

24.0 Scenic amenity and lighting

24.1 Introduction

This chapter outlines issues associated with Scenic Amenity and lighting of the Ensham Life of Mine Extension Project (the proposed project, hereafter referred to as ‘the Project’). The main topics addressed include visual sensitivity, magnitude of change, and significance of effect to scenic amenity.

Environmental objectives and outcomes

The Project seeks to protect environmental values relating to scenic amenity established under the Environmental Protection Regulation 2019 (Qld) (EP Regulation). These environmental values specifically relate to the landscape and scenic amenity provisions within the applicable Regional and Local Plans. As the Project actions relate to the continuation of the underground operation and will continue to use existing surface infrastructure and lighting with the addition of flaring infrastructure to be located in Zone 2 and Zone 3, potential impacts to landscape and scenic amenity are not considered to be significant and are not considered a critical matter in the environmental impact statement (EIS).

The existing Ensham Mine currently manages impacts to land in accordance with Environmental Authority (EA) conditions H1 to H15 under EA EPML00732813. Existing management measures at Ensham Mine include the removal of infrastructure on cessation of mining (H12 and H14) and monitoring of rehabilitation against success criteria (H7).

24.1.1 Scope of the assessment

The purpose of the landscape and visual impact assessment (LVIA) is to determine the significance of the Project’s impacts on scenic amenity values, including lighting.

The impact assessment was based on a range of desktop studies and detailed technical studies (and described further in **Section 24.3.1**), including a field study (**Section 24.3.3**). The approach was designed to gather suitable information in order to assess the potential impacts arising from Project activities and to propose mitigation measures. The objectives of the assessment are to:

- describe the existing landscape (landscape receptors) and identify those people who experience and value views of the landscape (visual receptors)
- undertake a baseline assessment describing existing environmental values of the Project Site with respect to landscape character, visual amenity and lighting
- identify key Project impacts on landscape and/or visual values during day and/or night
- evaluate the significance of the potential impacts of the Project activities on landscape, views and visual receptors during construction, operation and decommissioning/closure during day and night
- describe any Project modifications or management techniques that can mitigate identified landscape and visual impacts.

Impacts on scenic amenity and lighting typically extend well beyond the Project Site. Therefore, the assessment considers a wider area around the Project, comprising land forming the landscape context and within the potential viewshed of the Project, extending up to around 10 km from the Project Site, defined as the LVIA study area (study area).

It should be noted that the current mains ventilation system will be utilised to manage incidental gas for the Project. The current surface infrastructure is deemed to be sufficient for ventilation requirements so no new infrastructure will be required within Zone 1. Seam gas pre-drainage be required to manage gas emissions in the underground workings then an underground in-seam method is proposed to be used. Gas from this underground collection system has been designed to exit the underground in Zone 2 and Zone 3 to be flared to reduce greenhouse gas emissions. Zone 2 and Zone 3 is largely disturbed with large areas of cleared land. The flaring infrastructure will require an exclusion zone of up to 80 m by 20 m on disturbed land which would not require vegetation clearing (other than maintenance of grass levels to minimise any fire risk) and would utilize existing tracks on existing mining leases for access. Flaring infrastructure will be approximately 8 m in height with the flare up to 3 m in height on top of the infrastructure and will operate continuously.

24.2 Legislation and policy

This section summarises the key planning designations, policies and guidance relating to scenic amenity and lighting within the Project Site and wider study area, defined as an area up to around 10 kilometres (km) from the Project Site (and described further in **Section 24.3.1**). The emphasis is to identify landscape and visual amenity objectives and development objectives as described in planning schemes or strategic plans that are relevant to the Project. Some policies may have an indirect influence on landscape and visual character, for example policies with environmental or ecological objectives (e.g. rehabilitation or revegetation works).

The relevant designations, policies and guidelines are discussed in the following sections and, where relevant, shown on **Figure 24-1**. The discussion of relevance to the current assessment considers the following key issues:

- whether the purpose of the policy is related to the protection/management/direction of scenic amenity of lighting values within the study area
- the level of policy importance i.e. at the Commonwealth, State or local level
- if the Project has potential to theoretically directly or indirectly affect those landscape/visual values for which it is protected – depending on the nature of the specific values this may be affected by factors such as proximity, the presence of intervening landform that may restrict inter-visibility, probable levels of recreation use etc.

Whether a designation falls inside or outside of the Project Site is not of primary relevance to the consideration of potential for landscape/visual impacts since the visibility of Project components may extend considerably beyond this boundary.

No specific Commonwealth or Queensland legislation applies to scenic amenity or lighting values of the Project Site or the wider area around the Project Site.

The Project is not assessable against any regional or local planning schemes. However, consideration has been made of any landscape and scenic amenity provisions within the applicable Regional and Local Plans as described in **Section 24.2.1** and **Section 24.2.2**.

24.2.1 Regional planning schemes

The Central Queensland Regional Plan (DSDIP, 2013) is the regional plan which guides future planning decisions across the region. The plan includes general guidance on the protection of landscape values in the region as described in **Section 24.2.2**. Due to the close proximity of the Project to the Isaac Region, the Mackay, Isaac and Whitsunday Regional Plan (2012) has also been included to ensure consistency across the study area for the scenic amenity and lighting assessment and is also described in **Section 24.2.2**.

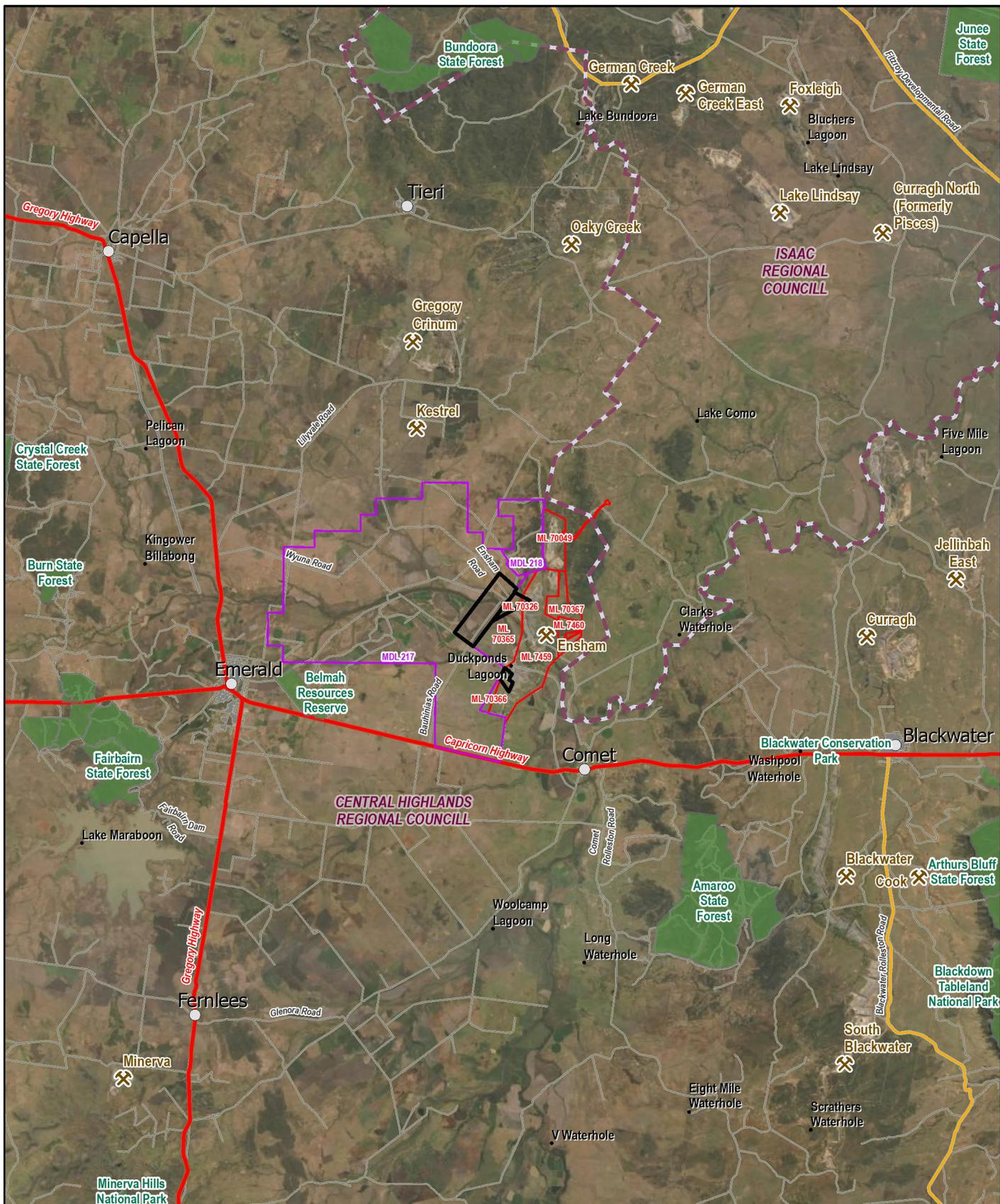


Figure 24-1
Regional Location and Landscape Planning Context



Legend

- Project Area
- Mining leases
- Mineral development licence
- Towns
- Coal mines
- Localities
- Local government area boundaries
- Protected areas of Queensland
- Main Road
- Public Road
- Other Road

ENSHAM LIFE OF MINE EXTENSION PROJECT

Projection: GDA 1994 MGA Zone 55 Scale: 1:600,000
Source: State of Queensland, 2019. Imagery: State of Queensland, 2017.

Table 24-1 Regional landscape planning policy context

Central Queensland Regional Plan (2013)	
<p>The Project is located in the Central Queensland Regional Plan area (within the area of the Central Highlands Regional Council (CHRC)).</p>	
Policy objective	Purpose/intent
<p>Chapter 6 – Other state interests</p>	
<p>Economic growth - tourism</p>	<p>The plan states that “...As areas of high scenic or natural amenity are the region’s most significant drawcard, managing potential tourism sector impacts on environmental values is necessary to ensure a long term sustainable tourism industry in the region. Coastal and island environments provide an opportunity for expanded tourism activities and accommodation, but also a challenge to sensitively plan for developments that provide for appropriate avoidance and mitigation of environmental impacts.”</p>
Mackay, Isaac and Whitsunday Regional Plan (2012)	
<p>The Mackay, Isaac and Whitsunday Regional Plan applies to areas to the west of the Project (within the area of Isaac Regional Council). The Strategic Direction acknowledges the diversity of landscapes across the region including ‘the western coalfields around Moranbah, Dysart and Nebo’ and states that ‘these landscapes are the basis of the social, economic, tourism and cultural values of the region’.</p>	
Policy objective	Purpose/intent
<p>Regional landscapes</p>	
<p>Desired regional outcome (DRO) 2 Regional Landscapes: Environmental, economic, social and cultural values of the regional landscape are identified and secured to meet community needs and achieve ecological sustainability.</p>	<p>The purpose of this policy is to protect regional landscape values. The plan states that ‘to remain attractive and functional, the regional landscape must be responsibly planned and well managed to continue to support values including biodiversity, rural production, scenic amenity, landscape heritage and outdoor recreation’.</p> <p>The notes associated with DRO2 2.2 identify that each component of the regional landscape has its own specific value and significance to the environment and residents of the region including: natural economic resource areas – sections of the landscape that support agricultural production, extractive industry, forestry, tourism and rural industries.</p>

24.2.2 Local planning schemes

At the local level, the Project is located within the Central Highlands Regional Council (CHRC) Local Government Area (LGA), as shown on **Figure 24-1**. Therefore, relevant provisions of the Central Highlands Regional Council Planning Scheme (2016) are described in **Table 24-2**.

Due to the proximity of the Project to the Isaac Regional Council (IRC) LGA, the relevant provisions of the Proposed Isaac Regional Planning Scheme (2018) and the existing Broadsound Planning Scheme (2005) (in effect until the new planning scheme covering the Isaac region is adopted) are also considered and described in **Table 24-2**.

Table 24-2 Local landscape planning policy context

Central Highlands Regional Council Planning Scheme (2016)	
<i>The Project is situated within the CHRC LGA.</i>	
The Central Highlands Planning Scheme 2016 (Amendment No. 3) came into effect on 15 September 2017.	
Part 3 Strategic framework, 3.2 Strategic intent states:	
<i>“Natural environments in the Central Highlands are conserved in perpetuity in a well-planned, coordinated and regulated network of green space that excludes incompatible development and maintains the integrity of natural values. The region also contains an abundance of natural resources and landscape features that are well managed, utilised and protected. These resources support the region’s unique character and enable economic development through the sustainable use of mineral and agricultural assets.”</i>	
Policy objective	Purpose/intent
3.3 Settlement pattern theme	
3.3.4 Element 3 – Network of centres and places (Central Highlands place model)	All land within the Central Highlands has been categorised into a ‘Place’ type, each of which has its own specific strategic planning outcome that is sought for its character, land use and development. The Project falls within the area identified as ‘Rural Place’ on Strategic Framework Map SFM-001a.
3.3.4.2 Specific outcomes – Rural Places	The following specific outcomes for Rural places are relevant to landscape and/or visual amenity: <i>“(e) Rural Places contribute to the landscape setting of the Central Highlands and its urban communities located in other place types...”</i>
3.5. Natural resources and landscape theme	
3.5.1 Strategic Outcomes	The strategic outcomes for the natural resources and landscape theme include the following provisions relevant to scenic amenity: <ul style="list-style-type: none"> (a) The scenic amenity values of natural and rural landscapes within the Central Highlands are protected, maintained and enhanced for current and future generations, including Carnarvon Gorge, Sandstone Belt and Gorges, Expedition Ranges, Blackdown Tablelands, Bedford Weir, Peak Downs district and Mount Zamia. (b) Natural and rural landscape features are appropriately managed, utilised and protected to ensure that the Central Highlands maintains its unique character and identity whilst also allowing its natural resources, such as mineral and agricultural assets, to be sustainably used and managed.

Central Highlands Regional Council Planning Scheme (2016)
3.5.2. Element 1 – Scenic Amenity Specific outcomes

The plan seeks to ensure that:

- (a) Areas having high scenic amenity value are protected from land use and development with the potential to cause significant adverse visual or other impacts on natural landscape values.
- (b) Natural areas of high scenic amenity value are sustainably managed within the region and include:
 - (i) rich, fertile soil for agricultural activity;
 - (ii) waterways, wetlands and water bodies; and
 - (iii) vegetated landscapes including National Parks, State Forests, open space reserves, riparian corridors and remnant vegetation communities on private and public land.
- (c) Significant intrusions on natural landscape values or resources, such as urban development and extractive industry are designed, located and operated to mitigate and reduce any negative impacts on scenic character and amenity.

It is noted that there is no specific scenic amenity overlay or map that identifies specific areas of high scenic amenity value within the CHRC LGA.

3.5.3 Element 2 – Natural resource management
Mineral and extractive resources

The plan seeks to ensure that:

- (b) Extractive industry activities not located within a key resource area “(ii) are located, designed and operated to protect and maintain the amenity and environmental values of surrounding development.”

6.2.16 Rural zone code
Planning Scheme Regional Zone Map ZM002a of the Central Highlands Regional Council Planning Scheme shows that the Project Site and its immediate context falls within the Rural Zone.

The purpose of the rural zone code is to provide for rural uses and provide opportunities for non-rural uses that are compatible with agriculture, the environmental features, and landscape character of the rural area. The purpose of the rural zone code will be achieved through the following overall outcomes:

- (a) development provides for a broad range of rural uses... Extractive industry and more intensive rural uses... may also be established in the zone provided that adverse environmental and amenity impacts are avoided or appropriately managed...
- (g) development for extractive industry uses are appropriately designed, operated and managed to avoid, or where avoidance is impractical, minimise significant nuisance and environmental impacts on surrounding premises.
- (i) to maintain the rural character and amenity of the zone, development has a predominantly low-rise built form...
- (j) the built form of development integrates with and complements the predominant rural character and scale of the zone, and sensitively responds to the environmental and topographical features of the landscape.

Proposed Isaac Regional Planning Scheme (2018)

The proposed Isaac Regional Planning Scheme is in development, following a consultation period that occurred between July and September 2018.

Part 3 Strategic framework, 3.2 Strategic intent states:

“Rural areas support mining activities, renewable energy facilities, infrastructure and hazardous activities that cannot be located within urban areas in locations that do not impact upon surrounding sensitive land uses.”

“Extractive industry operations occur within identified key resource areas or in rural areas where environmental impacts and impacts on infrastructure can be avoided or mitigated.”

“Development and infrastructure mitigates impacts on cultural heritage, water quality and natural environmental values.”

“The cumulative impacts of development in the region is managed to avoid intolerable or unacceptable health, safety and amenity impacts on residents and visitors to the region.”

Policy objective

Purpose/intent

3.5. Protecting natural resources and the environment

Extractive, mineral, gas and petroleum resources (3.5.1.2)

The plan seeks to ensure that:

“(4) Extractive resource operations only occur where compatible with the intentions of the relevant zone and overlays applying to the site, and where impacts on visual amenity, the natural environment ... or the safety and amenity of the surrounding area can be mitigated to an acceptable standard.”

“(5) Extractive resource operations...are managed to avoid or mitigate to an acceptable standard, impacts including impacts on visual amenity...”

6.2.6.5 Rural zone code

Land in close proximity to the Project is identified within the rural zone on zoning map ZM-1.3 of the Draft Isaac Regional Council Planning Scheme.

The rural zone code seeks to provide for rural uses and activities and other uses and activities that are compatible with existing and future rural uses and activities and “(ii) the character and environmental features of the zone”.

8.2 Use codes

8.2.1 Extractive industry code

The purpose of the extractive industry code is to facilitate the optimum use of extractive resources in identified areas in the region; ensure extractive industry operations occur in a manner that *“minimises impacts on amenity and the natural environment; and ensure rehabilitation occurs following extraction”* The code requires that *“extractive industry activities are designed and managed to mitigate as far as possible, impacts on the site and surrounding area’s environmental value.”* And *“land disturbed by extractive industry activities is progressively rehabilitated to ensure the site is environmentally stable and capable of reuse.”*

Broadsound Planning Scheme (2005)

The Broadsound Planning Scheme applies to land within the Isaac Shire LGA to the north-east of the Project Site. It does not include any landscape or scenic amenity overlays.

Land near the Project Site typically falls within the general rural preferred use area, parts of which are identified as good quality agricultural land (Map 11 of the Planning Scheme).

Part 2 of the Planning Scheme identifies desired environmental outcomes (DEOs) for the region. The DEOs include provisions relevant to landscape and visual amenity, as outlined below.

Policy objective	Purpose/intent
Maintenance of cultural, economic, physical and social well-being of people and communities	
<p>This DEO seeks:</p> <p>(l) areas and places of special aesthetic, architectural, cultural, historic, scientific, social or spiritual significance and their values are conserved or enhanced</p> <p>(n) adverse effects for scenic values in coastal areas, bushland and the rural countryside are minimised.</p>	<p>The specific outcomes and probable solutions for amenity, community harmony and the sense of community are set out in Planning Scheme Table 4.1. The Planning Scheme seeks to avoid adverse impacts on the countryside by ensuring that buildings and works are attractive and consistent with the scale and design of buildings and works in the rural neighbourhood. This includes:</p> <ul style="list-style-type: none"> • a proposed 8.5 metres (m) maximum height of a building structure or object above natural ground surface • screening of outdoor storage areas for waste, machinery and other materials from view from the street by fencing and/or landscape • not placing 'transportable buildings of a kind used at construction and mining sites, usually called 'dongas'' within a rural preferred use area where they are visible from a road, neighbouring property or vantage point • avoiding impacts on associated, adjoining or nearby residential uses through the location and design of facilities (no probable solution is suggested) • maintaining rural amenity (no probable solution is suggested) • screening extensive open ponds and buildings with vegetation, topography or through sufficient setback distance from roads (no probable solution is suggested).

24.2.3 Guidelines and standards

There are currently no mandated Commonwealth or State requirements relevant to this LVIA. Therefore, the approach to the LVIA has been developed with reference to concepts in accepted guidelines and standards from Australia and elsewhere, including:

- Guidance Note for Landscape and Visual Assessment (Australian Institute of Landscape Architects (AILA), 2018)
- Guidelines for Landscape and Visual Impact Assessment, Third Edition (The Landscape Institute and the Institute of Environmental Management and Assessment, UK, 2013) and Second Edition (The Landscape Institute and the Institute of Environmental Management and Assessment, UK, 2002)
- *Australian Standard 4282* (1997) Control of Obtrusive Effects of Outdoor Lighting

- Visual Landscape Planning in Western Australia: a manual for evaluation, assessment, siting and design (Western Australian Planning Commission and Department for Planning and Infrastructure, 2007)
- Technical Guidance Note 06/19: Visual Representation of Development Proposals (The Landscape Institute, UK, 17 September 2019)
- Topic Paper 6: Techniques and Criteria for Judging Capacity and Sensitivity (Scottish Natural Heritage and The Countryside Agency, UK, 2006).

24.3 Methodology

24.3.1 Desktop assessment

A preliminary desktop analysis was undertaken to determine existing scenic amenity values within the Project Site, as well as within the wider landscape around Ensham Mine. This included analysis of the underlying topography, land cover and landscape values. The assessment considered a wider area around the Project, defined as the LVIA study area as shown in **Figure 24-3**.

Key information sources have been identified and reviewed as a component of the desktop analysis. These sources include:

- relevant planning schemes, policies and guidelines from local councils (as described in **Section 24.2**)
- cadastral data (showing roads, property boundaries and built areas)
- Queensland Globe data
- digital aerial photography (imagery dated 2018 from Google Earth)
- Queensland bioregion data
- publicly available information on recreation spaces and public visitor areas
- existing infrastructure.

24.3.2 Identification of potential impacts

This component of the assessment includes consideration of any above-ground infrastructure and imagery that may be associated with the Project. The potential components and their impacts are further discussed in **Section 24.5**.

24.3.3 Field survey

A field visit was carried out on 18 November 2019, during which time photographs were obtained for the purposes of the scenic amenity and lighting assessment. The field survey was undertaken by a Landscape Planner with experience of LVIA accompanied by an Ensham Resources Environmental Advisor with knowledge of the Project Site and surrounding landscape. The field survey was used to ground truth the findings of the desktop assessment and to undertake an on-site assessment of scenic amenity values and potential impacts.

Photographs were taken to portray landscape character and inform the viewpoint assessment from representative viewpoints. To ensure the photomontages consistently present a view which is representative of the human eye, the field assessment photographs were taken at average human viewing height (typically considered to be 1.5 - 1.7 m). The photos were taken using a Canon EOS 6D Mark II body with a Sigma 50 millimetre (mm)f/1.4 DG JSM lens. The Canon EOS 6D is a full sensor lens. Using a 50 mm lens it has an equivalent field of view as a standard single lens reflex (SLR) using 35 mm film and 50 mm focal length, which is the standard (albeit technologically outdated) recommendation for obtaining photographs that are representative of the human field of vision (40 degrees).

Photo stitching software and Adobe Photoshop were used to piece together the adjoining images to produce a field of vision of approximately 75° that is considered representative of the human field of view. Although the parameters of human vision when stationary is often quoted as falling between the 45-60° (SNH, 2006), humans generally move their eyes, heads and bodies as necessary to experience a view. Therefore, a wider field of view has been used for the photomontages, which is in line with good practice.

24.3.4 Scenic amenity assessment

“An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements” (Landscape Institute and Institute of Environmental Management and Assessment, 2013)

Visual receptor audiences are assessed and described in terms of the views that can be obtained from selected representative viewpoints within the study area. Representative viewpoints have been identified and described as part of the assessment. Visual receptors have been identified based on a number of parameters, including:

- proximity of the receptor to the Project Site
- type of visual receptor experiencing the view e.g. residents, people passing through the area in vehicles, recreational users or workers.

These visual receptor audiences and representative viewpoints are discussed further in **Section 24.5**.

24.3.4.1 Visual sensitivity

For the purposes of this assessment, the sensitivity of the viewers at the viewpoints is considered to be dependent upon:

- the importance of the view i.e. the scenic qualities of the view, including the presence of other existing manmade elements in the view
- the nature of the visual receptor (type and volume of sensitive receptors or viewers) experiencing the view; for example, residents and visitors to important/valued landscapes are considered to have a higher sensitivity to their visual environment than, say, visitors to non-designated areas or motorists passing through the landscape.

Viewpoint sensitivity is defined in **Table 24-3**.

Table 24-3 Defining visual sensitivity

Attributes of viewpoint sensitivity categories	Viewpoint sensitivity
Large numbers of viewers, particularly those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and/or well-used recreational facilities. Views from a regionally important location such as a scenic lookout whose interest is specifically focussed on the landscape.	High
Medium numbers of residents and moderate numbers of visitors with an interest in their environment e.g., visitors to State Forests, including bush walkers, horse riders, trail bikers. Larger numbers of travellers with an interest in their surroundings.	Medium
Small numbers of people and/or those with a passing interest in their surroundings e.g., those travelling along principal roads. Viewers whose interest is not specifically focussed on the landscape e.g. workers, commuters.	Low
Very occasional numbers of viewers with a passing interest in their surroundings e.g. those travelling along minor roads or views from the air	Negligible

24.3.4.2 Magnitude of change to visual amenity from representative viewpoints

The magnitude of change to views and visual amenity depends on the nature, scale and duration of the change that is expected to occur. The magnitude of change also depends on the loss, change or addition of any feature in the field of view of the receptor; or any change to the backdrop to, or outlook from, a viewpoint. The assessment assumes a worst case scenario without mitigation. The level of effects on a view depend on the extent of visibility, degree of obstruction of existing features, degree of contrast with the existing view, angle of view, duration of view and distance from the Project.

Magnitude of change is described as being barely perceptible, noticeable, considerable or dominant, as illustrated in **Table 24-4**. Full descriptions on the magnitude of change from each representative viewpoint are discussed further in **Section 24.5** below.

Table 24-4 Defining magnitude of change to scenic amenity

Attributes of magnitude of change categories	Magnitude of change
Dominant change: major changes in view at close distances (typically less than 100 m), affecting a substantial part of the view, continuously visible for a long duration, or obstructing a substantial part or important elements of view and introducing new and incongruous elements into the view.	High
Considerable change: clearly perceptible changes in views at intermediate distances (typically 100 – 500 m), resulting in either a distinct new element in a significant part of the view, or a wider ranging, less concentrated change across a wider area.	Medium
Noticeable change: minor changes in views, at long distances (typically 500 m – 1 km) or visible for a short duration, and/or are expected to blend in with the existing view to a moderate extent.	Low

Attributes of magnitude of change categories	Magnitude of change
Barely perceptible change: change which is barely visible, at a very long distance (typically more than 1 km), or visible for a very short duration, and/or are expected to blend with the existing view.	Negligible
Imperceptible change: Change which cannot be discerned either due to lack of new elements or such minor changes that due to distance they change is unlikely to be registered by the viewer.	No impact

24.3.4.3 Overall significance of impact on scenic amenity from representative viewpoints

The evaluation of overall potential impacts on visual amenity is based on the sensitivity of existing views to change and the magnitude of change that is likely to occur. No prescribed methods to assess significance of impacts exist. Therefore, professional judgement and experience are applied to identify the level of significance. Each viewpoint is assessed on its own merits, as factors unique to each circumstance need to be considered. However, there are general principles that can be used as a guide to this process which provides transparency about how judgements have been made. The overall significance of change to visual amenity and individual viewpoints, is determined by using **Table 24-5**, and presented in **Section 0**.

Table 24-5 Determining significance of effect on scenic amenity

Significance of impact		Magnitude of change in views*			
		High (dominant change)	Medium (considerable change)	Low (noticeable change)	Negligible (barely perceptible change)
Sensitivity of views	High	Major	Moderate to major	Moderate	Minor to moderate
	Medium	Moderate to major	Moderate	Minor to moderate	Minor
	Low	Moderate	Minor to moderate	Minor	Minor to negligible
	Negligible	Minor to moderate	Minor	Minor to negligible	Negligible

*Note: where 'no impact' is recorded for the magnitude of change, the significance of impact is recorded as 'no impact'.

24.3.5 Lighting impact assessment

A detailed assessment of lighting impact (in accordance with AS 4282) has not been undertaken because there are no additional proposed permanent light sources. All permanent light sources associated with the Project are existing or would be located underground so would not be visible to receptors or affect amenity values. The proposed flares are a potential source of light spill. However, there are no Australian standards specifically for night flaring. The lighting impact assessment presented is a qualitative assessment of impacts at night based on the same sensitivity and magnitude criteria as the daytime assessment.

24.4 Description of environmental values

This section provides an overview of the landscape and visual character of the existing regional and local context of the Project.

24.4.1 Regional landscape context

24.4.1.1 Settlement and infrastructure

As shown on **Figure 24-1**, the Project Site is situated approximately 35 km east of Emerald in the western part of the central Bowen Basin, within an area dominated by rural land uses, in particular cattle grazing, dry land cropping and irrigated cropping (within the Emerald irrigation area). As shown on **Figure 24-1** several coal mines are located across the region. The surrounding landscape comprises isolated farmsteads and associated agricultural infrastructure such as sheds and barns, while there is also considerable evidence of mining activity including the existing open cut mines and associated surface infrastructure. Electricity transmission lines and coal freight railways are associated with the mining areas.

Emerald has a population of 14,356 (ABS, 2019) and is a regional centre servicing the surrounding region and was originally established to facilitate the construction of the western railway (CHQ, 2019). It is serviced by a regional airport.

Blackwater, established in 1886 to provide services for rail workers and farmers (BICC, 2019), has developed into an important coal mining town with a population of 4,749 (ABS, 2019) and is home to the Blackwater International Coal Centre and the Australian Coal Mining Museum.

The small town of Comet, shown on **Figure 24-2** is situated at the junction of the Nogoia, Mackenzie and Comet Rivers approximately 18 km to the south-east of the Project Site, and is one of the earliest townships in the region with a population of 498 (ABS, 2019).

These settlements are connected by the Capricorn Highway, which is located to the south of the Project Site and connects Barcaldine in the west to Rockhampton in the east. The section between Duinga and Emerald in the vicinity of Duckponds Road (TMR Chainage 127.950 km) has an annual average daily traffic (AADT) count of up to 1,429 vehicles (around 15.65 per cent of which are heavy vehicles). Other key roads within the vicinity of the Project Site include the Gregory Highway and Blackwater Rolleston Road with AADTs of 2,653 and 1,855 respectively. Other local roads around the Project Site are typically sealed and unsealed public roads with low daily traffic counts, or unsealed tracks accessing private properties.

An existing freight rail track services the Ensham Mine and other surrounding coal mines, transporting coal to the Port of Gladstone. This is part of the Blackwater coal system, which forms part of the Central Queensland Coal Network operated by Aurizon (Aurizon, 2019).

24.4.1.2 Landform and hydrology

The main hydrological and topographical features of the landscape are illustrated in **Figure 24-2** with more detail around the Project Site provided in **Figure 24-3** and **Figure 24-4**.

The main watercourses comprise the Nogoia, Mackenzie and Comet rivers and Theresa Creek, which are all major waterways within the Fitzroy Basin. The Nogoia River and its minor tributaries traverse the Project Site and provide water supply from Fairbairn Dam (Lake Maraboon) to downstream users. The Fairbairn Dam is located 19 km south-west of Emerald and provides public facilities including a boat ramp, amenities, picnic tables and barbeques, while camping is available at the nearby Lake Maraboon Holiday Park (DAF, 2018).

The region surrounding the Project Site is dominated by low-lying, relatively flat to gently undulating landscapes between 120 m and 300 m above Australian height datum (AHD) from which low hills, mountains and tablelands arise, including local peaks such as Mount Crocker (248 m AHD) approximately 18 km to the east of the Project Site. Within the broader region Mount Gobula (251 m AHD), Mount Sirloin (392 m AHD) and landscapes associated with the Minerva Hills, Shotover Range, Expedition Range (including Mount Success (790 m AHD)) and the Dawson Range are found.

24.4.1.3 Vegetation character and recreational land use

There are no protected landscapes close to the Project Site or other areas that are likely to be used for recreation.

As shown on **Figure 24-1**, the closest National Park is Blackdown Tableland National Park, which is situated within the wider landscape context of the area and includes a variety of recreation opportunities, amenities, camping facilities and several elevated scenic lookouts. Ghungadu Conservation Park and Arthurs Bluff State Forest are situated nearby the Blackdown Tableland National Park, however have no formal recreation facilities. These areas are too distant to be affected by the Project.

The nearest State Forest is Amaroo State Forest which is located approximately 23 km south-east of the Project Site, while Fairbairn State Forest and Belmah Resource Reserve are situated approximately 35 km and 15 km respectively to the south-west of the Project Site. No formal recreation facilities are provided at any of these locations.

With the exception of more elevated, undulating areas (typically associated with areas within state forest and national park), vegetation has largely been cleared within the study area to facilitate rural land uses. Remnant vegetation is typically comprised of open forests and woodlands dominated by Brigalow (*Acacia harpophylla*) and Coolibah (*Eucalyptus coolabah*), which occurs in locally elevated areas and along riparian corridors (DES, 2019), and tree belts associated with edge of local and state roads.

24.4.1.4 Landscape character including the Interim Biogeographic Regionalisation for Australia

The Interim Biogeographic Regionalisation for Australia (IBRA) is a biogeographic regionalisation of Australia developed by the Australian Government department formerly known as Department of Sustainability, Environment, Water, Population and Communities (now Department of Agriculture, Water and the Environment (DAWE)). IBRA represents a landscape-based approach to classifying the land surface of Australia. The IBRA data consists of two datasets: IBRA bioregions, which are a larger scale regional classification of homogenous ecosystems; and sub regions, which are more localised.

Whilst bioregions have been defined mainly for the purposes of ecosystem planning and monitoring, the nominal attributes that make up IBRA are: climate, lithology/geology, landform, vegetation, flora and fauna and land use which are themes typically used to define landscape character at a high level. On 5th July 2012, IBRA 7.0 was released, which delineates 89 biogeographic regions and 419 sub regions, each reflecting a unifying set of major environmental influences which shape the occurrence of flora and fauna and their interaction with the physical environment across Australia. The bioregion information enables a high-level desktop understanding of the different landscape settings of the study area. The descriptions for the sub-regions that accompany IBRA7 are not currently published. However, upon request, the Queensland Government Environmental Resources Information Network (ERIN) supplied descriptions of each of the sub-bioregions in the study area for the IBRA5.1 dataset (which follows similar boundaries).

The Project Site falls within the Brigalow Belt North (BBN) Bioregion. Most of Mineral Development Licence (MDL) 217 and the entirety of the Project Site falls within the BBN11 Isaac-Comet Downs Subregion. The area to the north-west and south-west of the Project Site falls within the BBN10 Basalt Downs Subregion. These are shown on **Figure 24-2** (ERIN, 2012) and described in **Table 24-6** below.

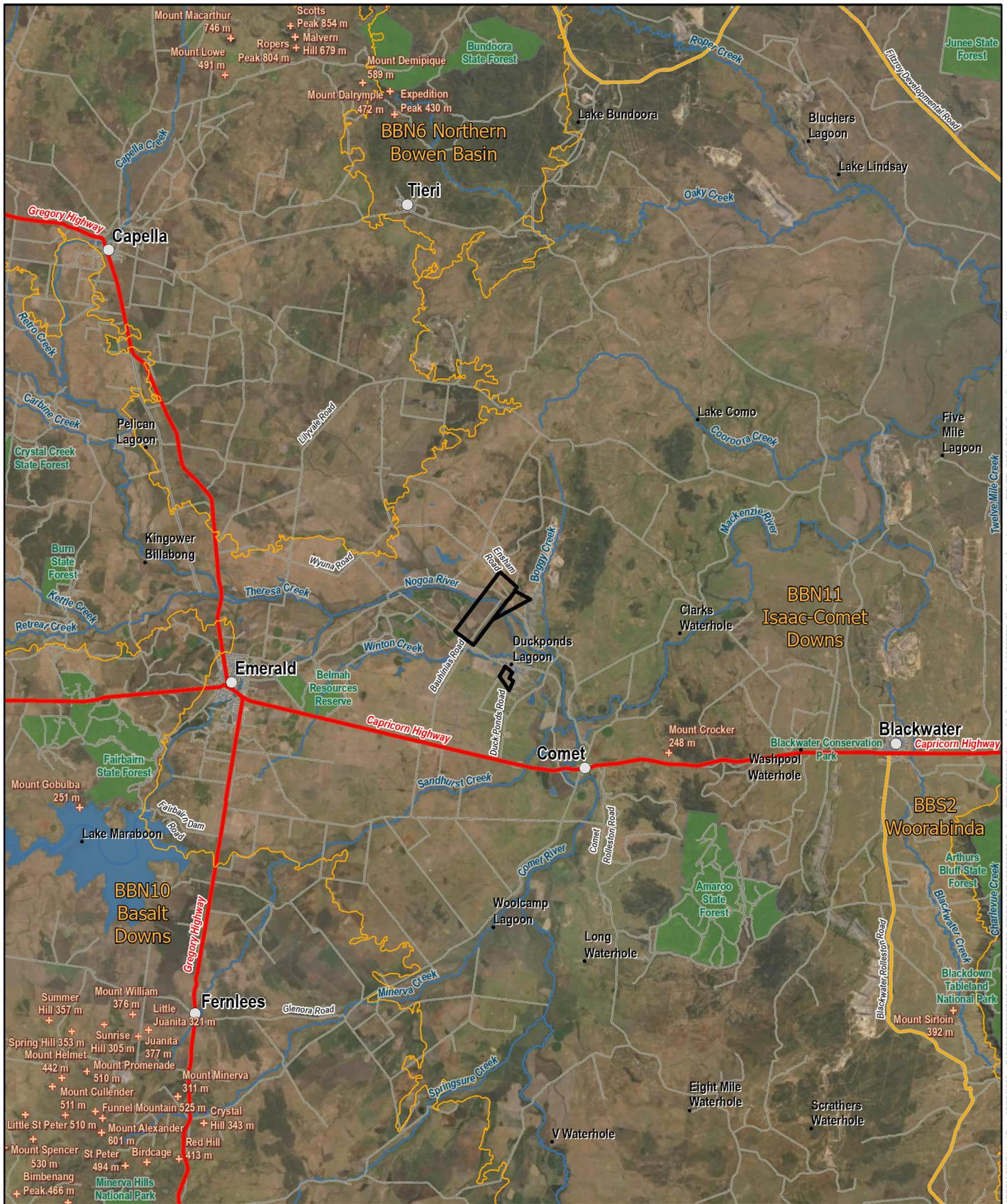


Figure 24-2
Regional Landscape Context



Legend

- Project Area
- Towns
- Watercourse
- Localities
- Local Peaks / Mountains
- Biogeographic subregions
- Protected areas of Queensland
- Main Road
- Public Road
- Other Road

ENSHAM LIFE OF MINE EXTENSION PROJECT

Projection: GDA 1994 MGA Zone 55 Scale: 1:600,000
Source: State of Queensland, 2019. Imagery: State of Queensland, 2017.

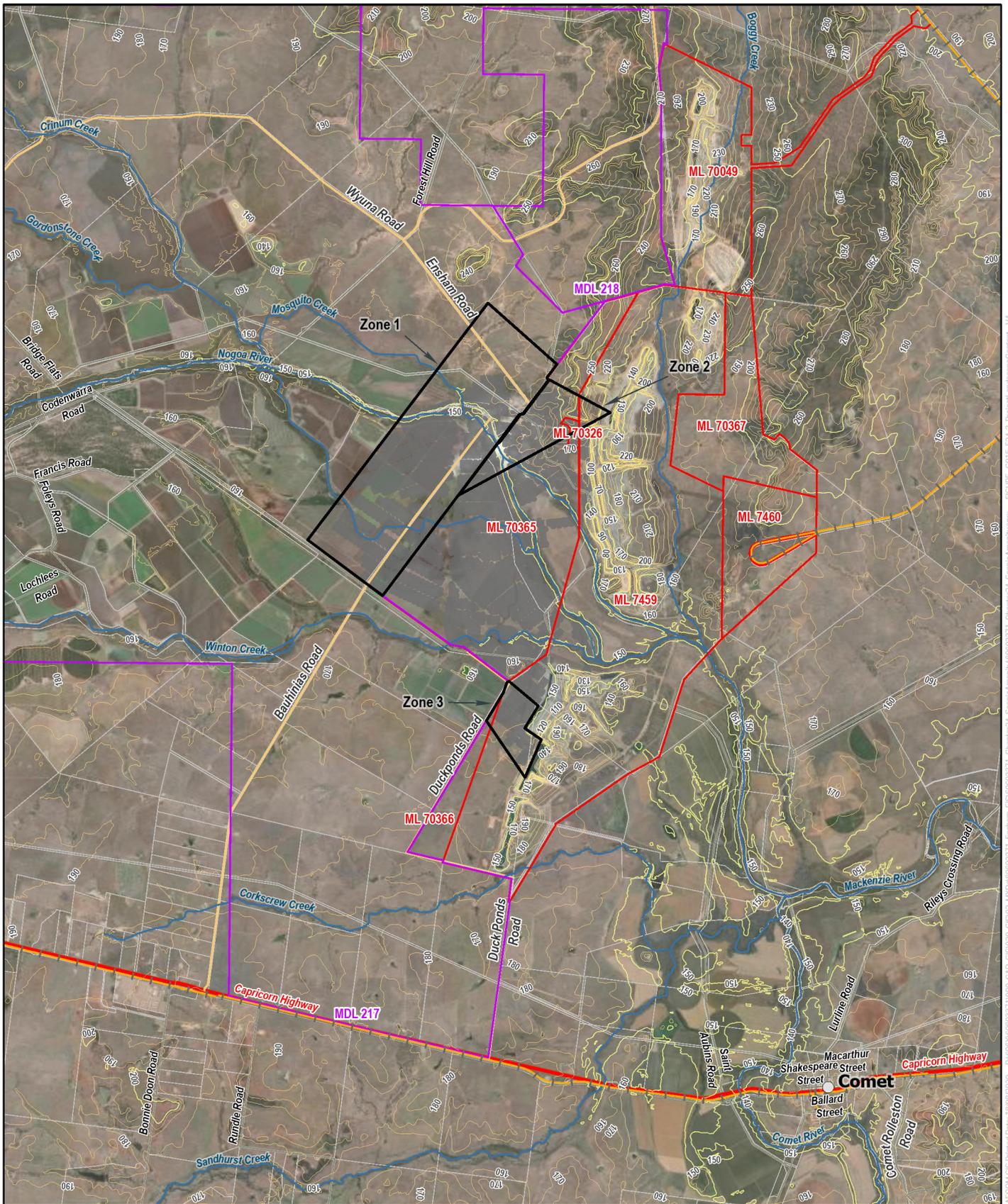


Figure 24-3
Project Study Area Context



Legend

- | | | |
|-----------------------------|--------------------|----------------------|
| Project Area | Towns | Intermediate Contour |
| Mining leases | Watercourse | Index Contour |
| Mineral development licence | Railway | |
| Cadastral lot boundaries | Main Road | |
| Planned Mine Plan | Other Road | |
| | Ensham local roads | |

ENSHAM LIFE OF MINE EXTENSION PROJECT

Projection: GDA 1994 MGA Zone 55 Scale: 1:150,000
Source: State of Queensland, 2019. Imagery: State of Queensland, 2017. Indemitsu RFI 2019

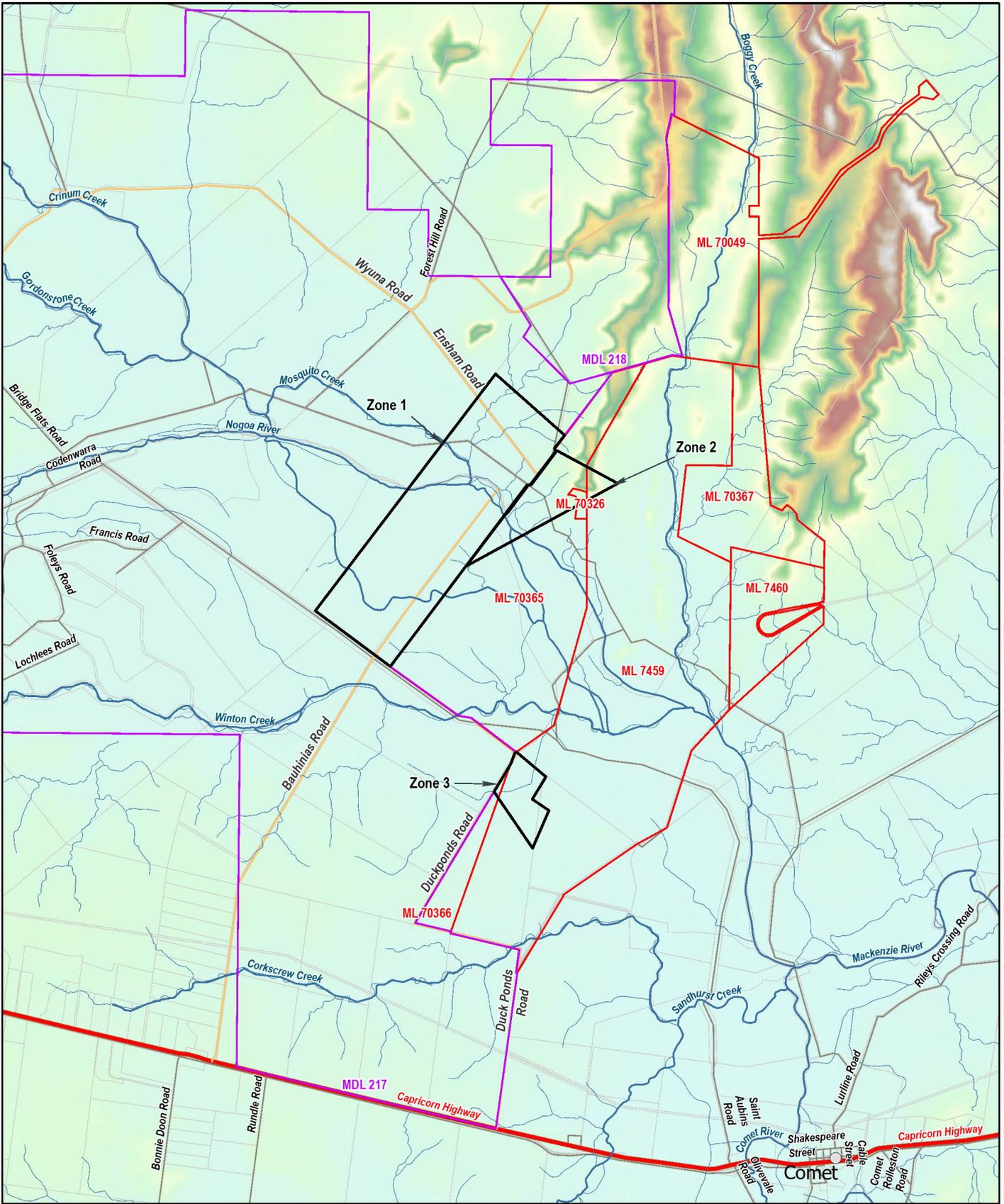


Figure 24-4
Project Study Area Landscape Context

Legend

- Project Area
- Mining leases
- Mineral development licence
- Cadastral lot boundaries
- Towns
- Watercourse
- Main Road
- Other Road
- Ensham local roads
- Elevation (mAHD)**
- 952.106
- 47.499

N

ENSHAM LIFE OF MINE EXTENSION PROJECT

Projection: GDA 1994 MGA Zone 55 Scale: 1:150,000
Source: State of Queensland, 2019. Imagery: State of Queensland, 2017. Indemitsu RFI 2019

Table 24-6 IBRA subregion descriptions

IBRA subregion name, code and total area (hectares)	Description
Basalt Downs BBN10 1,238,537	Basalt Downs is formed almost entirely on Tertiary basalts. It occurs as two separate parts: a northern section, which is dominantly undulating and contains areas of lower Tertiary sediments; and a southern section which is predominantly hilly and contains areas of outcrop of Permian sediments. The more undulating areas carry a blue grass (<i>Dichanthium sericeum</i>) grassland with mountain coolibah (<i>Eucalyptus orgadophila</i>) on hillier areas, often with silver-leaved ironbark (<i>E. melanophloia</i>) and red bloodwood (<i>Corymbia erythrophloia</i>). coolibah (<i>Eucalyptus coolabah</i>) occurs on flood plains. In the north, on Tertiary weathered basalts, gidgee (<i>Acacia cambagei</i>) scrub and brigalow (<i>A. harpophylla</i>) scrub are common, belah (<i>Casuarina cristata</i>) often occurring with the latter. Narrow-leaved ironbark (<i>Eucalyptus crebra</i>) forms woodlands with silver-leaved ironbark (<i>E. melanophloia</i>) and red bloodwood (<i>C. erythrophloia</i>) on rugged basalt areas. On the Permian sediments narrow-leaved ironbark or poplar box (<i>Eucalyptus populnea</i>) form open or shrub woodlands.
Isaac-Comet Downs BBN11 2,701,119	Isaac-Comet Downs is an extensive but diverse subregion that does not readily lend itself to further subdivision. It is a largely undulating subregion dominated by Tertiary and other Cainozoic deposits, with mid-catena deposits being slightly more prominent. Tablelands and dissected remnants of the upper Tertiary surface are widespread, carrying a narrow-leaved (<i>Eucalyptus crebra</i>) woodland on the earths of undulating plateaus, and bendee (<i>Acacia catenulata</i>) or lancewood (<i>A. shirleyi</i>) on the rocky hills and mesas. The lower parts of the Tertiary surface are dominated by Brigalow (<i>Acacia harpophylla</i>) and Dawson gum (<i>Eucalyptus cambageana</i>) — brigalow communities on undulating clay or tenure contrast soils. These communities dominate the subregion. Alluvium is also prominent, and the predominantly fine textured soils carry brigalow or open woodland of coolibah (<i>Eucalyptus coolabah</i>). Fine grained Permian sediments are exposed in some areas, giving rise to grasslands, open woodland and areas of brigalow.

The key landscape character types identified around the Project Site comprise:

- irrigated croplands (predominantly cotton and chick peas)
- dry croplands
- dryland grazing (predominantly beef cattle)
- transitional landscape (including coal mines).

The character of these landscape types is illustrated on **Plate 24-1**.

24.4.2 Project Site landscape

The Project Site, as shown on **Figure 24-3** is located immediately adjacent or close to areas affected by the existing Ensham Mine, which is a large open cut and underground coal mine operated by the partners of Ensham Joint Venture (Ensham JV) on Mining Lease (ML) 7459, ML 7460, ML 70049, ML 70326, ML 70365, ML 70366 and ML 70367 under Environmental Authority (EA) EPML00732813. Ensham JV also holds the adjacent MDL 217 and MDL 218. There are a number of other petroleum tenements overlapping the Project Site.

The existing Ensham Mine comprises underground workings as well as a large area of open cut operations at various stages of its lifecycle including:

- fully rehabilitated areas
- areas currently undergoing active rehabilitation (including fill and grading operations)
- areas of open cut mine that are currently being actively excavated using dragline excavators
- active underground mine operations.

The existing mine is supported by typical mining infrastructure associated with the processing and transport of coal from the mine to market. These are discussed further in **Section 24.5**.

The Project Site, shown on **Figure 24-5**, comprises largely flat to gently undulating grazing lands and irrigated croplands associated with the Nogoia River and its tributaries, typically between around 150 m AHD and around 180 m AHD. The Project Site is divided into three zones:

- Zone 1: this is the largest zone, comprising farmland associated with the Nogoia River that runs through this zone. It includes the properties known as Braylands and Chelbrook, accessed via private tracks from Bauhinias Road and Ensham Road respectively.
- Zone 2: this comprises farmland associated with the Nogoia River located in the south of this zone. It occupies land between Zone 1 and the existing open cut mine area. No properties or roads are located in this zone and the nearest property is Chelbrook.
- Zone 3: this comprises farmland associated with a tributary of the Nogoia River, located to the west of the existing open cut mine. There are no properties located within this zone.



Project Site context: rural roads and distant hills beyond Project Site



Project Site context: Nogoia River (within the existing Ensham Mine area)



Project Site context: Capricorn Highway and irrigated croplands



Project Site context: dryland grazing within the Study Area



Project Site context: character of Comet township



Project Site character: irrigated croplands



Project Site character: decommissioned drag line excavator



Project Site character: existing underground coal mine portal

Plate 24-1 Images illustrating landscape and visual character of the study area

24.5 Potential Impacts

24.5.1 Potential surface mine components

This section describes the key components of the Project that are relevant to the assessment of impacts on scenic amenity and lighting. For further details on the description of the Project, refer to **Chapter 4** (Project description and alternatives). **Table 24-7** describes the features of Ensham Mine, noting where existing infrastructure will be used for the Project and, as appropriate, providing an example of the appearance of typical existing mine components.

Key issues of relevance to potential landscape and visual impacts are:

- subsidence is not predicted to be significant due to the bord and pillar mining method and design that is proposed
- flaring infrastructure will be required for the Project to maintain a safe air quality for workers and mitigate greenhouse gas emissions
- existing surface infrastructure (including CHP) associated with the current operation of Ensham Mine has sufficient capacity to accommodate the extension of mining operations into the Project Site
- the current workforce accommodation arrangements will continue and no new accommodation facilities are required
- all new lighting infrastructure will be underground so no additional light spill is anticipated to be visible on the surface except for light created by flaring
- Waste rock will be buried in the open cut pits as part of the rehabilitation process.

Table 24-7 Potential Project impacts on scenic amenity and lighting

Development activities and infrastructure	Imagery
<p>Removal of vegetation – none proposed</p> <p>As this is an underground mine site and as no additional surface infrastructure is required, activities such as the clearance of vegetation is not required.</p> <p>Flaring infrastructure would require an exclusion zone of up to 80 m by 20 m on disturbed land which would not require vegetation clearing (other than maintenance of grass levels to minimise any fire risk) and would utilize existing tracks on existing mining leases for access. Flaring infrastructure would be approximately 8 m in height with the flare up to 3 m in height on top of the infrastructure</p>	

Development activities and infrastructure	Imagery
<p>Construction and operation of new haul roads – no construction phase as part of Project and no new routes required.</p> <p>No new haul routes would be required as the existing routes could continue to be used, noting that the location of haul routes may change as a result of ongoing activities in the adjacent open cut mining areas.</p>	
<p>Construction and operation of powerlines – No construction phase as part of Project and no new electricity transmission infrastructure is required.</p> <p>There are already plans to upgrade transmission infrastructure with an 11 kilovolt (kV) feed at the entrance to the current underground mine (Ramp 5 substation). This will be sufficient to supply the Project Site, so no further infrastructure is anticipated to be required.</p>	
<p>Rail loop – no new rail infrastructure proposed.</p> <p>The existing rail spur and balloon loop will continue to be used and no new rail infrastructure is required.</p>	
<p>Mine gas pre-drainage vents and flares – flaring infrastructure on Zone 2 and Zone 3</p> <p>Investigations have determined a need for seam gas pre-drainage to manage gas emissions in the underground workings, gas from this underground collection system has been designed to exit the underground in Zone 2 and Zone 3 will be flared.</p> <p>Four flares will operate continuously on existing mining leases: two flares will be located in Zone 2 (ML 70326, ML 70365 and ML 7459) and two flares in Zone 3 (ML 7459 and ML 70366). This is considered to be sufficient for the purposes of draining any gas from the proposed underground coal mine within the Project Site. No infrastructure is proposed in Zone 1 of the Project Site. Flaring stacks will operate continuously and will be</p>	 

Development activities and infrastructure	Imagery
<p>approximately 8 m tall with the flare height being up to 3 m above the stack.</p>	
<p>Accommodation facilities – no new facilities required.</p> <p>No new accommodation facilities (Construction Village and/or Operations Village would be required and the existing camp would continue to be used).</p>	
<p>Mine infrastructure area (MIA) – no new facilities required.</p> <p>The existing MIA will continue to be used for the Project. This comprises buildings including administration, operations, communications, workshop and warehouse buildings and car parks as well as construction laydown and storage areas. No new MIA will be required.</p>	
<p>Coal handling plant (CHP)</p> <p>The existing CHP comprises a truck dump station, crushing and screening plant, product conveyors, stackers, reclaim system and loadout system. The CHP will be upgraded to improve waste rock removal from the ROM coal. The waste rock will continue to be returned to the mining voids and used as fill.</p>	
<p>ROM product stockpiles and conveyors – no new facilities required</p> <p>No new product stockpiles or conveyors would be required as the Project will continue to use the infrastructure and area associated with the existing underground mine which comprises non-static coal stockpiles up to around 20 m in height that will continuously change in form as mining progresses.</p>	

Development activities and infrastructure	Imagery
<p>Construction and operation of water management infrastructure – no new facilities required</p> <p>The existing water management infrastructure at Ensham Mine (see examples) will be sufficient for the purposes of the Project and no new surface infrastructure is required.</p>	 
<p>Topsoil and out of pit spoil disposal and rehabilitation</p> <p>Waste rock will be placed in existing open cut spoil dumps. Over time these will be progressively rehabilitated.</p> <p>Rehabilitation will occur to the existing open cut areas in accordance with the Ensham Mine Rehabilitation Management Plan. This will entail re-grading, planting and maintenance. Rehabilitated landscapes will typically blend more consistently into their wider landscape setting than they would if left in a disturbed state. However, the colours may be noticeably different to that currently existing, at least in the early years, due to the new growth of grass seed and juvenile trees, which may stand out as being somewhat greener than surrounding pastures.</p>	
<p>Predicted subsidence as a result of the Project is less than the DAWE estimated seasonal variation in surface levels as a result of changes in moisture content (50 mm) and is therefore unlikely to form surface cracks or significant depressions in surface topography where ponding of the surface water may occur.</p> <p>Due to the bord and pillar method of excavation proposed, it is not anticipated that any unsupported strata (goaf) would collapse into the mined void. Therefore, areas of subsidence (typical of some underground mine projects)</p>	

Development activities and infrastructure	Imagery
<p>are not anticipated within the Project Site. This is the method currently used for the existing underground mine; the stability of the surface is evident in the example image.</p>	
<p>Project lighting – no additional surface lighting proposed except for lighting caused by flaring infrastructure</p> <p>Lighting associated with the Project will be underground and therefore will not be visible to sensitive receptors. Surface lighting will remain as per the mine operations at the time of the assessment, except for lighting caused by flaring infrastructure, which comprises lighting of MIA, CHP and conveyors and the accommodation village (necessary for safety, security and mine operations). The image shows an example of the night time lighting at the time of the assessment.</p>	

24.5.2 Scenic amenity and lighting impact assessment overview

The LVIA for the Project has been undertaken by providing an assessment of the potential impact on the existing view shed from selected key locations around the Project Site identified on **Figure 24-5**.

The scenic amenity and lighting assessment for each viewpoint is described in **Table 24-8** to **Table 24-16** below.

The selected views are as follows:

- Viewpoint 1: Existing underground mine portal looking south-west
- Viewpoint 2: ‘Chelbrook’ on Ensham Road looking south-east over the Project Site
- Viewpoint 3: Wyuna Road looking south
- Viewpoint 4: ‘Braylands’ on Bauhinias Road looking north-east over the Project Site
- Viewpoint 5: ‘Bauhinias’ on Bauhinias Road looking north-east
- Viewpoint 6: ‘St Aubins’ on Duckponds Road looking north-west
- Viewpoint 7: Capricorn Highway at Bonnie Doon Road looking north-east
- Viewpoint 8: Capricorn Highway near ‘Karvella’ looking north
- Viewpoint 9: MacArthur Street, Comet, looking north-west.

The assessment also considers the potential impacts of lighting upon each viewpoint identified in the scenic amenity assessment. The assessment firstly describes the existing lighting conditions from the representative viewpoints along with the location and proximity of the viewpoint to the lighting source to provide a baseline against which the impacts of the Project can be extrapolated. As the Project activities will be primarily undertaken underground, night lighting impacts on nearby receptors are anticipated to be limited, with the exception of flaring in Zone 2 and Zone 3 (as described in **Section 24.5**).

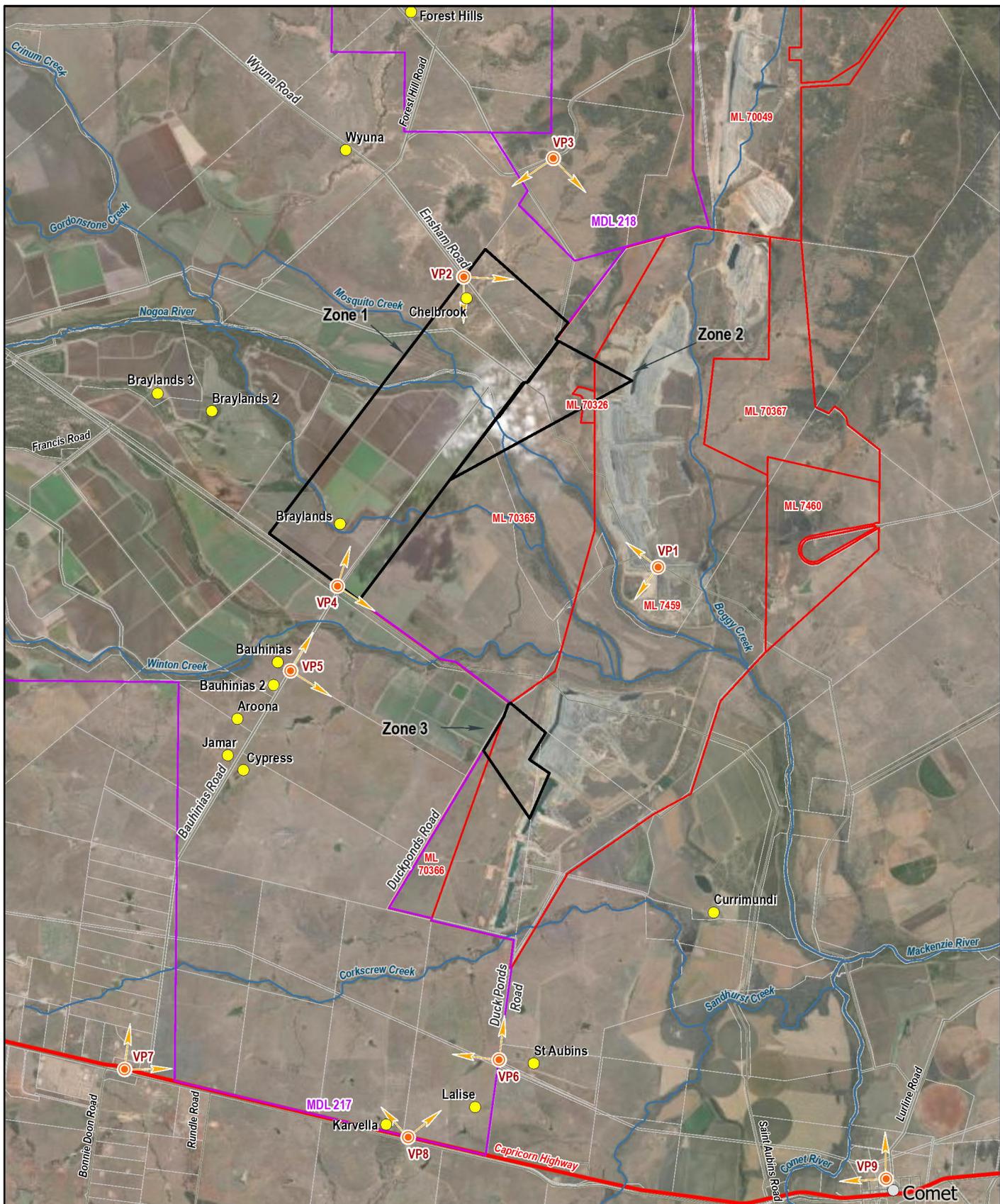


Figure 24-5
Location of Representative Viewpoints



Legend

- | | | |
|-----------------------------|-------------|------------|
| Project Area | Homestead | View point |
| Mining leases | Watercourse | View arc |
| Mineral development licence | Main Road | |
| Cadastral lot boundaries | Other Road | |
| Towns | | |

ENSHAM LIFE OF MINE EXTENSION PROJECT

Projection: GDA 1994 MGA Zone 55 Scale: 1:125,000
Source: State of Queensland, 2019. Imagery: State of Queensland, 2017.
Indemitsu RFI 2019

24.5.3 Viewpoint 1: Existing underground mine portal looking south-west

Table 24-8 Likely visual effect of the Project on Viewpoint 1

Viewpoint 1 – Existing underground mine portal looking south-west	
	
Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> • GPS Location: 23°28'23.489" S 148°29'34.511" E. • Elevation: 105.5 m. • View looking south-west from within the existing Ensham Mine area. • Underground mine expansion area is around 5 km away at its closest point. However, the existing portal will continue to be used for access to and transportation of coal from the expansion area. • This view is not publicly accessible and is only visible to workers and approved visitors to Ensham Mine. • The landscape in this view comprises active mine workings associated with the existing underground mine operations including the personnel and coal portal as well as hardstand, workshops and conveyors transporting coal from the underground mine to stockpiles.
Scenic amenity (visual) evaluation	
Sensitivity	The overall sensitivity of receptors from this point is considered to be Negligible . This is due to the viewpoint being accessible only to mine workers who would expect to see mine infrastructure which is already present in the view.
Judgement of magnitude of change	<p>No change is anticipated in the view. Therefore, the magnitude of change to this viewpoint is considered to be 'No impact' due to the following factors:</p> <ul style="list-style-type: none"> • the underground mine infrastructure and supporting infrastructure is already present and will not change as a result of the Project • the mined coal will be visible to workers travelling on the conveyors, however, this is no change to the existing scenario • there are no changes anticipated to the 66 kV powerline visible beyond the rail line.
Judgement of potential effect	No impact: due to the negligible sensitivity and 'no impact' for magnitude of change.
Significance of effect	Not significant: The effect of the Project on Viewpoint 1 is considered to be no impact and therefore not significant.

Viewpoint 1 – Existing underground mine portal looking south-west

Lighting evaluation

Sensitivity	The overall sensitivity of receptors from this point is considered to be Negligible for the reasons presented for daytime views above.
Judgement of magnitude of change	No impact as permanent lighting is already present. This viewpoint is located a considerable distance from the proposed flaring activities and light effects from these activities are unlikely to be perceptible due to existing light levels. Light nuisance impacts are unlikely due to the nature of the receptors in this area.
Judgement of potential effect	No impact: There would be no perceptible change to above ground lighting levels as a result of the Project.
Significance of effect	Not significant

24.5.4 Viewpoint 2: ‘Chelbrook’ on Ensham Road looking south-east over the Project Site

Table 24-9 Likely visual effect of the Project on Viewpoint 2

Viewpoint 2 – view from ‘Chelbrook’ on Ensham Road looking south-east over Project Site



Visual baseline assessment

Location and description	<ul style="list-style-type: none"> • GPS Location: 23°24'44.243" S 148°26'54.113" E. • Elevation: 166.1 m. • This view is looking approximately south-east from the boundary of the proposed expansion area close to the (participating) property known as ‘Chelbrook’. • The closest part of the Project Site is Zone 1 located around 15 m away from this vantage point. • Zone 2 is located around 2.7 km to the east on the rising land beyond Zone 1. • Represents typical publicly accessible views of people travelling south-east along Ensham Road. • Relatively few people are anticipated to experience this view. The key viewers will be residents on Ensham Road – particularly residents, workers and visitors to ‘Chelbrook’. • The landscape in this view comprises dry cropping land which falls towards the vegetated valley of the Nogoia River. Irrigated cropping lands are also visible in the southwest (right hand side) of the view. The farmstead ‘Chelbrook’ is visible
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Viewpoint 2 – view from ‘Chelbrook’ on Ensham Road looking south-east over Project Site

in the south (right) of the view with the vegetated landscape associated with Mosquito Creek beyond.

- The Project Site landscape is observed to undulate down to the creek valley before rising again. The view is contained by a gentle ridge of land at up to around 250 m AHD that curtails views of the existing open cut mine beyond. Telecommunications infrastructure can be observed on this ridge.

Scenic amenity (visual) evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be **Negligible**. This is due to the anticipated very low number of travellers who are primarily travelling to ‘Chelbrook’ which is a participating property.

Judgement of magnitude of change

The magnitude of change to this viewpoint is considered to be **Negligible**, due to the following factors:

- despite the proximity to the Project (Zone 1 and Zone 2) – the mine will be underground
- surface vegetation removal will not be necessary retaining a vegetated buffer to surface infrastructure such as the proposed flare, and it is anticipated that current farming operations will continue
- the gas flares on Zone 2 may be perceptible above the tree line
- predicted subsidence as a result of the Project is less than the DAWE estimated seasonal variation in surface levels as a result of changes in moisture content (50 mm)

in this view, the existing mine infrastructure is not visible.

Judgement of potential effect

Negligible: due to the negligible degree of visual sensitivity combined with a negligible impact magnitude of change.

Significance of effect

Not significant: The effect of the Project on Viewpoint 2 is considered to be no impact and therefore not significant.

Lighting evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be **Negligible** for the reasons presented for daytime views above.

Judgement of magnitude of change

Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are unlikely.

Judgement of potential effect

Negligible impact: there would be a minor barely perceptible change to above ground lighting levels as a result of the Project.

Significance of effect

Not significant

24.5.5 Viewpoint 3: Wyuna Road looking south

Table 24-10 Likely visual effect of the Project on Viewpoint 3

Viewpoint 3 – view from Wyuna Road looking south	
	
Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> • GPS Location: 23°24'44.243" S 148°26'54.113" E. • Elevation: 166.1 m. • This view is looking approximately south from Wyuna Road towards Zone 1 which lies approximately 2.6 km from this vantage point. • The view represents typical publicly accessible views of people travelling southwest along Wyuna Road. • Relatively few people are anticipated to experience this view. There are no properties in this vicinity of this viewpoint. The key viewers will be travellers on Wyuna Road which is a quiet unsealed rural road and, primarily used, to access rural farmsteads or as an alternative access into Ensham Mine for workers (only those in possession of a key can access the mine from Wyuna Road). • The landscape in this view comprises dry cropping land which falls towards the vegetated valley of the Nogoia River. The land rises to a forested ridgeline at up to around 250 m AHD that curtails views of the existing open cut mine located beyond. • To the south-west (right hand side) of the view a small forested hill is present which is located to the east of Ensham Road. • The proposed mine expansion area is largely curtailed by existing vegetation including stands of vegetation around field boundaries and Wyuna Road in the central portion of the view.
Scenic Amenity (Visual) evaluation	
Sensitivity	<p>The overall sensitivity of receptors from this point is considered to be Low. This is due to the anticipated small number of travellers who are primarily travelling to the small number of rural farmsteads accessed from Ensham Road, Wyuna Road and Forest Hill Road.</p>

Viewpoint 3 – view from Wyuna Road looking south

Judgement of magnitude of change	The magnitude of change to this viewpoint is considered to be imperceptible and, therefore, No impact , due to the following factors: <ul style="list-style-type: none"> the mine will be underground. a total of four flares will be on Zone 2 and Zone 3, these are likely to be barely perceptible at this distance due to their scale and the presence of screening vegetation and topography which limits the potential for views it is noted in this view, the while existing mine infrastructure is not visible, the image predates flaring infrastructure.
Judgement of potential effect	Negligible impact: due to the low degree of visual sensitivity combined with a 'negligible impact' magnitude of change.
Significance of effect	Not significant: the effect of the Project on Viewpoint 3 is considered to be no impact and therefore not significant.
Lighting evaluation	
Sensitivity	The overall sensitivity of receptors from this point is considered to be Low for the reasons presented for daytime views above.
Judgement of magnitude of change	Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are unlikely as the closest flare is located over 4.5 km away.
Judgement of potential effect	Minor to negligible impact: There would be minor perceptible change to above ground lighting levels as a result of the Project.
Significance of effect	Not significant

24.5.6 Viewpoint 4: ‘Braylands’ on Bauhinias Road looking north-east over the Project Site

Table 24-11 Likely visual effect of the Project on Viewpoint 4

Viewpoint 4 – view from ‘Braylands’ on Bauhinias Road looking northeast over Project Site



Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> GPS Location: 23°28'45.797" S 148°25'11.598" E. Elevation: 154.3 m. This view is looking approximately north-east from the boundary of the proposed expansion area close to the (participating) property known as 'Braylands'.

Viewpoint 4 – view from ‘Braylands’ on Bauhinias Road looking northeast over Project Site

- The closest part of the Project Site is Zone 1 located around 30 m away from this vantage point.
- Zone 2 is located around 3.6 km north-east of this vantage point.
- Flaring infrastructure of Zone 2 may be visible from this viewpoint.
- Represents typical publicly accessible views of people travelling north-east along Bauhinias Road.
- Relatively few people are anticipated to experience this view. The key viewers will be residents on Bauhinias Road – particularly residents, workers and visitors to the various properties at ‘Braylands’ (Braylands 1, Braylands 2 and Braylands 3).
- The landscape in this view comprises irrigated cropping land, currently fallow but understood to be used for cotton and chick pea crops. The signage for ‘Braylands’ is visible in the centre of the view.
- The landscape is flat comprising land within the floodplain of the Nogoa River, discernible in the distance as a vegetated backdrop. The fields in this area are large but bounded by belts of boundary vegetation that restrict views to the Project Site. Drainage infrastructure is also visible in the foreground.

 Scenic amenity (visual) evaluation

Sensitivity The overall sensitivity of receptors from this point is considered to be **Negligible**. This is due to the anticipated very low number of travellers who are primarily travelling to ‘Braylands’ which is a participating property.

Judgement of magnitude of change The magnitude of change to this viewpoint is considered to be **No impact**, due to the following factors:

- despite the proximity to the Project – the mine (in zones 1, 2 and 3) will be underground
- surface vegetation removal will not be necessary to accommodate the mine infrastructure, and it is anticipated that current farming operations will continue
- Flaring infrastructure would be located beyond a retained belt of screening vegetation so is unlikely to be perceptible in daytime views
- predicted subsidence as a result of the Project is less than the DAWE estimated seasonal variation in surface levels as a result of changes in moisture content (50 mm)
- in this view, the existing mine infrastructure is not visible.

Judgement of potential effect **No impact:** due to the negligible degree of visual sensitivity combined with ‘no impact’ magnitude of change.

Significance of effect **Not significant:** The effect of the Project on Viewpoint 2 is considered to be no impact and therefore not significant.

 Lighting evaluation

Viewpoint 4 – view from ‘Braylands’ on Bauhinias Road looking northeast over Project Site

Sensitivity	The overall sensitivity of receptors from this point is considered to be Negligible for the reasons presented for daytime views above.
Judgement of magnitude of change	Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are unlikely as the closest flare is located around 5 km away
Judgement of potential effect	Negligible impact: There would be minor change to above ground lighting levels as a result of the Project.
Significance of effect	Not significant

24.5.7 Viewpoint 5: ‘Bauhinias’ on Bauhinias Road looking north-east

Table 24-12 Likely visual effect of the Project on Viewpoint 5

Viewpoint 5 – view from ‘Bauhinias’ on Bauhinias Road looking northeast



Visual baseline assessment

Location and description	<ul style="list-style-type: none"> • GPS Location: 23°29'45.186" S 148°24'36.138" E. • Elevation: 163.2 m. • This view is looking approximately northeast from Bauhinias Road near to the properties known as ‘Bauhinias 1’ and ‘Bauhinias 2’. • The closest part of the Project Site is Zone 1 located around 2.3 km away from this vantage point. • Zone 2 is located around 6 km north-east of this vantage point • Zone 3 is located around 4.8 km south-east of this vantage point. • Flaring infrastructure of Zone 2 and Zone 3 may be visible from this vantage point. • Represents typical publicly accessible views of people travelling northeast along Bauhinias Road. • Relatively few people are anticipated to experience this view. The key viewers will be residents on Bauhinias Road – particularly residents, workers and visitors to the various properties on Bauhinias Road including ‘Cypress’ ‘Jamar’, ‘Aroona’, ‘Bauhinias 1 and 2’ and ‘Braylands’ (Braylands 1, 2 and 3).
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Viewpoint 5 – view from ‘Bauhinias’ on Bauhinias Road looking northeast

- The landscape in this view comprises dryland pasture land (cattle), falling towards the minor valley of Winton Creek discernible as a vegetated strip in the mid-ground of the view and vegetation associated with the Nogoia River beyond. Beyond the Nogoia River lies a forested ridge, Sparse vegetation associated with roadside and field boundaries provides some visual relief in an otherwise open and dry grassland landscape.
- Existing built elements including rural fencing, gates, telecommunications and electricity infrastructure.

Scenic amenity (visual) evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be **Negligible**. This is due to the anticipated very low number of travellers on Bauhinias Road who are primarily travelling to ‘Braylands’ (which is a participating property) or to other rural farmsteads along this road.

Judgement of magnitude of change

The magnitude of change to this viewpoint is considered to be barely perceptible and, therefore, **negligible**, due to the following factors:

- the mine will be underground (zones 1, 2 and 3)
- there will be four surface areas affected by flaring infrastructure on Zone 2 and Zone 3, these would be barely perceptible at this distance due to their scale and the presence of screening vegetation and topography which limits the potential for views
- It is noted in this view, that while existing mine infrastructure is not visible, the image predates flaring infrastructure.

Judgement of potential effect

Negligible: due to the negligible degree of visual sensitivity combined with a ‘negligible magnitude of change.

Significance of effect

Not significant: The effect of the Project on Viewpoint 5 is considered to be no impact and therefore not significant.

Lighting evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be **Negligible** for the reasons presented for daytime views above.

Judgement of magnitude of change

Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are unlikely as the closest flare is located around 5 km away

Judgement of potential effect

Negligible impact: There would be barely perceptible changes to above ground lighting levels as a result of the Project.

Significance of effect

Not significant

24.5.8 Viewpoint 6: ‘St. Aubins’ on Duckponds Road looking north-west

Table 24-13 Likely visual effect of the Project on Viewpoint 6

Viewpoint 6 – view from ‘St. Aubins’ on Duckponds Road looking north-west	
	
Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> • GPS Location: 23°34'38.712" S 148°27'29.123" E. • Elevation: 174.7 m. • The closest part of the Project Site is Zone 3 around 5.75 km away. • Other parts of the Project Site (Zone 1 and Zone 2) are over 11 km away from this vantage point. • Represents typical publicly accessible views of people travelling north-west along Duckponds Road. • A moderate number of people are anticipated to experience this view. The key viewers will be workers accessing Ensham Mine and a very small number of residents on Duckponds Road (accessing the properties known as ‘Lalise’ and ‘St. Aubins’). • The landscape in this view comprises dryland pasture land (cattle), falling towards the minor valley of Corkscrew Creek discernible as a vegetated strip in north (centre) of the view. Vegetation associated with roadside and field boundaries provides some screening towards the proposed underground mine expansion area. • Existing built elements including rural fencing, gates, the signage for ‘St. Aubins’, and electricity infrastructure are visible associated with farm tracks and/or adjacent to Duckponds Road. • It is noted that the existing mine operations cannot be seen from this view as views are curtailed by intervening topography and vegetation. • It is noted in this view, that while existing mine infrastructure is not visible, the image predates flaring infrastructure.
Scenic amenity (visual) evaluation	
Sensitivity	<p>The overall sensitivity of receptors from this point is considered to be Low. This is due to the anticipated moderate number of travellers on Duckponds Road, most of whom are anticipated to be workers travelling to Ensham Mine, who are anticipating views of mining infrastructure, as well as a very small number of residents of the rural farms accessed from Duckponds Road.</p>
Judgement of magnitude of change	<p>The magnitude of change to this viewpoint is considered to be imperceptible and, therefore, No impact, due to the following factors:</p>

Viewpoint 6 – view from ‘St. Aubins’ on Duckponds Road looking north-west

- the mine will be underground (zones 1, 2 and 3)
- this viewpoint is located at a considerable distance from the mine expansion area including the small surface gas flare infrastructure
- it is noted that while the existing mine infrastructure is also not visible from here this photo predates flaring infrastructure.

Judgement of potential effect	No impact: due to the low degree of visual sensitivity combined with a ‘no impact’ magnitude of change.
Significance of effect	Not significant: the effect of the Project on Viewpoint 6 is considered to be no impact and therefore not significant.
Lighting evaluation	
Sensitivity	The overall sensitivity of receptors from this point is considered to be Negligible for the reasons presented for daytime views above.
Judgement of magnitude of change	Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are unlikely as the closest flare is located around over 6 km away
Judgement of potential effect	Minor to negligible impact: there would be a barely perceptible change to above ground lighting levels as a result of the Project.
Significance of effect	Not significant

24.5.9 Viewpoint 7: Capricorn Highway at Bonnie Doon Road looking north-east

Table 24-14 Likely visual effect of the Project on Viewpoint 7

Viewpoint 7 – view from Capricorn Highway at Bonnie Doon Road looking north-east



Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> • GPS Location: 23°34'49.091" S 148°22'23.262" E. • Elevation: 178.7 m. • The closest parts of the Project Site are Zone 3 that is located around 10.8 km and Zone 1 that is located around 12.4 km away from this vantage point. Zone 2 is located over 16 km away. • Represents typical publicly accessible views of people travelling east along the Capricorn Highway in the vicinity of the Bonnie Doon Road junction at Yamala (on the Blackwater system) close to the proposed Yamala grains handling facility.

Viewpoint 7 – view from Capricorn Highway at Bonnie Doon Road looking north-east

- A moderate number of people are anticipated to experience this view. The key viewers will be a relatively high number of travellers along the Capricorn Highway, albeit these viewers will be transient and travelling at speed (100 kph). The area is also used as a layby for trucks travelling on the highway.
- The landscape in this view comprises dryland pasture land (cattle), associated with a rural property located in the west (left hand side) of the view. Views beyond are screened by vegetation associated with Corkscrew Creek.
- Existing built elements include the railway (Blackwater System) and lighting and road signage associated with the Capricorn Highway which is a major element of the view.
- It is noted that the existing mine operations cannot be discerned from this view as views are curtailed by intervening topography and vegetation.

Scenic amenity (visual) evaluation

Sensitivity The overall sensitivity of receptors from this point is considered to be **Medium**. This is due to the anticipated relatively high number of travellers on the Capricorn Highway which may include a number of tourists travelling the signed 'Capricorn Way' tourist drive.

Judgement of magnitude of change The magnitude of change to this viewpoint is considered to be imperceptible and, therefore, **No impact**, due to the following factors:

- views of the proposed mine expansion area (zones 1, 2 and 3) cannot be obtained due to the effects of distance and because the mine will be underground
- it is noted that the while existing mine infrastructure is also not visible from here, this image predates flaring infrastructure.
- Daytime views of the flare are unlikely to be perceptible at this distance (over 10 km).

Judgement of potential effect **No impact:** due to the medium degree of visual sensitivity combined with a 'no impact' magnitude of change.

Significance of effect **Not significant:** the effect of the Project on Viewpoint 7 is considered to be no impact and therefore not significant.

Lighting evaluation

Sensitivity The overall sensitivity of receptors from this point is considered to be **Medium** for the reasons presented for daytime views above.

Judgement of magnitude of change **Negligible** as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are not anticipated as the closest flare is located around 10 km away

Judgement of potential effect **Minor impact:** There would be a barely perceptible change to above ground lighting levels as a result of the Project.

Significance of effect **Not significant**

24.5.10 Viewpoint 8: Capricorn Highway near ‘Karvella’ looking north

Table 24-15 Likely visual effect of the Project on Viewpoint 8

Viewpoint 8 – view from Capricorn Highway near ‘Karvella’ looking north	
	
Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> GPS Location: 23°35'38.562" S 148°26'15.444" E. Elevation: 173.1 m. The closest part of the Project Site is Zone 3, located around 8 km from this vantage point. Zone 1 is located around 11.9 km away from this vantage point with Zone 3 over 15.5 km away. Represents typical publicly accessible views of people travelling west along the Capricorn Highway in the vicinity of the property known as ‘Karvella’. A moderate number of people are anticipated to experience this view. The key viewers will be a relatively high number of travellers along the Capricorn Highway, albeit these viewers will be transient and travelling at speed (100 kph). The landscape in this view comprises dryland pasture land (cattle), associated with the rural properties ‘Karvella’ located in the west (left hand side) of the view and ‘Lalise’ located beyond the east (right hand side) of the view. Vegetation associated with Corkscrew Creek is visible in the midground, but due to this slightly elevated location, there are views to the gentle ridge of land associated with the existing Ensham Mine area beyond. Within this area it is possible to discern the (non-operational) dragline excavator that is located at the gatehouse to the mine, surrounded by rehabilitation works associated with former open cut pits. There are also more distant views of the unnamed ridge beyond. Existing built elements include rural properties, electricity infrastructure, and rural fencing as well as minor views of former mine workings.
Scenic amenity (visual) evaluation	
Sensitivity	The overall sensitivity of receptors from this point is considered to be Medium . This is due to the anticipated relatively high number of travellers on the Capricorn Highway which may include a number of tourists travelling the signed ‘Capricorn Way’ tourist drive.
Judgement of magnitude of change	The magnitude of change to this viewpoint is considered to be imperceptible and, therefore, No impact , due to the following factors:

Viewpoint 8 – view from Capricorn Highway near ‘Karvella’ looking north

- views of the proposed mine expansion area cannot be obtained due to the effects of distance and because the mine (zones 1, 2 and 3) will be underground. Impacts of flaring on night time views are considered below.
- while the existing non-operational dragline excavator can be noticed no other components of the existing mine buildings can be clearly discerned in the view.
- it is noted in this view, that while existing mine infrastructure is not visible, the image predates flaring infrastructure.

Judgement of potential effect	No impact: due to the medium degree of visual sensitivity combined with a ‘no impact’ magnitude of change.
Significance of effect	Not significant: the effect of the Project on Viewpoint 8 is considered to be no impact and therefore not significant.
Lighting evaluation	
Sensitivity	The overall sensitivity of receptors from this point is considered to be Medium for the reasons presented for daytime views above.
Judgement of magnitude of change	Negligible as permanent lighting is already present, however flaring activities may be perceptible as a new element in the view. Light nuisance impacts are not anticipated as the closest flare is located over 9 km away
Judgement of potential effect	Minor: There would be a minor perceptible change to above ground lighting levels as a result of the Project.
Significance of effect	Not significant

24.5.11 Viewpoint 9: MacArthur Street, Comet, looking north-west

Table 24-16 Likely visual effect of the Project on Viewpoint 9

Viewpoint 9 – view from MacArthur Street, Comet, looking north-west



Visual baseline assessment	
Location and description	<ul style="list-style-type: none"> • GPS Location: 23°35'38.562" S 148°26'15.444" E. • Elevation: 173.1 m. • The closest part of the Project Site is Zone 3 that is located around 12.25 km from this vantage point. Zone 1 and 2 are at even greater distance being around 18.35 km and 19 km away from this vantage point respectively.

Viewpoint 9 – view from MacArthur Street, Comet, looking north-west

- Represents typical publicly accessible views of people living on the northern edge of the small township of Comet (the principal settlement located close to Ensham Mine), including residents people travelling north along Adam Street or west along MacArthur Street. A small number of people are anticipated to experience this view.
- The landscape in this view comprises dryland pasture land (cattle), associated with the rural properties located in the west (left hand side) of the view.
- Vegetation associated with the Nogoia River forms a prominent midground element, beyond which the elevated ridges of land up to around 300 m AHD located to the east of the existing open cut mine at Ensham can be seen. However, it is not possible to see any elements of the mine site workings.
- Existing built elements include rural properties, electricity infrastructure (including high voltage transmission lines and a small substation located on Lurline Road as well as standard post and wire rural fencing.

Scenic amenity (visual) evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be up to **Medium**. This is due to the small number of residents of Comet in this location, albeit noting that they would be interested in the quality of the view as well as a small number of travellers on Adams Street and MacArthur Street.

Judgement of magnitude of change

The magnitude of change to this viewpoint is considered to be imperceptible and, therefore, **No impact**, due to the following factors:

- views of the proposed mine expansion area (zones 1, 2 and 3) cannot be obtained due to the effects of distance and because the mine will be underground and the gas flare during daytime, will be screened from view by intervening vegetation and landform
- it is noted that existing mine infrastructure cannot be seen.
- The effects of flaring activities are considered below.

Judgement of potential effect

No impact: due to the medium degree of visual sensitivity combined with a 'no impact' magnitude of change.

Significance of effect

Not significant: The effect of the Project on Viewpoint 8 is considered to be no impact and therefore not significant.

Lighting evaluation

Sensitivity

The overall sensitivity of receptors from this point is considered to be **Medium** for the reasons presented for daytime views above.

Judgement of magnitude of change

Negligible as permanent lighting is already present, however flaring activities may be barely perceptible as a new element in the view. Light nuisance impacts are not anticipated as the closest flare is located around 13 km away

Judgement of potential effect

Minor impact: There would be a minor perceptible change to above ground lighting levels as a result of the Project.

Significance of effect

Not significant

24.6 Mitigation measures

As there are no significant impacts identified, additional mitigation to address scenic amenity and lighting impacts is not required but opportunities are discussed below. Ongoing mitigation of existing surface infrastructure components of Ensham Mine's existing operations related to landscape and visual amenity values include:

- minimisation of permanent night lighting to the minimum required for safety and security and ensure any replacement lights seek to contain light spill to the greatest extent possible by using directional lighting wherever possible, orientating lighting inwards and screening from the outside and fitting shields around the globes to limit extraneous light
- consideration of options to minimise night time effects as a result of the flare activities further. For example, though implementation of a ground flare system within radiation shield
- continuation of the maintenance of the Project Site and mine operations in good condition, particularly adjacent to neighbouring properties, for example by maintaining fences and signage in good repair and regular removal of any litter
- continuation with progressive rehabilitation of the landscape in accordance with the Rehabilitation Management Plan (Ensham Resources Ltd, 2019).

24.7 Residual impacts

Residual impacts relate to any changes in the overall level of effect for potential impacts post the implementation of mitigation. As a consequence of the impacts on landscape and visual amenity during day and night of up to minor significance and no specific requirements to undertake tailored mitigation for the Project Site, there are no anticipated changes to the residual impact levels and they remain as per the baseline impact assessment presented above. Consequently, the significance of the residual impact remains as described and summarised in **Section 24.8** below.

24.8 Summary and Conclusions

The Project is located in a landscape that is already considerably influenced by the presence of mining activities affecting both the perception of character and quality of views. None of the landscape on or around the Project Site (zones 1, 2 or 3) is the subject of any overlay code or zone intended to protect valued landscape or scenic values and there are no important recreational areas lying within or adjacent to the Project Site or in the wider landscape and scenic amenity study area.

The Project Site and surrounding area is dominated by irrigated cropping, dryland grazing and dryland cropping, as well as existing mining activities associated with Ensham Mine.

The small settlement of Comet lies nearly 18 km away and the study area is sparsely settled comprising isolated clusters of rural farmsteads. The main road in the vicinity of the Project Site is the Capricorn Highway, located approximately 8 km from the nearest proposed underground mine expansion area. Other smaller roads include Duckponds Road, Wyuna Road, Ensham Road and Bauhinias Road. These roads service the mine and the small number of rural farmsteads located around the Project Site. There are few other roads in the local area; most of these being local and private drives to farms. Therefore, there are very few publicly-accessible views towards the Project Site. No scenic viewpoints or viewpoints from facilities used for recreational purposes were identified. Typically, viewer sensitivity is negligible or low. Nine viewpoints were

identified for the purposes of the scenic amenity assessment, all of which were assessed as not being impacted by the Project.

Permanent lighting will be restricted to that provided for existing above ground mining activities being undertaken adjacent to the Project Site, however, there is potential for light spill from the Project associated with gas flaring. No significant impacts on scenic amenity or lighting values have been identified with impacts identified of up to minor significance. The Project occurs in an area with few sensitive visual receptors and generally low landscape sensitivity due to the presence of extensive existing underground and open cut mine activities across the landscape of the study area. With the exception of the proposed gas flares, the Project is located underground with no requirement for new above-ground permanent operational or lighting infrastructure at this time and will use the existing infrastructure at Ensham Mine. Therefore, at this time, it is concluded there will be no significant impact to local or more distant views during day or at night. Due to the distance of permanent receptors (such as dwellings) from the flare no light nuisance impacts are anticipated.