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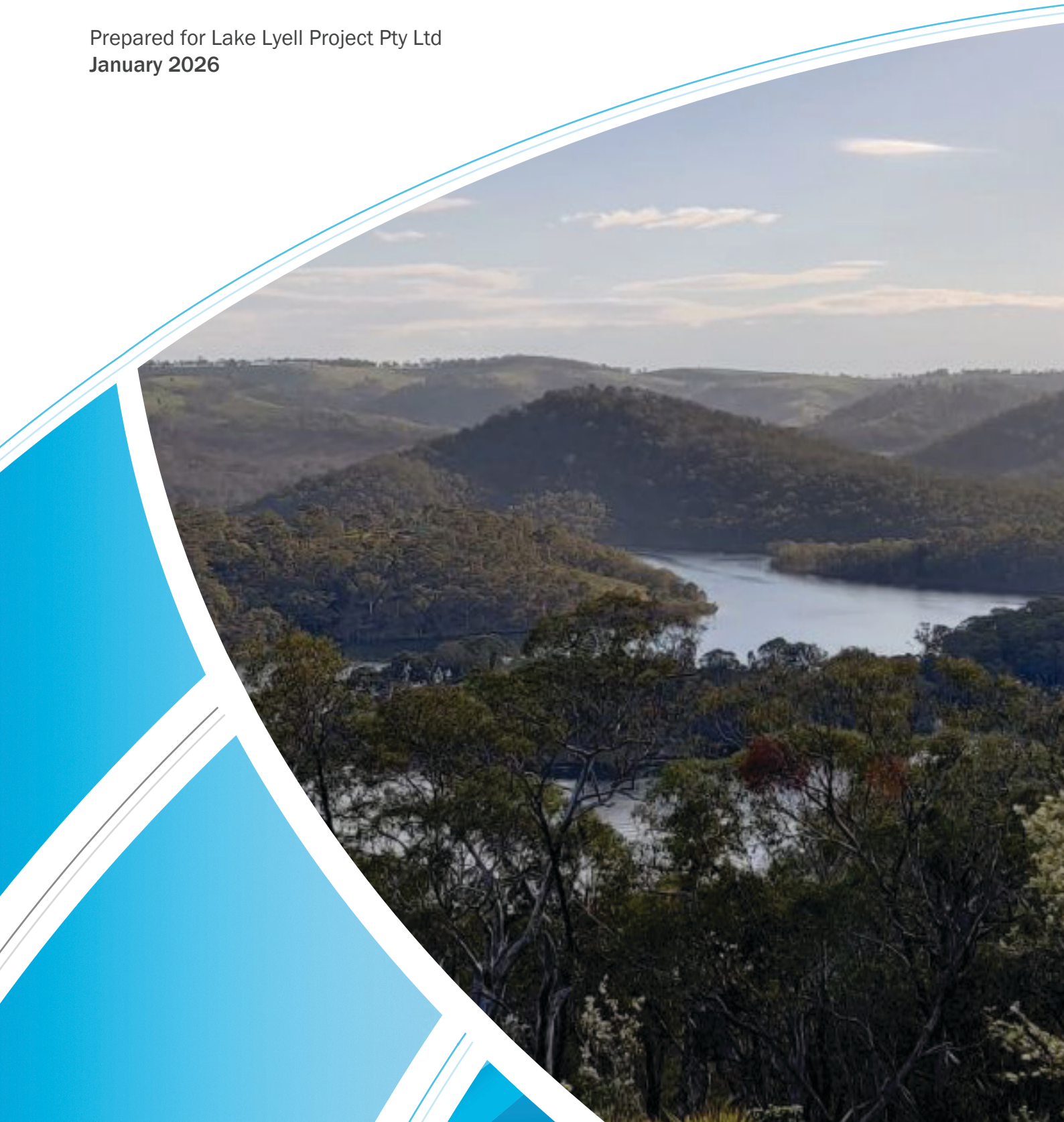
APPENDIX N – Environmental Impact Statement

Landscape and visual impact assessment

Prepared for Lake Lyell Project Pty Ltd
January 2026



Lake Lyell Pumped Hydro Energy Storage Project

Landscape and visual impact assessment

Lake Lyell Project Pty Ltd

E221111 RP15

January 2026

Version	Date	Prepared by	Reviewed by	Comments
1	23 September 2024	Stephen Bertram	Tadd Andersen	Draft for client review
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29 January 2026

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Executive Summary

ES1 Introduction

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. It will be located approximately 5 kilometres (km) west of Lithgow and 110 km west of the Sydney central business district, as shown in Figure 1.1. The project will utilise the advantageous topography of the area, as well as the existing man-made reservoir that is Lake Lyell, to generate electricity during periods of peak demand.

ES2 Project description

The project is intended to act as an energy storage system, storing electrical energy from the grid as gravitational potential energy by pumping water from the lower reservoir to the elevated upper reservoir, before releasing from the upper reservoir back to the lower reservoir converting the water's kinetic energy back to electrical energy. Underground tunnels will carry the water between the reservoirs via an underground power station which will house equipment that will operate as a water pump or an electricity generator. Lake Lyell itself will act as the lower reservoir.

The project will have the capacity to store up to 3,080 MWh of energy and generate up to 440 MW of power. It will be connected to the electricity grid via an existing 330 kilovolt (kV) transmission line which passes through the project area. Construction of the project is anticipated to take around four to five years, and the operational life of the project will be approximately 80 to 100 years.

ES3 Assessment of landscape and visual impacts

ES3.1.1 Landscape impact summary

This study has identified four landscape character zones (LCZs) surrounding the project based on the dominant landform and landscape features. It has then assessed the impacts of the project on each zone. The LCZs are:

- Coxs River and Lake Lyell – formed by the location of a large, navigable body of water surrounded by forested ranges and hilly agricultural land:
  - this LCZ has a **moderate** landscape character impact.
- Forested mountains, ridges and valleys – characterised by steeply sided valleys between rugged ridges with occasional higher peaks:
  - this LCZ has a **high** landscape character impact.
- Cleared agricultural slopes – formed from valley sides with moderate slopes that have been partially cleared for grazing:
  - this LCZ has a **low** landscape character impact.
- Lithgow and surrounding urban areas – where urban commercial and residential structures line a network of streets along the valley floors and lower slopes:
  - this LCZ has a **low** landscape character impact.

ES3.1.2 Visual impact summary

Representative viewpoints have been assessed to demonstrate the potential visual impacts of the project. The visual assessment identified 16 representative viewpoints with varying degrees of visual access to the project's operational footprint, and one representative viewpoint to assess the visual impact of the temporary Lakeside camp during construction (provided in Annexure A).

Of the 16 representative viewpoints used to assess the visual impacts of the operation of the project, the following visual impact ratings were determined:

- A low visual impact from 9 viewpoints (4, 7, 10 to 16).
- A moderate visual impact from two viewpoints (8 and 9)
- A high visual impact from five viewpoints (1, 2, 3, 5 and 6).

Viewpoint 17 was used to assess the construction visual impact of the Lakeside camp option on motorists on Magpie Hollow Road and received a rating of low.

The results of the representative viewpoint analysis were used to inform further, detailed assessment of individual sensitive receivers (private residences or businesses) where they were predicted to experience a moderate or high visual impact. This involved review of virtual views from each sensitive receiver (provided in Annexure B).

Visual impact ratings for near neighbours considered their location within the landscape, including whether the view was a primary or secondary view from its location. Existing vegetation provides natural screening on many properties, and this has contributed to an overall reduction in visual magnitude when compared to the representative viewpoint assessment. Of the 23 sensitive receivers individually assessed, five are rated as likely to experience high visual impacts, 11 are rated as likely to experience moderate visual impacts and seven are rated as likely to experience low or very low visual impacts. Near neighbours that may experience the greatest visual impacts include dwellings along Sir Thomas Mitchell Drive and some properties south-west of the project area along Sandalls Drive.

ES3.1.3 Nighttime lighting

Construction night lighting is temporary and would impact a limited number of residences at certain times during construction. Temporary construction lighting for the upper reservoir may be visible from greater distances.

Nighttime lighting during the operation of the project will mainly be emitted from the lower elevation elements and will have a potential impact on a small number of receivers with views of these elements. Lighting design can mitigate some of these impacts. Occasional maintenance or security activities on or near the upper reservoir may require use of temporary or vehicle mounted lights that may be visible at greater distances for limited durations.

ES3.1.4 Cumulative impacts

This landscape and visual assessment identified two nearby approved State significant development (SSD) renewable energy projects and one proposed SSD:

- SSD-12346552 Great Western Battery
- SSD-14540514 Wallerawang Battery Energy Storage System (BESS)
- SSD-86097208 Mount Lambie Wind Farm.

Due to their distant location and small scale, no cumulative visual impacts are anticipated from the approved battery projects. No cumulative visual impacts are anticipated with the Mount Lambie Wind Farm due to its distance from the project.

ES4 Mitigation

Recommendations have been made to mitigate visual impacts of the project. Key mitigation measures include siting project elements to minimise visibility, particularly of the upper reservoir from Lithgow, and timely re-establishment of native vegetation on disturbed areas.

Mitigation measures that have been identified are implemented in one of the following methods:

- Mitigation in design – These measures are incorporated at the design stage and affect the location and sizing of project elements. When applied these will reduce visual impacts from all affected receivers.

- Mitigation at the source – These measures aim to minimise disturbance and reduce the visual impacts by rehabilitating the landscape after construction.

- Mitigation at the receiver – These measures are meant to reduce the project's visibility from a receiver's location and should be designed in consultation with the receiver. Engagement with these receivers is recommended for those predicted to experience a moderate to high visual impact and to determine a more accurate extent of visibility and feasibility of mitigation on an individual basis. These receivers are:

    - SR13, SR15, SR19, SR25, SR31, SR45 (Lake Lyell Recreational Park), SR65, SR365 (Eagle View Estate), SR366, SR946, SR1507 (Springmead B&B), SR2004 (Seclusions Blue Mountains), SR2482, SR2483 and SR2490.

    A residual impact assessment for mitigating the visual impacts for these locations found that in most cases it was possible to reduce the visual impacts. Implementing the suggested mitigation measures reduced the impacts to low or very low in all locations except for SR45, and SR365, which were left with a residual visual impact rating of moderate.

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1 Introduction

1.1 Background

EnergyAustralia Portfolio Holdings Pty Ltd (EnergyAustralia) in partnership with EDF power solutions Australia (EDFA), referred to as Lake Lyell Project Pty Ltd (LLP) as trustee, is developing the Lake Lyell Pumped Hydro Energy Storage (PHES) Project (the project). The project will have the capacity to store up to 3,080 megawatt hours (MWh) of energy and generate at 385 megawatts (MW) for 8 hours or generate up to around 440 MW for a shorter period. At a basic level, it will consist of upper and lower water reservoirs, a pipeline connecting them, and a hydro-electric power station connected to the national energy grid that is capable of generating or consuming electricity.

The project is located approximately 5 kilometres (km) west of Lithgow and 110 km west of the Sydney central business district, shown in Figure 1.1. and Figure 1.2. The project takes advantage of existing infrastructure (i.e. Lake Lyell) associated with Mt Piper power station which will be decommissioned in the coming decades and allows Lake Lyell to continue to serve a specific purpose in electricity generation (consistent with its existing use).

In June 2024, the Minister for Planning and Public Spaces declared the project to be critical State significant infrastructure (CSSI). Accordingly, approval for the project is required under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). This requires the preparation of an environmental impact statement (EIS) for the project in accordance with Secretary's environmental assessment requirements (SEARs) and the approval of the Minister. EMM Consulting Pty Limited (EMM) has been engaged by LLP to prepare the EIS.

This landscape and visual impact assessment (LVIA) is an appendix to the project's EIS and should be read in conjunction with it. The LVIA addresses the SEARs issued for the project.

1.2 Assessment guidelines and requirements

This LVIA has been prepared with reference to relevant guidelines, policies and industry requirements, and following consultation with stakeholders, including relevant government agencies and the community. Guidelines and policies referenced are as follows:

- *Large-Scale Solar Energy Guideline* (2024) (Solar Guideline), prepared by the NSW Department of Planning, Housing and Infrastructure.
- *Large-Scale Solar Energy Guideline: Technical Supplement for Landscape Character and Visual Impact Assessment* (2024) (Technical Supplement), prepared by the NSW Department of Planning, Housing and Infrastructure.
- *Guidelines for Landscape and Visual Impact Assessment Third Edition* (2013) (the GLVIA), prepared by the Landscape Institute and Institute of Environmental Management and Assessment.
- *Guideline for landscape character and visual impact assessment* (2020), Transport for NSW.
- *Wind Energy: Visual Assessment Bulletin* (2016) (VA Bulletin), NSW Department of Planning and Environment.

The Solar Guideline outlines a proposed visual assessment framework for large scale solar energy development. The acceptability of visual impacts, namely impacts on landscape character and values and the amenity of landholders and communities, along with the adequacy of the measures that are proposed to avoid, reduce or otherwise manage these impacts, are identified as key assessment issues within the Solar Guideline. While the project is not a solar development, these relevant elements from the Solar Guideline have been adopted for this assessment in the absence of any other more directly applicable Departmental guidelines being available. Similarly, the VA Bulletin has been considered for additional guidance where required.

1.2.1 Secretary's environmental assessment requirements

This LVIA has been prepared in accordance with the requirements of the NSW Department of Planning, Housing and Infrastructure (DPHI) and relevant agencies, which are set out in the SEARs for the project, issued on 17 November 2025. The SEARs identify matters which must be addressed in the EIS. Individual requirements relevant to this LVIA and where they are addressed in this report are listed in Table 1.1.

Table 1.1 Relevant SEARs

Requirement	Addressed in section
Amenity – an assessment of the: • visual impacts of the project, including lighting impacts and potential impacts on views of the project from residences, key vantage points and recreational areas surrounding Lake Lyell; and • amenity impacts on National Parks and Reserves (including Marrangaroo National Park).	Chapters 4 to 9

1.2.2 Agency engagement

DPHI invited government agencies, including Lithgow City Council (Council), to recommend matters to be addressed in the EIS. These matters were considered by the Secretary for DPHI when preparing the SEARs. Comments made by agencies relating to the assessment of visual amenity and where they are addressed in this report are listed in Table 1.2

Table 1.2 Agency comments

Agency comment	Addressed in section
• Transport for NSW – Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads.	Chapters 5 and 6 Visual impacts from public roads have been considered by representative viewpoints in this LVIA.
• Lithgow Council – 6. Amenity – Council is satisfied that a detailed landscape character and visual impact assessment will be prepared to support the EIS. The landscaping plan is to address any potential impacts from public places, adjoining landowners/residences and visual prominent places such as look out points (i.e. Hassans Walls Lookout).	Chapters 5 to 8 Viewpoints have been selected to assess visual impacts from public places and affected sensitive receivers. The project will not be visible from Hassans Walls Lookout (refer Figure 6.1).
• Lithgow Council – 7. Landscaping and Rehabilitation Plan – Council requests that a Landscaping Plan (relating to visual impacts, as detailed in the above point, and is to detail the type of planting suitable for climates during all seasons) and Rehabilitation Plan (specifically during construction and impacts to any disturbed areas and should any sections of the project be decommissioned) is included in the EIS.	Chapter 8 A vegetation management plan has been recommended as a mitigation measure in Chapter 9 of this LVIA.

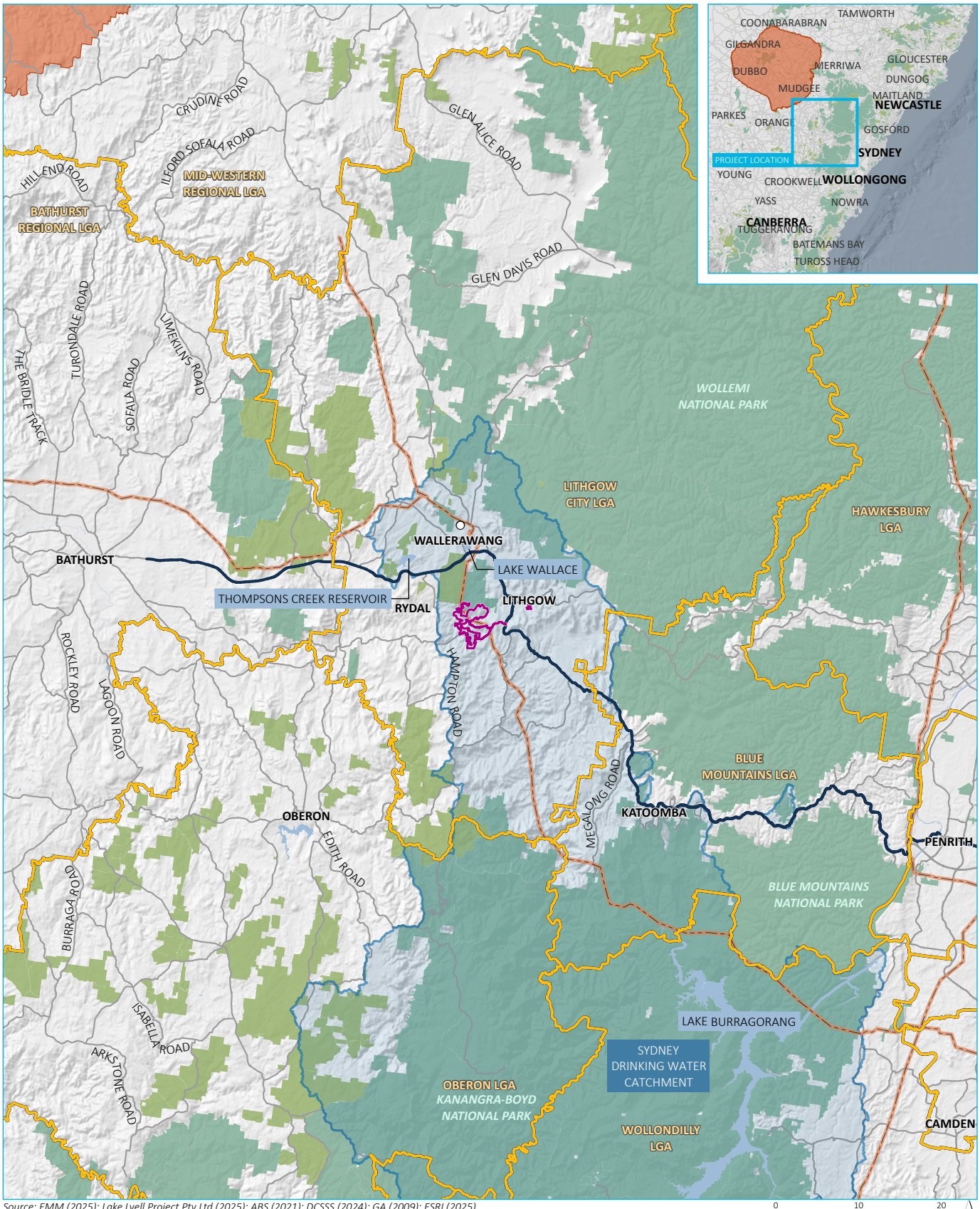
The outcomes of these discussions have been incorporated into the assessment where required.

1.3 Study area

The study area for this LVIA extends to 8 km from the project's disturbance footprint. This corresponds with the foreground and middle ground visibility distance zones as shown in Table 1.3. These distances are used in the VA Bulletin to establish the relative landscape significance against which the potential impacts of large-scale wind energy projects may be assessed. Although the vertical and horizontal dimensions of the upper reservoir are different to those of a wind turbine or to an array of wind turbines, they are adopted in this LVIA as a useful indicator of visual impact over larger distances.

Table 1.3 Visability distance zones

Distance of view	Distance zone	Relative visual influence
0–2 km	Foreground	Greatest visual influence
2–4 km	Near middle ground	
4–8 km	Far middle ground	
>8 km	Background	Least visual influence



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); ABS (2021); DCSSS (2024); GA (2009); ESRI (2025)

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KEY

- Project area

Existing environment

- Mt Piper Power Station
- Major road
- Great Western Highway
- 330 kV transmission line
- Named waterbody
- NPWS reserve
- State forest
- Local government area
- Sydney Drinking Water Catchment
- Central West Orana Renewable Energy Zone

INSET KEY

- Major road
- NPWS reserve
- State forest
- Central West Orana Renewable Energy Zone

Regional context

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 1.1

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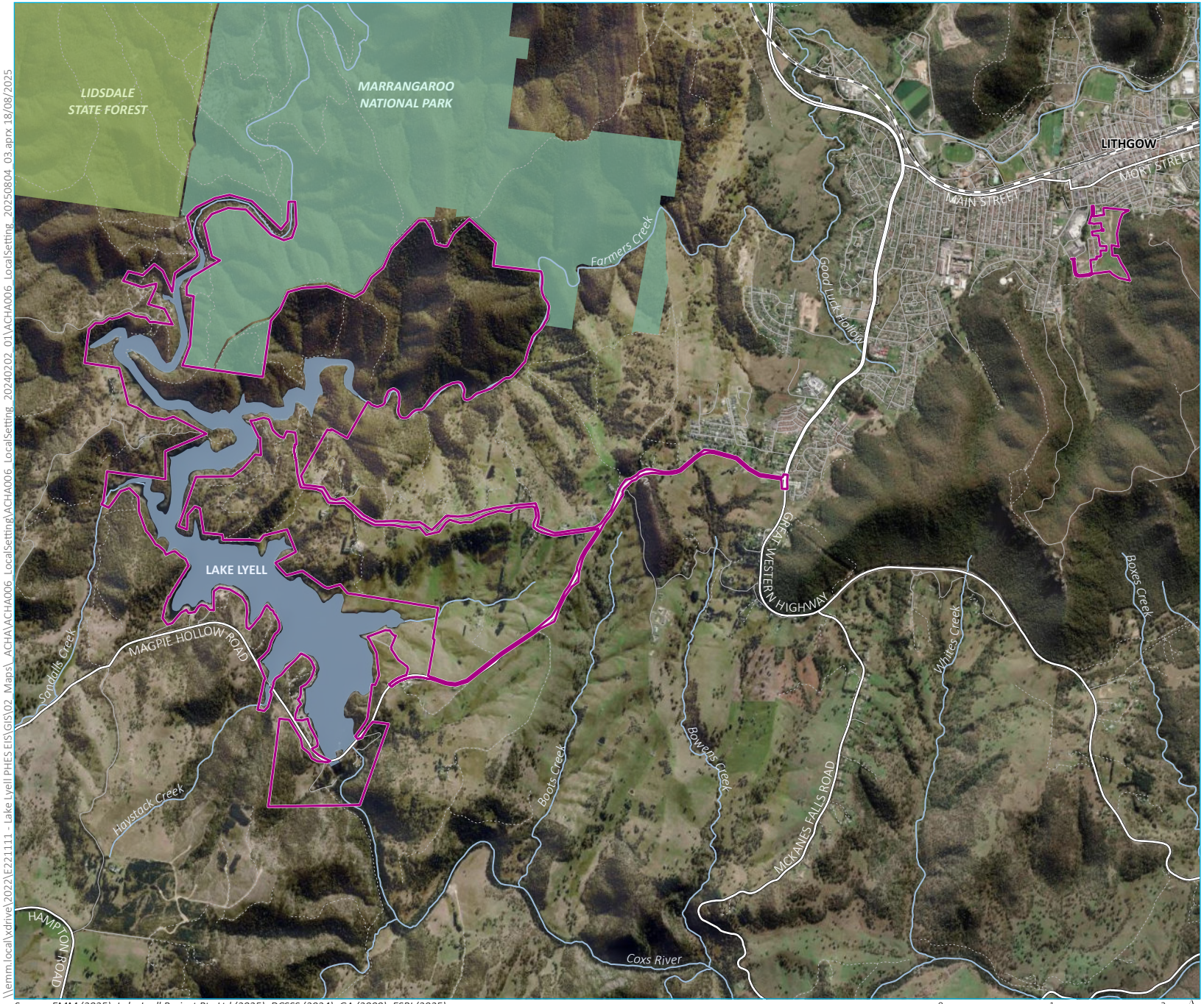

KEY

- Project area

Existing environment

- Rail line
- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); ESRI (2025)

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Local context

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 1.2

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2 Description of the project

A detailed description of the project, including an overview of its design, construction and operation is provided in the project's EIS. The EIS (specifically Chapter 3 and Appendix B) should be read in conjunction with this report. A summary of the project's key elements is provided below.

The project design, as shown in Figure 2.1, can be broadly categorised into:

- pumped hydro generation components – including a 5.3 gigalitre (GL) upper reservoir to be constructed behind the southern ridge of Mount Walker, a 33.5 GL lower reservoir (existing Lake Lyell), inlet/outlet structures, and an underground powerhouse, surge shaft and waterway tunnels
- transmission connection components – including a new high voltage switchyard and connection to the existing 330 kilovolt (kV) transmission line that runs through the site
- site access and ancillary facilities – including upgrade of existing and construction of new access roads and bridges, a diversion and infill of a section of Lake Lyell, administration and utilities
- other construction components or works – including geotechnical investigations, temporary workforce accommodation, site work pads, laydown areas and facilities, and spoil management.

Construction will be completed in stages, including:

- pre-construction / enabling works – consisting of initial access works (internal and external roads), geotechnical investigations, site establishment and preparation of the worker's accommodation camp
- main works – consisting of all other construction activities needed to enable operation of the project.

During operation, the project will act as an electrical energy storage system through the conversion of electrical to kinetic energy to gravitational energy and back via water as it is transferred from the elevated upper reservoir to a lower reservoir. The project will provide services to the wholesale 'spot' market on the National Electricity Market (NEM), and support ancillary services used to manage the power system reliably.

After the 80 to 100-year design life of the project, the asset may remain viable for a plant refurbishment and extension of life as has been seen for other similar older assets globally. Following the plant's final refurbishment or once it has reached the end of its serviceable life then the project would look to return the site to a more natural state and encourage community beneficial use.

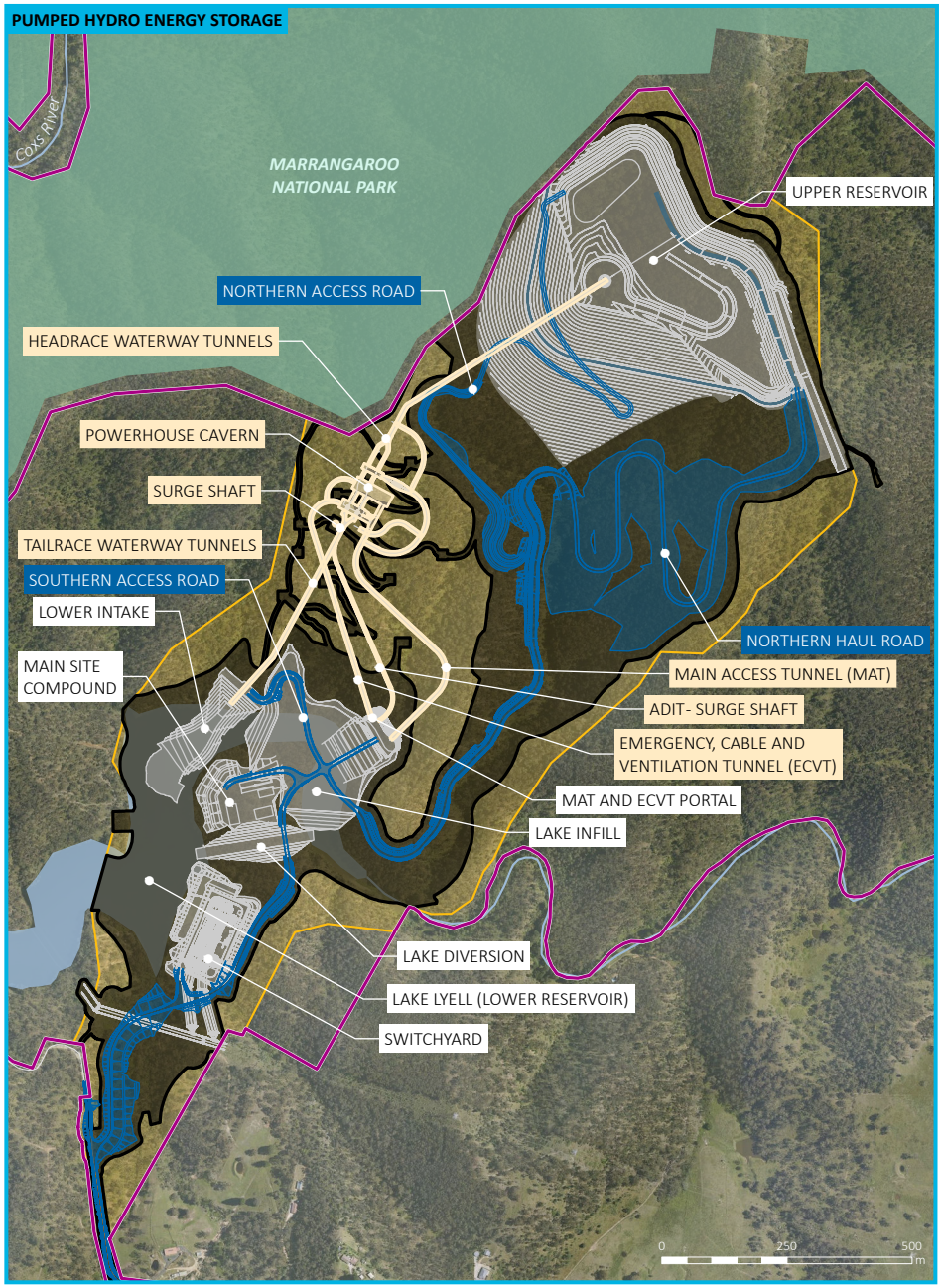
2.1 Key visual aspects of project elements

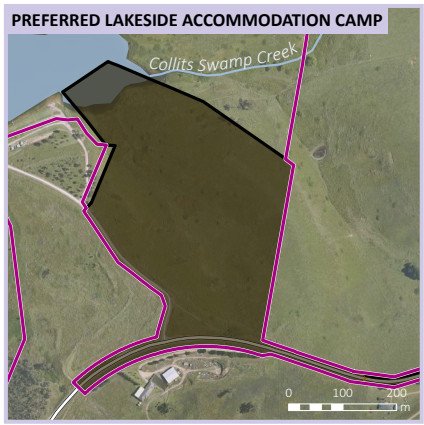
In considering the visual aspects of the project, this LVIA focuses on the potential visual impacts of the following key elements:

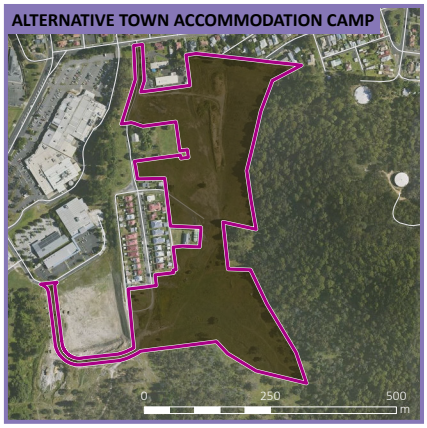
- The upper reservoir, to be created through the construction of an embankment dam located below the southern ridge of Mount Walker, and located as the highest and most widely visible part of the project.
- Lower elevation elements, including the switchyard and associated buildings and structures, located above ground at lower elevations than the upper reservoir.
- The disturbance footprint, i.e. the extent of vegetation clearing and earthworks and incorporating both of the above elements as shown on Figure 2.1.

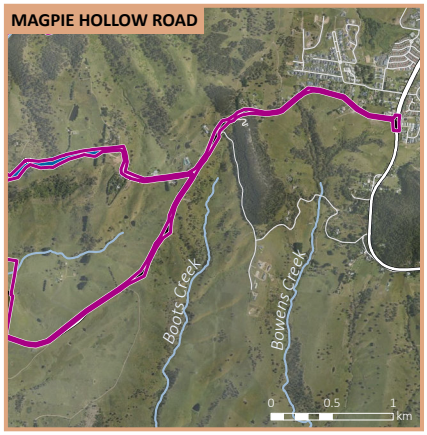
- The temporary accommodation camp. There are two locations under consideration of which one will be selected as the final site for the camp. They are:
    - Lakeside camp (on the eastern shore of Lake Lyell), this is the preferred option and is located separately to the project elements above as shown on Figure 2.1
    - Town camp, in Lithgow off Silcock Street.

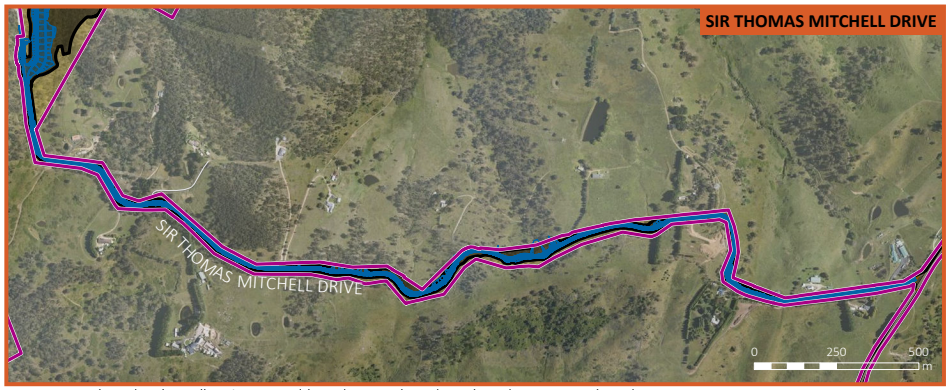
Note that while there will be disturbance along Sir Thomas Mitchell Road and Magpie Hollow Road during construction, is not considered a prominent visual feature or key visual element of the project.

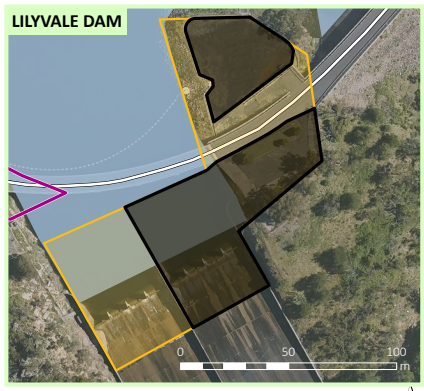












Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); MetroMap (2025)

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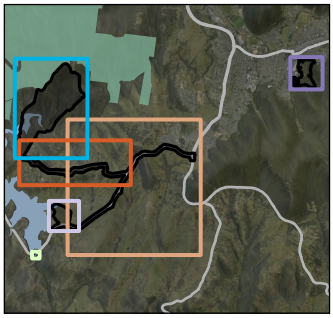

KEY

- Project area
- Permanent road
- Above ground design
- Underground design
- Construction envelope
- Disturbance footprint

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve

Project overview

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 2.1

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3 Assessment methodology

The assessment method used in this report is adapted from the GLVIA and Solar Guideline, which involve information review, consultation, field observations and photography, computer-based data processing and analysis, and application of subjective professional judgement. The process is outlined in Figure 3.1.

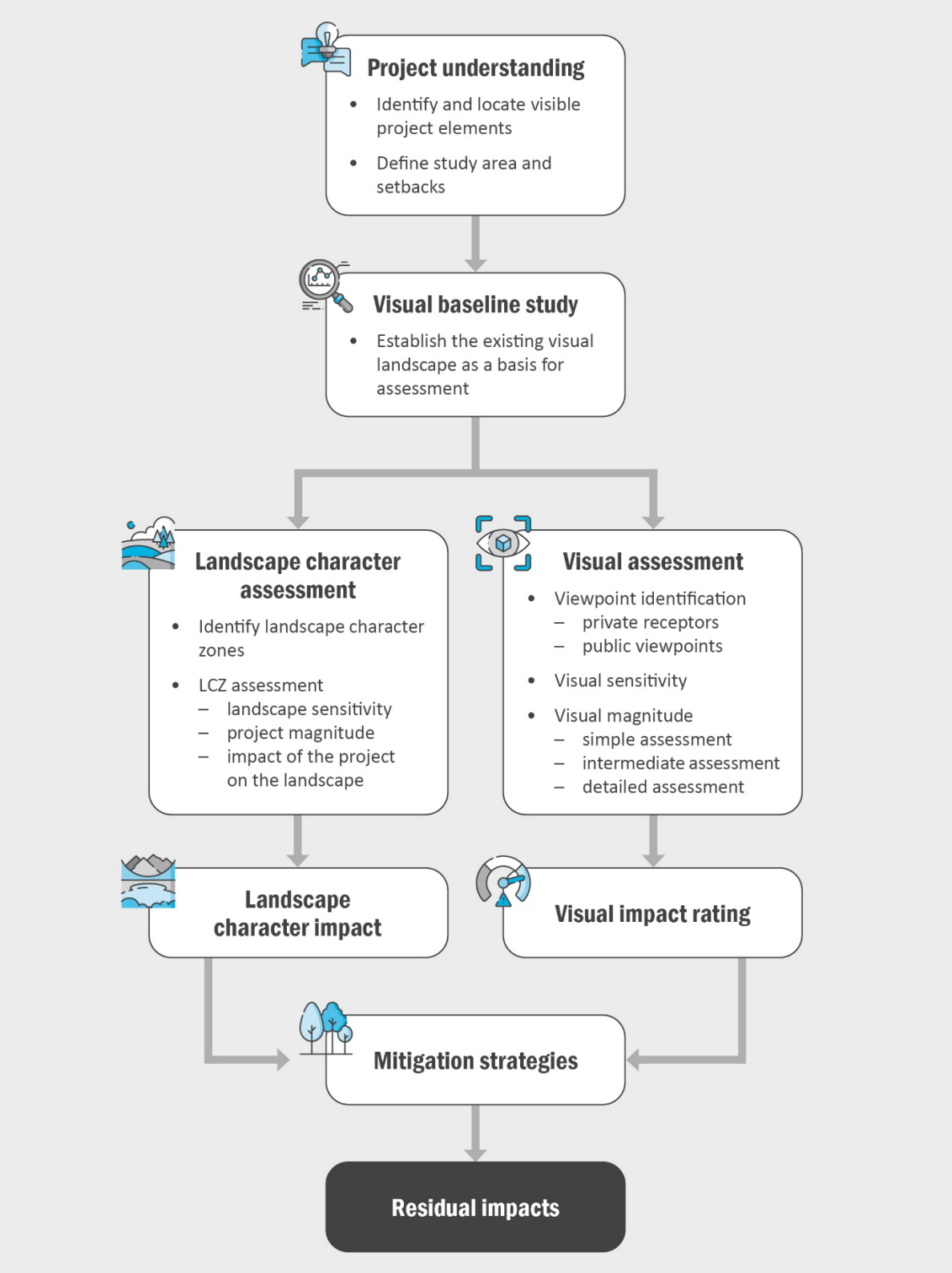


Figure 3.1 Landscape character and visual impact assessment process

3.1 Visual baseline study

Assessment of the landscape character and the visual impacts is based on comparing the proposed development to the existing environment. To do so, requires an understanding of the existing landscape and its importance to the local community. It involves recording and analysing the existing landscape features, characteristics, the way in which the landscape is experienced, and the value or importance placed on the landscape and visual resource of the site.

The baseline assessment will also describe the physical influences of the landscape, such as geology, topography, landform, and natural drainage; the ecological characteristics, including vegetation type, structure, and land cover; and human influences like land use patterns, settlement character, and infrastructure. It will identify key natural, cultural, or agricultural features with visual significance; assess aesthetic and perceptual qualities such as scale, openness, and tranquillity; and consider Aboriginal cultural values where relevant. The assessment will also address the condition of built and natural elements, relevant planning and zoning designations, and the presence of existing and proposed large scale energy developments to understand potential cumulative impacts.

3.2 Landscape character assessment

The landscape character is determined by the number, size, type and contrast of elements present. Typically, the key elements are topography, vegetation, water features and built elements. Other factors that are important are the consistency of these elements and whether they have developed progressively over time and become well integrated into a harmonious landscape. In addition, consideration must be given to the prevalence of change, including whether the landscape is experiencing large-scale development (such as residential growth on the urban fringe).

The impact of a project on the landscape character is based on the combination of the sensitivity of the existing landscape and the magnitude of the proposal on the landscape. According to the *Guideline for landscape character and visual impact assessment* (TfNSW, 2020), sensitivity refers to the quality of an area, and how sensitive the existing character is to change. The context is a primary factor in the visual sensitivity of the view. Generally, sites within higher contrasting landscapes have greater ability to absorb change, whereas sites within a uniform or highly ordered landscape have higher sensitivity and less potential for absorption.

Magnitude refers to the physical scale of the project in the landscape. This takes into consideration the size of the project, distance from any viewing areas and the contrast it has to the surrounding landscape. Table 3.1 has been developed to provide a rating for the impact of a project on landscape character.

Table 3.1 Landscape character impact

Sensitivity of the landscape	Magnitude of change in the landscape			
	High	Moderate	Low	Negligible
High	High	High	Moderate	Negligible
Moderate	High	Moderate	Low	Negligible
Low	Moderate	Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Source: Figure 7 from Guideline for Landscape Character and Visual Impact Assessment (TfNSW, 2020).

3.3 Viewpoint selection

Viewpoints are locations on the ground that are used to provide a representation of the likely changes a project will have on the landscape from a specific location. From a viewpoint, the effect a project has on the landscape can be illustrated photographically and evaluated consistently across the project.

Viewshed mapping is a method of mapping the theoretical visibility of a project across the surrounding landscape and is used to identify locations with potential views to project infrastructure. Using geographic information systems (GIS) technology, the topography of the land is combined with project infrastructure modelling to analyse the potential visibility of the project. The results are the zone of visual influence (ZVI).

The ZVI diagram is generated using a digital elevation model (DEM) that covers the visual study area. The DEM is representative of the bare earth surface and only considers the topography of the landscape. In accordance with the current guidelines, the screening potential of vegetation and built structures is not considered in the mapping. This is important for viewpoints which are identified as having visibility of the project but may in fact have no or obstructed views towards project infrastructure due to intervening vegetation or buildings. As such, the ZVI only shows where landforms obstruct views and represents a worst-case scenario in terms of project visibility.

Viewpoints are selected to provide representative samples of the likely changes and the exposure to project elements. The viewpoints presented as part of this assessment are considered representative of potential visual impacts from a number of the locations identified as areas of concern by the local community and include local roads and private viewpoints from residential properties. Viewpoints are selected from locations that are indicated on the ZVI to have visibility of the project and verified through field investigations and photography to determine if the site is indeed visible. As such, representative viewpoint selection generally provides a conservative assessment of project visibility as locations are selected for providing the greatest visibility with minimal existing screening in many instances.

A further step involves identifying sensitive receivers (primarily private residences) that are predicted to experience moderate to high impacts/visibility based on the findings of the representative viewpoint assessment. These sensitive receivers are then separately assessed using the same methods, as described in the following sections.

3.4 Viewpoint assessment

3.4.1 Visual magnitude

The magnitude of change on the visual landscape is one factor in determining the significance of visual impacts of the project. In accordance with the GLVIA, this visual assessment considers the following criteria in determining the magnitude of change on a receptor:

- Whether the impact is temporary or permanent – impacts that are for a limited duration are considered less significant than those that occur for an extended period or are permanent.
- Distance of the viewer from the closest permanent structures that are part of the project – close proximity to an altered landscape will increase the significance for private residences. Generally, given the scale of pumped hydro infrastructure, distances less than 2 km will have the greatest visual impact, with impacts reducing over distance. In the case of motorists, mid ground changes can be greater than foreground elements as they can result in longer viewing times.
- Length of viewing time – views from a residence are constant (i.e. long duration), whereas some views from roadways as experienced by motorists may be brief (i.e. short duration) depending upon speed and viewing direction.

- Extent of view affected – impacts that are visible over a greater portion of a view are more significant than those where only a part of the view is impacted. Intervening topography and vegetation will affect the extent of the view affected.

- Scale of change in the landscape– the loss or addition of features in the view and changes in the proportion of the view affected by the project.

The categories of magnitude are defined in Table 3.2.

Table 3.2 Magnitude definitions

Magnitude rating	Definitions
High	Substantial change in view. Substantial or total loss of key elements or features in the landscape. Or introduction of permanent elements that are uncharacteristic to the existing landscape character.
Moderate	Moderate change in view. Partial loss or alteration to one or more key elements or features in the landscape. Or introduction of prominent elements that would not be considered uncharacteristic of the existing landscape character.
Low	Low change in view. Minor loss or alteration to one or more key elements or features in the landscape. Or introduction of elements that are consistent with the existing landscape character.
Very Low	Very low to no change in view. Very minor or no loss or alteration to one or more key elements or features in the landscape. Or introduction of elements that are consistent with the visual character of the existing landscape.

3.4.2 Visual sensitivity

Visual sensitivity is a measure of the landscape's ability to visually absorb development without a significant change in the character. It is a function of the view type and context. In this assessment, the major factor influencing visual sensitivity is the level of contrast between the project-related infrastructure and the rural landscape setting in which it will be set.

The physical characteristics of the landscape, including existing development features, are integral components in determining the visual sensitivity. For example, a low visual sensitivity would enable a modification or addition to be made to the landscape which would only cause minimal contrast and result in a high level of integration with the surrounding landscape. Similarly, a high visual sensitivity would mean the same modification or addition to the surrounding landscape would cause high contrast to the surrounding landscape.

The Solar Guideline identifies the type of view as *viewer sensitivity* and the view context as *scenic quality*. Viewer sensitivity relates to the location of the viewer and the relative importance placed on the landscape viewed from that viewpoint by the community or visitors. These viewpoints include public use areas, public travel ways, and private homes.

Visual sensitivity has been assessed based on the viewer sensitivity level classification given in the Technical Supplement, presented in Table 3.3.

Table 3.3 Viewer sensitivity level classification

Viewpoint type	Very low sensitivity	Low sensitivity	Moderate sensitivity	High sensitivity
Private receiver	Private recreation areas and sporting fields.	Secondary view from dwellings in rural areas and in environmental or conservation areas.	Primary view from dwellings in rural areas and in environmental or conservation areas. Tourist and visitor accommodation and places of worship (such as bed and breakfasts, motels, hotels).	Dwellings in residential areas and rural villages. Historic rural homesteads/residences on the State or local Government Heritage List.
Public viewpoint	State highways, freeways and classified main roads. Local sealed and unsealed roads.	Tourist roads and scenic drives. Walking tracks and navigable waterways. Cemeteries, memorial parks. Significant entry ways to regional towns and cities.	Tourist uses in tourist areas. Publicly accessible green and open spaces including picnic areas, parks, public recreation areas, and lookouts. Town centres and central business districts.	N/A

Source: Table 4 from Technical Supplement (DPHI, 2024).

Scenic quality refers to the relative scenic or aesthetic value placed on the landscape by the community. This is based on the presence of key landscape features known to be associated with community perceptions of high, moderate or low scenic quality. The scenic quality classifications used in this assessment are identified in Table 3.4.

Table 3.4 Scenic quality classification

Scenic quality	Very low	Low	Moderate	High
Landform	Large expanses of flat or gently undulating terrain. Indistinct, dissected or unbroken landforms that provide little illusion of spatial definition or landmarks.	Mostly flat or gently undulating terrain with isolated areas of undulating topography.	Steep, hilly and undulating ranges that are not visually dominant. Broad shallow valleys. Moderately deep gorges or moderately steep valley walls. Minor rock outcrops.	Isolated peaks, steep rocky ridges, cones or escarpments with distinctive form and/or colour contrast that become focal points. Larger areas of distinctive rock outcrops or boulders. Well defined, steep sided valley gorges.
Vegetation	Extensively cleared and cropped areas with very limited variation in colour and texture. Pastoral areas, human created paddocks, pastures or grasslands and associated buildings typical of grazing lands.	Predominantly cleared and cropped areas with small areas of variation in colour and texture. Most pastures or grasslands with small blocks of distinct native vegetation.	Predominantly open forest or woodland combined with some natural openings in patterns that offer some visual relief. Vegetative stands that exhibit a range of size, form, colour, texture and spacing, including human influenced vegetation such as vineyards and orchards.	Strongly defined patterns with combinations of eucalypt forest, naturally appearing openings, streamside vegetation and/or scattered exotics. Distinctive stands of vegetation that may create unusual forms, colours or textures in comparison to surrounding vegetation.

Scenic quality	Very low	Low	Moderate	High
Waterbodies	Natural waterbody absent. Farm dams, irrigation canals or stormwater infrastructure.	Minor water forms, such as creeks and streams.	Intermittent streams, lakes, rivers, swamps, and reservoirs.	Visually prominent lakes, reservoirs, rivers, streams, and swamps. Presence of harbour, inlet, bay or open ocean.
Social and cultural	Places of worship, cemeteries/memorial parks, private open spaces.	Places of worship, cemeteries/memorial parks, private open spaces. Local heritage sites.	Local or state heritage sites Distinguishable entry ways to a regional city identified in the Transport and Infrastructure SEPP	Culturally important sites, world heritage areas, National parks/reserves. Commonwealth and State heritage sites
Human presence	Dominating presence of infrastructure, human settlements, highly modified landscapes and higher density populations such as regional cities, industrial areas, agricultural transport or electricity infrastructure.	Highly modified landscapes with visible infrastructure, such as transmission lines and railway corridors.	Dispersed yet evident presence of human settlement such as villages, small towns, isolated pockets of production and industry, lower scale and trafficked transport infrastructure.	Natural/undisturbed landscape. Minimal evidence of human presence and production.

Source: Table 4 from Technical Supplement (DPHI, 2024).

The two visual sensitivity ratings above are combined to form the visual sensitivity rating using the matrix presented in Table 3.5. This combined rating is the visual sensitivity rating.

Table 3.5 Visual sensitivity rating

Viewpoint sensitivity	Scenic quality			
	High	Moderate	Low	Very low
High	High	High	Moderate	Low
Moderate	High	Moderate	Low	Very low
Low	Moderate	Low	Low	Very low
Very low	Low	Very low	Very low	Very low

3.4.3 Visual impact

The amount of visual impact is a function of the magnitude of change when considered against the sensitivity of the view. Table 3.6 provides a matrix that combines the magnitude rating with the visual sensitivity rating to determine the visual impact rating. This rating is applied to each viewpoint to measure the visual impacts of a development from specific locations.

Table 3.6 Visual impact rating

Magnitude of change	Visual sensitivity			
	High	Moderate	Low	Very low
High	High	High	Moderate	Low
Moderate	High	Moderate	Low	Very low
Low	Moderate	Low	Low	Very low
Very low	Low	Very low	Very low	Very low

The primary assessment tools for determining the visual impacts of the project are site inspections and photographs of the views from the selected viewpoints. This enables an assessment of potential visual impact, taking into consideration the nature of the landscape, topography, the distance between the viewpoint and the proposed infrastructure, as well as the type of view experienced.

3.4.4 Photomontages and visualisation tools

Visualisations (photomontages) of permanent infrastructure were prepared from key representative viewpoints within the ZVI to support the assessment of visual impacts (refer to Chapter 6 and Annexure A) and inform the need for further detailed assessment at specific receivers (i.e. where predicted to involve a moderate to high unmitigated impact). Separate visualisations have been completed for these specific receivers and comprise both photomontages and modelled, virtual views, depending on the access availability at the time of preparing this LVIA (Annexure B).

Visualisations supporting this LVIA have been prepared in line with the Land and Environment Court of NSW policy for the Use of Photomontages and Visualisation Tools (LEC 2024).

- Photomontages have been prepared using:
  - Existing images taken using a Canon 6D, full-frame camera with a 50 mm prime lens. The camera's internal GPS recorded and tagged each photo with the geospatial data.
  - Photos were generally taken after midday to ensure natural lighting over the focal point of the image (i.e. Mount Walker). Adverse weather conditions were avoided.
  - WindPro software was used to import the 3D model of proposed infrastructure and generate the photomontages.
  - Colour development to match excavated rock profile, placement and weathering over time, and consideration of lighting to match natural light in existing photos.
- Virtual views have been prepared using:
  - Cesium 3d tile sets and aerial imagery, which are geolocated and provide a virtual world surface. 3d models of trees are added to the virtual world where they appear on the aerial imagery.
  - 3d models of the proposed project are added to the virtual world using real-world coordinates.
  - Virtual cameras are located at eye level (to simulate a person's view) and images are captured using a wide-angle lens and a 50 mm lens

- Views were selected based on the requirements laid out in the Solar Guideline, Wind Energy Guideline, and Transmission Guideline.

3.5 Mitigation

The final step in the assessment process is to determine additional measures that could be incorporated into the design of the project to ameliorate, or, where possible, eliminate the visual impact of the project.

Mitigation measures can be in several forms including:

- design of project infrastructure to reduce the contrast with the surrounding environment by:
  - moving project elements to less visible locations
  - removing some project elements
  - re-sizing the project elements
  - use finishes and products that minimise or eliminate surface glare
  - select finishes and colours that are appropriate to the location and context to blend the development into surroundings. Neutral colours that blend in with the surrounding landscape will be used where possible, such as khaki, green, beige, or similar
- use of visual buffers and screening by planting vegetation
- designing infrastructure to screen operations and lighting.

Recommended mitigation measures for the project are discussed in Chapter 9 of this report.

4 Visual baseline study

4.1 History of Lake Lyell

Lake Lyell is an artificial lake that was created for the purpose of supplying water to the nearby Wallerawang and Mt Piper coal-fired power stations via the Lilyvale pumping station. The lake formed after the creation of the Lilyvale dam, a 46 metre (m) high concrete-face rockfill dam situated on the Coxs River approximately 7 km south-west of Lithgow. The dam itself was constructed in 1981/82 and subsequently underwent a series of upgrades in the 1990s and early 2000s to increase the capacity of Lake Lyell and to improve the durability and safety of the dam.

Lake Lyell has been owned and operated by EnergyAustralia since September 2013. The Wallerawang coal-fired power station was decommissioned in 2014, and as such no longer requires water from Lake Lyell. The lake is still used to supply water to the Mt Piper coal-fired power station; however, this will cease once the Mt Piper power station is retired – this is presently planned for 2040.

Council leases two areas from EnergyAustralia along Magpie Hollow Road for recreational purposes. These include the Lake Lyell Recreation Park, which hosts a boat ramp and camping facilities with access to the shoreline. The lake itself is currently a popular area for recreation activities such as boating, kayaking, water-skiing, swimming, camping and fishing.

4.2 Land zoning designations

In New South Wales (NSW), land zones are used to determine the range of permissible and prohibited land uses on a parcel of land. Land zones can have a significant impact on a location's visual character by determining the type and size of development that can occur, the types of structures that can be built, and the type of vegetation that may occur in an area.

The project is entirely located in the Lithgow local government area (LGA), approximately 6 km west of the Lithgow town centre. The following table provides an overview of the land use zoning within the project area and its immediate surrounds (refer to Table 4.1 and Figure 4.1).

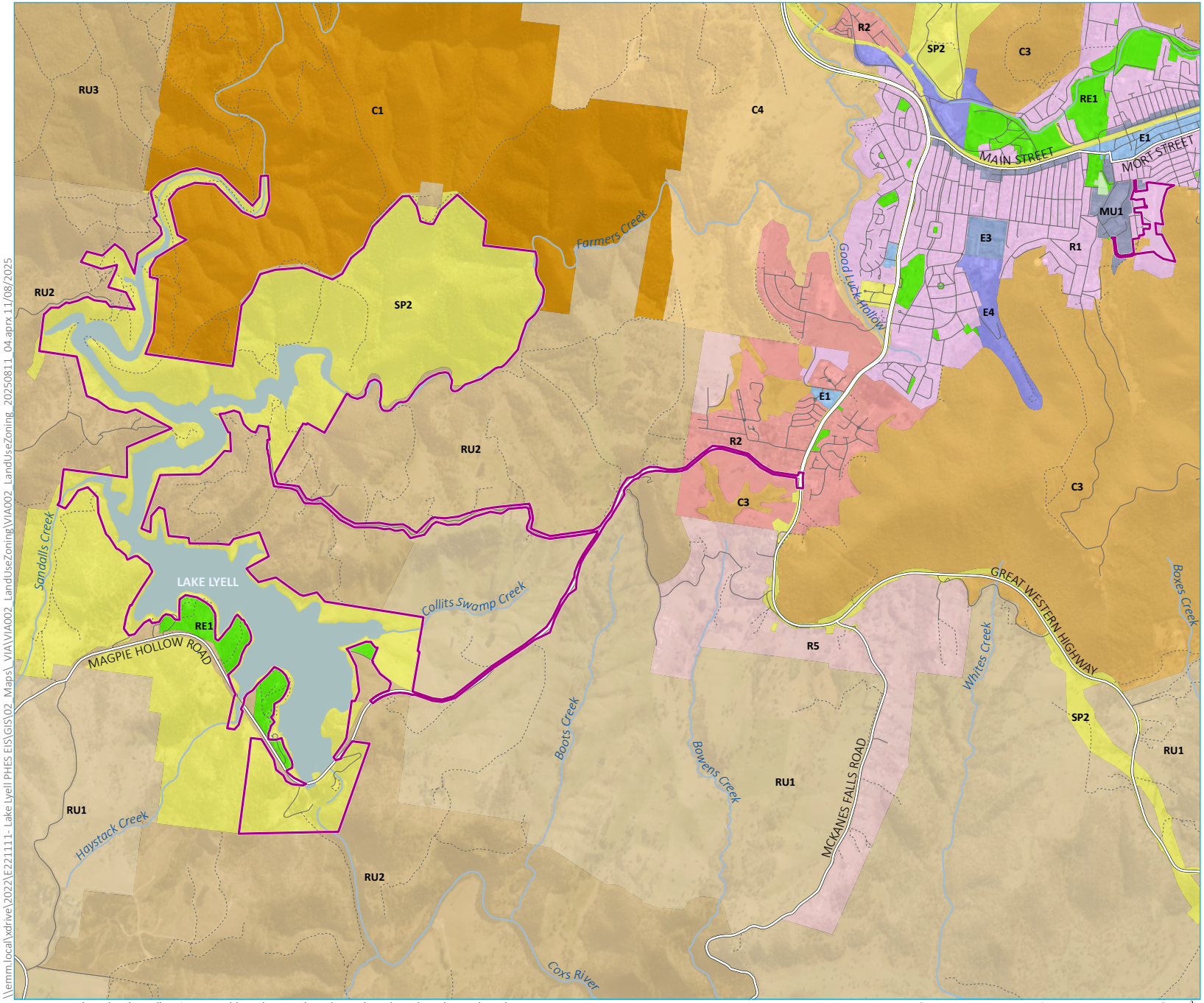
Table 4.1 Land use zoning

Zoning surrounding the project	Objectives relevant to landscape and visual impacts	Notes
SP2 Infrastructure (Electricity Generating Works)	• To provide for infrastructure and related uses. • To prevent development that is not compatible with or that may detract from the provision of infrastructure. • To maintain or improve the water quality of receiving water catchments.	This zone includes Lake Lyell and much of the lake shoreline, and extends to the southern flanks of Mount Walker. Land in this zone is generally forested with some small areas cleared for pasture near Lake Lyell.
RU1 Primary production	• To encourage sustainable primary production by maintaining and enhancing the natural resource base. • To encourage diversity in primary industry enterprises and systems appropriate for the area. • To minimise fragmentation and alienation of resource lands. • To minimise conflict between land uses within this zone and land uses within adjoining zones. • To minimise the environmental and visual impact of development on the rural landscape. • To provide for recreational and tourist development and activities of an appropriate type and scale that do not detract from the economic resource, environmental or conservation value of the land. • To maintain or improve the water quality of receiving water catchments.	This zone includes large areas of more open, cleared pasture land to south and west of the project.
RU2 Rural Landscape	• To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. • To maintain the rural landscape character of the land. • To provide for a range of compatible land uses, including extensive agriculture. • To ensure that the type and intensity of development is appropriate in relation to the rural capability and suitability of the land, the preservation of the agricultural, mineral and extractive production of the land, the rural environment (including scenic resources) and the costs of providing services and amenities. • To facilitate tourism and recreational uses that are compatible with the capability and suitability of the land. • To maintain or improve the water quality of receiving water catchments.	A large area of land south of the project area is zoned RU2 Rural landscape, and is characterised in the vicinity of the project by large paddocks under pasture with stands of remnant native forest vegetation. There are scattered residences and small farm structures such as sheds and cattle yards. There are many small dams on ephemeral creeks.

Zoning surrounding the project	Objectives relevant to landscape and visual impacts	Notes
R1 General residential	• To provide for the housing needs of the community. • To provide for a variety of housing types and densities. • To enable other land uses that provide facilities or services to meet the day-to-day needs of residents. • To maintain or improve the water quality of receiving water catchments.	This zone occurs just within 4 km of the project area, as the western extent of the urban area of Lithgow and is dominated by detached residences on smaller blocks of land.
R2 Low density residential	• To provide for the housing needs of the community within a low-density residential environment. • To enable other land uses that provide facilities or services to meet the day-to-day needs of residents. • To maintain or improve the water quality of receiving water catchments.	There are three residential zones – R2, R5 and C4 that cater for lower density residential development between the RU2 and R1 zones to the east of the project area. These zones provide a transition from the more dense, suburban development of the R1 zone to the more open and obviously rural development on land within zone RU2. The landscape character of these areas is also transitional, demonstrating increasing qualities of forest cover, openness and more scattered structures when moving from east to west.
R5 Large Lot Residential	• To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality. • To ensure that large residential lots do not hinder the proper and orderly development of urban areas in the future. • To ensure that development in the area does not unreasonably increase the demand for public services or public facilities. • To minimise conflict between land uses within this zone and land uses within adjoining zones. • To limit development to areas in reasonable proximity to the settled town centres of Lithgow, Wallerawang and Portland to strengthen settlement hierarchy. • To maintain or improve the water quality of receiving water catchments.	
C4 Environmental Living	• To provide for low-impact residential development in areas with special ecological, scientific or aesthetic values. • To ensure that residential development does not have an adverse effect on those values. • To maintain the rural character of the land in the zone while preserving the land for future urban growth. • To ensure that development does not create unreasonable and uneconomic demands for the provision or extension of public infrastructure, amenities and services. • To maintain or improve the water quality of receiving water catchments.	

Zoning surrounding the project	Objectives relevant to landscape and visual impacts	Notes
RE1 Public Recreation	• To enable land to be used for public open space or recreational purposes. • To provide a range of recreational settings and activities and compatible land uses. • To protect and enhance the natural environment for recreational purposes. • To maintain or improve the water quality of receiving water catchments.	Lake Lyell Recreation Park occupies land within this zone on the shores of Lake Lyell. Land within the park retains native forest amongst cleared areas that are used for camping and other recreation activities. Small area of RE1 zoned land also occur in the urban area of Lithgow.
C1 National Parks and Nature Reserves	• To enable the management and appropriate use of land that is reserved under the *National Parks and Wildlife Act 1974* (NPW Act) or that is acquired under part 11 of that Act. • To enable uses authorised under the NPW Act. • To identify land that is to be reserved under the NPW Act and to protect the environmental significance of that land.	These lands are reserved and managed to protect their environmental significance under the NPW Act and for this reason are characterised by large areas of native vegetation with little interruption other than by roads. Marrangaroo National Park abuts the project area on the north and west sides. At its closest, the upper reservoir sits within 20 m of the National park boundary.
C3 Environmental Management	• To protect, manage and restore areas with special ecological, scientific, cultural or aesthetic values. • To provide for a limited range of development that does not have an adverse effect on those values. • To facilitate the management of environmentally sensitive lands and riparian areas. • To protect and conserve the vegetation and escarpment landscape surrounding Lithgow. • To maintain or improve the water quality of receiving water catchments.	This zone is applied to small patches of land interspersed in residential zones to the west of Lithgow. It contributes to a natural or rural character by providing for stands of native forest vegetation primarily along creeks and drainage lines.

Zoning surrounding the project	Objectives relevant to landscape and visual impacts	Notes
E1 Local centre	• To provide a range of retail, business and community uses that serve the needs of people who live in, work in or visit the area. • To encourage investment in local commercial development that generates employment opportunities and economic growth. • To enable residential development that contributes to a vibrant and active local centre and is consistent with the Council's strategic planning for residential development in the area. • To encourage business, retail, community and other non-residential land uses on the ground floor of buildings. • To maintain the built integrity of the area by enabling development that is sympathetic to the heritage character and significance of the area and surrounding streetscapes and features. • To maintain or improve the water quality of receiving water catchments. • To ensure development within the area is of a scale consistent with the needs of the local community and will not detract from the role of the Lithgow core business area as the primary centre.	This zone incorporates small commercial areas on the western side of the Great Western Highway that are part of the Lithgow urban area.
MU1 Mixed use	• To encourage a diversity of business, retail, office and light industrial land uses that generate employment opportunities. • To ensure that new development provides diverse and active street frontages to attract pedestrian traffic and to contribute to vibrant, diverse and functional streets and public spaces. • To minimise conflict between land uses within this zone and land uses within adjoining zones. • To encourage business, retail, community and other non-residential land uses on the ground floor of buildings. • To promote development that does not detract from the role of the town centre core commercial precincts. • To promote the retention and reuse of heritage items and the retention of established buildings that contribute positively to the heritage and cultural values of the area. • To maintain or improve the water quality of receiving water catchments.	This zone incorporates commercial, hospitality, and retail outlets scattered between housing along Main Street and a large single level shopping centre on Lithgow Street.



KEY

- Project area

Land zone

- C1- National Parks and Nature Reserves
- C3- Environmental Management
- C4- Environmental Living
- E1- Local Centre
- E3- Productivity Support
- E4- General Industrial
- MU1- Mixed Use
- R1- General Residential
- R2- Low Density Residential
- R5- Large Lot Residential
- RE1- Public Recreation
- RE2- Private Recreation
- RU1- Primary Production
- RU2- Rural Landscape
- RU3- Forestry
- SP2- Infrastructure

Existing environment

- Major road
- Minor road
- Vehicular track
- Named watercourse
- Named waterbody

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009); DPIE (2024)

0 1 2 km

GDA2020 MGA Zone 56

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Land use zoning

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 4.1

EMM
creating opportunities

4.3 Sensitive land use

Sensitive land uses in the context of this landscape character assessment include key national and state sensitive land use designations as well as potentially sensitive land use zones in the local environmental plans (LEPs). These National and State sensitive land use designations and land use zones are identified in Table 4.2. These designations are derived from the VA Bulletin and also relate closely to the viewer sensitivity classifications used in the visual impact assessment portion of this report.

Designations relevant to the project are shown in **bold** in this table.

Table 4.2 Sensitive land use designations

National and State sensitive land use designations	LEP zones as per the NSW Standard LEP	
World Heritage areas	RU5 Village	RE2 Private Recreation
National parks	**R1 General Residential**	**C1 National Parks and Nature Reserves**
National Reserve System reserves	**R2 Low Density Residential**	C2 Environmental Conservation
Coastal zone	R3 Medium Density Residential	**C3 Environmental Management**
Marine estate	R4 High Density Residential	**C4 Environmental Living**
Commonwealth Heritage List sites	**R5 Large Lot Residential**	W1 Natural Waterways
State Heritage Register sites	SP3 Tourist	W2 Recreational Waterways

Source: VA Bulletin (DPE 2016).

Note: LEP zones updated to align with Standard Instrument (Local Environmental Plans) Amendment (Land Use Zones) Order 2021.

Land within and immediately adjacent to the northern part of the project area are predominantly covered by native forest on land zoned SP2 Infrastructure and C1 National Parks and Nature Reserves. Land uses near the southern portion of the project area are designated as agricultural (RU2 Rural Landscape), used primarily for sheep and cattle grazing.

4.3.1 National parks

Areas zoned C1 – National Parks and Nature Reserves under the Lithgow LEP fall under this sensitive land use designation. As noted above, Marrangaroo National Park abuts the project area on the north and west sides. At its closest, the upper reservoir sits about 20 m from the boundary. The boundary of Marrangaroo National Park corresponds with the area zoned C1 on Figure 4.1.

Visual impacts on Marangaroo National Park are described in Section 6.4.4.

4.3.2 Recreation reserves

Lake Lyell Recreation Park occupies four areas of RE1 Public Recreation zoned land on the shores of Lake Lyell. The privately owned and operated facility offers camping and cabin accommodation, boat ramp access to Lake Lyell and other related recreation activities. A detailed review of local tourism and recreation in the area is provided in the social impact assessment (Appendix O of the EIS).

4.3.3 Historic heritage

The Statement of Heritage Impact for the project (EMM 2025d), has found that construction and operation of the project are expected to have minimal indirect impact on heritage values that have been formalised through inclusion on statutory heritage registers. The nearest heritage item, Highland House (Item #169 in Lithgow LEP), is located approximately 1.4 km south-west of the project area and around 3.4 km from the disturbance footprint (shown on Figure 4.2), ensuring that no direct impacts will occur to the item. Visual impacts at this location are discussed in Section 6.4.6.

The Town camp is located on Pottery Estate, at the base of a valley along the southern edge of Lithgow. This site is listed on the State Heritage Register; however, the Town camp has been designed to exclude the area of high sensitivity from the disturbance footprint.

4.3.4 Aboriginal heritage

The Aboriginal cultural heritage assessment of the project (EMM 2025a) identified 20 discrete Aboriginal sites and places located within the project area (shown on Figure 4.2), as well as two cultural places. In addition to discrete sites and places, the entire construction envelope was characterised by a low-density background artefact scatter interspersed with occasional areas of denser material associated with past presence and/or occupation.

The identified Aboriginal sites and places were assessed against four significance criteria, including scientific, historical, aesthetic and cultural. Some seven of these sites and places were considered of high archaeological and/or cultural significance, two of moderate significance, and 11 of low significance. Various landforms of archaeological interest were also identified and assigned moderate significance. The highly significant sites, which were also identified as of importance by the Aboriginal participants, included the peak of Mount Walker and several of the high-density stone artefact sites along Farmers Creek. Visual impacts on Aboriginal heritage are discussed in Section 6.4.7.

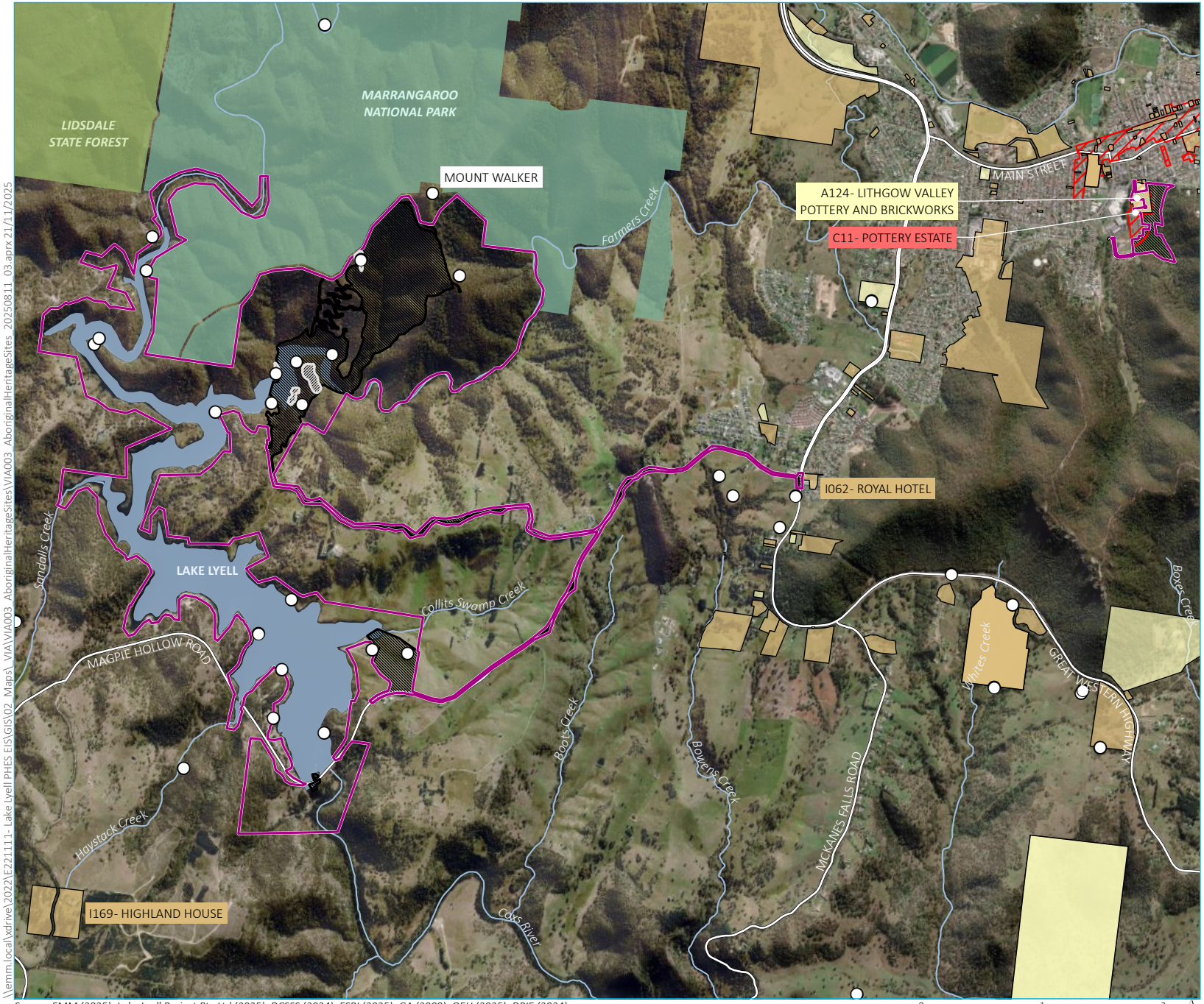
4.4 Overview of the bioregion

Bioregions are relatively large land areas characterised by broad, landscape-scale natural features and environmental processes that capture large-scale geophysical patterns at an ecosystem scale. Sub-regions delineate significant geomorphic patterns within a bioregion, and are based on finer differences in geology, vegetation and biophysical attributes. The overview below is adapted from *The Bioregions of New South Wales: their biodiversity, conservation and history* (NSW National Parks and Wildlife Service 2003).

The project area lies towards the northeastern extremity of the South Eastern Highlands Bioregion which stretches from Bathurst and Orange in the north to the southern Victorian coast. This bioregion covers a series of ranges that form the western edge of the Great Dividing Range in southern NSW and Victoria.

Climate for this bioregion is temperate with warm summers and no dry season. Areas at higher altitude near the north of the bioregion, including the project area, experience montane effects on climate leading to much milder summers.

Soils and vegetation vary across the bioregion with altitude, temperature and rainfall. Native vegetation throughout the bioregion is dominated by a diverse range of eucalypt forest communities, with river oak dominating along many streams and rivers.



KEY

- Project area
- Disturbance footprint
- Aboriginal site
- Aboriginal place

Lithgow Local Environmental Plan 2014

- Conservation Area- General
- Item- Archaeological
- Item- General

Existing environment

- Major road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); ESRI (2025); GA (2009); OEH (2025); DPIE (2024)

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GDA2020 MGA Zone 56

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Heritage sites

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 4.2

EMM
creating opportunities

4.5 Land use and disturbance

Land uses within and immediately adjacent to the project area are forested with native bushland. Land uses north of the project area are designated as National parks and reserves. Immediately to the south, the land is predominantly 'rural landscape' which is used for tourism facilities and residential uses. To the east, the landscape is dominated by large lot residential with low density residential toward the townships of Bowenfels, Littleton, South Bowenfels, and Lithgow.

Previous land disturbance has an impact on the landscape of the area. Immediately north and west of the project site is Marrangaroo National Park. It is used by the public primarily for camping, fishing, swimming, mountain biking and hiking. The native bushland vegetation has remained intact with the exception of the area west of the Coxs River, which has evidence of historic clearing and is currently used as a four-wheel-drive vehicle area.

South of the project area are properties used for tourism, grazing and small-scale farming. Lake Lyell was created in 1982 by the construction of the Lilyvale Dam on the Coxs River. The lake is fed by natural flows from Coxs River and Farmers Creek. Currently it has recreational uses for fishing and boating.

Historically, the Lidsdale State Forest has been used extensively for logging operations, with a number of disused haul tracks. A powerline easement, with associated tracks and infrastructure, has also been established.

4.6 Existing landscape character

4.6.1 Rural towns and villages

Excluding the town of Lithgow, the nearest rural town is identified as Rydal, lying approximately 5 km west of the project area, with no direct road access to the project area. The town of Wallerawang lies approximately 9 km to the north of the project area. According to the 2021 *Census of Population and Housing* (the Census), Rydal has a population of 163 people, and Wallerawang has a population of 2,019. The Lithgow LGA had population of 20,842 people.

4.6.2 Nearby settlements

The closest settlements to the project area include the suburbs of South Bowenfels and Littleton. These suburbs form part of the western outskirts of the Lithgow urban area, lying within 4 km to the east of the project area along the Great Western Highway. Another small suburban area within 4 km of the project area lies approximately 2.5 km north of Bowenfels adjacent to the Lithgow Golf Club.

i Residences

Scattered rural residences are located south and west of the project, and in the rural/open land east of the project and west of the Lithgow urban area. This includes residences along local roads including Sir Thomas Mitchell Drive, Magpie Hollow Road, Hampton Road, Martins Road, and Sandalls Drive.

The locations of the receptors and representative viewpoints considered as part of this assessment are discussed further in Section 6.2.

Sensitive receivers are mapped in Annexure C.

4.6.3 Access and transport infrastructure

The main transport infrastructure in the vicinity of the project area is the Great Western Highway which connects Lithgow with Bathurst and Sydney. Connecting to the Great Western Highway, Magpie Hollow Road runs east-west along the south shore of Lake Lyell. Access to the project will be from Magpie Hollow Road and via Sir Thomas Mitchell Drive.

4.6.4 Airfields

There are no airfields within the vicinity of the project area that would experience visual impacts from the project.

4.6.5 Landform

The main landform feature in the project's vicinity is Mount Walker, which reaches 1,187 m Australian Height Datum (AHD). The project's proposed upper reservoir will be located on the south-west side of this feature. Generally, the landform around Mount Walker consists of steeply sided forested slopes forming narrow valleys. The largest valley holds Coxs River and the Lake Lyell reservoir. Lower slopes and flatter areas to the south and east of the project site are partially cleared for grazing.

4.6.6 Vegetation

The project area is predominantly covered by open eucalypt forest, with some small, cleared areas south of Farmers Creek. Small disturbed / cleared areas as a result of past forestry activity occur to the west of the project, and the R2 zoned land to the south of the project has been extensively cleared for pasture.

4.6.7 Water form – rivers and creeks

The Coxs River and the Lake Lyell reservoir are the defining water form elements in or near the project area. The lake forms a large water body with a distinct visual character.

4.6.8 Landscape values

National parks are reserved under the NPW Act to protect areas containing outstanding or representative ecosystems or cultural features or landscapes. The Marangaroo National Park and the nearby Lidsdale State Forest represent the high cultural value of the landscape surrounding the project area.

4.7 Key landscape features

Key features in the landscape add to the character and uniqueness of a place. The features may include dramatic natural features like a mountain peak, cliff or waterfall. A feature can also be much smaller in scale like a distinctive tree or stand of trees that stands out visually in the landscape.

The features identified below help define the project area and its surrounds and thus are key elements in the landscape.

4.7.1 Coxs River and Lake Lyell

The Coxs River and Lake Lyell are one of the defining landscape features of the local area. In some places the river runs along the bottom of narrow valleys with steep slopes. Lake Lyell reservoir is formed by Lilyvale Dam and is a popular recreation place. Lake Lyell itself provides opportunities for recreation, especially camping and fishing in the summer months.

4.7.2 Mount Walker

Mount Walker is a prominent feature visible from most directions, including more heavily populated areas to the east. Bushland around Mount Walker, including in the Marangaroo National Park to the north, provides recreation opportunities including bushwalking and four-wheel-driving. Photograph 4.1 shows the view of Mount Walker from Sir Thomas Mitchell Drive.

Photograph 4.1 Mount Walker from the south on Sir Thomas Mitchell Drive

5 Landscape assessment

5.1 Landscape character zones

To facilitate the assessment of potential impacts the project may have on the surrounding landscape, the existing landscape has been characterised into landscape character zones (LCZ). These are based on landform and landscape features that create distinct character areas.

For this LVIA, the LCZs in the vicinity of the project have been defined as follows.

5.1.1 Coxs River and Lake Lyell

Lake Lyell is a large, freshwater lake formed by the construction of Lilyvale Dam. The waterbody has a large, irregular shoreline, being in places over 400 m wide and in total over 3 km long. The shoreline of the lake is composed of sandy beaches and rocks, with large open areas for recreation available in the Lake Lyell Recreation Park. A large carpark and an office / café building contribute to the character of the area.

Lower slopes around the lake support open grazing areas and patches of forest vegetation.

At the southern end of the lake, the buildings and infrastructure associated with the Lilyvale Dam introduce a distinctly industrial element into the otherwise natural / agricultural nature of this landscape character zone.

Photograph 5.1 Lake Lyell landscape character

5.1.2 Forested mountains and ridges

Primarily within SP2 and C1 land zones, this LCZ is identified by rugged valleys formed between steeply sided ridges. Creeks are generally small and ephemeral.

Views from this LCZ are generally open longitudinally along the valleys. Views across the valleys are confined by the hills and ridges that separate one valley from another.

This LCZ would attract views from the surrounding land as it contains prominent landscape features in the area.

Photograph 5.2 Forested mountains and ridges landscape character

5.1.3 Cleared agricultural slopes

Occurring in the RU2 Rural Landscape zone, the cleared agricultural slopes LCZ includes areas of pasture with a backdrop of forested ridges. The landscape is typically modified to accommodate grazing and agricultural activities. Remnant trees are located throughout the LCZ, along with agricultural buildings and structures that contribute to the character.

Photograph 5.3 Cleared agricultural slopes landscape character

5.1.4 Lithgow and surrounding urban areas

The Lithgow and surrounding urban areas LCZ is characterised by urban development (commercial and residential buildings) occupying the lower slopes and valleys along the Great Western Highway and Farmers Creek. These buildings are punctuated by tree-lined roadways occurring at regular intervals along the slopes. Lithgow is located along the Farmers Creek valley and railroad, with the towns of Bowenfels, Littleton, South Littleton, and South Bowenfels along the highway.

Views from the LCZ are generally contained by neighbouring buildings and trees. There are views toward the surrounding forested mountains and ridges from various vantage points.

Source: Lithgow Mercury, August 28, 2023.

Photograph 5.4 Lithgow and surrounding urban areas landscape character

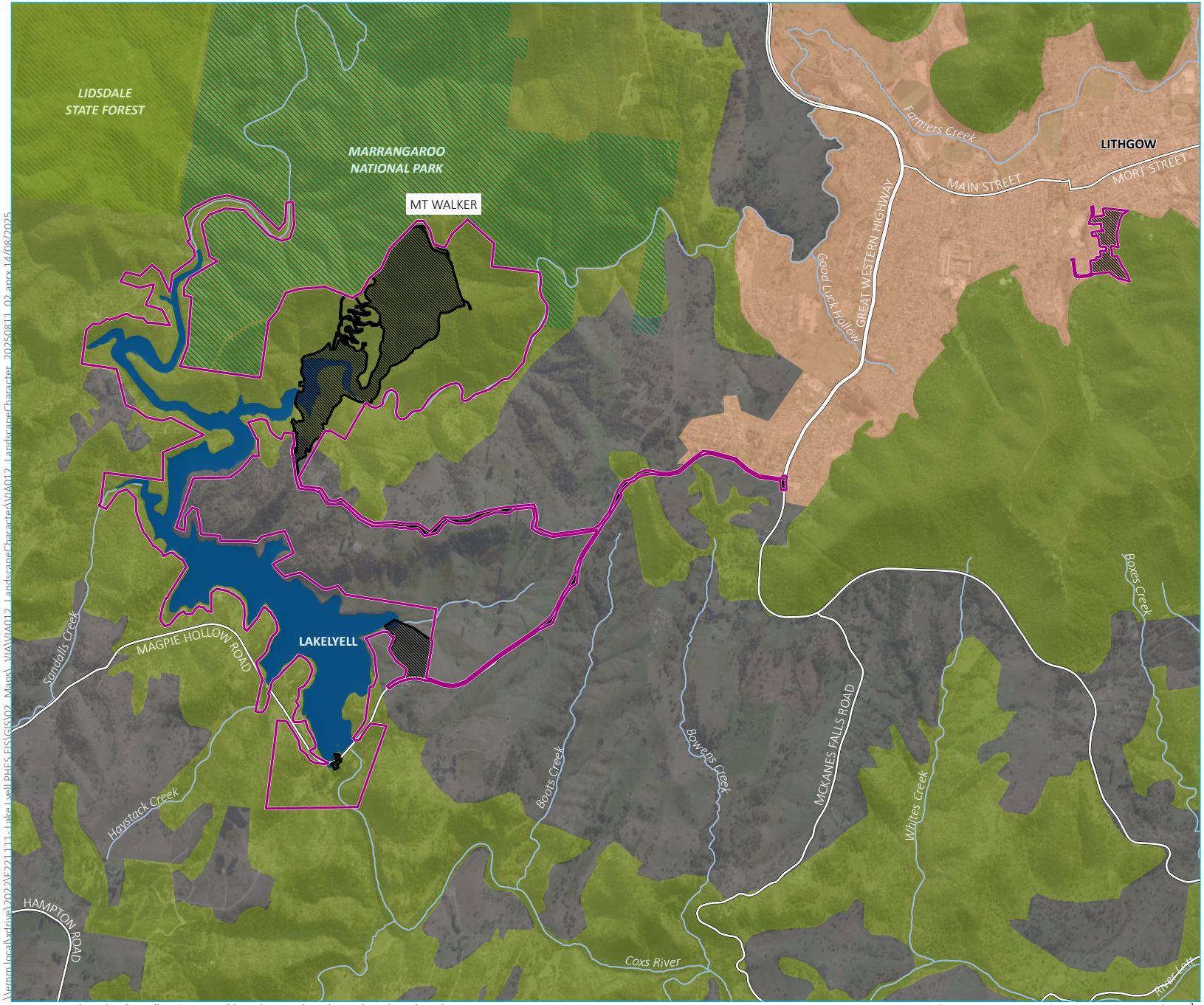
5.2 Landscape character impact

The landscape character impact of the project has been assessed as ranging from low to high in the four LCZs, as shown in Table 5.1. This assessment is based on the operational elements of the project, and excludes construction / accommodation elements as these will be rehabilitated back into the landscape or developed for other uses after the construction period.

Table 5.1 Landscape character zones

LCZ	Description	Sensitivity	Magnitude	Landscape character impact
Coxs River and Lake Lyell	This LCZ is formed by the location of a large, navigable body of water surrounded by forested ranges and hilly agricultural land. The Coxs River has become a more dominant visual feature because of the construction of the Lilyvale Dam that formed Lake Lyell and significantly widened a length of the river upstream of the lake. Lake Lyell is a significant local recreation resource.	Moderate • The landscape has significant modifications from its natural state, particularly by the construction of Lilyvale Dam. • The landscape elements that contribute to its quality will be slightly modified by the upper reservoir and to a localised extent by the switchyard and other project buildings.	Moderate • Views of the upper reservoir may be possible from large parts of Lake Lyell. • The northern reaches of the lake will have views of the switchyard and other project infrastructure. • The extent of the visible project infrastructure will be minor in relation to the LCZ. • The changed water level regime will be apparent.	**Moderate**
Forested mountains, ridges and valleys	This LCZ includes steeply sided valleys between rugged ridges with occasional higher peaks. The native forest vegetation is extensive and largely uninterrupted.	High • The landscape has been modified from its natural state but is largely intact in the location of the upper reservoir. • The landscape elements that contribute to its quality will remain unchanged.	Moderate • The physical extent of the visible project infrastructure will constitute a small proportion of the LCZ. The impact of the project infrastructure on the attributes of this LCZ will therefore be minor. • The upper reservoir will occupy a prominent position high on the south-west flank of Mount Walker.	**High**
Cleared agricultural slopes	Valley sides with moderate slopes that have been partially cleared for grazing. This LCZ includes the forested ridgelines that generally form a backdrop to the pastured slopes.	Moderate • The landscape's natural state has been significantly altered by clearing. • The varied terrain is able to absorb small scale change with minimal impact.	Low • No permanent project infrastructure will be located in this LCZ and will therefore not have any direct impact on its character.	**Low**

LCZ	Description	Sensitivity	Magnitude	Landscape character impact
Lithgow and surrounding urban areas	Urban commercial and residential structures line a network of streets along the valley floors and lower slopes.	Low • The landscape is highly modified from its natural state. • Human modification of the landscape defines this LCZ with dwellings, commercial buildings, roadways and supporting infrastructure. The LCZ has a high capacity to absorb change. • The landscape elements that contribute to its quality will remain the same.	Low • When viewed from within the LCZ, views toward the Project are expected to occupy a small proportion of the horizontal and vertical fields of view. These will be limited and screened by buildings and trees. • The Project infrastructure is not expected to be visible from this LCZ, with the exception of the Town accommodation camp, which would be visible from a small portion of the LCZ.	**Low**



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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Landscape character zones

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 5.1

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6 Visual assessment

The visual assessment of the project begins by mapping the ZVI of the project and then selecting representative viewpoints for detailed assessment. It then focuses on three main components of the project:

- visual impacts during construction of the project in Section 6.3
- visual impacts from the temporary accommodation camp during construction of the project in Section 6.3.2
- visual impacts during operation of the project in Section 6.4.

Specific visual impacts on the Lithgow urban area, Marrangaroo National Park and on Lake Lyell water-based activities are considered in sections 6.4.1ii to 6.4.5.

To support the visual assessment from the Lithgow urban area a reverse viewshed diagram for the viewpoint has been produced for Viewpoint 13 (refer to Figure 6.9). This figure will indicate the maximum extent of the upper reservoir that may be visible from that location.

6.1 Viewshed mapping

Viewshed mapping is a method of mapping the theoretical visibility of the project across the surrounding landscape and is used to identify the locations with potential views to project infrastructure. Using geographic information systems (GIS) technology, the topography of the land is combined with project infrastructure modelling to analyse the potential visibility of the project. The results are the ZVI.

Two ZVI diagrams have been prepared for the project to illustrate the theoretical visibility of the proposed permanent project infrastructure (refer to Figure 6.1) and of the proposed temporary accommodation camp (refer to Figure 6.3). The accommodation camp is considered separately because it has a discreet location on the southern side of Lake Lyell approximately 2 km from the operational components of the project, and because it will be a static element in the landscape for the four to five-year construction period.

The ZVIs cover the visibility distance zones that will experience the highest visual impacts, i.e. the foreground and middle ground visibility distance zones that extend to 8 km from the project (refer to Table 1.3). Distance bands are shown on the ZVIs to indicate the extent of the foreground and middle ground.

Best practice requires that vegetation (trees) and built structures not be included in the mapping. The resulting maps can therefore only show where landform obstructs views. This can be important for viewpoints that are behind vegetation or buildings and have no or obstructed views of the proposed development yet are shown on the ZVI as having a potential visual impact. As such, the ZVI represents a worst-case scenario in terms of project visibility.

The following is noted regarding the ZVI diagram:

- The ZVI does not account for the diminishing size of project elements as the viewer moves further away. It only indicates where project elements will be visible.
- The ZVI uses colour to indicate high visibility and low visibility. Highly visible areas show locations on the ground from which all or most project elements would be visible. Low levels of visibility are locations where small numbers of project elements are visible. No colour within the study area would indicate locations where no project elements predicted to be visible.

6.1.1 Summary of ZVI – upper reservoir

This ZVI for operation (refer to Figure 6.1) is based on three-dimensional modelling of the proposed upper reservoir without other structures or roads. This is because the upper reservoir will have the greatest visibility. It is also important to note that the ZVI only shows the potential visibility of the proposed structure, and not all associated vegetation clearing that will be required for construction. The effect of clearing on the ridgeline east of the upper reservoir may be more visible than the actual structure.

The ZVI for the proposed upper reservoir indicates that:

- the highest potential for visual impacts occurs on elevated ground south and west of the project
- there are potential visual impacts along Lake Lyell's western shoreline, including from near the park office and café
- views from the north are prevented by high ground (ridgelines) to the north of the project
- partial views of project activity may be possible from higher locations to the east of the project, including from developed areas along sections of the Great Western Highway. These impacts are described in Section 6.4.1ii
- the project will not be visible at Hassans Walls Lookout. Views will be blocked by high ground in the vicinity of South Bowenfels.

6.1.2 Summary of ZVI – Lakeside camp

The ZVI for the Lakeside camp (refer to Figure 6.3 and detail in Figure 6.4) is based on location and elevation data that have been extrapolated from digital images provided by EnergyAustralia. The actual location and elevation, and therefore the zone of visual influence, may vary as the design is refined.

The ZVI for the proposed Lakeside camp indicates:

- greatest potential visual impacts may occur in a broad south-facing band of land on the opposite shore of Lake Lyell to the north of the camp. This may include sensitive receivers 10 and 28
- there are potential distant views from high ground to the west of the proposed camp. This will include locations and sensitive receivers near viewpoints 6 and 11
- there may be partial views from locations south-west of the accommodation camp along Haystack Creek, including in the vicinity of viewpoint 9.

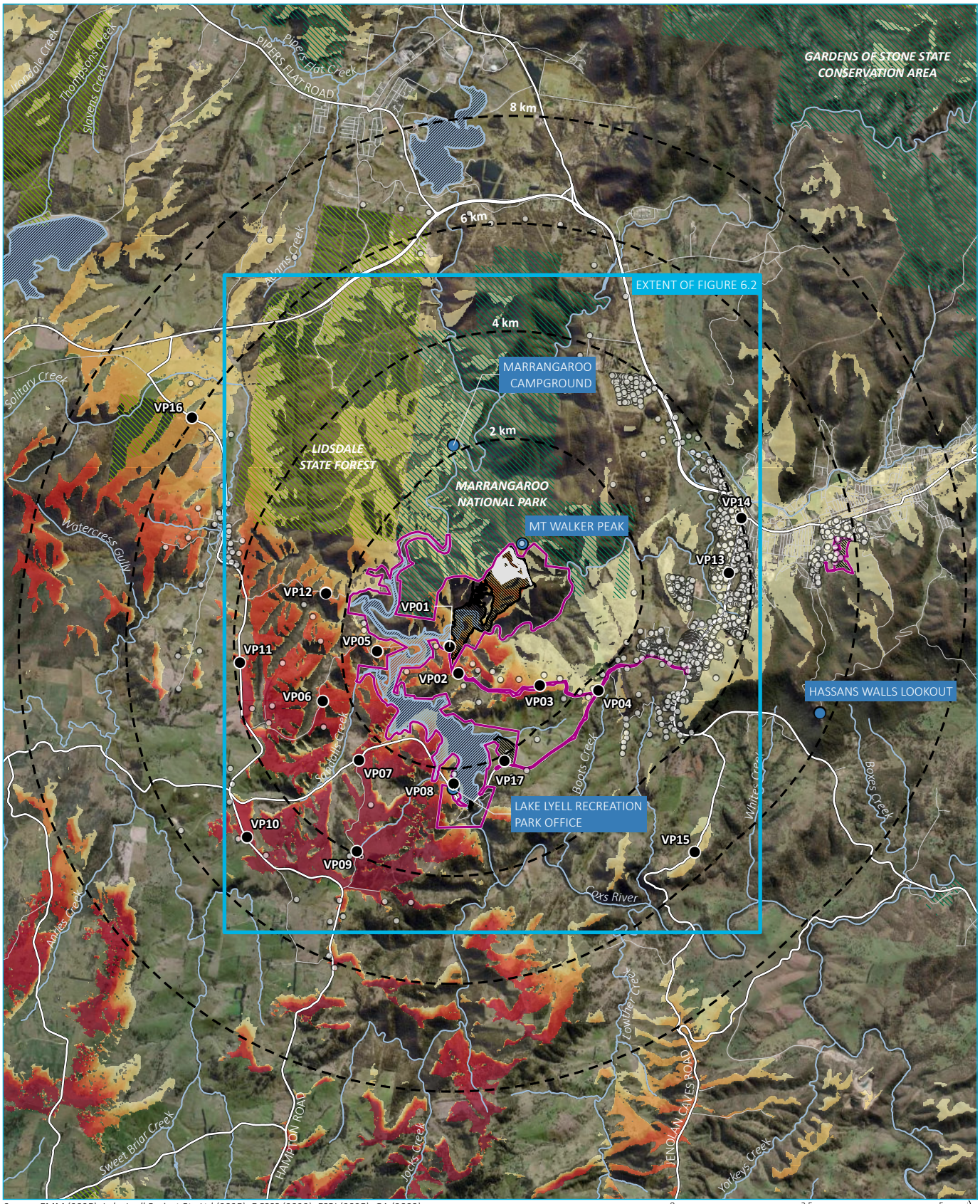
6.1.3 Summary of ZVI – Town camp

The ZVI for the Town camp is based on location and elevation data that have been extrapolated from images provided by EnergyAustralia. The actual location and elevation, and therefore the ZVI, may vary as the design is refined.

The ZVI for the proposed Town camp indicates:

- potential visibility in the town of Lithgow from higher locations north and west of the camp. This may include viewpoints 13 and 14. Due to the similar elevation in this part of Lithgow to the camp, actual visibility from most locations will be prevented by the existing dense urban development
- beyond the town there is potential visibility from elevated locations to the west, north-west and north. Due to the camp's location on the southern edge of town, actual views of the camp are unlikely

- very limited visibility to the south, mainly from higher locations along two ridges to a distance of less than 1 km
- there is a small patch of potential visibility near Hassans Walls Lookout, but no visibility from the lookout
- to the east potential visibility is limited to approximately 500 m by the adjacent ridge
- the local attraction Bracey Lookout (located on the adjoining ridge east of the camp) may have partial views of the camp; however, the lookout faces north away from the camp and views will likely be prevented by existing forest vegetation near the lookout.



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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KEY

- Project area
- Disturbance footprint
- Key location
- Sensitive receiver *
- Upper reservoir

Zone of visual influence

- Viewpoint
- Disturbance buffer

Upper reservoir visibility

- Highly visible
- Not very visible

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Zone of visual influence- upper reservoir

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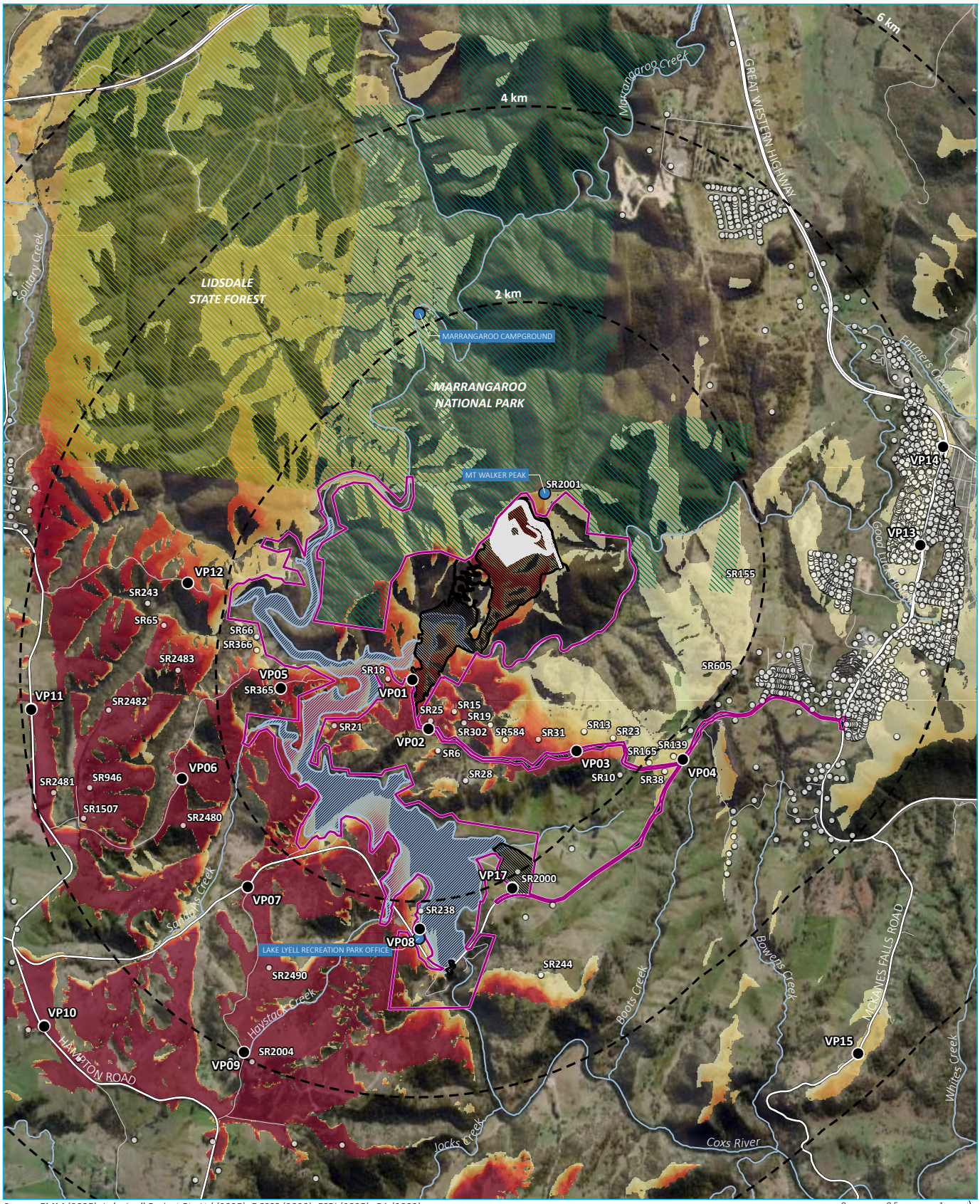
Landscape and Visual Impact Assessment
Figure 6.1

EMM creating opportunities

* Note not all sensitive receptors are mapped. Mapped sensitive receivers are presented based on potential visibility as described in this LVIA



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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KEY

- Project area
- Disturbance footprint
- Key location
- Sensitive receiver *
- Upper reservoir

Zone of visual influence
- Viewpoint
- Disturbance buffer

Upper reservoir visibility
- Highly visible
- Not very visible

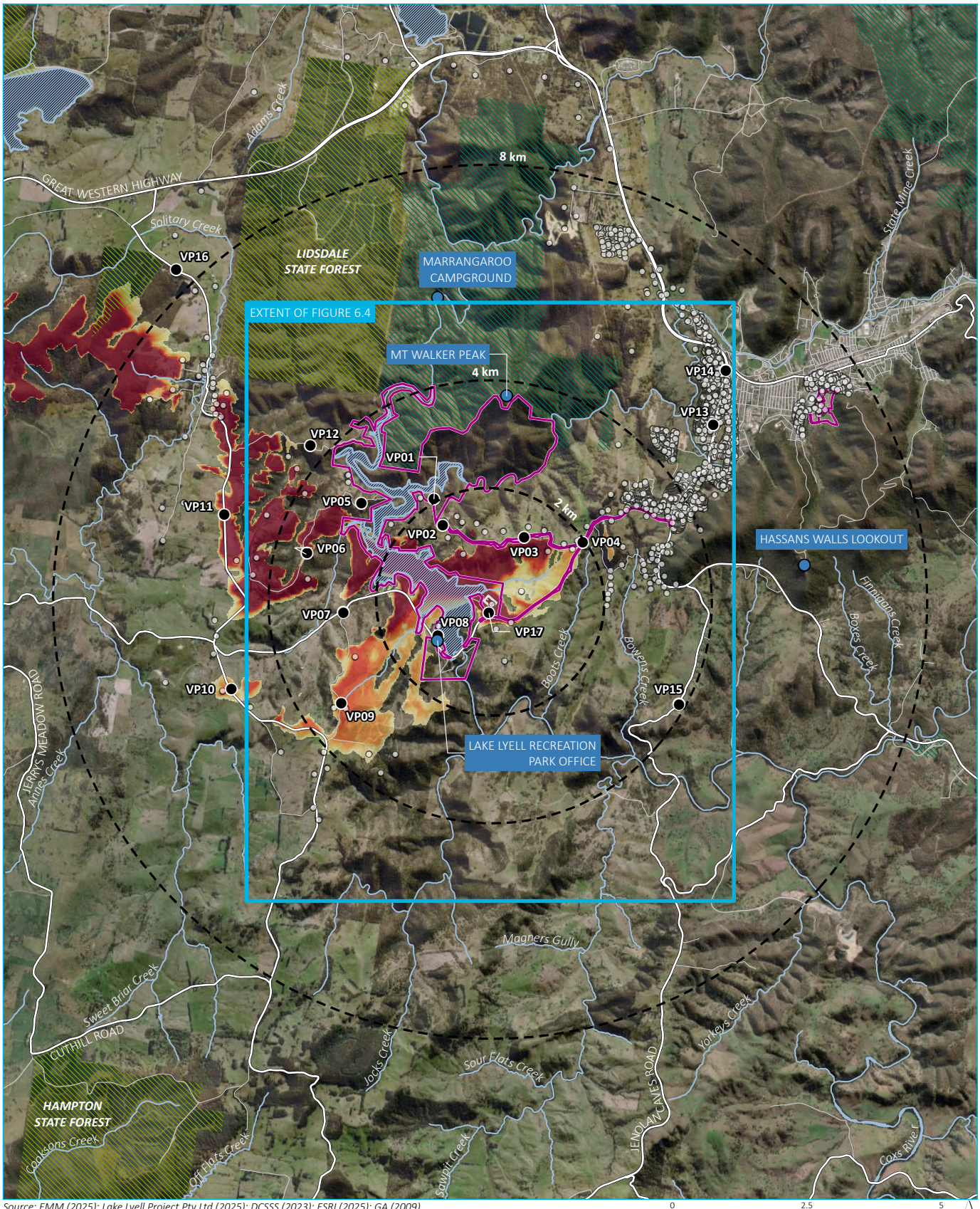
Existing environment
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Zone of visual influence- upper reservoir- detail

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.2

EMM creating opportunities

* Note not all sensitive receptors are mapped. Mapped sensitive receivers are presented based on potential visibility as described in this LVIA



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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KEY

- Project area
- Disturbance footprint
- Lakeside accommodation camp (approximate location)
- Key location
- Sensitive receiver *

Zone of visual influence

- Viewpoint
- Disturbance buffer

Accommodation camp visibility

- Highly visible
- Not very visible

Existing environment

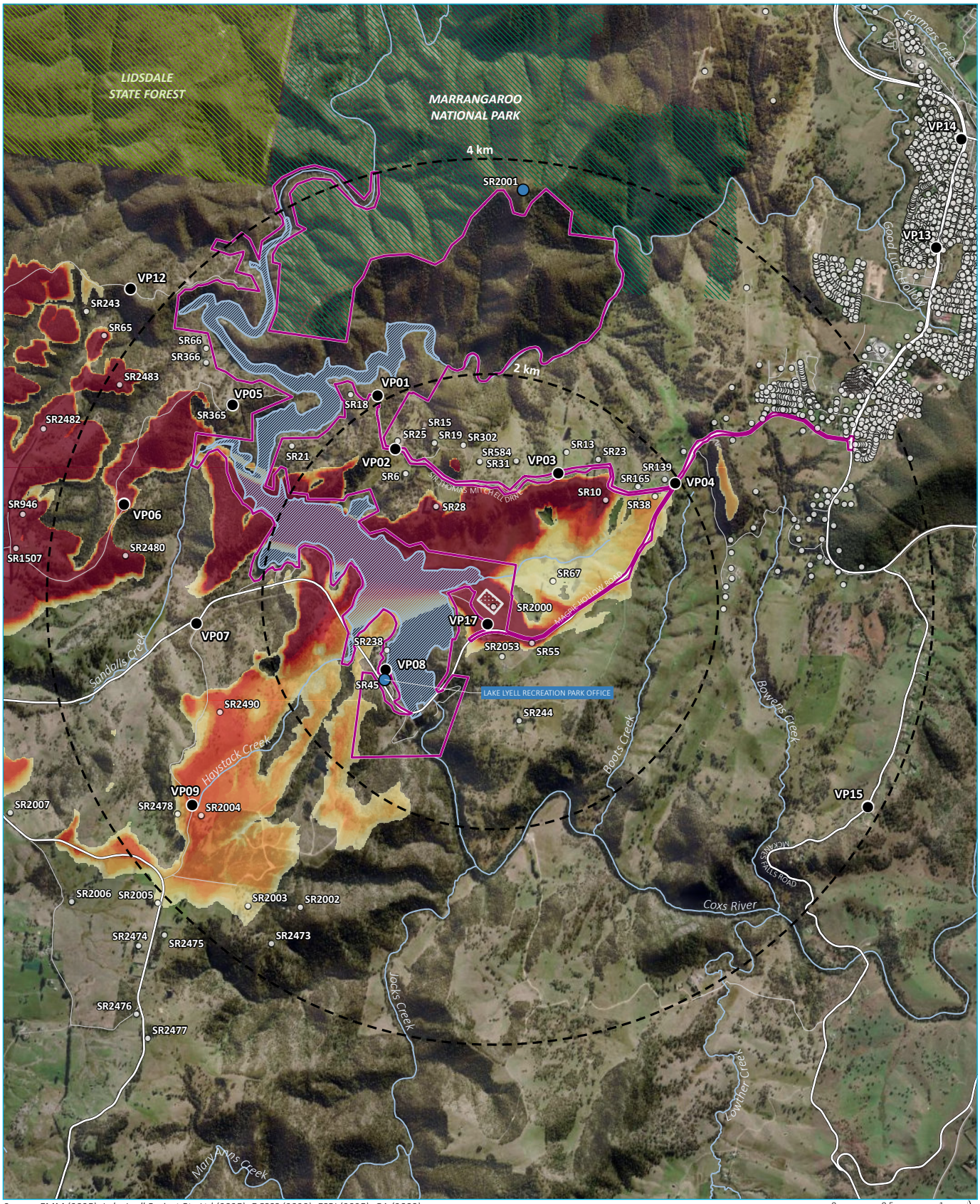
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Zone of visual influence- preferred lakeside accommodation camp

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.3

EMM creating opportunities

* Note not all sensitive receptors are mapped. Mapped sensitive receivers are presented based on potential visibility as described in this LVIA



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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KEY

- Project area
- Disturbance footprint
- Lakeside accommodation camp (approximate location)
- Key location
- Sensitive receiver *

Zone of visual influence

- Viewpoint
- Disturbance buffer

Accommodation camp visibility

- Highly visible
- Not very visible

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Zone of visual influence- preferred lakeside accommodation camp- detail

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.4

EMM
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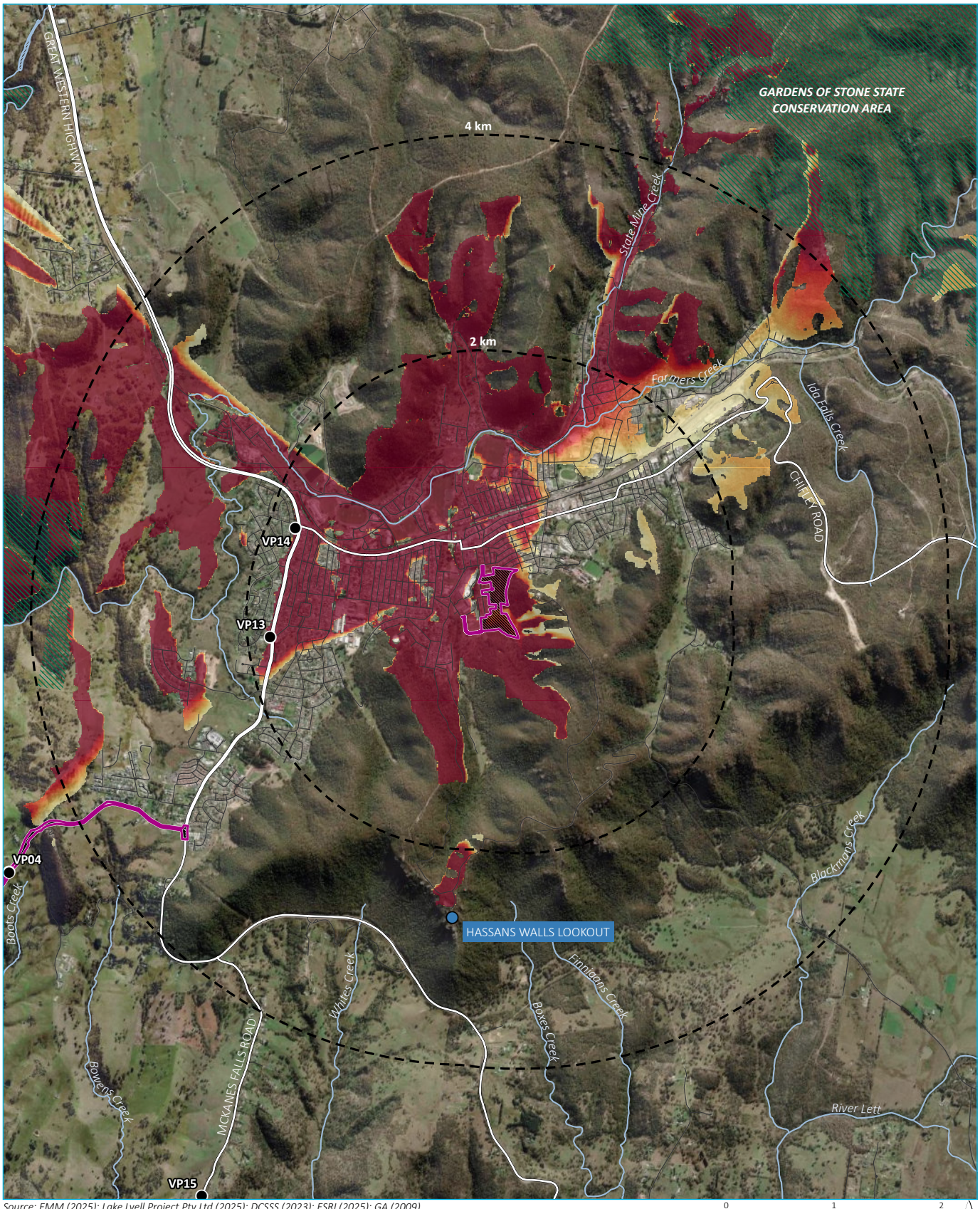
* Note not all sensitive receptors are mapped. Mapped sensitive receivers are presented based on potential visibility as described in this LVIA



Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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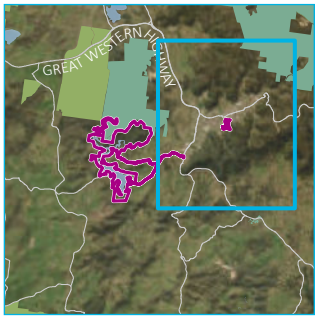

KEY

- Project area
- Disturbance footprint
- Key location
- Upper reservoir

Zone of visual influence

- Viewpoint
- Disturbance buffer

Town camp visibility

- Highly visible
- Not very visible

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve

Zone of visual influence- Town Accommodation camp

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.5

EMM
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6.2 Viewpoint selection

Viewpoints are locations from which photographs are taken that will illustrate the views from that area. Viewpoints are informed by the ZVI to identify areas of visibility which are then tested through field investigations and photography to determine if the site is indeed visible and how much of the site can be seen from the viewpoint. In most instances, the initial viewpoint screening occurs on public land for ease of access. Where possible, access to private properties will enable more accurate view from a specific location[1].A representative viewpoint might be selected near a cluster of residences to illustrate the visibility of the project from those residences. Such a representative viewpoint is selected and assessed in lieu of assessing each residence, and it represents the most sensitive location to illustrate the worst case for the area. Over 2,000 residences and other sensitive receivers within 6 km of the disturbance footprint are mapped in Annexure C. A detail of this mapping showing sensitive receivers within 2 km is shown in Figure 6.7.

As part of the preparation of this LVIA, a site inspection was carried out on 11 to 13 September 2023. The purpose of the site inspection was to ground truth the ZVI and other desktop analysis relating to the visual baseline (such as landscape character and features), as well as to photograph the project from representative viewpoints. Additional site reconnaissance visits occurred both before and after the site inspection to inform the identification of possible viewpoints.

Viewpoint selection is further refined to reflect feedback from the community, to ensure locations of importance are represented. Locations identified during community consultation include:

- tourist accommodation, including Eagle View Escape and Seclusions Blue Mountains
- the old fire station at the corner of Magpie Hollow Road and Hampton Road
- at the lake edge on Lake Lyell
- Magpie Hollow Road
- from a boat on Lake Lyell.

Viewpoint selection has also considered private residences however the initial viewpoint screening did not involve access to private properties.

The visible, above ground components of the project are located in two locations with distinct visual properties:

- the upper reservoir, located on the southwestern flank of Mount Walker
- all the other components of the project, including the lower intake / outtake structure, access tunnels and portal, switchyard and buildings.

The upper reservoir is the primary component with extensive visibility, and therefore potential visual impact, to a large number of viewers beyond the project's close vicinity. All other components are located at lower altitude in an isolated, narrow valley with much reduced visibility due to the immediately adjacent ridges.

[1] Note that the field investigation for viewpoint selection for the project followed an initial screening from publicly accessible areas only, given detailed neighbour engagement activities had not yet progressed. A recommendation of this report (see Section 9) is to carry out further verification of representative viewpoints as neighbour engagement advances and access to private properties is attained.

Based on the ZVI mapping, site visits and stakeholder feedback, a total of 17 representative viewpoints have been selected. These consist of 16 viewpoints with potential views of the upper reservoir, and one viewpoint to assess representative visual impacts of the accommodation camp. The viewpoints have distances from the upper reservoir ranging from 1,600 to 6,800 m and are summarised in Table 6.1. The location of the viewpoints is shown in Figure 6.6 and the location of sensitive receivers are shown in Figure 6.4.

Viewpoints have been selected to represent views from:

- local roads, including Martins Road, Sandalls Drive, Sir Thomas Mitchell Drive and Magpie Hollow Road, and residences located off these roads
- from the Great Western Highway and the western edge of the Lithgow urban area, including residences and commercial enterprises
- from tourist destinations such as the Lake Lyell Recreation Area, and nearby accommodation venues including Seclusions Blue Mountains, Eagle View Escape and Springmead B&B.

Boating activities occur throughout Lake Lyell and some restrictions will be required during construction and operation in the vicinity of the project to protect the inlet structure as well as public safety. As such, a specific viewpoint was not selected on the lake however has been considered qualitatively throughout the assessment based on other relevant viewpoints. Access to private residences was not available at the time of the site inspection and photography. As such and as described earlier, representative viewpoints have been selected in lieu of assessing each residence. The rationale for each viewpoint selected, and the residences associated with each viewpoint, is presented in Table 6.1.

Viewpoints 1 to 16 are used to assess the visual impact of the operational elements of the project. Viewpoint 17 has been selected to assess the temporary visual impact of the Lakeside camp, noting that the camp is construction element only and will not result in operational impacts. Photomontages have been prepared for 10 of the selected viewpoints to support the assessment.

A viewpoint assessment sheet has been prepared for each representative viewpoint and included in Annexure A. These assessment sheets rate the predicted visual impact at each viewpoint based on the methodology in Chapter 3. The visual impact ratings for all representative viewpoints are summarised in Table 6.2. These findings have been used to inform separate viewpoint assessments for individual sensitive receivers, including private residences and businesses (refer Section 6.4.1).

Sensitive receivers within 2 km (the foreground visibility distance band) have been mapped separately on Figure 6.7 for ease of reference and because they will generally experience greater visual impacts than more distant receivers.

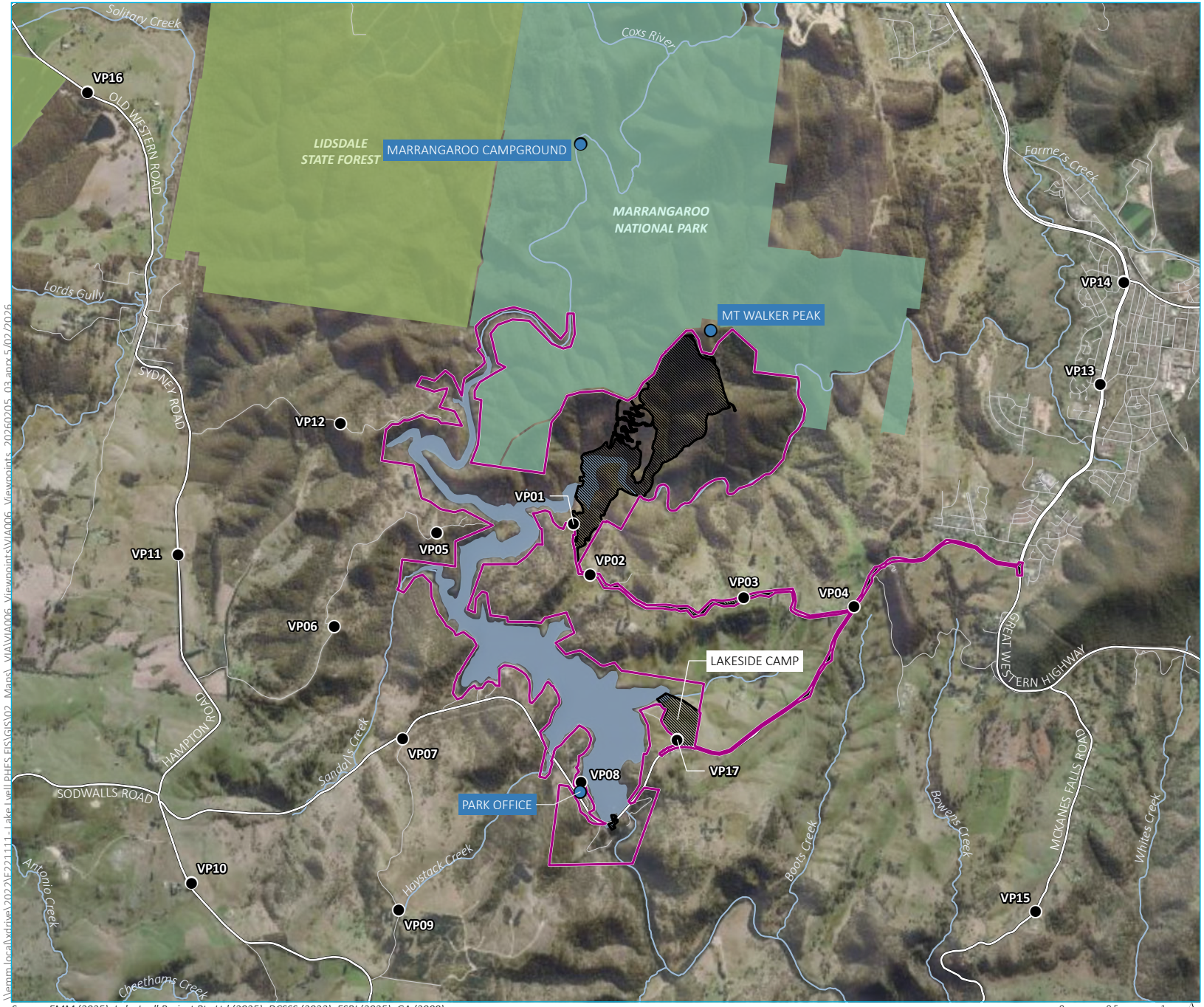
Table 6.1 Assessed representative viewpoints and rational for selection

Viewpoint	Location	Viewpoint type(s)	Representative receptors	Distance to upper reservoir / other permanent structures (m)[1]	Rationale for selection
1	Sir Thomas Mitchell Drive	Local road	SR 18,21 Motorists	1,600 / 240	This viewpoint represents the closest public viewpoints from which the upper reservoir will be visible.
2	Sir Thomas Mitchell Drive / SR25	Residence local road	SR6, 15, 19, 25 Motorists	2,000 / 620	Representative of nearby residences.
3	Sir Thomas Mitchell Drive / SR13	Residence local road	SR13, 31, 302, 584 Motorists	1,900 / 1,630	Representative of nearby residences.
4	Corner Sir Thomas Mitchell Drive and Magpie Hollow Road / SR139	Residence local road	SR139, 165 Motorists	2,400 / 2,560	Representative of nearby residences.
5	Sandalls Drive / SR365 (Eagle View Escape)	Tourist destination	SR365 (Eagle View Escape), SR65, 66, 366, 2482, 2483 Visitors	2,500 / 1,500	Representative of nearby residences and a tourist accommodation facility.
6	Sandalls Drive / SR2480	Residence local road	SR 946, 1507 (Springmead B&B),2480 Motorists	4,100 / 2,800	This viewpoint primarily assesses views from Sandalls Drive and is representative of nearby residences.
7	Corner Magpie Hollow Road and Martins Road	Local road	Motorists	4,300 / 2,910	This viewpoint represents views from Magpie Hollow Road which is the western access road to the Lake Lyell Recreation Park.
8	Magpie Hollow Road / SR45 (Lake Lyell Recreation Park)	Tourist destination	SR45 and SR238 (Lake Lyell Recreation Park) Visitors	3,900 / 2,600	Represents views from heavily used areas of the Lake Lyell Recreation Park, including the boat ramp, office and café.

[1] Distance to upper reservoir is used in this table because for most viewpoints this will be the closest visible structure. Where closer structures will be visible the shorter distance is used.

Viewpoint	Location	Viewpoint type(s)	Representative receptors	Distance to upper reservoir / other permanent structures (m)[1]	Rationale for selection
9	Martins Road / Seclusions Blue Mountains	Tourist destination, residence, local road	SR2004 (Seclusions Blue Mountains), 2490, 2478 Visitors Motorists	5,900 / 4,370	Represents views from a tourist destination (Seclusions Blue Mountains) and residences.
10	Hampton Road / adjoining residence	Residence, local road	SR2007, 2008 Nearby residences Motorists	6,800 / 5,410	Representative of several nearby residences.
11	Hampton Road	Local road, residence	SR2481 Motorists	5,100 / 4,090	Representative of views from Hampton Road and nearby residences.
12	Old Western Road	Local road, residence	SR2002, 243 Motorists	3,100 / 2,570	Representative of views from Old Western Road and nearby residence.
13	Great Western Highway	Residence, highway	SR1068 (Lithgow Motor Inn) SR1499 (KFC) SR1996 (Lithgow Cemetery) Nearby residences Motorists	3,700 / 4,620	Representative of potential views from Great Western Highway and from public and private viewpoints in the vicinity.
14	Great Western Highway	Residence, highway	Nearby residences Motorists	4,100 / 5,100	Representative of potential views from Great Western Highway and from public and private viewpoints in the vicinity.
15	McKanes Falls Road / adjoining residence	Residence, local road	Nearby residences Motorists	5,900 / 5,800	Representative of views from McKanes Falls Road.
16	Old Western Road	Local road	Nearby residences Motorists	6,200 / 6,170	Representative of views from Old Western Road.
17	Magpie Hollow Road	Local road	SR55 Motorists	700 m to accommodation camp[2].	Representative of views of the accommodation camp for motorists on Magpie Hollow Road.

[2] Viewpoint 17 will not have any view of permanents parts of the project or disturbance footprint.



KEY

- Project area
- Disturbance footprint
- Viewpoint
- Key location

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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Viewpoint locations

Lake Lyell PHES
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Figure 6.6

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KEY

- Project area
- Disturbance footprint
- Accommodation camp (approximate location)
- Sensitive receiver
- Viewpoint
- Key location

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Sensitive receivers within 2 km

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

0 0.5 1 km

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Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.7

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6.3 Visual impacts during construction

A description of the site establishment and construction activities associated with the project is summarised in Chapter 2 and further detailed in Appendix B of the EIS. These impacts are considered temporary with the construction period estimated to be four to five years. The main temporary visual impacts are identified below.

- Construction of the upper reservoir:
  - clearing existing vegetation within the disturbance footprint
  - construction of access roads
  - use of excavators and other machinery for earthworks and construction of the dam.
- Traffic and vehicle movements:
  - vehicle movements will be a daily occurrence during the construction stage of the project. Most traffic into the project area is expected to be to and from the Great Western Highway. The traffic will access the project from Magpie Hollow Road, via Sir Thomas Mitchell Drive
  - as construction work proceeds, vehicles may be visible along access tracks. However, due to topography and vegetation, visual impacts from traffic are not expected at these locations.
- Watercraft:
  - barges and other watercraft to support construction of the project may be launched from the accommodation camp location or the end of Sir Thomas Mitchell Drive.
- Temporary laydown areas:
  - laydown areas and construction yards will be necessary for the construction of the project. These are located along Farmers Creek arm of Lake Lyell, toward the end of Sir Thomas Mitchell Drive. The visual impacts of these areas are expected to be negligible due to the location within a valley and away from any roadways and residences.
- Construction lighting:
  - visual impacts of lighting for construction are considered in Section 7.1.
- Installation of transmission towers and overhead wires:
  - as construction progresses, machinery movement to install the approximately 150 m of transmission infrastructure will be visible in limited locations within the project footprint.
- Construction of switchyard and associated buildings:
  - construction of these elements will require use of cranes and earthworks machinery. Visibility to this location is limited due to the surrounding topography, however cranes may be visible over a wider area when in use.
- Dust caused by construction activity:

- dust caused by construction activity may be visible at times and will have a temporary visual impact. This visual impact may occur as a visible plume of dust above the project that may be visible at a distance, or as lower-level dust that may reduce visibility for some observers close to the project.

Residents along Sir Thomas Mitchell Drive are expected to experience visual impact during the construction period. Most residents would experience the impacts mentioned above to varying degrees. These impacts would also include traffic and vehicle movements along Sir Thomas Mitchell Drive as it is the main access route to the site. Residents along Magpie Hollow Road are also expected to experience visual impacts from traffic along the road, albeit to a lesser extent since Magpie Hollow Road usually carries more of traffic than Sir Thomas Mitchell Drive.

Motorists travelling along the local road network and people boating on Lake Lyell may experience views of the construction activity. The activity visible from public roads and the lake is expected to consist of vehicular traffic along the roads and construction activities around the upper reservoir. It is assumed the focus of motorists will be in line with their direction of travel along the road corridors, minimising their views into the project footprint.

As the project site establishment works and construction activities are considered temporary, mitigation measures are not required to reduce visual impacts during the construction stage of the project. However, mitigation measures designed to reduce other impacts during construction are discussed in Section 9.

6.3.1 Vegetation clearing for construction

Existing native vegetation will necessarily be cleared to allow for construction of the upper reservoir and other project elements. Where possible, these areas will be revegetated but will take some years to develop a canopy cover similar to existing conditions. This will result in visual impacts that are considered temporary even though it may take some years beyond the actual construction period to be fully reinstated.

Section 9.2.3 of this report discusses measures to mitigate the impacts resulting from clearing.

6.3.2 Visual impacts of temporary accommodation camps

There are two locations being considered for a temporary accommodation camp to house the construction workers. The first, and preferred option, is the lakeside location on the eastern shore of Lake Lyell, accessed off Magpie Hollow Road (refer to Plate 6.1). The second site (Town camp) is in Lithgow at the Pottery Estate off Silcock Street (refer to Plate 6.2). Only one of these locations will be selected for the accommodation camp.

The accommodation camp will provide accommodation for workers for approximately four to five years during construction of the project. The camp is expected to be in place for the duration of the construction period.

Both locations for the accommodation camp are at locations away from the main project site and will have separate visual impacts. There will also be visual impacts related to the construction and decommissioning of the accommodation camp.

i Visual impacts during construction / decommissioning

Construction of the accommodation camp will be of a much smaller scale than for the main project and will have much smaller visual impact. The following construction / decommissioning activities related to the accommodation camp will have visual impacts:

- Use of excavators and other machinery for earthworks / site preparation / site rehabilitation.
- Use of cranes to install / remove prefabricated buildings.
- Additional truck movements related to the delivery and removal of plant and building equipment.

It is anticipated that the construction and decommissioning periods for the accommodation camp will be about two to three months in duration at the beginning and end of the project construction period.

ii Visual impacts during occupation (Lakeside camp)

Visual impacts resulting from occupation of the Lakeside camp will be experienced by three broad categories of viewer:

- Local residents and sensitive receivers, as shown on Figure 6.4.
- Motorists on Magpie Hollow Road, which will include visitors to Lake Lyell.
- Water users on Lake Lyell.
    - The ZVI for the Lakeside camp (refer to Figure 6.3 and Figure 6.4) indicates the northernmost camp buildings will be visible to lake users for a large part of the length of Lake Lyell, possibly as far north-west as the mouth of Coxs River.
    - The ridge to the west of the Lakeside camp will prevent views of some parts of the camp for most water-based viewers. Screen planting on the ridge west of the camp and on the low point north-west of the camp may significantly reduce visibility, and therefore visual impacts, of the camp. Views from the lake in the area close to the north of the Lakeside camp will be unavoidable.

There are 21 sensitive receivers within 2 km of the Lakeside camp (including the camp itself). These receivers are shown on Figure 6.4 with a detailed ZVI to indicate which sensitive receivers may be impacted by the camp.

Viewpoint 17, on Magpie Hollow Road approximately 700 m south-east of the proposed Lakeside camp has been selected to assess visual impacts of the camp for motorists and visitors. The location of viewpoint 17 is shown in Figure 6.6 and a visual assessment with a photomontage is included in Annexure A (Annexure A.17). The visual assessment found that the visual impact on viewpoint 17 was low, with a magnitude rating of low and visual sensitivity rating of moderate.

Plate 6.1 Lakeside camp aerial view (artist's impression)

iii Visual impacts during occupation (Town camp)

The Town camp is located on Pottery Estate, at the base of a valley along the southern edge of Lithgow. This site is listed on the State Heritage Register; however, the camp has been designed to exclude the area of high sensitivity from the disturbance footprint.

The site is separated from the residential areas by existing large retail stores. The camp design has allowed for buffers along the perimeter, especially where it is close to the residential areas (north boundary and south-west boundary). The eastern and southern boundaries abut existing bushland on hillsides.

The ZVI for the camp indicates there is potential visibility from across the valley north and west of the camp. Ridge lines east and south of the camp block views from these directions.

The area around the camp is has a mature suburban landscape with dwellings, retail buildings, and street trees that screen most views from the residential streets. While there may be views of the camp from residences immediately adjacent to the camp location (Silcock Street, Mantle Street, Hill Street, Valley Drive, and Hassans Walls Road) the potential for views diminishes rapidly beyond these streets. Views from within Lithgow are expected to be blocked by the existing buildings and landscape.

Locations at higher elevations that have views over the buildings in Lithgow may have views of the camp. Locations along Great Western Highway may have glimpses of the camp rooftops, even though no views are expected at viewpoints 13 and 14.

During the construction of the camp, there is expected to be additional traffic on the adjacent streets as the camp elements are being installed. After the camp is completed, there will be shuttle bus traffic transporting workers to the Lake Lyell construction site. These buses would enter the camp via Silcock Street and Bent Street.

Plate 6.2 Town accommodation camp aerial view (artist's impression)

6.4 Visual impacts during operation

The visual impacts during operation are those visual impacts that occur after the construction phase of the project throughout its 80 to 100-year operational life. Given the nature of the construction of the upper reservoir, some visual impacts may be effectively permanent. Visual impacts from operation of the project will be caused mainly by:

- permanent infrastructure within Lake Lyell (intake) and changes to recreational access (i.e. access to intake area will be prohibited)
- permanent infrastructure on the southern face of Mount Walker, including the upper reservoir dam and spillway, surge shaft and access roads
- fluctuations of the water level within Lake Lyell will occur more frequently, exposing and inundating shoreline on a daily basis
- infrequent and limited vehicle and traffic movements for maintenance activities.

It is considered that over time, there will be some natural establishment of vegetation over the embankment (mostly as moss and/or isolated grass or shrubs) as well as weathering which would reduce visual impacts. However, for the purposes of assessment it has been assumed the upper reservoir would remain as bare rockfill.

Viewpoints 1 to 16 have been used to assess the potential visual impacts of the operation of the project. Annexure A contains the visual impact analysis from each of the viewpoints with assessment ratings based on the methodology outlined in Chapter 3. Photographs from these representative viewpoints were captured and have been provided in Annexure A as part of the viewpoint analysis. The photographs are used to represent and examine the human experience of the visual changes that may occur from the project.

Table 6.2 summarises the findings from the analysis of each viewpoint and the location of the selected viewpoints is shown on Figure 6.6. For extra detail, Figure 6.2 shows the sensitive receivers within 4 km of the disturbance footprint on an enlarged ZVI diagram (also shown in Annexure C).

The ratings in the viewpoint assessments are based on the visual impacts from the operational phase of the project. Ten of the viewpoints have been selected to illustrate the visual impacts using photomontages. For the selected viewpoints, the following has been prepared:

- Photomontage showing the visual impact of the operational elements of the project with approximately 10 years of vegetation re-establishment.
- Photomontage showing the operational elements of the project in combination with the extent of the disturbance footprint (i.e. greatest extent of vegetation clearing and earthworks).

Photomontages prepared for relevant viewpoints are included in Annexure A.

6.4.1 Summary of viewpoint analysis

i Representative viewpoints

Visual impacts for the operational phase of the project at each representative viewpoint are described and assessed in Annexure A. The visual impact for all representative viewpoints is rated from low to high as summarised in Table 6.2 and shown in Figure 6.8.

Key findings of the assessment are:

- the project will be difficult to see from most public locations other than nearby roads
- views from residences and other sensitive receivers will vary considerably (and further assessment is needed to determine specific impacts from within private property)
- visual impacts will be highest for sensitive receivers and motorists / visitors to the south-west of the project, particularly during the period of vegetation reestablishment
- for most viewpoints, vegetation reestablishment will significantly reduce the visual impact of the project over time.

Viewpoints 13 and 14 assess possible visual impacts from the western edge of the Lithgow urban area. These impacts are described further in Section ii.

Table 6.2 Summary of assessed viewpoints

Viewpoint	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[1]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
1	A1	1,600 / 240	Short duration however is in close proximity and will experience a substantial change in view and contrast to the existing landscape.	**High**	Low	High	**Moderate**	**High**
2	A2[2]	2,000	Constant, substantial change in view and permanent infrastructure in close proximity.	**High**	Moderate	High	**High**	**High**
3	A3[2]	1,900	Constant, substantial change in view and permanent infrastructure in close proximity	**Moderate**	Moderate	High	**High**	**High**
4	A4	2,400	A minor portion of the upper reservoir may be visible in the view extent but unlikely to change view	**Low**	Moderate	Moderate	**Moderate**	**Low**
5	A5[2]	2,500 / 1,500	A portion of the view extent would experience substantial change with many permanent elements visible over a constant duration	**High**	Moderate	High	**High**	**High**
6	A6[2]	4,100 / 2,800	Although a more distant view, a portion of the view extent would experience moderate change with many permanent elements visible over a constant duration	**Moderate**	Moderate	High	**High**	**High**

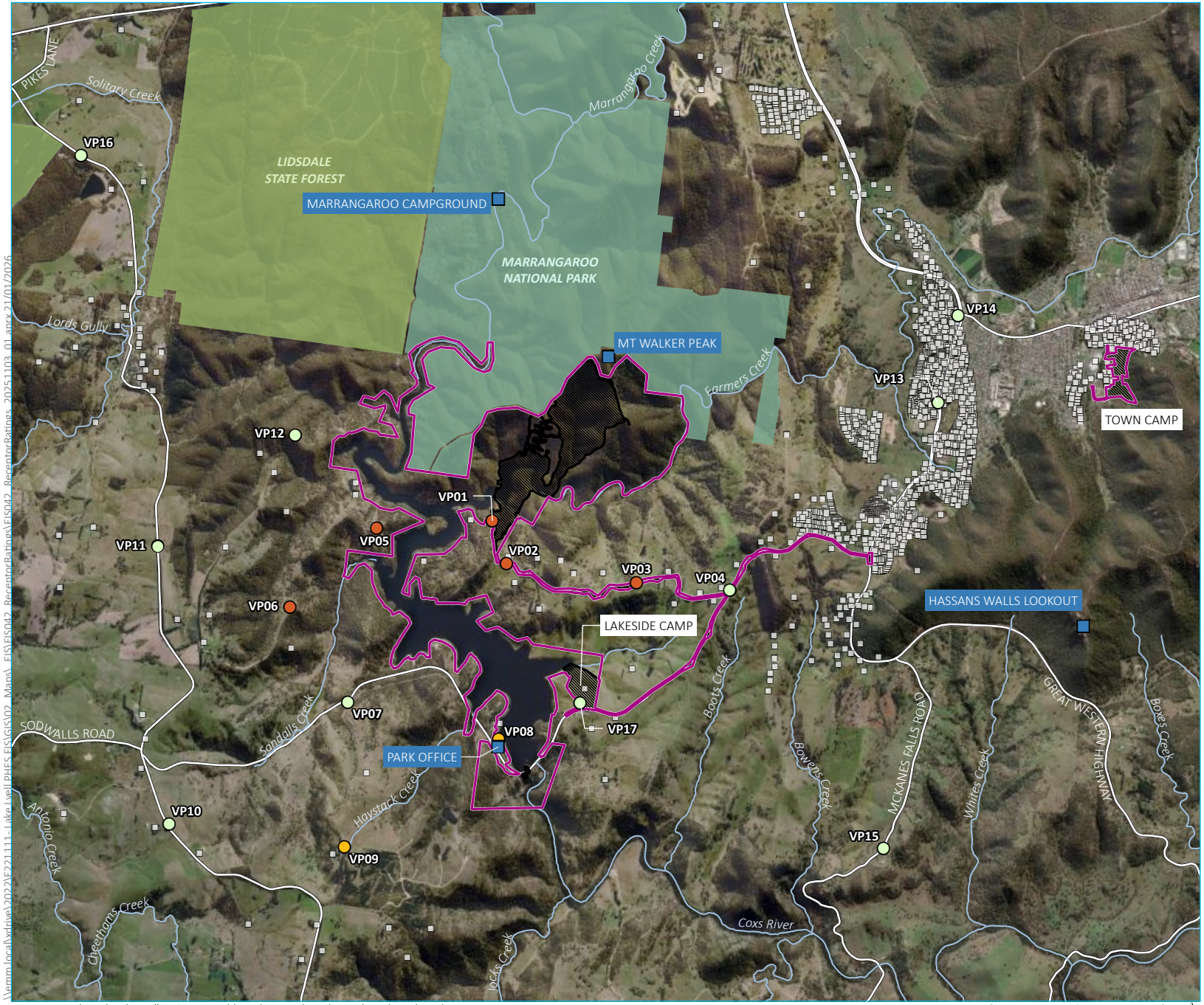
[1] Distance to upper reservoir is used in this table because for most viewpoints this will be the closest visible structure. Where closer structures will be visible the shorter distance is used.

[2] Includes photomontage.

Viewpoint	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[1]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
7	A7[2]	4,300	A change in view from new features in the landscape however experienced over a short duration as viewer experience is transient (motorist) and consistent with other infrastructure experienced by motorists (such as Lilyvale Dam)	**Low**	Low	High	**Moderate**	**Low**
8	A8[2]	3,900	Potential minor change in view from distance is considered low. However, this location would experience noticeable water level fluctuations within the foreground view.	**Moderate**	Moderate	Moderate	**Moderate**	**Moderate**
9	A9[2]	5,900	Permanent elements are within the landform of the visible landscape however are contrasting with the natural character. The distance of the view reduces the scale and magnitude of change.	**Moderate**	Moderate	Moderate	**Moderate**	**Moderate**
10	A10	6,800	While permanent elements may be visible, the distance of the view reduces the scale and magnitude of change.	**Low**	Moderate	Moderate	**Moderate**	**Low**
11	A11[2]	5,100	While there will be some visibility of permanent infrastructure, views will be limited, short duration views from the road and at distance.	**Low**	Low	Moderate	**Low**	**Low**
12	A12[2]	3,100	While there will be visibility of permanent infrastructure, views will be limited, short duration views from the road.	**Low**	Low	High	**Moderate**	**Low**
13	A13[2]	3,700	Temporary change in view until ridge vegetation is re-established, returning to pre-existing view	**Low**	Low	Moderate	**Low**	**Low**

Viewpoint	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[1]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
14	A14	4,100	Temporary change in view until ridge vegetation is re-established, returning to pre-existing view	**Low**	Low	Moderate	**Low**	**Low**
15	A15	5,900	Limited view from distance and limited change anticipated	**Low**	Moderate	Moderate	**Moderate**	**Low**
16	A16	6,200	Limited view from distance and over short duration (view from local road)	**Low**	Low	Moderate	**Low**	**Low**
17	A17	700	Temporary elements designed to integrate with surrounding landform and character. Structures removed at end of construction.	**Low**	Low	High	**Moderate**	**Low**

Note: Viewpoint 17 is associated with visual impacts during construction and is assessed in Section 6.3.2. It is included in Table 6.2 for completeness due to its inclusion in the detailed assessments in Annexure A.



Source: EMM (2026); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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Visual impact ratings of representative viewpoints

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 6.8

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ii Sensitive receivers

Based on the visual assessment at representative viewpoints (Table 6.2), sensitive receivers who may experience moderate to high visual impacts were identified. As access to private residences was not available during the initial viewpoint screening process, it could not accurately be determined whether existing vegetation currently screens individual views. As such, the list in Table 6.3 is conservative and provides a basis for further assessment of each individual receiver.

Further assessment of each of the listed sensitive receivers has been conducted using visualisations and the visual impact methodology previously described in Section 3.4. The results are summarised in Section 6.4.2 and presented in detail in Annexure B.

Table 6.3 Sensitive receivers with potentially moderate to high visual impacts based on representative viewpoint assessment

Sensitive Receptor (ID#)	Location	Viewpoint type(s)	Distance to upper reservoir / other visible permanent structures (m)[1]	Associated representative viewpoint rating[2]
SR6	Sir Thomas Mitchell Drive	Residence	1,800	High
SR13	Sir Thomas Mitchell Drive	Residence	1,800	High
SR15	Sir Thomas Mitchell Drive	Residence	1,500	High
SR18	Sir Thomas Mitchell Drive	Residence	1,700 / 1,400	High
SR19	Sir Thomas Mitchell Drive	Residence	1,400 / 1,800	High
SR21	Sir Thomas Mitchell Drive	Residence	2,500 / 2,100	High
SR23	Sir Thomas Mitchell Drive	Residence	2,000	High
SR25	Sir Thomas Mitchell Drive	Residence	1,400 / 1,800	High
SR31	Sir Thomas Mitchell Drive	Residence	1,800	High
SR45 / SR238	Lake Lyell Recreation Park	Recreation	3,900	Moderate
SR65	Sandalls Drive	Residence	3,500	High
SR66	Sandalls Drive	Residence	2,600	High
SR302	Sir Thomas Mitchell Drive	Residence	1,700	High
SR365	Sandalls Drive (Eagle View Escape)	Tourist/ accommodation	2,500	High
SR366	Sandalls Drive	Residence	2,600	High
SR584	Sir Thomas Mitchell Drive	Residence	1,800	High
SR946	Sandalls Drive	Residence	4,800	High
SR1507	Sandalls Drive (Springmead B&B)	Tourist/ Accommodation	4,800	High
SR2004	Martins Road (Seclusions)	Tourist/ Accommodation	5,700	Moderate
SR2480	Sandalls Drive	Residence	4,100	High

[1] Distance to upper reservoir is used in this table because for most viewpoints this will be the closest visible structure. Where closer structures will be visible the shorter distance is used.

[2] Impact rating is based on Table 6.2 and Figure 6.8, where residences near a representative viewpoint has adopted the associated impact rating as a measure for the sensitive receiver to move on to specific, individual assessment

Sensitive Receptor (ID#)	Location	Viewpoint type(s)	Distance to upper reservoir / other visible permanent structures (m)[1]	Associated representative viewpoint rating[2]
SR2482	Sandalls Drive	Residence	4,200	High
SR2483	Sandalls Drive	Residence	3,400	High
SR2490	Martins Road	Residence	4,700	Moderate

6.4.2 Visual impacts on near neighbours

Near neighbours that may experience visual impacts include dwellings along Sir Thomas Mitchell Drive and some properties south-west of the project area in particular along Sandalls Drive. Visual impacts for near neighbours can vary significantly due to the steep terrain and established forest vegetation of the area. Visual impacts even at different locations on a single property may vary considerably from high to low or nil where views of the project are completely screened.

The visual impacts for near neighbours may be greater than for more distant receivers due to:

- the greater proportion of the observer's field of view occupied by visible parts of the project due to the reduced distance
- as distance to the project is reduced, the duration of views for travellers on local roads will increase
- with reduced distance viewers will be more able to perceive greater detail and greater visual contrast of project elements compared with the materials, colours and textures of the existing landscape
- for some locations simultaneous views of the upper reservoir and of the substation or other lower elevation infrastructure may be possible, increasing the visual impact
- mitigation of visual impacts by establishment of screening at or near the receiver may result in the loss of desirable views of Mount Walker or other forested landscape.

The results of the representative viewpoint analysis were used to inform further, detailed assessment of individual sensitive receivers where they were identified as likely to experience a moderate or high visual impact (i.e. Table 6.3). This involved review of virtual views from each sensitive receiver based on modelling software (previously described in Section 3.4.4) where access to a property was not achieved. Where access was available, individual photomontages have been prepared. These sensitive receivers are identified in Table 6.4 and photomontages and/or visualisation prepared for each of the sensitive receivers and their assessed visual impact is included in Annexure B. As can be seen, views within private property have varying existing screening which influences their visual impact rating.

Visual impact ratings for near neighbours considered their location within the landscape, including whether the view was a primary or secondary view from its location. Existing vegetation provides natural screening on many properties and this has contributed to an overall reduction in visual magnitude when compared to the representative viewpoint assessment.

Table 6.4 Individual assessment of sensitive receivers with potentially moderate to high visual impacts ratings

Sensitive receiver (ID)	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[8]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
SR6	B1	1,800	The project is not visible from this location.	Very low	Low	Moderate	Low	**Very low**
SR13	B2	1,800	Views are limited to a portion of the upper reservoir with limited scale of change in the landscape over a long duration.	Low	Moderate	High	High	**Moderate**
SR15	B3	1,500	Upper reservoir is visible, with the scale of change and extent of view yielding a moderate magnitude of change.	Moderate	Low	High	Moderate	**Moderate**
SR18	B4	1,700 / 1,400	A very small portion of the upper reservoir is visible giving a very low magnitude of change.	Very low	Moderate	High	High	**Low**
SR19	B5	1,400 / 1,800	The existing trees screen most of the project infrastructure with only a portion visible over the trees.	Moderate	Moderate	Moderate	Moderate	**Moderate**
SR21	B6	2,500 / 2,100	Existing trees block views of the project.	Very low	Moderate	Moderate	Moderate	**Very low**
SR23	B7	1,900	The existing trees screen most of the project infrastructure with only a portion of the dam visible over the trees. The extent of view affected, and the scale of change give a low magnitude rating.	Low	Moderate	High	High	**Moderate**
SR25	B8	1,400 / 1,800	The upper reservoir and access road are visible. The scale of change and extent of view affected yields a high magnitude of change.	High	Moderate	High	High	**High**

[8] Distance to upper reservoir is used in this table because for most viewpoints this will be the closest visible structure. Where closer structures will be visible the shorter distance is used.

Sensitive receiver (ID)	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[8]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
SR31	B9	1,800	The existing topography screens most of the project infrastructure leaving the dam visible over the trees.	Moderate	Moderate	High	High	**High**
SR45 /238 (Lake Lyell Recreational Park)	None	3,900	This location has a very limited view of the project infrastructure and would have low magnitude of change is due to the small portions of the development that would be seen from the park. However, the fluctuations in the lake level increase the magnitude to moderate.	Moderate	Moderate	Moderate	Moderate	**Moderate**
SR65	B10	3,500	A portion of the upper reservoir and access road are visible.	Low	Moderate	High	High	**Moderate**
SR66	B11	2,600	Existing topography screens most of the project infrastructure leaving only the upper edge of the reservoir visible.	Very low	Moderate	High	High	**Low**
SR302	B12	1,700	Exiting topography and vegetation screen all views of the project.	Very low	Low	Moderate	Low	**Very low**
SR365 (Eagle View Escape)	B13	2,500	A large part of the project will be visible, from the upper reservoir near the summit of Mount Walker down to the switchyard and associated buildings near Lake Lyell	High	Moderate	High	High	**High**
SR366	B14	2,600	The existing topography screens most of the project infrastructure leaving the top of the dam visible over the trees. Based on the limited extent of view affected by the project the and the scale of change, the magnitude of change is rated as low.	Low	Moderate	High	High	**Moderate**

Sensitive receiver (ID)	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[8]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
SR584	B15	1,800	Exiting topography and vegetation screen all views of the project.	Very low	Moderate	High	High	**Low**
SR946	B16	4,800	The upper reservoir, access road, and portions of the infrastructure at the lake are visible. Due to the distance and the extent of view affected and the scale of change, the magnitude of change is rated as moderate.	Moderate	Moderate	Moderate	Moderate	**Moderate**
SR1507 (Springmead B&B)	B17	4,800	The upper reservoir, access road are visible with vegetation screening the infrastructure at the lake level. Due to the extent of view affected and the scale of change, the magnitude of change is rated as moderate.	Moderate	Moderate	Moderate	Moderate	**Moderate**
SR2004 (Seclusions Blue Mountains)	B18	5,700	The upper reservoir, access road are visible with vegetation screening the infrastructure at the lake level. Due to the extent of view affected and the scale of change, the magnitude of change is rated as moderate.	Moderate	Moderate	Moderate	Moderate	**Moderate**
SR2480	B19	4,100	Exiting topography and vegetation screen all views of the project.	Very low	Moderate	High	High	**Low**
SR2482	B20	4,200	The upper reservoir, access road, and portions of the infrastructure at the lake are visible. Due to the extent of view affected and the scale of change, the magnitude of change is rated as high.	High	Moderate	High	High	**High**

Sensitive receiver (ID)	Visual assessment figure	Distance to upper reservoir / other visible permanent structures (m)[8]	Magnitude of change summary	Magnitude rating Table 3.2	VP sensitivity Table 3.3	Scenic quality Table 3.4	Visual sensitivity Table 3.5	Visual impact rating Table 3.6
SR2483	B21	3,400	The existing topography screens most of the project infrastructure leaving portions of the reservoir and access road visible over the trees.	Moderate	Moderate	High	High	**High**
SR2490	B22	4,700	The upper reservoir and access road are visible. Due to the distance and the extent of view affected and the scale of change, the magnitude of change is rated as moderate	Moderate	Low	Moderate	Moderate	**Moderate**

6.4.3 Visual impacts on Lithgow urban area

The ZVI for the upper reservoir (refer to Figure 6.1) indicates partial visibility of this part of the project in parts of the Lithgow urban area, particularly along and adjacent to a section of the Great Western Highway. This visibility may include many locations on the western edge of Lithgow that have a current view of the summit of Mount Walker. Typical locations that may receive a visual impact include:

- the Great Western Highway for approximately 2.8 km from Lockyer Street at Bowenfels to First Street at South Littleton
- local roads in Bowenfels, South Bowenfels and South Littleton
- Lithgow Hospital
- Lithgow Cemetery
- restaurants and accommodation venues
- residences in Bowenfels, South Bowenfels and South Littleton.

The visual impact in these locations will be formed by three aspects of the project:

- a small part of the upper reservoir spillway and earthworks may be visible
- the shape of the ridge
- vegetation clearing.

Two viewpoints, 13 and 14, have been identified and assessed in the Lithgow urban area. The results are included as Annexure A.13 and Annexure A.14. Both viewpoints received a visual impact rating of low, reflecting their distance from the project and the small scale of visible change. The photomontage from viewpoint 13 is shown below as Plate 6.3.

A reverse viewshed has also been prepared to illustrate the project's visibility from viewpoint 13. It simulates the view from viewpoint 13 toward the project and highlights the visible areas within the project boundary. Like the ZVI diagrams, it is important to note that the reverse viewshed shows potential visibility of a feature based only on topography and does not allow for visual screening from vegetation or structures.

The reverse viewshed for viewpoint 13 (refer to Figure 6.9) indicates that only a small area of the project is potentially visible. The reverse viewshed shows the extent of the terrain surrounding viewpoint 13 that may be visible to an observer at that location. This diagram shows that part of the upper reservoir and of the disturbance area may be visible to an observer located at viewpoint 13. The predicted visible disturbance is illustrated in Plate 6.3.

The visual impact at these viewpoints and other nearby locations will be significantly reduced with time as tree cover is re-established on the ridge beside the upper reservoir, resulting in nil long-term impact to the view.

Plate 6.3 Photomontage from viewpoint 13

KEY

- Project area
- Disturbance footprint
- Key location
- Above ground design

Viewshed analysis

- Viewpoint 13
- Viewpoint buffer
- Extent of project that may be visible from VP13 - bare earth surface

Existing environment

- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Reverse viewshed- viewpoint 13

Lake Lyell PHES
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Figure 6.9

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Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2023); ESRI (2025); GA (2009)

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6.4.4 Visual impacts on Marangaroo National Park

The boundary of Marangaroo National Park is shown on the ZVI for the upper reservoir and the peak of Mount Walker is represented by SR2001 (refer to Figure 6.1). The ZVI indicates quite limited visibility of the upper reservoir from locations within the park. The upper reservoir's location on the south-western face of Mount Walker restricts visibility from within the park to the southern parts of the park on the east and on the west of the upper reservoir.

A key feature of Marangaroo National Park is walking or mountain biking to the summit of Mount Walker which enjoys limited panoramic views of the surrounding area. It is possible this location will have partial views of the upper reservoir and of at least some of the project infrastructure near Lake Lyell. These views will be heavily filtered through existing trees that will not be impacted by the project. No identified camping areas or gathering areas within the park will have views of the project. Views of the project may be possible from locations on roads and trails within the park, however these views will be heavily filtered by the dense tree cover throughout the park.

6.4.5 Visual impacts on Lake Lyell water-based activities

i Upper reservoir

The ZVI for the upper reservoir (refer to Figure 6.1) indicates potential visibility of a small portion of the upper reservoir from the lake surface along the western shoreline. However actual visibility of the upper reservoir will vary greatly with proximity to the northern shoreline and the level of tree cover on land north of the lake.

Viewpoint 8 (assessed and with a photomontage in Annexure A.8) shows the change in view from the Lake Lyell Recreation boat ramp. There is limited visibility of the upper reservoir from this location and it is anticipated this would be similar for other water-based viewpoints if a stationary activity with a long duration was assessed, for example fishing while anchored. There may be locations on the lake with wider views of the reservoir that may result in a slightly higher visual impact. However, most water-based activities like boating would have brief and variable views of the project infrastructure as the viewer moved across the lake.

ii Lower elevation elements

Water-based recreation at the northern end of Lake Lyell, particularly in the Farmers Creek arm, will be impacted by views of the lower elevation infrastructure including the intake structure, diversion and bridge crossing of the Farmers Creek arm of Lake Lyell.

iii Water level

Lake Lyell will act as the project's lower reservoir; hence no new lower reservoir or dam will need to be constructed.

The lake was established in 1982 with the construction of Lilyvale Dam and is filled by natural flow from the Coxs River and Farmers Creek. Water levels in the lake vary depending on rainfall in the catchment and will be lower in times of drought and close to maximum when rainfall has been higher. This variation occurs over timescales of months or years. The total storage capacity of the reservoir is 33.5 GL, with the reservoir catchment of some 380 square kilometres (km^2) and a surface area covering 2.34 km^2 at full supply level (FSL). The existing reservoir has an operating range of 24.2 m from 785.5 m AHD (FSL) to 761.3 m AHD (MOL – minimum operational levels).

The operation of the PHES will only occur within the top 5.5 m of this range (PHES MOL of 780 m AHD to existing reservoir FSL of 785.5 m AHD). The maximum operational cycle (8-hour pump and 6.2 to 8-hour generation) of the project would result in a water level change of between 2.2 to 2.7 m at most, depending on the existing water level of Lake Lyell. A typical operational cycle would be in four to five hour blocks with a reduced water level drawdown.

The project cannot operate when the lake is below 780 m AHD, at which time the lake still has 22.9 GL of storage (78% of total storage). The regular changes in lake water level caused by operation of the project will result in a visible impact to users of the lake and visitors to locations near the lake such as Lake Lyell Recreation Park, resulting in a moderate visual impact. Change may be in the form of:

- visible changes in lake water level almost daily (this contrasts with the lake's existing water regime as detailed in the project description (EMM 2024c))
- potential visual changes to shoreline as a result of more regular exposure of sediments and daily changes in water level.

It should be noted that the sight lines or views to Mount Walker are not impacted by the water level.

Plate 6.4 Viewpoint 8 photomontage

6.4.6 Visual impacts on heritage items

This LVIA has confirmed, by using viewpoint 9 on Martins Road that sightlines do exist from Highland House to the project infrastructure (refer to Plate 6.5). While the project will be visible from the heritage item, the visual impact assessment (Annexure A.9) has concluded that the visual impact from this location would be low. Other heritage values within a 2.5 km radius have been assessed and confirmed to have no visual impacts, as there are no lines of sight from these items to the operational project infrastructure.

There will be no indirect impacts to the No. 2 Stockade on Coxs River. This site is located outside the disturbance footprint and construction envelope, and the potential for direct impact is low. The distance also mitigates any potential visual impacts, as the site will not be within sightlines of the project infrastructure. Consequently, the No. 2 Stockade on Coxs River will remain unaffected both visually and structurally by the construction and operation of the project.

Pottery Estate is a State and local heritage item that may be impacted by the construction and use of the Town camp option. Operation of the project is not expected to have a visual impact on this heritage item. Royal Hotel is a local heritage item that would experience temporary construction visual impacts only due to traffic generation for establishment of the Town camp (if selected).

Possible visual impacts on Pottery Estate during construction of the Town camp are discussed in sections 6.3.2i and 6.3.2iii above.

Plate 6.5 Rendered view of project infrastructure visible from viewpoint 9 in the vicinity of Highland House (refer to Annexure A.9 for a more detailed view)

6.4.7 Visual impacts on Aboriginal heritage

The Aboriginal cultural heritage assessment (EMM, 2025a) identified 20 discrete Aboriginal sites and places located within the project area, with five of those sites within the construction envelope (refer to Figure 4.2). These discrete sites typically reflected past foci and/or repeat occupation located on the alluvial terraces of Farmers Creek, and on the ridge flat to the west of Mount Walker. Other sites include rockshelters and potential culturally modified trees.

Impacts to visual amenity would be limited to the peak of Mount Walker (SR2001) which has been identified by some traditional owners as having contemporary values. As described in Section 6.4.4, the summit of Mount Walker may have partial views of the upper reservoir and of at least some of the project infrastructure near Lake Lyell. However, these views will be heavily filtered through existing trees not impacted by the project. While specific activities on the peak would remain unaffected, visual and aesthetic values would be adversely affected by the project; and by extension social values assigned to the locale. Several remaining cultural materials around the broader project area would remain unaffected by the project.

The potential impacts would result in cumulative impacts to some components of the regional cultural assemblage, notably to the two places of cultural value. However, the opportunity for avoidance given the nature of the project is limited. Archaeological mitigation, especially of subsurface cultural materials to further inform our understanding of the past, is proposed to offset some of these impacts; and discussions have been undertaken with Elders and knowledge-holders to explore suitable non-archaeological mitigation in relation to impacts to contemporary cultural values.

7 Nighttime lighting assessment

New light sources related to the project have the potential to extend visual impacts into the night. There are a number of existing light sources surrounding the project site that need to be considered in any light assessment. The existing light sources are associated with rural residences and motor vehicles travelling along the local roads.

Visual impacts from night lighting would likely be experienced by people who are outside in the landscape. The impact of night lighting is unlikely to be experienced from inside residences since internal lights reflect off windows and limit views of the exterior at night. The highest impact is expected to be on people who enjoy the outdoors at night, specifically campers, night-sky enthusiasts, photographers and star gazers.

Potential sources of light sources include:

- lighting for safety and security on project infrastructure
- lighting for safety and security on ancillary structures.

7.1 Lighting during construction

During the construction period (approximately four to five years) there may be some night lighting used to support construction activities and for security at the laydown and construction yards. This lighting is expected to be confined to a small area and because of the undulating topography and existing vegetation, impacts from construction lighting are expected to be negligible.

The following construction activities are expected to produce lighting impacts:

- Underground excavation and tunnelling will be undertaken 24 hours a day, seven days a week. The use of temporary lighting on poles is expected in limited locations to support this activity. Underground/24-hour construction activity is programmed to occur from late 2026 to late 2029. Full details of construction staging are provided in Section 4.1 of the EIS.
- Most construction will be undertaken from 6:00 am to 6:00 pm Monday to Saturday, and from 9:00 am to 5:00 pm on Sundays. Construction hours are detailed in Section 4.8 of the EIS. Ancillary lighting to support these activities at non-daylight-saving times of the year may lead to lighting impacts. During these hours, nighttime light impacts will be limited to:
    - lighting for safety and security on project infrastructure
    - lighting for safety and security on ancillary structures
    - vehicle lighting on internal roads.
- Depending on the location of the night work, lights may be visible from some residences and tourist accommodations along Sir Thomas Mitchell Road and west of the lake along Sandalls Drive.
- Certain atmospheric conditions, such as haze or fog, may lead to visible night glow above the elevation of nighttime construction activities, increasing the distance over which light may be visible for short durations.
- Lighting for construction located at higher elevations on the project site may be visible at considerable distances, well beyond the 8 km study area at times.

7.2 Project infrastructure lighting

The project infrastructure that may need lighting at night includes the switchyard, entrances to underground generation components, and other lower elevation elements. No permanent lighting is proposed for the upper reservoir. The project infrastructure has been sited to minimise visibility from existing residences, homesteads, and public viewpoints. It is unlikely that the proposed lighting will create a noticeable impact on the existing nighttime lighting beyond the project's immediate vicinity.

7.2.1 Ancillary lighting

In addition to project infrastructure, night lighting may be required on ancillary buildings, compounds, and roadways. These include permanent operations and maintenance (O&M) buildings and permanent compounds.

At this stage of the project, the location and type of lighting required on these ancillary elements is yet to be confirmed. It is assumed that low-level lighting for security, maintenance, and emergency purposes will be required.

7.2.2 Lighting from higher elevations

No permanent lighting is proposed in the vicinity of the upper reservoir. It is anticipated that occasional maintenance or security activities are possible at the upper reservoir involving use of lights on vehicles (including rotary beacons) or other temporary light fixtures. These activities may have a visual impact of a brief duration.

7.2.3 Atmospheric conditions

Certain atmospheric conditions, such as haze or fog, may lead to visible night glow above the elevation of a light source, increasing the distance over which light may be visible. These conditions may increase the visual impact of lighting associated with the project for limited durations during the project operation.

7.2.4 Siding Spring Observatory Dark Sky Planning Guideline

The Siding Spring Observatory located in Coonabarabran NSW, is Australia's most important visible-light observatory. The night sky surrounding the observatory is protected from light pollution in the night sky by legislation. The *Dark Sky Planning Guideline* (2016) was developed by NSW Department of Planning and Environment (DPE) to provide design guidelines that maintain the dark sky, and to improve lighting practices. The guidelines are directed at projects within the Siding Spring Observatory Dark Sky Region, which covers a radius of 200 km from the observatory.

The project is not in the Dark Sky Region; however, the design principles that are outlined in the *Dark Sky Planning Guideline* (2016) are helpful for limiting light impacts in the night sky.

7.2.5 Lighting design principles

Minimising light pollution of the night sky needs to be included in the design phases of the project.

Siting project elements can play a large role in reducing the visibility of any required lighting. Good use of the landscape to reduce lighting impacts include:

- use of landform to shield the project from view
- use of landscape elements (trees, mounding, walls) to shield effects of lighting from view.

Good lighting design can also minimise, and in some cases eliminate light pollution of the night sky. Design standards like AS 4282 *Control of obtrusive effects of outdoor lighting*, *National Light Pollution Guidelines for Wildlife* (2020), and the *Dark Sky Planning Guideline* (2016) should be applied during the design of project elements. Design guidelines adapted from these guidelines include:

- use of adaptive lighting to reduce use of lights at times when they are not required
- eliminating upward spill light
- directing light downwards, not upwards
- use of shielded fittings
- avoiding over lighting
- switching lights off when not required
- use of energy efficient bulbs
- use of asymmetric beams, where floodlights are used
- ensuring lights are not directed towards reflective surfaces
- use of warm white colours.

8 Cumulative impacts

It is important to consider the effect of multiple projects on the visual character of the landscape. Multiple projects near each other can result in cumulative visual impacts that impact the way a landscape is experienced. Cumulative visual impacts can arise from the presence of similar projects that may have a low impact individually, but when viewed together, can have a significant visual impact on the landscape. Generally, this occurs when either:

- simultaneous views of multiple renewable energy projects from public or private viewing locations are possible
- multiple renewable energy projects are located within an area, and they change perceptions of the area due to repeated exposure to similar projects – this can be referred to as sequential viewing and projects do not have to be seen simultaneously.

Proposed and approved renewable energy developments (known as of September 2025) closest to the visual study area are shown on Figure 8.1 and Table 8.1.

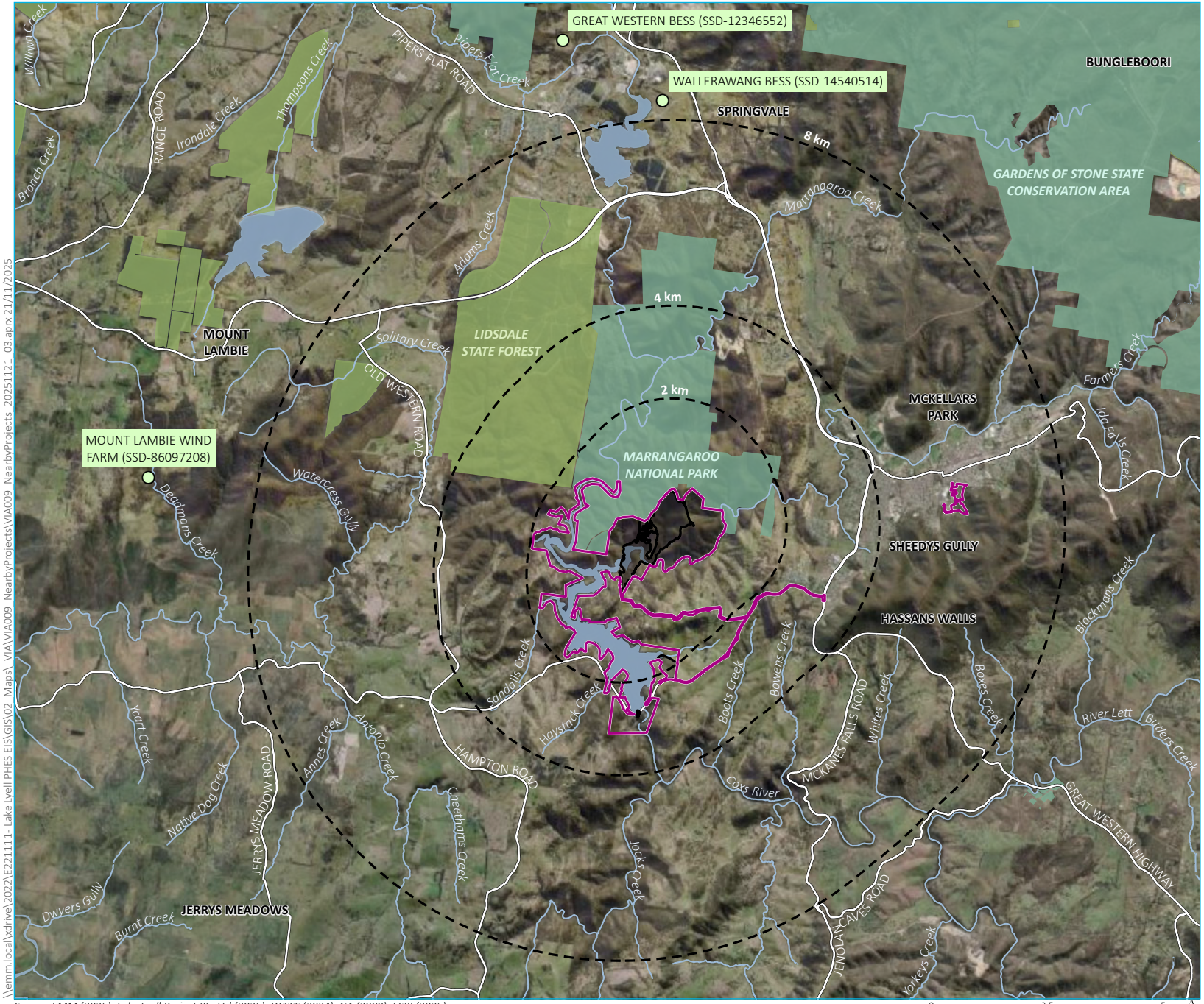
The bulk of the project infrastructure is isolated within the Coxs River valley and will not be visible in the same view or on the same road journey as any other existing or proposed significant development. For this reason, it will have no simultaneous or sequential cumulative landscape or visual impact.

The location of the upper reservoir is more prominent and is considered in assessment of potential cumulative impacts in Table 8.1.

Table 8.1 Renewable energy projects in surrounding region

Project	Relative approximate location	Status	Cumulative impact potential and timing
SSD-12346552 Great Western Battery	10 km north of upper reservoir	Approved 02/11/2023	There is no potential for simultaneous cumulative visual impacts. The ZVI (refer to Figure 6.1) indicates this project is not within the visual catchment of the upper reservoir or any part of the project. The upper reservoir would not be visible from the north. The scale of battery systems. Cumulative impacts caused by sequential viewing for motorists travelling along the Great Western Highway / Castlereagh Highway will be nil/negligible due to the distance (travelling time) between potential views (>14 km), the distance of the upper reservoir from The Great Western Highway (>3 km) and the varied, developed nature of the existing landscape.
SSD-14540514 Wallerawang Battery Energy Storage System (BESS)	8.5 km north of upper reservoir	Approved 04/08/2022	There is no potential for simultaneous cumulative visual impacts. The ZVI (refer to Figure 6.1) indicates this BESS project will not be within the visual catchment of the upper reservoir or any part of the project. The upper reservoir would not be visible from the north. Cumulative impacts caused by sequential viewing for motorists travelling along the Great Western Highway / Castlereagh Highway will be nil / negligible due to the distance (travelling time) between potential views (>10 km), the distance of the upper reservoir from The Great Western Highway (>3 km) and the varied, developed nature of the existing landscape.

Project	Relative approximate location	Status	Cumulative impact potential and timing
SSD-86097208 Mount Lambie Wind Farm	4.9 km west of upper reservoir	Proposed	A review of the Mount Lambie visual study area and ZVI (Aurecon, 2025) indicates there may be a very limited overlap with the project's visual study area and ZVI. Any overlap in sensitive receivers is located at the furthest extent of the project's visibility, and it is considered there is very limited to no potential for simultaneous cumulative visual impacts. A similar conclusion is made in the Preliminary Landscape Character and Visual Impact Assessment for the Mount Lambie project (Aurecon, 2025). Areas that may be affected by simultaneous views would be along Hampton Road, which is located on a ridge between the two projects. Viewpoints 10 and 11, which are located on Hampton Road have low visual impacts. This would indicate that even though both projects may be visible, the visual impacts on this area would likely be a low. The upper reservoir would not be visible from the north. Cumulative impacts caused by sequential viewing for motorists travelling along the Great Western Highway / Castlereagh Highway will be nil / negligible due to the distance (travelling time) between potential views (>20 km), the distance of the upper reservoir from The Great Western Highway (>3 km) and the varied, developed nature of the existing landscape. Cumulative impacts caused by sequential viewing for motorists travelling along Sodwalls Road / Hampton Road are expected to be negligible given the intermittent and low visual impacts of the upper reservoir at this distance.



KEY

- Project area
- Disturbance footprint
- Disturbance buffer (km)
- State significant development

Existing environment

- Major road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009); ESRI (2025)

0 2.5 5 km

GDA2020 MGA Zone 56

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Renewable energy projects in surrounding region

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure 8.1

EMM
creating opportunities

9 Mitigation measures

A range of visual impact mitigation methods are available to screen or to mitigate the visual impact of a development. As a general rule, mitigation should aim first at reducing the visible changes to the landscape. Secondly, mitigation should screen new infrastructure introduced by the project to present a landscape that is as similar to the existing landscape as possible.

Mitigation measures specific to the project have been identified and are outlined below. The mitigation measures presented below are made notwithstanding issues raised by other environmental aspects (e.g. biodiversity and construction and operational noise).

This chapter identifies the main sources of visual impact and the main receivers of those visual impacts. It then identifies mitigation measures that can be applied at the source of visual impact and at the site of the receiver. Mitigation of nighttime lighting is discussed in Chapter 7.

Mitigation measures are generally required for any viewpoint or sensitive receiver that has been rated as having a moderate or high visual impact. However, because this project will have a range of visual impacts on a wide range of receivers over a broad geographic area, it is recommended that all the mitigation measures listed in Section 9.1 are implemented.

9.1 Mitigation in design

Good design principles applied to the project during the design stages can help keep the visual impacts to a minimum. This is done primarily through careful siting of project elements to take advantage of the topography and existing vegetation for screening. The project design has responded to preliminary assessments of project impacts and community feedback and has been modified to avoid and minimise visual impacts.

9.1.1 Avoidance and minimisation

The key avoidance measures adopted for the project relevant to visual impacts include:

- re-locating the upper reservoir from a visually prominent location on the southern ridge of Mount Walker (visible to greater Lithgow urban area), to a site below the shoulder of the ridge within a gully and with significantly lesser visibility
- using the natural terrain of the site to better balance cut and fill volumes for haul and permanent roads needed for the project's construction and operation
- undergrounding the powerhouse and other elements (such as the surge shafts) so they are not visible at the surface
- location of the switchyard and other lower elevation elements in a narrow valley with limited external visibility. The visual impact of transmission infrastructure has been minimised by siting the switchyard closer than 150 m to the existing 330 kV line that the project will connect to.

These measures were adopted with consideration of the technical and economic feasibility of the project. Further avoidance measures involving re-location of permanent infrastructure may be limited due to the nature and scale of infrastructure and the need to maintain feasibility of the project. Nonetheless, design optimisation would continue to consider the avoidance and minimisation of visual impacts where possible.

9.1.2 Site selection

Further avoidance in design measures should be investigated during detailed design and include:

- exclusion areas that preserve the highest quality vegetation
- preservation of vegetation along water courses and higher slopes.

9.1.3 Materials and colours

Further considerations can be carried forward through the detailed design process and are recommended to include:

- use of natural stone for construction of the upper reservoir and other earthworks (locally sourced materials may blend into the existing landscape better than imported materials)
- use of harmonious colours and materials for buildings, structures, etc.

9.2 Mitigation at the source

This LVIA has identified the following main sources of visual impact from the project:

- Upper reservoir (construction and operation).
- Lower elevation elements (construction and operation).
- Installation and use of the accommodation camp (construction only).

Mitigation measures have been explored to ensure any recommendations to mitigate and minimise impacts at the source are reasonable and feasible.

9.2.1 Upper reservoir

The upper reservoir is the most prominent visual element of the project that will be present in the landscape for a long period of time. The upper reservoir has been designed as a geomembrane face rockfill dam. Most rockfill dams have a downstream slope covered with riprap, as recommended in the International Commission of Large Dams (ICOLD) guidelines, to protect embankment dams from erosion and weathering. The project is consistent with these guidelines, designed using a combination of internal piping/drainage system and external rockfill to mitigate risks of dam failure. Maintenance of the drainage system is required over the life of the project.

In preparing this LVIA and the visualisations in Annexure A, there has been careful consideration of colouring of the site-sourced material based on the results of geotechnical investigations, and the proposed staging of the embankments construction. This is reflected in the light yellow-orangish colouring of the cut faces (orange quartzites in the top 20 m geology of the site) and darker rock used as the embankment is built (from green quartzites and black hornfels below 20 m depth in geology). It is considered these colours are mitigating in the landscapes and comparable to a green/brown, grassed embankment.

It is considered that over time, the site-sourced material will weather to blend with the existing landscape. There may also be some natural establishment of vegetation over the embankment however is unlikely to be extensive due to the lack of topsoil and steepness of the embankment.

9.2.2 General construction mitigation

The potential for the greatest visual impact occurs during the construction stages of a project. This is when the changes to the landscape occur, and there is a lot of movement of vehicles and equipment. Even though construction is viewed as temporary, practical steps should be taken to reduce the impacts during this stage. These practices include:

- locate laydown areas in areas with limited visibility from residences and public roads
- minimise creation of dust from vehicles and wind
- restore or remediate any earthworks undertaken during construction
- keep clearing and trimming of vegetation to a minimum in line with vegetation retention objectives
- sensitive alignment of access tracks to minimise their appearance within the landscape and views, using landform and vegetation to assist in partially screening and integrating them.

9.2.3 Vegetation management and rehabilitation

i Vegetation retention

The landscape character of the area includes stands of vegetation along the ridgelines, waterways and boundary lines. To retain the character of the landscape, existing vegetation should be retained where possible. This will also help maintain existing levels of screening.

Specific areas to target for vegetation retention are:

- Ridgelines and upper slopes – there are ridgelines that can serve to screen views (especially from the east) into the project. Clearing trees along the ridges has the potential for high visibility and minimising the amount of clearing will help reduce the visibility of the project.

ii Progressive rehabilitation

The nature of the project requires a large disturbance footprint that will take some years to revegetate. For this reason, it is important to ensure the reestablishment of native vegetation is considered and planned.

The aim of revegetating the project disturbance area is not primarily for screening views of the infrastructure, but to return the hillside to its previous state. This will reduce the visual footprint of the project and visually soften the project elements.

a Staged revegetation

Due to the scale of the disturbance area, and the prolonged construction timeframe, it is important that revegetation is staged to ensure that revegetation occurs as quickly as possible after project elements are completed.

It is also important to ensure that plant propagation, including collection of seed, is started as soon as possible and well before construction begins to ensure that suitable plants are available.

With a four-to-five-year construction duration, careful design and early establishment of revegetation planting may significantly reduce some visual impacts of construction. This planting can be incorporated into the vegetation management plan for the project (Section 9.2.2.iib).

b Vegetation management plan

To ensure revegetation occurs as quickly as possible and uses suitable species it is recommended that a vegetation management plan be prepared that includes detailed guidance on:

- scheduling to ensure suitable plants are produced in a timely manner for staged replanting
- planting design to ensure visual mitigation benefits are maximised
- seed collection to ensure plant stock with local provenance is used
- an irrigation plan to ensure water is available to ensure reliable establishment of new planting.

The vegetation management plan will support the overall rehabilitation strategy for the project.

9.2.4 Accommodation camp mitigation

The visual assessment for the accommodation camp (refer to Section 6.3.2) and water-based activities (refer to Section 6.4.4) identified a range of visual impacts on visitors, residents and lake users.

The three main opportunities for mitigation of the visual impacts of the accommodation camp are:

- use of colours and materials that blend with the existing landscape
- arrangement of structures on the site to prevent repetitive or continuous facades, i.e. maximising variation in elevation and aspect of buildings. This will prevent strong reflections from similarly aligned surfaces
- vegetative screening to the perimeter of the camp, especially along the low ridges east and west of the site, and on the low point northwest of the camp. Installation of vegetative screening will need to be considered in light of decommissioning and planned future use of the site and may not be suitable.

These mitigation measures would also be appropriate for the alternative Town camp should it become the preferred option.

9.3 Mitigation at the receiver

9.3.1 Mitigation methods

Chapter 6 identified and rated potential visual impacts on the following receivers or groups of receivers:

- Viewpoints 1 to 17
- Near neighbours
- Lithgow urban area
- Marangaroo National Park
- Water-based recreation on Lake Lyell
- Heritage items
- Aboriginal heritage.

The main objective of mitigation at the receiver is to screen views of the project from a specific location (residence, road, etc). Using planting or architectural elements as a visual screen is an effective mitigation measure used to reduce the visibility of a project from a specific vantage point. It is effective in screening views from a fixed point, like a residence, or a sequence of points, like travelling along a roadway.

It should be noted that people living near the project area value views of the landscape. It may therefore be detrimental to install plants to screen the view of the project infrastructure, which will also block views of the landscape. Care must be taken when proposing landscape screening that may create other adverse effects. It is therefore recommended that any landscape screening be done in consultation with the landowners and/or people affected by the project. A range of visual mitigation measures should be explored and agreed upon with individual receivers. These may include landscaping and/or architectural modifications.

Mitigation of visual impacts of this project at affected receivers may take two main forms:

- screening on private property of affected sensitive receivers:
    - planting of vegetative screens, noting that planted vegetation will require some years of growth before being effective
    - architectural modifications
- roadside tree planting to reduce views from public roads.

While planted vegetation will require some years of growth before being effective, there is opportunity to progress visual mitigation early in the construction schedule to allow vegetation growth over the four-to-five-year construction of the project. In this manner, mitigation would become effective by the time permanent impacts associated with operation would occur.

Sensitive receivers that should be considered for mitigation at the receiver are those found to have moderate or high visual impacts in this LVIA. It is noted that a limitation of this LVIA is that only virtual simulations have been used to determine these impact ratings, and that photomontages from all individual receptors has not been completed as part of the assessment. Based on the simulated views, it is considered that feasible mitigation at the receiver is achievable to minimise impacts (see Table 9.1). However, this mitigation would also screen a prominent view of value to the landowner, and any such mitigation would be subject to landowner preference and negotiation.

It is recommended that receivers with a moderate or high visual impact rating (as identified in this LVIA) will be consulted to more accurately determine existing screening and impacts, and to discuss feasible mitigation measures and whether they could be reasonably implemented on the property to reduce visual impacts.

9.3.2 Residual impacts

Mitigation measures were simulated for sensitive receivers who were identified as having potential for moderate or high visual impacts based on the viewpoint assessments. The locations and impacts are summarised in Table 9.2. The simulated assessments were carried out for the following sensitive receivers (refer to Annexure B).

- SR6, SR13, SR15, SR18, SR19, SR21, SR23, SR25, SR31, SR45 (Lake Lyell Recreational Park), SR65, SR66, SR302, SR365 (Eagle View Estate), SR366, SR584, SR946, SR1507 (Springmead B&B), SR2004 (Seclusions Blue Mountains), SR2480, SR2482, SR2483, and SR2490.

Mitigating the visual impacts was simulated for locations that rated moderate or high and found that in most cases it was possible to reduce the visual impacts. Implementing the suggested mitigation measures reduced the impacts to low or very low in all locations except for SR45/238, and SR365, which were left with a residual visual impact rating of moderate.

Table 9.1 Mitigation feasibility and residual impacts at the receiver

Receiver	Magnitude	Sensitivity	Visual impact rating (unmitigated)	Screening / mitigation feasibility assessment	Magnitude	Sensitivity	Residual visual impact rating (mitigated)
SR6	Very low	Low	Very low	No mitigation required.	-	-	-
SR13	Low	High	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 12 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR15	Moderate	Moderate	Moderate	There is a secondary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 6 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low
SR 18	Very low	High	Low	No mitigation required.	-	-	-
SR19	Moderate	Moderate	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible and contrasting with the surrounding landscape. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 8 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low
SR21	Very low	Moderate	Very low	No mitigation required.	-	-	-

Receiver	Magnitude	Sensitivity	Visual impact rating (unmitigated)	Screening / mitigation feasibility assessment	Magnitude	Sensitivity	Residual visual impact rating (mitigated)
SR23	Low	High	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 8.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR25	High	High	High	There is a primary view towards Mount Walker where project infrastructure would be highly visible and contrasting with the surrounding landscape. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 6.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR31	Moderate	High	High	There is a primary view towards Mount Walker where project infrastructure would be visible and contrasting with the surrounding landscape. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 6.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR45 (Lake Lyell Recreational Park)	Moderate	Moderate	Moderate	This location has a very limited view of the project infrastructure and would have low magnitude of change is due to the small portions of the development that would be seen from the park. However, the fluctuations in the lake level increase the magnitude to moderate. Mitigation measures would not alleviate the visual fluctuations in water level. Over time, the fluctuations would be normalised and not seen as an impact. However, the water level would still be visible as it rises and falls.	Moderate	Moderate	Moderate

Receiver	Magnitude	Sensitivity	Visual impact rating (unmitigated)	Screening / mitigation feasibility assessment	Magnitude	Sensitivity	Residual visual impact rating (mitigated)
SR65	Low	High	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 6 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR66	Very low	High	Low	No mitigation required.	-	-	-
SR302	Very low	Low	Very Low	No mitigation required.	-	-	-
SR365 (Eagle View Escape)	High	High	High	There is a primary view towards Mount Walker where project infrastructure would be visible and contrasting with the surrounding landscape. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 2 m along the ground floor. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved. Screening the first-floor rooms with trees is impractical due to the slope of the ground in the locations the trees would be planted. Because of the slope, trees would need to reach a mature size to offer screening.	Low	High	Moderate
SR366	Low	High	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 8.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR584	Very low	High	Low	No mitigation required.	-	-	-

Receiver	Magnitude	Sensitivity	Visual impact rating (unmitigated)	Screening / mitigation feasibility assessment	Magnitude	Sensitivity	Residual visual impact rating (mitigated)
SR946	Moderate	Moderate	Moderate	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 7 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low
SR1507 (Springmead B&B)	Moderate	Moderate	Moderate	There is a secondary view from the dwelling (but also tourist accommodation) towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 7.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low
SR2004 (Seclusions Blue Mountains)	Moderate	Moderate	Moderate	There is a primary view (and also tourist accommodation) towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 4.5 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low
SR2480	Very low	High	Low	No mitigation required.	-	-	-
SR2482	High	High	High	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 7 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low

Receiver	Magnitude	Sensitivity	Visual impact rating (unmitigated)	Screening / mitigation feasibility assessment	Magnitude	Sensitivity	Residual visual impact rating (mitigated)
SR2483	Moderate	High	High	There is a primary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 9 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	High	Low
SR2490	Moderate	Moderate	Moderate	There is a secondary view towards Mount Walker where project infrastructure would be visible. Screening comprising of native vegetation (once established) would screen or filter views of the most of visually prominent project infrastructure but would also screen views of Mount Walker. To be effective, screening would require vegetation to an approximate height of 8 m. While this is feasible, it would delay the effect of mitigation until growth to this height is achieved.	Very low	Moderate	Very Low

9.4 Mitigation summary

There are a range of mitigation options that could be implemented during construction and operation to minimise visual impacts. There are some limitations to the feasibility of mitigating visual impacts of the upper reservoir at the source, and as such mitigation at the receiver has been explored. A summary of recommended mitigation measures is provided in Table 9.2 as they relate to each source of visual impact.

Table 9.2 Mitigation summary

Visual impact source	Mitigation at the source	Mitigation at the receiver	Affected receivers	Notes
Construction – upper reservoir	Siting of the upper reservoir below the ridge on the south-western side of Mount Walker and other measures as described in Section 9.2.2 will considerably reduce visual impacts from construction of the upper reservoir. Retain trees along ridgelines.	Not recommended due to the temporary nature of visual impacts from construction.	All viewpoints except 17. Sensitive receivers with a view of the upper reservoir. Water-based activities on Lake Lyell. Visitors to Marangaroo National Park.	Site selection (covered in Section 9.1.2 for the operation of the project) will mitigate visual impacts from construction. The selected location will reduce visual impact from more densely populated areas. Proposed construction technique and use of material from site will reduce visual impact.
Construction – lower elevation elements	Careful siting of these elements with limited visibility will significantly reduce visual impacts from construction.	Not recommended due to the temporary nature of visual impacts from construction.	Viewpoints 1, 5 and 6. SR18, 21, 65, 66, 365, 366, 946, 1507, 2480, 2482, 2483. Sensitive receivers with a view of construction traffic on Sir Thomas Mitchell Drive. Sensitive receivers with a view of construction activity on Lake Lyell. Water-based activities on Lake Lyell.	Site selection (covered in Section 9.1.2 for the operation of the project) will mitigate visual impacts from construction.

Visual impact source	Mitigation at the source	Mitigation at the receiver	Affected receivers	Notes
Construction – preferred Lakeside camp (installation and occupation)	Selected site has very limited visibility from roads and sensitive receivers. Use of colours that blend with surrounding landscape is recommended. Establishment of native trees / shrubs on ridges around the camp will reduce visibility.	Not recommended due to the small scale and temporary nature of the visual impact.	Viewpoint 17. SR10 and 28. Travellers on Magpie Hollow Road. Water-based activities on Lake Lyell.	The accommodation camp will be static element in the landscape for the four-to-five-year construction period. For this reason, it is recommended that mitigation measures outlined in Section 9.2.4 are applied. Consideration should be given to vegetative screening to the perimeter of the camp. However, this may not be compatible with planned future use of the site.
Construction – alternative Town camp (installation and occupation)	Use of colours that blend with surrounding landscape is recommended. Establishment of native trees / shrubs around the perimeter of the camp will reduce visibility.	Not recommended due to the small scale and temporary nature of the visual impact.	Adjacent residences and motorists	The accommodation camp will be static element in the landscape for the four-to-five-year construction period. For this reason, it is recommended that mitigation measures outlined in Section 9.2.4 are applied. Consideration should be given to vegetative screening to the perimeter of the camp. However, this may not be compatible with planned future use of the site.
Operation – upper reservoir	Siting of the upper reservoir below the ridge on the southern side of Mount Walker and other measures as described in Section 9.2.2. Site-sourced material will weather to blend with existing landscape. Staged revegetation will mitigate views from many locations.	Limited effectiveness as screening is subject to landowner negotiations but may be beneficial for some receivers.	All viewpoints except 17. Sensitive receivers with a view of the upper reservoir – SR 13, 15, 19, 23, 25, 31, 65, 66, 365, 366, 946, 1507, 2004, 2482, 2483, 2490. Water-based activities on Lake Lyell. Visitors to Marangaroo National Park.	Reduced visual impact by minimising visibility from populated areas of Lithgow. Material choices and revegetation will reduce visual impacts over time for all receivers. Vegetative screens could be established however are subject to consultation with the landowner.
Operation – lower elevation elements	Location of the switchyard and other lower elevation elements in a narrow valley with limited external visibility and other measures as described in Section 9.2.2. Staged revegetation will mitigate views from many locations.	Limited effectiveness but may be beneficial for some receivers.	Viewpoints 1, 5 and 6. SR18, SR 365. Sensitive receivers with a view of construction traffic on Sir Thomas Mitchell Drive. Sensitive receivers with a view of construction activity on Lake Lyell. Water-based activities on Lake Lyell.	Location in narrow valley has significantly reduced visual impacts.

10 Conclusion

The project has been designed to minimise visual impacts by locating the lower elevation elements in a valley with limited visibility from outside and by locating the upper reservoir with a south-westerly aspect to reduce visibility from populated areas.

10.1 Landscape impact summary

This study has identified four LCZs, based on the dominant landform and landscape features. These are:

- Coxs River and Lake Lyell – formed by the location of a large, navigable body of water surrounded by forested ranges and hilly agricultural land:
  - this LCZ has a **moderate** landscape character impact.
- Forested mountains, ridges and valleys – characterised by steeply sided valleys between rugged ridges with occasional higher peaks:
  - this LCZ has a **high** landscape character impact.
- Cleared agricultural slopes – formed from valley sides with moderate slopes that have been partially cleared for grazing:
  - this LCZ has a **Low** landscape character impact.
- Lithgow and surrounding urban areas – where urban commercial and residential structures line a network of streets along the valley floors and lower slopes:
  - this LCZ has a **Low** landscape character impact.

10.2 Visual impact summary

The main objective of a LVIA is to determine how the proposed project will impact on the existing landscape character and visual amenity. Any potential negative impact must be identified and investigated to determine how it can be mitigated and reduced to an acceptable level. Even though the project design, development footprint, and placement of the infrastructure have evolved to minimise or avoid visual impacts where possible, the development of the project will result in some changes to the landscape. Visual impacts will likely occur during the construction and operational stages of the project, and the visual landscape will be altered from its current state for the duration of the operation of the project.

Construction impacts are generally considered temporary, and therefore are not considered to need any specific, permanent mitigation or screening treatment. For this project, careful site selection will significantly mitigate visual impacts arising from construction activity. The proposed lakeside accommodation camp location will be in place for up to five years, and mitigation has been recommended for this construction facility.

Operational impacts are long-term and can be permanent in some instances. These impacts are measured using viewpoints from representative locations that have views of the project.

10.2.1 Representative viewpoint assessment

The representative viewpoints have been assessed to demonstrate the potential visual impacts of the project. The representative visual assessment identified 16 representative viewpoints with varying degrees of visual access to the project's operational footprint, and one representative viewpoint to assess the visual impact of the temporary accommodation camp during construction.

Of the 16 viewpoints used to assess the visual impacts of the operation of the project, the following visual impact ratings were determined:

- A low visual impact from nine viewpoints (4, 7, 10 to 16).
- A moderate visual impact from two viewpoints (8 and 9).
- A high visual impact from five viewpoints (1, 2, 3, 5 and 6).

Viewpoint 17 was used to assess the visual impact of the Lakeside camp on motorists on Magpie Hollow Road and received a rating of low.

10.2.2 Visual impacts on near neighbours

Sensitive receivers who were identified as having potential moderate or high visual impacts were assessed.

Twenty-three locations were assessed with the following results:

- Very low impact from three sensitive receivers (SR6, 21, 302)
- A low visual impact from four sensitive receivers (SR18, 66, 584, 2480).
- A moderate visual impact from 11 sensitive receivers (SR13, 15, 19, 23, 45/268, 65, 366, 946, 1507, 2004, 2490).
- A high visual impact from five sensitive receivers (SR25, 31, 365, 2482, 2483).

10.2.3 Visual impacts on other specific receivers

Visual impacts on the Lithgow urban area were assessed at viewpoints 13 and 14 and rated as low for residents and tourists in these locations. Minor views of the disturbance area with changes to the ridgeline may be possible from locations near the Great Western Highway. The visual impact at these locations will become less apparent with time as tree cover is reestablished on the ridge beside the upper reservoir.

Visual impacts on Marangaroo National Park will occur mainly at the summit of Mount Walker, which is close to the location of the upper reservoir. Apart from the summit, the absence of large areas cleared of tree cover within the National park will generally prevent extensive views of the project and will reduce visual impacts. No identified camping areas or gathering areas within the park will have views of the project.

Water-based activities on Lake Lyell may experience the following visual impacts:

- During construction views of the lakeside accommodation camp will be possible from the eastern end of the lake.
- Use of barges and other water traffic related to the project may have a visual impact.
- Partial views of the upper reservoir from various locations on the lake during operation.

- Operation of the project will cause perceptible changes in the lake surface level on approximately a daily basis.

10.2.4 Nighttime lighting

Construction night lighting is temporary and would impact a limited number of residences at certain times during construction. Temporary construction lighting for the upper reservoir may be visible from greater distances.

Nighttime lighting during the operation of the project will mainly be emitted from the lower elevation elements and will have a potential impact on a small number of receivers with views of these elements. Lighting design can mitigate some of these impacts. Occasional maintenance or security activities on or near the upper reservoir may require use of temporary or vehicle mounted lights that may be visible at greater distances for limited durations.

10.2.5 Cumulative impacts

Cumulative visual impacts can arise from the presence of multiple projects occurring in an area. Multiple projects viewed together can have an increased visual impact on the landscape (when compared to impacts from a single project). This LVIA has identified two nearby approved SSD renewable energy projects and one proposed project:

- SSD-12346552 Great Western Battery
- SSD-14540514 Wallerawang BESS
- SSD-86097208 Mount Lambie Wind Farm.

Due to their distant location and small scale, no cumulative visual impacts are anticipated from the two approved projects. There is a potential for overlap in the sensitive receivers of the project with those identified as potentially impacted by the Mount Lambie Wind Farm; however, these receivers are located at the furthest extent of the project's visibility, and it is considered there is very limited to no potential for simultaneous cumulative visual impacts.

10.2.6 Mitigation summary

Recommendations have been made to mitigate visual impacts of the project. Key mitigation measures include siting project elements to minimise visibility, particularly of the upper reservoir from Lithgow, and timely reestablishment of native vegetation on disturbed areas.

Mitigation measures that have been identified are implemented in one of the following methods:

- Mitigation in design – These measures are incorporated at the design stage and affect the location and sizing of project elements. When applied these will reduce visual impacts from all affected receivers.
- Mitigation at the source – These measures aim to minimise disturbance and reduce the visual impacts by rehabilitating the landscape after construction.
- Mitigation at the receiver – These measures are meant to reduce the project's visibility from a receiver's location and should be designed in consultation with the receiver. Engagement with these receivers predicted to have a moderate or high visual impact is recommended to determine a more accurate extent of visibility and feasibility of mitigation on an individual basis. These receivers are:
    - SR13, SR15, SR19, SR23, SR25, SR31, SR45 (Lake Lyell Recreational Park), SR65, SR365 (Eagle View Estate), SR366, SR946, SR1507 (Springmead B&B), SR2004 (Seclusions Blue Mountains), SR2482, SR2483, and SR2490.

- Mitigating the visual impacts for locations that rated moderate or high was examined and found that in most cases it was possible to reduce the visual impacts. Implementing the suggested mitigation measures reduced the impacts to low or very low in all locations except for SR45, and SR365, which were left with a residual visual impact rating of moderate.

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Abbreviations

Item	Definition
BESS	Battery energy storage system
DPHI	Department of Planning, Housing and Infrastructure
EDFA	EDF power solution Australia
EnergyAustralia	EnergyAustralia Pty Ltd
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979*
ha	hectare
HV	high voltage
kV	kilovolt
LCZ	landscape character zone
LGA	local government area
LLP	Lake Lyell Project Pty Ltd
LVIA	Landscape and visual impact assessment
MW	megawatt
MWh	megawatt hour
MWp	megawatt-peak
NA	Not applicable
NSW	New South Wales
PHES	Pumped hydro energy storage
SEPP	*State Environmental Planning Policy*
REZ	Renewable Energy Zone
SEARs	Secretary's environmental assessment requirements
SR	sensitive receiver
SSD	State significant development
ZVI	zone of visual influence

Definitions

Item	Definition
Construction envelope	The construction envelope represents the maximum extent of where disturbance may occur during the construction of the project.
Disturbance footprint	The disturbance footprint represents the physical disturbance that can be expected as part of the construction works. Disturbance footprint for the main project site as shown in Figure 2.1.
Lithgow urban area	The area zoned primarily R1 and R2, as shown on Figure 4.1. Including parts of the suburbs of Bowenfels, South Bowenfels, Littleton and South Littleton.
Lower elevation elements	Permanent, above ground project infrastructure and buildings at a lower elevation than the upper reservoir. This includes the switchyard, buildings, lower intake / outtake structures, permanent bridges / road works, etc.
Operation	The operational phase of the project, excluding construction activities and the accommodation camp.
Operational footprint	The operational footprint represents the permanent disturbance of the land following progressive rehabilitation.
Upper reservoir	Includes the dam wall and excavation required to create the upper reservoir.

Appendix A

Representative viewpoint assessment

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A.1 Viewpoint 1 - Sir Thomas Mitchell Road

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Local road
Distance from closest permanent structure	240 m
Duration of view	Short
Scale of change in the landscape	High
Extent of view affected	High
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This view is from Sir Thomas Mitchell Drive at its closest point to the project. This location lies between the entries to SR18 and SR25. It would be representative of a secondary view from SR18, with SR18 located another 230 m from the project.

It is anticipated this location will have views of the upper reservoir, some permanent buildings, and the entry road to the Project.

This viewpoint's high rating for magnitude of change represents the close proximity to the project, scale of change in the landscape, and the extent of the view affected.

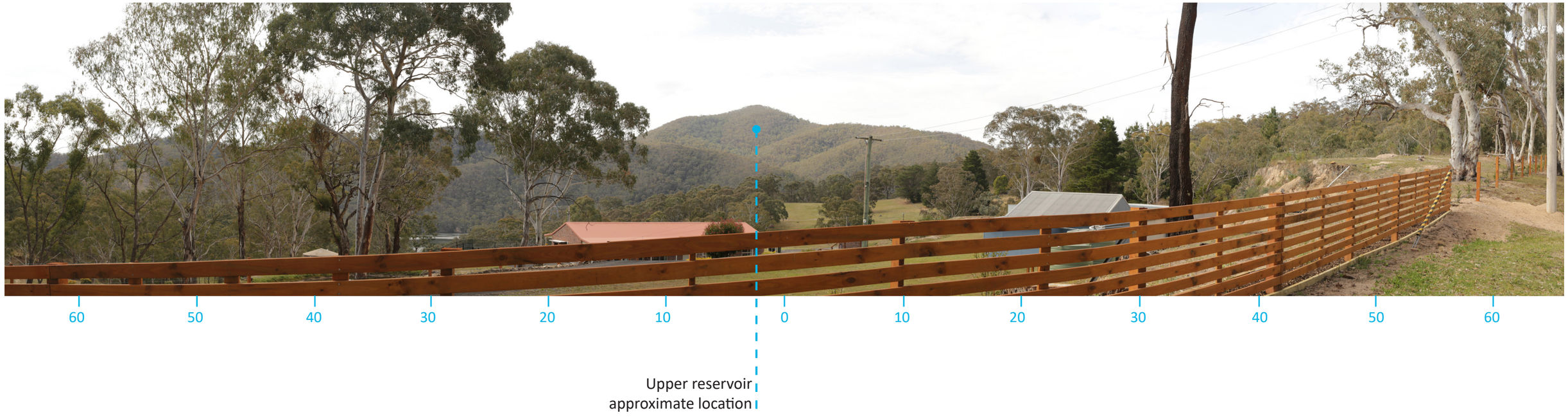
The landscape around this viewpoint is hilly and forested with extensive stands of remnant native trees. The location has views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

Most visual impact for this viewpoint will result from temporary clearing, although the upper reservoir and other structures will be permanently visible. Vegetation regrowth will slightly reduce visibility of the upper reservoir.

The mitigation proposed in chapter 9 will mitigate visual impacts for this location.

A.2 Viewpoint 2 - Sir Thomas Mitchell Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	2,000 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This view is from the roadway near 310 Sir Thomas Mitchell Drive (SR25).

The photomontage on the following page shows considerable change will be visible from this location. Most visual impact to this view will result from temporary clearing, although the upper reservoir will be permanently visible. Vegetation regrowth will slightly reduce visibility of the upper reservoir in the long term.

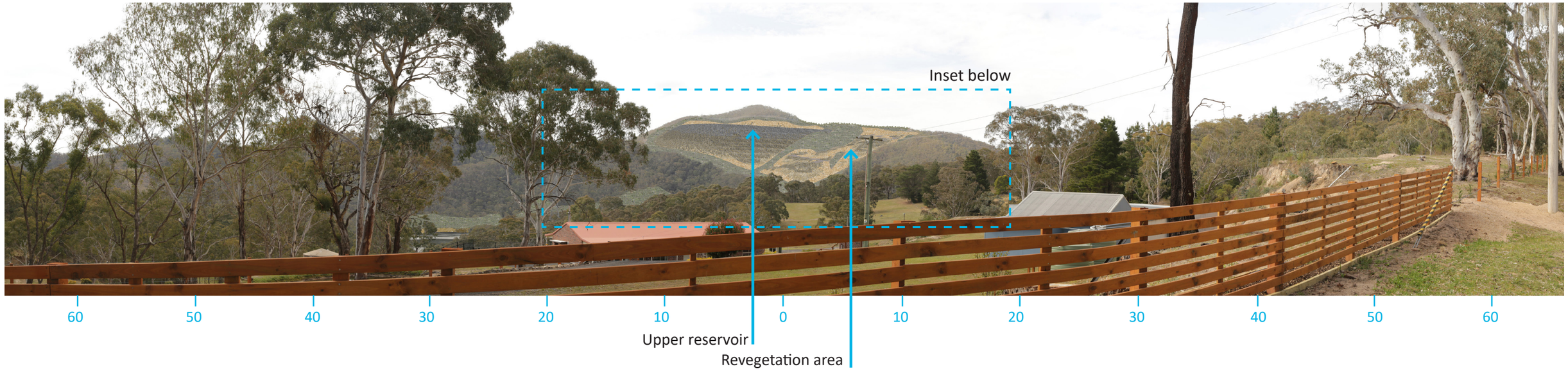
The landscape around this viewpoint is hilly with patches of cleared agricultural land and extensive stands of remnant native trees. The location has views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

This viewpoint's moderate rating for viewing experience reflects this viewpoint's assessment as a primary view from a rural residence.

The mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.2 Viewpoint 2 - Sir Thomas Mitchell Road

Photomontage 1 — panoramic view of the proposed development

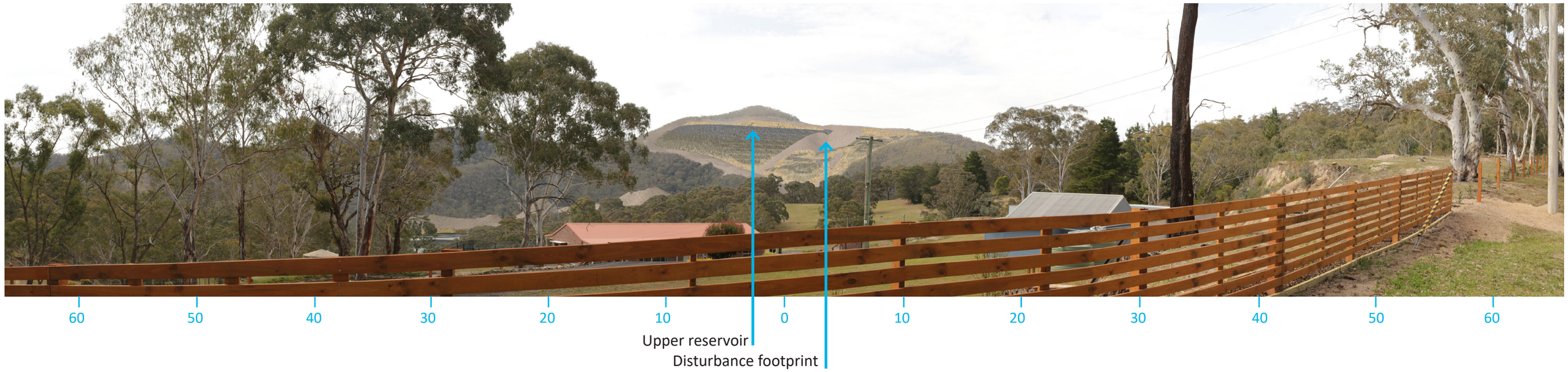


Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.2 Viewpoint 2 - Sir Thomas Mitchell Road

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.3 Viewpoint 3 - Sir Thomas Mitchell Road

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	1,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This view is from Sir Thomas Mitchell Road between SR13 and SR31.

This location would have oblique views of the upper reservoir with a portion of the dam visible over the foreground ridge. Based on the limited extent of view affected by the project the and the limited scale of change, the magnitude of change is rated as moderate.

The summit of Mount Walker is the highest point in the range in the background. Cleared farm land with scattered trees dominates the foreground. The view of Mount Walker gives this view a high scenic quality rating.

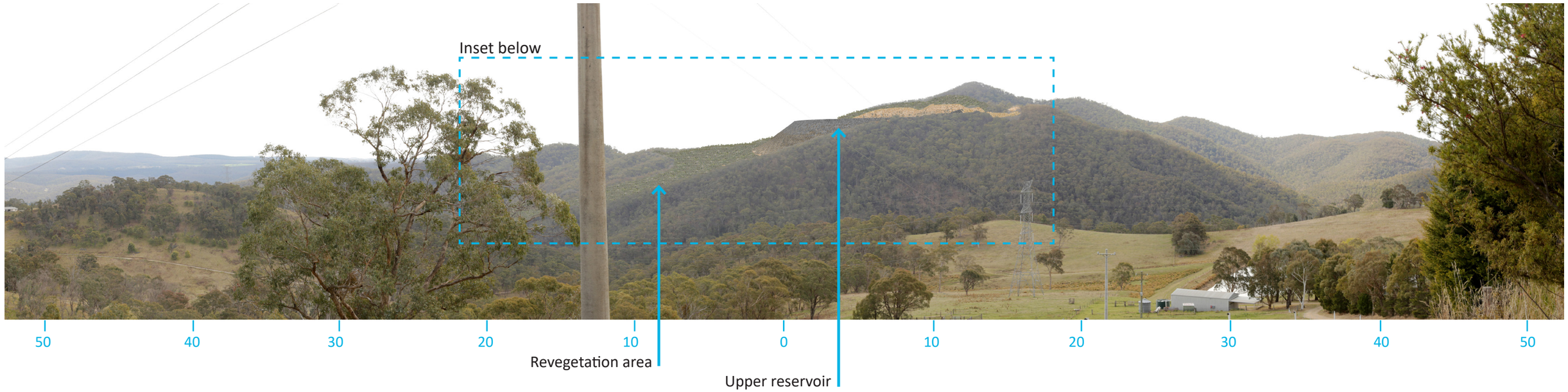
This viewpoint's moderate rating for viewing sensitivity reflects this viewpoint's assessment as a primary view from a rural dwelling.

A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

The mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.3 Viewpoint 3 - Sir Thomas Mitchell Road

Photomontage 1 — panoramic view of the proposed development

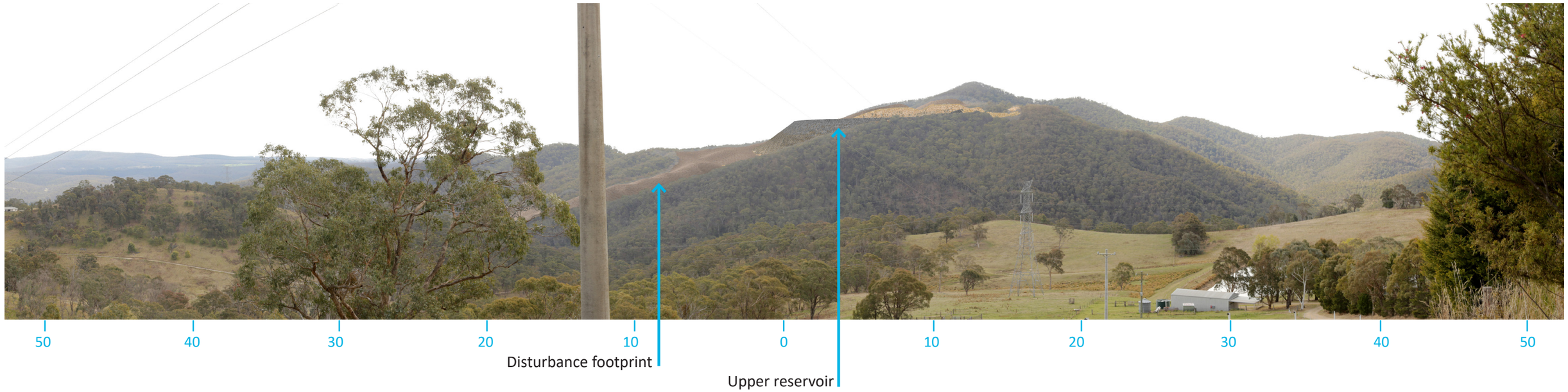


Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.3 Viewpoint 3 - Sir Thomas Mitchell Road

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.4 Viewpoint 4 - Corner Sir Thomas Mitchell Road and Magpie Hollow Drive

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	2,400 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

From this viewpoint at the eastern end of Sir Thomas Mitchell Road the summit of Mount Walker is clearly visible behind the foreground of cleared agricultural land.

It is likely a small part of the upper reservoir will be visible from this location, and vegetation clearing for construction will be evident along part of the ridge to the left of the summit.

The extent of visible change is anticipated to be low, and the scale of change is rated as low. The overall magnitude of change is therefore rated as low.

Because this viewpoint is based on the view from a rural landscape it receives a moderate rating for viewer sensitivity. It also has a moderate scenic quality rating, giving it a visual sensitivity rating of moderate.

The overall visual impact rating is low for this viewpoint.

Over time vegetation regrowth along the ridge will reduce visibility of the project infrastructure.

A.5 Viewpoint 5 - Sandalls Drive / Eagle View Escape

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Tourist destination
Distance from closest permanent structure	1,500 m
Duration of view	Long
Scale of change in the landscape	High
Extent of view affected	High
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This viewpoint is located at SR365 - Eagles View Escape tourist accommodation. The location has expansive views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

From this viewpoint a large part of the project will be visible, from the upper reservoir near the summit of Mount Walker down to the switchyard and associated buildings near Lake Lyell. These views will be filtered to varying degrees by existing vegetation in the vicinity of this viewpoint. A significant part of the disturbance footprint will also be visible.

Although the visual impact is reduced by this site's location over 1.5 km from the closest permanent structures, the project will be highly visible.

A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

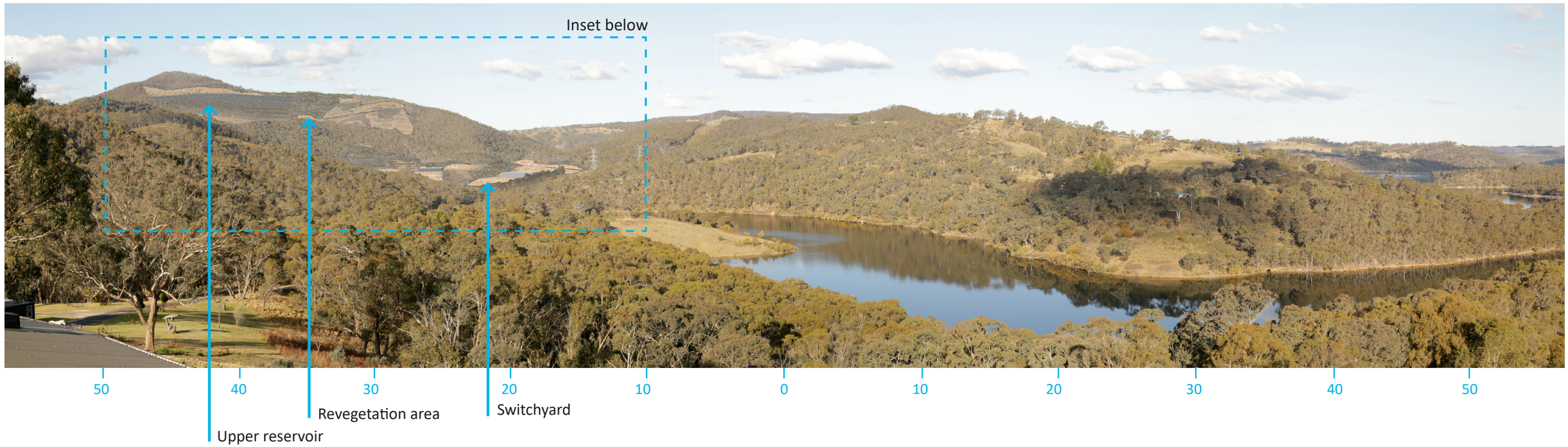
Mitigation of visual impacts, for example with screen planting near the accommodation buildings, may alleviate some visual impact, however this benefit may be offset by lost views of Mount Walker and nearby ranges.

Due to this facility's large size and varied topography, visual impacts will vary considerably from different locations and accommodation buildings, and may often be nil due to terrain and vegetation preventing any view of the project. For this reason use of vegetative screens in select locations may provide effective visual mitigation.

The mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.5 Viewpoint 5 - Sandalls Drive / Eagle View Escape

Photomontage 1 — panoramic view of the proposed development



Inset: Full-size 50mm image of the area with highest visual impact

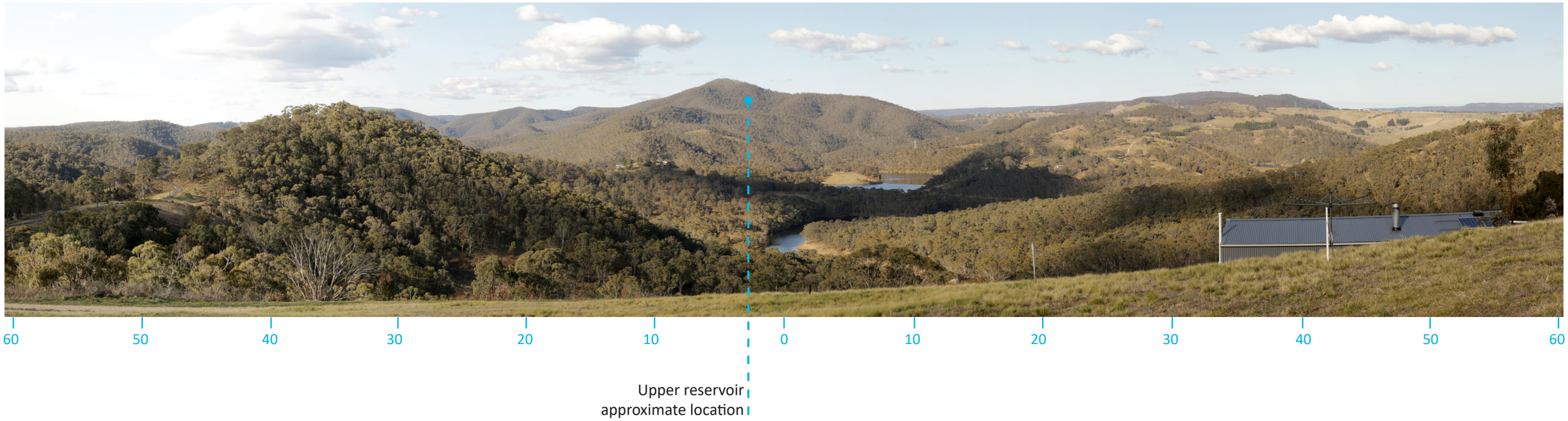
Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.5 Viewpoint 5 - Sandalls Drive / Eagle View Escape

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance

A.6 Viewpoint 6 - Sandalls Drive

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	2,800 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This location will have views of the upper reservoir, and of buildings and other structures at lower elevations.

This viewpoint's moderate rating for viewer sensitivity reflects this viewpoint's assessment as a primary view from a rural dwelling.

The landscape around this viewpoint is hilly with patches of cleared agricultural land and extensive stands of remnant native trees. The location has views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

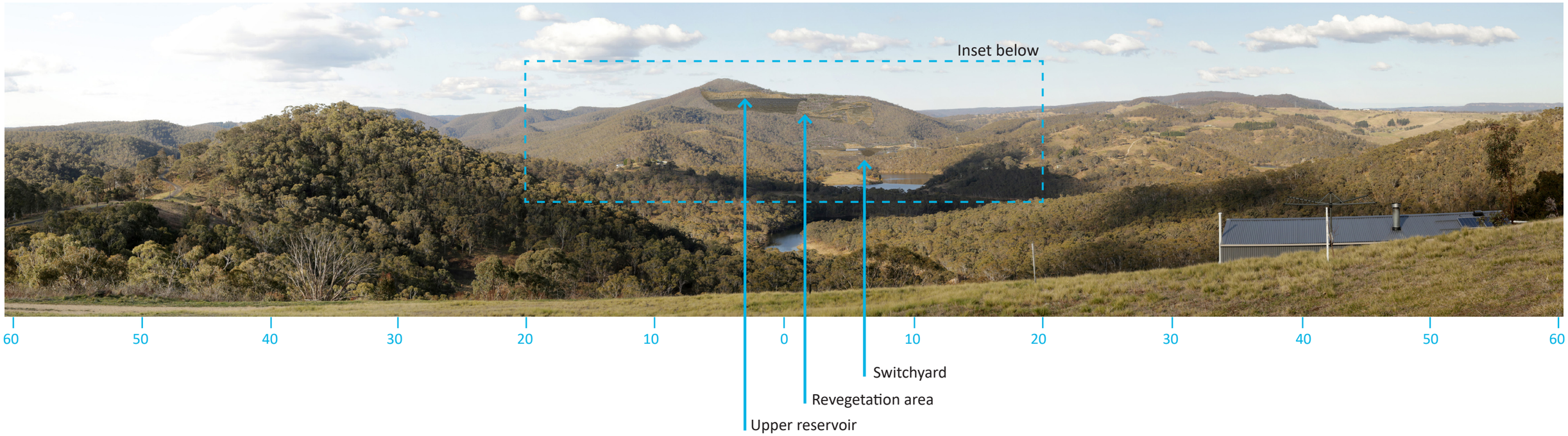
Some mitigation of visual impacts on motorists may be achieved by tree planting an public land along the road.

A private residence (SR2001) is located close to this viewpoint (visible in the right hand side of the image above). Mitigation of visual impacts at the receiver, for example with screen planting near the residence, may alleviate some visual impact. However this benefit could be offset by lost views of Mount Walker and nearby ranges.

The mitigation proposed in chapter 9 may minimise visual impacts for this location, although the visual impact rating may not be reduced by mitigation at the project site.

A.6 Viewpoint 6 - Sandalls Drive

Photomontage 1 — panoramic view of the proposed development

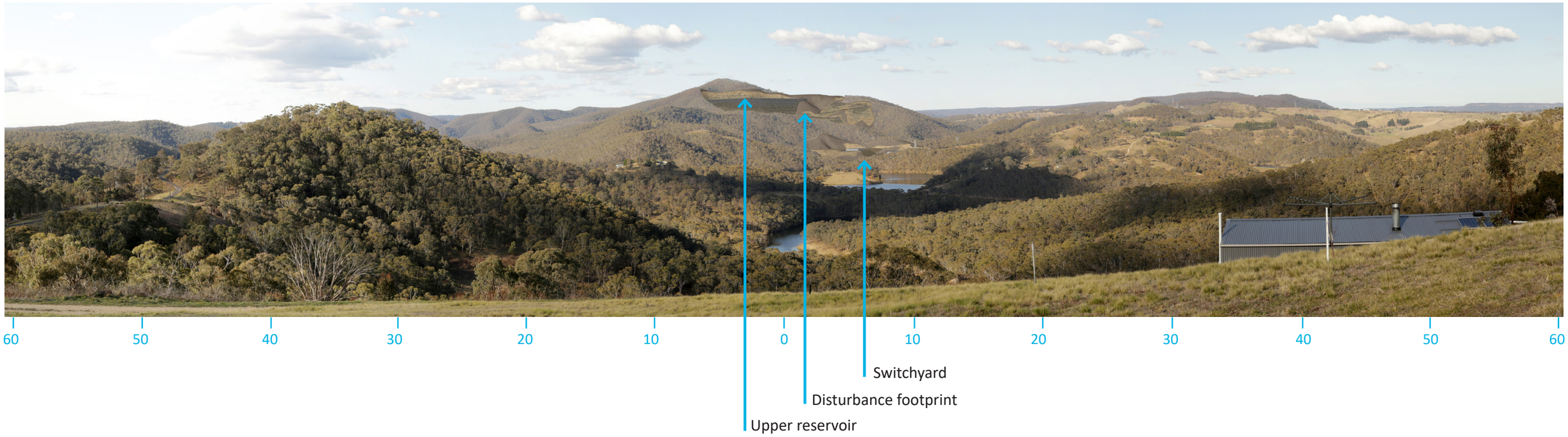


Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.6 Viewpoint 6 - Sandalls Drive

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.7 Viewpoint 7 - Corner Magpie Hollow Road and Martins Road

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	4,300 m
Duration of view	Short
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This view is from a public roadway. There are no residences nearby.

This viewpoint's low rating for viewer sensitivity represents the location on a road with the brief typical duration of the view.

The landscape around this viewpoint is hilly with patches of cleared agricultural land and extensive stands of remnant native trees. The location has views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

The scale of change in the visible landscape is moderate with a partial alteration to a key element. The extent of the view affected is low giving this view a low magnitude of change.

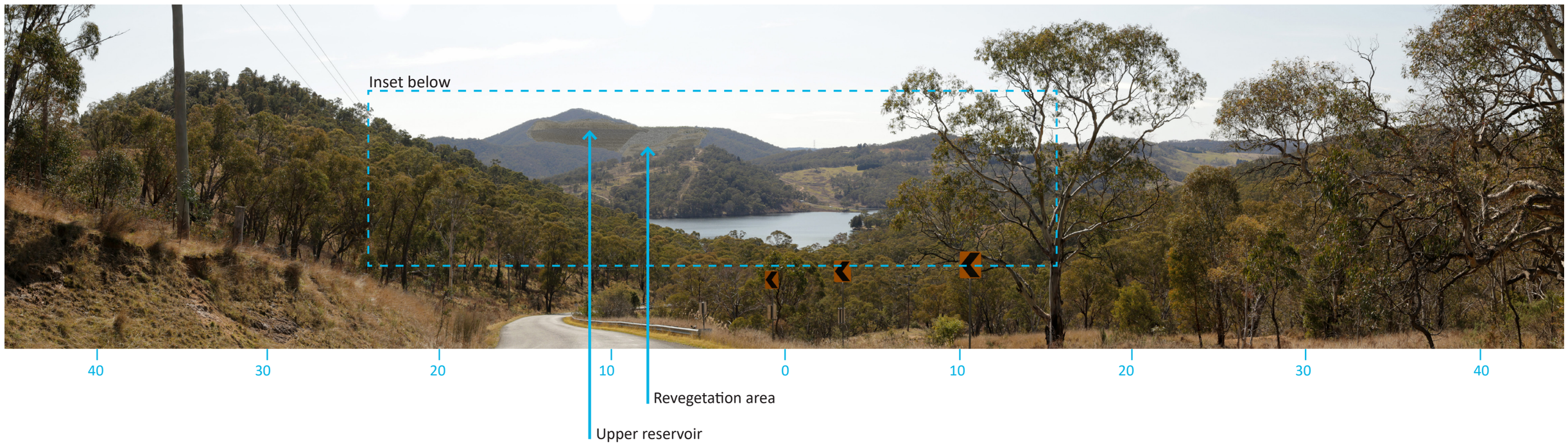
A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

The photomontage for this viewpoint shows temporary disturbance and the permanent upper reservoir.

Although the visual impact will be low at this viewpoint, mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.7 Viewpoint 7 - Corner Magpie Hollow Road and Martins Road

Photomontage 1 — panoramic view of the proposed development



Inset 1: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.7 Viewpoint 7 - Corner Magpie Hollow Road and Martins Road

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance

A.8 Viewpoint 8 - Magpie Hollow Road / Lake Lyell Recreation Park

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Tourist destination
Distance from closest permanent structure	3,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This viewpoint is located at Lake Lyell Recreation Park (SR45). The location enjoys extensive views of Lake Lyell and the adjoining rural landscape. The summit of Mount Walker is visible near the centre of the image above.

Parts of the upper reservoir are expected to be visible from some locations in the park, depending on aspect, elevation and tree cover near individual locations.

This viewpoint has a very limited view of the project infrastructure and would have low magnitude of change is due to the small portions of the development that would be seen from the park. However, the fluctuations in the lake level increase the magnitude to moderate.

The landscape around this viewpoint is a mix of cleared pasture, wooded hillsides and views of Lake Lyell, giving the viewpoint a moderate scenic quality rating.

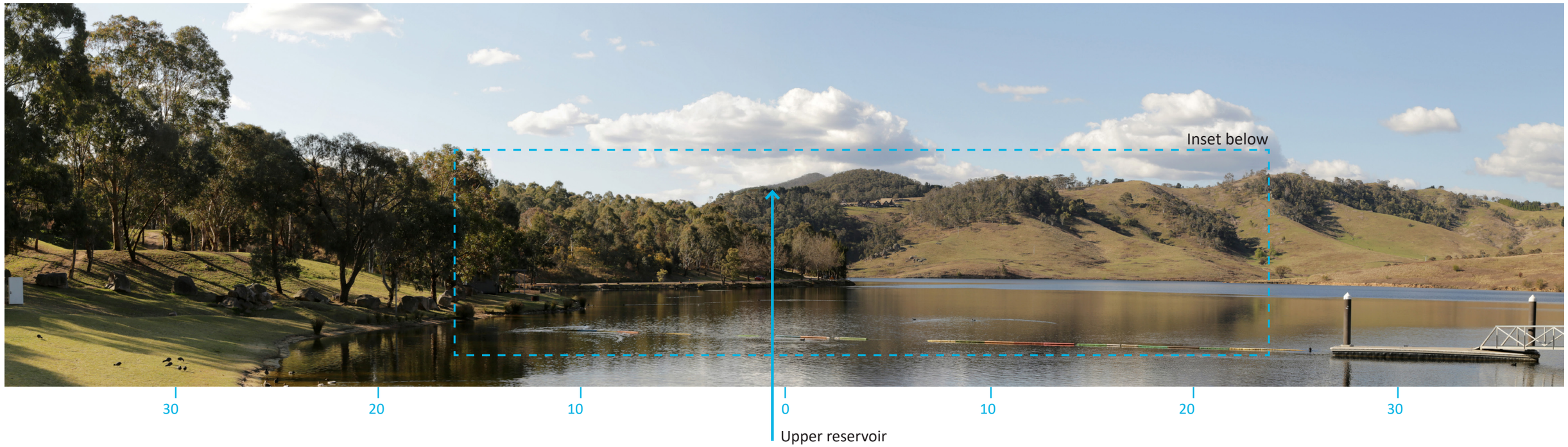
A photomontage of the project from this location is presented on the following page with an enlargement of the area with greatest impact.

Due to the recreation park's large size and varied topography, visual impacts will vary from different locations within the park, and may often be nil due to terrain and vegetation preventing any view of the project.

The mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.8 Viewpoint 8 - Magpie Hollow Road / Lake Lyell Recreation Park

Photomontage 1 — panoramic view of the proposed development

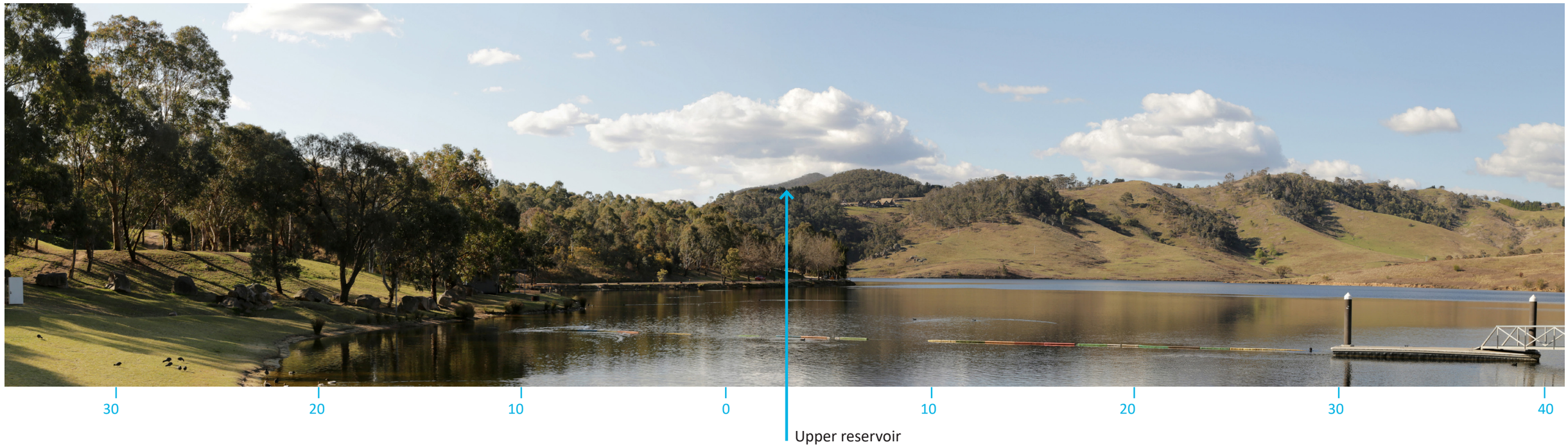


Inset 1: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

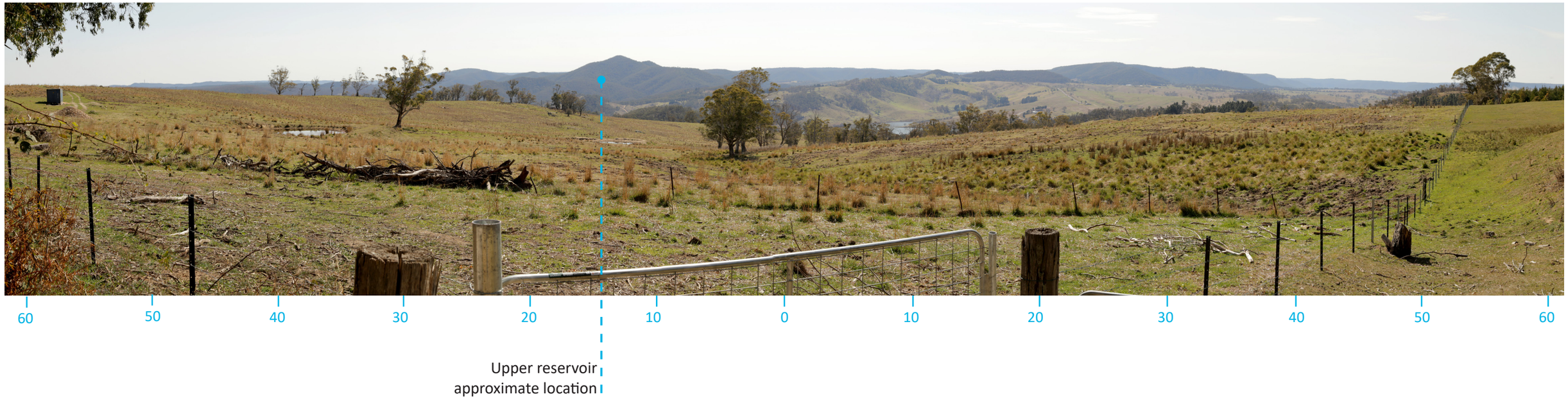
A.8 Viewpoint 8 - Magpie Hollow Road / Lake Lyell Recreation Park

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.9 Viewpoint 9 - Martins Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Tourist destination
Distance from closest permanent structure	5,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This viewpoint is indicative of visual impacts at more distant locations. Nearly 6 km south of the upper reservoir, the project infrastructure is expected to be visible but it's visibility will vary with the time of day and sun angle.

This view has a magnitude of change rating of moderate due to the extent of the visible changes in the context of the view.

Vegetation clearing for the project may increase visual impact until tree cover is re-established, however this would not significantly effect the visual impact rating. This effect would be temporary until vegetation is re-established.

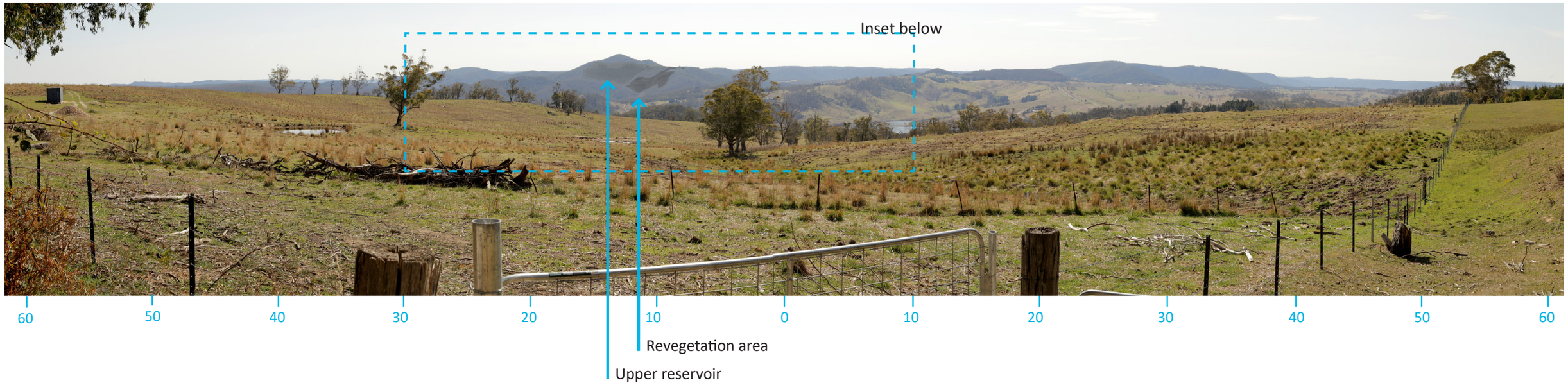
Sensitivity ratings for this viewpoint are for tourists visiting Seclusions Blue Mountains tourist venue. As a tourist destination in an undulating rural landscape with views of distant ranges and limited views of Lake Lyell, this location has a moderate viewer sensitivity and a moderate scenic quality rating.

The overall visual impact rating for this viewpoint is moderate.

The mitigation proposed in chapter 9 may minimise visual impacts for this location.

A.9 Viewpoint 9 - Martins Road

Photomontage 1 — panoramic view of the proposed development

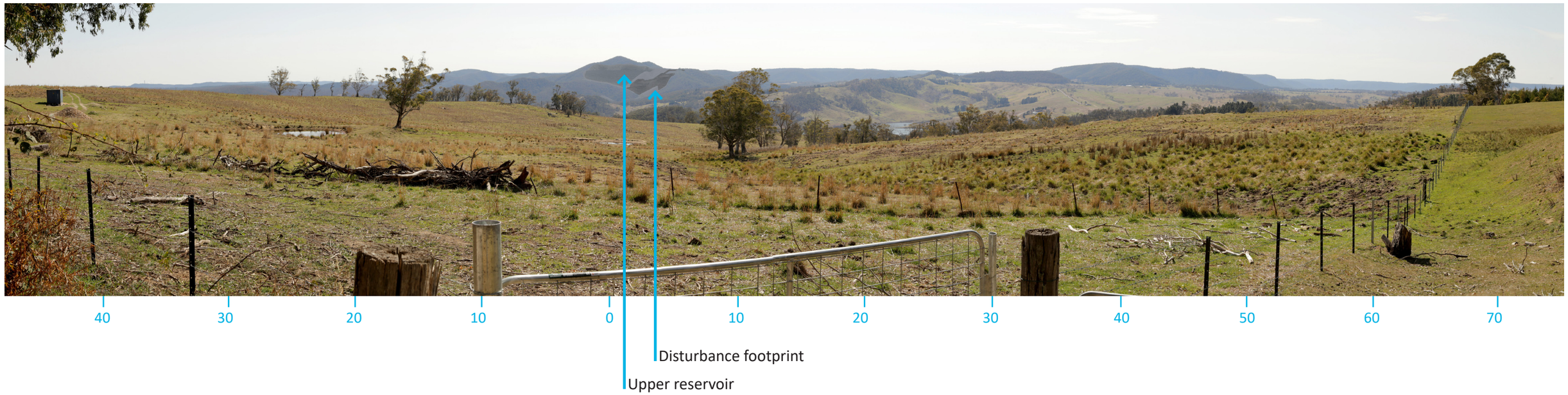


Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

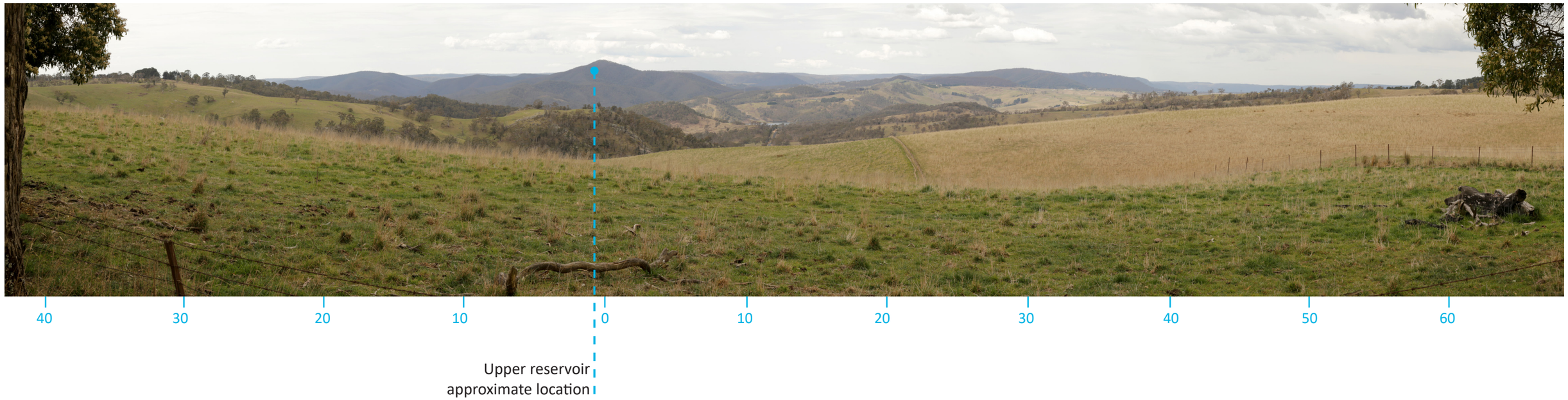
A.9 Viewpoint 9 - Martins Road

Panoramic view of existing site



A.10 Viewpoint 10 - Hampton Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	6,800 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This viewpoint is indicative of visual impacts at more distant locations. Nearly 7 km southwest of the upper reservoir, change will be visible but it's impact will vary with the time of day and sun angle.

Vegetation clearing for the project may increase visibility until tree cover is re-established, however this would not significantly effect the visual impact rating.

There are residences along Hampton Road near this viewpoint with some having this view as the primary view. As representing a rural residence in an undulating rural landscape with views of distant ranges, this location has a moderate viewer sensitivity and a moderate scenic quality rating.

The overall visual impact rating of low reflects this locations distance from the project.

Although the visual impact will be low at this viewpoint, mitigation at the project site as described in Chapter 9 may be effective in reducing visual impacts.

A.11 Viewpoint 11 - Hampton Road

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Local road
Distance from closest permanent structure	5,100 m
Duration of view	Short
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Low**

Visual sensitivity discussion

This viewpoint is indicative of visual impacts at more distant locations. Nearly 6 km south of the upper reservoir, change will be visible but it's impact will vary with the time of day and sun angle.

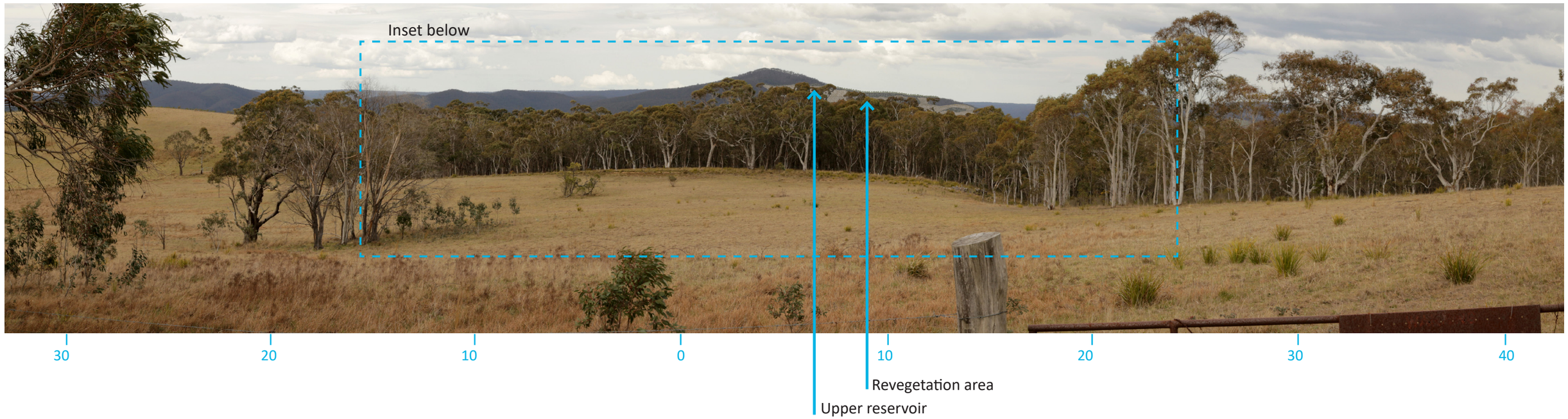
Vegetation clearing for the project may increase visibility until tree cover is re-established, however this would not significantly effect the visual impact rating.

As a public road in an undulating rural landscape with views of distant ranges, this location has a low viewer sensitivity and a moderate scenic quality rating.

The visual impact is rated as low at this viewpoint.

A.11 Viewpoint 11 - Hampton Road

Photomontage 1 — panoramic view of the proposed development

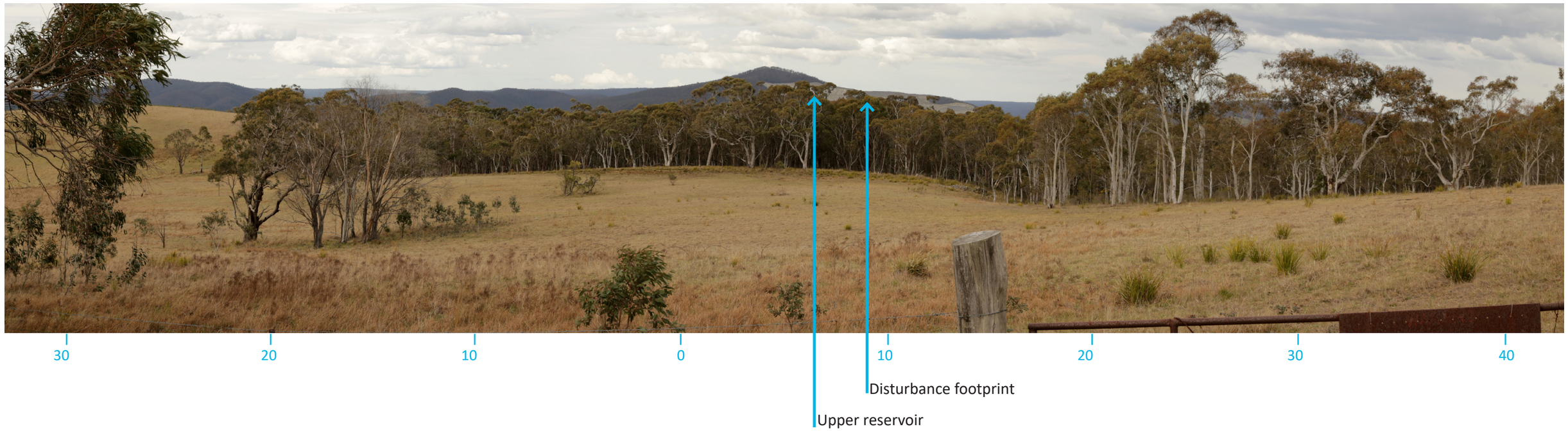


Inset 1: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

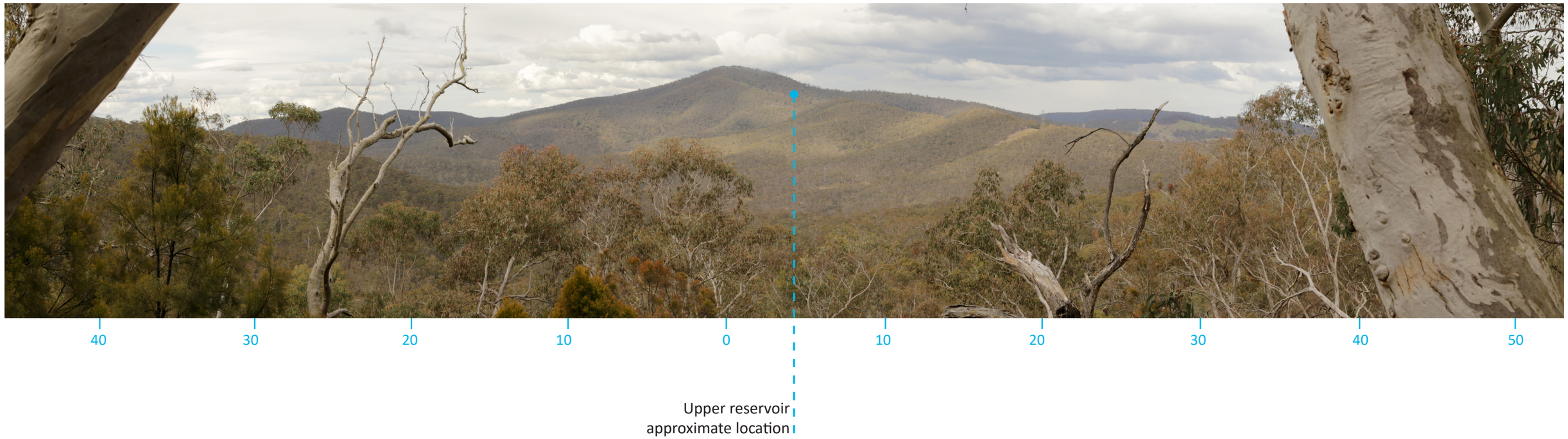
A.11 Viewpoint 11 - Hampton Road

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.12 Viewpoint 12 - Old Western Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Local road
Distance from closest permanent structure	3,100 m
Duration of view	Short
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

The upper portion of the western face of the upper reservoir will be visible from this location.

This view is from a roadway. This viewpoints low rating for viewing experience represents the small number of viewers and the brief typical duration of the view.

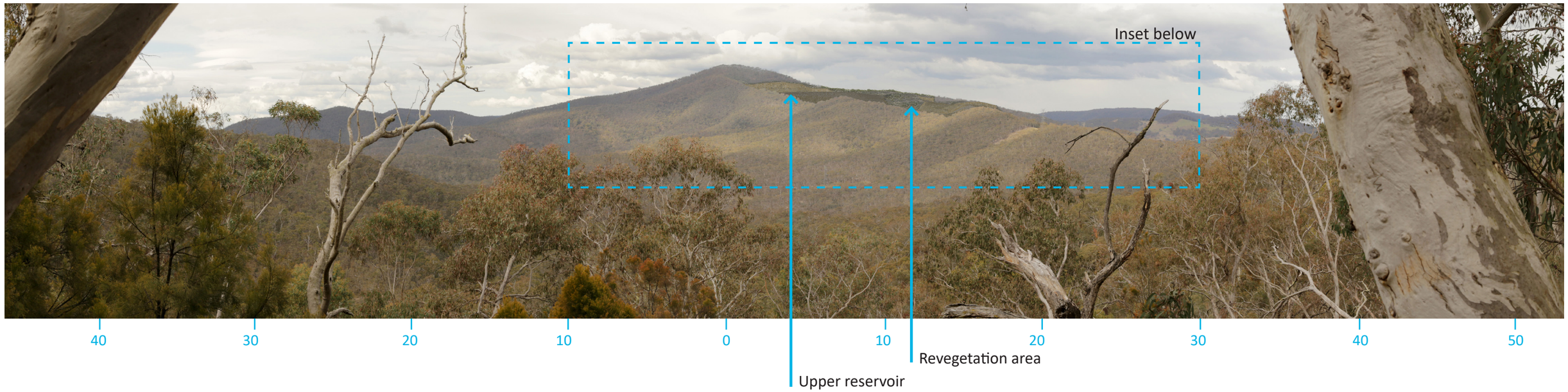
A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

The landscape around this viewpoint is hilly and heavily forested. With time, weathering, and re-establishment of native vegetation, the visual impact from this location will be reduced.

The visual impact is rated as low at this viewpoint.

A.12 Viewpoint 12 - Old Western Road

Photomontage 1 — panoramic view of the proposed development

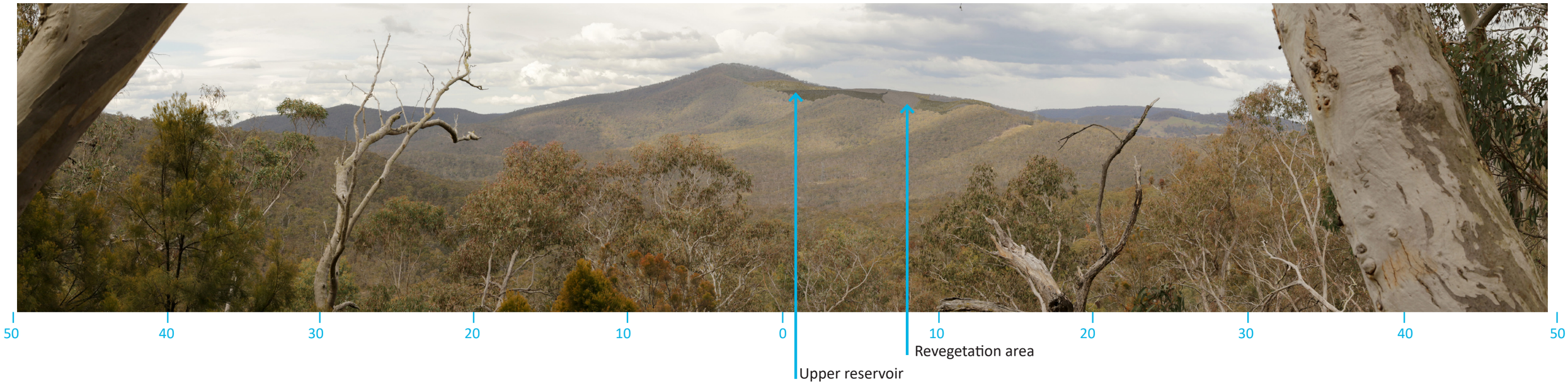


Inset 1: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

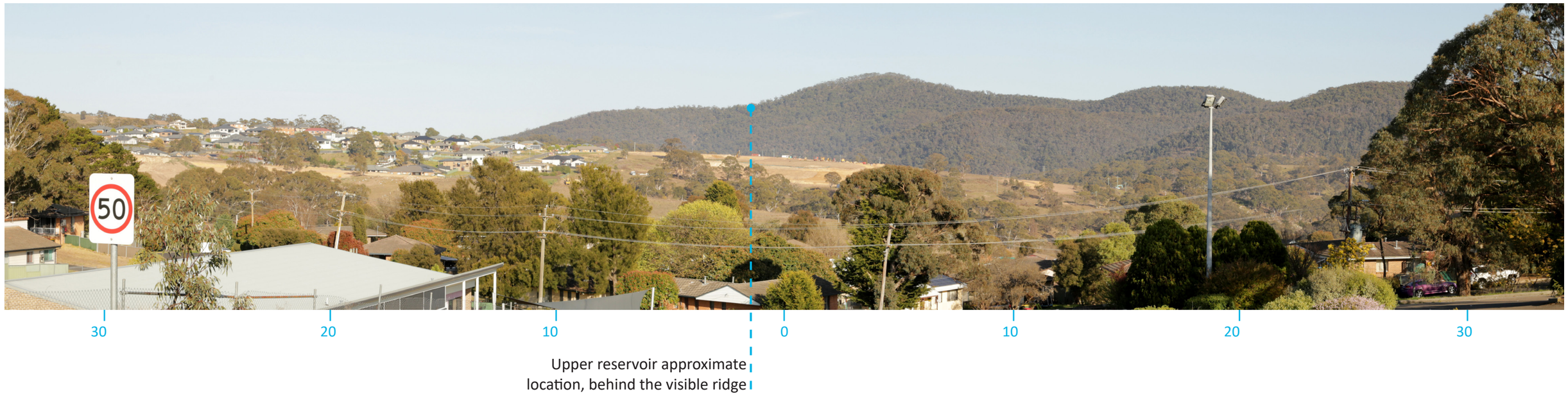
A.12 Viewpoint 12 - Old Western Road

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.13 Viewpoint 13 - Great Western Highway

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Residence / highway
Distance from closest permanent structure	3,700 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This view is from the Great Western Highway at Lithgow, and is indicative of views for motorists, tourists and residents in the area.

The landscape around this viewpoint is dominated by urban development, and has distant views of ranges including Mount Walker.

The visual impact rating for this viewpoint represents secondary views from a residence, although ratings for sensitive receivers and motorists in this vicinity will be similar.

The main visual impact in this location will result from removal of vegetation along the ridge. The project will also result in a very small change to the shape of the ridge and part of the spillway may be visible through trees after revegetation. This visibility will be negligible once trees are re-established on the ridge.

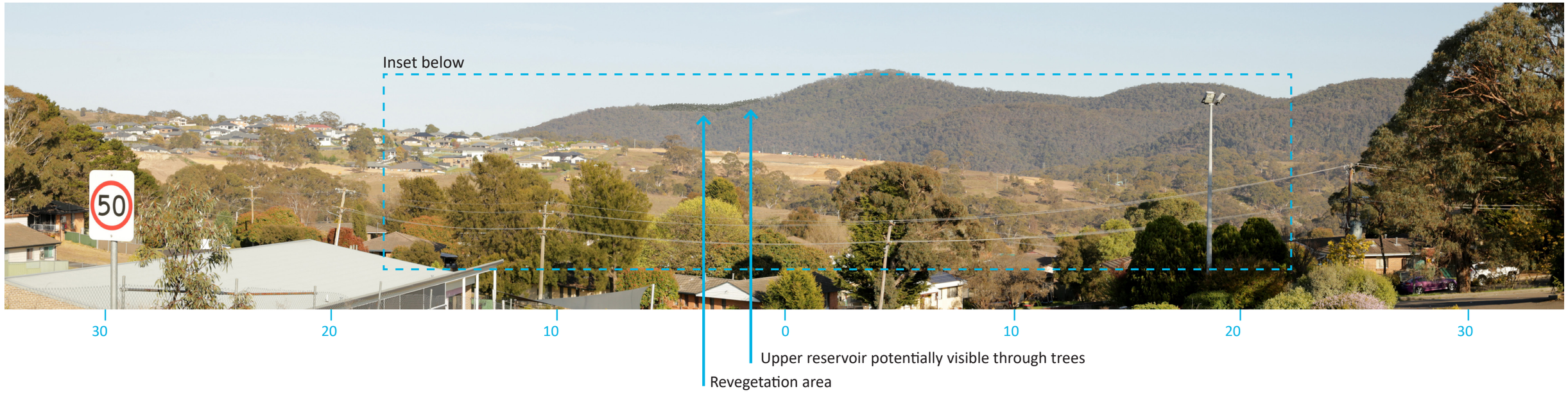
The photomontage on the following page shows the area of visible revegetation and of possible views of the upper reservoir through trees.

Although the visual impact will be low at this viewpoint, mitigation at the project site as described in Chapter 9 may be effective in reducing visual impacts.

Photomontage 2 shows the maximum extent of vegetation clearing during or immediately after construction. From this location the removal of trees on the ridge and a small part of the upper reservoir will be visible.

A.13 Viewpoint 13 - Great Western Highway

Photomontage 1 — panoramic view of the proposed development

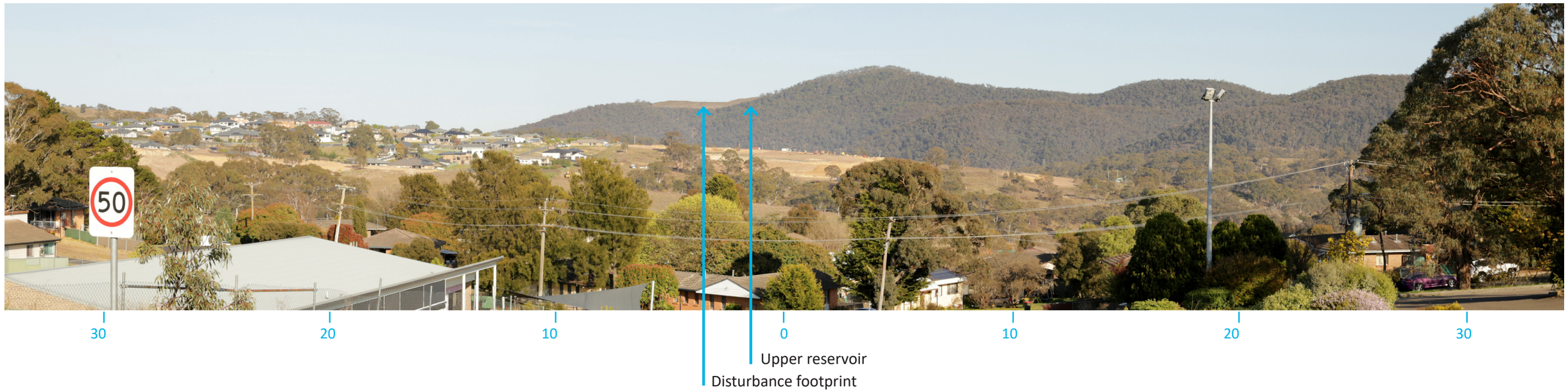


Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

A.13 Viewpoint 13 - Great Western Highway

Photomontage 2 — panoramic view of the proposed development with maximum land disturbance



A.14 Viewpoint 14 - Great Western Highway

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Residence / highway
Distance from closest permanent structure	4,100 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This view is from the Great Western Highway at Bowenfels, and is indicative of views for motorists, tourists and residents in the area.

The landscape around this viewpoint is dominated by urban development, and has distant views of ranges including Mount Walker.

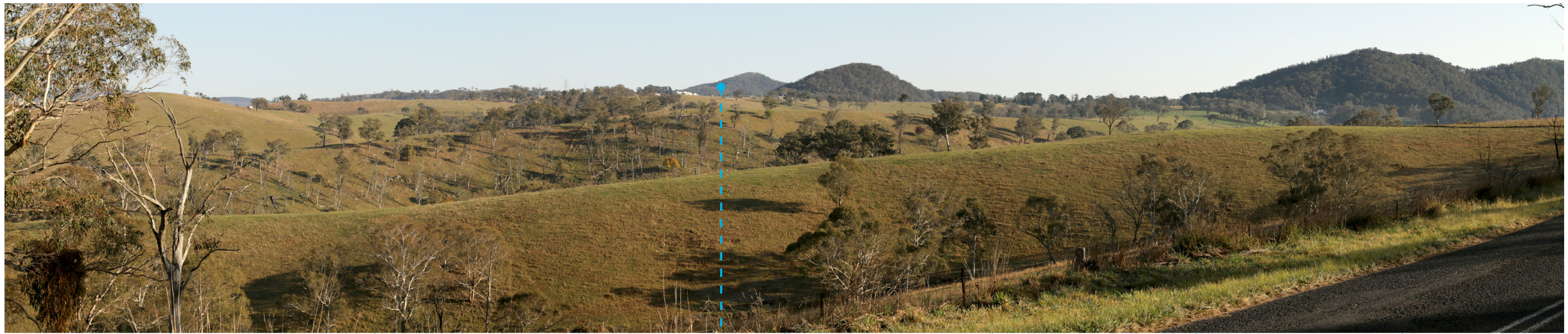
The visual impact rating for this viewpoint represents secondary views from a residence, although ratings for sensitive receivers and motorists in this vicinity will be similar.

The photomontages for Viewpoint 13 shows a similar impact to what is expected at this location. The main visual impact will result from removal of vegetation along the ridge. Some part of the dam construction may be visible, and some change to the ridge due to excavation for the upper reservoir may be visible.

Although the visual impact will be low at this viewpoint, mitigation at the project site as described in Chapter 9 may be effective in reducing visual impacts.

A.15 Viewpoint 15 - Mckanes Falls Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Residence / local road
Distance from closest permanent structure	5,900 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

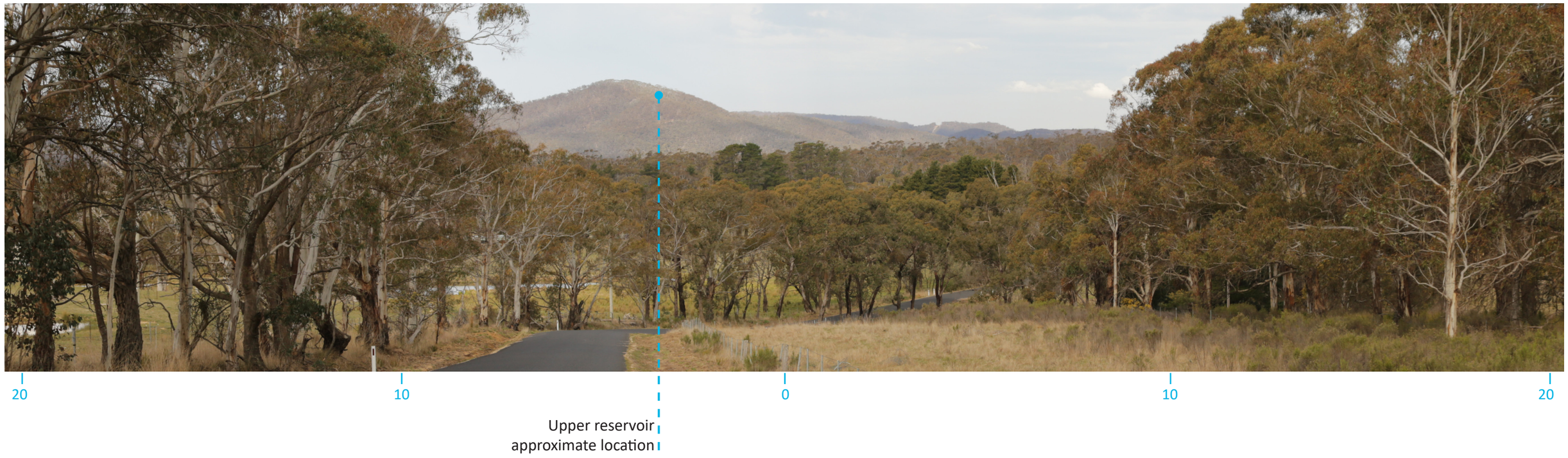
This viewpoint is indicative of visual impacts at more distant locations. Nearly 6 km southeast of the upper reservoir, change will be visible but it's impact will vary with the time of day and sun angle.

Vegetation clearing for the project may increase visibility until tree cover is re-established, however this would not significantly effect the visual impact rating.

Although the visual impact will be low at this viewpoint, mitigation at the project site as described in Chapter 9 may be effective in reducing visual impacts.

A.16 Viewpoint 16 - Old Western Road

Panoramic view of existing site



Visual assessment table	
Viewpoint type	Local road
Distance from closest permanent structure	6,200 m
Duration of view	Short
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This viewpoint is indicative of visual impacts at more distant locations. Over 6 km north-west of the upper reservoir, change will be visible but it's impact will vary with the time of day and sun angle.

Sensitive receivers at this distance would also receive a visual impact rating of low.

Vegetation clearing for the project may increase visibility until tree cover is re-established, however this would not significantly effect the visual impact rating.

Although the visual impact will be low at this viewpoint, mitigation at the project site as described in Chapter 9 may be effective in reducing visual impacts.

A.17 Viewpoint 17 - Magpie Hollow Road

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Local road
Distance from closest permanent structure	700 m
Duration of view	Short
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Low**

Visual sensitivity discussion

The temporary accommodation camp will be visible in short glimpses for travellers along Magpie Hollow Road. This viewpoint will not have views of the project disturbance footprint or of the upper reservoir.

This viewpoint's moderate rating for viewing experience represents the small number of viewers and the brief typical duration of the view.

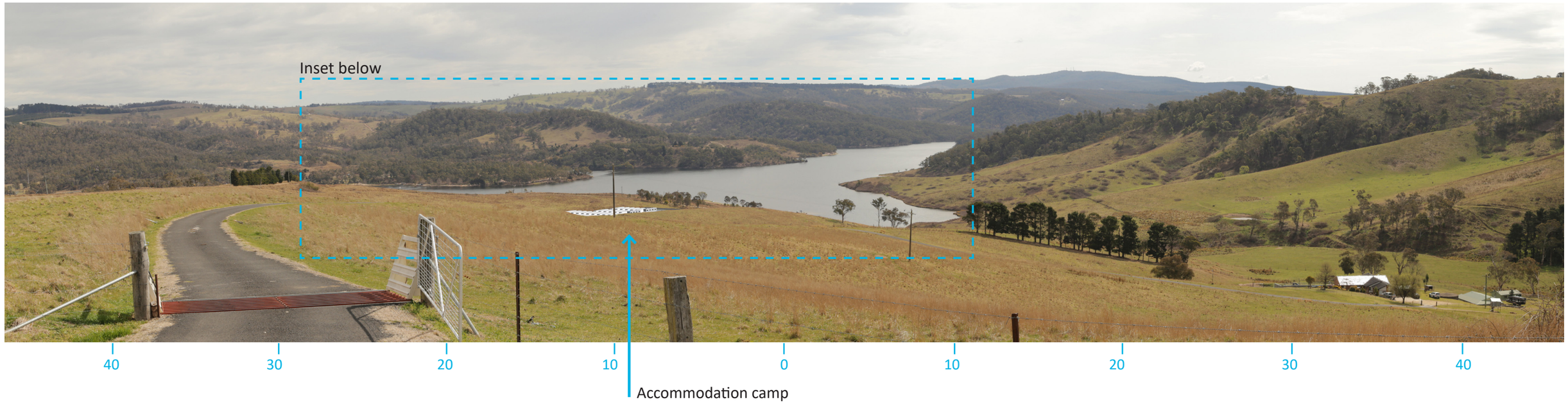
The landscape around this viewpoint is largely cleared for pasture, and has expansive views of Lake Lyell and surrounding countryside.

A photomontage of the project is presented on the following page with an enlargement of the area with greatest impact.

No mitigation is required due to the low visual impact rating, however screen planting of native trees along the low ridge east of the accommodation camp would significantly mitigate visual impacts for residents and motorists. If implemented, screen planting is unlikely to have any negative impact on desirable views due to the accommodation camp's low elevation.

A.17 Viewpoint 17 - Magpie Hollow Road

Panoramic photomontage of the proposed accommodation camp



Inset: Full-size 50mm image of the area with highest visual impact

Note: the full-size 50mm image used for this image provides a 40º horizontal field-of-view.

Appendix B
Sensitive receiver assessment

EMM
creating opportunities

B.1 SR 6 - Sir Thomas Mitchell Drive

Simulated view with existing landscape

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	2,100 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very Low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Very low**

Visual impact discussion

This view is from SR6, Sir Thomas Mitchell Drive.

This residence is located over a small ridge from the Project. The existing vegetation is anticipated to screen all views of the upper reservoir with no mitigation necessary.

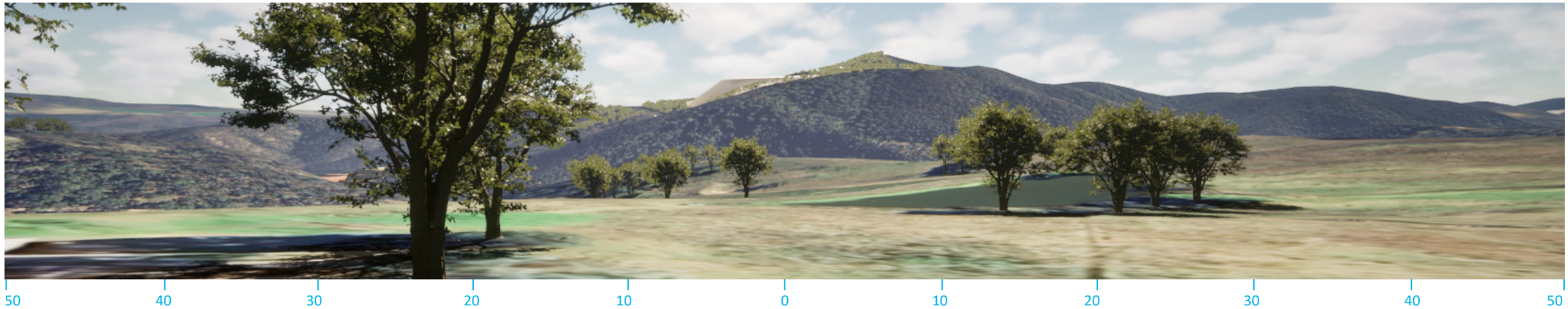
This is a secondary view with a sensitivity rating of low.

Mitigation

No mitigation is required.

B.2 SR 13 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,800 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR13 residence. Mt Walker is in the centre of the image with a portion of the upper reservoir visible.

This location would have oblique views of the upper reservoir with a portion of the dam visible over the foreground ridge. It would have a limited extent of view affected by the project the and a limited scale of change. Due to the minor alteration of a key landscape feature, the magnitude of change is rated as low.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

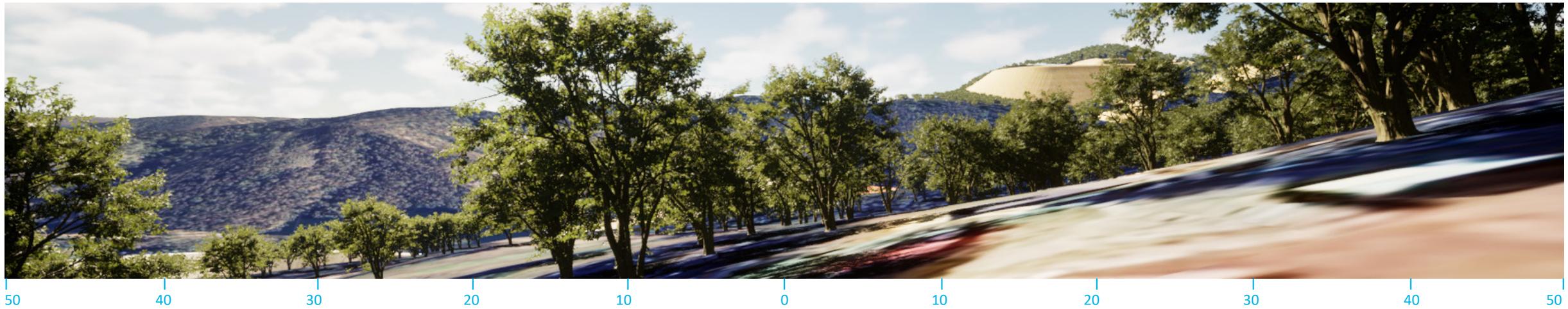
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.3 SR 15 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,760 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR15 residence. Mt Walker can be seen in the image with a portion of the upper reservoir visible.

There would be an introduction of a prominent element that is not characteristic of the landscape. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

This is a secondary view from the residence, giving it a low sensitivity rating.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

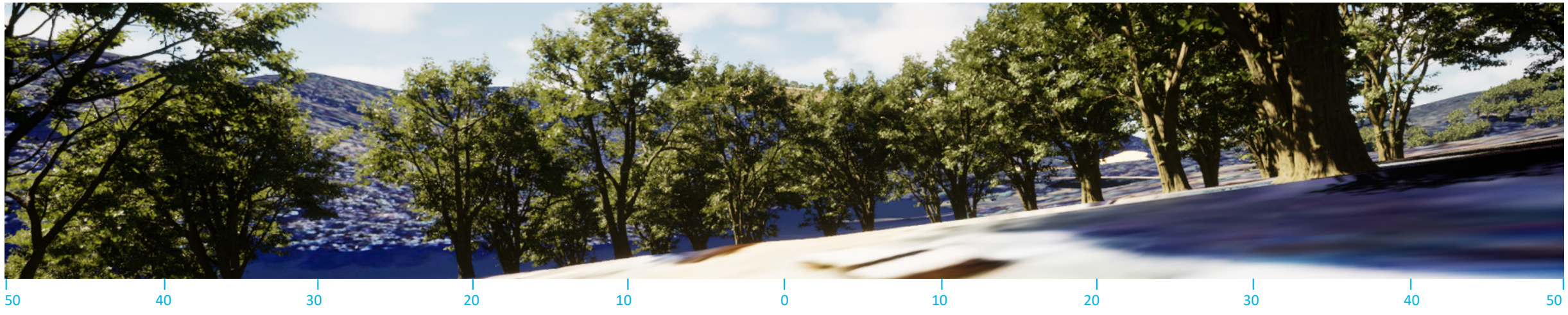
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

B.4 SR 18 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,800 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This is a simulated view from the SR18 residence. Mt Walker is in the centre of the image with only a portion of the upper reservoir visible.

The existing trees screen most of the project infrastructure with only a portion of the dam visible over the trees. Based on the limited extent of view affected by the project the and the limited scale of change, the magnitude of change is rated as very low.

The visual impact rating is low, which does not require mitigation.

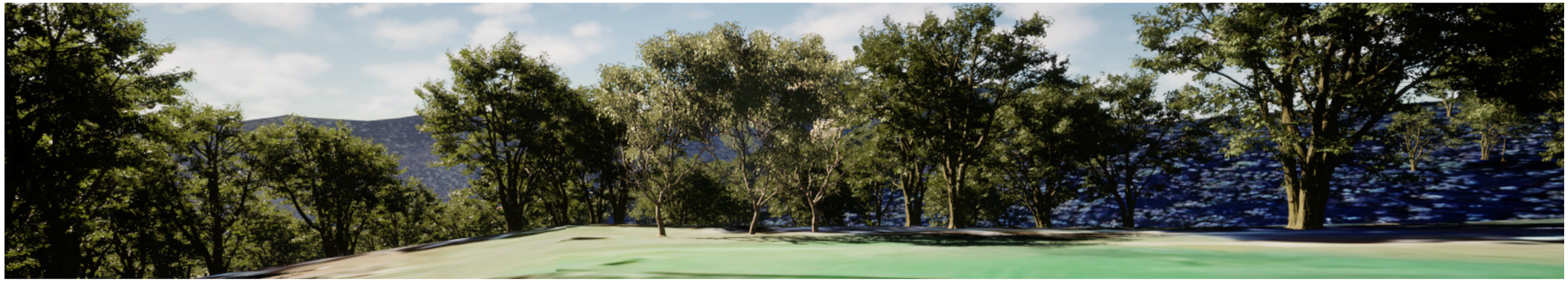
Mitigation

None required.

B.5 SR 19 - Sir Thomas Mitchell Drive

Simulated view with existing landscape

Simulated view with proposed screening



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,800 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR19 residence. It is a primary view with Mt Walker in the centre of the image and the upper reservoir visible.

The existing trees screen most of the project infrastructure with only a portions visible over the trees. There would be an introduction of a prominent element that is not characteristic of the landscape. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

B.6 SR 21 - Sir Thomas Mitchell Drive

Simulated view with existing landscape

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,800 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Very Low
Magnitude of change (table 3.2)	**Very Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Very low**

Visual impact discussion

This is a simulated view from the SR21 residence.

The existing trees screen the project infrastructure with only glimpses visible through the trees. Based on the limited visibility, the magnitude of change is rated as very low.

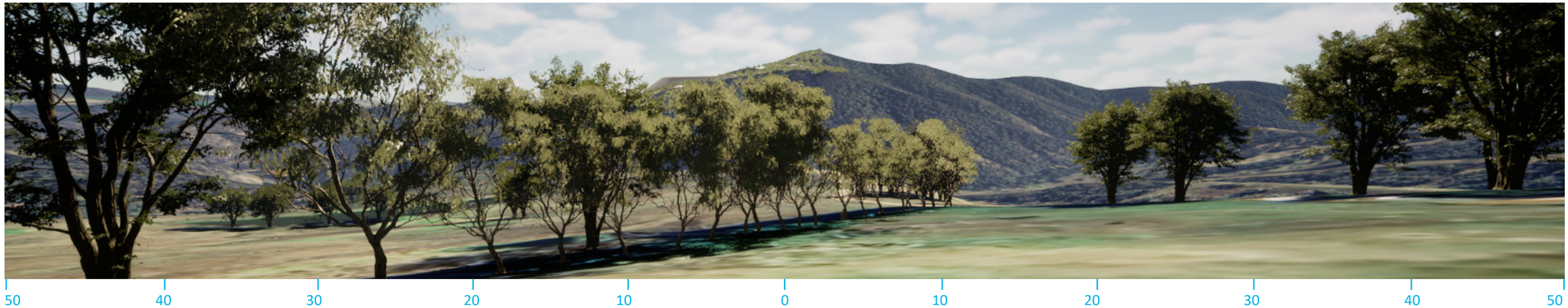
The visual impact rating is low, which does not require mitigation measures.

Mitigation

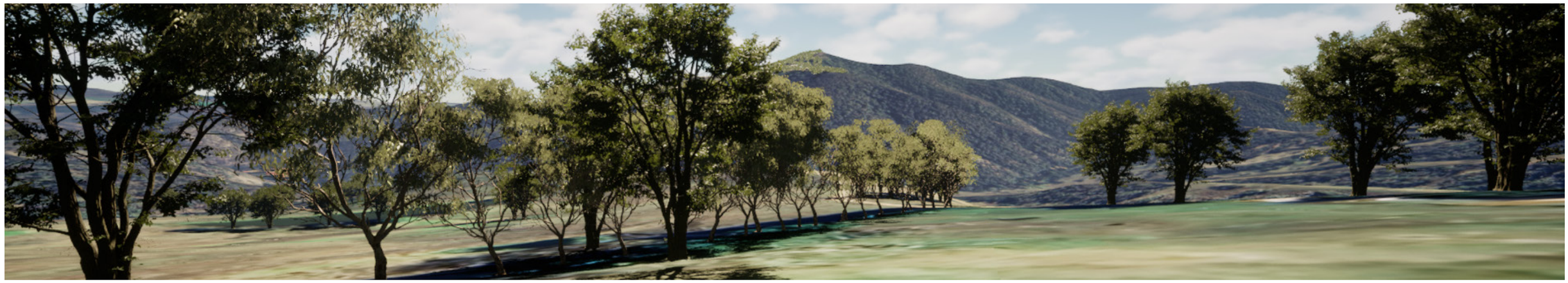
No mitigation required.

B.7 SR 23 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Simulated view with proposed screening



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,900 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR23 residence. Mt Walker is in the centre of the image with only a portion of the upper reservoir visible.

The existing trees screen most of the project infrastructure with only a portion of the dam visible over the trees. It would have a limited extent of view affected by the project the and a limited scale of change. Due to the minor alteration of a key landscape feature, the magnitude of change is rated as low.

This is a primary view from the residence giving the sensitivity rating of moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

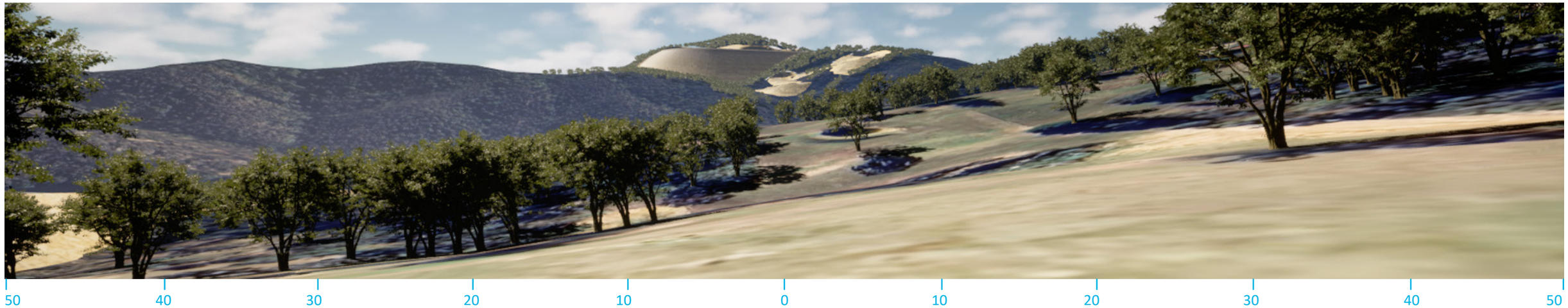
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

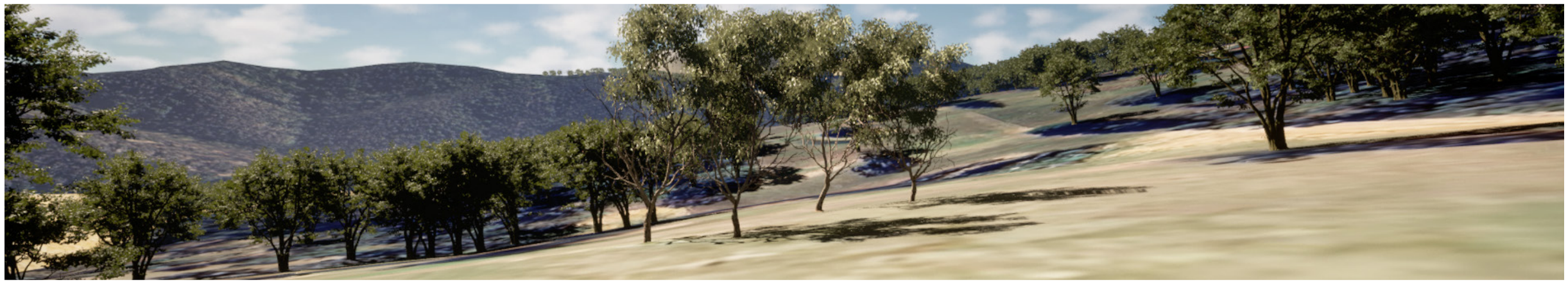
As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.8 SR 25 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Simulated view with proposed screening



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,900 m
Duration of view	Long
Scale of change in the landscape	High
Extent of view affected	High
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This is a simulated view from the SR25 residence. Mt Walker is in the centre of the image with the upper reservoir and road infrastructure visible. The existing trees screen most of the project infrastructure at the base of the mountain.

There would be an introduction of a substantial element in the landscape. Based on the extent of view affected by the project and the scale of change, the magnitude of change is rated as high.

This is a primary view from the residence giving the sensitivity rating of moderate.

The visual impact rating is high, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.9 SR 31 - Sir Thomas Mitchell Drive

Simulated view with existing landscape

Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This is a simulated view from the SR31 residence. Mt Walker is in the centre of the image with the upper reservoir visible.

The existing topography screens most of the project infrastructure leaving the dam visible over the trees. There would be an introduction of a prominent element that is not characteristic of the landscape. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

This is a primary view from the residence giving the sensitivity rating of moderate.

The visual impact rating is high, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.10 SR 65 - Sandalls Drive

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Tourist destination
Distance from closest visible structure	3,500 m
Duration of view	Long
Scale of change in the landscape	Low
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This photograph is taken from the SR65 residence. The location has limited views of Mt Walker and no views to Lake Lyell.

From this location, a portion of the upper reservoir and the access road will be visible. Although the visual impact is reduced by this site's distance from the upper reservoir, the project will be visible.

There would be a limited extent of view affected by the project the and a limited scale of change. Due to the minor alteration of a key landscape feature, the magnitude of change is rated as low.

This viewpoint's moderate rating for viewer sensitivity reflects this viewpoint's assessment as a primary view from a rural dwelling.

The landscape around this viewpoint is hilly with extensive views of native bushland. The location has views to Mt Walker, giving this view a high scenic quality rating.

A photomontage of the project is presented on the following page.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image on the following page, strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

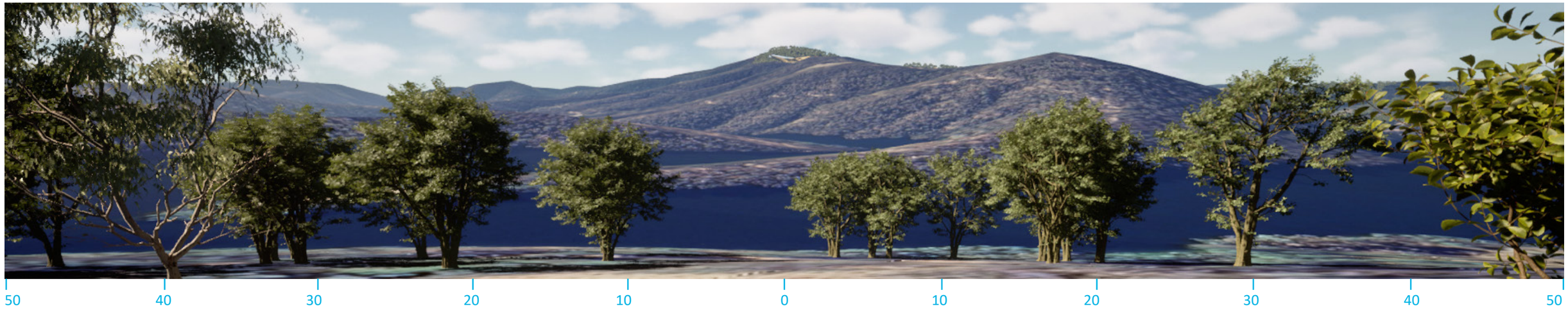
B.10 SR 65 - Sandalls Drive

Photomontage of the proposed development

Photomontage of the proposed development with mitigation screening

B.11 SR 66 - Sandalls Drive

Simulated view with existing landscape



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	2,600 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This is a simulated view from the SR66 residence. Mt Walker is in the centre of the image with the upper reservoir visible over an intervening ridge.

The existing topography screens most of the project infrastructure leaving the upper edge of the reservoir visible. Based on the limited extent of view affected by the project the and the small scale of change, the magnitude of change is rated as very low.

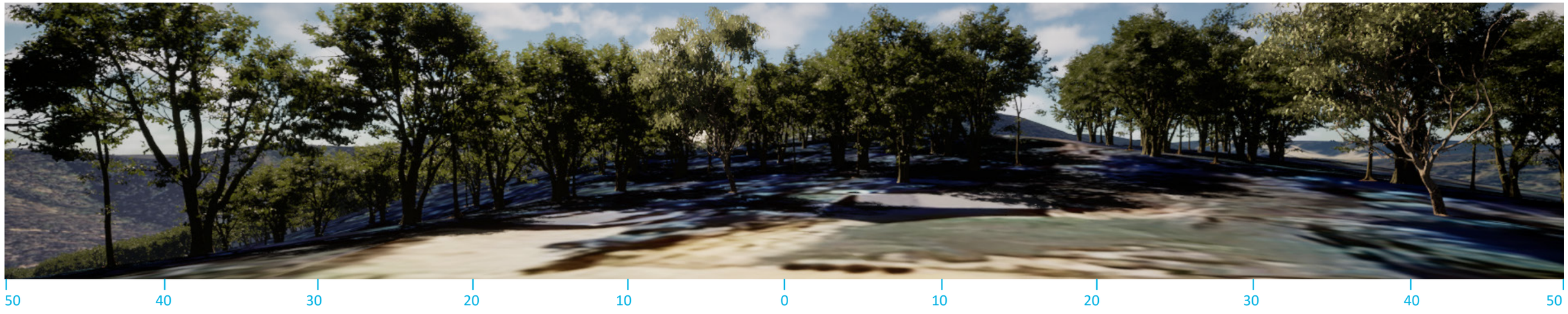
The visual impact rating is low, which does not require mitigation.

Mitigation

No mitigation required.

B.12 SR 302 - Sir Thomas Mitchell Drive

Simulated view with existing landscape



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,800 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very low**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Low**
Visual impact rating (table 3.6)	**Very low**

Visual impact discussion

This is a simulated view from the SR302 residence.

The existing topography and trees screen the project infrastructure. Based on the limited visibility, the magnitude of change is rated as very low.

This is a secondary view from the residence, giving it a low sensitivity rating.

The visual impact rating is low, which does not require mitigation measures.

Mitigation

No mitigation required.

B.13 SR 365 - Sandalls Drive (Eagle View Escape)

Panoramic view of existing site

Visual assessment table	
Viewpoint type	Tourist destination
Distance from closest visible structure	1,500 m
Duration of view	Long
Scale of change in the landscape	High
Extent of view affected	High
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This viewpoint is located at SR365 - Eagles View Escape tourist accommodation. The location has expansive views to Lake Lyell and Mt Walker, giving this view a high scenic quality rating.

From this viewpoint a large part of the project will be visible, from the upper reservoir near the summit of Mount Walker down to the switchyard and associated buildings near Lake Lyell. These views will be filtered to varying degrees by existing vegetation in the vicinity of this viewpoint. A significant part of the disturbance footprint will also be visible.

Although the visual impact is reduced by this site's location over 1.5 km from the closest permanent structures, the project will be highly visible.

A mitigating factor is that the rooms used for lodging and entertainment are oriented to face the lake, not Mt Walker. Therefore views of the project are outside the main views.

A photomontage of the project is presented on the following page.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. This location poses challenges for screening using trees because it is a two-storey building and the slope falls away at the front of the building. The photograph was taken from the first floor room, which means screening trees must near maturity to offer any visual screening. Due to the time it would take for screening trees to reach this height, they have not been shown in the image on the following page.

Other lodging rooms in the facility are located on the ground floor. By strategically placing small trees between the rooms, views toward the project can be screened. The mitigating screening shown on the next page shows some of the trees planted between the ground-floor rooms.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of low when the tourist facility is considered as a whole. The residual visual impact with screening would reduce to **Moderate.**

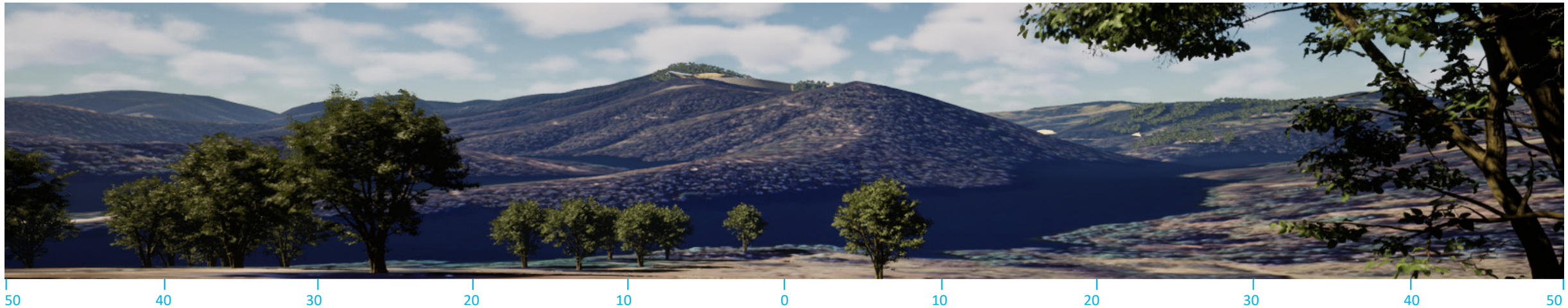
B.13 SR 365 - Sandalls Drive (Eagle View Escape)

Photomontage with panoramic view of the proposed development

Photomontage of the proposed development with mitigation screening

B.14 SR 366 - Sandalls Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	2,700 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR366 residence. Mt Walker is in the centre of the image with the upper reservoir visible.

The existing topography screens most of the project infrastructure leaving the dam visible over the trees. There would be a minor alteration to a key landscape feature. Based on the limited extent of view affected by the project the and the scale of change, the magnitude of change is rated as low.

This is a primary view from the residence giving the sensitivity rating of moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.15 SR 584 - Sir Thomas Mitchell Drive

Simulated view with existing landscape

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	1,900 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This is a simulated view from the SR584 residence. Mt Walker is in the centre of the image with parts of the upper reservoir visible.

The existing trees screen most of the project infrastructure with only a portion of the dam visible over the trees. Based on the limited extent of view affected by the project the and the limited scale of change, the magnitude of change is rated as very low.

This is a primary view, giving a sensitivity rating of moderate.

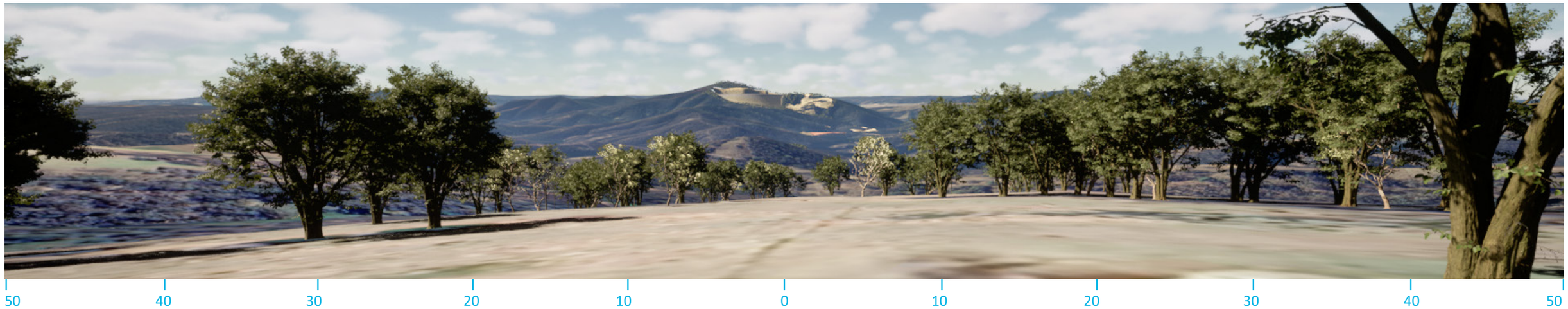
The visual impact rating is low, which does not require mitigation.

Mitigation

No mitigation required.

B.16 SR 946 - Sandalls Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	4,890 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR946 residence. Mt Walker is in the centre of the image with the upper reservoir visible. Portions of the infrastructure at lake level are also visible.

There would be a moderate alteration of a key landscape element. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

The view is from the side of the house, but could potentially be a primary view. Therefore the sensitivity rating is left at moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

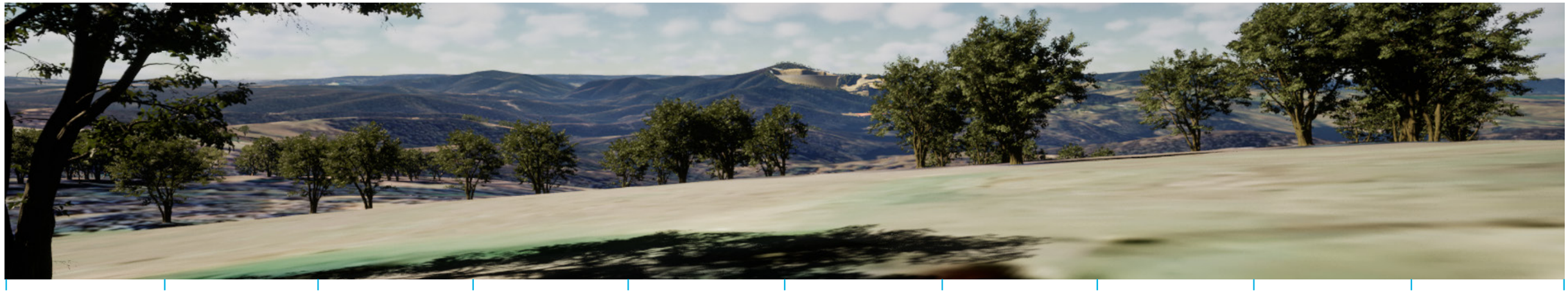
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

B.17 SR 1507 - Sandalls Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	5,100 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR1507 residence. Mt Walker is in the centre of the image with the upper reservoir visible. The infrastructure at lake level is screened by existing vegetation.

It would have a limited extent of view affected by the project the and a limited scale of change. Due to the partial alteration of a key landscape feature, the magnitude of change is rated as moderate.

This is a secondary view but since it is a tourist accommodation the sensitivity is rated as moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

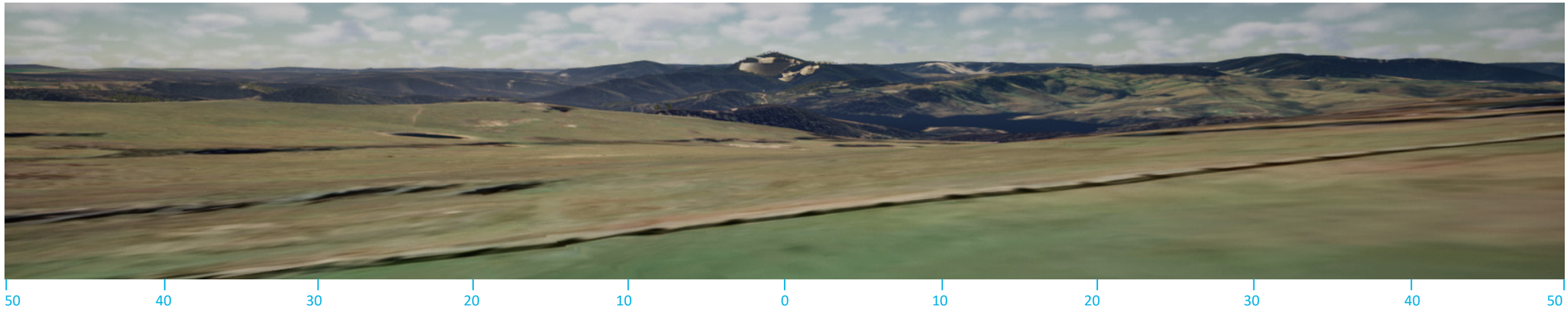
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

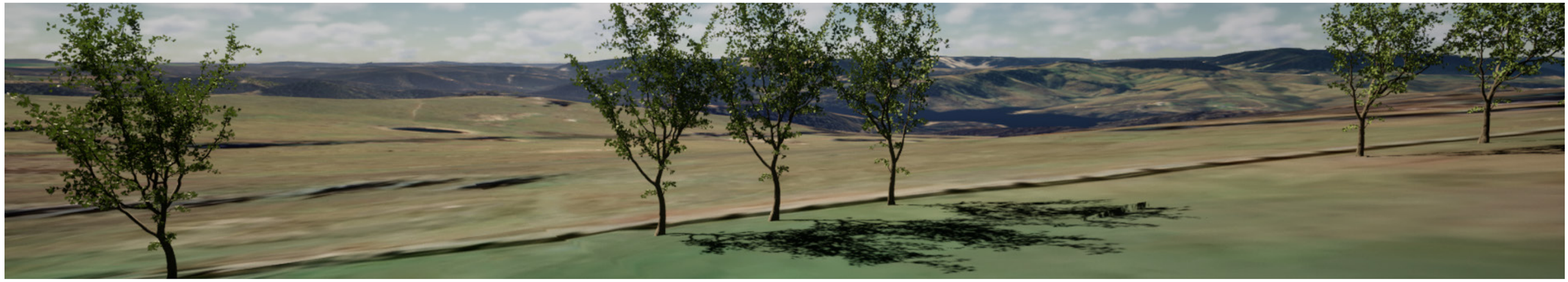
As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

B.18 SR 2004 - Martins Road (Seclusions Blue Mountains)

Simulated view with existing landscape



Simulated view with proposed screening



Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	5,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR2004 residence. Mt Walker is in the centre of the image with the upper reservoir and access road visible.

It would have a limited extent of view affected by the project the and a limited scale of change. Due to the partial alteration of a key landscape feature, the magnitude of change is rated as moderate.

This is a primary view and it is a tourist venue and accommodation giving a sensitivity rating of moderate.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

B.19 SR 2480 - Sandalls Drive

Simulated view with existing landscape

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	4,350 m
Duration of view	Long
Scale of change in the landscape	Very low
Extent of view affected	Very low
Magnitude of change (table 3.2)	**Very low**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**Low**

Visual impact discussion

This is a simulated view from the SR2480 residence.

The existing trees screen the project infrastructure with only glimpses visible through the trees. Based on the limited visibility, the magnitude of change is rated as very low.

This is a primary view, giving it a sensitivity rating of moderate.

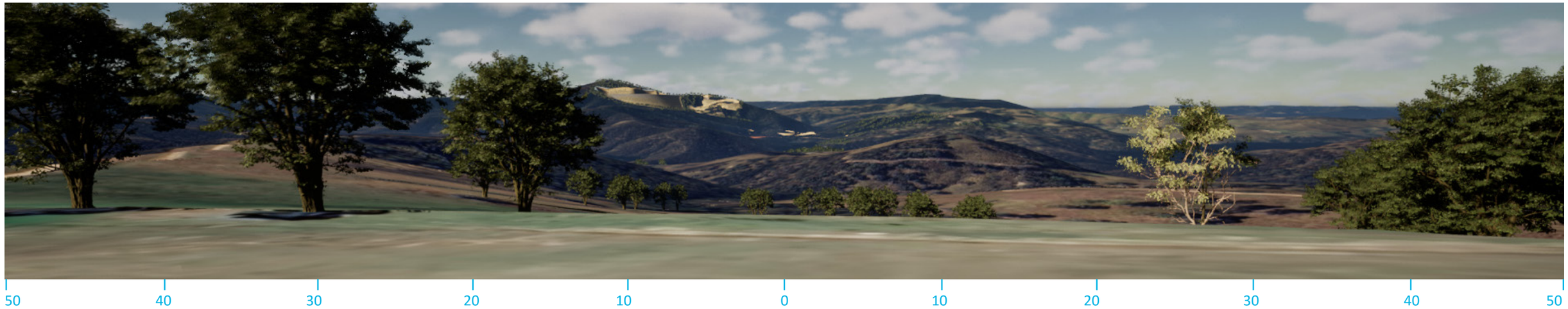
The visual impact rating is low, which does not require mitigation measures.

Mitigation

No mitigation is necessary.

B.20 SR 2482 - Sandalls Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	4,360 m
Duration of view	Long
Scale of change in the landscape	High
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**High**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This is a simulated view from the SR2482 residence. Mt Walker is in the centre of the image with the upper reservoir, access road, and some lake-level infrastructure visible.

There would be a substantial alteration of a key landscape element. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as high.

This is a primary view yielding a sensitivity rating of moderate.

The visual impact rating is high, which requires mitigation measures.

Mitigation

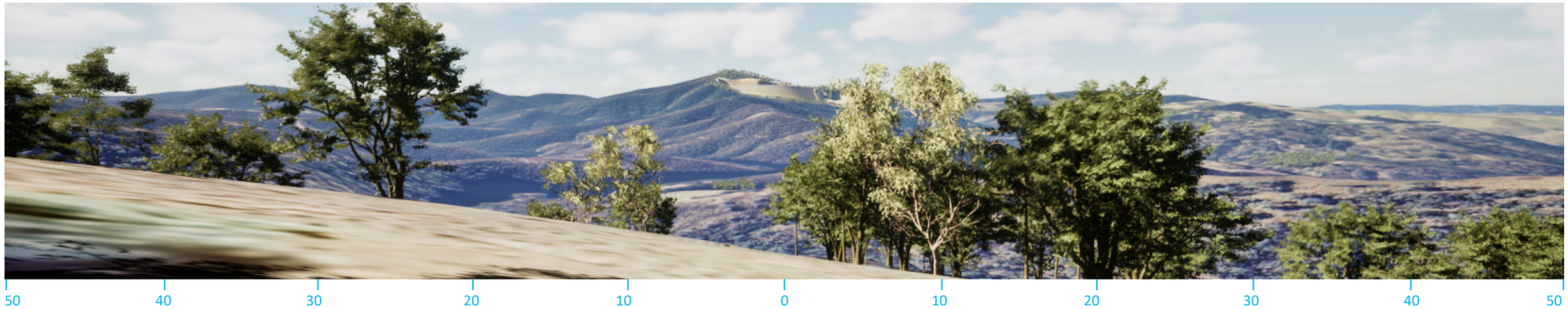
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.21 SR 2483 - Sandalls Drive

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	3,500 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Low
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Moderate
Scenic quality classification (table 3.4)	High
Visual sensitivity rating (table 3.5)	**High**
Visual impact rating (table 3.6)	**High**

Visual impact discussion

This is a simulated view from the SR2483 residence. Mt Walker is in the centre of the image with the upper reservoir visible. The infrastructure at lake level is screened by topography and existing vegetation.

There would be a partial alteration of a key landscape feature. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

The visual impact rating is high, which requires mitigation measures.

Mitigation

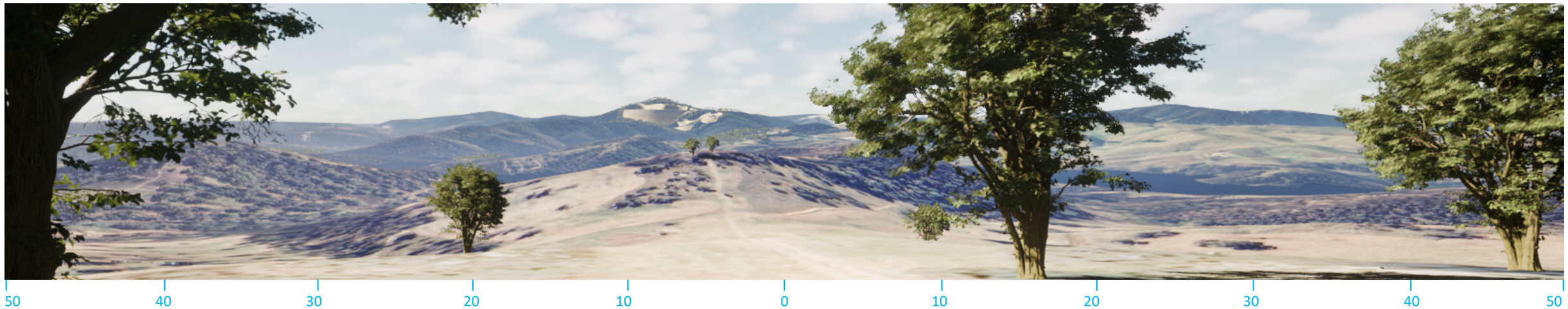
Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Low.**

B.22 SR 2490 - Martins Road

Simulated view with existing landscape



Simulated view with proposed screening

Visual assessment table	
Viewpoint type	Residence
Distance from closest visible structure	4,900 m
Duration of view	Long
Scale of change in the landscape	Moderate
Extent of view affected	Moderate
Magnitude of change (table 3.2)	**Moderate**
Viewer sensitivity level classification (table 3.3)	Low
Scenic quality classification (table 3.4)	Moderate
Visual sensitivity rating (table 3.5)	**Moderate**
Visual impact rating (table 3.6)	**Moderate**

Visual impact discussion

This is a simulated view from the SR2490 residence. Mt Walker is in the centre of the image with the upper reservoir and access road visible.

There would be a partial alteration of a key landscape feature. Based on the extent of view affected by the project the and the scale of change, the magnitude of change is rated as moderate.

This is a secondary view from the residence, giving it a low sensitivity rating.

The visual impact rating is moderate, which requires mitigation measures.

Mitigation

Visible mitigation measures at the source include re-vegetation of the disturbed slopes. The size of the Project limits the effectiveness of mitigation at the source.

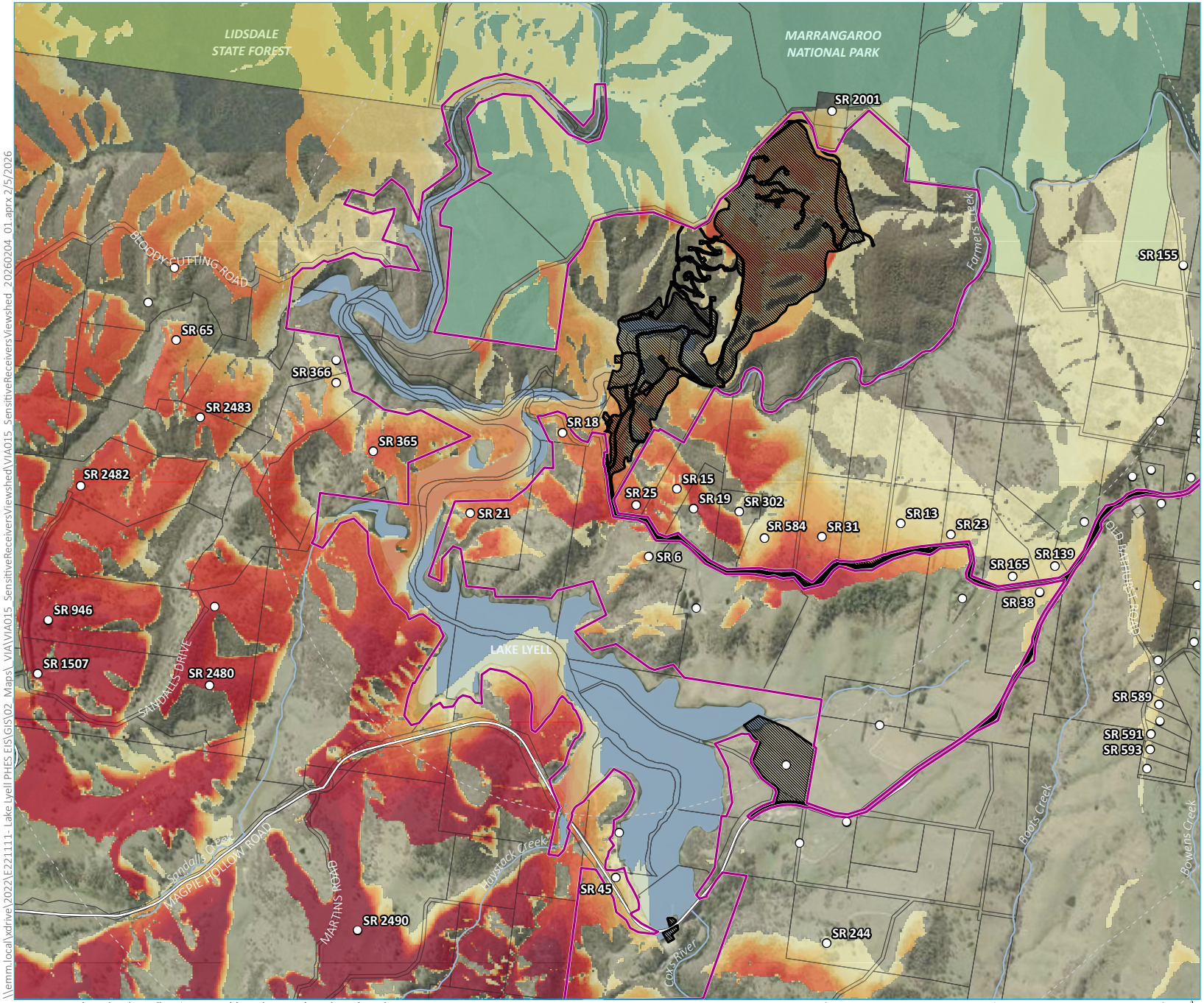
Mitigation at the receiver can be effective in screening views of the Project. As shown in the image above strategically planting trees can screen views. However, these trees could take up to 7-10 years to develop an effective screen.

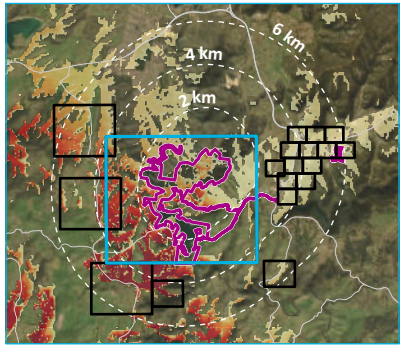
As the screening trees grow to a size that screens views, the magnitude of change reduces to a rating of very low. The residual visual impact with screening would reduce to **Very low.**

Appendix C

Sensitive receivers and ZVI detail

EMM
creating opportunities





KEY

- Project area (refer to inset)
- Disturbance footprint
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Named watercourse
- Named waterbody
- Cadastral boundary
- NPWS reserve
- State forest

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 1 2 km

GDA2020 MGA Zone 56

N

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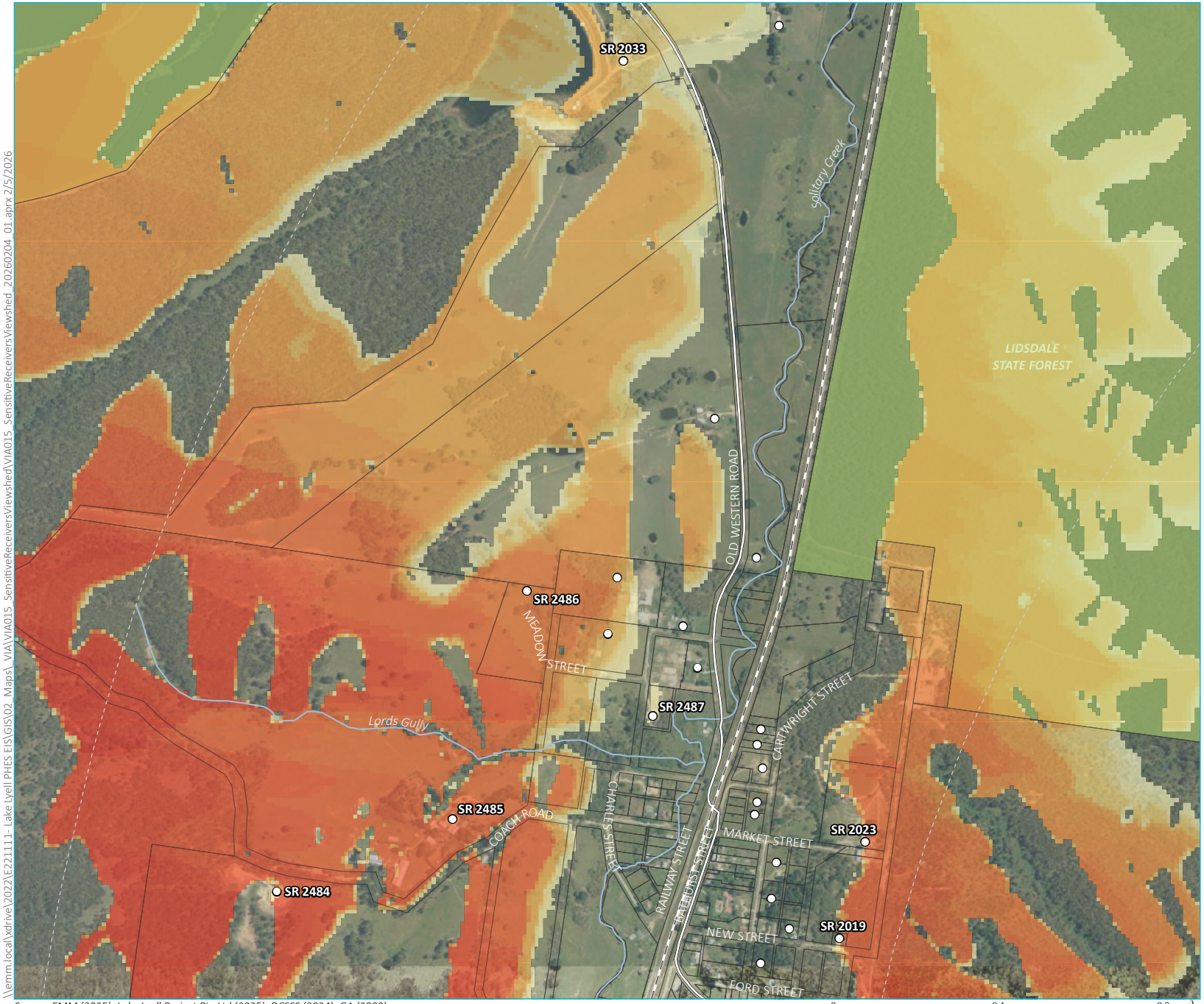
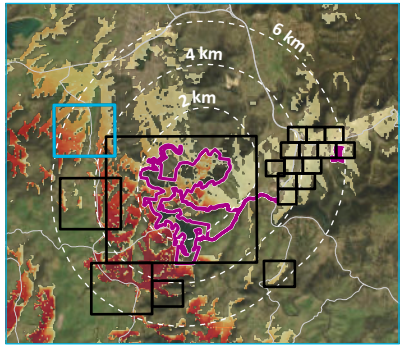
Sensitive receivers and ZVI detail
Map 1 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities





KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Named watercourse
- Cadastral boundary
- State forest

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.4 0.8 km

GDA2020 MGA Zone 56

N

Sensitive receivers and ZVI detail
Map 2 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM creating opportunities

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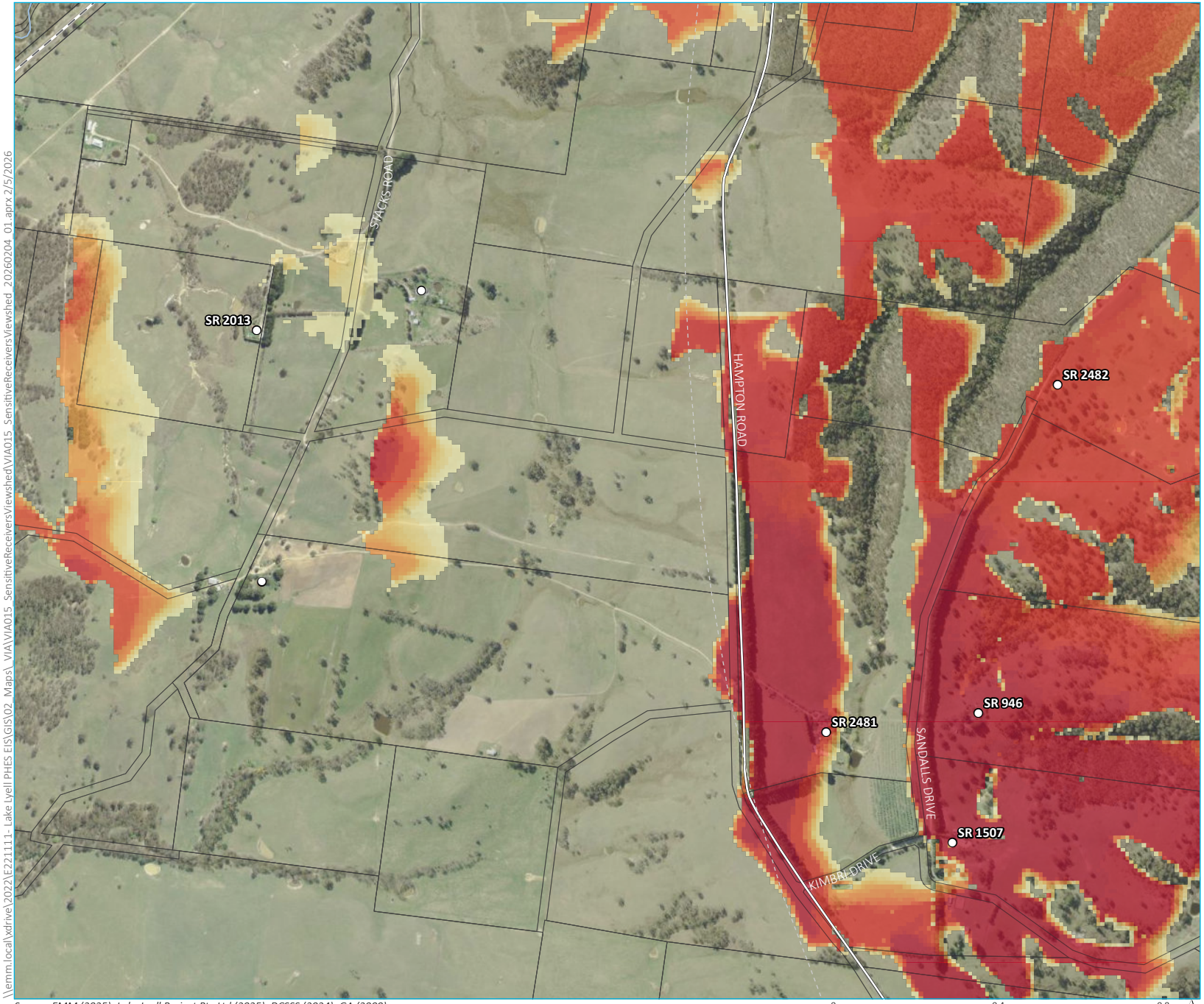

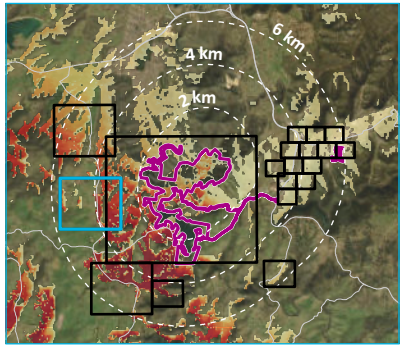

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Sensitive receivers and ZVI detail
Map 3 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.4 0.8 km
GDA2020 MGA Zone 56

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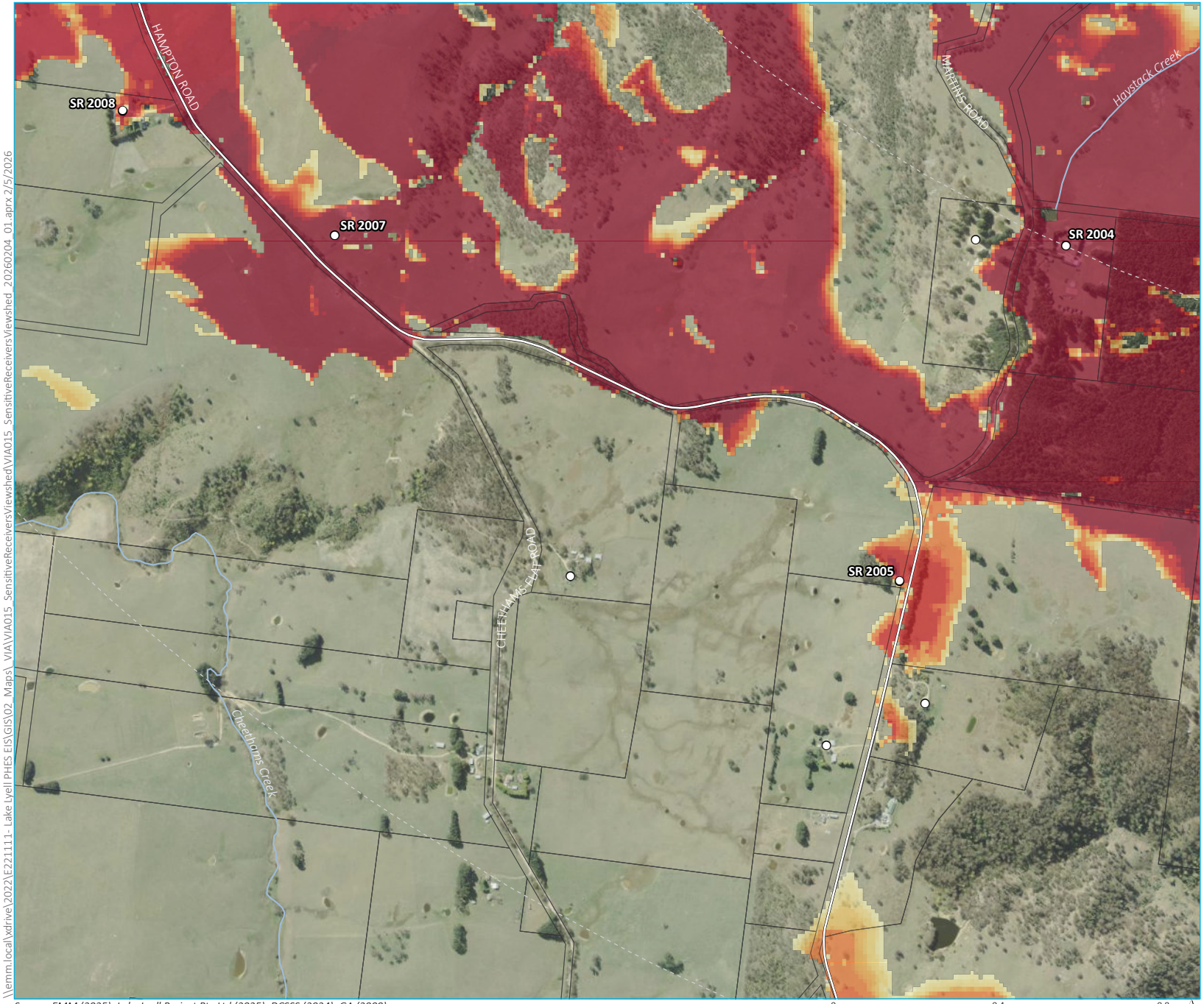

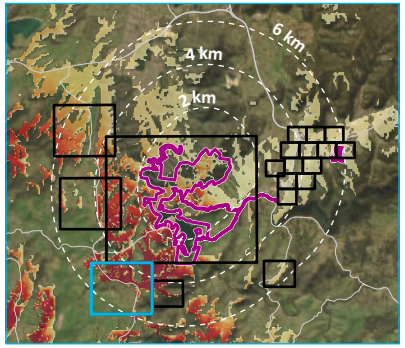

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.4 0.8 km

GDA2020 MGA Zone 56

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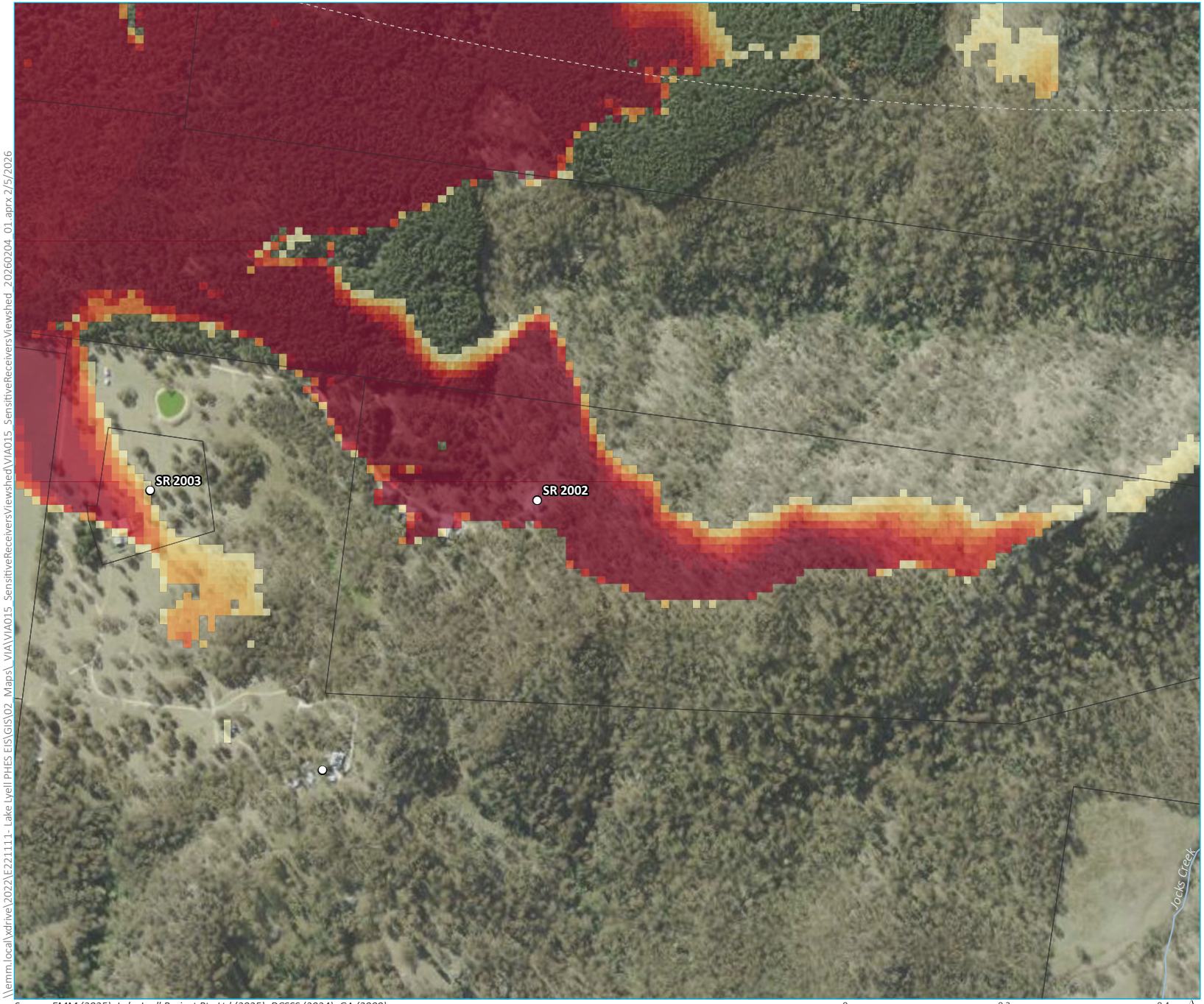
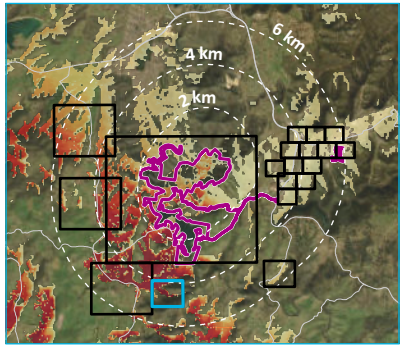
Sensitive receivers and ZVI detail
Map 4 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities





KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.2 0.4 km

GDA2020 MGA Zone 56

N

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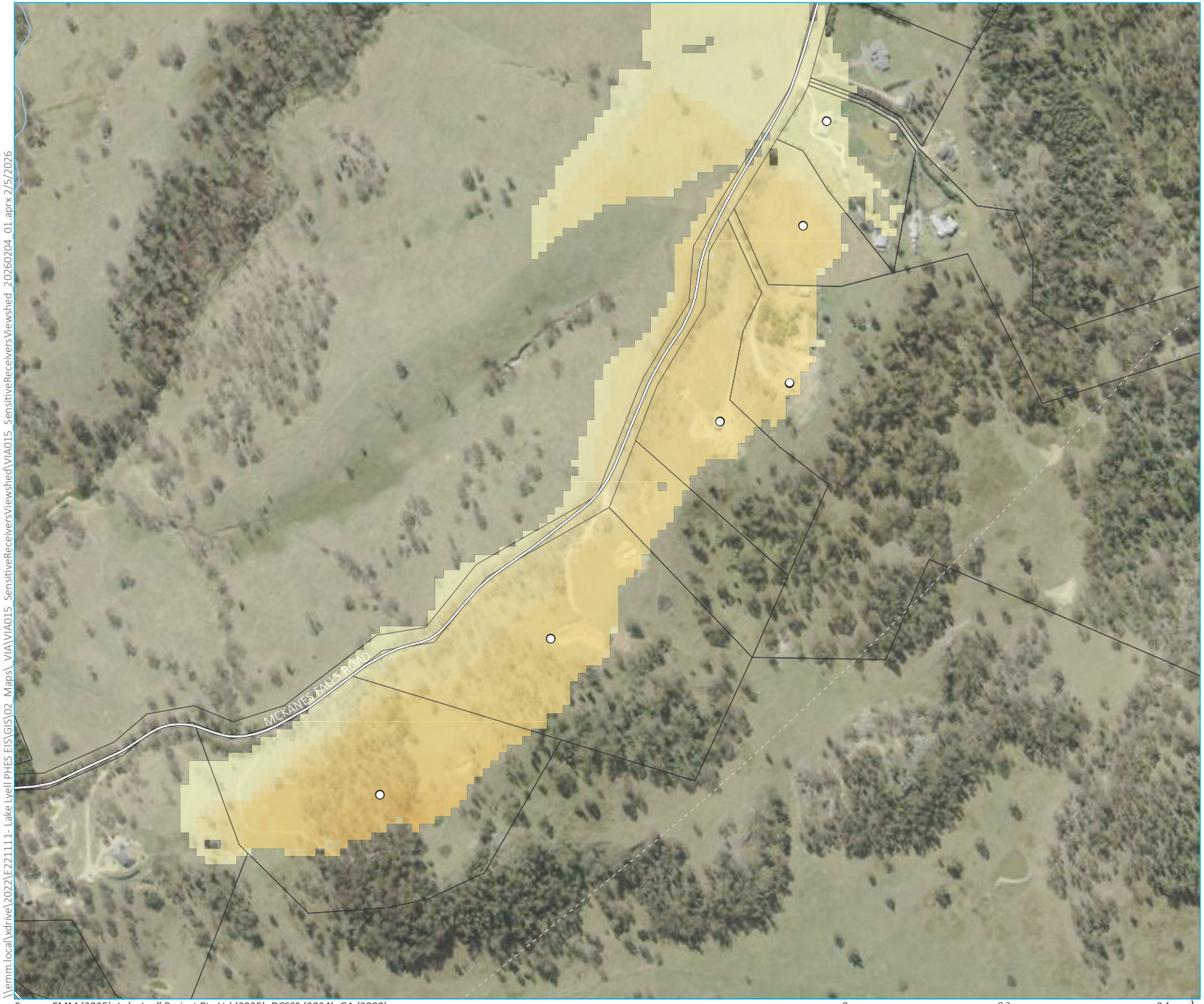
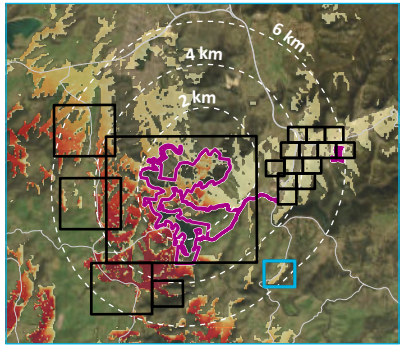
Sensitive receivers and ZVI detail
Map 5 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities





KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.2 0.4 km

GDA2020 MGA Zone 56

N

Sensitive receivers and ZVI detail
Map 6 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

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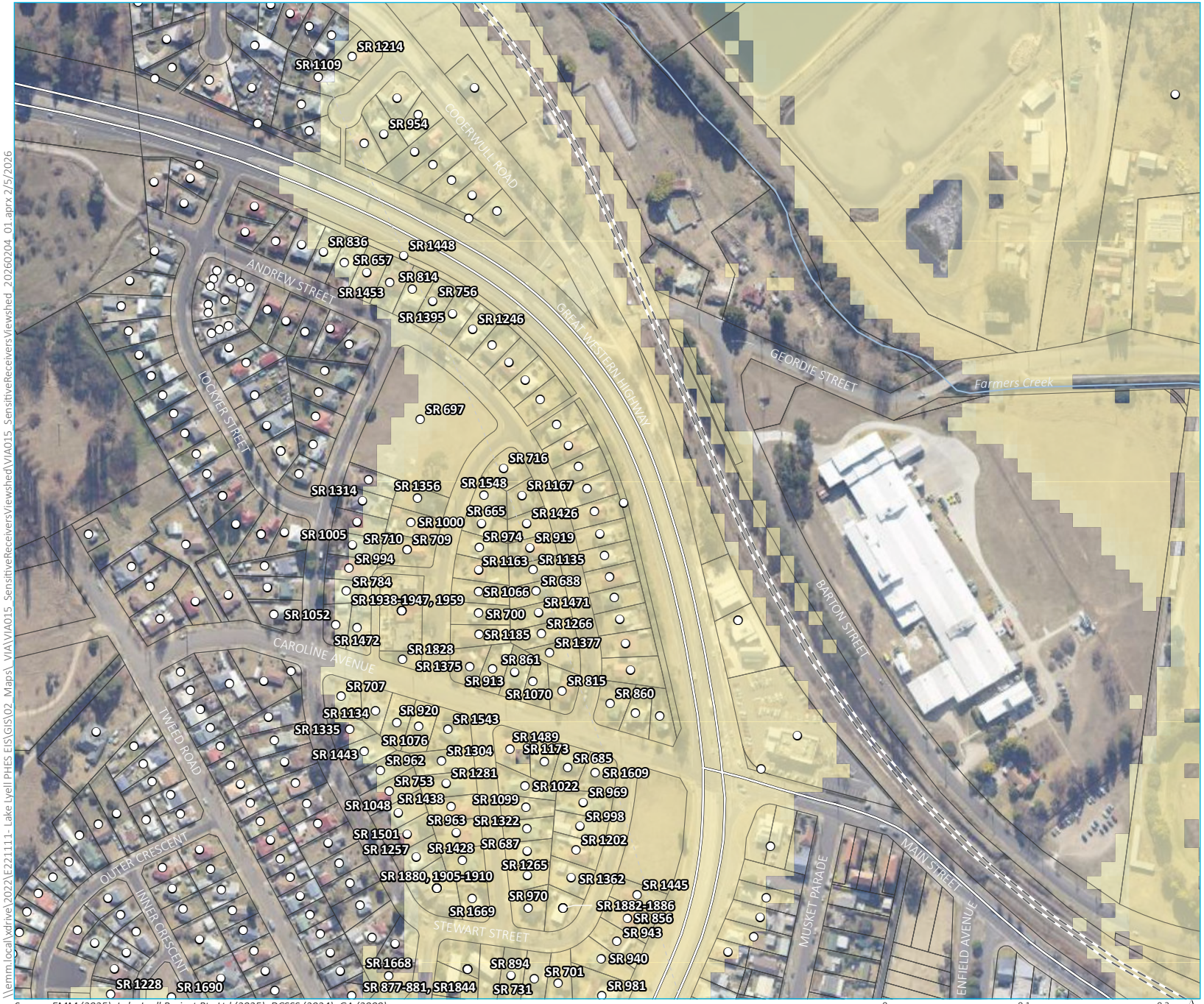

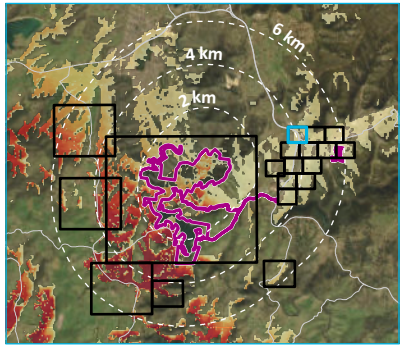

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Sensitive receivers and ZVI detail
Map 7 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km
GDA2020 MGA Zone 56

N

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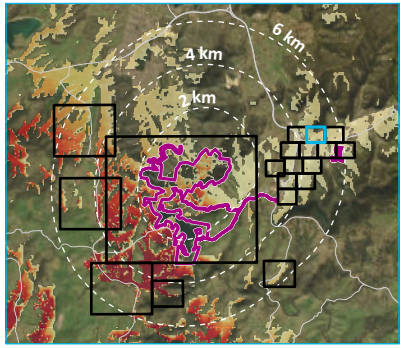

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

Sensitive receivers and ZVI detail
Map 8 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

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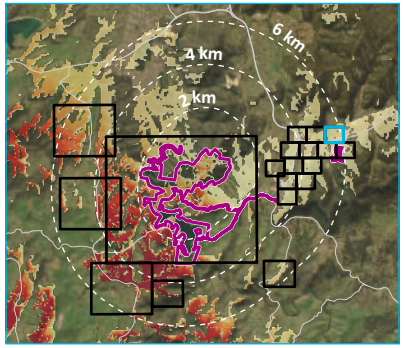

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

Sensitive receivers and ZVI detail
Map 9 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

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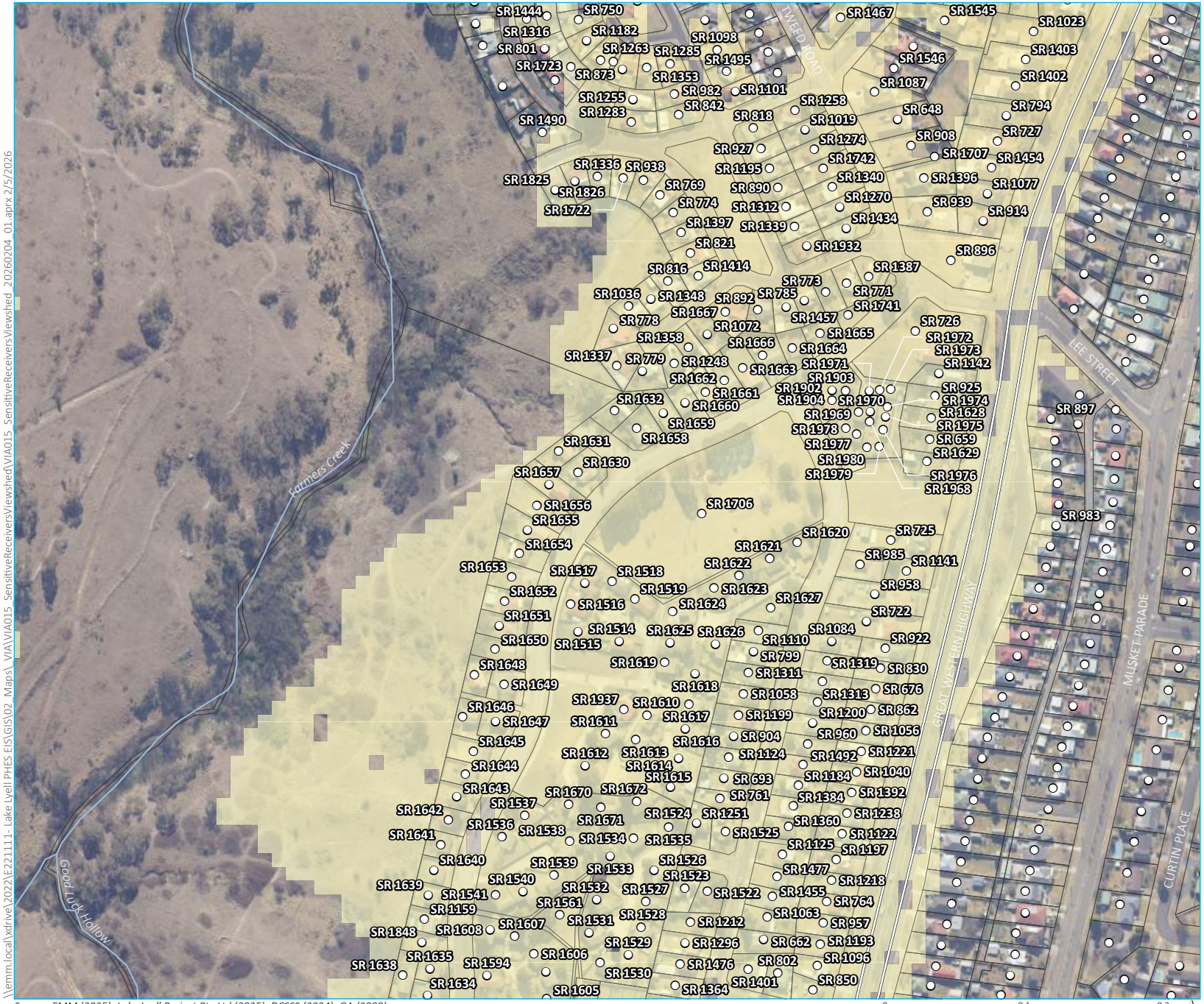

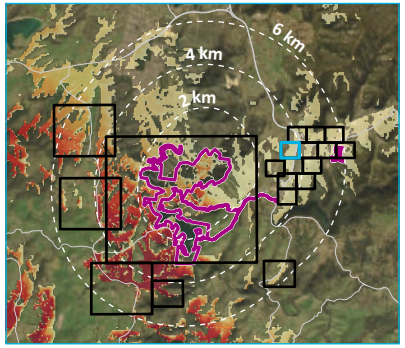

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

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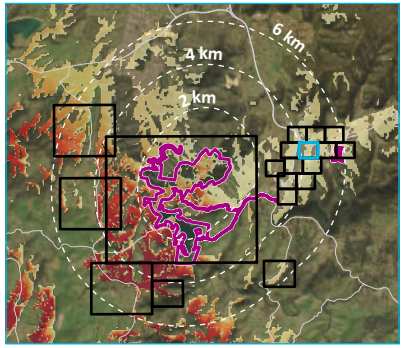
Sensitive receivers and ZVI detail

Map 10 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities



KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

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Sensitive receivers and ZVI detail
Map 11 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
creating opportunities

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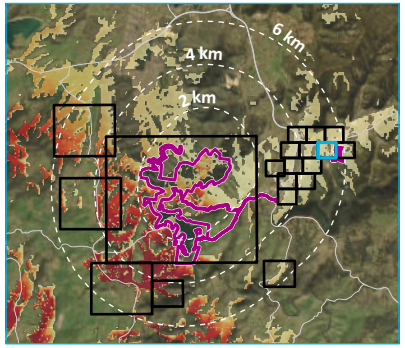

KEY

- Project area (refer to inset)
- Disturbance footprint
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Rail line
- Major road
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

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Sensitive receivers and ZVI detail
Map 12 of 19

Lake Lyell PHES
Landscape and Visual Impact Assessment
Figure C1

EMM
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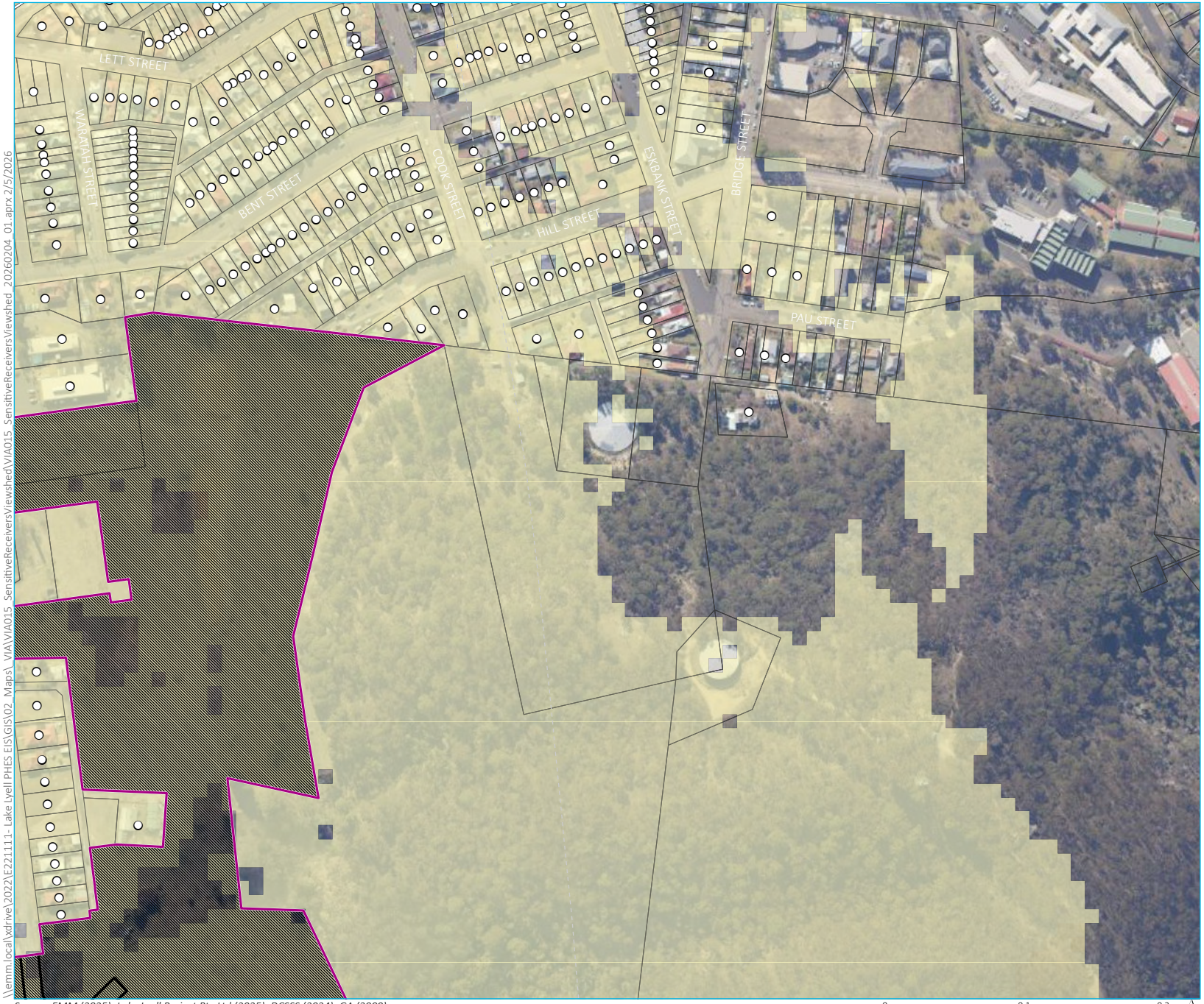

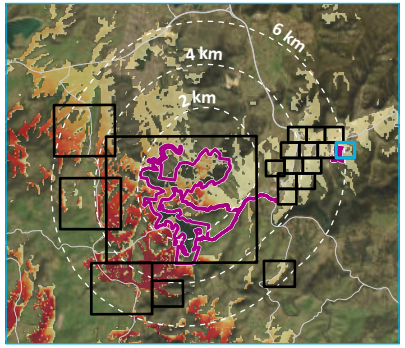

KEY

- Project area (refer to inset)
- Disturbance footprint
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

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Sensitive receivers and ZVI detail
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Lake Lyell PHES
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Figure C1

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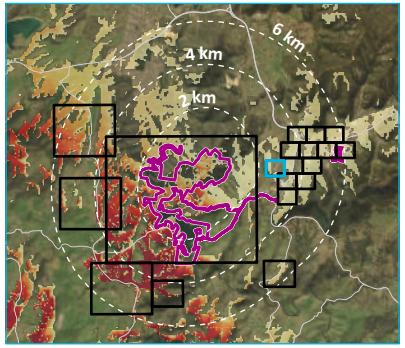

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

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Sensitive receivers and ZVI detail
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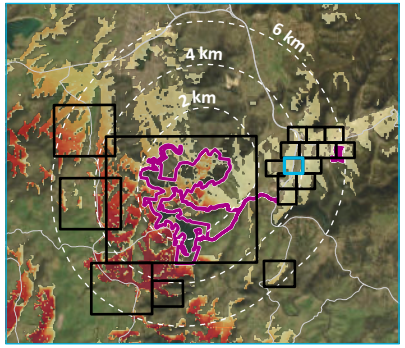

KEY

- Project area (refer to inset)
- Disturbance buffer (refer to inset)
- Sensitive receiver

Existing environment

- Major road
- Named watercourse
- Cadastral boundary

Upper reservoir visibility

- Highly visible
- Not very visible

Source: EMM (2025); Lake Lyell Project Pty Ltd (2025); DCSSS (2024); GA (2009)

0 0.1 0.2 km

GDA2020 MGA Zone 56

N

Sensitive receivers and ZVI detail
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Lake Lyell PHES
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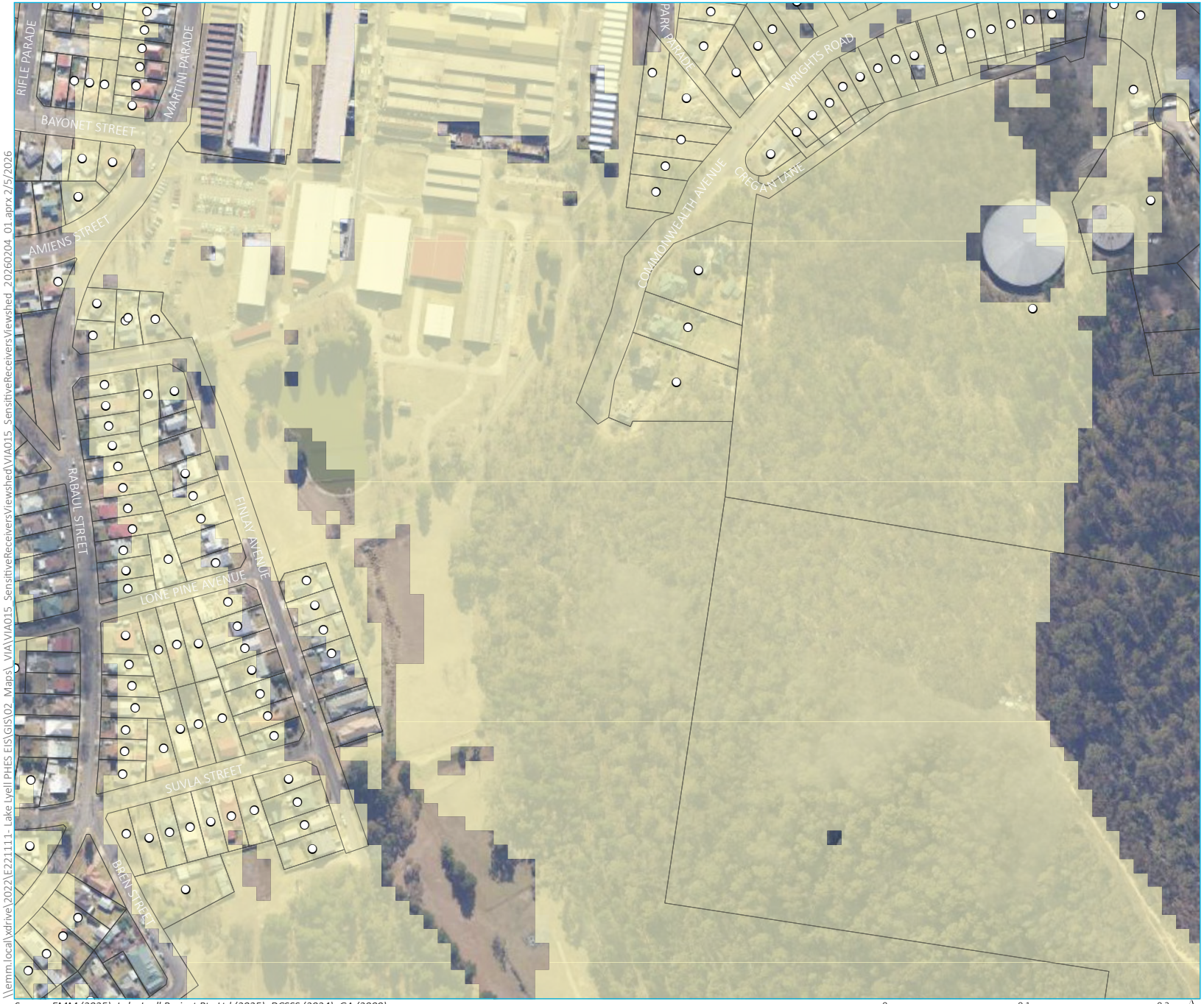

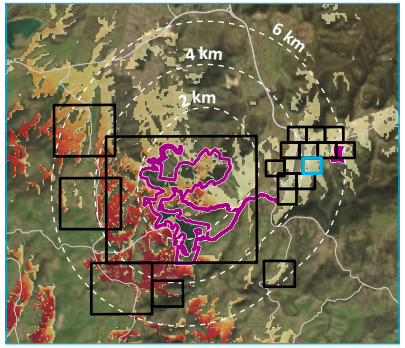

KEY

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- Disturbance buffer (refer to inset)
- Sensitive receiver
- Cadastral boundary

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GDA2020 MGA Zone 56

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Sensitive receivers and ZVI detail
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Lake Lyell PHES
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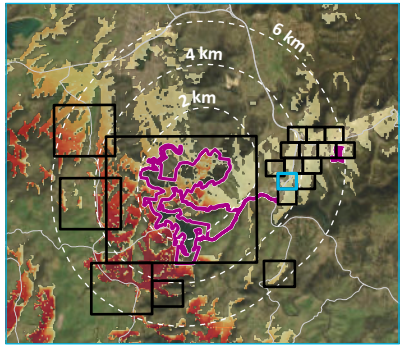

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- Named watercourse
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Sensitive receivers and ZVI detail
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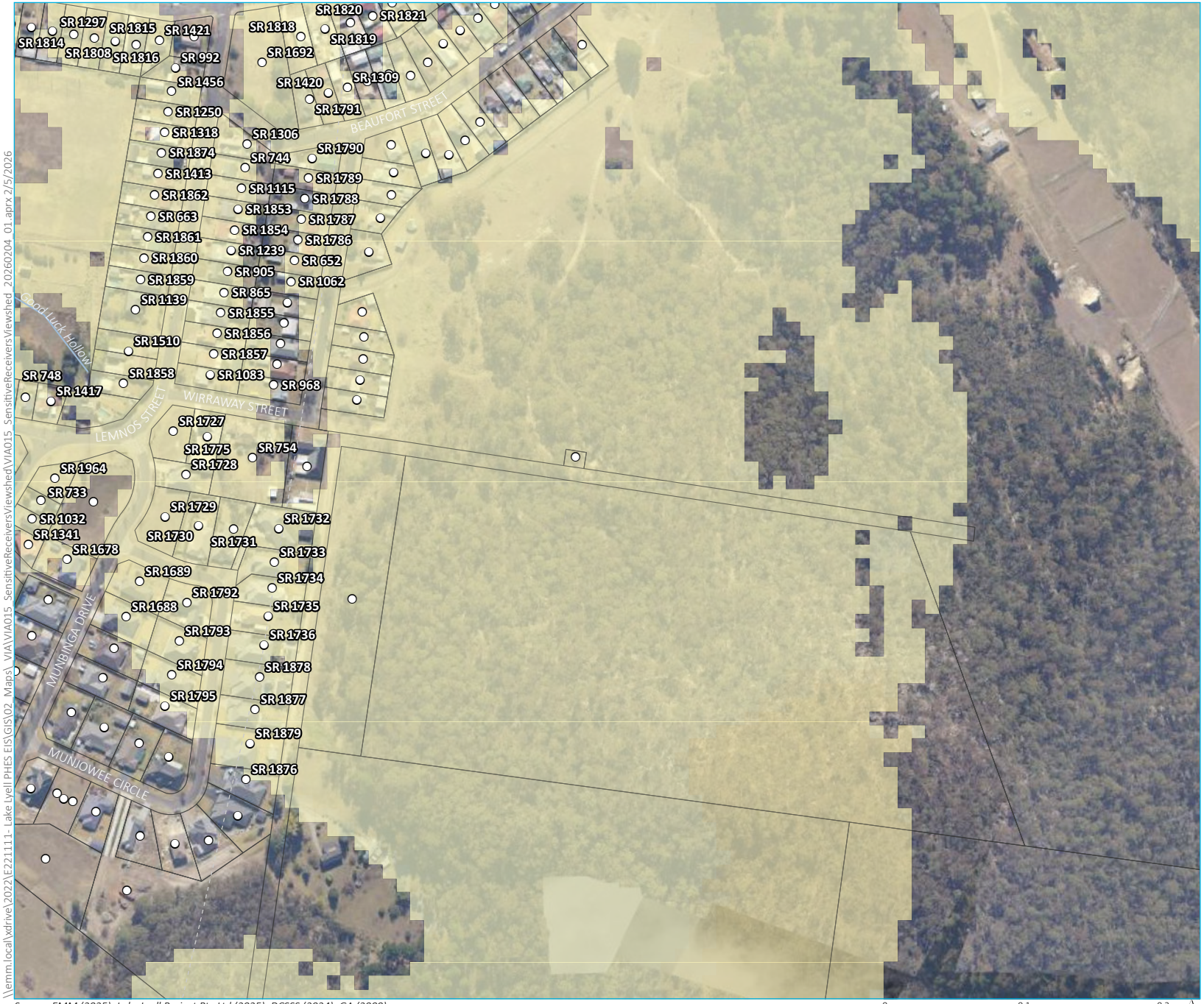

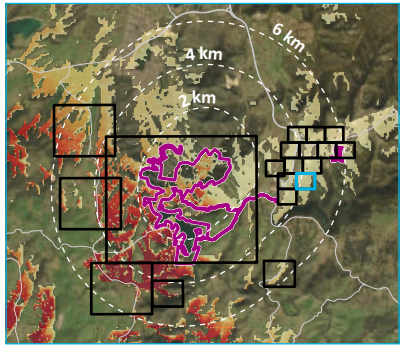

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Sensitive receivers and ZVI detail
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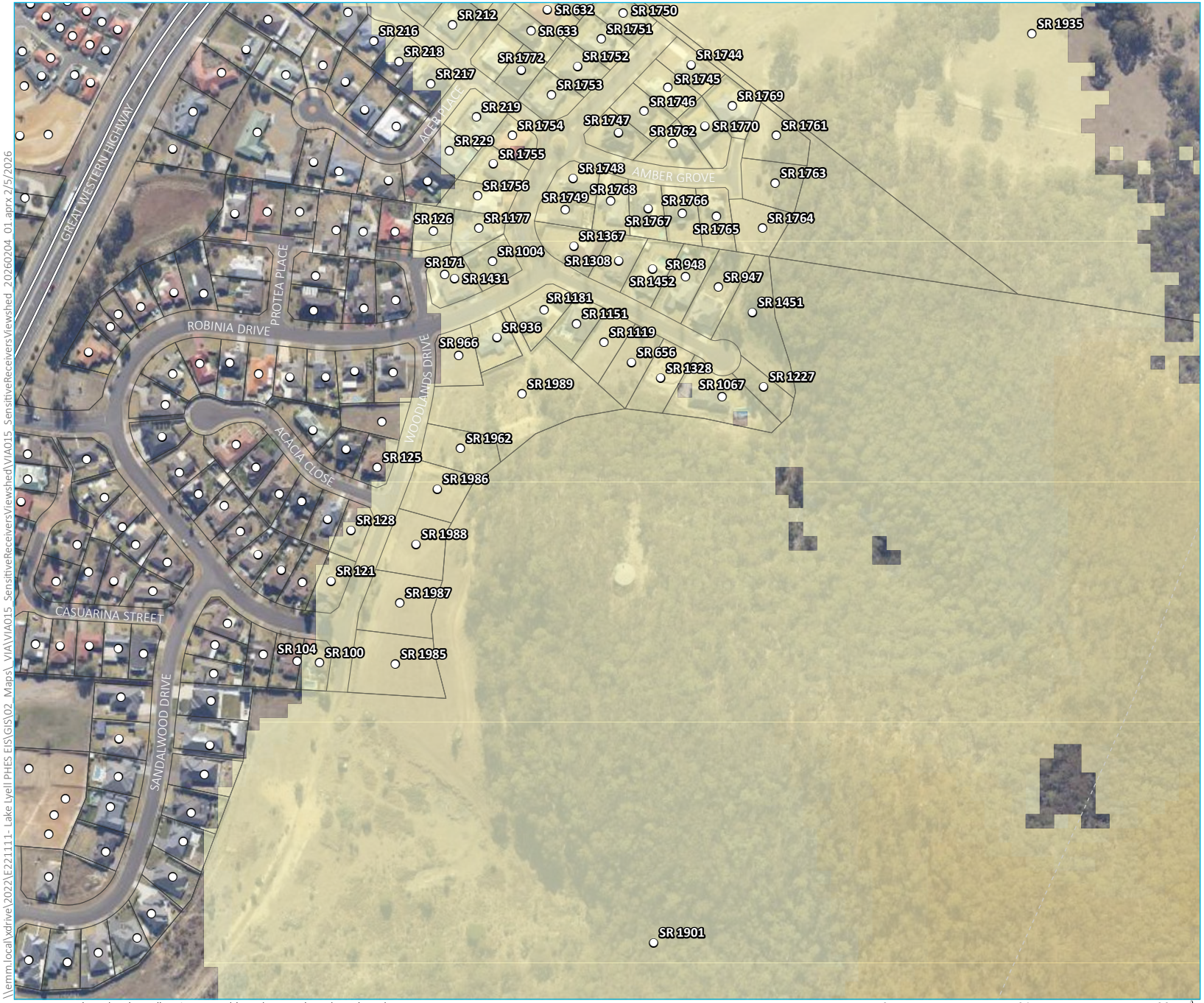

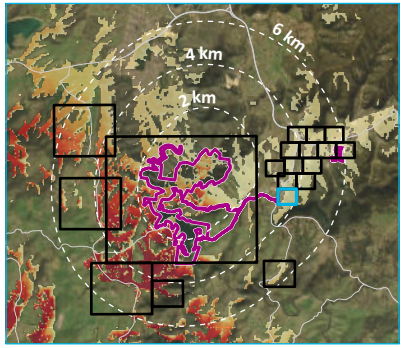

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- Disturbance buffer (refer to inset)
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Sensitive receivers and ZVI detail
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