041, Northing 5788953

Photo date:
28th February 2021, 14.46pm

Camera:
Nikon D850, 50mm 1:1.4D Lens

Original Page Format - A3 Landscape

Photomontage kk10 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

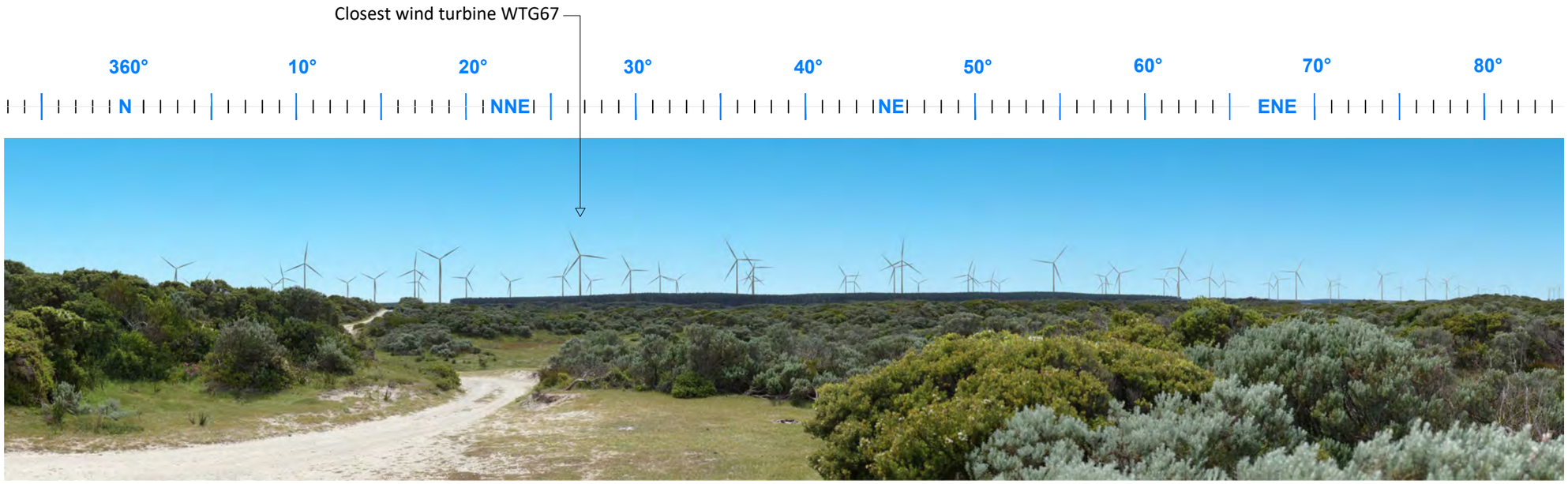
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 77
Photomontage kk10 Wade Street, Nelson - 90 degree field of view

GBD
Landscape architecture

Photomontage n2 - Approximate 90° field of view north to east from the Noble Rock track car park . Approximate distance to closest visible wind turbine 2.4km



Blue sky photomontage n2 - Approximate 90° field of view north to east from the Noble Rock track car park . Approximate distance to closest visible wind turbine 2.4km

General Notes:

Coordinates:
Easting 511538, Northing 5781337

Photo date:
20th October 2021, 1.13pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n2 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

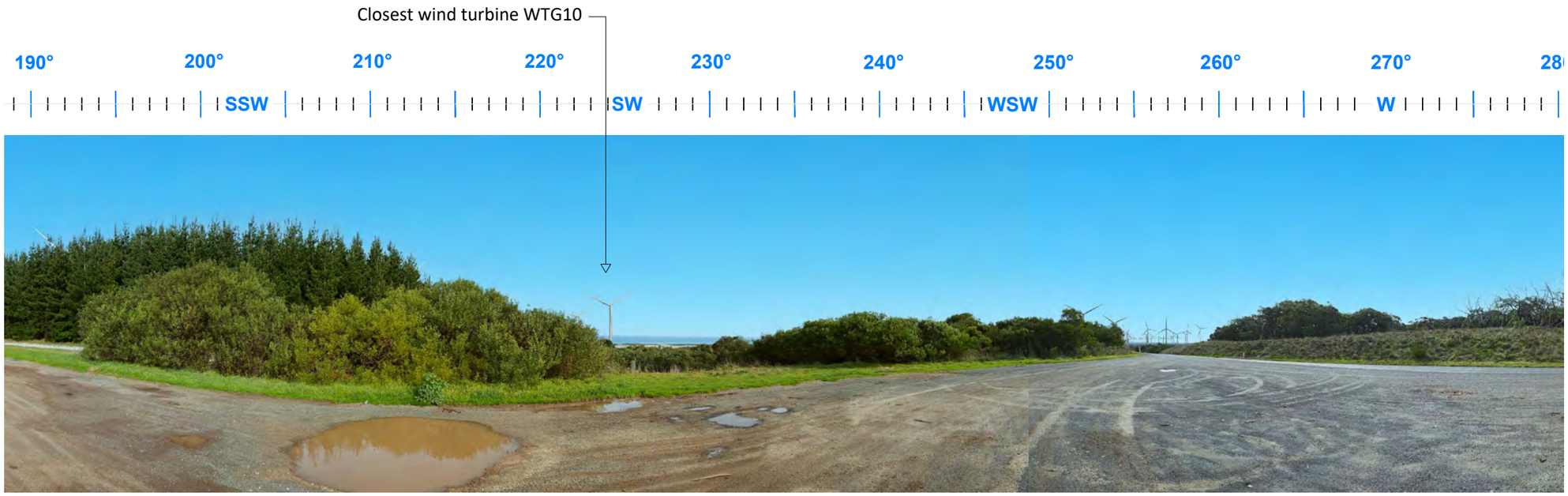
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 78
Photomontage n2 Noble Rock car park - 90 degree field of view

GBD
Landscape architecture

Photomontage n3 - Approximate 90° field of view south to west from Hedditch Hill. Approximate distance to closest visible wind turbine 1.04km



Blue sky photomontage n3 - Approximate 90° field of view south to west from Hedditch Hill. Approximate distance to closest visible wind turbine 1.04km

General Notes:

Coordinates:
Easting 524482, Northing 5776227

Photo date:
16th September 2021, 12.46pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n3 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

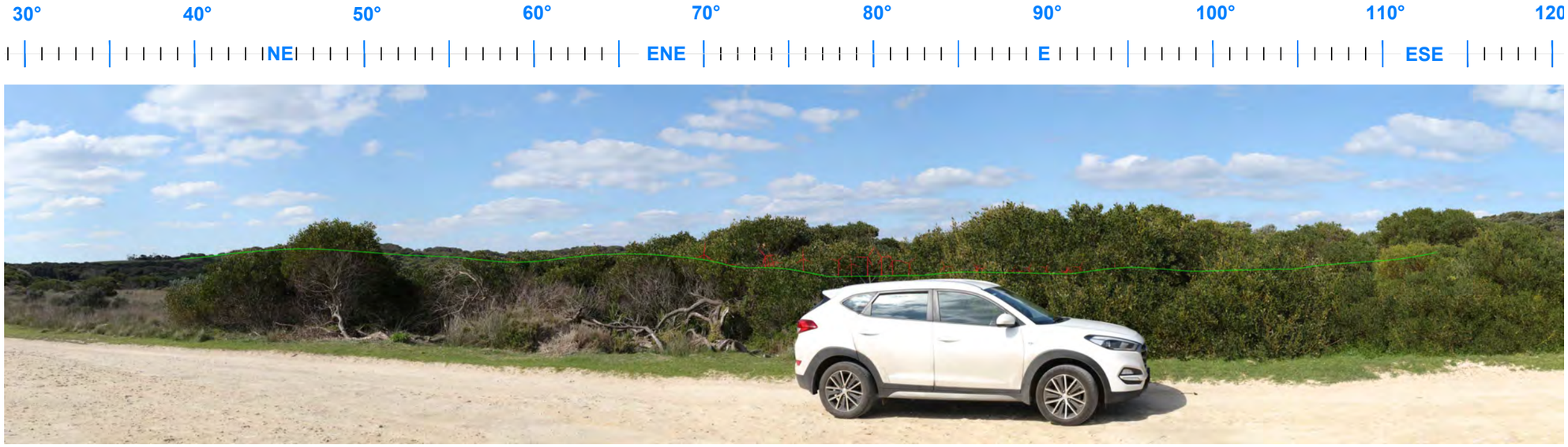
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

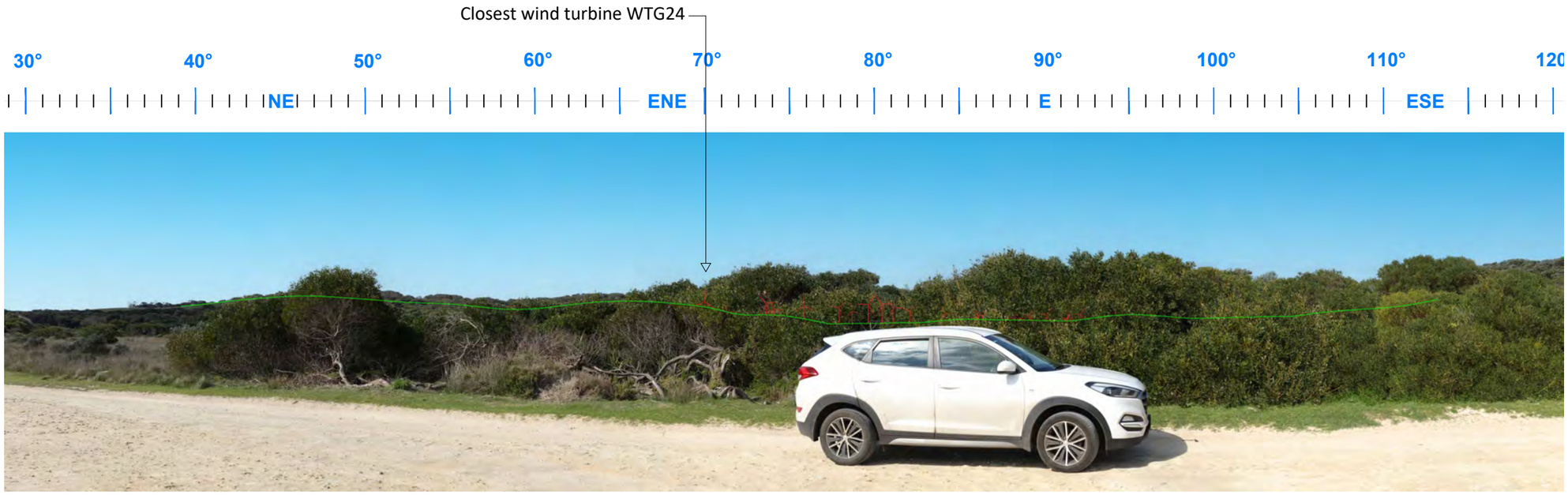
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 79
Photomontage n3 Hedditch Hill - 90 degree field of view

GBD
Landscape architecture



Photomontage n5 - Approximate 90° field of view south to west from ocean track car park Nelson. Approximate distance to closest visible wind turbine 4.9km



Blue sky photomontage n5 - Approximate 90° field of view south to west from ocean track car park Nelson. Approximate distance to closest visible wind turbine 4.9km

General Notes:

Coordinates:
Easting 501339, Northing 5787019

Photo date:
16th September 2021, 3.46pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage n5 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

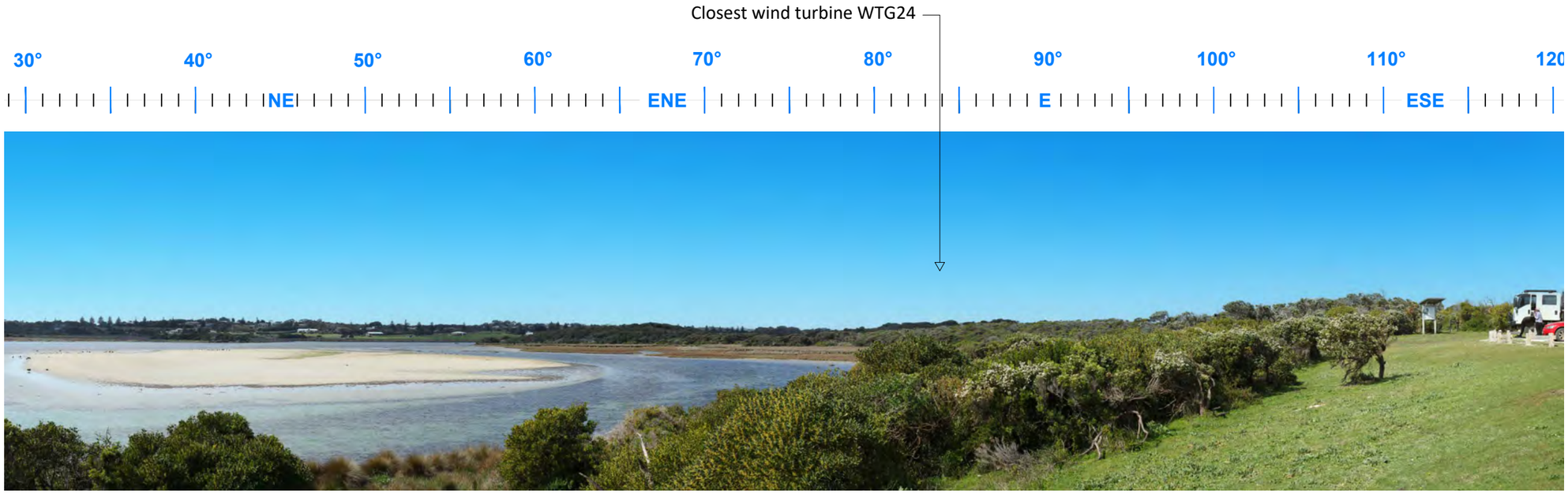
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 80
Photomontage n5 Ocean track car park - 90 degree field of view

GBD
Landscape architecture

Photomontage pl1 - Approximate 90° field of view south to west from Estuary Beach picnic area Nelson. Approximate distance to closest visible wind turbine 6.4km



Blue sky photomontage pl1 - Approximate 90° field of view south to west from Estuary Beach picnic area Nelson. Approximate distance to closest visible wind turbine 6.4km

General Notes:

Coordinates:
Easting 499484, Northing 5787951

Photo date:
16th September 2021, 3.28pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl1 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

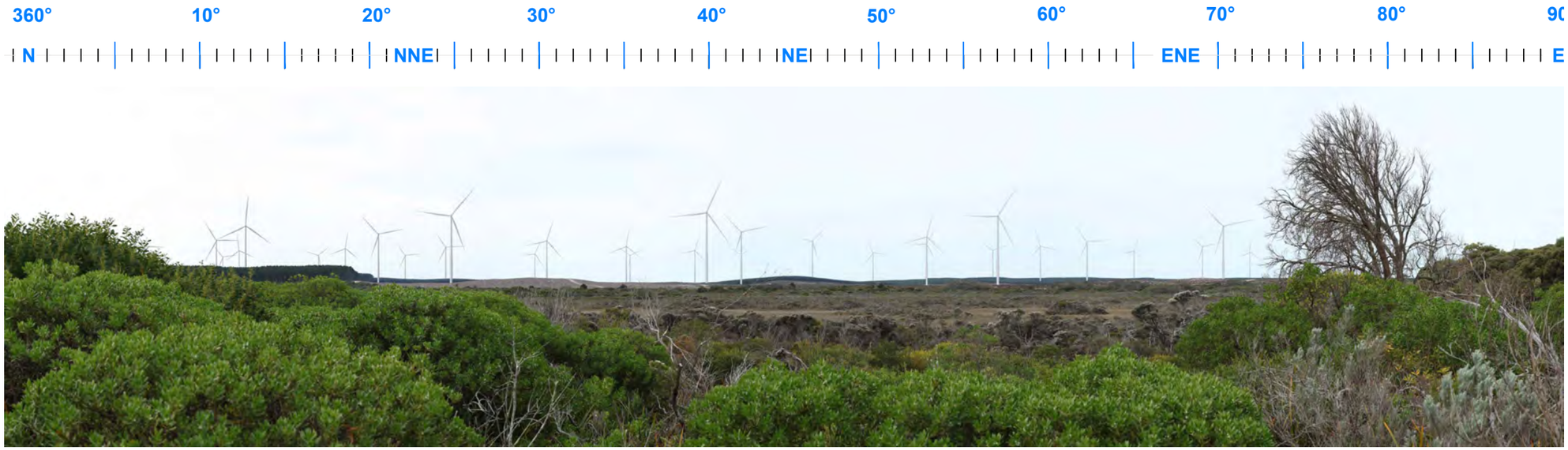
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

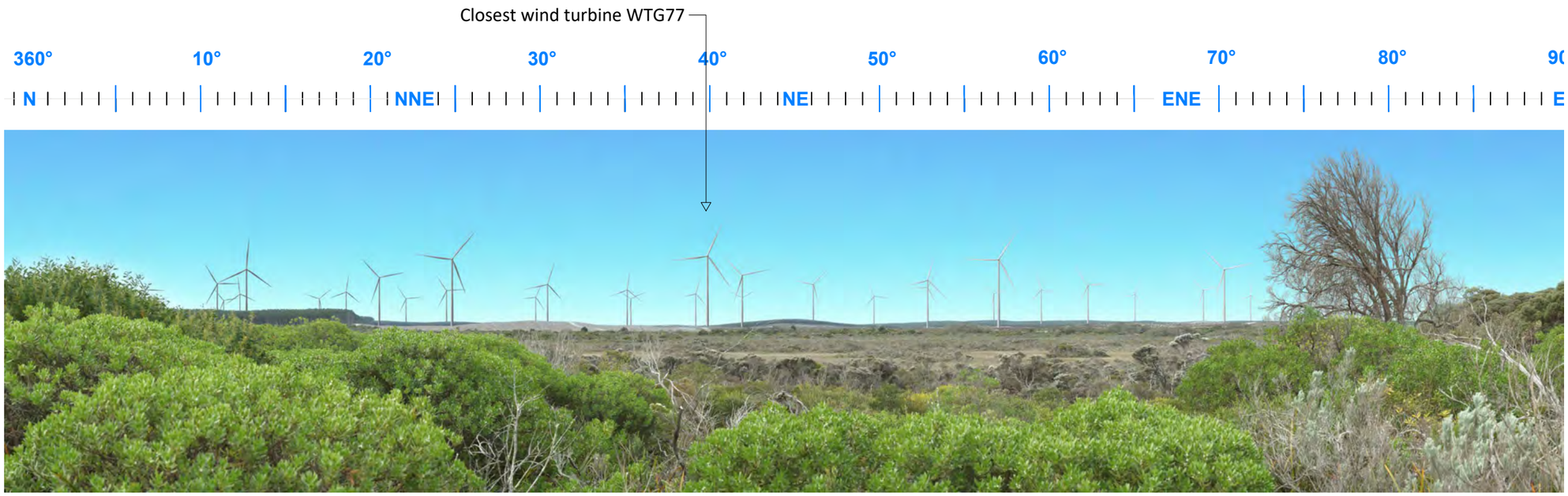
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 81
Photomontage pl1 Estuary Beach picnic area - 90 degree field of view

GBD
Landscape architecture



Photomontage pl18 - Approximate 90° field of view north to east from Lake Mombeong inland track. Approximate distance to closest visible wind turbine 1.9km



Blue sky photomontage pl18 - Approximate 90° field of view north to east from Lake Mombeong inland track. Approximate distance to closest visible wind turbine 1.9km

General Notes:

Coordinates:
Easting 513913, Northing 5780708

Photo date:
20th October 2021, 4.24pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl18 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

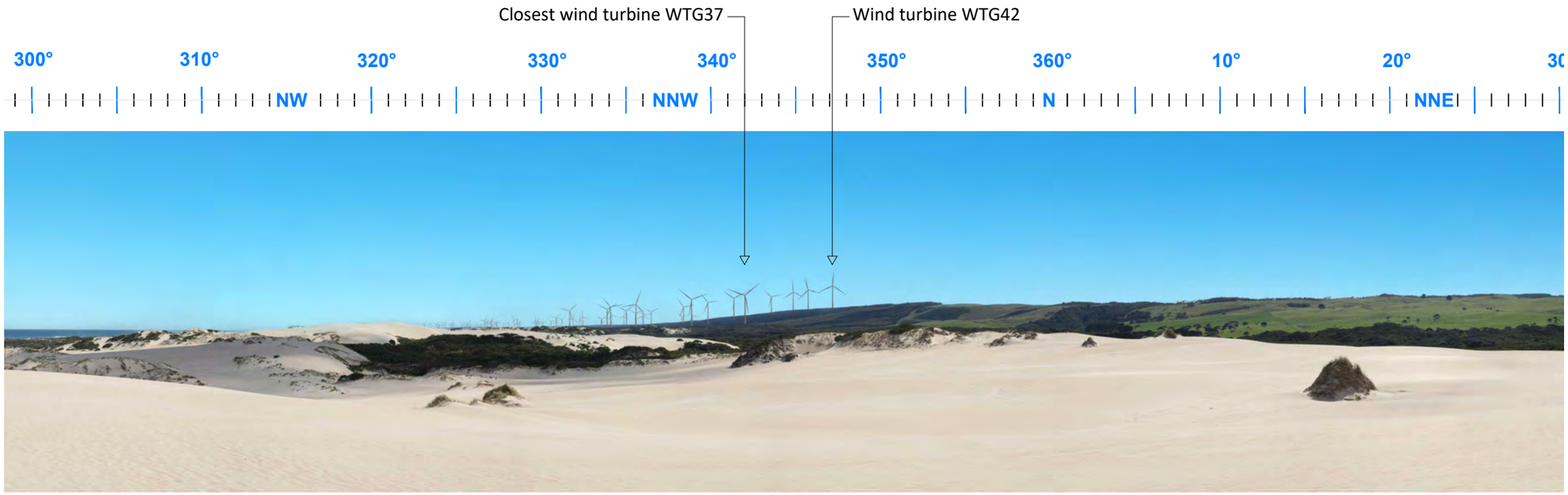
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 82
Photomontage pl18 Lake Mombeong inland track - 90 degree field of view

GBD
Landscape architecture

Photomontage pl20 - Approximate 90° field of view north to east from sand dunes Swan Lake. Approximate distance to closest visible wind turbine 3.56km



Blue sky photomontage pl20 - Approximate 90° field of view north to east from sand dunes Swan Lake. Approximate distance to closest visible wind turbine 3.56km

General Notes:

Coordinates:
Easting 526838, Northing 5769678

Photo date:
16th September 2021, 11.54am

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl20 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

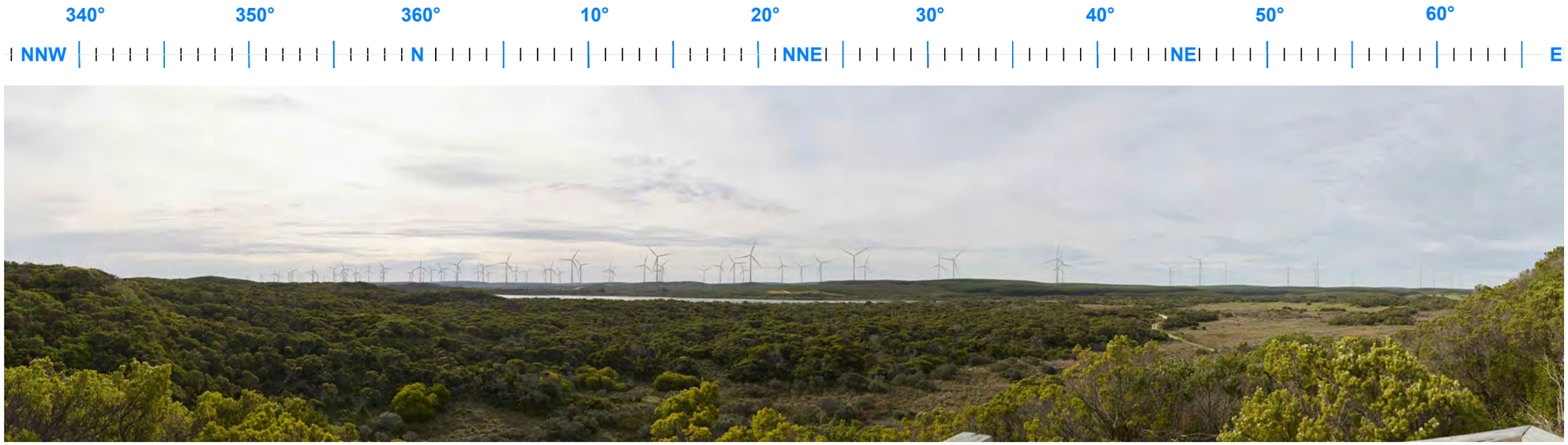
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

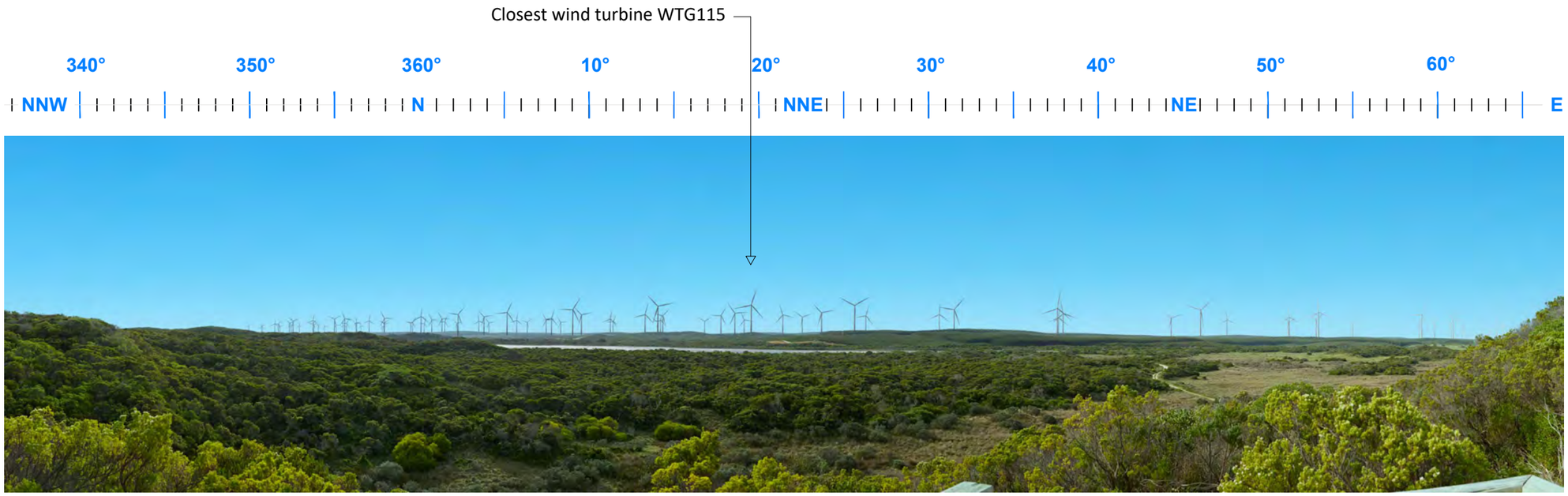
The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 83
Photomontage pl20 Sand dunes south of Swan Lake campsite - 90 degree field of view

GBD
Landscape architecture



Photomontage pl25 - Approximate 90° field of view north to east from Lake Mombeong lookout. Approximate distance to closest visible wind turbine 2.52km



Blue sky photomontage pl25 - Approximate 90° field of view north to east from Lake Mombeong lookout. Approximate distance to closest visible wind turbine 2.52km

General Notes:

Coordinates:
Easting 515784, Northing 5778823

Photo date:
2nd August 2022, 2.58pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl25 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

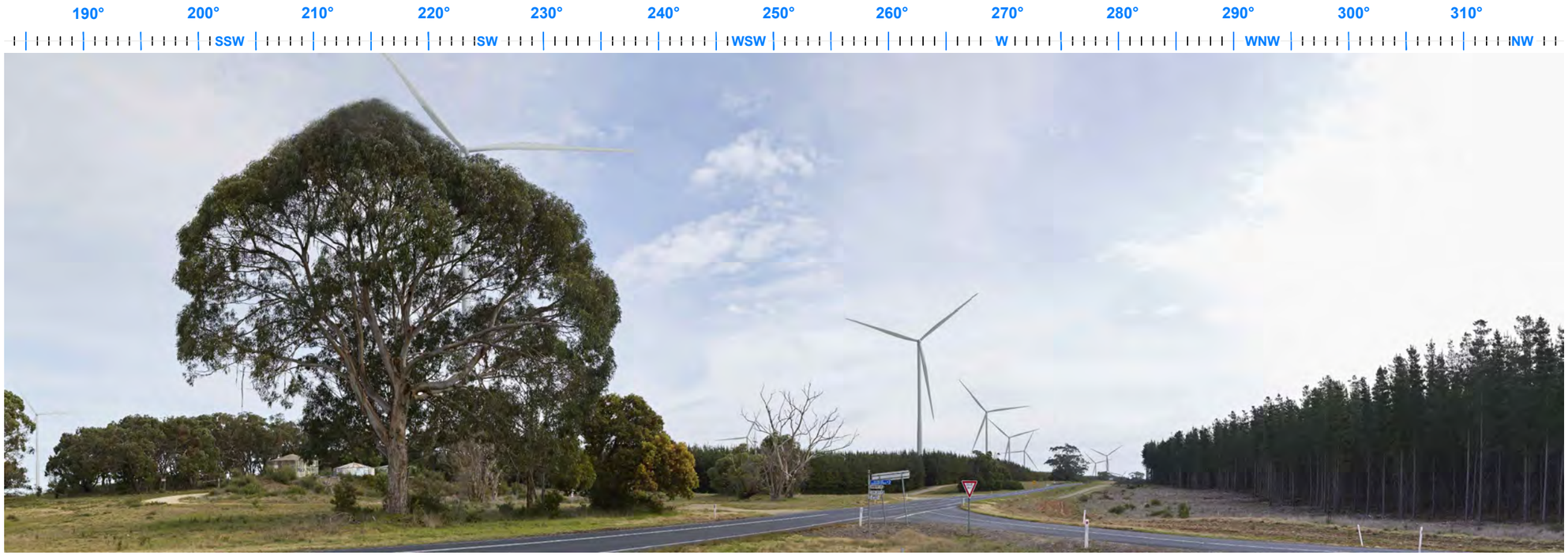
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 84
Photomontage pl25 Lake Mombeong lookout - 90 degree field of view

GBD
Landscape architecture



Photomontage pl26 - Approximate 120° field of view south south west to north west from Portland Nelson Rd and Winnap Road intersection.
Approximate distance to closest visible wind turbine 332m

Blue sky photomontage pl26 - Approximate 120° field of view south south west to north west from Portland Nelson Rd and Winnap Road intersection.
Approximate distance to closest visible wind turbine 332m

Figure 85
Photomontage pl26 Portland Nelson Road and Winnap Road intersection - 90 degree field of view

General Notes:

Coordinates:
Easting 514538, Northing 5785862

Photo date:
2nd August 2022, 2.31pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl26 is illustrated at a view angle of around 120 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

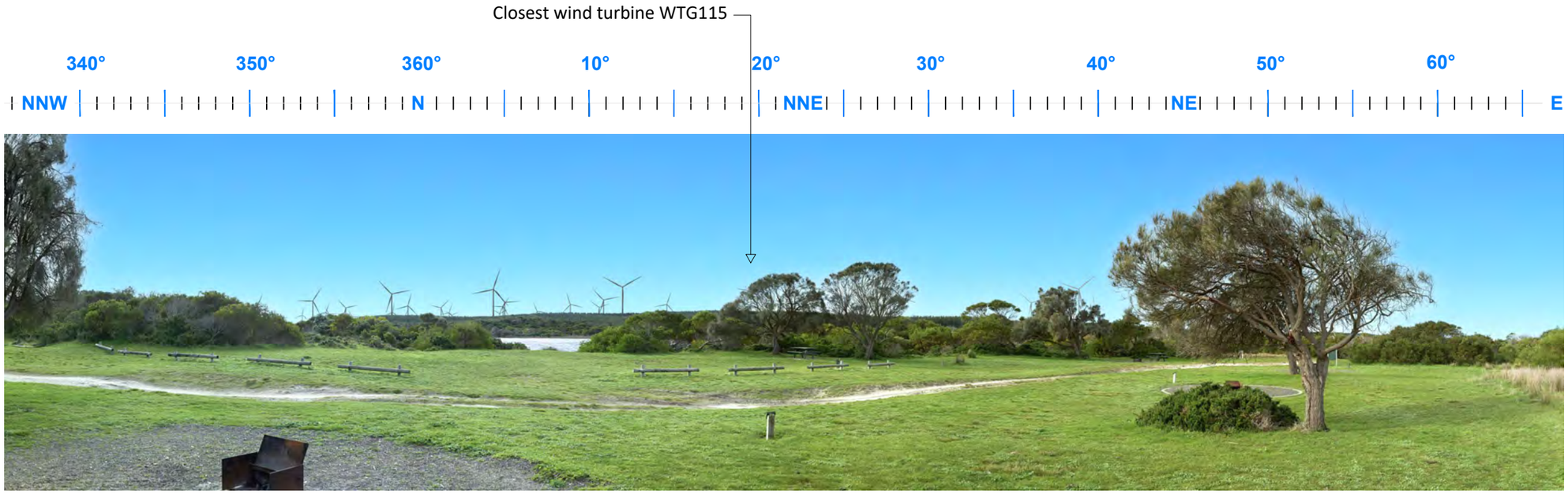
A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

GBD
Landscape architecture

Photomontage pl27 - Approximate 90° field of view north north west to east north east from Lake Mombeong campsite.
Approximate distance to closest visible wind turbine 1.92km



Blue sky photomontage pl27 - Approximate 90° field of view north north west to east north east from Lake Mombeong campsite.
Approximate distance to closest visible wind turbine 1.92km

General Notes:

Coordinates:
Easting 516268, Northing 5779302

Photo date:
2nd August 2022, 2.48pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl27 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

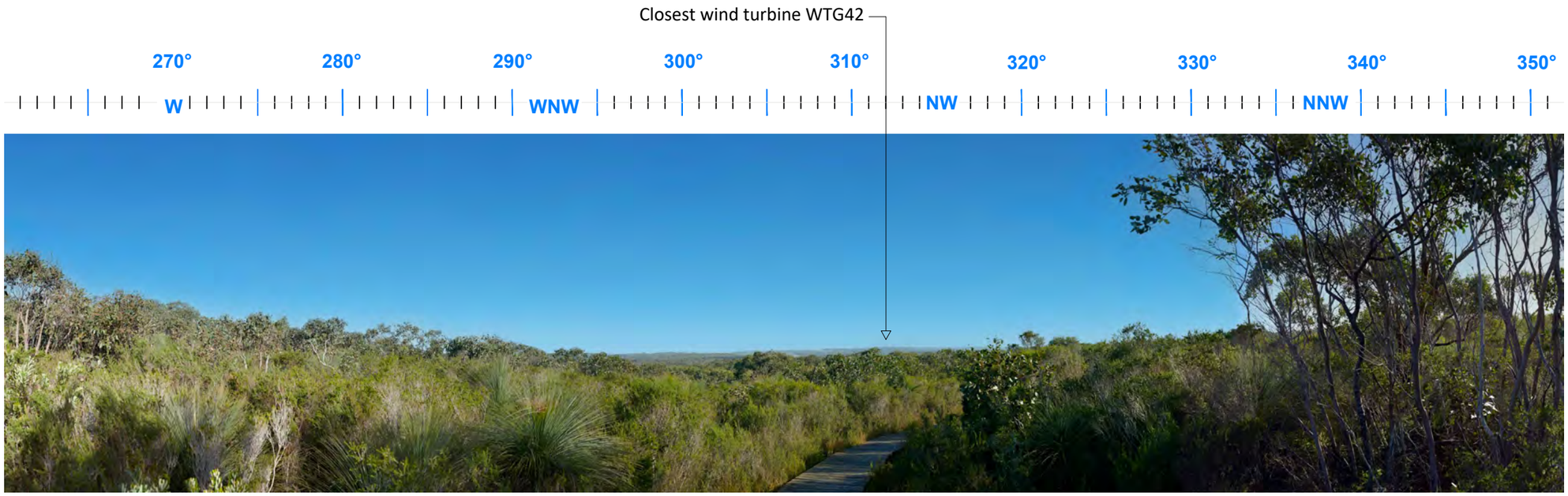
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 86
Photomontage pl27 Lake Mombeong campsite - 90 degree field of view

GBD
Landscape architecture

Photomontage pl28 - Approximate 90° field of view west to north north west from Mount Richmond West Track.
Approximate distance to closest visible wind turbine 13.95km



Blue sky photomontage pl28 - Approximate 90° field of view west to north north west from Mount Richmond West Track.
Approximate distance to closest visible wind turbine 13.95km

General Notes:

Coordinates:
Easting 536384, Northing 5764518

Photo date:
4th August 2022, 10.21am

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl28 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

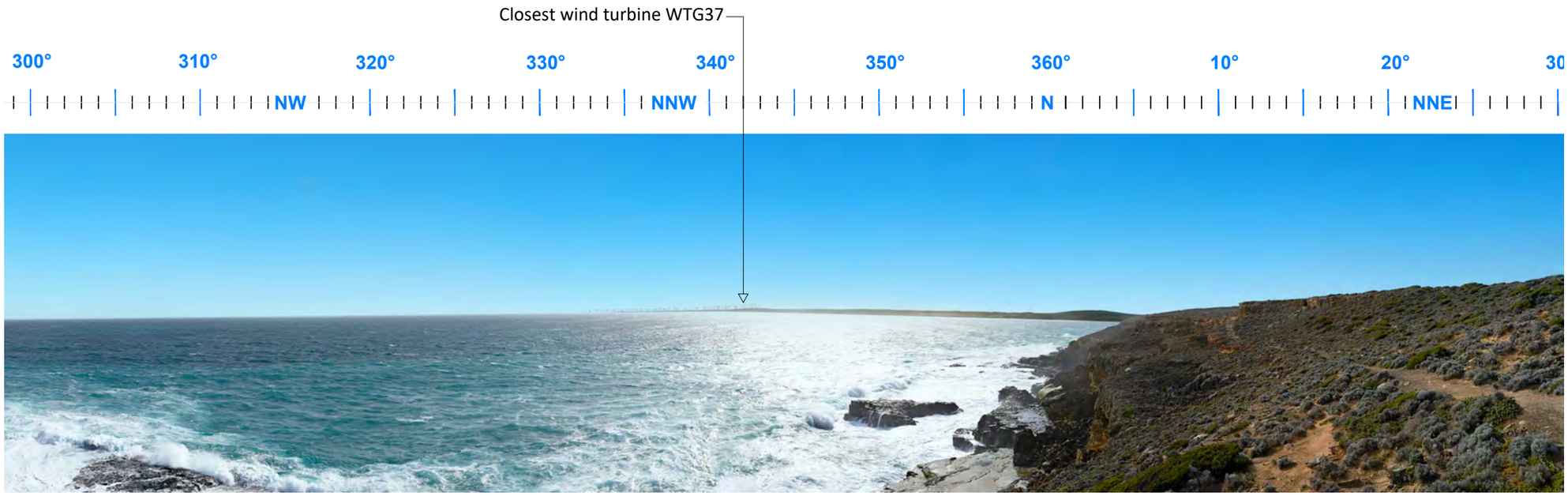
The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 87
Photomontage pl28 Mount Richmond West Track - 90 degree field of view

GBD
Landscape architecture

Photomontage pl29 - Approximate 90° field of view north west to north north east from Green Pool lookout.
Approximate distance to closest visible wind turbine 20.40km



Blue sky photomontage pl29 - Approximate 90° field of view north west to north north east from Green Pool lookout.
Approximate distance to closest visible wind turbine 20.40km

General Notes:

Coordinates:
Easting 532060, Northing 5753631

Photo date:
4th August 2022, 1.05pm

Camera:
Canon EOS 5DSR, 50mm lens

Original Page Format - A3 Landscape

Photomontage pl29 is illustrated at a view angle of around 90 degrees which is within the central, binocular field, of human vision.

Photomontage limitations

A photomontage can never show exactly what the wind farm will look like in reality due to factors such as different lighting, weather and seasonal conditions which vary through time and the resolution of the image. Also a static image cannot convey turbine movement.

The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate.

The viewpoints illustrated are representative of views in this location, but cannot represent visibility at all locations.

Figure 88
Photomontage pl29 Green Pool lookout, Cape Bridgewater - 90 degree field of view

GBD
Landscape architecture

Appendix F – Transmission line options assessment

F.1 Introduction

Section 3.4 of the Scoping Requirements for Kentbruck Green Power Hub Environment Effects Statement requires that the Project's EES document the likely environmental effects of the Project's feasible alternatives, including routes and configurations for the transmission line. The depth of investigation should be proportionate to the potential of the alternatives to minimise potentially significant adverse effects and to meet the Project objectives.

Appendix F describes the feasible transmission line alternatives that have been considered by Neoen for this Project, and the potential visual effects of each alternative. The preferred transmission line option for the Project has been assessed in detail in this report and is not subject to any further assessment in this appendix.

F.2 Description of the alternative transmission line options

The Project being pursued by Neoen, and subject to full impact assessment in this report, comprises a preferred transmission line route as described in Section 10.19 of this report (underground through Cobboboonee National Park and Forest Park, and farmland to the Heywood Terminal Station – Option 1B). An alternative configuration to this option has also been considered by Neoen, which follows the same route as Option 1B however it involves an overhead section between Cobboboonee Forest Park and the Heywood Terminal Station.

Two other options which were identified as feasible in the Transmission Line Options Assessment but are no longer being pursued by the Project due to a lack of landowner and community support, are Options 2A and 2B which run southeast from the wind farm site and connect to the Heywood-Portland 500 kV line north of Portland. Option 2A is wholly overhead, while Option 2B is wholly underground.

F.3 Transmission line options description

The alternative transmission line options would include Options 1A, 2A and 2B as described below:

- Option 1A: The underground transmission line would extend east from the main substation and traverse Cobboboonee National Park and Forest Park beneath the Boiler Swamp Road. From there, the transmission line would transition to an overhead line as it travels through freehold land to reach Heywood Terminal Station (refer **Figure 88**).
- Option 2A: The overhead transmission line would extend southeast from the main wind farm substation and traverse several freehold rural landholdings used primarily for grazing. This option would require development and construction of a new terminal station adjacent to the existing Heywood-Portland 500 kV line north of Portland.
- Option 2B: The underground transmission line would extend southeast from the main wind farm substation and traverse several freehold rural landholdings used primarily for grazing. This option would require development and construction of a new terminal station adjacent to the existing Heywood Portland 500kV line north of Portland.

This LCVIA has not included an assessment of Option 2B as an underground transmission line option would not result in permanent visual effects with only short term visual effects during construction stages being likely. A consideration of the new terminal station at the existing Heywood Portland 500kV line is considered in Option 2A.

F.4 Transmission line description

The overhead transmission line would be supported by a single steel pole with a maximum height of 36m. Located within a 40m wide easement, the transmission line poles would be arranged at an approximate spacing of 300m with additional tension poles required at some changes in direction.

F.5 Key work stages

The overhead transmission line and terminal station works are summarised into the following key stages:

- Upgrade and clearing for access tracks
- Creation of new access tracks if required
- Clearing vegetation for easement and terminal station
- Preparation of temporary construction areas at pole and terminal station locations
- Erection of poles and terminal station infrastructure
- Stringing of conductors and earth wires
- Commissioning and energisation of the infrastructure
- Rehabilitation of work sites.

F.6 Visual absorption capability

Visual absorption capability (VAC) is a classification system used to describe the relative ability of the landscape to accept modifications and alterations without the loss of landscape character or deterioration of visual amenity. It is often applied to smaller ancillary structures, such as powerline infrastructure, where scale and form is more readily absorbed by elements (topography and vegetation) within the surrounding landscape. VAC relates to physical characteristics of the landscape that are often inherent and often quite static in the long term.

Undulating areas with a combination of open views interrupted by groups of trees and small forested areas would have a higher capability to visually absorb the overhead transmission line without significantly changing its amenity.

Areas of cleared vegetation on level ground with limited screening, or areas spanning across prominent ridgelines without significant vegetation, would have a lower capability to visually absorb the overhead transmission line without changing the visual character and potentially reducing visual amenity.

Given the extent and combination of existing natural and cultural character within the wind farm site, the capability of the landscape to absorb the key components of the electrical infrastructure would be primarily dependent upon vegetation cover and landform.

For this LCVIA, the VAC ratings have been determined as:

Low – electrical infrastructure components would be highly visible either due to lack of screening by existing vegetation or surrounding landform (e.g. open farmland cleared of vegetation, or steep hillside crossing ridgeline).

Medium – electrical infrastructure components would be visible but existing vegetation and surrounding landform would provide some screening or background to reduce visual contrast.

High – electrical infrastructure components would be extensively screened by surrounding vegetation and undulating landform.

F.7 Assessment of transmission line visual effect

Potential visibility and resultant visual effect from the overhead transmission line would primarily result from:

- the extent to which the overhead transmission line would be visible from key view locations; and
- the degree of visual contrast between the overhead transmission line and surrounding landscape characteristics where visible from key view locations.

The overall visual effect is generally determined by a combination of factors including:

- the key view location sensitivity from which people may view the overhead transmission line
- the distance between a key view location and the overhead transmission line and
- the duration of time that people may view the overhead transmission line.

The criteria for overall visual effect have been considered and described in this LCVIA (refer Section 10, Tables 13 and 14); however, the overall assessment area and distance criteria for the transmission line Options Assessment are set out below.

For this LCVIA, the transmission line assessment viewshed has been determined within an approximate 1km offset from each side of the transmission line, beyond which the views would have a greater tendency to be screened by landform and/or the presence of vegetation for portions of the overhead transmission line route. The overhead transmission line is unlikely to appear as a dominant visual element within the landscape beyond a 1km distance where the 36m high pole would occupy less than 2% of a person's vertical field of view from beyond 1km of the transmission line.

The distance criteria for the overhead transmission line visual assessment have been adopted as follows:

Category	Distance
Long distance view	>1km (transmission line pole around 2% within FoV)
Moderate distance view	500m – 1km (transmission line pole around 4% within FoV)
Short distance view	200m – 500m (transmission line pole around 10% within FoV)
Very short distance view	< 200m (transmission line pole around 20% within FoV)

The potential visual significance of the overhead transmission line is expressed as a rating of High, Moderate, Low or Negligible. For the purposes of this LCVIA visibility ratings are defined as:

High – The construction of the overhead transmission line and terminal station may result in a very prominent physical change to the landscape and includes the potential for proximate views toward extensive sections of the overhead transmission line from sensitive view locations.

Moderate – The construction of the overhead transmission line and terminal station may result in a noticeable physical change to the landscape although constructed infrastructure would not appear to be substantially different in scale and character to the existing landscape from surrounding view locations.

Low – The construction of the overhead transmission line and terminal station is unlikely to result in a prominent change to the landscape and views from surrounding view locations toward the overhead transmission line may be difficult to distinguish from other natural and constructed elements within the surrounding landscape.

Negligible – The construction of the overhead transmission line and terminal station would not create a noticeable change to the existing landscape and is unlikely to result in views toward the transmission line from surrounding receptor locations.

The assessment of potential visual effects associated with the overhead transmission line Options 1A and 2A (and terminal station) is outlined in **Tables 30** and **31**. The assessment of the overhead transmission line Option 1A has not included dwellings advised as being associated with the Project. No dwellings associated with the overhead transmission line Option 2A have been advised and therefore all dwellings within 1km of the transmission line and terminal station have been assessed.

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
Dwellings within 1km of overhead transmission line Option 1A							
R628	Dwelling Sensitivity: High	796m	High	High	Negligible Low	The dwelling is located to the north and adjacent to Coffeys Lane. The overhead transmission line would be screened by tree planting to the south of the dwelling, tree cover alongside Coffeys Lane corridor and scattered tree cover across pasture/paddocks extending south of Coffeys Lane toward the Surrey River corridor. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R641	Dwelling Sensitivity: High	603m	High	High	Negligible Low	The dwelling is located to the east of the Princes Highway. The overhead transmission line would be screened by tree planting to the north of the dwelling and tree cover along the Surrey River corridor.	Visual effect: Negligible Residual visual effect:

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Mitigation would not be required for this dwelling.	n/a
R643	Dwelling Sensitivity: High	670m	High	High	Negligible	The dwelling is located to the east of the Princes Highway. The overhead transmission line would be screened by tree planting to the south of the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R644	Dwelling Sensitivity: High	671m	High	High	Negligible	The dwelling is located to the east of the Princes Highway. The overhead transmission line would be screened by tree planting to the south east of the dwelling as well as tree planting along the Portland Railway corridor. **Mitigation**	Visual effect: Negligible Residual visual effect: n/a

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation would not be required for this dwelling.	
R645	Dwelling Sensitivity: High	326m	High	High	Negligible Low	The dwelling is located to the east of the Princes Highway and west of the Portland Railway corridor. The overhead transmission line would be screened by tree planting from northwest to northeast of the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R653	Dwelling Sensitivity: High	926m	High	High	Negligible Low	The dwelling is located to the west of the Princes Highway and west of the Portland Railway corridor. The overhead transmission line would be screened by tree planting between the dwelling and the highway and tree planting alongside the Portland Railway corridor.	Visual effect: Negligible Residual visual effect: n/a

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Mitigation would not be required for this dwelling.	
R656	Dwelling Sensitivity: High	465m	High	High	Negligible Low	The dwelling is located to the west of the Princes Highway and west of the Portland Railway corridor. The overhead transmission line would be screened by tree planting between the dwelling and the highway and tree planting alongside the Portland Railway corridor. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R658	Dwelling Sensitivity: High	101m	High	High	Negligible Low	The dwelling is located to the north of Meaghers and west of the adjoining Portland Railway corridor. The overhead transmission line would be screened by tree planting	Visual effect: Negligible

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						between the dwelling and the Portland Railway corridor. **Mitigation** Mitigation would not be required for this dwelling.	Residual visual effect: n/a
R664	Dwelling Sensitivity: High	790m	High	Low	Low Moderate	The dwelling is located around 545m to the west of Rifle Range Road and the existing 500kV transmission line corridor. Views toward the overhead transmission line would be partially screened by tree cover alongside the railway corridor, restricting views toward around 400m of transmission line extending north and away from the dwelling.	Visual effect: Negligible Residual visual effect: n/a
R667	Dwelling Sensitivity: High	336m	High	Moderate	Low	The dwelling is located to the south of Meaghers and east of the Portland Railway corridor. The overhead transmission line	Visual effect: Negligible

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						would be largely screened by tree planting surrounding the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Residual visual effect: n/a
R669	Dwelling Sensitivity: High	565m	High	High	Negligible	The dwelling is located to the south of Meaghers and east of the Portland Railway corridor. The overhead transmission line would be screened by tree planting surrounding the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
Princes Highway	Vehicles Sensitivity: Low	The overhead transmission line would	Short	High	Low	The overhead 275kV transmission line would span the Princes Highway east to west, around 485m south of Meaghers Road perpendicular to the highway corridor.	Visual effect: Negligible Low

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
		span the highway.				The highway approach toward the transmission line easement (from north and south directions) would be screened by tree planting alongside the highway corridor. Views toward the transmission line where a cleared easement would adjoin and extend from the highway corridor would be limited by the very short duration and indirect nature of available views. **Mitigation** Mitigation would not be required for this view location.	Residual visual effect: n/a
Local roads	Vehicles Sensitivity: Low	The transmission line would span Jennings Road, with other local	Short	Moderate High	Low	The overhead 275kV transmission line would span Jennings Road east to west, around 1.5km south of Coffeys Road. Jennings Road is an unsealed dirt road with a very low number of daily vehicle usage. The transmission line would also span Meaghers	Visual effect: Negligible Residual visual effect:

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
		roads between 340m and 710m from the transmission line corridor.				Road around 774m east of the Princes Highway. Views toward the overhead 275kV transmission line from other local roads, including Coffeys Lane, the Surrey River-Gorae Road and Meaghers Road, would be limited by the very short duration and indirect nature of available views, as well as vegetation alongside local road corridors. **Mitigation** Mitigation would not be required for the local roads.	n/a
Portland Railway	Passengers Sensitivity: Low	The transmission line would span the railway corridor and extend	Short	Moderate High	Low	The overhead 275kV transmission line would span Jennings Road east to west, around 1.5km south of Coffeys Road. Jennings Road is an unsealed dirt road with a very low number of daily vehicle usage. The transmission line would also span Meaghers	Visual effect: Negligible Residual visual effect:

Table 30 – Overhead 275kV transmission line Option 1A visual effect (Refer **Figure 88** for view locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
		north parallel to the railway corridor toward the Heywood Terminal Station.				Road around 774m east of the Princes Highway. Views toward the overhead 275kV transmission line from the railway corridor would be limited by the very short duration and indirect nature of available views, as well as vegetation alongside the railway corridor. **Mitigation** Mitigation would not be required for this dwelling.	n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
Dwellings within 1km of overhead transmission line Option 2A							
R64	Dwelling Sensitivity: High	617m	High	High	Negligible	The dwelling is located around 320m to the north of the Portland Nelson Road. The overhead transmission line would be largely screened by built structures (sheds) and scattered trees/field boundary tree planting beyond the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R67	Dwelling Sensitivity: High	193m	High	High	Negligible	The dwelling is located around 147m to the north of the Portland Nelson Road. The overhead transmission line would be largely screened by built structures (sheds) and scattered trees beyond the dwelling.	Visual effect: Negligible Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Mitigation would not be required for this dwelling.	
R73	Dwelling Sensitivity: High	494m	High	High	Negligible	The dwelling is located around 970m to the south of the Portland Nelson Road. The overhead transmission line would be screened by tree cover surrounding and beyond the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R82	Dwelling Sensitivity: High	590m	High	Moderate	Low	The dwelling is located around 150m to the west of Blacks Road and 690m north of the Portland Nelson Road. Sections of transmission line would be visible beyond 600m with some occasional scattered tree cover providing some potential filtering of	Visual effect: Negligible Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						views. Indirect views would result in a low visual effect. **Mitigation** Mitigation would not be required for this dwelling.	
R110	Dwelling Sensitivity: High	380m	High	Low	Moderate	The dwelling is located around 75m to the north of Telegraph Road and would have views toward an approximate 300m length of transmission line resulting in a moderate level of visual effect. **Mitigation** Off-site landscape works (tree planting) between the dwelling and transmission line would provide effective screening mitigation.	Visual effect: Moderate Residual visual effect: Negligible Low
R122	Dwelling Sensitivity: High	460m	High	Moderate High	Low	The dwelling is located around 60m to the north of Telegraph Road and would have views toward an approximate 650m length of	Visual effect: Moderate

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						transmission line resulting in a moderate level of visual effect. Views from the dwelling would be partially constrained by other structures (shed) and some mature tree planting. **Mitigation** Off-site landscape works (tree planting) between the dwelling and transmission line would provide effective screening mitigation.	Residual visual effect: Negligible Low
R209	Dwelling Sensitivity: High	505m	High	Moderate High	Low	The dwelling is located around 350m to the south of Suttons and Dryants Road and east of Collivers Road. Views south west from the dwelling would be screened by windbreak planting with additional views south partially screened by other structures (sheds). Additional screening would be provided by a small group of mature tree planting to the south east of the dwelling.	Visual effect: Low Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Mitigation would not be required for this dwelling.	
R234	Dwelling Sensitivity: High	240m	High	Moderate High	Low	The dwelling is located around 990m west of Heath Road with the transmission line spanning the access track to the dwelling around 250m east of the dwelling. Views toward the transmission line would be variously filtered and screened by existing planting proximate to, and beyond the dwelling. Views toward the transmission line would be available through limited gaps in field boundary planting resulting in an overall low level of visual effect. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Low Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R242	Dwelling Sensitivity: High	718m	High	High	Negligible	The dwelling is located around 370m south of Sutton and Bryants Road. The dwelling is located within tree cover surrounding and beyond the dwelling which would screen views toward the transmission line. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R253	Dwelling Sensitivity: High	474m	High	High	Negligible Low	The dwelling is located around 480m west of Heath Road. Windbreak and screen planting would screen various views toward the transmission line to the south west and south of the dwelling resulting in a negligible low visual effect. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible low Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R261	Dwelling Sensitivity: High	368m	High	High	Low	The dwelling is located around 85m west of Heath Road. Views toward the transmission line would be largely screened by planting alongside the Heath Road corridor. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R269	Dwelling Sensitivity: High	319m	High	Moderate	Low Moderate	The dwelling is located around 30m to the east of Heath Road. Views toward the transmission line would be partially disrupted by planting around the dwelling; however, views would extend toward sections of transmission line north east and east of the dwelling resulting in a low moderate visual effect.	Visual effect: Low Moderate Residual visual effect: Low

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Off-site landscape works (tree planting) between the dwelling and transmission line would provide effective screening mitigation.	
R386	Dwelling Sensitivity: High	450m	High	High	Negligible	The dwelling is located around 650m north of Logans Road. Views toward the transmission line would be largely screened by substantive tree cover beyond the dwelling and scattered tree planting surrounding the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R402	Dwelling Sensitivity: High	485m	High	High	Low	The dwelling is located to the east of Wilmot Road with surrounding tree cover screening most views toward the transmission line. A gap in tree cover to the north of the dwelling may provide an opportunity to view a small	Visual effect: Low Residual visual effect:

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						portion, and angle structures, of the transmission line. **Mitigation** Mitigation would not be required for this dwelling.	n/a
R404	Dwelling Sensitivity: High	635m	High	High	Negligible	The dwelling is located around 244m south of Bothes Road and surrounded by substantial tree cover screening views toward the transmission line. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R460	Dwelling Sensitivity: High	155m	High	High	Negligible	The dweling is located to the west of Foyles Road with views toward the transmission line screened by tree cover surrounding the dwelling and alongside Logans Road corridor to the south of the dwelling. Views toward the	Visual effect: Negligible Residual visual effect:

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	n/a
R461	Dwelling Sensitivity: High	620m	High	High	Negligible	The dwelling is located around 280m west of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R464	Dwelling Sensitivity: High	400m	High	High	Negligible	The dwelling is located around 205m south of Foyles Road with views toward the transmission line screened by tree cover	Visual effect: Negligible

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Residual visual effect: n/a
R471	Dwelling Sensitivity: High	656m	High	High	Negligible	The dwelling is located around 280m west of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R472	Dwelling	400m	High	High	Negligible	The dwelling is located around 150m south of Foyles Road with views toward the	Visual effect:

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
	Sensitivity: High					transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Negligible Residual visual effect: n/a
R477	Dwelling Sensitivity: High	200m	High	High	Negligible	The dwelling is located around 65m east of Foyles Road with views toward the transmission line largely screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
R490	Dwelling Sensitivity: High	325m	High	High	Negligible	The dwelling is located around 80m south of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R497	Dwelling Sensitivity: High	375m	High	High	Negligible	The dwelling is located around 119m south of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation**	Visual effect: Negligible Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation would not be required for this dwelling.	
R504	Dwelling Sensitivity: High	510m	High	High	Negligible	The dwelling is located around 178m south of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R505	Dwelling Sensitivity: High	376m	High	High	Negligible	The dwelling is located around 35m south of Foyles Road with views toward the transmission line screened by tree cover surrounding and beyond the dwelling. Views toward the proposed terminal station would also be screened by existing tree cover.	Visual effect: Negligible Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation Mitigation would not be required for this dwelling.	
R517	Dwelling Sensitivity: High	405m	High	Low	Moderate	The dwelling is located around 95m north of Spinks Road with views extending north west and north from the dwelling toward the transmission line and the terminal station at around 700m distance. **Mitigation** On-site mitigation works including tree and shrub planting may be employed beyond the perimeter of the terminal station to the extent that any BMO and safety offset requirements may apply. In addition, and/or separately to on-site mitigation works, off-site mitigation works to the north and north west of the dwelling would assist to screen views toward	Visual effect: Moderate Residual visual effect: Low

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						the terminal station and transmission line infrastructure.	
R521	Dwelling Sensitivity: High	440m	High	Low Moderate	Moderate	The dwelling is located around 80m north of Spinks Road with views extending north from the dwelling toward the transmission line and the terminal station at around 680m distance. More extensive views toward the transmission line would be screened by tree planting to the west of the dwelling. **Mitigation** On-site mitigation works including tree and shrub planting may be employed beyond the perimeter of the terminal station to the extent that any BMO and safety offset requirements may apply. In addition, and/or separately to on-site mitigation works, off-site mitigation works to the north and north west of the dwelling would assist to screen views toward	Visual effect: Moderate Residual visual effect: Low

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						the terminal station and transmission line infrastructure.	
R536	Dwelling Sensitivity: High	655m	High	High	Negligible	The dwelling is located around 50m to the north of Spinks Road. Views from the dwelling toward the transmission line and terminal station will be screened by tree planting surrounding the dwelling. **Mitigation** Mitigation would not be required for this dwelling.	Visual effect: Negligible Residual visual effect: n/a
R538	Dwelling Sensitivity: High	563m	High	Low	Moderate High	The dwelling is located to the western end of Harmer Court with views from the dwelling extending south west toward the existing 500kV transmission line (closest pylon around 228m from the dwelling) and the proposed transmission line and terminal station site.	Visual effect: High Residual visual effect: Low Moderate

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						Mitigation On-site mitigation works including tree and shrub planting may be employed beyond the perimeter of the terminal station to the extent that any BMO and safety offset requirements may apply. In addition, and/or separately to on-site mitigation works, off-site mitigation works to the south west of the dwelling would assist to screen views toward the terminal station and transmission line infrastructure.	
Portland Nelson Road	Vehicles Sensitivity: Low	Overhead transmission line spans the road corridor.	Short	High	Low	The overhead 275kV transmission line would span the Portland Nelson Road north to south, around 700m west of Blacks Road approximately perpendicular to the road corridor. The road approach toward the transmission line easement (from east and west directions)	Visual effect: Negligible Low Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
						would be screened by tree planting alongside the road corridor. Views toward the transmission line where a cleared easement would adjoin and extend from the highway corridor would be limited by the very short duration and indirect nature of available views. **Mitigation** Mitigation would not be required for this view location.	
Local roads	Vehicles Sensitivity: Low	Overhead transmission line spans a number of road corridors.	Short	Varies; however, most local road corridors have some degree of tree planting alongside road corridors	Low	View from local roads toward the transmission line would be largely constrained by tree planting alongside local road corridors; and where visible, views from moving vehicles would be short term and dependent on direction of travel.	Visual effect: Negligible Low Residual visual effect: n/a

Table 31 – Overhead 275kV transmission line Option 2A visual effect matrix (Refer **Figures 89** to **92** for dwelling locations)

	SENSITIVITY	**MAGNITUDE**					
Receiver location	Category of receiver location and sensitivity grading	Approximate distance to overhead transmission line	Potential duration of effect	VAC between view location and transmission line	Overall magnitude grading	Degree of visibility, screening and mitigation	Potential and residual visual effect
				resulting in a High VAC.		**Mitigation** Mitigation would not be required for this view location.	

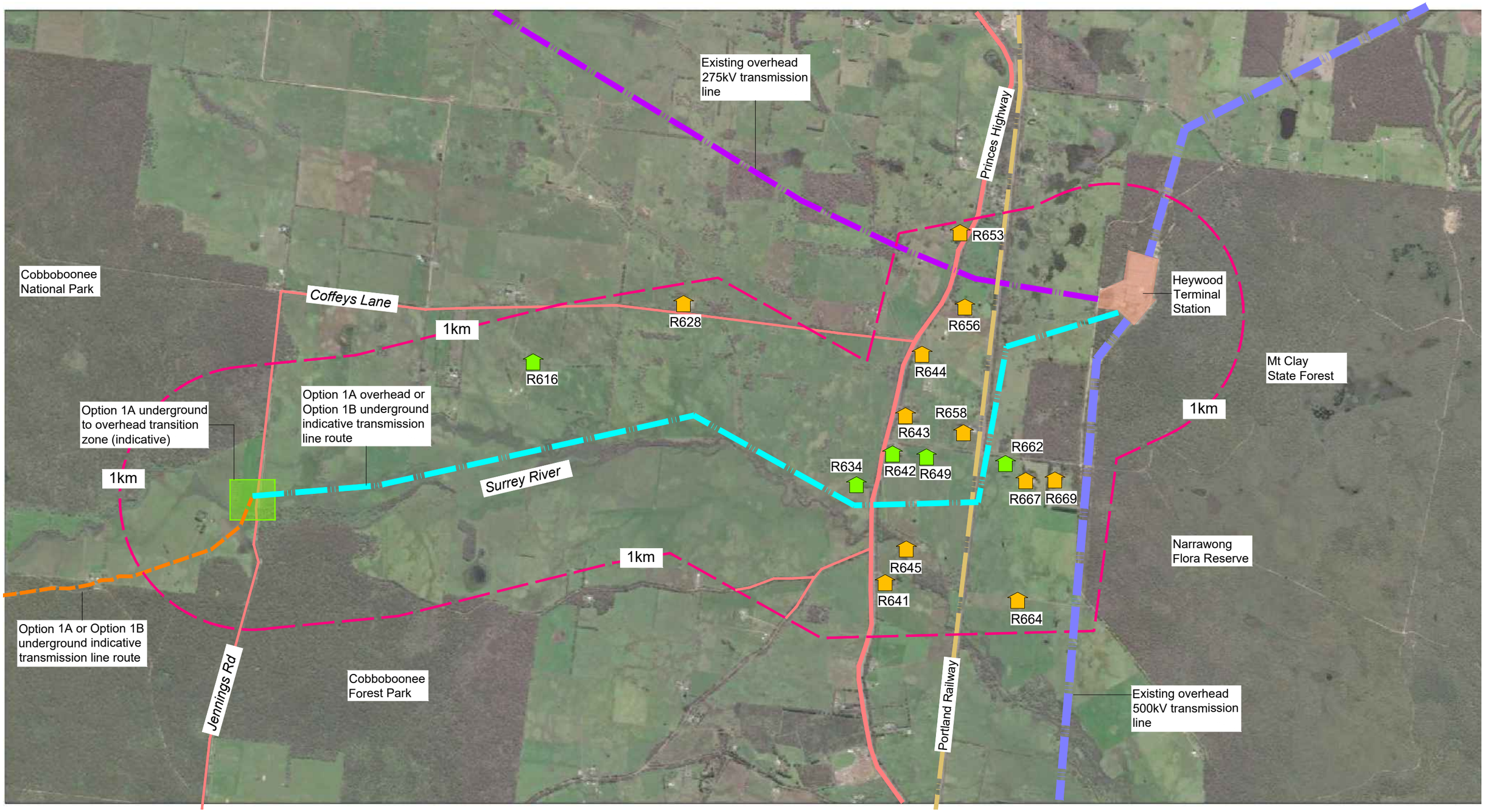
F.8 Summary of transmission line Option 1A and 2A visual effect

The assessment of overhead transmission line Options 1A and 2A has determined that most dwellings located within 1km of the transmission line would experience a negligible to low visual effect. This level of visual effect is largely due to the extent of tree planting, general tree cover and screening around existing dwellings.

A small number of dwellings, including those located closer to the Option 2A terminal station would experience a higher level of visual effect; however, both on-site and off-site mitigation measures would minimise potential visual effects to a Low or Low Moderate level.

Views toward the overhead transmission line Options 1A and 2A from main roads and highways will result in negligible visual effects due to tree screening along the road corridors, indirect nature of views and the very short duration of views from vehicles.

Whilst spanning several local road corridors within the Option 2A alignment, the transmission line would be largely screened by tree cover along most local road corridors.



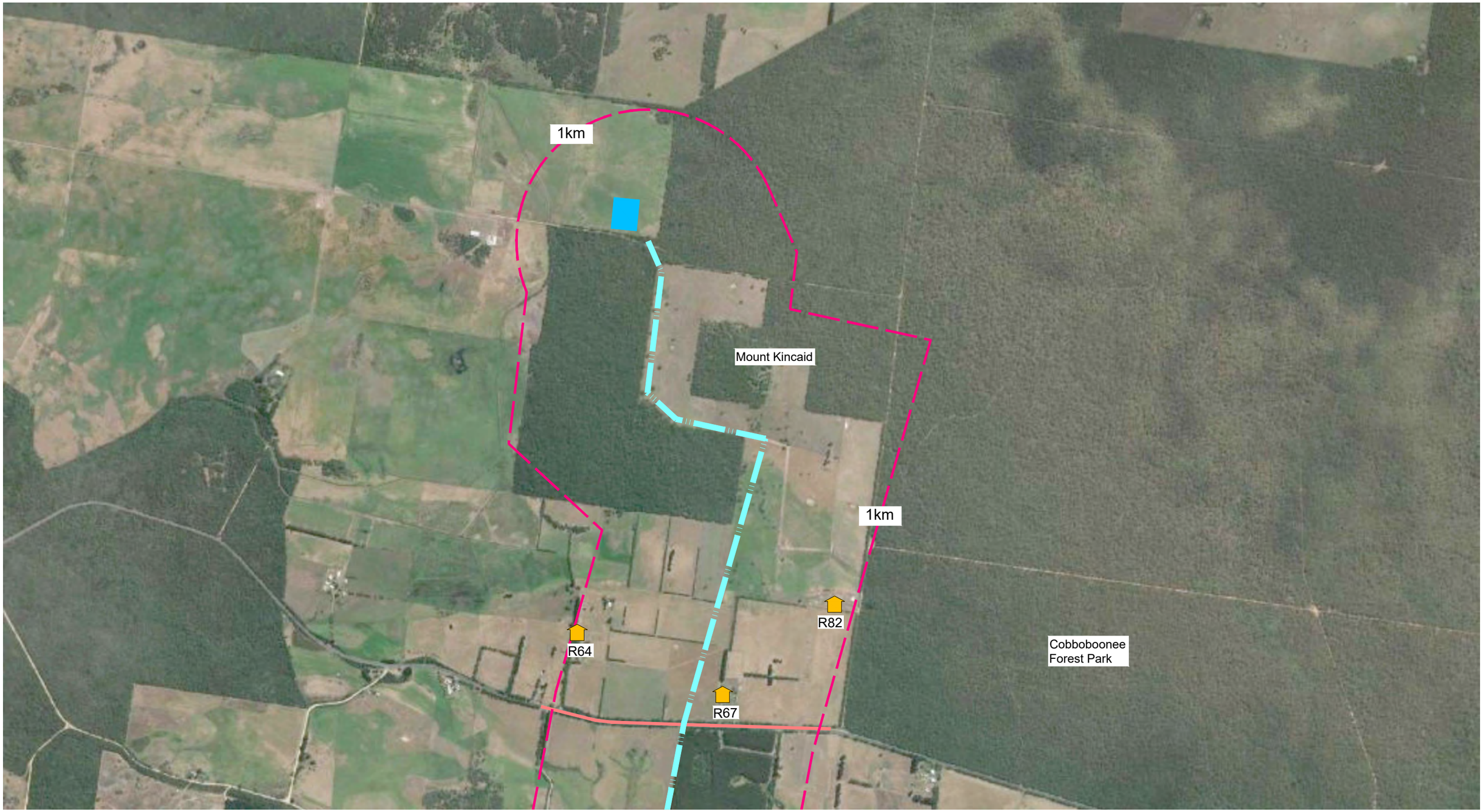
Legend

- R616 — Non involved dwelling within 1km of 275kV transmission line
- R629 — Involved dwelling within 1km of 275kV transmission line
- Indicative underground 275kV transmission line route
- Indicative overhead 275kV transmission line route
- Portland Railway corridor
- 1km offset from 275kV transmission line
- Existing 500kV transmission line
- Existing 275kV transmission line
- Princes Highway
- Local road

0m — 1km

Figure 89
275kV overhead transmission line 1A Option Assessment

GBD
Landscape architecture



Legend

- R616 — Dwelling within 1km of 275kV overhead transmission line
- 1km offset from 275kV overhead power line
- Road corridor
- Existing 500kV transmission line
- Indicative 275kV overhead transmission line route
- Preivous main substation location
- Proposed terminal station

0m 1km

Figure 90
275kV overhead transmission line option 2A Sheet 1 of 4

GBD
Landscape architecture

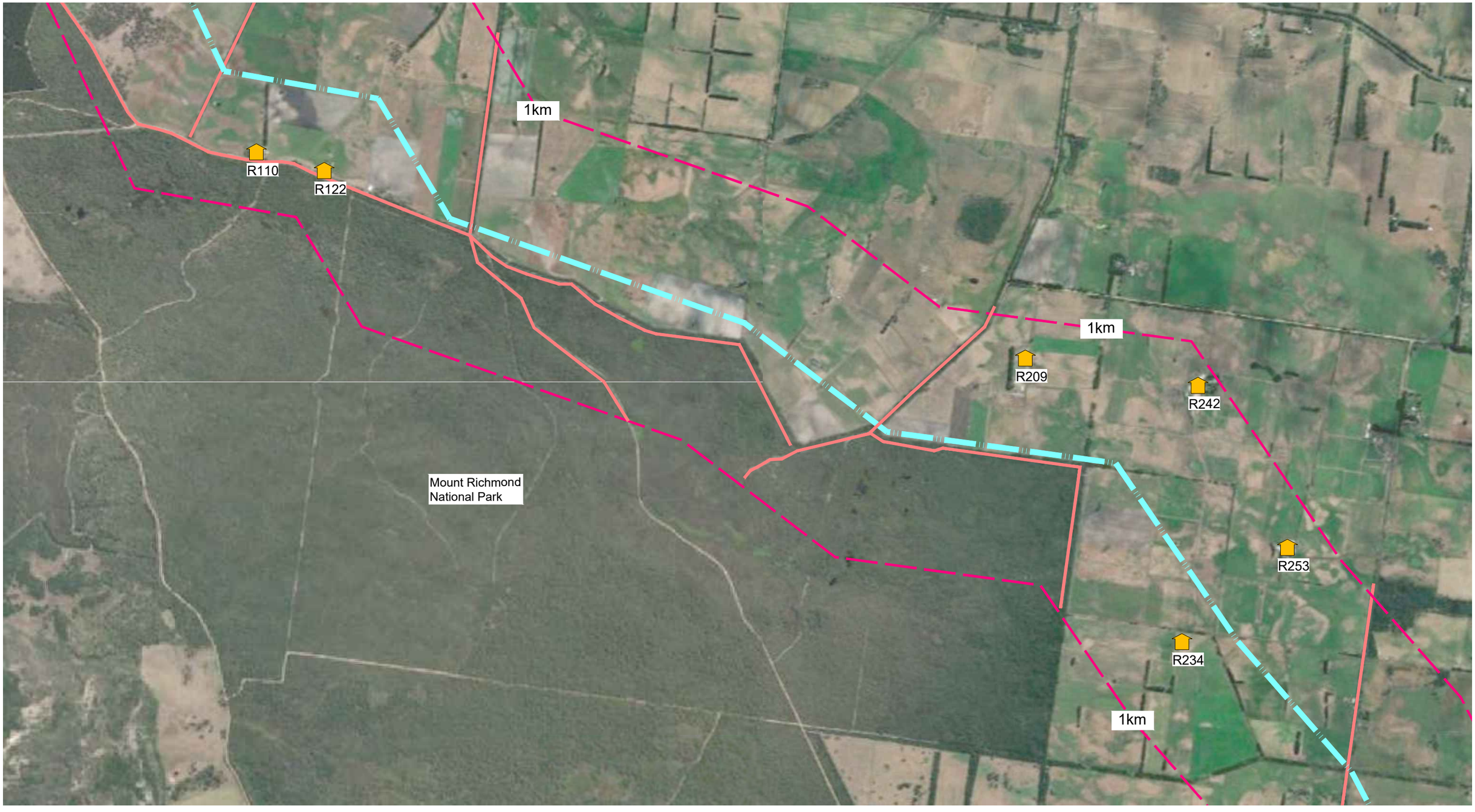
Legend

- Dwelling within 1km of 275kV overhead transmission line (R616)
- 1km offset from 275kV overhead power line
- Road corridor
- Existing 500kV transmission line
- Indicative 275kV overhead transmission line route
- Preivous main substation location
- Proposed terminal station

0m 1km

Figure 91
275kV overhead transmission line option 2A Sheet 2 of 4

GBD
Landscape architecture



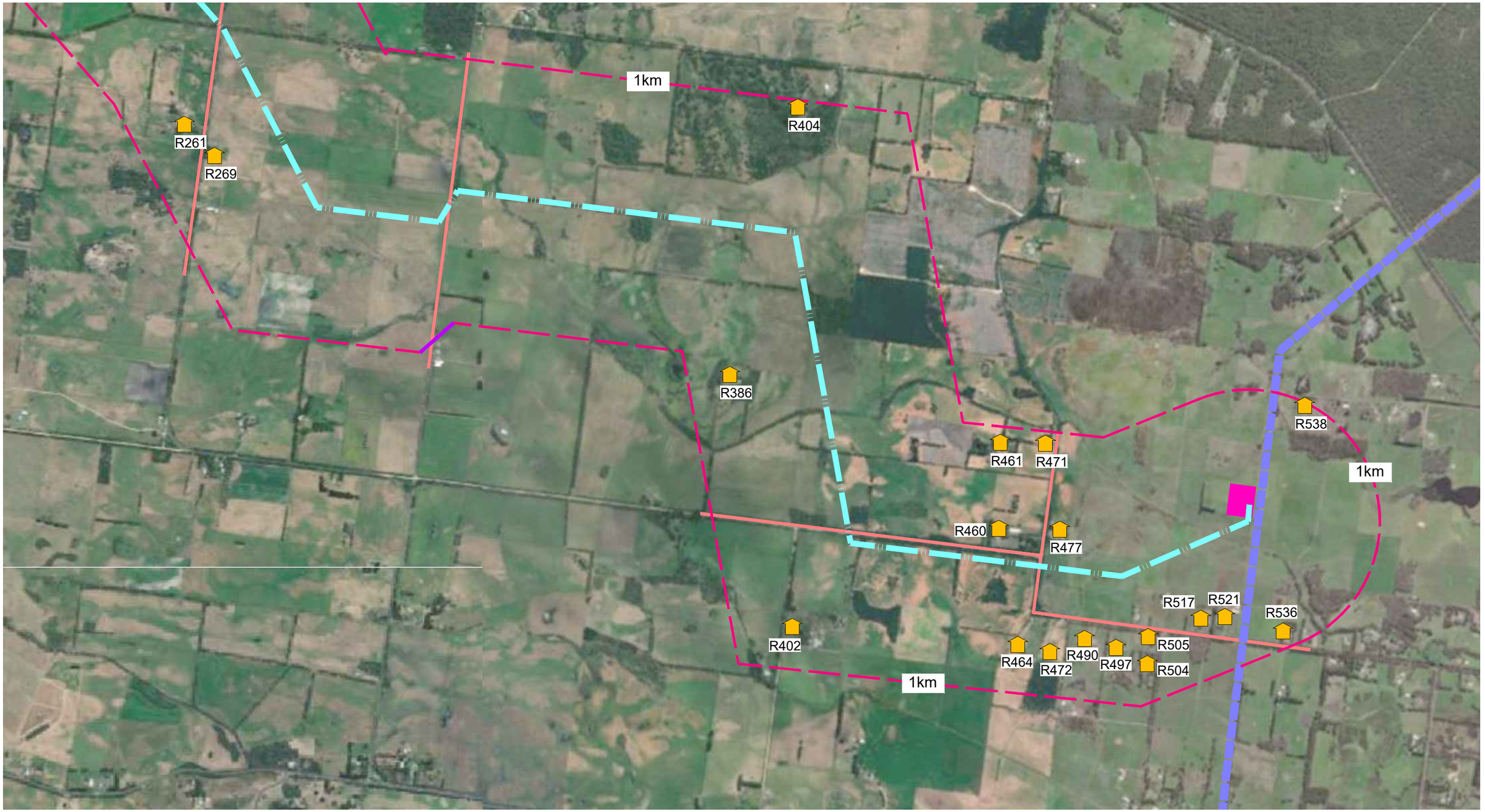
Legend

- R616 — Dwelling within 1km of 275kV overhead transmission line
- 1km offset from 275kV overhead power line
- Road corridor
- Existing 500kV transmission line
- Indicative 275kV overhead transmission line route
- Preivous main substation location
- Proposed terminal station

0m — 1km

Figure 92
275kV overhead transmission line option 2A Sheet 3 of 4

GBD
Landscape architecture



Legend

- R616 — Dwelling within 1km of 275kV overhead transmission line
- 1km offset from 275kV overhead power line
- Road corridor
- Existing 500kV transmission line
- Indicative 275kV overhead transmission line route
- Preivous main substation location
- Proposed terminal station

0m — 1km

Figure 93
275kV overhead transmission line option 2A Sheet 4 of 4

GBD
Landscape architecture

Appendix G - Qualifications and experience

This LCVIA has been prepared by Andrew Homewood, Director and Principal Landscape Architect of Green Bean Design (GBD) Pty Ltd (ABN 866 035 75702). Andrew has held this position for the past 18 years. Andrew holds post graduate, graduate and tertiary qualifications:

- Graduate Diploma Landscape Management (Sheffield University 1995)
- Bachelor Science (Dual Honours) Landscape Design and Archaeology (Sheffield University 1991-1994)
- National Diploma Amenity Horticulture (Writtle University College 1986-1989)

Andrew is a Registered Landscape Architect (membership #001245) and a member of the Australian Institute of Landscape Architects and the Environmental Institute of Australia and New Zealand. Andrew has been directly employed or engaged in landscape related work/studies for the past 37 years in the United Kingdom and Australia.

Andrew has prepared numerous landscape and visual impact assessments across a range of state significant developments including renewable energy, mining, electricity transmission, waste management and transport. GBD has been commissioned to undertake LCVIA for over 60 wind farm projects across Australia. Our Victorian wind farm project experience includes:

- Woolsthorpe Wind Farm Amendment, VIC
- Mumblin Wind Farm LCVIA, VIC
- Brewster Wind Farm LCVIA, VIC
- Kentbruck Green Energy Hub (referral), VIC
- Berrybank Wind Farm (micro siting review), VIC
- Hawkesdale Wind Farm amendments, VIC
- Ryan Corner Wind Farm amendments, VIC
- Jung and Wimmera Plains Wind Farm LVIA, VIC
- Alberton Wind Farm LVIA, VIC
- Moorabool Wind Farm (offsite landscape mitigation plan), VIC
- Kiata Wind Farm LVIA, VIC
- Murra Warra Wind Farm (preliminary LVIA), VIC
- Ararat Wind Farm (terminal substation assessment), VIC
- Willatook Wind Farm (preliminary LVIA). VIC

Professional History	Green Bean Design, Director/Principal Landscape Architect 2006 – to date
	URS Australia Pty Ltd, Practice Leader Landscape Architecture 2005 – 2006
	URS Australia Pty Ltd, Associate Landscape Architect 2003-2005
	URS Australia Pty Ltd, Senior Landscape Architect, 2002 – 2003
	URS Australia Pty Ltd, Landscape Planner, 2001-2002
	URS, Contract Landscape Architect, 2000-2001
	Blacktown City Council, Contract Landscape Planner, 2000-2001
Relocated from United Kingdom to Australia 1996	Knox & Partners Pty Ltd, Landscape Architect, 1996-2000
	Brown & Associates, Landscape Architect, 1995-1996
	University of Sheffield post graduate studies 1995-1996
	Philip Parker & Associates, Graduate Landscape Architect, 1994-1995
	University of Sheffield undergraduate studies 1991-1994
	Rendel & Branch, Landscape Assistant, 1989-1991
	Writtle University College, tertiary studies 1988-1989
	National Trust, Horticulturalist, 1987-1988
	Writtle University College, tertiary studies 1986-1987
	English Nature, Species Protection Warden, 1985-1986
	Essex Wildlife Trust, Botanist, 1984-1985
	Royal Society for the Protection of Birds, Voluntary Warden, 1983-1984

The photomontages, wireframes and zone of visual influence diagrams have been modelled and prepared by David Price. David holds a Bachelor of Engineering with Honours from the University of Melbourne and is employed as a Senior Engineer working for Developer Support Services, Energy Systems at DNV Australia Pty Ltd. David has over 21 years working in renewables consulting for DNV and has provided photomontage modelling services to GBD for the past 18 years.

Limitations

This LCVIA has been prepared in accordance with the usual care and thoroughness of the consulting profession for the use of Neoen Australia Pty Ltd. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the GBD Proposal February 2021.

The methodology adopted and sources of information used are outlined in this report. GBD has made no independent verification of this information beyond the agreed scope of works and GBD assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to GBD was false.

This LCVIA was completed between February 2021 and October 2024 and is based on the conditions encountered and information reviewed at the time of preparation. GBD disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Green Bean Design Pty Ltd (GBD) is a highly experienced landscape architectural consultancy specialising in landscape and visual impact assessment. Established in 2006 as an independent consultancy, GBD provide professional advice to a range of commercial and government clients involved in large infrastructure project and policy development.

GBD Director Andrew Homewood is a Registered Landscape Architect, member of the Australian Institute of Landscape Architects and the Environmental Institute of Australia and New Zealand. Andrew has over 30 years' continuous employment in landscape consultancy and has completed numerous landscape and visual impact assessments for a range of state significant developments including wind energy, solar, mining, industrial and transport developments.

GBD has been commissioned for large scale renewable energy projects across New South Wales, Victoria, South Australia, Queensland and Tasmania.

GBD have prepared Expert Witness Statements and been engaged as a peer reviewer of renewable energy landscape and visual impact assessments in Victoria and New South Wales.

CONTACT

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