

Appendix 18 – Recreational Trails and Facilities Management Plan



Recreational Trails and Facilities Management Plan

Willowdale Mine – Larego mine region

Alcoa of Australia Limited

19 May 2022

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Executive summary

Alcoa of Australia Limited's (Alcoa) Willowdale Mine, which supplies bauxite to the Wagerup Alumina Refinery, is continuing its development southwards from the Orion mine region into the new Larego mine region. The Larego region is located primarily in the South West Region of Western Australia (WA), within the Shire of Harvey, approximately 110 km south-east of Perth.

This Recreational Trails and Facilities Management Plan (RTFMP) has been prepared following consultation with the Department of Biodiversity, Conservation and Attractions (DBCA). The RTFMP is structured in accordance with the WA Environmental Protection Authority (EPA) Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans (EPA 2021), consistent with the RTFMP prepared for the Huntly Mine transition to the Myara North and Holyoake mine regions.

The following table summarises the context and purpose of the RTFMP.

Proposal name	Willowdale Mine Larego - Recreational Trails & Facilities Management Plan
Proponent name	Alcoa of Australia
Ministerial Statement number	Not applicable
Purpose of the RTFMP	To fulfil Alcoa's commitment under the Western Australian Operations 2015-2019 Mining and Management Program to develop a recreational management plan for the Larego mine region in consultation with DBCA. The RTFMP provides a framework for stakeholder engagement, planning, design, and management to mitigate impacts from mining in the Larego mine region to recreational facilities and commercial opportunities.
Objectives of the RTFMP	<ol style="list-style-type: none"> 1. Maintain community access within the Larego mine region for critical thoroughfares between towns, communities and recreation opportunities 2. Minimise direct impacts to recreational trails and facilities within the Larego mine region, which includes investigating options to maintain access, where practicable. Where impacted, rehabilitate and reinstate these facilities where practicable, in consultation with DBCA and other key stakeholders 3. Maintain the scenic values and quality of landscape as seen by users of public roads. 4. Maintain public access to the Munda Biddi Trail for the life of mine through re-alignment to the west of the Larego mine region 5. Maintain viability of existing and planned forest industry commercial opportunities 6. Maintain adequate camping amenities 7. Maintain access and adequacy of day-use areas 8. Maintain ability for major events to occur 9. Maintenance of access and use for cultural heritage uses 10. Maintenance of access for facility and asset management 11. Maintain water quality in response to new or changed recreational facility use
Condition clauses (if applicable)	Not applicable
Key components of the RTFMP	Objective-based management actions and targets that align with Government policies and strategies relating to recreational trails and forest industry commercial opportunities. Management actions are prioritised to Very High and High risks, and adopt a hierarchy to avoid, minimise and rehabilitate amenity impacts. The management actions reflect the potential for amenity impacts during mine operations, and longer-term visual and access impacts that may occur during rehabilitation and post-closure.
Proposed construction date	n/a – Construction Completed
RTFMP required pre-construction?	No

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Appendix A	Identified recreational facilities and commercial opportunities
Appendix B	Risk assessment

Acronyms and Abbreviations

Acronym / abbreviation	Expanded
4WD	Four Wheel Drive
Alcoa	Alcoa of Australia Limited
DBCA	Department of Biodiversity, Conservation and Attractions
DJTSI	Department of Jobs Tourism Science and Industry
DLGSCI	Department of Local Government Sport Cultural Industries
DMP	Dust Management Plan
EPA	Environmental Protection Authority (WA)
FDRA	Forest Disease Risk Area
FMP	Forest Management Plan
LGA	Local Government Authority
MMP	Mining and Management Plan
MMPLG	Mining and Management Program Liaison Group
MOG	Mine Operations Group
NGO	Non Government Organisation
NMP	Noise Management Plan
RFA	Regional Forest Agreement
RTFMP	Recreational Trails and Facilities Management Plan
WA	Western Australia

1. Context, scope and rationale

1.1 Overview

Alcoa of Australia Limited's (Alcoa) Willowdale Mine, which supplies bauxite to the Wagerup Alumina Refinery, is continuing its development southwards from the Orion mine region into the new Larego mine region. The Larego mine region comprises approximately 23,422 ha and lies within Alcoa's Mineral Lease ML1SA. The mine region is bounded by the Murray River and Lane Poole Recreation Reserve to the east, the Arundel and Orion mine regions and Lane Poole Conservation Reserve to the north and the ML1SA boundary and private property to the west (Figure 1).

The Larego mine region and mine infrastructure were included in Alcoa's Western Australian Operations 2019-2023 Mining and Management Plan (MMP) for the consideration of the Mining and Management Program Liaison Group (MMPLG). The 2019-2023 MMP was approved by the Minister for State Development in March 2019. Specific clearing footprints for mine infrastructure were submitted to the Mine Operations Group (MOG) of the MMPLG in September 2018 and approved in March 2019.

Construction and development activities in the Larego mine region commenced in March 2019, as per the approved 2019-2023 MMP. Bauxite mining within the Larego mine region commenced in 2021.

The 2019-2023 MMP includes a commitment by Alcoa to develop a recreational management plan for the Larego mine region, working with the Department of Biodiversity, Conservation and Attractions (DBCA) and Department of Water and Environmental Regulation (DWER). Alcoa made this commitment in response to consultation with the former Department of Parks and Wildlife (now DBCA), which identified the potential for the Willowdale Mine operations at Larego to result in extensive interactions with public access and recreation on Parks and Wildlife-managed land. This draft Recreational Trails and Facilities Management Plan (RTFMP) has been prepared pursuant to Alcoa's commitment under the 2019-2023 MMP.

1.2 Regional context and setting

The Willowdale Mine is located within the Northern Jarrah Forest on the Darling Plateau. The Larego mine region is located predominantly within the Shire of Harvey, with the northern portion located within the Shire of Waroona.

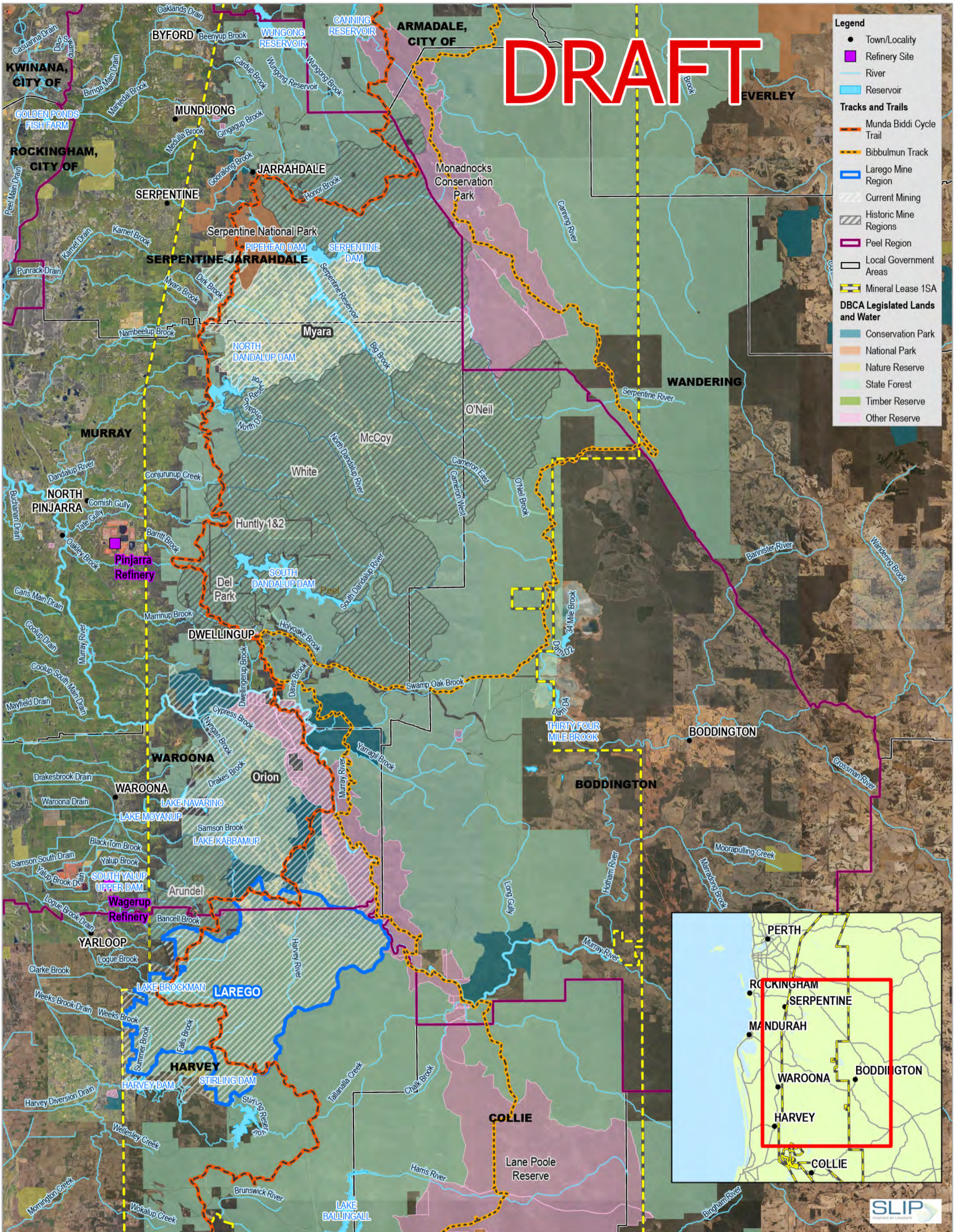
The Larego mine region is located predominantly within Dwellingup State Forest, Harris River State Forest and Lane Poole Reserve, which are managed for multiple uses under the Regional Forest Agreement (RFA) and Forest Management Plan (FMP) including conservation, recreation, timber harvesting and water supply. The FMP is due to be updated in 2024 and is expected to reflect the WA Government's proposed ban on logging in native forests from 2024 onwards.

The Northern Jarrah Forest includes extensive Forest Disease Risk Areas (FDRAs, see Figure 2). The FDRAs are proclaimed under the *Conservation and Land Management Act 1984* and comprise areas at high risk of the introduction or spread of *Phytophthora* Dieback. Strict quarantine and access restrictions apply to these areas. The Larego mine region borders the FDRA along its eastern boundary, however there is no overlap. This is due to the Larego mine region lying in the high rainfall zone with substantial infestation of *Phytophthora* Dieback from historic forest industries.

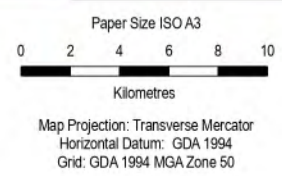
The Larego mine region lies approximately 16.5 km south of Dwellingup townsite, 14 km southeast of Waroona townsite and 2.5 km east of Harvey townsite. The eastern boundary of the mine region is within 100 m of the Bibbulmun Track. The Munda Biddi Trail runs through the northwest and west portions of the mine region.

Other formal and informal recreational facilities and commercial opportunities are located within and in the vicinity of the Larego mine region (refer to Appendix A).

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- Legend**
- Town/Locality
 - Refinery Site
 - River
 - Reservoir
 - Tracks and Trails**
 - Munda Biddi Cycle Trail
 - Bibbulmun Track
 - Larego Mine Region
 - Current Mining
 - Historic Mine Regions
 - Peel Region
 - Local Government Areas
 - Mineral Lease 1SA
 - DBCA Legislated Lands and Water**
 - Conservation Park
 - National Park
 - Nature Reserve
 - State Forest
 - Timber Reserve
 - Other Reserve



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Willowdale Mine
Larego - Recreational Trails & Facilities Management Plan

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Regional Context

FIGURE 1

1.3 Rationale and approach

1.3.1 Environmental management objectives

The environmental management objectives of this RTFMP are presented in Table 1-1. The objectives are based on the following:

- Site specific environmental, social and commercial values and potential impacts (see Table 1-1)
- Study findings, assumptions and uncertainties (see Section 1.3.2 and Section 1.3.3)
- Risk assessment and prioritisation (see Section 1.3.4).

Section 2 presents the environmental management components of the RTFMP, which detail how monitoring and management will assist in demonstrating compliance with the environmental management objectives.

Table 1-1 Site specific environmental values, potential impacts and environmental management objectives

Region specific environmental, social and commercial values	Impacts to region specific environmental, social and commercial values	Environmental management objectives
<p>Recreational trails within and in close proximity to the Larego mine region:</p> <ul style="list-style-type: none"> – Munda Bididi Trail – Bibbulmun Track – Captain Fawcett – Bridge Trail – MundAI Track – Jarrahland Wildflower Trail – Waterous Trail – Other Walk Trail (unnamed) – Harvey Wildflower Ridge Walk – Dick Lofthouse Trail <p>Recreational campsites and day use sites:</p> <ul style="list-style-type: none"> – The Rock Campsite (Lake Brockman) – Saddleback Campsite (Lake Brockman) – Lake Brockman Tourist Park – Hoffman Mill (day use also) – Blackboy Picnic Site – Gibbs Pool Amphitheatre – Fish Ladder Picnic Site – Picnic Site – Five Mile Bridge – Rocky Crossing Site – Logue Brook Dam and Lake – Informal camping within state forest – Other informal day use of state forest <p>Other values and events associated with the region:</p> <ul style="list-style-type: none"> – Apiary sites (Commercial) – Tour operators (Commercial) – Logue brook commercial opportunities (Commercial) – Seed collecting (Commercial) 	<ul style="list-style-type: none"> – Closure and restricted public access to recreational facilities, commercial opportunities and/or cultural heritage within the Larego region. – Potential direct and indirect impacts to recreational facilities and commercial opportunities within and outside the Larego region. – Potential amenity impacts to facilities within the Larego region – Potential indirect impacts to water quality in reservoirs within the Larego mine region that support recreational use – Clearing of shield / reference trees within the Larego region. – 	<ol style="list-style-type: none"> 1. Maintain community access for critical thoroughfares between towns, communities and recreation opportunities 2. Minimise direct impacts to recreational trails within the Larego mine region, which includes investigating options to maintain access, where practicable. Where impacted, rehabilitate and reinstate these facilities where practicable, in consultation with DBCA and other key stakeholders 3. Maintain the scenic values and quality of landscape as seen by users of public roads. 4. Maintain public access to the Munda Bididi Trail for the life of mine through re-alignment to the west of the Larego mine region 5. Maintain viability of existing and planned commercial opportunities 6. Maintain adequate camping amenities 7. Maintain access and adequacy of day-use areas 8. Maintain ability for major events to occur 9. Maintenance of access and use for cultural heritage uses 10. Maintenance of access for facility and asset management 11. Maintain water quality in response to new or changed recreational facility use

Region specific environmental, social and commercial values	Impacts to region specific environmental, social and commercial values	Environmental management objectives
<ul style="list-style-type: none"> - Wildflower picking (Commercial) - Equestrian (Event) - Enduro motor bike (Event) - Rogaining (Event) - Shield / reference trees (Historic value) - Bridges and minor culverts (Historic value) - Cultural heritage values - Water resource values 		

1.3.2 Desktop study findings

Identified Recreational Trails and Facilities

This RTFMP provides a summary of the recreational trails and facilities within the Larego mine region and a surrounding 2 km study area (Figure 2).

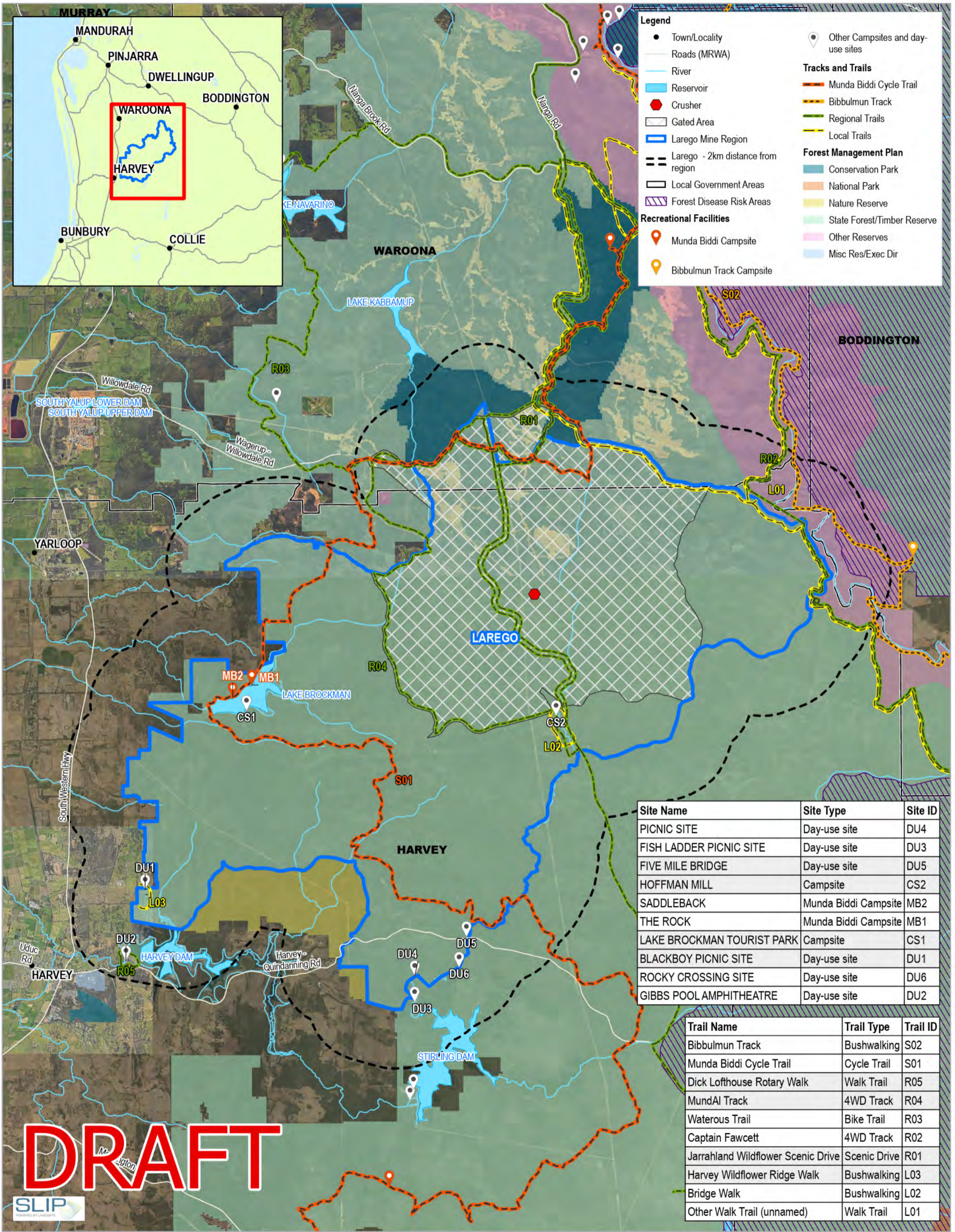
Recreational trails and facilities were identified based on published documents. Details of ongoing stakeholder consultation regarding recreational trails and facilities are presented in Section 3. No scientific facilities or monitoring sites are located within the Larego mine region or a 2 km surrounding area.

Recreational facilities were classified, where applicable, with definitions (see Table 1-2) established in the WA Strategic Trails Blueprint 2017-2021 (TRC Tourism 2017) and as proposed in the Peel Regional Trails Strategy (Common Ground Trails 2019). The classifications are proposed to prioritise investment for the purposes of economic and social development.

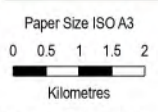
Table 1-2 Trail classification under WA Strategic Trails Blueprint

Classification	Definition
Trail Town	A population centre which has been assessed and accredited as a destination for its trails offering through the provision of high-quality trails and related services, businesses, branding and signage; and outdoor experiences that encourage extended visitation.
Trail Centre	A managed multiple trail facility with dedicated visitor services supported by high quality trails and related services; and outdoor experiences that encourage single day visitation. May be stand-alone or within a Trail Town.
Trail Network	A multiple trail facility with limited or no visitor services, supported by high quality trails, branding and signage; and outdoor experiences that encourage single or part day visitation. May be stand-alone or part of a Trail Town or Trail Centre.
State Trails	An extended trail or trail network that is of sufficient quality and with appropriate, products and services to be recognised beyond the State and to attract visitors to WA.
Regional Trails	A major trail or trail network that services a population centre or large regional community, with facilities and services of a standard and appeal that could attract visitors from outside the region.
Local Trails	A trail that services the local community and provides facilities suited to local use. Some local trails may have potential for development to regional status.

Figure 3 and Table 1-3 present an overview of the identified facilities within the Larego mine region and surrounding 2 km area, with details provided in Appendix A. The facilities include two overnight campsites and seven day-use facilities. There are many informal trails located within and around the Larego mine region that are not promoted or managed by DBCA. Issues associated with informal trails and informal access include damage to native vegetation and fauna, damage to Aboriginal cultural heritage, water catchment / water quality risks (e.g. by pathogens) and risks to users of getting lost or injured on poorly aligned or unmaintained trails.



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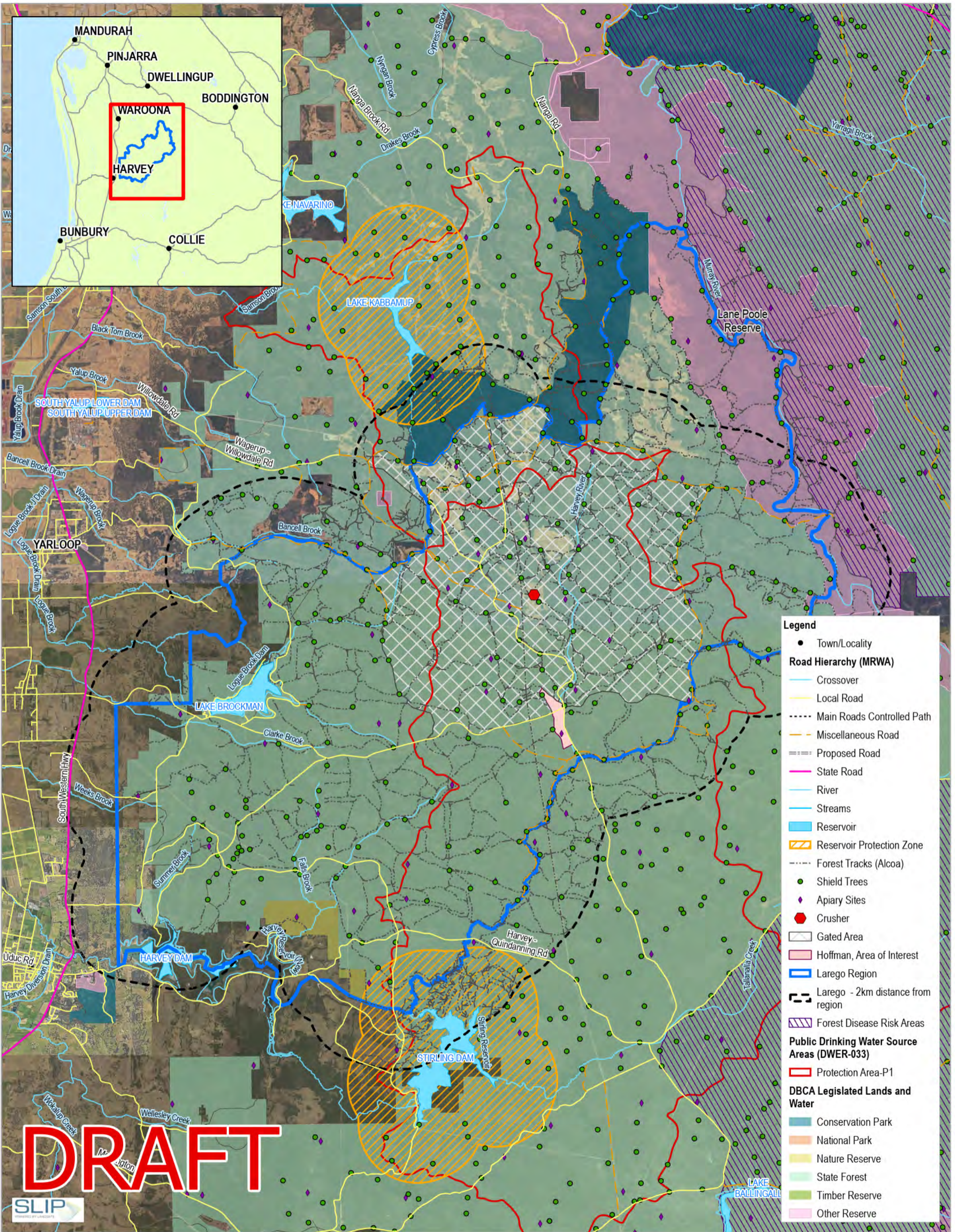


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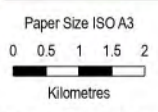
Identified Recreational Facilities

FIGURE 2



- Legend**
- Town/Locality
 - Road Hierarchy (MRWA)**
 - Crossover
 - Local Road
 - - - Main Roads Controlled Path
 - - - Miscellaneous Road
 - - - Proposed Road
 - State Road
 - River
 - Streams
 - Reservoir
 - ▨ Reservoir Protection Zone
 - - - Forest Tracks (Alcoa)
 - Shield Trees
 - ◆ Apiary Sites
 - Crusher
 - Gated Area
 - Hoffman, Area of Interest
 - ▭ Larego Region
 - - - Larego - 2km distance from region
 - ▨ Forest Disease Risk Areas
 - Public Drinking Water Source Areas (DWER-033)**
 - ▭ Protection Area-P1
 - DBCAs Legislated Lands and Water**
 - ▭ Conservation Park
 - ▭ National Park
 - ▭ Nature Reserve
 - ▭ State Forest
 - ▭ Timber Reserve
 - ▭ Other Reserve

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Other Identified Facilities and Features

FIGURE 3

Table 1-3 Recreational trails and facilities identified within the Larego mine region and surrounding area

Asset Type	Facilities within Larego mine region and surrounding area
State Trails	Munda Biddi Trail, Bibbulmun Track
Regional Trails	MundAI track (4WD), Captain Fawcett Track, Jarrahland Wildflower Trail Scenic Drive, Waterous Trail, Dick Lofthouse Trail
Local Trails and recreational sites	Other (unnamed) Walk Trail, Bridge Trail (walking), Harvey Wildflower Ridge Walk. Blackboy Picnic Site, Gibbs Pool Amphitheatre, Fish Ladder Picnic Site; Picnic Site, Five Mile Bridge, Rocky Crossing, Logue Brook Dam and Lake
Informal Trails ¹ (may have local significance)	No trails officially named, Larego mine region has been identified as being used informally for hiking, camping and day-use.
Campsites	The Rock Campsite (Lake Brockman); Saddleback Campsite (Lake Brockman); Lake Brockman Tourist Park; Hoffman Mill
Shield / reference trees	167 within the Larego mine region; 75 within the current gated area

Commercial Operators and Opportunities

Commercial operators and opportunities were identified based on published documents and data, and in reference to the Alcoa Larego - Recreation and Access Management Plan Discussion Paper.

Table 1-4 Commercial operators and opportunities identified within the Larego mine region and surrounding area

Asset Type	Description
Apiary sites	27 current and one pending apiary site licences are located within the Larego mine region
Commercial tour operators	Sites to east of the Larego, have historically been accessed on roads running through the Larego mine region
Logue Brook commercial opportunities	Commercial opportunities currently exist for DBCA leases at Logue Brook
Seed collecting	Commercial seed collection occurs within the Larego mine region
Commercial wildflower picking	Commercial wildflower picking occurs within the Larego mine region

Public Thoroughfares

Public thoroughfares were identified based on publicly available spatial datasets included in Table 1-5.

Table 1-5 Public thoroughfares within Larego mine region

Road Name	Class	Type	Connectivity
Clarke Rd	Access Road	Minor Unsealed	East – West connecting Harvey Dam in the south-west to Hoffman Mill
Driver Rd	Access Road	Minor Unsealed	East – west connecting Hoffman Rd to the west to array River
Harvey-Quindanning Rd	Regional Distributor	Minor Sealed/ Unsealed	East – West connecting Harvey with Quindanning
Hoffman Rd	Access Road	Minor Unsealed	East – West through to Driver Rd (eastern connection)
Logue Brook Dam Rd	Access Road	Minor Sealed/ Unsealed	East – West connecting South Western Hwy to Logue Brook Dam
Nanga Rd	Local Distributor	Minor Unsealed	North – South through to Tallanalla Rd (southern connection)

¹ Informal trails are defined, through consultation with DBCA, as those not promoted or managed by DBCA.

Road Name	Class	Type	Connectivity
Scarp Rd	Access Road	Minor Sealed/ Unsealed	North – South through to Logue Brook Dam
Tallanalla Rd	Local Distributor	Minor Unsealed	North – South from Nanga Rd (northern connection)

Aboriginal Cultural and Heritage Use

State Forest is managed by DBCA on behalf of the Conservation and Parks Commission (the Commission). The Commission's *Position Statement: Protecting and conserving the value of the land to the culture and heritage of Aboriginal persons* (August 2019) states:

'The Commission is committed to ensuring that any policies, plans or programs involving land and water vested in, or under the care, control and management of the Commission, whether solely or jointly, protects and conserves the value of the land to the culture and heritage of Aboriginal people.'

The Forest Management Plan (FMP) 2014-23 incorporates protection and conservation of the value of the land to the culture and heritage of Aboriginal persons, specifically Noongar people, pursuant to Section 56(2) of the *Conservation and Land Management Act 1984*. The FMP 2014-23 states that DBCA, and other proponents where required by DBCA, will seek to prevent material adverse effects on Noongar culture and heritage in the plan area by, inter alia, facilitating access by Noongar people for Noongar customary purposes subject to the CALM Regulations.

The Larego mine region lies in the Gnaala Karla Booja Indigenous Land Use Agreement (ILUA) area.

The Larego mine region contains registered and lodged Aboriginal heritage sites under the *Aboriginal Heritage Act 1972* and may also support customary cultural heritage use by Aboriginal people. These sites are presented in Table 1-6.

Table 1-6 Registered and lodged Aboriginal heritage sites within the Larego mine region

Place ID	Name	Status	Type
24724	Willowdale Isolated Finds	Lodged	Artefacts / Scatter
24687	S05-14	Lodged	Artefacts / Scatter
24686	S05-13	Lodged	Artefacts / Scatter
24685	S05-12	Lodged	Artefacts / Scatter
24684	S05-11	Lodged	Artefacts / Scatter
24680	S05-07	Lodged	Artefacts / Scatter
24679	S05-06	Lodged	Artefacts / Scatter
24678	S05-05	Lodged	Artefacts / Scatter
24677	S05-04	Lodged	Artefacts / Scatter
24676	S05-03	Lodged	Artefacts / Scatter
24675	S05-02	Lodged	Artefacts / Scatter, Historical
24674	S05-01	Lodged	Artefacts / Scatter

Public Drinking Water Source Areas

The Larego mine region lies in the catchments of Murray River, Harvey River, and Logue Brook. The Murray River drains into Lane Poole Reserve and supports water based recreation (paddling) as well as riparian foreshore amenity for recreational facilities and trails. Logue Brook drains into Lake Brockman (Logue Brook Dam which supports water-based recreation (boating) as well as foreshore amenity for camping.

The Larego mine region intersects the Public Drinking Water Source Areas (PDWSA) of Stirling Dam. Recreational uses pose a risk to PDWSAs through potential pathogen loading. Recreational use within PDWSAs must be in accordance with Operational policy 13: Recreation within public drinking water source areas on Crown land (Department of Water 2012). Table 1-7 outlines the acceptability of various recreational activities within PDWSAs according to Operational Policy 13.

Table 1-7 Compatibility of recreation activities

Recreation type	Public drinking water source area location	
	Surface water – Reservoir protection zone	Surface water – Outer catchment
Vehicular activities		
Caravanning at approved designated sites	Incompatible	Supported at designated sites
Caravanning (off-road)	Incompatible	Incompatible
Coach tours / scenic driving	Incompatible (except on public roads)	Supported
Off-road driving - all motorised vehicles (including four wheel drive vehicles, motor bikes, trail bikes and quad bikes) whether licensed or unlicensed	Incompatible	Incompatible (except at legally designated sites)
Rallying	Incompatible	Incompatible
Paragliding / gliding - motorised or non-motorised	Incompatible	Incompatible
Land Based activities		
Abseiling / rock climbing	Incompatible	Supported
Barbequing	Incompatible	Supported at designated sites
Bike riding / power-assisted pedal cycling on public roads	Supported	Supported
Bike riding / power-assisted pedal cycling within approved designated sites - trails, tracks or areas	Incompatible (except on the Munda Bididi Trail)	Supported in designated sites
Bike riding / power-assisted pedal cycling (free range / off-trail)	Incompatible	Incompatible
Bush skills / navigational exercises	Incompatible	Supported
Bushwalking / trekking / hiking / trail running at approved designated sites - trails, tracks or areas	Incompatible (except on the Bibbulmun Track or Munda Bididi Trail)	Supported
Bushwalking / trekking / hiking (free range / off-trail)	Incompatible	Supported
Camping at approved designated sites	Incompatible	Supported at designated sites
Camping (free-range)	Incompatible	Incompatible
Drone flying (electric)	Incompatible (except on public roads ¹)	Supported
Orienteering / rogaining / geo-caching / cross country running	Incompatible	Supported*
Photography / painting / sightseeing / birdwatching / astronomy	Incompatible (except on public roads ¹)	Supported
Picnicking	Incompatible	Supported
Prospecting	Incompatible	Supported
Riding / walking / training of animals (including dogs and horses)	Incompatible	Incompatible

Riding / walking / training of animals on public roads ¹ and on approved designated sites - trails, tracks or areas (including dogs and horses)	Supported on public roads ¹ and at designated sites	Supported on public roads ¹ and at designated sites
Hunting / shooting	Incompatible	Incompatible
Water Based Activities		
Boating (motorised) Jet skiing / water skiing / power boating (fuel and low powered electric)	Incompatible	Incompatible
Boating (non-motorised) Canoeing / kayaks / buoyancy devices / rowing / sailing / model boating/ windsurfing / kite surfing	Incompatible	Incompatible
Fishing	Incompatible	Incompatible ²
Introduction of fish / aquatic species	Incompatible	Incompatible
Marroning	Incompatible	Incompatible
Swimming / wading / bathing / scuba diving / snorkelling (all activities that involve direct human contact with water)	Incompatible	Incompatible

Relevant State and Regional Recreational Strategies and Plans

Table 1-9 presents State and regional strategies and plans that relate to recreational facilities within the Larego mine region. The strategies and plans identify the State significance of the Munda Bididi Trail, as well as several regional and locally significant trails.

Potential Indirect Impacts

Noise

No detailed noise modelling has been undertaken to determine noise sensitivity zones within the Larego mine region. In lieu of this, preliminary sensitivity zones developed for the Myara North and Holyoake Stage 1 regions for the Pinjarra Alumina Refinery Revised Proposal ERD have been used to determine potential impacts. The zones were developed from identified sensitive receivers under assumed typical mining operations and preliminary mine plan information, to determine the noise reductions required to achieve the highest likelihood of compliant operations.

The sensitivity modelling has identified the following preliminary sensitivity zones as defined in Table 1-8 below and their zones of distances from sensitive receptors.

Table 1-8 Preliminary Noise sensitivity zones - Myara North and Holyoake Stage 1 Noise Studies

Zone	Sensitivity	Definition	Zone distance, m
Restricted Mining Zone	Severe	Zones adjacent to receivers. High risk of non-compliance and/or complaints. Compliance with Assigned Levels is likely to require no mining or highly restricted mining with extensive controls. Opportunistic mining may be possible under 'favourable' weather conditions. Careful management and noise monitoring will be required.	Day – 500 Night – 1,000
High Spec Low Noise Mining Zone	High	Zones closest, but not adjacent, to receivers. Mining noise emissions controllable through 'optimised mining' with a low noise fleet. Mining activities require evaluation through active modelling and customised noise control strategies for day & night.	Day – 1,000 Night – 1,500
Attenuated Mining Zone	Medium	Zones further away but still close to receivers. Mining required with noise-controlled fleet. Activities require evaluation through active modelling to determine risk of exceedance during night mining with customised noise control strategies	Day – 1,500 Night – 3,000
Standard Mining Zone	Low	Mining with Alcoa's existing fleet possible without requiring additional noise controls or management	Day – > 1,500 Night - > 3,000

Based on the above noise sensitivity zones, a 2km distance has been adopted as a conservative screening criteria.

Blasting

No detailed noise modelling has been undertaken to determine noise sensitivity zones within the Larego mine region. In lieu of this, modelling undertaken at the Huntly mine have been used to determine potential impacts, indicating that a distance of 1.2km from blasting operations can result in exceedance of blast overpressure. Based on this, a 2km distance has been adopted as a conservative screening criteria.

Visual impacts

The desktop review of landforms within the Larego mine region shows the presence of Plateaus (Dwellingup and Yarragil landforms) and major valleys (Murray landform). The review also revealed a lack of elevated viewpoints with public access. The mine region and surrounds are covered by forests and therefore views to mining will be effectively screened by vegetation. Visual screening studies conducted within the Myara region for the Pinjarra Alumina Refinery Revised Proposal ERD, indicate that a vegetive buffer of approximately 200m provides effective screening. Based on this, a 500m distance has been adopted as a conservative screening criteria.

Table 1-9 State and regional strategies and plans relevant to recreational trails and facilities within the Larego mine region and surrounding 2km

Strategy / Plan	Author	Sponsor	Statements and provisions relating to recreational facilities within the Larego mine region and surrounding 2km
WA Strategic Trails Blueprint	TRC Tourism 2017	Department of Local Government, Sport and Cultural Industries (DLGSCI)	<p>The Munda Biddi Trail is a high quality, off-road cycling trail ... that has strong potential for further development and promotion for iconic biking journey experiences.</p> <p>Existing trails that already have a strong awareness in the market are the ... Munda Biddi Trail.... These trails (sic) have potential for development and promotion as iconic experiences in the shorter term ...</p> <p>Additionally, ... business cases are nearing completion for major trail developments in the Peel (region) These include the creation of multiple Trail Towns and significant trail infrastructure.</p>
Two Year Action Plan for Nature-Based Tourism in Western Australia 2019 and 2020	DBCA	DBCA	Continue to promote, maintain and improve the ...Munda Biddi ... and encourage new industry investment in accommodation and visitation products.
WA Hiking Strategy Bushwalking and trail running in Western Australia 2020 - 2030	Common Ground Trails 2019	DBCA and DLGSCI	No facilities within the Larego mine region were identified.
Taking the Reins The Western Australian Recreational Horse Trail Strategy	PX2 Pty Ltd 2015	Australian Trail Horse Riders Association	No facilities within the Larego mine region were identified.
Shire of Harvey Advocacy Priorities: Harvey Trails and Adventure Precinct	Shire of Harvey	-	<p>Identified as a priority in the SW Mountain Bike Master Plan 2017, including connecting Harvey with Logue Brook Dam and the existing Munda Biddi trail to create a new 75km 3 day 2 night loop from Harvey.</p> <p>Stage 1: Munda Biddi Harvey Spur will take adventure riders and families from the Munda Biddi Trail to Harvey's town centre past some of the most iconic scenery in the region, including the Harvey Dam. Due to Harvey's undulating topography, it will provide an exciting downhill descent ride, filling a critical gap in Western Australia's downhill trail opportunities and event venues.</p> <p>Stage 2: Logue Brook - Clarke State Forest – Munda Biddi Harvey Spur North - Harvey Dam Trails and Connection Links:</p> <ul style="list-style-type: none"> – Clarke State Forest Trail Network and Challenge Park. – Adventure Trails connecting Logue Brook Dam, Clarke Forest Trail Network and Harvey Dam with the Munda Biddi Spur and the town of Harvey, including finalising infrastructure for a three-day loop.
South West Mountain Bike Master Plan	Common Ground Trails Pty Ltd for WestCycle 2017	Lottery west Department of Sport and Recreation Department of Parks	Identifies the Clarke State Forest as a priority site. It offers significant topography, excellent views, steep terrain, and diverse vegetation. In addition, it includes the Logue Brook Dam facilities and will connect the Munda Biddi Trail to Harvey.

Strategy / Plan		Author	Sponsor	Statements and provisions relating to recreational facilities within the Larego mine region and surrounding 2km
			and Wildlife West Australian Mountain Bike Association (WAMBA)	Constraints include conservation reserves, competing demands and other environmental issues.
Harvey Region Trails and Adventure Masterplan	TBC – proposed be developed	-	Proposed masterplan to be developed by Shire of Harvey. Additional information was unavailable at the time of report preparation. Review of this RTFMP will be conducted on publication of the Harvey Region Trails and Adventure Masterplan.	

Table 1-10 Overview of potential amenity impacts to recreational trails and facilities within the Larego mine region and surrounding 2 km

Recreational / scientific facility within Larego mine region	Accessible during mining ²	Mining audible/ dust	Mining visible during operation
Apiary sites	Yes - controlled	Likely	Potential
Bibbulmun Track	Yes	Potential	Potential
Blackboy Picnic Site	Yes	Potential	Potential
Bridge Trail	Yes	Potential	Potential
Captain Fawcett 4WD Track	Yes	Potential	Potential
Commercial tour operators	Yes – may be limited	Potential	Potential
Commercial wildflower picking	Yes – may be limited	Likely	Potential
Dick Lofthouse Trail	Yes	Unlikely	Unlikely
Fish Ladder Picnic Site	Yes	Potential	Potential
Five Mile Bridge	Yes	Potential	Potential
Gibbs Pool Amphitheatre	Yes	Unlikely	Unlikely
Harvey Wildflower Ridge Walk	Yes	Potential	Potential
Hoffman Mill	No	n/a – closed	n/a – closed
Jarrahlend Wildflower Trail Scenic Drive	No – partially closed	n/a – closed	n/a – closed
Lake Brockman Tourist Park	Yes	Potential	Potential
Logue brook commercial opportunities	Yes	Potential	Potential

² Access to trails and facilities during mining has been maintained where practicable, in accordance with risk assessment and application of the mitigation hierarchy.

Recreational / scientific facility within Larego mine region	Accessible during mining ²	Mining audible/ dust	Mining visible during operation
Logue Brook Dam and Lake	Yes	Potential	Potential
Munda Bididi Trail	Yes - realigned	Potential	Potential
MundAI track	Yes	Potential	Potential
Picnic Site	Yes	Potential	Potential
Rocky Crossing	Yes	Potential	Potential
Saddleback Campsite (Lake Brockman)	Yes	Potential	Potential
Seed collecting	Yes – may be limited	Likely	Potential
Shield trees	Yes – may be limited	Potential	Potential
The Rock Campsite (Lake Brockman)	Yes	Potential	Potential
Waterous Trail	Yes – realigned (follows Munda Bididi realignment)	Potential	Potential

1.3.3 Key assumptions and uncertainties

Regional planning and stakeholder consultation

The recreational facilities within the Larego mine region have been identified and classified in accordance with published State and regional planning documents as summarised in Section 1.3.2. Identification of additional recreational facilities and commercial opportunities resulting from stakeholder consultation will provide further certainty.

It is assumed that the identified and classified facilities are correct and current as per the published documents and consultation. There remains the potential for changes to occur in the identified facilities (e.g. new facilities developed) or changes to their significance at some point over the period of mining and rehabilitation and as a result of stakeholder consultation.

1.3.4 Risk based approach to management

This objective-based RTFMP adopts a risk-based approach to identify and prioritise targets and actions. Appendix B presents a risk assessment of the potential impacts to recreational facilities and commercial opportunities identified within the Larego mine region and surrounds:

- Table B-1 Closure and direct disturbance
- Table B-2 Indirect impacts (noise, dust and visual impacts)

Consideration of potential impacts and the implementation of management measures have been determined based on the following rationale:

- Visual impacts – if trail or facility is located less than 500m from the boundary of the current mining area (currently termed 'gated mine area'), visual screening management should be implemented. This distance has been determined on the basis of the absence of elevated lookouts and the presence of widespread forest canopy within the mine region.
- Noise and dust impacts – if trail or facility is located less than 2km from the boundary of the current mining area (currently termed 'gated mine area') noise and dust studies should be undertaken and respective management plans be developed and implemented. This distance has been determined on the basis that 2km is the nominal distance applied for the consideration of dust impacts in the absence of site-specific studies.

Table B-2 present residual risks incorporating proposed access restrictions / closure of facilities during life of mine as proposed in Table B-1.

The risk assessment considered consequence based on the significance class of recreational trails, magnitude and duration of impact, and likelihood.

An additional risk relates to the potential for indirect impact to a PDWSA through realignment of recreational trails. This is considered a Very High Risk for realignment into the reservoir protection zone (RPZ) and a High Risk for alignment into the upper catchment of a PDWSA outside of the RPZ.

As presented in Appendix B, the risk assessment indicated the following Very high and High risks, in which mitigations/actions need to be applied:

Very High Risks

1. Closure to State significant facility (Munda Biddi Trail) within the Larego mine region
2. Closure to Regionally significant facilities (Hoffman Mill and Waterous Trail) within the Larego mine region
3. Closure to public thoroughfares within the Larego mine region

High Risks

1. Potential noise, dust and visual impacts to State significant facilities (The Rock Campsite, Saddleback Campsite, Lake Brockman Tourist Park, Informal camping) due to proximity to mining operations
2. Potential noise, dust and visual impacts to other tracks/trails (Captain Fawcett, Bridge Trail, MundAI track, Jarrahland Wildflower Trail) due to proximity to mining operations
3. Potential noise, dust and visual impacts to day use areas (Logue Brook dam and lake, informal day use) due to proximity to mining operations
4. Potential noise, dust and visual impacts to commercial operators (Apiary sites, commercial tour operators and Logue Brook commercial opportunities) due to proximity to mining operations
5. Potential noise, dust and visual impacts to other facilities (Shield trees) due to proximity to mining operations
6. Restricted access for Aboriginal cultural and heritage customary uses

A further identified risk is the limited stakeholder consultation at the time of preparing this draft RTFMP. This risk is addressed through the proposed stakeholder consultation in Section 3.

The management approach in this RTFMP is consultative and conservative, with the view of managing impacts during all phases of mining. The RTFMP adopts an environmental management hierarchy in the prioritisation of management provisions:

- Avoidance: measures taken to avoid impact
- Minimisation: measures taken to reduce the duration, intensity and/or extent of impact
- Rehabilitation: measures taken to restore previously existing conditions.

1.3.5 Rationale for choice of provisions

Changes in Intensity, Duration, Magnitude and Geographic Footprint of the Impact

The management provisions have been developed to address how impacts to recreational facilities and commercial opportunities may vary in intensity, duration, magnitude and geographic footprint, including:

- variation in direct and indirect impacts as mining progresses within the Larego mine region
- variation in meteorological conditions affecting noise propagation or dust dispersion during mining
- progression and restoration of visual impacts over mining and rehabilitation timeframes.

Environmental Changes and Rate of Change

The management measures have been developed to address the potential for external threatening processes to affect visual screening by vegetation surrounding the region.

The RTFMP will be reviewed in the event of material changes to environmental conditions or social surroundings that may influence the Proposal impacts on recreational facilities or commercial opportunities.

External Issues

The provisions have taken into account third party proposals for new trails, recreation and tourism (e.g. Harvey Region Trails and Adventure Masterplan), and the scheduled update of the Forest Management Plan (2024). The RTFMP will be reviewed in the event of material changes to external issues.

2. Environmental management components

Table 2-1 presents objective-based management provisions relating to those recreational facilities and commercial opportunities within the Larego mine region with the potential for Very High and High risks.

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Table 2-1 Recreational facilities and commercial opportunities within the Larego mine region – management components

Management target	Management actions	Monitoring	Timing / frequency of actions	Reporting
Objective 1: Maintain community access for critical thoroughfares between towns and recreation facilities.				
<ul style="list-style-type: none"> – Maintain public road access from Harvey and Waroona to the following strategic locations for recreation: <ul style="list-style-type: none"> • Munda Biddi Trail, • Bibbulmun Track • Murray River (Lane Pool Reserve) • Captain Fawcett Track 	<ul style="list-style-type: none"> – Prepare, maintain and implement Forest Access Plan in consultation with DBCA and other key stakeholders identified in Section 3. – Amend road alignments to address community, land manager and regulator expectations in relation to waterway and wetland protection; recreation, landscape protection and public access. – Prepare and implement a communication program (as part of the Forest Access Plan) ensuring members of the public visiting or traversing the Larego mine region are made aware of changes to access and facilities, at timing and methods agreed in consultation with DBCA.. 	As per Forest Access Plan	As per Forest Access Plan	As per Forest Access Plan
Objective 2: Minimise direct impacts to recreational trails within the Larego mine region, which includes investigating options to maintain access, where practicable. Where impacted, rehabilitate and reinstate these facilities where practicable, in consultation with DBCA and other key stakeholders.				
<ul style="list-style-type: none"> – No direct impacts to the following trails as a result of mining: <ul style="list-style-type: none"> • Bibbulmun Track • Captain Fawcett 4WD Drive Track 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones within the region to prevent direct impacts to these trails. – Mining avoidance zones will be clearly marked on construction and mining maps to guide mine development personnel. 	To be determined	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	To be determined
<ul style="list-style-type: none"> – Public access is maintained for the life of the mine to: <ul style="list-style-type: none"> • Bibbulmun Track • Captain Fawcett 4WD Drive Track 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones within the region to allow uninterrupted access to these trails. 	To be determined	<ul style="list-style-type: none"> – Gated mine and mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	To be determined
<ul style="list-style-type: none"> – Direct impacts are minimised as far as practicable to: <ul style="list-style-type: none"> • Bridge Trail (walking) • MundAI track (4WD) • Jarrahland Wildflower Trail Scenic Drive 	<ul style="list-style-type: none"> – Maintain closure or partial closure for the life of mine. – Minimise direct impacts as far as practicable. – Investigate options to maintain access, including the potential to realign trails, in consultation with DBCA and other key stakeholders. – All sections of trails to be retained will be demarcated in spatial data and construction drawings to guide construction and mine development personnel 	Not applicable	<ul style="list-style-type: none"> – Agreement reached with DBCA prior to construction on options to maintain access, including realignment of trails. – Mining avoidance zones (for trails to be retained) established and demarcated prior to construction of adjacent mine development. 	To be determined
<ul style="list-style-type: none"> – Where practicable, rehabilitate and reinstate access to: <ul style="list-style-type: none"> • Bridge Trail (walking) • MundAI track (4WD) • Jarrahland Wildflower Trail Scenic Drive 	<ul style="list-style-type: none"> – Confirm the extent of direct impacts and feasibility of re-instating each trail in consultation with DBCA and other key stakeholders. – Undertake pre-mining inspection of trails to be re-instated, to record trail condition and facilities (e.g. signage, paving, boardwalks, cleaning stations). – Rehabilitate trails to be re-instated as early as practicable with consideration to rehabilitation priorities given other environmental and social values and constraints. – Rehabilitation to recreate the pre-mining trail condition and facilities, in consultation with DBCA and other key stakeholders, where practicable 	Pre-construction and pre-mine development inspection of trail condition and facilities	<ul style="list-style-type: none"> – Agreement reached with DBCA prior to rehabilitation processes on what trails should be rehabilitated and access reinstated. – Trail inspection and documentation prior to construction / mining disturbance. – Any required rehabilitation conducted as early as practicable or at the end of mine region life. – Any required access reinstated at closure of mine region. 	To be determined
Objective 3: Maintain the scenic values and quality of landscape as seen by drivers on identified road alignments.				
<ul style="list-style-type: none"> – Maintain visual amenity on public roads 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones within the region to prevent direct impacts to screening vegetation within 200m of public roads. – Mining avoidance zones will be clearly marked on construction and mining maps to guide mine development personnel. 	To be determined	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	To be determined
Objective 4: Maintain public access to the Munda Biddi Trail for the life of mine through re-alignment to the west of the Larego mine region				
<ul style="list-style-type: none"> – Realign an approximately 29 km section of Munda Biddi Trail from its current location within the Larego mine region to west of the region, to avoid piecemeal realignments and disruptions from mining throughout the life of mine. 	<ul style="list-style-type: none"> – Alcoa to provide funding and support to DBCA, as managers of recreational facilities within the State Forest, to undertake planning, survey, design and construction of the Munda Biddi realignment, – Alcoa to provide input as required by DBCA, in developing a detailed implementation schedule as part of the required 'Trail Development Series' planning process (DBCA and DLGSCI 2019) 	Not applicable	<ul style="list-style-type: none"> – Concept planning, site surveys and detailed design – Construction of realignment prior to ground disturbing activities within the Larego mine region 	<ul style="list-style-type: none"> – Consultation with DBCA and Munda Biddi Trail Foundation in accordance with the Strategic Framework for the realignment

Management target	Management actions	Monitoring	Timing / frequency of actions	Reporting
<ul style="list-style-type: none"> – Support DBCA development of the Munda Bididi Trail realignment. – Realignment design to maintain a high-quality trail experience, including maintaining: <ul style="list-style-type: none"> • access to Logue Brook as a trail camp site • thoroughfare between Dwellingup and Collie Trail Towns • designated access points for users and their support crews 	<ul style="list-style-type: none"> to include key points of potential interface of construction and Munda Bididi users. – Alcoa to provide input as required by DBCA in concept planning, site survey and detailed design, – Alcoa to provide input as required by DBCA to arrange construction of the Munda Bididi realignment, targeting commencement of trail construction and completion prior to commencement of ground disturbing activities within the Larego mine region. 			
Objective 5: Maintain viability of existing and planned commercial opportunities				
<ul style="list-style-type: none"> – Maintain viability of existing and planned commercial opportunities, including: <ul style="list-style-type: none"> • DBCA leases at Logue Brook Dam • apiary sites • commercial tour operations • commercial seed collection • commercial wildflower picking • existing military use of the mine area 	<ul style="list-style-type: none"> – Investigate options to maintain access to existing and planned commercial opportunities, in consultation with DBCA and other key stakeholders – Establish and maintain mining avoidance zones surrounding commercial opportunities to be retained, including Logue Brook Dam – Mining avoidance zones will be demarcated in construction and mining maps to guide mine development and construction personnel – If mining proposed within 2 km of identified commercial opportunities to be retained, then commission noise, dust and visual assessments – If predicted noise levels at noise-sensitive commercial opportunities may exceed assigned levels under the Environmental Protection (Noise) Regulations 1997, then prepare and implement a Noise Management Plan (NMP) in consultation with DBCA – If predicted dust levels at dust-sensitive commercial opportunities may exceed relevant criteria for dust deposition or 24 hour Ambient Air National Environmental Protection Measure (NEMP), then prepare and implement a Dust Management Plan (DMP) in consultation with DBCA – If mining is predicted to be visible from visually sensitive commercial opportunities, then prepare and implement a Visual Management Plan (VMP) consultation with DBCA – Alcoa to consult with DBCA when reviewing mine planning to ensure commercial operators are advised of changes to access to minimise disruption to commercial activity 	<p>To be determined As per NMP, DMP and/or VMP (if required)</p>	<ul style="list-style-type: none"> – Concept planning, site surveys and detailed design – NMP, DMP and/or VMP prepared (if required) in consultation with DBCA, prior to commencement of mine development within 2 km of identified commercial opportunities to be retained 	<p>Pre-construction/mine development site inspection As per NMP, DMP and/or VMP (if required)</p>
Objective 6: Maintain adequate camping amenities				
<ul style="list-style-type: none"> – Ensure camping and adequate amenity for campers remains at Logue Brook for the life of mine. 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones surrounding sites to be retained – Mining avoidance zones will be demarcated in construction and mining maps to guide mine development and construction personnel – If mining proposed within 2 km of identified sites to be retained, then commission noise, dust and visual assessments – If predicted noise levels at noise-sensitive sites may exceed assigned levels under the Environmental Protection (Noise) Regulations 1997, then prepare and implement a Noise Management Plan (NMP) in consultation with DBCA – If predicted dust levels at dust-sensitive sites may exceed relevant criteria for dust deposition or 24 hour Ambient Air National Environmental Protection Measure (NEMP), then prepare and implement a Dust Management Plan (DMP) in consultation with DBCA – If mining is predicted to be visible from visually sensitive sites, then prepare and implement a Visual Management Plan (VMP) consultation with DBCA 	<p>To be determined</p>	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	<p>To be determined</p>
<ul style="list-style-type: none"> – Maintain public access and adequate amenity to the following Munda Bididi trail associated campsites: <ul style="list-style-type: none"> • The Rock Campsite 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones surrounding sites to be retained 	<p>To be determined</p>	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	<p>To be determined</p>

Management target	Management actions	Monitoring	Timing / frequency of actions	Reporting
<ul style="list-style-type: none"> Saddleback Campsite 	<ul style="list-style-type: none"> Mining avoidance zones will be demarcated in construction and mining maps to guide mine development and construction personnel If mining proposed within 2 km of identified sites to be retained, then commission noise, dust and visual assessments If predicted noise levels at noise-sensitive sites may exceed assigned levels under the Environmental Protection (Noise) Regulations 1997, then prepare and implement a Noise Management Plan (NMP) in consultation with DBCA If predicted dust levels at dust-sensitive sites may exceed relevant criteria for dust deposition or 24 hour Ambient Air National Environmental Protection Measure (NEMP), then prepare and implement a Dust Management Plan (DMP) in consultation with DBCA If mining is predicted to be visible from visually sensitive sites, then prepare and implement a Visual Management Plan (VMP) consultation with DBCA - 			
Objective 7: Maintain access and adequacy of day-use areas				
<ul style="list-style-type: none"> Maintain access and adequacy of existing DBCA day use areas, including: <ul style="list-style-type: none"> Blackboy Picnic Site Gibbs Pool Amphitheatre Fish Ladder Picnic Site Picnic Site Five Mile Bridge Rocky Crossing Site Logue Brook dam and lake 	<ul style="list-style-type: none"> Establish and maintain mining avoidance zones surrounding sites to be retained Mining avoidance zones will be demarcated in construction and mining maps to guide mine development and construction personnel If mining proposed within 2 km of identified sites to be retained, then commission noise, dust and visual assessments If predicted noise levels at noise-sensitive sites may exceed assigned levels under the Environmental Protection (Noise) Regulations 1997, then prepare and implement a Noise Management Plan (NMP) in consultation with DBCA If predicted dust levels at dust-sensitive sites may exceed relevant criteria for dust deposition or 24 hour Ambient Air National Environmental Protection Measure (NEMP), then prepare and implement a Dust Management Plan (DMP) in consultation with DBCA If mining is predicted to be visible from visually sensitive sites, then prepare and implement a Visual Management Plan (VMP) consultation with DBCA - 	Pre-construction and pre-mine development inspection of facility condition	<ul style="list-style-type: none"> Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	To be determined
<ul style="list-style-type: none"> Enable existing informal day use opportunities to occur in and adjacent to the mine area. 	<ul style="list-style-type: none"> Demarcate areas for mining and construction 	To be determined		To be determined
Objective 8: Maintain ability for major events to occur				
<ul style="list-style-type: none"> Limit the disruption to major recreational events that occur within or partially within the Larego mine region, including (but not limited to): <ul style="list-style-type: none"> Equestrian events Enduro motorbike events Rogaining events 	<ul style="list-style-type: none"> Alcoa to consult with relevant stakeholders and event organisers to minimise the impacts of mining to any proposed event. Inform event planners of upcoming and future operations to allow for planning of safe, high quality events 	Not applicable	<ul style="list-style-type: none"> Agreement reached with event organisers prior to event to clearly demarcate the event footprint 	Post-event reporting
Objective 9: Maintenance of access and use for cultural heritage uses				
<ul style="list-style-type: none"> Minimise impact to Aboriginal heritage Registered and Recorded sites and other places Ensure customary use and the land is maintained for the continuation of Aboriginal culture. 	<ul style="list-style-type: none"> Avoid all direct impacts to Aboriginal heritage sites / places. Amend road alignments to address community, land manager and regulator expectations in relation to cultural heritage uses. Prepare and implement a communication program (as part of the Forest Access Plan) ensuring members of the public visiting or traversing the Larego mine region are made aware of changes to access to cultural heritage places, at timing and methods agreed in consultation with DBCA.. 	To be determined	<ul style="list-style-type: none"> Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	<ul style="list-style-type: none"> Pre-construction/mine development site inspection Post-mining site inspection report

Management target	Management actions	Monitoring	Timing / frequency of actions	Reporting
<ul style="list-style-type: none"> – Ensure the heritage items of the Fawcett track (trestle bridges, sidings etc) are protected for the life of mine and are able to be accessed by the public. 	<ul style="list-style-type: none"> – Establish and maintain mining avoidance zones within the region to prevent direct impacts to heritage items. – Mining avoidance zones will be clearly marked on construction and mining maps to guide mine development personnel. 	To be determined	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	To be determined
Objective 10: Maintenance of access for facility and asset management				
<ul style="list-style-type: none"> – Ensure DBCA and DFES have suitable access to the mine region to allow for: <ul style="list-style-type: none"> • Appropriate fire management, including upkeep of fire breaks and allowance of strategic access. • On-going ability to maintain the Western Shield Baiting Program within the mine region • DBCA nominated public firewood areas • Avoidance of Disease Risk Areas for relocated facilities – Have an agreed Forest Access Plan for general vehicle access 	<ul style="list-style-type: none"> – Prepare and maintain a site access plan to allow for regulated movement of DBCA / DFES officials – Minimise direct impacts to access tracks as far as practicable. – Recreate the pre-mining site conditions and facilities, in consultation with DBCA and other key stakeholders, where practicable 	To be determined	<ul style="list-style-type: none"> – Prior to clearing, DBCA / DFES to provide indication of essential service roads – Any required rehabilitation conducted as early as practicable or at the end of mine region life. – Any required access reinstated at closure of mine region. 	Pre-construction/mine development site inspection
Objective 11: Maintain water quality in response to new or changed recreational facility use				
<ul style="list-style-type: none"> – Ensure the following water quality objectives are maintained for: <ul style="list-style-type: none"> • Public drinking water in the constituted public drinking water source areas of Stirling Dam and Samson Brook • Recreational water quality in Harvey Dam and Logue Brook Dam (Lake Brockman). • Waterways and wetlands at pre-development levels (winter concentrations) or improved. 	<ul style="list-style-type: none"> – Ensure any new or changed recreation facilities or events are consistent with Operational policy 13 or noted by the Minister for Water. – Ensure any new or changed recreation facilities or events are consistent with Operational policy 13 or noted by the Minister for Water. – Ensure access is not increased to the Stirling Dam reservoir protection zone, where public access is prohibited under the Metropolitan Water Supply, Sewerage and Drainage By-laws 1981, except on public roads. 	Pre-mining report of baseline water quality	<ul style="list-style-type: none"> – Mining avoidance zones established and demarcated prior to construction of adjacent mine development. 	Pre-construction/mine development water quality inspection Post-mining water quality inspection report

2.1 Adaptive management and review

2.1.1 Environmental monitoring and corrective actions

Environmental monitoring will occur during the construction and operational phases of mining in the Larego mine region including the establishment and progress of rehabilitation.

Any non-conformances with the requirements of this RTFMP will be investigated to identify the root cause and the relevant corrective action. If necessary, the RTFMP will be amended to incorporate the corrective action to prevent future non-conformances.

Non-conformances will be rectified or mitigated as soon as possible to ensure minimal ongoing harm to social surroundings.

Relevant procedures will be amended/updated as necessary and inductions and other workforce communication will be undertaken in a timely manner to minimise the risk of re-occurrences.

In the event of unforeseen impacts from the Proposal to recreational or scientific facilities within the Larego mine region, relevant stakeholders (e.g. DBCA) will be notified and consulted in regard to the appropriate remedial actions.

2.2 RTFMP revision

This RTFMP is intended to be dynamic and may be updated to reflect changes in management practices and social surroundings with time. This will also allow flexibility to respond to new environmental impacts and adopt new technologies / management measures. Figure 4 outlines the process for review, upon revisions to the MMP.

Amendments to management actions will be completed on an as needs basis. This will include revision / amendment of management actions that are not achieving the desired outcomes, environmental monitoring identifying additional impacts and management actions, and changes to relevant legislation or improvements to practices that are likely to achieve better environmental outcomes.

Where substantial changes to the RTFMP are required, Alcoa will engage with DBCA and relevant stakeholders on the proposed changes to inform and update the document, and the document will be distributed to DBCA and the relevant stakeholders.

This RTFMP will be reviewed and updated as necessary to reflect material changes and updates in relevant internal and external factors, which may include:

- Material changes in the Larego mine plan, construction or rehabilitation programs that may affect recreational or scientific facilities
- Non-conformances and corrective actions
- Forest Management Plan update (scheduled for 2024)
- Material updates of existing recreational strategies (e.g. Peel Regional Trails Strategy) or release of new recreational strategies (e.g. Harvey Region Trails and Adventure Masterplan) that relate to recreational facilities within the mine region.
- Advice from DBCA or key stakeholders regarding material changes to recreational or scientific facilities that may be directly or indirectly impacted by the Proposal, or material changes in environmental conditions that may affect impacts from the Proposal (e.g. external threatening processes).

Larego Mine Region progression

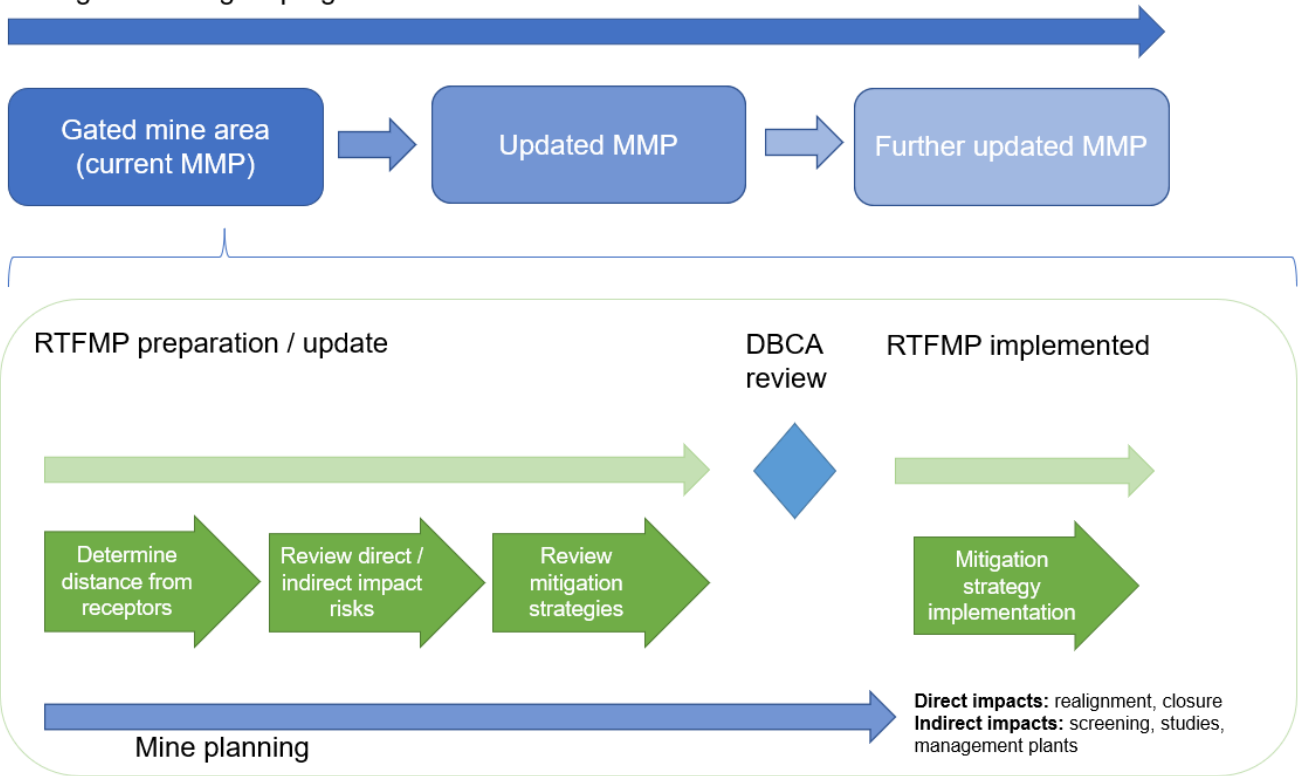


Figure 4 RTFMP review process



3. Stakeholder consultation

Preliminary stakeholders have been identified and are summarised in Table 3-1.

Consultation with these stakeholders regarding environmental issues associated with recreational facilities and commercial opportunities within the Larego mine region will be undertaken. This will ensure management actions are suitable to meet plan objectives.

Table 3-1 Key stakeholders engaged on recreation and scientific facilities within the Larego mine region

Stakeholder group	Details of consultation
Commonwealth Government	
State Government	
Local Government	
Recreation and tourism groups	
Environmental groups:	
Business and industry groups	
Community groups	
Nearby communities and nearby private landowners/residents	

4. References

- Common Ground Trails Pty Ltd 2017, *South West Mountain Bike Master Plan*, prepared for WestCycle Inc.
- Common Ground Trails Pty Ltd 2019, *Peel Regional Trails Strategy 2019*, prepared for the City of Mandurah, Shire of Boddington, Shire of Murray, Shire of Serpentine Jarrahdale and Shire of Waroona.
- Department of Biodiversity, Conservation and Attractions 2019, *Two Year Action Plan for Nature-Based Tourism in Western Australia 2019 and 2020*, Government of Western Australia.
- Environmental Protection Authority (EPA) 2021, *Instructions on how to prepare Environmental Protection Act 1986 Part IV Environmental Management Plans*, EPA, Western Australia.
- PX2 Pty Ltd 2015, *Taking the Reins The Western Australian Recreational Horse Trail Strategy*, prepared for the Australian Trail Horse Riders Association.
- Shire of Harvey 2020, *Advocacy Priorities*, retrieved 22 April 2022, from <https://www.harvey.wa.gov.au/build-and-develop/projects/advocacy-priorities>
- TRC Tourism 2017, *Western Australian Strategic Trails Blueprint 2017-2021*, prepared for the Trails Reference Group, Department of Sport and Recreation, May 2017.
- Western Australian Conservation and Parks Commission (2019). *Position Statement: Protecting and conserving the value of the land to the culture and heritage of Aboriginal persons*. Conservation and Parks Commission, Perth.

Appendices

Appendix A

**Identified recreational facilities and
commercial opportunities**

Colour Key

Impact	Colour representation
Direct impact short term (facility within / part within gated area)	
Direct impact long term (facility within / part within region)	
Direct impact mitigated	
No impact	

Table A-1 State Significance Trails and Facilities – Munda Biddi Trail and Bibbulmun Track

Trail ID	Site ID	Existing Assets	Identified values	Proximity to Larego mine region	Proximity to Larego gated area	Proximity to Larego Crusher	Direct impact within region	Indirect impact within region
S01		Munda Biddi Trail	State significance, Very High priority in Peel Regional Trails Strategy (PRTS) via Consultation – important to Dwellingup ecotourism Mountain biking, camping	Total of 36.2 km within region	Within gated area	4.6 km north	Short term impact to 9.7 km within the gated area and long term impact to 36.2 km total within the region.	Proposed to be realigned; Potential noise, dust and visual impacts due to proximity to mining operations.
	MB1	The Rock Campsite (Lake Brockman)	State forest, camping	within region, outside of current gated area	4.8 km west	10.0km east	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	MB2	Saddleback Campsite (Lake Brockman)	State forest, camping	within region, outside of current gated area	5.5 km west	10.8km east	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
S02		Bibbulmun track	State significance; important to WA ecotourism Bushwalking, camping	outside of region (along eastern boundary)	Proximity to Larego gated area	8.8km east	none	Potential noise, dust and visual impacts due to proximity to mining operations.

Table A-2 Regionally and Locally Significant Trails and facilities

Trail ID	Site ID	Existing Assets	Identified values	Proximity to Larego mine region	Proximity to Larego gated area	Proximity to Larego Crusher	Direct impact	Indirect impact
L01		Other Walk Trail (unnamed)	Hiking, bushwalking	within region, along north eastern boundary of gated area	on north east boundary	6 km north east	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
L02		Bridge Trail	Bushwalking	within region, outside of current gated area	0.15 km south	4.2km south	Directly impacted by mining - Adjacent Hoffman Mill to be relocated. loss of trail.	Noise dust impacts based on proximity to mining operations.
L03		Harvey Wildflower Ridge Walk	Bushwalking	within region, along south west boundary	11 km south west	16.5 km south east	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
R01		Jarrahlend Wildflower Trail Scenic Drive	Regional significance (Peel Regional Trails Strategy), 2WD scenic drive	within region, within current gated area	within gated area	<1km	Currently closed due to mining	n/a currently closed within Larego mine region
R02		Captain Fawcett	4WD track	outside region, along north eastern boundary	1.3 km north-east	8.2km east-north east	n/a	Potential for access restrictions as a result of road closures and diversions.
R03		Waterous Trail	Mountain bike trail	within region, partially within current gated area	on west boundary, closed through gated area	4.6 km north	Short term impact to 1.5 km within the gated area	n/a currently closed within Larego mine region
R04		MundAI track	4WD Track High potential to become regionally significant. Portion of track within gated mine area.	within region, along western boundary of gated area	on west boundary	1.2km east	Short term impact to 13.5 km within the gated area and long term impact to 19.8 km elsewhere within the region.	n/a to be realigned
R05		Dick Lofthouse Trail	Rotary Walk Trail	Outside of region, southern boundary	12.5 km south west	18.3 km south west	n/a	Potential noise, dust and visual impacts due to proximity to mining operations.
	CS1	Lake Brockman Tourist Park	Camping, recreation, boating	within region, outside of current gated area	5.3 km west	10.5km west	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	CS2	Hoffman Mill (day use also)	Camping; community heritage	within region, outside of current gated area	0.25 km south	4.2km south	Long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU1	Blackboy Picnic Site	Day use	within region, outside of current gated area	11.1 km south-west	16.5km south west	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU2	Gibbs Pool Amphitheatre	Day use	outside of region (south-west boundary)	13.0 km south-west	18.6km south west	none	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU3	Fish Ladder Picnic Site	Day use	within region, outside of current gated area	9.0 km south	14.4km south	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU4	Picnic Site	Day use	within region, outside of current gated area	8.3 km south	13.6km south	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU5	Five Mile Bridge	Day use	within region, outside of current gated area	7.1 km south	11.8km south	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	DU6	Rocky Crossing Site	Day use	outside of region (south boundary)	8.1 km south	12.9km south	n/a	Noise dust impacts based on proximity to mining operations.
	DU7	Logue Brook Dam and Lake	Day use, recreation, boating	within region, outside of current gated area	4.3 km west	10.5km west	n/a - mining will not occur over the lake	Noise dust impacts based on proximity to mining operations.
	n/a	Informal camping within state forest	Camping	no specific site	no specific site	no specific site	Potential long term impact	Potential noise, dust and visual impacts due to proximity to mining operations.
	n/a	Other informal day use of state forest	Day use	no specific site	no specific site	no specific site	Potential short and long term impact	Noise dust impacts based on proximity to mining operations.

Table A-3 Significant events, economic and scientific facilities

Trail ID	Site ID	Existing Assets	Identified values	Proximity to Larego mine region	Proximity to Larego gated area	Proximity to Larego Crusher	Direct impact	Indirect impact
n/a	n/a	Apiary sites	Agricultural	27 current and one pending apiaries within region	11 current within gated area	Distributed across region	Potential clearance within gated mine area	Potential reduction in nectar sources resulting from clearing; dust impacts within 500m of mining.
n/a	n/a	Commercial tour operators	Tourism	no specific site	n/a	no specific site	n/a	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Logue brook commercial opportunities	Tourism, recreation	within region, outside of current gated area	4.3 km west	9.5km east	n/a	Potential for reduction in turnover should reduce recreational use occur based on proximity to mining operations.
n/a	n/a	Seed collecting	Commercial	no specific site	n/a	no specific site	Reduction of accessible vegetation as a result of clearing for mining operations	Reduction of access to vegetation as a result of road closures.
n/a	n/a	Commercial wildflower picking	Commercial	no specific site	n/a	no specific site	Reduction of accessible vegetation as a result of clearing for mining operations	Reduction of access to vegetation as a result of road closures.
n/a	n/a	Equestrian	Recreation	unknown - potentially within region	n/a	n/a	Potential for loss of activity if tracks and trails located within planned mining areas within Larego mine region	Reduction of access to tracks and trails as a result of road closures. Noise dust impacts based on proximity to mining operations.
n/a	n/a	Enduro motor bike	Recreation	unknown - potentially within region	n/a	n/a	Potential for loss of activity if tracks and trails located within planned mining areas within Larego mine region	Reduction of access to tracks and trails as a result of road closures.
n/a	n/a	Rogaining	Recreation	unknown - potentially within region	n/a	n/a	Potential for loss of activity if tracks and trails located within planned mining areas within Larego mine region	Reduction of access to tracks and trails as a result of road closures. Noise dust impacts based on proximity to mining operations.
n/a	n/a	Shield trees	Former forest industry grid reference trees, widespread (total 3437 trees within ML1SA) through northern jarrah forest Used for orienteering via Consultation – important tool for orienteering / informal trails.	167 within the Larego mine region	75 within the current gated area	n/a	Potential clearance within gated mine area	Dieback, weeds, long term dust
n/a	n/a	Aboriginal cultural and heritage customary access	Cultural	no specific site	n/a	no specific site	Potential for loss of access	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Bridges and minor culverts	Public access	unknown	unknown	unknown	Mine traffic use may accelerate the rate of degradation.	n/a
n/a	n/a	Clarke Rd	Access Road	Intersects the region and runs along the south-western boundary of the current gated area	n/a	4.1km south	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Driver Rd	Access Road	Intersects both the region and gated mine area	n/a	4.2km north west	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Harvey-Quindanning Rd	Regional Distributor	Intersects the region	6.8km south	12km south	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Hoffman Rd	Access Road	Intersects the region at the north eastern boundary	Boundary road	7km west	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Logue Brook Dam Rd	Access Road	Intersects the region	3.4km west	8.4km southwest	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Nanga Rd	Local Distributor	Intersects both the region and gated mine area	n/a	1.3km west	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Scarp Rd	Access Road	Intersects the region	3.6km west	8.3 km west	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.
n/a	n/a	Tallanalla Rd	Local Distributor	Intersects the region, abuts the southern extent of the gated mine area	n/a	3.9km south	Reduction of public access to other forest areas	Increase in the travel times within region due to closes/ diverted roads.

Appendix B

Risk assessment

Consequence Criteria

Classification	Short term minor impact	Long term minor impact	Short term major impact	Long term major impact
State significance	Moderate	Major	Major	Critical
Regional significance	Minor	Moderate	Major	Major
Local / informal	Minor	Minor	Moderate	Moderate

Risk Matrix

		Likelihood			
		Unlikely	Potential	Likely	Almost certain
Consequence	Critical	Medium	High	Very High	Very High
	Major	Medium	High	High	Very High
	Moderate	Medium	Medium	High	High
	Minor	Low	Medium	Medium	Medium

Table B.1 Risk assessment: Facilities with direct disturbance and restricted public access

Recreational / scientific facility	Significance	Magnitude	Duration	Consequence	Likelihood	Risk	Strategy
State Significant trails and camping							
Munda Biddi Trail	State	Major	Long term	Critical	Almost certain	Very High	Realignment to maintain public access
The Rock Campsite (Lake Brockman)	Regional	Minor	Long-term	Moderate	Likely	High	Detailed studies i.e., Noise and dust modelling;
Saddleback Campsite (Lake Brockman)	Regional	Minor	Long-term	Moderate	Likely	High	Detailed studies i.e., Noise and dust modelling;
Lake Brockman Tourist Park	Regional	Minor	Long-term	Major	Likely	High	Detailed studies i.e., Noise and dust modelling;
Hoffman Mill	Regional	Major	Long-term	Major	Almost certain	Very High	Closure and construction/ upgrade of suitable facilities at nearby alternative site
Informal camping within state forest	Local / informal	Major	Long-term	Moderate	Potential	High	Control public access during mining.
Other Tracks and Trails							
Bridge Trail (walking)	Local / informal	Major	Long-term	Moderate	Almost certain	High	Associated Hoffman Mill site proposed to be closed. Control public access during mining.
MundAL track (4WD)	Regional	Minor	Long-term	Moderate	Almost certain	High	Already within gated region. Continue to control public access during mining. Implementation of long-term forest access track plan.
Waterous Trail	Regional	Major	Long-term	Major	Almost certain	Very High	Realignment to maintain public access (associated with the Munda Biddi Trail route)
Jarrahlend Wildflower Trail Scenic Drive	Regional	Major	Long-term	Moderate	Almost certain	High	Already within gated region. Continue to control public access during mining. Implementation of long-term forest access track plan.
Day use areas							
Blackboy Picnic Site	Regional	Minor	Long-term	Moderate	Potential	Medium	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling;
Five Mile Bridge	Regional	Minor	Short-term	Minor	Unlikely	Low	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling;
Logue brook dam and lake	Regional	Minor	Long-term	Major	Likely	High	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling;
Other informal day use of state forest	Local / informal	Major	Long-term	Moderate	Potential	High	Control public access during mining and rehab.
Commercial operators							
Apiary sites	Regional	Minor	Long-term	Moderate	Likely	High	Discussion with DBCA regarding licences.
Seed collecting	Local	Minor	Long-term	Minor	Likely	Medium	Discussion with DBCA regarding licences.
Commercial wildflower picking	Local	Minor	Long-term	Minor	Likely	Medium	Discussion with DBCA regarding licences.
Events							
Equestrian	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Enduro motor bike	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Rogaining	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Other Facilities							

Recreational / scientific facility	Significance	Magnitude	Duration	Consequence	Likelihood	Risk	Strategy
Shield trees	Regional	Minor	Long-term	Major	Likely	High	Avoidance with other controls also put in place
Bridges and minor culverts	Local / informal	Minor	Long-term	Minor	Likely	Medium	Avoidance with management in accordance with works agreement with DBCA.
Clarke Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Clarke Rd
Driver Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Driver Rd
Harvey-Quindanning Rd	Regional	Minor	Long-term	Major	Likely	High	Harvey-Quindanning Rd
Hoffman Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Hoffman Rd
Logue Brook Dam Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Logue Brook Dam Rd
Nanga Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Nanga Rd
Scarp Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Scarp Rd
Tallanalla Rd	Local / informal	Minor	Long-term	Minor	Likely	Medium	Tallanalla Rd

Table B.2 Risk assessment: Facilities with indirect disturbance and restricted public access

Recreational / scientific facility	Significance	Magnitude	Duration	Consequence	Likelihood	Risk	Strategy
State Significant trails and camping							
Bibbulmun track	State	Minor	Long-term	Major	Likely	High	Maintain visual screening.
Informal camping within state forest	Local / informal	Major	Long-term	Moderate	Potential	High	Control public access during mining.
Other Tracks and Trails							
Captain Fawcett 4WD Track	Regional	Minor	Long-term	Moderate	Likely	High	Maintain visual screening; Detailed studies i.e. Noise and dust modelling; NMPs
Waterous Trail	Regional	Major	Long-term	Major	Almost certain	Very High	Maintain visual screening. Implement standard noise and dust management procedures
Dick Lofthouse Trail	Regional	Minor	Short-term	Minor	Unlikely	Low	Impacts unlikely - implement standard noise and dust management procedures
MundAL track (4WD)	Regional	Minor	Long-term	Moderate	Almost certain	High	Already within gated region; Continue to control public access during mining.
Jarrahlend Wildflower Trail Scenic Drive	Regional	Major	Long-term	Moderate	Almost certain	High	Already within gated region; Continue to control public access during mining.
Day use areas							
Gibbs Pool Amphitheatre	Regional	Minor	Short-term	Minor	Unlikely	Low	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling; NMPs
Fish Ladder Picnic Site	Regional	Minor	Short-term	Minor	Unlikely	Low	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling; NMPs
Picnic Site	Regional	Minor	Short-term	Minor	Unlikely	Low	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling; NMPs
Rocky Crossing Site	Regional	Minor	Short-term	Minor	Unlikely	Low	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling; NMPs
Other informal day use of state forest	Local / informal	Major	Long-term	Moderate	Potential	High	Control public access during mining.
Commercial operators							
Apiary sites	Regional	Minor	Long-term	Moderate	Likely	High	Discussion with DBCA regarding licences.
Commercial tour operators	Regional	Minor	Long-term	Moderate	Likely	High	Maintain public access routes with detours where required
Logue brook commercial opportunities	Regional	Minor	Long-term	Moderate	Likely	High	If mining proposed within 2km then commission detailed studies i.e., Noise and dust modelling; NMPs
Seed collecting	Local / informal	Minor	Long-term	Minor	Likely	Medium	Discussion with DBCA regarding licences.
Commercial wildflower picking	Local / informal	Minor	Long-term	Minor	Likely	Medium	Discussion with DBCA regarding licences.
Events							
Equestrian	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Enduro motor bike	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Rogaining	Local / informal	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.
Other Facilities							
Shield trees	Regional	Minor	Long-term	Major	Likely	High	Avoidance with other controls also put in place.
Bridges and minor culverts	Local / informal	Minor	Long-term	Minor	Likely	Medium	Avoidance with management in accordance with works agreement with DBCA.
Aboriginal cultural heritage use	Regional	Minor	Long-term	Minor	Likely	Medium	Control public access during mining.



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