APPENDIX Q
Visual impact assessment

Evolution MINING

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Cowal Gold Operations – Open Pit Continuation Project

Visual Impact Assessment

Prepared for Evolution Mining

April 2023

Cowal Gold Operations – Open Pit Continuation Project

Visual Impact Assessment

Evolution Mining

J190417 RP41

April 2023

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Executive Summary

ES1 Introduction

Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of Cowal Gold Operations (CGO), an existing open pit and underground gold mine approximately 38 kilometres (km) north-east of West Wyalong, in the central west region of New South Wales (NSW).

Evolution is seeking approval for further open pit mining operations at CGO through the Open Pit Continuation Project (the Project). The Project primarily seeks to continue the open pit operations by approximately 10 years to 2036 and extend the total mine life by approximately two years to 2042.

The Project will involve further development of the existing 'E42' pit and the development of open pit mining in three adjacent orebodies, known as 'E46', 'GR' and 'E41'. It is noted that the three adjacent ore bodies are within the existing mining lease (ML 1535). No change to the approved ore processing rate of 9.8 Mt per annum is proposed.

Other than the changes to existing approved activities as set out above, all activities that are currently approved under the existing Ministerial development consents are intended to continue.

This visual impact assessment (VIA) report forms part of the EIS. It documents the assessment methods and the results of the VIA study.

ES2 Existing environment

Land-uses surrounding the Project are largely dominated by agricultural activities; primarily for sheep and cattle grazing or dry land cropping; bird-watching and other recreational activities relating to Lake Cowal when it is holding water. The CGO and surrounding areas are zoned RU1 Primary Production under the *Bland Local Environmental Plan 2011* (Bland LEP).

The area surrounding the Project includes a number of privately-owned properties with the closest residence located approximately 1.2 km to the west of CGO.

ES3 Assessment of impacts

The assessment method used in this report is adapted from the *Guidelines for Landscape and Visual Impact Assessment Third Edition* (2013) (the GLVIA), *Large-Scale Solar Energy Guideline* (2022) (Solar Guideline), and *Wind Energy: Visual Assessment Bulletin AB 01 For State significant wind energy development* (2016) (the VA Bulletin). The GLVIA, VA Bulletin, and Solar Guidelines suggest a methodology that includes information review, consultation, field observations and photography, computer-based data processing and analysis, and application of subjective professional judgement. The assessment involves five key stages:

- visual baseline study to assess the landscape character
- visual catchment definition to determine the visibility of the proposed project
- viewpoint selection to assess the visual impacts
- mitigation measures to minimise the Project's impact.

ES4 Evaluation of the project

ES4.1 Visual impact summary

The main objective of a VIA is to determine how the proposed project will impact on the visual amenity. Any potential negative impact must be identified and investigated to determine how it can be mitigated and reduced to an acceptable level.

The Project design is necessarily driven by ore deposits and the existing operations, including locations of stockpiles, waste rock emplacements and other visible elements. The very nature of extracting material from the ground and creating new landforms in the form of waste rock emplacement and tailings storage facilities will result in some changes to the landscape.

Visual impacts will 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.

Visual assessments have been conducted from a number of representative viewpoints surrounding the Project. The representative viewpoints were selected based on the following criteria:

- proximity to the Project
- the location of receptors (i.e. dwellings) and other local features
- the positioning of regional and local roads and potential impacts on passing motorists
- local topography
- presence of vegetation with potential to provide screening.

The representative viewpoints have been assessed to demonstrate the potential visual impacts of the Project. The visual assessment determined that, of the viewpoints assessed, the project will be visible to varying degrees from all four viewpoints. Based on variable elevation and undulation in the landscape and the presence of vegetation, combined with the size of the proposed development, the impact assessment predicts:

- a low visual impact from four viewpoints
- a moderate visual impact from one viewpoint
- there were no viewpoint locations with a high impact rating.

In addition to the viewpoint assessments, each resident within 8 km of the development footprint is listed with the potential visual impacts. The assessment for residences predicts:

- no impact to low visual impact from P1, P2, P3, P4, P6–P31, P3 and E1–E5
- one residence (P5) with moderate visual impact
- no residences with a high impact rating.

ES4.2 Night lighting

The new lighting is expected to be similar to the existing operations surrounding the pits and WRE areas in light intensity and scale. The area of the Project that is lit during the night is expected to be larger than the existing operation due to the number of proposed pits.

The guidelines presented in this VIA for night lighting recommends that lights are inwardly focused and shielded to minimise light spill impacts to neighbouring properties or the night sky.

ES4.3 Cumulative impacts

Cumulative visual impacts can arise from the presence of similar projects and can have a significant visual impact on the landscape when viewed together. Because of the isolated location, the distance and the time needed to travel to the Project area, there are no anticipated cumulative landscape and visual impacts.

Definitions and abbreviations

Item	Definition
ABS	Australian Bureau of Statistics
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMM	EMM Consulting Pty Limited
EP&A Act	NSW *Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
ha	hectares
IWL	Integrated Waste Landform
km	kilometres
Landscape character	The combined quality of built, natural and cultural aspects which make up an area and provide its unique sense of place.
LEP	Local Environmental Plan
LGA	Local government area
LPB	Lake Protection Bund
NSW	New South Wales
Study area	Encompasses land surrounding the Project area and includes areas from which views of the Project may be possible
SEARs	Secretary's Environmental Assessment Requirements
SSD	State significant development
TEC	Threatened ecological communities.
The Project	The Project in its entirety, encompassing proposed OPC project components and existing approved activities under DA14/98 and SSD-10367
VIA	Visual impact assessment
Viewpoint	Viewpoints are representative public and private viewpoints of the study area, which are selected for assessment of the project's level of exposure to them. They provide a representative sample of the likely visual landscape changes on the different users of the surrounding areas and their visual exposure to various project elements. Viewpoints can be representative of views from residential dwellings, public roadways or other local features (e.g. villages, other public recreation areas or scenic vistas of value to the community).
WRE	Waste rock emplacement
Zone of visual influence (ZVI)	theoretical assessment of the visibility of the project elements from the surrounding landscape. It is created using GIS data (digital elevation model and digital surface model) to simulate the project's visibility and provides a map indicating the extent of where the project can be seen.

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1 Introduction

1.1 Background

Evolution Mining (Cowal) Pty Limited (Evolution) is the owner and operator of the Cowal Gold Operations (CGO), an existing open pit and underground gold mine approximately 38 kilometres (km) north-east of West Wyalong, in the central west region of New South Wales (NSW).

The CGO is located on the traditional lands of the Wiradjuri People and is immediately adjacent to the western shore of Lake Cowal, which is an ephemeral waterbody. The existing CGO mine is shown at a regional scale and local scale in Figure 1.1 and Figure 1.2, respectively.

The CGO was first approved in 1999, and open pit mining operations commenced in 2005. Underground mining operations were approved in 2021 and development works to enable underground mining are underway.

This Visual Impact Assessment (VIA) forms part of the Environmental Impact Statement (EIS). It documents the assessment methods, results and the initiatives built into the project design to avoid and minimise visual impacts, and the additional mitigation and management measures proposed to address residual impacts which cannot be avoided.

1.2 Project overview

Evolution is seeking approval for further open pit mining operations at the CGO through the Open Pit Continuation Project (the Project). The Project primarily seeks to continue the open pit operations by approximately 10 years to 2036 and extend the total mine life by approximately two years to 2042.

This will involve further development of the existing E42 Pit and the development of open pit mining in three adjacent orebodies, known as 'E46', 'GR' and 'E41'. It is noted that the three new and adjacent ore bodies are within the existing mining lease (ML 1535). No change to the approved ore processing rate of 9.8 Mt per annum is proposed.

Other than the changes to existing approved activities as set out above, all activities that are currently approved under the existing Ministerial development consents are intended to continue. The existing activities approved under the consents are described in Chapter 3 of the EIS.

A detailed description of the Project is contained in Chapter 4 of the EIS and a conceptual Project layout is shown in Figure 1.3. The Project comprises the following key components:

- the continued operation of activities as approved under DA14/98 and SSD 10367
- development of three new open satellite pits (the 'E46', 'GR' and 'E41' pits) to the north and south of the existing open pit, within the current approved mining lease
- extending the existing open pit to the east and south via a 'cutback' within the current approved mine lease
- extending open pit mining operations by approximately 10 years to 2036 and total mine life by approximately 2 years to 2042
- expansion of the IWL to accommodate Project tailings
- extension of the lake protection bund (LPB) system to provide continued separation and mutual protection between Lake Cowal and the mine

- backfilling of one of the new open satellite pits (E46) with waste rock and establishment of a new waste rock emplacement on the backfilled pit to minimise the additional area required for waste rock disposal
- expansion of the footprint of the existing WRE areas to accommodate additional waste rock
- development of additional topsoil and subsoil stockpiles to accommodate materials from pre-stripping, with materials to be reused during progressive mine rehabilitation
- upgrades to existing surface water drainage system, to assist with on-site water management and maximise on-site water conservation
- modification of internal site access and haul roads
- development of new water storages and relocation of some components of the surface water drainage system
- modification and relocation of some existing ancillary mining infrastructure.

The Project will not change existing ore processing rates or methods, tailings disposal methods, main site access, water supply sources or hours of operation. The Project will also retain the existing open pit mining workforce.

1.3 Assessment approach and requirements

This VIA has been prepared in accordance with the relevant Secretary's environmental assessment requirements (SEARs), guidelines and policies, and in consultation with the relevant government agencies.

A copy of the SEARs is attached to the EIS as Appendix A, while Table 1.1 lists the individual requirements relevant to this VIA and where they are addressed in this report.

Table 1.1 Relevant SEARs

Requirement	Section addressed
Visual – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to any temporary and permanent modification of the landscape (overburden dumps, bunds, etc.), and minimising the lighting impacts of the development	Chapter 5

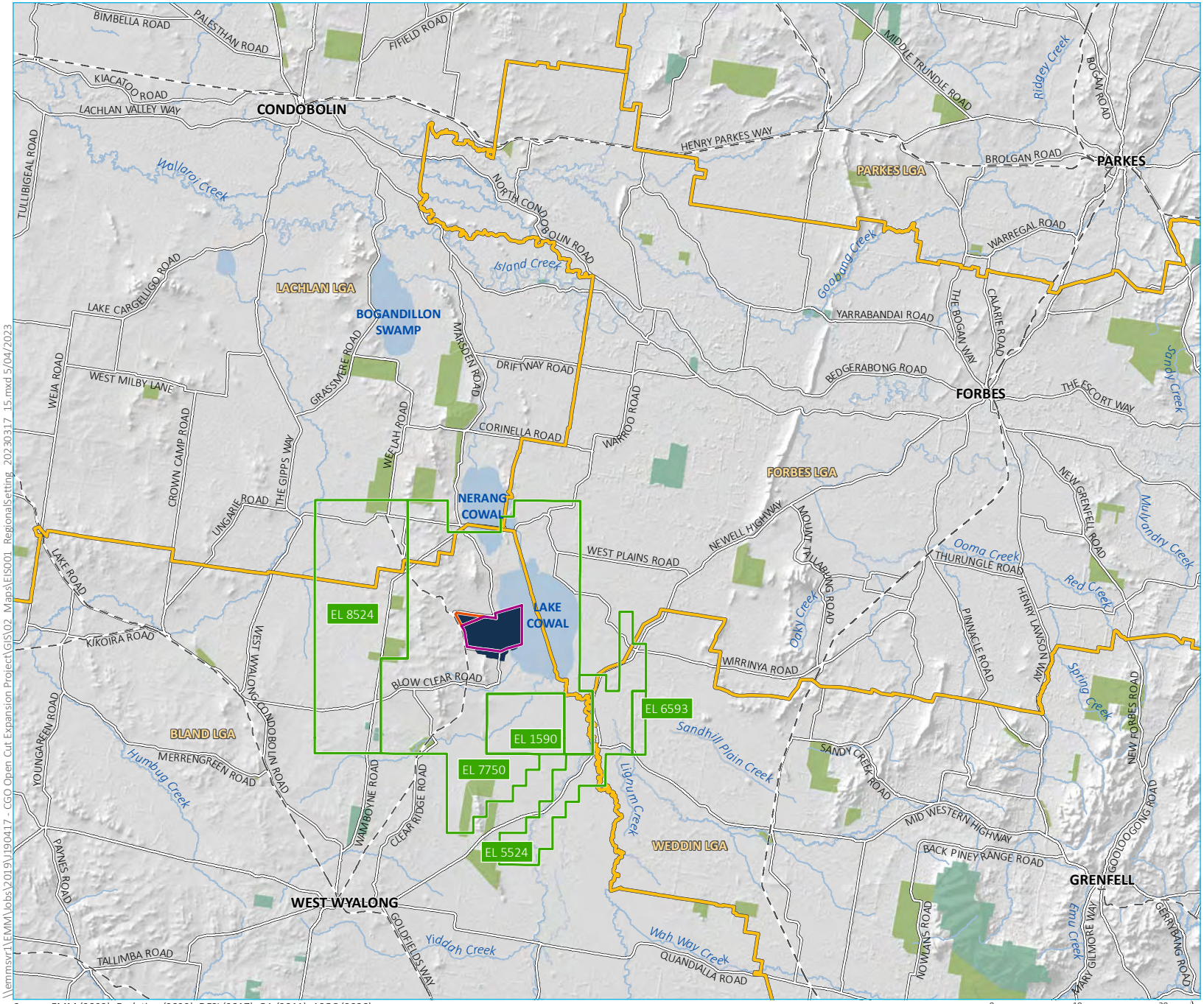
To inform preparation of the SEARs, DPE invited other government agencies to recommend matters to be addressed in the EIS. These matters were taken into account by the Secretary for DPE when preparing the SEARs. There were no comments regarding visual amenity from the agencies that have not been included in the SEARs.

There are no Commonwealth, NSW or local government planning policies, guidelines or standards directly applicable to this assessment. The VIA was prepared with reference to the methods outlined in:

- *Guidelines for Landscape and Visual Impact Assessment Third Edition* (2013) (the GLVIA), prepared by the Landscape Institute and Institute of Environmental Management and Assessment
- *Large-Scale Solar Energy Guideline* (2022) (Solar Guideline), prepared by the NSW Department of Planning and Environment (DPE)
- *Wind Energy: Visual Assessment Bulletin AB 01 For State significant wind energy development* (2016) (the VA Bulletin) prepared by the NSW Department of Planning, Industry and Environment (now DPE).

It is noted that the VA Bulletin and Solar Guideline specifically relates to assessment of visual impacts of wind farms and solar developments respectively in NSW; however, a number of the methods for describing visual sensitivity and landscape character are considered to be relevant to this assessment. In the absence of other directly applicable guidelines/standards, the relevant elements from the VA Bulletin and Solar Guideline have been adopted for this assessment.

The Solar Guideline was released by DPE in August 2022 and provides the community, industry, applicants and regulators with guidance on the planning framework for the assessment and approval of large-scale solar energy development proposals under the EP&A Act, which are classified as State significant development (SSD). 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. The Solar Guideline also recommends consideration of cumulative impacts from other developments (proposed, approved and operating), including potential visual impacts where multiple developments may be constructed in close proximity to each other. While the Solar Guideline is not directly relevant to the assessment of visual impacts of resource projects, it has been used to inform the framework, methodology and scope of this VIA.



KEY

- Project area
- Mining lease (ML1535)
- Mining lease (ML1791)
- Exploration licence (EL)
- Rail line
- Main road
- Named watercourse
- Named waterbody
- Local government area
- NPWS reserve
- State forest

Source: EMM (2023); Evolution (2023); DFSI (2017); GA (2011); ASGC (2006)

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GDA 1994 MGA Zone 55

N

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Regional context

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Visual Impact Assessment
Figure 1.1

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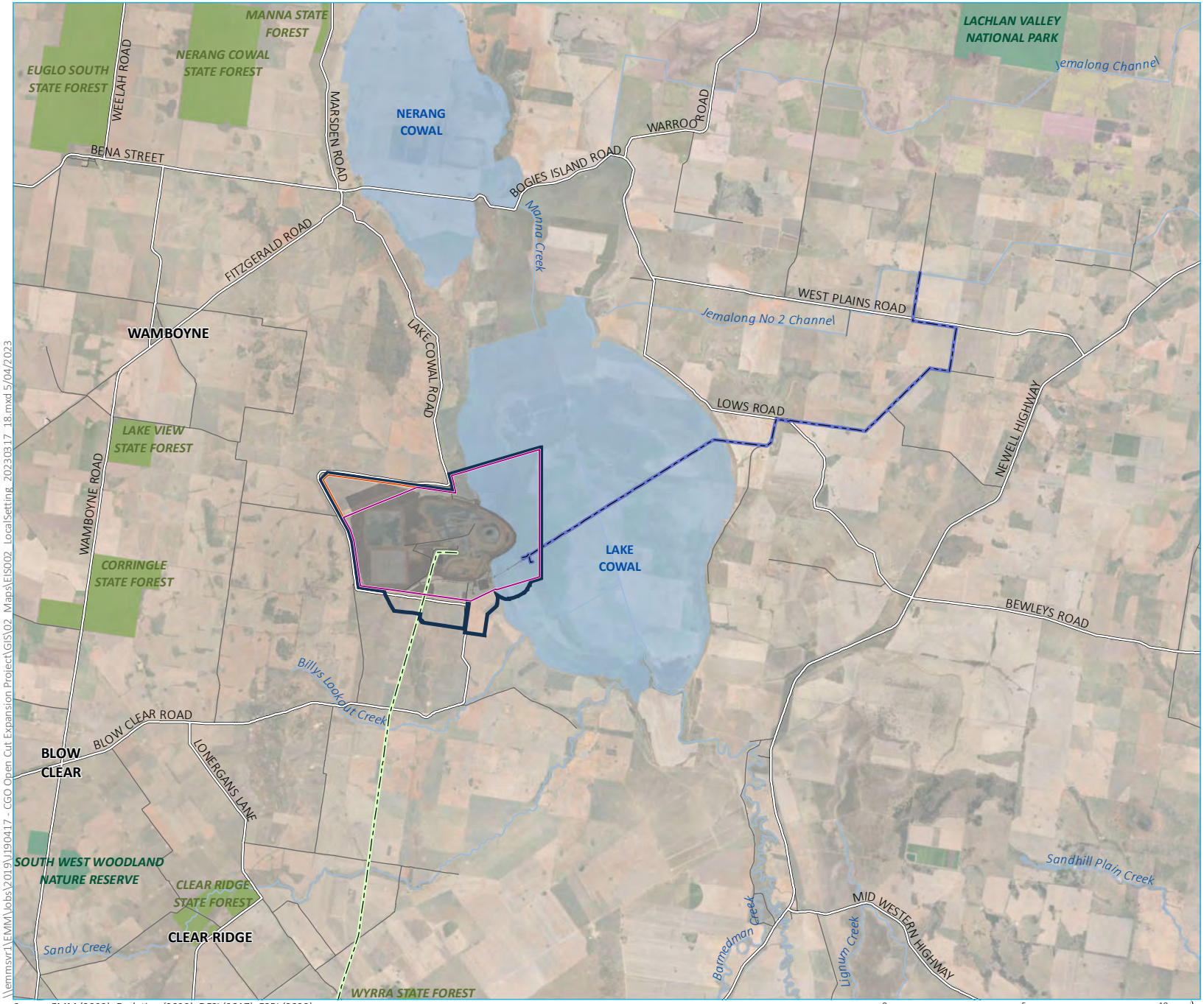

KEY

- Project area
- DA14/98 approved surface disturbance
- Mining lease (ML1535)
- Mining lease (ML1791)
- Water supply pipeline
- Electricity transmission line
- Major road
- Minor road
- Named watercourse
- Named waterbody
- NPWS reserve
- State forest

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Source: EMM (2023); Evolution (2023); DFSI (2017); ESRI (2023)

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Local setting

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Cowal Gold Operations
Open Pit Continuation Project
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Figure 1.2

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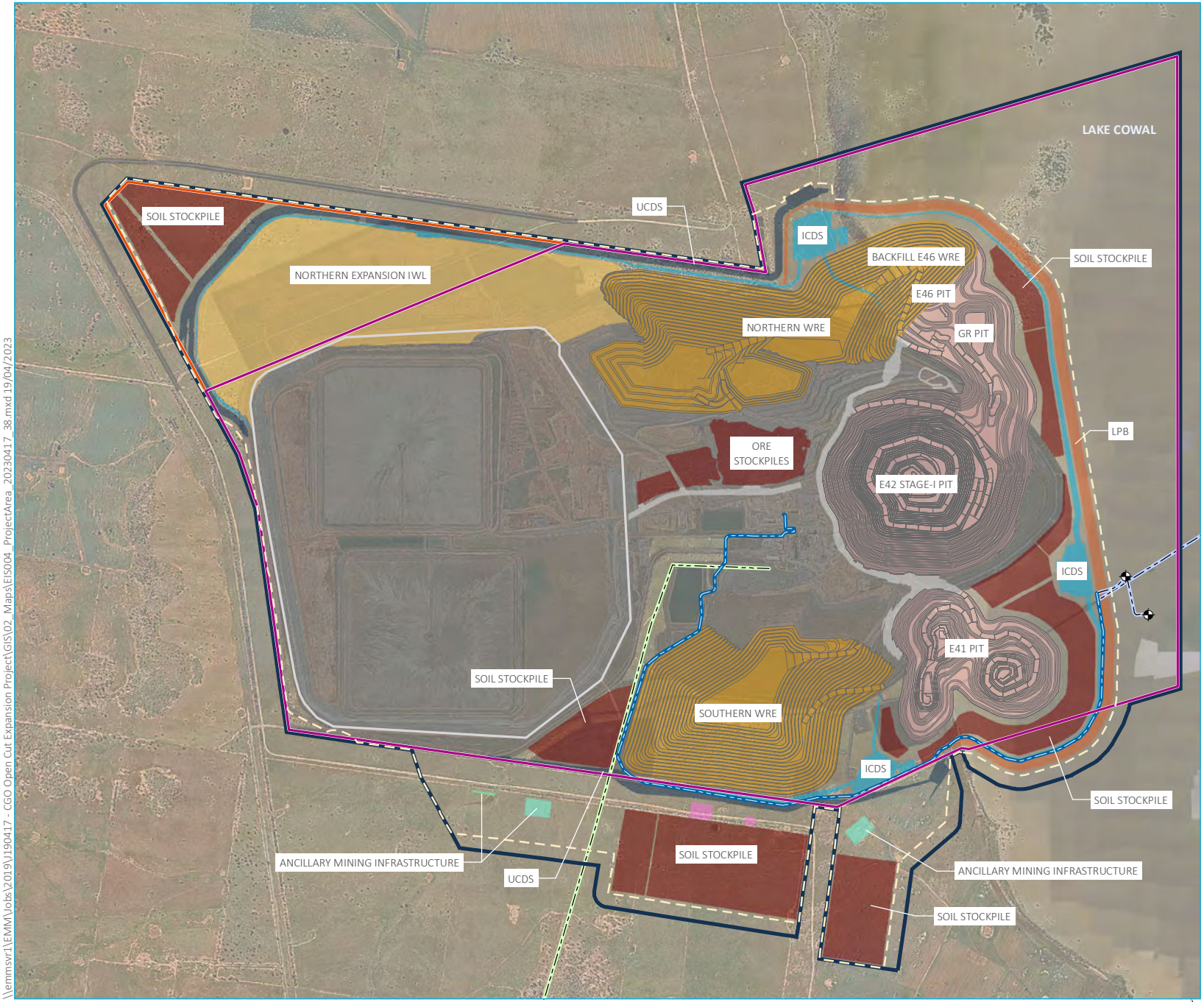

KEY

- Project area
- Additional disturbance area
- Approved disturbance area
- Approved IWL footprint
- Mining lease (ML1535) (offset for clarity)
- Mining lease (ML1791) (offset for clarity)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line

Conceptual project infrastructure

- Open cut pit footprint
- Northern expansion IWL
- Waste rock emplacement (WRE)
- Lake protection bund (LPB)
- Stockpile
- Up catchment diversion system (UCDS)
- Internal Catchment Drainage System (ICDS)
- Ancillary mining infrastructure
- Magazine
- Road
- Water supply pipeline realignment

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Source: EMM (2023); Evolution (2023); DFSI (2017); Nearmap (2021)

0 1 2 km

GDA 1994 MGA Zone 55

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Project overview

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Visual Impact Assessment
Figure 1.3

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1.4 Terminology

A summary of key Project terms, particularly relating to the Project area and the disturbance area at the CGO (both approved and proposed) are presented in Table 1.2.

Table 1.2 Key Project terms – Project area and areas of disturbance

Term	Definition
Project Area	The area that is the subject of the development application, i.e. the proposed development consent boundary for the Project.
CGO	Comprises both open pit and underground operations currently approved under DA14/98 and SSD-10367.
The Project	The Project in its entirety, encompassing proposed OPC project components and existing approved activities under DA14/98 and SSD-10367.
Existing and approved surface disturbance areas	Areas that are disturbed, previously disturbed and/or approved under the NSW EP&A Act to be disturbed under the current development consents that apply to the CGO.
Additional surface disturbance area	The areas that will be disturbed by the Project that are outside of the existing and approved surface disturbance area for the CGO.
Proposed mining footprint	Areas where ore extraction will take place for the Project and includes: • Areas outside of the existing and approved disturbance area. • Areas already disturbed by ore extraction at the CGO (i.e. E42 pit). • Areas within the existing and approved disturbance footprint but not currently disturbed by ore extraction.
Open pit mining operations	Includes the removal and placement of waste rock in waste rock emplacements or backfilled into E46 pit, extraction of ore and ancillary activities.
Underground mining operations	Includes the development of stopes and the extraction of ore via long hole stoping, the backfilling of stopes with cemented paste fill and ancillary activities.
Processing operations	Includes the processing of ore from both underground and open pit mining operations and the placement of tailings in the IWL.

1.5 Purpose and scope of this report

This Visual Impact Assessment (VIA) forms part of the EIS and provides a comprehensive assessment of the Project's potential impacts on the character of the landscape and the impacts on the local visual amenity. It then makes recommendations to assist in mitigating the potential impacts resulting from the Project.

The Project area shown on Figure 1.2 comprises the proposed development consent boundaries for the Project. This assessment has considered a broader study area, which encompasses land surrounding the Project area and includes areas from which views of the Project may be possible.

Visual impacts associated with the CGO's existing mining operations have previously been assessed and approved and are considered as part of the existing environment. While it is acknowledged that there are privately-owned residences and road corridors that are already subject to a visual impact from the CGO's existing mining operations, this VIA has focused on what will change from what has previously been approved (e.g. changes to mining operations within the Project area and new/upgraded infrastructure associated with the Project).

Where relevant, this VIA also includes consideration of other developments within proximity of CGO that contribute to the visual landscape.

1.6 Report Structure

The VIA consists of the following sections:

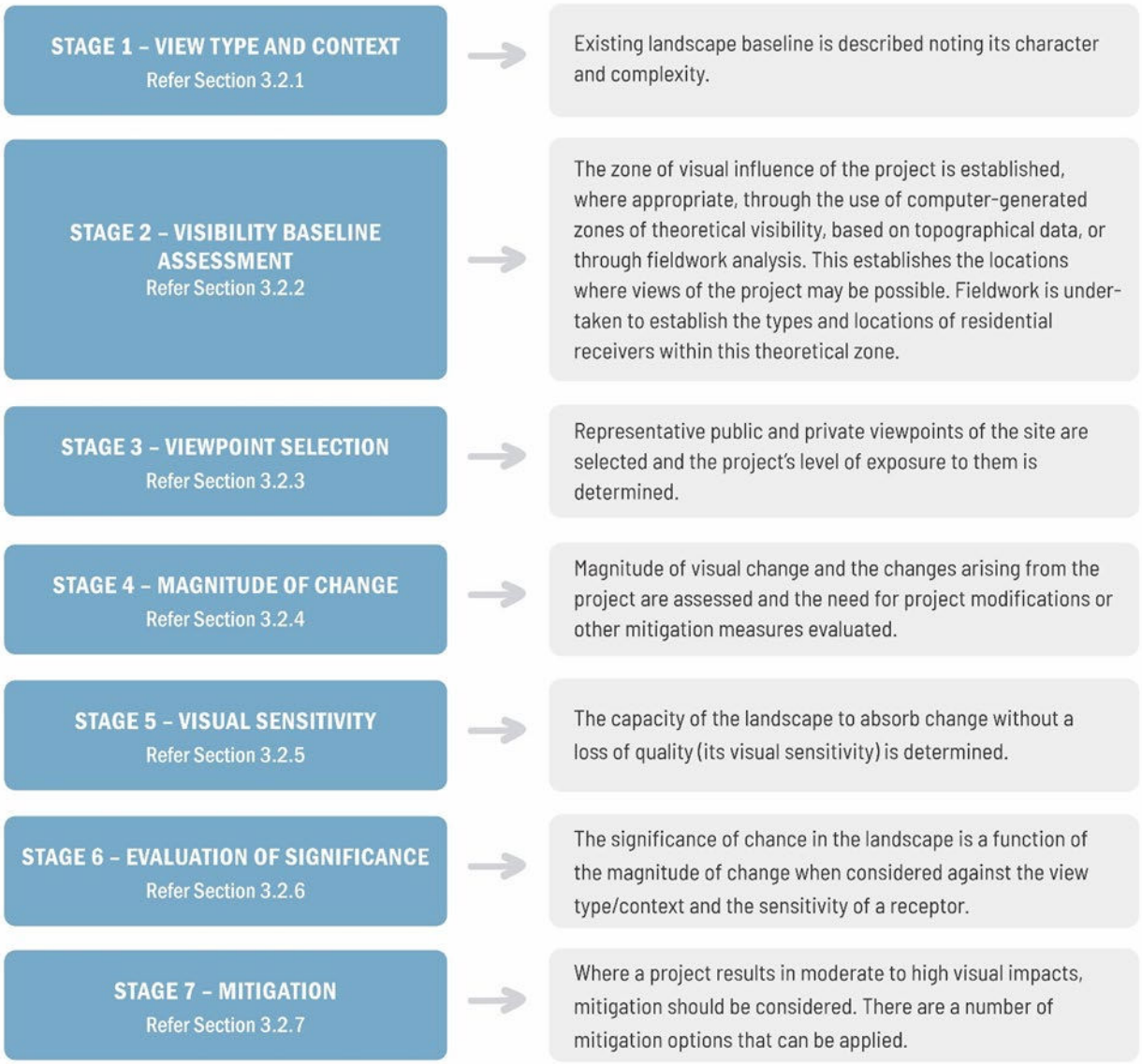
- Chapter 2 describes the VIA methodology adopted in the preparation of this report
- Chapter 3 describes the existing landscape within which the Project will be sited
- Chapter 4 describes the visual components of the Project
- Chapter 5 describes the impacts of the project from representative viewpoints in and around the project
- Chapter 6 describes the mitigation measures proposed
- Chapter 7 provides conclusions.

A number of technical terms have been used throughout this report for the discussion of visual impacts. These are explained in the definitions and abbreviations.

2 Assessment methodology

2.1 Overview

The assessment method used in this report is that outlined in the GLVIA and VA Bulletin, which involves information review, consultation, field observations and photography, computer-based data processing and analysis, and application of subjective professional judgement. The assessment involves seven key stages as summarised below. Section 2.2 outlines in detail the respective stages.



2.2 Stages in the assessment methodology

2.2.1 Stage 1 – view type and context

This stage 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 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 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.

2.2.2 Stage 2 – visibility baseline assessment

Baseline studies for visual effects establish the area in which the project may be visible, who will see the project infrastructure, the viewpoints that will be affected and the nature of the views at those points. Viewshed analysis using geographic information system (GIS) has been used to simulate visibility from viewpoints and the surrounding landscape.

2.2.3 Stage 3 – viewpoint selection

Viewpoints are selected to provide a representative sample of the likely visual landscape changes on the different users of the areas surrounding the project and their visual exposure to various project elements. Viewpoints that are considered to have potential exposure to various project elements or areas available to public access, such as roads, and private viewpoints from residential properties surrounding the Project, have been identified through GIS mapping, fieldwork, stakeholder engagement and desktop analysis.

As well as informing the Project refinement process, feedback received from residents and the local community as part of stakeholder engagement activities has also informed the selection of the four viewpoints described in Section 5.2. The viewpoints presented as part of this report are considered representative of potential visual impacts from a number of the locations identified as areas of concern by the local community, including local roads and private viewpoints from residential properties.

2.2.4 Stage 4 – 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 considered 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 altered elements in the landscape – close proximity to an altered landscape will increase the significance for private residences. 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, whereas some views from roadways as experienced by motorists may be brief dependent 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 also affect the magnitude of change.

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

Table 2.1, Table 2.2 and Table 2.3 show how the visual magnitude criteria are combined to produce a visual magnitude rating.

Table 2.1 Magnitude of change - viewing experience

	Distance from site (km)				
Duration of view	**0–0.5**	**0.5–1.0**	**1.0–2.5**	**2.5–4.0**	**>4.0**
Long (>10 minutes)	High	High	Moderate	Moderate	Low
Moderate (1–10 minutes)	High	Moderate	Moderate	Low	Low
Short (<1 minute)	Moderate	Low	Low	Low	Low

Table 2.2 Magnitude of change – scale

	Extent of view affected		
Scale of change	**High**	**Moderate**	**Low**
High	High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

The two sensitivity ratings outlined in Table 2.1 and Table 2.2 above are then combined to form the visual sensitivity rating as indicated in Table 2.3. This combined rating is applied to the visual impact rating shown in Table 2.7 (in Section 2.2.6 below).

Table 2.3 Magnitude of change

	Viewing experience		
Scale of change	**High**	**Moderate**	**Low**
High	High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

2.2.5 Stage 5 – 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 Guidelines identify the view type 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 VA Bulletin and The Solar Guidelines, presented in Table 2.4.

Table 2.4 Viewer sensitivity level classification

Viewer sensitivity	Description
High	Residential areas and rural villages (defined as land zoned R1, R2, R3, R4, R5 and RU5 in the *Standard Instrument Local Environmental Plan* [LEP]). Recreation, cultural or scenic sites and viewpoints of National or State significance such as National Parks, National reserves, and World Heritage areas. Any buildings, historic rural homesteads/residences on the State or local Government Heritage List.
Moderate	Rural dwelling(s). Tourist and visitor accommodation (definition in Standard Instrument LEP). Recreation, cultural or scenic sites and viewpoints of regional significance.
Low	Interstate and state passenger rail lines with daily daylight services. State highways, freeways and classified main roads, classified tourist roads. Land management roads with occasional recreation traffic. Walking tracks of moderate local significance or infrequent recreation usage. Other low use and low concern viewpoints and travel routes. Navigable waterways. Other low use and low concern viewpoints and travel routes.

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 2.5.

Table 2.5 Scenic quality classification

Scenic quality	Landforms	Vegetation	Waterbodies
High	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.	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.	Visually prominent lakes, reservoirs, rivers, streams and swamps.

Table 2.5 Scenic quality classification

Scenic quality	Landforms	Vegetation	Waterbodies
Moderate	Steep, hilly and undulating ranges that are not visually dominant. Broad shallow valleys. Moderately deep gorges or moderately steep valley walls. Minor rock outcrops.	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.	Intermittent streams, lakes, rivers, swamps and reservoirs.
Low	Large expanses of flat or gently undulating terrain. Indistinct, dissected or unbroken landforms that provide little illusion of spatial definition or landmarks with which to orient.	Extensively cleared and cropped areas with very limited variation in colour and texture.	Natural waterbody absent.

Source: Table 3 from VA Bulletin (DPE 2016).

The two visual sensitivity ratings above are combined to form the visual sensitivity rating as indicated in Table 2.6. This combined rating is applied to the visual impact rating shown in Table 2.7.

Table 2.6 Visual sensitivity rating

	Scenic quality		
Viewer sensitivity	**High**	**Moderate**	**Low**
High	High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

2.2.6 Stage 6 – evaluation of significance

The significance of a change in the landscape is a function of the magnitude of that change when considered against the view type/context and the sensitivity of a receptor. Typically, a noticeable change in the landscape in a rural or natural landscape, combined with a high visual sensitivity, would be considered to be significant, whereas a change in an already heavily modified landscape would be considered slight or moderate.

Visual impact refers to the change in the appearance of the landscape because of development. This report addresses a number of factors that contribute to the visual impacts and has presented them in a measurable way.

Table 2.7 provides a matrix that combines the visual sensitivity rating with the magnitude of change rating to determine the visual impact rating. This rating is applied to each viewpoint as a way to measure the impacts of a development from particular locations.

Table 2.7 Evaluation of significance – visual impact rating

	Magnitude of change		
Visual sensitivity	**High**	**Moderate**	**Low**
High	High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

The primary assessment tools for determining the significance of impact of the project are the 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.

2.2.7 Stage 7 – 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 structures to less visible locations
  - removing some project elements
  - re-sizing the project elements
- use of visual buffers and screening by planting vegetation
- designing infrastructure to screen operations and lighting.

Mitigation measures that have been incorporated into the design of the project are discussed in Chapter 6 of this report.

3 Visual baseline study

3.1 Lake Cowal

The dominant local feature in the area where the Project will be located is the broad expanse of Lake Cowal, a natural, ephemeral freshwater lake. Lake Cowal covers an area of approximately 13,000 hectares (ha) and is the largest inland lake in NSW. In a regional context the lake forms part of the Wilbertroy-Cowal Wetlands located on the Jemalong Plain (refer Figure 1.1). The Lake Cowal-Wilbertroy Wetlands are listed as being of National significance in the Australian Wetlands Database.

The lake sits within privately-owned land and is not protected under any conservation mechanism. When the lake is full, it supports a range of migratory birds and other fauna. When dry, the lakebed has been historically used for broad acre cropping for grain crops and grazing. This land use continues on the non-Evolution owned portions of the lake however Evolution does not allow agricultural activities within its landholdings within Lake Cowal.

The ephemeral nature of the lake means that the visual landscape changes when the lake fills or drains.

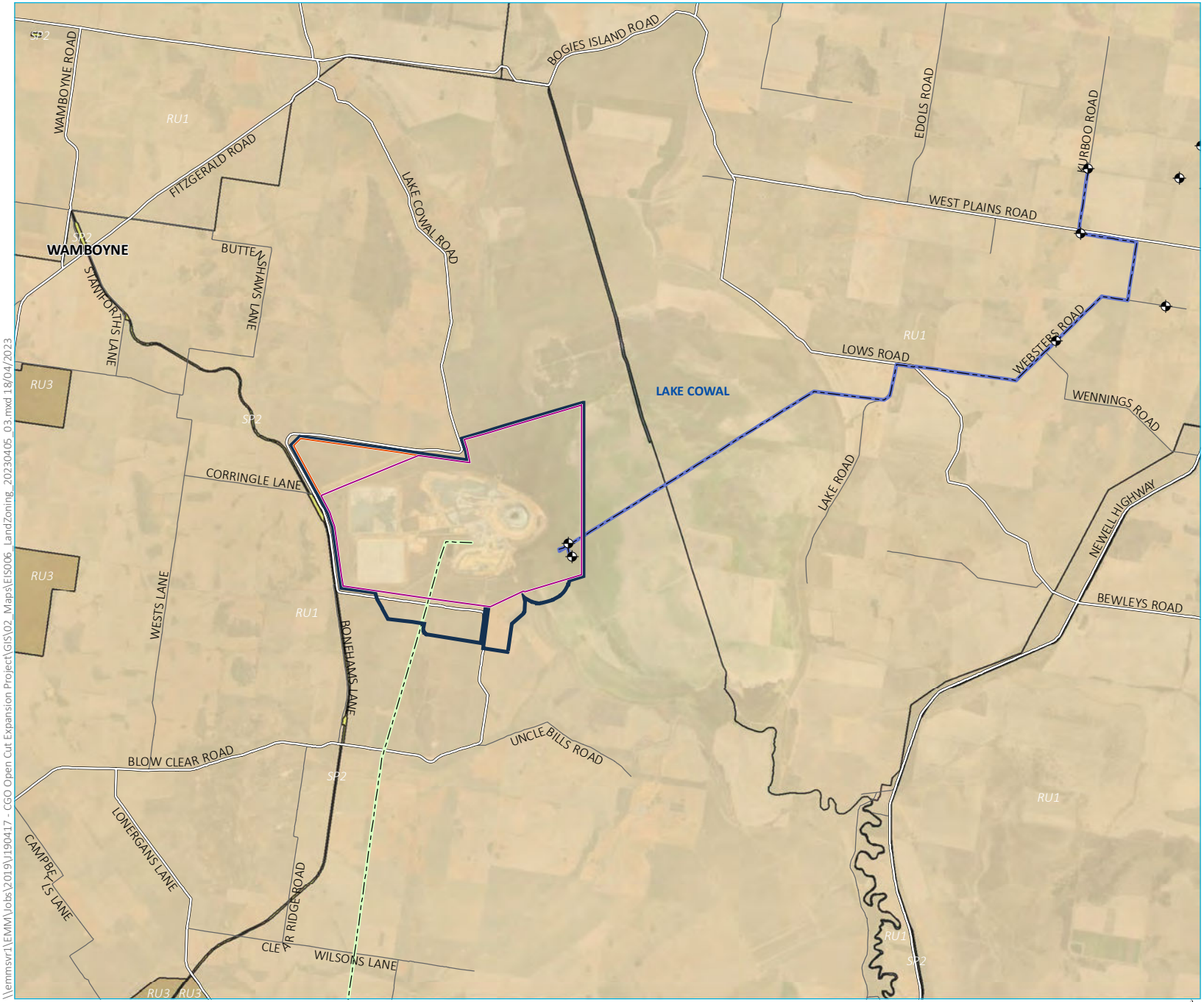
3.2 Land use

Land-uses surrounding the Project are largely dominated by agricultural activities; primarily for sheep and cattle grazing or dry land cropping; bird-watching and other recreational activities relating to Lake Cowal when it is holding water. The area is also used for its scenic qualities from Billy's Lookout (located on privately owned land) and the associated ridgeline system, and Wamboyne Mountain. Since the establishment of the mine, biodiversity protection areas have also been established in Evolution owned landholdings.

The Project area is zoned RU1 Primary Production under the *Bland Local Environmental Plan 2011* (Bland LEP) (refer to Figure 3.1).

3.3 Residences

A number of privately owned and Evolution owned residences have been identified within and surrounding the Project area. There are a total of 32 privately owned residences and five residences owned by Evolution. The locations of the residences considered as part of this assessment are shown on Figure 3.2. Privately owned residents are identified with a 'P' and Evolution owned residences are identified with a 'E'.



KEY

- Project area (boundary offset for clarity)
- Mining lease (ML1535)
- Mining lease (ML1791)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line
- Major road
- Minor road

Land zoning

- RU1 Primary Production
- RU3 Forestry
- SP2 Infrastructure

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Source: EMM (2023); Evolution (2023); DFSI (2017)

0 2.5 5 km

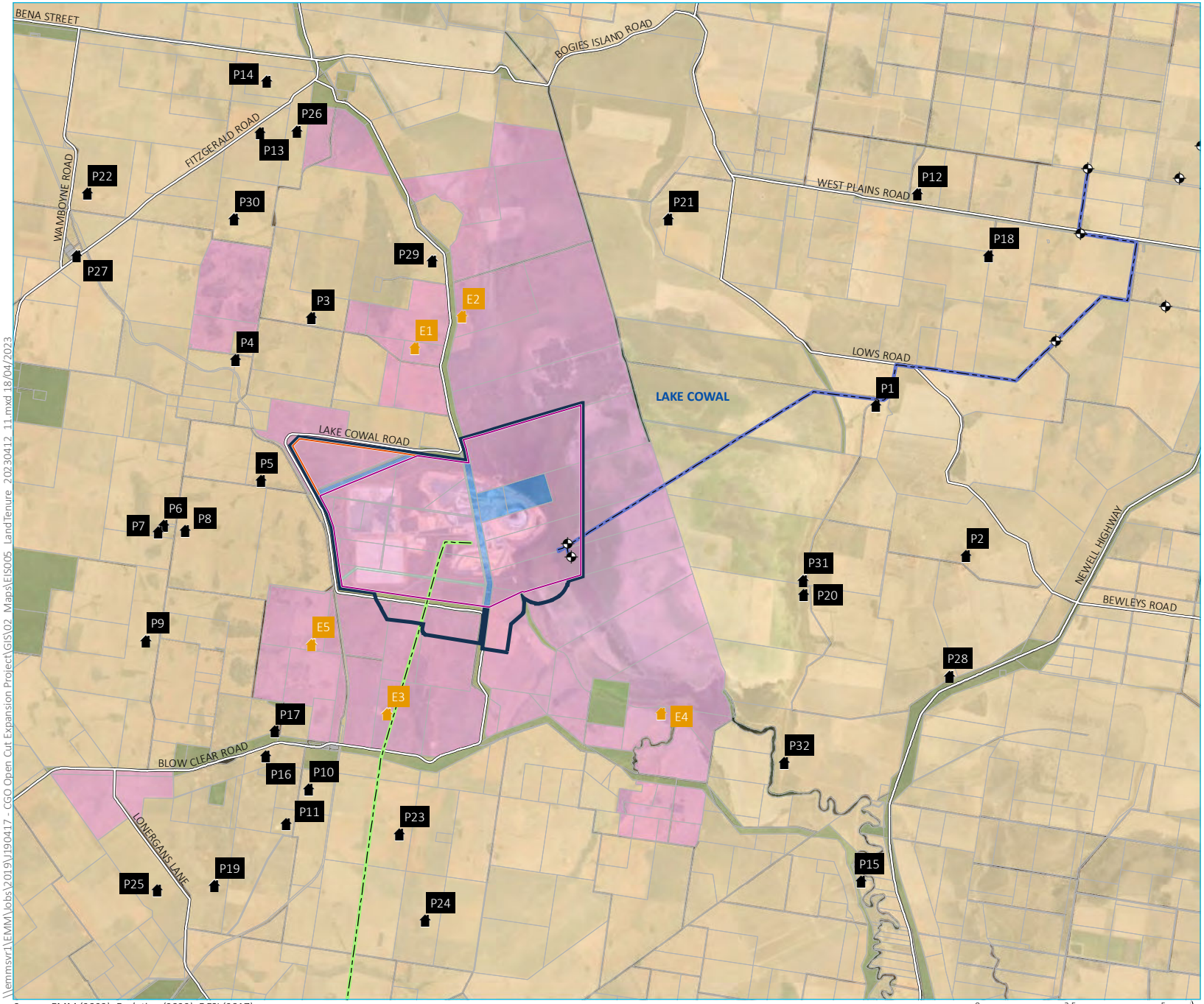
GDA 1994 MGA Zone 55

N

Land zoning

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Visual Impact Assessment
Figure 3.1

EMM
creating opportunities



KEY

- Project area (boundary offset for clarity)
- Mining lease (ML1535)
- Mining lease (ML1791)
- Saline groundwater supply bore
- Water supply pipeline
- Electricity transmission line
- Major road
- Cadastral boundary

Land tenure

- Evolution-owned land
- Privately Owned
- Local Government
- Crown Land
- Crown Land leased to CGO

Residences

- Evolution-owned
- Privately-owned

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Source: EMM (2023); Evolution (2023); DFSI (2017)

0 2.5 5 km

GDA 1994 MGA Zone 55

N

Residences

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Visual Impact Assessment
Figure 3.2

EMM
creating opportunities

3.4 Existing landscape character

3.4.1 Towns

The Project is located within Bland Shire Local Government Area (LGA). The main towns and villages within the LGA include the towns of West Wyalong, Wyalong, Barmedman, Mirrool, Naradham, Tallimba, Kikiora, Ungarie and Weethalle.

The main regional centre in this area is West Wyalong, approximately 38 km south-west along the Blow Clear and Wamboyne Road. According to the 2021 *Census of Population and Housing* (the Census), West Wyalong and Wyalong have a population of 3,189 people, while the Bland Regional LGA had a population of 5,547 people.

The regional setting for the Project extends to the towns of Forbes in Forbes Shire LGA and Condobolin in Lachlan LGA. Forbes is the largest town centre with a total of 6,837 people, located 98 km northeast of West Wyalong by road and Condobolin is smaller rural town with 2,579 people, located approximately 85 km northwest of West Wyalong.

None of these rural town centres have a line of sight to the Project site.

3.4.2 Roads and transport

The main transport infrastructure is Newell Highway (HW17), which is a key freight transport route providing access to the site via West Wyalong. There is a section of Newell Highway of approximately 2 km from which the Project site is visible. The highway is 11 km away from the Project site at this point, and therefore not considered as having a visual impact of significance. Generally, visual impacts are considered up to a maximum distance of 8 km. This is primarily because, from this distance, the size of the project is insignificant when compared to the visible area the eye sees. For example, a 60 m tower, when viewed at a distance of 8 km, occupies only 0.5% of the eye's vertical field of view. This is considered visually insignificant.

The existing preferred mine access route from West Wyalong comprises Ungarie Road, Wamboyne Road, Blow Clear Road and Bonehams Lane. The Project site is only visible from Bonehams Lane and Blow Clear Road which has visibility of the Project site, only within 1.5 km of Bonehams Lane. There is varied levels of visibility from other local roads predominantly used for access to rural landholdings.

There is a short disused railway line between West Wyalong and Burcher. Use of the line was officially suspended in 2005. The stations along the rail line were closed in the 1970s.

3.4.3 Airfields

West Wyalong Airport is an airport located 1.9 km south of West Wyalong. The airport is fully functional and operated and maintained by the Bland Shire Council. The airport is not currently serviced by any scheduled flights.

At the time of preparing this VIA, Bland Shire Council are currently investigating reintroducing services to West Wyalong airport.

3.4.4 Landform

The regional and local landscape comprises cleared farmland, State Forest, vegetated ridges and the Lake Cowal wetland system. The landform is generally flat to undulating, with occasional rocky ridges. The highest point in the area is Wamboyne Mountain, a ridge approximately 5 km north of CGO at 407 m AHD. There is also a viewpoint named Billys Lookout (on private land), at 368 m AHD, approximately 7 km to the south-west of CGO.

The rocky ridges typically run north south and support vegetation as the elevated areas are generally unsuited to cropping or grazing activity. This has produced a series of isolated uncleared pockets, along with areas of land set aside as State Forest, as the main remaining stands of mature vegetation.

The region is on the boundary of a semi-arid and temperate climatic region, and this has influenced the type of agricultural production which tends to be cropping and grazing.

Lake Cowal is a dominant landform and represents a distinct type of landscape occupying an area of approximately 13,000 ha. The surrounding landscape is generally characterised by rural land use.

Lake Cowal is connected to a series of creeks which generally include a vegetated riparian corridor along the banks. The features include Lachlan River and Manna Creek to the north, Nerang Cowal (a lake) to the north-west and Bland Creek, Barmedman Creek and Sandy Creek to the south.

The landscape of the mine represents a significant landscape feature in and of itself.

3.4.5 Vegetation

Most of the local and sub-regional setting has been historically cleared for grazing and/or cultivation (including land within Lake Cowal). Remnant tree and shrub vegetation occur primarily on rocky elevated ground, areas of impeded drainage, patches of sandy soils, the shoreline of Lake Cowal and road verges.

3.4.6 State Forest Reserves

There are several state forests which surround the Project, the closest being the Lake View State Forest and Corringle State Forest which are 7 km north-east and east respectively. Other state forests in proximity to the Project include the Euglo South, Nerang Cowal, Clear Ridge, Wyrra, Boxhall, Back Creek, Little Blow Clear, Blow Clear and Hiawatha State Forests.

3.4.7 Biodiversity offset and remnant vegetation protection areas

Evolution also manages existing and proposed biodiversity offset areas as well as remnant vegetation enhancement areas, which are all located within a 5 km radius of the CGO, covering an approximate total area of 1,650 ha.

3.4.8 Landscape values

Bland Shire is home to a wide variety of natural and enhanced environmental features, such as the Wilbertroy-Cowal Wetlands and Lake Cowal. The Bland Shire Regional Council (Council) has prepared a *Local Strategic Planning Statement* (LSPS) that identifies the need for the protection of heritage and environmental values and the protection of high-value agricultural land and addressing climate change.

To help manage these impacts, Council identified the need to embrace new technologies and practices to reduce carbon emissions, efficiently manage natural resources and appropriately locate developments. Development should be focused on areas of least biodiversity sensitivity and implement the 'avoid, minimise, offset' hierarchy to biodiversity and areas of high environmental value. This strategic approach identifies a high level of value placed on the natural landscape. Elements such as the Wilbertroy-Cowal Wetlands and Lake Cowal would likely be identified as areas of high environmental value.

3.4.9 Night lighting

Lighting is already used for the mine operations at the CGO. Existing sources include operational lighting for work areas, and mobile plant and machinery. The lighting is generally observable at night as a glow over the operational areas.

The shape of the existing IWL and WREs surrounding the operations areas create barriers and restrict light visibility from the north, west and south of the Project area. There are open views into the operations area from across the lake (east of the Project area). Lights from the mine operations are visible from two residences (P20, P31) on the eastern side of the lake, albeit from a distance of approximately 7 km.

There have been complaints related to lighting during the mine's operation. The most recent complaints were received in April 2019 and in June 2020. These complaints were successfully resolved, yet they do indicate a sensitivity to lighting from the surrounding community.

The site is fairly removed in proximity to clustered residential dwellings with the nearest township of West Wyalong located approximately 44 km from the site. Sporadic siting of rural residences will account for minimal light spill, as will light from headlights of the traffic using Newell Highway.

3.5 Key landscape features

The significant topographic features for this locality are:

- Lake Cowal and the Wilbertroy-Cowal Wetlands and associated creeks
- elevated rocky ridge lines, including Billy's Lookout and Wamboyne Mountain
- the CGO with its associated IWL, WREs and LPB.

4 Visual elements of the Project

4.1 Overview

Evolution is seeking State significant development consent under Part 4 of the EP&A Act to continue open pit mining operations through a further extension of the existing E42 pit and the development of three smaller ore sources within the existing ML 1535 to the north and south of the existing E42 pit.

The Project has been designed to maximise the extraction of the resource within the existing ML as efficiently and economically as possible, while continuing to deliver socio-economic benefits to the local community and minimising potential adverse impacts of the CGO on Lake Cowal's environmental values.

The key Project elements are shown conceptually in Figure 1.3. The key Project elements relevant to the VIA are summarised in Section 4.3 below and described in detail in Chapter 4 of the EIS. Other than the changes to existing approved activities as summarised in Section 1.3 and Section 4.3, all activities that are currently approved under the existing Ministerial development consents are intended to continue under the Project.

The CGO is an established landscape feature with mining commencing almost 20 years ago. Visual impacts associated with the CGO's existing mining operations have previously been assessed and approved and are considered as part of the existing environment. While it is acknowledged there are privately-owned residences and road corridors that are subject to a visual impact from the CGO's approved, existing mining operations, this VIA focusses on what will change from approved operations as a result of the Project.

Within Section 5.3, the view type and context and visibility baseline assessments provided for each viewpoint identify the prominent visible elements of the CGO's existing mining operations from these locations, as these features form part of the visual landscape at each viewpoint. This predominantly includes rehabilitated and operational waste rock emplacement areas associated with the northern and southern WREs, IWL embankments, rehabilitated external phase of the existing LPB and soil stockpiles.

Proposed changes to the approved CGO which may change previously assessed and approved visual amenity impacts include:

- construction activities associated with the construction of the expanded LPB and realignment of the UCDS including associated traffic
- the expansion of the LPB to the north and south of the existing LPB
- the northern expansion of the existing IWL
- expansion of the existing southern and northern WREs
- establishment of a waste rock emplacement on the backfilled E46 pit
- increase in height of the southern WRE of approximately 30 m in line with the currently approved height of the northern WRE
- establishment of soil stockpiles in the north-western extent of the Project area and to the south of the existing ML boundary
- removal of some areas of previous rehabilitation including rehabilitation on the existing LPB and WREs
- relocation of ancillary mining areas (i.e. laydown areas and workshops) to the south of the existing ML boundary.

4.2 Project refinement

Visual amenity has been an important consideration in the mine optimisation process given the importance afforded to it by the CGO's neighbours.

The following outlines the design refinements applied to the Project:

- No change to the maximum height of the northern WRE to the currently approved height (the maximum height of the southern WRE will be increased from what is currently approved to match the currently approved height of the northern WRE).
- Refinement of the Project area and disturbance area to avoid the area to the north of Lake Cowal Road previously planned to accommodate soil stockpiles in the Scoping Phase design.
- The infilling of the proposed E46 pit following the extraction of the ore reserve has significantly reduced the footprint of the southern WRE. All waste rock emplacement for the Project will occur within the existing MLs.
- Progressive rehabilitation of WREs, IWL and LPB over the Project life.
- Final landform generally consistent with the surrounding topography.

4.3 Summary of key visual components of the Project

4.3.1 Mining

The Project will include a further extension of the E42 pit to the east and south via a 'cut back' and the open pit mining of three smaller ore sources surrounding the E42 pit known as E46, GR and E41. The E42 pit and GR pit will merge into a single pit during the Project life.

The northern most proposed satellite pit (E46) will be developed early in the project and subsequently backfilled with waste rock later in the mine life to minimise as far as practicable the land required for the establishment of additional waste rock emplacements.

Visibility of mining operations will be screened by the expanded LPB and existing waste emplacement areas and accordingly there will be limited (if any) visibility of ore and waste rock extraction from outside of the Project area.

4.3.2 Waste rock management

The Project design has been optimised to minimise the additional disturbance required to accommodate the waste rock which will be generated during the Project with no additional waste rock emplacements required outside of existing ML boundaries. Waste rock will be used to construct the LPB and continue to be used onsite for earthworks for the embankments of the IWL expansion.

Scheduling of mining operations will prioritise extraction of the E46 satellite pit which will be subsequently backfilled with waste rock before being established as a waste rock emplacement (the E46 WRE) later in the Project life. The E46 WRE will have a maximum heigh of 268 m AHD.

The existing Northern and Southern WREs will also be expanded to accommodate additional waste rock. There will be no change to the currently approved maximum height of the northern WRE of 308 m AHD. The height of the Southern WRE will be increased from the currently approved height of 283 m AHD (currently constructed to a height of approximately 278 m AHD) to a maximum height of 308 m AHD in line with the currently and proposed maximum height of the Northern WRE.

The Project will also remove the existing Perimeter WRE behind the current LPB to accommodate the expansion of open pit mining, this will also remove the existing rehabilitated area on the Perimeter WRE.

4.3.3 Lake protection bund

The original LPB system separates CGO from Lake Cowal for both environmental and safety purposes. The key components of the existing LPB are:

- Temporary isolation bund which was designed to be built quickly as a barrier between any rising lake water and the ongoing construction of the main LPB.
- LPB – an engineered structure to prevent movement of water between Lake Cowal and the mine.

The Project will include an extension of open pit mining into Lake Cowal north and south of the existing pit. The Project therefore includes an expansion of the existing LPB system to provide separation and mutual protection between Lake Cowal and CGO. This will involve the construction of an expanded LPB as shown in Figure 1.3. The additional disturbance area of the expanded LPB and new mining areas within Lake Cowal will be approximately 396 ha representing around 3–5% of the total area of Lake Cowal (depending on the lake edge definition).

The established rehabilitation on the existing LPB and previously reinstated Lake foreshore rehabilitation around the existing LPB will be removed to enable construction of the expanded LPB.

i Construction

Evolution's preference is to construct the extended LPB in a dry environment. However due to the current inundation of the lake and its effect on the schedule for the Project, it is possible that Lake Cowal may still be inundated at the time of construction of the LPB. The Project schedule centres on the need to have the extended LPB in place prior to the completion of currently approved open pit mining operations in E42 (expected in 2026) to allow open pit mining to continue and thereby retain the existing open pit workforce.

To mitigate the potential impact on the existing operational open pit workforce from a delayed LPB construction, Evolution has developed LPB construction strategy which will enable the LPB to be constructed in wet, partially inundated or dry conditions.

The LPB will be approximately 6.3 km in length and constructed in two sections, a northern section, and a southern section. The northern section will be constructed first and both sections will follow the same staged construction process.

The Temporary Isolation Bund will be constructed initially to restrict, to a practical minimum, inflow from the lake to the LPB construction area. The Temporary Isolation Bund will be constructed using inert waste rock material end placed in Lake Cowal to form a bund with a maximum crest level of approximately 206.5 m AHD.

Construction of the Temporary Isolation Bund will continue progressively in 100–200 m lengths until the full length of the initial bund is completed.

Prior to construction, a continuous silt curtain will be erected around the outer and inner perimeters of the Temporary Isolation Bund, in order to trap fine sediment and control the migration of suspended material into the lake from construction activities. Any water captured behind the Temporary Isolation Bund (i.e. on the open pit side) will undergo water quality testing, to confirm suitability for release or treatment (if required), prior to pumped release back into Lake Cowal.

The LPB would comprise a main low permeability embankment constructed on the mine side of the temporary isolation bund as well as an additional bund over the temporary isolation bund integrating the two bunds to a total design height of 209.64 m.

Following construction of the LPB and once water levels recede sufficiently, landscaping and reinstatement of the Lake Cowal foreshore will be carried out. The earthworks and landscaping, using primarily lakebed soils, will occur during the LPB construction if the lakebed is dry. Should the lakebed still be wet/semi-inundated then construction would be delayed until the conditions were suitable.

From the toe of the LPB the landscaping will extend approximately 30 m horizontally into the lake.

Reinstatement of the lake foreshore around the extended LPB will generally follow the concepts approved in the existing Compensatory Wetland Management Plan and will include microvariations in slope and elevation to provide complex habitats for terrestrial and aquatic ecosystems.

Following the contouring of the new Lake Foreshore, rehabilitation will involve both active and passive rehabilitation techniques with the existing seedbank in the lakebed soils anticipated to provide natural revegetation of disturbed areas.

4.3.4 Integrated waste landform

Ore processing and tailings production during the Project will exceed the existing IWL tailings storage capacity hence, the northern expansion of the IWL is proposed to provide the necessary tailings storage capacity to meet Project needs.

The northern expansion of the IWL will include a single downstream raised cell. A new perimeter embankment approximately 4.7 km in length will create an additional tailings storage cell adjacent to the northern wall of the IWL. The new embankment will resemble the existing IWL design.

The perimeter embankment design provides for upstream and downstream batter slopes of 1V:2H and 1V:4H, respectively.

Construction of the northern expansion of the IWL will include:

- site preparation including relocation of infrastructure currently within the IWL expansion footprint, vegetation removal, erosion and sediment control and soil stripping
- preparation of the tailings storage floor to meet permeability requirements
- construction of perimeter embankments including upstream clay facing keyed into the upstream toe and supported by a compacted rock fill shell
- construction of decant area and emergency spillway.
- the northern expansion perimeter embankment will be developed progressively from around Year 5 of the Project with tailings deposition within the northern expansion anticipated around Year 9 or 10 of the Project.

4.3.5 Soil stockpiles

Topsoil, sub soil and clay stockpiles will be established within the Project area. Soil will be stockpiled to a maximum height of 3 m. Figure 1.3 shows the indicative location of proposed soil stockpiling. Soil stockpiles will be seeded following establishment to stabilise and to minimise the potential for dust generation.

4.3.6 Progressive rehabilitation and final landform

Areas disturbed by mining activities by the Project will be rehabilitated to reflect a sympathetic, relatively ‘natural’ looking landform to the surrounding landscape.

Consistent with existing operations, progressive rehabilitation of mined areas will continue throughout the mine life.

Rehabilitation and mine closure will include the decommissioning and removal of infrastructure not required to support the final land use (anticipated to be a mixture of native ecosystem with areas of agricultural grazing land use), and the reshaping and revegetation of disturbed areas to establish a mixture of native vegetation and open grassland areas with pit lakes associated with the final E41, GR and E42 voids.

5 Visual assessment

5.1 Zone of visual influence

A zone of visual influence (ZVI) diagram has been prepared for the Project to illustrate the theoretical visibility of the proposed project infrastructure. The ZVI represents the area over which a development can be seen. Refer to Figure 5.1 for the ZVI.

The ZVI was generated using a digital elevation model (DEM) and a digital surface model (DSM), both of which cover the Project area, the selected viewpoints and their immediate surrounds. The DEM and DSM were built using publicly available ELVIS spatial data from the Foundation Spatial Data Framework.

The DEM is representative of the bare earth surface and only takes into account the topography of the landscape. The DSM is representative of the actual surface of the earth and takes into account a variety of different features in the landscape, including vegetation and built structures (e.g. rural dwellings, farm sheds and agricultural infrastructure).

It is important to note that the ZVI does not take into account the diminishing size of the Project elements as the viewer moves further away. It only indicates where the Project elements will be visible, with no obstructions. To account for the diminishing effect of distance on the Project elements, distance bands are marked on the ZVI. These provide a general indication of relative size based on the characteristics of the human eye. For example, at a distance of 8 km, a 70 m high tower will occupy less than 0.5% of the eye's vertical field of view and will be visually insignificant beyond that distance. Table 5.1 provides general guidelines on the relationship between visibility and distance for a 70 m high transmission tower.

Table 5.1 Effect of distance on visibility

Distance to transmission structure	Vertical angle of view (°)	Visibility of transmission structure
8 km and greater	Less than 0.5	Visually insignificant.
4–8 km	0.5–1.0	Potentially noticeable, but will not dominate the landscape.
2–4 km	1.0–2.0	Potentially noticeable and can dominate the landscape.
0.8-2 km	2.0–5.0	Highly visible and will usually dominate the landscape.
Less than 800 mm	More than 5.0	Will always be visually dominant in the landscape.

5.1.1 Summary of ZVI

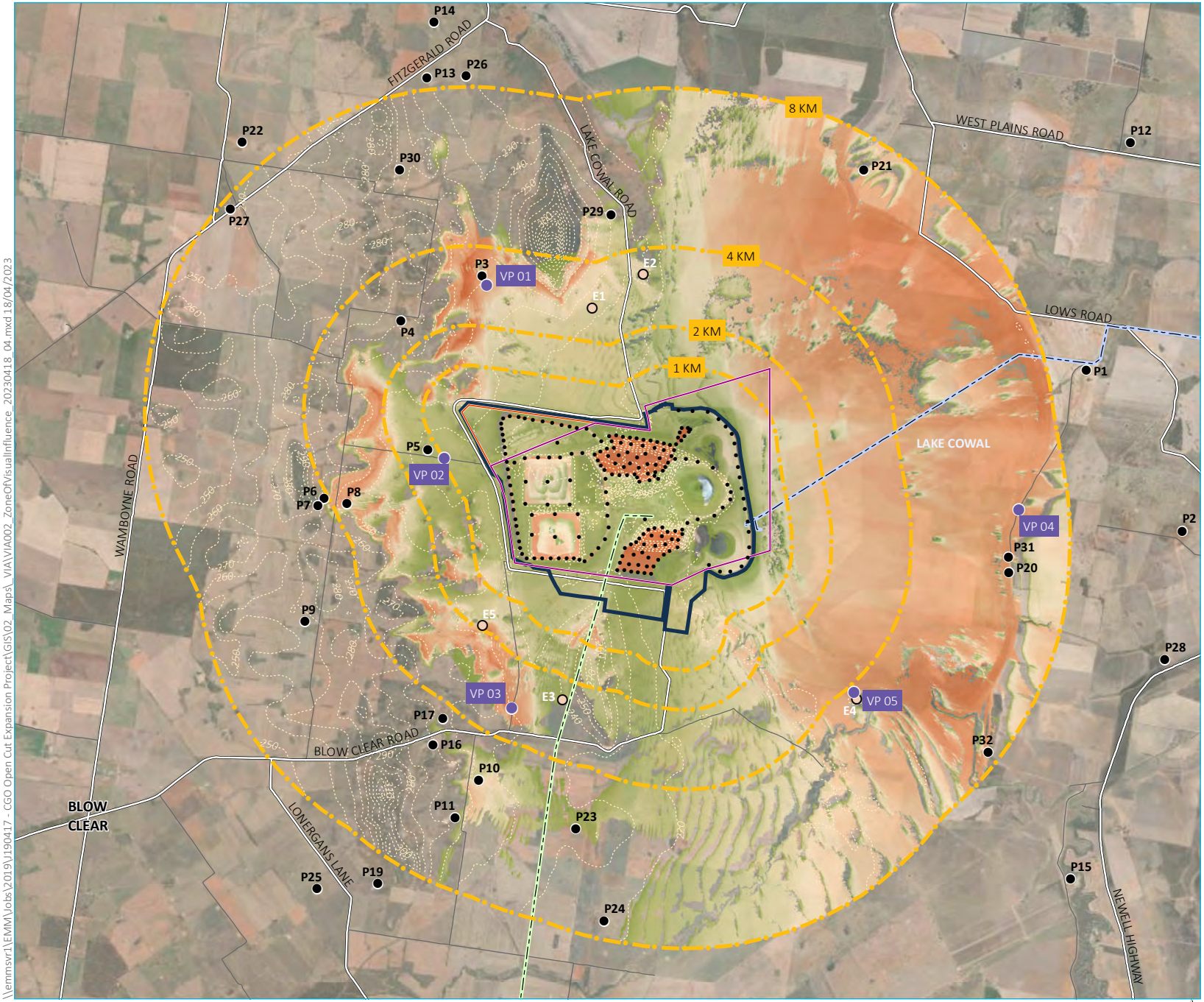
The ZVI illustrates the effect of the topography on the Project's visibility. The areas north-west, west and south-west of the projects have an undulating, hilly topography that generally limits views of the Project to 4 km. The land north-east, east and south-east of the Project is fairly flat, due to the lake extents. The ZVI indicates that visibility of the Project from this area extends to the 8 km limit of the ZVI. Even though the ZVI shows high visibility from across the lake, the distance of the views must be considered. As Table 5.1 indicates, the visual size of a project diminishes with distance, which the ZVI does not account for.

The ZVI provides information about the Project's visibility, including:

- the topography of the region limits opportunities to see the Project
- the highest visibility is identified along the hillsides facing the Project (north-west, west and south-west of the Project site)
- the Project is highly visible from the lake, near the Project area
- the ZVI identifies the residences with potential views of the Project.

There is one privately owned residence and one Evolution owned residences in close proximity between 1 km and 2 km of the study area (P5 and E5) and three privately owned residence and three Evolution owned residences between 2 km 4 km away (P4, P3, P8, E1, E2 and E3).

There are 16 privately owned residences and one Evolution owned resident between 4 km and 8 km from the boundary line of the Project (P6, P7, P9, P10, P11, P16, P17, P20, P21, P23, P24, P27, P29, P30, P31 and E4).



KEY

- Proposed disturbance footprint (boundary offset for clarity)
- Mining lease (ML1535)
- Mining lease (ML1791)
- Water supply pipeline
- Electricity transmission line
- Major road
- Minor road
- Topographic contour (10 m interval)
- Zone of visual influence buffer
- Viewpoint location

Sensitive receptor

- Evolution-owned
- Privately-owned

Viewshed results

- Viewshed model point
- 158 visible modelled points
- 1 visible modelled point

Source: EMM (2023); Evolution (2023); Nearmap (2021); DFSI (2017)

0 2.5 5 km

GDA 1994 MGA Zone 55

N

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Zone of visual influence

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Visual Impact Assessment
Figure 5.1

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5.2 Visual impacts during construction

A description of the site establishment and construction activities associated with the Project is provided in Chapter 4. These impacts are considered temporary with the construction period estimated to be 18 months to 2 years. The main temporary visual impacts are identified below.

- Water management:
  - Realignment of the existing up-catchment diversion systems (UCDS) will be constructed along the northern boundary of the Project area and along the southern boundary of the existing ML. Although the works will be at ground-level, there is the potential to see the construction activities from portions of Lake Cowal Road as it parallels the north boundary.
- Lake protection bund:
  - The LPB will be constructed along the eastern side of the Project area. It will be similar in height to the existing bund but will be located further into the lake. It will also extend further north and south, with a total length of approximately 6.3 km. The existing mining operations will shield the construction of the LPB from views from the south and west. There is the potential to see the construction works from Lake Cowal Road, north of the site, as well as from the eastern side of the lake.
- Removal of Perimeter WRE:
  - The Project will also remove the existing Perimeter WRE behind the current LPB to accommodate the expansion of open pit mining, this will also remove the existing rehabilitated area on the Perimeter WRE. The Perimeter WRE is approximately 233 mAHD while the proposed expanded LPB is approximately 210 m AHD. The reduced height of the landform (i.e existing combined LPB and Perimeter WRE, compared to the proposed LPB) is unlikely to be discernible between the backdrop of the Northern and Southern WREs and distance from visual receptors.
- Traffic and vehicle movements:
  - The Transport Impact Assessment (TIA) (Appendix R) of the EIS predicts a temporary increase in vehicle movements along the approved access routes during the construction stage of the project.

5.3 Visual impacts during operation

The operation impacts are considered to be those visual impacts that extend from the construction phases of the Project through the life of the Project. Chapter 4 details the project elements that might be visible.

To assess these impacts, specific viewpoints are used to represent what people can see from that location and its immediate surrounds. A viewpoint might be selected near a cluster of residences to illustrate the visibility of the Project from those residences.

As part of the preparation of this VIA, a site inspection was carried out on 7–9 September 2022. The purpose of the site inspection was to ground-truth the representative viewpoints identified during the initial desktop analysis and photograph the Project area from representative viewpoints. Additional site visits occurred after the main one in September 2022 to capture views of CGO in a range of weather and lighting conditions.

The viewpoints were selected in part from ongoing discussions with residents. Other viewpoints were selected to represent views from public locations.

Photographs from these representative viewpoints were captured and a selection of these photographs has been provided in the following sections 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.

Figure 5.2 identifies the photograph locations and viewing directions and Table 5.2 provides the rationale for selecting each photograph location. The representative viewpoints were selected based on the following criteria:

- proximity to Project infrastructure
- the location of dwellings and other local features and important sites (Lake Cowal)
- the positioning of regional and local roads and potential impacts on passing motorists
- local topography.

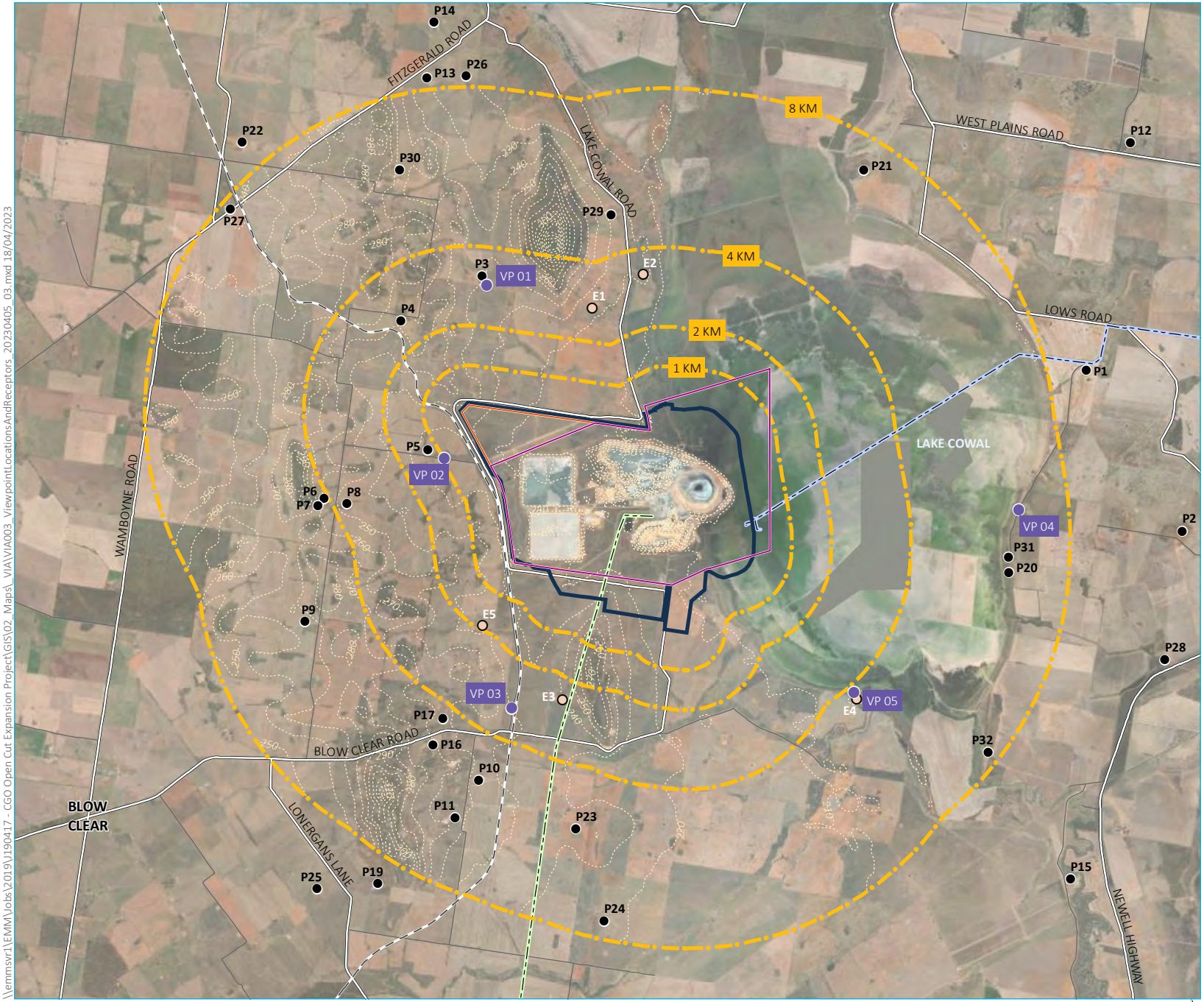
Four representative viewpoints were selected from locations near residences and main roadways near the Project. The viewpoints include assessments for Lake Cowal and selected residences that have potential for visual impacts.

The locations of the viewpoints considered as part of this assessment are illustrated on Figure 5.2.

Table 6.1 in Section 6.6 provides a summary of the outcomes of the impact assessment, along with mitigation measures proposed.

Table 5.2 Assessed viewpoints, receptors and rational for selection

Assessment location	Viewpoint type(s)	Representative receptors	Distance to Project boundary	Rationale for selection
Viewpoint 1	Dwellings	P3	2.39 km	This is the second closest dwelling to the site. There is potential for the Project infrastructure to be visible from this site.
Viewpoint 2	Dwellings	P5	1.22 km	This is the closest dwelling to the site. There is potential for the Project infrastructure to be visible from this site.
Viewpoint 3	Dwellings	Motorists along Blow Clear Road and Bonehams Lane	4.58 km	This is the main road that serves the vicinity of the Project There are three residences nearby with similar views toward the Project.
Viewpoint 4	Dwelling, motorists, and recreational users	P31, P20, motorists along Lake Road, people using the lake	6.48 km	This is the representative view from east of the Project, across Lake Cowal. It is representative of motorists along Lake Road and people using the lake as well. This viewpoint is also representative of views experienced from residential dwellings along the eastern side of Lake Cowal.
Viewpoint 5	Dwelling and campground	E4, campground users, people using the lake	4.23 km	This viewpoint represents views from the southern side of the lake. This site is associated with the Project, however, as a camp site, there will be members of the public visiting this location.



KEY

- Proposed disturbance footprint (boundary offset for clarity)
- Mining lease (ML1535)
- Mining lease (ML1791)
- Water supply pipeline
- Electricity transmission line
- Rail line
- Major road
- Minor road
- Topographic contour (10 m interval)
- Zone of visual influence buffer
- Viewpoint location

Sensitive receptor

- Evolution-owned
- Privately-owned

Source: EMM (2023); Evolution (2023); Nearmap (2021); DFSI (2017)

0 2.5 5 km

GDA 1994 MGA Zone 55

N

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Viewpoint locations and receptors

Evolution Mining
Cowal Gold Operations
Open Pit Continuation Project
Visual Impact Assessment
Figure 5.2

EMM
creating opportunities

5.3.1 Viewpoint analysis

There are five viewpoints selected for analysis using the evaluation method outlined in Chapter 2 of this report. Photographs of the existing site from each viewpoint were used as a baseline for the analysis. Two photomontages were developed for each viewpoint to illustrate the expected worst-case visual impact (year 13) as well as the final, rehabilitated landforms.

The viewpoint analysis and the associated photomontages are presented in Appendix A of this report. A summary of the findings is presented in Table 5.3.

Table 5.3 Summary of results of visual impacts at each viewpoint

Viewpoint	Distance to Project boundary	Representative receptors	Residential or public	Project elements visible	Magnitude of change	Visual sensitivity	Visual impact rating
Viewpoint 1	2.39 km	P3	Residence	Yes	Moderate	Moderate	**Low**
Viewpoint 2	1.22 km	P5	Public, residences	Yes	Moderate	Moderate	**Moderate**
Viewpoint 3	4.58 km	Motorists along Blow Clear Road and Bonehams Lane	Public, residences	Yes	Low	Moderate	**Low**
Viewpoint 4	6.48 km	P31, P20, motorists along Lake Road	Public, residences	Yes	Low	Moderate	**Low**
Viewpoint 5	4.23 km	E4, campground users, people using the lake	Public, residence	Yes	Low	Moderate	**Low**

5.3.2 Visual impacts on residences

The residences near the Project area are likely to have varying degrees of visibility toward the Project. Project visibility will range from no views to fragmented views that are broken by existing vegetation, orientation of the dwelling or topography.

There are a total of 20 non-Evolution owned residences within 8 km of the Project area (refer to Figure 5.1). One dwelling is located between 1 km and 2 kms and 6 are located between 2 km and 4 km from the Project area

The highest visual impacts are likely to be experienced from dwellings closest to the Project area. Each residence has been listed in Table 5.4.

Table 5.4 Dwellings around the Project with potential visual impacts

Dwelling	Location	Distance to nearest Project element	Visual assessment	Recommended mitigation measures
P1	'Goodwood' 363 West Plains Road, Corinella	13.2 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.

Table 5.4 Dwellings around the Project with potential visual impacts

Dwelling	Location	Distance to nearest Project element	Visual assessment	Recommended mitigation measures
P2	'Boongarry' 94 Lows Road, Corinella NSW	10.8 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P3	'Laurel Park' 880 Buttenshaws Ln, West Wyalong	2.37 km	Refer to Viewpoint 1 (Section 5.3.1). The visual impact is rated as low.	No mitigation required.
P4	'Bramboyne' 734 Buttenshaws Lane, Lake Cowal	2.48 km	Topography and existing vegetation will limit views of the Project. Some of the upper portions of the northern stockpile, IWL and WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.
P5	'Westella' 203 Corringle Lane, Lake Cowal	1.25 km	Refer to Viewpoint 2 (Section 6.5). The visual impact is rated as moderate.	This residence is currently entitled to voluntary acquisition under DA 14/98. Tree planting to screen views of the proposed project will be installed if requested by the landowner.
P6	'Lakeview' 350 Wests Lane, Lake Cowal	4.2 km	Topography and existing vegetation will screen some views of the Project. Some of the upper portions of the northern IWL, WRE, and southern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact	No mitigation required.
P7	'Lakeview II' 350 Wests Lane, Lake Cowal	4.37 km	Topography and existing vegetation will screen some views of the Project. Some of the upper portions of the northern IWL, WRE, and southern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact	No mitigation required.
P8	'Lakeview III' 662 Wests Lane, Lake Cowal	3.86 km	Topography and existing vegetation will screen some views of the Project. Some of the upper portions of the northern IWL, WRE, and southern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact	No mitigation required.
P9	'Thistleview' 351 Wests Lane, Lake Cowal	5.47 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.

Table 5.4 Dwellings around the Project with potential visual impacts

Dwelling	Location	Distance to nearest Project element	Visual assessment	Recommended mitigation measures
P10	'Manglesdorf' 3074 Clear Ridge Road, Lake Cowal	5.09 km	Refer to Viewpoint 3 (Section 5.3.1). Topography and existing vegetation along roads and boundaries will limit views of the Project. There is potential for a low visual impact.	No mitigation required.
P11	'Mangelsdorf II' Lot 46, Clear Ridge Road, Lake Cowal	6.21 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P12	'Bristowes' Corner of Edols Lane and West Plains Road, Corinella	12.4 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P13	'Wamboyne' Lot 6 Fitzgerald Road, Lake Cowal	7 52 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P14	'Grinter' Lot 5 Fitzgerald Road, Lake Cowal	8 88 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P15	'Billabong' Lot 2, Newell highway, Wirrinya	11.1 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P16	'Foxman Downs 1' 936 Blow Clear Road, Lake Cowal	5.01	Refer to Viewpoint 3 (Section 5.3.1). Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P17	'Foxman Downs 2' 936 Blow Clear Road, Lake Cowal	4.34	Refer to Viewpoint 3 (Section 5.3.1). Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P18	98 Sinclaie Lane, Corinella	12.9	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P19	Lot 17 Lonergans Lane, Lake Cowal	8.58 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P20	'Bungabulla' 672 Lake Road, Corinella	6.43 km	Refer to Viewpoint 4 (Section 5.3.1). The visual impact is rated as low.	No mitigation required.

Table 5.4 Dwellings around the Project with potential visual impacts

Dwelling	Location	Distance to nearest Project element	Visual assessment	Recommended mitigation measures
P21	'Cowal North' Lot 2 Lows Road, Girral	7.2 km	Existing vegetation within the lake limits views of the Project. Some of the upper portions of the northern WRE and southern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.
P22	Lot 18, Wamboyne Road, Girral	8.45 km	Topography and existing vegetation will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P23	313 Wilsons Lane, Lake Cowal	5.46 km	Topography and existing vegetation along roads and hillsides will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P24	'Caloola2' Lot 29 Wilson Lane, Lake Cowal	5.52 km	Topography and existing vegetation along roads and hillsides will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P25	'Blampied' Lot 41 Lonergans Lane, Lake Cowal	9.61 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P26	Lot 54 Fitgerald Road, Lake Cowal	7.47 km	Topography and existing vegetation along roads and hillsides will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P27	3124 Wamboyne Road Girral	7.73 km	Topography and existing vegetation along roads and hillsides will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P28	'Koobah Lot 96 Newell Highway, Wirrinya	10.8 km	Due to the distance from the Project, no visual impacts are expected from this location.	No mitigation required.
P29	'The Glen' Lot 2 Lake Cowal Road, Lake Cowal	5.18 km	Topography and existing vegetation will limit views of the Project. Some of the upper portions of the northern stockpile, IWL and WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.
P30	'Wamboyne II' 1254 (lot 11) Buttenshaws Lane, Lake Cowal	5.52 km	Topography and existing vegetation along roads and hillsides will limit views of the Project. No visual impacts are expected from this location.	No mitigation required.
P31	'Gumbelah' 670 Lake Road, Corinella	6.4 km	Refer to Viewpoint 4 (Section 5.3.1) The visual impact is rated as low.	No mitigation required.

Table 5.4 Dwellings around the Project with potential visual impacts

Dwelling	Location	Distance to nearest Project element	Visual assessment	Recommended mitigation measures
P33	'Lake Cowal II' 4359 Newell Hwy, Wirrinya	7.36 km	Topography and existing vegetation along roads and boundaries will limit views of the Project.	No mitigation required.
E1	'Coniston' Lot 3 Lake Cowal Road, Lake Cowal	2.83 km	Existing vegetation will limit some views of the Project. The upper portions of the northern stockpile, IWL and WRE are expected to be visible. The amount of visible change between the approved design and the proposed design will be noticeable from this location. There is potential for a moderate visual impact.	No mitigation required because this is an Evolution owned property.
E2	'Lakeside' Lot 1 Lake Cowal Road, Lake Cowal	3.85 km	Existing vegetation will limit views of the Project. The upper portions of the northern stockpile, IWL and WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.
E3	'Hillgrove' 419 Uncle Bills Road, Lake Cowal	1.94 km	Existing topography limits views of the Project. The upper portions of the northern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.
E4	'Lake Cowal' 419 Uncle Bills Road, Lake Cowal	3.89 km	Views of the southern WRE, stockpile and LPB are expected to be visible from along the lake edge. The amount of visible change between the approved design and the proposed design will be noticeable from this location. There is potential for a moderate visual impact.	No mitigation required because this is an Evolution owned property.
E5	'West Lea' 259 Bonehams Lane, Lake Cowal	1 93 km	Existing vegetation along Bonehams Lane limits views of the Project. Some of the upper portions of the northern WRE and southern WRE are expected to be visible. The amount of visible change between the approved design and the proposed design is not significant from this location. There is potential for a low visual impact.	No mitigation required.

5.4 Night time lighting assessment

Lights have the potential to alter the night time landscape character of the surrounding area. Potential sources of light sources include:

- lighting for safety and security on project structures and infrastructure
- lights on vehicles and plant
- operational lighting for night work.

5.4.1 Overview of potential impacts from night lighting

New light sources related to the Project have the potential to expand the visible lit area at night. The mine is approved for 24 hour operations, which will continue with the proposed works. As the operation expands, so too will the area that requires lighting during the night.

The proposed pits are expected to require lighting of a similar intensity to the existing pit operations.

The placement of material in the WRE and stockpile locations is expected to be ongoing and operate 24 hours a day. The lighting requirements are expected to be similar to existing lighting at the WRE locations.

The magnitude of the lighting impact will vary depending on the location and type of operations taking place. Lighting needs are expected to vary across the site as work is undertaken in different areas.

5.4.2 Lighting during construction

Temporary lighting will be required during the construction of the LPB. The construction of the LPB is planned to occur during daylight hours. However, construction during the night, until 10:00 pm, may occasionally be required to maintain the construction schedule.

5.5 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 affect 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:

- Multiple projects of a similar nature 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.
- Simultaneous views of multiple projects from public or private viewing locations.

A review of the Major Projects website and TfNSW Projects website identified the following projects as occurring in the vicinity of the CGO:

- West Wyalong Solar Farm.
- Wyalong Solar Farm.
- Newell Highway Upgrades – projects between the CGO, West Wyalong, Forbes and Condobolin:
  - Newell Highway Program Alliance – Gullifers Road
  - Newell Highway Program Alliance – work on new northbound and southbound overtaking lanes near Back Creek.
- Moomba to Wilton Pipeline Temporary Camps Modification:
  - Camp 6: North-east of West Wyalong – located 10.5 km south east of the Project site.

Each of the above projects was reviewed to determine project timeframes and potential for simultaneous or sequential viewing. The review concluded that a cumulative visual impact assessment is not required as the Project would not be viewed simultaneously or sequentially to the above projects.

6 Mitigation measures

6.1 Overview

A range of visual impact mitigation methods are available to screen 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.

Visual impacts at the CGO are currently managed in accordance with the relevant approval conditions including:

- Implementing all reasonable and feasible measures to minimise the visual and off-site lighting impacts from the CGO.
- Ensuring no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure.
- Ensuring no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal (except when required for emergency safety purpose).
- Ensuring that all external lighting at the CGO complies with the relevant Australian Standards including *Australian Standard AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting.*
- Taking all reasonable and feasible measures to shield views of mining operations and associated equipment from users of public roads and privately owned residences.
- Ensuring that the visual appearance of all new buildings, structures, facilities or works which are visible from the outside the site (including paint colours and specifications) is aimed at blending as far as possible with the surrounding landscape.
- Implementation of the progressive rehabilitation strategy, as outlined in the approved Rehabilitation Management Plan (Evolution 2022).

The Project will implement the above measures for the life of the Project.

Visual amenity impacts of the CGO are also currently mitigated by means of rehabilitated final landforms sympathetic to the natural environment and screening, where appropriate. Rehabilitation and final landform design are currently implemented in accordance with the objectives of the Rehabilitation Management Plan (RMP) (Evolution 2022). This RMP will be updated to outline the progressive rehabilitation and final land use of new Project (as well as existing CGO) components. Rehabilitation will include the reshaping and revegetation of disturbed areas to establish native ecosystems. Progressive rehabilitation and the ongoing revegetation of mined and/or disturbed areas and will be designed to improve visual amenity and mitigate visual impacts experienced by sensitive receptors.

6.2 Design considerations

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.

In addition, the following design considerations will be considered during the detailed design phase for ancillary mining structures:

- 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. The visual impact of the structures can be minimised by careful selection of materials and colours. Neutral colours that blend in with the surrounding landscape should be used where possible, such as khaki, green, beige, or similar.

6.3 Construction mitigation

The construction phase is when the changes to the landscape begin to occur, and it is usually associated with increased 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.

6.4 Lighting

In addition to CGO's existing commitments relating to lighting, lighting design principles for additional Project components outlined below should be followed to minimise any light spill from the Project.

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 (i.e. LPB and WRE to shield ongoing pit and processing operations) 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) will be applied during the design of project elements.

The *Dark Sky Planning Guideline* (2016) was developed by 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. While the Project is not within the Dark Sky Region, the guidelines do provide relevant guidance that can be applied to the lighting design. Design guidelines adapted from the guidelines include:

- 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.

6.5 Landscaping

Using planting as a visual screen is a beneficial 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. Generally, the planted screen needs to be close to the viewing point to be effective.

As noted in Table 5.4, P5 is the only residence predicted to experience moderate visual impacts as a result of the Project. This residence is currently entitled to voluntary acquisition under DA 14/98. Notwithstanding, tree planting to screen views of the Project will be installed if requested by the landowner. If requested, the type of screening recommended includes:

- A band of planting 5–10 m wide along the inside of the property boundary of P5. Trees should be planted at varying heights and arranged in clusters of 3–5 trees. Clusters should be spaced at 20–30 m.
- Shrub species should dominate the screen planting, as they will reach heights of 2–3 m quickly and form the visual screen.

6.6 Impact and mitigation summary

A summary of the results of the visual impact assessment and recommended mitigation is provided in Table 6.1.

Table 6.1 Summary of results of visual impacts at each viewpoint

Viewpoint	Distance to disturbance footprint	Representative receptors	Residential or public	Project elements visible	Magnitude of change	Visual sensitivity	Visual impact rating	Predicted impact	Mitigation proposed Refer to Table 5.2 and Table 5.3	Visual impact rating after mitigation	Potential for cumulative impacts
Viewpoint 1	2.39 km	P3	Residence	Yes	Moderate	Moderate	**Low**	Low	None required	**Low**	None
Viewpoint 2	1.22 km	P5	Public, residences	Yes	Moderate	Moderate	**Moderate**	Moderate	Tree planting to screen views of the proposed project will be installed if requested by the landowner	**Low**	None
Viewpoint 3	4.58 km	Motorists along Blow Clear Road and Bonehams Lane	Public, residences	Yes	Low	Moderate	**Low**	Low	None required	**Low**	None
Viewpoint 4	6.48 km	P31, P20, motorists along Lake Road, people using the lake	Public, residences	Yes	Low	Moderate	**Low**	Low	None required	**Low**	None
Viewpoint 5	4.23 km	E4, campsite users, people using the lake	Public, residence	Yes	Low	Moderate	**Low**	Low	None required	**Low**	None

7 Conclusion

7.1 Visual impact summary

The main objective of a VIA 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.

The Project design is necessarily driven by ore deposits and the existing operations, including locations of stockpiles, WRE areas and other visible elements. The very nature of extracting soil from the ground and creating mounds will result in some changes to the landscape.

Visual impacts will 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.

Visual assessments have been conducted from a number of representative viewpoints surrounding the Project. The representative viewpoints were selected based on the following criteria:

- proximity to the Project
- the location of receptors (i.e. dwellings) and other local features
- the positioning of regional and local roads and potential impacts on passing motorists
- local topography
- presence of vegetation with potential to provide screening.

The representative viewpoints have been assessed to demonstrate the potential visual impacts of the Project. The visual assessment determined that, of the viewpoints assessed, the project will be visible to varying degrees from all four viewpoints. Based on variable elevation and undulation in the landscape and the presence of vegetation, combined with the size of the proposed development, the impact assessment predicts:

- a low visual impact from four viewpoints
- a moderate visual impact from one viewpoint
- there were no viewpoint locations with a high impact rating.

In addition to the viewpoint assessments, each resident within 8 km of the development footprint is listed with the potential visual impacts. The assessment for residences predicts:

- no impact to low visual impact from P1, P2, P3, P4, P6–P31, P3 and E1–E5
- one residence (P5) with moderate visual impact
- no residences with a high impact rating.

7.1.1 Night lighting

The new lighting is expected to be similar to the existing operations surrounding the pits and WRE areas in light intensity and scale. The area of the Project that is lit during the night is expected to be larger than the existing operation due to the number of proposed pits.

The guidelines presented in this VIA for night lighting recommends that lights are inwardly focused and shielded to minimise light spill impacts to neighbouring properties or the night sky.

7.1.2 Cumulative impacts

Cumulative visual impacts can arise from the presence of similar projects and can have a significant visual impact on the landscape when viewed together. Because of the isolated location, the distance and the time needed to travel to the Project area, there are no anticipated cumulative landscape and visual impacts.

References

Commonwealth of Australia 2020, *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds*.

Landscape Institute and Institute of Environmental Management and Assessment 2013, *Guidelines for Landscape and Visual Impact Assessment (GLVIA)* Third Edition.

NSW Department of Planning and Environment 2016, *Wind Energy: Visual Assessment Bulletin AB 01 For State significant wind energy development*, NSW Government.

NSW Department of Planning and Environment 2016, *The Dark Sky Planning Guideline*.

NSW Department of Planning and Environment 2022, *Large Scale Solar Energy Guidelines for State Significant Development*.

Appendix A
Viewpoint analysis

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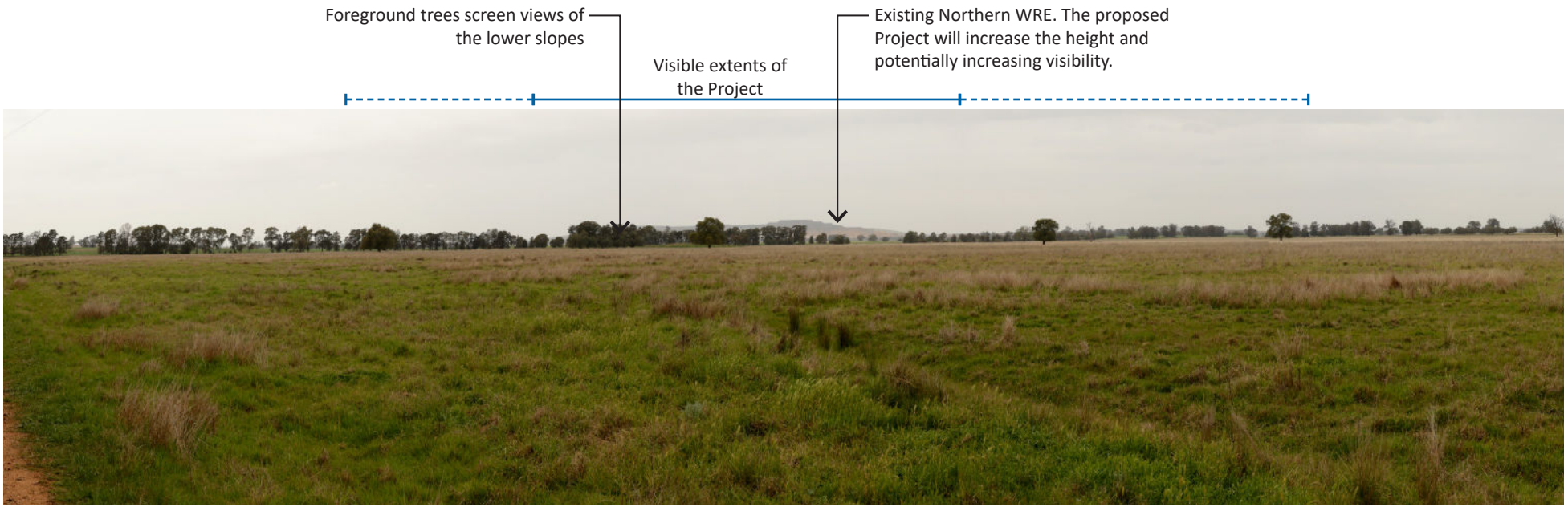
5.3.1 Viewpoint 1 - P3



Indicative extent of development footprint likely to be visible

Indicative extent of development footprint likely to be screened

Distance from development footprint	2.39 km
Duration of view	Long (Residence)
Viewing experience	Moderate
Scale of change	Moderate
Magnitude of change	**Moderate**
Viewer sensitivity	Moderate
Scenic quality	Low
Visual sensitivity	**Low**
Visual impact rating	**Low**

View type and context:

This view is from the road adjacent to the residence. It represents the worst-case as it looks out over cleared land that has no screening trees in the foreground.

Trees along boundary lines and roadways are visible in the distance and they offer some visual screening of the existing Project area.

From this location, the Project is located to the south east. The existing Northern WRE is visible in the distance. The IWL, which is lower in elevation is screened by trees and its landform blends with the existing horizon line.

Potential visual impact:

The proposed addition to the WRE will be visible above the existing tree line (refer to the photomontage on the following page).

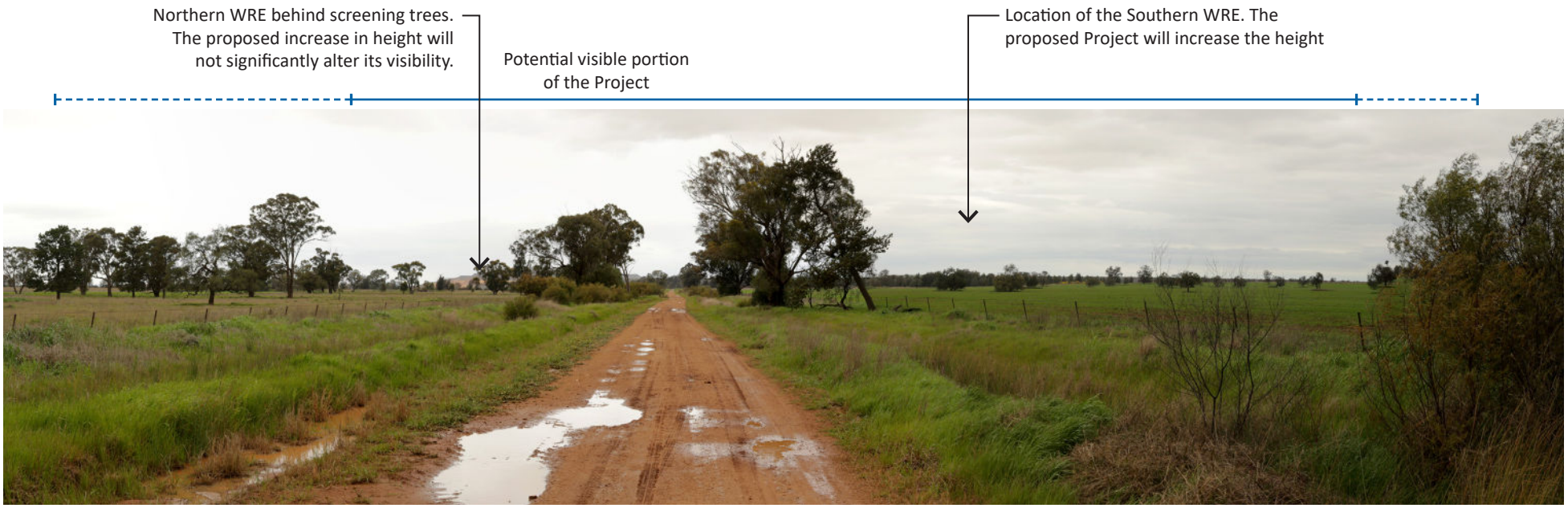
A mitigating factor is that the residence is surrounded by trees that offer some visual screening.

Viewpoint 1 - P3 photomontage

Photomontage depicting the representative landform in year 13.

Photomontage depicting the landform after mine closure and rehabilitation.

5.3.2 Viewpoint 2 - P5



Indicative extent of development footprint likely to be visible

Indicative extent of development footprint likely to be screened

Distance from development	1.22 km
Duration of view	Moderate - Long
Viewing experience	Moderate
Scale of change	Moderate
Extent of view affected	High
Magnitude of change	**Moderate**
Viewer sensitivity	Moderate
Scenic quality	Moderate
Visual sensitivity	**Moderate**
Visual impact rating	**Moderate**

View type and context:

This view is from the road adjacent to the residence. Trees along the roadway and boundary lines form a visual screen that block most views of the Project.

Potential visual impact:

From this location, the Project is located to the east of the viewer.

The increase in height of the Northern WRE may slightly increase its visibility from this location.

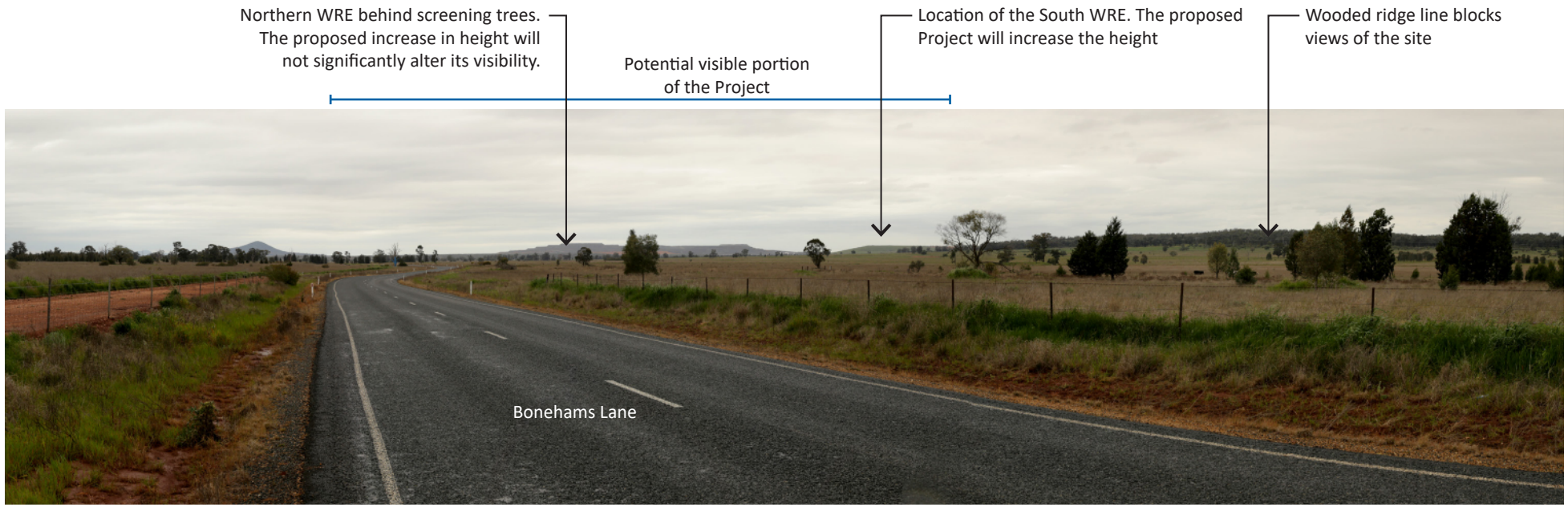
The increase in size of the Southern WRE may cause it to be visible above the trees.

Viewpoint 2 - P5 photomontage

Photomontage depicting the representative landform in year 13.

Photomontage depicting the landform after mine closure and rehabilitation.

5.3.3 Viewpoint 3 - Bonehams Lane



Indicative extent of development footprint likely to be visible

Indicative extent of development footprint likely to be screened

Distance from development	4.58 km
Duration of view	Short
Viewing experience	Low
Scale of change	Moderate
Magnitude of change	**Low**
Viewer sensitivity	Moderate
Scenic quality	Moderate
Visual sensitivity	**Moderate**
Visual impact rating	**Low**

View type and context:

This view is from the road approaching the Project area. The views are over agricultural land with scattered trees.

The topography of this area is of rolling hills that offer very few opportunities for seeing the Project area from a distance.

Potential visual impact:

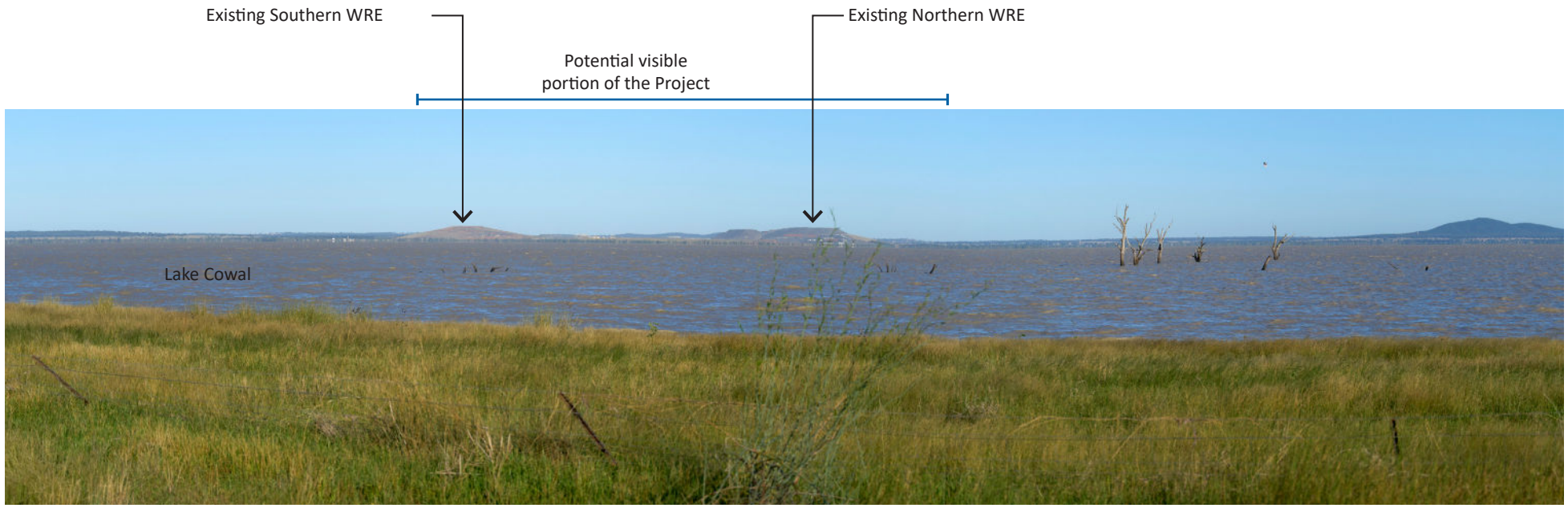
The Northern and Southern WREs are visible from this road. The increase in height of the Northern WRE will only alter the visible landform minimally. The increase in size of the Southern WRE will be more noticeable as it rises above the wooded ridge line in the middle ground.

Viewpoint 3 - Bonehams Lane photomontage

Photomontage depicting the representative landform in year 13.

Photomontage depicting the landform after mine closure and rehabilitation.

5.3.4 Viewpoint 4 - Lake Road (P31, P20)



Indicative extent of development footprint likely to be visible

Indicative extent of development footprint likely to be screened

Distance from development	6.48 km
Duration of view	Long - residence
Viewing experience	Moderate
Scale of change	Low
Magnitude of change	**Low**
Viewer sensitivity	Moderate
Scenic quality	Moderate
Visual sensitivity	**Moderate**
Visual impact rating	**Low**

View type and context:

This view is from the shore of the lake, opposite the Project area. It is located adjacent to agricultural fields with trees along the lake's edge.

This view represents views for residents and motorists on the eastern shores of the lake. This also represents views for people using the lake.

Potential visual impact:

The WREs are visible across the lake. The proposed increase in size of the Northern WRE will only slightly increase the size of the WRE and is predicted to have minimal visual impact.

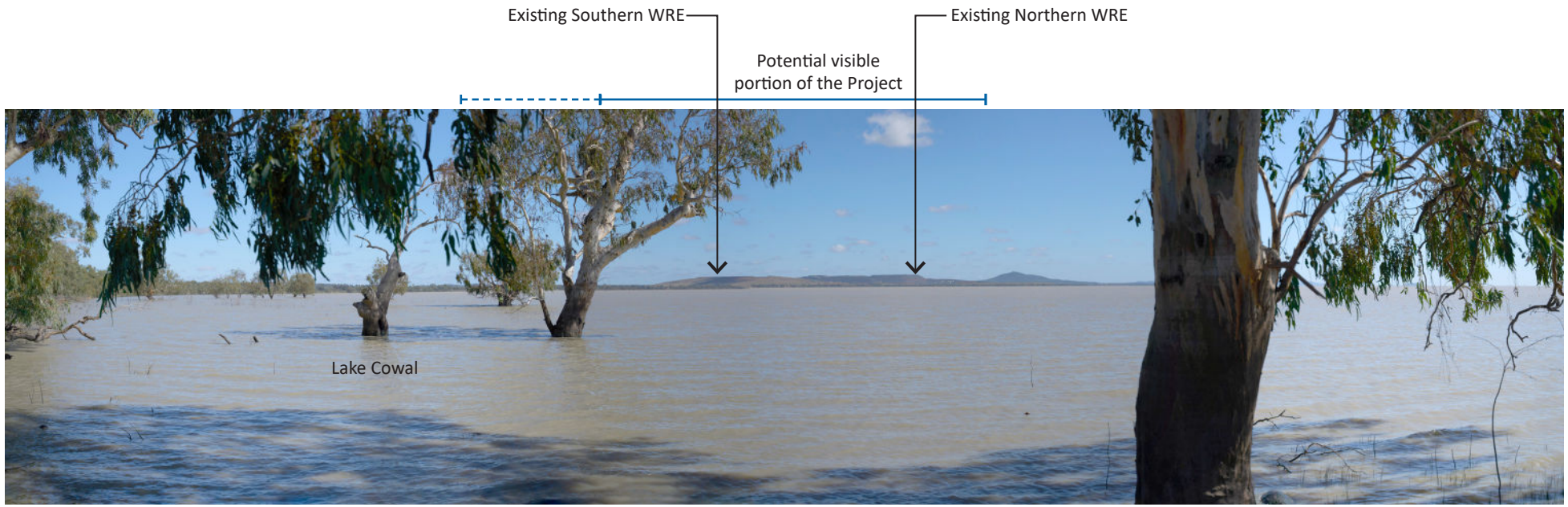
The increase in size of the Southern WRE will be more significant than the north, increasing the potential for visible change.

Viewpoint 4 - Lake Road photomontage

Photomontage depicting the representative landform in year 13.

Photomontage depicting the landform after mine closure and rehabilitation.

5.3.5 Viewpoint 5 - LCCC Campsite



Indicative extent of development footprint likely to be visible

Indicative extent of development footprint likely to be screened

Distance from development	4.23 km
Duration of view	Long - residence
Viewing experience	Moderate
Scale of change	Low
Magnitude of change	**Low**
Viewer sensitivity	Moderate
Scenic quality	Moderate
Visual sensitivity	**Moderate**
Visual impact rating	**Low**

View type and context:

This view is from the shore of the lake, south of the Project area. It is located adjacent to a cluster of buildings that will form a camp site. Agricultural fields abut the site on the south side. The lake is located north of the viewing location with trees along the lake's edge.

This view represents views for people visiting the camp site and along the southern shores of the lake.

Potential visual impact:

The WREs are visible across the lake. The proposed increase in size of the Northern WRE will only slightly increase the size of the WRE and is predicted to have minimal visual impact.

The increase in size of the Southern WRE will be more significant than the north, increasing the potential for visible change.

Viewpoint 5 - LCF Campsite

Photomontage depicting the representative landform in year 13.

Photomontage depicting the landform after mine closure and rehabilitation.

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