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Extractive Industries Development Approval Application for the Laguna Green Granite Project at Lot 1 Marnigarup East Road, Gairdner Shire of Jerramungup

August 2021

Version 1 Revision 2

DRAFT

Prepared by

Australia Jowin Mining Industry Pty Ltd

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Site Operator	*Stellar Contracting Services*		
Land Tenure:	*Lot 1 on Diagram 84693* *(Marnigarup East Road, Gairdner, Shire of Jerramungup)*		
Tenure Type:	*Freehold*		
Land Owner:	*Australia Jowin Mining Industry Pty Ltd*		
Prepared by:	*Stellar Contracting Services*		
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ABBREVIATIONS

AEP	Annual exceedance probability
AJMI	Australia Jowin Mining Industry Pty Ltd
AHD	Australian height datum
CAWS Act 1947	*Country Areas Water Supply Act 1947*
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DFE	Defined flood event
DMIRS	Department of Mines, Industry Regulation and Safety
DPLH	Department of Planning, Lands and Heritage
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Area
HHMP	Health and Hygiene Management Plan
kl/	kilolitre per year
m^3	cubic metres
MSIA 1994	*Mines Safety and Inspection Act 1994*
MSIR 1995	*Mines Safety and Inspection Regulations 1995*
NRM	Natural Resource Management
Operation	Laguna Green Granite Quarry
PDWSA	Public Drinking Water Source Area
PEC	Priority Ecological Community
PMP	Project Management Plan
Project	Laguna Green Granite Project
RCS	Respirable crystalline silica
RIWI Act 1914	*Rights in Water and Irrigation Act 1914*
Shire	Shire of Jerramungup
SRS	Safety Regulatory System
t	tonnes
tpa	tonnes per annum
t/m^3	tonnes per cubic metres
TEC	Threatened Ecological Community
LPP 13	Local Planning Policy No 13 Extractive Industries

1 INTRODUCTION

Australia Jowin Mining Industry Pty Ltd ('AJMI') purchased Lot 1 on Diagram 84693, Marnigarup East Road, Gairdner ('Lot 1') on 05/02/2019. Lot 1 is located in the Shire of Jerramungup ('the Shire') and contains the historical Laguna Green granite dimension stone quarry that was operated by Wales Quarries under an extractive industry licence until 2004. The Laguna Green granite is greyish in colour with large grey-green phenocrysts of feldspar. The granite has excellent physical properties that makes it ideal as a dimension stone for outside use in buildings and monuments. Prior to mine closure, Laguna Green granite was exported for use in construction projects in Japan, South-East Asia, New Zealand and England, including the Australian War Memorial in London. AJMI proposes to recommence quarrying of the Laguna green granite at Lot 1 under a new extractive industries development application and produce blocks of dimension stone for export. In this document, the proposed quarry development is termed the Laguna Green Granite Project, or the "Project", and the associated extractive industry operational activities as the "Operation".

Quarrying to extract dimension stone blocks will involve the use of diamond impregnated wire saws to cut large blocks of granite material directly from rock outcrops. The finished (product) blocks are expected to be in the 20 to 24 tonne ('t') weight range. Blocks will the stock-piled on site initially and sold individually to buyers both in Australia and overseas. Blocks will be trucked off site to the Port of Albany for shipment to delivery locations. The Project objective is to supply large sized single blocks to cutting factories where they will be cut into slabs for building and construction purposes. No secondary processing (cutting and slabbing) is proposed on site at this stage but may be looked at in the future.

The Laguna Project

This document constitutes the development application for the Project and has been produced in general accordance with the following publications:

- Shire of Jerramungup Local Planning Policy No 13 - Extractive Industries ('LPL 13'); and
- Shire of Jerramungup Development Application Checklist for Extractive Industries ('Extractive Industries Checklist').

The structure and heading layout of this development application has been based on the information requirements of LPL 13 and the Extractive Industries Checklist.

The regional location of Lot 1 is displayed in Figure 2 and the locality map in Figure 2. Lot 1 is located approximately 143km northeast of Albany and 21km south-southeast from the Jerramungup townsite (Figures 1 and 2). The aerial image of the Lot 1 area displaying other land tenures as well as contours is provided as Figure 3. Figure 4 displays the historical site disturbances as well as the proposed quarrying area.

The historical disturbances consist of four small quarries, three reject block stockpiles, a workshop area, access roads and previously cleared ground that is now partially covered in regrowth vegetation. Representative photographs of the operation are provided as Plates 1 to 24.

The historical disturbances from quarrying (and agriculture) have been mapped with GIS using Landgate aerial imagery from 1999, 2004, 2008 and 2014. Lot 1 covers 31.86ha of which approximately 13.62ha has been previously cleared (Figure 4). It is proposed to recommence quarrying in the northeast corner of Lot 1 as displayed in Figure 4. The total area of proposed quarrying is less than 3.67ha, of which the majority (3.03ha) has been previously disturbed.

Following cessation of quarrying more than 20 years ago, the operation was left with no rehabilitation or site decommissioning. It is proposed to incorporate progressive rehabilitation and eventual site decommissioning into the activities specified under this development application. The rehabilitation and decommissioning activities will be in line with the standards required under the current Guidelines for Mine Closure (DMIRS 2020), published by the Department of Mines, Industry Resources ('DMIRS'), as well as other industry and Shire guidance material.

The southern coastal areas of Western Australia have populations of a Threatened Ecological Community ('TEC') listed under the *Environmental Protection and Biodiversity Conservation Act 1999* ('*EPBC Act 1999*') as the "Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia" ('Kwongkan TEC'). The TEC category under the *EPBC Act 1999* is "Endangered". The TEC is described by the Department of Agriculture, Water and the Environment ('DAWE') in the Approved Conservation Advice as kwongkan shrublands ranging from sparse to dense thickets with Proteaceaeous species forming a significant component of the community (DAWE 2014). It primarily occurs on sandplains and marine plains on lower to upper slopes and ridges, as well as uplands areas, across southeast botanical province of Western Australia (DAWE 2014). The distribution map from the Approved Conservation Advice is provided as Figure 5. The Kwongkan TEC extends for >750km along the southern coastal area of Western Australia.

A State listed TEC/PEC search was requested from the Department of Biodiversity, Conservation and Attractions ('DBCA') and the results are displayed in Figure 6. The search area extended to a radius of 15km from Lot 1 and returned only one TEC/PEC community:

- PEC 40 (South Coast): Proteaceae Dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia (DBCA 2021).

The DBCA description of PEC 40 is provided in Table 1. PEC 40 is thus listed as a TEC under the *EPBC Act* and as a PEC by DBCA. Of note, this community is not listed as a TEC under the State's recently proclaimed *Biodiversity and Conservation Act 2016* ('*BC Act 2016*').

Table 1: DBCA description for South Coast PEC 40

PEC	Community name (South Coast)	Category (WA)	Category *EPBC Act*
40	***Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia** Consists of ≥30% cover of Proteaceae species across all layers where shrubs occur or where two or more Proteaceae species are present that are likely to form a significant vegetative component when regenerated. It occurs on sandplains and marine plains, occupying lower and upper slopes and ridges, as well as uplands. It typically occurs on duplex soils and deep to shallow soils on the sandplains; and on sandy soils to clay loam, gravelly loam and loam on quartzite (e.g. The Barrens, Stirling and Russell Ranges) and greenstone ranges (e.g. Ravensthorpe Range). The structure of the vegetation is that of a shrubland, ranging from low to high, and can form dense thickets or be relatively open due to variation in soils and landscape position, or due to disturbance history (e.g. fire). Mallee eucalypts may be present at varying densities, but providing the minimum Proteaceae cover is present, the ecological community is still recognised.	Priority 3(iii)	Endangered TEC

	The description, area and condition thresholds that apply to the EPBC-listed TEC of the same name, also apply to this Priority ecological community. Threats: past threats have principally been fragmentation from land clearing, current threats are plant disease *Phytophthora cinnamomi*, increased fire frequencies, invasive weeds and feral animals		

**Community type occurs in more than one region*

Lot 1 was the subject of a flora and vegetation survey conducted in 2019 by Landscape Ecologist Nathan McQuoid, who has significant experience in the Southwest vegetation communities. This report is provided as Attachment A, entitled:

- "Assessment for Threatened and Priority Ecological Communities and Flora, Laguna Green Granite Quarry, Marnigarup Rd, Jerramungup Western Australia" (McQuoid 2019).

The summary from the McQuoid 2019 report is provided below:

"The Laguna Green Granite Quarry property Lot 1 sits on Marnigarup Rd East, south east of Jerramungup near the south coast of Western Australia. Lot 1 is approximately 32 ha in size.

Lot 1 is surrounded by farmland on rural zoned private properties and adjoins public road reserve to the north.

Newland Environmental engaged Nathan McQuoid Landscape Ecologist of Bremer Bay to assess the proposed quarry target area on Lot 1 for the presence of the *Proteaceae dominated kwongkan shrublands of the southeast coastal floristic province of Western Australia (Proteaceae Dominated Kwongkan Shrubland)* Nationally Listed Threatened Ecological Community (TEC) and WA State Listed Priority Ecological Community (PEC); and the presence of Threatened and Priority Flora.

The *Proteaceae Dominated Kwongkan Shrubland* TEC/PEC is known to occur on sandplain and shallow duplex soils over shallow granite in the area near Lot 1.

A number of Threatened and Priority Flora are known to occur in the area near Lot 1.

A field assessment of the proposed quarry target area was conducted on April 24 2019, followed by the preparation of a report on the findings, was designed to meet the objectives:

- Examine for the presence of the Proteaceae Dominated Kwongkan.
- Threatened/Priority Ecological Community.
- Map plant communities if possible.
- Compile a species list, as much as possible given the burn.
- Record any conservation-listed taxa with location coordinates.
- Provide an evaluation on the overall conservation value of Lot 1, especially the quarry target area.

The plant community and flora assessment recorded plant community structure, composition and site characteristics at nine sites within the proposed quarry target area.

The *Proteaceae Dominated Kwongkan Shrubland* PEC/TEC was not recorded on Lot 1, either in the proposed quarry target area or the remainder of Lot 1.

A vegetation of Lot 1 was mapped as plant communities, including the proposed quarry target area. Six major plant communities were found to be present.

No Threatened or Conservation Priority Flora were recorded by the assessment.

The conservation value of Lot 1 is significant due to the range of plant communities, the diversity of the flora, the intactness of the majority of the vegetation, the buffer it provides the adjacent farmland and river corridor, the protection of watercourses and the habitat value it provides.

A follow-up spring survey in 2019 or 2020 would help confirm the presence or absence of Threatened and Conservation Priority Flora, not able to be fully determined by this autumn 2019 survey.

Restoration post quarrying and to repair degraded sites will be successful through the use of the regenerative abilities and related processes of the native plants nearby on Lot 1.

The exotic trees Sugar Gum (*Eucalyptus cladocalyx*) and South Australian Blue Gum (*E. leucoxylon*) are present on Lot 1 and should be removed to maintain conservation values." (McQuoid 2019).

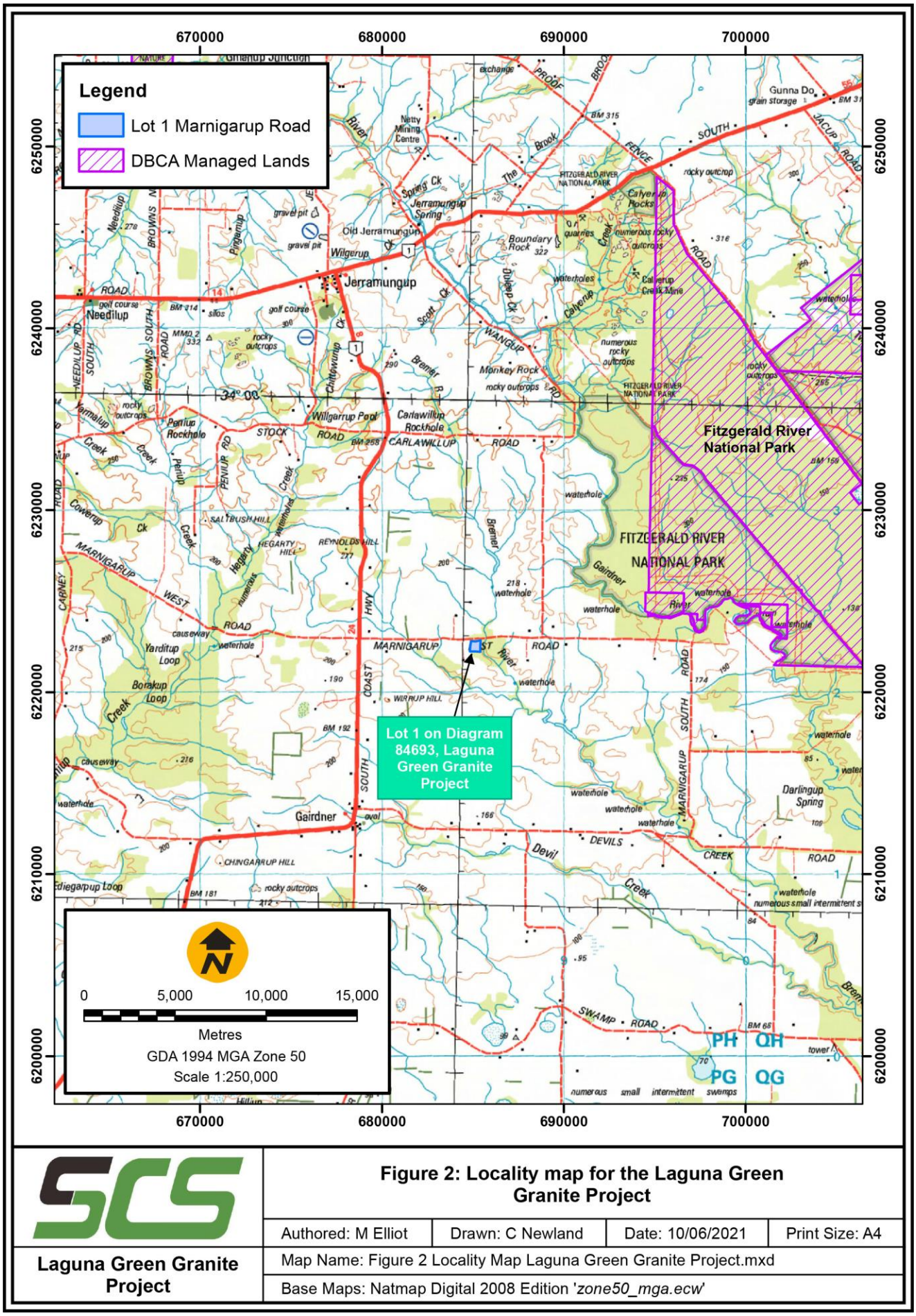
The McQuoid 2019 report is discussed further in Section 4.11.

On the basis of the McQuoid report, the proposed quarrying operations are therefore considered unlikely to have any impact on conservation listed areas or conservation listed flora. The Project is also occurring primarily on previously disturbed and/or cleared ground and this reduces the potential impact on conservation values. Conservation values may actually be improved at the end of the Project by the intended restoration of suitable disturbed areas to native bushland similar to that occurring locally.

Given that some small areas of undisturbed environment located between existing quarry sites may be required for Project expansion (refer to Figure 4), a Native Vegetation Clearing Permit (NVCP) will be submitted in conjunction with this development application.

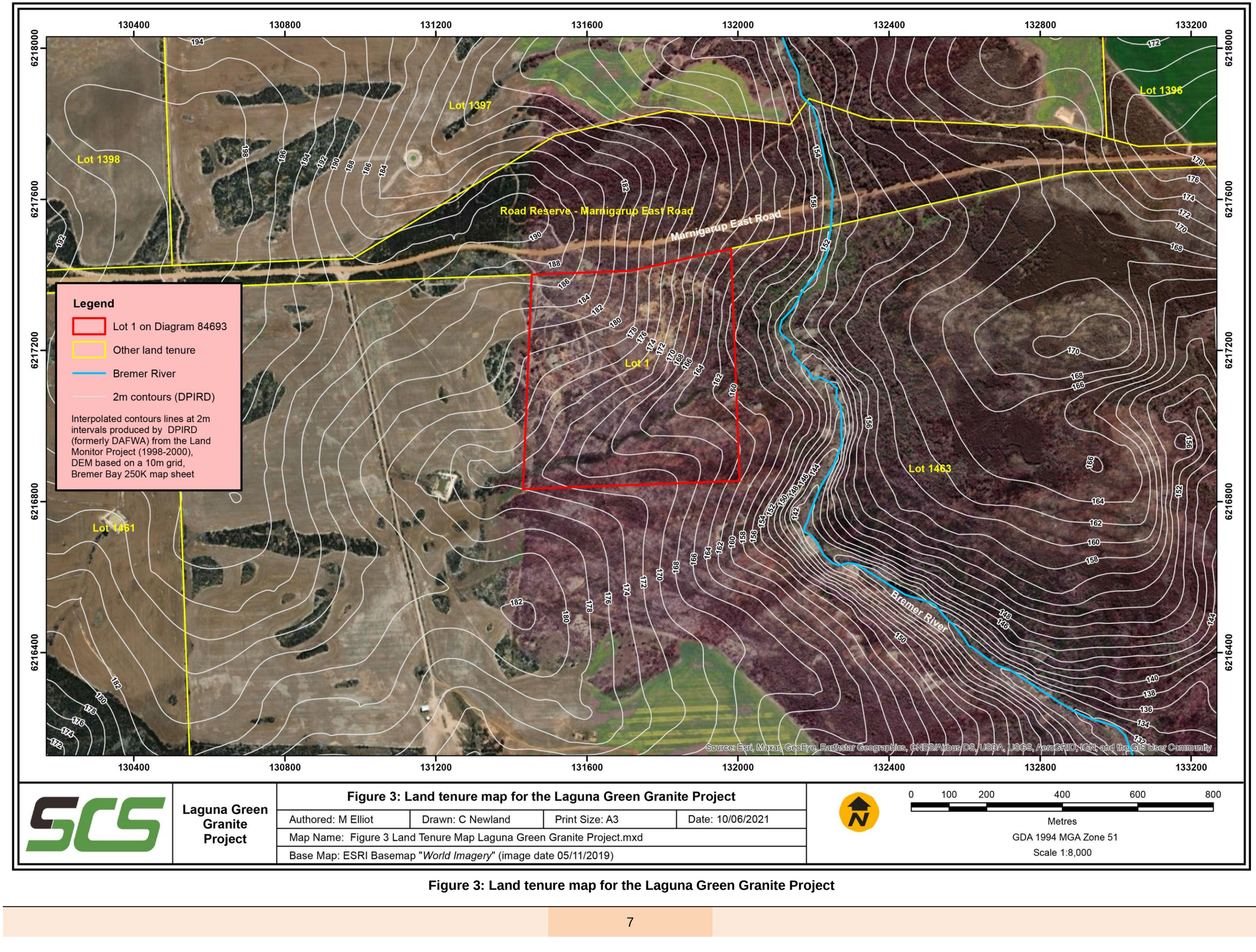
Project specific information as specified under the Extractive Industries Checklist is provided in Section 2.

Figure 1: Regional location of the Laguna Green Granite Project



Laguna Green Granite Project	**Figure 2: Locality map for the Laguna Green Granite Project**			
	Authored: M Elliot	Drawn: C Newland	Date: 10/06/2021	Print Size: A4
	Map Name: Figure 2 Locality Map Laguna Green Granite Project.mxd			
	Base Maps: Natmap Digital 2008 Edition '*zone50_mga.ecw*'			

Figure 2: Locality map for the Laguna Green Granite Project



SCS	Laguna Green Granite Project	**Figure 3: Land tenure map for the Laguna Green Granite Project**		
		Authored: M Elliot	Drawn: C Newland	Print Size: A3	Date: 10/06/2021
		Map Name: Figure 3 Land Tenure Map Laguna Green Granite Project.mxd			
		Base Map: ESRI Basemap "*World Imagery*" (image date 05/11/2019)			

0 100 200 400 600 800
Metres
GDA 1994 MGA Zone 51
Scale 1:8,000

Figure 3: Land tenure map for the Laguna Green Granite Project

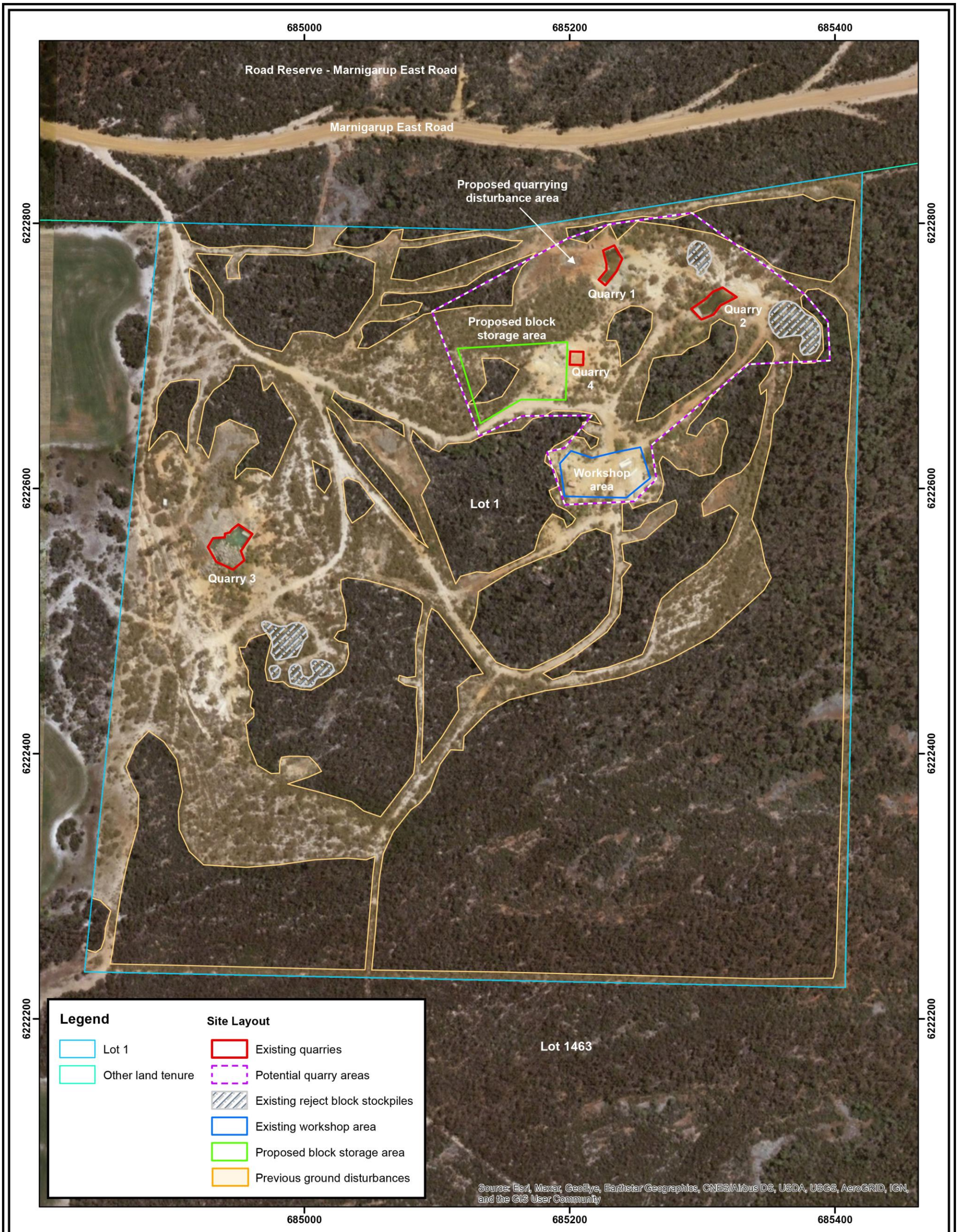


Figure 4: Site layout map for the Laguna Green Granite Project

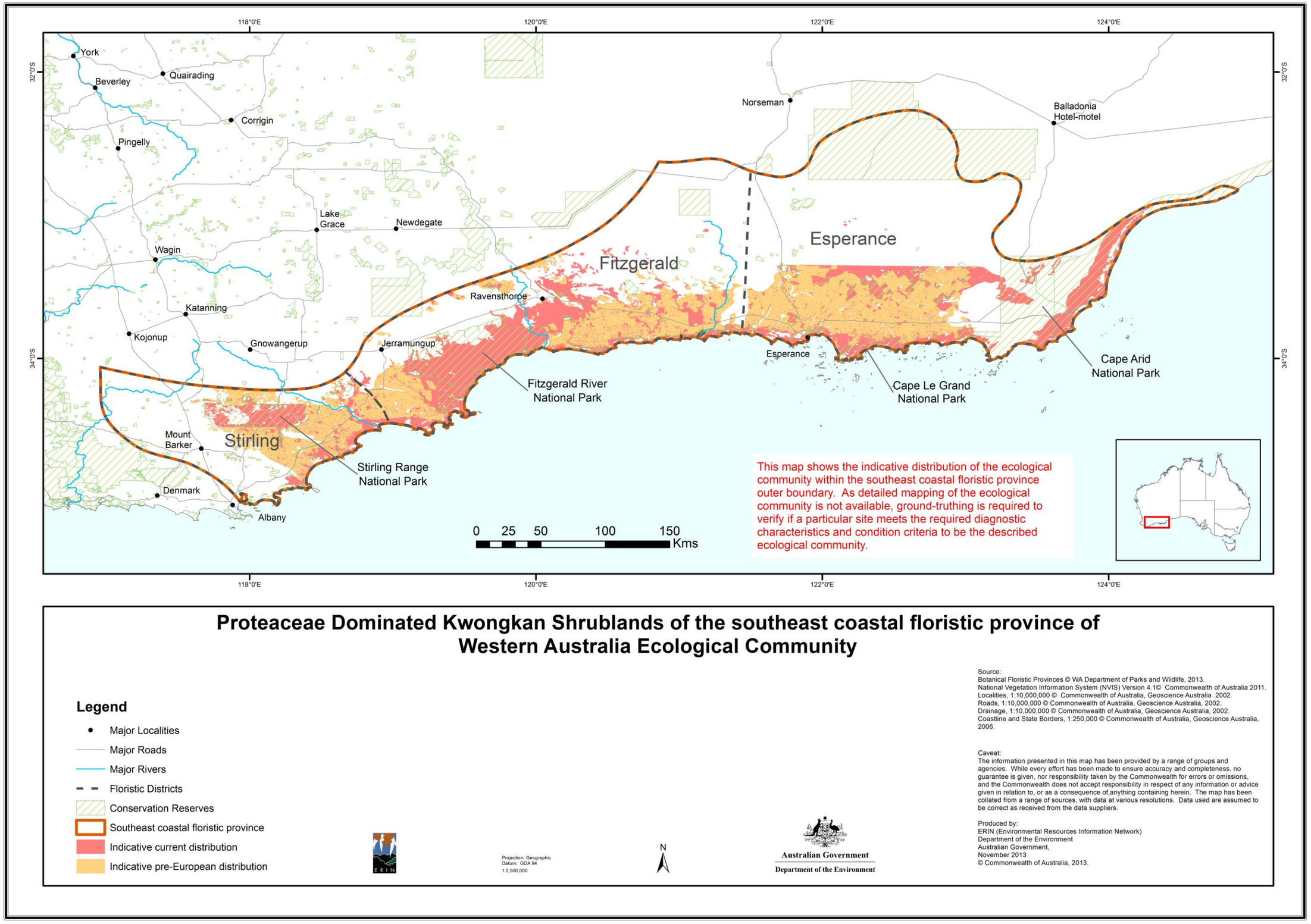
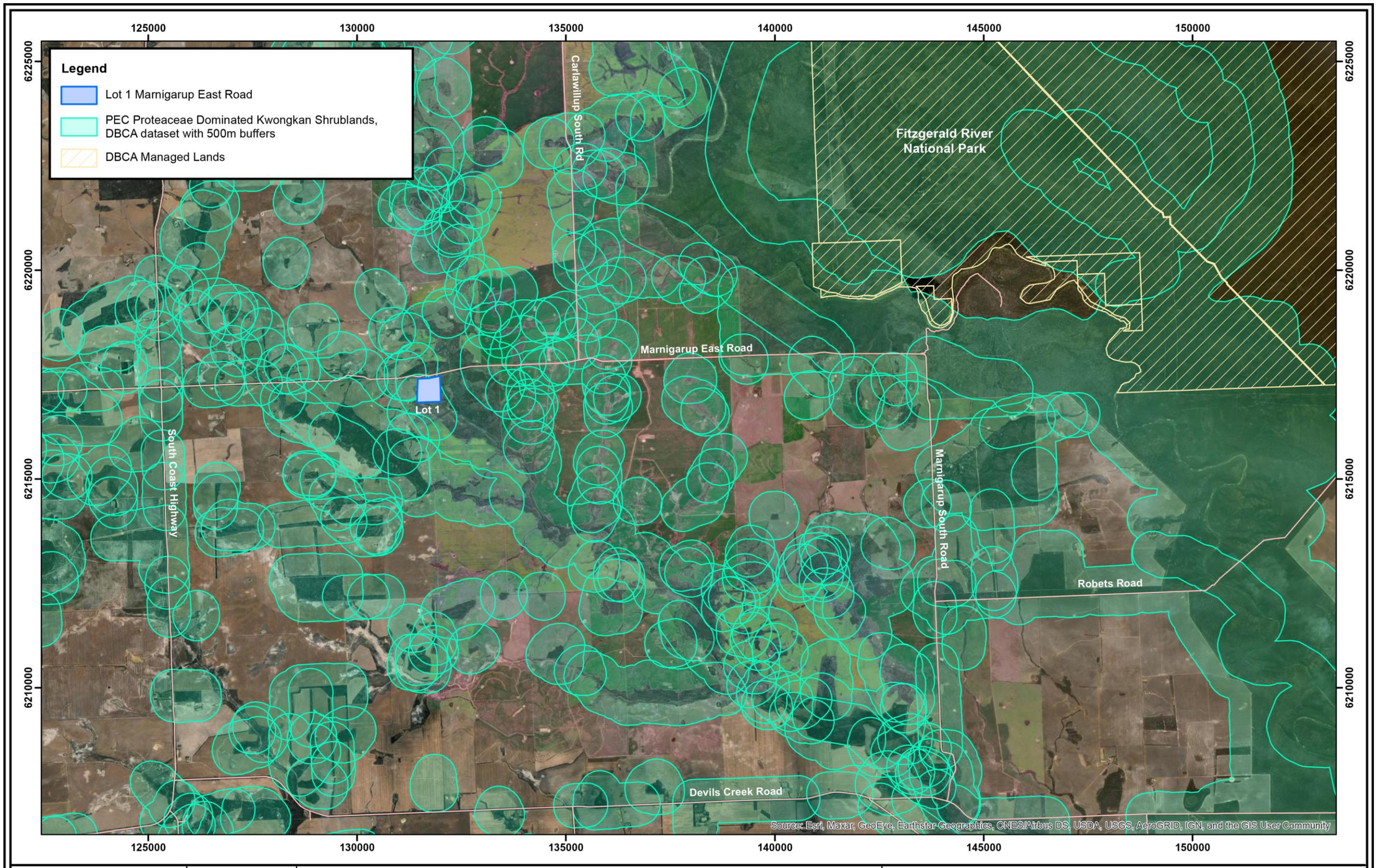


Figure 5: Map of the "Proteaceae Dominated Kwongkan Shrublands of the southeast coastal floristic province of Western Australia" (DoEE 2014)



SCS	Laguna Green Granite Project	**Figure 6: DBCA Buffers for PEC Proteaceae Dominated Kwongkan Shrublands**		
		Authored: M Elliot	Drawn: C Newland	Print Size: A3	Date: 10/06/2021
		Map Name: Figure 6 DBCA Buffers PEC Proteaceae Dominated Kwongkan Shrublands.mxd			
		Base Map: ESRI Basemap "*World Imagery*" (image date 05/11/2019)			

0 1,000 2,000 4,000 6,000 8,000
Metres
GDA 1994 MGA Zone 51
Scale 1:80,000

Figure 6: DBCA Buffers for PEC Proteaceae Dominated Kwongkan Shrublands

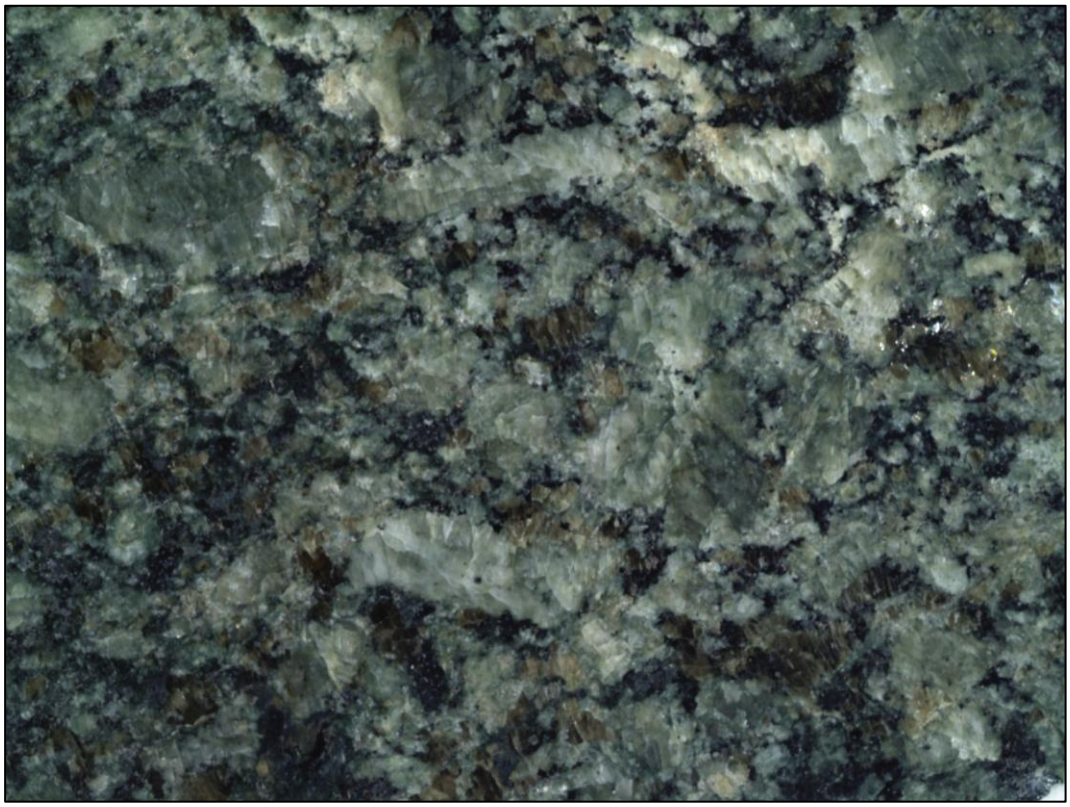


Plate 1: Laguna Green granite material

Plate 2: View of Laguna Green material on exposed surfaces

Plate 3: Entry track from Marnigarup East Road

Plate 4: Gate at boundary of Lot 1

Plate 5: View of Quarry 1

Plate 6: Quarry 1 edges cut with a thermal lance

Plate 7: Reject blocks near Quarry 1

Plate 8: View of Quarry 2

Plate 9: Reject block stockpile between Quarry 1 and Quarry 2

Plate 10: Reject block stockpile near Quarry 2

Plate 11: View of Quarry 3

Plate 12: Another view of Quarry 3

Plate 13: Stockpile of blasted material in Quarry 3 pit

Plate 14: Reject block stockpile near Quarry 3

Plate 15: Cleared areas near Quarry 3

Plate 16: View of Quarry 4 (small test pit)

Plate 17: Powerline and firebreak along northern boundary of Lot 1

Plate 18: View of workshop area

Plate 19: Underground wheel loader "bogger" at workshop area

Plate 20: Typical area previous disturbed with regrowth vegetation (recently burnt), near workshop area

Plate 21: Regrowth area over previously cleared ground, graded into parallel windrows

Plate 22: Another area of regrowth over previously cleared ground, near Quarry 3

Plate 23: Typical landscape in undisturbed areas, granite outcropping with high shrubland vegetation (recently burnt)

Plate 24: Bremer River, situated >200m east of Lot 1

2 PROJECT INFORMATION

2.1 Land Ownership and Tenure

The Project is confined entirely to Lot 1 on Diagram 84693, Marnigarup East Road, Gairdner ('Lot 1'). A copy of the Landgate Certificate of Title for Lot 1 is provided as Appendix A. Lot 1 is freehold land that was purchased by the current owner Australia Jowin Mining Industry Pty Ltd on 05/02/2019.

2.2 Shire Zoning

As per LPL 13, extractive industries are permitted in the "Rural Zone" under the Shire of Jerramungup Local Planning Scheme No 2 ('the Scheme').

Lot 1 is contained within the Rural Zone.

2.3 Current Site Disturbances

There is currently an existing old seacontainer at the workshop area (Plate 18, Figure 3). The workshop area also contained an array of old scrap, equipment and remnant material that will be removed from site as part of the quarrying recommencement activities.

2.4 Proposed Buildings and Infrastructure

It is proposed that following buildings will be required for the project:

- Office;
- Accommodation unit;
- Workshop; and
- Water bore if feasible

All buildings will be constructed as approved under the Shire's commercial building permit and development approval applications.

2.5 Existing Land Uses

Lot 1 is utilised for the sole purpose of dimension stone quarrying. Areas within Lot 1 not required for quarrying will remain as natural bushland or previously cleared areas that are under native vegetation regrowth. A firebreak is maintained inside the perimeter fence of Lot 1.

The other local land uses are farming (livestock and cropping) and conservation estate (Fitzgerald River National Park).

2.6 *EPBC Act 1999* Referral

The Proteaceae Dominated Kwongkan Shrubland TEC is discussed in Section 1. This TEC did not occur at Lot 1 as per the survey findings from local landscape ecologist Nathan McQuoid (McQuoid 2019). Referral under the *EPBC Act 1999* to DAWE is therefore not considered necessary.

2.7 Environmental Protection Authority Referral

AJMI is not aware of any significant environmental issues associated with the Project. Hence, referral to the EPA under Part 4 of the *Environmental Protection Act 1986* is not required. As discussed in Section 1, no TECs, PECs or conservation listed flora were recorded in Lot 1 by McQuoid (2019).

There are no activities proposed that require a Works Approval, Licence or Registration under Part 4 of the *Environmental Protection Act 1986*.

2.8 Native Vegetation Clearing Permit

As discussed previously, a clearing permit application will be made for remnant parcels of native vegetation between the existing quarry disturbances. No clearing of native vegetation will occur until such time as the NVCP has been issued and becomes live.

3 QUARRYING OPERATIONS

Information on the Project and associated quarrying operations is provided in the following sub-sections.

3.1 Description of Material / Product

The initial production is proposed at 1,000 tonnes a month when operating. Later, once face length is increased, up to 5,000 tonnes per month is possible. Production is sensitive to face length.

Stockpile areas could include product blocks, reject blocks, overburden, topsoil, brush.

3.2 Excavation Dimensions

The excavation dimensions are yet to be determined and are undergoing drilling and geological review.

3.3 Projected Project Lifespan

The Project lifespan is expected to extend to >50 years. This is dependent on production rates and sales.

3.4 Equipment Used

The equipment and plant utilised on site could consists of the following:

- 45t excavator.
- 1 x 80 t wheel loader.
- Skid steer loader (Bobcat type).
- Medium sized lifting crane.
- Wire saws and consoles.
- Hand operated vertical and horizontal pneumatic rock dills.
- Automatic horizontal core drills.
- 2 x 150 KVA genset.
- 2 x medium sized portable compressors.
- Fixed wire slabbing machine (on site from previous operator).
- 2 x 4WD drive utes / wagons.
- Service truck with self bunded diesel tank (2,000L).
- Trailer with fuel tank (1,000L).
- Prime mover and single trailer.

- Water cart truck.
- Water tanks (10,000 to 20,000L).
- Miscellaneous tools to support the extraction of blocks and remove over burden.

3.5 Method of Block Extraction

Quarrying operations occur using diamond wire saws to cut out large single blocks from the quarry face. Diamond-impregnated wire is passed through intersecting holes that have been drilled at right angles into the Granite with 90mm diameter rock drills. The wire is joined to complete a loop and is driven by an electric motor with a series of alignment pulleys to cut out each block. Industrial water bags are then used to hydraulically separate the primary block away from the face. The operation is a typical dimension stone quarry with sequential benching against the advancing face.

Subject to fracturing, the aim is to produce blocks from 20 to 24t in weight that would be trucked to Albany Port then shipping to a rock slabbing factory, possibly overseas. Whenever possible, larger block sizes up to 24t are the preferred product item. A typical size for a 24t block of Granite could be 2.8m x 1.9m x 1.5m, however, these dimensions are variable. The material has a specific gravity of approximately 3t/m^3. At the target dimensions of 2.8m x 1.9m x 1.5m, the 24t block is approximately 8m^3 in volume.

Seacontainers have a maximum payload weight limit of between 24 to 27t, hence the 24t block is used as the target size. Block size may be reduced to >20t to reduce stress on lifting and handling equipment. Due to fracturing and offcuts, smaller blocks above 3t in weight could also be produced as sellable product. Smaller blocks will be packed into the seacontainer to a total payload of 24t. Hence, production units are calculated in 24t allotments.

Possible maximum annual production rates in tonnes and cubic metres are provided in Table 2. This scenario represents an optimal year with full market demand and uninterrupted production (assuming 40 weeks per year of full production). The objective is to produce 10 x 24 tonne blocks (or equivalent smaller blocks by weight) per week. Maximum production could involve the production of 400 blocks or 9,600t / 3,200m^3 of material for export in a good year. Given a 50% wastage factor, approximately 19,200t or 6,400m^3 of material in total would be quarried to generate these production quantities. The wastage will consist of reject blocks, off-cuts, overburden and side burden. These materials will be stockpiled near each quarry for use in end of quarry life rehabilitation and decommissioning.

In all probability, production will be intermittent as limited by development time (removal of overburden and side burden, equipment relocation and setup), breakdowns, maintenance and contractual orders. As such, there could be periods of abeyance between campaigns and hence a smaller output.

Table 2: Projected optimal production rates per annum

Number of seacontainers per week	Weeks worked per year	Number of seacontainers per year	Seacontainer payload weight		Maximum annual production	
			t	m^3	t	m^3
10	40	400	24	8	9,600	3,200

3.6 Amenities/infrastructure

Onsite amenities and infrastructure consist of:

- Transportable unit – crib, office and ablution (with grey water treatment system).
- Transportable unit – accommodation.
- Workshop.
- Sheds.
- Bore.
- Water tanks.
- Gate with signage at entry from road.

3.7 Topsoils and Brush

When available, topsoil and brush will be pushed off and stockpiled separately for rehabilitation purposes. Topsoil will be stripped to a depth to capture both Zone A and B profiles, if present, or nominally 25cm. Topsoil stockpiles will be kept below 2m in height to maintain biological activity. Brush will be stockpiled separately to the topsoil stockpiles.

Topsoil and brush availability is limited or non-existent on the rocky outcrops.

Topsoil and brush that is heavily weed infested may be used as backfill instead of coverage for quarry rehabilitation.

3.8 Blasting and Crushing

No blasting or crushing used in the operation.

3.9 Hydrocarbon Management

Fuel (diesel) will be brought to site as required using a service truck, fuel tank trailer or in containers on the back of a 4WD vehicle. All fuel storage systems will be self-bunded. Fuel will not be left on site overnight for security reasons.

Fuel usage during the mining campaigns would be minimal as few items of mobile plant are used (excavator, wire saws and front-end loader). Diesel would be brought to site in 1,000L or 2,000L self–bunded tanks on a ute, trailer, or service truck.

Apart from diesel, oils and lubricants for use in the fixed and mobile plant, no other chemicals, dangerous goods or hazardous substances will be used or stored on site. No blasting or explosives are used in the quarrying operations (blasting will destroy the Granite resource). A dangerous goods licence is not required for the Project.

Oils and lubricants will be brought to site as required. Spill kits will be available on site. Minor fuel spills will be treated using the spill kits and shovelled up into 200L drums. More significant spills such as those that could occur from broken hydraulic hoses will be dug up with a loader or excavator. Hydrocarbon contaminated material will be excavated until no residual odour is detected. Contaminated material will then be taken to the nearest municipal bioremediation facility. Due to the small size of the quarry operations, the amount of contaminated material generated is likely to be minimal.

Repairs and servicing of fixed and mobile plant will occur using mobile mechanics from Jerramungup, Albany, or other regional centres. The mobile mechanics will be fully equipped with hydrocarbon recovery equipment. Machinery could also be taken to workshops in regional centres for major repairs.

3.10 Hours of Operation

Operational hours are 6am to 6pm Monday to Friday. Some weekend work may occur on a Saturday in peak periods and during maintenance schedules.

The operation will comply with the following requirements:

- not undertake any excavation, processing or transporting of material or equipment within, to or from the site on:
    - a Sunday;
    - a Public Holiday;
    - before 7am and after 6pm Monday to Saturday;
    - on days of catastrophic, extreme or severe fire danger ratings;
    - on days where a harvest ban is declared;

  except that in the event of a fire, flood or other emergency, the operator may remove all or any vehicles, hydrocarbons, combustibles and equipment considered necessary to ensure public safety and safety of any personnel and equipment on the site.

3.11 Annual Duration of Quarrying

Quarrying will occur during the summer months and utilise personnel normally deployed in the North of Western Australia who cannot work in the Northern Quarries due to the wet season.

Campaign mining will occur to fulfill orders.

3.12 Workforce

About 5 or 6 employees will be required to operate the quarry at full production. A local employee will be required to haul blocks to Albany from the site Stockyard.

3.13 Accommodation

Local accommodation will be sourced initially for each campaign. At some later date and subject to quarrying demands, Shire approved accommodation may be developed on site for a small workforce.

3.14 Vehicle Movements and Product Transportation

Blocks will be stored on site for regular shipment to the Port of Albany for overseas export.

Vehicle types used on-road to and from site could consist of the following:

- Prime mover and single trailer.
- Service truck with self-bunded diesel tank (2,000L).
- 4WD drive utes / wagons.
- 2WD passenger sedans / utes.

It is estimated that a maximum of 400 truck movements could occur in a year hauling blocks from the Operation to Albany Port.

The other vehicle movements would consist of workforce commute vehicles and a service truck coming to site on a daily basis, estimated at 960 movements per year.

The haulage from site is considered as being relatively low due to the slow rate of production to cut each block and the intermittent nature of the Operation.

Maximum production rate are estimated in Table 2. Optimal production could involve 10 truck movements per week or 400 truck movements per year over a 40-week production period (to and from site). This averages 8 truck movements per week on an annual basis. In all likelihood, the number of movements will be less than above for various production and marketing reasons.

The truck combination would consist of a prime move with one trailer carrying either a large single block of stone (up to 24t) or a single seacontainer with a 24t payload.

The haulage route is from the quarry access gate along Marnigarup East Road to the South Coast Highway, then along the South Coast Highway to Albany Port.

Haulage would occur during normal daylight hours and on highways.

Dust generation onsite is negligible as very few vehicle movements occur and the water truck will be used to spray roads as necessary. Internal quarry road and laydown areas may be sheeted with aggregate.

Dust generation offsite will not be an issue as:

- Haulage primarily is on sealed roads;
- The water truck will be used on Marnigarup East Road should dust become an issue;
- The blocks are solid masses of hard rock that do not produce dust;

- All blocks are pressure washed prior to leaving site; and
- Small blocks are fully contained in sea-containers.

The number of light vehicle and service truck movements is estimated at 960 per year, from Jerramungup or other local accommodation and return after work. This is estimated using the following parameters; 40 weeks per year, 6 days per work week, 4 trips per day. The light vehicles would be either passenger 2WDs or 4WD utes or wagons. The service truck would be less than 10t in weight.

No public road upgrades are considered necessary for the haulage and vehicle requirements for the Project. Road usage will be discussed with the Shire and / or MRWA, as required. AJMI will consult with the Shire is regards to road maintenance as required along Marnigarup East Road.

The operation is different in nature to most other extractive industries such as sand or gravel quarrying that requires a large number of haulage movements.

3.15 Power Supply

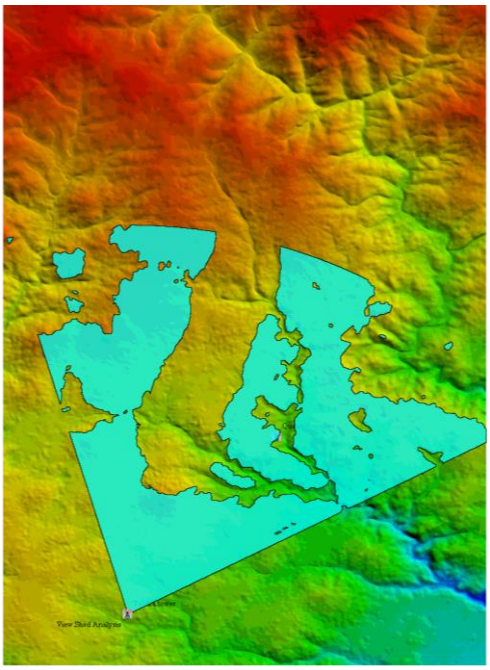
Power will be initially sourced from onsite gensets. The gensets will be self-bunded units. Electrical reticulation will be installed by a licenced electrician who will also be appointed as the Electrical Supervisor under Regulation 5.10 of the *Mines Safety and Inspection Regulations 1995*.

Later a sub-station will be added to take power from the SEC pole on site.

3.16 Telecommunications

There is currently no mobile phone coverage. A calculation shows that a 10-meter tower with a Celfi Go Repeater will be able to provide site coverage from the Gairdner Telstra Tower. Data was referenced from Google Earth and ACMA about Antennae ID 9381339.

All mobile plant and site vehicles will be equipped with UHF radios. A Satellite phone will be kept on site while the operation is working.



3.17 Water Sources

There is no scheme water on site.

Potable water will be sourced from Jerramungup. The potable requirements are minimal; daily consumption for a five-person workforce.

The process water requirements are moderate as water is only used for wire saw operation, drilling and dust control, on a small site. The annual requirement is calculated at less than 20,000 kl/y and possibly less than 10,000 kl/y.

Process water will be initially sourced off site. A bore may be drilled and constructed at a later date.

3.18 Site Drainage

Process water will be recycled on site by transferring from and too inactive quarries to allow sediment to settle.

There is no plan to adjust the natural drainage system which flows into the Bremer River.

The site will be entirely self-contained within its own drainage catchment such that no runoff or process water will be able to leave the quarry area. All potential runoff pathways from the quarry sites will be blocked with bunds or drains to sumps.

3.19 Dust and Noise Minimisation

3.20 Sensitive Land Uses

There are no occupied dwellings within 1km of the site

Demonstrate no adverse impacts

4 BIOGEOGRAPHICAL BASELINE INFORMATION

4.1 Regional Setting

Under the Interim Biogeographical Revision of Australia ('IBRA'), the Pilbara has been divided into four IBRA subregions (May and McKenzie 2002). The Project area is contained within the Esperance 1 (ESP1 - Fitzgerald subregion) (DAWE 2018); described by Comer *et al*. (2001) as:

> *The Esperance bioregion is characterised by myrtaceous and proteaceous scrub and mallee heaths on sandplain overlying Eocene sediments; rich in endemics. Herbfields and heaths (rich in endemics) on abrupt granite tors and quartzite ranges that rise from the plain. Eucalypt woodlands occur in gullies and alluvial foot-slopes. The ESP1 subregion has variable relief, comprising subdued relief on the sandplains of the coastal region, punctuated with metamorphosed granite and quartzite ranges both inland and on the coastal plain. It lies mainly on the Bremer Sedimentary Basin and the eastern and western sections of the ESP1 subregion within the Albany-Fraser Orogen of the Yilgarn Craton. It has extensive western plains over Eocene marine sediment basement with small areas of Gneiss outcropping. Archaean greenstones – sand sheets with varying levels of lateritisation with gravel soils also occurs. The region is dominated by duplex soils and deep and shallow sands on the plains and dissected areas and by shallow sandy soils on the mountain ranges.*

4.2 Site Overview

Lot 1 is surrounded by farmland on rural zoned private properties and adjoins a public road reserve to the north. Lot 1 consists of areas of natural vegetation with extensive farming and quarrying disturbances (Figure 4). It is estimated that approximately 50% of Lot 1 has been disturbed with varying degrees of regrowth vegetation occurring.

4.3 Climate

The site falls within Australian Climate zone 6 which is Mild Temperate.

4.4 Local Topography

The topographical map is displayed as Figure 2. Lot 1 increases gradually varies from approximately 160m RL AHD along the southeast corner to approximately 187m RL AHD at the northwest corner (Figure 3). The landform is generally flat to gently sloping sandy soils interspersed with occasional low granite outcrops. Refer to plates.

4.5 Hydrology

The Bremer River is only 200 metres from the eastern boundary of the site. Because the targeted rock is granite in the immediate area of the quarries there will be no ground water.

Granite is not porous, and the only water will occur in fractures in the rock mass. The area has been targeted as a Dimension Stone quarry because the rock is competent and has few fractures.

The lack of porosity is demonstrated by the quarries holding rainfall runoff from the surrounding rock surfaces.

4.6 Geology and Soils

With reference to the Department of Primary Industries and Regional Development soil reference Report 14 "Wellington-Blackwood land resources survey" (Tille *et al.* 1996) and Data WA shapefiles "*Soillandscapelandquality_ZonesDPIRD_017.shp*" and "*SoilLandscapeMapping_WesternAustraliaattributedbyWASoilGroupDPIRD_076.shp*" (Data WA 2020), the entire Project area is contained within the Bridgetown Sub-system of the Lowden Valleys System of the Western Darling Range Zone, described as:

- Moderately dissected lateritic plateau on granite with deeply incised valleys, includes the Darling Scarp on the western margin. Soils are formed in laterite, lateritic colluvium and weathered in-situ granite and gneiss.
- With loamy earths being the dominant soils.

With reference to the "Soil-Landscape Map of the Wellington-Blackwood Area Map Sheet 2", soils in the in the Project area consist of brown loamy earths on moderate slopes (BL4) and brown loamy earths on steep slopes (BT5).

4.7 Characterisation of Materials

The Laguna Green Granite is a pale green, mega-crystic quartz monzonite containing large grey-green phenocrysts of K-feldspar mostly 30mm in length and set in a greenish matrix. It has a bulk density of 2.66 t/Cu. M

4.8 Contaminated sites

There are no pre-existing, suspected or proposed contaminated sites associated with the Project. The Project has had no previous mining site or industrial developments. Hence, there are no sites to report under the *Contaminated Sites Act 2003.*

Apart from diesel, oils and greases for use in the fixed and mobile plant, there are no other dangerous goods or hazardous substances used on site. No blasting or explosives are used on site. The planned 10,000L storage does not exceed the 100,000L threshold for a storage licence under the *Dangerous Goods Safety Act 2004* and as such is not a requirement.

The Project is therefore considered unlikely to have any issues associated with the storage of dangerous goods, hazardous substances or contaminated sites.

4.9 Acid Mine Drainage and Acid Sulfate Soils

This is not applicable to this project as there is no Sulphur Containing Minerals within the Granite to be quarried.

4.10 State Level Vegetation Associations

Mapping of the pre-European vegetation within Western Australia was conducted at a 1:250,000 scale by J S Beard from 1964 to 1981 (Beard *et al*. 2013). The type, status, pre-European area (based on Beard's mapping) and remaining extent of native vegetation for the entire state has been assessed by the Department of Biodiversity, Conservation and Attractions ('DBCA') and DPIRD using remote sensing techniques and GIS analysis to produce a statistical compendium called the 'Comprehensive, Adequate and Representative Reserves system (Shepherd *et al.* 2002). Data has been updated on a regular basis with the information from the latest update being the "2018 Statewide Vegetation Statistics" (Government of Western Australia 2019). The 2018 Statewide Vegetation Statistic are provided spatially by Data WA as "Pre_EuropeanVegetationDPIRD_006.shp" (Data WA 2021a). From examination of the above shapefile, Lot 1 occurs primarily on the Qualup 516.3 vegetation sub-association, described as

- "Eucalypt shrubland, *Eucalyptus eremophila*, *E. redunca*, E. spp".

Information on the occurrence of Vegetation Sub-association 516.3 is provided in Table 3 (Government of Western Australia 2019). There is 88.67% (147,273.10ha) of pre-European vegetation remaining in Western Australia (Government of Western Australia 2019). Vegetation Sub-association 516.3 has 45.02% (74,774.93ha) protected within internationally recognised conservation estates (IUCN Reserve classes 1 to 4[1]).

Table 3: Information on the extent of Vegetation Association 516.3

Pre-European Extent	Current Extent	Percentage Remaining	Percentage Pre-European in IUCN Class I-IV Reserves[1]
ha	**ha**	**%**	**ha**
166,097.30	147,273.10	88.67	45.02

4.11 Conservation Areas

[1]*The International Union of Conservation ('IUCN') reserve classes 1 to 4 are used as an indicator of areas protected under conservation estate.*

4.12 Flora and Vegetation

The DBCA NatureMap search for conservation listed flora near the Project area is provided as Appendix B and includes the location map. The search was centred on Lot 1 (119° 00' 27'' E,34° 07' 18'' S) with 10 km buffer.

There are no conservation listed flora occurring near Lot 1 (refer to the map in Appendix B). The conservation listed fauna listed in the search are

- *Acacia errabunda* – Priority 3.
- *Acacia newbeyi* - Priority 3.
- *Acacia nitidula* - Priority 3.
- *Banksia sessilis var. cordata* - Priority 4.
- *Calycopeplus marginatus* - Priority 3.
- *Myoporum cordifolium* – Threatened.
- *Sphaerolobium validum* - Priority 3.

As discussed in Section 1, Lot 1 was the subject of a flora and vegetation survey conducted in 2019 by Landscape Ecologist Nathan McQuoid, who has significant experience in the Southwest vegetation communities. This report is provided as Attachment A, entitled:

- "Assessment for Threatened and Priority Ecological Communities and Flora, Laguna Green Granite Quarry, Marnigarup Rd, Jerramungup Western Australia" (McQuoid 2019).

McQuoid (2019) reported that although no a number of Threatened and Priority Flora are known to occur in the area near Lot 1, none were recorded in the survey.

Six major plant communities were recorded in the survey:

1. Woodland on granite derived loams of Mo or Swamp Yate (*Eucalyptus occidentalis).*
2. Mallee shrubland on sand over clay duplex of Hook-leaved Mallee (*Eucalyptus uncinata*).
3. Mallee shrubland over dark cracking clay of Open-fruited Mallee (*Eucalyptus annulata*) and *E. calycogona*.
4. Shrubland on shallow and broken granite of Rock Oak (*Allocasuarina hugeliana*), Willyurwur or Rock Wattle (*Acacia lasiocalyx*) and One-sided Bottlebrush (*Calothamnus quadrifidus*).
5. Low to medium shrubland on shallow granite of Granite Bottlebrush (*Melaleuca elliptica*), Broombush (*M. hamata*) and *Thryptomene australis*,
6. Altered community containing medium and low shrublands of Rock Wattle, Rock Sheoak Mallee (*E. sporadica*) and introduced trees of Sugar Gum (*E. cladocalyx*) and South Australian Blue Gum (*E. leucoxylon*).

The location of these communities is provided in Figure 7.

McQuoid (2019) reported that the *Proteaceae Dominated Kwongkan Shrubland* PEC/TEC was not recorded on Lot 1, either in the proposed quarry target area or the remainder of Lot 1. Only two taxa of the Proteaceae family were recorded during the assessment: *Isopogon buxifolius* observed in the southern centre of Lot 1 and *Hakea laurina* recorded at site 004 and observed in the southern section of Lot 1. Neither taxon was present as more than a few individuals and as such does not meet the structural or compositional requirements to comprise the *Proteaceae Dominated Kwongkan Shrubland* PEC/TEC (Commonwealth of Australia 2014; DBCA 2021).

4.13 Fauna

The DBCA NatureMap search for conservation listed fauna near the Project area is provided as Appendix C and includes the location map. The search was centred on Lot 1 (119° 00' 27'' E,34° 07' 18'' S) with 10 km buffer.

There are no conservation listed fauna occurring near Lot 1 (refer to the map in Appendix C). The two conservation listed fauna listed in the search are

- *Dasyurus geoffroii* (Chuditch, Western Quoll) – Threatened.
- *Leipoa ocellata* (Malleefowl) – Threatened.

Both of these species are recorded >7km distance from Lot 1. Given the extensive site disturbances, lack of suitable habitat and close proximity of human activity, it is considered unlikely that either of these species would occur at Lot 1.

4.14 Aboriginal Heritage

The Department of Planning, Lands and Heritage ('DPLH') Heritage Inquiry System search results are provided in Appendix D (DPLH 2021). There are no 'Registered Aboriginal Sites' recorded for Lot 1 (Appendix D).

4.15 European Heritage

The DPLH "inHerit" database was used to search for European heritage places for the Shire of Jerramungup.

There are no heritage places (State Registered or Shire listings) in the Lot 1 locality (DPLH 2021c), nor in the immediate region.

Figure 7: Plant communities of Lot 1 Marnigarup Rd (from McQuoid 2019)

5 ENVIRONMENTAL MANAGEMENT

The potential environmental risks emanating from the Project were assessed numerically using the risk assessment matrix provided in Table 3 with the outcomes in Table 4. Table 3, is based on LPL 13, the Extractive Industries Checklist as well as general quarry and mining industry applicable issues. Mitigation controls and are provided with each risk in Table 4.

Table 4: Risk Assessment Matrix

LIKELIHOOD	CONSEQUENCE				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	Medium 5	Medium 10	High 15	High 20	High 25
Likely 4	Low 4	Medium 8	High 12	High 16	High 20
Possible 3	Low 3	Medium 6	Medium 9	High 12	High 15
Unlikely 2	Low 2	Low 4	Medium 6	Medium 8	Medium 10
Rare 1	Low 1	Low 2	Low 3	Low 4	Medium 5
Risk Level = Likelihood x Consequence					
12 – 25 = High		5 - 10 = Medium		1 -4 = Low (Acceptable)	
Specific management programs and treatments required to reduce risk to acceptable levels.		Develop procedures to reduce the risk to acceptable levels.		Reassess risk if any changes occur.	

Table 5: Potential environmental risks and mitigation measures

Potential Risk	Initial Risk	Control / Treatment / Mitigation Requirements for Closure	Residual Risk
Surface and ground water contamination	Medium 6	•	Low 2
Flora and vegetation degradation	Low 3	•	Low 1
Fauna habitat loss / fauna mortality	Low 3	•	Low 1
Loss of conservation values	Low 1	•	Low 1
Dieback plant deaths		•	
Inadequate topsoil management	High 12	•	Low 2
Uncontrolled domestic or industrial wastes	Medium 8	•	Low 1
Poor visual amenity	High 12	•	Low 3
Poor hydrocarbon management	Medium 8	•	Low 2
Aboriginal heritage	Medium 8	•	Low 2

Potential Risk	Initial Risk	Control / Treatment / Mitigation Requirements for Closure	Residual Risk
Poor quality landscape restoration		•	
Poor quality native vegetation rehabilitation		•	
Bushfire risk		•	

6 POST-MINING LAND USES AND CLOSURE OBJECTIVES

6.1 Proposed Post-Quarrying Land Use

The proposed post-quarrying land use is the restoration of a natural habitat with a native species ecosystem similar to that occurring locally. The two endpoints for this land use are:

- **Granite outcrop habitat -** The quarries will be partially backfilled as stable rocky areas that will be landscaped to be similar to the surrounding granite outcrops. Blocky waste rock in the form of medium to large boulders and topsoil will be backfilled against the quarry face to create a rocky scree slope that could provide sheltering and denning habitat for a variety of fauna species. The topsoil will support the return of native vegetation.
- **Restoration of natural bushland environment –** The infrastructure areas, workshop areas, block laydown areas and roads will be restored to a natural environment similar to the pre-quarrying condition. All plant, equipment and infrastructure removed, the entire area landscaped back to original contours, covered with topsoil and deep ripped. Roads will have windrows graded back in and the entire area landscaped to original contours, covered with topsoil and deep ripped.

The closure objectives are to create post-quarrying landforms that are:

- Stable;
- Erosion resistant;
- Non-polluting;
- Consistent with local landscape aesthetics;
- Revegetated with native vegetation; and
- Safe.

Each closure objective is discussed below in relation to the post-mining landform endpoints.

6.1.1 Stable

The quarry areas will have waste rock stacked against the quarry faces to achieve a stable contour which resembles the surrounding landscape. The abandonment slope is planned at 1:4 (Figure x). As there is an anticipated waste rock to product ratio of 3:2 there will be no shortage of waste blocks to return to the quarry void. Waste rock will be carefully placed using excavators and front-end loaders to achieve the target angles. Landscaped areas (including pit floors) will then be covered with topsoil where possible and deep ripped to facilitate the return of native vegetation and a natural ecosystem. The rehabilitated mined-out pits will be landscaped to visually blend in as much as possible with the surrounding natural landscapes.

The infrastructure areas will have all plant, infrastructure and stockpiles removed and the entire area landscaped to original pre-mining contours. Landscaped areas will then be covered with topsoil and deep ripped to facilitate the return of native vegetation and a natural ecosystem. Deep ripping will be used to break soil compaction.

The mine roads will have the windrows graded back in and the entire road area landscaped to original pre-mining contours. The landscaped ex-road will then be covered with topsoil and deep ripped to facilitate the return of native vegetation and a natural ecosystem. Deep ripping will be used to break soil compaction.

The closure rehabilitation at the Project will result in stable post-mining landforms.

6.1.2 Erosion Resistant

Dimension stone extraction areas and stable rocky areas with exposed granite surfaces that are considered to be extremely erosion resistant. The quarry edges will have a perimeter abandonment bund that will diverts runoff from flowing over the quarry thus further reducing the erosion risk. This bund also acts as a safety measure to isolate operational areas. Pit slopes will thus just receive incidental rainfall. The final landscape will have no berms, banks, moonscapes or rip lines as these structures channel and pond water which inevitably results in pipe failure or 'off-contour' rip-line breakout gullying. The nature of waste rock material used will allow for water penetration through the structure and flow onto the surrounding plains. These rubble scree surfaces are self-armouring.

The other areas to be rehabilitated, the infrastructure areas and mine roads, will be landscaped to pre-mining contours, will have windrows graded in, covered with topsoil and deep ripped. Deep ripping will ensure that compacted pavements are broken to allow water infiltration and root penetration.

Closure rehabilitation will result in non-erosive post-mining landforms.

6.1.3 Non-polluting

There are no structures or contaminated areas occurring at the Project that are considered as having the potential to pollute.

The potential for pollution during the operational phase is minimal as there are no chemicals, except hydrocarbons, used or stored on site. Due to the small scale nature of the operation, the quantity of hydrocarbons used on site is minimal. Hydrocarbons consist primarily of diesel. Up to 1,500L of other hydrocarbons, such as engine, transmission and hydraulic oil and lubrication products is be stored in 200L and 20L drums on oil spill packs inside a sea container. Gensets are self-bunded. A self-contained, self-bunded and double lined commercial portable refuelling facility is unitised with a nominal capacity of 10,000L. The refuelling bowser is fully lined and bunded to catch spillage. Repairs and servicing of fixed and mobile plant occurs on site using mobile mechanics equipped with hydrocarbon recovery equipment.

All hydrocarbon storage areas, refuelling points, workshop and washdown facilities are located inside contained catchments that drain to sump loci, directed via sloping ground, berms and culverts to an oily water catchment sump at the washdown bay. Waste oil contractors will remove the used hydrocarbons and washdown water on a regular basis.

The process of block cutting has no potential of creating pollution sources. Likewise, the camp is unlikely to create pollution sources as waste material is disposed of in a landfill and waste-water will be treated in an approved septic tank and leach drain system. There are no pollution sources associated with mine roads.

The rehabilitated quarry areas will have silt and sediment loadings emanating from freshly rehabilitated surfaces for the first few major rainfall events. Bunding will be established around disused, rehabilitated quarry areas to contain any sediment occurring in runoff from these rainfall events and spreading to the surrounding area.

The processing areas involve cutting the excavated product into transportable blocks. This is a mechanical process and contains no pollution sources.

Mine closure will result in non-polluting post-mining landforms.

6.1.4 Consistent with Local Landscape Aesthetics

All rehabilitated surfaces will be designed, constructed and revegetated to blend into the natural landscape. The final landforms will be reconstructed rock outcrops or plains that are blended into the surrounding land systems. The use of spinifex, native grasses, wattles and other shrubs will facilitate the return of native vegetation consistent with that occurring locally. Experience has shown that these species will regrow naturally on rehabilitated areas in the Ashburton region.

By landscaping, ripping, using topsoil where available and controlling weeds, it is expected that the revegetated post-mining landforms will quickly become indiscernible from the surrounding natural environment. This has been demonstrated elsewhere within the Ashburton region by the excellent regrowth occurring at other rehabilitated mining and exploration areas.

The dimension stone extraction areas will be stable rocky areas with loose material and scree used as backfill where possible and quarry edges battered back and 'bulldozer' landscaped as much as possible. Landscaped areas will then be covered with topsoil and deep ripped to facilitate the return of native vegetation and a natural ecosystem. The final landform should resemble the natural surrounding granite hillsides.

The mine camp, workshop and laydown areas will have all processing plant, infrastructure and stockpiles removed and the entire area landscaped to original pre-mining contours. Landscaped areas will then be covered with topsoil and deep ripped to facilitate the return of native vegetation and a natural ecosystem. Deep ripping will be used to break soil compaction.

The mine roads will have the windrows graded back in and the entire road area landscaped to original pre-mining contours. The landscaped ex-road will then be covered with topsoil and deep ripped to facilitate the return of native vegetation and a natural ecosystem. Deep ripping will be used to break soil compaction.

The closure rehabilitation activities proposed for the Project will therefore result in rehabilitated surfaces that are consistent with local landscape aesthetics.

6.1.5 Revegetated with a Functioning Native Vegetation Ecosystem

AJMI intends to develop a landform that is revegetated using only locally occurring native species and with a functioning ecosystem similar to that occurring in the surrounding un-mined areas. The aim is to reinstate a high level of biological diversity into the mined-out areas. This will be achieved by regrowing a healthy vegetation community dominated by rangeland native species.

Vegetation Association endpoints will aim to recreate the pre-mining structural descriptions provided by McQuoid (2019) report.

The respreading of topsoil and ripping should facilitate natural regrowth without the need for reseeding. Seed will, however, be used but only if considered necessary in the event that topsoil revegetation is poor or patchy. Only local provenance seed will be sourced using seed pickers operating within 100km of the Project. All seed will be checked prior to use to ensure that it is free of weed species and of local provenance content.

A species list of target rehabilitation will be selected from the dominant species identified during the vegetation survey conducted by McQuoid (2019). AJMI's aim is to grow at least 75% of these species, at foliage covers similar to pre-mining structural descriptions.

These endpoints are natural vegetation associations that have been recorded at the Project area in undisturbed areas over similar landscapes to those expected post-mining.

A full description of these vegetation associations and species assemblages for each association is provided in Section 4.11.

6.1.6 Safe

The requirements for mine abandonment from the *Mines Safety and Inspection Act 1994* and the *Mines Safety and Inspection Regulations 1995* are provided in Appendix D.

Project will be left in a safe condition with regards to both humans and animals.

Public safety will be undertaken by ensuring that:

- DMIRS District Inspector of Mines is consulted regarding placement of abandonment bunds and other abandonment requirements.
- All vehicle access to site is blocked or removed.
- No vertical drop-off points are left, unless bunded or fenced.
- All quarry faces will be backfilled with waster rock material to create abandonment angles of 1:4.
- Appropriate sign posting will be utilised.
- All fencing and remnant material is removed.
- Any fuels or other hydrocarbons are removed from site.

Animal safety will be undertaken by ensuring that:

- All open bores or drills holes are capped or backfilled.
- No open excavations or any open holes will remain that could trap or injure native animals or stock.
- All remnant material that could pose a threat to fauna is removed.
- Any fuels or other hydrocarbons are removed from site.

The closure rehabilitation activities proposed for the Project will therefore result in a safe post-mining landform.

Specific completion criteria for the Project in relation to post-mining land uses, endpoints landforms and the closure objectives are provided in Table 5.

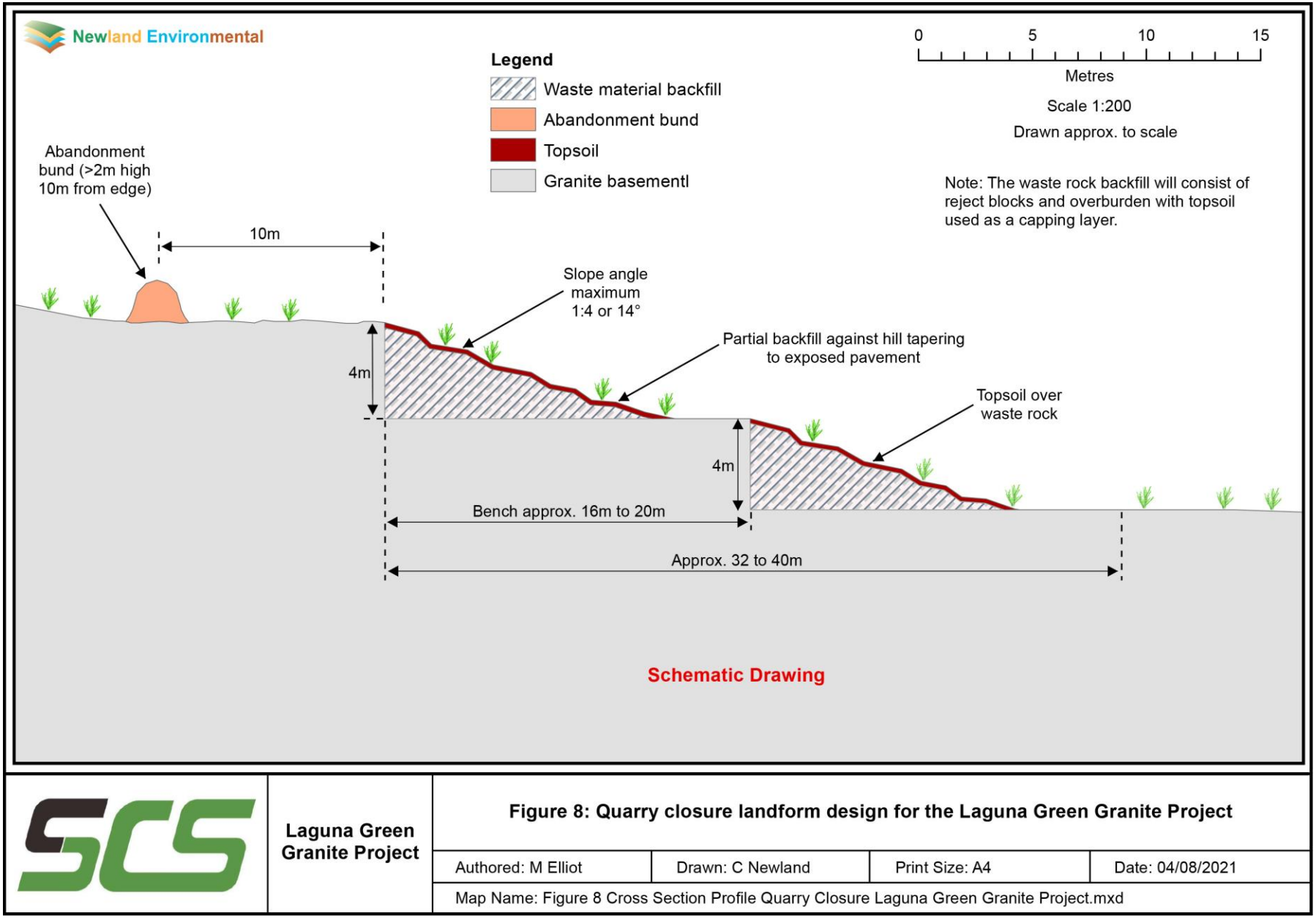


Figure 8: Quarry closure landform design for the Laguna Green Granite Project

Table 6: Landform objectives and tasks for quarry closure and decommissioning

Domain	Objective	Rationale	Required Tasks
Pre-Closure Planning			
All Project areas	Create an accurate site plan using survey pickup.	Survey is required for final landform design, management of mine closure activities as well as closure requirements under LPL 13.	• Engage a licensed surveyor to undertake a site survey of all disturbed areas with sufficient number of points to generate an accurate 1m contour plan for the entire Project area. For immediate quarry areas, a 0.2m or less accuracy is required. • Engage a surveyor with a drone to create a high resolution and geo-rectified image of the Project area. The drone could also be used to generate the site survey contour information as discussed above.
All Project areas	Determine the landowner's objectives for quarry closure and decommissioning.	Ensure that quarry closure and decommissioning is undertaken in accordance with landowner's desired outcome.	• Consult with landowner AJMI with regards to quarry closure and decommissioning objectives and requirements. Organise an onsite meeting. • Document each objective and requirement as a task for incorporation into the design for quarry closure and decommissioning.
All Project areas	Determine closure and decommissioning objectives for other direct stakeholders.	Ensure that quarry closure and decommissioning is undertaken in accordance with stakeholder's requirements.	• Consult with the Shire planner and CEO regarding closure and decommissioning objectives and requirements. Organise an onsite meeting. • Consult with the District Inspector of Mines regarding closure and decommissioning objectives and requirements. Organise an onsite meeting. • Identify any other stakeholder, consult and seek input as required. • Document each objective and requirement as a task for incorporation into the final design for quarry closure and decommissioning.
All Project areas	Create a task register for quarry closure and decommissioning.	All activities required for quarry closure and decommissioning to be managed using a single document called a task register.	• Itemised all activities required for quarry closure and decommissioning as individual tasks linked to areas on the survey plan. Integrate individual tasks to the objectives provides by stakeholders. • Define activities required for each task with photographs. • Provide each stakeholder with a copy of the task register for review and comment.

Domain	Objective	Rationale	Required Tasks
			• Implement the task register activities. • Update the task register as each activity is completed.
Operational:			
All Project areas	Undertake progressive rehabilitation.	As per TP15, any exhausted/worked areas in excess of ha will be progressively rehabilitated (refer to Section 4.5.2).	• Monitor areas of disturbance on a regular basis using the Olynthos drone. • Identify areas that are no longer required for site operations and schedule for rehabilitation, at or before the total area reaches 2ha. • Implement rehabilitation tasks as described in the following section "Closure and Decommissioning".
Closure and Decommissioning:			
All Project areas	Undertake a site clean-up.	Ensure that all unwanted scrap, remnant material, equipment and rubbish are removed from site. Significant areas of hydrocarbon stained soil (>2m^2) to be removed from site.	• Conduct an "emu-parade" with material being taken to an approved landfill for disposal. • Excavate significant areas of hydrocarbon contaminated soil (remove material until no residual odour is detected). Contaminated material will then be taken to the nearest municipal bioremediation facility.
All Project areas	Downslope bunds will be backfilled to previous ground levels (unless the landowner wants to have these structures retained).	Reinstate natural hillside contours and downslope flows.	• Identify any downslope bunds that the landowner wants to retain. • Backfill non-retained downslope bunds to previous ground levels.
Remaining assorted blocks	Rationalise remaining blocks for future use.	The remaining blocks could have use for site closure (bunds, entrance blocking, backfill) or as a dimension stone resource for the local landowner (retaining walls etc) or Bridgetown community (stone monuments and plinths etc).	• Assess which remaining blocks have dimension stone potential and relocate to a holding area with access to enable removal from site. • Other blocks to be stockpiled near quarries where backfilling is proposed.
Quarry or quarries to be	Backfill the quarry as much as possible to	The quarries or sections of quarry not selected for preservation will be	• Refer to Figure 7.

Domain	Objective	Rationale	Required Tasks
partially backfilled.	remove vertical drops, subject to it being stable safe, non-erosive and non-polluting (see below).	rehabilitated by backfilling against the wall to remove vertical or steep fall points.	• Reject blocks and off-cuts to be stacked against quarry walls in a stable arrangement in conjunction with overburden and sideburden as backfill. • Create a stable slope from the top of the quarry wall to floor level. • Topsoil the backfilled slope. • Ensure that no fall points remain. If so then fencing or bunding is required at these points. • Implement the stability related tasks. • Implement the safety related tasks. • Implement the non-erosive related tasks. • Implement the non-polluting related tasks.

Site roads and laydown areas	Minimise hardstand areas.	Reduce the area of disturbance from site roads and laydown areas to increase available grazing pasture and minimise erosion potential from runoff surfaces.	• Seek direction from the landowner as to which roads and laydown areas are to be retained.
			• Areas not retained will be rehabilitated as outlined below:
			  ○ Grade windrows back across road surface.
			  ○ Landscape back to original contours.
			  ○ Deep rip compacted surfaces.
			  ○ Reinstate drainage lines and culvert as necessary.
			  ○ Create spoon drains as necessary.
			• Block access as required with berms or large block.
			• Implement the stability related tasks.
			• Implement the safety related tasks.
			• Implement the non-erosive related tasks.
			Implement the non-polluting related tasks.

All Project areas	Stable landforms.	Ensure that the resultant landforms are stable.	• Assess quarry areas for potentially unstable features such as:
			  ○ Unsecured boulders or blocks with potential movement or fall from height.
			  ○ Overhanging or undercut walls.

Domain	Objective	Rationale	Required Tasks
			○ Rock fractures indicating potential geotechnical failures / slippages. ○ Erosion gullies with ground destabilising potential. • Seek guidance from the District Inspector of Mines on stability issues. • Implement stability tasks (e.g. scaling faces to bring down large rocks, collapsing faces with potential rock slippage fracturing, remedial earthworks to close or redirect catchment areas for erosion gullies.
All Project areas	Safe landforms.	Ensure that the resultant landforms are safe.	• Assess quarry areas for potentially unsafe features such as: ○ Vertical or steep walls with risk of falling from height. ○ Large blocks or boulders that could dislodge and cause injury. ○ Steep embankments with risk of falling from height. ○ Inadvertent access points to fall points, vehicle and pedestrian. • Seek guidance from the District Inspector of Mines on safety issues. • Implement safety tasks such as: ○ Fencing or bunding at vertical or steep walls and steep embankments. ○ Fencing around the entire quarry. ○ Warning signage.
All Project areas	Non-polluting landforms.	Ensure that the resultant landforms are non-polluting	• Assess quarry areas for potentially unsafe features such as: ○ Old drums, tanks or containers with potential pollutants. ○ Septic tanks. ○ Hydrocarbon-stained ground. • Implement clean-up tasks such as: ○ Removal of all suspect drums and containers ○ Septic tank evacuation using a grey water removal contractor and fill in the tank. ○ Remove hydrocarbon-stained soil to bioremediation landfill (refer to Section 4.3.2).

Domain	Objective	Rationale	Required Tasks

All Project areas	Non-erosive landforms.	Ensure that the resultant landforms are non-erosive.	• Assess all Project areas for erosion issues or erosive potential:
			  ○ Channelisation creating rills and gullies / drainage lines.
			  ○ Potential runoff concentration points.
			  ○ Uncontrolled runoff feeder catchments.
			  ○ Ground cavitation.
			• Implement erosion control measures such as:
			  ○ Constructing a bund at the downslope aspect of each quarry to prevent runoff from leaving site (Figure 16).
			  ○ Directing runoff to internal catchment ponds.
			  ○ Managing runoff from upstream catchments by reducing erosional velocities and flow volumes (interceptor banks, spoon drains, rocky cascade structures, rock armouring or scree mantles and vegetation screens).
			  ○ Reinstate previous drainage lines to flow though or around quarry areas.
			  ○ Install culverts as required.
			  ○ Monitoring for erosion breakouts and implementing control measures.

Post Closure and Decommissioning:			
All Project areas	Create an accurate site final site plan using survey pickup.	Survey is required for under TP15 at Project completion. Site works will also be visible on the aerial photo for future reference and to verify completion of all requisite tasks.	• Engage a licensed surveyor to undertake a site survey of the Project area as required by LPL 13 sufficient number of points to generate an accurate 1m contour plan. For immediate ex-quarry areas, a 0.2m or less accuracy is required. • Engage a surveyor with a drone to create a high resolution and geo-rectified image of the Project area. The drone could also be used to generate the site survey contour information as discussed above.
All Project areas	Assess effectiveness of closure and	Ensure that closure and decommissioning tasks have met the required objectives as well s TP15.	• Inspect the ex-quarry areas with the landowner and Shire representative after all rehabilitation and decommissioning activities have been completed.

Domain	Objective	Rationale	Required Tasks
	decommissioning undertakings.		• Photograph and document completed rehabilitation and decommissioning tasks by GPS waypoint. Assess and record the effectiveness of each task. Update the task register with completed activities. • Record any additional tasks required to finalise site closure and add to the task register. • Undertake the additional tasks. • Re-inspect the ex-quarry areas with the landowner after a winter rainfall season. Assess for any issues that have developed post-closure and rectify if required. • As per LPL 13, rehabilitation works are to be monitored and information reported to the Shire demonstrating the progress and success of rehabilitation for a two-year period from the conclusion of rehabilitation. • At the appropriate time, complete an agreement with the landowner that all rehabilitation and decommissioning activities as required under the access agreement have been satisfactorily completed. • At the appropriate time, notify the Shire that all rehabilitation and decommissioning activities as per the Development Approval have been completed. Provide the Shire with the final monitoring report.

*Vegetation monitoring plots: The McQuoid (2019) flora and vegetation survey was conducted using 20x 20m quadrats. This methodology will be re-utilised to monitor rehabilitation revegetation (refer Section 4.11).

7 COMMUNITY IMPACTS

The Project has economic benefits for the local community as well as the State in general.

The local beneficial impacts include the provision of good and services from Jerramungup businesses and suppliers, such as:

- Long term rental accommodation for the workforce.
- Groceries, meals and other daily expendables.
- Fuels, oils, greases, tyres, equipment parts etc.
- Hire or purchase of local equipment.
- Supply of construction materials to cap the layout and working areas (aggregates).
- Mechanical repairs and servicing of vehicles and machinery.
- Earthmoving contracting for roads and quarry laydown areas.
- Electrical contracting for quarry installations and maintenance.
- Building contracting for onsite infrastructure such as transportable units (crib, ablution and office units).
- Plumbing contracting for grey water management at the ablution facilities.
- Surveying contracting for quarry layout pickup.

The State will benefit through the:

- Generation of export revenue.
- Use of road transport companies for haulage of blocks to port.
- Use of port facilities for overseas export.
- Provision of local dimensions stone products for Western Australian construction projects.
- The development of Western Australia's global reputation as a supplier of high quality dimension stone products.

7.1 Employment Opportunities

As listed above, there will be various services supplied to the Project using Shire based contractors.

Whenever practicable, local employment will be sought for the quarry workers. Given the unique and specialised nature of block cutting, the local workers would be trained to meet the required levels of expertise and competency and would gain a wide range of skillsets in the dimension stone industry.

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Appendices

Appendix A: Copy of the Landgate Certificate of Title for Lot 1 on Diagram 84693, Marnigarup East Road, Gairdner

Appendix B Flora Report

Appendix C: Fauna Report

Appendix D: Relevant Mine Abandonment Sections from the *Mines Safety and Inspection Act 1994* and the *Mines Safety and Inspection Regulations 1995*

Appendix E: Aboriginal Heritage site check

Appendix A

8.1 Land Title for Quarry

Copy of the Landgate Certificate of Title for Lot 1 on Diagram 84693, Marnigarup East Road, Gairdner

WESTERN AUSTRALIA

REGISTER NUMBER	
1/D84693	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	13/2/2019

VOLUME 1971 FOLIO 488

RECORD OF CERTIFICATE OF TITLE

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

LAND DESCRIPTION:

LOT 1 ON DIAGRAM 84693

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

AUSTRALIA JOWIN MINING INDUSTRY PTY LTD OF UNIT 3 13 OXLEIGH DRIVE MALAGA WA 6090
(T O084874) REGISTERED 5/2/2019

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1971-488 (1/D84693)
PREVIOUS TITLE:	1636-183
PROPERTY STREET ADDRESS:	NO STREET ADDRESS INFORMATION AVAILABLE.
LOCAL GOVERNMENT AUTHORITY:	SHIRE OF JERRAMUNGUP

LANDGATE COPY OF ORIGINAL NOT TO SCALE Thu Mar 14 10:04:55 2019 JOB 58865071

Landgate
www.landgate.wa.gov.au

Appendix B

8.2 Special Flora

Department of Biodiversity, Conservation and Attractions NatureMap search for conservation listed flora near the Project area

Parameters:	Plantae, Conservation Taxon
Method:	Circle
Centre:	119° 00' 27" E,34° 07' 18" S
Buffer:	10km
Date:	09/08/2021

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 10/08/2021

Kingdom Plantae
Conservation Status Conservation Taxon (T, X, IA, S, P1-P5)
Current Names Only Yes
Core Datasets Only Yes
Method 'By Circle'
Centre 119° 00' 27" E,34° 07' 18" S
Buffer 10km

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1.	14681	*Acacia errabunda*		P3	
2.	3456	*Acacia newbeyi*		P3	
3.	3459	*Acacia nitidula*		P3	
4.	32078	*Banksia sessilis var. cordata*		P4	
5.	4606	*Calycopeplus marginatus*		P3	
6.	12738	*Myoporum cordifolium*		T	
7.	19335	*Sphaerolobium validum*		P3	

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.

Department of Biodiversity, Conservation and Attractions
WESTERN AUSTRALIAN MUSEUM

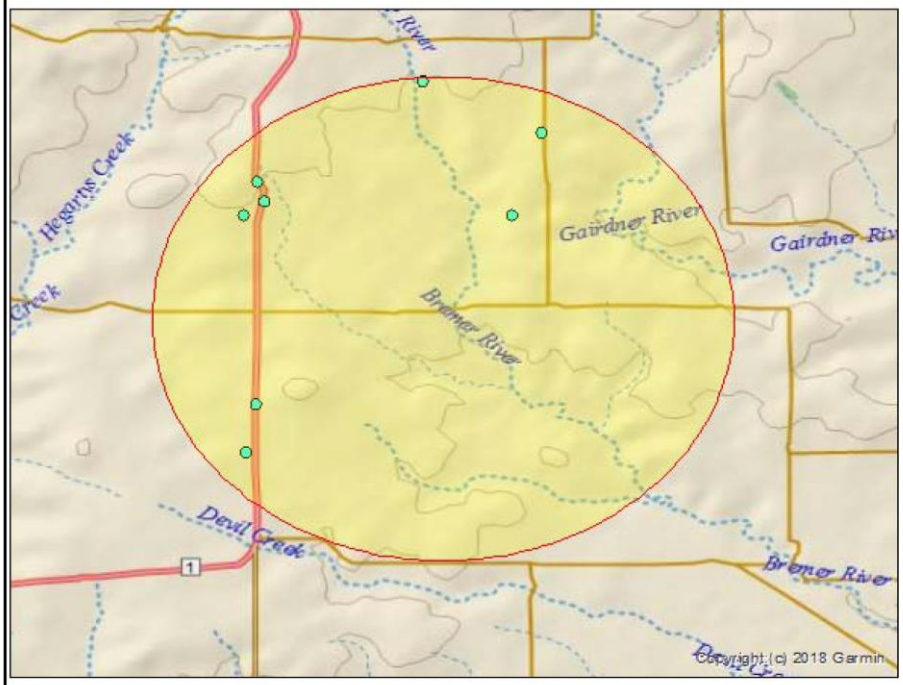
Page 1

NatureMap
Mapping Western Australia's biodiversity

Conservation Listed Flora 10km Buffer

Printed by Guest user on 10/8/2021

Query details : Kingdom=Plantae; Conservation Status=Conservation Taxon (T, X, IA, S, P1-P5); Current Names Only=Yes; Core Datasets Only=Yes; Method='By Circle'; Centre=119° 00' 27" E,34° 07' 18" S; Buffer=10km;



Search Results

Selected
- Selected Species

All Results
- Default
- Confirmed
- Corrected
- Reported

Reference Layers

Major WA Towns

Major WA Towns

Major WA Towns

State Borders

Department of Biodiversity, Conservation and Attractions
WESTERN AUSTRALIAN MUSEUM

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions, Western Australia, and the Western Australian Museum.

Appendix C

8.3 Special Fauna

Department of Biodiversity, Conservation and Attractions NatureMap search for conservation listed flora near the Project area

Parameters:	Animalia, Conservation Taxon
Method:	Circle
Centre:	119° 00' 27'' E,34° 07' 18'' S
Buffer:	10km
Date:	09/08/2021

NatureMap
Mapping Western Australia's biodiversity

NatureMap Species Report

Created By Guest user on 10/08/2021

Kingdom	Animalia
Conservation Status	Conservation Taxon (T, X, IA, S, P1-P5)
Current Names Only	Yes
Core Datasets Only	Yes
Method	'By Circle'
Centre	119° 00' 27" E,34° 07' 18" S
Buffer	10km

	Name ID	Species Name	Naturalised	Conservation Code	[1]Endemic To Query Area
1.	24092	*Dasyurus geoffroii (Chuditch, Western Quoll)*		T	
2.	24557	*Leipoa ocellata (Malleefowl)*		T	

Conservation Codes
T - Rare or likely to become extinct
X - Presumed extinct
IA - Protected under international agreement
S - Other specially protected fauna
1 - Priority 1
2 - Priority 2
3 - Priority 3
4 - Priority 4
5 - Priority 5

[1] For NatureMap's purposes, species flagged as endemic are those whose records are wholely contained within the search area. Note that only those records complying with the search criterion are included in the calculation. For example, if you limit records to those from a specific datasource, only records from that datasource are used to determine if a species is restricted to the query area.

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions and the Western Australian Museum.

Department of Biodiversity, Conservation and Attractions

WESTERN AUSTRALIAN MUSEUM

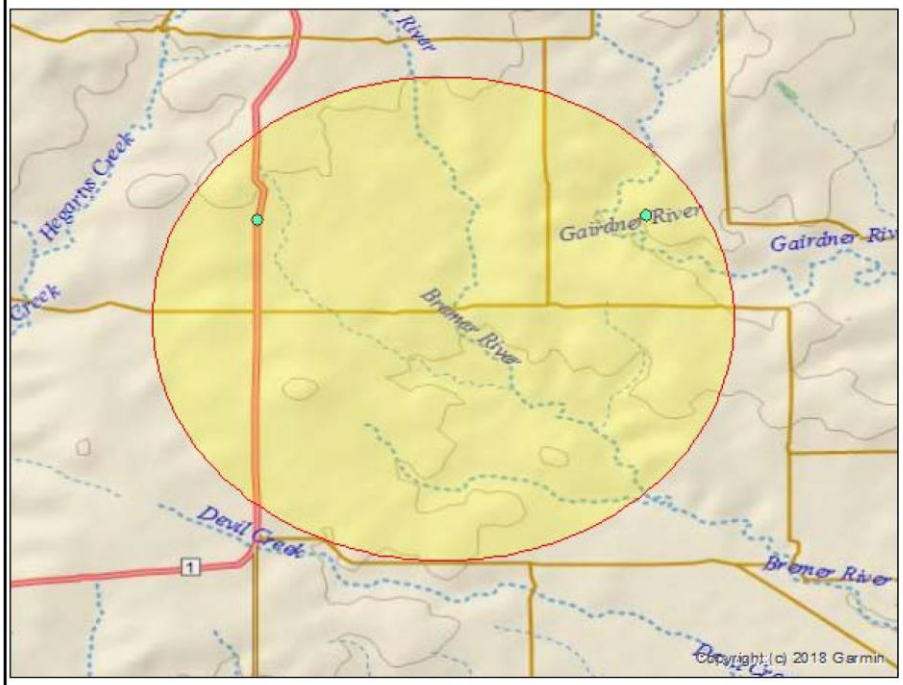
Page 1

NatureMap
Mapping Western Australia's biodiversity

Conservation Listed Fauna 10km Buffer

Printed by Guest user on 10/8/2021

Query details : Kingdom=Animalia; Conservation Status=Conservation Taxon (T, X, IA, S, P1-P5); Current Names Only=Yes; Core Datasets Only=Yes; Method='By Circle'; Centre=119° 00' 27" E,34° 07' 18" S; Buffer=10km;



Search Results

Selected
- Selected Species

All Results
- Default
- Confirmed
- Corrected
- Reported

Reference Layers

Major WA Towns

Major WA Towns

Major WA Towns

State Borders

Department of Biodiversity, Conservation and Attractions
WESTERN AUSTRALIAN MUSEUM

NatureMap is a collaborative project of the Department of Biodiversity, Conservation and Attractions, Western Australia, and the Western Australian Museum.

Appendix D

8.4 Quarry Closure

Relevant Mine Abandonment Sections from the Mines Safety and Inspection Act 1994 and the Mines Safety and Inspection Regulations 1995

Mines Safety and Inspection Act 1994

42 Commencement or suspension of mining to be notified

(1) The principal employer or the manager of a mine must, in accordance with the regulations, notify the district inspector for the region in which the mine is situated —

(a) before mining operations are commenced at the mine; or

(b) before mining operations are recommenced after their suspension; or

(c) before mining operations are abandoned; or

(d) before mining operations are suspended.

(2) The principal employer or the manager must at the same time as giving notice under subsection (1) provide such evidence as is necessary to satisfy the district inspector for the region in which the mine is situated that the obligations under the Act as to commencement, recommencement, abandonment, or suspension of mining operations, as the case may require, have been complied with; and on receiving such a notice the district inspector must inspect the mine and verify the evidence provided with the notice and make a record accordingly.

88 Plans of mine at its abandonment or suspension

(1) Where mining operations are about to be abandoned or suspended, the principal employer, or if a receiver has been appointed in respect of a principal employer, that receiver, or the manager must cause to be prepared to the satisfaction of the district inspector for the region in which the mine is situated an accurate plan or plans of the mining operations to the time of abandonment or discontinuance and must furnish that plan or those plans to the State mining engineer in accordance with the regulations before the mining operations are abandoned or suspended.

89 Plans of mine at its abandonment or suspension

(3) If mining operations are abandoned or suspended, the principal employer at the mine at that time must keep all record books and log books that have been kept under this Act in respect of the mine for a period of 6 years from the time of abandonment or suspension; and if the principal employer appears likely to go into liquidation or receivership must take steps to ensure that such record books and log books are safely kept for that period.

104 Regulations

(zm) prescribing the measures which must be taken before mining operations are suspended and during any period of suspension or before a mine is closed or abandoned and after closure or abandonment;

Mines Safety and Inspection Regulations 1995

Division 2 — Notification of commencement or suspension of mining operations

3.10 Term used: notification

In this Division —

notification means notification under section 42 of the Act.

3.11 Notification to be in writing

Each notification must be in writing.

3.12 General details to be included in notification

Each notification must include the following details —

(a) the name and location of the mine; and

(b) the number of the lease, tenement or other interest; and

(c) the name and address of the principal employer at the mine; and

(d) what mining operations are to be affected, and whether they are to be commenced, recommenced, abandoned or suspended; and

(e) the date on which the mining operations are to be commenced, recommenced, abandoned or suspended (as the case may be)

3.16 Details to be included in notification of abandonment

Notification of the abandonment of mining operations at a mine must, in addition to the details set out in regulation 3.12, include the following details —

(a) details of precautions taken to ensure that access to underground workings has been secured against unauthorised entry; and

(b) details of precautions taken to prevent inadvertent access to open pit workings; and

(c) details of precautions taken to prevent, so far as is practicable, any post mining subsidence into underground workings, by back-filling stope voids and by other appropriate measures; and

(d) details of precautions taken to ensure that all plant and equipment have been removed or secured and left in a safe condition; and

(e) details of precautions taken to remove or properly dispose of all hazardous substances at the mine; and

(f) any plans required to be prepared under section 88 of the Act.

13.8 Geotechnical considerations

(1) The principal employer at, and the manager of, a mine must ensure that geotechnical aspects are adequately considered in relation to the design, operation and abandonment of quarry operations.

13.15 Mine boundaries

(2) The manager of a mine must ensure that excavations in a quarry are not mined so close to the boundaries of a tenement or other land holding, which is owned by a person other than the principal employer of the mine, that adequate room is not left to install protection against inadvertent access by persons after the quarry is abandoned.

16.25 Records

(5) Each responsible person must transfer all records specified by the State mining engineer, to the State mining engineer, before a mining operation is abandoned, and for that purpose the manager must notify the State mining engineer of any intention to abandon the mining operation in the near future.

Appendix E

8.5 Aboriginal Heritage

Searched using the Aboriginal Heritage Inquiry System
for Registered Sites at Lot 1 Marnigarup Road (Certificate of Title - 1971/488)

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

For further important information on using this information please see the Department of Planning, Lands and Heritage's Disclaimer statement at https://www.dplh.wa.gov.au/about-this-website

Search Criteria

No Registered Aboriginal Sites in Certificate of Title - 1971/488

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at AboriginalHeritage@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

South West Settlement ILUA Disclaimer

Your heritage enquiry is on land **within or adjacent to** the following Indigenous Land Use Agreement(s): Wagyl Kaip & Southern Noongar Indigenous Land Use Agreement.

On 8 June 2015, six identical Indigenous Land Use Agreements (ILUAs) were executed across the South West by the Western Australian Government and, respectively, the Yued, Whadjuk People, Gnaala Karla Booja, Ballardong People, South West Boojarah #2 and Wagyl Kaip & Southern Noongar groups, and the South West Aboriginal Land and Sea Council (SWALSC).

The ILUAs bind the parties (including 'the State', which encompasses all State Government Departments and certain State Government agencies) to enter into a Noongar Standard Heritage Agreement (NSHA) when conducting Aboriginal Heritage Surveys in the ILUA areas, unless they have an existing heritage agreement. It is also intended that other State agencies and instrumentalities enter into the NSHA when conducting Aboriginal Heritage Surveys in the ILUA areas. It is recommended a NSHA is entered into, and an 'Activity Notice' issued under the NSHA, if there is a risk that an activity will 'impact' (i.e. by excavating, damaging, destroying or altering in any way) an Aboriginal heritage site. The Aboriginal Heritage Due Diligence Guidelines, which are referenced by the NSHA, provide guidance on how to assess the potential risk to Aboriginal heritage.

Likewise, from 8 June 2015 the Department of Mines, Industry Regulation and Safety (DMIRS) in granting Mineral, Petroleum and related Access Authority tenures within the South West Settlement ILUA areas, will place a condition on these tenures requiring a heritage agreement or a NSHA before any rights can be exercised.

If you are a State Government Department, Agency or Instrumentality, or have a heritage condition placed on your mineral or petroleum title by DMIRS, you should seek advice as to the requirement to use the NSHA for your proposed activity. The full ILUA documents, maps of the ILUA areas and the NSHA template can be found at https://www.wa.gov.au/organisation/department-of-the-premier-and-cabinet/south-west-native-title-settlement.

Further advice can also be sought from the Department of Planning, Lands and Heritage at AboriginalHeritage@dplh.wa.gov.au.

Copyright

Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

For further important information on using this information please see the Department of Planning, Lands and Heritage's Disclaimer statement at https://www.dplh.wa.gov.au/about-this-website

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

Map of Registered Aboriginal Sites

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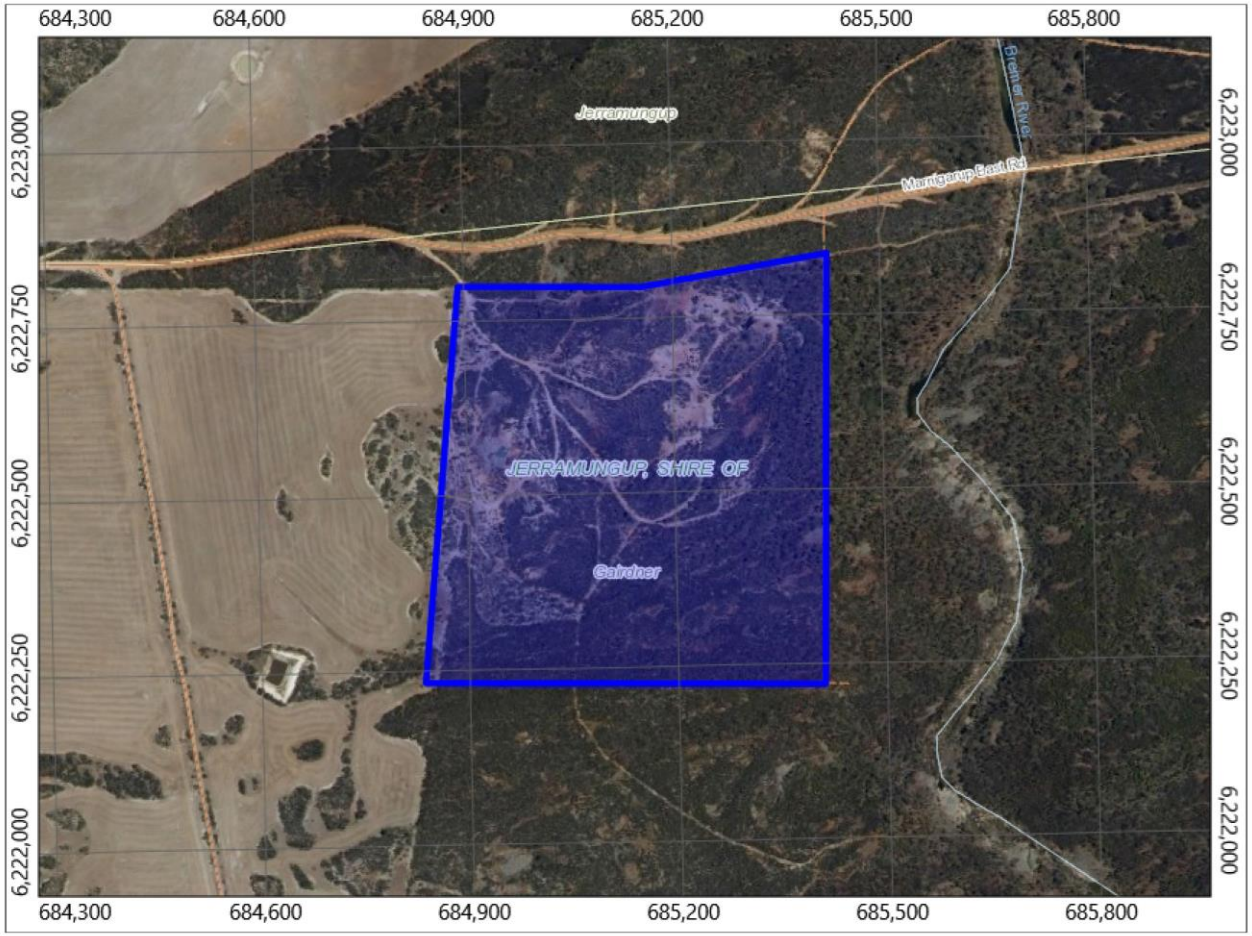

Legend

- Registered Aboriginal Site
- Search Area
- Town
- Road
- River
- Local Government Authority

0.32 kilometres

Map Scale 1 : 9,830

MGA Zone 50 (GDA94)

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