RDC ENGINEERS | AGRICULTURAL ENVIRONMENTAL PROJECT MANAGEMENT

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Our ref: H5-130-RAB-EI-DA-20251114

14 November 2025

Chief Executive Officer
Balonne Shire Council
PO Box 201
ST GEORGE QLD 4487

Dear Sir/Madam,

Re DEVELOPMENT APPLICATION – DEVELOPMENT PERMIT FOR MATERIAL CHANGE OF USE FOR "EXTRACTIVE INDUSTRY" (GRAVEL PIT) – FERNLEE ROAD, BOLLON LAND DESCRIBED AS LOT 5 ON BEL53167

I act for the applicant RA & AJ Brown in regard to the above matter.

Please find enclosed the following documentation associated with a development application for Development Permit for Material Change of Use for "Extractive Industry" (Gravel Pit) on land at Fernlee Road, Bollon.

a) Application forms
   - Development application Form 1 – Development Application Details
b) Supporting information including mandatory plans.

Should you require any additional information or clarification in relation to this matter, please do not hesitate to contact the undersigned.

Yours sincerely

Rod Davis
Director

M 0427 629203
E Rod.Davis@rdcengineers.com.au | **W** www.rdcengineers.com.au

DA Form 1 – Development application details

Approved form (version 1.6 effective 2 August 2024) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development (i.e. material change of use, operational work or reconfiguring a lot)**, use this form (*DA Form 1*) **and** parts 4 to 6 of *DA Form 2 – Building work details*.

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008.* For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: *All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).*

PART 1 – APPLICANT DETAILS

1) Applicant details	
Applicant name(s) (*individual or company full name*)	RA & AJ Brown c\ RDC Engineers Pty Ltd
Contact name *(only applicable for companies)*	Bob Brown (Applicant) / Rod Davis (RDC Engineers Pty Ltd)
Postal address *(P.O. Box or street address)*	965 Fernlee Road
Suburb	BOLLON
State	QLD
Postcode	4488
Country	AUSTRALIA
Contact number	Bob Brown (0438 109 840) / Rod Davis (0427 629 203)
Email address *(non-mandatory)*	Bob Brown (heatherstation@bigpond.com) / Rod Davis rod.davis@rdcengineers.com.au
Mobile number *(non-mandatory)*	Bob Brown (0438 109 840) / Rod Davis (0427 629 203)
Fax number *(non-mandatory)*	
Applicant's reference number(s) *(if applicable)*	H5-130

1.1) Home-based business

☐ Personal details to remain private in accordance with section 264(6) of *Planning Act 2016*

2) Owner's consent

2.1) Is written consent of the owner required for this development application?

☐ Yes – the written consent of the owner(s) is attached to this development application

☒ No – proceed to 3)

PART 2 – LOCATION DETAILS

3) Location of the premises *(complete 3.1) or 3.2), and 3.3) as applicable)*

***Note**: Provide details below and attach a site plan for any or all premises part of the development application. For further information, see DA Forms Guide: Relevant plans.*

3.1) Street address and lot on plan

☒ Street address **AND** lot on plan (*all lots must be listed*), ***or***

☐ Street address **AND** lot on plan for an adjoining or adjacent property of the premises *(appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).*

a)	Unit No.	Street No.	Street Name and Type	Suburb
			Runnymede Road	BOLLON
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)
	4488	5	BEL53167	BALONNE SHIRE COUNCIL
b)	Unit No.	Street No.	Street Name and Type	Suburb
	Postcode	Lot No.	Plan Type and Number *(e.g. RP, SP)*	Local Government Area(s)

3.2) Coordinates of premises *(appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay)*

***Note**: Place each set of coordinates in a separate row.*

☐ Coordinates of premises by longitude and latitude

Longitude(s)	Latitude(s)	Datum	Local Government Area(s) *(if applicable)*
		☐ WGS84 ☐ GDA94 ☐ Other:	

☐ Coordinates of premises by easting and northing

Easting(s)	Northing(s)	Zone Ref.	Datum	Local Government Area(s) *(if applicable)*
		☐ 54 ☐ 55 ☐ 56	☐ WGS84 ☐ GDA94 ☐ Other:	

3.3) Additional premises

☐ Additional premises are relevant to this development application and the details of these premises have been attached in a schedule to this development application

☐ Not required

4) Identify any of the following that apply to the premises and provide any relevant details

☒ In or adjacent to a water body or watercourse or in or above an aquifer

Name of water body, watercourse or aquifer:	Mungallala Creek, Great Artesian Basin

☐ On strategic port land under the *Transport Infrastructure Act 1994*

Lot on plan description of strategic port land:	
Name of port authority for the lot:	

☐ In a tidal area

Name of local government for the tidal area *(if applicable)*:	
Name of port authority for tidal area *(if applicable)*	

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*	
Name of airport:	
☐ Listed on the Environmental Management Register (EMR) under the *Environmental Protection Act 1994*	
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under the *Environmental Protection Act 1994*	
CLR site identification:	

5) Are there any existing easements over the premises?

Note: Easement uses vary throughout Queensland and are to be identified correctly and accurately. For further information on easements and how they may affect the proposed development, see DA Forms Guide.

☐ Yes – All easement locations, types and dimensions are included in plans submitted with this development application

☒ No

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

6.1) Provide details about the first development aspect

a) What is the type of development? *(tick only one box)*

☒ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☒ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☒ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

Material Change of Use for Extractive Industry. Gravel Pit with a capacity of up to 100,000 tonnes

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms guide: Relevant plans.*

☒ Relevant plans of the proposed development are attached to the development application

6.2) Provide details about the second development aspect

a) What is the type of development? *(tick only one box)*

☐ Material change of use ☐ Reconfiguring a lot ☐ Operational work ☐ Building work

b) What is the approval type? *(tick only one box)*

☐ Development permit ☐ Preliminary approval ☐ Preliminary approval that includes a variation approval

c) What is the level of assessment?

☐ Code assessment ☐ Impact assessment *(requires public notification)*

d) Provide a brief description of the proposal *(e.g. 6 unit apartment building defined as multi-unit dwelling, reconfiguration of 1 lot into 3 lots)*:

e) Relevant plans

***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*

☐ Relevant plans of the proposed development are attached to the development application

6.3) Additional aspects of development
☐ Additional aspects of development are relevant to this development application and the details for these aspects that would be required under Part 3 Section 1 of this form have been attached to this development application
☒ Not required
6.4) Is the application for State facilitated development?
☐ Yes - Has a notice of declaration been given by the Minister?
☒ No

Section 2 – Further development details

7) Does the proposed development application involve any of the following?	
Material change of use	☒ Yes – complete division 1 if assessable against a local planning instrument
Reconfiguring a lot	☐ Yes – complete division 2
Operational work	☐ Yes – complete division 3
Building work	☐ Yes – complete *DA Form 2 – Building work details*

Division 1 – Material change of use

***Note**: This division is only required to be completed if any part of the development application involves a material change of use assessable against a local planning instrument.*

8.1) Describe the proposed material change of use			
Provide a general description of the proposed use	Provide the planning scheme definition *(include each definition in a new row)*	Number of dwelling units *(if applicable)*	Gross floor area (m^2) *(if applicable)*
Proposed gravel pit	Extractive Industry	NA	Refer to plans

8.2) Does the proposed use involve the use of existing buildings on the premises?
☐ Yes
☒ No

8.3) Does the proposed development relate to temporary accepted development under the Planning Regulation?	
☐ Yes – provide details below or include details in a schedule to this development application	
☒ No	
Provide a general description of the temporary accepted development	Specify the stated period dates under the Planning Regulation

Division 2 – Reconfiguring a lot

***Note**: This division is only required to be completed if any part of the development application involves reconfiguring a lot.*

9.1) What is the total number of existing lots making up the premises?

9.2) What is the nature of the lot reconfiguration? *(tick all applicable boxes)*	
☐ Subdivision *(complete 10)*	☐ Dividing land into parts by agreement *(complete 11)*
☐ Boundary realignment *(complete 12)*	☐ Creating or changing an easement giving access to a lot from a constructed road *(complete 13)*

10) Subdivision				
10.1) For this development, how many lots are being created and what is the intended use of those lots:				
Intended use of lots created	Residential	Commercial	Industrial	Other, please specify:
Number of lots created				

10.2) Will the subdivision be staged?	
☐ Yes – provide additional details below ☐ No	
How many stages will the works include?	
What stage(s) will this development application apply to?	

11) Dividing land into parts by agreement – how many parts are being created and what is the intended use of the parts?				
Intended use of parts created	Residential	Commercial	Industrial	Other, please specify:
Number of parts created				

12) Boundary realignment			
12.1) What are the current and proposed areas for each lot comprising the premises?			
Current lot		Proposed lot	
Lot on plan description	Area (m^2)	Lot on plan description	Area (m^2)
12.2) What is the reason for the boundary realignment?			

13) What are the dimensions and nature of any existing easements being changed and/or any proposed easement? *(attach schedule if there are more than two easements)*				
Existing or proposed?	Width (m)	Length (m)	Purpose of the easement? *(e.g. pedestrian access)*	Identify the land/lot(s) benefitted by the easement

Division 3 – Operational work

***Note**: This division is only required to be completed if any part of the development application involves operational work.*

14.1) What is the nature of the operational work?		
☐ Road work	☐ Stormwater	☐ Water infrastructure
☐ Drainage work	☐ Earthworks	☐ Sewage infrastructure
☐ Landscaping	☐ Signage	☐ Clearing vegetation
☐ Other – please specify:		

14.2) Is the operational work necessary to facilitate the creation of new lots? *(e.g. subdivision)*	
☐ Yes – specify number of new lots:	
☐ No	

14.3) What is the monetary value of the proposed operational work? *(include GST, materials and labour)*

$

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application

Balonne Shire Council

16) Has the local government agreed to apply a superseded planning scheme for this development application?

☐ Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents attached
☒ No

PART 5 – REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements?
***Note**: A development application will require referral if prescribed by the* Planning Regulation 2017.

☐ No, there are no referral requirements relevant to any development aspects identified in this development application – proceed to Part 6

Matters requiring referral to the **Chief Executive of the *Planning Act 2016***:

☐ Clearing native vegetation
☐ Contaminated land *(unexploded ordnance)*
☐ Environmentally relevant activities (ERA) *(only if the ERA has not been devolved to a local government)*
☐ Fisheries – aquaculture
☐ Fisheries – declared fish habitat area
☐ Fisheries – marine plants
☐ Fisheries – waterway barrier works
☐ Hazardous chemical facilities
☐ Heritage places – Queensland heritage place *(on or near a Queensland heritage place)*
☐ Infrastructure-related referrals – designated premises
☒ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
☐ Infrastructure-related referrals – near a state-controlled road intersection
☐ Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
☐ Koala habitat in SEQ region – key resource areas
☐ Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
☐ Ports – Brisbane core port land – environmentally relevant activity (ERA)
☐ Ports – Brisbane core port land – tidal works or work in a coastal management district
☐ Ports – Brisbane core port land – hazardous chemical facility
☐ Ports – Brisbane core port land – taking or interfering with water
☐ Ports – Brisbane core port land – referable dams
☐ Ports – Brisbane core port land – fisheries
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*
☐ SEQ development area
☐ SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – community activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
☐ SEQ regional landscape and rural production area or SEQ rural living area – urban activity
☐ SEQ regional landscape and rural production area or SEQ rural living area – combined use
☐ SEQ northern inter-urban break – tourist activity or sport and recreation activity

☐ SEQ northern inter-urban break – community activity
☐ SEQ northern inter-urban break – indoor recreation
☐ SEQ northern inter-urban break – urban activity
☐ SEQ northern inter-urban break – combined use
☐ Tidal works or works in a coastal management district
☐ Reconfiguring a lot in a coastal management district or for a canal
☐ Erosion prone area in a coastal management district
☐ Urban design
☐ Water-related development – taking or interfering with water
☐ Water-related development – removing quarry material *(from a watercourse or lake)*
☐ Water-related development – referable dams
☐ Water-related development –levees *(category 3 levees only)*
☐ Wetland protection area

Matters requiring referral to the **local government:**
☐ Airport land
☐ Environmentally relevant activities (ERA) (*only if the ERA has been devolved to local government)*
☐ Heritage places – Local heritage places

Matters requiring referral to the **Chief Executive of the distribution entity or transmission entity:**
☐ Infrastructure-related referrals – Electricity infrastructure

Matters requiring referral to:
- The **Chief Executive of the holder of the licence**, if not an individual
- The **holder of the licence**, if the holder of the licence is an individual

☐ Infrastructure-related referrals – Oil and gas infrastructure

Matters requiring referral to the **Brisbane City Council:**
☐ Ports – Brisbane core port land

Matters requiring referral to the **Minister responsible for administering the *Transport Infrastructure Act 1994*:**
☐ Ports – Brisbane core port land *(where inconsistent with the Brisbane port LUP for transport reasons)*
☐ Ports – Strategic port land

Matters requiring referral to the **relevant port operator**, if applicant is not port operator**:**
☐ Ports – Land within Port of Brisbane's port limits *(below high-water mark)*

Matters requiring referral to the **Chief Executive of the relevant port authority:**
☐ Ports – Land within limits of another port *(below high-water mark)*

Matters requiring referral to the **Gold Coast Waterways Authority:**
☐ Tidal works or work in a coastal management district *(in Gold Coast waters)*

Matters requiring referral to the **Queensland Fire and Emergency Service:**
☐ Tidal works or work in a coastal management district *(involving a marina (more than six vessel berths))*

18) Has any referral agency provided a referral response for this development application?

☐ Yes – referral response(s) received and listed below are attached to this development application
☒ No

Referral requirement	Referral agency	Date of referral response

Identify and describe any changes made to the proposed development application that was the subject of the referral response and this development application, or include details in a schedule to this development application *(if applicable).*

PART 6 – INFORMATION REQUEST

19) Information request under the DA Rules

☒ I agree to receive an information request if determined necessary for this development application

☐ I do not agree to accept an information request for this development application

***Note**: By not agreeing to accept an information request I, the applicant, acknowledge:*

- *that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant parties*
- *Part 3 under Chapter 1 of the DA Rules will still apply if the application is an application listed under section 11.3 of the DA Rules or*
- *Part 2under Chapter 2 of the DA Rules will still apply if the application is for state facilitated development*

Further advice about information requests is contained in the DA Forms Guide.

PART 7 – FURTHER DETAILS

20) Are there any associated development applications or current approvals? *(e.g. a preliminary approval)*

☐ Yes – provide details below or include details in a schedule to this development application

☒ No

List of approval/development application references	Reference number	Date	Assessment manager
☐ Approval ☐ Development application			
☐ Approval ☐ Development application			

21) Has the portable long service leave levy been paid? *(only applicable to development applications involving building work or operational work)*

☐ Yes – a copy of the receipted QLeave form is attached to this development application

☐ No – I, the applicant will provide evidence that the portable long service leave levy has been paid before the assessment manager decides the development application. I acknowledge that the assessment manager may give a development approval only if I provide evidence that the portable long service leave levy has been paid

☒ Not applicable *(e.g. building and construction work is less than $150,000 excluding GST)*

Amount paid	Date paid (dd/mm/yy)	QLeave levy number (A, B or E)
$		

22) Is this development application in response to a show cause notice or required as a result of an enforcement notice?

☐ Yes – show cause or enforcement notice is attached

☐ No

23) Further legislative requirements

Environmentally relevant activities

23.1) Is this development application also taken to be an application for an environmental authority for an **Environmentally Relevant Activity (ERA)** under section 115 of the *Environmental Protection Act 1994*?

☐ Yes – the required attachment (form ESR/2015/1791) for an application for an environmental authority accompanies this development application, and details are provided in the table below

☒ No

***Note**: Application for an environmental authority can be found by searching "ESR/2015/1791" as a search term at www.qld.gov.au. An ERA requires an environmental authority to operate. See www.business.qld.gov.au for further information.*

Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			

☐ Multiple ERAs are applicable to this development application and the details have been attached in a schedule to this development application.

Hazardous chemical facilities

23.2) Is this development application for a **hazardous chemical facility**?

☐ Yes – *Form 536: Notification of a facility exceeding 10% of schedule 15 threshold* is attached to this development application

☒ No

***Note**: See www.business.qld.gov.au for further information about hazardous chemical notifications.*

Clearing native vegetation

23.3) Does this development application involve **clearing native vegetation** that requires written confirmation that the chief executive of the *Vegetation Management Act 1999* is satisfied the clearing is for a relevant purpose under section 22A of the *Vegetation Management Act 1999*?

☐ Yes – this development application includes written confirmation from the chief executive of the *Vegetation Management Act 1999* (s22A determination)

☒ No

***Note**: 1. Where a development application for operational work or material change of use requires a s22A determination and this is not included, the development application is prohibited development.*

2. See https://www.qld.gov.au/environment/land/vegetation/applying for further information on how to obtain a s22A determination.

Environmental offsets

23.4) Is this development application taken to be a prescribed activity that may have a significant residual impact on a **prescribed environmental matter** under the *Environmental Offsets Act 2014*?

☐ Yes – I acknowledge that an environmental offset must be provided for any prescribed activity assessed as having a significant residual impact on a prescribed environmental matter

☒ No

***Note**: The environmental offset section of the Queensland Government's website can be accessed at www.qld.gov.au for further information on environmental offsets.*

Koala habitat in SEQ Region

23.5) Does this development application involve a material change of use, reconfiguring a lot or operational work which is assessable development under Schedule 10, Part 10 of the Planning Regulation 2017?

☐ Yes – the development application involves premises in the koala habitat area in the koala priority area

☐ Yes – the development application involves premises in the koala habitat area outside the koala priority area

☒ No

***Note**: If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.desi.qld.gov.au for further information.*

Water resources

23.6) Does this development application involve **taking or interfering with underground water through an artesian or subartesian bore, taking or interfering with water in a watercourse, lake or spring, or taking overland flow water under the *Water Act 2000***?

☐ Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the *Water Act 2000* may be required prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au for further information.*

DA templates are available from planning.statedevelopment.qld.gov.au. If the development application involves:

- *Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1*
- *Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2*
- *Taking overland flow water: complete DA Form 1 Template 3.*

Waterway barrier works

23.7) Does this application involve **waterway barrier works?**

☐ Yes – the relevant template is completed and attached to this development application

☒ No

DA templates are available from planning.statedevelopment.qld.gov.au. For a development application involving waterway barrier works, complete DA Form 1 Template 4.

Marine activities

23.8) Does this development application involve **aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?**

☐ Yes – an associated *resource* allocation authority is attached to this development application, if required under the *Fisheries Act 1994*

☒ No

***Note**: See guidance materials at www.daf.qld.gov.au for further information.*

Quarry materials from a watercourse or lake

23.9) Does this development application involve the **removal of quarry materials from a watercourse or lake** under the *Water Act 2000?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Resources at www.resources.qld.gov.au and www.business.qld.gov.au for further information.*

Quarry materials from land under tidal waters

23.10) Does this development application involve the **removal of quarry materials from land under tidal water** under the *Coastal Protection and Management Act 1995?*

☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development

☒ No

***Note**: Contact the Department of Environment, Science and Innovation at www.desi.qld.gov.au for further information.*

Referable dams

23.11) Does this development application involve a **referable dam** required to be failure impact assessed under section 343 of the *Water Supply (Safety and Reliability) Act 2008* (the Water Supply Act)?

☐ Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application

☒ No

***Note**: See guidance materials at www.resources.qld.gov.au for further information.*

Tidal work or development within a coastal management district

23.12) Does this development application involve **tidal work or development in a coastal management district**?

☐ Yes – the following is included with this development application:
- ☐ Evidence the proposal meets the code for assessable development that is prescribed tidal work *(only required if application involves prescribed tidal work)*
- ☐ A certificate of title

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for further information.*

Queensland and local heritage places

23.13) Does this development application propose development on or adjoining a place entered in the **Queensland heritage register** or on a place entered in a local government's **Local Heritage Register**?

☐ Yes – details of the heritage place are provided in the table below

☒ No

***Note**: See guidance materials at www.desi.qld.gov.au for information requirements regarding development of Queensland heritage places.*

For a heritage place that has cultural heritage significance as a local heritage place and a Queensland heritage place, provisions are in place under the Planning Act 2016 that limit a local categorising instrument from including an assessment benchmark about the effect or impact of, development on the stated cultural heritage significance of that place. See guidance materials at www.planning.statedevelopment.qldgov.au for information regarding assessment of Queensland heritage places.

Name of the heritage place:		Place ID:	

Decision under section 62 of the *Transport Infrastructure Act 1994*

23.14) Does this development application involve new or changed access to a state-controlled road?

☐ Yes – this application will be taken to be an application for a decision under section 62 of the *Transport Infrastructure Act 1994* (subject to the conditions in section 75 of the *Transport Infrastructure Act 1994* being satisfied)

☒ No

Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation

23.15) Does this development application involve reconfiguring a lot into 2 or more lots in certain residential zones (except rural residential zones), where at least one road is created or extended?

☐ Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered

☒ No

***Note**: See guidance materials at www.planning.statedevelopment.qld.gov.au for further information.*

PART 8 – CHECKLIST AND APPLICANT DECLARATION

24) Development application checklist	
I have identified the assessment manager in question 15 and all relevant referral requirement(s) in question 17 ***Note**: See the Planning Regulation 2017 for referral requirements*	☒ Yes
If building work is associated with the proposed development, Parts 4 to 6 of *DA Form 2 – Building work details* have been completed and attached to this development application	☐ Yes ☒ Not applicable
Supporting information addressing any applicable assessment benchmarks is with the development application ***Note**: This is a mandatory requirement and includes any relevant templates under question 23, a planning report and any technical reports required by the relevant categorising instruments (e.g. local government planning schemes, State Planning Policy, State Development Assessment Provisions). For further information, see DA Forms Guide: Planning Report Template.*	☒ Yes
Relevant plans of the development are attached to this development application ***Note**: Relevant plans are required to be submitted for all aspects of this development application. For further information, see DA Forms Guide: Relevant plans.*	☒ Yes
The portable long service leave levy for QLeave has been paid, or will be paid before a development permit is issued *(see 21)*	☐ Yes ☒ Not applicable

25) Applicant declaration
☒ By making this development application, I declare that all information in this development application is true and correct ☒ Where an email address is provided in Part 1 of this form, I consent to receive future electronic communications from the assessment manager and any referral agency for the development application where written information is required or permitted pursuant to sections 11 and 12 of the *Electronic Transactions Act 2001* ***Note**: It is unlawful to intentionally provide false or misleading information.*
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or published on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the *Planning Act 2016*, Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the *Planning Act 2016* and the Planning Regulation 2017, and the access rules made under the *Planning Act 2016* and Planning Regulation 2017; or • required by other legislation (including the *Right to Information Act 2009*); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002.*

PART 9 – FOR COMPLETION OF THE ASSESSMENT MANAGER – FOR OFFICE USE ONLY

Date received: | Reference number(s):

Notification of engagement of alternative assessment manager	
Prescribed assessment manager	
Name of chosen assessment manager	
Date chosen assessment manager engaged	
Contact number of chosen assessment manager	
Relevant licence number(s) of chosen assessment manager	

QLeave notification and payment *Note: For completion by assessment manager if applicable*			
Description of the work			
QLeave project number			
Amount paid ($)		Date paid (dd/mm/yy)	
Date receipted form sighted by assessment manager			
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Development Application – Material Change of Use for Extractive Industry (Gravel pit) on the property “Heather”

“Heather”
Fernlee Road
BOLLON QLD 4488



RA & AJ Brown
965 Fernlee Road
BOLLON QLD 4488

[November 2025]

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List of abbreviations

AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AMP	Activity Management Plan
ARI	Average Recurrence Interval
AS	Australian Standard
BSC	Balonne Shire Council
BoM	Bureau of Meteorology
CDA	Controlled Drainage Area
CEMP	Construction Environmental Management Plan
DA	Development Application
DAF	Queensland Department of Agriculture and Fisheries
DEEDI	Queensland Department of Employment, Economic Development and Innovation
DEHP	Queensland Department of Environment and Heritage Protection
DES	Queensland Department of Environment and Science
DETSI	Queensland Department of Environment, Tourism and Science and Innovation
DERM	Queensland Department of Environment and Resource Management
DILGP	Queensland Department of Infrastructure, Local Government and Planning
DSDMIP	Queensland Department of State Development, Manufacturing, Infrastructure and Planning
DNRM	Queensland Department of Natural Resources and Mines
DNRME	Queensland Department of Natural Resources, Mines and Energy
DPI	Queensland Department of Primary Industries
DPIF	Queensland Department of Primary Industries and Fisheries
DRDM&W	Queensland Department of Regional Development, Manufacturing & Water
DoR	Queensland Department of Resources
DTMR	Queensland Department of Transport and Main Roads
EA	Environmental Authority
EMP	Environmental Management Plan
EMS	Environmental Management System
GHG	Greenhouse Gases
H:V	Horizontal Units in Proportion to Vertical Units
LGA	Local Government Area
MSES	Matters of State Environmental Significance
MNES	Matters of National Environmental Significance
PASS	Potential Acid Sulfate Soils
SBEMP	Site Based Environmental Management Plan
TAPM	The Air Pollution Model

Executive summary

The Brown family own and operate a cattle, rangeland goat and dryland cropping enterprise in the Westmar and Bollon areas of Queensland trading as Kooroon Ag Pty Ltd.

The supply chain model includes cattle grazing, rangeland goat and cropping operations. The cattle and rangeland goat grazing operations are centred on the property "Heather" in the Bollon region located some 8 km by road southwest of Bollon and 121 km by road west of St Geroge.

The property "Heather" comprises several land parcels totalling some 12,342 ha (~30,485 acres) in area and is located within the Balonne Shire Council. Cattle breeding and growing is currently undertaken on the property alongside rangeland goat production.

"Heather" is located on the open poplar box plains between Mungallala Creek and Wallam Creek comprising flat red loamy soil and black melon hole country. The majority of the property is not subject to flooding. The typical vegetation on the property consists of remnant poplar box, coolabah, mulga and sandalwood and native (Astrebla spp. Mitchell grass) and introduced pasture species (buffel).

There are few extractive industries within the Bollon / St George region as a result of the geology and geomorphological process of the area. Currently, there are hard rock quarries around Mitchell and north of Roma and several gravel pits containing deposits of deeply weathered rocks of sedimentary origin.

Whilst, the Bollon region is predominantly an agricultural area, there is demand for construction materials for local road maintenance, private development and the wider region is experiencing growth in the renewable energy exploration and development sector which is being driven by Queensland's renewable energy sector through programs such as the Queensland Energy and Jobs Plan.

RA & AJ Brown wish to establish a gravel pit on one land parcel of "Heather" which comprises an area of 8,056.89 ha (~19,900 acres) where deposits of deeply weathered pallic coloured sediments of sandstone, siltstone and mud rock outcrop. The gravel pit shall co-exist with the existing agricultural enterprises on the property.

The establishment of the proposed development would require a material change of use of the subject land as the proposed use is defined as "Extractive industry" under the *Balonne Shire Planning Scheme (Version 2)*.

This report has been prepared in support of a development application (Material Change of Use Application) for:

(i) Development Permit - Material Change of Use for Extractive industry located on the property "Heather", 965 Fernlee Road, Bollon land described as Lot 5 on BEL53167.

This report provides an examination of the existing environment, an overview of the design, layout, operation and construction of the proposed development and an environmental risk

assessment to assess, mitigate, and monitor environmental risks associated with the proposed development.

This report addresses the merits of the proposed development and its compliance with regard to the provisions of the *Environmental Protection Act 1994, State Planning Policy 2017 and Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024).

Site address:	"Heather" 965 Fernlee Road, Bollon, QLD 4488
Real property description:	Lot 5 on BEL53167
Assessment manager:	Balonne Shire Council – *Balonne Shire Planning Scheme (Version 2)*
Site area:	8,056.89 ha (~19,900 acres)
Zone:	Rural
Existing use:	Cattle grazing, rangeland goats
Approvals sought:	Development Permit for Material Change of Use – Extractive industry
Level of assessment:	Impact Assessable

The proposed development is defined as "Extractive industry" under the *Balonne Shire Planning Scheme (Version 2)* and is required to demonstrate the need to co-locate with rural activities and is an impact assessable development within the subject land's land use zoning (Rural zone). Consequently, a development permit for Material Change of Use is required to authorise the establishment and operation of the proposed development on the subject land.

1 Background

1.1 Introduction

The Brown family own and operate a cattle, rangeland goat and dryland cropping enterprise in the Westmar and Bollon areas of Queensland trading as Kooroon Ag Pty Ltd.

The supply chain model includes cattle grazing, rangeland goat and cropping operations. The cattle and rangeland goat grazing operations are centred on the property "Heather" in the Bollon region located some 8 km by road southwest of Bollon and 121 km by road west of St Geroge.

The property "Heather" comprises several land parcels totalling some 12,342 ha (~30,485 acres) in area and is located within the Balonne Shire Council. Cattle breeding and growing is currently undertaken on the property alongside rangeland goat production.

"Heather" is located on the open poplar box plains between Mungallala Creek and Wallam Creek comprising flat red loamy soil and black melon hole country. The majority of the property is not subject to flooding. The typical vegetation on the property consists of remnant poplar box, coolabah, mulga and sandalwood and native (Astrebla spp. Mitchell grass) and introduced pasture species (buffel). The land is in the Condamine Balonne drainage basin.

For part of its length, Mungallala Creek forms the western boundary of the land parcel on which the extractive industry shall be developed.

There are few extractive industries within the St George / Bollon region as a result of the geology and geomorphological process of the area. Currently, there are no hard rock basalt quarries, no naturally occurring aggregates (ridge gravels, pea-gravels, ironstone cobbles) or duri-crust materials (silcrete, calcrete, ferricrete of other forms of lateritic materials). There are several scattered gravel pits containing soft non-durable rocks (white rocks and mud rocks).

Whilst, the Bollon region is predominantly an agricultural area, there is demand for construction materials for local road maintenance and private development and in the renewable energy exploration and development sector which is experiencing rapid growth in the region as a result of Queensland's renewable energy sector through programs such as the Queensland Energy and Jobs Plan.

RA & AJ Brown wish to establish a gravel pit on one land parcel of "Heather" which comprises an area of 8,056.89 ha (~19,900 acres) where deposits of deeply weathered pallic coloured sediments of sandstone, siltstone and mud rock outcrop on a low rise. The gravel pit shall co-exist with the existing agricultural enterprises on the property.

Consequently, the establishment of a gravel pit on "Heather" involves a material increase in the intensity or scale of the existing use on the subject land and accordingly comprises a Material Change of Use pursuant to Schedule 2 of the *Planning Act 2016.*

This report addresses the merits of the proposed development and its compliance with regard to the provisions of the *Environmental Protection Act 1994, State Planning Policy 2017 and*

Balonne Shire Planning Scheme (Version 2) (Balonne Shire Council, 2024) and is a consistent use and impact assessable development within the subject land's land use zoning (Rural zone). Consequently, a development permit for Material Change of Use is required to authorise the establishment and operation of the proposed development on the subject land.

This report has been prepared in support of a development application (Material Change of Use) for:

(i) Development Permit for Material Change of Use for Extractive Industry located on the property "Heather", 965 Fernlee Road, Bollon.

This report provides an examination of the existing environment, an overview of the design, layout, operation and construction of the proposed development and an environmental risk assessment.

This report addresses the merits of the proposed development with regard to the provisions of the *Environmental Protection Act 1994,* the *Balonne Shire Planning Scheme (Version 2) and State Planning Policy 2017* in relation to planning and environmental aspects.

1.2 Proposed development outline

The proposed development involves the establishment of a gravel pit on the southern edge of the subject land.

The resource extraction area shall have a capacity to extract up to 100,000 tonnes of material per annum from an area of up to 5 ha and include the following components:

- Access road – An all-weather access road from Runnymede Road to the proposed resource extraction area shall be constructed;
- Resource extraction area – An operational extraction area shall be established by clearing existing vegetation, topsoil and overburden and ripping material. No blasting is required;
- Stockpile area – An operational area for stockpiling material shall be established within resource extraction area and adjacent to the workings; and
- Sediment controls – A sediment system for capturing stormwater and allowing entrained sediment to 'settle out' shall be implemented.

The proposed development would require about 3 operational staff on-site during material extraction, stockpiling and loadout campaigns.

The proposed development shall be staged.

Further description of the various elements of the proposed development is provided in section 4.

2 Site and locality

2.1 Subject land

The subject land on which the proposed development is to be located forms part of the property known as "Heather". "Heather" is located on Fernlee Road, Bollon approximately 8 km by road southwest of Bollon and 121 km by road west of St George.

The subject land has primary frontage to Runnymede Road (unsealed) of approximately 7.5 km in length. The subject land has secondary frontage to Fernlee Road (sealed) of approximately 3.2 km in length.

Runnymede Road is an unsealed road which bisects the western area of the subject land. Runnymede Road intersects with Fernlee Road some 7.4 km north of the southern boundary of the subject land. Runnymede Road runs in a southerly direction from Fernlee Road for about 53 km to provide access to rural properties and connection to Woolerina Road.

Fernlee Road is a local controlled road. Fernlee Road terminates with the Balonne Highway some 16.5 km northeast of the intersection with Runnymede Road.

Figure 1 is a locality plan highlighting the subject land to roads and the nearby townships of Bollon and St George.

2.1.1 Real property description

The subject land comprises one (1) cadastral portion separated in part by land designated as roads. The subject land is known as the property "Heather". The real property description of the subject land is provided in Table 1. The total area of the subject land is approximately 8,056.89 ha (~19,900 acres). The subject land is in the Balonne Shire Council (BSC) local government area. Figure 2 is a cadastral plan highlighting the cadastral parcels that comprise the subject land.

Table 1 – Subject land – Real property description

Property name	Lot No.	Plan No.	Easements	County	Parish	Area* ha
"Heather"	5	BEL53167	Nil	Belmore	Mona	8,056.886

*From Queensland Digital Cadastral Database

2.1.1.1 Easement

The subject land does not contain any easements as shown on Figure 2 and listed on the Certificate of Title for Lot 5 BEL53167 (Appendix A).

2.1.1.2 Land designated as road

The subject land contains land designated as road under the Land Act 1994 as shown in Figure 2. Land designated as road bisects the subject land into three areas and runs in a south westerly direction across the northwest corner and south along the western boundary. The Land designated as road contains the formed and named roads of Fernlee Road which runs through the northwest corner and Runnymede Road which bisects the western area of the subject land.

The parcels of land adjoining land designated as road on the subject land is shown in Table 2 and Figure 2.

Table 2 – Subject land – Land designated as road

Property name	Road boundary adjoining parcel		Opposite road boundary adjoining parcel		Designation
	Lot No.	Plan No.	Lot No	Plan No	
"Heather"	5	BEL53167	5	BEL53167	Fernlee Road
"Heather"	5	BEL53167	5	BEL53167	Runnymede Road

2.1.1.3 Stock route

There are stock routes declared on the land designated as road within or adjacent to the subject land under the *Stock Route Management Act 2002*. Stock route 620BALO (Old Stock Route Id U620BALO02) is a tertiary stock route located on land designated as road on which the formed road Fernlee Road is located.

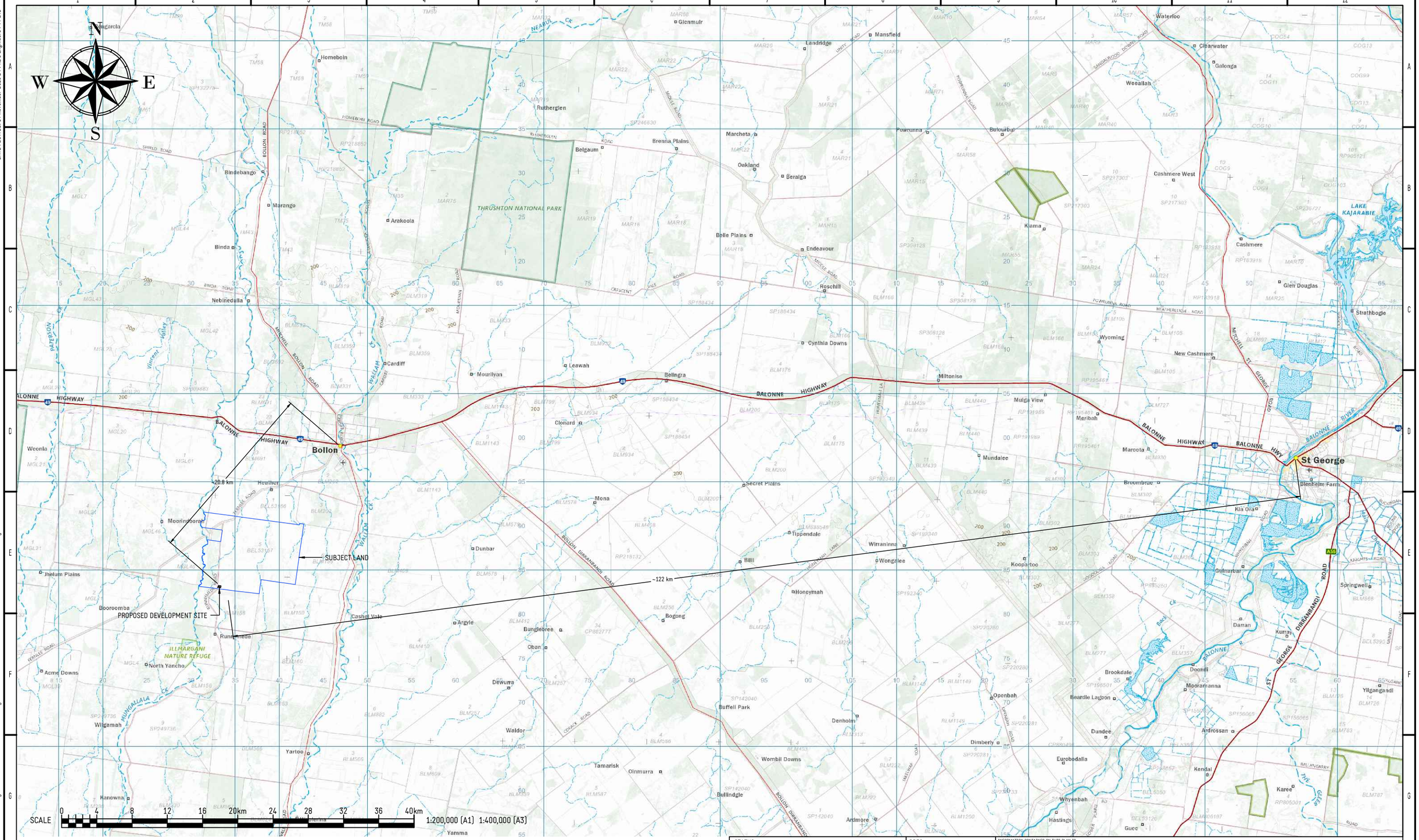
There is also a stock route reserve adjoining the northwest boundary of the subject land.

2.1.1.4 Tenure

The subject land is owned by Robert Alexander Brown and Amy Jeanine Brown as tenants in common in freehold land tenure.

The certificate of title for the land parcel that comprises the subject land on which the development is proposed is provided in Appendix A.

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LEGEND

SUBJECT LAND BOUNDARY

NOTES

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DATE	14/11/2025
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DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - LOCALITY PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 1		A3	H5-130-00-01	B

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N

W E

S

1
BEL53166

FERNLEE ROAD

1
BEL53166

3
BLM202

SUBJECT LAND BOUNDARY

SUBJECT LAND BOUNDARY

5
BEL53167

3
MGL46

5
BEL53167

5
BEL53167

2
BEL53167

2
BEL53167

2
BEL53167

5
BEL53167

SUBJECT LAND BOUNDARY

6
BLM159

RUNNYMEDE ROAD

5
BEL53167

SUBJECT LAND BOUNDARY

FERNLEE ROAD

5
MGL46

MUNGALLALA CREEK

PROPOSED DEVELOPMENT SITE

2
MGL11

SUBJECT LAND BOUNDARY

7
BLM159

8
BLM158

SCALE 0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000m

1:25,000 (A1) 1:50,000 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- SUBJECT LAND AREA
- LAND DESIGNATED AS ROAD
- EASEMENT
- LANDS LEASE
- RESERVE

NOTES

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CLIENT RA & RJ BROWN

PROJECT PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT

TITLE DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - CADASTRAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 2		A3	H5-130-00-02	B

2.1.2 Current land use

The subject land is currently used predominantly for extensive grazing of beef cattle and rangeland goats. The subject land has been developed for grazing on native and improved pasture with the balance comprising native vegetation areas.

The subject land does not have any developed infrastructure such as dwellings, machinery sheds etc. There are riparian areas remaining along Mungallala Creek and pockets of native vegetation remaining on areas unsuitable for agricultural pursuits.

Photograph 1, Photograph 2, Photograph 3 and Photograph 4 illustrate the current land uses on the subject land including cattle grazing, former gravel pit and native vegetation.



Photograph 1 – Subject land – Current land use – Cattle grazing



Photograph 2 – Subject land – Current land use – Rangeland goats



Photograph 3 – Subject land – Current land use – Former gravel pit



Photograph 4 – Subject land – Current land use – Remnant vegetation

2.2 Surrounding land use

2.2.1 Surrounding locality

The subject land is in the Bollon district, a pastoral area approximately 113 km by road west of St George in South West Queensland. The area is characterised by a relatively flat, extensive semi-arid red earth plain of poplar box and mulga and wooded alluvial plains and areas of other mixed woodland on sand rises.

Agricultural pursuits dominant and comprise extensive grazing of beef cattle, sheep and rangeland goats. Remnant vegetation characteristic of a wide range of arid and semi-arid vegetation communities, from low and open shrublands on stony soils, to open-forests ten or more metres tall that occupy deep soils dominate the extensive red earth plains. Mulga vegetation generally dominated by mulga (*Acacia aneura*), often co-occurs with eucalypts such as poplar box (*Eucalyptus populnea*), other acacias and various other arid shrubs and trees. There are few extractive industry (gravel) and no intensive animal industry developments in the region. Rural residential lifestyle properties are located closer to the townships of Bollon and St George.

In the late 1950's and 1960's vast areas were cleared using mechanised clearing methods and regrowth controlled by aerial spraying, burning and mechanical means in preparation for improved pasture. There are areas of native vegetation remaining on those areas less suitable for grazing such as low lying areas, drainage lines and watercourses and along roadways.

2.2.2 Adjoining and neighbouring properties

The subject land is co-located with rural properties that are engaged in similar agricultural pursuits such as extensive grazing of beef cattle and sheep and rangeland goats.

There are no zoned residential or rural residential lifestyle areas adjoining or within close proximity to the subject land. There are no extractive industry or intensive animal industries located on adjoining or neighbouring properties. Rural dwellings are well separated due to the size of the properties in the area.

The prevailing pattern of land use on properties adjoining the subject land may be summarised as follows:

- Low intensity livestock grazing (sheep, beef cattle) (north, south, east and west);
- Remnant vegetation along waterways, property boundaries and land designated as road. (north, south, east and west).

Adjoining land parcels to the north, south, east and west are similar size to the subject land and comprise parcels of land in the order of 2,500-6,000 ha in area. The adjoining properties comprise several land parcels.

Photograph 5 to Photograph 8 and further illustrate the land use surrounding the subject land.



Photograph 5 – Land use of adjoining properties (north) – Livestock grazing



Photograph 6 – Land use of adjoining properties (south) – Livestock grazing

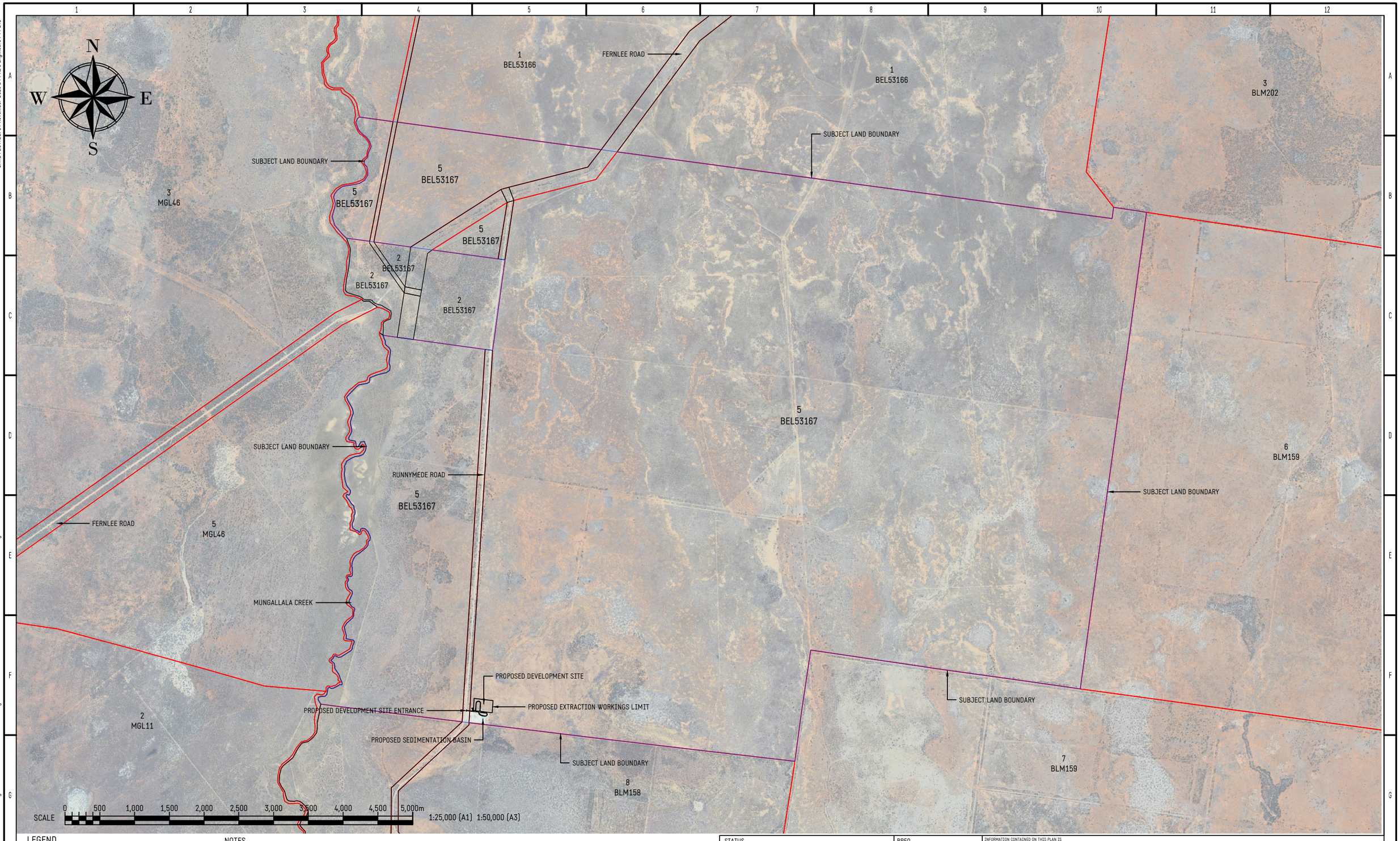


Photograph 7 – Land use of neighbouring properties (east) – Livestock grazing



Photograph 8 – Land use of neighbouring properties (west) – Livestock grazing

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY

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CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - AERIAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 3		A3	H5-130-00-03	B

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3 Existing utilities

3.1 Electricity

There is currently no overhead electricity supplied to the subject land as there is no developed infrastructure requiring electricity supply.

3.2 Water

The subject land is in a rural area and not in a Balonne Shire Council reticulated water supply area.

Currently, water for stock and domestic purposes is sourced from groundwater from the Great Artesian Basin and surface water as overland flow.

There are no surface water or groundwater authorisations attached to the subject land for purposes other than Stock & Domestic.

3.3 Sewerage

The subject land is in a rural area and not in a Balonne Shire Council reticulated sewerage system area.

There are no established dwellings on the subject land.

3.4 Telecommunications

The subject land has average to good mobile phone service coverage.

4 Proposed development

4.1 Introduction

The proposed development site is located on the western end of an outcrop of highly weathered sandstone, mudstone and conglomerate Paleocene-Oligocene sediments. These deposits are relatively shallow to the surface and extend to a depth no greater than 4-5 m.

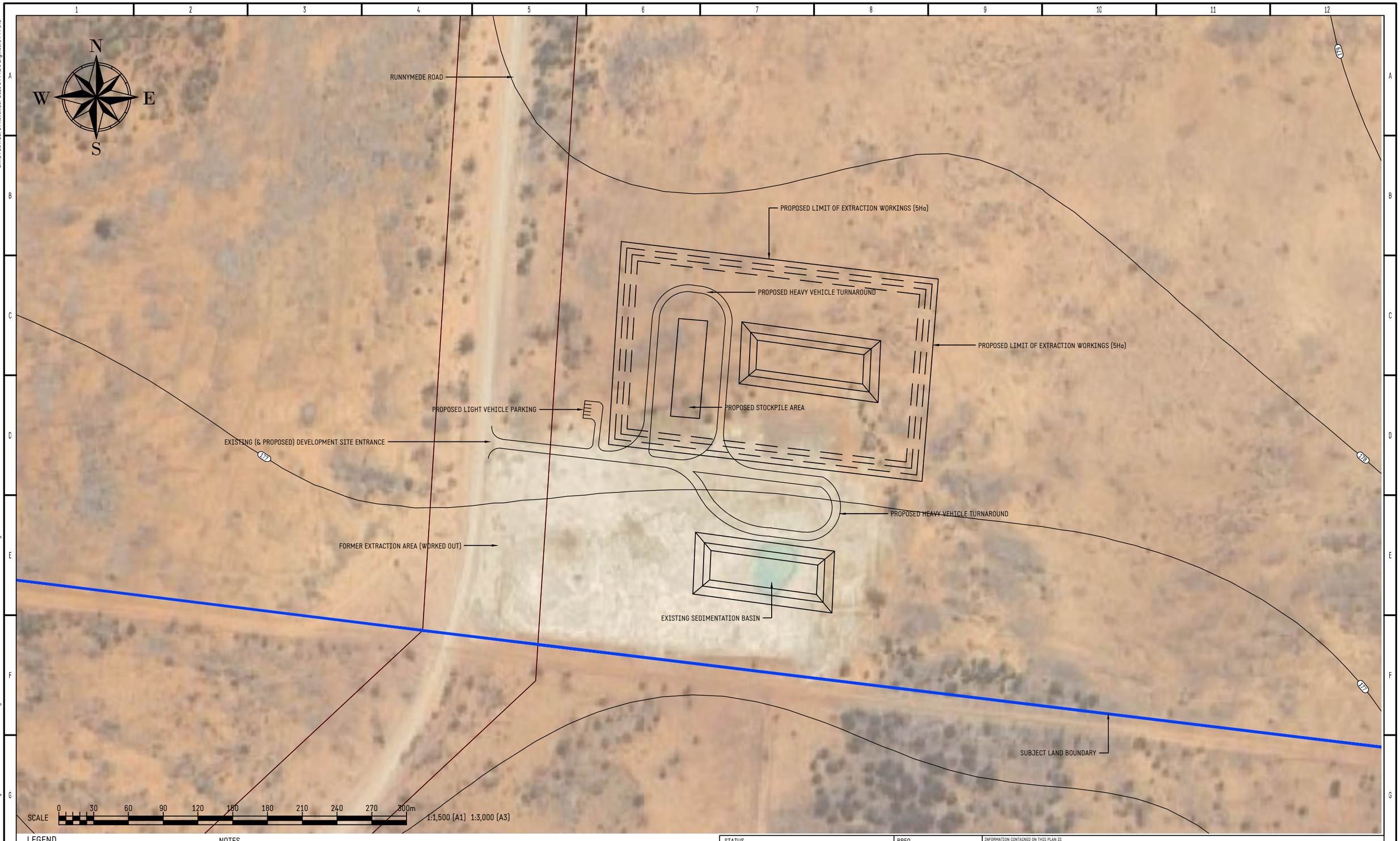
The proposed development site is on the eastern side of Runnymede Road as shown in Figure 4.

The proposed development site comprises a resource extraction area, storage and stockpile areas, light vehicle carpark and access road.

The proposed operations will comprise excavation of materials, stockpiling and loading of gravel onto road-trains. The material will be extracted using conventional rip and stack techniques and no blasting is required.

Annual extraction volumes are expected to fluctuate throughout the life of the project according to contract requirements. However, it is forecast that up to 100 000 tonnes of gravel could be extracted from the proposed extraction area workings areas per annum when fully developed based on historical demand for gravel in the region. The output rates will fluctuate throughout the year according to demand. Anticipated extraction rates are approximately 300 tonne per hour.

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- EXISTING GROUND CONTOUR - MAJOR (5.0m)
- EXISTING GROUND CONTOUR - MINOR (1.0m)

NOTES

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PROJECT	PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE	DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE PROPOSED DEVELOPMENT - SITE LAYOUT PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 4		A3	H5-130-00-04	B

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4.2 Resource characteristics

The proposed development site comprises outcropping sandstone, mudstone, conglomerate sediments and lies within an area of the Paleocene-Oligocene sediments laid down during Tertiary times. The material comprises clayey, poorly to semi-consolidated, sublabile to quartzose sandstone, sandy claystone and laminated siltstone referred to as Arenite-Mudrock.

Rock strength varies with the degree of weathering. Characteristic features of outcropping claystone/siltstones/mudstones include distinct layers of very low soil strength, bleached, extremely weathered material.

The lithology in the proposed resource extraction area from previous excavation generally shows the following order from surface to 4 m below the surface:

- Topsoil (reddish brown clayey/sandy soil 0.1 m-0.15 m thick); and
- Highly weathered orange to white fine-grained claystone or laminated mudstone/siltstone to 4m;

The proposed development site has indicated reserves of approximately 500,000 m^3 on the subject land at a depth to 4 m. The density of the material is about 1.40 t/m^3. The proposed resource extraction area will be limited to 5 ha.

4.3 Development site

4.3.1 Access and internal roadways

4.3.1.1 Site entrance

The proposed development shall be accessed via Runnymede Road. Runnymede Road is an unsealed road and commences at Fernlee Road and travels in a southerly direction to its termination with Woolerina Road. The proposed development shall be accessed via an existing subject land entrance off Runnymede Road on the southwest corner of the subject land approximately 7.4 km south of Fernlee Road as shown on Figure 3.

The proposed site entrance shall utilise the existing informal access to the former gravel pit at this location. The site entrance is on a slight rise and the existing drainage from the subject land and road network remain the same as pre-development.

The informal access shall be upgraded to form a dedicated entrance for the proposed development.

The proposed development site vehicle access provides safe and functional operation for motorists to and from the proposed development without compromising the efficiency, function, convenience of use or capacity of the local- or state-controlled road system.

Any directional or advisory signage shall be fully contained within the subject land.

The proposed site entrance shall be designed to provide an efficient, functional and safe access to the proposed development site for the type of traffic generated by the proposed development. The vehicle access shall be designed in accordance with relevant Balonne Shire Council standards for the design vehicle which will be a Type 1 Road train configuration. The entrance shall be constructed and maintained to an industrial standard in accordance with relevant Balonne Shire Council standards.

The proposed site entrance on Runnymede Road is on a straight section of road to the north and south. Whilst, the haulage routes will predominantly be to the north of the proposed site entrance towards Fernlee Road there is good visibility for vehicles entering and exiting the subject land in both directions as shown in Photograph 9 and Photograph 10.



Photograph 9 – Subject land – Runnymede Road entrance visibility – Looking north



Photograph 10 – Subject land – Runnymede Road entrance visibility – Looking south

4.3.1.2 Access road

An internal access road shall be constructed from the subject land entrance to the resource extraction area as shown in Figure 4. The alignment shall be entirely within the subject land.

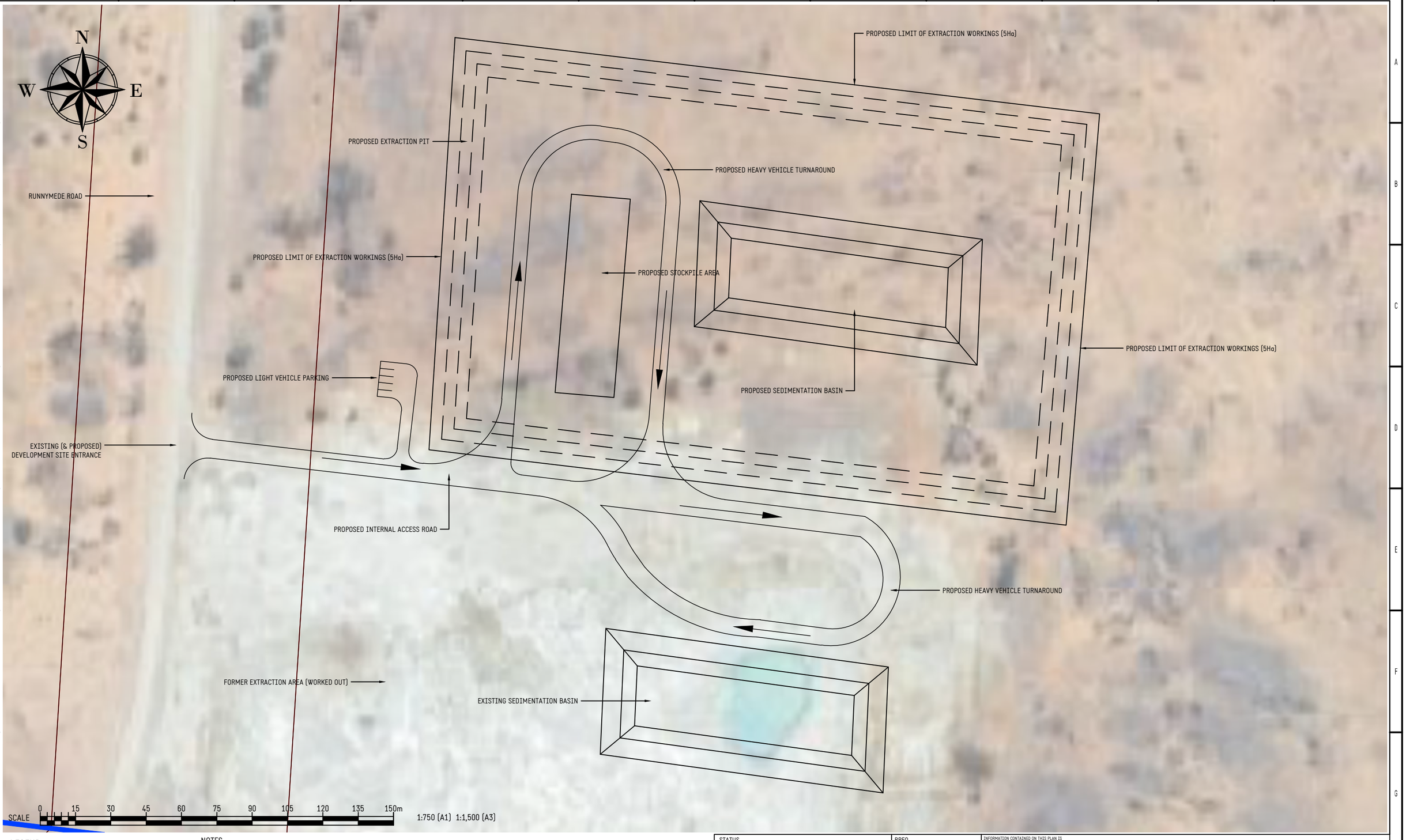
The internal access road shall be constructed using material extracted from the resource extraction area and be a well-formed unsealed gravel road of sufficient width and construction to accommodate the type and number of vehicle movements anticipated for the development.

4.3.1.3 Laydown areas and vehicle parking

Sufficient on-site car parking shall be provided commensurate with the scale and use. Due to the nature of the development and rural character of the site, the provision of a formal car parking area is unnecessary. However, any gravel hardstand areas used as car parking areas shall be designed in accordance with relevant Australian Standards (e.g. Standards Australia, 2890.1-2004) where relevant.

Sufficient on-site manoeuvring area shall be provided to enable all vehicles to enter and exit the site in the forward direction. The proposed layout of internal roads is shown on Figure 5.

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LEGEND

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- LAND PARCEL BOUNDARY

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B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:1,500 (A3)
DRAWN	RJD
DATE	14/11/2025
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DATE	14/11/2025
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DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
PROPOSED DEVELOPMENT - INTERNAL ROADS AND VEHICLE MANOEUVRING

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 5		A3	H5-130-00-05	B

FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg

4.3.2 Fencing

The proposed development site shall not be fenced for security or for exclusion of animals due to the low grazing density and remoteness of the site.

4.3.3 Resource extraction area

The proposed development lies on a relatively flat area with an elevation of about 178 m AHD. Extraction will commence adjacent to the northern side of the exhausted gravel pit and progress to the north with maximum extraction area limited to 5 ha. The proposed extraction area and other activities area is shown in Figure 6.

The resource extraction area shall be worked in layers extending below the existing ground surface forming a void entirely below ground. The workings shall be limited to an area of 5 ha as shown in Figure 6.

The sides of the resource extraction area excavation will be battered at a slope no greater than 1V:3H to ensure slope stability.

4.3.4 Extraction sequence

The proposed development will operate using conventional extraction processes largely guided by the relevant best practice extraction techniques.

4.3.4.1 Vegetation clearing

Clearing of vegetation (predominately groundcover and shrubs) on the resource extraction area is required in order to access the resource material. Surface vegetation is cleared by bulldozer and stockpiled for placement over sections of the extraction area to be rehabilitated.

4.3.4.2 Overburden stripping and placement

Where available, topsoil will be pre-stripped in the course of extraction operations by CAT D9T bulldozer and stockpiled. Topsoil may be sold as a saleable product or retained on-site and spread over areas of the proposed development site to be rehabilitated. The depth of topsoil is very shallow and varies from 0.1 m to 0.15 m across the proposed extraction area.

Any highly weathered rock below the topsoil and above the target material is classified as overburden and shall be stripped placed within the overburden emplacement area. Overburden may be sold offsite as a saleable product or used in progressive rehabilitation around exhausted resource extraction areas.

The overburden may also be used to create a bund around the perimeter of the resource extraction area to clearly define the area for trucks entering the area and to divert upstream stormwater runoff around the area.

4.3.4.3 Method of extraction

Extraction of the weathered material shall be undertaken using conventional ripping, load and haul methods.

No blasting of material is required due to its highly weathered nature of the material.

The weathered gravel strata will be ripped by CAT 9T bulldozer and the loose material will be pushed and stacked into stockpiles.

The proposed development would be staged in response to demand. It is therefore difficult to predict exactly how the extraction would progress. In general, the extraction is proposed to initially progress from east to west down into the ridge. The method of extraction would leave a final void up to 5-6 m deep descending from the existing ground level to the floor of the resource extraction area.

4.3.4.4 Extraction rate

It is difficult to accurately estimate the annual extraction rate of materials from the proposed development as the production rate would be designed to meet demand from local and regional markets.

From what is known, it may be necessary for the proposed development to extract and loadout up to 100,000 tonnes per annum, however this rate of extraction would represent a maximum and unlikely to be maintained for a lengthy period. It is more likely that the annual extraction rate would be around 20,000 to 30,000 tonnes per annum based on project demand.

Based upon an estimated maximum daily extraction and haulage rate of materials from the proposed development site in the order of 1,500 tonnes per day some 66 working days per year would be required to extract the maximum 100,000 tonnes.

4.3.5 Types of machinery

Table 3 The following items of plant and equipment are necessary for the operation of the proposed development

Table 3 – Proposed development – Typical machinery

Type	Number	Use	Description
Dozer (CAT D9T)	1	Site establishment	Clearing of vegetation and stripping of topsoil and overburden
Dozer (CAT D9T)	1	25%	Ripping, pushing and stacking material into stockpiles
Front-end loader (CAT 988H)	1	75% per day	Stockpiling and loading material onto the haul trucks which comprise side tipper trailers in Type 1 road-train configuration for transport to the project site
Haul trucks	Numerous	Varies depending on turn-around time from quarry to delivery location over each day	Delivery of materials to the project site
Grader (CAT140G)	1	10%	Internal and external road maintenance as required
Water cart (15,000L)	1	50%	To water haul roads and excavation
Water pump	1	50%	To dewater excavation/sedimentation basin

4.3.6 Processing operations

4.3.6.1 Crushing and screening

Due to the nature of the material, crushing and screening of the material is required and shall be undertaken on a campaign basis.

4.3.7 Imported materials

Due to the type of the raw material extracted with crushing and screening required, no additional material will be required to be imported on the proposed development site for blending to satisfy product specifications for projects.

4.3.8 Pugmilling

Pugmilling shall not be undertaken on the site. There is no requirement for blending materials with moisture to provide a homogenous material at optimum moisture content.

Material shall be exported offsite at the in-situ moisture content.

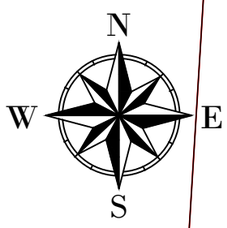
4.4 Rehabilitation

Topsoil and overburden will be stockpiled for use in the rehabilitation process.

This material will be spread over the stripped area to be rehabilitated in a progressive and logical manner that minimises erosion and encourages the regeneration of vegetation.

The final void shall be retained as a stock and domestic dam.

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PROPOSED LIMIT OF EXTRACTION WORKINGS (5Ha)

PROPOSED HEAVY VEHICLE TURNAROUND

PROPOSED EXTRACTION PIT

PROPOSED STOCKPILE AREA

PROPOSED INPIT SEDIMENTATION BASIN

PROPOSED LIMIT OF EXTRACTION WORKINGS (5Ha)

RUNNYMEDE ROAD

PROPOSED LIGHT VEHICLE PARKING AREA

INTERNAL ACCESS ROAD

FORMER GRAVEL PIT EXISTING SEDIMENTATION BASIN

SCALE 0 15 30 45 60 75 90 105 120 135 150m

1:750 (A1) 1:1,500 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- EXISTING GROUND CONTOUR - MAJOR (5.0m)
- EXISTING GROUND CONTOUR - MINOR (1.0m)

NOTES

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CLIENT RA & AJ BROWN

PROJECT PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT

TITLE DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
PROPOSED DEVELOPMENT - RESOURCE EXTRACTION AREA

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 6		A3	H5-130-00-06	B

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4.5 Water supply, storage and usage

A potable water supply will not be required as permanent staff amenities such as a lunchroom, office, ablutions are not proposed to be established.

Staff shall be expected to provide their own potable water.

All water required for the port-a-loo will be transported to the proposed development site from external water sources.

Water will also be required for dust suppression and stockpile control. Stormwater runoff from within the resource extraction area shall be directed to a sedimentation basin where it will be held for possible on-site use as dust suppression for roads and stockpiles.

External stormwater runoff from the stockpile, laydown areas will be directed away from the resource extracted areas via diversion banks as shown on Figure 3.

4.6 Sewage

As the proposed development is in a rural area any sewage generated cannot be connected to a reticulated sewerage system.

Sanitation shall be by way of portable toilet (port-a-loo) type system which is self-contained and does not require connection to sewer or on-site disposal.

If the port-a-loo is fitted with a water tank, the water tank shall require refilling with water and hygiene chemicals as-required.

4.7 Hours of operation

The proposed development operation hours will be 12 hours per day, 7 days a week, unless otherwise directed working from 6.00 am to 6.00 pm.

Operations will cease when activities and/or conditions are considered detrimental to the environment or risk causing environmental harm, such as during either wet or dry and windy weather conditions.

4.8 Site infrastructure

No structure or dwelling of a permanent or temporary nature such as site office, ablutions, weighbridge, laboratory, washdown bay, workshop for example is planned to be erected on the site to service the proposed development.

No administrative or general maintenance activities shall be undertaken at the proposed development site. Machinery repairs as a result of breakdowns shall be made by mobile service technicians as required.

Sanitation shall be by way of portable toilet (port-a-loo) type system which is self-contained and does not require connection to sewer or on-site disposal as outlined in section 4.6.

4.9 Stormwater, erosion and sediment management

Stormwater, erosion and sediment controls shall be implemented to minimise the amount of contaminated stormwater runoff generated by the site; to control on-site erosion and minimise sediment build up and prevent contaminated stormwater from leaving the site .

Best practice for erosion and sediment control measures will be implemented in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines (International Erosion and Sediment Control (IECA) (Australasia) 2008).

Upslope stormwater shall be diverted around disturbed areas and stockpiles (topsoil, overburden, material) using diversion banks, contours, and swale drains as appropriate. The diversion banks and drains shall follow the natural drainage paths on-site and be diverted to existing stormwater retention dams.

Stormwater runoff from within the resource extraction area will be channelled into a sub-catchment sedimentation basin within the void. Any water contained in the sedimentation basin will be used as a supply for the dust suppression.

Stormwater runoff from within the disturbed areas outside of the resource extraction area will be channelled into an existing sub-catchment stormwater dam as shown on Figure 6. A proportion of the water contained in the stormwater dam will be used as a supply for dust suppression.

Vegetative filters will be used where possible (overland filtration through vegetated swale drains).

Section 6.5.3 and 6.5.4 deals with the potential impact of the development on land and water resources respectively and the management strategies that will be adopted to minimise environmental impacts.

4.10 Traffic and transport

Traffic generated by the proposed development consists of heavy vehicles bringing plant and equipment (bulldozers, loader etc) to the site at the commencement and completion of each campaign, haulage vehicles transporting material from the site and light vehicles transporting operational workforce to and from the site on each day of a campaign.

Materials are transported in accordance with Heavy Vehicle National Law (HVNL).

4.10.1 Haulage routes

There are two heavy vehicle haulage routes to the proposed development. These are:

- Route A - from the north via the Balonne Highway to the proposed development via Fernlee Road and Runnymede Road. Route A is used by heavy vehicles transporting plant and equipment into and from the proposed development at the start and end of each campaign and material haulage out to project sites and light vehicles used by staff. Route A is a state-controlled road (Balonne Highway) and local controlled road (Fernlee Road; Runnymede Road). The Balonne Highway is approved for B-double and Type 1 road train use (RT1 route) from St George to Cunnamulla. Fernlee road and Runnymede Road are within an approved Type 1 road train area. Route A is the principal haulage route and is accessible in all-weather conditions. Consequently, separate approval through the National Heavy Vehicle Regulator (NHVR) is not required. During periods of wet weather, there is no requirement for construction materials as construction activities would cease in the region.

- Route B - from the south via Fernlee Road to the proposed development via Runnymede Road. Route B is used by heavy vehicles transporting material out to project sites. Route B is a local controlled road network (Fernlee Road; Runnymede Road). Fernlee Road and Runnymede Road are within an approved Type 1 road train area. Route B is accessible in all-weather conditions. Consequently, separate approval through the National Heavy Vehicle Regulator (NHVR) is not required. During periods of wet weather, there is no requirement for construction materials as construction activities would cease in the region.

The haulage routes are shown on Figure 7. Each route is a well-maintained local controlled road and state-controlled road.

The proposed development is accessed via Runnymede Road. Runnymede Road is a local controlled road that intersects with Fernlee Road some 7.4km north of the proposed development entrance.

4.10.2 Traffic generation

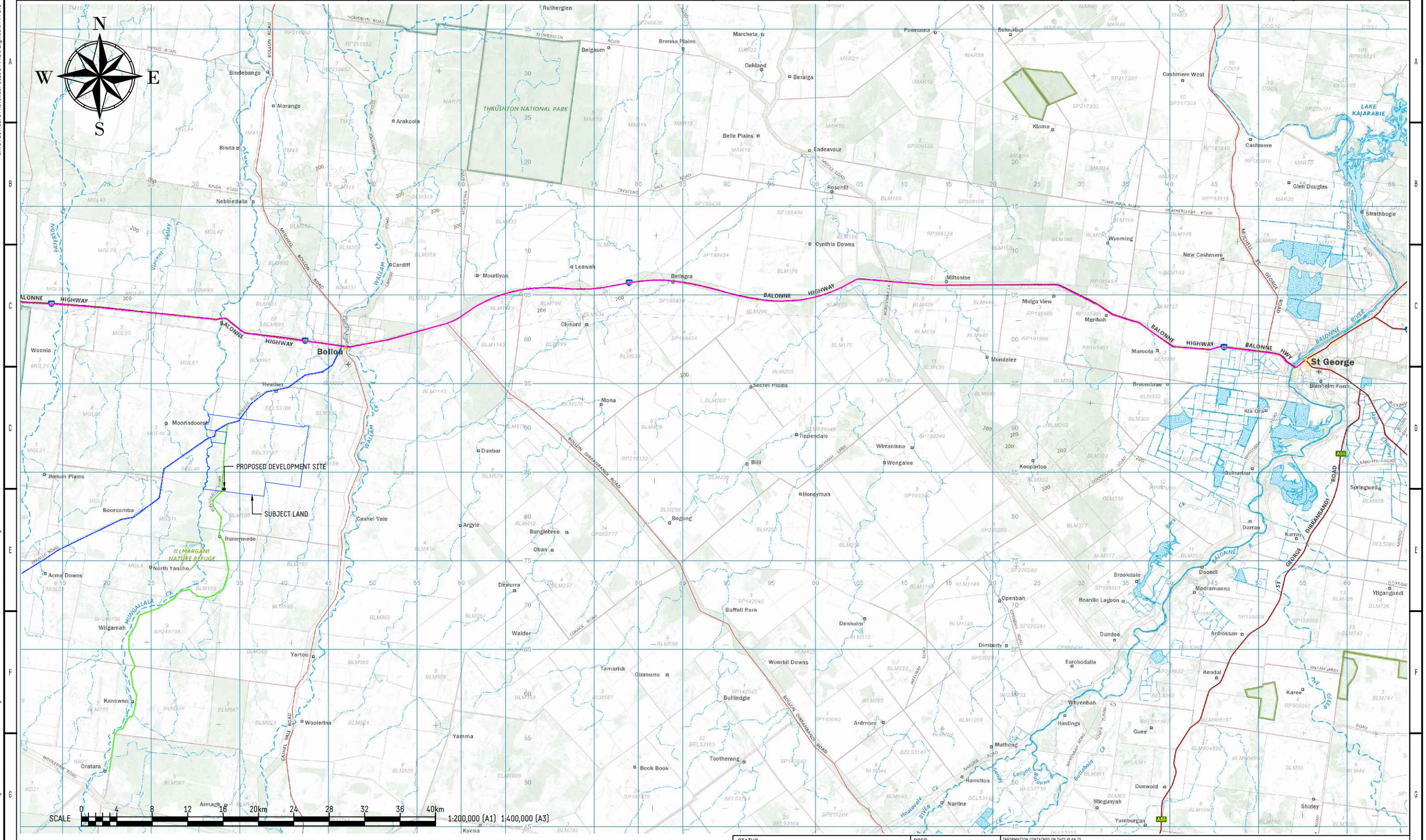
The proposed development shall generate on average about 11.4 heavy vehicle movements per day or about 80 heavy vehicles movement per week and 6 light vehicle movements per day when operating at the maximum production level of 100,000 tonnes per year.

As the removal of materials shall be on a project demand basis the number of heavy vehicles and frequency shall be concentrated in short periods (campaigns) where a particular project is being carried out, and gravel is required rather than on a regular continuous basis. The maximum daily haulage volume is anticipated to be about 1,500 tonnes. Assuming Type 1 road trains with a capacity of 48t this equates to about 63 heavy vehicle movements per day or about 6 movements per hour over a 10 hour period.

Operations and transport of materials will be carried out strictly within the allowable operating hours and days.

A traffic and pavement impact assessment has been prepared by RDC Engineers Pty Ltd and is presented in Appendix L.

DATE PLOTTED: 14 November 2025 BY: RDC Engineers PTY LTD



LEGEND

- SUBJECT LAND BOUNDARY
- HAULAGE ROUTE A (LOCAL CONTROLLED ROAD)
- HAULAGE ROUTE B (LOCAL CONTROLLED ROAD)
- HAULAGE ROUTE C (STATE CONTROLLED ROAD)

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PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
PROPOSED DEVELOPMENT - HAULAGE ROUTES

REPORT REFERENCE: FIGURE 7
SUPPLIED DRAWING NUMBER:
A3
DRAWING NUMBER: H5-130-00-07
REV.: B

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4.11 Lighting

The proposed development activities shall be restricted to daylight hours, and no lighting is required or proposed.

4.12 Workforce requirements

The workforce for the proposed development includes operational, maintenance and administrative personnel. It is anticipated that personnel will be sourced from within the local community as required.

Maintenance personnel shall be based in Bollon or St George and will generally work remotely as required.

The operational workforce will comprise approximately two full-time employees at the proposed development site during material campaigns.

As the proposed development is a family run business, administrative personnel shall reside in the "Heather" homestead located on an adjoining land parcel.

The operational workforce shall reside off the subject land in the "Heather" homestead and cottage located on an adjoining land parcel. There is no on-site accommodation permanent or temporary to accommodate the operational workforce on the subject land.

4.13 Timing and staging

Upon approval of the development, mobilisation and preliminaries will commence. Mobilisation includes the delivery of infrastructure and mobile equipment and involves the preparation and groundwork leading up to operations.

The site setup for operations includes vegetation clearing, internal road establishment to enable equipment to be transported to site for placement and operational use. Fencing and marker posts will be installed as required.

The boundaries of the resource extraction area will be marked out to ensure that no infrastructure is placed outside the maximum workings area. Extraction activities will begin as demand dictates. It is projected that the extraction area will extend as required over the life of the proposed development.

The proposed development will be staged in line with market demand and to avoid clearing the full extent of the extraction area. The proposed staging and activity are outlined in Table 4.

Table 4 – Proposed development – Staging

Stage	Impact zone	Impact area ha	Extraction Tonnage t/year	Development year
1	Entrance, access road, extraction area	1.25	25,000	After approvals
2	Extraction area	2.5	50,000	2025-2026
3	Extraction area	3.75	75,000	2026-2027
4	Extraction area	5	100,000	2028-2029

4.14 Environmentally relevant activities

The proposed development will include the following Environmentally Relevant Activity (ERA):

- ERA 16 - Extraction and Screening - 2(a) - Extracting, other than by dredging, in a year, the following quantity of material - 5,000t to 100,000t; and
- ERA 16 - Extraction and Screening - 3(a) - Screening, in a year, the following quantity of material - 5,000t to 100,000t

No other ERA is triggered by the proposed development.

4.15 Development life

The proposed development site has an estimated resource volume in the order of 500,000 m^3 (700,000 tonnes at 1.40 t/m^3) on the subject land. If extraction was carried out at a rate of 100,000 tonnes per annum over the entire resource area, the site would have an extractive life of about 7 years at maximum extraction rate per year.

The life of the proposed development and the annual extraction rate shall be dependent upon the following:

- The timing and frequency of market demand;
- The quantity of materials needed to satisfy market demand, and the timeframe within which those materials are needed; and
- The impact of that quantity as it relates to the total quantity of materials available from the resource extraction area and obtaining necessary approvals to access additional resource area if required.

4.16 Waste management

Production of waste on the proposed development may come from a variety of sources such as spills and leaks, vegetation from site clearing, scrap metal, timber, pallets, drums, cans, plastic, paper and cardboard.

Waste management in Queensland is governed by the EP Act, and subordinate Environmental Protection Policies and Regulations, including the Environmental Protection (Waste Management) Policy 2000 (EPP (Waste)) and the Environmental Protection (Waste Management) Regulation 2000 (Waste Regulation). Together with the Environmental Protection Regulation 2008 (EP Regulation), these provide the legal and strategic framework for managing waste.

The proposed development activities may generate various wastes such as:

- Regulated waste including hydrocarbon waste (oils, emulsions, oily wastewaters, oily sludge, grease, oil rags, filters and drums), detergents, solvents and batteries;
- General and putrescible waste including food waste, packaging and food containers;
- Recyclable waste including paper, cardboard, glass, aluminium cans and plastics;
- Green waste arising from vegetation clearance;
- Tyres including light vehicle tyres and mobile plant tyres;
- Scrap metal and off-cuts from tracked equipment repairs, drums and cans; and
- Solids from the portaloo.

Due to the rural nature of the site and size of the operation very low quantities of waste are expected to be generated, all waste other than green waste associated with vegetation clearing shall be removed off-site and recycled or disposed of at a facility able to accept the type of waste.

For example household putrescible organics such as food scraps (apple cores, orange peel etc) generated by the workforce shall be removed off-site at the end of each working day by the workforce. Waste from the portable port-a-loo facility shall be disposed of in accordance regulatory requirements.

4.17 Utilities

4.17.1 Electricity

The proposed development does not have any demand for electricity services.

Consequently, the proposed development does not require the extension and upgrade of electricity services from the subject land's existing overhead supply or 'off grid" power.

4.17.2 Water

The proposed development does not require large volumes of water to operate. Operational staff shall be required supply their own potable water.

Water for dust suppression shall be obtained from surface water runoff collected within the resource extraction area. The annual water requirement for dust suppression is in the order of 10 ML based on 66 days of extraction and haulage.

As outlined in section 3.2 the proposed development is not located in a reticulated water supply area. Consequently, no extensions or upgrades to the Balonne Shire Council's reticulated water supply are required.

4.17.3 Sewerage

As outlined in section 3.3 the proposed development is not located in a reticulated sewerage area. Consequently, no extensions or upgrades to the Balonne Shire Council's reticulated sewerage system are required.

4.17.4 Telecommunications

No extensions or upgrades to existing communications services are required.

The proposed development site has adequate mobile phone coverage.

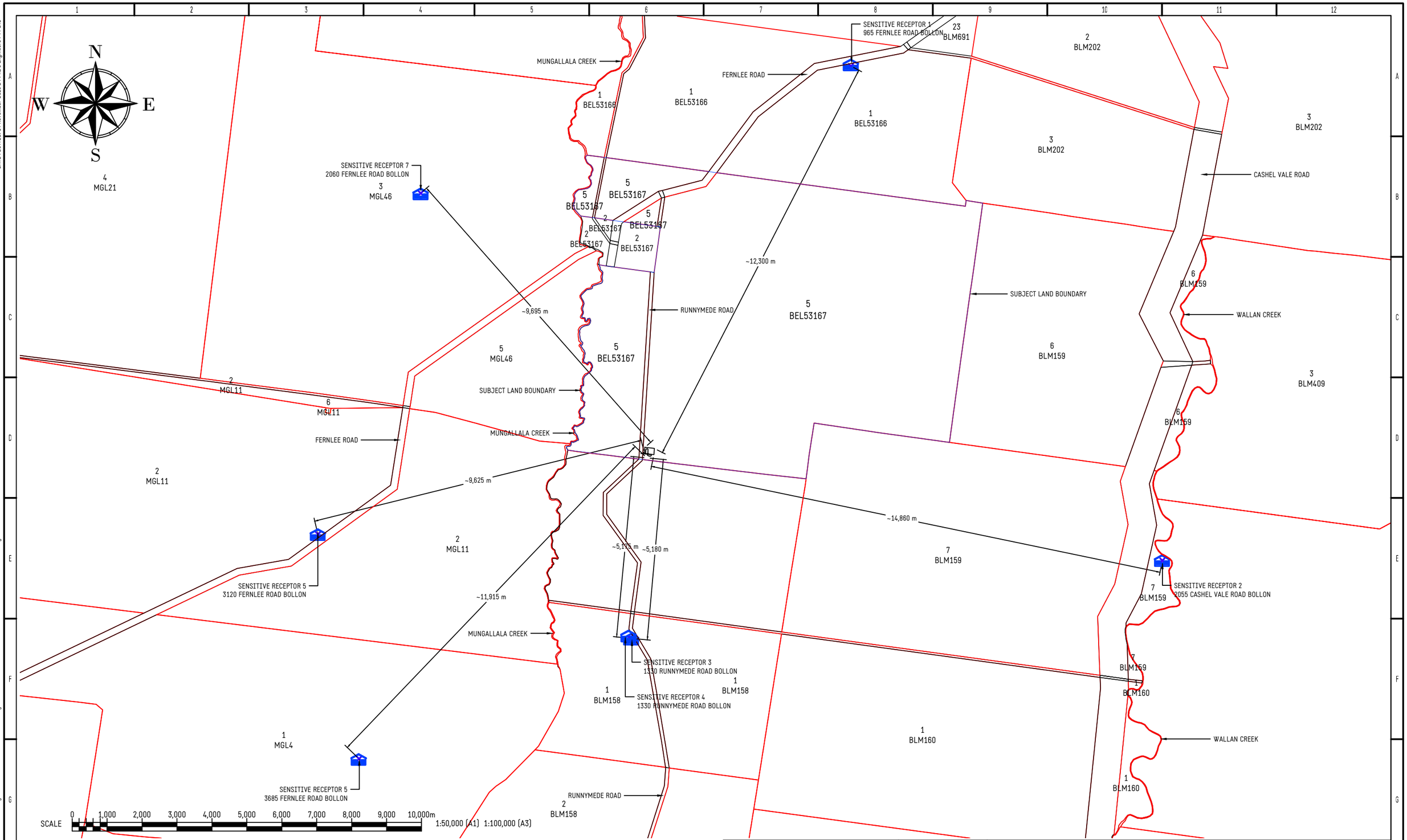
4.18 Separation distances

The proposed development has been sited and designed to prevent or minimise adverse impacts on the amenity of the surrounding community.

Table 5 outlines the separation distances available from the proposed development complex and the nearest sensitive receptors. An assessment of potential impacts to amenity has been undertaken and is presented in section 6.

Table 5 – Proposed development – Separation distances to sensitive receivers

Sensitive receivers	Separation distance m
Town zone	>20,000
Rural residence	>4,000
Domestic bore	>1,000
Category A or B environmentally sensitive area	>50
Watercourse	>1,000
Property boundary	>25
Public areas (roads etc)	>50



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- SINGLE RURAL DWELLING

NOTES

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:100,000 (A3)
DRAWN	RJD
DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
PROPOSED DEVELOPMENT
SENSITIVE RECEPTORS SEPARATION DISTANCE PLAN

REPORT REFERENCE: FIGURE 8
SUPPLIED DRAWING NUMBER:
A3
DRAWING NUMBER: H5-130-00-08
REV.: B

DATE PLOTTED: 14 November 2025 BY : RDC Engineers PTY LTD
FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg
FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT

4.19 Landscaping

The proposed development has been sited and designed to be consistent with and respect the rural character of the area. The locality is characterised by large expanses of grazing and mulga land, framed by remnant vegetation woodland and very sparsely populated with low-rise, very-low intensity dwellings and rural buildings. Dwellings tend to be surrounded by vegetation for cooling of the local environment and ambience.

The proposed development shall retain native vegetation in and around the proposed development site as far as practical for visual softening of the resource extraction area.

The proposed development is unsighted from the Balonne Highway and Fernlee Road due to vegetation, distance and topography. The proposed development can be sighted from Runnymede Road immediately west of the proposed development site due to its proximity and lack of roadside vegetation. However, landscaping is not proposed to be established along the perimeter of the site adjoining Runnymede Road to screen operational areas due to the remoteness of the site and the existence of the former gravel pit which already visually scars the site when compared to surrounding undisturbed areas.

An assessment of potential impacts to amenity has been undertaken and is presented in section 6.

4.20 Hazardous materials

Industry codes of practice, best management practices (BMP) and regulations apply to the storage, use and disposal of hazardous materials.

There shall be limited quantities of hazardous materials stored and used on-site during operation. To minimise the risk of environmental harm from liquid spills and leaks, all hazardous materials required to be stored on-site shall have a spill containment system appropriate for the nature and pollution risk of that liquid in accordance with relevant guidelines and Australian Standards. Liquids that may be stored during the operation of the development is limited to diesel fuel.

All spill containment systems shall be routinely inspected to ensure their technical integrity meets the intended requirements. A routine inspection and maintenance program shall be tailored to suit the specific installation.

The proposed development requires limited quantities of hazardous materials during operation. Diesel fuel is the primary hazardous material required on-site. All of this fuel is used in mobile equipment for extraction, stockpiling and loading of materials.

Diesel will be stored in mobile trailers as shown in Photograph 11 and utility mounted fuel tanks.



Photograph 11 – Example trailer mounted diesel tank (3000L)

There is no requirement to permanently store diesel on-site due to the project driven nature of the extraction activities. All diesel storage shall be mobile and be refuelled off-site. There is no requirement to refuel mobile diesel storage tanks on site.

Refuelling of on-road trucks or light vehicles shall not occur on-site. As there shall be no permanent storage of diesel fuel on-site, storage is limited to quantities able to be carried on light vehicles and trailers in the order of 3,000 L.

Limited quantities (<200 L) of other hazardous materials such as oils, solvents may be stored on-vehicles if required for use at the proposed development.

4.21 Fire management

A fire is an emergency that causes the greatest concern for personnel. A fire management strategy shall be developed for fire developing from a range of sources. These include bushfires (e.g. planned controlled burning that escapes the original burn zone, embers from a cigarette or unattended campfire, lightning strikes, or deliberate arson), fires originating from the development such as from flammable hazardous material storage and machinery use, is present etc.

The risk of fire is offset by strategies that reduce fire risk. Suitable access and adequate infrastructure to support suppression of fire is provided by way of adequate water supply (overland flow dams), fire breaks and portable extinguishers.

An earthen fire break shall be maintained around the proposed development outside of the resource extraction area that will also provide access for fire-fighting vehicles.

The water supply storages (earthen sump) shall be used as fire-fighting water in the event of fire.

4.22 Environmental management and monitoring

In accordance with the requirements under Chapter 7 of the EP Act 1994, RA & AJ Brown commit to taking all reasonable and practicable measures to prevent or minimise environmental harm (the general environmental duty environmental) when carrying out the proposed development.

RA & AJ Brown shall ensure that an ERA is obtained and maintained through the life of operations of the proposed development.

Due to the proposed scale of activities, RA & AJ Brown have developed a draft site based environmental management plan (SBEMP) for the operation of the proposed development. A copy of the SBEMP shall be retained on-site so it is readily accessible to personnel.

The SBEMP provides details of the procedures to be implemented to minimise the risk of environmental harm arising from the proposed development.

The SBEMP includes a detailed description of the subject land, including its land and water resources, an assessment of the potential environmental risks associated with the proposed development and the relevant procedures, schedules, plans and responsibilities for:

- Operating, maintaining and managing the proposed development;
- Monitoring, recording and reporting of operations and their impact on the environment; and
- Implementing corrective measures and actions in the event of operational problems and emergencies.

A copy of the SBEMP is provided in Appendix K.

5 Existing environment

5.1 Climate

5.1.1 Rainfall and Temperature

The closest open Bureau of Meteorology (BoM) meteorological station to the subject land is the Heather Station (Site number: 044143 (1999-2025)) (BoM, 2025a) which is located on an adjoining land parcel some 12.5 km north northeast of the proposed development site. This station records rainfall only and has been in operation since 1999.

The closest open Bureau of Meteorology (BoM) meteorological station to the subject land which records climatic data is the Bollon Mary St (Site number: 044010 (1885-2025)) (BoM, 2025b) located some 11.5 km northeast of the subject land and about 21 km north northeast of the proposed development site. These data should be representative of the climate of the subject land. Pan evaporation is not recorded at the Bollon Mary St BoM station.

Consequently, daily time series climate data for the proposed development site was acquired from SILO (DEC, 2025). This long-term data is preferable to short term data. The Queensland Department of Energy and Climate (DEC) supplied MEDLI-format climate data to enable the long-term climate of the site to be determined. Daily data for the proposed development site was collated into monthly averages and is summarised in Table 8.

The region has a has a humid subtropical climate. Cfa in the Koeppen-Geiger climate classification and experiences typical hot and humid summers and cool to mild winters. The climate at the site is subtropical and subhumid to semi-arid.

Rainfall varies with time of year due to the latitude of the region (-28.1^0) with a highly seasonal weather pattern resulting in higher summer rainfall and lower winter rainfall.

Table 6 shows that the average annual rainfall recorded at the Heather Station St BoM station for the period 1999 to 2025 is approximately 388 mm/year with the heaviest falls usually occurring in December, January and February. The lowest rainfall totals are in April, May and August (Table 6).

Table 7 shows that the average annual rainfall recorded at the Bollon Mary St BoM station for the period 1885 to 2025 is approximately 460 mm/year with the heaviest falls usually occurring in December, January and February. The lowest rainfall totals are in April, May and August (Table 7).

Table 8 shows that the average annual rainfall interpolated by SILO for the period 1925 to 2024 is approximately 408 mm/year. The annual evaporation is approximately 2,222 mm/year. The region has nett deficit rainfall with rainfall about one quarter of the annual average evaporation.

The climatic influence on temperatures results in warm to hot summers and mild to cool winters, regularly reaching single digit temperatures. Bollon Mary St BoM station recorded a mean maximum temperature of about 35.7^0C in January and the mean minimum is about 5.3^0C recorded for July between 1907 and 2025 as shown in Table 6. Table 8 shows that the mean maximum temperature interpolated by SILO for the period 1925 to 2024 is 35.8^0C in January and a mean minimum temperature of about 4.5^0C for July.

Table 6 – Climatic data from Heather Station (1999 – 2025) (BoM, 2025a)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (1999 – 2025)													
Mean rainfall (mm)	54.6	51.9	49.0	20.5	25.8	26.1	21.0	15.7	20.6	35.4	51.6	56.2	388.0
Median rainfall (mm)	41.0	50.0	32.7	14.5	16.5	17.0	13.4	12.0	7.6	23.0	45.1	47.5	408.0
Lowest rainfall (mm)	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	146.6
Highest rainfall (mm)	188.5	145.0	230.9	70.0	134.5	132.4	79.4	65.0	101.5	136.5	157.0	238.0	671.4

Table 7 – Climatic data from Bollon Mary St (1885 – 2025) (BoM, 2025b)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (1885 – 2023)													
Mean rainfall (mm)	63.1	52.9	50.1	30.8	31.7	29.5	27.1	21.4	24.2	35.6	42.9	51.3	460.4
Median rainfall (mm)	51.8	32.4	31.8	18.0	18.6	19.8	20.5	12.7	15.3	24.8	29.3	38.2	444.9
Lowest rainfall (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	121.0
Highest rainfall (mm)	312.3	267.6	482.7	239.0	178.8	132.8	185.7	133.9	144.4	155.6	242.6	222.6	1158.7
Temperature (1907 – 2025) and Humidity (1938 – 2022)													
Mean maximum temperature (deg C)	35.7	34.4	32.1	27.9	23.1	19.6	19.2	21.6	25.7	29.7	32.9	35.0	28.1
Mean minimum temperature (deg C)	21.7	21.1	18.4	13.2	8.7	5.8	4.3	5.7	9.3	13.8	17.4	20.0	13.3
Mean 9am Relative Humidity (%)	50	55	57	59	68	76	71	60	49	44	42	43	56
Wind speed (1957 – 2010)													
Mean 9am wind speed (km/h)	10.0	9.5	9.1	8.1	6.7	6.1	6.8	8.4	10.6	11.3	10.5	9.7	8.9

Table 8 – Climatic data derived from SILO (1925 – 2024) (DEC, 2025)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall													
Mean rainfall (mm)	59.2	50.6	42.3	27.3	30.1	25.1	25.2	18.7	20.3	29.8	36.1	43.9	408.6
Median rainfall (mm)	43.3	37.8	21.9	15.5	21.2	17.9	18.4	13.7	11.4	24.0	28.4	31.6	394.1
Lowest rainfall (mm)	0	0	0	0	0	0	0	0	0	0	0.2	0.1	118.9
90% years at least rainfall (mm)	6.1	1.8	0.2	0.0	0.2	1.0	0.5	0.0	0.1	0.7	1.9	5.1	242.9
10% years at least rainfall (mm)	117.5	105.9	113.3	65.0	67.7	53.7	53.7	45.1	49.1	68.5	79.5	88.3	606.2
Highest rainfall (mm)	275.5	285.3	420.4	224.9	164	133.2	159.4	139.9	106	141.9	152.2	201.7	1,054.9
Temperature, Humidity and Pan evaporation													
Mean pan evaporation (mm)	297.0	242.7	223.6	155.3	100.9	70.3	78.3	110.1	164.5	221.6	257.4	300.7	2,222.3
Mean maximum temperature (deg C)	35.8	34.9	32.3	28.0	23.1	19.7	19.0	21.6	25.8	29.7	32.7	35.2	28.2
Mean minimum temperature (deg C)	21.8	21.4	18.6	13.5	9.0	5.9	4.5	6.0	9.6	14.1	17.5	20.1	13.5
Relative Humidity (%) maxT	43.5	46.3	46.2	46.0	48.0	48.7	45.5	42.1	40.1	40.0	39.8	41.4	44.0

5.1.2 Wind speed and direction

As no meteorological data exists for the proposed development site, data was obtained from the closest meteorological record station that holds wind direction statistics to the subject land. The closest station is the Bollon Mary St (1885-2025) which is located approximately 21 km north northeast of the proposed development site. The Bollon Mary St BoM station recorded wind speed between 1957 and 2010.

The wind direction, frequency and intensity at the site are influenced by several factors including the local terrain and land use. On a relatively small scale, winds would be largely affected by the local topography. At larger scales, winds are affected by synoptic scale winds, which are modified by sea breezes near the coast in the daytime in summer (also to a certain extent in the winter) and also by a complex pattern of regional drainage flows that develop overnight. Given the distance and terrain between the Bollon Mary St BoM station and the proposed development site, these data should be representative of the proposed development site during this period.

Wind speed and direction information obtained from climate data is presented in the form of wind roses. Wind roses are a way of presenting a summary of wind speed and directional data for a particular time and location and show the frequency of occurrence of winds by direction and strength.

Figure 9 and Figure 10 shows 9 am and 3 pm wind roses for the Bollon Mary St. The prevailing wind as recorded at 9 am blows from all direction depending on the month. Each bar shown on the wind rose represents winds blowing from that direction. The length of the bar represents the frequency of occurrence of winds from that direction, and the colour and width of the bar sections correspond to wind speed categories as outlined in the legend. During the year, the 9 am observations are dominated by winds from the south and southeast and northerly direction. The prevailing wind as recorded at 3 pm observations are dominated by winds from the south westerly direction.

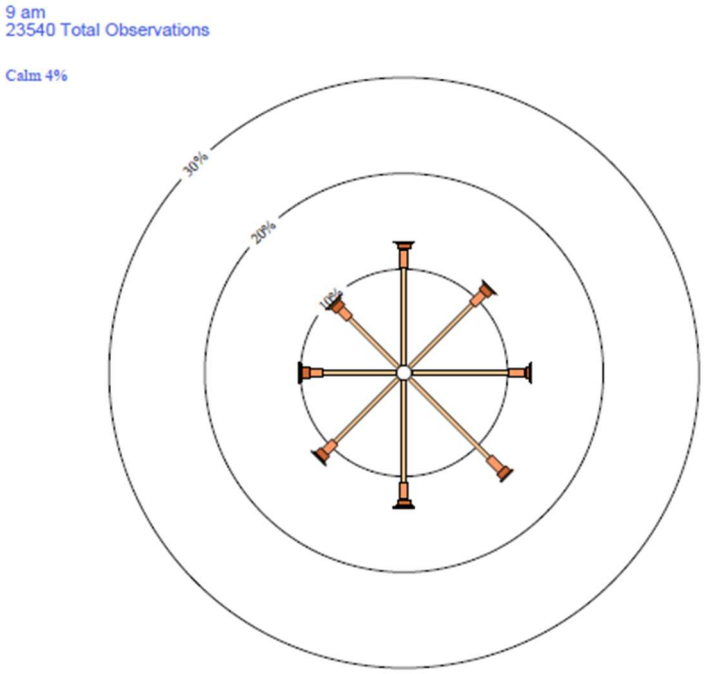


Figure 9 – Regional wind direction – Annual Windrose 9am (BoM, 2025b)

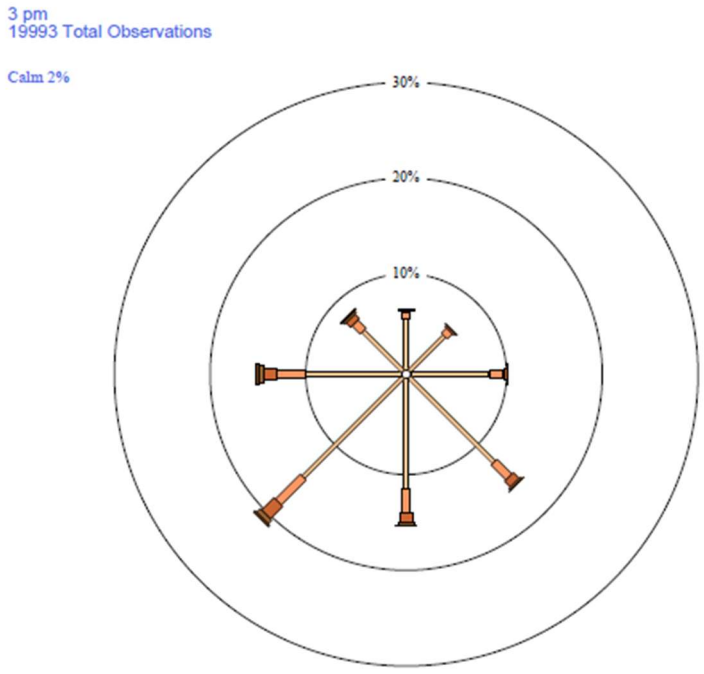


Figure 10 – Regional wind direction – Annual Windrose 3pm (BoM, 2025b)

5.1.3 Design rainfalls

Annual Exceedance Probability (AEP) and Intensity-Frequency-Duration (IFD) design rainfalls for the proposed development site were obtained from the Bureau of Meteorology (BoM, 2025c; BoM, 2025d). The rainfall total accumulated over a given duration and probability that it will be exceeded in any one year (AEP) is provided in Table 9. Rainfall depth for durations and average recurrence interval is shown in Table 10. The probability that a given rainfall total accumulated over a given duration will be exceeded in any one year when the ARI is expressed in years, is given by the relationship:

$$AEP = 1 - \exp\left(\frac{-1}{ARI}\right)$$

Consequently, a one in 20-year, 24-hour storm event (ARI) correlates to an AEP of 5%, 24-hour storm event.

Table 9 – Proposed development site – AEP design rainfalls

Duration	Annual Exceedance Probability						
	63.2%	50%	20%	10%	5%	2%	1%
5 mins	77.3	90.1	131.0	159.0	187.0	225.0	253.0
10 mins	61.3	71.5	104	126	148	178	201
15 mins	50.8	59.3	86.3	105	123	148	167
30 mins	34.2	39.9	58	70.7	83.2	100	113
1 hour	21.4	24.9	36.2	44.2	52.2	62.9	71.3
2 hours	13.0	15.0	21.7	26.5	31.3	37.8	43.0
3 hours	9.7	11.1	16.0	19.5	23.0	27.9	31.8
6 hours	5.9	6.7	9.6	11.6	13.7	16.6	19.0
12 hours	3.6	4.1	5.8	7.0	8.2	10.1	11.6
24 hours	2.2	2.5	3.5	4.3	5.0	6.2	7.1
48 hours	1.3	1.5	2.1	2.6	3.0	3.7	4.3
72 hours	0.9	1.1	1.5	1.9	2.2	2.7	3.1

*Design storm event (mm/hr)

Table 10 – Proposed development site – ARI design rainfalls

Duration	Annual Return Interval						
	1	2	5	10	20	50	100
5 mins	66.9	88.7	122	143	172	211	243
6 mins	62.2	82.6	113	134	160	197	227
10 mins	50.9	67.6	92.6	109	131	161	185
20 mins	37.5	49.8	68.3	80.4	96.3	118	136
30 mins	30.5	40.5	55.5	65.4	78.3	96.4	111
1 hour	20.3	26.9	36.9	43.5	52	64.1	73.8
2 hours	12.7	16.9	23.1	27.1	32.4	39.9	45.9
3 hours	9.5	12.6	17.2	20.2	24.1	29.6	34.1
6 hours	5.72	7.56	10.3	12.1	14.4	17.6	20.3
12 hours	3.48	4.59	6.25	7.31	8.73	10.7	12.3
24 hours	2.14	2.84	3.88	4.56	**5.44***	6.69	7.68
48 hours	1.3	1.73	2.39	2.82	3.37	4.17	4.8
72 hours	0.928	1.24	1.72	2.03	2.44	3.01	3.49

*Design storm event (mm/hr)

5.2 Landform and topography

5.2.1 Landforms

The geologic history and its climate contrasts are reflected in the landforms of the region.

The area occupies part of the Surat and Eromanga Basins which are subdivisions of the Great Artesian Basin separated by the buried Nebine Ridge. Both basins contain Mesozoic sedimentary rocks dipping gently south or west. Lithologies include quartzose and sublabile sandstones mainly exposed in the north and labile siltstone and shales which are predominantly exposed in the centre of the area. In the south labile fine-textured Mesozoic sedimentary rocks are buried by younger very extensive fluvial deposits ranging from sand to clay. The south is occupied by extensive depositional plains, the older having deep mature soils while the younger, formed by alluvia related to the present stream system, are liable to flooding in many parts.

The characteristic landscape of this formation is relatively flat extensive alluvial fan associated with the Maranoa River and smaller alluvial spreads associated with the Balonne River and Wallum Creek which all flow in a general southerly direction.

The Maranoa and Wallum Creek fans are mainly loamy with linear sandy belts and some clay plains and are almost devoid of streams.

The subject land is gently sloping from the north to the south with a topographic high in the centre south. Broad overland flow paths direct runoff eventually to unnamed tributaries of Wallum Creek and Mungallala Creek. The subject land has a relief of less than 10 m (~0.1%).

5.2.2 Topography

The subject land is located within the Bollon (8341) 1:100,000 map sheet, the Bollon (8341-3) 1:50,000 map sheet and Bollon (8341-11; 8341-13; 8341-13 and 8341-14) 1:25000 topographic map sheets. The proposed development site is located in the Bollon (8341-13) 1:25000 topographic map sheet.

The topography at a regional scale is characterised by relatively flat alluvial plains with typical slope gradients of less than 0.1 %. Typically elevations are around 180 m AHD.

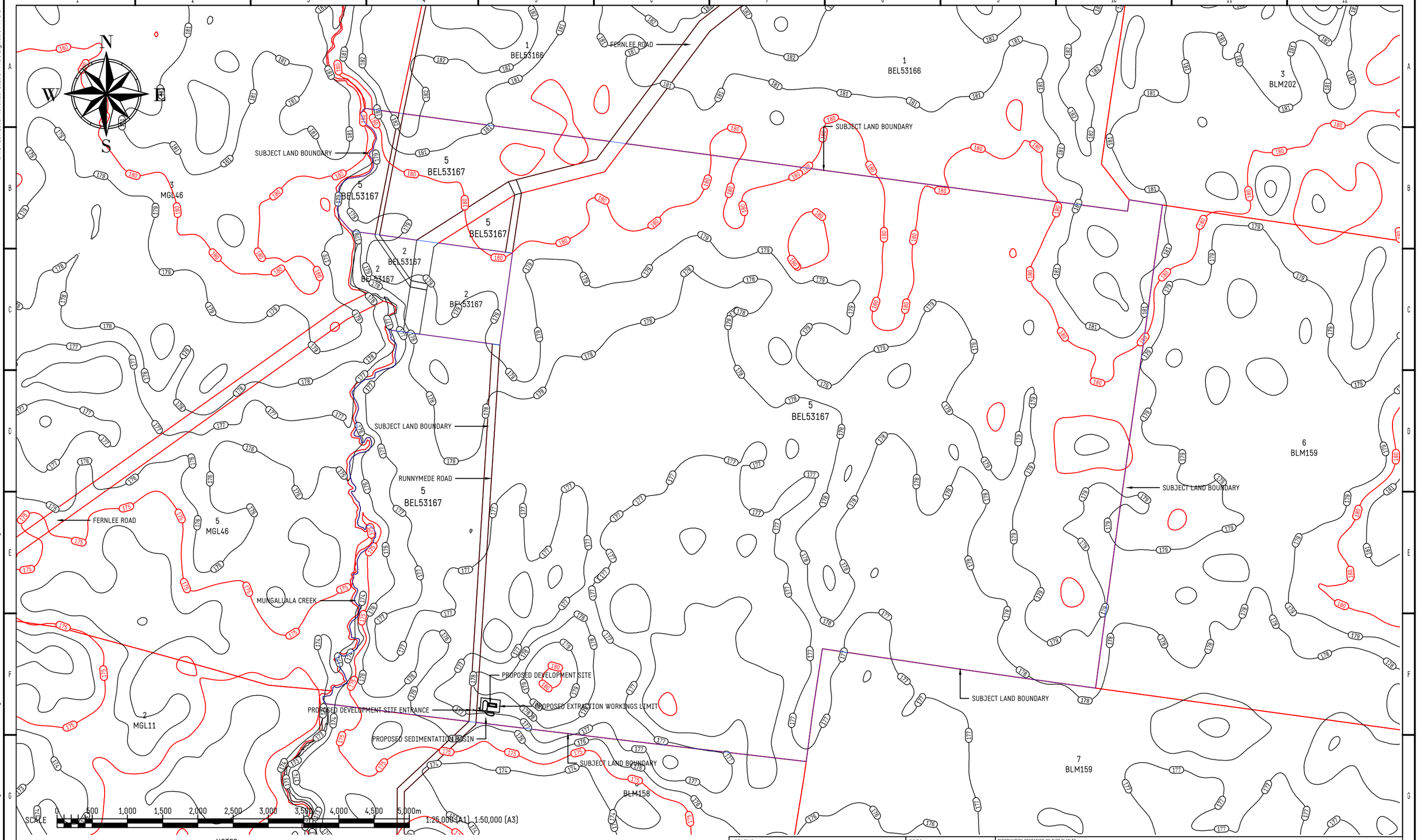
A topographic plan of the subject land was prepared from topographic data at a scale of 1:25,000 with a 1 m contour interval and is shown in Figure 11. This shows that the subject land is relatively flat gently rising from Mungallala Creek in the west and Wallum Creek in the east to an isolated topographic high in the centre south of the subject land at 180 m AHD.

The proposed development shall be located geographically in the southwest corner of the subject land on relatively flat land. Figure 11 illustrate the topography of the proposed development site and subject land respectively.

The subject land has retained its historical topography. There has been no modification to the natural landform from large scale mining or quarrying or other groundworks which may have altered its topography through the removal of soil or other materials. There is, however, an exhausted gravel pit is the southwest corner of the subject land which covers an area of about 3 ha. The former gravel pit has been worked out, and the extraction of gravel has created a void of some 4-5m deep covering an area of about 3 ha.

DATE PLOTTED: 14 November 2025 BY: - RDC Engineers PTY LTD

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- EXISTING GROUND CONTOUR - MAJOR (5.0m)
- EXISTING GROUND CONTOUR - MINOR (1.0m)

NOTES

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
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TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - TOPOGRAPHIC PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 11		A3	H5-130-00-11	B

5.3 Land resources

5.3.1 Soils

The subject land has been previously mapped to a scale of 1:250,000 as part of the Soils of the Balonne-Maranoa Area, South-Central Queensland (Galloway et al., 1974) land resource assessment. This assessment identifies and describes the land resource areas (LRA) of the Balonne-Maranoa Area and collates available information on the agriculturally important soils.

Galloway et al. (1974) land resource assessment mapping was used to gain a general understanding of the soils of the subject land. Table 11 provides a description of the landform, major soils, typical vegetation and land use associated with each land resource area identified on the subject land.

There are four (4) land units mapped within the subject land as shown in Table 11 and Figure 12. The proposed development site is located within Land System 23.

Land Unit 23 is dominated by shallow to moderately deep gravelly massive earths and skeletal soils. Extensive areas of these soils are underlain by stones and gravels of silcrete or "billy" and they occur below the levels of weathered zone outcrops indicating development in redistributed materials. The proposed development site comprises clayey, commonly poorly to semi-consolidated, sublabile to quartzose sandstone, sandy claystone, laminated siltstone, and local conglomerate commonly referred to as Arenite -Mudrock. The existing soil strata is shown in Photograph 12 and Photograph 13.

Table 11 – Subject land – Land resource area overlay (Galloway et al. (1974)

Land system	Landform	Description of major soils	Vegetation	Land use
23 – Indurated weathered sediments	Crests and upper slopes	Gravelly massive earths and skeletal soils: shallow to moderately deep, containing 10-50% fine to coarse gravel (5-50 mm diam.), generally medium acid, Ea (Gn2.11), Eg (Gn2.11, 2.12), and Gb (Uml.43); severely eroded in some occurrences.	Woodland of Eucalyptus melanophloia or E. populnea with lower tree layer, often dense, of Acacia aneura moderate shrub layer of Eremophila mitchellii, ground cover usually very sparse, Neurachne mitchelliana, N. xerophila, Aristida jerichoensis.	Pasture land - native pastures, light grazing
26 – Moderately resistant weathered fine-grained sediments; colluvium.	Lower and middle slopes	Deep massive earths: mainly loamy red earths with varying contents of fine gravel, Ea (Gn2.12); minor occurrences of other soils—alkaline red earths, Ec (Gn2.13), loamy yellow earths, Ee (Gn2.42, 2.24), loamy red earths, Eb (Gn2.42), and shallow red earths, Eg (Gn2.12).	Woodland of Eucalyptus populnea; shrub layer often Eremophila mitchellii, or with Geijera parviflora and Acacia excelsa; ground cover sparse to moderately dense, varying in composition, Bothriochloa decipiens, Aristida jerichoensis, Chloris acicularis, and Bassia birchii most common.	Pasture land - native pastures
30 – Moderately resistant weathered fine-grained sediments	Undulating with some rolling; slopes 1-5%.	Deep texture-contrast soils: thin sandy or loamy surface horizons over strongly alkaline to acid subsoils; mainly Da (Dr2.23, 2.13) and Dc (Dy3.22, Dbl.31); minor Db (Dy 2.23); intergrading with columnar-structured soils, De (Dr2.42), in some occurrences	Woodland of Eucalyptus populnea, occasionally of E. melanophloia or E. drepanophylla, with lower tree layer, moderately dense of Callitris columellaris; shrub layer of Eremophila mitchellii and Geijera parviflora; ground cover very sparse, mainly Aristida spp. with Bothriochloa decipiens, Chloris acicularis, Neurachne mitchelliana, and Tripogon loliiformis	Pasture land - native pastures
31 – Moderately resistant weathered quartzose and sublabile sediments.	Undulating; slopes 2-5%.	Deep texture-contrast soils with columnar structure: thin sandy or loamy surface horizons over mainly brown or yellow subsoils with coarse columnar structure and very hard consistence, Dd (Dy3.23, 3.43, Db2.43) and De (Dbl.21, 1.42, Dy3.42); strongly alkaline to acid reaction; commonly with bleached Aa horizons above columns; minor Dc (Db 1.31, Dr2.22).	Woodland of Eucalyptus populnea or E. drepanophylla; moderate shrub layer of Eremophila mitchellii or occasionally Acacia ixiophylla or A. conferta or Dodonaea attenuata; ground cover varied but sparse, Aristida echinata, A. capul-medusae, A. leichhardtii and A. ramosa,	Pasture land - native pastures

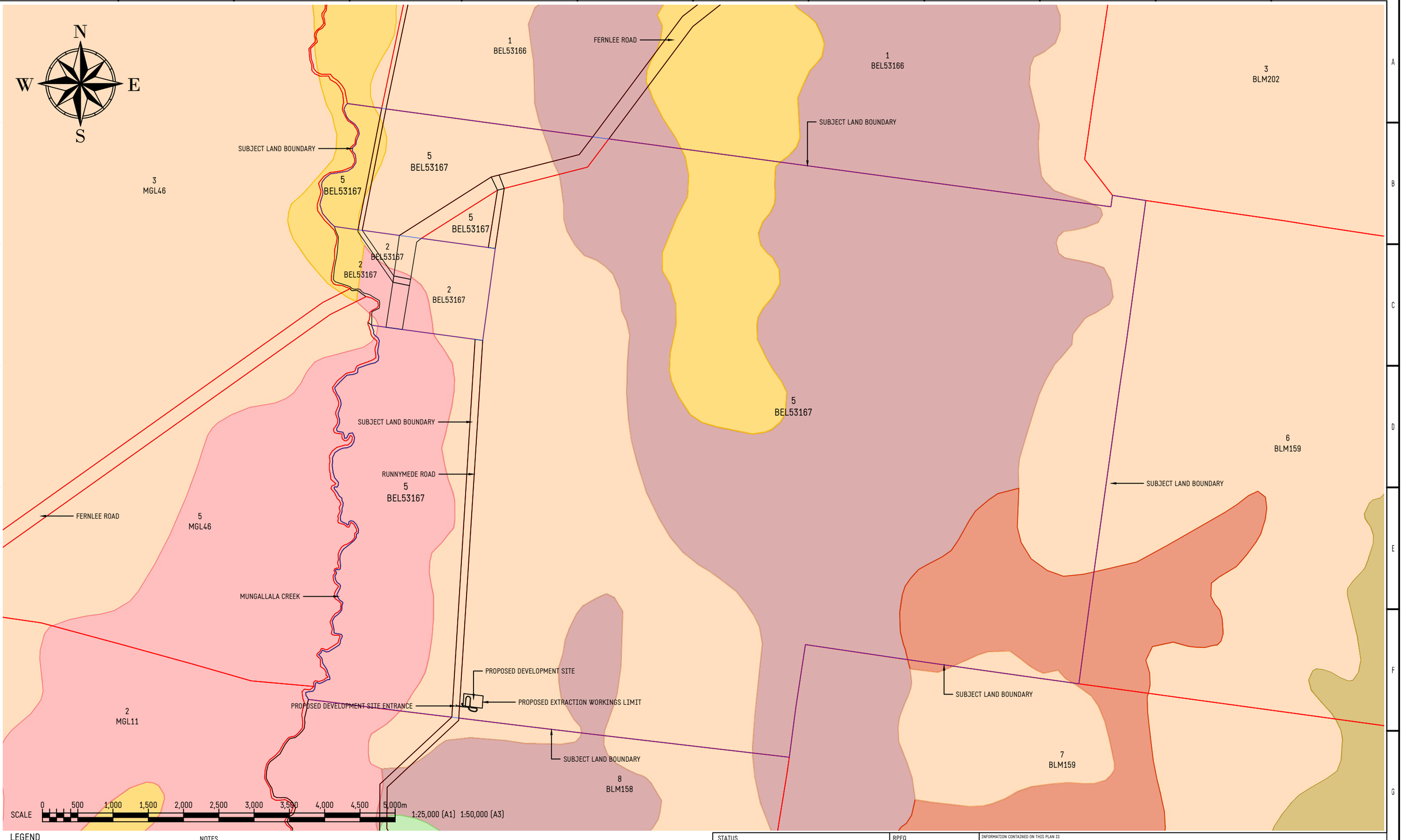


Photograph 12 – Proposed development – Resource extraction area – Characteristic topsoil



Photograph 13 – Proposed development – Resource extraction area – Characteristic subsoil

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- LAND SYSTEM UNIT - 23
- LAND SYSTEM UNIT - 26
- LAND SYSTEM UNIT - 30
- LAND SYSTEM UNIT - 31

NOTES

1. THIS IS A LAND SYSTEM OVERLAY OF THE LANDS OF THE BALONNE MARANOA AREA.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT (DNRMMRRD)) 2025 - QUEENSLAND SPATIAL CATALOGUE - LANDS OF THE BALONNE MARANOA AREA COMPILED AT A MAP SCALE OF 1:100,000 (GALLOWAY, 1974).
3. THE POSITIONAL ACCURACY OF LAND UNIT DATA MAPPED AT A SCALE OF 1:250,000 IS ±250 METRES.
4. CADASTRAL INFORMATION BASED ON THE STATE OF QUEENSLAND (DNRMMRRD) DIGITAL CADASTRAL DATABASE (DCDB) 2025, PROVIDED BY THE QUEENSLAND SPATIAL CATALOGUE AND ACCURACY IS LIMITED.

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:50,000 (A3)
DRAWN	RJD
DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN

PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT

TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - LAND RESOURCE OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 12		A3	H5-130-00-12	B

FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg

5.3.2 Good quality agricultural land

The Queensland State Planning Policy 1/92 – Development and the Conservation of Agricultural Land (SPP1/92) outline the policy principles relating to GQAL.

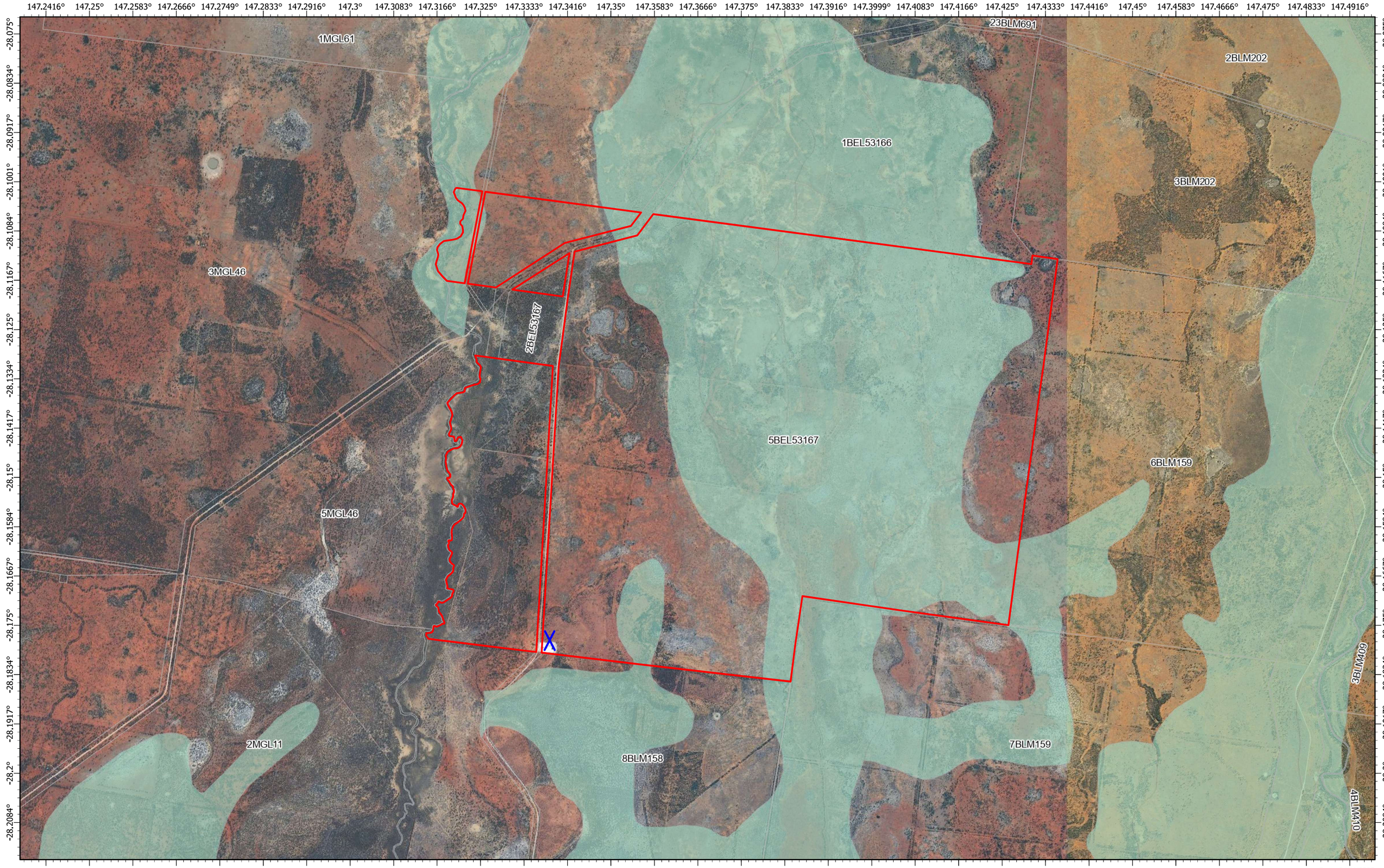
In conjunction with SPP1/92, the Planning Guidelines of the Identification of Good Quality Agricultural Land (Department of Primary Industries & Department of Housing, Local Government and Planning, 1993) defines GQAL as 'land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources'.

Department of Primary Industries & Department of Housing, Local Government and Planning (1993) define four classes of agricultural land as outlined below.

- Class A: crop land — land that is suitable for current and potential cropping with limitations to production which range from none to moderate level.
- Class B: limited crop land — land that is marginal for current and potential cropping due to severe limitations, and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered for cropping.
- Class C: pasture land — land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production, but some areas may tolerate a short period of ground disturbance for pasture establishment.
- Class D: non-agricultural land — land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values, or land that may be unsuitable because of very steep slopes, shallow soils, rocky outcrops or poor drainage.

In all local government areas, Class A land is considered GQAL with most local governments also considering Class B land as GQAL. Some local governments also include some Class C land as GQAL. This generally only occurs where pastoral land uses dominate. Class C land can be further separated into C1 – sown improved pastures and C2 – land capable of supporting only native pastures in the long term.

The Agricultural Land Classification overlay of the subject land was obtained from the DSDIP State Planning Policy (SPP) Interactive Mapping System (IMS) and provided in Figure 13. Figure 13 shows that Agricultural Land Classification Class A and Class B is mapped over about 70% of the subject land. However, the proposed development site is not mapped as containing Class A and Class B agricultural land.



State Planning Policy IMS - Export Map

Making or amending a local planning instrument and designing land for local infrastructure

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N

Scale: 1:72,300

0 10 20 30
Metres

Cadastre (100k)

Agricultural land classification - class A and B

X – PROPOSED DEVELOPMENT SITE

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FIGURE 13

5.3.3 Strategic cropping land

In 2014, the *Strategic Cropping Land Act 201*1 (SCL Act) was repealed by the Regional *Planning Interests Act 2014* (RPI Act).

The RPI Act identifies and protects areas of regional interest and seeks to manage the impact and support coexistence of resource activities and other regulated activities in areas of regional interest.

The strategic cropping area (SCA) is an area of regional interest under the RPI Act and consists of the areas shown on the SCL Trigger Map as strategic cropping land (SCL). SCL is land that is, or is likely to be, highly suitable for cropping because of a combination of the land's soil, climate and landscape features.

A regional interests development approval (RIDA) may be required when a resource or regulated activity is proposed to be located in an area of regional interest. A resource activity is defined under Section 12 of the RPI Act.

Under the RPI Act a regulated activity is defined as an activity that is prescribed in regulation because it is likely to have a widespread and irreversible impact on an area of regional interest. Widespread means spread over or occupying a wide space. Irreversible means not able to be undone or altered.

Strategic environmental areas include Cape York Peninsula, the Gulf Country, the Channel Country, Fraser Island and Hinchinbrook Island.

The following activities are prescribed as regulated activities in a strategic environmental area under the RPI Act:

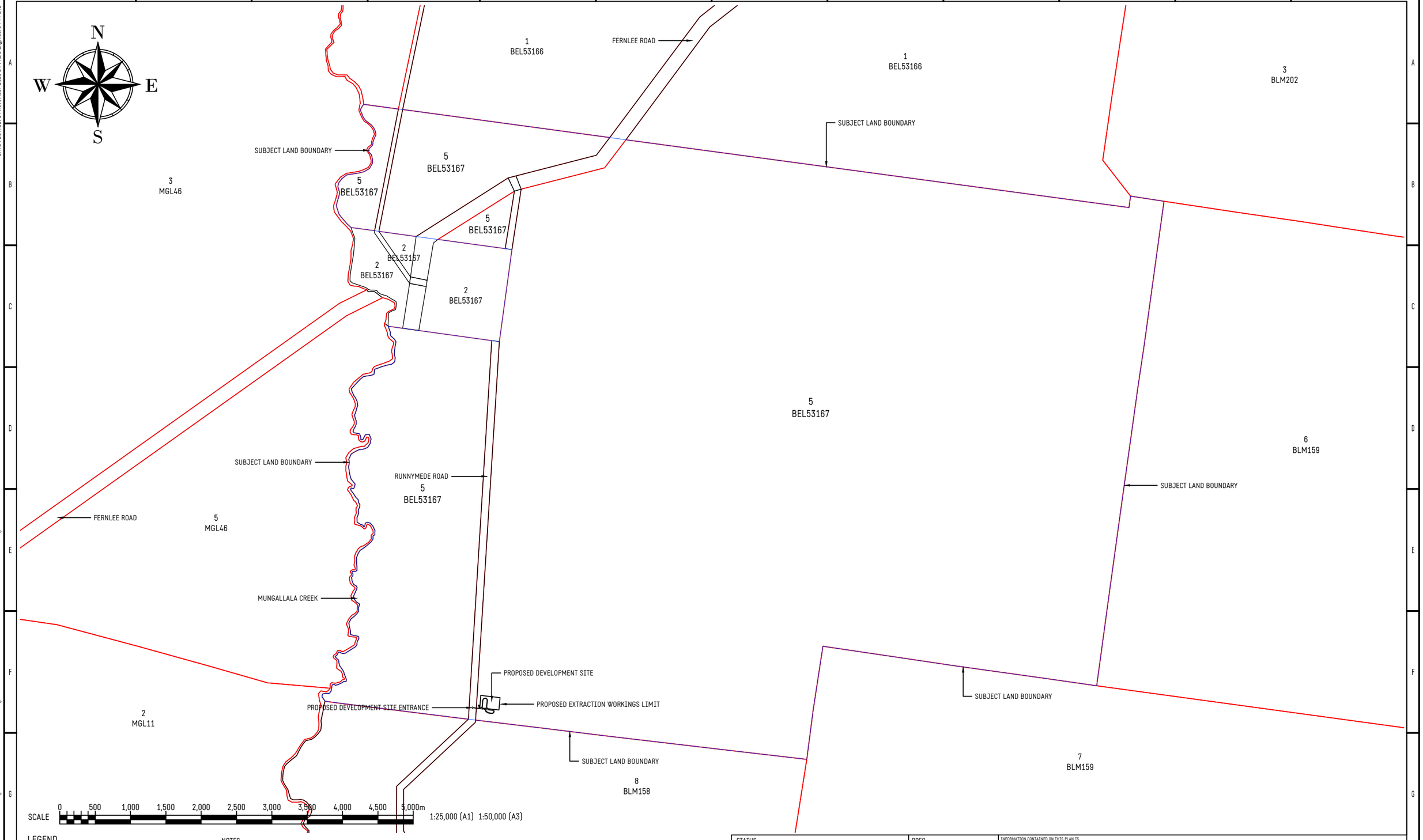
- broadacre cropping; and
- water storage (dam).

An SCL overlay of the subject land was created using digital data supplied by the Queensland Spatial Catalogue (QSpatial). SCL data was obtained as an ESRI shapefile. An overlay of cadastral, SCL and the proposed development is shown in Figure 14.

Figure 14 shows that there is no SCL mapped on the subject land.

The proposed development is not a resource activity or regulated activity within a strategic environmental area, and a regional interests development approval (RIDA) is not required.

DATE PLOTTED: 14 November 2025 BY : RDC Engineers PTY LTD FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- STRATEGIC CROPPING LAND

NOTES

1. THIS IS ELECTRONIC MAPPING DATA FOR STRATEGIC CROPPING LAND IN QUEENSLAND UNDER THE RPI ACT 2014 V3.10.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, AND REGIONAL AND RURAL DEVELOPMENT (DNRMMRRD)) 2025 - QUEENSLAND SPATIAL CATALOGUE - THIS IS THE APPROVED MAP THAT IDENTIFIES AREAS OF STRATEGIC CROPPING LAND (SCL) AND IS USED TO DEFINE THE STRATEGIC CROPPING AREA, ONE OF THE FOUR AREAS OF REGIONAL INTEREST UNDER THE REGIONAL PLANNING INTEREST ACT 2014.
3. THE POSITIONAL ACCURACY OF STRATEGIC CROPPING LAND DATA MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.
4. CADASTRAL INFORMATION BASED ON THE STATE OF QUEENSLAND (DNRMMRRD) DIGITAL CADASTRAL DATABASE (DCDB) 2025, PROVIDED BY THE QUEENSLAND SPATIAL CATALOGUE AND ACCURACY IS LIMITED.

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
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SCALE	1:50,000 (A3)
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DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - STRATEGIC CROPPING LAND OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 14		A3	H5-130-00-14	B

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5.3.4 Potential acid sulphate soils

Soils and sediments containing iron sulphides, most commonly pyrite, are called acid sulphate soils (ASS). ASS which have not been oxidised by exposure to air are known as potential acid sulfate soils (PASS). When exposed to air due to drainage or disturbance, these soils produce sulphuric acid, often releasing toxic quantities of iron, aluminium and heavy metals.

PASS commonly occur on coastal wetlands as layers of Holocene marine muds and sands deposited in protected low-energy environments such as barrier estuaries and coastal lakes. In similar environments, they are still being formed.

PASS are formed when seawater or sulphate-rich water mixes with land sediments containing iron oxides and organic matter in a waterlogged situation, in the absence of oxygen.

When PASS are exposed to air (that is, no longer in a waterlogged anaerobic state), the iron sulphides in the soil react with oxygen and water to produce a variety of iron compounds and sulphuric acid. These compounds may contaminate land and adjacent waterways. Following significant rainfall, such contamination may cause red spot disease in fish and destroy aquatic flora and fauna, including highly visible fish kills (Ahern et al. 1998).

PASS occur predominantly on coastal lowlands with elevations generally below 5 m Australian Height Datum (AHD). No detailed PASS mapping for the subject land has been conducted. Ahern et al (1998) recommend areas below 5 m AHD be investigated for PASS prior to commencement of any drainage or excavation works.

Figure 1 and Figure 11 shows that the subject land is not located on coastal lowlands and shown to be at an elevation of about 180 m, well above 5 m AHD respectively.

Hence, the area on which the proposed development is to be located is unlikely to contain PASS.

Whilst the land is above 5 m AHD, as the proposed development involves works excavating and filling of soil, any PASS leachate, can potentially have significant adverse effects on surrounding natural environments. Hence, the State Planning Policy 2/02 Guideline: Acid Sulfate Soils (Version 2) will be used as a source of general advice on the level of investigation, level of treatment and management of ASS should PASS be disturbed.

The proposed development will avoid disturbing PASS or will be managed to avoid or minimise the release of acid and metal contaminants. PASS that have been disturbed will be treated and managed to prevent acid generation and neutralise existing acidity.

5.3.5 Contaminated land

Land contamination can occur as a result of poor environmental management and waste disposal practices or accidental spills in industrial, agricultural or mining activities. In some

cases, land was contaminated in the past by activities now known to be hazardous. Often these cases involve chemicals which have since been banned or are now subject to stricter controls.

In Queensland, the Department of the Environment, Tourism, Science and Innovation (DETSI) administers the *Environmental Protection Act 1994* (EP Act). The EP Act's emphasis is on managing Queensland's environment within the principles of ecologically sustainable development. Chapter 7, Part 8 of the EP Act deals with managing contaminated land. Managing potentially contaminating activities and known contaminated sites in Queensland helps prevent environmental and health risks.

The Environmental Management Register (EMR) and the Contaminated Land Register (CLR) are public registers which contain information about contaminated land in Queensland. The EMR also contains information of land which is, or could potentially be, contaminated because it is being used for an activity which may cause contamination.

A search of the DETSI Environmental Management Register and the Contaminated Land Register was undertaken on the subject land. The subject land is not included on either the Environmental Management Register or the Contaminated Land Register. A copy of the search response for the subject land parcel is included in Appendix B.

5.3.6 Unexploded ordnance

Unexploded Ordnance (UXO) is explosive ordnance such as artillery shells, mortars or grenades that did not explode when used.

Most UXO is found on land formerly used by Australian and Allied Defence Forces for the live firing of explosive ordnance, particularly during World War II.

The Commonwealth's Department of Defence has categorised areas of land as having a 'substantial' potential to be affected by residual unexploded ordnance. DES has developed a database about land that is potentially affected by UXO.

An overlay of areas with substantial potential for UXO relating to the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 15. The subject land does not contain any areas with substantial potential for UXO.



Date: 04/11/2025

DA Mapping System - Export Map

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N

Scale: 1:72,300

0 10 20 30

Metres

Cadastre (100k)

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FIGURE 15

5.4 Water resources

5.4.1 Regulatory framework

The *Water Act 2000* (Water Act) and Water Reform and Other Legislation Amendment Act 2014 (WROLA Act) provide the water planning framework for the allocation and sustainable management of water in Queensland. The Department of Local Government, Water and Volunteers (DLGWV) administer the *Water Act 2000* and Water Reform and Other Legislation Amendment Act 2014.

There are several major drainage basins (catchments) in Queensland. Within most of these catchments, the water planning process is managed with instruments under subordinate legislation to the Water Act and WROLA Act.

The quality of natural waters in Queensland (e.g. water in rivers, creeks, wetlands, lakes, estuaries and coastal areas and ground waters) is protected under the Environmental Protection (Water) Policy 2009 (EPP (Water)). The EPP (Water) achieves the object of the Environmental Protection Act 1994 (EP Act) to protect Queensland's waters while supporting ecologically sustainable development. Queensland waters include water in rivers, streams, wetlands, lakes, aquifers, estuaries and coastal areas.

5.4.2 Catchment areas

Currently, there are 24 catchment water plan areas in Queensland which cover the major drainage basins including the Great Artesian Basin. The subject land is located within the Balonne-Condamine drainage basin.

5.4.3 Groundwater areas

Underground water areas have been established to protect underground water through the *Water Regulation 2016* or a water plan and include groundwater management areas and subartesian management areas.

5.4.4 Groundwater

The take of underground water is managed differently across Queensland depending on the location and the purpose for which it is taken.

The subject land is not within an underground water management area under the Water Plan (Warrego, Paroo, Bulloo and Neebine) 2016. The Great Artesian Basin (GAB) underlies the subject land. The allocation and sustainable management of water from the GAB is managed separately under the Water Plan (Great Artesian Basin and Other Regional Aquifers) 2017 and the Water Management Protocol for the Great Artesian Basin and Other Regional Aquifers 2017.

To gain an understanding of the depth and quantity of underground water in the area a search of the DLGW&V groundwater database was undertaken. There are no registered groundwater bores on the subject land recorded on the DLGW&V groundwater database. The closest registered groundwater bores to the subject land recorded on the DLGW&V groundwater database are located over 3.8 km to the north northeast on adjoining land. The closest registered groundwater bores to the proposed development site recorded on the DLGW&V groundwater database are located over 9 km to the west and east on neighbouring land respectively.

Data on the location, casing details, strata logs, aquifer details, water levels (by date) and water analysis (lab and field) for the closest registered water bores to the proposed development site were obtained and are presented in Appendix C. These bores are RN167 (North Yanco Trust) and RN49758 and are both controlled flow artesian bores drilled in 1929 and 2006 respectively.

These bores are drilled to a depth of up to 850 m below ground and tap the Hooray Sandstone aquifer.

Examination of the strata log details for the sub-artesian bores show that they range in depth from about 731 m up to 850 m with a standing water level of 86 m and 42 m respectively. Both bores tap the Hooray Sandstone. The strata is typically 600 m of clay, shale, sandrock and weathered sandstone over some 150 m of sandstone.

The shallowest recognised aquifer present beneath the subject land is the Hooray Sandstone but there are currently no registered bores that tap this aquifer on the subject land for the taking of groundwater. The Hooray Sandstone is a highly productive, predominantly sandstone aquifer within the region which provides a water supply to many stock and domestic bores and numerous agricultural business and town water supplies. The taking of groundwater and management of the Hooray Sandstone and other GAB aquifers is managed by the Queensland Government through the Water Act, 2000, and specifically the Water Plan (GAB and Other Regional Aquifers (GABORA)), 2017.

As outlined in section 3.2, the taking of underground water is authorised for “Stock and Domestic” purposes only under the Water Act 2000. As outlined in section 4.5, the proposed development does not require a supply of water for general extraction and stacking operations other than for dust suppression of roads, stockpiles when dry and windy conditions require mitigation of dust emissions.

Due to the depth of weathered and unweathered sandstone and clay strata above the aquifer, it is unlikely that the proposed development shall have adverse impacts to the quality of groundwater resources in the area or intersect the aquifer and require pit dewatering. Further, as the proposed development shall not utilise groundwater, it is unlikely that the proposed development shall have adverse impacts to the quantity of groundwater resources in the area.

5.4.5 Surface water

As outlined in section 5.2, the subject land is in the Balonne-Condamine drainage basin, part of the Queensland Murray Darling Basin. Water planning in the Balonne-Condamine drainage basin Wallam Creek sub area is managed under the Water Plan (Warrego, Paroo, Bulloo and Neebine) 2016.

The surface drainage systems in the Warrego, Paroo, Bulloo and Neebine catchments are characterised by Wallam Creek, Mungallala Creek, Neebine Creek, Warrego River, Paroo River, Bulloo River and their major tributaries including the Nive River, Langlo River, Beechal Creek and Blackwater Creek. Mungallala Creek rises in the Chesterton Ranges 50 kilometres northwest of Mitchell. The Nebine and Wallam Creeks rise in an area south of a line between Mitchell and Morven. All three creek systems flow in a southerly direction, parallel to each other for some 250 to 300 km, before crossing the Queensland and New South Wales border west of the town of Hebel. They join the Culgoa River prior to entering the Darling River system upstream of Bourke.

At a local scale the subject land is in the Mungallala Creek and Wallam Creek catchments. Mungallala Creek for part of its length forms the western boundary of the subject land. The drainage of the subject land is not well defined and is characterised by relatively flat land via broad overland flows paths and drains.

The subject land has been developed for agricultural purposes, including extensive grazing of sheep, cattle and rangeland goats.

The proposed development is to be located on relatively flat land. The topography of the proposed development site has been modified by workings associated with the former gravel extraction activities.

Mungallala Creek which for part of its length forms the western boundary of the subject land is defined as a watercourse under the Water Act 2000. However, the flow is largely ephemeral within the subject land, and is restricted to flow during heavy rainfall events, which typically occur between November and February.

There are no second, third or higher order watercourses defined under the Vegetation Management Act 1999 contained within the subject land. Mungallala Creek is a first order watercourse under the Vegetation Management Act 1999 and for part of its length forms the western boundary of the subject land.

Currently, there are no water allocations which authorise the use of surface water from watercourses on the subject land.

Figure 16 is a stream order overlay of the subject land derived from DNRMMRRD vegetation management watercourse data. Figure 16 shows the watercourses mapped on the subject land. There are no drainage features or watercourses mapped on or within close proximity to the proposed development site.

The quality of Queensland waters is protected under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019. EPP (Water and Wetland Biodiversity) schedule documents have not been finalised for the Wallam Creek sub area of the Balonne-Condamine drainage basin. Consequently, the proposed design, construction and operation of the proposed development along with mitigation measures shall ensure that the EVs and WQOs for the Wallam Creek sub area of the Balonne-Condamine drainage basin are maintained or enhanced in accordance with the object of the Environmental Protection Act 1994.

5.4.5.1 Waterways for waterway barrier works

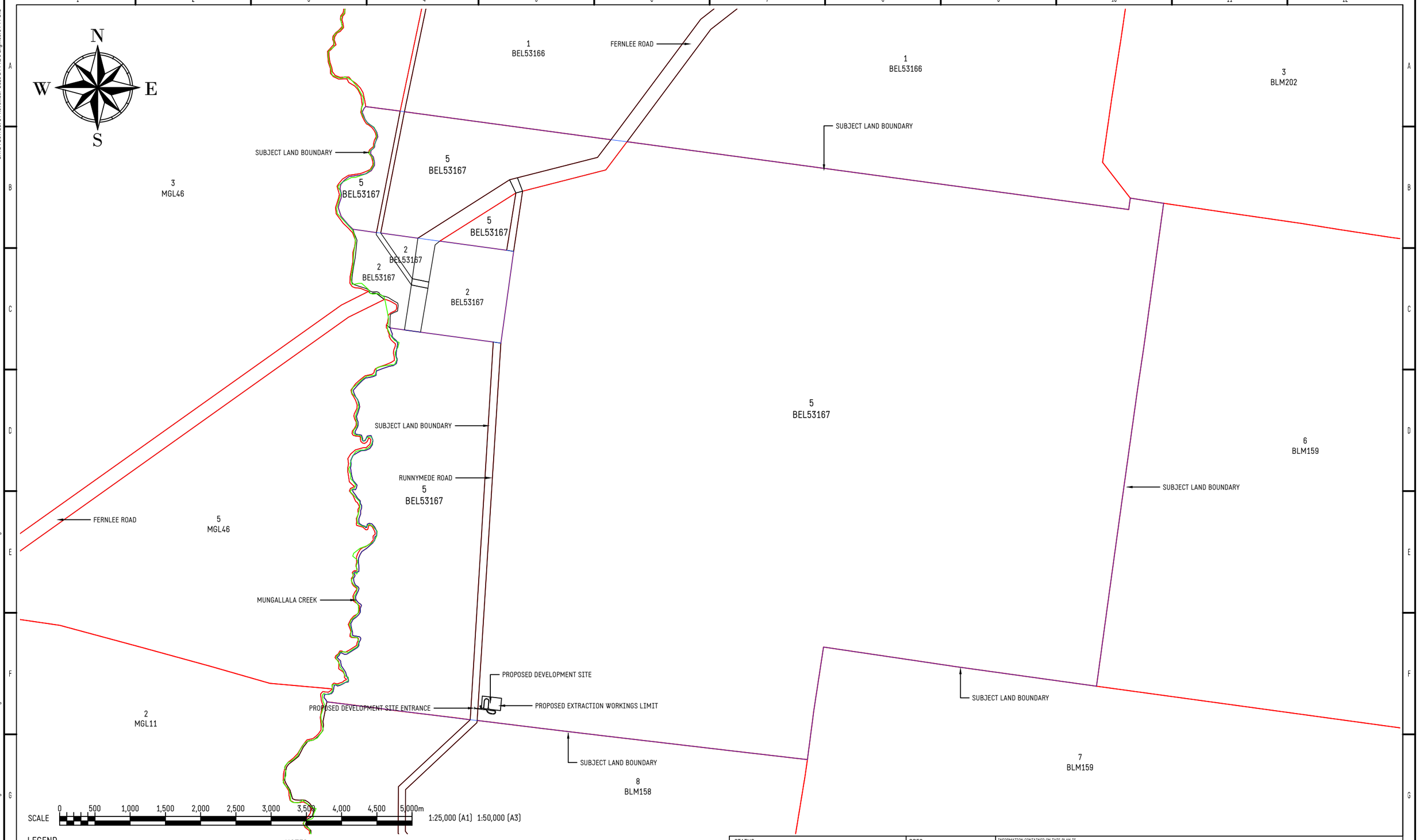
Under the Fisheries Act 1994 a waterway is defined as a river, creek, stream, watercourse, drainage line or inlet of the sea. This definition includes freshwater and tidal waters, both permanent and ephemeral waterways, and includes drainage features. Free movement along waterways and onto floodplains is an essential requirement for the survival and productivity of many species of Queensland fish.

Consequently, a Queensland waterways for waterway barrier works of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 17.

Figure 17 shows that there is one low level (green) and no moderate (amber), high (red) or major level (purple) waterways that provide for fish passage under the *Fisheries Act 1994* within or adjacent to the subject land. Mungallala Creek which for part of its length forms the southern boundary of the subject land is a low level (green) waterway under the *Fisheries Act 1994*.

As outlined in section 4 and shown on Figure 17, the proposed development site has been setback over 2,000 m from the closest mapped waterway (low level green) and shall not involve disturbance of any waterways for waterway barrier works or involve waterway barrier works and therefore a fisheries development approval from Fisheries Queensland is not required.

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- STREAM ORDER 1
- STREAM ORDER 2
- STREAM ORDER 3
- STREAM ORDER 4
- STREAM ORDER 5
- STREAM ORDER 6

NOTES

1. THIS IS A VEGETATION MANAGEMENT WATERCOURSES OVERLAY AND REPRESENTS WATERCOURSES MAPPED UNDER THE VEGETATION MANAGEMENT ACT 1999.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT) 2025 - QUEENSLAND SPATIAL CATALOGUE - VEGETATION MANAGEMENT WATERCOURSES OVERLAY.
3. VEGETATION MANAGEMENT WATERCOURSES ASSESSMENT MAPPING HAS BEEN COMPILED AT A MAP SCALE OF 1:100,000. LINEWORK SHOULD BE USED AS A GUIDE ONLY.
4. THE POSITIONAL ACCURACY OF VEGETATION MANAGEMENT WATERCOURSES MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.
5. CADASTRAL INFORMATION BASED ON THE STATE OF QUEENSLAND (DNRMMRRD) DIGITAL CADASTRAL DATABASE (DCDB) 2025, PROVIDED BY THE QUEENSLAND SPATIAL CATALOGUE AND ACCURACY IS LIMITED.

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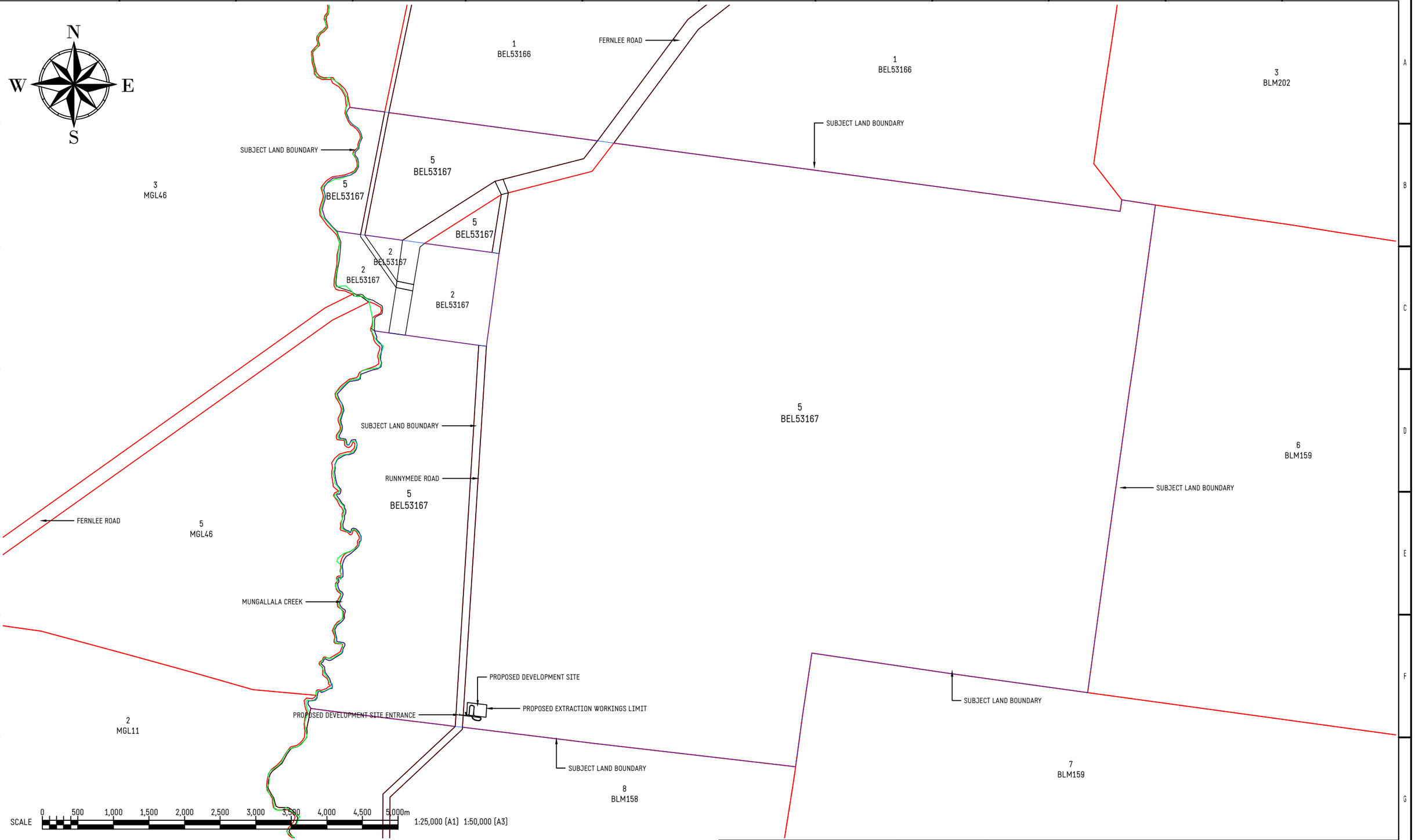
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PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - STREAM ORDER OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 16		A3	H5-130-00-16	B

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- WWWBW - LOW LEVEL - 1
- WWWBW - MODERATE LEVEL - 2
- WWWBW - HIGH LEVEL - 3
- WWWBW - EXTREME LEVEL - 4

NOTES

1. THIS IS A QUEENSLAND WATERWAYS FOR WATERWAY BARRIER WORKS OVERLAY AND REPRESENTS STREAMS MAPPED UNDER THE FISHERIES ACT 1994.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT) 2023 - QUEENSLAND SPATIAL CATALOGUE - QUEENSLAND WATERWAYS FOR WATERWAY BARRIER WORKS LAYER.
3. THIS LAYER CONTAINS CLASSIFIED LINES OF STREAMS THAT FORM THE BASIS FOR THE LEVEL OF ASSESSMENT REQUIRED FOR ANY PROPOSED WATERWAY BARRIER WORKS. ALL STREAMS FEATURES (POLYLINES) ARE CLASSIFIED IN THE "FISH_PASS" FIELD FOTHE FEATURE TABLE TO DESCRIBE THE RISK OF IMPACT. THE VALUES ARE 1: LOW, 2 :MODERATE, 3: HIGH, 4: MAJOR.
4. THE POSITIONAL ACCURACY OF POLYLINES MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.
5. CADASTRAL INFORMATION BASED ON THE STATE OF QUEENSLAND (DNRMMRRD) DIGITAL CADASTRAL DATABASE (DCDB) 2025, PROVIDED BY THE QUEENSLAND SPATIAL CATALOGUE AND ACCURACY IS LIMITED.

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TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - WATERWAYS FOR WATERWAY BARRIER WORKS

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 17		A3	H5-130-00-17	B

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5.4.6 Flooding

The Balonne Condamine drainage basin has a long history of flooding due to the climate and topography of the region. Floods originate from different sub-catchments following heavy rain when the weather becomes strongly influenced by low-pressure systems over northern Australia with troughs extending in a south-easterly direction across Queensland. Generally, floods occur between the months January to March. Due to the characteristics of the catchment, flooding may develop slowly in the lower catchment, while in the upper catchment flash floods can develop quickly, often without any visible sign of rain.

The Nebine, Mungallala and Wallam Creek catchments are located about 100 to 150 kilometres west of St George in southwestern Queensland and drain an area of approximately 36,000 km. Mungallala Creek rises in the Chesterton Ranges 50 km northwest of Mitchell. The Nebine and Wallam Creeks rise in an area south of a line between Mitchell and Morven. The small townships of Bollon and Mungallala are the only towns in the catchment.

All three creek systems flow in a southerly direction, parallel to each other for some 250 to 300 kilometres, before crossing the Queensland and New South Wales border west of the town of Hebel. They join the Culgoa River prior to entering the Darling River system upstream of Bourke.

Floods normally develop in the headwaters area of Nebine, Mungallala and Wallam Creeks. However, general heavy rainfall situations may occur throughout these vast catchments. In recent years, the catchments have seen extensive flooding particularly in May 1983, April 1990, February 1997 and in March 2010. The flood of March 2010 produced large scale traffic disruption and residential area inundation. There were also localised communities that required evacuation.

Major flooding requires a large scale rainfall situation over the Nebine, Mungallala and Wallam Creek catchments. The following can be used as a rough guide to the likelihood of flooding in the catchment :

Average catchment rainfalls in excess of 25mm, with isolated 50mm falls, in 24 hours may result in stream rises and the possibility of minor flooding and local traffic disabilities. If rainfalls have been recorded in the previous 2 to 3 days, then moderate to major flooding may develop.

Average catchment rainfalls in excess of 50mm, with isolated 75 to 100mm falls, in 24 hours may result in significant stream rises with the possibility of moderate to major flooding developing, particularly in the lower reaches of all three catchments and extending downstream to the Queensland and New South Wales border.

Potential floodplain areas within drainage sub-basins have been developed by the Queensland Floodplain Assessment Overlay (QFAO). The QFAO represents an estimate of areas potentially at threat of inundation by flooding. The data has been developed through a process of drainage sub-basin analysis utilising data sources including 10 metre contours, historical flood records, vegetation and soils mapping and satellite imagery.

A custom flood overlay of the subject land was created using digital data obtained from the Queensland Spatial Catalogue (QSpatial) Queensland floodplain assessment overlay. An overlay of cadastral, potential flood hazard area and the proposed development on the subject land was prepared and shown in Figure 18.

Figure 18 shows that the area of the subject land adjoining Mungallala Creek and the northeast and centre east of the subject land towards Wallam Creek is mapped within the Queensland Floodplain Assessment Overlay as a potential flood hazard area.

The Balonne Shire Council flood hazard overlay has adopted the QFAO mapping and is shown in Figure 19.

As the proposed development site is located on a low ridge the resource extraction area is not subject to inundation during flood events as shown in Figure 18 and Figure 19.

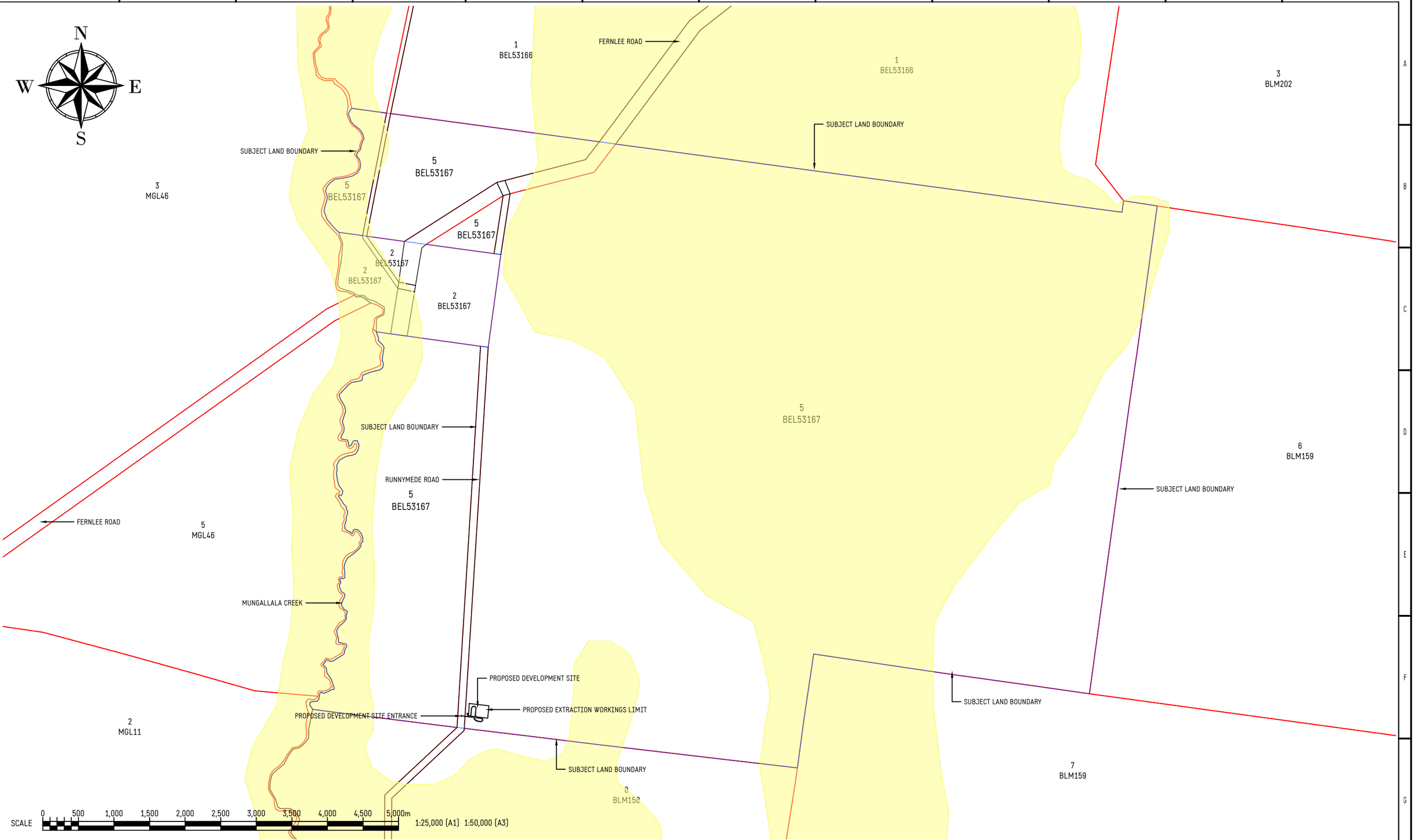
Consequently the proposed development has been sited on elevated land above the floodplain and shall not affect or be subject to inundation during flood events as shown in Figure 18 and Figure 19.

Further, the proposed development resource extraction area and associated access road have been sited and designed to:

- minimise concentration or restriction of local catchment flows; and
- avoid diversion of flow to adjoining landholders.

Consequently, the proposed development shall not increase the potential for flood damage on-site or to other property and the risk to life, property, community, economic activity and the environment during flood events remains at the same level as that exists pre-development.

DATE PLOTTED: 14 November 2025 BY: RDC Engineers PTY LTD



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- FLOODPLAIN HAZARD AREA
- STREAM ORDER 1
- STREAM ORDER 2
- STREAM ORDER 3
- STREAM ORDER 4
- STREAM ORDER 5
- STREAM ORDER 6

NOTES

1. THIS IS A FLOODPLAIN ASSESSMENT OVERLAY (QFAO) AND REPRESENTS A FLOODPLAIN AREA WITHIN DRAINAGE SUB-BASINS IN QUEENSLAND. IT REPRESENTS AN ESTIMATE OF AREAS POTENTIALLY AT THREAT OF INUNDATION BY FLOODING.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT) 2025 - QUEENSLAND SPATIAL CATALOGUE - FLOODPLAIN ASSESSMENT OVERLAY.
3. FLOODPLAIN ASSESSMENT MAPPING HAS BEEN COMPILED AT A MAP SCALE OF 1:100,000. LINEWORK SHOULD BE USED AS A GUIDE ONLY.
4. THE POSITIONAL ACCURACY OF FLOODPLAIN ASSESSMENT MAPPING DATA MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.
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TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - QUEENSLAND FLOODPLAIN ASSESSMENT OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 18		A3	H5-130-00-18	B

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BALONNE SHIRE COUNCIL
FLOOD HAZARD OVERLAY

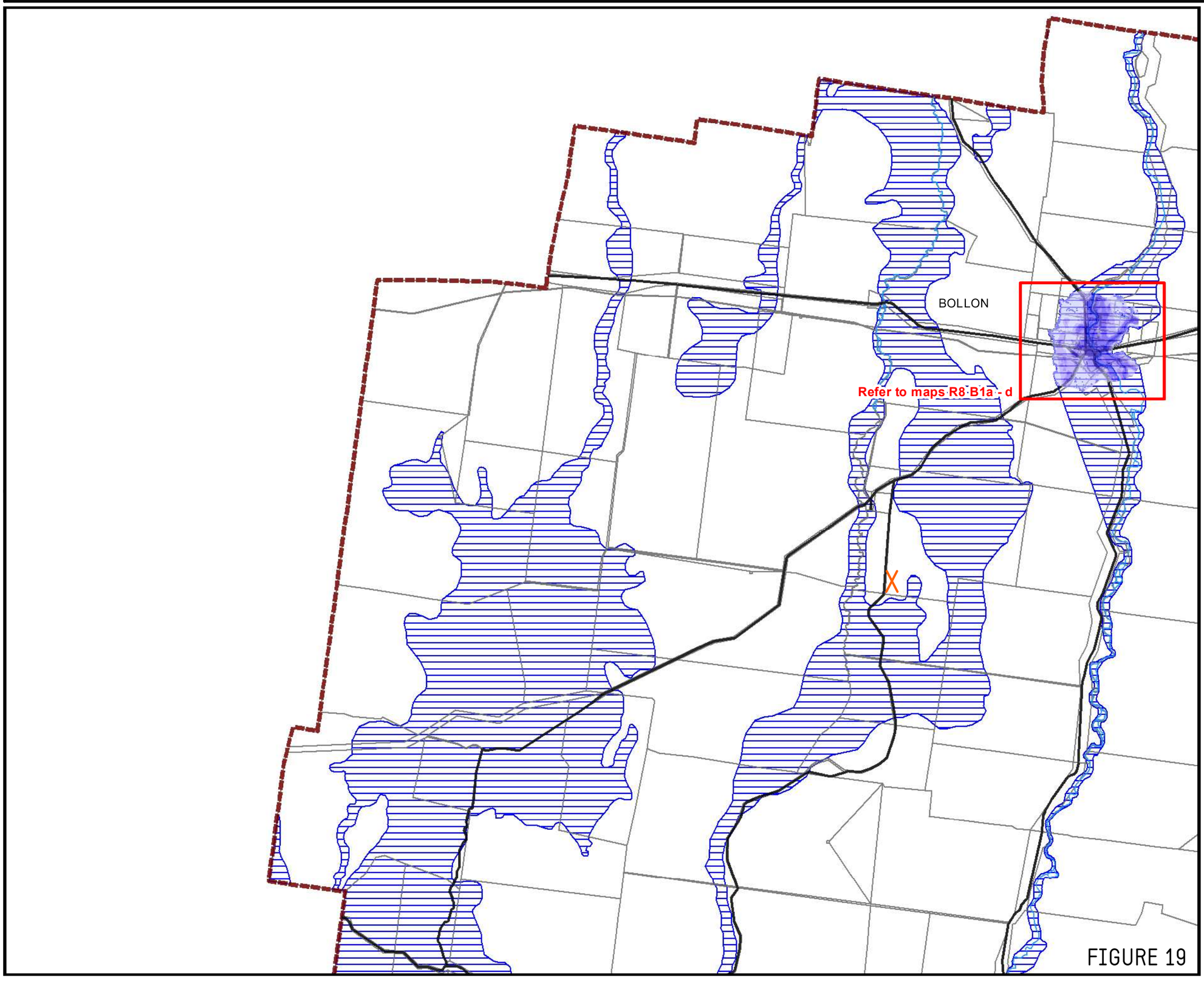


FIGURE 19

Legend

Peak Water Depth (m)

- 0 - 0.5
- 0.5 - 0.8
- 0.8 - 1.0
- 1.0 - 2.0
- > 2.0

Road Network

X – PROPOSED DEVELOPMENT SITE

Rivers and Creeks

Flood Hazard Overlay - Locally Verified

*Note: Those parts of this Overlay without detailed flood information (e.g. water depth and velocity) represent areas of possible inundation derived from 'Level 1' floodplain mapping from the Queensland Reconstruction Authority and are subject to further investigation for flood potential.

Lot Boundaries

Digital Cadastral Database (DCDB) is provided by the State of Queensland and is current as at May 2013. Flood information is derived from a compilation of Level 1, 2 and 3 flood hazard information prepared by the Queensland Reconstruction Authority (Level 1 data – 2012) and BMT WBM (Level 2 - 2013 and Level 3 - 2014). For further information on the varying levels of flood information included in this mapping suite please refer to http://qldreconstruction.org.au/publications-guides/land-use-planning/planning-for-stronger-more-resilient-flood-plains.

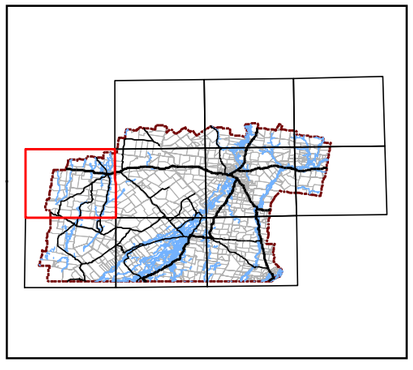
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Version-15/07/2014

Approx. Scale @ A3 1:250,000

5,800 0 5,800

Metres



5.4.7 Declared water resource catchment areas

The subject land is located on the relatively flat red earth plains between Mungallala Creek and Wallam Creek.

The subject land is not located with a water resource catchment area declared under the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024).

5.5 Biodiversity

5.5.1 Vegetation

The clearing of native vegetation in Queensland is regulated by both Australian (*Environment Protection and Biodiversity Conservation Act 1999*) and Queensland legislation. The *Vegetation Management Act 1999*, the *Planning Act 2016* and other associated policies and codes regulate clearing of native vegetation in Queensland. Various reforms to the vegetation management laws have been undertaken since 1999.

5.5.1.1 Regulated vegetation

The regulated vegetation management map shows vegetation categories on a parcel of land and is used to determine what vegetation is regulated.

A regulated vegetation overlay of the subject land was prepared based on digital data obtained from the Queensland Spatial Catalogue (QSpatial) Vegetation management - regulated vegetation management map - version 7.13. An overlay of cadastral, regulated vegetation, and the proposed development was prepared and is shown in Figure 20. The subject land is located within the 'Mulga Lands' biogeographic region. Within each bioregion there are plant communities called regional ecosystems.

Figure 20 shows there are areas of Category X (not regulated under the Vegetation Management Act 1999) and Category B (remnant vegetation) on the subject land.

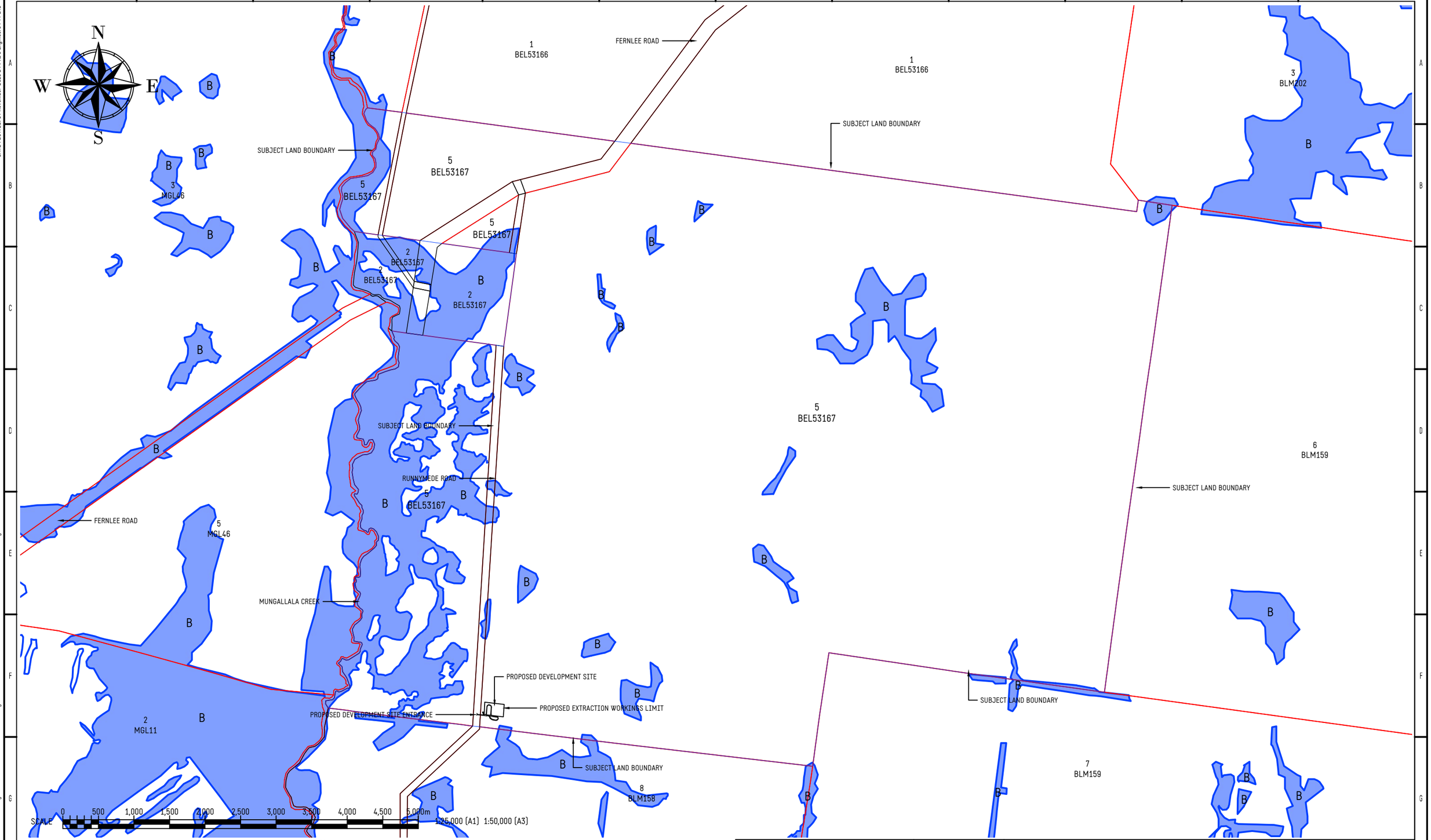
Clearing activities can be conducted within Category X areas without obtaining a permit or notifying the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (DNRMMRRD). However, other state or Commonwealth laws may apply. Category B areas are subject to clearing requirements. In these areas, vegetation can only be cleared in accordance with an exemption, a self-assessable vegetation clearing code, an area management plan or a development approval.

The regulated vegetation map for the subject land was obtained from the DNRMMRRD online vegetation mapping system in Adobe Portable Document Format (PDF) and is provided in Appendix D.

The proposed development is sited to avoid areas of regulated vegetation as shown on Figure 21 as far as practical. The proposed resource extraction area and access roads shall be sited within a cleared area that has been developed for extensive grazing as shown in Photograph 14 and over 100 m north of regulated vegetation that is Category B 'endangered' regional ecosystems as shown in Figure 21. Consequently, no regulated vegetation will be disturbed as part of the proposed development.



Photograph 14 – Proposed development site – Resource extraction area (looking west)



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- CATEGORY A AREA (VEGETATION OFFSETS/COMPLIANCE NOTICES/VDECS
- CATEGORY B AREA (REMNANT VEGETATION)
- CATEGORY C AREA (HIGH-VALUE REGROWTH)
- CATEGORY X AREA (EXEMPT CLEARING WORK ON FREEHOLD LAND)
- STREAM ORDER 1
- STREAM ORDER 2
- STREAM ORDER 3
- STREAM ORDER 4
- STREAM ORDER 5
- STREAM ORDER 6

NOTES

1. THIS IS A REGULATED VEGETATION MANAGEMENT MAP AS DEFINED BY s20A OF THE VEGETATION MANAGEMENT ACT 1999. THE MAP INCORPORATES ELEMENTS OF THE REGULATED VEGETATION MANAGEMENT MAP VERSION 6.06.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT) 2025 - QUEENSLAND SPATIAL CATALOGUE - VEGETATION MANAGEMENT REGULATED VEGETATION - VERSION 6.06.
3. REGULATED VEGETATION HAS BEEN COMPILED AT A MAP SCALE OF 1:100,000, EXCEPT IN DESIGNATED AREA, WHERE COMPILATION SCALE OF 1:50,000 OR 1:25,000 IS AVAILABLE. LINEWORK SHOULD BE USED AS A GUIDE ONLY.
4. REGULATED VEGETATION MAPPING IN PART, BASED ON SURVEYS OF VEGETATION COMMUNITIES AND RELATED LANDFORM, SOILS AND GEOLOGY IS BASED ON LANDSAT IMAGERY FOR 2015.
5. THE POSITIONAL ACCURACY OF REGULATED VEGETATION DATA MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.

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TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - REGULATED VEGETATION OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 20		A3	H5-130-00-20	B

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5.5.1.2 Regional ecosystem

Regional ecosystems are vegetation communities in a bioregion that are consistently associated with a combination of geology, landform and soil (Sattler and Williams, 1999).

A custom regional ecosystem map of the subject land was created using digital data obtained from the Queensland Spatial Catalogue (QSpatial) Vegetation management regional ecosystem map - version 13. An overlay of cadastral, regional ecosystems, and the proposed development was prepared and shown in Figure 21.

Figure 21 shows that there is 'of concern' and 'least concern' regional ecosystem mapping units identified on the subject land. The closest regional ecosystem to the proposed development site is an 'of concern' regional ecosystem mapped some 100 m southeast of the proposed resource extraction area.

The short and long descriptions of the regional ecosystems mapped within 2,000 m of the proposed development site are provided in the following sections. It must be noted that the mapping units may be complex and contain one or more of the following regional ecosystems.

No regional ecosystems will be disturbed as part of the proposed development as shown on Figure 21.

5.5.1.2.1 'Of concern' regional ecosystem

5.5.1.2.1.1 RE 6.5.3

Short Description:

Eucalyptus populnea +/- Acacia spp. woodland on sandy plains in the east

Description:

Eucalyptus populnea woodland, occasionally with Acacia spp. A secondary tree and or tall shrub layer including Acacia aneura, Eremophila mitchellii and Geijera parviflora usually occurs. A low shrub layer of varying density may occur. The ground layer is dominated by perennial grasses, including Bothriochloa decipiens, Enteropogon acicularis, Aristida spp., Eragrostis spp. and Chloris pectinata. Forbs are seasonally abundant. Occurs on sandy plains overlying clay deposits, predominantly in the east of the bioregion. The soils are red earths and surfaces are hard setting. Not a Wetland. (BVG1M: 17a).

Vegetation communities in this regional ecosystem include:
6.5.3a: [RE not in use][2]: This vegetation community is now mapped as 6.5.3. Eucalyptus populnea woodland to open woodland to Acacia aneura tall shrubland with emergent E. populnea. Other scattered tree species such as Corymbia terminalis, Ventilago viminalis, Eremophila mitchellii and Eremophila bignoniiflora are sometimes present. Scattered low shrub species such as Senna spp. and Eremophila gilesii subsp. gilesii are often present. The

ground layer is variable and composed of grasses and forbs. Frequent species include the grasses Aristida inaequiglumis, A. jerichoensis, Dichanthium sericeum, Digitaria brownii, Enteropogon acicularis, Panicum decompositum and Themeda avenacea and the forb Solanum ellipticum. Occurs in run-on areas in gently undulating flat plains formed from Quaternary deposits over the Tertiary surface. Associated soils are deep to very deep, red, texture contrast soils. Neutral, red clay loams with a bleached A2 horizon overlie alkaline, red sandy, clay loam to sand clay subsoils. Surfaces are hard setting. Structure massive throughout. Not a Wetland. (BVG1M: 17a).

5.5.1.2.2 'least concern' regional ecosystem

5.5.1.2.2.1 RE 6.3.4

Short Description:

Acacia cambagei +/- emergent Eucalyptus ochrophloia woodland on alluvial plains

Description:

Acacia cambagei woodland. Emergent Eucalyptus ochrophloia trees may occur. A shrub layer may occur, including Eremophila mitchellii, E. glabra, Duma florulenta, Eremophila deserti and Chenopodium auricomum. The ground cover varies with seasonal conditions. Frequent species include Enteropogon acicularis, Eragrostis setifolia and Paspalidium jubiflorum. In more open areas the annuals Sporobolus caroli, S. actinocladus and Chloris pectinata become dominant. The forbs Atriplex spp. Sclerolaena spp. and Sida fibulifera may be seasonally abundant. Occurs on alluvial plains. Soils are predominantly very deep, alkaline, grey and brown clays of light to medium textures with silt and sand bands. Sometimes occurs on texture contrast soils. Not a Wetland. (BVG1M: 26a).

5.5.1.2.2.2 RE 6.3.14

Short Description:

Astrebla spp. +/- Dichanthium sericeum grassland on alluvial plains of major watercourses

Description:

Astrebla spp. (predominantly Astrebla elymoides and A. lappacea) tussock grassland, commonly with Dichanthium sericeum and A. squarrosa. Associated species include Aristida leptopoda, Cyperus bifax, Dactyloctenium radulans, Eriochloa pseudoacrotricha, Iseilema vaginiflorum and Panicum decompositum. A variety of forbs may occur, including Brachyscome spp., Plantago drummondii and Rhynchosia minima. Emergent trees and shrubs may occur, including Eucalyptus coolabah and Acacia cambagei. Occurs on alluvial plains of major watercourses. Associated soils are very deep, grey-brown heavy cracking clays, with widely cracking self-mulching surfaces. Not a Wetland. (BVG1M: 30a).

5.5.1.2.2.3 RE 6.3.24

Short Description:

Eucalyptus coolabah and/or E. populnea +/- Acacia cambagei, A. aneura, Atalaya hemiglauca woodland on sand deposits on alluvial plains of major watercourses

Description:

Eucalyptus coolabah and/or E. populnea woodland commonly with Acacia cambagei, A. aneura, A. excelsa, Atalaya hemiglauca and Flindersia maculosa. A shrub layer may occur, including canopy species and Acacia victoriae. The ground layer is variable, including tussock grasses and forbs. Grass species include Eragrostis setifolia, Dichanthium sericeum, Panicum decompositum, Dactyloctenium radulans and Iseilema spp. Occurs on shallow sand deposits (remnants of levees) on alluvial plains of major watercourses. Shallow siliceous sands, overlying cracking clays. Not a Wetland. (BVG1M: 16c).

Vegetation communities in this regional ecosystem include:
6.3.24a: Seasonal swamps (wooded). Eucalyptus populnea woodland, occasionally with Acacia aneura, Hakea ivoryi, E. melanophloia and Callitris glaucophylla. A shrub layer may occur, including Acacia oswaldii, A. tetragonophylla, Eremophila spp. The ground layer is dominated by species such as Eragrostis microcarpa, Aristida calycina var. praealta, A. jerichoensis and Digitaria spp. In wetter areas Dichanthium sericeum, Eulalia aurea and Iseilema vaginiflorum may be locally prominent. A variety of forbs may be present or seasonally abundant. Frequent species include Calotis cuneata, Euphorbia drummondii, Haloragis aspera and Velleia glabrata. Occurs in closed depressions, which are infrequently flooded. Associated soils are predominantly moderately deep, red to grey, light textured sandy loam to sandy medium clays. Palustrine. (BVG1M: 17a).

DATE PLOTTED: 14 November 2025 BY : RDC Engineers PTY LTD

FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT FILE NAME: H5-130-00-MASTERPLAN-20250918 vB.dwg

N

W E

S

FERNLEE ROAD

SUBJECT LAND BOUNDARY

MUNGALLALA CREEK

RUNNYMEDE ROAD

PROPOSED DEVELOPMENT SITE

PROPOSED EXTRACTION WORKINGS LIMIT

PROPOSED DEVELOPMENT SITE ENTRANCE

1 BEL53166

5 BEL53167

2 BEL53167

3 MGL46

2 MGL11

3 BLM202

6 BLM159

7 BLM159

8 BLM159

6.5.3/6.4.3

6.5.3

6.3.24/6.3.4

6.3.24

6.3.14

6.5.18

SCALE 0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000m

1:25,000 (A1) 1:50,000 (A3)

LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- CATEGORY A OR B AREA CONTAINING ENDANGERED REGIONAL ECOSYSTEMS
- CATEGORY A OR B AREA CONTAINING OF CONCERN REGIONAL ECOSYSTEMS
- CATEGORY A OR B AREA THAT IS A LEAST CONCERN REGIONAL ECOSYSTEM
- CATEGORY C AREA THAT IS A LEAST CONCERN REGIONAL ECOSYSTEM
- STREAM ORDER 1
- STREAM ORDER 2
- STREAM ORDER 3
- STREAM ORDER 4
- STREAM ORDER 5
- STREAM ORDER 6

NOTES

1. THIS IS A VEGETATION MANAGEMENT REGIONAL ECOSYSTEM MAP AND PROVIDES REGIONAL ECOSYSTEM AND VEGETATION MANAGEMENT STATUS TO SUPPORT THE REGULATED VEGETATION MANAGEMENT MAP. THE MAP INCORPORATES ELEMENTS OF THE REGULATED VEGETATION MANAGEMENT MAP AND THE REGIONAL ECOSYSTEM MAPPING VERSION 12.02.
2. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF RESOURCES) 2021 - QUEENSLAND SPATIAL CATALOGUE - VEGETATION MANAGEMENT REGIONAL ECOSYSTEM MAPPING - VERSION 12.02.
3. REGIONAL ECOSYSTEM MAPPING HAS BEEN COMPILED AT A MAP SCALE OF 1:100,000, EXCEPT IN DESIGNATED AREA, WHERE COMPILATION SCALE OF 1:50,000 OR 1:25,000 IS AVAILABLE. LINEWORK SHOULD BE USED AS A GUIDE ONLY.
4. 2015 REMNANT REGIONAL ECOSYSTEMS MAPPING AT A MAP SCALE OF 1:100,000 and 1:50,000, 1:25,000 IN PART, BASED ON SURVEYS OF VEGETATION COMMUNITIES AND RELATED LANDFORM, SOILS AND GEOLOGY IS BASED ON LANDSAT IMAGERY FOR 2015.
5. THE POSITIONAL ACCURACY OF REGIONAL ECOSYSTEM DATA MAPPED AT A SCALE OF 1:100,000 IS ±100 METRES.

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STATUS

FOR APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

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RODNEY J DAVIS
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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:50,000 (A3)
DRAWN	RJD
DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN

PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT

TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SUBJECT LAND - REGIONAL ECOSYSTEM OVERLAY

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 21		A3	H5-130-00-21	B

5.5.2 Regrowth vegetation

High-value regrowth vegetation is defined as vegetation that has not been cleared (other than for relevant clearing activities) for over 15 years on freehold land, Indigenous land, occupation licences, and leasehold land used for agricultural and grazing purposes under the Land Act 1994. High-value regrowth vegetation is mapped as Category C or Category R areas.

Category R areas are within 50 m of identified watercourses in the Burnett Mary, Eastern Cape York, Fitzroy, Mackay–Whitsunday, Burdekin and Wet Tropics Great Barrier Reef catchments. The subject land is not located in any of these catchments.

Consequently, as shown on Figure 20 and in Appendix D, there are no areas mapped as Category R containing reef regrowth watercourse vegetation mapped areas as the subject land. Furthermore, as shown on Figure 20 and in Appendix D, there is no Category C areas containing high-value regrowth vegetation identified on the subject land.

There are no aspects of the proposed development to be located on areas mapped as Category C or Category R vegetation as shown on Figure 20.

Consequently, no high-value regrowth vegetation shall be disturbed as part of the proposed development.

5.5.3 Property Map of Assessable Vegetation (PMAV)

A property map of assessable vegetation (PMAV) that shows the boundaries of vegetation categories on the subject land has been certified by DNRMMRRD for the subject land.

A copy of the certified PMAV 2008/009126 is presented in Appendix D.

Referral for native vegetation clearing under schedule 10 of the Planning Regulation 2017 is avoided as there is no new proposed built infrastructure and all works are located within a Category X area and includes the required setbacks for firebreaks and safety buffer distances from the nearest Category B areas.

The firebreak/safety buffer distance is calculated as a width of 20 m or 1.5 times the height of the tallest adjacent tree to the infrastructure, whichever is the greater. There is a minimum separation of 120 m from Category B areas located to the south of the proposed development site. The height of the tallest tree is estimated at 10 m.

5.5.4 Essential habitat

Essential habitat is vegetation in which a species that is endangered, vulnerable or near threatened under the Nature Conservation Act (1992) has been known to occur. The Vegetation Management Act 1999 regulates vegetation clearing to prevent the loss of biodiversity.

The DNRMMRRD have mapped areas as essential habitat, and these are shown on the essential habitat map. Areas of essential habitat are shown on the vegetation management supporting map. The vegetation management supporting map for the subject land is provided in Appendix D.

Appendix D shows that there is no essential habitat mapped on the subject land.

Figure 21 shows that there are no aspects of the proposed development to be located within or adjacent to the areas mapped as regional ecosystems and therefore areas that may contain unmapped essential habitat.

Consequently, the proposed development shall have no impacts on areas of essential habitat.

5.5.5 Flora & fauna

Native plant (flora) and animal (fauna) species are a unique and valuable part of Queensland's biodiversity. The object of the *Nature Conservation Act 1992* is to conserve and protect native flora and fauna, including threatened and endangered species.

Some plant and animal species are declining in numbers and are at risk of extinction due to a range of threatening processes including clearing of vegetation, inappropriate fire regimes, and inappropriate grazing regimes for example.

Currently, there are currently 955 species (224 animals and 731 plants) declared as threatened under the *Nature Conservation Act 1992*. Some species are already considered to be extinct in the wild whilst other threatened species are categorised as 'endangered' or 'vulnerable'. Of these species, about 400 are listed as threatened nationally under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

The *Nature Conservation (Wildlife) Regulation 2006* lists species that are classed as threatened or near threatened in Queensland.

The DETSI WildNet database contains records of wildlife sightings and listings of plants (including fungi and protists), and fauna (mammals, birds, amphibians, reptiles) in Queensland.

A species list was requested from the DETSI WildNet database records within a radius of 5 km from the proposed development site on the subject land. There are no records of wildlife sightings and listings of plants (including fungi and protists), and fauna (mammals, birds, amphibians, reptiles) within 5 km. The Wildlife online extract is provided in Appendix E.

The Wildlife online extract returned no critically endangered, endangered, vulnerable or near-threatened species within a radius of 5 km from the proposed development site on the subject land.

Consequently, adverse impacts to threatened wildlife species are unlikely because of the proposed development.

The DETSI have mapped protected flora areas, and these are shown on the protected plants flora survey trigger map. The protected plants flora survey trigger map shows areas where particular provisions of the Nature conservation Act 1992 apply to clearing of protected plants. The protected plants flora survey trigger map for the land parcel that comprises the subject land is provided in Appendix F.

As shown in Appendix F, there is a high risk area mapped on the subject land some 3.25 km to the northwest of the proposed development site. No regulated vegetation or protected plants are proposed to be cleared as part of the proposed development.

Consequently, the proposed development shall not impact protected plants.

5.6 Wetlands

Wetlands are a critical part of the environment and deliver many ecosystem services such as coastal protection, water and food supply, reducing the impacts of floods, absorb pollutants, improve water quality. Broadly, wetlands are areas of land where water covers the soil – all year or just at certain times of the year. They are neither just land, nor just water and can be both at the same time, or seasonally aquatic, or terrestrial. Traditionally, wetlands can be defined as swamps, billabongs and mangrove areas but other areas such as rivers and creeks, estuaries, bays and marine areas are also included in the definition of a wetland.

The responsibility for the protection, conservation and management of wetlands in Queensland is shared between state and local government and for wetlands of international significance – 'Ramsar', the federal government.

The management and use of natural wetlands in Queensland is based on ecologically sustainable management and integrated catchment management practices. Wetlands have been mapped digitally at a scale of 1:100,000 and classified according to a range of criteria, such as the type of ecological system (riverine, estuarine etc.), degree of water permanency, salinity etc for wetland management and decision making (DES, 2018).

A wetland protection area overlay of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 22. Figure 22 shows that there are no wetland protection areas on or adjacent to the subject land.

The Map of Referable Wetlands under the *Environmental Protection Act 1994* for the subject land was obtained from the DETSI online mapping system and provided in Appendix G.

Review of the referable wetlands mapping of the subject land shows that there are no wetlands of General Ecological Significance (GES) along Mungallala Creek which for part of its length forms the western boundary of the subject land. The proposed extraction resource area will be located over 2,000 m from wetlands of General Ecological Significance (GES) located south of the subject land to the east of Runnymede Road.

The proposed development shall not be sited within a wetland trigger area. Consequently, the proposed development will not be located within any wetlands of HES or GES or trigger areas.



Date: 04/11/2025

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FIGURE 22

5.7 Cultural heritage

5.7.1 Indigenous

The *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* recognise Aboriginal and Torres Strait Islander people as the primary authority on Aboriginal and Torres Strait Islander cultural heritage. The continuation of Aboriginal and Torres Strait Islander culture, traditions and customs is protected under this legislation.

All significant Aboriginal cultural heritage in Queensland is protected under the *Aboriginal Cultural Heritage Act 2003*. Under the legislation, a person carrying out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal Cultural Heritage. This applies whether or not such places are recorded in an official register and whether or not they are located in, on or under private land.

Any Aboriginal heritage, which may occur on the proposed development site, is protected under the terms of the *Aboriginal Cultural Heritage Act 2003* (ACH Act) even if the DETSI has no records relating to it.

A database search response of sites of aboriginal cultural heritage from the Department of Aboriginal and Torres Strait Islander Partnership - Cultural Heritage Database and Register indicates that there are no sites of Aboriginal cultural heritage currently registered on the subject land or within a 2 km radius of the subject land.

The database search response of sites of aboriginal cultural heritage from the Department of Aboriginal and Torres Strait Islander Partnership database for the land parcel that comprises the subject land and a 2 km buffer of the land parcel is provided in Appendix H.

Pursuant to the Cultural Heritage Duty of Care Guidelines, the proposed development is a 'Category 4 activity' – Areas previously subject to significant ground disturbance. From those guidelines:

- Where an activity is proposed in an area, which has previously been subject to Significant Ground Disturbance it is generally unlikely that the activity will harm Aboriginal cultural heritage and the activity will comply with these guidelines.

- In these circumstances, subject to the measures set out in paragraphs 5.6 - 5.12 of the Cultural Heritage Duty of Care Guidelines, it is reasonable and practicable that the activity proceeds without further cultural heritage assessment.

Although the area on which the infrastructure of the proposed development shall be located has previously been extensively cleared, all reasonable and practical measures shall be undertaken to ensure the activity does not harm any Aboriginal cultural heritage.

The cultural heritage search states:

- There are no cultural heritage sites recorded in the specific search area;
- There are no cultural heritage site polygons recorded in the specific search area;
- There is one registered cultural heritage party recorded in the specific search area being Kooma People #4 Part A (QCD2014/012DET).
- There is one registered Cultural Heritage Body recorded for the area of the specific search area being Kooma Aboriginal Corporation RNTBC (CHB019001);
- There are no Cultural Heritage Management Plans recorded in the specific search area;
- There are no Designated Landscape Areas (DLA) recorded in the specific search area;
- There are no Registered Study Cultural Heritage Areas recorded in the specific search area; and
- There are no National Heritage Areas (Indigenous values) recorded in the specific search area;

5.7.2 Non-Indigenous

The conservation of Queensland's cultural heritage is provided for under the *Queensland Heritage Act 1992.* A register of places and areas of State cultural heritage significance called the Queensland Heritage Register is maintained by the Queensland Heritage Council.

The Queensland Heritage Register is a heritage register, a statutory list of places in Queensland that are protected by the *Queensland Heritage Act 1992*. Heritage places include historic shipwrecks, cultural landscapes, cemeteries, archaeological sites, buildings and structures, gardens and urban precincts.

A heritage place overlay of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 23.

A review of the heritage place overlay shows that there are no heritage places listed on the Queensland Heritage Register identified on the subject land. Consequently, the proposed development will not impact on a Queensland heritage place.



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FIGURE 23

5.8 Biosecurity

Biosecurity is a strategic and integrated approach that manages the risks from emerging and ongoing animal and plant pests, diseases and weeds on Queensland's economy, terrestrial and aquatic environments, biodiversity, agricultural resources, human health and social amenity.

The *Biosecurity Act 2014* provides a framework for an effective biosecurity system that helps to minimise biosecurity risks and better facilitate a response to the impacts of those risks on the economy, environment, human health and public amenity.

Under the *Biosecurity Act 2014*, a person who deals with a biosecurity matter or a carrier, or carries out an activity, if the person knows or ought reasonably to know that the biosecurity matter, carrier or activity poses or is likely to pose a biosecurity risk has a general biosecurity obligation (GBO) to take all reasonable and practical measures to prevent or minimise the biosecurity risk.

In accordance with the GBO, individuals and organisations whose activities pose a biosecurity risk must:

- take all reasonable and practical steps to prevent or minimise each biosecurity risk;
- minimise the likelihood of causing a 'biosecurity event', and limit the consequences if such an event is caused; and
- prevent or minimise the harmful effects a risk could have, and not do anything that might make any harmful effects worse.

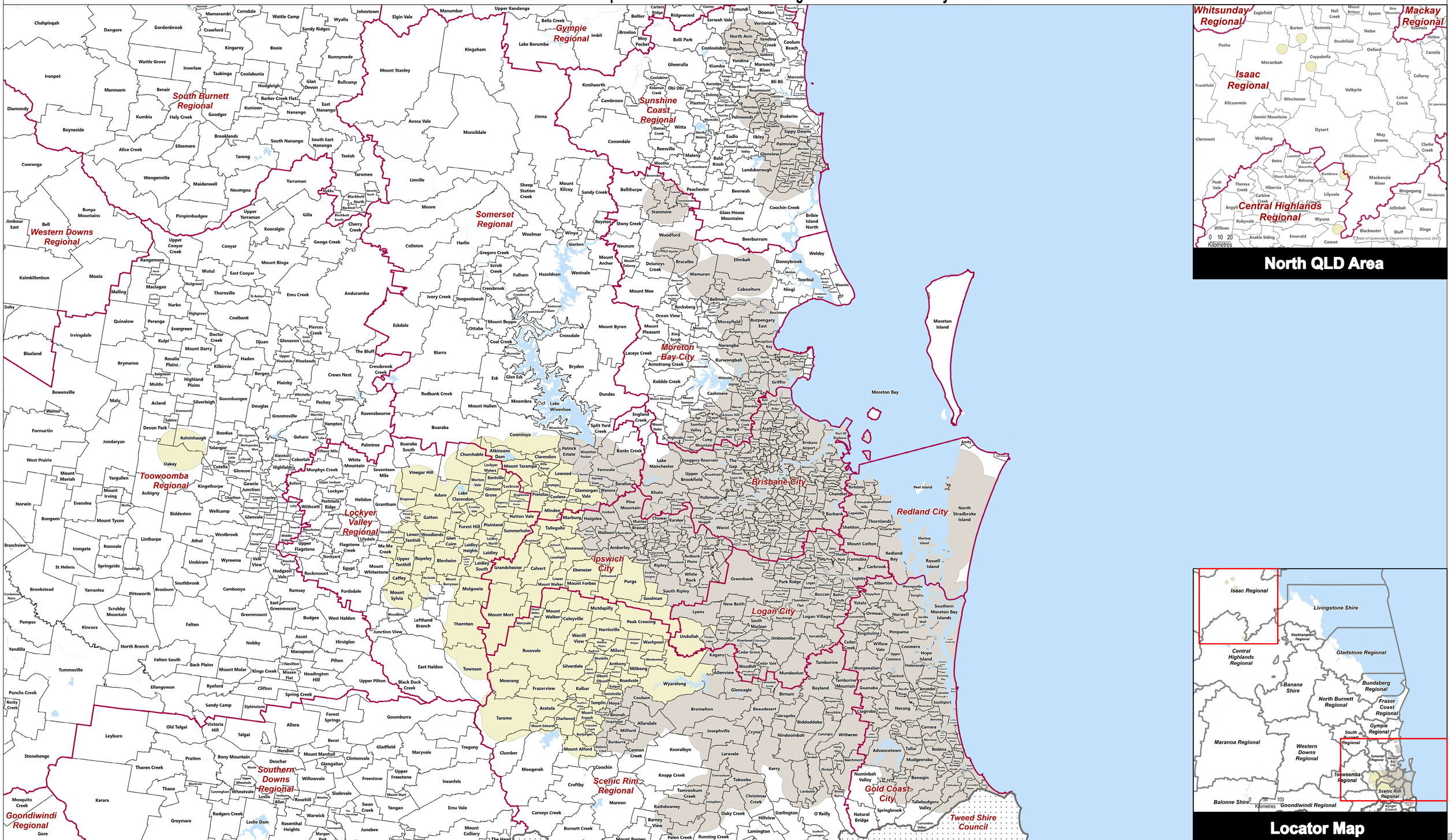
In relation to the proposed development, a GBO might include:

- Management of plant pests (e.g. weeds) and diseases that could have negative impacts on neighbouring properties; and
- Moving machinery or soil will pose a biosecurity risk if they are carrying weed seeds, fire ants etc that could affect agricultural industries.

5.8.1 Fire ants

The subject land is not located within a fire ant biosecurity zone within southeast Queensland as shown in Figure 24.

National Red Imported Fire Ant Eradication Program: Fire ant biosecurity zones



North QLD Area

Locator Map

Fire ant biosecurity zone map
as at 15 September 2025, 12.00 am

- Fire ant biosecurity zone 1
- Fire ant biosecurity zone 2
- QLD Local Government Areas
- NSW Local Government Areas
- Suburbs

N

0 5 10
km

Contact the Department of Primary Industries for more information or request a biosecurity instrument permit at www.fireants.org.au or call 13 22 68

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Produced by: T.C. Produced on: 5/09/2025 Biosone_September2025

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5.9 Coastal and marine environment

5.9.1 Coastal protection

Queensland's coastal communities are vulnerable to impact from coastal erosion and storm tide inundation. These coastal hazards are generally caused by extreme weather events such as cyclones.

The erosion and storm tide inundation vulnerability of the Queensland coast has been assessed and erosion prone areas and areas subject to storm tide inundation have been declared and mapped to inform planning and development decisions.

Queensland Coastal Hazard Areas maps show areas vulnerable to coastal erosion or storm tide inundation. Mapping data exists at a minimum scale of 1:10,000. Coastal hazard area maps are based on the following assessment factors for determining coastal hazard areas:

- a defined storm event or storm tide event based on an annual 1% (or one-in-100) return probability;
- an updated sea-level rise figure of 80cm by the year 2100 based on upper limit projections by the Intergovernmental Panel on Climate Change (IPCC); and
- a 10% increase in cyclone intensity due to climate change impacts over the next 30–100 years.

Erosion prone areas are determined by considering short-term erosion from storm events; long-term erosion from sediment supply deficit and channel migration; and erosion risk from sea-level rise.

Storm tide inundation area maps are categorised as either high or medium hazard areas. High hazard areas are the part of the storm tide inundation area that is projected to be temporarily inundated to a depth of 1 m or more during a defined storm tide event. The medium coastal hazard areas consist of land within the storm tide inundation area that is projected to be temporarily inundated to a depth of less than 1 m during a defined storm tide event.

The subject land is not located on the Queensland coast. A coastal protection area overlay of the subject land was obtained from the DSDIP development assessment mapping system to confirm any erosion and storm tide inundation vulnerability. The resulting overlay is shown in Figure 25. Figure 25 shows that the subject land is not located in a coastal zone, coastal management district, coastal hazard area – erosion prone or storm tide inundation area.

Subsequently, the subject land is not located in an area that is considered a high-risk coastal hazard area and not subject to erosion and permanent tidal inundation due to sea level rise.



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FIGURE 25

5.9.2 Fish habitat area

A declared fish habitat area (FHA) is an area protected from the impacts of coastal development to ensure Queensland's valuable fish habitats are managed effectively for long-term sustainability. FHAs are a type of marine protected area and are declared under the Queensland Fisheries Act 1994 and managed by the Department of Science (DES).

Declared FHAs are matters of state environmental significance (MSES) under the State Planning Policy (SPP) and are therefore valued and protected through the state's planning framework (Department of State Development, Manufacturing, Infrastructure and Planning 2017).

Activities that disturb fish habitats may require fisheries development approval under the *Planning Act 2016*. A resource allocation authority (a form of resource entitlement) may also be required under the *Fisheries Act 1994*.

The following development related activities require a fisheries development approval under the *Planning Act 2016* from Fisheries Queensland:

- removal, destruction or damage of marine plants;
- building or operational works in a declared Fish Habitat Area;
- aquaculture in tidal water, marine and freshwater; and
- waterway barrier works.

Declared FHA, or parts of declared FHA, are assigned a management level - either 'A' for very strict management, or 'B', where existing or planned use requires a more flexible management approach.

A fish habitat area overlay of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 26.

Figure 26 shows that there no fish habitat management areas A or B on or adjacent to the subject land. Consequently, the proposed development does not require a fisheries development approval under the Planning Act 2016.



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Scale: 1:72,300

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Metres

Cadastre (100k)

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FIGURE 26

5.10 State transport

State transport interests include road, rail, busway, light rail, ports, maritime and airports of state significance.

All development that may impact on the safe and efficient operation of state transport interests is triggered under the *Planning Regulation 2017* for referral to SARA for assessment. These developments will be assessed against the relevant State Development Assessment Provisions (SDAP).

The subject land has frontage to Fernlee Road (sealed) of approximately 3.1 km in length and frontage of about 7.6 km to Runnymede Road. Fernlee Road and Runnymede Road are local roads under Balonne Shire Council's road hierarchy.

Fernlee Road forms a T-intersection with the Balonne Highway some 14.8 km northeast of the subject land. The Balonne Highway is a state-controlled road. Runnymede Road intersects with Fernlee Road some 7.5 km north of the proposed development site entrance.

An overlay of state transport interests relating to the subject land was obtained from the DSDIP development assessment mapping system and shown in Figure 27. Figure 27 shows that the subject land is not located adjacent to and within 25 m of a state-controlled road, busway, light rail corridor, railway corridor or state-controlled transport tunnel. Further, Figure 27 shows that there are no future state transport corridors on or adjacent to the subject land.

Access to the proposed development shall be from an existing informal access to the former gravel pit off Runnymede Road for heavy and light vehicles associated with the development's activities.

The proposed development does not require new or changed access from a state-controlled road.

There are no proposed buildings, structures, infrastructure, services and utilities associated with the proposed development. Therefore users of state-controlled roads shall not be impacted by reflective materials.

Further due to the location of the proposed development in relation to the closest state-controlled road, filling and excavation nor stormwater drainage shall not interfere with, or result in damage to, infrastructure or services in a state-controlled road.

Assessment of the potential impacts of the proposed development on state infrastructure can be found in the Traffic and Pavement Impact Assessment presented in Appendix L.



Date: 04/11/2025

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N

Scale: 1:72,300

0 10 20 30

Metres

Cadastre (100k)

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FIGURE 27

5.11 Strategic environmental areas

Strategic Environmental Areas (SEAs) contain regionally significant environmental attributes (for example biodiversity, water catchments and ecological function). Within these areas, protection of ecological integrity is the priority land use; however, this does not preclude development from occurring in these areas.

SEAs are defined under the *Regional Planning Interests Act 2014* or within a Regional Plan and include Cape York Peninsula, the Gulf Country, the Chanel Country, Fraser Island and Hinchinbrook Island.

The RPI Act provides that a regulated activity is an activity that is prescribed in regulation because it is likely to have a widespread and irreversible impact on an area of regional interest. Where the activity is not exempt under the provisions of the Act or a regional interests development approval (RIDA) has not been granted, the RPI Act restricts the carrying out of resource and regulated activities in SEAs.

The RPI Regulation prescribes broadacre cropping and water storage dams as regulated activities in a strategic environmental area.

Therefore, a regional interests development approval will be required for resource activities and broadacre cropping and water storage dams proposed within SEAs.

A strategic environmental area overlay of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 28.

As shown on Figure 28, the subject land is not located in a strategic environmental area or strategic environmental area designated precinct as defined in the *Regional Planning Interests Act 2014*.

Consequently, a regional interests development approval is not required for the proposed development.



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Metres

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FIGURE 28

5.12 Environmentally sensitive areas

Environmental authorisation for an extractive industry (gravel pit) is regulated by the *Environmental Protection Act 1994* (EP Act). The EP Act regulates Environmentally Relevant Activities (ERAs), through environmental objective assessment. The *Environmental Protection Regulation 2019* (EP Regulation) provides a mechanism to enforce the EP Act and allows for an assessment of the risk that an ERA poses to Environmentally Sensitive Areas (ESAs).

ESAs refer to locations that have environmental values that contribute to maintaining biological diversity and integrity have intrinsic or attributed scientific, historical or cultural heritage value, or are important in providing amenity, harmony or sense of community.

ESAs are classified as Category A, Category B or Category C based on a ranking of environmental sensitivity. Category A and B ESAs are defined under the EP Regulations. Category C ESAs are not listed under the schedules of the EP Regulations.

Category A ESAs, as defined by the EP Regulation, are displayed in Table 12.

Table 12 – Category A ESAs and Administering Legislation

Category A Protected Areas	Administering Legislation
National Parks (Aboriginal Land)	*Nature Conservation Act 1992* (NC Act) and *Aboriginal Land Act 1991*
National Parks (Torres Strait Islander Land)	
National Park	*Nature Conservation Act 1992*
National Park (Scientific)	
National Park (Recovery)	
Conservation Park	
Forest Reserves	
Wet Tropics World Heritage Area	*Wet Tropics World Heritage Protection and Management Act 1993*
Great Barrier Reef Marine Park (GBRMP) Area	*Great Barrier Reef Marine Park Act 1975*
Marine Parks (other than general use zones)	*Marine Parks Act 2004*

Category B ESAs are defined in the EP Regulation and presented in Table 13.

Table 13 – Category B ESAs and Administering Legislation

Category B Protected Areas	Administering Legislation
Coordinated Conservation Areas Wilderness area Areas of critical habitat, of major interest identified under a conservation plan or subject to an interim conservation order World Heritage Management Areas International Agreement Areas	*Nature Conservation Act 1992*
Endangered Regional Ecosystems (Biodiversity Status)	*Environmental Protection Regulation 2019* (*Vegetation Management Act 1999* (VM Act))
Ramsar Wetlands	*Ramsar Convention*
Protection of the World Cultural and Natural Heritage Conservation of Migratory species General Use Zones of Marine Parks	*International Conventions (Paris, 16 November 1972).*
Place of Cultural Heritage Significance (Registered Place, Protected Areas) Aboriginal Cultural Heritage Areas Torres Strait Islander Cultural Heritage Areas	*Aboriginal Cultural Heritage Act 2003* (ACH Act) *Torres Strait Islander Cultural Heritage Act 2003*
Designated Landscape Areas – other than Stanbroke	*Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*
Feature Protection Area, State Forest Park or a Scientific Area	*Forestry Act 1959*
Fish Habitat Areas and areas of Marine Plants	*Fisheries Act 1994*
An Area to the Seaward Side of the Highest Astronomical Tide	Nil

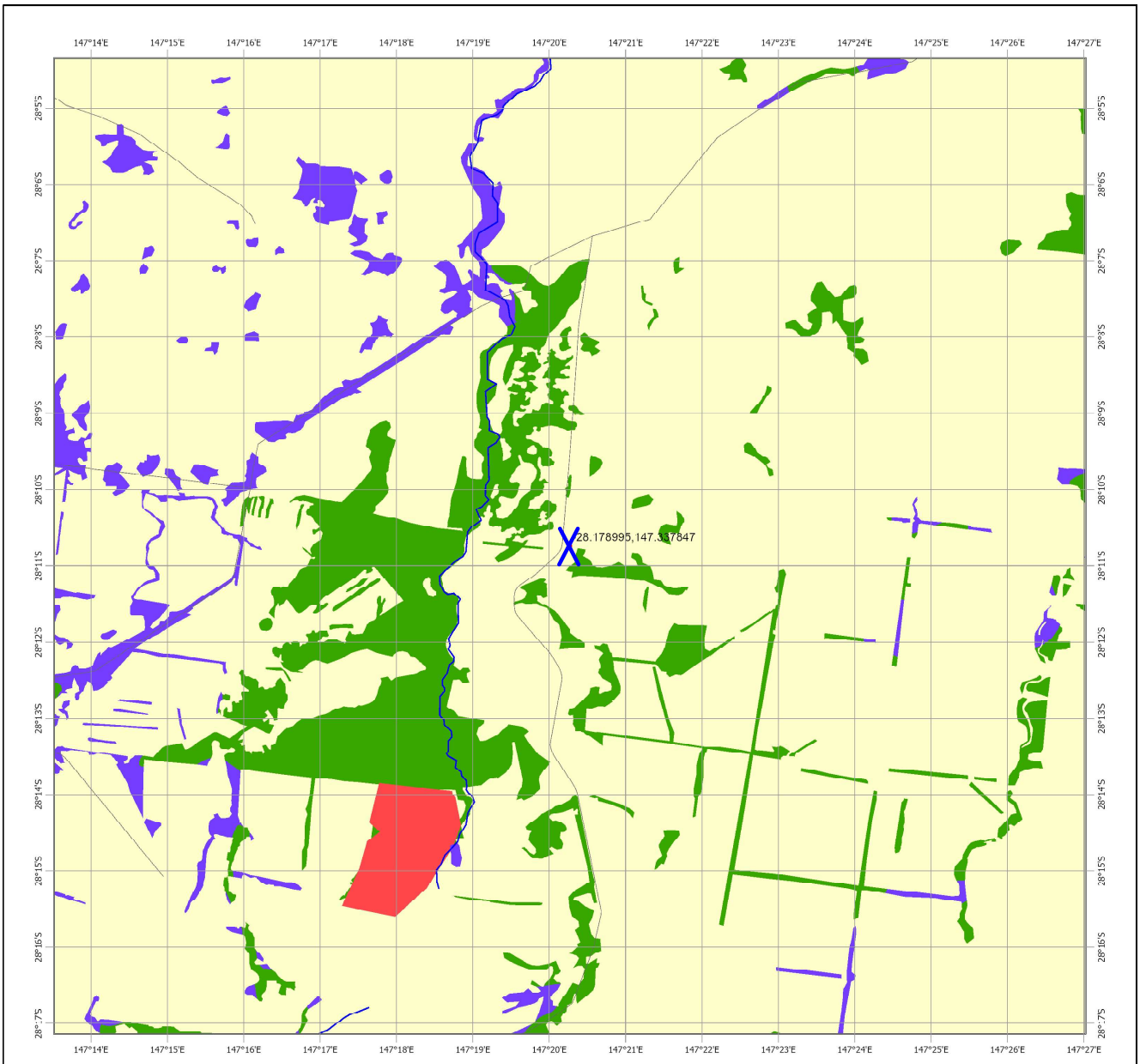
An environmentally sensitive areas overlay of the subject land was obtained from the DETSI online mapping system in Adobe Portable Document Format (PDF) and is shown in Figure 29.

Figure 29 shows there are no Category A environmentally sensitive areas on the subject land. Figure 29 shows there are no Category B being 'endangered' regional ecosystems within the subject land or adjacent to the subject land.

As outlined in section 5.5.1 and 5.5.4, no regional ecosystems shall be impacted by the proposed development.

Tenure type: Authority To Prospect
Centred on tenure: Longitude: 147.337847 Latitude: -28.178995

Map requested: 10/10/2025 15:55:38



ENVIRONMENTALLY SENSITIVE AREAS - non-mining resource activities (EP Act)

CATEGORY A
- National Parks
- Conservation Parks
- Forest Reserves
- Special Wildlife Reserve
- Wet Tropics World Heritage Area
- Great Barrier Reef Region
- Marine Parks other than General Use Zones

CATEGORY B
- Queensland Heritage Register Places
- Ramsar Sites
- Cultural Heritage Registered Areas and DLA's other than Stanbroke
- Special Forestry Areas
- Seaward Side of Highest Astronomical Tide
- Fish Habitat Areas
- Coordinated Conservation Areas
- Endangered Regional Ecosystems - regrowth and remnant (Biodiversity Status)
- General Use Zones of Marine Parks
- Marine Plants
- Coordinates
- Authority to Prospect (ATP)

CATEGORY C
- Essential Habitat
- Koala Plan
- Nature Refuges
- Resources Reserve
- State Forests
- Timber Reserves
- Of Concern Regional Ecosystems

OTHERS
- Towns
- Roads
- Rivers
- Springs
- Queensland

X – PROPOSED DEVELOPMENT SITE

LOCALITY DIAGRAM



N

0 1000 2000 3000 4000 5000 m

This product is displayed in GDA2020

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NOTE TO USER: Themes presented in this map are indicative only. Field survey may be required to verify the 'true' spatial extent and value. Not all environmentally sensitive areas are presented in this map. A user should refer to the particular circumstances relevant to their situation to assess the 'completeness' of themes provided.

The user should note that some boundaries and indicated values are ambient and may change over time (e.g. regional ecosystem boundaries and conservation status, watercourse mapping etc).

The user should be aware that due to multiple overlapping themes/ layers present, some themes/layers may be obscured by others. Ordering in the Legend does not accurately reflect the order by which themes/layers are displayed.

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FIGURE 29

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5.13 Extractive resources

To protect resources from being affected by the encroachment of sensitive uses, Key Resource Areas have identified by the Department of Natural Resources and Mines, as containing important extractive resources of state or regional significance.

Key Resource Areas are designed to maintain adequate separation distances between sensitive uses and any future extractive industry.

A mining and extractive resources overlay of the subject land was obtained from the DSDIP development assessment mapping system and is shown in Figure 30.

Figure 30 shows that the subject land is not located within a:

- Key resource area – resource / processing area;
- Key resource area – separation area;
- Key resource area – transport route; or
- Key resource area – transport route separation area.

The closest Key Resource Areas is the Marbango Hard Rock Quarry (KRA No. 84) located over 190 km north of the subject land on the Warrego highway at Amby. The Balonne Highway is not a designated as a Key resource area – transport route.



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N

Scale: 1:72,300

0 10 20 30
Metres

Cadastre (100k)

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FIGURE 30

5.14 Mineral and petroleum resources

Under the *Petroleum Act 1923, Mineral Resources Act 1989, Geothermal Energy Act 2010, Geothermal Exploration Act 2004; Greenhouse Gas Storage Act 2009; Petroleum and Gas (Production and Safety) Act 2004* and other related acts ownership of all mineral and energy resources such as coal, minerals, petroleum and gas existing in their natural form is vested in the Crown. However, some resources found on the land like rock, gravel and sand fall outside the operation of these acts.

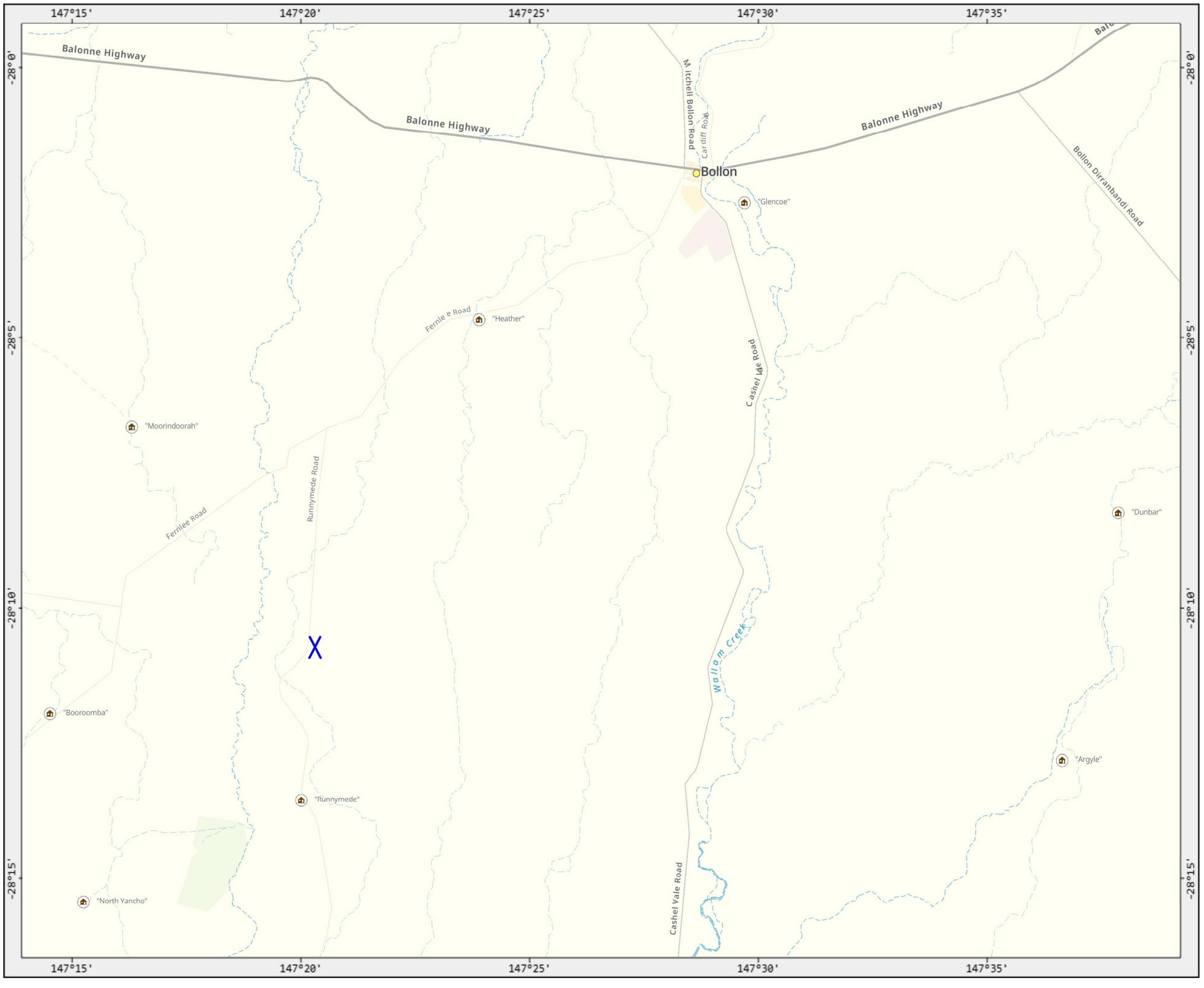
GeoResGlobe contains mining and exploration data for Queensland. These data include themes such as exploration, production and historical resource authorities, geological and geophysical data, native title areas and administrative boundaries for example.

An overlay of Historic Mining Permits, Resources (Mineral Occurrence and Geological Observation Data) and Abandoned Mines layers relating to the subject land was obtained from GeoResGlobe and shown in Figure 31.

As shown in Figure 31, the subject land does not contain any abandoned mines, open pits, current exploration permits or production permits.

A product of
GeoResGlobe





Legend

- EPC application
- EPC granted
- EPM application
- EPM granted
- EPM special application
- EPM special granted
- MDL permit application
- MDL access application
- MDL permit granted
- MDL access granted
- EPG application
- EPG granted
- PGA application
- PGA granted
- EPQ application
- EPQ granted
- PSA application
- PSA granted
- ATP application
- ATP granted
- PCA application
- PCA granted

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Scale: 1:140295

Printed at: A3

Print date: 10/10/2025

Projection: Web Mercator EPSG 102100 (3857)

For more information, visit https://georesglobe.information.qld.gov.au/help-info/Contact-us.html

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Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development

FIGURE 31

5.15 Natural hazards

Natural hazard events are inherently unpredictable and occur at many levels of severity and frequency and include bushfire, landslide, flood and coastal hazards such as storm tide inundation and erosion.

5.15.1 Bushfire

Bushfire hazard is managed through the *State Planning Policy 2017* as outlined in section 7.1.2. Mapping of bushfire hazard areas has been undertaken using factors to determine the potential intensity of a bushfire. These include:

- potential fire weather severity;
- extent of remnant and non-remnant bushfire prone vegetation;
- estimates of potential fuel loads for different regional ecosystems;
- landscape slope; and
- potential fuel load.

Bushfire mapping overlay of the subject land shows areas with a Medium Potential Bushfire Intensity and land within a Potential Impact Buffer of 100 m. Balonne Shire Council has adopted the state-wide bushfire hazard mapping as outlined on the SPP Mapping – Safety and Resilience to Hazards, Bushfire hazard area.

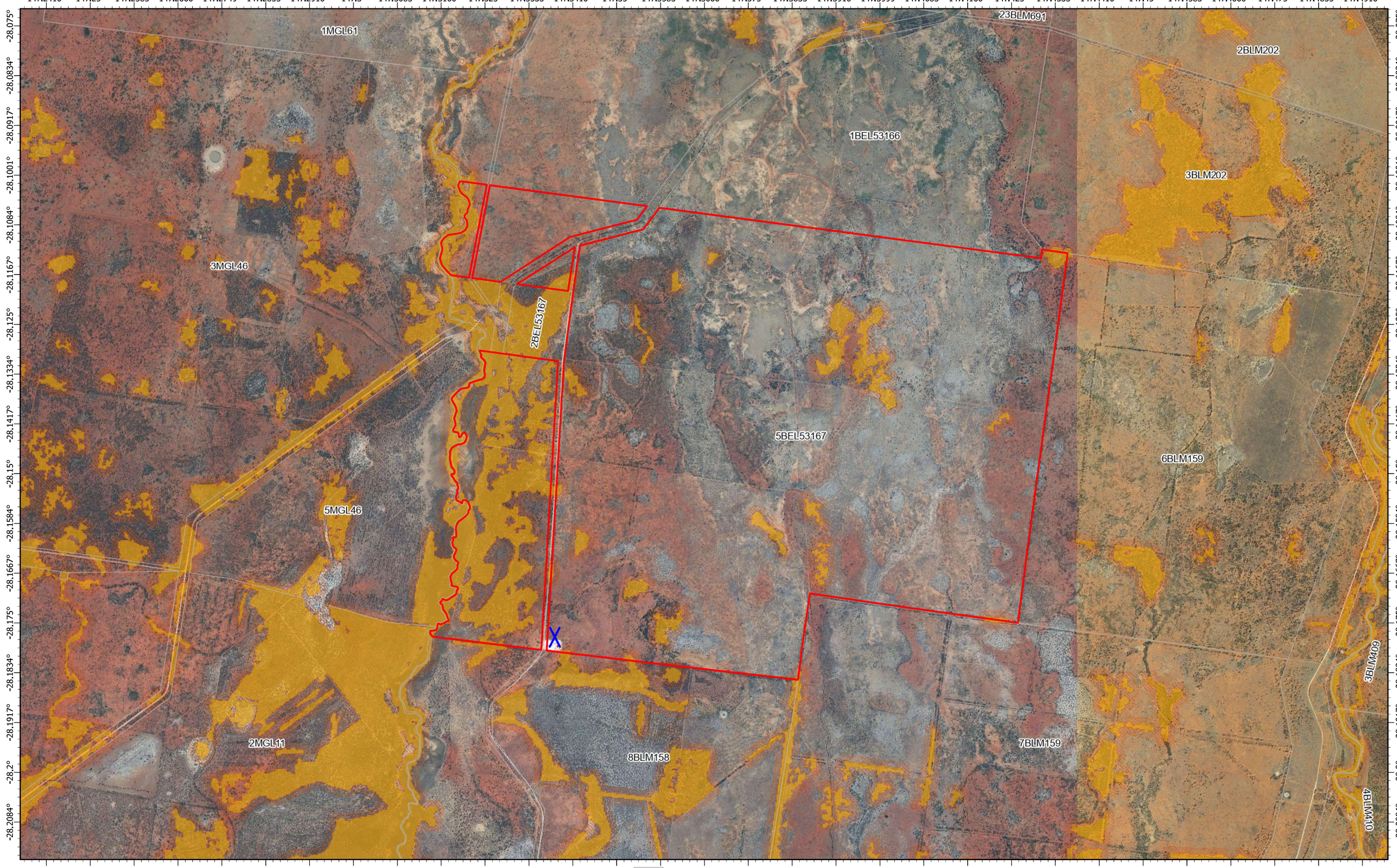
An overlay of bushfire hazard areas relating to the subject land was obtained from the DSDIP State Planning Policy (SPP) Interactive Mapping System (IMS) and shown in Figure 32.

Figure 32 shows that there are regions of medium potential bushfire intensity risk on the subject land and potential impact buffer. These regions correlate with areas mapped as regional ecosystems as shown on Figure 21.

Figure 21 shows that there are no aspects of the proposed development to be located within the areas mapped as regional ecosystems and infrastructure is setback a minimum of 50 m from areas of existing vegetation that is mapped as medium potential bushfire intensity risk. There are various measures proposed to mitigate the risk of bushfire on the proposed development as outlined in section 6.6.

Further information on the merits of the proposed development against the provisions of the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024) in relation to bushfire hazard can be found in section 7.

As the proposed development is not located in a 'designated bushfire-prone area' or propose to establish buildings, it does not trigger assessment against the Building Code of Australia (BCA) and Australian Standard AS3959-2009 Construction of buildings in bushfire-prone areas.



State Planning Policy IMS - Export Map

Making or amending a local planning instrument and designing land for local infrastructure

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N

Scale: 1:72,300

0 10 20 30

Metres

Cadastre (100k)

Bushfire prone area

CLASS

Medium Potential Bushfire Intensity

Potential Impact Buffer

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Date: 04/11/2025

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FIGURE 32

5.15.2 Flooding

Flood hazard is managed through the *State Planning Policy 2017* as outlined in section 7.1.2. State-wide mapping of flood hazard areas has been undertaken using factors to determine the potential areas impacted by flooding.

An assessment of the subject land and proposed development in relation to flooding has been undertaken in section 5.4.6.

5.15.3 Landslide

A landslide describes the movement of a mass of rock, debris or earth (soil) down a slope and are a form of mass erosion (Australian Geomechanics Society, 2007).

Landslides occur when the downward force of gravity acting on slope materials exceeds the cohesive force that holds the soil particles together, or the frictional force which holds the material to the slope. There are various contributing factors to a landslide including:

- steepness of the slope;
- shape of the hillside;
- physical properties of different materials in the subsurface profile;
- depth to the water table;
- the potential for subsurface water concentration; and
- vegetation cover (Department of State Development, Infrastructure and Planning, 2013).

No statewide hazard mapping is available for landslide. Land with a slope greater than 15 % can be used as an indicator to identify land potentially subject to landslide hazard (Department of Infrastructure, Local Government and Planning, 2016).

Figure 11 shows that the subject land is located on a relatively flay plain. The resource extraction area is to be located on a relatively flat area with a gentle slope of less than 0.3 %. The proposed development does not require the clearing of any vegetation as shown in Figure 21. Further, the proposed development shall not redirect the existing flow of surface or intersect the groundwater table.

Consequently, based on the criteria mentioned above, the proposed development is not sited in a potential landslide hazard area, and the siting, design and construction of the proposed development shall not increase the potential for landslide events.

Balonne Shire Council does not include landslide hazard mapping in the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024).

5.15.4 Coastal

An assessment of the subject land and proposed development in relation to coastal hazards has been undertaken in section 5.9.1.

The subject land is not located on the Queensland coast and not located in a coastal zone, coastal management district, coastal hazard area – erosion prone or storm tide inundation area as shown in Figure 25.

5.16 Matters of state environmental significance

Matters of state environmental significance (MSES) are a component of the biodiversity state interest that is defined under the *State Planning Policy 2017* (SPP) and defined under the *Environmental Offsets Regulation 2014* (Offset Regulation). MSES include:

a) protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992*;
b) 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zones under the Marine Parks Act 2004;
c) areas within declared fish habitat areas that are management A areas or management B areas under the *Fisheries Regulation 2008*;
d) a designated precinct, in a strategic environmental area under the Regional Planning Interests Regulation 2014, schedule 2, part 5, s15(3);
e) wetlands in a wetland protection area or wetlands of high ecological significance shown on the map of referable wetlands under the Environmental Protection Regulation 2019;
f) wetlands and watercourses in high ecological value waters identified in the Environmental Protection (Water) Policy 2009, schedule 1;
g) legally secured offset areas as defined under the *Environmental Offsets Act 2014*;
h) threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the *Nature Conservation (Wildlife) Regulation 2006*;
i) marine plants under the *Fisheries Act 1994* (excluding marine plants in an urban area);
j) waterways that provide for fish passage under the *Fisheries Act 1994* (excluding waterways providing for fish passage in an urban area);
k) High risk area on the flora survey trigger as described by the Environmental offsets Regulation 2014, schedule 2, part 6(1); and
l) regulated vegetation under the *Vegetation Management Act 1999* that is:

    i. category B areas on the regulated vegetation management map, that are 'endangered' and 'of concern' regional ecosystems
    ii. category C areas on the regulated vegetation management map that are 'endangered' and 'of concern' regional ecosystems
    iii. category R areas on the regulated vegetation management map
    iv. areas of essential habitat on the essential habitat map for an animal that is 'endangered wildlife' or 'vulnerable wildlife' or a plant that is 'endangered wildlife' or 'vulnerable wildlife' wildlife prescribed as 'endangered wildlife' or 'vulnerable wildlife' under the Nature Conservation Act 1992

v. category A,B,C,R areas that are located within a defined distance8 from the defining banks of a relevant watercourse identified on the vegetation management watercourse and drainage feature map
vi. category A,B,C,R areas that are located within 100 metres from the defining bank of a wetland identified on the vegetation management wetlands map.

An assessment of the proposed development against each matter of state environmental significance is provided in the following sections.

5.16.1 Protected areas (including all classes of protected area except coordinated conservation areas) under the *Nature Conservation Act 1992*

The subject land is not located within or adjacent to a protected area as defined under the *Nature Conservation Act 1992*.

5.16.2 'Marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zones under the *Marine Parks Act 2004*

The subject land is not located within or adjacent to a 'marine national park', 'conservation park', 'scientific research', 'preservation' or 'buffer' zones under the *Marine Parks Act 2004*.

5.16.3 Areas within declared fish habitat areas that are management A areas or management B areas under the *Fisheries Regulation 2008*

The subject land is not located in a declared fish habitat area as outlined in section 5.9.2.

5.16.4 A designated precinct, in a strategic environmental area under the Regional Planning Interests Regulation 2014, schedule 2, part 5, s15(3)

The subject land is not located in a designated precinct, in a strategic environmental area under the Regional Planning Interests Regulation 2014, schedule 2, part 5, s15(3) as outlined in 5.11.

5.16.5 Wetlands in wetland protection area or wetlands of HES shown on the map of referable wetlands under the *Environmental Protection Regulation 2019*

There are no wetlands in a wetland protection area shown on the map of referable wetlands under the *Environmental Protection Regulation 2019* on the subject land as outlined in section 5.6. The proposed development shall not be sited within the wetland trigger area.

There are wetlands of general ecological significance shown on the map of referable wetlands under the *Environmental Protection Regulation 2019* on the subject land as outlined in section 5.6. The proposed development site has been setback some 900 m from the closest wetland of

general ecological significance located to the south southwest of the proposed development site.

5.16.6 Wetlands and watercourses in high ecological value waters identified in the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, schedule 1

The proposed development shall have no impact on wetlands and watercourses in high ecological value waters identified in the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, schedule 1 as outlined in section 5.4.5 and section 5.6.

5.16.7 legally secured offset areas as defined under the *Environmental Offsets Act 2014*.

The subject land does not contain a legally secured offset area as defined under the *Environmental Offsetts Act 2014*.

5.16.8 threatened wildlife under the *Nature Conservation Act 1992* and special least concern animals under the *Nature Conservation (Wildlife) Regulation 2006*

As outlined in section 5.5.5 there are no critically endangered, endangered, vulnerable or no near-threatened species within a radius of 5 km from the proposed development site on the subject land.

It is highly unlikely that the proposed development shall have adverse impacts on the platypus (*Ornithorhynchus anatinus*) or the broader population of the echidna (Tachyglossus aculeatus) which are special least concern animals under the *Nature Conservation (Wildlife) Regulation 2006*. The proposed development site has been disturbed by activities associated with the former gravel pit on the subject land.

5.16.9 Marine plants under the *Fisheries Act 1994* (excluding marine plants in an urban area)

The proposed development does not involve disturbance of marine plants. There are no marine plants on or adjacent to the subject land as outlined in section 5.9.

5.16.10 waterways that provide for fish passage under the Fisheries Act 1994 (excluding waterways providing for fish passage in an urban area)

The subject land contains one (1) low level (green) waterway being Mungallala Creek that forms the western boundary of the subject land that provides for fish passage under the *Fisheries Act 1994* as outlined in section 5.4.5. However, the proposed development does not involve disturbance of this waterway or involve waterway barrier works as outlined in section 4.

5.16.11 High risk area on the flora survey trigger as described by the *Environmental Offsets Regulation 2014*, schedule 2, part 6(1)

There are no areas on the subject land that are shown to be a high risk area on the flora survey trigger map as described by the *Environmental Offsets Regulation 2014* as outlined in section 5.5.5 and shown in Appendix F.

As outlined in section 5.5.5 and shown on Appendix F, the proposed development shall be sited outside of a high risk area on the flora survey trigger map. Further, the proposed development extraction workings area is sited on previously cleared and developed land. Consequently, no protected plants shall be cleared as part of the proposed development.

5.17 Matters of national environmental significance

The EPBC Act lists nine matters of NES which must be addressed when assessing the impact of a proposal. The nine matters of NES are:

- world heritage properties;
- national heritage places;
- wetlands of international importance (often called Ramsar wetlands after the international treaty under which such wetlands are listed);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

Appendix I summarises the MNES that may occur in, or may relate to, the subject land or within a 5 km radius surrounding the proposed development site.

5.17.1 World heritage properties

There are no declared world heritage properties in proximity to the proposed development, or that would potentially be affected by the proposed development.

5.17.2 National heritage properties

There are no declared national heritage properties in proximity to the proposed development, or that would potentially be affected by the proposed development.

5.17.3 Wetlands of international importance (Ramsar Wetlands)

There are no Wetlands of International Importance in proximity to the proposed development, or that would potentially be affected by the proposed development. The closest wetlands of international importance are the Banrock station wetland complex and Riverland over 1,000 km downstream of the subject land.

5.17.4 Nationally threatened species and ecological communities

A search for Commonwealth-listed threatened ecological communities (EC's) has returned one (1) listed threatened EC's and that may occur in, or relate to, a buffer of 5 km from the proposed development site on the subject land.

There is one (1) EC's listed as an endangered ecological communities that are likely to occur within or surrounding the subject land being;

- Brigalow (*Acacia harpophylla* dominant In feature area and co-dominant).

In Queensland, these ecological communities coincide with several Regional Ecosystems. These regional ecosystems are listed as Endangered or of Concern under the Vegetation Management Act 1999. The proposed development is not sited in areas of regulated vegetation, and no regulated vegetation is proposed to be cleared as part of the proposed development.

Consequently, the proposed development is unlikely to have any adverse impacts on endangered ecological communities.

A search for Commonwealth-listed threatened species within a 5 km buffer from the proposed development site on the subject land has returned 18 listed species.

Two of these species are listed as critically endangered. These are the Curlew Sandpiper (*Calidris ferruginea*) and Plains-wanderer (*Pedionomus torquatus*) which may occur within the search area to forage or feed. The Curlew Sandpiper is listed as Endangered under the Nature Conservation Act 1992 (Queensland).

The Plains-wanderer is a small, quail-like bird with brownish plumage with a generally lanky appearance. The upperparts are pale creamy-buff, intricately patterned with fine black swirls known as 'vermiculations'. Its underparts are buffy with black crescents on the breast, giving a scaly or scalloped appearance.

Plains-wanderers are confined to native grasslands. To support the species, the structure of these grasslands needs to have short grass (<5cm tall) growing in patches or clumps (50% vegetative cover), with areas of bare soil between the clumps, and small amounts of vegetative litter on the ground. If the grass becomes too long or too dense, it becomes unsuitable; similarly, if it becomes too sparse, it also becomes uninhabitable for Plains-wanderers.

The proposed development is unlikely to have any adverse impacts on the Plains-wanderer as the proposed development site contains a very sparse coverage of native grasses as shown in Photograph 3.

The Curlew Sandpiper is a migratory shorebird. The proposed development will not affect the life cycle of this critically endangered species therefore there will be no decline in a population. The proposed development site does not provide suitable habitat for Curlew Sandpiper breeding. Consequently, the proposed development will not affect the life cycle of this species and there will be no decline in a population.

Further, no riparian vegetation is proposed to be impacted by the proposed development. No remnant vegetation on the subject land is proposed to be disturbed or cleared as part of the proposed development.

5.17.5 Migratory species

A search for migratory species within a 5 km buffer area of the proposed development site on the subject land has returned 7 (seven) listed migratory species.

One of these species, the Curlew Sandpiper is a migratory wetlands bird species listed as critically endangered and may occur within the search area to forage or feed. The Curlew Sandpiper is listed as Endangered under the Nature Conservation Act 1992 (Queensland).

However, the Curlew Sandpiper is a shorebird that mainly occurs on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. They are also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bore drains, usually with bare edges of mud or sand. They occur in both fresh and brackish waters.

As the subject land is not located in a coastal area or contain habitat favoured by the Curlew Sandpiper, it is unlikely that the Curlew Sandpiper will occur within the area or species habitat will occur on the subject land.

The proposed development will not disturb or clear any watercourses, drainage features or vegetation of ecological significance. Consequently, the proposed development will have minimal impact on the Curlew Sandpiper.

5.17.6 Commonwealth marine areas

There are no Commonwealth marine areas in proximity to the proposed development, or that would potentially be affected by the proposed development.

5.17.7 The Great Barrier Reef Marine Park (GBRMP)

The proposed development is not located in the GBRMP or in an area that drains directly into the GBRMP. Therefore, the GBRMP would not be affected by the proposed development.

5.17.8 Nuclear actions

The proposed development would not involve a nuclear action, as defined under the EPBC Act 1999.

5.17.9 A water resource, in relation to coal seam gas development and large coal mining development

The proposed development is not a coal seam gas or large coal mining development as outlined in section 4.

6 Environmental risk assessment

6.1 Introduction

The risk that an extractive industry development poses to the environment depends upon the vulnerability of the natural resources or amenity, and on the standard of design and management of the operation.

The purpose of an environmental risk assessment is to identify any actual or likely impacts that the proposed development may pose to the environment. This provides the basis for reducing impacts (or risks of impacts) through design, management or monitoring.

A risk assessment has been undertaken to ensure potential environmental risks from the proposed development are identified and addressed up-front with management strategies in place to mitigate the possible risks. The risk assessment approach has been used to identify the hazards that are not only industry-wide hazards but also the hazards posed due to the siting and operation of the proposed development.

There are certain Environmental Values outlined in the *Environmental Protection Act 1994 (EP Act*) that are required to be met when constructing and operating an environmentally relevant activity, such as an extractive industry. The objective of the EP Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).

6.2 Environmental risk assessment process

A risk management approach has been used to determine the severity and likelihood of any impacts the proposed development may have on the environment and to prioritise their significance.

This approach considers potential regulatory and legal risks as well as taking into consideration the concerns of community, vulnerability of site resources and the design and management of the proposed development and other key stakeholders.

The objectives of risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property;
- Qualitatively evaluate and categorise each risk item;
- Assess whether risk issues can be managed by environmental protection measures; and
- Qualitatively evaluate residual risk with implementation of measures.

The environmental risk assessment was undertaken in accordance with the following standards:

- Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2018 Risk management – Principles and guidelines; and
- Australian Standard/New Zealand Standard Handbook 203:2012 Managing environment-related risk (Standards Australia/Standards New Zealand 2012).

The main components of the risk assessment methodology include:

- **Hazard Identification**: Identifying potential hazards that are applicable to the proposed development activities and determining the hazardous events to be evaluated.
- **Risk Assessment**: Determining the possible causes that could lead to the hazardous events identified; the consequences of the hazardous events; and the safeguards and controls currently in place to mitigate the events and/or the consequences.
- **Risk Evaluation**: Evaluating the risks using the Risk Prioritisation Matrix (section 6.4). The risk ranking is determined by a combination of the expected frequency of the hazard occurring (likelihood) and the consequence of its occurrence. Note that when assessing the consequence, no credit is given to the hazard controls. Hazard controls are considered in determining the likelihood of the event.
- **Residual Risk Treatment**: Reviewing the proposed management controls for each of the risks identified and proposing additional controls or making recommendations, if required.

6.3 Hazard identification

The potential impacts on the existing environment by the proposed development include:

- Community amenity (air quality; visual, noise and vibration, traffic and transport);
- Air quality (dust, GHG);
- Groundwater quality and quantity;
- Surface water quality and quantity;
- Cultural heritage;
- Biodiversity (flora & fauna, regulated vegetation); and
- Landform disturbance (land degradation, rehabilitation).

6.4 Risk analysis

The risk analysis was conducted using the semi-quantitative approach in the Australian/New Zealand Standard AS/NZS ISO 31000 (2018). Firstly, the 'likelihood' and 'consequence' definitions were defined for the risk analysis. These are presented in Table 14 and Table 15 for 'consequence' and 'likelihood' definitions respectively.

Table 14 – Consequence assessment

Consequence	Environmental impact
Insignificant	Minor consequence
Minor	Environmental nuisance and default non-compliance
Medium	Material environmental harm
Major	Serious environmental harm
Extreme	High-level serious environmental harm

Table 15 – Likelihood definitions

Likelihood	Description	Frequency
Almost certain	Expected to occur in most circumstances	Occur once in a day or more often
Likely	Will probably occur in most circumstances	Occur once in a week or more often
Possible	Might possibly occur at some time	Occur once in a month or more often
Unlikely	Could occur at some time	Occur once in a year or more often
Rare	May occur in exceptional circumstances	Occur once in 5 years or more often

Risk characterisation describes the likelihood of exposure and consequences of exposure. Risk is described as the "hazard characterisation multiplied by the exposure characterisation". Risks are characterised as Low, Medium or High based on the risk assessment matrix in Table 16.

Table 16 – Risk assessment matrix

Likelihood		Consequence				
		Insignificant	Minor	Medium	Major	Extreme
		1	2	3	4	5
Almost certain	5	M8 Moderate	H16 High	H18 High	E23 Extreme	E25 Extreme
Likely	4	M7 Moderate	M10 Moderate	H17 High	H20 High	E24 Extreme
Possible	3	L3 Low	M9 Moderate	M12 Moderate	H19 High	H22 High
Unlikely	2	L2 Low	L5 Low	M11 Moderate	M14 Moderate	H21 High
Rare	1	L1 Low	L4 Low	L6 Low	M13 Moderate	M15 Moderate

Table 28 summarises the risk performance outcomes and potential risks associated with the operation of the proposed development. The choice for the probability and consequence ratings is based on specific management strategies that will be undertaken within the proposed development to reduce the impacts and are also based on the siting, design and construction of the development.

6.5 Risk evaluation

6.5.1 Noise and vibration

This section discusses the potential impacts from noise and vibration associated with the proposed development; including mitigation measures when practicable.

Due to the nature of the proposed development there is no discrete construction phase. The sources of noise emissions from the operation of the proposed development include:

- Mobile plant and machinery;
- Heavy vehicles transporting mobile plant and machinery to the site; and
- Heavy vehicles transporting construction materials from the site.

Potential noise impacts on sensitive receptors are expected to be minimal based on the implementation of several mitigation measures, the proximity of the proposed development to the closest rural dwellings.

The sources of vibration from the operation of the proposed development include:

- Continuous activities such as ripping and stacking material by mobile plant; and
- Mobile plant, equipment and construction material transport vehicles.

Blasting of material will not be required due to the weathered nature of the resource material. The material is able to be ripped by bulldozer.

6.5.1.1 Noise assessment

6.5.1.1.1 Environmental Protection (Noise) Policy 2019

The overall noise level generated by the proposed development should comply with the requirements of the Environmental Protection (Noise) Policy 2019. This policy states that the environmental values to be enhanced or protected under this policy are the qualities of the acoustic environment that are conducive to:

- protecting the health and biodiversity of ecosystem; and
- human health and wellbeing, including by ensuring a suitable acoustic environment for individuals to do any of the following;
  i. sleep;
  ii. study or learn;
  iii. be involved in recreation, including relaxation; and
- protecting the amenity of the community.

Table 17 is a summary of the acoustic quality objectives from the *Environmental Protection (Noise) Policy 2019* applicable to the sensitive receptors within the area of the proposed development.

Table 17 – Acoustic quality objectives (Environmental Protection (Noise) Policy 2019)

Type of sensitive receptor	Indicative noise amenity area	Time of day	Acoustic quality objective (measured at the receptor) dB(A)		
			$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$
Residence (Outdoors)	Rural	Daytime	50	55	65
		Evening	50	40	65
Residence (Indoors)	Rural	Daytime	35	40	45
		Evening	35	40	45
		Night	30	35	40
Notes: Daytime: 7.00 am – 6.00 pm / Evening: 6.00 pm – 10.00 pm / Night: 10.00 pm – 7.00 am.					

The acoustic quality objective stated in Table 17 is prescribed for enhancing or protecting the environmental value being health and wellbeing for each sensitive receptor.

The *Environmental Protection (Noise) Policy 2019* states noise criteria for controlling background creep, that to the extent that it is reasonable to do so, noise from an activity must not be:

(a) for noise that is continuous noise measured by $L_{A90,T}$ - more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$; or

(b) for noise that varies over time measured by $L_{Aeq,adj,T}$ - more than 5dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$.

$L_{A90,T}$ means the A-weighted sound pressure level, obtained using time-weighting 'F', that is exceeded for 90% of the measuring period (T).

$L_{Aeq,adj,T}$ means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a measuring period (T) has the same mean square sound pressure as a sound level that varies with time.

The Environmental Protection (Noise) Policy 2019 does not define "continuous noise", but by definition, the "continuous noise" would be required to occur for at least 90% of a measurement period (typically 15 minutes or 60 minutes). Therefore, this criterion could apply for equipment such as mechanical plant.

The criterion for "noise that varies over time" is appropriate for noise sources operating for less than 90% of a measurement period and could apply to intermittent events (e.g. vehicles) or mechanical plant that does not run continuously (e.g. refrigeration).

The acoustic quality objectives in the Environmental Protection (Noise) Policy 2019 do not apply for transport activities (road, rail, aircraft and ports). Transport activities associated with the proposed development will be assessed via other limits relevant to the transport mode (e.g. Traffic Noise Management Code of Practice (DTMR, 2013)).

There are no noise emission criteria prescribed by the *Balonne Shire Planning Scheme 2024* (Balonne Shire Council, 2024) in addition to the Environmental Protection (Noise) Policy 2019 criteria.

6.5.1.1.2 Existing environment

The proposed development is in a rural area dominated by agricultural activities such as rangeland goat, sheep and wool production and beef cattle grazing. The subject land is a large land holding and the nearest potentially affected noise sensitive receptor locations have been identified from examination of aerial imagery (Google Earth™) and a site inspection. The closest rural dwellings are located on the property "Runnymede" some 5,180 m due south of the proposed development site, whilst other sensitive receptors being rural dwellings are separated by over 9,000 m. These locations are shown in Figure 8.

The main sources of noise in the vicinity of the proposed development are from road traffic on the local road network.

The proposed resource extraction area is setback a minimum of 35 m from public roads and the subject land boundary as shown in Figure 5.

Indicatively, Table 18 presents typical background noise levels extracted from AS1055.3–1997 (Standards Australia, 1997). These are representative of background levels in rural areas and are considered applicable to the proposed development.

Table 18 – Estimated background noise levels (Standards Australia, 1997)

Description of neighbourhood	Average background A-weighted sound pressure level, L_{A90}					
	Monday to Saturday			Sunday and public holidays		
	7 am-6pm	6 pm- 10 pm	10 pm-7 am	7 am-6pm	6 pm-10 pm	10 pm-7 am
Area with low density transportation	40	35	30	40	35	30

6.5.1.1.3 Construction noise assessment

Due to the nature of the proposed development there is no discrete construction phase.

No infrastructure shall be developed as part of the proposed development and therefore there are no buildings or structures to be constructed. Consequently, the assessment of construction noise impacts is not relevant.

6.5.1.1.4 Operation noise assessment

Noise emissions from the operation of the proposed development would involve continuous and short-term or variable sources associated with the operation of mobile plant and machinery on the site and traffic movements. Winning and stacking of material by bulldozer would be continuous across the day, whilst short-term or variable sources include operation of the front-end loader (FEL) for loading trucks and truck movements. It should be noted that some sources will be operated on a campaign basis for several weeks but to account for worst-case scenario, they have been assessed on continuous day-time operation across the year.

The operation hours will be 12 hours per days, 7 days a week, unless otherwise directed working from 6.00 am to 6.00 pm during a campaign basis.

Operations will cease when activities and/or conditions are considered detrimental to the environment or risk causing environmental harm, such as during either wet or extremely dry weather conditions.

The operation of the proposed development does not involve plant and equipment that may produce additional low frequency noise. Items such as pumps, stationary diesel engines, are potential sources of high level, low frequency noise having frequency content less than 200 Hz (Roberts, 2004).

Table 19 outlines the typical sound pressure levels for a range of mobile plant and equipment. Some of mobile plant and equipment outlined in Table 19 shall be used during the operation

of the proposed development. The sound pressure levels shown in Table 19 are generalised values of construction machinery and equipment that have either been reproduced from Department of Planning Transport and Infrastructure (SA) (2014) or Australian Standard 2436 (Standards Australia, 2010). Noise generated by construction plant dissipates over distance.

Table 19 – Typical sound power level from construction equipment (Department of Planning Transport and Infrastructure (SA), 2014)

Equipment	Source *	Sound Pressure Level dB(A) 7m		20m		50m		100m		200m	
		$L_{eq\ (15min)}$	L_{max}	$L_{eq\ (15min)}$	L_{max}	$L_{eq\ (15min)}$	L_{max}	$L_{eq\ (15min)}$	L_{max}	$L_{eq\ (15min)}$	L_{max}
Asphalt truck/Sprayer	106	81	81	72	72	64	64	58	58	52	52
Backhoe	104	79	83	70	74	62	66	56	60	50	54
Batch plant	116	91	90	82	81	74	73	68	67	62	61
Bobcat (skid-steer loader)		85		76		68		62		56	
Bulldozer (large)	108	92	95	83	86	75	78	69	72	63	66
Bulldozer (small)	106	90	93	81	84	73	76	67	70	61	64
Chainsaw (4-5hp)	110	89	92	80	83	72	75	66	69	60	63
Cherry picker		80		71		63		57		51	
Compactor	113	88		79		71		65		59	
Compressor (silenced)	101	76		67		59		53		67	
Concrete truck	109	84	85	75	76	67	68	61	62	55	56
Concrete vibrator	103	78	80	69	71	61	63	55	57	49	51
Delivery truck	107	83	88	74	79	66	71	60	65	54	59
Dump truck	117	83	90	74	81	66	73	60	67	54	61
Dump truck (50t) - loaded	110	76	90	67	81	59	73	53	67	47	61
Dump truck (50t) - unloaded	117	83	90	74	81	66	73	60	67	54	61
Tracked excavator (5t)	100	77		68		60		54		48	
Tracked excavator (45t)	107	83	90	74	81	66	73	60	67	54	61
Forklift	106	81		72		64		58		52	
Front-end loader	113	88	90	79	81	71	73	65	67	59	61
Generator	99	78	81	69	72	61	64	55	58	49	52
Grader	110	85	90	76	81	68	73	62	67	56	61
Hand tools (electric)	102	77		68							
Hand tools (pneumatic)	116	91		82							
Hand-held vibrating compactor		83		74		66		60		54	
Jackhammer	121	96		87		79		73		67	
Loader moving with full bucket	105	76		67	70	59		53		47	
Mobile crane	104	88	91	79	82	71	74	65	68	59	62
Road truck	107	83	88	74	79	66	71	60	65	54	59
Roller		82	88	73	79	65	71	59	65	53	59
Scraper	116	85	98	76	89	68	81	62	75	56	69
Tub grinder & mulcher (40-50hp)	116	91	95	82	86	74	78	68	72	62	66
Vibratory roller	108	84	85	75	76	67	68	61	62	55	56
Water cart	107	82	83	73	74	65	66	59	60	53	54
Welding equipment	105	80	85	71	76	63	68	57	62	51	56

*A-weighted sound power levels - Typical mid-point

Table 20 below indicates the type of equipment, number of units and predicted noise levels during various operational activities associated with the proposed development. The type of mobile plant may change depending on fleet upgrades and is subject to change.

Table 20 – Typical sound power level from operational equipment (Department of Planning Transport and Infrastructure (SA), 2014)

Type	Number of units	Activity	Location	Typical sound power level (db(A))
Bulldozer	1	Clearing of vegetation and stripping of topsoil and overburden; Ripping, pushing and stacking material into stockpiles	Resource extraction area	108
Loader	1	Stockpiling and loading material onto the haul trucks.	Resource extraction area	113
Haul trucks (>20t)	M	Road registered vehicles delivery of materials to the project site		107

M = Multiple

A semi-quantitative assessment based on noise emissions of typical equipment to be used during operation has been undertaken due to the separation distances to sensitive receptors. Vegetation, terrain and metrological conditions have not been factored into the assessment. Further, no natural landform noise barriers or no acoustic shielding has been factored in. Most sensitive receptors to the east, west and northwest have stands of vegetation between them and the proposed development site which would attenuate the noise to some degree.

Therefore, the predicted noise levels in Table 21 represent a worst-case scenario and noise levels at these distances from equipment are likely to be much lower. For the assessment it has been assumed that a bulldozer, loader and a road transport truck are operating at the same time at full power.

Table 21 – Predicted sound power levels at nearby residential receptors during operation

Receptor	Distance to sensitive receptor m	Nearest Activity A-weighted Sound Power Level at Source* db(A)	Deduction from A-weighted Sound Power Level[1] db(A)	Predicted A-weighted Sound Power Level db(A)	Compliance with Acoustic Quality Objectives - daytime <45 db(A)
R1	12,300	118	101	16	Yes
R2	14,860	118	103	14	Yes
R3	5,180	118	92	26	Yes
R4	5,175	118	92	26	Yes
R5	11,915	118	101	17	Yes
R6	9,625	118	99	19	Yes
R7	9,695	118	99	19	Yes

*Assumes one bulldozer, one front end loader, crusher and screen and one truck operating at the same time

Notes: 1. Deduction from A-weighted Sound Power Level obtained from Figure B1 and Table D1 in AS2436-2010 – Guide to Noise Control on Construction, Maintenance and Demolition Sites.

Based on data from Table 20 and predicted A-weighted Sound Power Level at sensitive receptors (Table 21), noise generation from the operational activities of the proposed development at sensitive receptor are not expected to exceed the acoustic quality objective for daytime activities.

The *Planning for Noise Control* guideline (EPA, 2004) states that a partially open window can achieve a 10 dB(A) noise reduction from outside to inside. Therefore, an external limit will be 10 dB(A) higher than the internal limit. Consequently, assuming an attenuation of 10db(A) from outside to inside the dwelling, the operational noise from activities exceeds the acoustic quality objective for night-time (30 dB(A)). However, the operational activities shall only be undertaken during the day-time.

6.5.1.2 Vibration assessment

An assessment of the potential for vibration impacts has been undertaken to determine potential impacts as a result of vibration generated by mobile plant and equipment during operation of the proposed development. In particular, the assessment has considered the potential for impacts on both human comfort and structural damage for the nearest residence to the proposed development.

6.5.1.2.1 Assessment criteria

6.5.1.2.1.1 Non-blasting sources

In lieu of any Queensland guidelines, the vibration criteria presented in the Environmental Noise Management – Assessing Vibration: A Technical Guideline (2006) published by the NSW Department of Environment and Conservation (DEC) have been adopted for the

assessment. The technical guide provides vibration criteria associated with amenity impacts (human annoyance) for the three categories of vibration:

- Continuous vibration – e.g. road traffic, continuous construction activity;
- Impulsive vibration – includes less than 3 distinct vibration events in an assessment period (e.g. occasional dropping of heavy equipment); and
- Intermittent vibration – includes interrupted periods of continuous vibration (e.g. drilling), repeated periods of impulsive vibration (e.g. crushers) or continuous vibration that varies significantly in amplitude.

Table 22 and Table 23 present the criteria for continuous and impulsive vibration and intermittent vibration, respectively from Table C1.1 of NSW DEC (2006).

Table 22 – Continuous & Impulsive Vibration Criteria for Residences – Peak Velocity (NSW DEC (2006) Table C1.1)

Location	Vibration type	Preferred limit mm/s	Maximum limit mm/s
Residences	Continuous	0.28	0.56
Residences	Impulsive	8.6	17

Table 23 – Intermittent vibration criteria for residences (NSW DEC (2006) Table C1.1)

Location	Assessment period	Preferred limit mm/s	Maximum limit mm/s
Residences	Day time	0.20	0.40

The above criteria are suitable for assessing human annoyance in response to vibration levels. In order to assess potential damage to buildings, reference has been made to British Standard BS 7385-2: 1993 Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from ground borne vibration (British Standards Institute, 1993). Vibration criteria for assessing the potential for building damage at 10 m taken from British Standards Institute (1993) is presented in Table 24.

Table 24 – Transient vibration guide values for cosmetic damage (BS 7385-2:1993)

Location	Peak particle velocity mm/s 4 – 14 Hz	mm/s 15 Hz and above
Unreinforced or light framed structures – residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

6.5.1.2.1.2 Operation vibration assessment (Except blasting)

6.5.1.2.1.2.1 Vibration sources

Indicative vibration source levels for the vibration-significant equipment to be used at the proposed development are provided in Table 25. There are no vibration source levels for the processing plant (crusher, screener) as these typically do not create high levels of ground vibration, because they are designed to constrain and direct almost all of their vibration energy into performing their primary functions on the material being processed.

Table 25 – Proposed development – Vibration sources

Source	PPV mm/s	Reference
Loaded trucks (rough surface)	1.9	USA DT[a)]
Bulldozer	2.3	USA DT[a)]

a) Transit Noise and Vibration Impact Assessment Manual (US Department of Transportation, 2018)

6.5.1.2.1.2.2 Peak particle velocities

Based on the vibration source levels at 10 m presented in Table 25, peak particle velocities have been predicted at various separation distances. The NSW DECCW indicates that in predicting vibration levels, it can be assumed that the vibration level is inversely proportional to distance with the relationship varying between $d^{-0.8}$ to $d^{-1.6}$ based on field data).

The US Department of Transportation's Transit Noise and Vibration Impact Assessment (May 2018) presents the following construction vibration propagation formula assuming an inverse relationship:

$PPV@d_2 = PPV@d_1 \times (d_1/d_2)^{1.5}$

where:
d_1 = distance 1 (reference distance for source data) (m)
d_2 = distance 2 (separation distance for predicted PPV) (m)
PPV = peak particle velocity (mm/s)

The US Department of Transportation's Transit Noise and Vibration Impact Assessment (May 2018) construction vibration propagation formula was used to estimate the predicted peak particle velocity (PPVs) at various distances from construction equipment and are shown in Table 26.

Table 26 – Proposed development – Predicted peak particle velocity

Distance from source m	Predicted peak particle velocity (mm/s)	
	Loaded trucks (rough surface)	Tracked bulldozer
2	21.2	25.7
5	5.4	6.5
25	0.48	0.58
50	0.17	0.21
75	0.09	0.11
100	0.06	0.07
125	0.04	0.05
150	0.03	0.04
175	0.03	0.03
200	0.02	0.03
225	0.02	0.02
250	0.02	0.02
275	0.01	0.02
300	0.01	0.01
Type	Intermittent	Continuous
Nuisance criteria	8.6 (preferred) / 17 (max) 0.28 (preferred) / 0.56 (max)	
Building criteria	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz 20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above	

Compliance is achieved with the continuous preferred vibration nuisance criteria at a separation distance of 50 m as shown in Table 26. All sensitive receptors are setback well over this distance from the proposed development site and road network and therefore the nuisance vibration criteria will be achieved.

Compliance with the building damage criteria is predicted at less than 5 m from operations for each source as shown in Table 26.

For intermittent vibration associated with loaded transport vehicles, it is difficult to provide an appropriate comparison with the relevant criteria (which is presented as a Vibration Dose Value (VDV) in $m/s^{1.75}$). The calculation of a VDV requires both the overall weighted RMS (root mean square), and acceleration (m/s^2), typically obtained from on-site measurements and the estimated time period for vibration events.

It is noted that, however, that loaded transport movements (on rough surfaces) at distances in excess of 50 m is predicted to comply within the maximum continuous criteria of 0.56 mm/s. This comparison with the continuous criteria (as a conservative approach) indicates that vibration levels associated with operation of the proposed development are not considered to be significant (which is expected given the significant separation distances).

6.5.1.3 Conclusion

The proposed development is in a rural area dominated by agricultural activities. The nearest potentially affected noise sensitive receptor is located some 5,175 m from the proposed development site.

No infrastructure shall be constructed as part of the proposed development and therefore noise impacts from construction activities shall not result in any adverse impacts to noise sensitive receptors.

The main sources of noise during the operational phase are from mobile plant and machinery on the site and traffic movements.

It is conservatively predicted that operational noise will meet acoustic quality objectives of the EPP (Noise) 2019 policy without any additional acoustic mitigation. The operation of the proposed development is not expected to generate low frequency noise emissions.

The vibration impact assessment has considered the potential for adverse impacts upon human comfort and structural damage for the nearest residences to the proposed development from plant and equipment during operations. The assessment indicates that the proposed development can comply with applicable vibration criteria.

No blasting is proposed therefore there are no potential impacts arising from airblast pressure and ground vibration from blasting.

The following best practice mitigation and management measures would be used to minimise noise impacts at sensitive receptors:

- All vehicles and equipment would be turned off and not left idling when not required for work uses.
- Works would be undertaken during approved operation hours.
- All equipment would be well maintained in accordance with the manufacturer's specifications.
- All plant would be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.
- A complaints register will be kept and maintained to record and respond to any noise related complaints.

6.5.2 Air quality

The proposed development can impact air quality through dust generation. This section discusses the potential impacts from dust associated with the proposed development; including mitigation measures when practicable.

6.5.2.1 Dust

Dust may be generated from activities associated with the proposed development and if inadequately controlled have the potential to cause nuisance at residences or to local road users.

The main pollutants to be released from the operation of the proposed development will be dust (particulate matter (PM)) emissions.

Airborne particulate matter typically consists of dust particles of varying size fractions. From a health and nuisance perspective, particles are categorised primarily by size as total suspended particulates (TSP), PM_{10} and $PM_{2.5}$ and deposited dust levels.

Although, TSP is defined as the total mass of all particles suspended in air, an effective upper limit of 30 microns aerodynamic diameter is assigned. Within the TSP matter, lie two sub-categories; particulate matter with an equivalent diameter of 10 microns or less (PM_{10}) and particulate matter with an equivalent diameter of 2.5 microns or less ($PM_{2.5}$)

Dust deposition rate is the mass of particulate matter that collects over an area for a certain time period (usually monthly). Dust deposition is used as a measure of the potential for dust to affect amenity.

6.5.2.1.1 Environmental Protection (Air) Policy 2019

Air quality is managed under the Environment Protection Act 1994, the Environmental Protection Regulation 2019 and the EPP (Air) Policy 2019.

The Act provides for long-term protection for the environment in Queensland in a manner that is consistent with the principles of ecologically sustainable development. The primary purpose of the EPP (Air) Policy 2019 is to achieve the objectives of the Act in relation to Queensland's air environment.

Schedule 1 of the EPP (Air) 2019 specifies the air quality objectives that are to be (progressively) achieved though no timeframe for achievement of these objectives is specified. The Schedule includes objectives designed to protect the environmental values of:

- Health and well-being
- Health and biodiversity of ecosystems
- Aesthetic environment
- Agriculture

Dust from extraction, loading, stockpiling, product delivery, hardstands and rehabilitation activities on the site have the potential to cause nuisance dust. If dust emissions are

uncontrolled, they can impact on sensitive receptors and detract from the aesthetic values of vegetation.

Vehicle movements along unsealed roads can generate dust. Runnymede Road from the intersection with Fernlee Road to its terminus is unsealed. There are no receptors within close proximity to Runnymede Road. Unsealed roads on the subject land are potential sources of dust generation. However, sensitive receptors are setback over 5,175 m from the internal subject land road network. Consequently, any potential dust generated from these roads shall not impact on sensitive receptors.

6.5.2.1.2 Air quality assessment criteria

Air quality objectives (hereafter 'assessment criteria') referenced from Schedule 1 of the EPP (Air) Policy 2019 applicable for the assessment are summarised in Table 2 for the identified pollutants.

There are no assessment criteria for deposited dust levels within the EPP (Air) Policy 2019. Consequently, the NSW-EPA published 'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW' (NSW-EPA, 2017) was used to obtain the assessment criteria for deposited dust levels

Table 27 – Air quality assessment criteria

Indicator	Environmental Value	Air Quality Objective / Assessment Criteria	Averaging Period	Source / Reference
TSP	Health and wellbeing	90 µg/m3	Annual	EPP (Air) Policy 2019
PM_{10}	Health and wellbeing	50 µg/m3	24-hours	EPP (Air) Policy 2019
		25 µg/m^3	Annual	
$PM_{2.5}$	Health and wellbeing	25 µg/m3	24-hours	EPP (Air) Policy 2019
		8 µg/m^3	Annual	
Deposited dust levels	Amenity	4 g/ m^2/month – *maximum total deposited dust level*		NSW EPA 2017

6.5.2.1.3 Existing environment

The proposed development is in a rural area dominated by agricultural activities such as rangeland goat production, sheep and beef cattle grazing. The subject land is a large land holding and the nearest potentially affected noise sensitive receptor locations have been identified from examination of aerial imagery (Google Earth™) and a site inspection. The closest rural dwelling is located on the property "Runnymede" some 5,180 m due south of the proposed development site, whilst other sensitive receptors being rural dwellings are separated by over 9,000 m. These locations are shown in Figure 8.

No monitoring of particulate concentrations (TSP, PM_{10} and $PM_{2.5}$) is undertaken in the region. The nearest NEPM monitoring station is at Mutdapilly, near Ipswich which is approximately 520 km east of the proposed development site and not representative of the development site. Further, no dust deposition monitoring is undertaken at any of the NEPM monitoring stations.

6.5.2.1.4 Dust assessment and control measures

Due to the scale and rural location of the development and given that there are no sensitive receptors within close proximity to the proposed development site the dust impacts shall be assessed by specific mitigation treatments, management methods and procedures that would be implemented to control dust emissions during site activity and operations rather than modelling od impacts.

The following air quality control / mitigation measures are proposed to be implemented for the proposed development. These measures are aimed at reducing the impacts on surrounding land-uses. Measures include:

- Ensuring all road trucks have tarped loads.
- Maintaining sufficient storage of stormwater for use as dust suppression for haul roads and stockpiles, particularly during the dry season.
- Enforcing a 40 kph maximum speed limit on access roads;
- Progressive rehabilitation of quarry benches to reduce exposed topsoil or weathered rock.
- Monitoring the prevailing wind direction and preparing to implement additional mitigation measures if unfavourable wind is observed; and
- Appropriate exhaust systems to be installed and maintained on all combustion engines to reduce particulate matter emissions.
- Conducting air quality monitoring, if required by the administering authority; and
- Reporting all complaints to the administering authority.

6.5.2.1.5 Conclusion

The proposed development is in a rural area dominated by agricultural activities. The nearest potentially affected noise sensitive receptor is located some 5,175 m from the proposed development site.

The main sources of dust during the operational phase are wind generated from extraction, loading, stockpiling, product delivery, hardstands and rehabilitation activities on the site and from vehicle movements along unsealed roads.

It is predicted that potential dust impacts can be mitigated through the implementation of management measures such as dust suppression particularly on unsealed roads.

6.5.2.2 Visual

The visual impact of the proposed development, including both short-term and long-term impacts has been determined by considering both visual effect and visual sensitivity. Visual effect is a measure of the level of visual contrast and integration of the proposed development with the existing landscape.

The degree of this contrast with the existing landscape will determine the level of visual effect. For example, a new development will have a higher visual effect due to strong contrast with the existing visual environment. Changes to an existing development will have a lesser visual effect due to elements of the development being present in the landscape.

Visual sensitivity is a measure of how critically a change to the existing landscape is viewed by people from different land use areas in the vicinity of the proposed development. In this regard, residential, tourist and / or recreation areas generally have a higher visual sensitivity than other land use areas including industrial, agricultural or transport corridors. This is because land uses with a higher visual sensitivity, such as residential, use the scenic amenity values of the surrounding landscape and may be used as part of a leisure experience and often over extended viewing periods (such as a regional tourist drive).

The visual sensitivity of individual viewing locations varies according to:

- Screening effects of any intervening topography, buildings or vegetation. Viewing locations with well screened views of the proposed development will have a lower visual sensitivity than those with more open views;
- Viewing distance from the viewing location to visible areas of the proposed development. The longer the viewing distances, the lower the visual sensitivity; and
- General orientation of residences to landscape areas affected by the proposed development. Viewing locations with strong visual orientation towards the proposed development (i.e. those residences with areas such as living rooms and/or verandas orientated towards it) will have a higher visual sensitivity than those not orientated towards it, and which do not make use of the views toward the proposed development.

The subject land has been affected by impacts commonly associated with agricultural development. This existing disturbance includes vegetation clearing, pasture improvement and the extraction of gravel for road construction. The current vegetation pattern includes scattered vegetation becoming denser along drainage lines and the subject land boundaries and areas less suitable for agricultural pursuits.

The proposed development has a large horizontal and low vertical scale. Whilst the visual effect of the proposed development is high, the low vertical scale ensures that all viewing locations are generally screened by some of the intervening topography and/or vegetation, limiting the visibility of the proposed resource extraction area from all sensitive receptors.

There are no residential dwellings that have direct views of the proposed development complex. The closest residential dwelling is over 5,175 m to the south. All residential dwellings are unsighted due to intervening topographic and vegetation features.

There are views of the proposed development site along a 350 m stretch of Runnymede Road immediately west of the site where there is no vegetation along the subject land boundary or within the road reserve as shown in Photograph 15. There are no views from Fernlee Road or the Balonne Highway due to distance and intervening topographic and vegetation features.

Runnymede Road is a local road which runs south parallel with Mungallala Creek and provides access to rural properties and is not a connector or arterial road. There are few rural dwellings serviced by the segment of Runnymede Road to its intersection with Woolerina Road. The main tourist route is the Balonne Highway.

The proposed resource extraction area has not been sited on the side of a regional topographic high or require removal of vegetation where visual scarring may result. The resource extraction area is a pit which will be entirely below ground. Visual impact will be limited to stockpiles of material which should be depleted at the end of each campaign.

Consequently, the visual impact of the proposed development is low from key viewing locations with impact limited to the local setting in the vicinity of Runnymede Road west of the proposed development site.

As there is no proposed built infrastructure and the resource extraction area is below ground no additional screening of the site is proposed.

Retention of as many of the existing vegetation and the maintenance of the proposed development and its associated infrastructure in a clean and tidy condition will generally assist in the management of the visual impact of the development.

Consequently, the proposed development is not expected to impact on the visual amenity of sensitive receivers or the landscape character of the area in the immediate vicinity.



Photograph 15 – Proposed development – Development site – Viewed from Runnymede Road



Photograph 16 – Proposed development – Development complex site – Viewed from the Fernlee Road



Photograph 17 – Proposed development – Development site – Looking towards closest receptor

6.5.3 Soils

6.5.3.1 Land contamination

A search of the DETSI Environmental Management Register and the Contaminated Land Register was undertaken on the subject land. The subject land is not included on either the Environmental Management Register or the Contaminated Land Register.

Due to the elevation of the proposed development site in the landscape, the disturbance of potential acid sulfate soils is low.

6.5.3.1.1 Management measures

- Any exposure or disturbance of potentially/suspected contaminated soil or material would be managed in accordance with relevant DETSI and BSC policy and guidelines. Any required disposal of such waste would be at a licensed facility;
- Visual monitoring of local water quality (i.e. turbidity, hydrocarbon spills/slicks) downstream of the proposed development site is to be undertaken on a regular basis to identify any potential spills or deficient erosion and sediment controls during operation.
- Refuelling of equipment is to be managed in order to prevent any potential spills leaving the refuelling area.
- All volumes of fuels, oils and other hazardous materials will be stored within a self-bunded container or storage device. The design and construction of fuel storage areas in accordance with Australian Standard AS1940: The storage and handling of flammable and combustible liquids.
- No refuelling of plant is to occur within 50 m of any watercourses.
- Spill trays will be used to contain hazardous materials where necessary.
- The provision of spill control kits at all hydrocarbon and chemical storage areas.
- All spills and leaks shall be cleaned up immediately using spill kits provided and/or plant.
- Daily prestart inspections, regular maintenance and servicing will be conducted to prevent machine malfunction.
- No hazardous substances or construction waste will be placed in or near any open drainage paths or waterways.
- Spill response equipment shall be kept on-site at all times.
- Unnecessary storage of fuels and hazardous materials would be avoided.
- All equipment would be maintained in good working order and operated according to manufacturer's specifications.

6.5.3.2 Erosion and sediment control

The proposed development site has been subject to previous ground disturbance from land clearing and agricultural pursuits. There is the potential for works to impact soils and water resources during the establishment and operational phase primarily from the concentration of

stormwater runoff causing erosion, degradation of topsoil resources and deposition of sediments to internal and external drainage lines erosion.

The local topography is relatively flat to gently sloping towards Mungallala Creek some 2,175 m west of the proposed development site. Whilst this water resource exists locally, no watercourses or waterways traverse the proposed resource extraction area or within 2,000 m.

Stormwater runoff from outside of the resource extraction area shall be excluded from the area by diversion banks and catch drains and directed to pre-development outlets. All surface water runoff from the proposed development site is currently directed to overland flow dams. Stormwater runoff from within the resource extraction area is captured by a sedimentation basin in the void where it will be used as dust suppression when there is sufficient volume.

Therefore, the level of risk for erosion and sedimentation impacts is low and standard construction management measures for the control of erosion and sedimentation would appropriately avoid and/or mitigate any potential impacts. An erosion and sediment control plan would be prepared for the development and implemented on site before the works commence. Subject to implementation of the safeguards below, no adverse impacts would result.

6.5.3.2.1 Management measures

- Prepare a site-specific Sediment and Erosion Control Plan in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines (International Erosion and Sediment Control (IECA) (Australasia) 2008) and implement on site before works commence.
- Implement (before works commence) and maintain appropriate control measures to prevent sediment leaden water and other potential pollutants from entering waterways and the receiving environment.
- Install and maintain appropriate sediment fences around disturbance areas:
- Divert clean stormwater runoff, using catch drains, around disturbance areas to existing or new stormwater drainage system.
- Any stockpiles of topsoil and overburden shall be located where risk of erosion and sediment is minimal and protected from water erosion.
- Implement and maintain appropriate control measures such as catch drains to prevent ponding of stormwater or discharge of stormwater from the site to road network.
- Provision of spill/pollution control equipment that is readily accessible to clean up spills and leaks.
- Ensure spill/pollution control measures are available and maintained in working condition.
- Implement an inspection schedule for any spill or leaks of any potential polluting areas or activities.
- Regularly check and maintain erosion, sedimentation and stormwater control measures.

6.5.4 Water

6.5.4.1 Surface water

6.5.4.1.1 Quality

The proposed development is located within the Wallan Creek sub catchment of the Balonne-Condamine drainage basin. Water planning in the Balonne-Condamine drainage basin Mungallala Creek sub area is managed under the Water Plan (Warrego, Paroo, Bulloo and Neebine) 2016.

At a local scale the proposed development site is in the Mungallala Creek catchments. Mungallala Creek for part of its length forms the western boundary of the subject land. The drainage of the proposed development site is not well defined and is characterised by relatively flat land via broad overland flows paths and drains.

The quality of Queensland waters is protected under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019. EPP (Water and Wetland Biodiversity) schedule documents have not been finalised for the Wallam Creek sub area of the Balonne-Condamine drainage basin. Consequently, the proposed design, construction and operation of the proposed development along with mitigation measures shall ensure that the EVs and WQOs for the Wallam Creek sub area of the Balonne-Condamine drainage basin are maintained or enhanced in accordance with the object of the Environmental Protection Act 1994.

The subject land has been developed for agricultural purposes, including extensive grazing of sheep, cattle and rangeland goats.

The proposed development has the potential to impact the environmental values of surface waters on the subject land through the release of sediment in stormwater runoff and therefore measures are in place to mitigate any potential impacts.

The proposed development has been sited over 2,000 m from Mungallala Creek. There is effective ground cover (>70%) between the proposed development site and Mungallala Creek to retain organic matter, maintain soil structure, reduce runoff and minimise risk of erosion.

Stormwater runoff from outside of the resource extraction area shall be excluded from the area by diversion banks and catch drains.

Consequently, there is a minimal risk of surface water contamination from the proposed development.

6.5.4.1.2 Quantity

Surface water shall not be used a source of water for the proposed development. As outlined in section 5.4.4, the subject land does not have established agricultural enterprises supported by surface water extraction.

Consequently, the proposed development shall have no impact on the quantity of surface water in the local area.

6.5.4.2 Groundwater

6.5.4.2.1 Quality

The proposed development has the potential to impact the environmental values of groundwater at or in the vicinity of the site through the release of contaminants such as hydrocarbons from spills/leaks from plant and equipment or from intersection of the water table within the resource extraction area.

As outline in section 5.4.4, the water table is very deep and is overlain by thick layers of clay and shale. Consequently, the proposed development has a low risk of intersecting the water table or contaminating groundwater.

6.5.4.2.2 Quantity

Groundwater shall not be used as the source of water for the proposed development. As outlined in section 5.4.4, the subject land does not have current entitlements for groundwater for purposes other than Stock & Domestic'.

Consequently, the proposed development shall have no impact on the quantity of groundwater in the local area.

6.5.5 Biodiversity

The proposed development shall be sited on an area historically cleared of vegetation and which currently contains no regrowth shrubs and trees. No areas of regulated vegetation will be removed or disturbed as part of the proposed development.

Consequently, the proposed development shall have no adverse impacts on biodiversity on the subject land or immediate surrounds.

6.5.6 Cultural heritage

As outlined in section 5.7.1, a search of recorded aboriginal cultural heritage from the Department of Aboriginal and Torres Strait Islander Partnership database indicates that there that there are no sites of Aboriginal cultural heritage currently registered on the subject land or within a 2 km radius of the subject land.

The subject land has been affected by impacts commonly associated with agricultural development including vegetation clearing and livestock grazing. Consequently, pursuant to the Cultural Heritage Duty of Care Guidelines, the proposed development is classed as a 'Category 4 activity' – Areas previously subject to significant ground disturbance. As the

proposed development is a Category 4 activity it is generally unlikely that it could harm Aboriginal cultural heritage.

The proposed development will comply with the Cultural Heritage Duty of Care Guidelines. Although the area has previously been extensively cleared and developed for agricultural purposes, the applicant shall take all reasonable and practical measures to ensure the activity does not harm any Aboriginal cultural heritage.

6.5.7 Waste

The proposed development must conform to the management hierarchy outlined in the Waste Reduction & Recycling Act 2011. The waste and resource management hierarchy states:

"The waste and resource management hierarchy is the following precepts, listed in the preferred order in which waste and resource management options should be considered:

(a) AVOID unnecessary resource consumption;
(b) REDUCE waste generation and disposal;
(c) RE-USE waste resources without further manufacturing;
(d) RECYCLE waste resources to make the same or different products;
(e) RECOVER waste resources, including the recovery of energy;
(f) TREAT waste before disposal, including reducing the hazardous nature of waste; and
(g) DISPOSE of waste only if there is no viable alternative".

The approach taken on waste management for the proposed development will be consistent with the waste management hierarchy outlined above.

The operation of the proposed development shall generate a small quantity of in-organic solid wastes such as product packaging, paper etc.

Waste tyres may be generated from the operational phase of the proposed development. The tyres would be damaged tyres (uneconomical to repair) taken from rubber-tyred plant and equipment on-site. It is estimated that only a small number of these tyres would be generated (<10) and of various sizes (loader tyres, truck tyres). All tyres would be removed off-site by the operator for recycling.

The operational phase shall generate negligible quantities of putrescible solid waste. The only rubbish generated should be personal waste from operators. All putrescible solid waste shall be removed off-site on a daily basis by the operational workforce.

6.5.8 Biosecurity

Biosecurity relates to preventive measures designed to reduce the risk of transmission of infectious diseases, invasive pests or weeds which may impact on biodiversity values, animal or human health. Biosecurity risks shall be managed in accordance with the general biosecurity obligation and the proposed development's relevant environmental management plans.

All equipment arriving on-site shall be clean and free of soil and matter which may be a vector for transmission of weed seeds, pest animals or the like.

The implementation of a Site Based Environmental Management Plan shall minimise potential adverse biosecurity risks during the operational phase.

Consequently, with the implementation of environmental management plans, the proposed development shall have no adverse impacts on biosecurity.

6.6 Residual risk treatment

Table 28 summarises the risks associated with the proposed development. From Table 28 it is evident that the proposed development does not pose a high risk to the environment once siting, design and management strategies are applied during the operation phase. The largest risk from the proposed development will be to air quality in relation to community amenity from dust and noise and from traffic and transport.

Table 28 – Operation environmental aspects and impacts

Category	Operation Activities / Aspect	Potential Impacts	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level after mitigation	Relevant Management Document / Training required
Air quality	• Site establishment • Vegetation clearing • Topsoil stripping • Overburden removal • Ripping and stacking • Stockpiling • Vehicular movements on unsealed roads • Material haulage • Vehicle emissions • Exposed bare earth areas • Vehicle emissions • Rehabilitation activities	Complaints from neighbours, including loss of amenity and impacts of dust.	**M9 – Moderate**	• Induct personnel on air quality issues and safeguards. • Suppress dust on unsealed surfaces, stockpiles and other exposed surfaces. • Modify or cease operations during high winds. • Vehicle movements will be restricted to designated and approved routes. • All trucks to cover loads. • Vehicles to obey the on-site speed limits. • Vehicles, equipment, machinery used and all facilities – designed, operated and maintained to control the emission of smoke, dust and fumes. • All disturbed areas stabilised and rehabilitated as soon as practicable after completion. • Ensure there is an adequate supply of water for dust suppression. • Minimise tracked mud/dust on public roads. • No burning or incineration of any material at any time. • Regularly inspect erosion controls. • Dust deposition measurement/modelling if required by regulatory authority. • Machinery and equipment to comply with Australian Standards for air emissions and be maintained to original equipment manufacturer (OEM) specifications.	**L3 - Low**	Site Based Environmental Management Plan Development approval conditions Environment Protection (Air quality) Policy 2019 Complaints Register Personnel training and awareness Personnel induction
		Impacts on residential sensitive receivers, including impacts on living areas, swimming pools and general amenities.	**M9 – Moderate**		**L2 - Low**	
		Potential adverse health effects.	**M11 – Moderate**		**L1 - Low**	
		Impacts on water quality and other aspects of the natural environment.	**L5 – Moderate**		**L1 - Low**	
		Dust on crops including broadacre crops or other agricultural crops.	**L5 – Low**		**L2 - Low**	
Groundwater – Quantity and quality	• Groundwater use exceeding Development's allocation and entitlements • Spills or leaks of hazardous materials	Potential for localised drawdown of groundwater resources.	**M11 – Moderate**	• Development and implementation of emergency and contingency plans detailing methods to manage spills or other emergencies on site, such as sediment basin overflows etc • Sustainable use of groundwater in accordance with the Developments allocation and entitlements.	**L1 – Low**	Site Based Environmental Management Plan Development approval conditions

	stored or used on-site such as fuels, chemicals etc. • Inappropriate storage of solid and/or liquid wastes.	Impacts to the quality of groundwater in the vicinity of the Development.	**M11 – Moderate**	• Groundwater extraction managed to ensure sustainable drawdown rates • Groundwater monitoring (quantity and quantity) is undertaken on the basis prescribed by the EA. • Solid waste stored and removed off-site for and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements • Liquid waste stored and removed off-site in accordance with regulatory requirements. • Hazardous materials are stored and used in accordance with relevant guidelines and Australian Standards for the storage of hazardous and dangerous goods and spill management.	**L1 – Low**	Personnel training and induction
		No aquifers intersected by the quarry, thus no alteration of groundwater levels due to dewatering in the pit.	**L6 – Low**		**L1 – Low**	
		No alterations to recharge from rainfall due to the partial removal of high permeability material (e.g. shale) and low permeability material (e.g. clayey alluvium)	**L6 – Low**		**L1 – Low**	

		No artificial recharge from stormwater /sediment retention dam and dust suppression.	**L6 – Low**		**L1 – Low**	
		Aquifers outside of the development area will continue to receive recharge via the same processes that occurred pre-extraction.	**L6 – Low**		**L1 – Low**	
Surface water – Quantity and quality	• Surface water use exceeding Development's allocation and entitlements • Inappropriate storage and /or uncontrolled release of liquid wastes as a result of overflows, integrity failure or exceedance of design criteria. • Spills or leaks of hazardous materials stored or used on-site such as fuels, chemicals etc • Inappropriate storage of solid wastes	Potential for drawdown of surface water resources.	**M13 – Moderate**	• Development and implementation of emergency and contingency plans detailing methods to manage spills or other emergencies on site, such as sedimentation pond overflows, etc. • Vegetative buffers around drainage lines and surface waters designed to help protect surface water are maintained in their intended condition. • Solid waste stored and removed off-site for and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements • Liquid waste stored and removed off-site in accordance with regulatory requirements. • Rainwater falling on the development area will be collected in the sedimentation pond for on-site reuse. • Sustainable use of surface water in accordance the Development's allocation and entitlements. • Hazardous materials are stored and used in accordance with relevant guidelines and Australian Standards for the storage of hazardous and dangerous goods and spill management. • Specific construction activities will only be undertaken during dry weather. No clearing of vegetation or topsoil/overburden removal will be carried out during heavy rainfall.	**L6 – Low**	Site Based Environmental Management Plan Development approval conditions Personnel training and induction
		Loss of or damage to aquatic habitat.	**M11 – Moderate**		**L6 – Low**	
		Erosion of exposed soils causing sedimentation of waterways and aquatic environments	**M11 – Moderate**		**L6 – Low**	
		Changes to water chemistry, in particular pH values altering aquatic habitats, including threatened species habitats.	**M11 – Moderate**		**L6 – Low**	

		Impact to water quality due to fuels and leaks and inappropriate storage of hazardous material.	**M11 – Moderate**	• No refuelling of plant is to occur within 50 m of any watercourses. • All spills and leaks shall be cleaned up immediately using spill kits provided and/or plant.	**L6 – Low**	
Biodiversity	• Clearing of remnant vegetation • Works near vegetation • Stockpile / haul road construction near vegetation • Open excavation works • Vehicular movements • Use of chemicals • Noise impacts • Uncontrolled fires/bushfires	Loss of or damage to habitat for threatened species	**L5 – Low**	• Vegetation clearing boundaries are clearly marked and visible as required. • Any flora and fauna habitat areas required to be protected shall be identified and marked. • Clearing restricted to those areas required for development operation and firebreaks. • Minimise clearing of all vegetation • Retain all habitat trees where practicable. • Induct personnel on biodiversity issues and mitigation measures. • Induct personnel on the proper recognition of declared weed species known to occur in the area. • Disturbed areas will be monitored for effective soil stabilisation and restoration and rehabilitation. • Implement ongoing weed monitoring and management program to remove pest plant species and weeds. Control shall be achieved by regular mowing or herbicide application. Knockdown or residual herbicides (or a combination of the two) shall be used depending on whether the weeds have emerged, the time of year and the weeds present. • Minimise clearing of all vegetation and undertake progressive revegetation. • Disturbed areas to be rehabilitated will be monitored for effective restoration and rehabilitation. • All habitat trees retained where practicable. • Implement vehicle hygiene procedures to prevent the introduction and spread of pest plants. • Provisions to limit heavy vehicle speeds and for signage along access roads • Methods and communication tools to monitor road strike and mortality of wildlife • Placement of coarse woody debris.	**L4 – Low**	Site Based Environmental Management Plan Weed management procedure Vehicle hygiene procedures Personnel induction
		Potential impact on endangered ecological communities	**L5 – Low**		**L4 – Low**	
		Loss and fragmentation of riparian and aquatic habitat	**L5 - Low**		**L4 – Low**	
		Mortality of protected and threatened fauna	**M9 – Moderate**		**L5 – Low**	
		Creation of barriers to fauna movement	**L5 – Low**		**L4 – Low**	
		Edge effects from road noise and light	**L5 – Low**		**L4 – Low**	
		Introduction and spread of terrestrial and /or aquatic weeds and pest fauna species	**M9– Moderate**		**L5 – Low**	

				• Aquatic weeds in water storages shall be controlled via mechanical and/or chemical means. Chemical control shall be undertaken with considerable care, considering the identity of the weed, the effect of herbicides on desirable plants, fish and other aquatic life and the eventual use of the water • Monitor and manage pest animal species already present, using acceptable methods to prevent proliferation and spread. • Ensure putrescible waste (e.g. food scraps etc) is managed appropriately to ensure that it does not provide a food source for or attract pest animals. • Pest animal control programs shall use the most humane, target specific, cost effective and efficacious techniques available • Human waste shall be managed appropriately and in accordance with any relevant statutory requirements. • Ensure vehicles entering the development site are not from known weed areas unless effectively washed down and have a weed hygiene declaration certificate.		
Hydrology and flooding	• Waterway and drainage line crossings • Transverse drainage	Restricted flow paths causing localised flooding due to access road infrastructure structures placed on floodplain	**L6 – Low**	• Induct personnel on hydrology and flooding issues and mitigation measures. • The proposed development is sited above the height of a 100year average recurrence interval (Q_{100}) flood level • Project designed and constructed in accordance with Development consent. • Evacuation and access assessed in consultation with landowners. • Monitor rain radar and flooding forecasts and ensure response preparedness. • Prepare site for flood and severe rainfall events (where forecast) to minimise inundation impacts. • Waterway and drainage crossings maintained to ensure the integrity and ongoing compliance with specified design criteria	**L6 – Low**	Site Based Environmental Management Plan Personnel induction and training
		Changes to flood afflux levels during flood events – increased impact to receivers	**L6 – Low**		**L6 – Low**	
		Flood damage to plant, equipment or infrastructure	**L6 – Low**		**L6 – Low**	
		Erosion of access road during large flood events	**L6 - Low**		**L6 – Low**	
		Change to flood regime due to topographical changes and modification of catchments	**L6 - Low**		**L6 – Low**	
		Impacts to flood evacuation and access movements	**L6 - Low**		**L6 – Low**	

Noise and vibration	• Site establishment • Clearing of vegetation • Quarrying • Crushing and screening • Stockpiling • Material haulage	Noise impacts on sensitive receivers during operation	**L5 – Low**	• Adherence to working hours in Development Consent unless otherwise approved. • Community liaison (agreements where applicable) with local communities and affected residents and stakeholders. • Respite periods for noisy activities (in accordance with regulatory guidelines). • Operation equipment selected, operated and maintained to minimise noise impacts and where necessary fitted with silencers and "smart" reversing safety devices. • Managing operation vehicle routes and speed of vehicles. • Establish and maintain complaints management system. • Awareness training for staff and contractors in environmental noise issues. • All equipment used on-sites to be fitted with appropriate silencing equipment (i.e. mufflers). • Minimising the use of horn signals and consideration of alternative methods of communication • Switching off any equipment not in use for extended periods • All plant and equipment required would be well maintained and regularly serviced • Community consultation with local residents to assist in the alleviation of community concerns as required • Selection of machines that are inherently free of or have low vibration • Vibration-producing machinery shall be supported on stiff structural components, and be provided with efficient vibration isolation systems • Maintenance of plant and equipment machinery – ensuring rotating parts are balanced, vibration isolators are functioning as intended etc. • All personnel on site will be required to wear appropriate PPE. • Maintain site access road and internal roads regularly. • Instruct all staff on the appropriate handling of noise complaints. • Investigate all non-vexatious noise complaints expeditiously and respond to the complainant.	**L4 - Low**	Site based Operational Environmental Management Plan Environment Protection (Noise) Policy 2019 Complaints register Personnel induction and training
		Noise exceeding regulatory criteria levels	**L5 – Low**		**L4 - Low**	
		Vibration impacts on sensitive receptors during operation	**L6 - Low**		**L4 - Low**	
Traffic and transport		Temporary disruptions / delays to local traffic	**L5 – Low**		**L4 - Low**	

	• Travel to / from site – staff, visitors etc • Import of plant / equipment to the site • Access / haul roads • Operation vehicle movements and deliveries	Temporary restrictions to private access roads	**L5 – Low**	• Identify and assess roads likely to be affected by development operation and develop methods to minimise traffic impacts. • The approved entrance shall be maintained as the only development access point. • Develop, implement and monitor Code of Conduct for haulage operators. • All vehicles carrying materials to be adequately covered (using retractable tarpaulin) as required to prevent any loss of material, which may cause driver safety issues. • Maintain heavy vehicle route, advance and position intersection signage. • Monitoring of any traffic delays. All roads will be graded on a regular basis to maintain an adequate running surface and drainage and regular watering will be undertaken for dust control and maintenance of surface structure.	**L4 – Low**	Site Based Operational Environmental Management Plan Complaints register Personnel induction
		Permanent adjustment to some private property access roads and local/regional roads	**L5 – Low**		**L4 – Low**	
		Changed traffic patterns	**M11 – Moderate**		**L4 – Low**	
		Accidents - Safety of commuters, pedestrians, contractors and subcontractors.	**H22 – High**		**M15 – Moderate**	
Indigenous cultural heritage	• Clearing of vegetation • Removal of topsoil and excavation of material • Construction of auxiliary areas including stockpile areas and laydown. • Establishment of on-site access/haul roads.	Impact to undiscovered or undocumented aboriginal sites, artefacts and cultural places	**L5 – Low**	• Prior to development – identify and assess aboriginal heritage and non-aboriginal heritage items and potential archaeological deposits on development site. • Induct personnel on heritage issues, safeguards, and the location of heritage items. • Develop and implement unexpected find procedure. • If design changes or operation activities impact on areas outside of those identified in the development approval, relevant stakeholders will be consulted. • Protect identified heritage items with protective fencing or flagging from being disturbed during operation. • Regular inspection of heritage protection fencing. • Archival recordings to be undertaken of heritage sites identified prior to development.	**L4 – Low**	Site Based Operational Environmental Management Plan Personnel induction
		Finding / disturbing burials or human remains	**L5 - Low**		**L4 – Low**	
Resource and waste management	• Water usage • Energy usage • Generation of general waste during operation activities including building materials, excess unsuitable spoil	Improper disposal of waste material	**M12 – Moderate**	• Develop and implement a resource management strategy. • Waste materials contained in waste bins or other suitable containers, and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements. • Use recycled products where possible. • Separate, contain, manage and dispose contaminated waste to prevent migration and further contamination whilst maintaining compliance with regulatory requirements.	**L6 – Low**	Site Based Operational Environmental Management Plan Regulated Waste Certificate Waste Register
		Direct impacts to land, groundwater or surface waters.	**M12 – Moderate**		**L6 – Low**	
		Depletion or sterilisation of non-renewable resources, including water and energy	**M11 – Moderate**		**L6 – Low**	

	material, vegetation material • Generation of solid waste • Generation of liquid waste • Handling of chemicals, waste and hazardous goods. • Fuel storage and distribution and waste oil disposal	Difficult disposal of waste material including hazardous waste.	**M13 – Moderate**	• Label and store all liquid waste containers in a bunded area prior to removal off-site in accordance with regulatory requirements. • Undertake inspections of the worksite and waste storage areas to ensure litter / debris is regularly cleaned up and contained on site. • Bunding of areas used for fuel and oil and chemical storage in accordance with Australian Standards and regulatory guidelines. • Maintain a waste register. • Locate appropriate waste removal contractor and/or appropriately licenced waste facilities in the area. • Modern and well maintained equipment is to be used to encourage fuel efficiency • Stormwater from roof structures captured for incidental uses. • Minimising generated wastes through recycling and by reusing process residues.	**L6 – Low**	Induction Personnel induction and training
		Potential leaks and spills of fuels and/or hazardous materials.	**M12 – Moderate**		**L6 – Low**	
		Impact to water quality due to inappropriate solid and/or liquid waste management.	**M12 – Moderate**		**L6 – Low**	
Visual amenity and landscaping	• Clearing of vegetation • Quarrying • Rehabilitation of disturbed land • Removal of visually prominent native vegetation • Evening / night activities	Change to landscape character and visual environment as a result of large embankments, disturbed areas, night activities, removal of vegetation, and access roads.	**L5 – Low**	• Retention of existing vegetation and management of natural regeneration to screen potential views of the development. • Retention of existing vegetation buffer zones - stands of cypress pine, ironbark species around the development area creates an opportunity to retain vegetative buffer zones. • Management of natural regeneration in buffer zones - management of the regeneration requires the removal of grazing, control of weeds and fire management to allow the natural regeneration to occur. • Landscape revegetation will incorporate the surrounding landscape types and vegetation patterns. • Rehabilitation of the disturbed areas to create a natural landscape character post-extraction. • Embankments will be stabilised by the use of appropriate landscape treatments. • Site facilities and areas surrounding them will be kept tidy and be regularly cleaned and maintained. • Monitoring, evaluation and management of landscape revegetation areas including treatment of weeds.	**L2 – Low**	Site Based Operational Environmental Management Plan Obtrusive Effects of Outdoor Lighting, Sydney, Australia. Personnel induction
		Visual impacts as a result of extraction activities and ancillary facilities	**L5 – Low**		**L2 – Low**	
		Poor management of revegetation	**L5 – Low**		**L2 – Low**	
		Visual impacts as a result of obtrusive lighting	**L5 – Low**		**L4 - Low**	
Fire	• Clearing of vegetation • Extraction plant and equipment • Handling of chemicals, waste and hazardous goods.	Fire damage to plant, equipment or infrastructure	**M9 – Moderate**	• Maintain fire extinguishers in good working condition. All vehicles shall have portable fire extinguishers. • Use incident rainfall contained in excavated areas / sedimentation basin as a water resource in the case of a fire. • Reduce fuel loads around the development area as necessary. The development area will have little to no vegetation.	**L5 – Low**	Site Based Operational Environmental Management Plan Refuelling Procedure Spill Response Procedure
		Impacts to surrounding properties.	**M11 – Moderate**		**L6 – Low**	

	• Fuel storage and distribution and waste oil disposal • Maintenance of plant and equipment, servicing and refuelling			• Rehabilitated areas will have a bare earth area of minimum 10 metres wide around the perimeter to act as a firebreak and for fire fighting access. • Actively suppress fires on-site to protect life and property on the development site and to protect life and property on neighbouring properties. • Adequate fire protection provided for hot work activities. • Develop an Emergency Response Plan and training in relation to bushfire prevention and control and liaise with Emergency Services for assistance with development and planning for bushfire situations. • Precautions taken to ensure staff safety e.g. area evacuated if necessary.		Personnel induction and training
Soils and sediments	• Clearing of vegetation • Extraction activities • Access/haul roads • Handling of chemicals, waste and hazardous goods. • Fuel storage and distribution and waste oil disposal • Maintenance of plant and equipment, servicing and refuelling • Sediment basin management • Rehabilitation of disturbed land • Environmental weed treatment.	Land disturbance (vegetation clearance, topsoil stripping, stockpile management) causing erosion and degradation of topsoil resources.	**M11 – Moderate**	• Planning strategies will be implemented to ensure unnecessary disturbance of land is avoided. • Areas of pasture, remnant vegetation and remnant habitat not disturbed by extraction activities will be managed to protect their land use value on cessation of operations. • The minimal amount of vegetation (including grass cover) required for activities will be cleared. Disturbance of areas will be limited to only those required for development related activities. • Topsoil and overburden removal will only be carried out as necessary for ongoing operations. • Suitable topsoil will be stripped and stockpiled for future rehabilitation use. • All topsoil stockpiles will be no higher than 1.5 m to retain seed germination potential. • Topsoil will be stored for the shortest period practicable and/or reused as soon as possible in order to maximise the viability of the seed bank in the topsoil. • Clean water run-off must be diverted around areas of disturbance and into natural watercourses. • Clean and dirty water runoff will be adequately separated to avoid mixing where possible through the use of diversions and clean water drains.	**L6 – Low**	Site Based Operational Environmental Management Plan IECA (2008) Best Practice Erosion and Sediment Control Personnel induction and training Refuelling Procedure Spill Response Procedure
		Land disturbance resulting in a reduction in agricultural land capability and suitability, and capacity to support native ecosystems.	**M12 – Moderate**		**M11 – Moderate**	
		Erosion of exposed soils causing sedimentation of waterways and aquatic environments.	**M9 – Moderate**		**L4 – Low**	

		Disturbance of contaminated material causing pollution.	**M9 – Moderate**	• Current best practice for erosion and sediment control measures undertaken in accordance with IECA Erosion and Sediment Control Guidelines. • Locate spoil stockpiles, plant and equipment away from stormwater drainage lines in accordance with established criteria. • Sediment control devices will be routinely inspected. Ensure sediment traps are maintained and sediment periodically removed and managed in accordance with good practice. • Design drainage to take all dirty water to a sediment basin. • Rehabilitation and landscaping works of disturbed areas undertaken as soon as practical after the works are completed. • A rumble grid may be provided at the exit from the development site onto public roads to minimise the tracking of soil and particulates onto public roads. • Vehicle movements from site will be minimised during wet weather if the tracking of mud may become an issue. • The storage, handling and use of chemicals and fuels will be in accordance with the Work Health and Safety Act 2000 and Workcover's Storage and Handling of Dangerous Goods Code of Practice (Workcover, 2005) and spill kits available. • All spills and leaks shall be cleaned up immediately using spill kits provided and/or plant. • Ensure the void is geotechnically stable. • The residual void will be rehabilitated to ensure a safe, non-polluting, stable landform that can sustain the agreed landuse. • Cleared vegetation will be used in rehabilitation. • All available topsoil (approximately 200 mm depth) shall be maintained and stored within the resource extraction area to allow respreading to facilitate successful rehabilitation. • Trees felled containing seed will be relocated and dumped strategically so that seed can then settle semi protected by the tree and enabled by the organic matter deposited by the felled tree. • Access roads will remain for use as farm roads, or rehabilitated to a land use similar to the immediately adjacent land use. • All buildings, plant and equipment will be removed and the surface rehabilitated. • Rehabilitate the site to an acceptable post development landscape with natural regeneration of endemic tree, shrub and grass species.	**L4 – Low**	
		Potential acidic leachate from exposure of ASM	**M9 – Moderate**		**L4 – Low**	
		Impact to water quality due to fuels and leaks and inappropriate storage of material.	**M9 – Moderate**		**L4 – Low**	
		Contamination of soils due to spills and leaks and inappropriate storage of hazardous material.	**M9 – Moderate**		**L4 – Low**	

7 Planning framework

7.1 State legislative framework

7.1.1 *Planning Act 2016*

The purpose of the *Planning Act 2016* is to establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning (planning), development assessment and related matters that facilitates the achievement of ecological sustainability.

7.1.1.1 Prohibited development

The proposed development is not prohibited, as established giving consideration to all relevant instruments which can provide prohibitions under the *Planning Act 2016* and *Planning Regulation 2017*. Therefore, the applicant has the right to make a material change of use application under section 50 of the *Planning Act 2016*.

7.1.1.2 Assessable development

The proposed development includes development that is made assessable under the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024) and the *Planning Regulation 2017*.

The proposed development involves the establishment of an Extractive industry (gravel pit) on the subject land. The development application would be assessed as a material change of use as it involves;

i. material increase in the intensity or scale of the use of the premises; and
ii. approval for environmentally relevant activities.

Under schedule 2 of the *Planning Act 2016* material change of use is defined as:

material change of use, of premises, means any of the following that a regulation made under section 283(2)(a) does not prescribe to be minor change of use –

a) the start of a new use of the premises;
b) the re-establishment on the premises of a use that has been abandoned;
c) a material increase in the intensity or scale of the use of the premises.

7.1.1.3 Level of assessment

Table 5.5.5: Rural zone of section 5.5.9 of the Balonne Shire *Planning Scheme (Version 2)* is the relevant table of assessment for the zoning of the subject land. The use of Extractive Industry is listed in Table 5.5.5 as code assessable if less than 5,000 tonnes. As the proposed development is for an extraction level greater than 5,000 tonnes is not listed in Table 5.5.5, the development is subject to impact assessment.

Consequently, development application for a material change of use for Extractive industry is subject to impact assessment in accordance with section 45 (3) of the *Planning Act 2016*.

7.1.1.4 Public notification requirements

The development application is subject to impact assessment. Consequently, public notification will be required as part of the assessment process.

7.1.1.5 Assessment Manager

The assessment manager for the application is the local government (Balonne Shire Council) as determined by the *Planning Regulation 2017* (Schedule 6). A development permit must be obtained to authorise the lawful commencement of the use on the site.

7.1.2 State planning policy

Pursuant to the provisions of section 45 (5) of the Planning Act 2016, the Assessment Manager, in considering a development application subject to impact assessment, must assess the development application in respect of the State Planning Policy.

The State Planning Policy July 2017 (SPP) commenced on 3 July 2017. The SPP expresses the state's interests in land use planning and development and promotes these interests through plan making and development decisions of state and local government.

The SPP expresses seventeen (17) state interests categorised under the following themes:

a) Liveable communities and housing:
   - Housing supply and diversity;
   - Liveable communities

b) Economic growth;
- Agriculture
- Development and construction
- Mining and extractive resources
- Tourism

c) Environment and heritage;
   - Biodiversity

- Coastal environment
- Cultural heritage
- Water quality

d) Safety and Resilience to Hazards;
- Emissions and hazardous activities
- Natural hazards, risk and resilience

e) Infrastructure.
- Energy and water supply;
- Infrastructure integration;
- Transport infrastructure;
- Strategic airports and aviation facilities; and
- Strategic ports

A state planning policy area overlay of the subject land was obtained from the DSDMIP SPP to confirm the state interests relevant to the assessment of the proposed development. In relation to the environment, under the State Planning Policy, the subject land is identified as being affected by interests outlined in Table 29.

Table 29 – Subject land – State Planning Policy relevant state interests

SPP	State interest
Economic growth	
Agriculture	Stock route network Agricultural land classification - class A & B
Environment and heritage	
Biodiversity	MSES - Regulated vegetation (category B)
Safety and resilience to hazards	
Natural hazards risk and resilience	Flood hazard area - Level 1 - Queensland floodplain assessment overlay* Flood hazard area - Local Government flood mapping area* Bushfire prone area

*If identified as being contained within a Local Government flood mapping area, the SPP requirements for flood are triggered by the flood mapping contained in that Local Government's planning scheme.

An assessment against the development assessment requirements under the SPP of the state interests listed in Table 29 has been undertaken within subsequent sections and determined that the proposed development is consistent with the SPP.

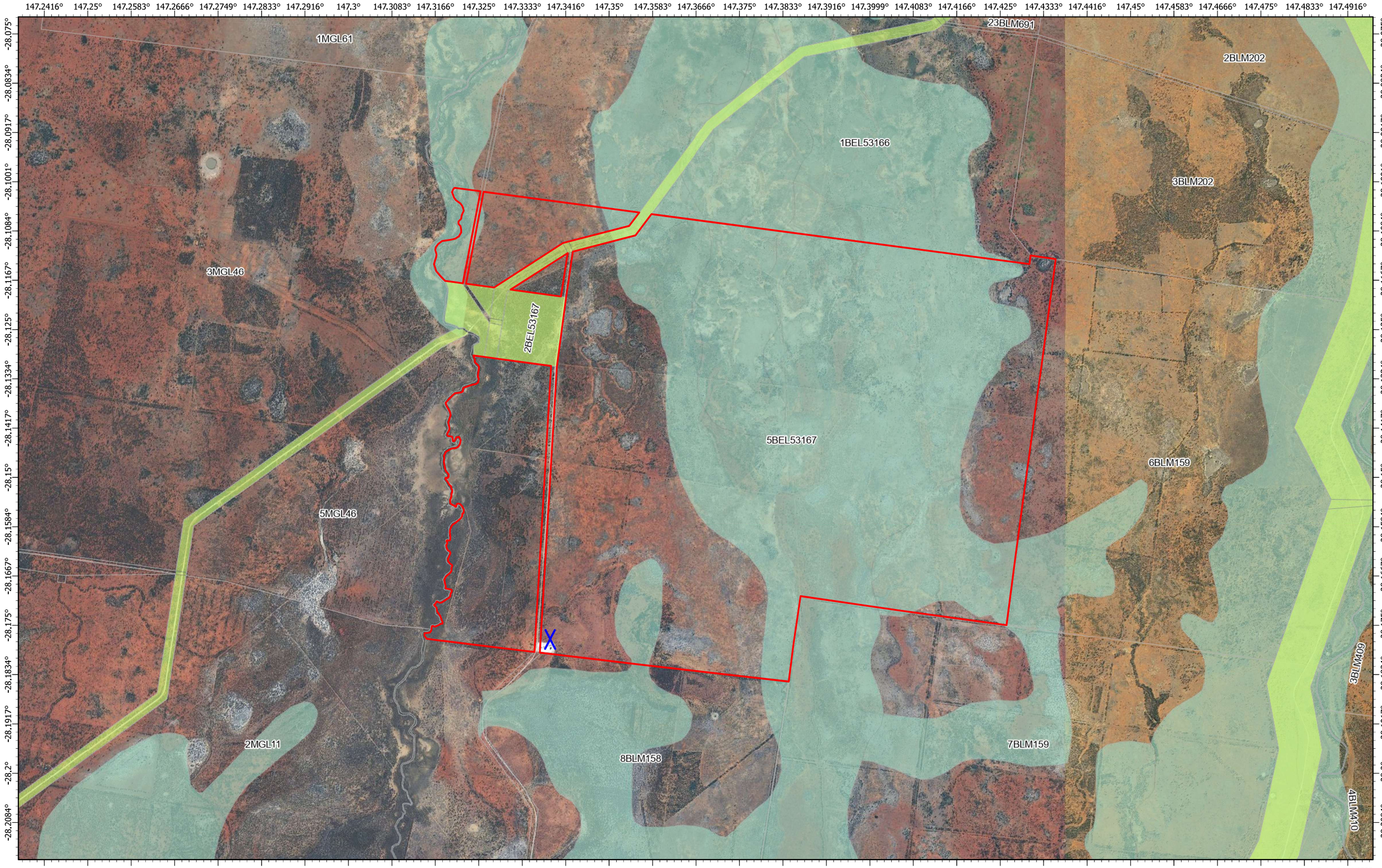
7.1.2.1 Economic growth

7.1.2.1.1 Agricultural land

The SPP Agricultural land state interest overlay on the subject land is shown in Figure 33. In relation to the Agricultural land state interest overlay it is noted that:

- agricultural land is protected as the proposed development does not fragment agricultural land into lot sizes inconsistent with the current or potential use of the land for agriculture;
- the proposed development site is located on poorer quality agricultural land (Class C);
- the proposed development is not located on the stock route network thereby not compromising the network's use for moving stock on foot; and
- the land condition and the biophysical resources underpinning the Class A and Class B agricultural land on the subject land is maintained through siting of the proposed development on poorer quality agricultural land.

Consequently, the proposed development will not adversely affect matters associated with this state interest.



State Planning Policy IMS - Export Map

Making or amending a local planning instrument and designing land for local infrastructure

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Metres

Cadastre (100k)

Stock route network

Agricultural land classification - class A and B

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FIGURE 33

7.1.2.2 Environment and Heritage

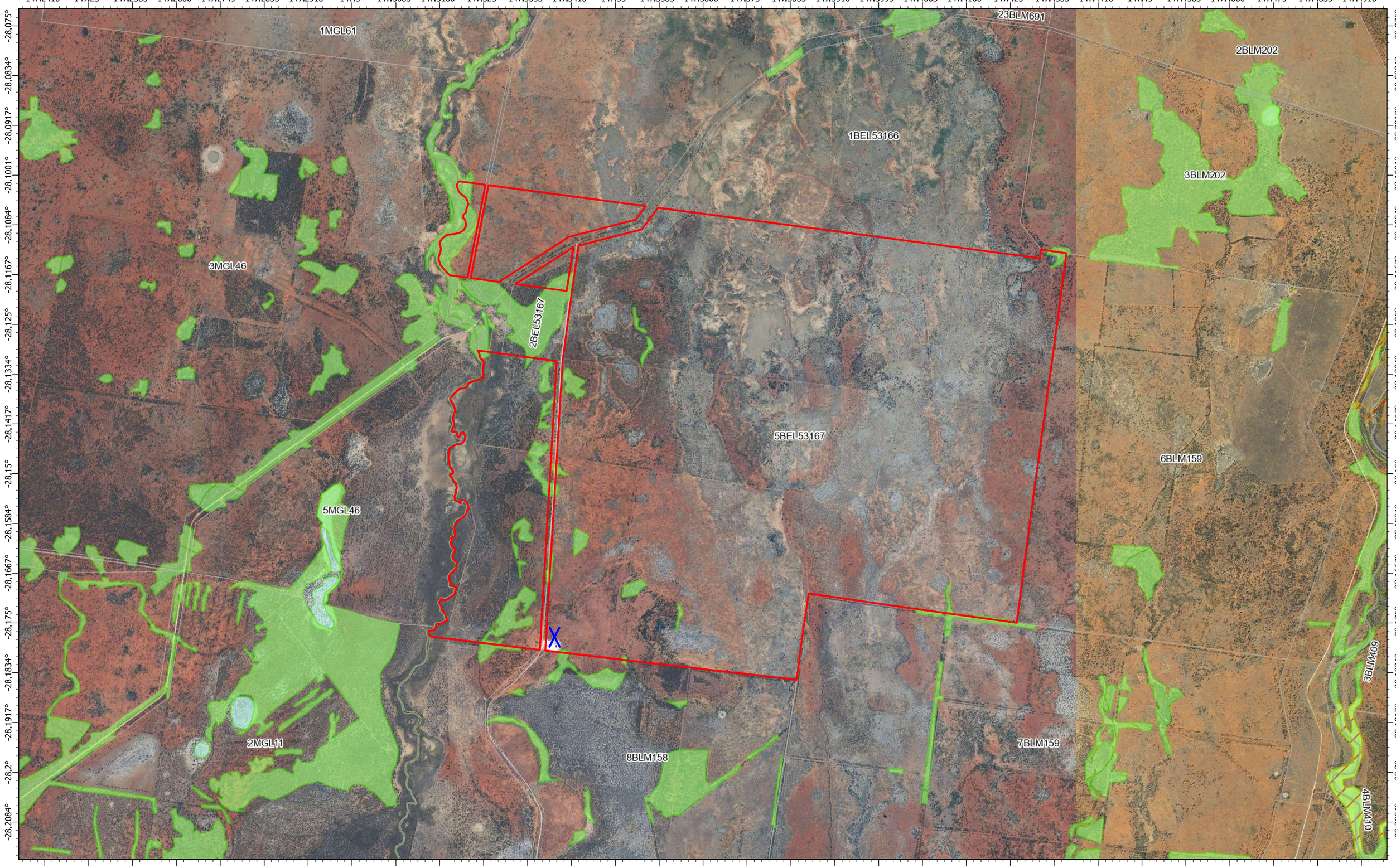
These provisions relate to development applications for a material change of use, reconfiguring a lot or operational work on land affected by: (i) biodiversity; (ii) coastal environment; (iii) cultural heritage; and (iv) water quality overlays.

7.1.2.2.1 Biodiversity

The SPP Biodiversity state interest overlay on the subject land is shown in Figure 34. It is noted that:

- the proposed development is not located in an area of state environmental significance such as regulated vegetation Category B as demonstrated in section 5.13.
- the proposed development is adequately offset from matters on state significance as such as regulated vegetation Category B and Category C, HES wetlands, essential habitat as demonstrated in section 5.5.1.1; 5.6 and 5.5.4; and
- the proposed development is adequately offset from watercourses so as to not impact on state significance matters as such as regulated vegetation Category B as demonstrated in section 5.4.5 and 5.5.1.1.

Consequently, the proposed development will not adversely affect matters associated with this state interest.



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- Cadastre (100k)
- MSES - Regulated vegetation (intersecting a watercourse)
- MSES - Wildlife habitat (endangered or vulnerable)
- MSES - Regulated vegetation (category B)
- MSES - Regulated vegetation (category C)
- MSES - Regulated vegetation (essential habitat)
- MSES - Regulated vegetation (wetland)
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FIGURE 34

7.1.2.3 Safety and resilience to hazards

7.1.2.3.1 Natural hazards risk and resilience

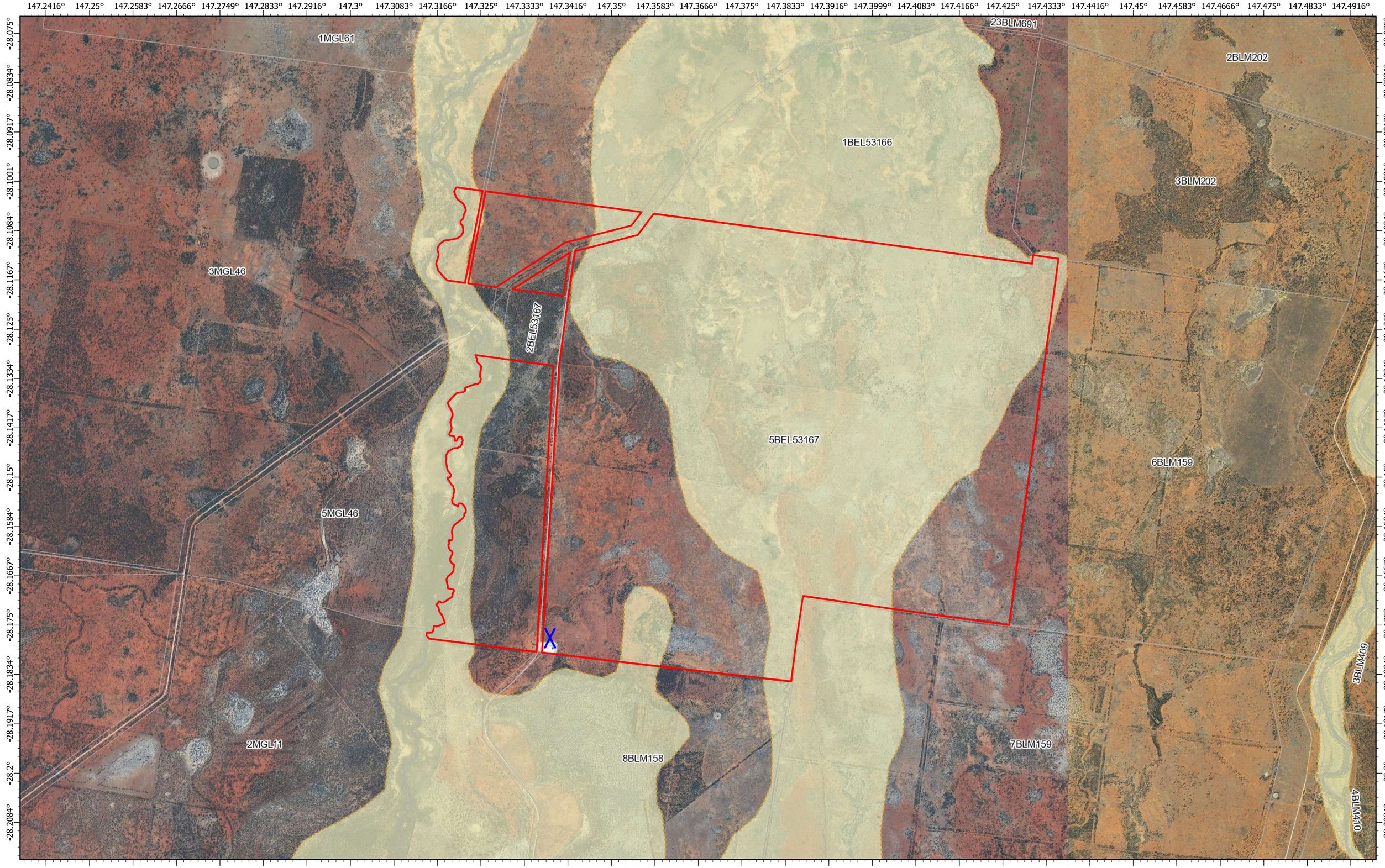
These provisions relate to development applications for a material change of use, reconfiguring a lot or operational work on land within: (i) a flood hazard area; (ii) a bushfire hazard area; (iii) a landslide hazard area; (iv) storm tide inundation areas; and (v) erosion prone area.

The SPP Natural hazards and risk resilience state interest overlay on the subject land is shown in Figure 35. It is noted that:

- the proposed development is not located in a natural hazard area such as a flood hazard, bushfire prone (Figure 32), landslide or coastal area as demonstrated in section 5.
- the proposed development is compatible with the level of risk associated with natural hazards;
- the proposed development responds to a potential natural hazard and minimises risk to personal safety through the siting, layout, access and operation as outlined in sections 5.4.6 and 5.15;
- the proposed development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities;
- the proposed development is resilient to natural hazard events by ensuring siting and design accounts for the potential risks of natural hazards to property as demonstrated in sections 5.4.6 and 5.15;
- the proposed development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the natural hazard and does not significantly increase the potential for damage on the site or to other properties through its design, siting and operation as outlined in sections 4, 5 and 6;
- the proposed development avoids the release of hazardous materials as a result of a natural hazard event as demonstrated in section 4.20, 5.4.6 and 5.15;
- the siting and configuration of the proposed development maintains the natural processes and the protective function of landforms and/or vegetation in natural hazard areas as demonstrated in sections 4 and 5; and
- the proposed development infrastructure is located outside of the extent of areas subject to High Flood Hazard.

Consequently, the proposed development will not adversely affect matters associated with this state interest.

The proposed development has been assessed to comply with all applicable matters of state interest included in the State Planning Policy.



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Metres

Cadastre (100k)

Flood hazard area - Level 1 - Queensland floodplain assessment overlay

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FIGURE 35

7.1.3 State Development Assessment Provisions

The State Development Assessment Provisions (SDAP) set out the matters of interest to the state for development assessment, where the chief executive administering the *Planning Act 2016* is the assessment manager or referral agency.

While land use planning in Queensland is primarily the responsibility of local government, matters of interest to the state are assessed by the state at a site level for certain aspects. The SDAP is not applied by local government in the assessment of development applications.

Schedule 6 of the *Planning Regulation 2017* prescribes the matters that the chief executive may have regard to when assessing an application for particular development.

Schedule 8 of the *Planning Regulation 2017* prescribe when the chief executive is an assessment manager or a referral agency for certain development applications.

There is one aspect of the proposed development that triggers referral to the chief executive administering the Act as a referral agency.

The following outlines aspects under the *Planning Regulation 2017* in relation to environmental matters where referral ***IS*** triggered to the chief executive administering the Act as a referral agency as outlined below.

7.1.3.1 Non-devolved environmentally relevant activities

Schedule 10, Part 5, Division 4, Table 2 - Item - 1 Non-devolved environmentally relevant activities.

If –

a) the environmentally relevant activity the subject of the application has not been devolved to a local government under the Environmental Protection Regulation; and

b) the chief executive is not the prescribed assessment manager for the application (*Planning Regulation 2017)*.

Under Schedule 2 Part 4 clause 16 (3) of the environmental Protection Regulation, the proposed development is not a concurrence environmentally relevant activity, and the environmentally relevant activity has not been devolved to a local government. Consequently, referral is not required for material change of use.

7.1.3.2 State transport infrastructure generally

Schedule 10, Part 9, Division 4, subdivision 1, Table 1 - Item - 1 State transport infrastructure generally.

Development stated in schedule 20 that is assessable development under a local categorising instrument or section 21, if –

(a) the development is for a purpose stated in schedule 20, column 1 for the aspect; and
(b) the development meets or exceeds the threshold –
  (i) for development in local government area 1—stated in schedule 20, column 2 for the purpose; or
  (ii) for development in local government area 2—stated in schedule 20, column 3 for the purpose; and
(c) for development in local government area 1—the development is not for an accommodation activity or an office at premises wholly or partly in the excluded area

The proposed development is an Extractive industry (gravel pit) with a total capacity of 100,000 t. Consequently, the threshold stated in schedule 20, column 2 using machinery having an annual throughput of product of 10,000t is exceeded and referral is required for material change of use.

7.1.4 State codes

As there is one referral trigger to the State as a referral agency for the proposed development material change of use, the provisions mentioned in the following state development assessment state codes apply:

- State Code 6 – Protection of state transport networks of the State Development Assessment Provisions.

The relevant criteria in the state codes include the purpose statement, performance outcomes and acceptable outcomes. Acceptable outcomes are provided for most performance outcomes and represent ways in which the relevant performance outcomes can be met.

An application that complies with the applicable acceptable outcomes will satisfy the relevant performance outcome. If an application does not comply with all applicable acceptable outcomes, an alternative solution is proposed, or no acceptable outcome has been provided in the state code, the proposed development must comply with the relevant performance outcome in order to comply with the purpose of the code. If an application does not comply with the performance outcomes, then the proposed development must comply with the purpose of the code.

A response to the relevant provisions of the *State Development Assessment Provisions State Code 6* is provided in the Traffic and Pavement Impact Assessment in Appendix L.

The proposed development is considered to comply with the relevant SDAP state code.

7.1.5 Regional Plans

7.1.5.1 Darling Downs Regional Plan

Adopted in October 2013, the Darling Downs Regional Plan is a statutory regional plan providing strategic direction and policies to deliver regional outcomes within the local authority areas of Balonne Shire Council and the Regional Councils of Goondiwindi, Maranoa, Southern Downs, Toowoomba and Western Downs which align with the state's interests in planning and development.

The policies contained in the regional plan aim to protect priority agricultural land uses while supporting co-existence opportunities for the resources sector and provide certainty in the future of local towns.

Priority Agricultural Areas (PAAs) are identified in the plan and comprise the region's strategic areas containing highly productive agricultural land uses. Within PAAs, Priority Agricultural Land Uses (PALU) are recognised as the primary land use and given priority over any other proposed land use. PAAs co-existence criteria enable compatible resource activities to co-exist with high-value agricultural land uses within PAAs.

The regional plan also safeguards areas required for the growth of towns in the regions through the establishment of Priority Living Areas while providing for resource activities to locate within these areas where it meets communities' expectations as determined by the relevant local government.

The subject land is not located within the Priority Agricultural Area (PAA) or Strategic Cropping Area (SCA) under Chapter 4 of the Darling Downs Regional Plan as shown in Figure 36. The proposed development involves the establishment of a "Extractive industry" for the purposes of gravel pit on land that is lower class agricultural land (Class C).

Consequently, the proposal does not compromise the regional outcomes or polices sought under the plan and does not trigger the need for statutory referral to the Department of State Development, Infrastructure and Planning (DSDIP).



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DA Mapping System - Export Map

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Metres

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FIGURE 36

7.1.6 Pre-lodgement consultation

Pre-lodgement advice in relation to the proposed development was requested from the Balonne Shire Council on the 12th of October 2025. Written pre-lodgement advice was received from the Balonne Shire Council on the 20th of October 2025. The Balonne Shire Council pre-lodgement advice is provided in Appendix J.

Table 30 demonstrates that this planning report and supporting information report has been prepared having regard to matters raised in the pre-lodgement meeting with the Balonne Shire Council.

Table 30 – BSC Pre-lodgement advice - Response

Item	Response
Planning Assessment report against the relevant criteria contained in the State Planning Provisions and Strategic Framework, the Rural Zone Code, General Development Code and Flood Hazard Overlay Code (where applicable) of the Balonne Shire Planning Scheme 2024.	Please refer to section 7.2.
Mandatory supporting information & material (i.e. site plan including existing infrastructure, setbacks from boundaries, access points, natural features etc.	Please refer to all figures contained within this report.
Provide a plan showing setbacks to: • All nearby sensitive receptors • Mapped flood hazard areas • Mapped bushfire hazard areas	Please refer to Figure 8, Figure 18, Figure 19 and Figure 32 contained within this report.
Environmental Assessment	Please refer to section 5 and 6.
Site Based Management Plan	Please refer to the Site Based Environmental Management Plan provided at Appendix K.
Traffic and Pavement Impact Assessment	Please refer to the Traffic and Pavement Impact Assessment report provided at Appendix L.

Pre-lodgement advice in relation to the proposed development was requested from the Department of State Development, Infrastructure and Planning (DSDIP) on the 12th of October 2025 (DSDIP Ref: application 2510-48693 SPL). To date no response has been received from the DSDIP.

7.2 Local Legislative framework

7.2.1 Local Planning scheme

7.2.1.1 Introduction

Pursuant to the provisions of Section 43 - 45 of the *Planning Act 2016*, a development application must be assessed against the local categorising instrument. The relevant local categorising instrument in this instance is the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024). The *Balonne Shire Planning Scheme (Version 2)* states the category of assessment that must be carried out for the proposed development. A summary of the assessment of the proposed development against the provisions of *Balonne Shire Planning Scheme (Version 2)* is outlined below.

7.2.1.2 Definition of Use

Under the provisions of the *Balonne Shire Planning Scheme (Version 2)*, the proposed use is defined as "Extractive industry". The relevant use is defined as follows:

"**Extractive industry**" – Premises used for the extraction and/or processing of extractive resources and associated activities, including their transportation to market.

The term includes the use of premises for purposes such as:

(a) Quarry.

7.2.1.3 Strategic framework

The strategic framework sets the policy direction for the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024). As the development application is subject to impact assessment, the proposed development has been assessed against the applicable provisions of the Strategic Framework and a summary of this assessment is provided in Table 31.

An assessment of the proposed development against the provisions of the Strategic Framework indicates the proposed development complies with the integrated policy direction sought for the planning scheme area and will not compromise the relevant strategic outcomes/elements sought for the individual themes as outlined in Table 31.

Table 31 – Balonne Shire Planning Scheme 2024 – Strategic Framework – Response

ID	Theme/Element	Relevance	Response
3.2	**The strategic intent – Encouraging Prosperity in the Shire**		
3.2.1	**Encouraging economic growth**		
3.2.1.1	**Agriculture**		
	Given the importance the rural area plays to the economy of the Shire, the rural area will be protected from fragmentation that would result in diminished productivity of lands identified in Agricultural Land Classification (ALC) – Class A and Class B, identified in SPP mapping – economic growth - agriculture.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has been appropriately sited to avoid important agricultural areas and Class A and Class B land. The proposed development promotes the diversification of suitable rural land. Refer to section 4, 5 and 6. The proposed development has been sited on an area mapped as agricultural land classification (ALC) Class A and Class B land identified on Strategic Framework Maps 3 and 3a—Economic Development and Natural Resources. However, at a property scale, the site contains shallow gravelly soils and is less suited to long term cropping. The proposed use supports the diversification of the region's economy and increases the prosperity of the region through the diversification of rural activities and employment opportunities. The proposed development will have a limited footprint, and the nature of the use is such that it will not compromise the ongoing use of the subject land for agricultural purposes. The development has been suitably located and designed to ensure it does not compromise the rural character of the area.

		The proposed development does not involve the encroachment of an incompatible development or practice which degrades, alienates, fragments or compromises the viability of existing agricultural and rural land uses or is incompatible development. The proposed development has been sited on less productive agricultural land. The proposed development conserves land and does not fragment or compromise the function of existing rural land nor compromise the long term viability of rural land. Refer to sections 2 and 4.
Development that occurs in these mapped areas and which is consistent with rural values will allow farms to diversify their enterprises and value-add while not diminishing or limiting the productivity of agricultural lands in the Shire.	Yes	The subject land is serviced by transport and other necessary infrastructure. The proposed development also contributes to the economic resilience of the area through establishment of alternative uses and rural-sector employment opportunities.
BSC supports the development of value-adding agricultural industries such as cattle feedlots, abattoirs and agricultural tourism, where they are in appropriate locations and do not compromise the ability of the existing land uses to function safely and effectively. BSC encourages agricultural development that adopts regenerative agricultural practices and traditional bush foods to supports the creation of new resources and restoration of important agricultural land.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and is located in an area dominated by agricultural production. Refer to sections 2 and 4. The proposed development will enhance and sustain the local economy of the area through diversification of activities in the rural areas.
The function, connectivity and pasture productivity of the stock route network is also maintained for sustainable use by travelling stock on hoof. The stock route network is protected from developments (on or near stock routes) that have potential for conflict between use of the network and use of the adjoining areas. Potential for conflict between use of the network and use of adjoining areas is avoided. The stock route network is	Yes	The proposed development does not impact the function, connectivity and pasture productivity of the stock route network as identified in SPP mapping > Economic Growth > Agriculture > Stock route network and avoids impacts between use of the network and use of adjoining areas is avoided. Refer to 2 and Figure 2.

	identified in SPP mapping > Economic Growth > Agriculture > Stock route network.		
3.2.1.2	**Tourism**		
	BSC is committed to ensuring that existing and potential opportunities and localities appropriate for tourism development are identified and protected. Through the development of the Tourism Strategy 2017, and developing the 'Queensland Southern Outback' marketing brand, there will also be opportunities to continue to market and promote the Shire based on its unique natural features, centring on key characteristics that every town in the Shire is located on a river and each is known for rich history, friendly locals, birdlife, Indigenous tourism, wide-open spaces and their relaxed country lifestyle.	No	The proposed use is for a "Extractive industry" (gravel pit) that is sited in the Rural Zone and does not involve a proposed tourism use.
	To ensure tourism is maintained and developed, appropriate infrastructure is needed. BSC is committed to ensuring tourists and visitors enjoy their stay with the hope that extended periods of time are spent throughout the south west region enjoying its unique environment. Developments which value-add to these experiences and the tourism economy generally, are encouraged where they are of a high quality.	No	The proposed use is for a "Extractive industry" (gravel pit) that is sited in the Rural Zone and does not involve a proposed tourism use.
3.2.1.3	**Resources**		
	The Shire is an important service junction between New South Wales and Queensland. It is strategically situated between the Surat, Cooper and Bowen Basins. It is a potential service base for expanding resource projects in the Surat Basins in the northeast of the Shire and as a service centre for the future projects in the Eromanga and Cooper Basins to the west.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) form which construction materials can be used service future projects in the Surat, Cooper and Bowen, Eromanga and Cooper Basins. Refer to section 2, 4, 5 and 6 and Figure 3.
3.2.2	**Supporting rural and small-town living**		
	Within the Balonne Corporate Plan 2018-2023, BSC has identified the importance of providing adequate, affordable housing and housing choice for all family types, housing which enables people to 'age in place' and innovative solutions to	No	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and is located in a rural area and is not located within an urban area and does not rely on

	seasonal fluctuations in housing demand and to provide affordable housing, so that young families and skilled workers are able to settle and stay in the community.		adequate, affordable housing and housing choice to operate. Refer to Figure 2 and section 4.
	As at 30 June 2016, the estimated resident population of the Shire was 4,380 persons or 1.3 percent of Queensland's population. According to population projections produced by the Australian Bureau of Statistics, the projected population of the Shire as at 30 June 2036 is anticipated to be 4,766 persons. If unexpected growth does occur within the life of this planning scheme, the growth will consolidate around the existing towns, and support the economic well-being of the Shire's towns. Development in the Shire will result in well-serviced, accessible, and attractive environments and include an adequate supply of residential land consisting of appropriate housing options to maximise the use of existing services.	No	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not result in unexpected growth of the resident population. Refer to section 2 and 4.
	Small-lot rural or rural residential development is concentrated in locations close to the towns of the Balonne Shire on lots that have reasonable access to urban conveniences and minimises the need to extend and upgrade trunk infrastructure.	No	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and does not involve a Small-lot rural or rural residential development. Refer to section 4.
3.2.2.1	**St George**		
	St George is the largest of the Shire's seven towns located on the banks of the Balonne River and is the major administrative centre of the Balonne Shire. The town is located at the junction of several highways, including the Castlereagh Highway, the Moonie Highway, the Carnarvon Highway, and the Balonne Highway. St George is proud of its integration between the indigenous and non-indigenous people	No	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of St George. Refer to section 2 and 4.
3.2.2.2	**Dirranbandi**		
	Dirranbandi is located to the south of St George, on the Castlereagh Highway, which forms part of the Great Inland Way. Dirranbandi is situated on the Balonne River Minor, and this area is known as producing some of Australia's finest wool. Dirranbandi is well-known for its proximity to the famous Cubbie Station, which is the largest irrigated cotton farm in the	No	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of Dirranbandi. Refer to section 2 and 4.

	southern hemisphere. With a population of approximately 800 people, it is a relatively small township, with approximately a quarter of the population identifying as indigenous. This small town comes alive during the cotton harvesting season.	
3.2.2.3	**Bollon**	
	Bollon is located 112 km west of St George on the Adventure Way. With a population of approximately 500 people, the township sits on the banks of Wallam Creek, which provides tourists with pleasant surroundings for camping and bird-watching opportunities. The Thrushton National Park is located 60km north of Bollon via a dirt road.	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of Bollon. Refer to section 2 and 4.
3.2.2.4	**Thallon**	
	Thallon is a district of approximately 450 people, located 76 km southeast of St George on the Carnarvon Highway. The surrounding rich agricultural land and irrigation from the Moonie River is the foundation of the district's main industry, including grains, lambs, wool, beef and cotton production. The grain depot is the second largest in Queensland. Future prospects include development of a freight hub with Thallon being the last station on the South West rail line, providing a link to the Inland Rail network. BSC supports industry growth in Thallon, taking advantage of the districts connection to the Inland Rail network. Thallon is nationally recognised for its silos mural showcasing the icons of the district and celebrating Thallon's indigenous community. Coupled together with a giant statue of a Northern Hairy Nosed Wombat, these structures celebrate Thallon's unique connections to its indigenous cultural heritage, as well as to this critically endangered species and provide a platform to grow tourism business.	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of Thallon. Refer to section 2 and 4.
3.2.2.5	**Mungindi**	
	Mungindi is located on the Carnarvon Highway, 120 km south of St George. The town is uniquely situated on both sides of the New South Wales (NSW) and Queensland (QLD) border. The town is divided by the Barwon River, and it is the only border town in the southern hemisphere with the same name in two	The proposed development involves the establishment of a "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of Mungindi. Refer to section 2 and 4.

	states. Mungindi has a population of approximately 700 people, with the district producing wheat, cotton, wool, beef and sheep. The town is well-known for the One Ton Post, the last surviving original surveying peg erected by Mr John Cameron in 1881 to complete the surveying of the 20th parallel, which forms the border between NSW and QLD.		
3.2.2.6	**Hebel**		
	Hebel is located 4 km north of the NSW border on the Castlereagh Highway. Hebel is known for its proximity to the opal mines of Lightning Ridge and the Culgoa River, and the Culgoa Floodplain National Park in the east. Hebel and the surrounding area have a population of approximately 149 people.		The proposed development involves the establishment of an "Extractive industry" (gravel pit) in the Rural Zone and does not involve development in the town of Hebel. Refer to section 2 and 4.
3.2.3	**Avoiding the impacts of natural and other hazards**		
3.2.3.1	**Flooding**		
	The Shire is subject to regional flooding. The Shire experienced major flooding in March 2010, January 2011 and in February 2012. These flooding events resulted in significant impacts to people, property and the natural landscape as well as the evacuation of residents in the area. To ensure economic development and liveability are not adversely impacted by significant flood events, development is encouraged in those areas not known to flood. Levees constructed around the towns of St George, Bollon, Dirranbandi, Mungindi and Thallon have provided protection and, any development located within flood sensitive areas will be subject to a flood-based development assessment.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has been appropriately sited in an area not subject to flooding. Refer to section 5.4.6 and Figure 18 and Figure 19.
	The flood hazard overlay map identifies the areas subject to actual and potential flood hazard throughout the Shire. Flood assessment will be applied only to development on sites affected by flooding and shown in those areas on Schedule 4: Mapping – Flood hazard overlay map.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has been appropriately sited in an area not subject to flooding. Refer to section 5.4.6 and Figure 18 and Figure 19.
3.2.3.2	**Bushfire**		
	The Shire is also prone to bushfire events, and these areas are shown on SPP Mapping > Safety and Resilience to Hazards >	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has been appropriately

	Natural Hazards Risk and Resilience > Bushfire prone area. New development must take bushfire risks into account by making sure that it does not unduly burden disaster management response or recovery capacity nor adversely impact the existing capabilities of emergency services. New developments avoid areas known to be bushfire prone and, where unavoidable, are built and located to be resilient against bushfires.		sited in an area not subject to bushfire hazard. Where practical the proposed development avoids areas affected by bushfire events and any residual risks are mitigated through the design and operational measures. Refer to section 5.15.1 and Figure 32.
3.2.3.3	**Emissions and hazardous activities**		
	Activities involving the use, storage and disposal of hazardous materials and hazardous chemicals, dangerous goods and flammable or combustible substances are located to avoid or mitigate potential adverse impacts on surrounding uses and minimise the health and safety risks to communities and individuals.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and the use, storage and disposal of hazardous materials and hazardous chemicals, dangerous goods and flammable or combustible substances are located to avoid or mitigate potential adverse impacts on surrounding uses and minimise the health and safety risks to communities and individuals. Refer to sections 2, 4, 5 and 6.
	Sensitive land uses are protected from the impacts of previous activities that may cause risk to people or property, including former mining activities and hazards (e.g., disused underground mines, tunnels, shafts and petroleum or gas wells) – Schedule 4 – Online Mapping Resources – GeoResGlobe.	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not a sensitive land use. Refer to Figure 2 and section 4.
	The integrity of pipelines carrying petroleum is maintained, and development does not encroach on the pipeline or the pipeline easement. The pipelines are shown on SPP Mapping > Safety and Resilience to Hazards > Emissions and Hazardous Activities > High-pressure gas pipelines.	Yes	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within close proximity to a pipeline or the pipeline easement shown on SPP Mapping > Safety and Resilience to Hazards > Emissions and Hazardous Activities > High-pressure gas pipelines and shall not impact on a local heritage place. Refer to Figure 2, section 4 and 5.14.
3.2.4	**Safeguarding our environment and heritage**		
3.2.4.1	**Waterways**		
	The Balonne Shire covers 31,119 km of the Queensland section of the Murray-Darling Basin. The Balonne Shire is located in the catchments of the Maranoa and Balonne Rivers. This catchment is one of the largest in the Murray-Darling Basin. The major water assets of the region include (to name a few) the Balonne and Moonie Rivers, the Great Artesian Basin, and alluvial	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has been appropriately sited, designed and shall be operated to ensure no adverse impacts on the regions waterways. Refer to sections 5.4 and 5.16 and Figure 16.

	aquifers, wetlands and water storages. There are numerous significant natural water resources within the Shire. Two-thirds of the catchment is flat floodplain country, with complex systems of rivers and creeks joining and breaking away from the Balonne River. Landscape management in the Queensland Murray-Darling Basin, of which the Shire forms a significant part, affects the internationally important (Ramsar) wetland, the Narran Lakes, in northern NSW. The lower Balonne floodplains are highly developed for agriculture, mainly dryland cropping and grazing.		
	Economic resources of the Shire and, therefore new development will maintain appropriate levels of water availability and water quality.	Yes	The proposed development involves the establishment of a "Extractive industry" (gravel pit) and has the appropriate level of water availability and water quality for the required use. Refer to sections 5.4 and 5.16 and Figure 16.
3.2.4.2	**Biodiversity**		
	The region is located within the Southern Brigalow Belt and the Mulga lands. Native remnant vegetation has been extensively cleared in these areas, but significant strands of remnant vegetation have been retained in the upland areas. These vegetation communities include the brigalow eucalypt and cypress pine forests and woodlands on various soil types, as well as restricted areas of softwood forests and riparian communities. The floodplains of the Balonne are ecologically significant because they support endangered ecological communities, such as the brigalow-gidgee woodland/shrub land in the Mulga Lands and Darling Riverine Plains Bioregions. The wetlands support a diverse range of flora and fauna, providing habitat for migratory birds and vulnerable and endangered species.	Yes	The proposed development has been sited, designed and shall be operated to avoid adverse impacts to Native remnant vegetation. Refer to section 5 and Figure 20 and Figure 21.
	An array of significant fauna and flora species have been listed for the Shire as follows: https://apps.des.qld.gov.au/report-request/species-list/	Yes	The proposed development has been sited, designed and shall be operated to avoid adverse impacts to listed significant fauna and flora species on and surrounding the subject land.
	Biodiversity is important to both agriculture and tourism in the Shire. Development must be located within areas that avoids significant adverse impacts on state biodiversity values and protects these while maintaining ecological connectivity. The	Yes	The proposed development has been sited, designed and shall be operated to avoid adverse impacts to state biodiversity values. The proposed development has been sited to avoid regulated vegetation, bushfire, wetlands, watercourses and

	state biodiversity areas are identified in SPP mapping > Environment and Heritage > Biodiversity.		flood hazard areas identified on the subject land. Refer to section 5.
3.2.4.3	**Cultural heritage**		
	The Shire has a proud Indigenous and European cultural heritage. Considerable effort has been made to record the rituals, significant places, stories and customs of the Shire's indigenous people - the Kamilaroi, Kooma and Mandandanji. The rich history links to a living culture increasingly appreciated for its uniqueness and spiritual value. This is also reflected in the Shire for Aboriginal cultural tourism experiences. Aboriginal people have elaborate cultural rituals, sacred sites and social structures, often aligned with their strong relationship to country. Remaining sites and cultural items significant to Aboriginal people need to be harnessed, conserved and integrated into new and evolving communities. The Shire is home to important matters of Aboriginal cultural heritage and Torres Strait Islander cultural heritage. BSC supports these matters being appropriately recognised, conserved and considered, with all persons undertaking development in accordance with the Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Cultural Heritage Act 2003 duty of care provisions.	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within close proximity to and shall not impact on Indigenous or European cultural heritage. Refer to Figure 2, section 4 and 5.7.
	European settlement of the Shire started in mid-1800s. A heritage of numerous historic buildings, Cobb and Co coach sites, farm cottages, and equipment remains. These include St George Hospital, St George War Memorial, Cameron's One Ton Survey Post and the Noondoo Station Building. This rich rural history plays an important role in the development of the tourism industry. The unique cultural and historic qualities of these places contribute to the Shire's local heritage values and are listed in the schedule of local heritage places in Schedule 5 - Local Heritage Places.	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within close proximity to and shall not impact on a local heritage place. Refer to Figure 2, section 4 and 5.7.
	BSC supports the adaptation and reuse of local heritage places for the benefit of the community to ensure that the Shire's history is kept alive for future generations whilst facilitating appropriate development and ongoing use. Development	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within close proximity to and shall not

	conserves the physical features, fabric and contents that contribute to the cultural heritage significance of the local heritage place and avoids changes to the setting or context of the local heritage place that could reduce understanding or appreciation of its cultural heritage significance. Any changes as a result of the development will be appropriately managed, documented and interpreted by encouraging their retention for appropriate development and ongoing use.		impact on a local heritage place. Refer to Figure 2, section 4 and 5.7.
3.2.5	**Providing appropriate infrastructure**		
3.2.5.1	**Roads**		
	Given the dispersed settlement pattern, long distances to services and markets and dependence on private vehicle use, transport infrastructure is fundamentally important to the economic function in the Shire. The Shire is serviced by the Castlereagh Highway, the Moonie Highway, the Carnarvon Highway and the Balonne Highway. These highways form the Adventure Way and the Great Inland Way, which are used to promote the region's tourism sector.		The proposed development involves the establishment of an "Extractive industry" (gravel pit). The proposed development shall not impact on the safety and efficiency of the Castlereagh Highway, the Moonie Highway, the Carnarvon Highway and the Balonne Highway. Refer to Figure 2 and section 4 and Appendix L.
	Construction materials required for new road developments and the efficient repair of existing infrastructure must be anticipated by road managers. To allow for their future use, known extractive resources need to be protected from incompatible surrounding land uses.	Yes	The proposed development involves the establishment of an "Extractive industry" (gravel pit) from which construction materials are derived for existing and new road developments. Refer to Figure 2 and section 4.
	Any new development is to be considered by relative agencies with reference to mitigating effects on the safety and efficiency of the road network identified in SPP mapping > Infrastructure > Transport Infrastructure.	Yes	The proposed development involves the establishment of an "Extractive industry" (gravel pit). The proposed development shall not impact on the safety and efficiency of the road network identified in SPP mapping > Infrastructure > Transport Infrastructure. Refer to Figure 2 and section 4 and Appendix L.
3.2.5.2	**Rail**		
	The Balonne Shire is serviced by the South-Western line proceeding west from Warwick and terminating at Thallon. Rail is a significant piece of infrastructure for Balonne as it caters primarily for agricultural products, particularly for the transport of grain. Intermodal facilities operate from Thallon to transport	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within close proximity to the South-Western line. Refer to Figure 2 and section 4.

	grain to the market. An upland warehouse report has been prepared to support the development of an intermodal hub at Thallon.		
3.2.5.3	**Air**		
	The St George Airport plays a vital role in delivering freight and personnel across the South-West region. The St George Airport also provides a direct link to other regional centres with passenger services currently operating from Brisbane and Wellcamp (Toowoomba) to St George and from St George to Cunnamulla and Thargomindah. Any new developments located within St George must not create incompatible intrusions or compromise aircraft safety of the airport and associated aviation navigation and communication facilities.	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within an urban area in St George. Refer to Figure 2 and section 4.
3.2.5.4	**Energy and communications**		
	Due to the remote nature of the Shire, electricity infrastructure, substations and telecommunication services are of vital importance, to ensure the safety and well-being of residents. These areas, identified in SPP mapping > Infrastructure > Energy and water supply > Major Electricity Infrastructure must not be adversely impacted by new developments.	Yes	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and shall not adversely affect electricity infrastructure, substations and telecommunication services as identified in SPP mapping > Infrastructure > Energy and water supply > Major Electricity Infrastructure. Refer to Figure 2 and section 4.
3.2.5.5	**Town-based infrastructure**		
	BSC will continue to provide dedicated infrastructure services, including sewerage, water, road networks and open space areas, to the extent possible within the budget framework.	No	The proposed development involves the establishment of an "Extractive industry" (gravel pit) and is located in a rural area and is not located within an urban area and does not rely on infrastructure services, including sewerage, water, and open space areas. The proposed development is well serviced by existing road networks. Refer to Figure 2 and section 4.

7.2.1.4 Zoning and assessment status

The *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council 2024) comprises seven (7) zones. The subject land is in the **Rural zone**.

The zoning of the subject land and surrounding locality is illustrated on Figure 37.

Balonne Shire Council Planning Scheme Zones

LEGEND

- Watercourse
- State-controlled road
- Other road
- Railway
- Petroleum pipeline licences

ZONE

- Centre
- General residential
- Industry
- Recreation and open space
- Rural
- Rural residential
- Township

X – PROPOSED DEVELOPMENT SITE

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0 5 10 20 30 40

Kilometres

Map Size: **A3**

Coordinate System: GDA 1994 MGA Zone 55
Projection: Transverse Mercator
Datum: GDA 1994

Map produced by the Department of State Development, Manufacturing, Infrastructure and Planning
Spatial Services Unit for Balonne Shire Council, 26/11/2019

MURWEH SHIRE
PAROO SHIRE
MARANOA REGIONAL
WESTERN DOWNS REGIONAL
GOONDIWINDI REGIONAL

Thrushton National Park
Narkoola National Park
Culgoa Floodplain National Park

See Bollon Map
See St George Map
See Dirranbandi Map
See Thallon Map
See Hebel Map
See Mungindi Map

FIGURE 37

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Path: S:\Projects\WebGIS\LGA_PlanningScheme\Balonne\mxd\DSDMIP_A3L_Balonne_Z_r2v4_20191125.mxd

Part 5 – Tables of assessment of the *Balonne Shire Planning Scheme (Version 2) 2024* provides assessment tables for development associated with a *material change of use* for each zone.

For the Rural zone, the assessment table for development making a material change of use is Table 5.5 – Categories of development and assessment—Material change of use. This table prescribes that the proposed development (Extractive industry) is **Impact Assessable** as it is not identified as Exempt, Self Assessable or Code Assessable (Balonne Shire Council, 2024).

In accordance with Table 5.5.5 of the *Balonne Shire Planning Scheme (Version 2) 2024* (Balonne Shire Council, 2024) the applicable assessment benchmark for the proposed development is The Planning Scheme.

7.2.1.5 Local plan

There are no local plans associated with the *Balonne Shire Planning Scheme (Version 2) 2024* (Balonne Shire Council, 2024).

7.2.1.6 Land characteristics overlays

The *Balonne Shire Planning Scheme (Version 2) 2024* (Balonne Shire Council, 2024) includes overlays to identify land characterised by particular features or subject to physical constraints which influence the use and development potential of affected areas. Overlays identify natural hazards and prescribe criteria for avoiding and mitigating their effects on people and property.

The overlays for the planning scheme are:

(a) Flood hazard overlay

The subject land on which the development is proposed is affected by the following overlays.

a) Flood hazard overlay as mapped and included in Flood Hazard Overlay B1:
- Flood hazard area as shown on Figure 19.

7.2.2 Planning scheme codes

7.2.2.1 Rural zone code

The purpose of the Rural zone is to –

(a) provide for rural uses and activities; and
(b) provide for other uses and activities that are compatible with –
  (i) existing and future rural uses and activities; and
  (ii) the character and environmental features of the zone; and
(c) maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.

The purpose of the code is to:

(a) primarily accommodate grazing and value-adding rural uses (such as cropping) where they do not conflict with petroleum leases or facilities or stock routes.
(b) ensure the productive capacity of agricultural and associated rural industries that rely on IAA land and identified as IAA as shown on SPP mapping > Economic Growth > Agriculture is maximised and maintained while protecting biodiversity values including MSES and also allowing for farm diversification and value adding industries to occur in the rural area.
(c) maintain the character and amenity of the rural and natural environment.
(d) encourage tourism development where it can value-add to the viability of rural enterprises, does not diminish biodiversity values, including MSES and avoids impacts of flooding and bushfire.
(e) ensure that the stock route network is maintained and protected from inappropriate or incompatible development.
(f) ensure development protects extractive resources development from reverse amenity impacts resulting from existing and proposed rural uses and, also protects new rural uses from impacts of existing or future extractive industries by maintaining separation distances or buffers.
(g) ensure development does not obstruct the safe and efficient operation of pipelines.
(h) enables the development and supply of renewable energy such as solar farms, geothermal energy, bioenergy, hydropower and wind at the regional, local and individual scale in appropriate locations.

The purpose of the code will be achieved through the following outcomes:

(a) the zone primarily accommodates grazing and value-adding rural uses where they do not conflict with petroleum leases or facilities or stock routes.
(b) new small-scale tourist developments are accommodated where they:
  (i) are associated with and do not threaten the viability of existing rural uses.
  (ii) assist with maintaining the viability of existing rural production enterprises.
  (iii) support and add to the quality of experiences on the Adventure Way and Great Inland Way.

(iv) protect extractive resources of local and state significance and operating extractive industry from encroachment by incompatible uses.

(c) new extractive industries are established only where they do not impact on the viability of existing agricultural, residential, and tourist uses.
(d) biodiversity values and ecological connectivity associated with MSES are protected and maintained.
(e) development is serviced with infrastructure, including formal road access, and is appropriate for the level of risk associated with any flood and bushfire hazard.

An assessment of the proposed development against the performance outcomes of the Rural zone code and code purpose are provided in Table 32 and Table 33. The compliance statements outlined in Table 32 and Table 33 demonstrate that the proposed development complies with the accepted outcomes and purpose of the Rural zone code and will not compromise the local government purpose or overall outcomes sought for the individual themes with the Rural zone code.

Table 32 – Rural zone code (Balonne Shire Planning Scheme 2024)

Table 6.2.5.2: Assessment criteria: Rural zone code

For assessable development

Performance Outcomes		Acceptable Outcomes		Compliance Assessment
PO1	Proposed uses established in the Rural zone do not conflict with existing rural land uses or the biodiversity (including MSES), scenic and community values of the area.	**AO1**	No acceptable outcome is prescribed.	**Complies with AO1** The proposed use is for "Extractive industry" (gravel pit) and does not conflict with existing rural land uses or the biodiversity (including MSES), scenic and community values of the area due to its location on a large land parcel well separated from residential areas, and no clearing of regulated vegetation is required. Refer to section 4 and 5.
PO2	Uses established in the Rural zone do not conflict with: (a) petroleum infrastructure that occurs on petroleum leases or under petroleum facility licences and pipeline licences. (b) the function of stock routes. (c) mining leases and claims.	**AO2.1**	Development is located a minimum of 200m from a pipeline or pipeline easement in SPP Mapping > Safety and Resilience to Hazards > Emissions and Hazardous Activities > High pressure gas pipeline. Schedule 4: Mapping – Online Mapping Resources – GeoResGlobe	**Complies with AO2.1** The proposed use is for "Extractive industry" (gravel pit) and is located a minimum of 200m from a pipeline or pipeline easement in SPP Mapping > Safety and Resilience to Hazards > Emissions and Hazardous Activities > High pressure gas pipeline. Schedule 4: Mapping – Online Mapping Resources – GeoResGlobe. Refer to section 5.14 and Figure 31.
		AO2.2	No acceptable outcome is prescribed for the use of lots fronting the stock route network on SPP Mapping > Economic Growth > Agriculture > Stock route network	**Complies with AO2.2** The proposed use is for "Extractive industry" (gravel pit) and is located over 4,750 m from a designated stock route (SRO 620BALO) and stock route reserve.

		AO2.3	Development that occurs within a priority agricultural area is undertaken in accordance with the Regional Planning Interests Act 2014.	**Complies with AO2.3** The proposed use is for "Extractive industry" (gravel pit) and is not located within a priority agricultural area. Refer to section 7.1.2.1.1 and Figure 36.
PO3	Tourist uses that support the primary rural uses on the site are limited in scale and do not threaten the viability of traditional rural uses.	**AO3**	No acceptable outcome is prescribed.	**Not Applicable (AO3)** The proposed use is for "Extractive industry" (gravel pit) and does not involve a tourist use. Refer to section 4.
PO4	Extractive industry is adequately separated from sensitive land uses to minimise potential for nuisance or complaint.	**AO4.1**	Residential and other sensitive uses are not located: (a)within 200 m of mechanical extraction of sedimentary deposits; or (b)within 1,000 m of hard rock extraction.	**Complies with AO4.1** The proposed use is for "Extractive industry" (gravel pit) and is not located within 200 m of mechanical extraction of sedimentary deposits; or within 1,000 m of hard rock extraction. Refer to 5.13 and Figure 8.
		AO4.2	New extractive uses and activities are not established within 1,000 m of existing sensitive rural, residential or tourist uses.	**Complies with AO4.1** The proposed use is for "Extractive industry" (gravel pit) and is not established within 1,000 m of existing sensitive rural, residential or tourist uses. Refer to 5.13 and Figure 8.
PO5	Development is connected to an appropriate level of infrastructure services.	**PO5.1**	Development has formal and safe access to the existing road network.	**Complies with AO5.1** The proposed use is for "Extractive industry" (gravel pit) and has formal and safe access to the existing road network being Runnymede Road, Fernlee Road and the Balonne Highway. Refer to sections 2 and 4 and Figure 2, Figure 3 and Figure 4.
		PO5.2	Development is connected to a reticulated water supply and	**Complies with AO5.2**

			sewerage system, or alternatively, an on-site water storage and a waste disposal system is provided which does not overflow to adjoining properties or detract from environmental values.	The proposed use is for "Extractive industry" (gravel pit) and is located on a large parcel of rural land and cannot be connected to a reticulated water supply and sewerage system. Further, there is no requirement for on-site potable water. All operators shall provide their own source of potable water. Stormwater shall be captured within a below-ground sedimentation basin which does not overflow to adjoining properties or detract from environmental values. Refer to sections 2 and 4 and Figure 2, Figure 3 and Figure 4.
		PO5.3	The development is connected to electricity or an alternative renewable energy source and telecommunications.	**Complies with AO5.3** The proposed use is for "Extractive industry" (gravel pit) and does not require the provision of electricity supply from an approved supplier via overhead supply lines as proposed development does not require the provision of electrical services. All plant and equipment a shall be self-powered using diesel engines. Refer to sections 2 and 4 and Figure 2, Figure 3 and Figure 4.
PO6	Development is located to protect sensitive land uses from the impacts of previous activities that may cause risk to people or property including land containing former mining activities and hazards e.g. disused underground mines, tunnels and shafts. Note: A geotechnical assessment report prepared by a suitably qualified and experienced person will assist in demonstrating the achievement of the performance outcome where a possible risk from former mining activities is	**AO6**	No acceptable outcome is prescribed	**Complies with AO6** The proposed use is for "Extractive industry" (gravel pit) and is located on a large parcel of rural land which has not been impacted by former mining activities and hazards e.g. disused underground mines, tunnels and shafts. Refer to sections 2, 4 and 5.14 and Figure 2, Figure 3, Figure 4 and Figure 31.

	identified through local knowledge, a pre-development ground inspection, Schedule 4: Mapping – Online Mapping Resources – GeoResGlobe, or other sources.			
PO7	Renewable energy facilities are located and designed to avoid adverse impacts on sensitive uses including impacts on privacy, safety, noise, odour and fumes by lighting and traffic generation.	**AO7**	No acceptable outcome is prescribed	**Complies with AO7** The proposed use is for "Extractive industry" (gravel pit) and does not involve a renewable energy facility. Refer to sections 2 and 4 and Figure 2, Figure 3 and Figure 4.
Setbacks				
PO8	Building setbacks: (a) enhance the appearance and character of streets and buildings; (b) are appropriate to the scale of the development and the intended character of the Rural zone; (c) provide for adequate daylight for habitable rooms and open space areas on, and adjoining the site; (d) are sufficient to minimise loss of privacy, overshadowing and overlooking of adjoining premises; and (e) provide adequate separation and buffering between residential and non-residential premises.	**AO8**	Buildings, structures and car parking areas are set back a minimum of 15 m from the primary street frontage, 15 m from any secondary frontage and 5 m from side and rear boundaries.	**Complies with AO8** The proposed use is for "Extractive industry" (gravel pit) and is located on a large parcel of rural land. Recognising the site's location in a rural area the proposed development is setback over 20 m from all road frontages and 15 m from all side and rear boundaries. Refer to sections 2 and 4 and Figure 2, Figure 3 and Figure 4.

Table 33 – Rural zone code purpose (Balonne Shire Planning Scheme (Version 2))

ID	Purpose	Relevance	Response
a)	primarily accommodate grazing and value-adding rural uses (such as cropping) where they do not conflict with petroleum leases or facilities or stock routes.	Yes	The proposed use is for an "Extractive industry" (gravel pit) and due to its siting and operation does not involve a non-rural use that is incompatible with agriculture, the environmental features, and landscape character of the rural area. The proposed use is for "Extractive industry" (gravel pit) and is a consistent and compatible use for the rural zone. The general low rise and low intensity scale of the proposed development is consistent with the predominant rural character of the zone and visual prominence of environmental and landscape features in the rural landscape. The proposed development is a productive use and strengthens the diversification of the rural uses on the subject land.
b)	ensure the productive capacity of agricultural and associated rural industries that rely on IAA land and identified as IAA as shown on SPP mapping > Economic Growth > Agriculture is maximised and maintained while protecting biodiversity values including MSES and also allowing for farm diversification and value adding industries to occur in the rural area.	Yes	The proposed development has been sited, designed and shall be operated to protect and avoid adverse impacts to local biodiversity values such as regulated vegetation, watercourses and flood hazard areas identified on the subject land. The proposed development has been designed and will be managed to mitigate potential impacts such as traffic, noise and dust within the locality. The proposed development is not an incompatible land use for the subject land and has not been sited on rely on IAA land. The proposed development will have a limited footprint and the nature of the use is such that it will not compromise the ongoing use of the subject land for agricultural purposes. The proposed development will support diversification of existing rural activities.
c)	maintain the character and amenity of the rural and natural environment.	Yes	The proposed development has been sited, designed and shall be operated to protect and avoid adverse impacts to local biodiversity values such as regulated vegetation, watercourses and flood hazard areas identified on the subject land. The proposed development has been designed and will be managed to mitigate potential impacts such as traffic, noise and dust within the locality. The proposed development is not an incompatible land use for the subject land where it has been sited. The proposed development will have a limited footprint and the nature of the use is such that it will not

			compromise the ongoing use of the subject land for agricultural purposes. The proposed development will support diversification of existing rural activities.
d)	encourage tourism development where it can value-add to the viability of rural enterprises, does not diminish biodiversity values, including MSES and avoids impacts of flooding and bushfire.	No	The proposed use is for an "Extractive industry" (gravel pit) and is not a tourism development.
e)	ensure that the stock route network is maintained and protected from inappropriate or incompatible development.	Yes	The proposed use is for an "Extractive industry" (gravel pit) and due to its siting is well separated from existing stock routes and stock route reserve ensuring that the stock route network is maintained and protected from inappropriate or incompatible development siting.
f)	ensure development protects extractive resources development from reverse amenity impacts resulting from existing and proposed rural uses and, also protects new rural uses from impacts of existing or future extractive industries by maintaining separation distances or buffers.	No	The proposed use is for an "Extractive industry" (gravel pit) and due to its siting is well located from does existing and proposed rural uses and, also protects new rural uses from impacts of existing or future extractive industries by maintaining separation distances or buffers.
g)	ensure development does not obstruct the safe and efficient operation of pipelines.	Yes	The proposed use is for an "Extractive industry" (gravel pit) and due to its siting does not obstruct the safe and efficient operation of pipelines.
h)	enables the development and supply of renewable energy such as solar farms, geothermal energy, bioenergy, hydropower and wind at the regional, local and individual scale in appropriate locations.	No	The proposed use is for an "Extractive industry" (gravel pit) and does not involve the establishment and supply of renewable energy such as solar farms, geothermal energy, bioenergy, hydropower and wind farms

7.2.2.2 Development codes

7.2.2.2.1 Use codes

7.2.2.2.1.1 General development code

The purpose of the General development code is to ensure that development in the Shire is located, designed and managed in a safe and efficient manner.

The purpose of the code will be achieved through the following overall outcomes:

(a) Development is located to protect and enhance matters of national, state and local environmental significance, landscape values and ecological connectivity.
(b) Development has a safe and efficient site layout.
(c) Development does not detract from the Shire's unique building design, is complementary to the scale of neighbouring uses, and contributes to the character of the street and the locality.
(d) Development on local heritage places:
  (i) does not result in the demolition or removal of a local heritage place, unless there is no practical reason and feasible alternative.
  (ii) conserves the physical features, fabric and contents that contribute to the cultural heritage significance of the local heritage place.
  (iii) safeguards archaeology and archaeological potential, and ensures they are appropriately investigated and artefacts appropriately managed.
(e) An appropriate level of servicing and infrastructure is provided to new development and is connected to BSC's infrastructure where available.
(f) The site layout protects adjoining amenity, allows access around the building, allows sufficient areas for parking and manoeuvring on the site and safe and efficient access and egress.
(g) Assets of the BSC are protected.
(h) Any planned earthworks ensure that existing drainage regimes are maintained.
(i) Development does not conflict with the ongoing efficient and safe use of the stock route network by travelling stock.
(j) Development does not inhibit the safe and efficient operation of pipelines.

An assessment of the proposed development against the performance outcomes of the General development code and code purpose are provided in Table 34 and Table 35. The compliance statements outlined in Table 34 and Table 35 demonstrate that the proposed development complies with the accepted outcomes and purpose of the General development code and will not compromise the purpose or overall outcomes sought for the individual themes with the General development code.

Table 34 – General development code (Balonne Shire Planning Scheme 2024)

Table 7.3.1.1: Assessment criteria: General development code

Performance Outcomes		Acceptable Outcomes		Compliance Assessment
Site layout				
PO1	The size and bulk of new buildings associated with development maintains and enhances the intended local character of the zone by avoiding over-development of the site, and allowing for development at a consistent scale, siting and intensity to nearby development.	**AO1**	Total development on the site has a maximum site cover as follows: • 50% Township zone • 90% Centre zone • 85% General residential zone • 85% Industry zone. Editor's Note: Where there is a conflict between the relevant Zone Code and AO1, the Zone Code prevails.	**Complies with AO1** The proposed use is for "Extractive industry" (gravel pit) and is located on a large parcel of land with the rural zone. Further, the proposed development does not involve the establishment of new buildings or structures. Refer to sections 2 and 4 and Figure 2, Figure 3, and Figure 4.
PO2	Landscaping is provided to enhance the visual appeal of the development and soften the appearance of the built form. The majority of landscaping is to be undertaken on the principal street frontage of the development.	**AO2**	Except in the St George Centre zone, a minimum of 10% of the total development area is landscaped.	**Complies with AO2** The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of buildings or structures. Refer to section 4.
Building design				
PO3	New development maintains the low-rise scale and character of the Shire.	**AO3**	Except where in the St George Centre zone, development is no higher than: • 2 storeys; or • 8.5 m above ground level.	**Complies with AO3** The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of buildings or structures. Refer to section 4.
PO4	New buildings or structures present a traditional façade to the street.	**AO4**	Except where in the St George, Dirranbandi Centre and industry zones, at least 3 of the 4 elements	**Not Applicable (AO4)**

			below must be incorporated into the façade of new buildings: • verandas or porches. • awnings and shade structures. • variations to the roof and building lines. • a range of building materials, matching prevailing materials in neighbouring buildings.	The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of buildings or structures. Refer to section 4.
PO5	Development is generally in accordance with existing setbacks within the locality.	**AO5**	No acceptable outcome is prescribed	**Complies with AO5** The proposed use is for "Extractive industry" (gravel pit) and complies with existing setbacks within the locality and separation distances. Refer to section 2 and 4 and Figure 2, Figure 3, Figure 4 and Figure 8.
Dual occupancies and multiple dwellings				
PO6	The design, appearance and form of development for Dual Occupancy or a Multiple Dwelling reflects a high standard and permanent form of accommodation that complements the character of existing residential development in the Shire. Editor's note—Dwellings having the appearance of relocatable dwellings or other temporary structures are discouraged and unlikely to meet this performance outcome. However, this provision is not intended to preclude creative or adaptive building design outcomes where exhibiting strong architectural merit and visual appeal.	**AO6**	No acceptable outcome is prescribed	**Not Applicable (AO6)** The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of dual occupancies and multiple dwellings. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
PO7	Building scale, form and site layout is consistent with existing prevalent	**AO7**	No acceptable outcome is prescribed.	**Not Applicable (AO7)**

	residential architectural features and site layouts (e.g. location of building at the front of the lot, parking at the side or rear of dwellings, one larger building rather than multiple small buildings). Editor's note—Dwellings having the appearance of relocatable dwellings or other temporary structures are generally discouraged and unlikely to meet the performance outcome. However, this provision is not intended to preclude creative or adaptive building design outcomes where exhibiting strong architectural merit and visual appeal.			The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of dual occupancies and multiple dwellings. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
PO8	Landscaping is provided for site presentation privacy and shade.	**AO8**	No acceptable outcome is prescribed.	**Not Applicable (AO8)** The proposed use is for "Extractive industry" (gravel pit) and does not involve the establishment of dual occupancies and multiple dwellings. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
Access, manoeuvring and parking				
PO10	The proposed development accommodates sufficient car parking on site.	**AO10**	Car parking is provided at rates as per Table 7.3.1.2.	**Complies with AO10** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4. The requirements for on-site vehicle parking for an "Extractive industry" are not specified in **Table 7.3.1.2 - Car parking generation rates and service vehicle requirements**.

				The proposed development has been provided with adequate on-site vehicle parking for the expected demand. Refer to section 4. The nature of the development and rural character of the site is such that the provision of a formal car parking area is unnecessary.
PO11	The proposed driveway is clear of all impediments.	**AO11**	The proposed driveway is clear of street furniture, gully pits, manholes, power poles and street trees.	**Complies with AO10** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4. An informal access to the subject land off Runnymede Road shall be upgraded to form a dedicated entrance for the proposed development. The proposed driveway is clear of street furniture, gully pits, manholes, power poles and street trees.
PO12	The location of driveways does not create a danger to the safety and efficiency of existing intersections.	**AO12**	The minimum distance of a driveway from an intersection of one street with another is 6m.	**Complies with AO10** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4. An informal access to the subject land off Runnymede Road shall be upgraded to form a dedicated entrance for the proposed development. The proposed driveway is located some 7.5 km from an intersection

				with another road. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
PO13	Access to, from and within the site: • is adequate for the type and volume of traffic generated by the use. • does not adversely impact on the traffic network external to the site. • caters for safe pedestrian access. • provides for disabled access.	**AO13.1**	Vehicle crossovers are designed in accordance with BSC standards.	**Complies with AO13.1** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. All vehicle crossovers shall be designed and constructed in accordance with BSC standards. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
		AO13.2	Car parking and manoeuvring areas are designed in accordance with: • AS2890.1 – Parking Facilities • Austroads AP-34/95 - Design Vehicles and Turning Path Templates • The Access to Premises Standard' (Vol 1 of the National Construction Code).	**Complies with AO13.2** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4. All car parking and manoeuvring areas shall be designed in accordance with: • AS2890.1 – Parking Facilities • Austroads AP-34/95 - Design Vehicles and Turning Path Templates • The Access to Premises Standard' (Vol 1 of the National Construction Code). as far as they are relevant to the proposed development. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
Infrastructure and services				
PO14	The development is supplied with an appropriate level of infrastructure to support the intended use.	**AO14**	Telecommunications and electricity supplies are designed and installed to supplier standards.	**Complies with AO13.2** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. The proposed

				development does not require the provision of electricity supply. The site has good mobile phone coverage. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
PO15	All development has an adequate supply of potable water and can provide for appropriate treatment and disposal of effluent and other wastewater. Note—If the development is not connected to a reticulated water supply network, there is no guarantee of reliability or availability of water from watercourses, overland flow or underground water for new non-stock and domestic development across the Balonne Shire. This is because access to water is subject to the limitations and appropriate authorisation under the Water Act 2000.	**AO15.1**	In the General residential, Centre, Industry and Township zones, all development is connected to BSC's reticulated water supply network. In the Recreation and Open Space and Rural zones, a potable water supply is provided.	**Complies with PO15.1** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. A potable water supply shall be provided. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
		AO15.2	In the General residential, Centre, Industry and Township zone, all development is connected to BSC's reticulated sewerage network. In the Recreation and Open Space and Rural zones, sewage disposal is provided generally in accordance with the Queensland Plumbing and Wastewater Code. Note—Appropriate authorisation is required under the Water Act 2000 for the take of water from watercourses, overland flow or underground water.	**Complies with AO15.2** The subject land is located within the Rural zone and the proposed use is for "Extractive industry" being a gravel pit. All sewage disposal is provided generally in accordance with the Queensland Plumbing and Wastewater Code. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

Table 35 – General development code purpose (Balonne Shire Planning Scheme 2024)

ID	Purpose	Relevance	Response
a)	Development is located to protect and enhance matters of national, state and local environmental significance, landscape values and ecological connectivity.	Yes	The proposed use is for "Extractive industry" (gravel pit) and is provides diversification of the rural activities undertaken on the subject land. The proposed development has been sited, designed and shall be operated to protect and avoid adverse impacts to local biodiversity values such as regulated vegetation, wetlands, watercourses and flood hazard areas identified on the subject land. The proposed development has been designed and will be managed to mitigate potential impacts such as traffic, noise, dust, and lighting within the locality. The proposed development has been sited, designed and shall be operated to protect and avoid adverse impacts to water and soil quality. The proposed development shall be managed and operated so that off-site impacts are minimised. The proposed development is not an incompatible land use for the subject land. The proposed development is not considered a sensitive use to the adjoining agricultural activities. The proposed development is to be located on a site of sufficient size to provide adequate buffers to nearby sensitive land uses. The proposed development is not a retail or administrative use.
b)	Development has a safe and efficient site layout.	Yes	The proposed use is for "Extractive industry" (gravel pit) and shall be access from an existing informal access off Runnymede Road.
c)	Development does not detract from the Shire's unique building design, is complementary to the scale of neighbouring uses, and contributes to the character of the street and the locality.	Yes	The proposed use is for "Extractive industry" (gravel pit) and does not involve buildings or structures.
d)	Development on local heritage places: (i) does not result in the demolition or removal of a local heritage place, unless there is no practical reason and feasible alternative.	No	There are no local heritage places on tor adjacent to the site of the proposed development.

	(ii) conserves the physical features, fabric and contents that contribute to the cultural heritage significance of the local heritage place.		
e)	safeguards archaeology and archaeological potential, and ensures they are appropriately investigated and artefacts appropriately managed.	Yes	There are no archaeology and archaeological objects identified on the site of the proposed development. If any artefacts are identified during operation, then they shall be appropriately managed in accordance with relevant legislation.
f)	An appropriate level of servicing and infrastructure is provided to new development and is connected to BSC's infrastructure where available.	Yes	An appropriate level of servicing and infrastructure is provided to the proposed new development.
g)	The site layout protects adjoining amenity, allows access around the building, allows sufficient areas for parking and manoeuvring on the site and safe and efficient access and egress.	Yes	The site layout protects adjoining amenity and allows sufficient areas for parking and manoeuvring on the site and safe and efficient access and egress.
h)	Assets of the BSC are protected.	Yes	All assets of BSC shall be protected.
i)	Any planned earthworks ensure that existing drainage regimes are maintained.	Yes	Any planned earthworks shall ensure that existing drainage regimes are maintained
j)	Development does not conflict with the ongoing efficient and safe use of the stock route network by travelling stock.	Yes	The proposed development shall not conflict with the ongoing efficient and safe use of the stock route network by travelling stock.
k)	Development does not inhibit the safe and efficient operation of pipelines.	Yes	The proposed development does not inhibit the safe and efficient operation of pipelines.

7.2.2.3 Other development codes

7.2.2.3.1 Flood Hazard Overlay code

For the purpose of triggering the relevant Queensland Development Code (QDC) requirements for building in Flood Hazard Areas, this Overlay represents the following determinations in accordance with Section 13 of the Building Regulation 2021 (BR 2021) Act.

(a) Designates 3 areas for which there is detailed flood information (including flood depth, velocity and hazard) as per the areas.
(b) Bounded by green on Schedule 4: Mapping – Flood hazard overlay map as Flood Hazard Area (FHA) for the purposes of the BR 2021.
(c) Declares the following for these FHAs:
    (i) The Defined Flood Level (DFL) and Defined Flood Event (DFE) for each FHA is that of 1% Annual Exceedance Probability (AEP) flood event.
    (ii) Maximum flow velocity of water for the above flood event as expressed Schedule 4: Mapping – Flood hazard overlay map (flow velocity of water).
    (iii) Finished floor level of class 1 buildings build in all or part of the FHAs – expressed as the Minimum Habitable Finished Floor Level (which includes freeboard) on Schedule 4: Mapping – Flood hazard overlay map (Finished Floor Level).

The above determinations trigger the requirement for building works within the FHAs to address the requirements of Mandatory Part 3.5 Construction of buildings in Flood Hazard Areas of the QDC.

The purpose of the Flood hazard overlay code is to:

(a) Provide for the assessment of the suitability of development in the Flood hazard overlay area to ensure that risk to life, property, community, economic activity and the environment during flood events is minimised.
(b) Ensure that development does not increase the potential for flood damage on-site or to other property.

The purpose of the code will be achieved through the following overall outcomes:

(a) The development siting, layout, and access responds to the risk of the flood hazard and minimises risk to personal safety.
(b) The development is resilient to flood events by ensuring siting and design accounts for the potential risks of flood hazards to property.
(c) The development supports, and does not unduly burden disaster management response or recovery capacity and capabilities.
(d) The development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the flood hazard and does not significantly increase the potential for damage on the site or to other properties.
(e) The development avoids the release of hazardous materials as a result of a flood event.
(f) Natural processes and the protective function of landforms and/or vegetation are maintained in natural hazard areas.

Table 36 – Flood Hazard Overlay code (Balonne Shire Planning Scheme 2024)

Table 7.4.3.5: Assessment criteria: Flood Hazard Overlay code

Performance Outcomes		Acceptable Outcomes		Compliance Assessment
Built form				
PO1	Development is resilient to flood events by ensuring design and built form to account for the potential risks of flooding.	**AO1.1**	Habitable floors (including extensions and/or redevelopment) are built to at least the Minimum Habitable Finished Floor Level (MHFFL) specified for the subject lot. Note—Refer to Schedule 4: Mapping – Flood Mapping (MHFFL). For the avoidance of doubt, the freeboard allocated (0.55 m within designated Flood Hazard Areas) includes an allowance (0.25 m) for the underside of the lowest component of flooring used (such as the underside of floor bearers or suspended slab) to also be constructed above flood waters.	**Not Applicable (AO1.1)** The proposed development is for "Extractive industry" being a gravel pit and does not involve the establishment of any habitable buildings. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
		AO1.2	The design and layout of buildings used for residential purposes minimise risk from flooding by providing parking and other low intensity, non-habitable uses at ground level.	**Not applicable (AO1.2)** The proposed development is for "Extractive industry" being a gravel pit and does not involve the establishment of any buildings for residential purposes. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

		Note—The high-set 'Queenslander' style house is a resilient low-density housing solution in floodplain areas. The use of floor area below the MHFFL for non-habitable use is acceptable (such as for storage, car garaging, laundries or bathrooms) where residents are aware of the risk of loss of property from flood inundation and the possible implications for increased insurance premiums. It is acceptable for a slab to be placed underneath a high-set dwelling for non-habitable purposes. Note—Higher density residential development should also ensure only non-habitable rooms (e.g. garages laundries) are located on the ground floor.	
	AO1.3	The maximum building height for a dwelling is 8.5 m.	**Not applicable (AO1.3)** The proposed development is for "Extractive industry" being a gravel pit and does not involve the establishment of any dwellings. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO1.4	The maximum site coverage for residential outbuildings does not exceed 5% of the total site area. Note—The Queensland Development Code specifies	**Not applicable (AO1.4)** The proposed development is for "Extractive industry" being a gravel pit and does not involve the establishment of any residential outbuildings. Refer

		acceptable setbacks from property boundaries. Residents must also be aware of the risk of property loss associated with development residential outbuildings in areas subject to flood.	to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO1.5	Boundary fences do not impede the flow of floodwater. Note—Fences should be designed to allow flow of floodwaters but remain in situ so as not to create a hazard.	**Complies with AO1.5** The proposed development is sited on a topographic high, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO1.6	Non-residential uses and structures: (a) Area built above the MHFFL; or (b) Allow for flow through of flood waters.	**Not Applicable (AO1.6)** The proposed development is sited on a topographic high, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO1.7	Materials stored on-site: (a) are those that are readily able to be moved in a flood event. (b) where capable of creating a safety hazard by being shifted by flood waters, are contained in order to minimise movement in times of flood.	**Complies with AO1.7** The proposed development is sited on a topographic high, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. All plant. equipment and materials stored on-site are those that are readily able to be moved in a flood event. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
Development siting and layout			

PO2	Development siting and layout, responds to flooding potential and maintains personal safety at all times.	**AO2.1**	New Lots are: (a) located outside the overlay area; (b) are demonstrated to be above the flood level identified for the sire; or (c) located on the highest part of the site to minimise entrance of floodwaters. Note—If part of the site is outside the Flood hazard overlay map, this is the preferred location for all lots (excluding part or other relevant open space and recreation lots). Note—Buildings subsequently developed on the lots created will need to comply with the relevant building assessment provisions under the Building Act 1975.	**Not Applicable (AO2.1)** The proposed development is for "Extractive industry" being a gravel pit and does not involve the establishment of new lots. The proposed development is sited on a topographic high, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
		AO2.2	Road and/or pathway layout ensures residents are not physically isolated from the adjacent flood free urban areas and provides a safe and clear evacuation route path: (a) by locating entry points into the reconfiguration above the flood level and avoiding cul-de-sacs or other non-permeable layouts. (b) by direct and simple routes to main carriageways that allow trafficable access up to a	**Not Applicable (AO2.2)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone. The proposed development is sited on a topographic high, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

			maximum flood depth of 300 mm.	
		AO2.3	Signage is provided on site (regardless of whether land is in public or private ownership): (a) indicating the position ad path of all safe evacuation routes off the site. (b) if the site contains or is within 100 m of a floodable waterway, hazard warning signage and depth indicators are also provided at key hazard points, such as at floodway crossings or entrances to low-lying reserves.	**Not applicable (AO2.3)** The proposed development is for "Extractive industry" being a gravel pit and is sited on a topographic high on the subject land and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Consequently there is no requirement for signage. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
Effects on flood behaviour				
PO3	Development directly, indirectly and cumulatively avoids any increase in water flow velocity or flood level, and does not increase the potential for flood damage either on site or on other properties7.	**AO3.1**	Development does not block or divert floodwaters in a manner that increases flood level or velocity on site or on other properties. Note—Berms/mounds are considered to be an undesirable built form outcome and are not supported.	**Complies with AO3.1** The proposed development is sited on a topographic high on the subject land and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
		AO3.2	Works do not involve any physical alteration to a watercourse or floodway including vegetation clearing. **For operational works where located within the Residential Resilient Precinct or Limited Residential Precinct:**	**Complies with AO3.2** The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

AO3.3	Development involves no net increase in filling on site. Note—Fill associated with building work must comply with the relevant sections of the building assessment provisions. Onsite compensatory cut and fill would achieve the 'No net increase' requirement. **For operational works in all other zones/precincts:**	**Complies with AO3.3** The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
AO3.4	Works (including buildings and earthworks) either: (a) do not involve a net increase in filling greater than 500 m³ (compacted); or (b) do not result in any reductions of on-site flood storage capacity and contain within the subject site any changes to depth/duration/velocity of flood waters; or (c) do not change flood characteristics outside the subject site in ways that result in: (i) loss of flood storage. (ii) loss of/changes to flow paths. (iii) acceleration or retardation of flows; or any reduction in flood	**Complies with AO3.4** The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

			warning times elsewhere on the floodplain.	
Hazardous materials				
PO4	Development avoids the release of hazardous materials or contaminants into floodwaters.	**AO4.1**	Materials manufactured or stored on site are not hazardous or noxious, or comprise materials that may cause a detrimental effect on the environment if discharged in a flood event; **OR**	**Complies with AO4.1** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
		AO4.2	Where a MHFFL is adopted (refer to Schedule 4: Mapping – Flood hazard overlay map Maps R8 B1b, B3b, C2b, C3b and C3f), structures used for the manufacture or storage of hazardous materials are: (a) located above the MHFFL level; or (b) designed to prevent the intrusion of floodwaters.	**Not Applicable (AO4.2)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
		AO4.3	If a specific MHFFL for the site is not adopted8, hazardous materials and their manufacturing equipment are located on the highest part of the site to enhance flood immunity and are designed to prevent the intrusion of floodwaters.	**Not Applicable (AO4.3)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or

			Note—Refer to the Work Health and Safety Act 2011 and associated Regulation and Guidelines, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances	modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4
Disaster management responses				
PO5	The development supports, and does not unduly burden, disaster management response or recovery capacity and capabilities.	**AO5**	Development does not: (a) increase the number of people calculated to be at risk from flooding (b) increase the number of people likely to need evacuation. (c) shorten flood warning times. (d) impact on the ability of traffic to use evacuation routes, or unreasonably increase traffic volumes on evacuation routes.	**Not Applicable (AO5)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
Community infrastructure				
PO6	Development involving community infrastructure (defined as Sensitive Land Uses and Community Oriented Uses under this planning scheme): (a) remains functional to serve community need during and immediately after a flood event. (b) is designed, sited and operated to avoid adverse impacts on the	**AO6.1**	**Where not located within the Resilient Residential Precinct:** Sensitive Land Uses and Community Oriented Uses are not located on land inundated during a 1% AEP flood event. **OR**	**Not Applicable (AO6.1)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or located within the Resilient Residential Precinct. The proposed development is sited on a topographic high on the subject land, and the site is not subject

community or environment due to the impacts of flooding on infrastructure, facilities or access and egress routes. (c) retains essential site access during a flood event. (d) and is able to remain functional even when infrastructure or services may be compromised in a flood event.			to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO6.2	Sensitive Land Uses and Community Oriented Uses incorporate an area on site above the MHFFL with sufficient space to accommodate the likely population of the development in safety for a relatively short time until flooding subsides or people can be evacuated. **AND**	**Not Applicable (AO6.2)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO6.3	Sensitive Land Uses and Community Oriented Uses have direct access to low hazard evacuation routes as defined in Table 7.4.3.6. **AND**	**Not Applicable (AO6.3)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or

			modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO6.4	Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood, such as electrical switch gear and motors, telecommunications connections, or water supply pipeline air values are: (a) located above the MHFFL for the site. (b) designed and constructed to exclude floodwater intrusion/infiltration.	**Not Applicable (AO6.4)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AND		
	AO6.5	Infrastructure is designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by a flood.	**Not Applicable (AO6.5)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO6.6	The following uses are not located on land inundated during a 0.5% AEP flood event:	**Not Applicable (AO6.6)**

		(a) emergency shelters (b) police facilities.	The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.
	AO6.7	The following uses are not located on land inundated during a 0.2% AEP flood event: (a) correctional facilities (b) emergency services (c) power station (d) major switch yards.	**Not Applicable (AO6.7)** The proposed development is for "Extractive industry" being a gravel pit located in the rural zone and is not for community infrastructure or a Sensitive Land Use or Community Oriented Use. The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard. The proposed development does not involve the construction of a new levee or modification of an existing levee. Refer to section 2 and 4 and Figure 2, Figure 3 and Figure 4.

Table 37 – Flood hazard overlay code purpose (Balonne Shire Planning Scheme 2024)

ID	Purpose	Relevance	Response
a)	The development siting, layout, and access responds to the risk of the flood hazard and minimises risk to personal safety.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.
b)	The development is resilient to flood events by ensuring siting and design accounts for the potential risks of flood hazards to property.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.
c)	The development supports and does not unduly burden disaster management response or recovery capacity and capabilities.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.
d)	The development directly, indirectly and cumulatively avoids an unacceptable increase in severity of the flood hazard and does not significantly increase the potential for damage on the site or to other properties.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.
e)	The development avoids the release of hazardous materials as a result of a flood event.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.
f)	Natural processes and the protective function of landforms and/or vegetation are maintained in natural hazard areas.	Yes	The proposed development is sited on a topographic high on the subject land, and the site is not subject to flood hazard.

8 Relevant guidelines

Cement Concrete & Aggregates Australia which is the peak body for the heavy construction materials industry in Australia has prepared codes of practice and guidelines for preventing adverse impacts on the environment from extractive industries.

These guidelines and code of do not override or replace federal, state or local government legislation, regulations, plans or policies.

The following guidelines have been used to plan and design the proposed development and provide best practice methods for operation and management (in the event development consent is granted) of the development.

The following guidelines have been used to plan and design the proposed development and provide best practice methods for siting, design, operation and management (in the event development consent is granted) of the development.

8.1.1 State guidelines, codes and policies

The following state documents have been used as a resource when preparing this development application. These guidelines provide a broad framework of generally acceptable principles for protection of the environment when establishing and operating an extractive industry within Queensland.

- Environmental Protection (Air) Policy 2019. The Environmental Protection (Air) Policy has been developed to provide a framework for making consistent, equitable and informed decisions about the air environment. Environmental values for the air environment include health and biodiversity of ecosystems, human health and wellbeing and the amenity of the community.
- Environmental Protection (Noise) Policy 2019. The Environmental Protection (Noise) Policy has been developed to provide a framework for making consistent, equitable and informed decisions about the acoustic environment. Acoustic values include health and biodiversity of ecosystems, human health and wellbeing and the amenity of the community.
- Guideline: Application requirements for activities with impacts to water (Department of Environment and Science, 2017b). This guideline outlines the type of impacts ERAs can have on the environmental values of water.
- Guideline: Application requirements for activities with noise impacts (Department of Environment and Science, 2017c). This guideline outlines the type of impacts ERAs can have on nearby sensitive receptors.
- Guideline: Application requirements for activities with impacts to land (Department of Environment and Science, 2017d). This guideline outlines the type of impacts ERAs can have on the environmental values of land.

- Guideline: Application requirements for activities with impacts to air (Department of Environment and Science, 2017e). This guideline outlines the type of impacts ERAs can have on environmental values of air.

9 References

Ahern, CR, Ahern, MR and Powell, B, 1998, Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland. QASSIT, Department of Natural Resources, Queensland.

Australian Geomechanics Society, 2007, Guideline for landslide susceptibility, hazard and risk zoning for land use planning. Journal and news of the Australian Geomechanics Society Volume 42:1 pp 13-36.

Balonne Shire Council, 2024, Balonne Shire Planning Scheme 2019 – Incorporating amendment No 1, Version 2 - Commenced 29 January 2024, Balonne Shire Council, St George, Queensland.

British Standards Institute, 1993, British Standard 7385-2-1993, Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from groundbourne vibration, London, United Kingdom.

Bureau of Meteorology, 2025a, Climate Statistics for Australian Locations – Heather, Site No 044143 (1999-2025), Bureau of Meteorology, Commonwealth of Australia, viewed October 2025 www.bom.gov.au/climate/averages/tables/cw_041100.shtml

Bureau of Meteorology, 2025b, Climate Statistics for Australian Locations – Bollon Mary St, Site No 044010 (1885-2025), Bureau of Meteorology, Commonwealth of Australia, viewed August 2021 www.bom.gov.au/climate/averages/tables/cw_053115.shtml

Bureau of Meteorology, 2025c, Design Rainfall Data System (2016). Retrieved 28.09.2025, Commonwealth of Australia 2025, Bureau of Meteorology, http://www.bom.gov.au/water/designRainfalls/revised-ifd

Bureau of Meteorology, 2025d, Rainfall Intensity Frequency Duration Data (ARR 87 IFDs). Retrieved 28.09.2025, Commonwealth of Australia 2025, Bureau of Meteorology, www.bom.gov.au/cgi-bin/hydro/has/CDIRSWebBasic

Department of Planning Transport and Infrastructure (SA), 2014, Management of Noise and Vibration: Construction and Maintenance Activities, Operational Instruction 21.7, Version 4, The Government of South Australia, Department of Planning Transport and Infrastructure, Adelaide, South Australia.

Department of Environment and Science, 2017a, Guideline: Application requirements for activities with waste impacts, Version 4.01, ESR/2015/1836, Department of Environment and Science, Brisbane.

Department of Environment and Science, 2017b, Guideline: Application requirements for activities with impacts to water, Version 4.00, ESR/2015/1837, Department of Environment and Science, Brisbane.

Department of Environment and Science, 2017c, Guideline: Application requirements for activities with noise impacts, Version 3.01, ESR/2015/1838, Department of Environment and Science, Brisbane.

Department of Environment and Science, 2017d, Guideline: Application requirements for activities with impacts to land, Version 4.01, ESR/2015/1839, Department of Environment and Science, Brisbane.

Department of Environment and Science, 2017e, Guideline: Application requirements for activities with impacts to air, Version 4.01, ESR/2015/1840, Department of Environment and Science, Brisbane.

Department of Environment and Science, 2021, Wetland mapping background, WetlandInfo 2013, Department of Environment and Science, Queensland, viewed September 2021, <https://wetlandinfo.des.qld.gov.au/wetlands/facts-maps/wetland-background/>.

Department of State Development, Infrastructure and Planning, 2013, State Planning Policy mandatory requirements: landslide hazard, Supporting the State Planning Policy state interest—Natural hazards, Draft: April 2013, Department of Infrastructure, Local government and Planning, State of Queensland, Brisbane.

Department of Infrastructure, Local Government and Planning, 2016, State Planning Policy—state interest guideline Natural hazards, risk and resilience, Department of Infrastructure, Local government and Planning, State of Queensland, Brisbane.

Department of State Development, Manufacturing, Infrastructure, and Planning, 2018, State Development Assessment Provisions, Version 2.4, Department of State Development, Manufacturing, Infrastructure, and Planning, State of Queensland, Brisbane.

Department of Housing, Local Government and Planning, 1993, Planning guidelines: the identification of good quality agricultural land. Department of Primary Industries and Department of Housing, Local Government and Planning, Brisbane.

Department of Energy and Climate (DEC), 2025, SILO Climate data (The Long Paddock), The State of Queensland (Department of Energy and Climate), Brisbane, Queensland.

Galloway, R.W., Gunn, R.H and Pedley, L., 1974, Soils of the Balonne-Maranoa Area, South-Central Queensland, CSIRO Division of Land Use Research, Canberra.

International Erosion and Sediment Control (IECA) (Australasia) 2008, Best Practice Erosion and Sediment Control, International Erosion Control Association (Australasia), Picton NSW.

Roberts, C, 2004, Ecoaccess guideline for the assessment of low frequency noise, Proceedings of Acoustics 2004, 3-5 November, Gold Coast, Australia.

Sattler, PS, Williams, RD (eds) 1999, The Conservation Status of Queensland's Bioregional Ecosystems, Environmental Protection Agency, Brisbane.

Standards Australia, 1997, Australian Standard 1055.3-1997, Description and measurement of environmental noise Part 3 - Acquisition of data pertinent to land use, Sydney, Australia.

Standards Australia, 2016, Australian Standard 2436-2010, Guide to noise and vibration control on construction, demolition and maintenance sites, Sydney, Australia.

US Department of Transportation Federal Transit Administration, 2018 Transit Noise and Vibration Impact Assessment Manual FTA Report No. 0123 Federal Transit Administration, Washington

Appendix A – Title reference

Current Title Search

Queensland Titles Registry Pty Ltd
ABN 23 648 568 101

Title Reference:	**50547218**	**Search Date:**	31/05/2025 09:12
Date Title Created:	29/03/2005	**Request No:**	52057036
Previous Title:	40046814		

ESTATE AND LAND

Estate in Fee Simple

LOT 1 CROWN PLAN BEL53166
Local Government: BALONNE

LOT 5 CROWN PLAN BEL53167
Local Government: BALONNE

For exclusions / reservations for public purposes refer to Plan CP BEL53166
For exclusions / reservations for public purposes refer to Plan CP BEL53167

REGISTERED OWNER — INTEREST

Dealing No: 723903453 04/03/2025

ROBERT ALEXANDER BROWN 1/2
AMY JEANINE BROWN 1/2

AS TENANTS IN COMMON

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
Deed of Grant No. 40046814 (Lot 1 on CP BEL53166)
(Lot 5 on CP BEL53167)

2. MORTGAGE No 723903459 04/03/2025 at 15:56
NORFINA LIMITED A.C.N. 010 831 722

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
710432866	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	20/03/2007 11:40	CURRENT
712816345	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	23/10/2009 13:30	CURRENT

UNREGISTERED DEALINGS

NIL

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

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Requested by: D-ENQ TITLES QUEENSLAND

Appendix B – Land contamination

Department of the Environment, Tourism, Science and Innovation (DETSI)
ABN 46 640 294 485
GPO Box 2454, Brisbane QLD 4001, AUSTRALIA
www.detsi.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

RDC Engineers Pty Ltd
PO Box 1223
Toowoomba QLD 4350

Transaction ID: 51068741 EMR Site Id: 12 October 2025
Cheque Number:
Client Reference:

This response relates to a search request received for the site:
Lot: 5 Plan: BEL53167
FERNLEE RD
BOLLON

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

All search responses include particulars of land listed in the EMR/CLR when the search was generated.
The EMR/CLR does NOT include:-

1. land which is contaminated land (or a complete list of contamination) if DETSI has not been notified
2. land on which a notifiable activity is being or has been undertaken (or a complete list of activities) if DETSI has not been notified

If you have any queries in relation to this search please email emr.clr.registry@detsi.qld.gov.au

Administering Authority

Appendix C – Groundwater bore report

Bore Report

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
49758	Artesian - Controlled Flow	Existing	25/02/2006	St. George	300 - BALONNE

Details

Description	7 BLM159		
Parish	3270 - MONA		
Original Name			
Driller Name	LORGER, DANIEL PAUL		
Const Method	ROTARY MUD		
Bore Line			
D/O File No		**Polygon**	
R/O File No		**Equipment**	
H/O File No		**RN of Bore Replaced**	
Log Received Date	08/03/2006	**Data Owner**	
Roles	Water Supply		

Location

Datum	GDA94	**Basin**	4225
Latitude	28-12-03	**Sub-area**	
Longitude	147-25-39	**Lot**	7
GIS Latitude	-28.2009342	**Plan**	BLM159
GIS Longitude	147.4274218		
Easting	541947	**Map Scale**	
Northing	6880465	**Map Series**	
Zone	55	**Map No**	
Accuracy		**Map Name**	
GPS Accuracy		**Prog Section**	
Checked	Yes		

Casing

7 ***records for RN*** **49758**

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	25/02/2006	1	0.00	156.00	Steel Casing	6.400	WT - Wall Thickness	219
A	25/02/2006	2	0.00	651.00	Steel Casing	6.400	WT - Wall Thickness	168
A	25/02/2006	3	642.00	846.00	Steel Casing	6.400	WT - Wall Thickness	141
A	25/02/2006	4	0.00	156.00	Centraliser			
A	25/02/2006	5	702.00	846.00	Perforated or Slotted Casing	8.000	AP - Aperture Size	141

Bore Report

From Year:

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
X	25/02/2006	6	0.00	156.00	Grout			279
X	25/02/2006	7	0.00	651.00	Grout			200

Strata Logs

16 *records for RN* **49758**

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	3.00	RED SANDY TOPSOIL
2	3.00	8.00	BROWN SAND
3	8.00	37.00	WHITE CLAY
4	37.00	49.00	SANDSTONE
5	49.00	50.00	IRONSTONE
6	50.00	55.00	RED/WHITE CLAY
7	55.00	69.00	YELLOW CLAY
8	69.00	82.00	GREY CLAY
9	82.00	347.00	DARK GREY CLAY
10	347.00	350.00	SILTSONE
11	350.00	640.00	GREY SHALE
12	640.00	679.00	PUGGY SHALE
13	679.00	723.00	SANDSTONE (FINE) (WATER @ 680)
14	723.00	726.00	PUGGY SANDSTONE & SHALE
15	726.00	834.00	SANDSTONE **
16	834.00	846.00	PUGGY SANDSTONE & SHALE

Stratigraphies

7 *records for RN* **49758**

Source	Rec	Top (m)	Bottom	Strata Description

Bore Report

From Year:

		(m)		
DNR	1			GRIMAN CREEK FORMATION
DNR	2			SURAT SILTSTONE
DNR	3			COREENA MEMBER
DNR	4			DONCASTER MEMBER
DNR	5			WYANDRA SANDSTONE MEMBER
DNR	6			CADNA-OWIE FORMATION
DNR	7	679.00	846.00	HOORAY SANDSTONE

Aquifers

1 *records for RN* **49758**

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	679.00	846.00	SDST - Sandstone SHLE - Shale	25/02/2006	42.00	Y	POTABLE	60.00	Y	PS	HOORAY SANDSTONE

Pump Tests Part 1

1 *records for RN* **49758**

Pipe	Date	Rec	RN of Pumped Bore	Top (m)	Bottom (m)	Dist (m)	Meth	Test Types	Pump Type	Suction Set (m)	Q Prior to Test (l/s)	Dur of Q PR (mins)	Pres on Arriv (m)	Q on Arriv (l/s/)
A	14/03/2006	1	49768	702.00	846.00		ART	AC FR DT ST			0.00	15	37.80	6.20

Pump Tests Part 2

1 *records for RN* **49758**

Pipe	Date	Rec	Test Dur (mins)	SWL(m)	Recov Time (mins)	Resid DD (m)	Max DD or P RED (m)	Q at Max DD (l/s)	Time to Max DD (mins)	Max Q (l/s)	Calc Stat HD (m)	Design Yield (l/s)	Design BP (m)	Suct. Set (m)	Tmsy (m2/Day)	Stor
A	14/03/2006	1	270	40.87	30		33.20	45.06	120	47.21						

Bore Conditions

0 *records for RN* **49758**

Bore Report

From Year:

Elevations

0 *records for RN* **49758**

Water Analysis Part 1

0 *records for RN* **49758**

Water Analysis Part 2

0 *records for RN* **49758**

Water Levels

0 *records for RN* **49758**

Wire Line Logs

0 *records for RN* **49758**

Field Measurements

1 *records for RN* **49758**

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp	Method	Samp	Source
A	25/02/2006	846.00			56.0					PU	Pump - Other or Flowing Bore	GB	Groundwater - from Bore

Special Water Analysis

0 *records for RN* **49758**

Bore Report

From Year:

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Bore Report

From Year:

Registered Number	Facility Type	Facility Status	Drilled Date	Office	Shire
49758	Artesian - Controlled Flow	Existing	25/02/2006	St. George	300 - BALONNE

Details

Description	7 BLM159		
Parish	3270 - MONA		
Original Name			
Driller Name	LORGER, DANIEL PAUL		
Const Method	ROTARY MUD		
Bore Line			
D/O File No		**Polygon**	
R/O File No		**Equipment**	
H/O File No		**RN of Bore Replaced**	
Log Received Date	08/03/2006	**Data Owner**	
Roles	Water Supply		

Location

Datum	GDA94	**Basin**	4225
Latitude	28-12-03	**Sub-area**	
Longitude	147-25-39	**Lot**	7
GIS Latitude	-28.2009342	**Plan**	BLM159
GIS Longitude	147.4274218		
Easting	541947	**Map Scale**	
Northing	6880465	**Map Series**	
Zone	55	**Map No**	
Accuracy		**Map Name**	
GPS Accuracy		**Prog Section**	
Checked	Yes		

Casing

7 ***records for RN*** **49758**

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
A	25/02/2006	1	0.00	156.00	Steel Casing	6.400	WT - Wall Thickness	219
A	25/02/2006	2	0.00	651.00	Steel Casing	6.400	WT - Wall Thickness	168
A	25/02/2006	3	642.00	846.00	Steel Casing	6.400	WT - Wall Thickness	141
A	25/02/2006	4	0.00	156.00	Centraliser			
A	25/02/2006	5	702.00	846.00	Perforated or Slotted Casing	8.000	AP - Aperture Size	141

Bore Report

From Year:

Pipe	Date	Rec	Top (m)	Bottom (m)	Material Description	Mat Size (mm)	Size Desc	Outside Diameter (mm)
X	25/02/2006	6	0.00	156.00	Grout			279
X	25/02/2006	7	0.00	651.00	Grout			200

Strata Logs

16 *records for RN* **49758**

Rec	Top (m)	Bottom (m)	Strata Description
1	0.00	3.00	RED SANDY TOPSOIL
2	3.00	8.00	BROWN SAND
3	8.00	37.00	WHITE CLAY
4	37.00	49.00	SANDSTONE
5	49.00	50.00	IRONSTONE
6	50.00	55.00	RED/WHITE CLAY
7	55.00	69.00	YELLOW CLAY
8	69.00	82.00	GREY CLAY
9	82.00	347.00	DARK GREY CLAY
10	347.00	350.00	SILTSONE
11	350.00	640.00	GREY SHALE
12	640.00	679.00	PUGGY SHALE
13	679.00	723.00	SANDSTONE (FINE) (WATER @ 680)
14	723.00	726.00	PUGGY SANDSTONE & SHALE
15	726.00	834.00	SANDSTONE **
16	834.00	846.00	PUGGY SANDSTONE & SHALE

Stratigraphies

7 *records for RN* **49758**

Source	Rec	Top (m)	Bottom	Strata Description

Bore Report

From Year:

			(m)	
DNR	1			GRIMAN CREEK FORMATION
DNR	2			SURAT SILTSTONE
DNR	3			COREENA MEMBER
DNR	4			DONCASTER MEMBER
DNR	5			WYANDRA SANDSTONE MEMBER
DNR	6			CADNA-OWIE FORMATION
DNR	7	679.00	846.00	HOORAY SANDSTONE

Aquifers

1 *records for RN* **49758**

Rec	Top (m)	Bottom (m)	Lithology	Date	SWL (m)	Flow	Quality	Yield (L/s)	Contr	Cond	Formation Name
1	679.00	846.00	SDST - Sandstone SHLE - Shale	25/02/2006	42.00	Y	POTABLE	60.00	Y	PS	HOORAY SANDSTONE

Pump Tests Part 1

1 *records for RN* **49758**

Pipe	Date	Rec	RN of Pumped Bore	Top (m)	Bottom (m)	Dist (m)	Meth	Test Types	Pump Type	Suction Set (m)	Q Prior to Test (l/s)	Dur of Q PR (mins)	Pres on Arriv (m)	Q on Arriv (l/s/)
A	14/03/2006	1	49768	702.00	846.00		ART	AC FR DT ST			0.00	15	37.80	6.20

Pump Tests Part 2

1 *records for RN* **49758**

Pipe	Date	Rec	Test Dur (mins)	SWL(m)	Recov Time (mins)	Resid DD (m)	Max DD or P RED (m)	Q at Max DD (l/s)	Time to Max DD (mins)	Max Q (l/s)	Calc Stat HD (m)	Design Yield (l/s)	Design BP (m)	Suct. Set (m)	Tmsy (m2/Day)	Stor
A	14/03/2006	1	270	40.87	30		33.20	45.06	120	47.21						

Bore Conditions

0 *records for RN* **49758**

Bore Report

From Year:

Elevations

0 *records for RN* **49758**

Water Analysis Part 1

0 *records for RN* **49758**

Water Analysis Part 2

0 *records for RN* **49758**

Water Levels

0 *records for RN* **49758**

Wire Line Logs

0 *records for RN* **49758**

Field Measurements

1 *records for RN* **49758**

Pipe	Date	Depth (m)	Conduct (uS/cm)	pH	Temp (C)	NO3 (mg/L)	DO2 (mg/L)	Eh (mV)	Alkalinity (mV)	Samp	Method	Samp	Source
A	25/02/2006	846.00			56.0					PU	Pump - Other or Flowing Bore	GB	Groundwater - from Bore

Special Water Analysis

0 *records for RN* **49758**

Bore Report

From Year:

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Appendix D – Regulated vegetated mapping



Regulated Vegetation Management Map

Queensland Government

- Category A area (Vegetation offsets/compliance notices/VDecs)
- Category B area (Remnant vegetation)
- Category C area (High-value regrowth vegetation)
- Category R area (Reef regrowth watercourse vegetation)
- Category X area (Exempt clearing work on Freehold, Indigenous and Leasehold land)
- Water
- Other land parcel boundaries
- Selected Lot and Plan

LOCALITY DIAGRAM



N

0 920 1,840 2,760 3,680 4,600 m

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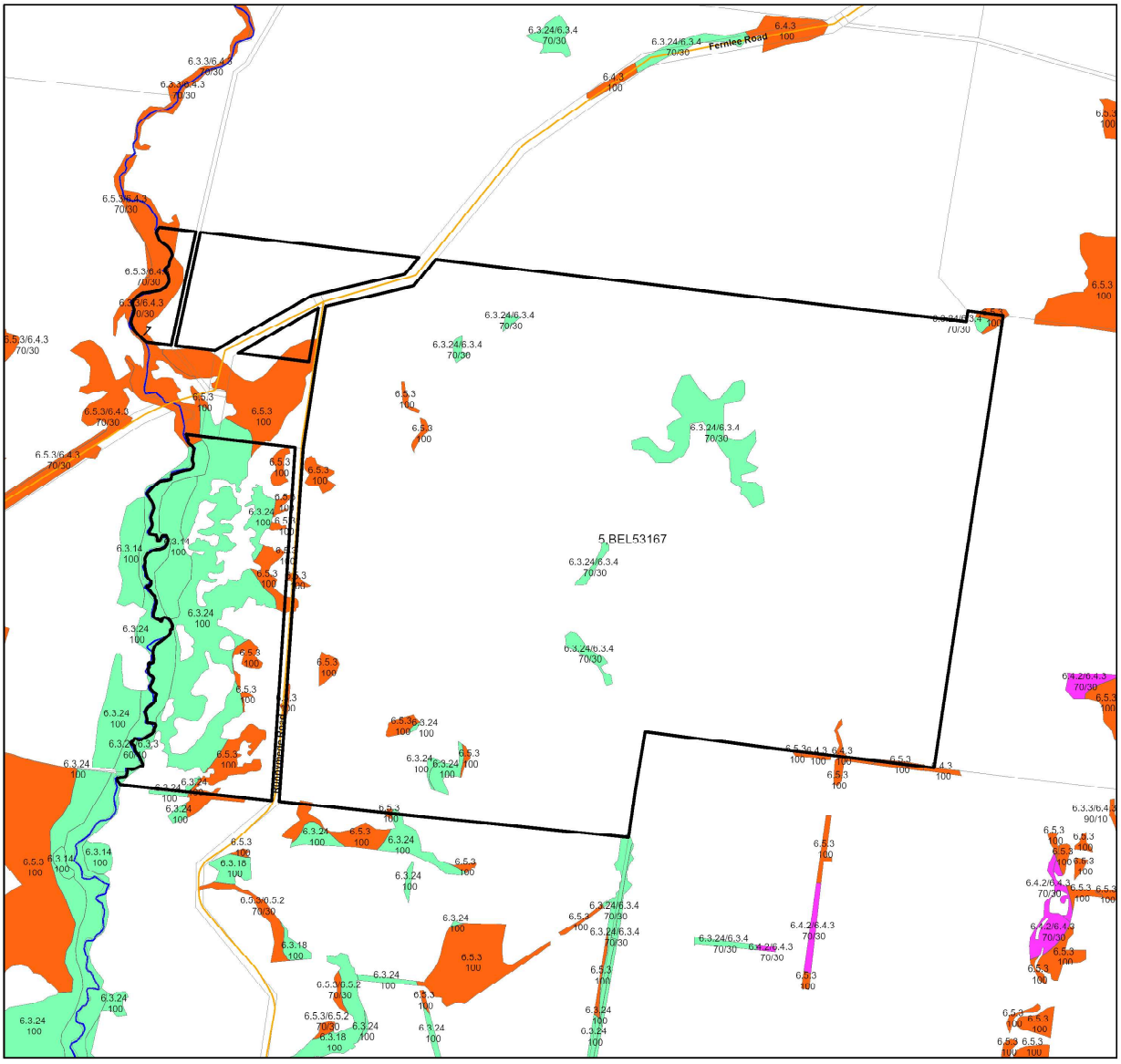
Additional information required for the assessment of vegetation values is provided in the accompanying "Vegetation Management Supporting map". For further information go to the web site: www.nrmmrrd.qld.gov.au or contact the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development.

Digital data for the regulated vegetation management map is available from the Queensland Spatial Portal at http://www.spatial.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

This map is updated on a monthly basis to ensure new PMAVs are included as they are approved.

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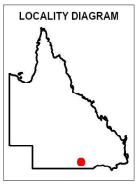


Vegetation Management Supporting Map

- Category A or B area containing endangered regional ecosystems
- Category A or B area containing of concern regional ecosystems
- Category A or B area that is a least concern regional ecosystem
- Category C or R area containing endangered regional ecosystems
- Category C or R area containing of concern regional ecosystems
- Category C or R area that is a least concern regional ecosystem
- Category X area
- Water
- Wetland on the vegetation management wetlands map
- Essential habitat on the essential habitat map
- Essential habitat species record
- Watercourses and drainage features on the vegetation management watercourse and drainage features map (Stream order shown as black number against stream where available)
- Highway
- Connector
- Street/Local Road
- National Parks, State Forest and other reserves
- Other land parcel boundaries
- Selected Lot and Plan

Queensland Government

LOCALITY DIAGRAM



N

0 660 1,320 1,980 2,640 3,300 m

This product is displayed in: GDA2020

Labels for Essential Habitat are centred on the area of enquiry.

Regional ecosystem linework has been compiled at a scale of 1:100 000, except in designated areas where a compilation scale of 1:50 000 is available. Linework should be used as a guide only. The positional accuracy of RE data mapped at a scale of 1:100 000 is +/- 100 metres.

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Additional information may be required for the purposes of land clearing or assessment of a regional ecosystem map or PMAV applications. For further information go to the web site: www.nrmmrrd.qld.gov.au or contact the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development.

Digital data for the vegetation management watercourse and drainage feature map, vegetation management wetlands map, essential habitat map and the vegetation management remnant and regional ecosystem map are available from the Queensland Spatial Portal at http://www.spatial.information.qld.gov.au/

Land parcel boundaries are provided as locational aid only.

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Vegetation Management Act 1999 - Extract from the essential habitat database

Essential habitat is required for assessment under the:

- State Development Assessment Provisions - State Code 16: Native vegetation clearing which sets out the matters of interest to the state for development assessment under the *Planning Act 2016*; and
- Accepted development vegetation clearing codes made under the *Vegetation Management Act 1999*

Essential habitat for one or more of the following species is found on and within 1.1 km of the identified subject lot/s on the accompanying essential habitat map.

This report identifies essential habitat in Category A, B and Category C areas.

The numeric labels on the essential habitat map can be cross referenced with the database below to determine which essential habitat factors might exist for a particular species.

Essential habitat is compiled from a combination of species habitat models and buffered species records.

The Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development website http://www.nrmmrrd.qld.gov.au has more information on how the layer is applied under the State Development Assessment Provisions - State Code 16: Native vegetation clearing and the *Vegetation Management Act 1999*.

Regional ecosystem is a mandatory essential habitat factor, unless otherwise stated.

Essential habitat, for protected wildlife, means a category A area, a category B area or category C area shown on the regulated vegetation management map-

1. that has at least 3 essential habitat factors for the protected wildlife that must include any essential habitat factors that are stated as mandatory for the protected wildlife in the essential habitat database; or
2. in which the protected wildlife, at any stage of its life cycle, is located.

Protected wildlife includes critically endangered, endangered, vulnerable or near-threatened native wildlife prescribed under the *Nature Conservation Act 1992*.

Essential habitat in Category A and/or Category B and/or Category C

No records

Queensland Government

Appendix E– Wildlife online extract

WN Taxon ID	Kingdom	Class	Family	Scientific name	Common name	NCA status	EPBC status	Superseded	Conservation significant	Establishment	Sighting records	Specimen records	Sighting summary
624	Animalia	Amphibia	Hylidae	Cyclorana alboguttata	greenstripe frog	C		FALSE	FALSE	QA	2	0	2
621	Animalia	Amphibia	Hylidae	Cyclorana platycephala	water holding frog	C		FALSE	FALSE	QA	1	0	1
627	Animalia	Amphibia	Hylidae	Litoria caerulea	common green treefrog	C		FALSE	FALSE	QAI	1	0	1
600	Animalia	Amphibia	Hylidae	Litoria rubella	ruddy treefrog	C		FALSE	FALSE	QAI	2	0	2
682	Animalia	Amphibia	Limnodynastidae	Limnodynastes salmini	salmon striped frog	C		FALSE	FALSE	QA	1	0	1
684	Animalia	Amphibia	Limnodynastidae	Limnodynastes tasmaniensis	spotted grassfrog	C		FALSE	FALSE	QA	14	0	14
668	Animalia	Amphibia	Limnodynastidae	Notaden bennettii	holy cross frog	C		FALSE	FALSE	QA	1	0	1
1742	Animalia	Aves	Accipitridae	Accipiter cirrocephalus	collared sparrowhawk	C		FALSE	FALSE	QAI	2	0	2
1732	Animalia	Aves	Accipitridae	Aquila audax	wedge-tailed eagle	C		FALSE	FALSE	QAI	2	0	2
1707	Animalia	Aves	Accipitridae	Haliastur sphenurus	whistling kite	C		FALSE	FALSE	QAI	2	0	2
1762	Animalia	Aves	Alcedinidae	Todiramphus sanctus	sacred kingfisher	C		FALSE	FALSE	QAI	4	0	4
2003	Animalia	Aves	Anatidae	Chenonetta jubata	Australian wood duck	C		FALSE	FALSE	QA	2	0	2
1832	Animalia	Aves	Ardeidae	Ardea pacifica	white-necked heron	C		FALSE	FALSE	QA	3	0	3
1826	Animalia	Aves	Ardeidae	Egretta novaehollandiae	white-faced heron	C		FALSE	FALSE	QAI	4	0	4

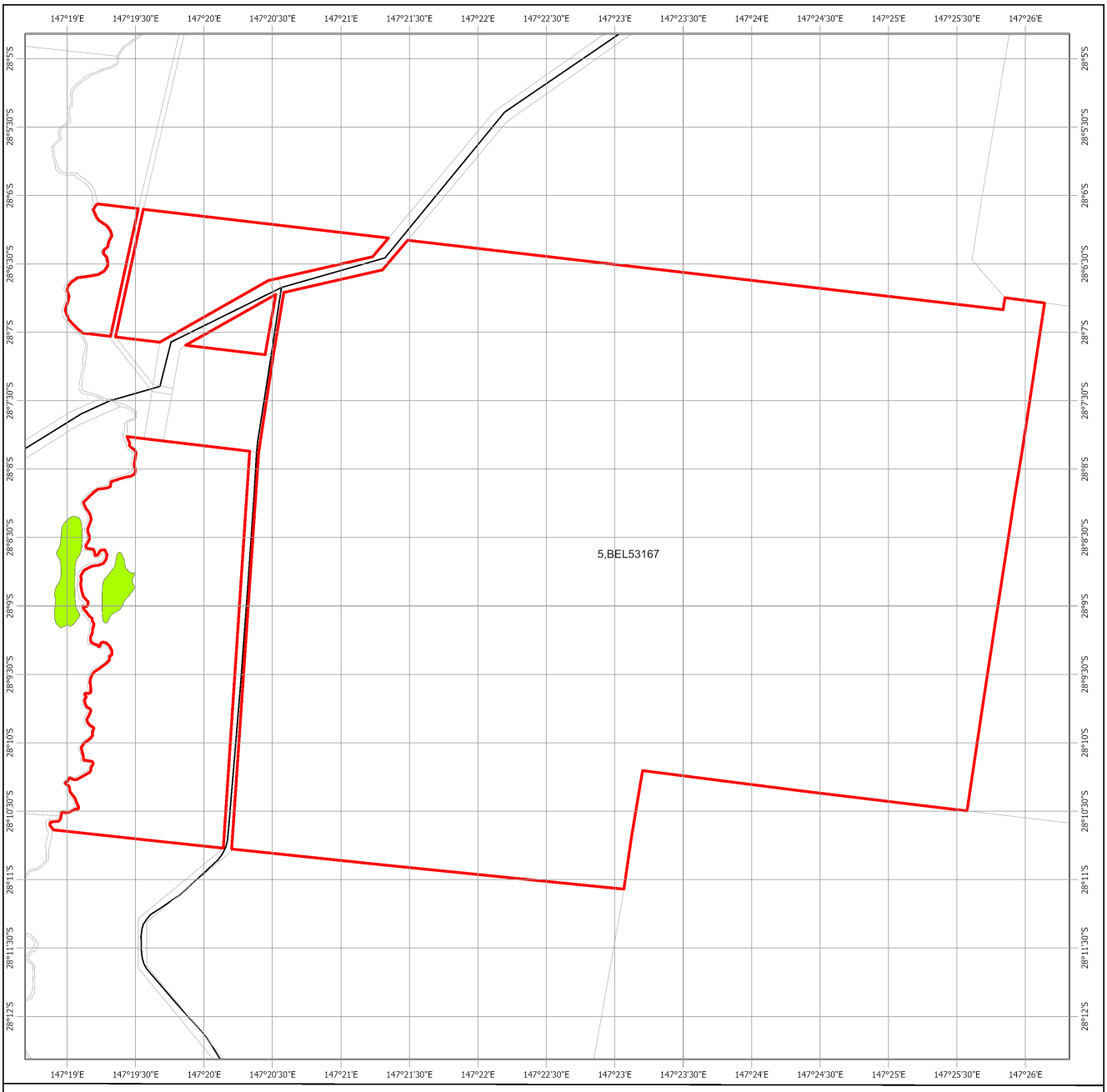
1659	Animalia	Aves	Artamidae	Artamus cyanopterus	dusky woodswallow	C		FALSE	FALSE	QA	2	0	2
1649	Animalia	Aves	Artamidae	Artamus superciliosus	white-browed woodswallow	C		FALSE	FALSE	QA	4	0	4
1654	Animalia	Aves	Artamidae	Cracticus nigrogularis	pied butcherbird	C		FALSE	FALSE	QA	8	0	8
1656	Animalia	Aves	Artamidae	Cracticus torquatus	grey butcherbird	C		FALSE	FALSE	QA	2	0	2
1644	Animalia	Aves	Artamidae	Gymnorhina tibicen	Australian magpie	C		FALSE	FALSE	QAI	5	0	5
1192	Animalia	Aves	Cacatuidae	Cacatua leadbeateri leadbeateri	Pink Cockatoo	E	E	FALSE	TRUE	QA	2	0	2
1193	Animalia	Aves	Cacatuidae	Eolophus roseicapilla	galah	C		FALSE	FALSE	QA	2	0	2
1636	Animalia	Aves	Campephagidae	Coracina novaehollandiae	black-faced cuckoo-shrike	C		FALSE	FALSE	QAI	5	0	5
1089	Animalia	Aves	Casuariidae	Dromaius novaehollandiae	emu	C		FALSE	FALSE	QA	3	0	3
1628	Animalia	Aves	Climacteridae	Climacteris picumnus	brown treecreeper	C		FALSE	FALSE	QA	9	0	9
1809	Animalia	Aves	Columbidae	Geopelia cuneata	diamond dove	C		FALSE	FALSE	QA	4	0	4
18323	Animalia	Aves	Columbidae	Geopelia placida	peaceful dove	C		FALSE	FALSE	QAI	6	0	6
1793	Animalia	Aves	Columbidae	Ocyphaps lophotes	crested pigeon	C		FALSE	FALSE	QA	1	0	1
1795	Animalia	Aves	Columbidae	Phaps chalcoptera	common bronzewing	C		FALSE	FALSE	QA	2	0	2
1603	Animalia	Aves	Corcoracidae	Corcorax melanorhamphos	white-winged chough	C		FALSE	FALSE	QA	4	0	4
1605	Animalia	Aves	Corcoracidae	Struthidea cinerea	apostlebird	C		FALSE	FALSE	QA	2	0	2

1611	Animalia	Aves	Dicaeidae	Dicaeum hirundinaceum	mistletoebird	C	FALSE	FALSE	QAI	2	0	2
1716	Animalia	Aves	Falconidae	Falco berigora	brown falcon	C	FALSE	FALSE	QAI	2	0	2
1704	Animalia	Aves	Falconidae	Falco cenchroides	nankeen kestrel	C	FALSE	FALSE	QAI	1	0	1
1678	Animalia	Aves	Gruidae	Antigone rubicunda	brolga	C	FALSE	FALSE	QAI	4	0	4
1572	Animalia	Aves	Hirundinidae	Hirundo neoxena	welcome swallow	C	FALSE	FALSE	QAI	2	0	2
1585	Animalia	Aves	Hirundinidae	Petrochelidon ariel	fairy martin	C	FALSE	FALSE	QA	1	0	1
1573	Animalia	Aves	Hirundinidae	Petrochelidon nigricans	tree martin	C	FALSE	FALSE	QAI	2	0	2
1557	Animalia	Aves	Maluridae	Malurus leucopterus	white-winged fairy-wren	C	FALSE	FALSE	QA	1	0	1
1539	Animalia	Aves	Meliphagidae	Entomyzon cyanotis	blue-faced honeyeater	C	FALSE	FALSE	QAI	2	0	2
1499	Animalia	Aves	Meliphagidae	Manorina flavigula	yellow-throated miner	C	FALSE	FALSE	QA	13	0	13
1493	Animalia	Aves	Meliphagidae	Philemon citreogularis	little friarbird	C	FALSE	FALSE	QAI	6	0	6
1518	Animalia	Aves	Meliphagidae	Ptilotula penicillata	white-plumed honeyeater	C	FALSE	FALSE	QA	9	0	9
1589	Animalia	Aves	Monarchidae	Grallina cyanoleuca	magpie-lark	C	FALSE	FALSE	QAI	8	0	8
1600	Animalia	Aves	Monarchidae	Myiagra inquieta	restless flycatcher	C	FALSE	FALSE	QA	1	0	1
1455	Animalia	Aves	Motacillidae	Anthus novaeseelandiae	Australasian pipit	C	FALSE	FALSE	QAI	3	0	3
1680	Animalia	Aves	Otididae	Ardeotis australis	Australian bustard	C	FALSE	FALSE	QAI	1	0	1
1392	Animalia	Aves	Pardalotidae	Pardalotus striatus	striated pardalote	C	FALSE	FALSE	QA	4	0	4
1339	Animalia	Aves	Petroicidae	Microeca fascinans	jacky winter	C	FALSE	FALSE	QAI	1	0	1

1182	Animalia	Aves	Psittaculidae	Aprosmictus erythropterus	red-winged parrot	C	FALSE	FALSE	QAI	1	0	1
1170	Animalia	Aves	Psittaculidae	Barnardius zonarius	Australian ringneck	C	FALSE	FALSE	QA	2	0	2
1157	Animalia	Aves	Psittaculidae	Barnardius zonarius barnardi	mallee ringneck	C	FALSE	FALSE	QA	2	0	2
1151	Animalia	Aves	Psittaculidae	Melopsittacus undulatus	budgerigar	C	FALSE	FALSE	QA	2	0	2
1136	Animalia	Aves	Psittaculidae	Platycercus adscitus	pale-headed rosella	C	FALSE	FALSE	QA	2	0	2
1118	Animalia	Aves	Psittaculidae	Psephotus haematonotus	red-rumped parrot	C	FALSE	FALSE	QA	5	0	5
1071	Animalia	Mammalia	Canidae	Vulpes vulpes	red fox		FALSE	FALSE	II	1	0	1
901	Animalia	Mammalia	Macropodidae	Macropus giganteus	eastern grey kangaroo	C	FALSE	FALSE	QA	1	0	1
1080	Animalia	Mammalia	Suidae	Sus scrofa	pig		FALSE	FALSE	II	1	0	1
18847	Animalia	Reptilia	Agamidae	Amphibolurus burnsi	Burns's dragon	C	FALSE	FALSE	QA	1	0	1
544	Animalia	Reptilia	Agamidae	Pogona vitticeps	central bearded dragon	C	FALSE	FALSE	QA	1	0	1
482	Animalia	Reptilia	Elapidae	Denisonia devisi	De Vis' banded snake	C	FALSE	FALSE	QA	1	0	1
240	Animalia	Reptilia	Scincidae	Ctenotus spaldingi	straight-browed ctenotus	C	FALSE	FALSE	QAI	1	0	1
134	Animalia	Reptilia	Scincidae	Morethia boulengeri	south-eastern morethia skink	C	FALSE	FALSE	QA	1	0	1
60	Animalia	Reptilia	Varanidae	Varanus tristis	black-tailed monitor	C	FALSE	FALSE	QA	1	0	1
17633	Plantae	Equisetopsida	Chenopodiaceae	Chenopodium auricomum		C	FALSE	FALSE	NTQ	1	1	1

15253	Plantae	Equisetopsida	Poaceae	Iseilema membranaceum	small flinders grass	C	FALSE	FALSE	NTQ	1	1	1
10857	Plantae	Equisetopsida	Poaceae	Leptochloa digitata		C	FALSE	FALSE	NTQ	1	1	1

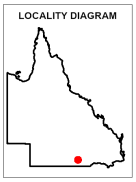
Appendix F– Protected Plants Flora Trigger Map



Protected Plants Flora Survey Trigger Map

- High risk area
- Other land parcel boundaries
- Freeways / motorways / highways
- Secondary roads / streets
- Selected Lot and Plan

LOCALITY DIAGRAM



N

0 525 1,050 1,575 2,100 2,625 m

This product is displayed in:
GDA2020

This map shows areas where particular provisions of the Nature Conservation Act 1992 apply to the clearing of protected plants.

Land parcel boundaries are provided as locational aid only.

This map is produced at a scale relevant to the size of the area selected and should be printed as A4 size in portrait orientation.

For further information or assistance with interpretation of this product, please contact the Department of the Environment, Tourism, Science and Innovation at palm@detsi.qld.gov.au

Disclaimer: While every care is taken to ensure the accuracy of the data used to generate this product, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaim all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damages) and costs which might be incurred as a consequence of reliance on the data, or as a result of the data being inaccurate or incomplete in any way and for any reason.

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Protected plants flora survey trigger map

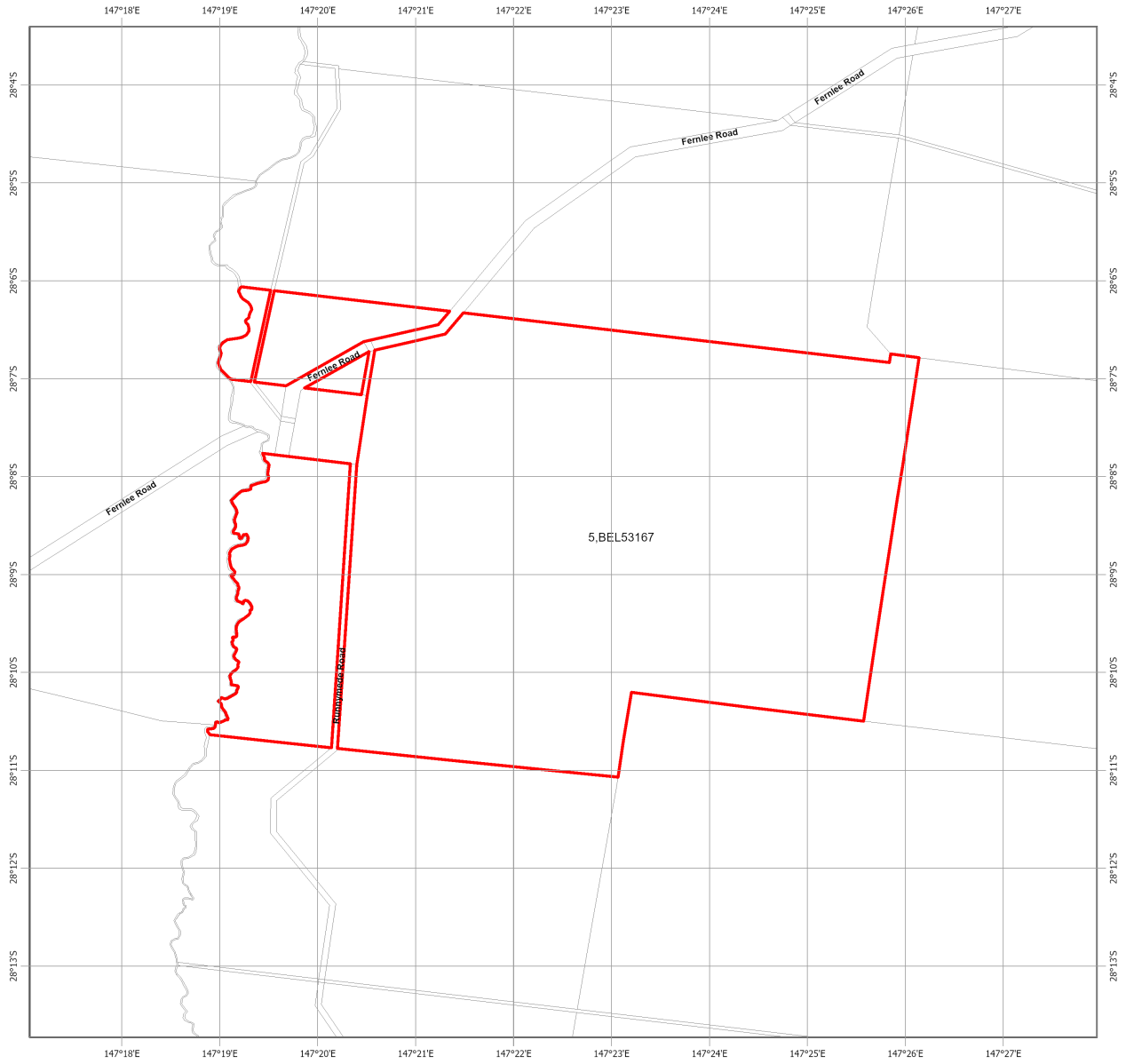
The protected plants flora survey trigger map identifies 'high risk areas' where endangered, vulnerable or near threatened plants are known to exist or are likely to exist. Under the *Nature Conservation Act 1992* (the Act) it is an offence to clear protected plants that are 'in the wild' unless you are authorised or the clearing is exempt, for more information see section 89 of the Act.

Please see the Department of the Environment, Tourism, Science and Innovation webpage on the clearing of protected plants for information on what exemptions may apply in your circumstances, whether you may need to undertake a flora survey, and whether you may need a protected plants clearing permit.

Updates to the data informing the flora survey trigger map
The flora survey trigger map will be reviewed, and updated if necessary, at least every 12 months to ensure the map reflects the most up-to-date and accurate data available.

Species information
Please note that flora survey trigger maps do not identify species associated with 'high risk areas'. While some species information may be publicly available, for example via the Queensland Spatial Catalogue, the Department of the Environment, Tourism, Science and Innovation does not provide species information on request. Regardless of whether species information is available for a particular high risk area, clearing plants in a high risk area may require a flora survey and/or clearing permit. Please see the Department of the Environment, Tourism, Science and Innovation webpage on the clearing of protected plants for more information.

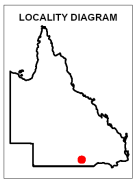
Appendix G – HES / GES wetlands mapping



Map of Great Barrier Reef Wetland Protection Areas

Cadastral Boundary
Wetland in a wetland protection area
Great Barrier Reef wetland protection area
Selected Lot and Plan

LOCALITY DIAGRAM



N

0 1000 2000 3000 4000 5000 m

This product is displayed in GDA2020

Note:
This map shows the location of wetland protection areas which are defined under the Environmental Protection Regulation 2019. Within wetland protection areas, certain types of development involving high impact earthworks are made assessable under the Planning Regulation 2017.

The State Assessment and Referral Agency (SARA) is part of the State government department administering the Planning Act 2016. SARA is the assessment manager for assessable development involving high impact earthworks within wetland protection areas. The Department of the Environment, Tourism, Science and Innovation is a technical agency.

The policy outcome and assessment criteria for assessing these applications are described in the State Development Assessment Provisions (SDAP) State Code 9 : Great Barrier Reef Wetland Protection Areas.

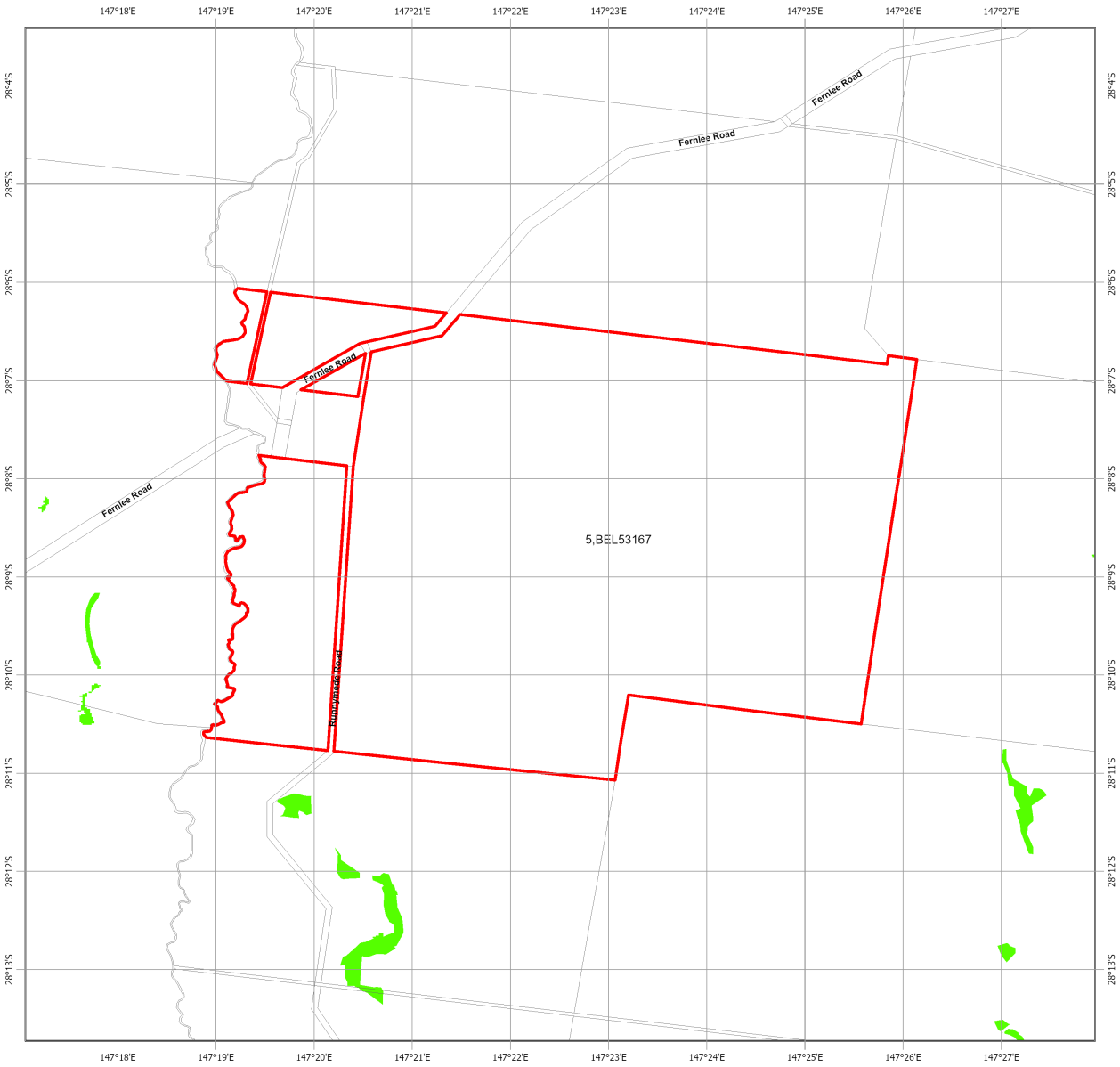
High impact earthworks carried out for electricity operating works or government supported transport infrastructure is accepted development if it complies with schedule 14 of the Planning Regulation 2017.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of the Environment, Tourism, Science and Innovation, email planning.support@detsi.qld.gov.au.

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Map of Queensland Wetland Environmental Values

Cadastral Boundary

High ecological values waters management intent

Wetlands assessed under section 7

GBR wetland of high ecological significance

Wetland of high ecological significance

Wetland of general ecological significance

Selected Lot and Plan

LOCALITY DIAGRAM



N

Note:
This map shows the location of wetlands on the Map of Queensland Wetland Environmental Values under the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. The map also shows high ecological value waters management intent under Schedule 2 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

Wetlands are assessed for ecological significance using the environmental values for wetlands in section 7 of the Environmental Protection (Wetland and Water Biodiversity) Policy 2019. Wetlands are considered either High Ecological Significance (HES) or of General Ecological Significance (GES) for the purposes of the environmental values.

This map is produced at a scale relevant to the size of the lot on plan identified and should be printed at A4 size in portrait orientation. Consideration of the effects of mapped scale is necessary when interpreting data at a large scale.

For further information or assistance with interpretation of this product, please contact the Department of the Environment, Tourism, Science and Innovation, email planning.support@detsi.qld.gov.au.

0 1000 2000 3000 4000 5000 m

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Appendix H – Cultural Heritage search extract

Cultural Heritage Database and Register Search Report

Search report reference number: 198893

The Aboriginal and Torres Strait Islander Cultural Heritage Database (cultural heritage database) and Aboriginal and Torres Strait Islander Cultural Heritage Register (cultural heritage register) have been searched in accordance with the location description provided, and the results are set out in this report.

The cultural heritage database is intended to be a research and planning tool to help Aboriginal and Torres Strait Islander parties, researchers, and other persons in their consideration of the cultural heritage values of particular areas.

The cultural heritage register is intended to be a depository for information for consideration for land use and land use planning, and a research and planning tool to help people in their consideration of the Aboriginal cultural heritage values of particular objects and areas.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts), even if the department has no records relating to it.

The placing of information on the database is not intended to be conclusive about whether the information is up-to-date, comprehensive or otherwise accurate.

Under the Cultural Heritage Acts, a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

Please refer to the department website https://www.qld.gov.au/firstnations/environment-land-use-native-title/cultural-heritage/cultural-heritage-duty-of-care to obtain a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

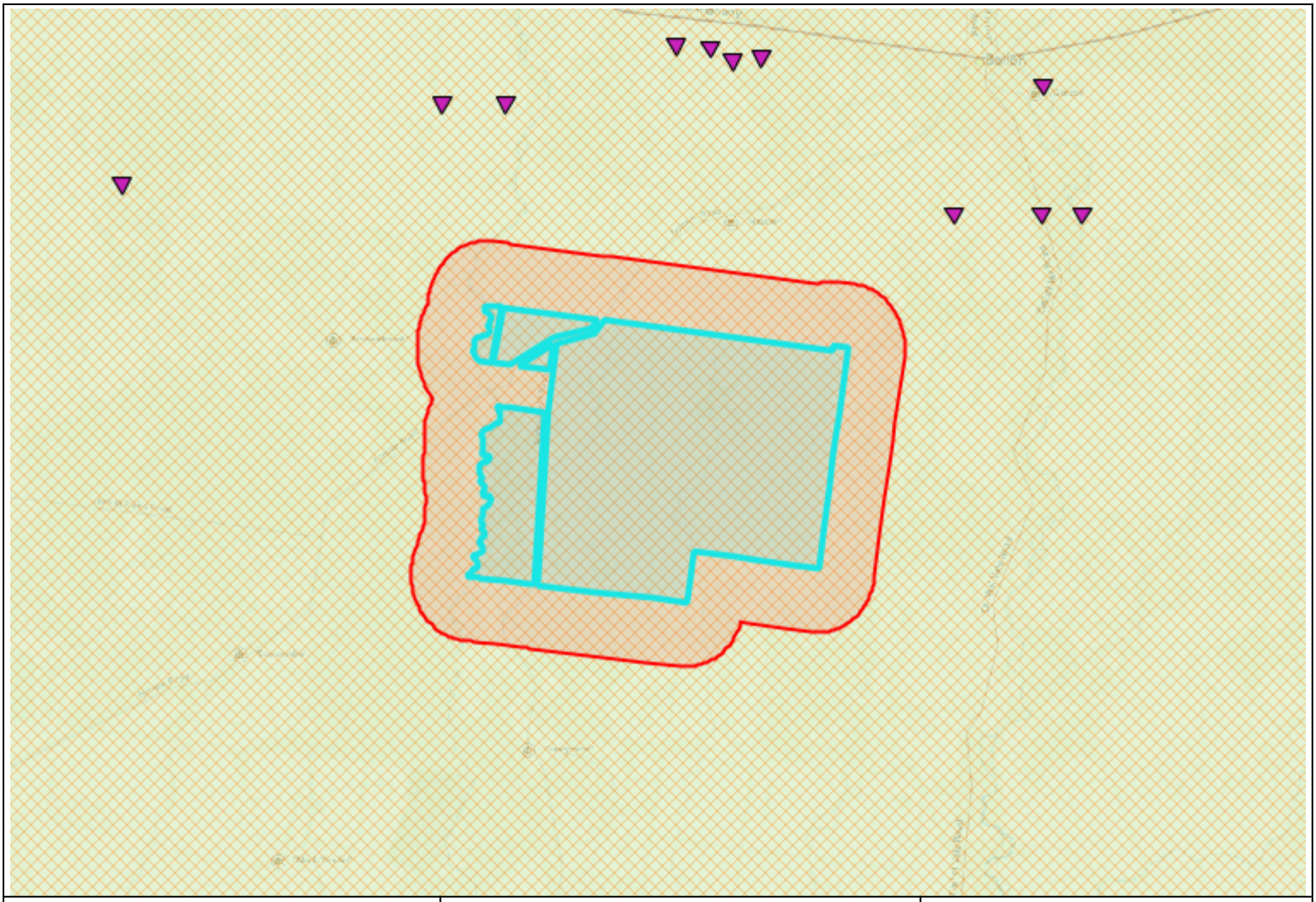
In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the Cultural Heritage Acts.

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.

Should you have any further queries, please do not hesitate to contact the department via email: cultural.heritage@dwatsipm.qld.gov.au or telephone: 1300 378 401.

Queensland Government

Cultural Heritage Database and Register Search Report



LEGEND

- CH Parties
- CH Bodies
- CHMPs
- Study Areas
- DLAs

Reference Number: 198893
Search Type: Lot/Plan
Lot: 5
Plan: BEL53167
Shire: Balonne Shire

Buffer Distance: 2000m

Cultural Heritage Sites

- Pre-2015 Point Site
- Post-2015 Point Site
- Mitigated Point Site
- Pre-2015 Area Site
- Post-2015 Area Site
- Mitigated Area Site

Map Projection: Geographic Latitude & Longitude (GDA2020).

The department is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties.

Features shown on this map have been obtained from available sources. It is possible that errors and omissions may exist. The department disclaims any liability for any errors or omissions that appear in this document.

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Map produced by the Cultural Heritage Unit, Brisbane, Queensland, Australia on 10 October 2025.

Queensland Government

1:229,586

Metres 5,000 10,000

LOCALITY



Search report generated on 10 Oct 2025 08:55

There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

Cultural Heritage Party/ies for the area:

Reference No.	Federal Court No.	Party Name	Contact Details
QCD2014/012 DET	QUD504/2011	Kooma People #4 Part A	Kooma Aboriginal Corporation PBC Cheryl Buchanan Phone: 0417 726 882 C/- Queensland South Native title Services PO BOX 10832, Adelaide St, BRISBANE QLD 4000 Email: cherylguwamu@gmail.com

Cultural Heritage Body/ies for the area:

Reference No.	Body Name	Contact Details	Registration Date
CHB019001	Kooma Aboriginal Corporation RNTBC	Kooma Aboriginal Corporation RNTBC 19 Hamlyn Rd OAKEY QLD 4401 Cheryl Buchanan Phone: 0417 726 882 Email: cherylguwamu@gmail.com Email: koomaac@gmail.com	16/10/2019

There are no Cultural Heritage Management Plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

There are no National Heritage Areas (Indigenous values) recorded in your specific search area.

Glossary

Cultural Heritage Body: An entity registered under Part 4 of the Cultural Heritage Acts as an Aboriginal or Torres Strait Islander cultural heritage body for an area. The purpose of a cultural heritage body is to:

- identify the Aboriginal or Torres Strait Islander parties for an area
- serve as the first point of contact for cultural heritage matters.

Cultural Heritage Management Plan (CHMP): An agreement between a land user (sponsor) and Traditional Owners (endorsed party) developed under Part 7 of the Cultural Heritage Acts. The CHMP explains how land use activities can be managed to avoid or minimise harm to Aboriginal or Torres Strait Islander cultural heritage.

Cultural Heritage Party: Refers to a native title party for an area. A native title party is defined as:

- Registered native title holders (where native title has been recognised by the Federal Court of Australia).
- Registered native title claimants (whose native title claims are currently before the Federal Court of Australia).
- Previously registered native title claimants (the 'last claim standing') are native title claims that are no longer active and have been removed from the Register of Native Title Claims administered by the National Native Title Tribunal. Previously registered native title claimants will continue to be the native title party for that area providing:
    - there is no other registered native title claimant for the area; and
    - there is not, and never has been, a registered native title holder for the area.

The native title party maintains this status within the external boundaries of the claim even if native title has been extinguished.

Cultural heritage site points (pre 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **before** 1 July 2015.

Cultural heritage site points (post 2015): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data **after** 1 July 2015.

Cultural heritage site points (post 2015 mitigated): Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as point data after 1 July 2015 where the recorder has advised the department that the site has been mitigated.

Cultural heritage site polygons: Aboriginal and Torres Strait Islander cultural heritage sites and places recorded in the database as a polygon.

Department: the department responsible for administering the Cultural Heritage Acts.

Designated Landscape Areas (DLA): Under the repealed *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*, an area was declared a 'designated landscape area' (DLA) if it was deemed necessary or desirable for it to be preserved or to regulate access.

Indigenous Protected Areas (IPA): Areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation through voluntary agreements with the Australian Government. For further information about IPAs visit https://www.environment.gov.au/land/indigenous-protected-areas

National Heritage areas: Places listed on the National Heritage List for their outstanding heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about the National Heritage List visit https://www.environment.gov.au/heritage/about/national

National Heritage Areas (Indigenous values): Places listed on the National Heritage list (Indigenous values) are

recognised for their outstanding Indigenous cultural heritage significance to Australia and are protected under the *Environment Protection and Biodiversity Conservation Act 1999.* These areas are now included in the cultural heritage register.

Registered Cultural Heritage Study Areas: Comprehensive studies of Aboriginal and or Torres Strait Islander cultural heritage in an area conducted under Part 6 of the Cultural Heritage Acts for the purpose of recording the findings of the study on the register.

Traditional Use of Marine Resources Agreement (TUMRA): Areas subject to agreement between Great Barrier Reef Traditional Owners and the Australian and Queensland governments on the management of traditional use activities on their sea country. For further information about TUMRAs visit https://www.gbrmpa.gov.au/our-partners/traditional-owners/traditional-use-of-marine-resources-agreements

World Heritage Areas: Places inscribed on the World Heritage List pursuant to the World Heritage Convention adopted by the United Nations Education, Scientific and Cultural Organisation (UNESCO) and are protected under the *Environment Protection and Biodiversity Conservation Act 1999*. For further information about World Heritage places in Queensland visit https://environment.qld.gov.au/management/world-heritage-areas

Disclaimer: *The department is the custodian of spatial data and information provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. The department is not responsible for the accuracy of information provided by third parties or any errors in this search report arising from such information.*

Appendix I – Matters of National Environmental Significance

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 10-Oct-2025

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	3
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	1
Listed Threatened Species:	18
Listed Migratory Species:	7

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	13
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	1
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands) [Resource Information]

Ramsar Site Name	Proximity	Buffer Status
Banrock station wetland complex	900 - 1000km upstream from Ramsar site	In feature area
Riverland	800 - 900km upstream from Ramsar site	In feature area
The coorong, and lakes alexandrina and albert wetland	1000 - 1100km upstream from Ramsar site	In feature area

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis			
Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lophochroa leadbeateri leadbeateri Major Mitchell's Cockatoo (eastern), Eastern Major Mitchell's Cockatoo, Pink Cockatoo (eastern) [82926]	Endangered	Species or species habitat known to occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Pedionomus torquatus Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
FISH			
Maccullochella peelii Murray Cod [66633]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
Nyctophilus corbeni Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
PLANT			
Lepidium monoplocoides			
Winged Pepper-cress [9190]	Endangered	Species or species habitat may occur within area	In feature area
REPTILE			
Egernia rugosa			
Yakka Skink [1420]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii			
Grey Snake [1179]	Endangered	Species or species habitat may occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chalcites osculans as Chrysococcyx osculans			
Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster			
White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area
Merops ornatus			
Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Illmargani	Nature Refuge	QLD	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.

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Canberra ACT 2601 Australia
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Appendix J – Pre-lodgement consultation

Rod Davis

From: Olivia Hoolihan <Olivia.Hoolihan@balonne.qld.gov.au>
Sent: Monday, 20 October 2025 4:05 PM
To: Rod Davis
Cc: heatherstation@bigpond.com
Subject: RE: Request for pre-lodgement advice - Extractive industry - "Heather" 965 Fernlee Road, Bollon land described Lot 5 on BEL53167

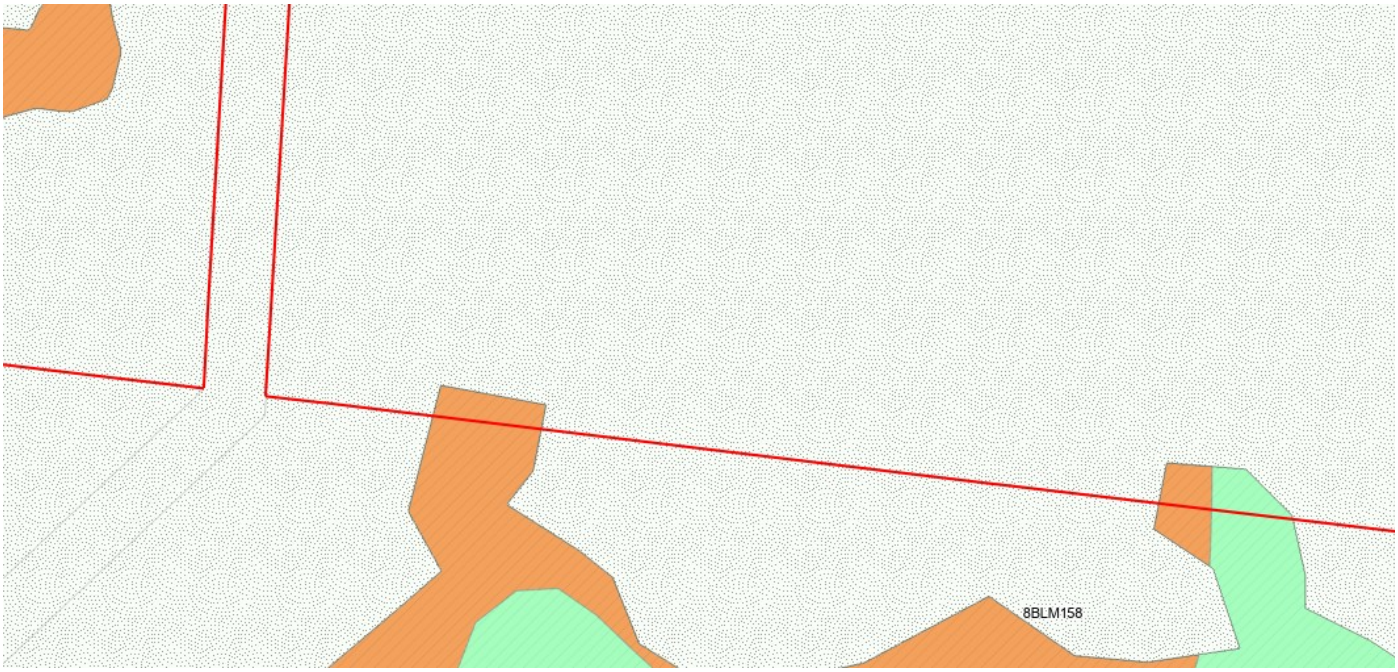
Good afternoon Rod,

The proposal to establish an Extractive Industry on the site will require lodgement of an Impact Assessable Material Change of Use application under the Balonne Shire Planning Scheme 2024.

The application will therefore be assessed against the entire Balonne Shire Planning Scheme 2024. In particular, the development application should address the Rural Zone Code, General Development Code and Flood Hazard Overlay Code (where applicable) to demonstrate compliance with the provisions of the scheme. A Planning Report should be submitted with the application assessing all relevant assessment benchmarks.

In relation to the site/locality specific issues and technical/reporting requirements:

- The pre-lodgement request states that a PMAV is in place for the site. The application should include a copy of the PMAV, or demonstrate setbacks from the proposed quarry and sediment basins to the mapped of concern regional ecosystems along the southern property boundary (refer snip below).
- Provide a plan showing setbacks to:
    - All nearby sensitive receptors
    - Mapped flood hazard areas
    - Mapped bushfire hazard areas
- The application will need to include a Traffic and Pavement Impact Assessment to demonstrate the local road network, including relevant intersections, can adequately cater for the traffic associated with the use.
- A Site Based Management Plan will be required to accompany the application.



Kind Regards,

Olivia Hoolihan
Manager Planning & Development
T: 07 4620 8887 | **M:** 0499 816 152 | **F**: 07 4620 8889
E: olivia.hoolihan@balonne.qld.gov.au
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From: Rod Davis <rod.davis@rdcengineers.com.au>
Sent: Sunday, 12 October 2025 3:56 PM
To: Council <council@balonne.qld.gov.au>
Cc: heatherstation@bigpond.com
Subject: Request for pre-lodgement advice - Extractive industry - "Heather" 965 Fernlee Road, Bollon land described Lot 5 on BEL53167

Good afternoon,

On behalf of RA & AJ Brown, RDC Engineers Pty Ltd herein submits a request for pre-lodgement advice from the Balonne Shire Council in relation to a development application for a Development Permit for Material Change of Use for an:

- "Extractive Industry" (Gravel pit up to 100,000 tonnes per annum);

on the property "Heather" 965 Fernlee Road, Bollon land described Lot 5 on BEL53167.

A brief summary of the proposal is attached.

The purpose of this email is to request pre-lodgement advice from Council in relation to the planning merits of the proposal and any issues or requirements Council will have for the preparation of the proposed development application supporting information.

The matters we would like to receive advice on includes:

1. Council's views on the planning merits of the proposal and its consistency with Planning Scheme provisions;
2. Confirmation that the proposed development is subject to impact assessment;

3. Council's views on any site or locality specific issues requiring consideration in the preparation of the development application;
4. Council's views on the need for any specialist or technical assessments required to accompany the application (in particular road network impacts and requirements);

Regards,
Rod

Rod Davis
Director
—
0427629203
rod.davis@rdcengineers.com.au

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Appendix K – Site Based Environmental Management Plan

Site Based Environmental Management Plan

Heather Pit

"Heather"
965 Fernlee Road
BOLLON QLD 4488



RA & AJ Brown
965 Fernlee Road
BOLLON QLD 4488

[November 2025]

RDC ENGINEERS
AGRICULTURAL ENVIRONMENTAL PROJECT MANAGEMENT

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DOCUMENT INFORMATION RECORD

Project details

Client:	RA & AJ Brown (ABN 71 923 588 307)
Project:	Establishment of a gravel pit on the property "Heather"
Project No:	H5-130

Document control

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File name:	H5-130 RAB Heather Pit SBEMP V1R2.docx		
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Principal author:	Rod Davis	**Position:**	Director
Signature	R.J.Davis	**Date:**	14/11/2025
Reviewed by:	Rod Davis	**Position:**	Director
Signature	R.J.Davis	**Date:**	14/11/2025
Approved by:	Rod Davis	**Position:**	Director
	R.J.Davis	**Date:**	14/11/2025

Revision history

Version	Issue date	Reason for issue	Author	Reviewed	Approved
V1R1	31/10/2025	Draft for client review	Rod Davis	Rod Davis	Rod Davis
V1R2	14/11/2025	Final for submission to BSC / SARA	Rod Davis	Rod Davis	Rod Davis

Distribution

Version	Recipient	Lodgement	Copies
V1R1	RA & AJ Brown	Electronic	-
V1R2	RA & AJ Brown / BSC / SARA	Electronic	-

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Definitions

Term or Acronym	Meaning
AR	Annual Return
ANZECC	The Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
AS	Australian Standard
AWS	Automatic Weather Station
BSC	Balonne Shire Council
Compliance audit	Verification of how implementation is proceeding with respect to the Site Based Environmental Management Plan (SBEMP) (which incorporates the relevant approval conditions).
DoE	Commonwealth Department of the Environment
DETSI	Queensland Department of Environment, Tourism, Science and Innovation
DNRME	Queensland Department of Environment Natural Resources Mines and Energy
DTMR	Queensland Department of Transport and Main Roads.
EA	Environmental Authority
Environmental aspect	Defined by AS/NZS ISO 14001:2015 as an element of an organisation's activities, products or services that can interact with the environment.
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental incident	An unexpected event that is causing or threatening serious or material environmental harm and requires some action to minimise the impact or restore the environment.
Environmental harm	For the purposes of the EP Act, environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.
Environmental nuisance	Environmental nuisance is unreasonable interference or likely interference with an environmental value caused by – (a) aerosols, fumes, light, noise, odour, particles or smoke; or (b) an unhealthy, offensive or unsightly condition because of contamination; or (c) another way prescribed by regulation.
EMS	Environmental Management System
EPBC	Environment Protection and Biodiversity Conservation Act
Environmental policy	Statement by an organisation of its intention and principles for environmental performance.
EP Act	Environmental Protection Act 1994.
Environmental Authority (EA)	Authority to undertake an environmentally relevant activity (ERA) under the Environmental Protection Act 1994.
ERA	Environmentally relevant activity (ERA). ERAs are industrial, resource or intensive agricultural activities with the potential to release contaminants into the environment.
ES	Environmental Specialist - A suitably qualified and experienced person independent of Development personnel engaged as required duration operation. The principal point of specialist advice in relation to all questions and complaints concerning environmental performance.

ESC	Erosion and Sediment Control
ESCP	Erosion and Sediment Control Plan
Environmental target	Defined by AS/NZS ISO 14001:2015 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.
GHG	Greenhouse gases
Groundwater	Subsurface water contained within the saturated zone
GDE's	Groundwater Dependent Ecosystems
ISO	International Organization for Standardization
Liquid waste	Effluent and domestic sewage. Stormwater run-off from the controlled drainage area is referred to as effluent. Effluent is high in nutrients because it has been in contact with manure and has the potential to pollute surface water and groundwater. Effluent is valued as a source of nutrients for fertilising crops.
Material environmental harm	Material environmental harm is environmental harm (other than environmental nuisance) – (a) that is not trivial or negligible in nature, extent or context; or (b) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than $5,000 but less than $50,000; or (c) that results in costs of more than $5,000 but less than $50,000 being incurred in taking appropriate action to – (i) prevent or minimise the harm; and (ii) rehabilitate or restore the environment to its condition before the harm.
NPI	National Pollutant Inventory (NPI) means the inventory established as a result of the National Environment Protection (National Pollutant Inventory) Measure
Non-compliance	Failure to comply with the requirements of the Development Consent or any applicable licence, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Development's system documentation including this SBEMP or supporting documentation.
Riparian Zone	The vegetated corridor along streams and rivers.
Sensitive use	In this SBEMP, sensitive use means – (a) use for residential purposes; or (b) use of a kind prescribed by regulation.
SBEMP	Site Based Environmental Management Plan. A Site Based Environmental Management Plan is a site based plan that describes how the activity will be managed to prevent/minimise environmental harm
Serious environmental harm	Serious environmental harm is environmental harm (other than environmental nuisance) – (a) that is irreversible, of a high impact or widespread; or (b) caused to an area of high conservation value or special significance; or (c) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount; or (d) that results in costs of more than the threshold amount being incurred in taking appropriate action to – (i) prevent or minimise the harm; and (ii) rehabilitate or restore the environment to its condition before the harm.
SWL	Standing water level

Waste	Waste includes anything, other than a resource approved under the Waste Reduction Act, chapter 8, that is - (a) left over, or an unwanted by-product, from an industrial, commercial, domestic or other activity; or (b) surplus to the industrial, commercial, domestic or other activity generating the waste.
Stakeholders	Primary stakeholder groups include our workforce, our customers, and the broader community. Other important stakeholders include regulatory bodies, suppliers, industry organisations and peak bodies and environmental groups.
Water Act	Water Act 2000

Preface

This is a Site Based Environmental Management Plan (SBEMP) for the operation of Heather Pit (the Development) located at Bollon (QLD), which is owned by RA & AJ Brown and operated by Kooroon Ag Pty Ltd.

This document is designed to ensure the Development continually achieves effective environmental management to prevent/minimise environmental harm. It aims to minimise impacts of the Development on the quality of groundwater, surface water and ecosystems, prevent the degradation of soils and to minimise any impacts on the amenity of neighbours and neighbouring land.

The Development shall comply with industry policies and applicable legislation and regulation. The Development's owner and management are committed to continual improvement in environmental performance.

1 Introduction

1.1 Background

The Brown family own and operate a rangeland goat and beef production enterprise in the Bollon area of southwest Queensland trading as Kooroon Ag.

As part of a diversification strategy, RA & AJ Brown have established a gravel pit on one land parcel of "Heather" with the extraction area located some 24 km by road southwest of Bollon as shown in Figure 1.

The Development is a gravel pit where deposits of deeply weathered pallic coloured sediments of claystone, siltstone and mud rock are extracted by conventional ripping techniques. Due to the type of material, crushing and screening is also undertaken.

The Development is owned by RA & AJ Brown and is licensed under the Environmental Protection Act (1994) for:

- ERA 16 - Extraction and Screening - 2(a) - Extracting, other than by dredging, in a year, the following quantity of material - 5,000t to 100,000t; and

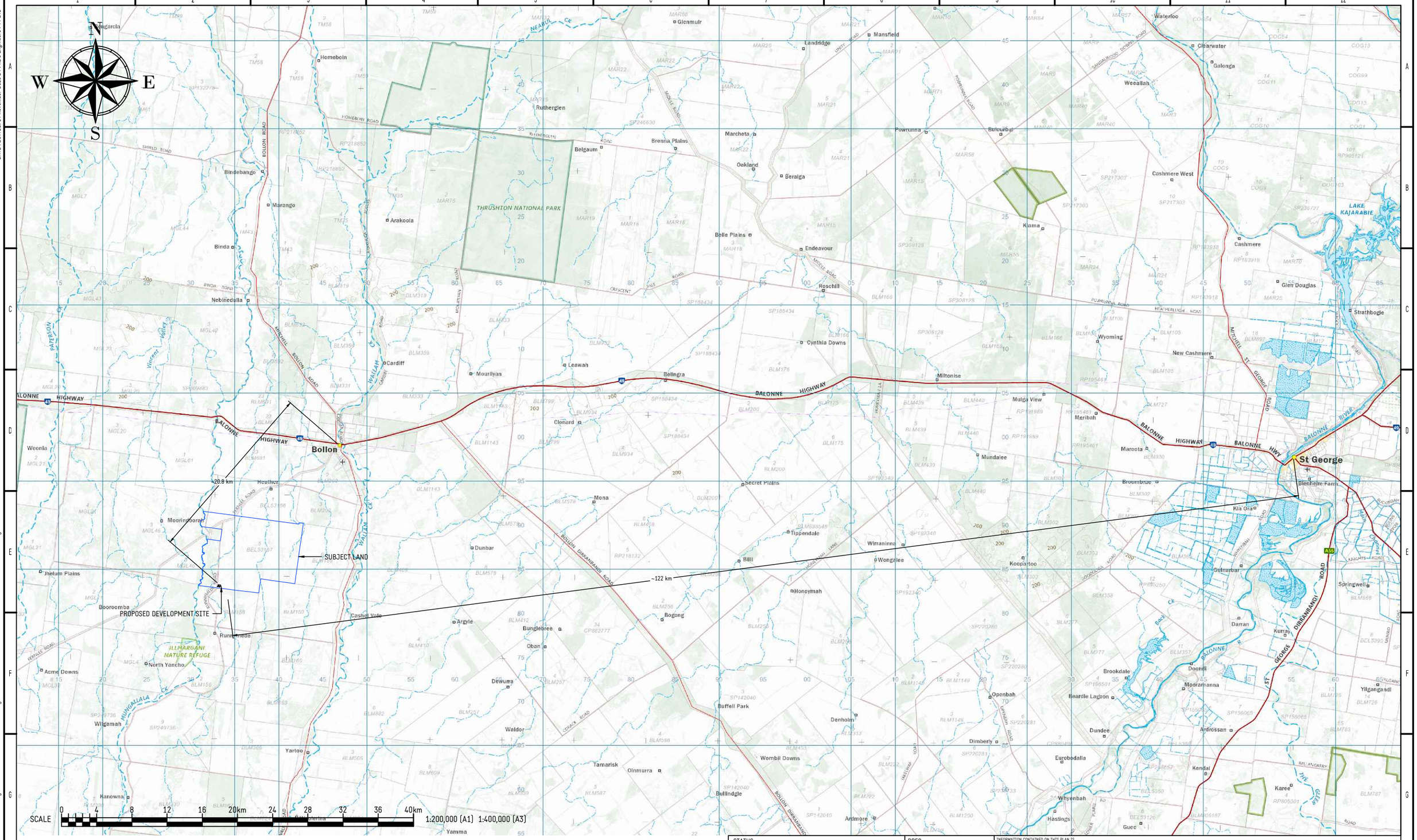
- ERA 16 - Extraction and Screening - 3(a) - Screening, in a year, the following quantity of material - 5,000t to 100,000t

Appendix A2 – Approvals, permits and licences provides the development approval conditions.

The Development is located on Runnymede Road in the Bollon region within the Balonne Shire Council on land comprising one (1) cadastral portion.

The Development includes a dedicated site entrance and crossover off Runnymede Road, internal access road, resource extraction area, material stockpile and mobile plant and machinery laydown areas.

DATE PLOTTED: 14 November 2025 BY : RDC Engineers PTY LTD
FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg
FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT



LEGEND

SUBJECT LAND BOUNDARY

NOTES

1. THIS MAP IS BASED ON DIGITAL GIS DATA FROM THE STATE OF QUEENSLAND (DEPARTMENT OF NATURAL RESOURCES AND MINES, MANUFACTURING AND REGIONAL AND RURAL DEVELOPMENT (DNRMMRRD)) 2025 - QUEENSLAND SPATIAL CATALOGUE.
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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:400,000 (A3)
DRAWN	RJD
DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SITE BASED ENVIRONMENTAL MANAGEMENT PLAN
DEVELOPMENT - LOCALITY PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 1		A3	H5-130-250-01	B

2 Contact details

The Development is owned by RA & AJ Brown.

The Development is operated by Kooroon Ag Pty Ltd. The contact details for Kooroon Ag Pty Ltd are provided in Table 1.

Table 1 – Proprietor and operator contact details

Proprietor Entity:	RA & AJ Brown
Physical Address:	"Heather", 965 Fernlee Road, BOLLON QLD 4488
Postal Address:	"Heather", 965 Fernlee Road, BOLLON QLD 4488
Contact Person:	Mr Bob Brown
Phone:	TBA
Email:	TBA
Operator Entity:	Kooroon Ag Pty Ltd
Contact Person:	Operations Manager
Phone:	TBA
Email:	TBA

2.1 Purpose and scope

RA & AJ Brown and Kooroon Ag Pty Ltd have developed this Site Based Environmental Management Plan (SBEMP) to describe the Environmental Management System (EMS) for the operational phase of the Development. A detailed description of the Development is provided in section 3.

The SBEMP is a condition of the environmental authority and will provide the systems and processes to ensure that Kooroon Ag Pty Ltd establishes and maintains appropriate controls to manage environmental impacts during operation of the Development.

The SBEMP has been prepared in accordance with the DEHP guideline Activity management plans ESR/2017/3561 Version 2 (DEHP, 2017).

The SBEMP describes how Kooroon Ag Pty Ltd proposes to identify and manage the environmental aspects and potential impacts of the Development during its operational phase

up to the maximum extraction level of 100,000 tonnes, in accordance with applicable legislative requirements as described further in Appendix A1 - Legal and other requirements.

This plan will be utilised for all aspects of the Development's operation. Effective implementation of this SBEMP will ensure that the Development meets the requirements of the conditions of approval and all other relevant regulatory and policy requirements in a systematic manner with continual improvement in performance.

Where there is any conflict between the provisions of this SBEMP and any statutory requirements (i.e. licences, permits, conditions of approval and relevant laws etc), the statutory requirements are to take precedence.

This SBEMP meets the requirements of the conditions of approval for a Site Based Environmental Management Plan for the operational phase of the Development. In accordance with the conditions of approval, this SBEMP provides the framework and overarching environmental management information relevant to the operation of the Development.

2.2 Objectives

This SBEMP provides a framework to ensure that any impacts of the activities conducted on-site during operation are managed, treated, monitored, reported and, if necessary, mitigated.

The SBEMP aims to achieve the following:

- Provide evidence of practical and achievable plans for the management of Development activities.
- To ensure that legislative and environmental requirements are complied with by producing an integrated planning framework for comprehensive monitoring and control of operational environmental impacts. Specific commitments on strategies and design standards to be employed are also given.
- A framework for regulatory authorities and the proprietor to confirm compliance with policies and conditions.
- Evidence to the community that the operations are being managed in an environmentally acceptable manner.

The objectives of this SBEMP are to:

- Describe the Development in detail including activities to be undertaken and relative timing;
- Provide specific mitigation measures and controls that can be applied on-site to avoid or minimise negative environmental impacts;
- Provide specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation;
- Define and implement all obligations contained in the conditions of approval (including all environmental obligations relevant to the Development and obligations

in the Development's environmental management documents) and other legal and regulatory obligations relevant to the Development;

- Describe the environmental management related roles and responsibilities of personnel;
- Ensure that environmental policies, objectives and targets satisfy the requirements of approval authorities;
- Define processes for formulating, resourcing, and implementing an environmental management system for operation of the Development;
- State objectives and targets for issues that are important to the environmental performance of the Development;
- Define processes for auditing, recording and monitoring the performance and effectiveness of the environmental management system; and
- Outline a monitoring regime to check the adequacy of controls as they are implemented during operation.

3 Development description

The Development is located on Runnymede Road approximately 24 km by road southwest of township of Bollon in southwest QLD.

Figure 1 is a locality plan highlighting the Development site to roads and the nearby townships of Bollon and St George.

3.1 Overview

The Development is defined as an "Extractive industry" and comprises a gravel pit from which up to 100,000 tonnes of material per annum may be extracted from an area of up to 5 ha. The Development includes crushing and screening activities.

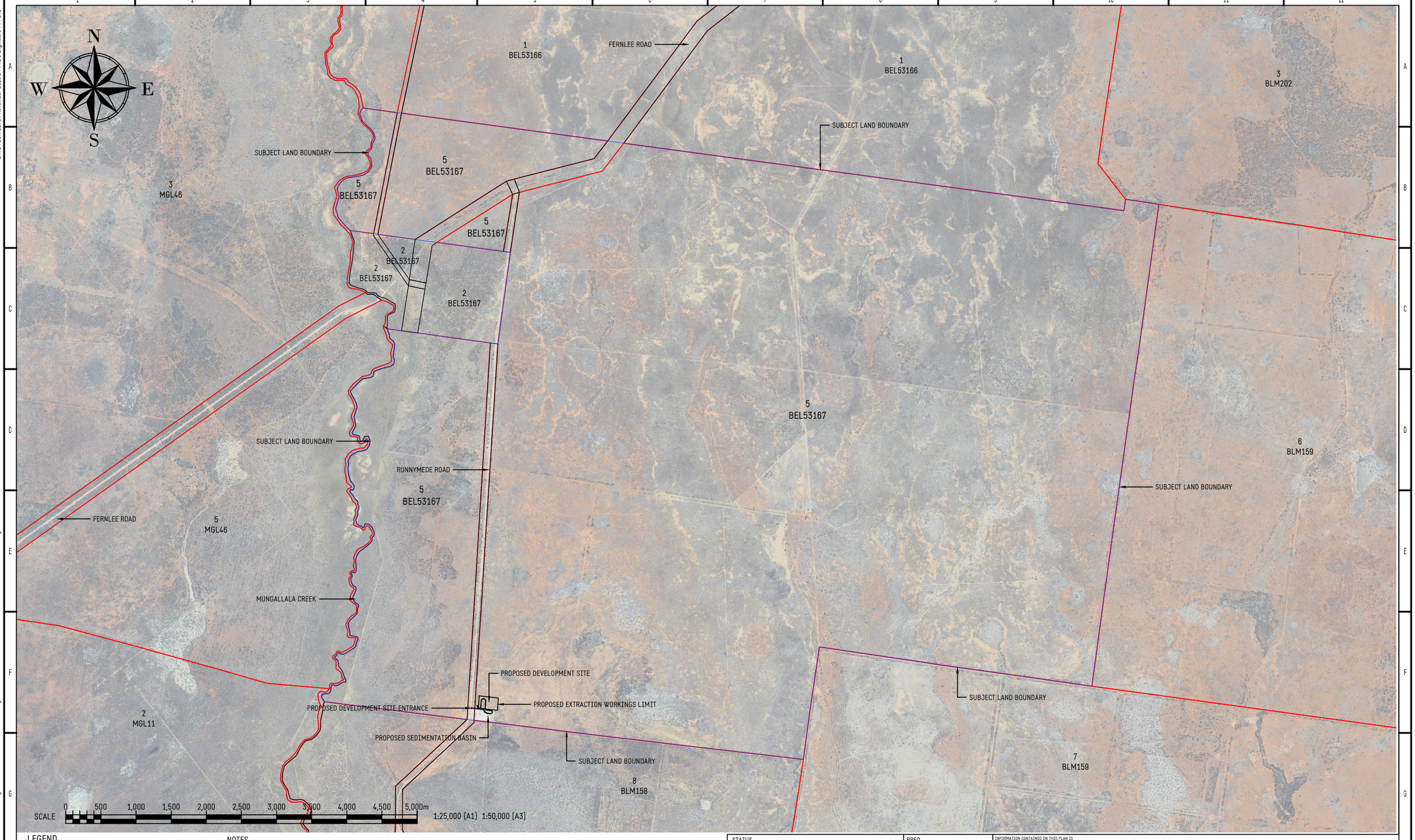
The Development includes the following components:

- Access road – An all-weather access road from Runnymede Road to the resource extraction area shall be constructed;
- Resource extraction area – A resource extraction area shall be established by clearing existing vegetation, topsoil and overburden. The resource extraction area will have a maximum workings area of up to 5 ha. Material is won by ripping and stacking and no blasting is required;
- Stockpile area – An operational area for stockpiling material shall be established within resource extraction area and adjacent to the workings; and
- Sediment controls – A sediment system for capturing stormwater and allowing entrained sediment to 'settle out' shall be implemented.

The Development would require about 3 operational staff on-site during material extraction, stockpiling and loadout campaigns.

The Development shall be staged.

Figure 2 shows the layout of the Development on the subject land. The Development site which includes internal access road, resource extraction area, material stockpile and mobile plant and machinery laydown areas occupies an area of approximately 5.0 ha as shown in Figure 3.



LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY

NOTES

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B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD	DRAWN	RJD
						DATE	14/11/2025
						CHECKED	RJD
						DATE	14/11/2025
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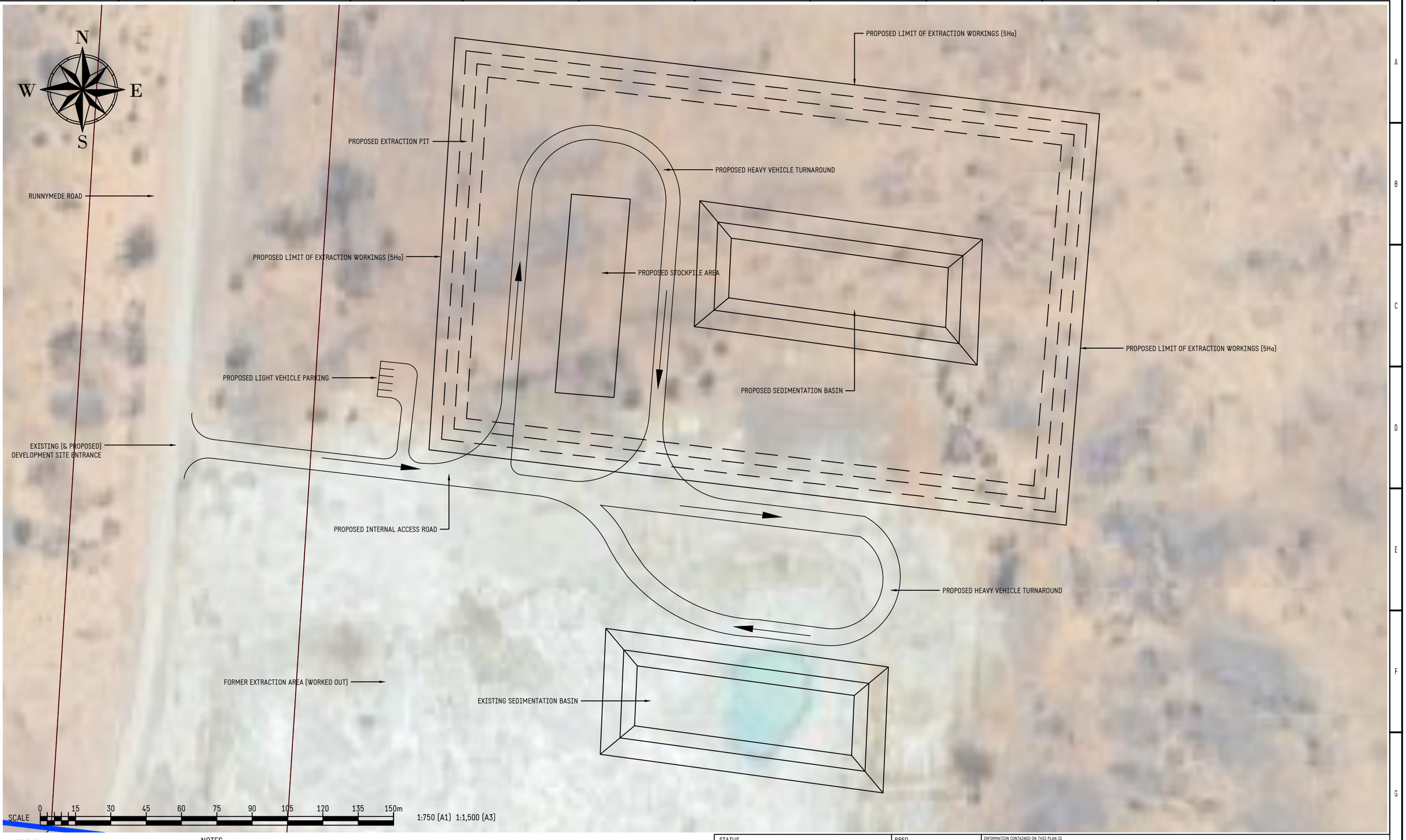
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CLIENT	RA & AJ BROWN
PROJECT	PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE	DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE SITE BASED ENVIRONMENTAL MANAGEMENT PLAN DEVELOPMENT - AERIAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 2		A3	H5-130-250-02	B

DATE PLOTTED: 14 November 2025 BY : RDC Engineers PTY LTD
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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY

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CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
SITE BASED ENVIRONMENTAL MANAGEMENT PLAN
DEVELOPMENT - SITE LAYOUT

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 3		A3	H5-130-250-03	B

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3.2 Site security and Traffic management

A livestock proof fence is installed around the perimeter of the subject land on which the Development is located.

The Development site is accessed from one entry/exit point and that is off Runnymede Road. There is no other suitable operational access for heavy vehicles.

This access route is a dedicated safe and convenient access and is monitored/controlled to prevent entry of unauthorised persons/vehicles onto the site.

Access to the site is restricted to employee's, contractors, and pre-arranged visitors. All visitors must sign in and out of the site.

Once on-site, all incoming and outgoing vehicles; machinery and equipment are controlled by signage and or supervision.

All visitors to the Development must report to the Field Superintendent and sign the Visitor Log (Appendix A7 – Environmental forms, checklists and registers).

All site personnel must undergo site induction including the requirements of this SBEMP. For deliveries and visitors, a separate smaller induction shall be undertaken.

An access road connects the site entrance to the resource extraction area which contains a laydown area for light and heavy vehicles and mobile plant and equipment.

The access road has been designed to enable the safe movement of vehicles about the Development site for haulage of material.

3.3 Staging

Operations shall commence after consent of the Development, and any other relevant permits are obtained.

The Development involves a staged operation in up to four (4) stages depending on operational requirements, market demand for gravel and other considerations. The timing and duration of each stage maybe contiguous or discrete periods depending on the factors mentioned previously.

Indicative staging to reach full capacity of the Development (100,000 t/annum) is shown in Table 2.

Table 2 – Development – Staging and timing

Stage	Impact zone	Impact area ha	Extraction Tonnage t/year	Development year
1	Entrance, access road, extraction area	1.25	25,000	After approvals
2	Extraction area	2.5	50,000	2026-2027
3	Extraction area	3.75	75,000	2028-2029
4	Extraction area	5	100,000	2029-2030

The approval may lapse if the first change of use does not happen within the period stated for that part of the approval or within 6 years after the approval starts to have effect unless that approval is extended by the Balonne Shire Council.

3.4 Biosecurity

Effective biosecurity is extremely important to the business operations of Kooroon Ag Pty Ltd in mitigating the risk of the introduction or spread of diseases, pests and weeds. In relation to the Development, biosecurity measures prevent the introduction and spread of pest plants onto the Development site.

The success of any biosecurity plan depends on the general biosecurity obligation of Kooroon Ag Pty Ltd to be proactive in preventing, managing and addressing biosecurity risks that relates to their operations.

The general biosecurity obligation requires management responses to be matched to the level of harm or risk posed. This includes taking all reasonable and practical measures to manage invasive species and to prevent spread to neighbouring properties by taking proactive steps to prevent incursions or incidents.

3.5 Operational activities and sequence

3.5.1 Access and internal roadways

3.5.1.1 Site entrance

The Development shall be accessed via the dedicated site entrance off Runnymede Road.

The Development site entrance shall be maintained to provide a safe and functional entrance for light and heavy vehicles to and from the Development without compromising the efficiency, function, convenience of use or capacity of the local- or state-controlled road system.

3.5.1.2 Access road

An internal access road connects the Development site entrance to the resource extraction area as shown in Figure 3. The internal access road shall be entirely within the subject land.

The internal access road shall be constructed using material extracted from the resource extraction area and be a well-formed unsealed gravel road of sufficient width and construction to accommodate the type and number of vehicle movements anticipated for the development.

3.5.1.3 Laydown areas and vehicle parking

Sufficient on-site car parking shall be provided commensurate with the scale and use. Due to the nature of the development and rural character of the site, the provision of a formal car parking area is unnecessary. However, any gravel hardstand areas used as car parking areas shall be designed in accordance with relevant Australian Standards (e.g. Standards Australia, 2890.1-2004) where relevant.

Sufficient on-site manoeuvring area shall be provided to enable all vehicles to enter and exit the site in the forward direction. The proposed layout of internal roads is shown on Figure 3.

3.5.2 Resource extraction area

The proposed development lies on a relatively flat area with an elevation of about 178 m AHD. Extraction will commence on the top of the ridge and progress into the ridge with maximum extraction area limited to 5 ha. The resource extraction area is shown in Figure 3.

The resource extraction area shall be worked in layers extending below the existing ground surface forming a void entirely below ground.

The sides of the resource extraction area excavation will be battered at a slope no greater than 1V:3H to ensure slope stability.

3.5.3 Extraction sequence

The Development will operate using conventional extraction processes largely guided by the relevant best practice extraction techniques.

3.5.3.1 Vegetation clearing

Clearing of vegetation (predominately groundcover and shrubs) on the resource extraction area is required in order to access the resource material. Surface vegetation is cleared by bulldozer and stockpiled for placement over sections of the extraction area to be rehabilitated.

3.5.3.2 Overburden stripping and placement

Where available, topsoil will be pre-stripped in the course of extraction operations by CAT D9T bulldozer and stockpiled. Topsoil may be sold as a saleable product or retained on-site and spread over areas of the proposed development site to be rehabilitated. The depth of topsoil varies from 0.3 m to 1.5 m across the proposed extraction area.

Any highly weathered rock below the topsoil and above the target material is classified as overburden and shall be stripped placed within the overburden emplacement area. Overburden may be sold offsite as a saleable product or used in progressive rehabilitation around exhausted resource extraction areas.

The overburden may also be used to create a bund around the perimeter of the resource extraction area to clearly define the area for trucks entering the area and to divert upstream stormwater runoff around the area.

3.5.3.3 Method of extraction

Extraction of the weathered material shall be undertaken using conventional rip and push methods.

No blasting of material is required due to its highly weathered nature of the material.

The weathered gravel strata will be ripped by CAT D9T bulldozer, and the loose material will be pushed and stacked into stockpiles.

The proposed development would be staged in response to demand. It is therefore difficult to predict exactly how the extraction would progress. In general, the extraction is proposed to initially progress from east to west down into the ridge. The method of extraction would leave a final void between 5-6 m deep descending from the existing ground level to the floor of the resource extraction area.

3.5.3.4 Extraction rate

It is difficult to accurately estimate the annual extraction rate of materials from the proposed development as the production rate would be designed to meet demand from local and regional markets.

From what is known, it may be necessary for the proposed development to extract and loadout up to 100,000 tonnes per annum, however this rate of extraction would represent a maximum and unlikely to be maintained for a lengthy period. It is more likely that the annual extraction rate would be around 20,000 to 25,000 tonnes per annum.

Based upon an estimated maximum daily extraction and haulage rate of materials from the proposed development site in the order of 1,500 tonnes per day some 66 working days per year would be required to extract the maximum 100,000 tonnes.

3.5.4 Processing operations

3.5.4.1 Crushing and screening

Due to the nature of the material crushing and screening of the material is required to produce a marketable construction material.

3.5.4.2 Imported materials

Due to the type of the raw material extracted with crushing and screening required, no additional material will be required to be imported on the Development site for blending to satisfy product specifications for projects.

3.5.4.3 Pugmilling

Pugmilling shall not be undertaken on the site. There is no requirement for blending materials with moisture to provide a homogenous material at optimum moisture content.

Material shall be exported offsite at the in-situ moisture content and moisture conditioned on the project site if required.

3.5.5 Rehabilitation

Topsoil and overburden will be stockpiled for use in the rehabilitation process.

This material will be spread over the stripped area to be rehabilitated in a progressive and logical manner that minimises erosion and encourages the regeneration of vegetation.

The final void shall be retained as a stock and domestic dam.

3.5.6 Site infrastructure

No structure or dwelling of a permanent or temporary nature such as site office, ablutions, weighbridge, laboratory, washdown bay, workshop for example is planned to be erected on the site to service the proposed development.

Sanitation shall be by way of portable toilet (port-a-loo) type system which is self-contained and does not require connection to sewer or on-site disposal.

3.5.7 Hours of operation

The proposed development operation hours will be 12 hours per day, 7 days a week, unless otherwise directed working from 6.00 am to 6.00 pm.

Operations will cease when activities and/or conditions are considered detrimental to the environment or risk causing environmental harm, such as during either wet or dry and windy weather conditions.

3.5.8 Workforce requirements

The workforce for the proposed development includes operational, maintenance and administrative personnel. It is anticipated that personnel will be sourced from within the local community as required.

Maintenance and administrative personnel shall be based on the property "Heather" or in Bollon or St George and will generally work remotely as required.

The operational workforce will comprise approximately two full-time employees at the proposed development site during material campaigns.

All of the operational workforce shall reside off the subject land. There is no on-site accommodation permanent or temporary to accommodate the operational workforce.

3.5.9 Administration and machinery maintenance

No administrative or general machinery maintenance activities shall be undertaken at the proposed development site. Machinery repairs as a result of breakdowns shall be made by mobile service technicians as required.

No structure or dwelling of a permanent or temporary nature such as site office, weighbridge, washdown bay, workshop for example is planned to be erected on the site to service the proposed development.

3.5.10 Stormwater, erosion and sediment management

Best practice for erosion and sediment control measures will be implemented in accordance with the IECA Best Practice Erosion and Sediment Control Guidelines (International Erosion and Sediment Control (IECA) (Australasia) 2008) and the Stormwater, Erosion and Sediment Control Plan.

3.5.11 Hazardous materials

Industry codes of practice, best management practices (BMP) and regulations apply to the storage, use and disposal of hazardous materials.

There shall be limited quantities of hazardous materials stored and used on-site during operation. To minimise the risk of environmental harm from liquid spills and leaks, all hazardous materials required to be stored on-site shall have a spill containment system appropriate for the nature and pollution risk of that liquid in accordance with relevant

guidelines and Australian Standards. Liquids that may be stored during the operation of the development is limited to diesel fuel.

All spill containment systems shall be routinely inspected to ensure their technical integrity meets the intended requirements. A routine inspection and maintenance program shall be tailored to suit the specific installation.

The proposed development requires limited quantities of hazardous materials during operation. Diesel fuel is the primary hazardous material required on-site. All of this fuel is used in mobile equipment for extraction, stockpiling and loading of materials.

4 Legislative and other requirements

4.1 Legal and other requirements

A register of legal and other requirements for the Development is contained in Appendix A1 - Legal and other requirements. The relevance of legislation is maintained through the Environmental Management System.

The legal requirements register will be reviewed at regular intervals, such as after management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to personnel where necessary through toolbox talks, specific training and other methods detailed in section 7.

4.2 Approvals, permits and licences

A number of approvals, permits and licences have and/or will be obtained and maintained for the Development under relevant legislation and Development Consent. For example, these include:

- Development approval under the Planning Act 2016; and
- Environmental Authority under Chapter 5 of the Environmental Protection Act 1994 (EP Act) for Environmentally Relevant Activity (ERA 16 2(a) - extracting 5000 tonnes to 100,000 tonnes of material in a year.

Appendix A2 – Approvals, permits and licences contains a register of all relevant environmental approvals, permits and licences. The register will be maintained by the Operations Manager and will be reviewed prior to the commencement of operation, and at least annually as part of the management review.

5 Environmental management framework

5.1 Environmental policy and commitment

5.1.1 Environmental Commitment

Kooroon Ag Pty Ltd aim to have a productive, environmentally sustainable and economically viable extractive industry operation. In order to achieve this, Kooroon Ag Pty Ltd are committed to protecting the environment through continual improvement in environmental performance and compliance with applicable legal requirements.

To achieve continual improvement in environmental performance, the following principles will be applied.

Planning

- Include environmental considerations in decision-making;
- Provide adequate resources for people at all levels to fulfil their responsibilities;
- Implement procedures to enable activities to be carried out in an environmentally responsible way;
- Set environmental objectives and targets for activities and to review these on an annual basis;
- Conduct regular review of the environmental performance of the Development and act on the results;
- Continuously improve the environmental performance of the Development; and
- Continuously improve the environmental management system of the Development.

Practices

- Meet environmental standards in the Development's key activities;
- Assess the environmental impacts of the Development's activities;
- Plan, design, operate and complete any operation in a manner that reduces environmental risks;
- Monitor environmental compliance in a professional manner;
- Abide by and comply with the *Environmental Protection Act 1994* and all other applicable environmental laws, regulations, policies, standards and codes of practice;
- Comply with the codes of practice of appropriate industry representative organisations; and
- Prevent pollution from the Development's activities.

People

- Employ skilled people to carry out work in a way that is compatible with good environmental performance;
- Train people to the appropriate skill level to ensure that operations are completed with the utmost respect for the environment;
- Specify the need for all contractors to carry out their work in accordance with this policy and to supervise such compliance; and
- Communicate the Development activities to all relevant parties.

All Development personnel, including subcontractors and visitors, will be made aware of this commitment through the Development's induction process and ongoing awareness programs.

5.1.2 Commitment

Kooroon Ag Pty Ltd commitment to continual improvement in environmental performance and compliance with applicable legal requirements is provided in Appendix A4 – Environmental commitment. This commitment by senior management is supported by the processes and activities described in this Plan and associated management plans.

5.1.3 Environmental management system documentation

5.1.4 Environmental management plan

This SBEMP is the overarching document in the environmental management system for the Development. This SBEMP provides the system to manage and control the environmental aspects of the Development during operation. It identifies all requirements applicable to activities described in section 3.5. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled. The strategies defined in this SBEMP have been developed with consideration of the Development approval requirements, safeguards and mitigation measures presented in the environmental assessment and approval documents. This SBEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the Development on the environment.

This SBEMP is consistent with:

- Guideline for Activity management plans (DEHP, 2017); and
- AS/NZS ISO14001:2015, 'Environmental management systems - Requirements with guidance for use'.

5.1.5 Supporting environmental management plans and strategies

5.1.5.1 Stormwater, erosion and sediment control

A Stormwater Management Plan is prepared for the Development which outlines the stormwater, erosion and sediment control procedures and controls.

A copy of the Stormwater Management Plan is retained on-site during campaigns by Kooroon Ag Pty Ltd.

5.1.6 Environmental procedures

In addition to the overarching SBEMP and management plans, a set of environmental procedures have been developed to provide further guidance for managing all activities that have the potential to negatively impact on the environment and to ensure consistency in approach and quality of outcome.

The procedures are the main site documents used by Development to identify and manage safety and environmental risks associated with all operational activities.

A copy of the listed procedures above is provided in Appendix A6 – Environmental procedures.

5.1.7 Forms, checklist and registers

A number of documents such as guidance notes and standard work instructions, checklists, forms and registers have been developed to assist in the implementation of processes described in the SBEMP, management plans or procedures. These types of documents will be further developed and continually improved to ensure consistency in approach and quality of outcome.

A register of relevant environmental forms and registers is maintained in Appendix A7 – Environmental forms, checklists and registers.

5.2 Obligations, roles, responsibilities and authority

All Development personnel are responsible for protecting the environment by ensuring that environmental protection measures identified in the SBEMP are planned for, resourced, communicated, installed, maintained and reviewed. All personnel working on the Development have the following general obligations:

- Undertaking work in accordance with relevant Development policies, approved SBEMP, procedures, management protocols and plans, statutory and contract requirements to minimise pollution of land, air and water;
- Implementing appropriate environmental and safety management measures;
- Use pollution control equipment and keep it in proper working order;

- Preserve the natural and cultural heritage environment;
- Minimise the occurrence of offensive odour;
- Minimise the occurrence of offensive noise;
- Be a good neighbour to surrounding land users;
- Take all feasible and reasonable steps to ensure compliance with the requirements of this SBEMP; and
- Reporting of actual and potential environmental incidents to their relevant line manager.

The key environmental management roles and responsibilities for the operational phase of the Development and structure of these roles are described in Appendix A5 – Obligations, Roles, Responsibilities and Authority.

5.3 Environmental specialists

The Development may also engage the services of a number of technical specialists / consultants to provide advice, undertake monitoring and direct site activities as required. A description of the types of consultants that may be engaged for the Development is detailed in Table 7.

6 Environmental aspects and impacts

A risk management approach has been used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This approach considers potential regulatory and legal risks as well as taking into consideration the concerns of community and other key stakeholders.

The objectives of risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property;
- Qualitatively evaluate and categorise each risk item;
- Assess whether risk issues can be managed by environmental protection measures; and
- Qualitatively evaluate residual risk with implementation of measures.

The environmental risk assessment was undertaken in accordance with the following standards:

- Australian Standard/New Zealand Standard (AS/NZS) ISO 31000:2009 Risk management – Principles and guidelines; and
- Australian Standard/New Zealand Standard Handbook 203:2012 Managing environment-related risk (Standards Australia/Standards New Zealand 2012).

The main components of the risk assessment methodology include:

- **Hazard Identification**: Identifying potential hazards that are applicable to the Development activities and determining the hazardous events to be evaluated.
- **Risk Assessment**: Determining the possible causes that could lead to the hazardous events identified; the consequences of the hazardous events; and the safeguards and controls currently in place to mitigate the events and/or the consequences.
- **Risk Evaluation**: Evaluating the risks using the Risk Prioritisation Matrix (section 6.1). The risk ranking is determined by a combination of the expected frequency of the hazard occurring (likelihood) and the consequence of its occurrence. Note that when assessing the consequence, no credit is given to the hazard controls. Hazard controls are taken into account in determining the likelihood of the event.
- **Residual Risk Treatment**: Reviewing the proposed management controls for each of the risks identified and proposing additional controls or making recommendations, if required.

6.1 Risk analysis

The risk analysis was conducted using the semi-quantitative approach in the Australian/New Zealand Standard AS/NZS ISO 31000 (2009). Firstly, the 'likelihood' and 'consequence' definitions were defined for the risk analysis. These are presented in Table 3 and Table 4 for 'consequence' and 'likelihood' definitions respectively.

Table 3 – Consequence assessment

Consequence	Personal impact	Environmental impact	Commercial impact	Social impact
Insignificant	No Injuries	Low environmental impact inside Development area.	Commercial Impact < $5,000.	Internal complaints received
Minor	Minor injuries, first aid treatment required (graze, scratch)	Minor environmental impact inside Development.	Commercial Impact - $5,000-$50,000	External complaint received from community
Medium	Medical treatment (Off-site)	Contained environmental impact inside Development.	High Commercial Loss - >$50,000	External complaints received from community.
Major	Permanent human damage, including concussion (amputation, loss of sight)	Major environment damage outside Development boundary.	Major commercial loss - $500,000	Local media coverage (Newspaper, TV). Loss of revenue surrounding properties.
Extreme	Fatality or multiple fatalities	Extensive environmental disaster outside Development boundary.	Extensive commercial loss >$1M	National media coverage (approached by Media, TV, Paper, Protestors, etc)

Table 4 – Likelihood definitions

Likelihood	Description	Frequency
Almost certain	Expected to occur in most circumstances	Occur once in a day
Likely	Will probably occur in most circumstances	Occur once in a week
Possible	Might possibly occur at some time	Occur once in a month
Unlikely	Could occur at some time	Occur once in a year
Rare	May occur in exceptional circumstances	Occur once in 5 years

Table 5 – Risk assessment matrix

Likelihood		Consequence				
		Insignificant	Minor	Medium	Major	Extreme
		1	2	3	4	5
Almost certain	5	M8 – Moderate	H16 – High	H18 – High	E23 - Extreme	E25 - Extreme
Likely	4	M7 – Moderate	M10 – Moderate	H17 – High	H20 – High	E24 – Extreme
Possible	3	L3 – Low	M9 – Moderate	M12 – Moderate	H19 – High	H22 – High
Unlikely	2	L2 – Low	L5 – Low	M11 – Moderate	M14 – Moderate	H21 – High
Rare	1	L1 – Low	L4 – Low	L6 - Low	M13 – Moderate	M15 – Moderate

6.2 Objectives and targets

Objectives and targets enable developments to meet defined levels of performance against identified criteria. Objectives are statements of intent, while targets define the specific performance requirements that need to be met in order to achieve the objectives. Environmental objectives and targets have been established as a means of assessing environmental performance during operation of the Development. These objectives and targets have been developed with consideration of key issues identified through the environmental assessment and risk assessment process. Environmental objectives and targets for the Development are provided in Table 6. The objectives and targets are consistent with the environmental commitments of the Development (Appendix A4 – Environmental commitment) and will assist in monitoring whether the commitments are being met.

The performance of the Development against the objectives and targets will be documented in operation compliance reports, such as the annual monitoring report and at least on an annual basis as part of the management review.

The overall environmental objective is to undertake all aspects of the Development in an environmentally responsible manner and effectively manage risks to prevent or mitigate any impacts so as not to cause environmental harm or nuisance.

Table 6 – Environmental objectives and targets

Objective	Target	Measurement Tool
Compliance		
Ensure the Development operates in accordance with all relevant environment and planning related approvals and legislation.	Full compliance with statutory approvals.	Audits, operation compliance reporting, annual report, management review.
	No regulatory infringements (or prosecutions). No formal regulatory warning.	
Quality		
Implement a rigorous and comprehensive EMS that meets the requirements of AS/NZS ISO 14001.	Address non-conformances and corrective actions within specific timeframes.	Audits, management review.
Stakeholder and Community Relationships		
Engage with the potentially effected and broader community, minimise complaints and respond to any complaints within a suitable timeframe	Disseminate regular Development updates and other information via the pathways identified in this SBEMP and relevant sub-plans.	Review complaints, operation compliance reporting, annual report, audits
	Record and response to complaints within the timeframe specified in this SBEMP and relevant sub-plans.	
Continual Improvement		
Continuously improve environmental performance	Implement training and awareness programs that promote compliance, improving environmental performance and skill base of relevant staff on the Development and minimise environmental risk	Operation compliance reporting, annual report, audits, management review.
	Capture lessons learnt from environmental incidents to minimise repeat issues.	

Table 7 – Environmental specialists – Typical

Specialist	Services provided
Erosion and Sediment Control specialist	Erosion and Sediment control measures
Environmental scientist	Dust monitoring, surface water sampling

6.3 Sub-contractor management

Environmental requirements and responsibilities for sub-contractors are specified in their contract documentation.

All sub-contractors are required to attend site inductions where the requirements and obligations of the SBEMP are communicated. A record of all sub-contractor inductions will be maintained on the Development's induction and training register.

During operation, contractors will be responsible for:

- Undertaking work in accordance with relevant Development policies, approved SBEMP, procedures, management protocols and plans, statutory and contract requirements;
- Implementing appropriate environmental and safety management measures; and
- Reporting of actual and potential environmental incidents to the Operations Manager.

6.4 Certification and approval

The SBEMP shall be prepared to the reasonable satisfaction of the Balonne Shire Council (BSC), with a copy of the endorsed plan provided to BSC prior to the commencement of operation.

The plans prepared under section 5.1.5 shall also be prepared to the reasonable satisfaction of Balonne Shire Council (BSC), with a copy of the endorsed plan provided to BSC prior to the commencement of operation.

6.5 Documentation review

An ongoing informal process of environmental management documentation review ensures that environmental documentation including this SBEMP is updated as appropriate for the specific works that are occurring on-site. The document review process is described in section 11.

Revised versions of the SBEMP will be made available through the processes described in section 6.6.

6.6 Distribution

This SBEMP is available to all personnel and sub-contractors via the Development's document control management system.

The document is uncontrolled when printed. One (1) controlled hard copy of the SBEMP and supporting documentation will be maintained on-site during operational campaigns.

7 Competence, training and awareness

The successful training of Development personnel in environmental requirements outlined in this SBEMP is a key factor in ensuring compliance with the objectives of this SBEMP. Training can be both verbal and written and includes induction, meetings and specific training. The processes for communicating relevant environmental requirements to all Development personnel prior to and during operation are outlined in the following sections.

The Operations Manager will review and approve the training program and monitor implementation.

7.1 Environmental induction

All personnel (including sub-contractors) are required to undergo a site induction that includes an environmental component which outlines key environmental issues prior to commencement of work on-site. This is done to ensure all personnel involved in the Development are aware of the requirements of the SBEMP and to ensure the implementation of environmental management measures.

Short-term visitors to site for purposes such as deliveries will be required to be accompanied by inducted personnel at all times.

The Operations Manager (or delegate) conducts the environmental induction and training to ensure that all personnel and sub-contractors working on the site achieve a level of awareness and competence appropriate to their assigned activities. The environmental induction will be reviewed for adequacy during management reviews of the environmental management system.

The environmental component of the induction will include, but not be limited to, an overview of:

- Site orientation;
- Key issues relating to the works and existing environment;
- Concepts of due diligence and duty of care;
- Relevant requirements of environmental documents and relevant conditions of environmental licences, permits and approvals;
- Relevant details of the SBEMP including purpose and objectives;
- Mitigation measures for the control of environmental issues;
- The roles and responsibilities of those receiving the training in achieving conformance with the environmental policies and requirements, including emergency preparedness and incident response and reporting requirements;
- Environmental personnel and contacts;

- Information relating to the location of environmental constraints;
- Site-specific environmental management requirements and responsibilities, such as:
    - location and protection of environmentally sensitive areas;
    - erosion and sediment control;
    - waste management and minimisation;
    - washing, refuelling and maintenance of vehicles, plant and equipment;
    - efficient use of plant, equipment and materials;
    - minimising potential environmental impacts including air, noise and water quality;
- The potential environmental impacts of their work activities; and
- The potential consequences of non-compliance with relevant statutory requirements and this SBEMP.

A record of all environment inductions, including the names and details of those who have been inducted, will be maintained and kept on-site. Amendments may be made to the induction at any time due to changes in activities, legislative changes or amendments to this SBEMP or related documentation (e.g. Environmental procedures).

The Operations Manager will review and approve the induction program and monitor implementation.

7.2 Toolbox talks, training and awareness

Toolbox talks are used to raise environmental awareness as well as familiarisation with specific site environmental controls and community involvement/relation requirements. All Development personnel including contractors when on-site attend toolbox talks. This type of training is provided on an as-needed basis, for example, following the identification of a new environmental risk, relevant changes in legislation or a change in operation methodologies.

Toolbox talks will be of adequate duration to cover relevant information and structured to encourage full participation by all personnel. Additional toolbox meetings may be called at any time by the Operations Manager (or delegate) to discuss or highlight any aspects relating to environment.

The Operations Manager (or delegate) will be responsible for preparing and conducting toolbox talks which will focus on issues relating primarily to safety, quality and the environment.

Toolbox talks will include details of procedures for relevant personnel or activities. Toolbox talks will also be tailored to specific environmental issues relevant to upcoming works in or near sensitive receivers or environmentally sensitive areas, or incidents that have occurred.

Relevant environmental issues may include (but are not limited to):

- Air quality – Dust control;
- Hours of work;
- Emergency and spill response;
- Weed management;
- Noisy works or works outside of normal working hours;
- Soil and water quality;
- Environment incidents;
- Changes to previously communicated environmental mitigation measures; and
- Environmental procedures.

Toolbox talk attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Topics covered may include those detailed above, or others deemed necessary during operation.

Operational personnel will also be informed of environmental issues through the development and distribution of awareness information in the form of notes, emails etc.

7.3 Pre-start meetings

A pre-start meeting is a tool for informing the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

The Operations Manager (or delegate) will conduct a pre-start meeting with the site workforce before the commencement of work each day or where changes occur during the day as needed. Pre-start meetings are generally succinct in nature and take approximately 10-15 minutes.

The environmental component of a pre-start meeting will be determined by the activity's relevant manager and /or environmental personnel and will include any environmental issues that could potentially be impacted by, or impact on, the day's activities.

8 Consultation and communication

8.1 Consultation

Extensive consultation with relevant stakeholders and regulatory authorities has been undertaken through the development of this SBEMP and prior to the submission and approval of the SBEMP. Relevant stakeholders consulted are outlined in Table 8 .

Table 8 – Relevant Stakeholders consulted

Stakeholder/ Authority consulted	Plan	Issue/Relevance
Balonne Shire Council	Site Based Environmental Management plan	Site based environmental issues – Dust, water quality

Consultation with relevant stakeholders and government authorities will continue throughout the Development and during subsequent revisions involving significant modifications.

Appropriate communication and notification with relevant stakeholders and regulatory authorities is an essential element in establishing constructive communication channels to ensure the impact of potential or actual issues and incidents are prevented or minimised and dealt with efficiently and amicably.

8.2 Communication

On-going and clear communication throughout all levels and functions (e.g. management, staff and sub-contractors, stakeholders and community) on environmental requirements and progress are key to minimising environmental impacts and achieving continual improvements in environmental performance. Communication is both verbal and written and is managed via various delivery mechanisms (e.g. signage, noticeboards and pre-start meetings).

Kooroon Ag Pty Ltd recognises that environmental issues are important to relevant stakeholders, especially when the Development interfaces with the general public. Consultation and communication activities are planned and approved before release to stakeholder groups.

8.2.1 Internal communication

The ongoing communication of environmental requirements and issues to Development personnel is a key element in ensuring compliance with the objectives of this SBEMP. Communication can be both verbal and written and can include meetings and notifications (e.g. bulletins) in addition to training discussed in section 7.

The Development's senior management will meet regularly to discuss any issues with environmental management on-site, any amendments to plans that might be required or any new / changes to operational activities.

Regular meetings may also be scheduled with environmental specialists / consultants and the Development's senior management. The purpose of these meetings would be to communicate ongoing environmental performance and to identify any issues to be addressed.

Further internal communications regarding environmental issues and aspects will be through awareness training as described in section 7.2.

8.2.2 External and regulatory consultation

The Operations Manager is the point of contact for external parties and regulatory authority regarding specific environmental issues.

The ongoing environmental performance of the Development including progress and any key environmental matters will be reported to the DETSI via the annual monitoring report.

External communications regarding specific environmental issues will be managed through the Operations Manager.

8.3 Stakeholder and community communication

Communication with stakeholders is an important element of any development to ensure all potentially affected stakeholders are made aware of predicted or potential impacts and that an avenue for stakeholder input is made available. A number of groups including the Development's workforce and customers, regulatory authorities, Government departments (e.g. DETSI), Local Government (Balonne Shire Council), suppliers and residences nearby to the Development have been identified as stakeholders in relation to the operation of the Development.

8.3.1 Stakeholder communication strategy

Appropriate communication and notification with the relevant stakeholders are an essential element in establishing constructive communication channels to ensure the impact of potential or actual issues and incidents are prevented / minimised or dealt with efficiently and amicably.

Relevant stakeholders are outlined in section 8.3.

8.3.2 Community communication strategy

The community communications strategy includes a range of consultation and communication tools that are used for providing information and consulting with the community and

stakeholders to inform the community of Development issues and receive comments and complaints during the operation of the Development. Key elements include:

- A phone number established and communicated to community and stakeholders for registering a comment / complaint and triggering the appropriate response procedure;
- Development website with a contact number, email and postal address;
- A postal address to which written complaints and enquiries might be sent; and
- An email address to which electronic complaints and enquiries may be transmitted.

8.3.3 Enquiries and complaints response

A Complaints and Enquiries Procedure consistent with AS/NZS 10002:2022 Guidelines for complaint management in organisations (Standards Australia, 2022) and will be developed prior to commencement of operational activities and maintained for the duration of operations.

A telephone number, postal address and email address for community complaints and enquiries have been established for the Development. All community inquiries and complaints related to operational activities will be referred to the community information line.

The telephone number, the postal address and the email address are located on signage at the Development site's entrance.

Enquiries and complaints contact details are provided in Table 9.

Table 9 – Enquiries and complaints contact details

Contact method	Details
Postal	TBA
Email	TBA
Phone	TBA

The following actions will be undertaken by the Operations Manager (or delegate) in responding to enquiries or complaints:

- Record details of all complaints received in the Complaints Register, including how they were addressed, whether resolution was reached and whether mediation was required or used. The information contained within the register will be made available to the regulatory authorities on request.
- Investigate the complaint – site investigation to identify potential causes, researching any previous issues, checking whether any requirement has been breached, what corrective action, if appropriate, will be undertaken, a time frame for this action and the appropriate feedback/response to the complainant.

- Provide at least an initial response to the complainant regarding what has been found and what corrective and / or preventative action is proposed as soon as possible and within a maximum of 72 hours from the time of the complaint.
- Where appropriate, provide a written response to the complainant within ten (10) days, outlining (but not limited to) whether a problem has been found, the reason for the problem and, if appropriate, corrective and preventative actions that have been implemented to resolve the issue. A signed electronic and hard copy of the written response will be kept on-site in the Development's document control and data management system at the Heather Station office of Kooroon Ag Pty Ltd.
- Complaints and enquiries feedback will be evaluated quarterly as part of the review process in order to assess and adjust communication methods if required.

Corrective actions will be applied in consultation with the appropriate operational personnel to allow modifications and improvements in the management of any environmental issues resulting in community complaints.

8.3.4 Record of consultation and communication

External consultation via email will be undertaken using Kooroon Ag Pty Ltd email system, which automatically records all email correspondence.

The uploading and management of documents is discussed further in section 12. In addition, any records of consultation including letters, review comments or the issue of approvals will be kept off-site in the relevant folder in the Heather Station office of Kooroon Ag Pty Ltd.

Verbal consultation with stakeholders will be recorded using hard or soft diary notes or file notes and saved on-site with the Operations Manager.

Where relevant, verbal correspondence will also be entered in the community and stakeholder consultation register, as described in the section 12.

9 Incident and emergency management

All emergency and incident situations at the Development including actual or potential (near miss) for injury, or damage to equipment, property or the environment will be reported to the Operations Manager or immediate supervisor as soon as practicable after the occurrence.

An emergency situation is an event that could present significant risk to the environment, personnel or the community, as determined by the Operations Manager.

All emergency and incident situations in relation to the Development shall be managed according to the Development's QA system.

All incidents will be investigated, and the appropriate course of action will be taken to address the issues. Environmental incidents that harm the environment will be reported to the Department of Environment, Science and Innovation in accordance with sections 320 to 320G, Chapter 7 Part 1 of the *Environmental Protection Act 1994*.

The Operations Manager has the authority and independence to require reasonable actions to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such actions, to instruct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.

9.1 Incident investigation, reporting and recording

Environmental incidents do not necessarily comprise a breach of legislation and can involve (but not be limited to) the following:

- spills of fuels, oils or other hazardous materials;
- unauthorised discharge from sedimentation basins or other containment devices;
- any adverse health or well-being impacts on persons due to activities causing adverse environmental conditions;
- an unexpected find of contaminated soils or other potentially hazardous substances;
- impacts to native vegetation, habitat for endangered/threatened native flora and fauna species;
- potential contamination of waterways or land;
- accidental starting of a fire or a fire breaking out of containment;
- any breach of legislation including a condition of an environment authority, development approval; or any government agency permit condition;
- works impacting outside an approved area or undertaken without appropriate approval or assessment under the *Environmental Protection Act 1994*; and

- unauthorised dumping of waste.

The incident must be assessed immediately, and action taken promptly to correct any existing danger and to prevent repetition.

Kooroon Ag Pty Ltd has developed an Incident/Hazard reporting record to classify and report environmental incidents that may occur during the Development's operational activities and to comply with its statutory obligations to report certain incidents. Incidents are reported, investigated and recorded according to this form. The form provides references to:

- Types of environmental incidents.
- Criteria for classifying of environmental incidents.
- Processes for systematically responding to and managing emergency situations.
- Processes and legal requirements (e.g. Acts, Regulations, EA etc) for reporting and notification of an environmental incident.

The form is provided in Appendix A7 – Environmental forms, checklists and registers.

Typically, the Operations Manager or delegated nominee in their absence, will be immediately notified verbally of serious or material environmental harm caused or threatened. In accordance with sections 320 to 320G, Chapter 7 Part 1 of the EP Act, the person must, as soon as reasonably practicable after becoming aware of the harm or threatened harm, notify the administering authority of the harm, its nature, the circumstances in which it occurred and the action taken to deal with it and this will be followed up in writing within twenty four hours of any incident occurring. All efforts will be undertaken immediately to avoid and reduce impacts of incidents and suitable controls put in place. Incidents will be closed out as quickly as possible, taking all required action to resolve each environmental incident.

The Department of Science, Tourism and Innovation (DETSI) as the administering authority will be notified of material environmental harm or serious environmental as a result of the Development via the pathways outlined in Table 10 in accordance with sections 320 to 320G, Chapter 7 Part 1 of the EP Act.

Table 10 – Administering Authority (DESI) notification

Contact method	Details
Phone	1300 130 372
Email	PollutionHotline@detsi.qld.gov.au

For the purposes of the EP Act, the following provisions are to be applied in determining environmental harm:

1. Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

2. environmental harm is to be treated as material environmental harm (other than environmental nuisance) if –
   (a) that is not trivial or negligible in nature, extent or context; or
   (b) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount but less than the **maximum amount**; or
   (c) that results in costs of more than the **threshold amount** but less than the maximum amount being incurred in taking appropriate action to –
      (i) prevent or minimise the harm; and
      (ii) rehabilitate or restore the environment to its condition before the harm.

   In this section, **maximum amount** means the threshold amount for serious environmental harm.

   In this section, **threshold amount** means $5000 or, if a greater amount is prescribed by regulation, the greater amount.

3. serious environmental harm is environmental harm (other than environmental nuisance) –
   (a) that is irreversible, of a high impact or widespread; or
   (b) caused to an area of high conservation value or special significance; or
   (c) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the **threshold amount**; or
   (d) that results in costs of more than the threshold amount being incurred in taking appropriate action to –
      (i) prevent or minimise the harm; and
      (ii) rehabilitate or restore the environment to its condition before the harm.

   In this section, **threshold amount** means $50000 or, if a greater amount is prescribed by regulation, the greater amount.

All records relating to environmental incidents shall be maintained on the Development's document control and data management system to remain legible, identifiable and traceable.

9.2 Environmental emergency

9.2.1 Preparation

Major environmental incidents, natural disasters or adverse weather events may require an emergency response.

To ensure that all site personnel know their responsibilities during an emergency, an Emergency procedure for the Development is in place. The Emergency procedure covers both WHS and environmental emergencies and is included in Appendix A6 – Environmental procedures.

9.2.2 Response

The Emergency procedure details the preparation for emergency and the actions to be taken in the event of an actual emergency event and reporting requirements. Table 11 lists the key contacts for environmental emergencies.

Table 11 – Environmental emergency contact details

Emergency contact/Organisation	Contact details (Phone)
Police	000
Ambulance	000
QLD Rural Fire Service	000
Department of Environment, Tourism, Science and Innovation	13 74 68
Balonne Shire Council	07 4620 8888

10 Inspections, monitoring and auditing

10.1 Environmental inspections

Regular site inspections are an important part of maintaining an environmental presence and reviewing operation activities to ensure compliance with controls described in the SBEMP, associated management plans and procedures.

10.1.1 Site inspections

Site inspections will be performed by the Operations Manager and will focus on the protection of environmentally sensitive areas, impact on sensitive receivers and compliance with all applicable environmental documentation and conditions.

Site inspections will be conducted on an on-going basis and prior to 'forecasted' and following heavy rainfall events to evaluate the effectiveness of environmental controls.

Site inspections provide a forum for the Operations Manager to liaise directly with respective personnel to ensure satisfactory environmental outcomes during works.

The Operations Manager will document any relevant or notable outcomes of site inspections by:

- Taking diary notes of work locations, activities, times, conversations or other relevant information that may be of environmental interest, both positive and negative;
- Taking photographs of environmental mitigation measures, operation activities or other areas of interest both positive and negative;
- Recording any minor non-conformances and associated control actions required to be undertaken by operational personnel - these will be recorded in the Non-compliance Record (Appendix A7 – Environmental forms, checklists and registers); and
- Recording details of any maintenance required and undertaken, the nature of the deficiency, any actions required and an implementation priority.

The process for recording and managing a non-conformance with a procedure or other management document is described in section 10.5.

10.2 Monitoring

Environmental monitoring is important in ensuring that operational activities are not adversely affecting the environment or sensitive receivers and that control measures are working effectively. Monitoring will be undertaken to validate the impacts predicted for the

Development, to measure the effectiveness of management plans, environmental controls and implementation of this SBEMP, and to address approval requirements.

Environmental monitoring will involve routine collection and interpretation of data to assess operational performance, environmental performance and compliance with requirements.

The timing, frequency, methodology and location for the environmental monitoring programs are provided in the conditions of consent for the Development. All environmental monitoring equipment will be maintained and calibrated according to manufacturer's specifications and appropriate records kept.

The Environmental Specialist will advise the Operations Manager of any non-conformances from monitoring and details reported in the annual monitoring report.

Where a non-conformance is detected or monitoring results are outside of the expected range and are directly attributable to the Development (i.e. are influenced by factors under the direct control of the Development e.g. erosion), the process described in section 10.5 will be implemented.

10.3 Auditing

10.3.1 Internal audits

Internal auditing will be undertaken, generally on a six-monthly basis, with the initial audit to occur within six months of the commencement of operation and then at regular intervals thereafter. These internal audits will be timed to provide input into annual compliance tracking, so that the results can be used in annual reports.

The purpose of the internal audits is to:

- Check compliance with the Development Approval;
- Check compliance with any relevant legal and other requirements (e.g. licences, permits, regulations, client contract documentation);
- Check compliance with the mitigation measures in the SBEMP;
- Review the SBEMP, and all other environmental documentation to ensure relevance to current activities and recommend changes or improvements;
- Review results of monitoring against criteria;
- Review environmental incidents to determine trends or additional controls required;
- Review non-conformance information to determine trends or additional controls required; and
- Review Non-compliance Record to ensure timely and adequate close-out of actions.

An audit checklist will be developed and amended as necessary to reflect changes to this SBEMP, subsequent approvals and changes to Acts, regulations or guidelines.

The outcomes of the internal audit may trigger the requirement to update the SBEMP and/or any associated environmental documents. Document revision will be done in accordance with section 11 of this SBEMP.

10.3.2 External audits

External auditing may be undertaken by an independent environment auditor in accordance with ISO 19011:2019 - Guidelines for auditing management systems (Standards Australia, 2019) if requested to do so by the relevant authority or as part of a quality assurance program. The scope of an external audit will, as a minimum focus on compliance with the Development approval, environmental authority or management documents.

10.4 Reporting

During operation, various reports may be prepared to fulfil reporting needs, and requirements under the conditions of consent for the Development. Table 12 sets out the reporting requirement applicable to the Development, timing of the reporting, who is responsible for managing preparation of the reports and the intended recipient(s).

Additional reporting may be necessary as the operation continues. In such a circumstance, Table 12 will be amended to reflect these changes.

Table 12 – Development reporting requirements

Phase	Requirement	Timing	Responsibility	Recipient
Operation	Annual return	Yearly	Operations Manager	DETSI

10.5 Non-conformances, corrective and preventive actions

A non-conformance is the failure or refusal to comply with the requirements of this SBEMP and or conditions of consent for the Development. Environmental non-conformance will be detected through verification processes such as monitoring, inspections, audits, receipt of complaints, and Annual Return.

Any member of the Development's personnel may raise a non-conformance /or improvement opportunity. The administering authority may also raise a non-conformance or improvement opportunity using the same process.

Non-conforming activities may be stopped, if necessary, by the Foreman following consultation with the Operations Manager or delegate. The works will not commence until a corrective / preventative action has been closed out. The Environmental Specialist may also stop works in these circumstances.

For each non-conformance identified, a corrective/preventative action (or actions) will be implemented. In addition, any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions. Where a non-conformance is identified, the following process will be followed:

- An analysis of the issue by the Operations Manager in more detail with a view of determining possible causes for the non-conformance;
- A site inspection by the Director, Operations Manager, Field Superintendent or delegate;
- Advising relevant personnel of the problem;
- Identifying and agreeing on actions to resolve or mitigate the non-conformance; and
- Implementing actions to rectify or mitigate the non-conformance.

Corrective/preventative actions and improvement opportunities will be entered in a database and include detail of the issue, action required and timing and responsibilities. The record will be updated with date of close out and any necessary notes. The database will be reviewed regularly to ensure actions are closed out as required.

The timing for any improvement will be agreed between the Operations Manager and the relevant section manager based on the level of risk (e.g. a significant risk will require immediate action). Tracking of environmental and associated corrective actions will be the responsibility of the Operations Manager.

Non-conformance to the requirements of this SBEMP or sub-plans is recorded as a non-compliance. Non-compliance is recorded in the Non-compliance Record (Refer Appendix A7 – Environmental forms, checklists and registers).

11 Review and Improvement

An ongoing document review process ensures that environmental documentation including this SBEMP is updated as appropriate for the specific activities that are occurring on-site.

Review of the SBEMP may be undertaken as a result of the following types of trigger mechanism:

- Issue of stop-work orders;
- Staff and agency/authority name changes;
- Non-compliance raised as part of the audits, monitoring, inspections; and
- Representations by on-site management staff.

As part of the continual improvement process, environmental management reviews are undertaken at least annually to confirm the continuing suitability and effectiveness of the SBEMP to ensure that it meets current contractual and legislative requirements. The management review involves RA & AJ Brown, Operations Manager and senior staff and Environmental Specialist (if required) and relevant staff personnel and stakeholders (if required). The management review covers, but not limited to the following:

- A review of the aspects and impacts register, legal register and environmental induction;
- Communications from agencies, regulators and other external stakeholders;
- Consideration of monitoring, inspection and audit results;
- Consideration of incidents and any lessons learnt;
- Consideration of any new regulatory issues;
- Systemic issues arising from site inspections;
- A review of the effectiveness of environmental controls;
- Training needs;
- Consideration of issues raised by senior management of the Development;
- Status of corrective and preventive actions;
- The extent to which objectives and targets have been met;
- Non-conformances and environmental incidents;
- Consideration of changes in operational needs such as resourcing;
- Follow-up actions from previous management reviews (as applicable);
- Effectiveness of environmental management documentation implementation;
- Management effectiveness;
- Potential improvements to the environmental management documentation;
- Adequacy of resources;
- Findings of audits;

- Environmental objectives and targets;
- Environmental performance;
- Compliance with legal and other requirements;
- Critical non-conformance or repeated non-conformances;
- Organisation changes; and
- Effectiveness of training and inductions.

The outcomes of the management reviews could include amendments to this SBEMP and related documentation, revision to the Development's environmental management system, risk assessment review, re-evaluation of the Development's objectives and targets as well as amendments to other management plans.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of the Operations Manager (or delegate) to update the relevant documentation.

The revised document(s) will then be issued to the Operations Manager and the Environmental Specialist (if required) for certification of the changes. The Operations Manager (or delegate) can approve minor changes to the SBEMP. Minor changes would typically include those that:

- Do not increase the magnitude of impacts on the environment when considered individually or cumulatively;
- Are editorial in nature e.g. staff and agency/authority name changes; and
- Do not compromise the ability of the Development to meet approval or legislative requirements.

Where the Operations Manager deems it necessary, the amended SBEMP will be forwarded to BSC for approval.

12 Document control and records management

Environmental documents and records will be maintained during operation through the Development's document control and safety management system to remain legible, identifiable and traceable.

12.1 Document control

The Operations Manager (or delegate) will coordinate the preparation, review and distribution, as appropriate, of the environmental documents. During operation of the Development, hard copies of all environmental documents will be stored off-site at the Heather Station office of Kooroon Ag Pty Ltd.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

The SBEMP, on approval, will be available on-site and will be subject to update and revision in accordance with the process described in section 11.

Kooroon Ag Pty Ltd has a document control procedure to control the flow of documents within and between stakeholders and subcontractors. The procedure will ensure that documentation is:

- Developed, reviewed and approved prior to issue;
- Issued for use;
- Controlled and stored for the legally required timeframe;
- Removed from use when superseded or obsolete; and
- Archived.

A register and distribution list will identify the current revision of particular documents or data. If significant changes to the SBEMP are required, a revised copy will be issued to controlled copy holders. The controlled copy will always remain off-site at the Heather Station office of Kooroon Ag Pty Ltd. The Operation Manager will notify all relevant personnel of any revision of the SBEMP or procedures. If any SBEMP Appendices are required to be updated at any stage of the Development, a revised copy of the relevant Appendix only will be forwarded to controlled copy holders if required.

12.2 Environmental records

A range of environmental management records will be retained by the Development. The types of records include but not limited to those outlined in Table 13. The Operations Manager is responsible for maintaining all environmental management documents as current at the point

of use. The person listed under "Responsibility" in Table 13 ensures that the record is appropriately identified, completed and systematically retained by the Development.

Table 13 – Environmental management records

Record Type	Activity	Responsibility
Induction and training records	Development inception / new staff / changed practices	Operations Manager
Online waste tracking	Waste required to be tracked	Operations Manager
Environmental Non-conformances, complaints and follow-up actions	Event basis	Operations Manager
Environmental monitoring records	Rainfall	Operations Manager
Annual report	Yearly monitoring data sets to DETSI	Operations Manager

The approved SBEMP will be maintained in the Development's document control and data management system with a document number and a revision number. At any given time, the latest version can be viewed with the ability to view the historical versions and track changes. All environmental records will be maintained electronically on the Development's document control and data management system. Environmental records are kept as a means of assessing the effectiveness of the Development's management of environmental issues and risks, and to demonstrate compliance with conditions of the Development approval. Records that will be retained as evidence of environmental management implementation and effectiveness include, but not limited to:

- SBEMP and sub-plans;
- Environmental procedures, forms, checklists;
- Details of qualifications held by individuals responsible for environmental monitoring;
- Licences and permits;
- Records of environmental training and inductions;
- Environmental incident reports;
- Reports on compliance with approval, licence and permit conditions;
- Reports from environmental inspections (internal and external);
- Reports from environmental audits (internal and external);
- Details of complaints / non-conformance/ preventative / corrective and preventative actions;
- Monitoring data/assessment of results against compliance; and
- Meteorological (rainfall) monitoring.

13 References

Department of Environment and Heritage Protection (DEHP), 2017, Guideline Environmental Management, Activity management plans, ESR/2017/3561, Version 2, Department of Environment and Heritage Protection, Brisbane, Queensland.

Environment Protection (Air Quality) Policy 2019 (QLD)

Environment Protection (Noise) Policy 2019 (QLD)

Environment Protection (Water and Wetlands Biodiversity) Policy 2019 (QLD)

International Erosion and Sediment Control (IECA) (Australasia) 2008, Best Practice Erosion and Sediment Control, IECA, International Erosion and Sediment Control Association (Australasia), Picton, NSW.

Standards Australia, 2004, AS/NZS ISO 14001:2015 Environmental management systems – Requirements with guidance for use, Sydney, NSW.

Standards Australia, 2006, AS/NZS ISO 31000:2009, Risk Management – Principles and guidelines, Sydney, NSW.

Standards Australia, 2012, Australian Standard/New Zealand Standard Handbook 203:2012 Managing environment-related risk, Sydney NSW.

Standards Australia, 2019, AS/NZS ISO 19011:2019 Guidelines for auditing management systems, Sydney, NSW.

Standards Australia, 2022, AS/NZS 10002:2022 Guidelines for complaint management in organizations (ISO 10002:2018 NEQ), Sydney, NSW.

Appendix A1 - Legal and other requirements

Legislation/Policy	Relevance
Aboriginal Cultural Heritage Act 2003	An Act to provide for the effective recognition, protection and conservation of Aboriginal cultural heritage in Queensland.
Biosecurity Act 2014	An act to ensure a consistent, modern, risk-based and less prescriptive approach to biosecurity in Queensland. It provides comprehensive biosecurity measures to safeguard our economy, agricultural and tourism industries, environment and way of life, from pests (e.g. wild dogs and weeds); diseases (e.g. foot-and-mouth disease) and contaminants (e.g. lead on grazing land).
Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places – defined in the EPBC Act as matters of national environmental significance and environmental impacts on Commonwealth land.
National Greenhouse and Energy Reporting Act 2007	An Act to provide for the reporting and dissemination of information related to greenhouse gas emissions, greenhouse gas projects, energy production and energy consumption, and for other purposes.
Environmental Protection Act 1994	The EP Act 1994 provides the regulatory framework to protect Queensland's environment, including land, air and water. The purpose of the EP Act is to control pollution and set up a licensing regime for certain activities. An environmental authority will be required for prescribed activities of environmental significance (i.e. Extractive industry). In the case of a Extractive industry, the authority would be issued by DESI.
Environmental Protection (Air Quality) Policy 2019	The purpose of this policy is to achieve the object of the EP Act in relation to the air environment by identifying environmental values to be enhanced or protected; and stating indicators and air quality objectives for enhancing or protecting the environmental values; and providing a framework for making consistent, equitable and informed decisions about the air environment.
Environment Protection (NPI) Policy 2008	The purpose of this policy is to provide for the collection of information for inclusion in the National Pollutant Inventory (NPI).
Environmental Protection (Noise) Policy 2019	The purpose of this policy is to achieve the object of the EP Act in relation to the acoustic environment by identifying environmental values to be enhanced or protected; and stating acoustic quality objectives for enhancing or protecting the environmental values; and providing a framework for making consistent, equitable and informed decisions about the acoustic environment.
Environmental Protection (Waste Management) Regulation 2000	The aim of this regulation is to protect the environment by minimising the impact of waste on the environment including, in particular, the impact of waste so far as it directly affects human health; and establishing an integrated framework for minimising and managing waste under the principles of ecologically sustainable development.
Planning Act 2016	An Act to providing for an efficient, effective, transparent, integrated, coordinated and accountable system of land use planning and development assessment to facilitate the achievement of ecological sustainability in Queensland.
Planning Regulation 2017	This Regulation is made under the Planning Act 2016 and plays an important role in the planning provisions of the Planning Act 2017.
Water Act 2000	This Act aims to provide for the sustainable and integrated management of the water sources of the state of Queensland in line with ecologically sustainable development principles.

AS/NZS ISO *14001:*2015 Environmental management systems	All organisations have some impact on the environment. An EMS is a structured system or management tool designed to help an organisation to reduce its negative impacts on the environment and improve its environmental performance. The system can also provide a methodical approach to planning, implementing and reviewing an organisation's environmental management.

Guideline/Standard	Relevance
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC and ARMCANZ 2000)	Provides a framework for recognising and protecting water quality for the full range of existing environmental values.
AS 3580.1.1:2007 Methods for sampling and analysis of ambient air: Part 1.1: Guide to siting air monitoring equipment. Standards Association of Australia, Sydney	This Standard sets out general guidelines for the siting of ambient air monitoring equipment and specifies a number of siting parameters for individual air pollutants. In practice, an ideal site satisfying all the criteria is rarely achieved.
AS 3580.10.1:2003 Methods for sampling and analysis of ambient air: Method 10.1: Determination of particulate matter – Deposited matter – Gravimetric method. Standards Association of Australia, Sydney	This Standard sets out a method for the sampling of particulate matter that is deposited from the atmosphere, and procedures for the gravimetric determination of the mass deposition rate of insoluble solids, ash, combustible matter, soluble solids and total solids from ambient air.
AS 3580.14-2011 Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications. Standards Association of Australia, Sydney	This Standard sets out methods for the collection of meteorological data for use in ambient air quality monitoring and modelling applications.
AS/NZS 5667.1—1998: Water Quality—Sampling— Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples. Standards Association of Australia, Sydney	This Standard provides general principles to be applied in sampling for the physical, chemical, microbiological or radiological analysis of waters and waste waters, including bottom sediment and sludges, for the purposes of process control, quality characterization, identification of sources of pollution and the monitoring of background levels.
AS/NZS 5667.6—1998: Water Quality—Sampling—Guidance on sampling of rivers and streams. Standards Association of Australia, Sydney	This part of ISO 5667 sets out the principles to be applied to the design of sampling programmes, sampling techniques and the handling of water samples from rivers and streams for physical, chemical and microbiological assessment.
AS/NZS 5667.10—1998: Water Quality—Sampling—Guidance on sampling of waste waters. Standards Association of Australia, Sydney	This part of ISO 5667 contains details on the sampling of domestic and industrial wastewater, i.e. the design of sampling programmes and techniques for the collection of samples. It covers wastewater in all its forms, i.e. industrial wastewater, and crude and treated domestic wastewater.
Guideline for Activity management plans (2017)	This guideline will assist in protecting the environment by providing a standard approach to describing how activities undertaken during the operation phase of the Development will be managed to prevent or minimise environmental impacts on site and how those environmental management requirements will be implemented.
International Erosion and sediment Control (IECA) Australasia, 2008	Provides guidance for local councils and practitioners for the design, construction and implementation of measures to improve

	stormwater management, primarily erosion and sediment control, during the construction-phase of development.

Appendix A2 – Approvals, permits and licences

This section has been left intentionally blank
Copies of all relevant approvals , permits and licences to be included after Development approval.

Appendix A3 – Environmental aspects and impacts

Table 14 – Operation environmental aspects and impacts

Category	Operation Activities / Aspect	Potential Impacts	Risk level prior to mitigation	Indicative Mitigation Measures	Risk level after mitigation	Relevant Management Document / Training required
Air quality	• Site establishment • Vegetation clearing • Topsoil stripping • Overburden removal • Ripping and stacking • Stockpiling • Vehicular movements on unsealed roads • Material haulage • Vehicle emissions • Exposed bare earth areas • Vehicle emissions • Rehabilitation activities	Complaints from neighbours, including loss of amenity and impacts of dust.	**M9 – Moderate**	• Induct personnel on air quality issues and safeguards. • Suppress dust on unsealed surfaces, stockpiles and other exposed surfaces. • Modify or cease operations during high winds. • Vehicle movements will be restricted to designated and approved routes. • All trucks to cover loads. • Vehicles to obey the on-site speed limits. • Vehicles, equipment, machinery used and all facilities – designed, operated and maintained to control the emission of smoke, dust and fumes. • All disturbed areas stabilised and rehabilitated as soon as practicable after completion. • Ensure there is an adequate supply of water for dust suppression. • Minimise tracked mud/dust on public roads. • No burning or incineration of any material at any time. • Regularly inspect erosion controls. • Dust deposition measurement/modelling if required by regulatory authority. • Machinery and equipment to comply with Australian Standards for air emissions and be maintained to original equipment manufacturer (OEM) specifications.	**L3 - Low**	Site Based Environmental Management Plan Development approval conditions Environment Protection (Air quality) Policy 2019 Complaints Register Personnel training and awareness Personnel induction
		Impacts on residential sensitive receivers, including impacts on living areas, swimming pools and general amenities.	**M9 – Moderate**		**L2 - Low**	
		Potential adverse health effects.	**M11 – Moderate**		**L1 - Low**	
		Impacts on water quality and other aspects of the natural environment.	**L5 – Moderate**		**L1 - Low**	
		Dust on crops including broadacre crops or other agricultural crops.	**L5 – Low**		**L2 - Low**	
Groundwater – Quantity and quality	• Groundwater use exceeding Development's allocation and entitlements • Spills or leaks of hazardous materials	Potential for localised drawdown of groundwater resources.	**M11 – Moderate**	• Development and implementation of emergency and contingency plans detailing methods to manage spills or other emergencies on site, such as sediment basin overflows etc • Sustainable use of groundwater in accordance with the Developments allocation and entitlements.	**L1 – Low**	Site Based Environmental Management Plan Development approval conditions

	stored or used on-site such as fuels, chemicals etc. • Inappropriate storage of solid and/or liquid wastes.	Impacts to the quality of groundwater in the vicinity of the Development.	**M11 – Moderate**	• Groundwater extraction managed to ensure sustainable drawdown rates • Groundwater monitoring (quantity and quantity) is undertaken on the basis prescribed by the EA. • Solid waste stored and removed off-site for and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements • Liquid waste stored and removed off-site in accordance with regulatory requirements. • Hazardous materials are stored and used in accordance with relevant guidelines and Australian Standards for the storage of hazardous and dangerous goods and spill management.	**L1 – Low**	Personnel training and induction
		No aquifers intersected by the quarry, thus no alteration of groundwater levels due to dewatering in the pit.	**L6 – Low**		**L1 – Low**	
		No alterations to recharge from rainfall due to the partial removal of high permeability material (e.g. shale) and low permeability material (e.g. clayey alluvium)	**L6 – Low**		**L1 – Low**	

		No artificial recharge from stormwater /sediment retention dam and dust suppression.	**L6 – Low**		**L1 – Low**	
		Aquifers outside of the development area will continue to receive recharge via the same processes that occurred pre-extraction.	**L6 – Low**		**L1 – Low**	
Surface water – Quantity and quality	• Surface water use exceeding Development's allocation and entitlements • Inappropriate storage and /or uncontrolled release of liquid wastes as a result of overflows, integrity failure or exceedance of design criteria. • Spills or leaks of hazardous materials stored or used on-site such as fuels, chemicals etc • Inappropriate storage of solid wastes	Potential for drawdown of surface water resources.	**M13 – Moderate**	□ Development and implementation of emergency and contingency plans detailing methods to manage spills or other emergencies on site, such as sedimentation pond overflows, etc. □ Vegetative buffers around drainage lines and surface waters designed to help protect surface water are maintained in their intended condition. □ Solid waste stored and removed off-site for and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements □ Liquid waste stored and removed off-site in accordance with regulatory requirements. □ Rainwater falling on the development area will be collected in the sedimentation pond for on-site reuse. □ Sustainable use of surface water in accordance the Development's allocation and entitlements. □ Hazardous materials are stored and used in accordance with relevant guidelines and Australian Standards for the storage of hazardous and dangerous goods and spill management. □ Specific construction activities will only be undertaken during dry weather. No clearing of vegetation or topsoil/overburden removal will be carried out during heavy rainfall. □ No refuelling of plant is to occur within 50 m of any watercourses. □ All spills and leaks shall be cleaned up immediately using spill kits provided and/or plant.	**L6 – Low**	Site Based Environmental Management Plan Development approval conditions Personnel training and induction
		Loss of or damage to aquatic habitat.	**M11 – Moderate**		**L6 – Low**	
		Erosion of exposed soils causing sedimentation of waterways and aquatic environments	**M11 – Moderate**		**L6 – Low**	
		Changes to water chemistry, in particular pH values altering aquatic habitats, including threatened species habitats.	**M11 – Moderate**		**L6 – Low**	
		Impact to water quality due to fuels and leaks and inappropriate storage of hazardous material.	**M11 – Moderate**		**L6 – Low**	

Biodiversity	• Clearing of remnant vegetation • Works near vegetation • Stockpile / haul road construction near vegetation • Open excavation works • Vehicular movements • Use of chemicals • Noise impacts • Uncontrolled fires/bushfires	Loss of or damage to habitat for threatened species	**L5 – Low**	• Vegetation clearing boundaries are clearly marked and visible as required. • Any flora and fauna habitat areas required to be protected shall be identified and marked. □ Clearing restricted to those areas required for development operation and firebreaks. □ Minimise clearing of all vegetation □ Retain all habitat trees where practicable. □ Induct personnel on biodiversity issues and mitigation measures. □ Induct personnel on the proper recognition of declared weed species known to occur in the area. □ Disturbed areas will be monitored for effective soil stabilisation and restoration and rehabilitation. □ Implement ongoing weed monitoring and management program to remove pest plant species and weeds. Control shall be achieved by regular mowing or herbicide application. Knockdown or residual herbicides (or a combination of the two) shall be used depending on whether the weeds have emerged, the time of year and the weeds present. □ Minimise clearing of all vegetation and undertake progressive revegetation. □ Disturbed areas to be rehabilitated will be monitored for effective restoration and rehabilitation. □ All habitat trees retained where practicable. □ Implement vehicle hygiene procedures to prevent the introduction and spread of pest plants. □ Provisions to limit heavy vehicle speeds and for signage along access roads □ Methods and communication tools to monitor road strike and mortality of wildlife □ Placement of coarse woody debris. □ Aquatic weeds in water storages shall be controlled via mechanical and/or chemical means. Chemical control shall be undertaken with considerable care, considering the identity of the weed, the effect of herbicides on desirable plants, fish and other aquatic life and the eventual use of the water □ Monitor and manage pest animal species already present, using acceptable methods to prevent proliferation and spread. □ Ensure putrescible waste (e.g. food scraps etc) is managed appropriately to ensure that it does not provide a food source for or attract pest animals.	**L4 – Low** **L4 – Low** **L4 – Low** **L5 – Low** **L4 – Low** **L4 – Low** **L5 – Low**	Site Based Environmental Management Plan Weed management procedure Vehicle hygiene procedures Personnel induction
		Potential impact on endangered ecological communities	**L5 – Low**			
		Loss and fragmentation of riparian and aquatic habitat	**L5 - Low**			
		Mortality of protected and threatened fauna	**M9 – Moderate**			
		Creation of barriers to fauna movement	**L5 – Low**			
		Edge effects from road noise and light	**L5 – Low**			
		Introduction and spread of terrestrial and /or aquatic weeds and pest fauna species	**M9– Moderate**			

				▯ Pest animal control programs shall use the most humane, target specific, cost effective and efficacious techniques available ▯ Human waste shall be managed appropriately and in accordance with any relevant statutory requirements. ▯ Ensure vehicles entering the development site are not from known weed areas unless effectively washed down and have a weed hygiene declaration certificate.		
Hydrology and flooding	• Waterway and drainage line crossings • Transverse drainage	Restricted flow paths causing localised flooding due to access road infrastructure structures placed on floodplain	**L6 – Low**	• Induct personnel on hydrology and flooding issues and mitigation measures. • The proposed development is sited above the height of a 100year average recurrence interval (Q_{100}) flood level • Project designed and constructed in accordance with Development consent. • Evacuation and access assessed in consultation with landowners. • Monitor rain radar and flooding forecasts and ensure response preparedness. • Prepare site for flood and severe rainfall events (where forecast) to minimise inundation impacts. • Waterway and drainage crossings maintained to ensure the integrity and ongoing compliance with specified design criteria	**L6 – Low**	Site Based Environmental Management Plan Personnel induction and training
		Changes to flood afflux levels during flood events – increased impact to receivers	**L6 – Low**		**L6 – Low**	
		Flood damage to plant, equipment or infrastructure	**L6 – Low**		**L6 – Low**	
		Erosion of access road during large flood events	**L6 - Low**		**L6 – Low**	
		Change to flood regime due to topographical changes and modification of catchments	**L6 - Low**		**L6 – Low**	
		Impacts to flood evacuation and access movements	**L6 - Low**		**L6 – Low**	
Noise and vibration	• Site establishment • Clearing of vegetation • Quarrying • Crushing and screening • Stockpiling • Material haulage	Noise impacts on sensitive receivers during operation	**L5 – Low**	• Adherence to working hours in Development Consent unless otherwise approved. • Community liaison (agreements where applicable) with local communities and affected residents and stakeholders. • Respite periods for noisy activities (in accordance with regulatory guidelines). • Operation equipment selected, operated and maintained to minimise noise impacts and where necessary fitted with silencers and “smart” reversing safety devices. • Managing operation vehicle routes and speed of vehicles. • Establish and maintain complaints management system.	**L4 - Low**	Site based Environmental Management Plan Environment Protection (Noise) Policy 2019 Complaints register Personnel induction and training
		Noise exceeding regulatory criteria levels	**L5 – Low**		**L4 - Low**	
		Vibration impacts on sensitive receptors during operation	**L6 - Low**		**L4 - Low**	

				• Awareness training for staff and contractors in environmental noise issues. • All equipment used on-sites to be fitted with appropriate silencing equipment (i.e. mufflers). • Minimising the use of horn signals and consideration of alternative methods of communication • Switching off any equipment not in use for extended periods • All plant and equipment required would be well maintained and regularly serviced • Community consultation with local residents to assist in the alleviation of community concerns as required • Selection of machines that are inherently free of or have low vibration • Vibration-producing machinery shall be supported on stiff structural components, and be provided with efficient vibration isolation systems • Maintenance of plant and equipment machinery – ensuring rotating parts are balanced, vibration isolators are functioning as intended etc. • All personnel on site will be required to wear appropriate PPE. • Maintain site access road and internal roads regularly. • Instruct all staff on the appropriate handling of noise complaints. • Investigate all non-vexatious noise complaints expeditiously and respond to the complainant.		
Traffic and transport	• Travel to / from site – staff, visitors etc • Import of plant / equipment to the site • Access / haul roads • Operation vehicle movements and deliveries	Temporary disruptions / delays to local traffic	**L5 – Low**	• Identify and assess roads likely to be affected by development operation and develop methods to minimise traffic impacts. • The approved entrance shall be maintained as the only development access point. • Develop, implement and monitor Code of Conduct for haulage operators. • All vehicles carrying materials to be adequately covered (using retractable tarpaulin) as required to prevent any loss of material, which may cause driver safety issues. • Maintain heavy vehicle route, advance and position intersection signage. • Monitoring of any traffic delays. All roads will be graded on a regular basis to maintain an adequate running surface and drainage and regular watering will be undertaken for dust control and maintenance of surface structure.	**L4 - Low**	Site Based Environmental Management Plan Complaints register Personnel induction
		Temporary restrictions to private access roads	**L5 – Low**		**L4 – Low**	
		Permanent adjustment to some private property access roads and local/regional roads	**L5 – Low**		**L4 – Low**	
		Changed traffic patterns	**M11 – Moderate**		**L4 – Low**	
		Accidents - Safety of commuters, pedestrians, contractors and subcontractors.	**H22 – High**		**M15 – Moderate**	
	• Clearing of vegetation	Impact to undiscovered or	**L5 – Low**		**L4 – Low**	

Indigenous cultural heritage	• Removal of topsoil and excavation of material • Construction of auxiliary areas including stockpile areas and laydown. • Establishment of on-site access/haul roads.	undocumented aboriginal sites, artefacts and cultural places		• Prior to development – identify and assess aboriginal heritage and non-aboriginal heritage items and potential archaeological deposits on development site. • Induct personnel on heritage issues, safeguards, and the location of heritage items. • Develop and implement unexpected find procedure. • If design changes or operation activities impact on areas outside of those identified in the development approval, relevant stakeholders will be consulted. • Protect identified heritage items with protective fencing or flagging from being disturbed during operation. • Regular inspection of heritage protection fencing. • Archival recordings to be undertaken of heritage sites identified prior to development.		Site Based Environmental Management Plan Personnel induction
		Finding / disturbing burials or human remains	**L5 - Low**		**L4 – Low**	
Resource and waste management	• Water usage • Energy usage • Generation of general waste during operation activities including building materials, excess unsuitable spoil material, vegetation material • Generation of solid waste • Generation of liquid waste • Handling of chemicals, waste and hazardous goods. • Fuel storage and distribution and waste oil disposal	Improper disposal of waste material	**M12 – Moderate**	• Develop and implement a resource management strategy. • Waste materials contained in waste bins or other suitable containers, and removed off-site collected for recycling, reuse or disposal in accordance with regulatory requirements. • Use recycled products where possible. • Separate, contain, manage and dispose contaminated waste to prevent migration and further contamination whilst maintaining compliance with regulatory requirements. • Label and store all liquid waste containers in a bunded area prior to removal off-site in accordance with regulatory requirements. • Undertake inspections of the worksite and waste storage areas to ensure litter / debris is regularly cleaned up and contained on site. • Bunding of areas used for fuel and oil and chemical storage in accordance with Australian Standards and regulatory guidelines. • Maintain a waste register. • Locate appropriate waste removal contractor and/or appropriately licenced waste facilities in the area. • Modern and well maintained equipment is to be used to encourage fuel efficiency • Stormwater from roof structures captured for incidental uses. • Minimising generated wastes through recycling and by reusing process residues.	**L6 – Low**	Site Based Environmental Management Plan Regulated Waste Certificate Waste Register Induction Personnel induction and training
		Direct impacts to land, groundwater or surface waters.	**M12 – Moderate**		**L6 – Low**	
		Depletion or sterilisation of non-renewable resources, including water and energy	**M11 – Moderate**		**L6 – Low**	
		Difficult disposal of waste material including hazardous waste.	**M13 – Moderate**		**L6 – Low**	
		Potential leaks and spills of fuels and/or hazardous materials.	**M12 – Moderate**		**L6 – Low**	
		Impact to water quality due to inappropriate solid and/or liquid waste management.	**M12 – Moderate**		**L6 – Low**	
Visual amenity and landscaping	• Clearing of vegetation • Quarrying	Change to landscape character and visual environment as a result of large embankments,	**L5 – Low**	• Retention of existing vegetation and management of natural regeneration to screen potential views of the development.	**L2 – Low**	Site Based Environmental Management Plan

	• Rehabilitation of disturbed land • Removal of visually prominent native vegetation • Evening / night activities	disturbed areas, night activities, removal of vegetation, and access roads.		• Retention of existing vegetation buffer zones - stands of cypress pine, ironbark species around the development area creates an opportunity to retain vegetative buffer zones. • Management of natural regeneration in buffer zones - management of the regeneration requires the removal of grazing, control of weeds and fire management to allow the natural regeneration to occur. • Landscape revegetation will incorporate the surrounding landscape types and vegetation patterns. • Rehabilitation of the disturbed areas to create a natural landscape character post-extraction. • Embankments will be stabilised by the use of appropriate landscape treatments. • Site facilities and areas surrounding them will be kept tidy and be regularly cleaned and maintained. • Monitoring, evaluation and management of landscape revegetation areas including treatment of weeds.		Obtrusive Effects of Outdoor Lighting, Sydney, Australia. Personnel induction
		Visual impacts as a result of extraction activities and ancillary facilities	**L5 – Low**		**L2 – Low**	
		Poor management of revegetation	**L5 – Low**		**L2 – Low**	
		Visual impacts as a result of obtrusive lighting	**L5 – Low**		**L4 - Low**	
Fire	• Clearing of vegetation • Extraction plant and equipment • Handling of chemicals, waste and hazardous goods. • Fuel storage and distribution and waste oil disposal • Maintenance of plant and equipment, servicing and refuelling	Fire damage to plant, equipment or infrastructure	**M9 – Moderate**	• Maintain fire extinguishers in good working condition. All vehicles shall have portable fire extinguishers. • Use incident rainfall contained in excavated areas / sedimentation basin as a water resource in the case of a fire. • Reduce fuel loads around the development area as necessary. The development area will have little to no vegetation. • Rehabilitated areas will have a bare earth area of minimum 10 metres wide around the perimeter to act as a firebreak and for fire fighting access. • Actively suppress fires on-site to protect life and property on the development site and to protect life and property on neighbouring properties. • Adequate fire protection provided for hot work activities. • Develop an Emergency Response Plan and training in relation to bushfire prevention and control and liaise with Emergency Services for assistance with development and planning for bushfire situations. • Precautions taken to ensure staff safety e.g. area evacuated if necessary.	**L5 – Low**	Site Based Environmental Management Plan Refuelling Procedure Spill Response Procedure Personnel induction and training
		Impacts to surrounding properties.	**M11 – Moderate**		**L6 – Low**	
Soils and sediments	• Clearing of vegetation • Extraction activities • Access/haul roads • Handling of chemicals, waste and hazardous goods.	Land disturbance (vegetation clearance, topsoil stripping, stockpile management) causing erosion and degradation of topsoil resources.	**M11 – Moderate**	• Planning strategies will be implemented to ensure unnecessary disturbance of land is avoided. • Areas of pasture, remnant vegetation and remnant habitat not disturbed by extraction activities will be managed to protect their land use value on cessation of operations. • The minimal amount of vegetation (including grass cover) required for activities will be cleared. Disturbance of areas will be limited to only those required for development related activities.	**L6 – Low**	Site Based Environmental Management Plan IECA (2008) Best Practice Erosion and Sediment Control
		Land disturbance resulting in a reduction	**M12 – Moderate**		**M11 – Moderate**	

	• Fuel storage and distribution and waste oil disposal • Maintenance of plant and equipment, servicing and refuelling • Sediment basin management • Rehabilitation of disturbed land • Environmental weed treatment.	in agricultural land capability and suitability, and capacity to support native ecosystems.		• Topsoil and overburden removal will only be carried out as necessary for ongoing operations. • Suitable topsoil will be stripped and stockpiled for future rehabilitation use. • All topsoil stockpiles will be no higher than 1.5 m to retain seed germination potential.		Personnel induction and training Refuelling Procedure
		Erosion of exposed soils causing sedimentation of waterways and aquatic environments.	**M9 – Moderate**	• Topsoil will be stored for the shortest period practicable and/or reused as soon as possible in order to maximise the viability of the seed bank in the topsoil. • Clean water run-off must be diverted around areas of disturbance and into natural watercourses. • Clean and dirty water runoff will be adequately separated to avoid mixing where possible through the use of diversions and clean water drains.	**L4 – Low**	Spill Response Procedure
		Disturbance of contaminated material causing pollution.	**M9 – Moderate**	• Current best practice for erosion and sediment control measures undertaken in accordance with IECA Erosion and Sediment Control Guidelines. • Locate spoil stockpiles, plant and equipment away from stormwater drainage lines in accordance with established criteria. • Sediment control devices will be routinely inspected. Ensure sediment traps are maintained and sediment periodically removed and managed in accordance with good practice. • Design drainage to take all dirty water to a sediment basin. • Rehabilitation and landscaping works of disturbed areas undertaken as soon as practical after the works are completed. • A rumble grid may be provided at the exit from the development site onto public roads to minimise the tracking of soil and particulates onto public roads. • Vehicle movements from site will be minimised during wet weather if the tracking of mud may become an issue. • The storage, handling and use of chemicals and fuels will be in accordance with the Work Health and Safety Act 2000 and Workcover's Storage and Handling of Dangerous Goods Code of Practice (Workcover, 2005) and spill kits available. • All spills and leaks shall be cleaned up immediately using spill kits provided and/or plant. • Ensure the void is geotechnically stable. • The residual void will be rehabilitated to ensure a safe, non-polluting, stable landform that can sustain the agreed landuse. • Cleared vegetation will be used in rehabilitation. • All available topsoil (approximately 200 mm depth) shall be maintained and stored within the resource extraction area to allow respreading to facilitate successful rehabilitation. • Trees felled containing seed will be relocated and dumped strategically so that seed can then settle semi protected by the tree and enabled by the organic matter deposited by the felled tree.	**L4 – Low**	

				• Access roads will remain for use as farm roads, or rehabilitated to a land use similar to the immediately adjacent land use. • All buildings, plant and equipment will be removed and the surface rehabilitated. • Rehabilitate the site to an acceptable post development landscape with natural regeneration of endemic tree, shrub and grass species.		
		Potential acidic leachate from exposure of ASM	**M9 – Moderate**		**L4 – Low**	
		Impact to water quality due to fuels and leaks and inappropriate storage of material.	**M9 – Moderate**		**L4 – Low**	
		Contamination of soils due to spills and leaks and inappropriate storage of hazardous material.	**M9 – Moderate**		**L4 – Low**	

Appendix A4 – Environmental commitment

RA & AJ Brown and Kooroon Ag Pty Ltd are committed to protect the environment by reducing the present and future environmental risks of activities associated with the operation of Heather Pit.

This means that we are committed to:

Sustainable development

Integrate environmental management into our planning and decision-making processes, to ensure sustainability and minimum impact on the environment.

Pollution prevention

Conduct our operations in a manner that prevents pollution, conserves resources, and proactively addresses past environmental contamination (if any).

Legal compliance

Ensure our operations comply with applicable environmental regulations and requirements and licence conditions.

Employee involvement

Foster environmental responsibility among our employees to be responsible environmental stewards through recycling, conserving resources and ultimately eliminating waste and the environmental risks of our business operations.

Continual improvement

Regularly measure our performance, and practice continual improvement.

Training

All staff involved in the operation of the Development are adequately trained in relevant operational issues and relevant training and education are undertaken.

Signed: _____ Date: _____

Position: _____

Appendix A5 – Obligations, Roles, Responsibilities and Authority

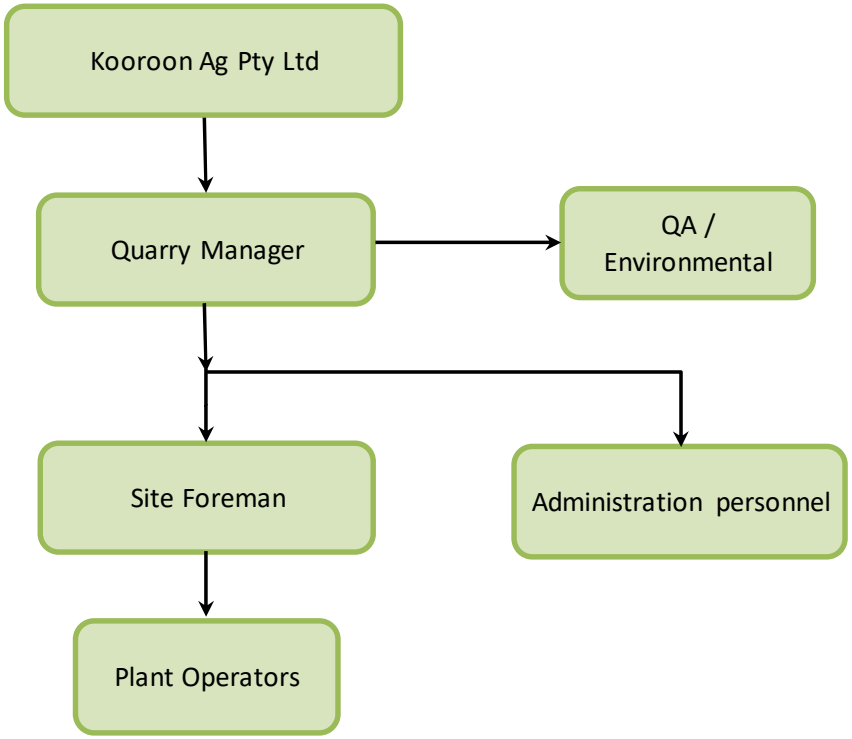


Figure A6.1 – Kooroon Ag Pty Ltd management structure (Heather Pit)

Table 15 – Development personnel key environmental responsibilities (Operational phase)

Roles	Responsibilities	Authority	Accountability
Director	Plan, implement and oversee day to day running of overall operation within business, QA and health and safety. Prepare and monitor budgets including capital expenditure and operational costs. Plan and oversee improvement and development programs for business in a manner that avoids or minimises impact on the environment. Endorse and support the Company's environmental commitment attached at Appendix A4 – Environmental commitment. Liaise with customers, suppliers and industry stakeholders. Ensure all Development activities comply with relevant regulatory and Development requirements. Ensure the requirements of the SBEMP are fully implemented, and in particular, that environmental requirements are not secondary to other operation requirements. Liaise with relevant stakeholders as required. Participate and provide guidance in the regular review of this SBEMP and supporting documentation. Ensure that all Development personnel receive appropriate induction training, including details of the environmental requirements. Ensure that complaints are investigated to ensure effective resolution. Stop any activity immediately where material or serious environmental harm from pollution is caused or threatened. Coordinate action in emergency situations and allocate required resources.	Stop work within the immediate vicinity of a major environmental incident or significant non-compliance with approval conditions and/or environmental authority. Direct implementation of environmental protection measures within the Development site.	Director Kooroon Ag Pty Ltd

Quarry Manager	Formulate strategic and operational objectives. Provide leadership & supervision for personnel. Ensure equipment and assets are utilised in an efficient, cost effective, safe and professional manner. Schedule work to maximise plant and resource utilisation. Ensure accurate project records and cost reports are kept up to date and issued for review. Ensure plant and equipment is operationally ready for upcoming and future works. Maintain detailed activity logs, inspection & test plans and costings on all projects. Assist with regular and preventative audits on operational process, procedures and safety governance, in accordance with company policy, regulatory and legal compliance. Lead and apply work health and safety requirements, policies and procedures in all aspects of the company's operations and works delivery program. Complete project cost analysis reporting and use key financial data to formulate performance strategies that will improve safety, quality and profitability on all future works undertaken and quotations issued. Liaise with Supervisors and Leading-hands to plan and develop project schedules for the successful delivery of the works program. Set and develop project specific Key Performance Indicators (KPI's), in meeting with contractual and commercial requirements. Ensure personnel are aware and are complying with correct WHS practices and the appropriate use of PPE at all times. Recruitment and training of operators and truck drivers in conjunction with the management team. Oversee all project operations including some field work when required. Ensure staff receive adequate training to operate the equipment required to conduct their role efficiently and safely. Assist in prestart/toolbox meetings and for staff training when required. Manage budgets and forecasts and provide management with a monthly revenue forecast of the works program in advance to assist management in expenditure/cash-flow forecasting & external stakeholder reporting requirements. Develop and maintain external stakeholder relations to grow and embed industry best customer relations. Recruit, train, supervise and mentor operational staff where required. Report any activity where material or serious environmental harm from pollution is caused or threatened and advise the Director Undertake regular task observations to check compliance with relevant procedures. Coordinate action in emergency situations and allocate required resources.	Stop work within the immediate vicinity of a major environmental incident or significant non-compliance with approval conditions and/or environmental authority. Direct implementation of environmental protection measures within the Development site.	Director
Site Foreman	Liaising with the Quarry Manager to provide direction and support to work crews so as to achieve project specific milestones, contractual obligations and maximise productivity and efficiency.	Stop work within the immediate vicinity of a major environmental incident or significant non-compliance with approval	Quarry Manager

	Assist with the co-ordination, management and scheduling of particular activities to ensure that equipment and resources are efficiently utilised to meet production outcomes, commercial and financial key performance indicators. Liaise with external stakeholders to develop, maintain and grow strong relationships and ensure exceptional customer service and delivery of works. Attend meetings with key stakeholders to actively value add to the Company's continual improvement and innovation strategies, ensuring to minimise waste within process or construction methodology's and maximise safety, quality and productivity best outcomes. Ability to read and interpret plans and drawings, intermediate computer skills and excellent organizational and communication skills Apply exceptional safety, process and procedural governance in accordance with company policy, plans, procedures and external legislation, regulation, compliance standards. Supervise and instruct the construction team (work crew & subcontractors) in meeting project specific milestones, safety regulations and minimise/eliminate potential safety hazards. Plan and direct extraction activities in a manner that avoids or minimises impact to environment. Stop any activity immediately where material or serious environmental harm from pollution is caused or threatened. Report any activity where material or serious environmental harm from pollution is caused or threatened and advise the Quarry Manager. Undertake regular task observations to check compliance with relevant procedures. Coordinate action in emergency situations and allocate required resources.	conditions and/or environmental authority. Direct implementation of environmental protection measures within project .	
Other Development Personnel including sub-contractors	Comply with the relevant requirements of the SBEMP, or other environmental management guidance as instructed by a member of the Development's management. Participate in the mandatory Development/site induction program. Report any environmental incidents to the line manager immediately or as soon as practicable if reasonable steps can be adopted to control the incident. Undertake remedial action as required to ensure environmental controls are maintained in good working order. Stop activities where there is an actual or immediate risk of harm to the environment and advise their line manager or Quarry Manager.	Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to their line manager or Operations Manager.	Site Foreman

Appendix A6 – Environmental procedures

SBEMP SOP 1 – Staff environmental induction, training and awareness

Aspect	Staff environmental induction, training and awareness
Objectives	To implement a staff environmental induction, training and awareness to ensure that new and existing personnel are adequately trained to perform the tasks assigned to them without leading to environmental or personal harm.
Potential Impacts	Occupational health and safety of employees and contractors. Receiving environment such as surface water and aquatic and terrestrial ecosystems affected by pollution events. Community amenity and health.
Control Actions	Training of employees to enable them to fulfil their duties in a competent manner and consistent with the aims of the environmental policy and environmental management system. Ensure that all staff are aware of their responsibilities in general environmental management. Provide staff training as required internally and allow for appropriate external environmental courses, seminars or workshops are available. Ensure that sub-contractors working on site have the necessary experience and competence with regard to environment and health & safety issues.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Non-compliance record. Incident reporting form
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Ensure all personnel are adequately trained with respect to the environmental management system and emergency preparedness. No non-compliances with CoA. No adverse impacts to environmental values.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Review staff training program.

SBEMP SOP 2 – Stormwater, Erosion and Sediment Control

Aspect	Stormwater, erosion and sediment control
Objectives	To minimise the amount of contaminated stormwater runoff generated by the site. To control on-site erosion and minimise sediment build up. To prevent contaminated stormwater from leaving the site
Potential Impacts	Dispersal of stormwater runoff causing erosion, degradation of topsoil resources and deposition of sediments to internal and external drainage lines. Potential land degradation. Potential land and waterway contamination.
Control Actions	Implement best practice for erosion and sediment control measures. Effectively divert clean stormwater around the disturbed area; Minimise topsoil exposure and protect topsoil stockpiles; Minimise the size of disturbed areas; Minimise runoff velocity to prevent scouring; Carry out staged excavations and progressively rehabilitate if practicable; Topsoil to be campaign stripped, stockpiled and re-used for rehabilitation as soon as practicable Install contour banks on open slopes and place rock bars along drainage channels; In extreme rainfall events temporary sediment control measures will be implemented in areas to reduce the impact on the receiving environment.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Non-compliance record. Incident/Hazard reporting record.
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Erosion control measures installed and/or maintained prior to each rain event; No erosion No sediment build-up in sedimentation basins
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Regularly inspecting and maintaining all settling ponds and sediment basins. Revise site drainage. Revise erosion and sediment control measures. Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist

SBEMP SOP 3 – Air quality management

Aspect	Air quality (fine particulate matter)
Objectives	To minimise the impact of nuisance air emissions (visible dust and nuisance dust) to the receiving environment.
Potential Impacts	Occupational health and safety of employees and contractors. Receiving environment such as surface water and aquatic and terrestrial ecosystems affected by air emissions. Community amenity and health.
Control Actions	Keep to a minimum the area of land disturbed for operational purposes at any one time. When a disturbed area is no longer to be used, revegetate it as soon as practicable. Restrict the speed of vehicles operating within the site. Maintain sufficient storage of stormwater for use as dust suppression for access road and stockpiles, particularly during the dry season. Ensure all road trucks have tarped loads. Install and maintain dust suppression on machinery if fitted. Keep unsealed internal roads and loading areas moist when in use to minimise vehicle-generated dust. Regulate gravel production to avoid excessive product stockpiling. Appropriate exhaust systems to be installed and maintained on all combustion engines to prevent particulate emissions Monitor the prevailing wind direction and prepare to implement additional mitigation measures if unfavourable wind is observed. Assess visual air pollution generated by the project regularly and if necessary to minimise air quality impacts on private land, operations are to be modified, relocated or stopped as required while adverse climatic conditions prevail.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Non-compliance record. Incident/Hazard reporting record.
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	No complaints of dust nuisance from neighbouring residences. Deposited dust within specified regulatory limits when monitoring requested. No non-compliances with CoA. No adverse impacts to environmental values.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist

SBEMP SOP 4 – Noise and vibration management

Aspect	Noise and vibration
Objectives	To minimise the impact of nuisance noise and vibration on sensitive receptors. To ensure vibration generated by the development does not exceed regulatory limits at sensitive receptors.
Potential Impacts	Occupational health and safety of employees and contractors. Community amenity and health.
Control Actions	Equipment will be managed, operated and maintained in accordance with Original Equipment Manufacturers (OEM) specifications to minimise noise and vibration. All equipment used on-sites to be fitted with appropriate silencing equipment (i.e. mufflers). Regular preventative maintenance will be performed on mobile equipment to reduce unnecessary vibrations and rattles. Adhere to approved hours of operation and days. Maintain site access road and internal roads regularly. Only broadband reversing beepers or similar will be installed and used on all earthmoving equipment. Maintain a noise complaint register and operate during work hours a telephone complaints line. Instruct all staff on the appropriate handling of noise complaints. Adherence to speed limits on the sites. Investigate all non-vexatious noise complaints expeditiously and respond to the complainant.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Non-compliance record. Incident/Hazard reporting record
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Receive no complaints from neighbouring residences in relation to nuisance noise emissions. Keep below any regulatory noise or vibration limits imposed on the development. No non-compliances with CoA.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist

SBEMP SOP 5 – Pest management

Aspect	Pest management
Objectives	To effectively manage existing declared weed species on the site. To prevent further introduction and spread of declared weed species and feral animals.
Potential Impacts	The introduction or spread of pest species. Loss of habitat for local flora species.
Control Actions	Regular inspections of the development site to identify existing infestations of declared weed species. Regular inspections of the development site will occur to identify any feral animals. Regular spraying programs will be used to reduce the extent of existing declared weeds on site. Site personnel will be briefed on the proper recognition of declared weed species known to occur in the area. Only vehicles that are not from known weed areas will enter the site. Prior to arriving on site, all plant and equipment will have been effectively washed down and have a weed hygiene declaration certificate. Putrescible waste (e.g. food scraps etc) will be managed appropriately to ensure that it does not provide a food source for or attract feral animals. Feral animal numbers will be reduced or maintained below a level that they can impact on existing fauna. Appropriate putrescibles waste disposal facilities will be supplied in all work areas.
Relevant Standards, Management Plans, Records	Non-compliance record. No non-compliances with CoA.
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	No nuisance from declared pests. No new weed species introduced on site.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	If new declared weeds are located on site, the area will be assessed and treated, if necessary, by hand pulling individual plants or by boom or spot spraying, prior to any earthmoving equipment entering the area If feral animals are increasing in number at the site appropriate control measures will be implemented. If new feral animals are located on site, the area will be assessed and appropriate controls implemented.

SBEMP SOP 6 – Traffic management

Aspect	Traffic and transport management
Objectives	To protect the safety, health and wellbeing of project employees, visitors and the community using State and local road networks. To safely manage on-site traffic flow to reduce the interaction between light and heavy vehicles. To safely transport material from the site via the designated transport routes.
Potential Impacts	Occupational health and safety of employees, contractors and community.
Control Actions	Provide safe and clear roadways around the site to avoid, where possible, the interaction between heavy vehicles and light vehicles. Install appropriate signage along the roadways to provide direction. Comply with speed restrictions and/or drive to conditions. All vehicles carrying materials from the sites must be loaded and transported in a manner that prevents spillage of materials onto a public road. Operations and transport of materials will be carried out strictly within the approved hours of operation and days. Confine heavy vehicles to designated routes and designated times and improve safety at the site exit. Maintain on-site roads to an acceptable standard through regular maintenance. Provide an appropriate treatment to the site entrance off Runnymede Road as per CoA. All incidents and accidents to be reported. As they enter or leave the site, haul truck drivers to notify site of any road hazards they encounter or observe.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Incident/Hazard reporting record.
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	No accidents or incidents involving site vehicles on the internal or external road network.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist

SBEMP SOP 7 – Bushfire management

Aspect	Bushfire management
Objectives	To minimise the potential for spread of bushfires on site. To protect people and property from bushfire impacts. To minimise potential impacts from bushfires on local flora and fauna.
Potential Impacts	Harm and loss of life. Damage to property and equipment. Damage to land, ecosystems and agricultural enterprises
Control Actions	Ensure all staff on-site and other personnel are aware of evacuation procedures and the location and the use of firefighting equipment. Have mobile fire fighting equipment available and maintained in good working condition by testing every six months and ensure continued access to water. Maintain fire extinguishers in good working condition. All construction vehicles shall have portable fire extinguishers. Use incident rainfall contained in excavated pit and sedimentation basin as a water resource in the case of a bushfire. Reduce fuel loads by slashing the area around the development site as necessary to reduce fuel loads. Rehabilitated areas will have a bare earth area of minimum two metres wide around the perimeter to act as a firebreak and for fire fighting access. Actively suppress fires on-site to protect life and property on the site and to protect life and property on neighbouring properties. Develop an Emergency Response Plan and training in relation to bushfire prevention and control and liaise with Emergency Services for assistance with development and planning for bushfire situations. Regularly review and update the site evacuation procedures. Ensure regular surveillance of the site, to ensure access roads, fire trails and the edges of the operational area are maintained. All employees will be responsible for the identification and giving alarm of fires on-site or adjacent bush fires off-site. Monitor the site, conditions, and situation in order to evaluate changes occurring on or off site, e.g., changes in infrastructure, risks and hazards, legislative and environmental changes. Maintain firebreaks in accordance with the allowable widths prescribed under the relevant legislation Consult with adjacent landowners and fire services for implementing fire control management on-site in accordance with district/area fire control plans. Keep relevant agencies contact numbers in the event of a fire, namely the Rural Fire service. Should emergency fire services be required, dial ‘000’ or ‘112’ from a mobile.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Incident/Hazard reporting record.

	Acceptable vegetation clearing codes
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Management of the site does not exacerbate spread of bushfires. No fire outbreaks from the site.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Upgrade/maintain fire prevention works. Repair faulty equipment.

SBEMP SOP 8 – Waste management

Aspect	Waste management
Objectives	To appropriately store, handle and dispose of waste. Actively minimise waste generated in everyday operations and promote recycling where possible.
Potential Impacts	Occupational health and safety of employees and contractors. Receiving environment such as air quality, water (surface and groundwater) quality, soil quality and visual amenity of the site, aquatic and terrestrial ecosystems affected by pollution events. Community amenity and health.
Control Actions	Collected waste transferred to a licenced waste disposal site by a licenced waste disposal contractor. Store non-hazardous waste in stockpiles or suitable containers at designated waste locations on site until off-site disposal can be arranged. Any bulk waste stored on site must be appropriately bunded to ensure no contamination occurs; Hazardous wastes (oils, chemicals etc) should be managed in accordance with relevant regulatory requirements, refer to the MSDS for more information; Soil contamination to be appropriately managed to prevent health risks to personnel.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Incident/Hazard reporting record.
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	No land contamination by waste Effectively re-use or recycle suitable waste generated on site Site maintained in a clean and tidy manner No adverse impacts to environmental values from waste management.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Log of waste transferred to licenced waste disposal site. Reduce the risk of land contamination from waste generated on site.

SBEMP SOP 9 – Rehabilitation management

Aspect	Rehabilitation
Objectives	To minimise the ongoing impact of quarry operations by implementing an effective rehabilitation management strategy and successfully rehabilitate the land to its final land use after completion of operations
Potential Impacts	Occupational health and safety of employees and contractors. Unacceptable visual amenity after cessation of activities. Erosion and degradation of topsoil resources. Reduction in the site's capacity to support native ecosystems.
Control Actions	Maintain topsoil stockpiles and the inherent seed bank to ensure they are suitable for re-use during rehabilitation.; Batter terminal slopes in the pit to suit the final use. Restrict unauthorised entry (install fence) to any long term site water storage. Undertake appropriate rehabilitation by ripping and placing topsoil on site areas where the earth has been compacted by heavy vehicle movements (stockpile area and site roads). Re-contour waste/overburden stockpiles to suit the natural landform and encourage revegetation appropriately.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness record. Non-compliance record. Incident
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Rehabilitate the site to suit the final land use; Progressively rehabilitate to ensure the disturbed area is minimised. No non-compliances with CoA. No adverse impacts to environmental values.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Investigations undertaken and corrective actions implemented as a result of a non-conformance will be documented within the Environmental Audit Checklist.

SBEMP SOP 10 – Environmental emergency preparedness and response

Aspect	Environmental emergency preparedness and response
Objectives	To implement a mechanism to contain and control an emergency incident to minimise the effects on personnel, equipment and the environment.
Potential Impacts	Occupational health and safety of employees and contractors. Receiving environment such as air quality, water (surface and groundwater) quality, soil quality and visual amenity of the site, aquatic and terrestrial ecosystems affected by pollution events. Community amenity and health.
Control Actions	All emergency scenarios relating to the Development will be identified and documented through the emergency response instruction. All significant emergency scenarios will be assessed in consultation with employees in the environmental induction and toolbox meeting. **Medical Emergency** • First Aid Officer to initiate usual first aid procedures. • Make sure the injured person is as comfortable as possible without moving them until the ambulance arrives. • The First Aid Officer is in charge of the casualty until the emergency services arrive. **Fire Emergency** • Contact the emergency services on "000" if required. • Use fire extinguisher to contain fire only if safe to do so. • Move all site personal to a safe area and await fire brigade. **Environmental Emergency Response** • In the event of a Spill or contamination of product causing reaction. • Assess damage/injury……contain spill if safe to do so. • Evacuate the area if necessary and await emergency services. **Emergency Service Contacts** • Emergency services contacts will be displayed near all phones. **Material/Product Spill** Hazardous material/dangerous good spills may occur on sites. • In the event that a hazardous material/dangerous good is spilt the Operations Manager must be contacted immediately. • Attempt to clean up spill with spill kit, only if safe to do so.
Relevant Standards, Management Plans, Records	Personnel induction, training and awareness. Non-compliance Record. Corrective Action Report.
Responsibility	As required by the specific requirements outlined in section 5.2..

Performance Indicators	No adverse impacts to environmental values.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Recommendations for safety improvements and changes to the emergency response instruction will be actioned via the specific requirements outlined in section 10.5.

SBEMP SOP 11 – Environmental compliance monitoring

Aspect	Environmental compliance monitoring
Objectives	To implement a defined monitoring programme to obtain data for verification of environmental performance in accordance with the CoA.
Potential Impacts	Occupational health and safety of employees and contractors. Receiving environment such as air quality, water (surface and groundwater) quality, soil quality and visual amenity of the site, aquatic and terrestrial ecosystems affected by pollution events. Community amenity and health.
Control Actions	Develop and implement an appropriate monitoring program for environmental parameters in accordance with this Plan and sub-plans as a verification measure for preventive controls. Undertake routine environmental monitoring from the relevant monitoring points in accordance with the CoA. Collect, analyse and interpret environmental monitoring data in a standardised and technically sound manner. Review and evaluate the environmental monitoring program and results for compliance with CoA. Regular liaison with the DETSI on efficacy of the monitoring program and sustainability indicators. Develop and implement a corrective action plan before impacts to the receiving environment.
Relevant Standards, Management Plans, Records	CoA Personnel induction, training and awareness. Environmental data records
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	Ensure all personnel responsible for monitoring are adequately trained. No non-compliances with CoA. No adverse impacts to environmental values.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Review environmental monitoring program. Seek specialist advice where a significant level of environmental risk or impact is identified with environmental indicators of sustainability.

SBEMP SOP 12 – Environmental compliance reporting

Aspect	Environmental compliance reporting
Objectives	To implement a routine reporting system that provides accurate, reliable and timely environmental information in accordance with the CoA.
Potential Impacts	Non-compliance with CoA.
Control Actions	Develop and implement an appropriate reporting program for the assessment of the environmental management of the Development. Prepare and submit to the CEO of the Department administering the Environmental Protection Act 1994 an Annual Return on the anniversary date every year. No false or misleading environmental monitoring data in a material respect is reported.
Relevant Standards, Management Plans, Records	CoA Annual Return Personnel induction, training and awareness Non-compliance Record Corrective Action Report
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	An Annual Return is submitted each year.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Review environmental reporting program.

SBEMP SOP 13 – Environmental records management

Aspect	Environmental management records
Objectives	To implement an environmental records management system that meets minimum requirements for CoA.
Potential Impacts	Non-compliance with CoA.
Control Actions	Establish and maintain an effective and efficient environmental records management system to ensure the creation and capture of environmental records. To ensure sensitive information is managed appropriately. Apply sound records management practices including an appropriate governance framework to assist in effectively managing records.
Relevant Standards, Management Plans, Records	CoA Personnel induction, training and awareness
Responsibility	As required by the specific requirements outlined in section 5.2.
Performance Indicators	No non-compliances with CoA.
Monitoring	As required by the specific requirements outlined in section 10.2.
Reporting	As required by the specific requirements outlined in section 10.4.
Corrective Actions	Review environmental records management system.

Appendix A7 – Environmental forms, checklists and registers

Form 1 – Induction and training record

Date	Induction and/or training content	Trainer name	Signature	Attendee name	Signature

Form 2 – Development Visitor Log

Date	Name	Company	Contact number	Time in	Time out	Purpose of visit	Signed

Form 4 – Complaints register

Time / Date	Method of communication and complainant name	Complainants contact details	Details of complaint	Action taken	Responsible person	Signature	Statutory authority notified (Y/N)

Form 5 – Site inspection record

Time / Date	Inspection person	Problem description	Action taken	Requirement/ Recommendation for changes to SBEMP	Signature of responsible person

Form 6 – Non-compliance record

Time / Date	Inspection officer	Compliance problem description	Corrective actions taken	Recommendation for changes to SBEMP	Signature

Form 6 – Incident reporting form

Date: _____

Reported by: _____

Site location: _____

Incident description: _____

What happened: _____

_____

_____

Why: _____

_____

Incident date and time: _____

Where: _____

Actual and/or potential impact on off-site people and environment: _____

_____

Authorities informed: _____

Manager informed and when: _____

Action taken / planned: _____

_____

_____

Name: _____

Signature: _____

Manager comment: _____

_____

_____

Manager signature: _____

Appendix L– Traffic and Pavement Impact Assessment

Traffic and Pavement Impact Assessment for Extractive Industry (Gravel pit) on the property “Heather”

“Heather”
Fernlee Road
BOLLON QLD 4488



RA & AJ Brown
965 Fernlee Road
BOLLON QLD 4488

[November 2025]

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V1R1	31/10/2025	Draft for client review	Rod Davis	Rod Davis	Rod Davis
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Executive summary

The Brown family own and operate a cattle, rangeland goat and dryland cropping enterprise in the Westmar and Bollon areas of Queensland trading as Kooroon Ag Pty Ltd.

The supply chain model includes cattle grazing, rangeland goat and cropping operations. The cattle and rangeland goat grazing operations are centred on the property "Heather" in the Bollon region located some 8 km by road southwest of Bollon and 121 km by road west of St Geroge.

The property "Heather" comprises several land parcels totalling some 12,342 ha (~30,485 acres) in area and is located within the Balonne Shire Council. Cattle breeding and growing is currently undertaken on the property alongside rangeland goat production.

"Heather" is located on the open poplar box plains between Mungallala Creek and Wallam Creek comprising flat red loamy soil and black melon hole country. The majority of the property is not subject to flooding. The typical vegetation on the property consists of remnant poplar box, coolabah, mulga and sandalwood and native (Astrebla spp. Mitchell grass) and introduced pasture species (buffel).

There are few extractive industries within the Bollon / St George region as a result of the geology and geomorphological process of the area. Currently, there are hard rock quarries around Mitchell and north of Roma and several gravel pits containing deposits of deeply weathered rocks of sedimentary origin.

Whilst, the Bollon region is predominantly an agricultural area, there is demand for construction materials for local road maintenance, private development and the wider region is experiencing growth in the renewable energy exploration and development sector which is being driven by Queensland's renewable energy sector through programs such as the Queensland Energy and Jobs Plan.

RA & AJ Brown wish to establish a gravel pit on one land parcel of "Heather" which comprises an area of 8,056.89 ha (~19,900 acres) where deposits of deeply weathered pallic coloured sediments of sandstone, siltstone and mud rock outcrop. The gravel pit shall co-exist with the existing agricultural enterprises on the property.

This Traffic and Pavement Impact Assessment (TPIA) has been prepared as part of supporting information for the assessment of the proposed development by Balonne Shire Council.

The traffic impact assessment determined that no geometric upgrades are recommended within the unsealed section of Runnymede Road as the minimum standard and existing road order classification commensurate with existing and proposed traffic volumes are met. The segment of Runnymede Road which shall be impacted by the proposed development is a minimum of 4 m pavement width on an 6-7 m formation.

No intersection upgrades to the local road network would be warranted due to the low additional volume of development traffic and intersection geometry is able to accommodate the largest vehicle proposed to access the site.

The following mitigation measures are proposed:

- Access for light and heavy vehicles be maintained via the proposed subject land entrance off Runnymede Road approximately 7.4 km south of the intersection with Fernlee Road to provide sufficient sight distances to and from the intersection.
- Advisory signage (Truck crossing or entering) be implemented on each approach to the development site entrance in accordance with AS1742.2 to advise motorists of truck turning movements.

In conclusion, the proposed development will not adversely impact on the operational performance of the surrounding road network and the proposed road access arrangements are considered adequate and suitable for the proposed use.

1 Background

1.1 Introduction

The Brown family own and operate a cattle, rangeland goat and dryland cropping enterprise in the Westmar and Bollon areas of Queensland trading as Kooroon Ag Pty Ltd.

The supply chain model includes cattle grazing, rangeland goat and cropping operations. The cattle and rangeland goat grazing operations are centred on the property "Heather" in the Bollon region located some 8 km by road southwest of Bollon and 121 km by road west of St Geroge.

The property "Heather" comprises several land parcels totalling some 12,342 ha (~30,485 acres) in area and is located within the Balonne Shire Council. Cattle breeding and growing is currently undertaken on the property alongside rangeland goat production.

"Heather" is located on the open poplar box plains between Mungallala Creek and Wallam Creek comprising flat red loamy soil and black melon hole country. The majority of the property is not subject to flooding. The typical vegetation on the property consists of remnant poplar box, coolabah, mulga and sandalwood and native (Astrebla spp. Mitchell grass) and introduced pasture species (buffel). The land is in the Condamine Balonne drainage basin.

For part of its length, Mungalalla Creek forms the western boundary of the land parcel on which the extractive industry shall be developed.

There are few extractive industries within the St George / Bollon region as a result of the geology and geomorphological process of the area. Currently, there are no hard rock basalt quarries, no naturally occurring aggregates (ridge gravels, pea-gravels, ironstone cobbles) or duri-crust materials (silcrete, calcrete, ferricrete of other forms of lateritic materials). There are several scattered gravel pits containing soft non-durable rocks (white rocks and mud rocks).

Whilst, the Bollon region is predominantly an agricultural area, there is demand for construction materials for local road maintenance and private development and in the renewable energy exploration and development sector which is experiencing rapid growth in the region as a result of Queensland's renewable energy sector through programs such as the Queensland Energy and Jobs Plan.

RA & AJ Brown wish to establish a gravel pit on one land parcel of "Heather" which comprises an area of 8,056.89 ha (~19,900 acres) where deposits of deeply weathered pallic coloured sediments of sandstone, siltstone and mud rock outcrop on a low rise. The gravel pit shall co-exist with the existing agricultural enterprises on the property.

Consequently, the establishment of a gravel pit on "Heather" involves a material increase in the intensity or scale of the existing use on the subject land and accordingly comprises a Material Change of Use pursuant to Schedule 2 of the *Planning Act 2016.*

The proposed development is defined as "Extractive industry" under the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024) and is a consistent use and impact assessable development within the subject land's land use zoning (Rural zone). Consequently, a development permit for Material Change of Use is required to authorise the establishment and operation of the proposed development on the subject land.

RDC Engineers Pty Ltd has been commissioned by RA & AJ Brown to provide a Traffic Impact Assessment report for the proposed development.

The key deliverable is to determine the impact and mitigation treatments (if any) required for the external road network.

1.1.1 Scope

The objective of this report is to understand the traffic and transport issues associated with the proposed establishment and operation of a gravel pit on the property "Heather". The report will form part of the Development Application (DA) for the proposed development and provides the Balonne Shire Council and the DTMR the opportunity to adequately consider any traffic or transport related impacts.

Based on our understanding of the site and of RA & AJ Brown requirements, RDC Engineers Pty Ltd has been engaged to undertake the following tasks to complete this assessment:

- Review the existing road network to understand the current road connections and conditions. Estimate the traffic generation of the site based on the proposed development and activities;
- Estimate the traffic distribution onto the surrounding road network;
- Provide engineering advice on access arrangements into the site and geometric requirements including upgrade requirements (if any) to adjacent roads and intersections.
- Assessment of the impact of the additional trips generated from the development on the local road network; and
- Analysis of the impact of the development on the road network for the year of opening and the design horizon.

1.1.2 References and guidelines

In preparing this report, references are made to the following traffic engineering and council sources:

- Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, (Austroads, 2021);
- Guide to Road Design Part 3: Geometric Design (Austroads, 2021);
- Balonne Shire planning Scheme 2024 (Balonne Shire Council, 2024);
- Balonne Shire Council – Transport Service Asset Management Plan (Balonne Shire Council, 2024);

- Road Planning and Design Manual 2018 (Department of Transport and Main Roads, 2018);
- Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management, (Austroads, 2020);
- Guide to Traffic Engineering Practice – Part 5 – Intersections at Grade (Austroads, 2009);
- Road Planning and Design Manual – Chapter 13, Intersections at grade (Department of Main Roads, 2006);
- Manual of Uniform Traffic Control Devices- Part 2 Traffic Control Devices for General Use – (Department of Transport and Main Roads, 2003); and
- Guide to Traffic Generating Developments, Versions 2.2, (RTA, 2002)
- Guideline: Guide to Traffic Impact Assessment (Department of Transport and Main Roads, 2018).
- Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment (Department of Transport and Main Roads, 2018)
- The Lower Order Road Design Guidelines, Institute of Public Works Engineering Australasia, Queensland (IPWEAQ, 2016)

This report has been prepared by Rod Davis (FIEAust, CPEng, RPEQ#20256, CPESC).

2 Site and locality

2.1 Subject land

The subject land on which the proposed development is to be located forms part of the property known as "Heather". "Heather" is located on Fernlee Road, Bollon approximately 8 km by road southwest of Bollon and 121 km by road west of St George.

The subject land has primary frontage to Runnymede Road (unsealed) of approximately 7.5 km in length. The subject land has secondary frontage to Fernlee Road (sealed) of approximately 3.2 km in length.

Runnymede Road is an unsealed road which bisects the western area of the subject land. Runnymede Road intersects with Fernlee Road some 7.4 km north of the southern boundary of the subject land. Runnymede Road runs in a southerly direction from Fernlee Road for about 53 km to provide access to rural properties and connection to Woolerina Road.

Fernlee Road is a local controlled road. Fernlee Road terminates with the Balonne Highway some 16.5 km northeast of the intersection with Runnymede Road.

Figure 1 is a locality plan highlighting the subject land to roads and the nearby townships of Bollon and St George.

2.1.1 Real property description

The subject land comprises one (1) cadastral portion separated in part by land designated as roads. The subject land is known as the property "Heather". The real property description of the subject land is provided in Table 1. The total area of the subject land is approximately 8,056.89 ha (~19,900 acres). The subject land is in the Balonne Shire Council (BSC) local government area. Figure 2 is a cadastral plan highlighting the cadastral parcels that comprise the subject land.

Table 1 – Subject land – Real property description

Property name	Lot No.	Plan No.	Easements	County	Parish	Area* ha
"Heather"	5	BEL53167	Nil	Belmore	Mona	8,056.886

*From Queensland Digital Cadastral Database

2.1.1.1 Easement

The subject land does not contain any easements as shown on Figure 2.

2.1.1.2 Land designated as road

The subject land contains land designated as road under the Land Act 1994 as shown in Figure 2. Land designated as road bisects the subject land into three areas and runs in a south westerly direction across the northwest corner and south along the western boundary. The Land designated as road contains the formed and named roads of Fernlee Road which runs through the northwest corner and Runnymede Road which bisects the western area of the subject land.

The parcels of land adjoining land designated as road on the subject land is shown in Table 2 and Figure 2.

Table 2 – Subject land – Land designated as road

Property name	Road boundary adjoining parcel		Opposite road boundary adjoining parcel		Designation
	Lot No.	Plan No.	Lot No	Plan No	
"Heather"	5	BEL53167	5	BEL53167	Fernlee Road
"Heather"	5	BEL53167	5	BEL53167	Runnymede Road

2.1.1.3 Stock route

The subject land does not contain any easements as shown on Figure 2 and listed on the Certificate of Title for Lot 5 BEL53167 (Appendix B).

2.1.1.4 Tenure

The subject land is owned by Robert Alexander Brown and Amy Jeanine Brown as tenants in common in freehold land tenure.

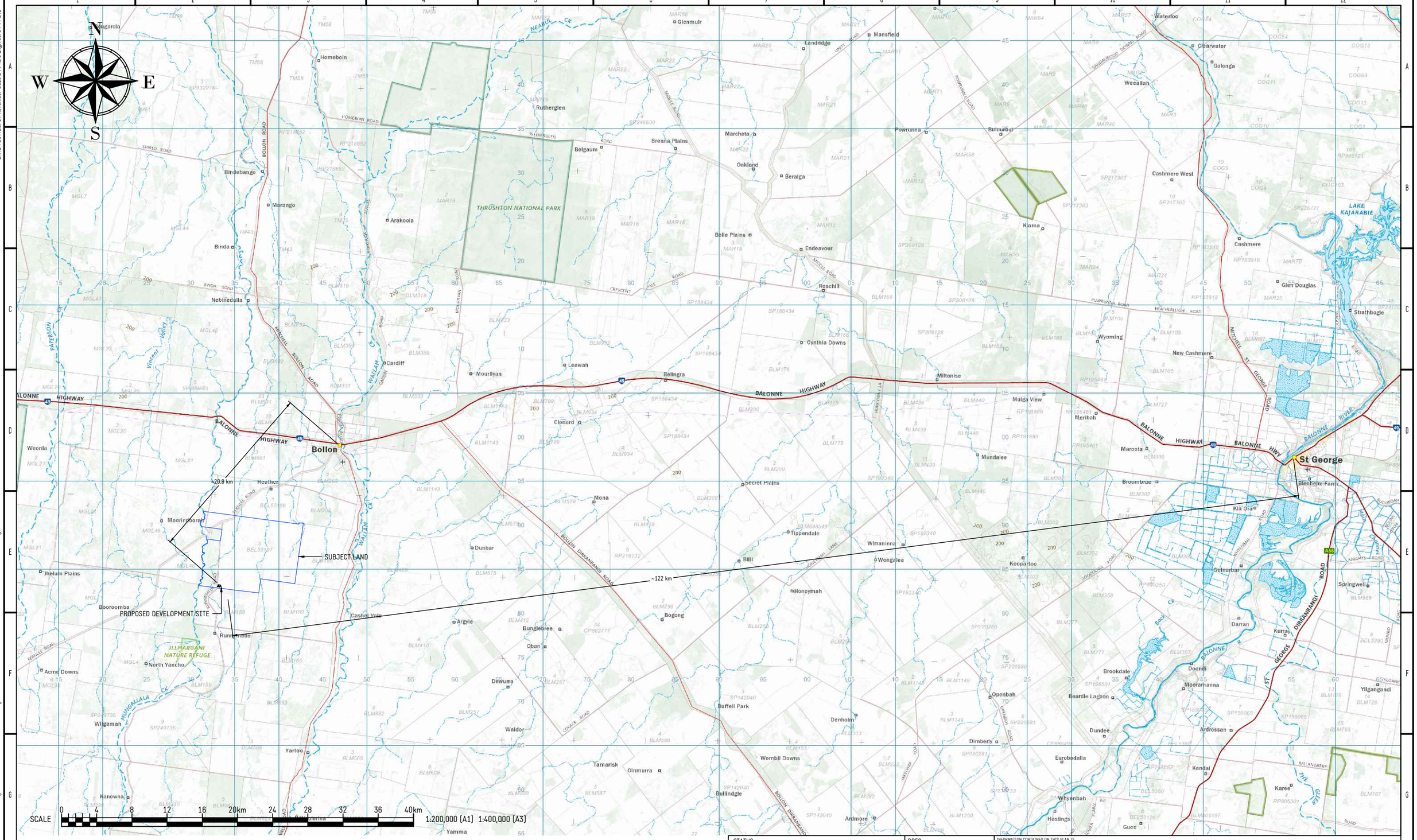
2.1.1.5 Landuse and zoning

The proposed development falls within the Rural zone of the *Balonne Shire Planning Scheme (Version 2)* (Balonne Shire Council, 2024). The anticipated traffic growth rate of the surrounding area is considered to be relatively low.

2.1.1.6 Road network

The subject land has frontage to Runnymede Road which is a local controlled road. Runnymede Road is about 53 km long and intersects with Fernlee Road some 7.4 km north of the existing subject land entrance.

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Legend

- SUBJECT LAND BOUNDARY

Notes

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

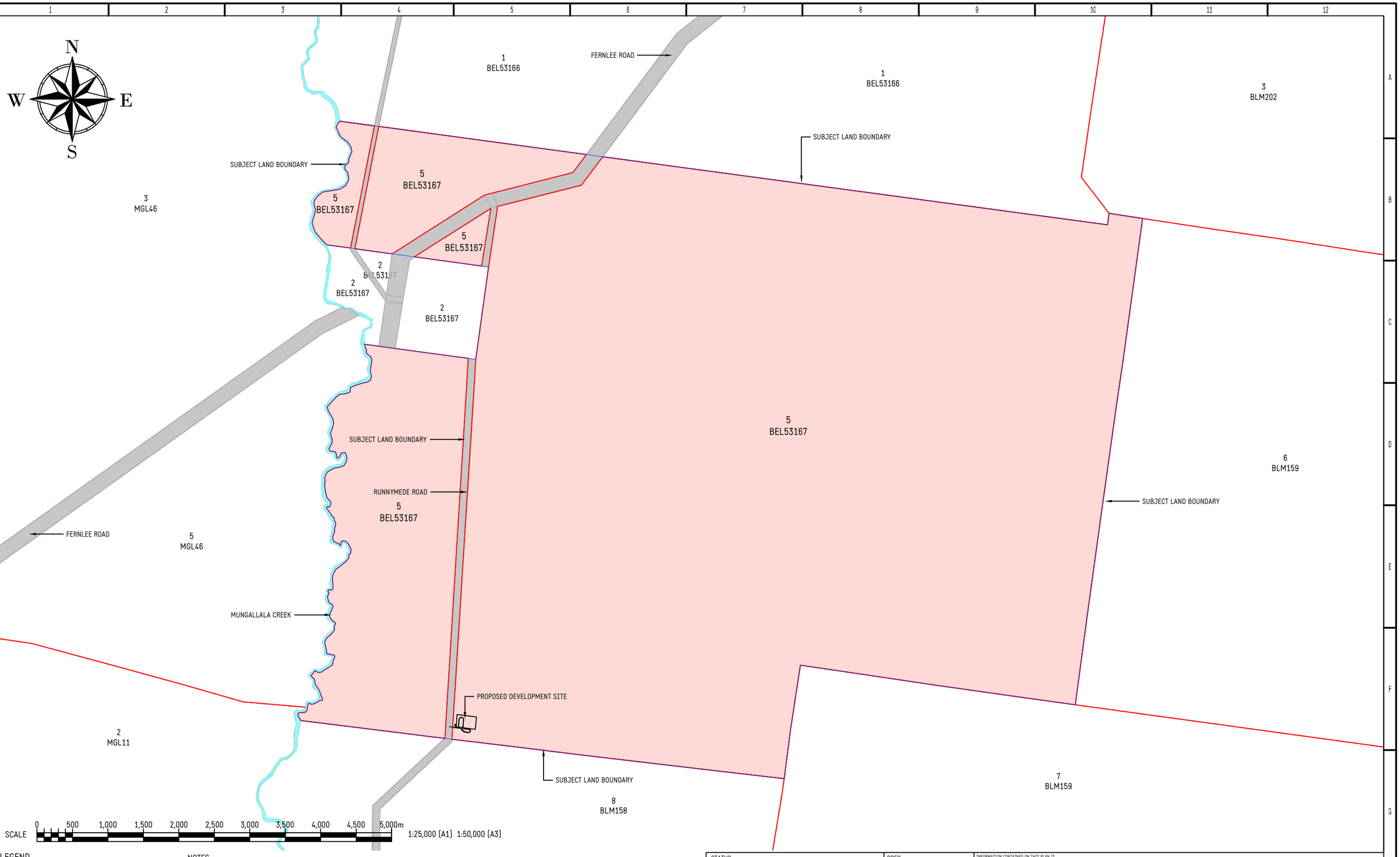
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DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
SUBJECT LAND - LOCALITY PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 1		A3	H5-130-500-01	B

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- SUBJECT LAND AREA
- LAND DESIGNATED AS ROAD
- EASEMENT
- LANDS LEASE
- RESERVE

NOTES

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

SCALE	1:50,000 (A3)
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DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & RJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
SUBJECT LAND - CADASTRAL PLAN

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 2		A3	H5-130-500-02	B

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3 Proposed development

3.1 Overview

The proposed development involves the establishment of a gravel pit on the southwest corner of the property adjacent to a former gravel pit.

The resource extraction area shall have a capacity to extract up to 100,000 tonnes of material per annum from an area of up to 5 ha and include the following components:

- Access road – An all-weather access road from Runnymede Road to the proposed resource extraction area shall be constructed;
- Resource extraction area – An operational extraction area shall be established by clearing existing vegetation, topsoil and overburden and ripping material. No blasting is required;
- Stockpile area – An operational area for stockpiling material shall be established within resource extraction area and adjacent to the workings; and
- Sediment controls – A sediment system for capturing stormwater and allowing entrained sediment to 'settle out' shall be implemented.

The proposed development would require about 3 operational staff on-site during material extraction, stockpiling and loadout campaigns.

The proposed development shall be staged.

3.2 Access

The proposed development shall be accessed via Runnymede Road. Runnymede Road is an unsealed road and commences at Fernlee Road and travels in a southerly direction to its termination at Woolerina Road. The proposed development shall be accessed via an existing informal subject land entrance off Runnymede Road on the southwest edge of the subject land approximately 7.4 km south of Fernlee Road intersection as shown on Figure 3.

This access will need to accommodate heavy vehicles up to Type 1 road train configuration This access is also used by light vehicles such as the operational workforce and service vehicles.

An internal road connects the subject land entrance to the proposed development resource extraction area.

3.3 Staging

The proposed development will be staged in line with market demand and to avoid clearing the full extent of the extraction area. The proposed staging and activity are outlined in Table 3.

Table 3 – Proposed development – Staging

Stage	Impact zone	Impact area ha	Extraction Tonnage t/year	Development year
1	Entrance, access road, extraction area	1.25	25,000	After approvals
2	Extraction area	2.5	50,000	2027-2028
3	Extraction area	3.75	75,000	2030-2031
4	Extraction area	5	100,000	2032-2033

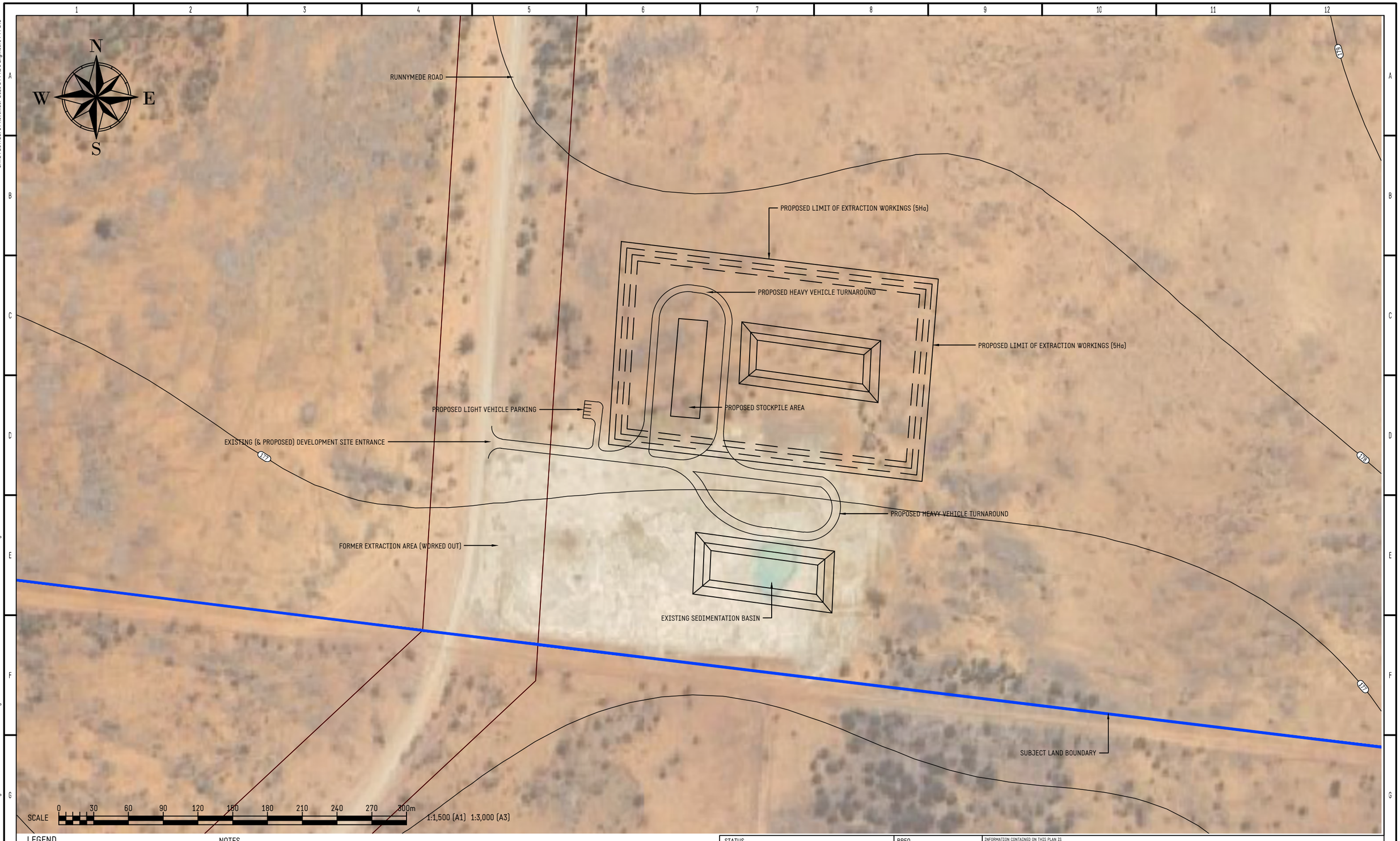
3.4 Construction

Due to the nature of the proposed development there is no construction phase per se.

There is no infrastructure shall be developed as part of the proposed development and therefore there are no earthworks, roads, buildings or structures to be constructed.

Consequently, there is no construction generated traffic.

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LEGEND

- SUBJECT LAND BOUNDARY
- LAND PARCEL BOUNDARY
- EXISTING GROUND CONTOUR - MAJOR (5.0m)
- EXISTING GROUND CONTOUR - MINOR (1.0m)

NOTES

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REV.	DATE	REVISION DESCRIPTION	DRAWN	CHECK	APPROVED
A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

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DATE	14/11/2025
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DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
PROPOSED DEVELOPMENT - SITE LAYOUT

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 3		A3	H5-130-500-03	B

FILE PATH: R:\RDC Engineers\RDCE - Projects\H5-130 B Brown Heather Quarry\05 - ACAD MasterPlan\05.1 Drawings - CURRENT FILE NAME: H5-130-00-MASTERPLAN-20250916 v8.dwg

4 Traffic Impact Assessment

4.1 Existing road network

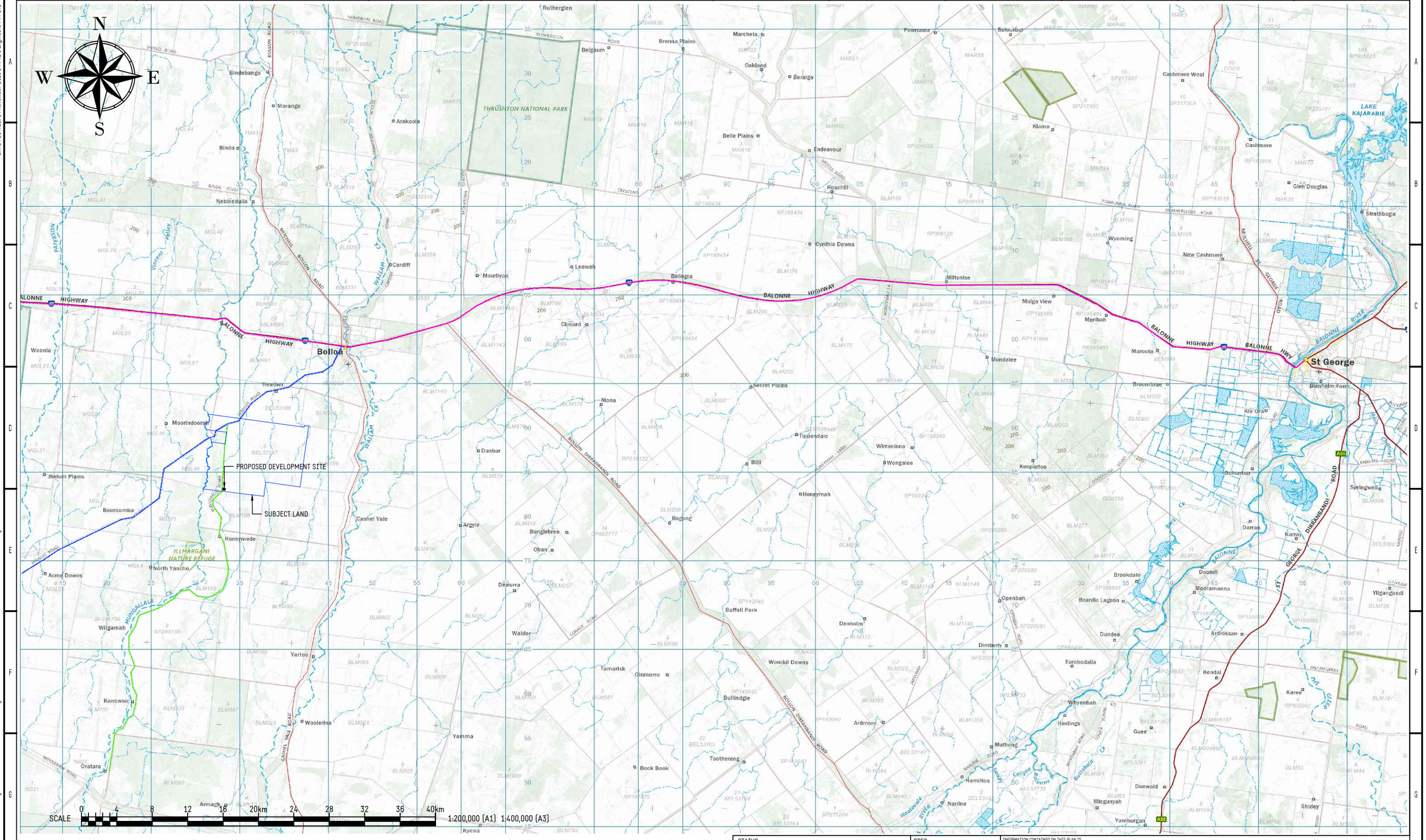
This section describes the existing road network including traffic conditions, volumes, intersection performance, road accesses, relevant intersection type and operation, as well as public and active transport provisions.

The location of the proposed development is shown in Figure 1 and Figure 2.

Access to the proposed development by heavy vehicles travelling from/to the south and southwest region of the Balonne Shire is via Fernlee Road to Runnymede Road with vehicles entering the development site using the entrance onto Runnymede Road.

Access to the proposed development by light and heavy vehicles travelling from/to the north such as Bollon / St George is via the Balonne Highway to Fernlee Road to Runnymede Road with vehicles entering the development site using the entrance onto Runnymede Road.

The existing road network surrounding the subject land is shown in Figure 4 and includes the roads outlined in the following sections. The haulage routes are shown on Figure 4.



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LEGEND

- SUBJECT LAND BOUNDARY
- HAULAGE ROUTE A (LOCAL CONTROLLED ROAD)
- HAULAGE ROUTE B (LOCAL CONTROLLED ROAD)
- HAULAGE ROUTE C (STATE CONTROLLED ROAD)

NOTES

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TITLE: DEVELOPMENT APPLICATION - MATERIAL CHANGE OF USE
TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
PROPOSED DEVELOPMENT - HAULAGE ROUTES

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 4		A3	H5-130-00-04	B

4.1.1 Local roads

All development associated vehicles are required to enter the proposed development site via the Runnymede Road entrance.

As the proposed development may provide construction materials to many projects in the local region there are potentially many local roads that may be utilised by haulage vehicles. However, those particular roads are unknown at this stage.

Consequently, on this basis, the existing local road network that shall be directly impacted by the proposed development is limited to Runnymede Road and Fernlee Road.

4.1.1.1 Fernlee Road

Fernlee Road is designated as a Rural Collector (R2) under the BSC road hierarchy as shown in the Balonne Shire Council – Transport Service Aset Management Plan (Balonne Shire Council, 2024) presented in Appendix A.

Fernlee Road is two-lane, two-way undivided local road about 78.5 km long and is sealed and unsealed along the length reviewed. Fernlee Road provides connection from the Balonne Highway in Bollon (CH0 km) to Murra Murra Road (CH78.5 km). The segment from CH0 km to CH64.75 km is within the Balonne Shire Council local government area and from CH64.75 km to CH78.5 km is within the Paroo Shire Council local government area. Segment CH0 km to CH 64.75 km is the segment reviewed. Fernlee Road runs in a southwesterly direction to the intersection with the Tate Road then in a westerly direction to its terminus at Murra Mura Road.

Fernlee Road has a 100 km/hr posted speed limit outside Bollon and no line markings (centreline or edge lines).

Fernlee Road is formed and sealed between the Balonne Highway and CH18.9 km. This is the boundary of the property “Moorindoorah”. The sealed segment of Fernlee Road is generally 7.5-8.0 m sealed pavement on a 9 m formation as shown in Photograph 1 and Photograph 5.

The pavement is generally in good condition between CH0 km and CH20 km (concrete causeway Mungallala Creek) and good unsealed condition between CH20 km and CH64.75 km as shown in Photograph 5.

At CH18.9 km some 150 m before crossing Mungallala Creek, the sealed segment terminates and Fernlee Road is then unsealed to its terminus with Murra Murra Road (Paroo Shire). Between CH18.9 km and CH78.5 km, Fernlee Road is formed and gravelled within the Balonne Shire local government area. The unsealed segment of Fernlee Road is generally 6 m gravel pavement on an 8 m formation as shown in Photograph 6.

The Mungallala Creek crossing comprises 12 RCBC (1200 mm x 1250 mm) with reinforced concrete slab causeway.

There is no tube count data available for Fernlee Road. Austroads (Austroads, 2021a) nominates one 3.7 m traffic lane on 8.7 m carriageway for roads servicing 1-150vpd with more than 15% heavy vehicles. No upgrades are recommended under existing or proposed traffic conditions within the unsealed or sealed sections based on pavement width. The formation width does not meet Austroads requirements for shoulder and carriageway width for the unsealed segment.

As Fernlee Road would service conservatively 10-50 vpd and meets other relevant classification criteria, it would be classified as a Local access (unsealed) in accordance with the Lower Order Road Design Guidelines (IPWEAQ, 2016). The IPWEAQ Lower Order Road Guidelines nominates a 3.5 m seal or gravel pavement on 6.5 m formation for roads servicing 10-50vpd. Section 3.2.1 of IPWEAQ (2016) outlines the relevant classification criteria.

No upgrades are recommended under existing or proposed traffic conditions within the sealed CH0 km to CH20 km which is a minimum of 7.5-8.0 m sealed pavement on a 9 m formation or unsealed pavement from CH20 km to CH64.75 km.

Development traffic comprising predominantly heavy vehicles is expected to travel to/from the proposed development along the majority length of Fernlee Road. The principal haulage route is along Fernlee Road.



Photograph 1 – Fernlee Road – Formation CH0 km (Balonne Highway intersection)



Photograph 2 – Fernlee Road – Formation CH5 km



Photograph 3 – Fernlee Road – Formation CH10 km



Photograph 4 – Fernlee Road – Formation CH16.5 km (Runnymede Road)



Photograph 5 – Fernlee Road – Formation CH20 km ("Moorindoorah")



Photograph 6 – Fernlee Road – Formation CH25 km



Photograph 7 – Fernlee Road – Formation CH40 km



Photograph 8 – Fernlee Road – Formation CH55 km



Photograph 9 – Fernlee Road – Formation CH65 km

4.1.1.2 Runnymede Road

Runnymede Road is designated as a Rural Collector (R2) under the BSC road hierarchy as shown in the Balonne Shire Council – Transport Service Aset Management Plan (Balonne Shire Council, 2024) presented in Appendix A.

Runnymede Road is two-lane, two-way undivided local road about 53 km long and is unsealed for all but 1 km of its length. Runnymede Road provides connection from Fernlee Road (CH0 km) to Woolerina Road (CH53 km). Runnymede Road runs in a southerly direction parallel with Mungallala Creek to its terminus at Woolerina Road.

Runnymede Road has no posted speed limit or line markings (centreline or edge lines).

Runnymede Road is formed and predominantly unsealed gravel pavement between Fernlee Road and Woolerina Road. Runnymede Road has a 3.5 m sealed pavement between CH0 km (Fernlee Road intersection) and CH1.0 km on 5 m formation. From CH1.0 km to CH53 km the road gradually reduces in width from 5 m pavement on 7m formation to 3m pavement of 5m formation as shown in Photograph 10 to Photograph 16.

Due to the haulage of gravel along the road the pavement is generally in average condition between CH0 km and CH9.2 km (development site entrance) as shown in Photograph 5.

There is no tube count data available for Runnymede Road. Austroads (Austroads, 2021a) nominates one 3.7 m traffic lane on 8.7 m carriageway for roads servicing 1-150vpd with more than 15% heavy vehicles. No upgrades are recommended under existing or proposed traffic conditions within the unsealed or sealed sections based on pavement width. The formation width does not meet Austroads requirements for shoulder and carriageway width.

Runnymede Road would service conservatively 10-50 vpd and meets other relevant classification criteria, it would be classified as a Local access (unsealed) in accordance with the Lower Order Road Design Guidelines (IPWEAQ, 2016). The IPWEAQ Lower Order Road Guidelines nominates a 3.5 m seal or gravel pavement on 6.5 m formation for roads servicing 10-50vpd. Section 3.2.1 of IPWEAQ (2016) outlines the relevant classification criteria.

No upgrades are recommended under existing or proposed traffic conditions. Maintenance grading is recommended between CH1 km and CH5 km due to heavy vehicle movements.

Development traffic comprising predominantly heavy vehicles is expected to travel to/from the proposed development along the majority length of Runnymede Road. The principal haulage route is along Runnymede Road.



Photograph 10 – Runnymede Road – Formation CH0 km (Fernlee Road intersection)



Photograph 11 – Runnymede Road – Formation CH1.0 km



Photograph 12 – Runnymede Road – Formation CH7.5 km



Photograph 13 – Runnymede Road – Formation CH15 km



Photograph 14 – Runnymede Road – Formation CH25 km



Photograph 15 – Runnymede Road – Formation CH40 km



Photograph 16 – Runnymede Road – Formation CH53 km

4.1.2 State-controlled roads

4.1.2.1 Balonne Highway

The Balonne Highway designated as State Route 49 is a state-controlled road. The Balonne Highway (SR49) has a posted speed limit of 100 km/h (St George to Bollon). It connects the Carnarvon Highway at St George to the Mitchell Highway at Cunnamulla.

The Balonne Highway has the following characteristics:

- two-lane, two-way undivided road with a posted speed limit of 100 km/h;
- sealed, generally approximately 6-9m seal on 9-10 m formation, with 3.5 m wide lanes and 0.7-1.0 m wide sealed shoulders, centre line marking and edge line marking;
- The road is currently in good condition, with no significant signs of pavement breakup within the vicinity of the Fernlee Road intersection due to heavy vehicle turning movements.

Predominantly the Balonne Highway shall only be used heavy vehicles delivering plant and equipment (bulldozer, crushing/screening plant) to the proposed development at the start and end of each campaign from the direction of St George. From a material haulage perspective the target markets are road resheeting programs in the southwest of the Balonne Shire Council.

The pavement is in good to very good condition along the entire length reviewed as shown in Photograph 17, Photograph 18, Photograph 19 and Photograph 20. CH 0 km is the western side of the Balonne River at the Jack Taylor Weir. CH 112 km is the township of Bollon.



Photograph 17 – Balonne Highway – Formation CH1 km



Photograph 18 – Balonne Highway – CH40 km



Photograph 19 – Balonne Highway – CH48 km



Photograph 20 – Balonne Highway – CH112 km

Tube count data is available for Balonne Highway at traffic count site 50009 for 2023 which is located 150 m east of the intersection with Powrunna Road and represents the section between St George and Bollon. The AADT recorded was 297 vpd with 118 vpd (~39.7%) being heavy vehicles (Class 3 to 10) during this period. The tube count data for the Balonne Highway is provided in Appendix C.

Tube count data is available for Balonne Highway at traffic count site 50418 for 2023 which is located 3 km west of Bollon and represents the section between Bollon to Cunnamulla. The AADT recorded was 297 vpd with 118 vpd (~39.7%) being heavy vehicles (Class 3 to 10) during this period. The tube count data for the Balonne Highway is provided in Appendix C.

4.1.3 Crash History

4.1.3.1 Crash history

A review of the crash data for the past five (5) years for the road network around the proposed development site has been undertaken and is summarised in Table 4. Table 4 shows there has been 4 reported road traffic crashes on the Balonne Highway between 1 January 2019 to 31 May 2024. There have been no reported traffic crashes on Fernlee Road. There has been one reported traffic crash on Runnymede Road. No accidents have occurred in vicinity of the intersection with Fernlee Road.

Table 4 – Road Network – Crash history

Location	Date	Nature / Type / DCA Description	Casualty
Balonne Highway	March 2024	Overturned / Single vehicle / Off Path-Straight: Left Off Cway Hit Obj	Hospitalisation
Balonne Highway	June 2023	Hit object / Single vehicle / Off Path-Curve: Off Cway Right Bend	Hospitalisation
Balonne Highway	October 2021	Hit object / Single vehicle / Off Path-Straight: Left Off Cway Hit Obj	Hospitalisation
Runnymede Road	May 2020	Overturned / Single Vehicle / Off Path-Curve: Off Cway Right Bend	Hospitalisation
Balonne Highway	March 2019	Hit object / Single vehicle / Off Path-Straight: Left Off Cway	Hospitalisation
Balonne Highway	August 2019	Hit object / Single vehicle / Pass & Misc: Hit Animal	Hospitalisation

4.1.4 Key intersections

As the proposed development may provide construction materials to many projects in the local region there are potentially many intersections that would be utilised by haulage vehicles. However, the particular intersections are unknown at this stage. Consequently, from an establishment and haulage route perspective the key intersections have been determined as the Runnymede Road / Fernlee Road and Balonne Highway / Fernlee Road T-intersections. These intersections have been assessed in section 4.4.3.

4.1.5 Public transport

The proposed development is not expected to have any significant impact on public transport infrastructure. The Balonne Highway from Boolba to Bollon, Fernlee Road and Runnymede Road are not shown on the School Kilometric Bus Route dataset (DTMR, 2024) which is a graphical representation of the roads on which a school bus service operates. However, the Balonne Highway from Boolba to St George is shown on the School Kilometric Bus Route dataset as a road on which a school bus service operates. The service operates between Undulla Creek to St George State School.

4.2 Existing rail network

The subject land does not have frontage to an existing rail network. The closest rail network is the Western System (Miles to Quilpie) which runs over a 1,082 km route and consists of the corridor from Miles to Cunnamulla with branch lines – Westgate to Quilpie, Dalby to Glenmorgan, and Miles to Wandoan. The Western System adjoins the western section of the West Moreton system at Miles.

The Western System runs through Roma and Mitchell and is located over 200 km from the subject land.

4.3 Traffic generation and distribution

To establish the impact of the development on the adjacent road network and assess the need for improvements to accommodate traffic generated by the proposed development, traffic generation and trip distribution have been determined.

4.3.1 Generation

4.3.1.1 Existing agricultural operations

The subject land is currently used for rangeland goat and beef production. The infrastructure to support these activities are located on an adjoining land parcel. Consequently, the existing traffic generation is negligible.

The Balonne Highway, Fernlee Road and Runnymede Road are an approved Type 1 Road Train route and heavy vehicles in this configuration regularly service the agricultural operations conducted on the adjoining land parcel.

4.3.1.2 Proposed development

4.3.1.2.1 Workforce traffic

During operation there would be a maximum of two plant operators on the site at any one time (bulldozer operator/loader operator). This would yield a daily workforce traffic generation in the order of 4 light vehicle trips per day during campaigns. It is assumed the majority of the workforce would arrive between 6:00 am and 6:30 am and depart generally between 5:00 pm and 6:00 pm.

4.3.1.3 Material haulage traffic

The proposed development is seeking to extract up to 100,000 t per annum. At its peak production, the absolute maximum rate of extraction would be about 1,500 tonnes per day, corresponding to 62 truck movements per day (i.e. 31 trucks) Type 1 road train with a nominal load of 48t.

A summary of the light and heavy vehicle AADT movements for each stage of the proposed development is presented in Table 5, Table 7, Table 9 and Table 11 for Stage 1, Stage 2, Stage 3 and Stage 4 respectively.

A summary of the light and heavy vehicle daily movements for each stage of the proposed development on a campaign basis is presented in Table 6, Table 8, Table 10 and Table 12 for Stage 1, Stage 2, Stage 3 and Stage 4 respectively.

The tables include all inbound unloaded and outbound loaded vehicles. A vehicle entering and exiting the development site is two movements. The heavy vehicle movements have been modelled on Type 1 road train. Further, the road network is approved for Type 1 road train vehicles.

Table 5 – Proposed development – Estimated AADT traffic generation – Stage 1

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**25,000**	**25,000**	**25,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~3	~20	~1,042
Employees**	Light vehicles	-	~0.2	~1.3	~67
Total	Total heavy vehicles	48 t	~3	~20	~1,042
Total	Total light and heavy vehicles	-	~3.0	~21.3	~1,108

* Based on a production rate of ~1,500 t/day amenitised over a year.
**Fernlee Road and Runnymede Road only

Table 6 – Proposed development – Estimated campaign traffic generation – Stage 1

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**25,000**	**25,000**	**25,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~62	~434	~1,042
Employees	Light vehicles	-	~4	~28	~67
Total	Total heavy vehicles	48 t	~62	~434	~1,042
Total	Total light and heavy vehicles	-	~66.5	~465.5	~1,108

* Based on a production rate of ~1,500 t/day and 17 days operation.
** Fernlee Road and Runnymede Road only

Table 7 – Proposed development – Estimated AADT traffic generation – Stage 2

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**50,000**	**50,000**	**50,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~5.7	~40.1	~2,083
Employees	Light vehicles	-	~0.4	~2.6	~133
Total	Total heavy vehicles	48 t	~5.7	~40.1	~2,083
Total	Total light and heavy vehicles	-	~6.1	~42.6	~2,217

* Based on a production rate of 137 t/day.
** Fernlee Road and Runnymede Road only

Table 8 – Proposed development – Estimated campaign traffic generation – Stage 2

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**50,000**	**50,000**	**50,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~62.5	~437.5	~2,083
Employees	Light vehicles	-	~4.0	~28.0	~133
Total	Total heavy vehicles	48 t	~62.5	~437.5	~2,083
Total	Total light and heavy vehicles	-	~66.5	~465.5	~2,217

* Based on a production rate of ~1,500 t/day and 33 days operation.
** Fernlee Road and Runnymede Road only

Table 9 – Proposed development – Estimated AADT traffic generation – Stage 3

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**75,000**	**75,000**	**75,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~8.6	~60.1	~3,125
Employees	Light vehicles	-	~0.5	~3.8	~200
Total	Total heavy vehicles	48 t	~8.6	~60.1	~3,125
Total	Total light and heavy vehicles	-	~9.1	~63.9	~3,325

* Based on a production rate of ~205 t/day.
** Fernlee Road and Runnymede Road only

Table 10 – Proposed development – Estimated campaign traffic generation – Stage 3

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**75,000**	**75,000**	**75,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~62.5	~437.5	~3,125
Employees	Light vehicles	-	~4.0	~28.0	~200
Total	Total heavy vehicles	48 t	~62.5	~437.5	~3,125
Total	Total light and heavy vehicles	-	~66.5	~465.5	~3,325

* Based on a production rate of ~1,500 t/day and 50 days operation.
** Fernlee Road and Runnymede Road only

Table 11 – Proposed development – Estimated AADT traffic generation – Stage 4

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**100,000**	**100,000**	**100,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~11.4	~80.1	~4,167
Employees	Light vehicles	-	~0.7	~5.1	~267
Total	Total heavy vehicles	48 t	~11.4	~80.1	~4,167
Total	Total light and heavy vehicles	-	~12.1	~85.3	~4,433

* Based on a production rate of ~275 t/day.
** Fernlee Road and Runnymede Road only

Table 12 – Proposed development – Estimated campaign traffic generation – Stage 4

Stage			**1**	**1**	**1**
Development capacity	**tonnes**		**100,000**	**100,000**	**100,000**
Activity	**Vehicle Type & (Configuration)**	**Capacity**	**Movements per day**	**Movements per week**	**Movements per year**
Gravel	Type 1 road train	48 t	~62.5	~437.5	~4,167
Employees	Light vehicles	-	~4.0	~28.0	~267
Total	Total heavy vehicles	48 t	~62.5	~437.5	~4,167
Total	Total light and heavy vehicles	-	~66.5	~465.5	~4,433

* Based on a production rate of ~1,500 t/day and 67 days operation.
** Fernlee Road and Runnymede Road only

As shown in Table 11, the AADT for the proposed development is estimated to average 12 vpd with 11 vpd heavy vehicles at the maximum yearly extraction and when averaged over a 7 day extraction and haulage week. On a campaign basis at up to 1,500 tonnes per day, some 66 vpd total vehicles and 62 vpd heavy vehicles are estimated to be generated.

The peak vehicle movements were based on 3 times average weekly movements spread across seven days. The volumes are triple the average to represent a reasonable amount of peaking throughout the year. This is a conservative estimate which was then used to determine the peak hourly volumes. It is assumed that the development generation peak and the road peak occur simultaneously. These assumptions are considered to be somewhat conservative. It should also be noted that this 'worst-case' operational scenario is a design consideration only and is unlikely to occur as part of the actual day to day operations. The analysis methodology used is intended to ensure that sufficient infrastructure is provided in the vicinity of the site, to enable the safe and efficient operation of the road network.

As shown in Table 13, the peak daily and peak hourly heavy vehicle movements for the proposed development is estimated to be up to 37 vpd and 3 vph when extracting 1,500 tonnes per day and the maximum volume per year respectively.

Table 13 – Proposed development – Estimated AADT and Peak traffic movements

Stage	Development capacity	AADT		Peak daily		Peak hourly	
		Total	Heavy vehicles	Total	Heavy vehicles	Total	Heavy vehicles
	Tonnes	vpd	vpd	vpd	vpd	vph	vph
1	25,000	3.0	2.9	9.1	8.6	0.8	0.7
2	50,000	6.1	5.7	18.3	17.2	1.5	1.4
3	75,000	9.1	8.6	27.4	25.8	2.3	2.1
4	100,000	12.1	11.4	36.5	34.3	3.0	2.9

4.3.2 Traffic growth rates

Traffic growth applied to the background traffic volumes represents the increase in traffic associated with the surrounding area. The years for assessment were adopted as outlined by the DTMR's Guide to Traffic Impact Assessment (DTMR, 2018):

- Access (Fernlee Road) and frontage (Runnymede Road): Opening year of the first stage through to the opening year of the final stage in 2034 (10-year design horizon). No growth rate is expected on Fernlee Road or Runnymede Road within the design horizon.
- Intersections and roads further afield than the access and frontage: As outlined above. Opening year of the first stage is 2026. A compound linear growth rate of 0.5% has been adopted for the Balonne Highway.

4.3.3 Haulage routes

The proposed development shall have two heavy vehicle haulage routes to/from the proposed development site.

Haulage Route A will be used by heavy vehicles delivering construction materials to the south. Vehicles travelling from/to these areas shall use Fernlee Road to Runnymede Road with vehicles entering the development site from the north using the proposed entrance onto Runnymede Road.

Haulage Route B will be used by heavy vehicles delivering construction materials to the north such as around Bollon and St George. Vehicles travelling from/to these areas shall use the Balonne Highway to Fernlee Road to Runnymede Road with vehicles entering the development site from the north using the proposed entrance onto Runnymede Road.

4.3.4 Distribution

The local and state controlled road network potentially impacted by the traffic generated by the proposed development is shown in Figure 4.

Maintenance personnel shall be based in Bollon or St George and will generally work remotely as-required.

The operational workforce will comprise approximately two full-time employees at the proposed development site during material campaigns.

As the proposed development is a family run business, administrative personnel shall reside in the “Heather” homestead located on an adjoining land parcel.

The estimated distribution of heavy vehicle traffic to and from the proposed development site with reference to Figure 4 is 90% to the southwest and 10% to the north and east.

From a material haulage perspective the proposed development shall be well positioned to supply construction materials for Council’s road maintenance and resheeting programs in the southwest of the Balonne Shire Council. Currently, gravel is currently being transported from the Weonia Pit some 23 km west of Bollon to roadworks in the southwest of the shire via Fernlee Road, Runnymede Road, Woolerina Road and Mulga Downs Road.

4.4 Traffic impacts

The traffic impact analysis is focused on the impacts of the traffic generated by proposed development on three key intersections close to the development site access. The impacts of the proposed development on public transport, active transport, parking and traffic safety have also been assessed.

4.4.1 Assessment scenarios

It is standard practice when analysing future year traffic operations to adopt a ten-year design horizon from the year of full operation. The proposed development shall be developed in four stages as the proposed development will be project driven.

Traffic conditions have been assessed for operation at the expected year of opening of the first stage (2026) through to 10 years to 2036, which represents the 10-year design horizon.

As outlined in section 3.4 there is no construction phase per se. Consequently, there are no construction generated movements.

4.4.2 Road section analysis

The traffic generation and distribution from the site has been assessed and the impacts of the proposed development on the local road network and state controlled road network, namely Runnymede Road and Fernlee Road have been reviewed.

4.4.2.1 Balonne Highway

The traffic generation and distribution from the site has been assessed and the impacts of the proposed development on the state controlled road network, namely the Balonne Highway have been reviewed.

TMR's Guide to Traffic Impact Assessment (2018) states, in section 3.4, that DTMR considers that it is unreasonable to require quantification of the impacts on intersections and road links, unless the development creates an increase in traffic exceeding 5% of base traffic for any movement.

The annual average daily traffic volume (AADT) for 2024 for the Balonne Highway has been obtained from DTMR and adjusted with a 1% linear growth rate. These data indicate traffic flows of 297 [light vehicles (182) + heavy vehicles (115)] in the vicinity of Fernlee Road intersection. The DTMR Weekly Volume reports for the Balonne Highway (St Geroge – Bollon) are provided in Appendix C.

Table 14 – Proposed development – Impact to state controlled road network

Road	AADT vpd	Development trips vpd	Impact %
Balonne Highway (west of Fernlee Road)	153	1.82	1.19
Balonne Highway (east of Fernlee Road)	144	1.82	1.27

This traffic impact is below 5% of existing levels on the state controlled road network, therefore the impact on the state controlled road network is considered insignificant, and detailed analysis is not considered necessary.

4.4.3 Assessed intersections

4.4.3.1 Balonne Highway / Fernlee Road T intersection

Fernlee Road a T intersection with the Balonne Highway in the township of Bollon. The Balonne Highway / Fernlee Road intersection is a priority sign-controlled 'T-intersection' and is shown in Photograph 21 to Photograph 24. The intersection has the following properties:

- Give way signage on the Fernlee Road northbound approach;
- The intersection has a posted speed limit of 50 km/hour (Fernlee Road);
- The intersection has adequate visibility (>300m) to the west and east to meet Austroads requirements for a 60 km/h design speed (Balonne Highway) as shown in Photograph 21 and Photograph 22;
- There is a simple right turn treatment (SR) westbound off the Balonne Highway and simple left turn treatment (SL) eastbound off the Balonne Highway; and
- Photograph 23 and Photograph 24 show that the Balonne Highway / Fernlee Road intersection has no signs of pavement breakup in the throat of the intersection due to vehicle turning movements.



Photograph 21 – Balonne Highway / Fernlee Road intersection (Looking east)



Photograph 22 – Balonne Highway / Fernlee Road intersection (Looking west)



Photograph 23 – Balonne Highway / Fernlee Road intersection (Looking north)



Photograph 24 – Balonne Highway / Fernlee Road intersection (Looking south)

4.4.3.1.1 Geometric layout

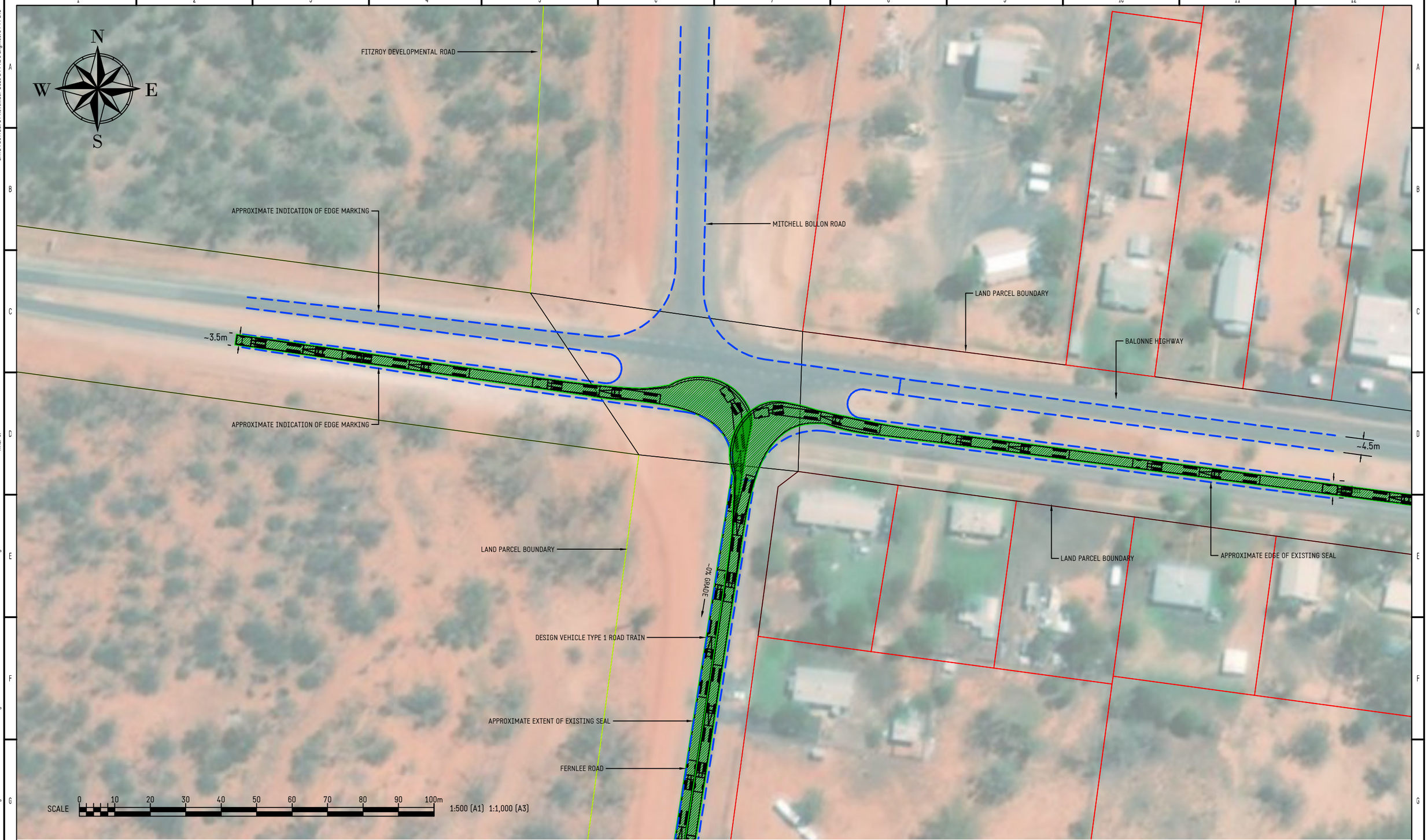
A swept path analysis for the design vehicles that shall access the proposed development from the Balonne Highway / Fernlee Road intersection was undertaken and is provided in Figure 6 and Figure 7. A Type 1 road train has been selected as the design vehicle as this is the largest vehicle that shall access the proposed development site.

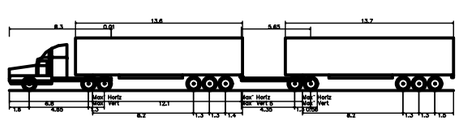
In general, the swept path analysis shows the design vehicle (Type 1 road train) manoeuvring acceptably through the Balonne Highway / Fernlee Road intersection.



Figure 5 – Balonne Highway / Fernlee Road intersection – Aerial image (QLD Globe)

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A–Double (36.2m)

Overall Length	36.200m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.240m
Track Width	2.500m
Lock–to–lock time	8.00s
Curb to Curb Turning Radius	15.000m

STATUS
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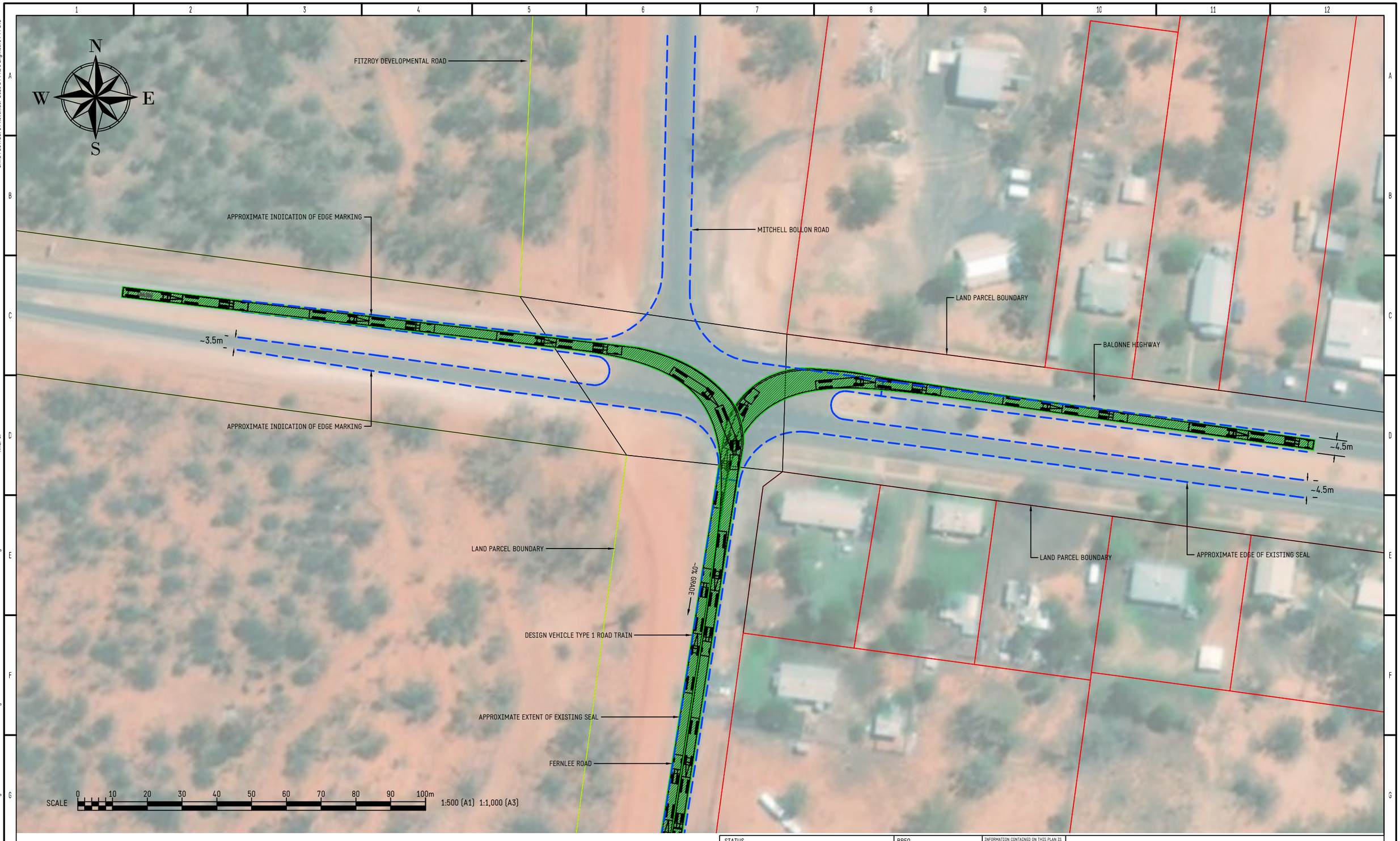
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B	14/11/25	FINAL ISSUE FOR SUBMISSION TO BSC AND SARA	RJD	RJD	RJD

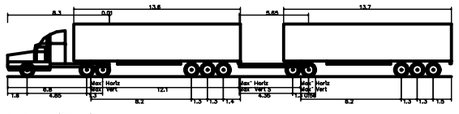
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DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT: RA & AJ BROWN
PROJECT: PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE: TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
BALONNE HIGHWAY / FERNLEE ROAD INTERSECTION
LEFT IN / LEFT OUT SWEPT PATH

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 6		A3	H5-130-500-06	B

DATE PLOTTED: 14 November 2025 BY: RDC Engineers PTY LTD
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A-Double (36.2m)

Overall Length	36.200m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-Lock time	6.000s
Kerb to Kerb Turning Radius	15.000m

STATUS
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A	31/10/25	DRAFT ISSUE TO CLIENT	RJD	RJD	RJD
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SCALE	1:1,000 (A3)
DRAWN	RJD
DATE	14/11/2025
CHECKED	RJD
DATE	14/11/2025
APPROVED	RJD
DATE	14/11/2025

CLIENT RA & AJ BROWN
PROJECT PROPOSED EXTRACTIVE INDUSTRY DEVELOPMENT
TITLE TRAFFIC AND PAVEMENT IMPACT ASSESSMENT
BALONNE HIGHWAY / FERNLEE ROAD INTERSECTION
RIGHT IN / RIGHT OUT SWEPT PATH

REPORT REFERENCE	SUPPLIED DRAWING NUMBER		DRAWING NUMBER	REV.
FIGURE 7		A3	H5-130-500-07	B

4.4.4 Road safety

There is likely to be no significant impacts on road safety as the proposed development does not make any changes to the local roads, access is from a local road and traffic volumes are not significant. The analysis for the crash data during the past five years shows that the crash rates at the local intersections are very low.

4.4.4.1 Warrants

4.4.4.1.1 Balonne Highway / Fernlee Road T intersection

A turn warrant assessment is typically applied to new T-junctions and private access roads where the major road comprises two traffic lanes (one in each direction), to determine what type of intersection treatment is required.

The Balonne Highway / Fernlee Road is a T intersection and was constructed to the design standards of the time of construction and does not necessarily meet all current design requirements.

A turn warrant assessment has been undertaken following the methodology for T-intersections in section 2.3.6 of Austroads (2020).

The AADT and peak-hour volumes for the 10-year planning horizon of the Balonne Highway are outlined in Table 15.

Table 15 – Balonne Highway – Estimated traffic generation – Ten year horizon 2036

Direction	AADT vpd	Peak hourly vph
Eastbound – Against gazettal	144	11
Westbound – Gazettal	153	12

The turn volumes (Q_R or Q_L) off the Balonne Highway into Fernlee Road for the proposed development traffic were determined from the traffic directional splits as outlined in section 4.3.4 multiplied by the peak-hour volumes for the ten year planning horizon for Fernlee Road. As the peak hour volumes for Fernlee Road are not available it has been assumed that the design peak hour volume is equivalent to 3 times average weekly movements. The traffic turn volumes (Q_R or Q_L) off the Balonne Highway into Fernlee Road for existing traffic were estimated based on the difference between Site ID 50009 and Site ID 50418. This assumes that all vehicles turn down Fernlee Road. The existing AADT and peak hour volumes for the Balonne Highway / Fernlee Road intersection are provided in Table 16 assuming no growth.

Table 16 – Balonne Highway / Fernlee Road intersection – Estimated traffic generation – Ten year horizon 2036

Configuration	AADT vpd	Peak hourly vph
Heavy vehicles	0.15	0.04
Light vehicles	6.0	1.6
Total vehicles	6.15	1.54

The through volumes were calculated from the Balonne Highway traffic volumes and the turn volumes into Fernlee Road. The peak hour turn and through volumes for the Balonne Highway / Fernlee Road intersection are provided in Table 17.

Table 17 – Balonne Highway / Fernlee Road intersection - Peak hour turn and through volumes

Road	Direction	Q_{T1} vph	Q_{T2} vph	Q_R vph	Q_L vph
Balonne Highway	Eastbound	0	12	0	2.93
	Westbound	12	0	1.61	0

Once the peak hour turn and through volumes for the intersection were calculated, the values for Q_M were then determined from Figure 2.27 of Austroads (2020). Table 18 provides the peak hour traffic volumes (Q_M) for the Balonne Highway. Vehicles per hour (vph) is the same as the vehicle per hour (Veh/h) notation used in Austroads (2020).

Table 18 – Balonne Highway peak hour traffic volumes

Road Type	Turn Type	Q_M vph	Q_M vph
Two-lane two-way	Right, splitter island	$= Q_{T1} + Q_{T2}$	24
	Left	$= Q_{T2}$	12

The value of Q_R and Q_L (Table 17) at each corresponding value of Q_M (Table 18) were plotted on Figure 8. The minimum turn treatment for a greenfield site is BAL and BAR.

However, the Balonne Highway / Fernlee Road intersection is a brownfield site and has been historically constructed with no pavement widening (or turning treatments) and hence does not meet the current standard for a BAL when turning left into Fernlee Road. However, there is widening as a result of the intersection generally due to the median areas and the Mitchell Bollon Road so the intersection does meet the current standard for a BAR when turning right into Fernlee Road.

Given Balonne Highway / Fernlee Road the intersection is considered a brownfield site with low volumes and existing constraints and a 60km/hr zone, a turn warrant assessment has been undertaken using the extended design domain (EDD) criteria.

The EDD warrants for turn treatments are detailed in the *Supplement to Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections* (RPDM) published by DTMR and include consideration of simple left (SL) and simple right (SR) turning movement provision.

With reference to Figure 9 and Table 17 and Table 18, a of simple left (SL) and simple right (SR) turning movement provision is acceptable.

Further, as the traffic volume at the intersection is low with an AADT on the Balonne Highway typically less than 200 vehicles per day with less than 20 turning vehicles per day. The conflicts between through and turning vehicles are considered rare enough not to warrant the cost of upgrade the intersection. Further, there is no pre-existing safety record at the intersection.

Consequently, no upgrades or improvements works are required to be provided at the Balonne Highway / Fernlee Road intersection for the proposed development from a safety perspective.

Further, as the proposed development is an extractive industry the intersection will be subject to a limited period of heavier traffic due to the development as material haulage will be driven by project demand. During these periods the traffic volumes may be substantially higher than the base traffic conditions. However, it is not considered reasonable to upgrade the intersection just for the short period of high use.

Table 19 – Balonne Highway – Hourly traffic volumes 2024 (Site ID 50009)

	5 Day Average		7 Day Average	
	Westbound (G) vph	Eastbound vph	Westbound (G) vph	Eastbound vph
Midnight – 1am	1	0	1	0
1am – 2am	1	1	0	0
2am – 3am	1	1	0	0
3am – 4am	2	1	1	0
4am – 5am	2	2	1	1
5am – 6am	3	3	3	2
6am – 7am	6	5	5	5
7am – 8am	8	7	8	8
8am – 9am	10	10	11	10
9am – 10am	10	9	11	11
10am – 11am	11	10	11	11
11am – 12 noon	12	11	11	11
12 noon – 1pm	**12**	**11**	11	11
1pm – 2pm	12	11	11	10
2pm – 3pm	12	11	10	9
3pm – 4pm	12	11	9	9
4pm – 5pm	12	11	9	8
5pm – 6pm	10	9	7	7
6pm – 7pm	7	6	5	5
7pm – 8pm	3	3	4	3
8pm – 9pm	1	1	2	2
9pm – 10pm	1	0	2	1
10pm – 11pm	0	0	1	1
11pm - Midnight	0	0	1	1
Total	149	134	135	126

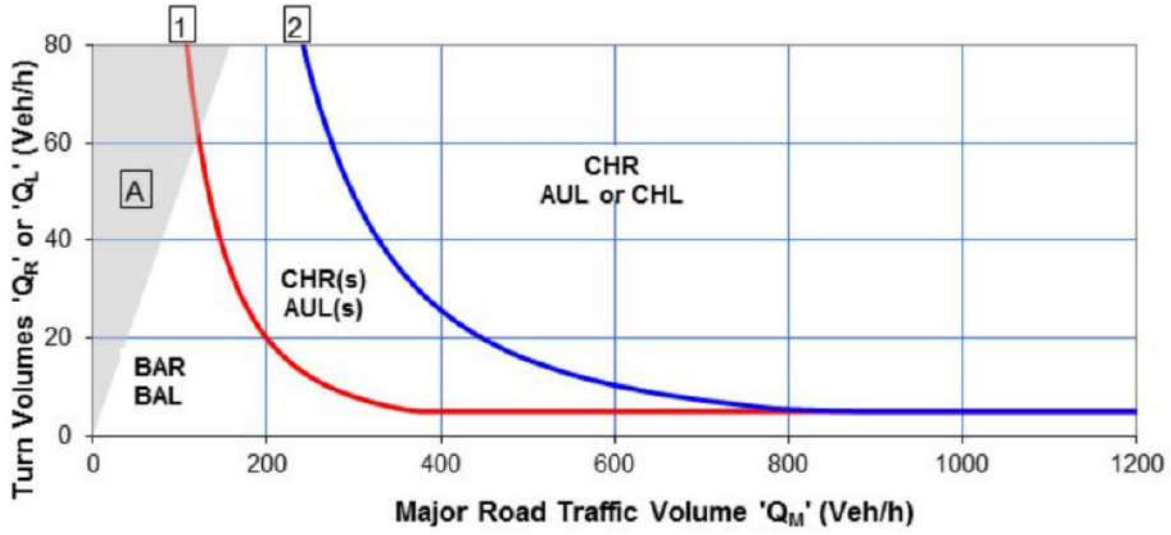


Figure 8 – Warrants for turn treatments on major roads at unsignalised intersections (Austroads, 2020)

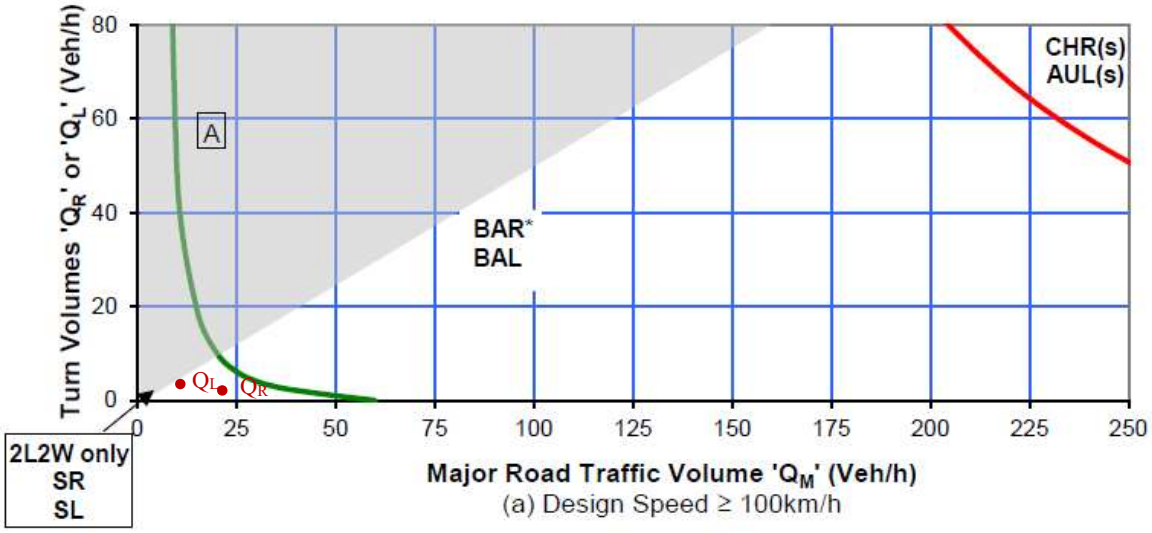


Figure 9 – Warrants for turn treatments on major roads at unsignalised intersections (Austroads, 2020)

4.4.4.2 Signage

To further improve road safety, additional safety measures are proposed due to the additional volume of heavy vehicles imposed on the road network during campaigns. These include:

- It is recommended that advanced warning signage (Truck crossing or entering) as shown in Figure 10 be implemented on each approach to the development site

entrance in accordance with AS1742.2 Clause 4.11.2.5 to warn motorists and improve road safety.



W5-22

Figure 10 – Truck crossing or entering sign (AS1742.2 Clause 4.11.2.5)

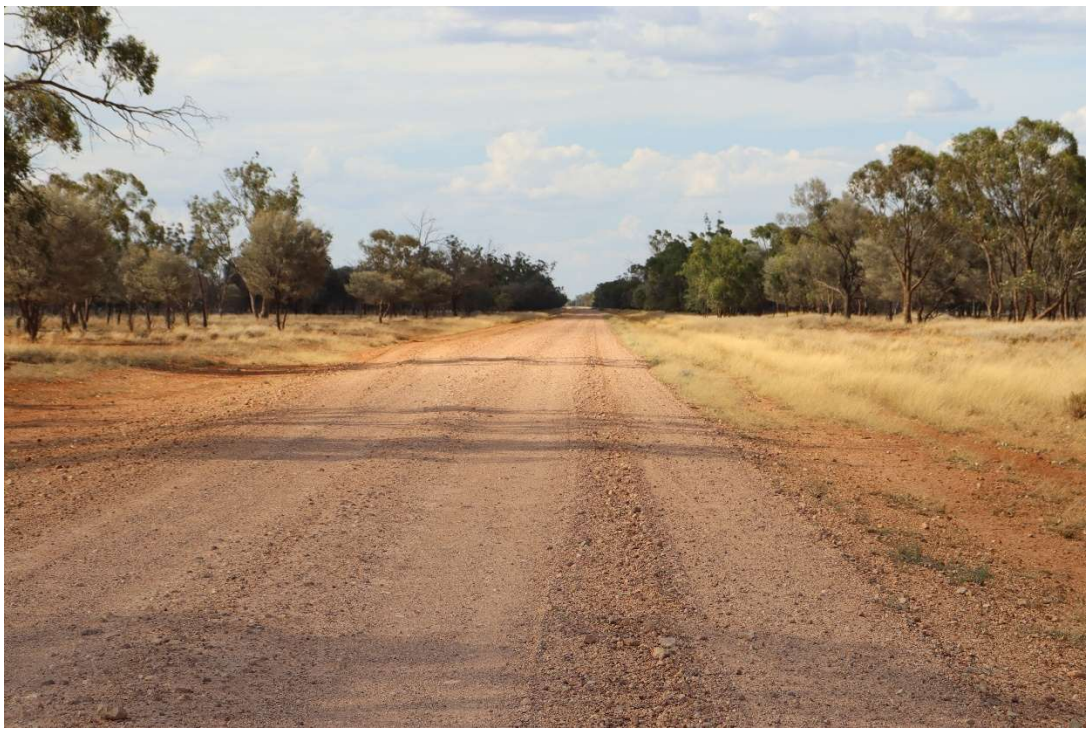
4.4.5 Access arrangements

4.4.5.1 Location

Access to the proposed development shall be from the existing subject land entrance off Runnymede Road as shown in Figure 3 and Photograph 25 and Photograph 26.

The subject land entrance shall be upgraded if required to provide an efficient, functional and safe access to the proposed development site for the type of traffic generated by the proposed development. The entrance shall be constructed and maintained in accordance with the relevant standards, drawings and specification by the Institute of Public Works Engineering Australasia Queensland Division.

The existing subject land entrance is located some 7.4 km south of the Runnymede Road and Fernlee Road.



Photograph 25 – Subject land – Runnymede Road entrance (looking north)



Photograph 26 – Subject land – Runnymede Road entrance (looking south)



Photograph 27 – Subject land – Runnymede Road entrance (looking west)



Photograph 28 – Subject land – Runnymede Road entrance (looking east)

The road access safety assessment shall be undertaken in accordance with clause 3.4 of Austroads Guide to Road Design Part4A: Unsignalised and Signalised Intersections August

2017 (Austroads, 2017), with consideration of the proposed entrance as an intersection. The following sections outline the assessment.

4.4.5.2 Runnymede Road

The road safety assessment shall determine the following types of sight distance required for the proposed entrance:

- approach sight distance (ASD); and
- safe intersection sight distance (SISD);

4.4.5.2.1 Angle of approach

The proposed entrance onto the Runnymede Road for westbound vehicles is at 90 degrees as shown in Figure 3. This is the most desirable angle of egress as this will usually produce the best sight distance for road vehicles.

4.4.5.2.2 Vertical geometry

Runnymede Road has a flat level grade to the north and south of the proposed entrance as shown in Photograph 25 and Photograph 26 respectively.

There are no floodway dips or crests in the sight distance section.

4.4.5.2.3 Horizontal geometry

Runnymede Road has a straight horizontal approach to the north and south in the vicinity of the proposed entrance as shown in Photograph 25 and Photograph 26.

4.4.5.2.4 Approach Sight Distance (ASD)

4.4.5.2.4.1 Cars

The minimum level of sight distance available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection is defined as the Approach Sight Distance (ASD). The ASD has been calculated as it assumed that not all light vehicles using Runnymede Road would be aware of the access. The ASD has been calculated in accordance with Austroads (2021b) and Equation 1.

$$ASD = \frac{R_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)} \quad \text{.....Equation 1}$$

Where:-

ASD = approach sight distance (m)
R_T = reaction time (sec);
V = operating (85th percentile) speed (km/h);
D = coefficient of deceleration;
a = a longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade) (Austroads, 2021b)

The desirable speed environment must not be lower than the speed limit of the road unless is a valid speed survey available to adopt a different value. Consequently, 100 km/hr has been adopted for the operating (85th percentile) speed.

Table 20 – Runnymede Road entrance – Approach sight distance – Design criteria

Parameter	Units	Approach site distance (ASD) design criteria			
		Southbound		Northbound	
		Light Vehicle Car	Heavy Vehicle Trucks	Light Vehicle Car	Heavy Vehicle Trucks
Design operating speed, V	km/hr	100	80	100	80
Reaction time, R_T	s	2.5	2.5	2.5	2.5
Coefficient of deceleration, *D*		0.27	0.29	0.27	0.29
Longitudinal grade, a	%	0	0	0	0
ASD	m	**215**	**142**	**215**	**142**

4.4.5.2.4.2 Trucks

Obtaining an Approach Sight Distance (ASD) is not deemed necessary for heavy vehicles as the users are familiar with the access location to the proposed development.

4.4.5.2.5 Safe Intersection Sight Distance (SISD)

SISD is the minimum sight distance which should be provided on Runnymede Road at the proposed entrance to the subject land. An analysis of the existing geometry for SISD (both directions) was undertaken on-site. The SISD was calculated for Normal Design Domain (NDD) and Extended Design Domain (EDD) for both cars and trucks (Type 1 road train) using the following equation and design factors as shown in Table 21 and Table 22 respectively. Tables 3 and 4 detail the finding of the SISD assessment. An object height for the application of SISD of 1.25 m has been used. The SISD has been calculated in accordance with Austroads (2021b) and Equation 2.

$$SISD = \frac{D_T \times V}{3.6} + \frac{V^2}{254 \times (d + 0.01 \times a)}$$ ……Equation 2

Where:-

SISD = safe intersection sight distance (m);
D_T = decision time (sec) = observation time O_T (3 sec) + reaction time R_T (sec);
V = operating (85_{th} percentile) speed (km/h)
D = coefficient of deceleration
a = a longitudinal grade in % (in direction of travel: positive for uphill grade, negative for downhill grade) (Austroads, 2021b).

An operating (85_{th} percentile) speed of Runnymede Road of 100 km/hr has been used. This represents a representative scenario for this section of the road as the road is not sealed and is not sign posted and is the state limit.

Table 21 – Runnymede Road entrance – SISD NDD design criteria

Parameter	Units	Normal Design Domain (NDD) design criteria Southbound		Northbound	
		Light Vehicle Car	Heavy Vehicle Trucks	Light Vehicle Car	Heavy Vehicle Trucks
Design speed, V	km/hr	100	80	100	80
Reaction time, R_T	s	2.5	2.5	2.5	2.5
Observation time, O_T	s	3	3	3	3
Decision time, D_T	s	5.5	5.5	5.5	5.5
Coefficient of deceleration, D		0.27	0.29	0.27	0.29
Driver height	m	1.1	2.4	1.1	2.4
Object height	m	1.25	1.25	1.25	1.25
Longitudinal grade, a	%	0	0	0	0
SISD	m	**299**	**209**	**299**	**209**

Table 22 – Runnymede Road entrance – SISD EDD design criteria

Parameter	Units	Extended Design Domain (NDD) Southbound		Northbound	
		Light Vehicle Car	Heavy Vehicle Trucks	Light Vehicle Car	Heavy Vehicle Trucks
Design speed, V	km/hr	100	80	100	80
Reaction time, R_T	s	2.5	2.5	2.5	2.5
Observation time, O_T	s	1	1	1	1
Decision time, D_T	s	3.5	3.5	3.5	3.5
Coefficient of deceleration, D		0.46	0.29	0.46	0.29
Driver height	m	1.1	2.4	1.1	2.4
Object height	m	1.25	1.25	1.25	1.25
Longitudinal grade, a	%	0	0	0	0
SISD	m	**243**	**165**	**243**	**165**

[#] EDD SISD – an observation time (O_T) of 0.5 sec less than the values given in Appendix A.3 (Austroads, 2021b) has been used.

4.4.5.2.6 Queue assessment

Heavy vehicles shall have no requirement to queue across Runnymede Road. As shown on Figure 3, there is sufficient queuing distance for westbound vehicles on the subject land prior to Runnymede Road.

4.4.5.2.7 Summary

A summary of the sight distance assessment results for the existing subject land and proposed development site entrance is provided in Table 23.

Table 23 – Proposed development – Runnymede Road entrance – Sight distance summary

Parameter	Units	Proposed entrance			
		Northbound		Southbound	
		Light Vehicle Car	Heavy Vehicle Trucks	Light Vehicle Car	Heavy Vehicle Trucks
ASD	m	215	142	215	142
SISD NDD required	m	299	209	299	209
SISD EDD required	m	243	165	243	165
Available sight distance	m	300	300	+400	+400

The analysis of the northbound and southbound approaches demonstrates that for the adopted design speed of 100 km/hr that the SISD is achieved as shown in Table 23.

The available sight distance north of the entrance is over 400 m due to the straight alignment of Runnymede Road and the flat terrain as shown in Photograph 25. The sight distance to the south is limited to about 300 m due to a horizontal curve as shown in Photograph 26. The sight distance can be improved through clearing of a standing ‘stag’ tree.

4.4.5.2.8 Geometric layout

The proposed development site entrance off Runnymede Road to the proposed development site shall be upgraded in accordance with the relevant standards and drawings by the Institute of Public Works Engineering Australasia Queensland Division.

4.4.6 Parking

4.4.6.1 Parking arrangements

The guidelines for car parking generation rates in Table 7.3.1.2: Car parking requirements in the Balonne Shire Council Planning Scheme 2019 (Balonne Shire Council, 2024), do not specify the requirements for parking spaces for Extractive industry. Consequently the required number of parking spaces (or facilities for service vehicles) will be based on the

circumstances of the specific proposal and assessed against the Performance outcomes of the Balonne Shire Council Planning Scheme 2019 and determined by Council.

To ensure the provision for parking adequately services the proposed development, the parking demand has been estimated at 3 personnel during campaigns. A conservative assumption has been adopted as each staff member will require an individual parking space.

The proposed development has a large site area which is sufficient to provide for at least 3 informal light vehicle carparking areas located across the development complex site. Further, the site area provides sufficient area for light and heavy vehicles up to a Type 1 road train to manoeuvre and turn around on-site and enter / exit the proposed development site in a forward direction.

4.4.6.2 Adequacy of car parking

Figure 3 indicates several informal gravel car parking areas of which dimensions are able to accommodate more than 3 staff parking spaces, plus heavy vehicle spaces. Due to the nature of the proposed development and its location in a rural area this provision is considered to be appropriate in accordance with the requirements of the expected delivery of plant and equipment and plant operators.

Provision of parking for persons with disability and general access shall be made in accordance with the requirements of Australian Standards AS1428 – Design for access and mobility and AS2890.6 – Parking facilities as far as they are relevant to the proposed development.

There is no requirement to have a formal pedestrian connection to buildings from parking areas.

There is no requirement for allocation of specific service areas for waste collection, deliveries and loading and unloading of other goods.

4.4.7 Public transport

Due to the rural location of the subject land there is no scheduled public transport operations such as passenger / school bus or train services along Fernlee Road or Runnymede Road. The Balonne Highway is a school bus route from St George to Boolba. There is a passenger bus service operated by Murrays Australia from Brisbane to Cunnamulla on Fridays and Saturdays, and through to St George on Wednesdays. The bus returns to Brisbane on Mondays and Saturdays and also leaves from St George on Thursdays.

The Balonne Highway is not proposed as a future public transport route. Due to the nature of the proposed development provision for public transport infrastructure is not deemed warranted.

Consequently, the proposed development shall have no impact on public transport services.

4.4.8 Cyclists and pedestrians

Due to the rural location of the subject land there are no pedestrian paths, bicycle lanes or bicycle awareness zones provided on Fernlee Road or Runnymede Road.

Due to the nature of the proposed development provision for pedestrian paths or bicycle infrastructure is not deemed warranted.

Consequently, the proposed development shall have no impact on cyclist or pedestrian infrastructure.

4.4.9 Conclusion

The impact of traffic generated by the proposed development on the external transport network has been assessed. Consideration has been given to operational performance, road safety and access arrangements.

The assessment was carried out of the trips likely to be generated by the proposed development and the estimated distribution of trips on the existing road network. The impact of the proposed development on the road network has been analysed using procedures set out in Austroads and the Lower Order Road guidelines.

Results of the assessment indicate that the road network continues to operate with capacity as the additional levels will be less than 5% of existing daily traffic levels on the SCR network and the additional traffic on the local road network is within the standard of the existing road design. Consequently, the impact of development traffic on the operational performance of the local road network is not significant.

No geometric upgrades are recommended under proposed additional traffic within the sealed or unsealed section of Fernlee Road and Runnymede Road as these roads meet the minimum standard commensurate with existing and proposed traffic volumes.

No intersection upgrades to the local or state controlled road network would be warranted due to the low additional volume of development traffic.

The following mitigation measures are proposed or maintained:

- Access for light and heavy vehicles be maintained via the proposed subject land entrance off Runnymede Road approximately 7.4 km south of the intersection with Fernlee Road to provide sufficient sight distances to and from the intersection.
- Advisory signage (Truck crossing or entering) be implemented on each approach to the development site entrance in accordance with AS1742.2 to advise motorists of truck turning movements.

In conclusion, the proposed development will not adversely impact on the operational performance of the surrounding road network and the proposed road access arrangements are considered adequate and suitable for the proposed use and estimated traffic generated.

5 Pavement Impact Assessment

In relation to pavement impacts, for the state-controlled road network the GTIA defines the 'impact assessment area' as:

"all road links where the development SAR4s exceed 5% of the base traffic in either direction on the link's SAR4s in the year of opening of each stage."

BSC has not requested a pavement impact assessment for the local government controlled road network.

This section will review the road pavement traffic impacts associated with the operational activities, with the Balonne Highway which is subject to additional heavy vehicle traffic due to site operations.

5.1.1 Balonne Highway

The assessment of pavement impacts was completed separately for each lane of the Balonne Highway east and west of the Fernlee Road intersection.

The assessment of pavement impacts was undertaken on the Balonne Highway in accordance with the requirements of the Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment (DTMR, 2018) including.

- Determination of existing Standard Axle Repetitions (SARs) on the state-controlled roads
- Determination of the additional SARs due to the proposed development.
- Establishing whether the increase in SARs due to the proposed development is greater than 5%.
- Determining an appropriate contribution for the increase in pavement wear due to the development traffic if the increase in SARs due to the proposed development is greater than 5%.

A calculation of daily SARs from background traffic on the Cunningham Highway was completed based on:

- Balonne Highway background SARs = 3.2 adopted as per the standard SARs nominated in the Practice Note (DTMR, 2018).

Detailed calculations of background and proposed development AADT volumes and SARs are included in Table 18 for Stage 4 of the proposed development. The pavement impact assessment determined that the proposed development will not increase SARs on the Balonne Highway by greater than 5% when fully developed as shown in Table 24.

Table 24 – Proposed development – Estimated SARs – Stage 4 (100,000 tonnes)

				Section		Background Volumes							Development Volumes (Stage 4)		
Road Name	Road Segment	Direction	With Gazettal/ Against Gazettal	TDist Start	TDist End	AADT	AADT	AADT HV	Standard Axle Reptitions	Standard Axle Reptitions	Standard Axle Reptitions	Background SARs Opening year of Stage 1 (2024)	SARs Stage 1 opening year	Increase Over Background	> 5% Increase
				km	km	Year	vpd	vpd	SAR[4] per HV	SAR[4] per day	SAR[4] per year	SAR[4] per year	SAR[4] per year	%	
Balonne Highway	East of Fernlee Road intersection	Eastbound	A Gazettal	5.32	113.27	2023	144	72	3.2	230.4	84096	86619	3475.0	4.01%	No
		Westbound	W Gazettal	5.32	113.27	2023	153	43	3.2	137.6	50224	51731	229.2	0.44%	No
	West of Fernlee Road intersection	Eastbound	A Gazettal	0	37.28	2023	98	36	3.2	115.2	42048	43309	114.6	0.26%	No
		Westbound	W Gazettal	0	37.28	2023	104	33	3.2	105.6	38544	39700	1737.5	4.38%	No

6 References

Austroads, 2020, Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management, Sydney, NSW.

Austroads 2021a, Guide to Road Design Part 3: Geometric Design, AGTM04A-17, Austroads, Sydney, NSW.

Austroads 2021b, Guide to Road Design Part 4: Intersections and Crossings: General, AGRD04-23, Austroads, Sydney, NSW.

Austroads 2021c, Guide to traffic management: part 4A: Unsignalised and Signalised Intersections, AGTM04A-17, Austroads, Sydney, NSW.

Balonne Shire Council, 2024, Balonne Shire Council Planning Scheme 2024 –Commenced 25 January 2024, Balonne Shire Council, St George, Queensland.

Institute of Public Works Engineering Australasia ((IPWEAQ), 2016, Lower Order Road Design Guidelines, Institute of Public Works Engineering Australasia, Queensland.

Queensland Department of Transport and Main Roads, 2013, Road Planning and Design Manual 2nd edition Queensland Practice July 2013, Queensland Department of Transport and Main Roads, Brisbane, Queensland.

Queensland Department of Transport and Main Roads, 2018, Manual of Uniform Traffic Control Devices- Part 2 Traffic Control Devices for General Use, Seventh Issue, Queensland Department of Transport and Main Roads, Brisbane, Queensland.

Queensland Department of Transport and Main Roads, 2018, Guideline: Guide to Traffic Impact Assessment, Department of Transport and Main Roads, Brisbane, Queensland.

Queensland Department of Transport and Main Roads, 2018, Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment, Department of Transport and Main Roads, Brisbane, Queensland.

Queensland Department of Transport and Main Roads, 2025, School Kilometric Bus Route dataset, Queensland Department of Transport and Main Roads, Brisbane, Queensland.

Appendix A – BSC Road Register

Balonne Shire Road Network

N

BINDA RD
MITCHELL-BOLLON RD
CARDIFF RD
MOURILYAN RD
RUTHERGLEN RD
MIDDLE RD
UNITY RD
POWRUNNA RD
CRESCENT VALE RD
MITCHELL-ST GEORGE HWY
WANGANUI LN
INGABY RD
BINDLE RD
CARNARVON HWY
THOMBY RD
DALKEITH RD
TEELBA 2 RD
THOMPSONS RD
KOOROON RD
SATUR RD
NARKOOLA RD
SUNSET VALLEY RD
BALONNE HWY
JANE ST
BALONNE-HWY
SECRET PLAINS RD
MUNDALEE RD
WAGGOO RD
ALFRED ST
SALMON RD
WILGATOO RD
TEELBA-RD
MOONIE-HWY
ULA RD
DUNBAR RD-BOLLON-DIRRANBANDI RD
HONEYMAH LN
BUCKINBAH RD
BOWHAY RD
WARRIE-RD
BELTANA RD
HOLLYMOUNT RD
JHELUM PLAINS RD
FERNLEE RD
RUNNYMEDE RD
CASHEL VALE RD
CORACK RD
JAKELWAR-GOODOOGA RD
WHYMENBAH RD
STUBBY LN
TAN PAUL RD
MUNRO RD
WEST HARAN RD
CHELMER RD
YILGANGANDI RD
DENHOLM RD
OPENBAH RD
CASTLEREAGH HWY
LOWER PLAINS RD
BIMBLE RD
MAYES ST
BARWON HWY
BALLANGARRY RD
LITTLETON RD
DUNKERRY RD
NARLINE RD
HOOLAVALE RD
KILCUMMIN RD
IDA ST
NOONDOO-THALLON RD
NARINE RD
DIAMOND TANK RD
NOONDOO-MUNGINDI
PINE PARK RD
OLD DAREEL RD
RAMALIS RD
MULGA DOWNS RD
WOOLERINA RD
NORTH KULKI RD
KULKI LINK RD
TAMBINGEY RD
WOOLERBILLA RD
OLD WOOLERBILLA RD
DAVIRTON RD
CUBBIE RD
LOUGHNAN DOWNS RD
MINNUM RD
NULKY RD
KOOMALAH RD
EURABA RD
BOOLIGAR RD
BALLANDOOL RD
JAMES ST
GUNNINDADDY RD
CAMBO RD
DINGADEE RD
TULLY ST
BARWON 1
HABNAREY RD
BYRA RD
JAKELWAR-GOODOOGA RD

For the People
Balonne Shire Council

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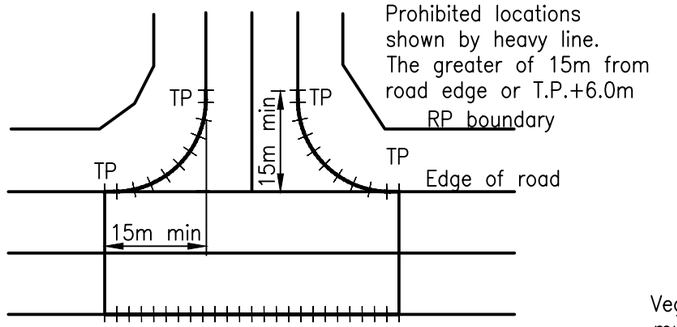
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10 5 0 10 20 30 40
Kilometers

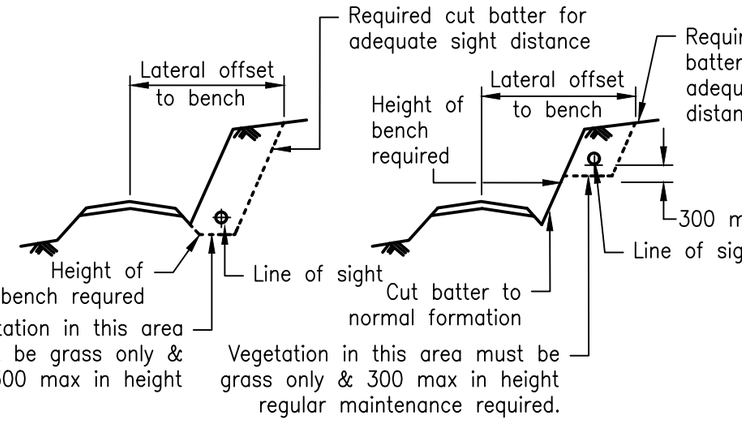
Legend

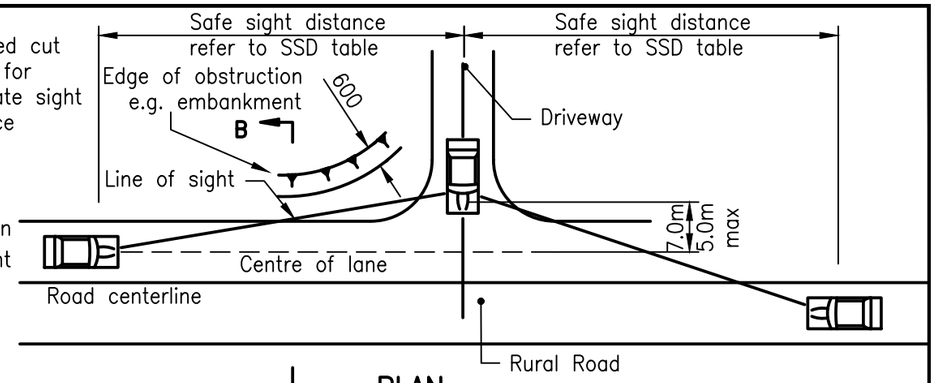
- Local Roads of Regional Significance
- URBAN ACCESS
- URBAN COLLECTOR
- URBAN ARTERIAL
- RURAL ACCESS
- RURAL COLLECTOR
- RURAL ARTERIAL
- MAIN ROADS ARTERIAL
- Watercourse Lines

Appendix B – BSC Standard Drawing



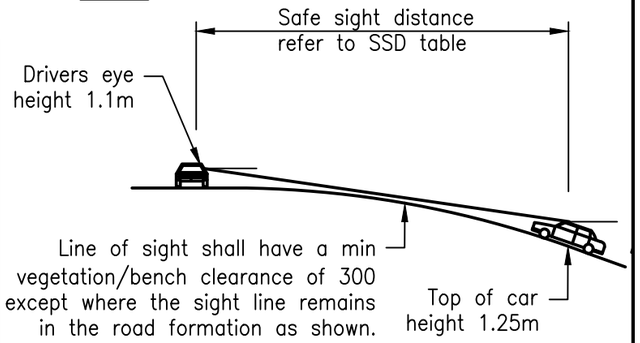
PROHIBITED LOCATIONS AT INTERSECTIONS FOR RURAL VEHICLE CROSSINGS





B

PLAN



BENCHING DETAIL

SECTION B–B

PIPE SIZE		
Catchment Area	ARI 2	ARI 10
<0.5Ha	375	450
<1.0Ha	450	525
<1.5Ha	525	600
<2.5Ha	600	2/450
<3.0Ha	2/450	2/525
<4.0Ha	2/525	2/600
<5.0Ha	2/600	(2)

For average daily traffic <= 2000, ARI 2
For average daily traffic > 2000, ARI 10

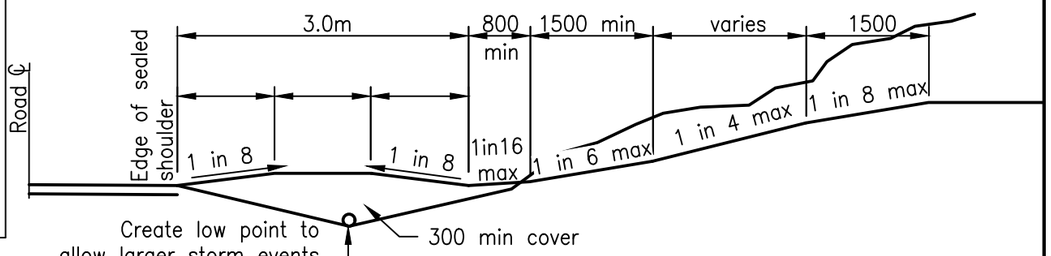
(1) Alternatives may be approved if supported with calculations in accordance with the provisions of the Queensland Urban Drainage Manual or under the provisions of Council's Planning Scheme.

(2) Seek consulting engineer advice.

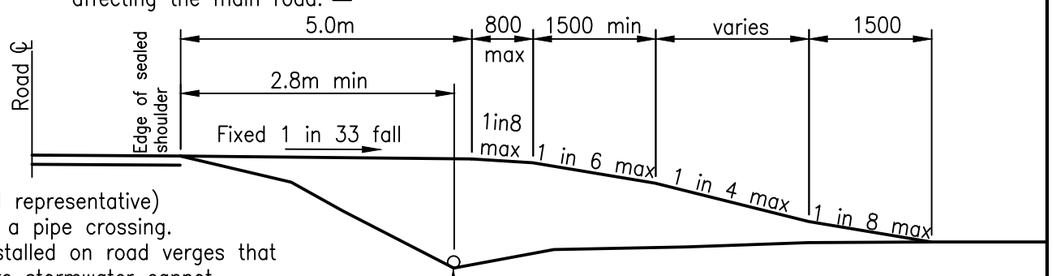
Safe Sight Distance	
Speed Limit (km/h)	Safe Sight Distance (m)
40	73
50	97
60	123
70	151
80	181
90	214
100	248

Based on Austroads Part 4A – 2009, Table 3.2

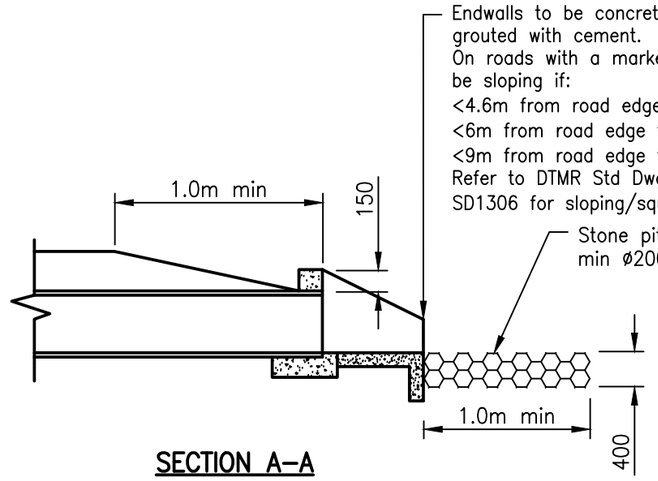
LONGITUDINAL SECTION SSD – EXITING FROM DRIVEWAY



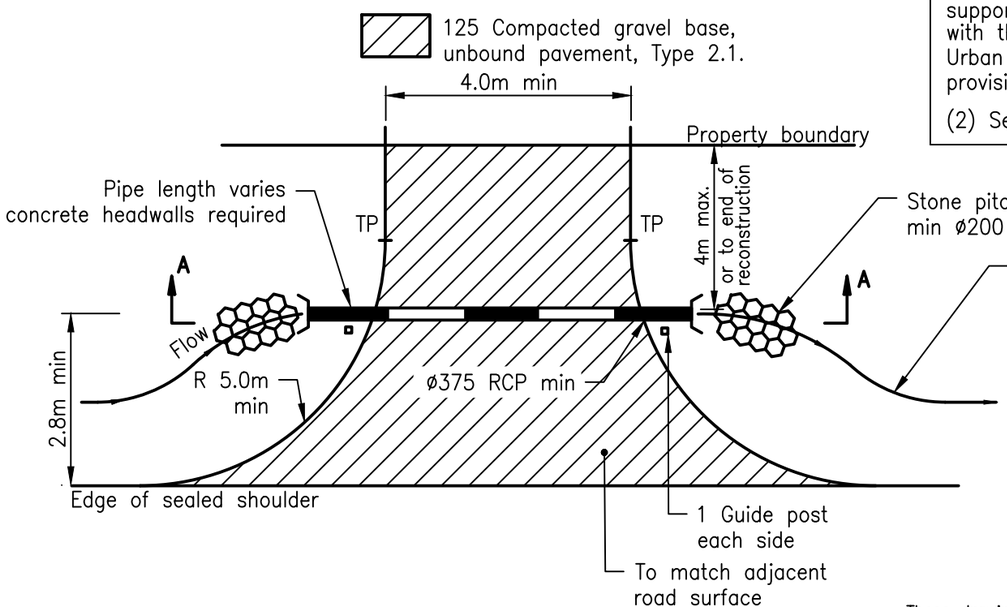
TYPICAL DRIVEWAY SECTION – ROAD IN CUT



TYPICAL DRIVEWAY SECTION – ROAD IN FILL



SECTION A–A



VEHICLE CROSSING PLAN

NOTES:

1. A site assessment (By a Council representative) is to occur upon application for a pipe crossing. Pipe crossings are not to be installed on road verges that fall to the subject property where stormwater cannot be directed to a natural water course or drainage easement or when there is no upstream stormwater catchment or V–Drain.
2. All dimensions are in millimetres unless shown otherwise.

These drawings have been developed in consultation between the participating Councils.
BEFORE USE, the user shall confirm that the drawing has been adopted by the appropriate Council.

Rv.	DATE	REVISIONS
F	06/14	Review
E	03/14	Amended Drawing Number
D	12/11	Drawing number changed from SEQ R–056 to RS–056
C	06/10	Review
B	06/09	Review
G	06/16	Review
	03/09	ORIGINAL ISSUE

INSTITUTE OF PUBLIC WORKS ENGINEERING AUSTRALASIA
STANDARD DRAWINGS

VEHICLE CROSSINGS
RURAL DRIVEWAY

RS–056

Appendix C – DTMR Weekly volume reports

Traffic Analysis and Reporting System

Volume Reports

Version 2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division



About this dashboard

The Volume Report dashboard (”the dashboard”) is designed to help you visualise and analyse data collected from various permanent and coverage sites located across Queensland. The dashboard allows you to interrogate one traffic site at a time through a number of different lenses including vehicle class code and direction of travel.

The report displays bi-directional volume data (with gazettal, against gazettal and both directions) averaged across a date range. Volume data is displayed in either 15 minute intervals or aggregated to hour of day depending on the specific visualisation.

For additional information regarding volume data or for assistance with this dashboard, please contact the Traffic Data Systems team at: SNO_TDSAM@tmr.qld.gov.au

Definitions

District: For administration purposes, the Department of Transport and Main Roads has divided Queensland into 12 Districts. District is displayed as District Number - Name. For more details, see the **”Help”** sheet.

Road Section: is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in the gazettal direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Direction of Travel: defines the direction of the traffic flow. It can be easily recognised by referring to the name of the road. E.g. Road Section 10A Brisbane - Gympie donates the gazettal direction is from Brisbane to Gympie.

Road Section Name: The name of a gazetted road section within a major road. Larger roads are broken down into sections for easier data collection and reporting.For example, the Bruce Highway is identified by the number 10, an alpha suffix is added to indicate the Road Section ”10A” being Brisbane-Gympie.

Site: The physical location of a traffic counting device. Sites are located at a specified Through Distance along a road. Sites are broadly categorised into two types - **Permanent** and **Coverage. Permanent sites** refer to fixed traffic counting devices that operate 24/7. **Coverage sites** refer to traffic counting devices that are only in place for a specified period of time.

Site Description: The description of the physical location of the traffic counting device.

Annual Average Daily Traffic (AADT): is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

Average Daily Traffic (ADT): is determined by summing to total traffic flow, at direction level, for the days within a date range, divided by the number of days collected. Missing days or incomplete days are excluded from the calculation.

Through Distance (or TDist): The distance, in kilometres, from the beginning of the Road Section with the gazettal direction.

Traffic Class: Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format. For more details, see the **”Help”** sheet.

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Training Videos

Click here for help using Volume Date Range Report

Click here for general tips and tricks when using Tableau

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Traffic Analysis and Reporting System

Volume Reports

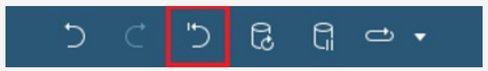
Version 2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division



Clear all filters (reset dashboard to default)

To clear **ALL** filters on the dashboard and reset the dashboard to its default state, click on the "**Reset View**" icon on the top menu in the Tableau Server menu as shown below.



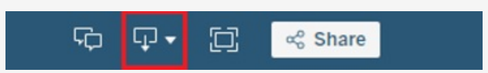
Undo my last action

To undo your last action, or actions, click on the "**Undo my last action**" icon on the top menu in the Tableau Server menu as shown below.



Print to PDF

To print **ALL** (or a selection of) sheets to PDF, follow the following steps:



1. Click on the "**Choose a format to download**" button on the top menu bar as shown above.
2. Select PDF
3. Under Include change option to "**Specific sheets from this workbook**"
4. Click "**Select All**" - or select specific sheets
5. Set page size and orientation - e.g. A4, Landscape
6. Click "**Download**"

Understanding the data

Data in this dashboard is primarily sourced from TMR's production Oracle environment. Custom SQL queries are used to build each report using the TDEADM.VOLUME_DAILY_INTERVALS table, including:

1. DATA_AVAILABILITY
2. CLASSIFICATION_REPORT
3. DAILY_VOLUME_REPORT
4. WEEKLY_VOLUME_REPORT

TDEADM.TRAFFIC_SITES+CALENDAR_SCAFFOLD is a hyper data extract, joining the TDEADM.TRAFFIC_SITES table and the Scaffold-2015-2024.xlsx spreadsheet. It supports the site and calendar availability selections...

Vehicle Class Codes

00 - All Vehicles	00 is comprised of the following 2-Bin classes: 0A + 0B
2-Bin	
0A - Light vehicles	0A is comprised of the following 4-Bin classes: 1A
0B - Heavy vehicles	0B is comprised of the following 4-Bin classes: 1B + 1C + 1D
4-Bin	
1A - Short vehicles	1A is comprised of the following 12-Bin classes: 2A + 2B
1B - Truck or bus	1B is comprised of the following 12-Bin classes: 2C + 2D + 2E
1C - Articulated vehicles	1C is comprised of the following 12-Bin classes: 2F + 2G + 2H + 2I
1D - Road train	1D is comprised of the following 12-Bin classes: 2J + 2K + 2L

12-Bin

2A - Short 2 axle vehicles
2B - Short vehicles towing
2C - 2-axle truck or bus
2D - 3-axle truck or bus
2E - 4-axle truck
2F - 3-axle articulated vehicle
2G - 4-axle articulated vehicle
2H - 5-axle articulated vehicle
2I - 6-axle articulated vehicle
2J - B-double
2K - Double road train
2L - Triple road train

Region codes and names

306 - Metropolitan
307 - North Coast
310 - South Coast
314 - Central Queensland
315 - North Queensland
316 - Southern Queensland

District codes and names

401 - Central West District
402 - Darling Downs District
403 - Far North District
404 - Fitzroy District
405 - Mackay/Whitsunday District
406 - Metropolitian District
407 - North Coast District
409 - North West District
408 - Northern District
410 - South Coast District
411 - South West District
412 - Wide Bay/Burnett District

Time Periods

Four different time periods of traffic flow are defined.

12-hour - Traffic flow time period from 0700 to 1900
16-hour - Traffic flow time period from 0600 to 2200
18-hour - Traffic flow time period from 0600 to 2400
24-hour - Traffic flow time period from 0000 to 2400

Training Videos

Click here for help using the Volume Report

Click here for tips when using Tableau

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Volume: Site selection

Select a single traffic site, and associated date range for further analysis.

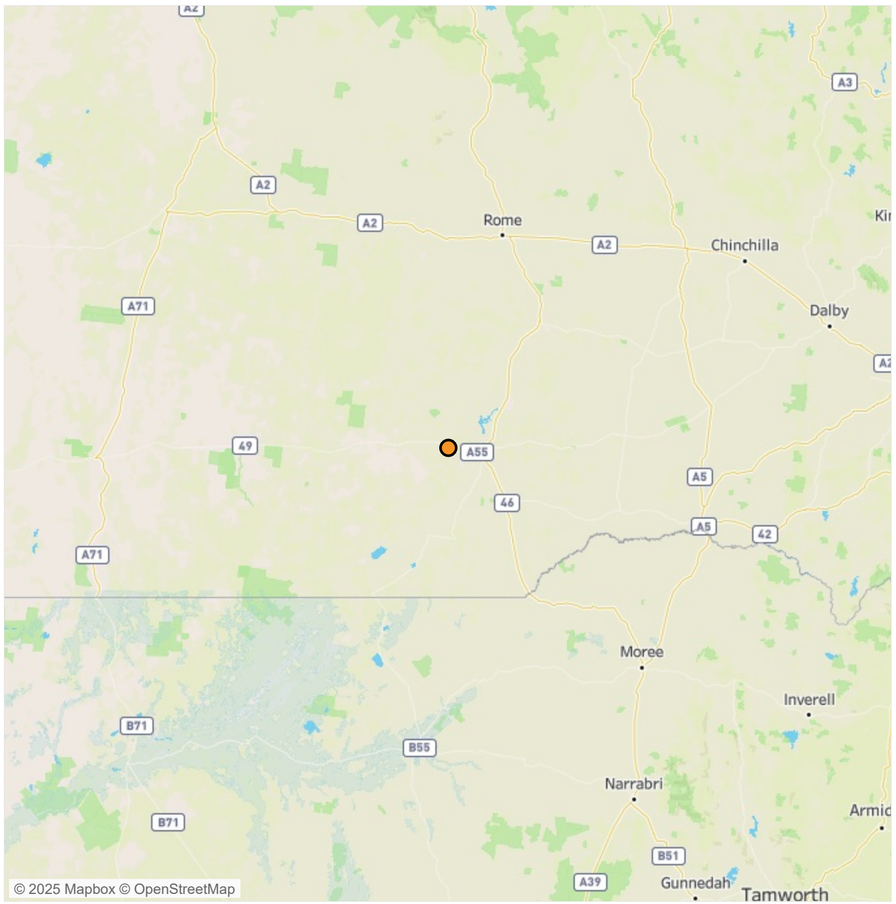
Area
Region: **Southern Queensland**
District: **South West**
Road: **36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)**

Site
ID: **50009**
Type: **Coverage Site**
Description: **36A-150m East of Powrunna Rd**

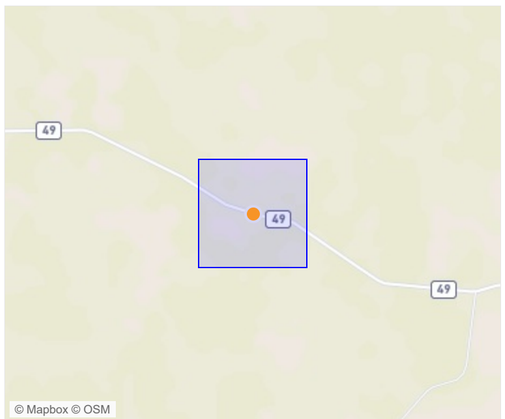
Spatial
TDist: **22.47 km**
Latitude: **-27.996546**
Longitude: **148.370424**



Site selection:



Zoomed in view:
(once a single site is selected)



Site local area:



Data availability map:
(modified by available filters)

		All Vehicles			2 bin			4 bin			12 bin		
		With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions
2024	October	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	November	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Data collection dates:
(within selected date range)

		Mon	Tue	Wed	Thu	Fri	Sat	Sun
2024	Oct					4	5	6
		7	8	9	10	11	12	13
				16	17	18	19	20
		21	22	23	24	25	26	27
		28	29	30	31			
						1	2	3
		4	5	6				
	Nov							

Location Filters

Region
All

District
All

LGA
All

Road
All

Site
50009

CLICK SITE ON MAP TO LOAD REPORT

Temporal Filters

Select Start Date
1/10/2024

Select End Date
31/12/2024

Total sites shown: 1

Permanent sites shown:None

Coverage sites shown: 1

Site Type
Coverage Site

Calendar Day Category
Public holiday
Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Classification Report

Displays averaged traffic volume by hour of day organised by Traffic Class Code and Class Hierarchy.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)**

Site
ID: **50009**
Type: **Coverage Site**
Description: **36A-150m East of Powrunna Rd**

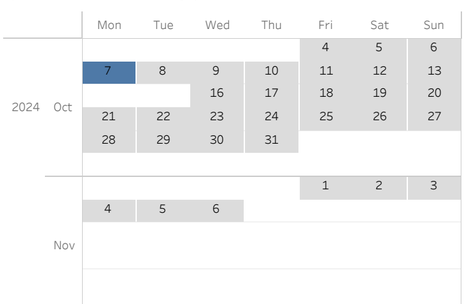
Spatial
TDist: **22.47 km**
Latitude: **-27.996546**
Longitude: **148.370424**



Site local area:



Data collection dates:
(within selected date range)

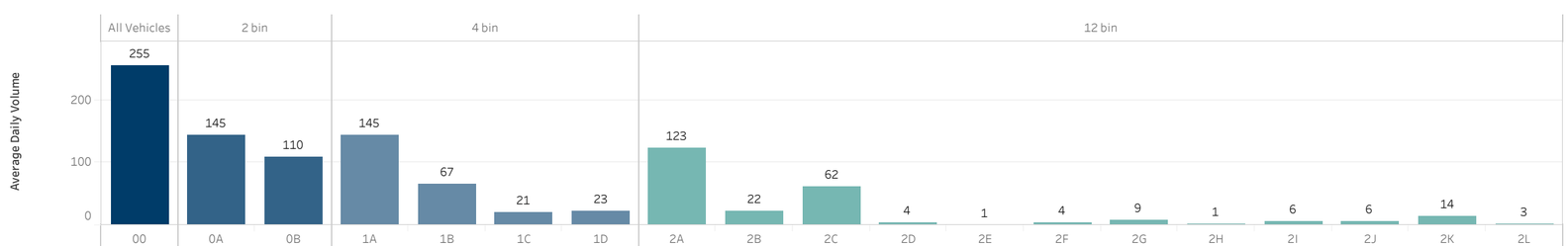


Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	4	4	5	4	5	5	5
With data	4	4	5	4	5	5	5
Holidays	1	0	0	0	0	0	0

Average volume by hour of day and by traffic class code

Traffic Class Code Help

	All Vehic..	2 bin		4 bin				12 bin											
	00	0A	0B	1A	1B	1C	1D	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J	2K	2L
00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04	2	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05	5	4	2	4	1	0	1	3	0	1	0	0	0	0	0	0	0	0	0
06	10	5	5	5	3	1	1	5	1	3	0	0	0	0	0	0	0	0	0
07	16	8	8	8	6	1	1	7	1	5	1	0	0	0	0	0	0	1	0
08	20	12	8	12	6	2	1	10	2	5	0	0	0	1	0	0	1	1	0
09	22	13	9	13	6	2	1	10	3	5	0	0	1	1	0	1	0	1	0
10	22	14	9	14	6	2	1	11	3	5	0	0	1	1	0	0	0	1	0
11	22	12	9	12	5	2	2	10	3	5	0	0	1	1	0	1	0	1	0
12	21	13	8	13	5	2	1	11	3	5	0	0	0	1	0	1	0	1	0
13	20	11	9	11	5	2	2	10	1	5	0	0	1	1	0	1	0	1	0
14	19	11	8	11	5	2	1	10	2	4	0	0	0	1	0	1	0	1	0
15	17	10	7	10	5	1	1	9	1	5	0	0	0	0	0	0	0	1	0
16	17	9	8	9	5	1	2	8	1	5	0	0	0	0	0	0	0	1	0
17	13	8	6	8	4	1	1	7	1	4	0	0	0	0	0	0	0	1	0
18	9	5	4	5	2	1	1	5	0	2	0	0	0	0	0	0	0	1	0
19	7	3	3	3	2	0	1	3	0	2	0	0	0	0	0	0	0	1	0
20	4	1	2	1	1	0	1	1	0	1	0	0	0	0	0	0	0	1	0
21	3	1	2	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0
22	2	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0
23	2	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0



Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Legends

Traffic Class Bins (Click to highlight selection)
- All Vehicles
- 2 bin
- 4 bin
- 12 bin

Calendar Day Category
- Public holiday
- Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Daily Report

Displays averaged traffic volume and associated % contribution of total by 15-minute increment for the range of dates selected.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)**

Site
ID: **50009**
Type: **Coverage Site**
Description: **36A-150m East of Powrunna Rd**

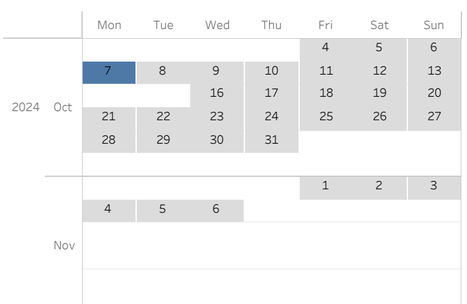
Spatial
TDist: **22.47 km**
Latitude: **-27.996546**
Longitude: **148.370424**



Site local area:



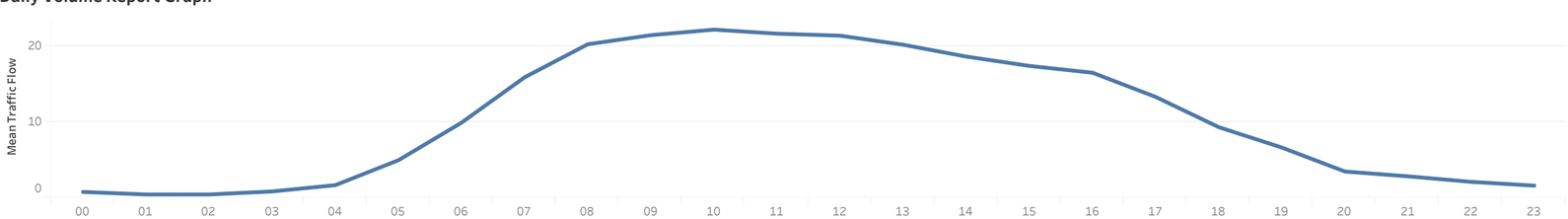
Data collection dates:
(within selected date range)



Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	4	4	5	4	5	5	5
With data	4	4	5	4	5	5	5
Holidays	1	0	0	0	0	0	0

	00 min - 15 min		15 min - 30 min		30 min - 45 min		45 min - 60 min		Grand Totals	
	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day
00	0	0.1%	0	0.1%	0	0.1%	0	0.1%	1	0.3%
01	0	0.1%	0	0.1%	0	0.0%	0	0.0%	0	0.2%
02	0	0.1%	0	0.0%	0	0.1%	0	0.0%	0	0.2%
03	0	0.1%	0	0.1%	0	0.1%	0	0.1%	1	0.3%
04	0	0.1%	0	0.1%	1	0.2%	1	0.2%	2	0.7%
05	1	0.3%	2	0.6%	1	0.4%	2	0.7%	5	2.0%
06	2	0.8%	3	1.1%	2	0.9%	3	1.1%	10	3.9%
07	4	1.5%	3	1.3%	4	1.4%	5	2.1%	16	6.3%
08	6	2.3%	5	2.1%	4	1.7%	5	1.8%	20	8.0%
09	6	2.2%	6	2.2%	5	2.1%	5	1.9%	22	8.4%
10	6	2.4%	6	2.2%	5	2.1%	5	2.1%	22	8.7%
11	6	2.2%	5	2.1%	5	2.1%	5	2.1%	22	8.5%
12	5	2.1%	5	2.0%	5	2.0%	6	2.3%	21	8.4%
13	6	2.3%	5	2.1%	5	2.0%	4	1.6%	20	7.9%
14	5	2.0%	5	2.1%	5	1.8%	4	1.5%	19	7.3%
15	4	1.6%	5	2.0%	4	1.5%	5	1.8%	17	6.8%
16	5	1.9%	3	1.4%	4	1.6%	4	1.7%	17	6.5%
17	4	1.5%	3	1.3%	3	1.2%	3	1.3%	13	5.2%
18	3	1.1%	2	0.9%	3	1.0%	2	0.7%	9	3.7%
19	2	0.9%	2	0.6%	2	0.6%	1	0.5%	7	2.6%
20	1	0.3%	1	0.3%	1	0.4%	1	0.4%	4	1.4%
21	1	0.3%	1	0.4%	1	0.2%	1	0.3%	3	1.1%
22	1	0.2%	1	0.4%	1	0.2%	0	0.1%	2	0.8%
23	1	0.2%	0	0.1%	0	0.1%	0	0.2%	2	0.6%
Grand Total	67	26.3%	65	25.5%	61	23.9%	62	24.4%	255	100.0%

Daily Volume Report Graph



Time Window	Daily Avg. Volume	% Total
12-hour flow	219.0	85.86%
16-hour flow	242.0	94.88%
18-hour flow	245.8	96.35%
24-hour flow	255.1	100.00%

Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Traffic Class Code
00 - All Vehicles

Time Window
24 Hour

Legends (Click to highlight selection)

Calendar Day Category
- Public holiday
- Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Weekly Report

Displays averaged traffic volume and associated % contribution of total by hour of day and day of week for the range of dates selected.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)**

Site
ID: **50009**
Type: **Coverage Site**
Description: **36A-150m East of Powrunna Rd**

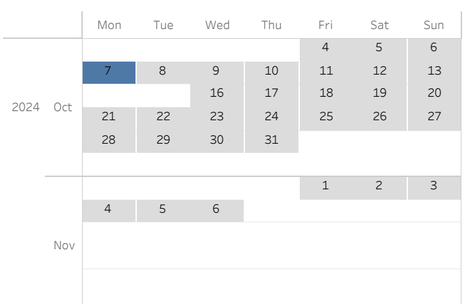
Spatial
TDist: **22.47 km**
Latitude: **-27.996546**
Longitude: **148.370424**



Site local area:



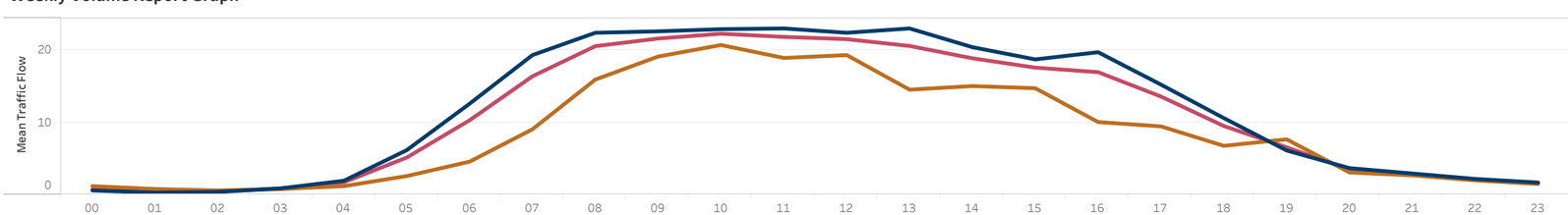
Data collection dates:
(within selected date range)



Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	4	4	5	4	5	5	5
With data	4	4	5	4	5	5	5
Holidays	1	0	0	0	0	0	0

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Weekdays		Weekend		All	
	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day
00	1	0.3%	1	0.2%	1	0.4%	1	0.2%	0	0.0%	2	0.9%	1	0.3%	1	0.2%	1	0.6%	1	0.3%
01	0	0.0%	1	0.2%	0	0.1%	1	0.2%	0	0.1%	1	0.3%	1	0.5%	0	0.1%	1	0.4%	0	0.2%
02	1	0.3%	0	0.1%	1	0.2%	0	0.0%	1	0.2%	0	0.2%	1	0.4%	0	0.1%	1	0.3%	0	0.2%
03	1	0.2%	1	0.4%	1	0.3%	1	0.5%	1	0.4%	1	0.6%	0	0.2%	1	0.3%	1	0.4%	1	0.3%
04	2	0.6%	2	0.7%	2	0.7%	2	0.7%	2	0.7%	2	0.9%	1	0.3%	2	0.7%	1	0.6%	2	0.7%
05	8	2.7%	8	2.9%	7	2.5%	5	1.7%	3	1.2%	3	1.6%	2	1.0%	6	2.2%	3	1.3%	5	2.0%
06	10	3.4%	15	5.3%	12	4.3%	11	4.1%	15	5.4%	5	2.4%	4	2.2%	13	4.5%	5	2.3%	10	4.0%
07	16	5.7%	18	6.5%	22	7.7%	23	8.3%	18	6.3%	9	4.6%	9	4.3%	19	6.9%	9	4.5%	16	6.4%
08	19	6.6%	23	8.3%	24	8.4%	23	8.2%	24	8.5%	16	7.9%	16	7.9%	23	8.0%	16	7.9%	21	8.0%
09	29	10.0%	17	6.0%	23	7.9%	23	8.2%	23	8.2%	23	11.3%	15	7.6%	23	8.1%	19	9.4%	22	8.4%
10	28	9.8%	21	7.4%	21	7.4%	22	7.9%	24	8.4%	18	8.9%	23	11.5%	23	8.2%	21	10.2%	22	8.6%
11	30	10.6%	22	8.0%	20	6.8%	22	7.9%	22	7.8%	20	9.6%	18	9.1%	23	8.2%	19	9.4%	22	8.5%
12	24	8.3%	19	7.0%	21	7.4%	21	7.6%	27	9.7%	19	9.1%	20	10.0%	23	8.0%	19	9.5%	22	8.4%
13	21	7.2%	27	9.7%	27	9.5%	20	7.0%	22	7.7%	15	7.6%	14	6.8%	23	8.2%	15	7.2%	21	8.0%
14	20	7.1%	21	7.4%	22	7.8%	22	7.8%	18	6.4%	12	6.0%	18	8.9%	21	7.3%	15	7.4%	19	7.3%
15	19	6.7%	16	5.9%	19	6.6%	18	6.4%	22	7.8%	13	6.2%	17	8.4%	19	6.7%	15	7.3%	18	6.8%
16	16	5.7%	21	7.6%	22	7.5%	20	7.0%	21	7.4%	10	5.1%	10	4.8%	20	7.0%	10	5.0%	17	6.6%
17	14	5.0%	16	5.9%	17	5.8%	16	5.6%	14	5.0%	9	4.4%	10	4.9%	15	5.4%	10	4.7%	14	5.3%
18	13	4.6%	9	3.4%	9	3.1%	12	4.4%	10	3.5%	7	3.2%	7	3.4%	11	3.8%	7	3.3%	10	3.7%
19	6	1.9%	5	1.9%	6	1.9%	8	2.8%	7	2.4%	8	4.1%	7	3.4%	6	2.2%	8	3.8%	7	2.5%
20	6	1.9%	4	1.5%	3	1.1%	3	0.9%	3	1.2%	3	1.6%	3	1.5%	4	1.3%	3	1.5%	4	1.4%
21	2	0.7%	3	1.1%	4	1.4%	3	1.0%	3	1.1%	3	1.5%	2	1.2%	3	1.0%	3	1.3%	3	1.1%
22	2	0.6%	4	1.5%	1	0.3%	2	0.8%	2	0.6%	2	1.2%	2	0.8%	2	0.8%	2	1.0%	2	0.8%
23	1	0.2%	3	1.1%	2	0.7%	3	0.9%	1	0.2%	2	0.8%	1	0.7%	2	0.6%	2	0.7%	2	0.6%
Grand Total	286	100.0%	276	100.0%	286	100.0%	277	100.0%	281	100.0%	203	100.0%	203	100.0%	281	100.0%	203	100.0%	259	100.0%

Weekly Volume Report Graph



Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Traffic Class Code
00 - All Vehicles

Legends (Click to highlight selection)

Public Holiday
- Non-public holiday
- Public holiday

Day Grouping
- Weekdays
- Weekend
- All

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Traffic Analysis and Reporting System

Volume Reports

Version 2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division



About this dashboard

The Volume Report dashboard (”the dashboard”) is designed to help you visualise and analyse data collected from various permanent and coverage sites located across Queensland. The dashboard allows you to interrogate one traffic site at a time through a number of different lenses including vehicle class code and direction of travel.

The report displays bi-directional volume data (with gazettal, against gazettal and both directions) averaged across a date range. Volume data is displayed in either 15 minute intervals or aggregated to hour of day depending on the specific visualisation.

For additional information regarding volume data or for assistance with this dashboard, please contact the Traffic Data Systems team at: SNO_TDSAM@tmr.qld.gov.au

Definitions

District: For administration purposes, the Department of Transport and Main Roads has divided Queensland into 12 Districts. District is displayed as District Number - Name. For more details, see the **”Help”** sheet.

Road Section: is the Gazetted road from which the traffic data is collected. Each Road Section is given a code, allocated sequentially in the gazettal direction. Larger roads are broken down into sections and identified by an ID code with a suffix for easier data collection and reporting (eg. 10A, 10B, 10C). Road Sections are then broken into AADT Segments which are determined by traffic volume.

Direction of Travel: defines the direction of the traffic flow. It can be easily recognised by referring to the name of the road. E.g. Road Section 10A Brisbane - Gympie donates the gazettal direction is from Brisbane to Gympie.

Road Section Name: The name of a gazetted road section within a major road. Larger roads are broken down into sections for easier data collection and reporting.For example, the Bruce Highway is identified by the number 10, an alpha suffix is added to indicate the Road Section ”10A” being Brisbane-Gympie.

Site: The physical location of a traffic counting device. Sites are located at a specified Through Distance along a road. Sites are broadly categorised into two types - **Permanent** and **Coverage. Permanent sites** refer to fixed traffic counting devices that operate 24/7. **Coverage sites** refer to traffic counting devices that are only in place for a specified period of time.

Site Description: The description of the physical location of the traffic counting device.

Annual Average Daily Traffic (AADT): is the number of vehicles passing a point on a road in a 24 hour period, averaged over a calendar year.

Average Daily Traffic (ADT): is determined by summing to total traffic flow, at direction level, for the days within a date range, divided by the number of days collected. Missing days or incomplete days are excluded from the calculation.

Through Distance (or TDist): The distance, in kilometres, from the beginning of the Road Section with the gazettal direction.

Traffic Class: Is the 12 Austroads vehicle categories or classes into which vehicles are placed or binned. Traffic classes are formed in a hierarchical format. For more details, see the **”Help”** sheet.

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Training Videos

Click here for help using Volume Date Range Report

Click here for general tips and tricks when using Tableau

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Traffic Analysis and Reporting System

Volume Reports

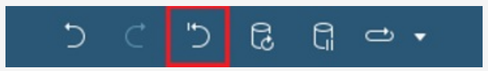
Version 2

Traffic Data Systems
Operational Technologies
Statewide Network Operations Branch | Infrastructure Management and Delivery Division



Clear all filters (reset dashboard to default)

To clear **ALL** filters on the dashboard and reset the dashboard to its default state, click on the "**Reset View**" icon on the top menu in the Tableau Server menu as shown below.



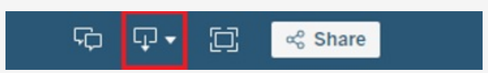
Undo my last action

To undo your last action, or actions, click on the "**Undo my last action**" icon on the top menu in the Tableau Server menu as shown below.



Print to PDF

To print **ALL** (or a selection of) sheets to PDF, follow the following steps:



1. Click on the "**Choose a format to download**" button on the top menu bar as shown above.
2. Select PDF
3. Under Include change option to "**Specific sheets from this workbook**"
4. Click "**Select All**" - or select specific sheets
5. Set page size and orientation - e.g. A4, Landscape
6. Click "**Download**"

Understanding the data

Data in this dashboard is primarily sourced from TMR's production Oracle environment. Custom SQL queries are used to build each report using the TDEADM.VOLUME_DAILY_INTERVALS table, including:

1. DATA_AVAILABILITY
2. CLASSIFICATION_REPORT
3. DAILY_VOLUME_REPORT
4. WEEKLY_VOLUME_REPORT

TDEADM.TRAFFIC_SITES+CALENDAR_SCAFFOLD is a hyper data extract, joining the TDEADM.TRAFFIC_SITES table and the Scaffold-2015-2024.xlsx spreadsheet. It supports the site and calendar availability selections...

Vehicle Class Codes

00 - All Vehicles	00 is comprised of the following 2-Bin classes: 0A + 0B
2-Bin	
0A - Light vehicles	0A is comprised of the following 4-Bin classes: 1A
0B - Heavy vehicles	0B is comprised of the following 4-Bin classes: 1B + 1C + 1D
4-Bin	
1A - Short vehicles	1A is comprised of the following 12-Bin classes: 2A + 2B
1B - Truck or bus	1B is comprised of the following 12-Bin classes: 2C + 2D + 2E
1C - Articulated vehicles	1C is comprised of the following 12-Bin classes: 2F + 2G + 2H + 2I
1D - Road train	1D is comprised of the following 12-Bin classes: 2J + 2K + 2L

12-Bin

2A - Short 2 axle vehicles
2B - Short vehicles towing
2C - 2-axle truck or bus
2D - 3-axle truck or bus
2E - 4-axle truck
2F - 3-axle articulated vehicle
2G - 4-axle articulated vehicle
2H - 5-axle articulated vehicle
2I - 6-axle articulated vehicle
2J - B-double
2K - Double road train
2L - Triple road train

Region codes and names

306 - Metropolitan
307 - North Coast
310 - South Coast
314 - Central Queensland
315 - North Queensland
316 - Southern Queensland

District codes and names

401 - Central West District
402 - Darling Downs District
403 - Far North District
404 - Fitzroy District
405 - Mackay/Whitsunday District
406 - Metropolitian District
407 - North Coast District
409 - North West District
408 - Northern District
410 - South Coast District
411 - South West District
412 - Wide Bay/Burnett District

Time Periods

Four different time periods of traffic flow are defined.

12-hour - Traffic flow time period from 0700 to 1900
16-hour - Traffic flow time period from 0600 to 2200
18-hour - Traffic flow time period from 0600 to 2400
24-hour - Traffic flow time period from 0000 to 2400

Training Videos

Click here for help using the Volume Report

Click here for tips when using Tableau

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Site selection

Select a single traffic site, and associated date range for further analysis.

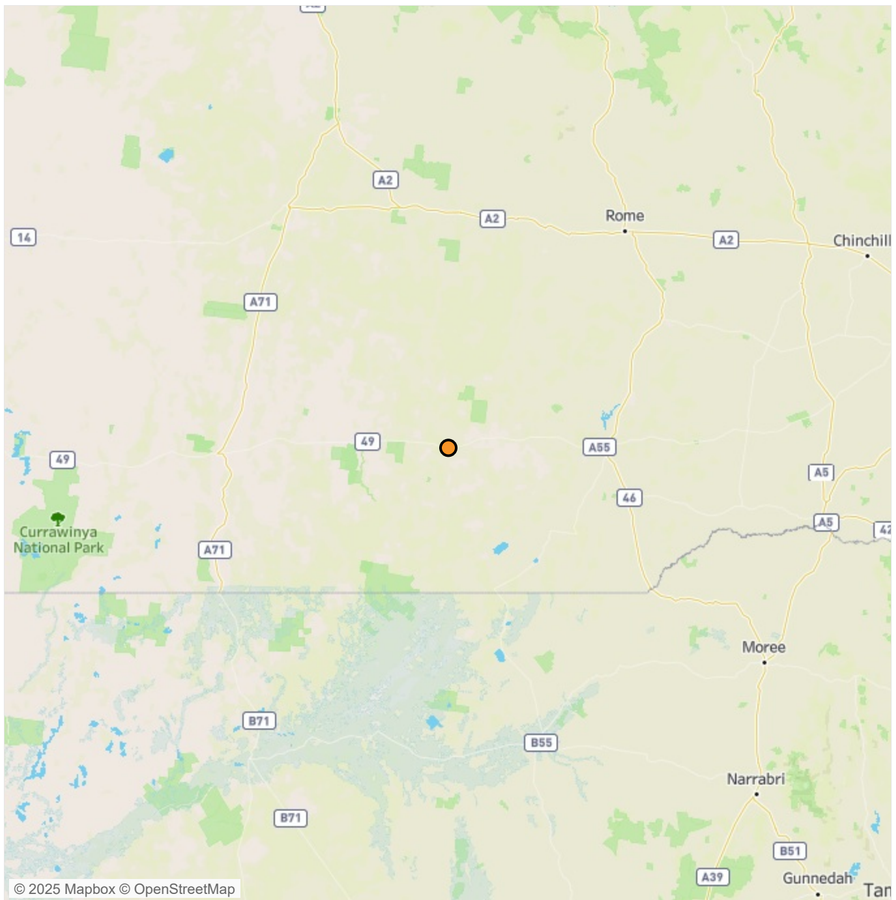
Area
Region: **Southern Queensland**
District: **South West**
Road: **36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)**

Site
ID: **50418**
Type: **Coverage Site**
Description: **36B-3km West of Bollon**

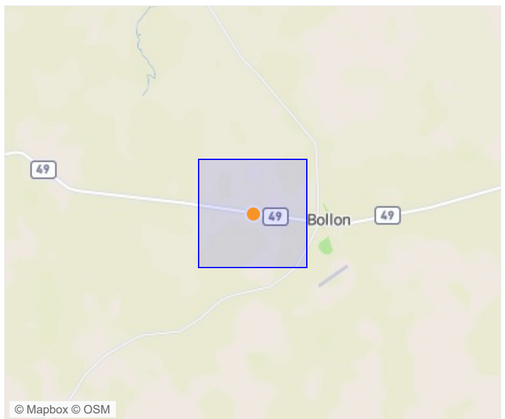
Spatial
TDist: **3.36 km**
Latitude: **-28.027475**
Longitude: **147.443779**



Site selection:



Zoomed in view:
(once a single site is selected)



Site local area:



Data availability map:
(modified by available filters)

		All Vehicles			2 bin			4 bin			12 bin		
		With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions	With Gazettal	Against Gazettal	Both Directions
2024	October	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Data collection dates:
(within selected date range)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
2024 Oct					4	5	6
	7	8	9	10	11	12	13
	14	15	16	17			

Location Filters

Region
All

District
All

LGA
All

Road
All

Site
50418

CLICK SITE ON MAP TO LOAD REPORT

Temporal Filters

Select Start Date
1/10/2024

Select End Date
31/12/2024

Total sites shown: 1

Permanent sites shown:None

Coverage sites shown: 1

Site Type
Coverage Site

Calendar Day Category
Public holiday
Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Classification Report

Displays averaged traffic volume by hour of day organised by Traffic Class Code and Class Hierarchy.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)**

Site
ID: **50418**
Type: **Coverage Site**
Description: **36B-3km West of Bollon**

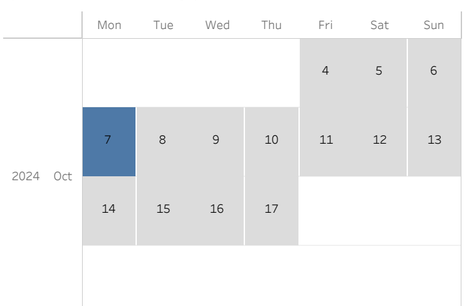
Spatial
TDist: **3.36 km**
Latitude: **-28.027475**
Longitude: **147.443779**



Site local area:



Data collection dates:
(within selected date range)



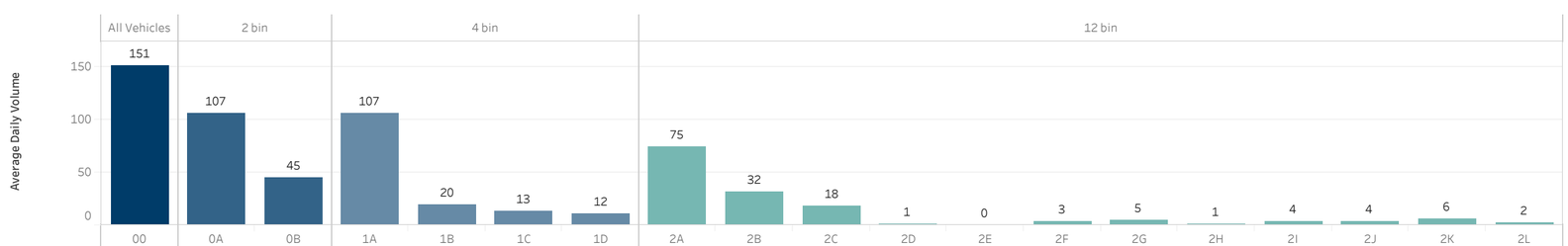
Days

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	1	0	0	0	0	0	0

Average volume by hour of day and by traffic class code

Traffic Class Code Help

	All Vehic..	2 bin		4 bin				12 bin											
	00	0A	0B	1A	1B	1C	1D	2A	2B	2C	2D	2E	2F	2G	2H	2I	2J	2K	2L
00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05	3	1	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
06	4	4	0	4	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0
07	7	5	2	5	1	1	0	4	1	1	0	0	0	0	0	0	0	0	0
08	12	8	4	8	2	1	0	6	2	2	0	0	0	1	0	0	0	0	0
09	13	11	2	11	1	1	0	6	4	1	0	0	0	1	0	0	0	0	0
10	20	16	5	16	2	2	1	9	7	2	0	0	0	1	0	1	0	1	0
11	16	12	4	12	2	2	1	7	5	2	0	0	1	1	0	0	0	0	0
12	13	9	4	9	2	1	1	6	3	2	0	0	0	1	0	0	0	1	0
13	12	9	3	9	2	1	1	7	2	2	0	0	0	0	0	0	0	0	0
14	13	9	4	9	2	1	1	7	2	2	0	0	0	0	0	0	0	1	0
15	10	6	3	6	2	1	1	5	2	2	0	0	0	0	0	0	0	1	0
16	8	5	3	5	1	1	1	4	1	1	0	0	0	0	0	0	0	0	0
17	6	4	2	4	1	1	1	3	1	1	0	0	0	0	0	0	0	0	0
18	4	2	1	2	1	0	1	2	0	1	0	0	0	0	0	0	0	0	0
19	4	2	2	2	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0
20	3	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
21	2	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
22	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Legends

Traffic Class Bins (Click to highlight selection)
- All Vehicles
- 2 bin
- 4 bin
- 12 bin

Calendar Day Category
- Public holiday
- Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Daily Report

Displays averaged traffic volume and associated % contribution of total by 15-minute increment for the range of dates selected.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)**

Site
ID: **50418**
Type: **Coverage Site**
Description: **36B-3km West of Bollon**

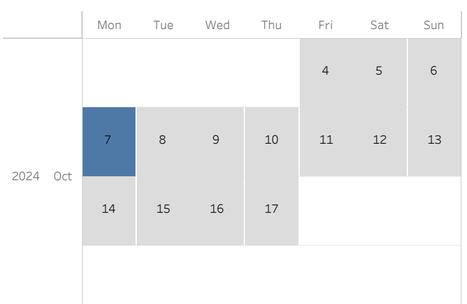
Spatial
TDist: **3.36 km**
Latitude: **-28.027475**
Longitude: **147.443779**



Site local area:



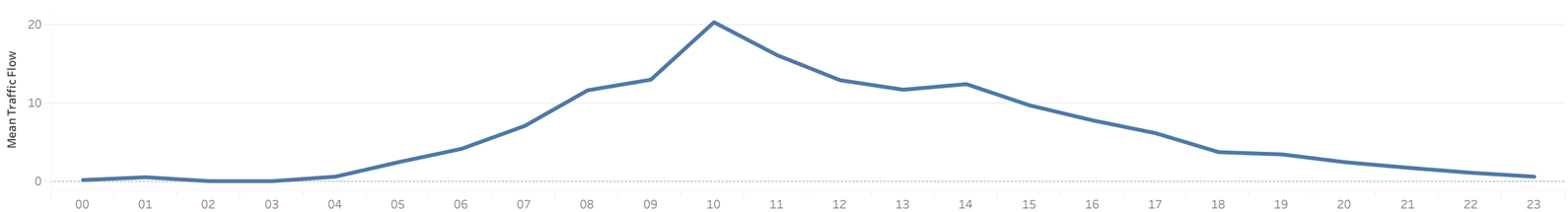
Data collection dates:
(within selected date range)



Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	1	0	0	0	0	0	0

	00 min - 15 min		15 min - 30 min		30 min - 45 min		45 min - 60 min		Grand Totals	
	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day	Avg. Volume	% of Total Volume per day
00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.1%
01	0	0.1%	0	0.1%	0	0.1%	0	0.0%	1	0.4%
02	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
03	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
04	0	0.1%	0	0.0%	0	0.1%	0	0.1%	1	0.4%
05	1	0.7%	0	0.2%	0	0.3%	1	0.5%	3	1.7%
06	1	0.8%	1	0.6%	1	0.6%	1	0.8%	4	2.8%
07	1	0.9%	2	1.3%	2	1.0%	2	1.6%	7	4.7%
08	3	1.7%	3	1.8%	3	2.0%	3	2.3%	12	7.7%
09	3	1.7%	3	2.1%	3	2.1%	4	2.7%	13	8.6%
10	4	2.9%	6	3.8%	5	3.5%	5	3.3%	20	13.5%
11	4	2.4%	5	3.6%	3	2.1%	4	2.6%	16	10.7%
12	3	1.9%	3	2.1%	3	2.3%	3	2.3%	13	8.6%
13	4	2.6%	2	1.0%	4	2.5%	3	1.7%	12	7.8%
14	3	2.0%	4	2.4%	4	2.3%	2	1.6%	13	8.3%
15	3	1.9%	3	1.7%	3	1.7%	2	1.2%	10	6.5%
16	1	0.9%	2	1.5%	2	1.4%	2	1.4%	8	5.2%
17	1	0.9%	2	1.1%	1	0.9%	2	1.1%	6	4.1%
18	1	0.5%	2	1.0%	1	0.5%	1	0.5%	4	2.5%
19	1	0.9%	1	0.7%	1	0.5%	0	0.2%	4	2.3%
20	1	0.7%	1	0.5%	1	0.4%	0	0.1%	3	1.7%
21	0	0.2%	1	0.4%	1	0.4%	0	0.1%	2	1.2%
22	0	0.1%	0	0.2%	0	0.2%	0	0.2%	1	0.8%
23	0	0.2%	0	0.0%	0	0.1%	0	0.1%	1	0.4%
Grand Total	37	24.2%	40	26.3%	38	25.0%	37	24.4%	151	100.0%

Daily Volume Report Graph



Time Window	Daily Avg. Volume	% Total
12-hour flow	133.5	88.20%
16-hour flow	145.5	96.13%
18-hour flow	147.3	97.31%
24-hour flow	151.4	100.00%

Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Traffic Class Code
00 - All Vehicles

Time Window
24 Hour

Legends (Click to highlight selection)

Calendar Day Category
Public holiday
Non-public holiday

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

Volume: Weekly Report

Displays averaged traffic volume and associated % contribution of total by hour of day and day of week for the range of dates selected.

Area
Region: **Southern Queensland**
District: **South West**
Road: **36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)**

Site
ID: **50418**
Type: **Coverage Site**
Description: **36B-3km West of Bollon**

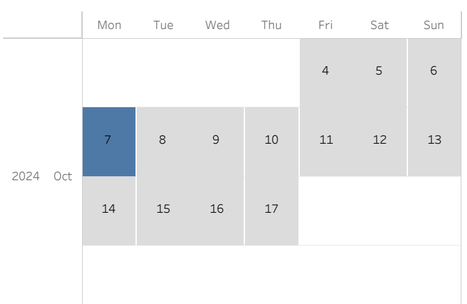
Spatial
TDist: **3.36 km**
Latitude: **-28.027475**
Longitude: **147.443779**



Site local area:



Data collection dates:
(within selected date range)

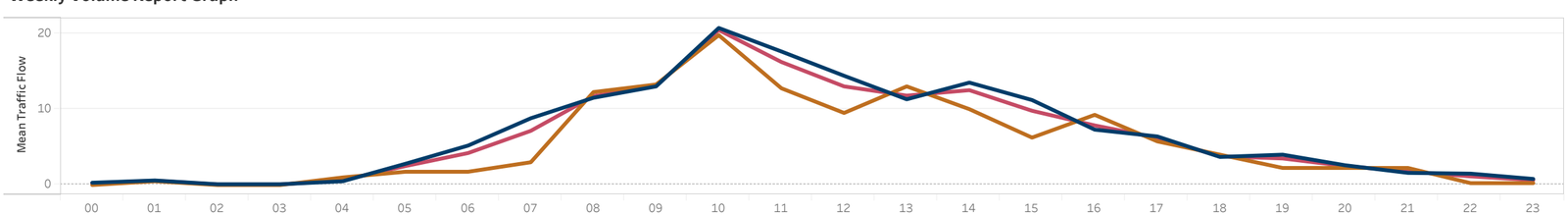


Days

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
In range	2	2	2	2	2	2	2
With data	2	2	2	2	2	2	2
Holidays	1	0	0	0	0	0	0

	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Weekdays		Weekend		All	
	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day	Avg. Volume	% Volume per day
00	0	0.0%	0	0.0%	1	0.6%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0	0.2%	0	0.0%	0	0.1%
01	1	0.3%	1	0.3%	1	0.6%	0	0.0%	1	0.6%	1	0.4%	1	0.3%	1	0.4%	1	0.4%	1	0.4%
02	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0	0.1%	0	0.0%	0	0.0%
03	0	0.0%	0	0.0%	1	0.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.1%	0	0.0%	0	0.0%
04	0	0.0%	2	1.4%	0	0.0%	1	0.3%	0	0.0%	1	0.8%	1	0.7%	1	0.3%	1	0.8%	1	0.4%
05	3	1.5%	3	1.7%	3	1.8%	3	1.7%	4	2.0%	2	1.3%	2	1.4%	3	1.8%	2	1.3%	3	1.7%
06	4	2.5%	3	2.0%	8	4.4%	6	4.1%	6	3.2%	2	1.3%	2	1.4%	5	3.3%	2	1.3%	4	2.8%
07	5	3.1%	4	2.4%	13	7.4%	13	8.6%	11	6.1%	3	2.5%	3	2.1%	9	5.5%	3	2.3%	7	4.7%
08	15	9.2%	12	7.8%	10	5.6%	11	7.2%	11	6.4%	16	13.1%	9	6.3%	12	7.2%	12	9.4%	12	7.7%
09	13	8.0%	9	6.1%	15	8.8%	11	7.6%	17	9.9%	8	6.3%	19	13.2%	13	8.2%	13	10.1%	13	8.6%
10	24	14.8%	21	14.2%	19	11.2%	18	12.4%	22	12.5%	21	17.3%	19	13.2%	21	13.0%	20	15.1%	20	13.5%
11	15	9.2%	16	10.5%	20	11.5%	18	12.4%	20	11.6%	14	11.4%	12	8.4%	18	11.0%	13	9.7%	16	10.7%
12	21	12.9%	12	7.8%	15	8.8%	11	7.2%	14	8.1%	11	8.9%	9	5.9%	14	9.0%	10	7.3%	13	8.6%
13	9	5.5%	11	7.5%	13	7.6%	11	7.2%	13	7.5%	13	10.5%	14	9.4%	11	7.1%	13	9.9%	12	7.8%
14	16	9.8%	11	7.1%	20	11.8%	10	6.6%	12	6.7%	10	8.0%	11	7.3%	14	8.5%	10	7.6%	13	8.3%
15	15	9.2%	14	9.5%	8	4.7%	9	5.9%	11	6.1%	3	2.5%	10	6.6%	11	7.0%	6	4.8%	10	6.5%
16	7	4.0%	7	4.7%	7	3.8%	6	4.1%	11	6.1%	8	6.3%	11	7.7%	7	4.6%	9	7.1%	8	5.2%
17	6	3.7%	8	5.1%	7	4.1%	6	3.8%	6	3.5%	4	3.4%	8	5.2%	6	4.0%	6	4.4%	6	4.1%
18	4	2.2%	5	3.1%	3	1.5%	4	2.4%	5	2.6%	1	0.8%	7	4.9%	4	2.3%	4	3.1%	4	2.5%
19	3	1.5%	8	5.1%	3	1.5%	4	2.8%	4	2.0%	2	1.3%	3	2.1%	4	2.5%	2	1.7%	4	2.3%
20	1	0.6%	2	1.0%	4	2.1%	4	2.4%	4	2.0%	3	2.5%	2	1.0%	3	1.6%	2	1.7%	3	1.7%
21	2	0.9%	1	0.7%	1	0.6%	3	1.7%	2	1.2%	1	0.8%	4	2.4%	2	1.0%	2	1.7%	2	1.2%
22	2	0.9%	1	0.7%	2	0.9%	2	1.0%	2	1.2%	0	0.0%	1	0.3%	2	0.9%	0	0.2%	1	0.8%
23	0	0.0%	2	1.4%	1	0.6%	1	0.3%	1	0.3%	1	0.4%	0	0.0%	1	0.5%	0	0.2%	1	0.4%
Grand Total	163	100.0%	148	100.0%	170	100.0%	145	100.0%	173	100.0%	119	100.0%	144	100.0%	160	100.0%	131	100.0%	151	100.0%

Weekly Volume Report Graph



Global Filters

Start Date
1/10/2024

End Date
31/12/2024

Direction of Travel
Both Directions

Page Filters

Traffic Class Code
00 - All Vehicles

Legends (Click to highlight selection)

Public Holiday
- Non-public holiday
- Public holiday

Day Grouping
- Weekdays
- Weekend
- All

Copyright: The State of Queensland (Department of Transport and Main Roads) 2025

AADT: Complete Report

Area
Region: 316 - Southern Queensland
District: 411 - South West
Road: 36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)

Site
ID: 50009
Type: C - Coverage
Description: 36A-150m East of Powrunna Rd

Spatial
TDist: 22.47 km
Latitude: -27.996546
Longitude: 148.370424

1. Select - **Traffic Year**
2. Select - **Road**
3. Select individual **Traffic Sites** using map select

Traffic Year
2024

Region
316 - Southern Queensland

District
411 - South West

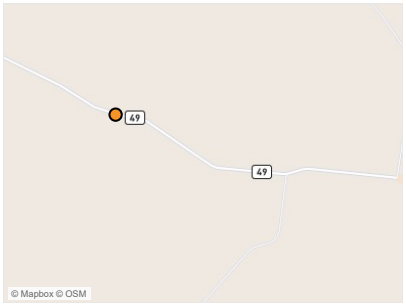
Road
36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)

Site Type
P - Permanent
C - Coverage

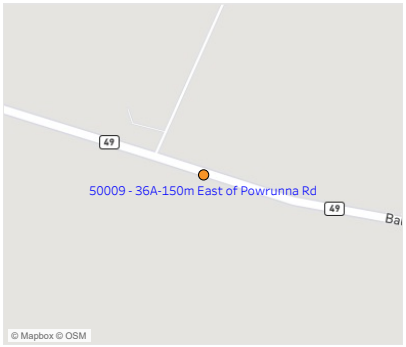
Direction of Travel
With Gazettal
Against Gazettal
Both Directions

Site selection: 50009

Click anywhere on the map to DESELECT a site or click on a different site to CHANGE selection.



Local area zoom (visible once a single site is selected)



Quick Facts (Both Directions only)

AADT: 297

Collection year: 2024

Week day % of AADT: 107.52 %

Weekend day % of AADT: 81.19 %

total days in year: 366

days with data: 41

% of year with data 11.23%

Average daily traffic: 241.8

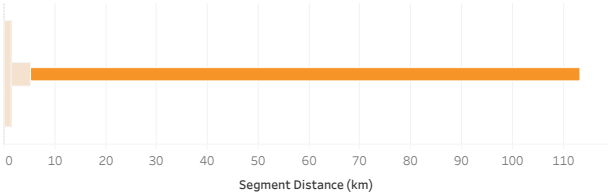
Growth % last year: -17.27 %

Growth % last 5 years: 3.73 %

Growth % last 10 years: 1.95 %

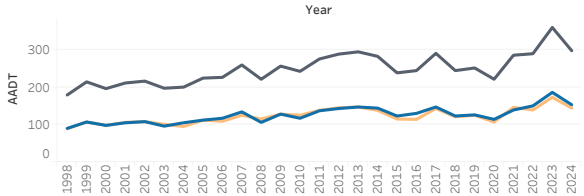
Segments overview for 36A - BALONNE HIGHWAY (ST GEORGE - BOLLON)

Selected road section with segment width and height proportional to length and AADT respectively.



AADT History: 50009

Historical Annual Average Daily Traffic (AADT) values for the Site by Year and Direction of Travel.



AADT and VKT totals by Vehicle Class and Direction of Travel: 50009

The below chart displays Annual Average Daily Traffic (AADT) and yearly Vehicle Kilometers Travelled (VKT 'millions') by Vehicle Class and Direction of Travel.

Vehicle Class Bins	Vehicle Class	With Gazettal			Against Gazettal			Both Directions		
		AADT	% of AADT Total	VKT	AADT	% of AADT Total	VKT	AADT	% of AADT Total	VKT
1 Bin	00 - All Vehicles	153	100.00%	6.0285	144	100.00%	5.6739	297	100.00%	11.7023
2 Bins	0A - Light Vehicles	110	72.19%	4.3520	72	49.94%	2.8335	182	61.40%	7.1852
	0B - Heavy Vehicles	43	27.81%	1.6765	72	50.06%	2.8403	115	38.60%	4.5171
4 Bins	1A -Short Vehicles	110	72.19%	4.3520	72	49.94%	2.8335	182	61.40%	7.1852
	1B - Trucks and Buses	22	14.11%	0.8506	47	32.85%	1.8639	69	23.20%	2.7149
	1C - Articulated Vehicles	8	5.22%	0.3147	13	9.17%	0.5203	21	7.13%	0.8344
	1D - Road Trains	13	8.48%	0.5112	12	8.04%	0.4562	25	8.27%	0.9678
12 Bins	2A - Short 2-Axle Vehicles	94	61.30%	3.6955	62	42.89%	2.4335	156	52.37%	6.1285
	2B - Short Vehicles Towing	17	10.89%	0.6565	10	7.05%	0.4000	27	9.03%	1.0567
	2C - 2-Axle Trucks and Buses	19	12.52%	0.7548	45	31.12%	1.7657	64	21.54%	2.5207
	2D - 3-Axle Trucks and Buses	2	1.38%	0.0832	2	1.39%	0.0789	4	1.39%	0.1627
	2E - 4-Axle Trucks	0	0.21%	0.0127	0	0.34%	0.0193	1	0.27%	0.0316
	2F - 3-Axle Articulate	1	0.79%	0.0476	3	2.26%	0.1282	4	1.50%	0.1755
	2G - 4-Axle Articulate	2	1.45%	0.0874	6	4.07%	0.2309	8	2.72%	0.3183
	2H - 5-Axle Articulate	1	0.48%	0.0289	1	0.46%	0.0261	1	0.47%	0.0550
	2I - 6-Axle Articulate	4	2.50%	0.1507	3	2.38%	0.1350	7	2.44%	0.2855
	2J - B Double	4	2.34%	0.1411	3	2.24%	0.1271	7	2.29%	0.2680
	2K - Double Road Trains	8	5.13%	0.3093	7	4.75%	0.2695	15	4.95%	0.5793
	2L - Triple Road Trains	2	1.01%	0.0609	2	1.05%	0.0596	3	1.03%	0.1205

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AADT: Complete Report

Area
Region: 316 - Southern Queensland
District: 411 - South West
Road: 36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)

Site
ID: 50418
Type: C - Coverage
Description: 36B-3km West of Bollon

Spatial
TDist: 3.36 km
Latitude: -28.027475
Longitude: 147.443779

1. Select - **Traffic Year**
2. Select - **Road**
3. Select individual **Traffic Sites** using map select

Traffic Year
2024

Region
316 - Southern Queensland

District
411 - South West

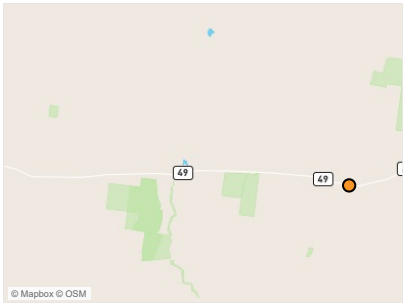
Road
36B - BALONNE HIGHWAY (BOLLON - CUNNAMULL..

Site Type
- P - Permanent
- C - Coverage

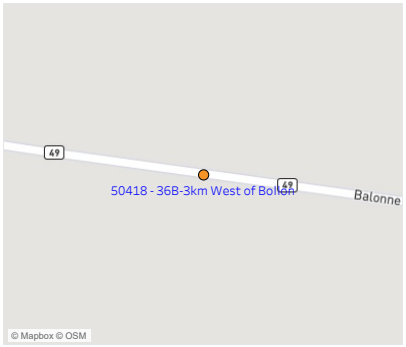
Direction of Travel
- With Gazettal
- Against Gazettal
- Both Directions

Site selection: 50418

Click anywhere on the map to DESELECT a site or click on a different site to CHANGE selection.



Local area zoom (visible once a single site is selected)



Quick Facts (Both Directions only)

AADT: 202

Collection year: 2024

Week day % of AADT: 100.94 %

Weekend day % of AADT: 97.65 %

total days in year: 366

days with data: 27

% of year with data 7.40%

Average daily traffic: 158.5

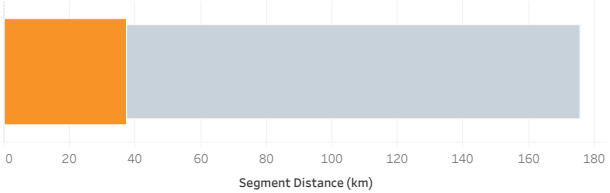
Growth % last year: 6.88 %

Growth % last 5 years: 11.61 %

Growth % last 10 years: 5.69 %

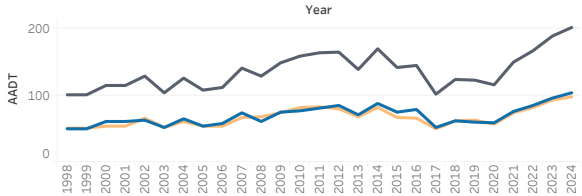
Segments overview for 36B - BALONNE HIGHWAY (BOLLON - CUNNAMULLA)

Selected road section with segment width and height proportional to length and AADT respectively.



AADT History: 50418

Historical Annual Average Daily Traffic (AADT) values for the Site by Year and Direction of Travel.



AADT and VKT totals by Vehicle Class and Direction of Travel: 50418

The below chart displays Annual Average Daily Traffic (AADT) and yearly Vehicle Kilometers Travelled (VKT 'millions') by Vehicle Class and Direction of Travel.

		With Gazettal			Against Gazettal			Both Directions		
Vehicle Class Bins	Vehicle Class	AADT	% of AADT Total	VKT	AADT	% of AADT Total	VKT	AADT	% of AADT Total	VKT
1 Bin	00 - All Vehicles	104	100.00%	1.4151	98	100.00%	1.3335	202	100.00%	2.7487
2 Bins	0A - Light Vehicles	71	68.33%	0.9670	62	62.98%	0.8398	133	65.73%	1.8067
	0B - Heavy Vehicles	33	31.67%	0.4482	36	37.02%	0.4937	69	34.27%	0.9420
4 Bins	1A -Short Vehicles	71	68.33%	0.9670	62	62.98%	0.8398	133	65.73%	1.8067
	1B - Trucks and Buses	8	7.69%	0.1088	12	11.89%	0.1586	20	9.73%	0.2674
	1C - Articulated Vehicles	5	5.20%	0.0736	6	6.62%	0.0883	12	5.89%	0.1619
	1D - Road Trains	20	18.78%	0.2658	18	18.51%	0.2468	38	18.65%	0.5126
12 Bins	2A - Short 2-Axle Vehicles	57	54.57%	0.7722	49	50.04%	0.6673	106	52.37%	1.4395
	2B - Short Vehicles Towing	14	13.76%	0.1947	13	12.94%	0.1726	27	13.36%	0.3672
	2C - 2-Axle Trucks and Buses	7	6.90%	0.0976	11	11.23%	0.1498	18	9.00%	0.2474
	2D - 3-Axle Trucks and Buses	1	0.56%	0.0079	1	0.52%	0.0069	1	0.54%	0.0148
	2E - 4-Axle Trucks	0	0.23%	0.0033	0	0.14%	0.0019	0	0.19%	0.0052
	2F - 3-Axle Articulate	1	1.08%	0.0153	1	1.14%	0.0152	2	1.11%	0.0305
	2G - 4-Axle Articulate	2	1.78%	0.0252	3	2.81%	0.0375	5	2.28%	0.0627
	2H - 5-Axle Articulate	0	0.42%	0.0059	0	0.48%	0.0064	1	0.45%	0.0124
	2I - 6-Axle Articulate	2	1.92%	0.0272	2	2.19%	0.0292	4	2.05%	0.0563
	2J - B Double	2	2.11%	0.0299	2	2.00%	0.0267	4	2.06%	0.0566
	2K - Double Road Trains	17	15.87%	0.2246	15	15.56%	0.2075	32	15.72%	0.4321
	2L - Triple Road Trains	1	0.80%	0.0113	1	0.95%	0.0127	2	0.87%	0.0239

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Appendix D – SDAP state code response

State code 6: Protection of state transport networks

Table 6.2 Development in general

Performance outcomes	Acceptable outcomes	Response
Network impacts		
PO1 Development does not compromise the safety of users of the **state-controlled road** network.	No acceptable outcome is prescribed.	**Complies with PO1** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road via Fernlee Road both being local controlled roads and the Balonne Highway a state-controlled road**.** The proposed development shall not compromise the safety of users of the state-controlled road network due to the following reasons: • No new or altered access to the state-controlled road is proposed. • The proposed development shall have no worsening and no net worsening as the current and forecast traffic generation is not significantly worse (>5%) when compared to existing daily traffic levels on a state-controlled road; • No new safety issues are introduced by the proposed development. • The type and configuration of vehicles required to construct the proposed development are similar (Type 1 road train) to those currently servicing the existing agricultural operations on the subject land. Consequently, there is no expected worsening of the safety of a state-controlled road.

Performance outcomes	Acceptable outcomes	Response
		Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3, 4 and 5 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO2 Development does not adversely impact the structural integrity or physical condition of a **state-controlled road** or **road transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO2** The proposed development does not adversely impact the structural integrity or physical condition of a state-controlled road or road transport infrastructure due to the following reasons: • No new or altered access to the state-controlled road is proposed. • The proposed development shall have no worsening and no net worsening as the current and forecast traffic generation is not significantly worse (>5%) when compared to existing daily traffic levels on a state-controlled road; • No new safety issues are introduced by the proposed development; • The type and configuration of vehicles required to construct the proposed development (Type 1 road trains; B-double) are no larger to those currently servicing the existing agricultural operations on the subject land. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.

Performance outcomes	Acceptable outcomes	Response
		Refer to section 3,4 and 5 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO3 Development ensures **no net worsening** of the operating performance the **state-controlled road** network.	No acceptable outcome is prescribed.	**Complies with PO3** The proposed development ensures no net worsening of the operating performance the state-controlled road network due to the following reasons: • No new or altered access to the state-controlled road is proposed. • The proposed development shall have no worsening and no net worsening as the current and forecast traffic generation is not significantly worse (>5%) when compared to existing daily traffic levels on a state-controlled road; • No new safety issues are introduced by the proposed development; • The type and configuration of vehicles required to construct the proposed development (Type 1 road trains; B-double) are no larger to those currently servicing the existing agricultural operations on the subject land. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3,4 and 5 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.

Performance outcomes	Acceptable outcomes	Response
PO4 Traffic movements are not directed onto a **state-controlled road** where they can be accommodated on the **local road** network.	No acceptable outcome is prescribed.	**Complies with PO4** The subject land has existing access onto a local controlled road and has no frontage to a state-controlled road. The proposed development does not direct traffic movements onto a state-controlled road where they can be accommodated on the local road network. Refer to section 2, 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO5 Development involving haulage exceeding 10,000 tonnes per year does not damage the pavement of a **state-controlled road**.	No acceptable outcome is prescribed.	**Complies with PO5** The proposed development does involve haulage of materials in excess of 10,000 tonnes per year on a state-controlled. However, the pavement impacts are less than 5%. Refer to section 2, 4 and 5 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO6 Development does not require a new **railway** level crossing.	No acceptable outcome is prescribed.	**Complies with PO6** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local

Performance outcomes	Acceptable outcomes	Response
		controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO7 Development does not adversely impact the operating performance of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies with PO7** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to

Performance outcomes	Acceptable outcomes	Response
		the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO8 Development does not adversely impact on the safety of an existing **railway crossing**.	No acceptable outcome is prescribed.	**Complies with PO8** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.

Performance outcomes	Acceptable outcomes	Response
		Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO9 Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a **railway crossing**.	No acceptable outcome is prescribed.	**Complies with PO9** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO10 Development does not create a safety hazard within the **railway corridor**.	No acceptable outcome is prescribed.	**Complies with PO10** The proposed development does not require a new railway level crossing.

Performance outcomes	Acceptable outcomes	Response
		The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO11 Development does not adversely impact the operating performance of the **railway corridor**.	No acceptable outcome is prescribed.	**Complies with PO11** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land

Performance outcomes	Acceptable outcomes	Response
		does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO12 Development does not interfere with or obstruct the **railway transport infrastructure** or **other rail infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO12** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line.

Performance outcomes	Acceptable outcomes	Response
		Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared by RDC Engineers Pty Ltd for the proposed development.
PO13 Development does not adversely impact the structural integrity or physical condition of a **railway corridor** or **rail transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO13** The proposed development does not require a new railway level crossing. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require a new railway level crossing as the subject land does not adjoin a rail corridor and a railway line does not need to be crossed by vehicles to access the proposed development or to access the wider road network. The point of access to the subject land does not crossover a railway line. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd. Refer to section 3 and 4 of the Traffic and Pavement Impact Assessment report prepared

Performance outcomes	Acceptable outcomes	Response
		by RDC Engineers Pty Ltd for the proposed development.
Stormwater and overland flow		
PO14 Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of a **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO14** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO15 Stormwater run-off or overland flow from the development site does not result in a material worsening of operating performance of a **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO15** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway.

Performance outcomes	Acceptable outcomes	Response
		The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO16 Stormwater run-off or overland flow from the development site does not interfere with the structural integrity or physical condition of the **state transport corridor** or **state transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO16** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road.

Performance outcomes	Acceptable outcomes	Response
		Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO17 Development associated with a **state-controlled road** or **road transport infrastructure** ensures that stormwater is lawfully discharged.	**AO17.1** Development does not create any new points of discharge to a **state transport corridor** or **state transport infrastructure**. AND **AO17.2** Development does not concentrate flows to a **state transport corridor**. AND **AO17.3** Stormwater run-off is discharged to a **lawful point of discharge**. AND **AO17.4** Development does not worsen the condition of an existing **lawful point of discharge** to a **state transport corridor** or **state transport infrastructure**.	**Complies with PO17** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does

Performance outcomes	Acceptable outcomes	Response
		not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
Flooding		
PO18 Development does not result in a material worsening of flooding impacts within a **state transport corridor** or **state transport infrastructure**	*For a **state-controlled road** or **road transport infrastructure**, all of the following apply:* **AO18.1** For all flood events up to 1% **annual exceedance probability**, development ensures there are negligible impacts (within +/- 10mm) to existing flood levels within a **state transport corridor**. AND **AO18.2** For all flood events up to 1% **annual exceedance probability**, development ensures there are negligible impacts (up to a 10% increase) to existing peak velocities within a **state transport corridor**. AND **AO18.3** For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (up to a 10% increase) to existing time of submergence of a **state transport corridor**.	**Complies with PO18** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the

Performance outcomes	Acceptable outcomes	Response
	*No acceptable outcome is prescribed for a **railway corridor** or **rail transport infrastructure**.*	material change of use development application for the proposed development by RDC Engineers Pty Ltd.
Drainage infrastructure		
PO19 Drainage infrastructure does not create a safety hazard in a **state transport corridor**.	*For a **state-controlled road** environment, both of the following apply:* **AO19.1** Drainage infrastructure associated with, or in a **state-controlled road** is wholly contained within the development site, except at the **lawful point of discharge**. AND **AO19.2** Drainage infrastructure can be maintained without requiring access to a **state transport corridor**. *For a **railway** environment both of the following apply:* **AO19.3** Drainage infrastructure associated with a **railway corridor** or **rail transport infrastructure** is wholly contained within the development site. AND **AO19.4** Drainage infrastructure can be maintained without requiring access to a **state transport corridor**.	**Complies with PO19** The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, stormwater run-off or overland flow from the proposed development site does not create or exacerbate a safety hazard for users of a state transport corridor or state transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO20 Drainage infrastructure associated with, or in a **state-controlled road** or **road transport infrastructure** is constructed and designed to	No acceptable outcome is prescribed.	**Complies with PO20**

Performance outcomes	Acceptable outcomes	Response
ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage network is maintained.		The subject land on which the development is sited is setback over 25 km from the closest state-controlled road being the Balonne Highway. The proposed development does not involve a new or changed access to the state-controlled road. Consequently, stormwater run-off and overland flow generation and paths shall be the same as pre-development and therefore create or exacerbate a safety hazard for users of the state-controlled road. Further, all stormwater runoff and overland flow from impervious areas shall be contained within a controlled drainage area and holding pond pending sustainable utilisation to land. Consequently, there is no drainage infrastructure with, or within, a state-controlled road. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 11 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
Planned upgrades		
PO21 Development does not impede delivery of **planned upgrades** of **state transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO21** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road.

Performance outcomes	Acceptable outcomes	Response
		The proposed development does not involve a new or modified access or upgrade works to a state-controlled road. Consequently, the proposed development does not impede delivery of planned upgrades of state-controlled roads. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.

Table 6.3 Public passenger transport infrastructure and active transport

Performance outcomes	Acceptable outcomes	Response
PO22 Development does not damage or interfere with **public passenger transport infrastructure**, **active transport infrastructure** or **public passenger services**.	No acceptable outcome is prescribed.	**Complies with PO22** The proposed development is an Extractive industry, being the establishment of a gravel pit. The proposed development is not located within close proximity of public passenger transport infrastructure. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. Consequently, the proposed development does not damage or interfere with public passenger

Performance outcomes	Acceptable outcomes	Response
		transport infrastructure, active transport infrastructure or public passenger services. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO23 Development does not compromise the safety of **public passenger transport infrastructure**, **public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO23** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area. Consequently, the proposed development maintains the ability for people to access public passenger transport infrastructure, public passenger services and active transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO24 Development does not adversely impact the operating performance of **public passenger transport infrastructure, public passenger services** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO24** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local

Performance outcomes	Acceptable outcomes	Response
		controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area. Consequently, the proposed development does not adversely impact the operating performance of public passenger transport infrastructure, public passenger services and active transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO25 Development does not adversely impact the structural integrity or physical condition of **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Complies with PO25** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road.. Consequently, the proposed development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure. Refer to section 2, 4 and 6 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO26 Upgraded or new **public passenger transport infrastructure** and **active transport infrastructure** is provided to accommodate the	No acceptable outcome is prescribed.	**Complies with PO26** The proposed development is an Extractive industry, being the establishment of a gravel pit.

Performance outcomes	Acceptable outcomes	Response
demand for **public passenger transport** and **active transport** generated by the development.		The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not involve upgraded or new public passenger transport infrastructure and active transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO27 Development is designed to ensure the location of **public passenger transport infrastructure** prioritises and enables efficient **public passenger services**.	No acceptable outcome is prescribed.	**Not applicable (PO27)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not involve upgraded or new public passenger transport infrastructure and active transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO28 Development enables the provision or extension of **public passenger services**, **public**	No acceptable outcome is prescribed.	**Not applicable (PO28)**

Performance outcomes	Acceptable outcomes	Response
passenger transport infrastructure and **active transport infrastructure** to the development and avoids creating indirect or inefficient routes for **public passenger services**.		The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not involve the provision or extension of public passenger services, public passenger transport infrastructure and active transport infrastructure. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO29 New or modified road networks are designed to enable development to be serviced by **public passenger services**.	**AO29.1** Roads catering for buses are arterial or **sub-arterial roads**, collector or their equivalent. AND **AO29.2** Roads intended to accommodate buses are designed and constructed in accordance with: 1. Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design; Department of Transport and Main Roads; 2. Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6), Department of Transport and Main Roads; 3. Austroads Guide to Road Design (Parts 3, 4-4C and 6); 4. Austroads Design Vehicles and Turning Path Templates;	**Not applicable (PO29)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not involve new or modified road networks. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.

Performance outcomes	Acceptable outcomes	Response
	5. Queensland Manual of Uniform Traffic Control Devices, Part 13: Local Area Traffic Management and AS 1742.13-2009 Manual of Uniform Traffic Control Devices – Local Area Traffic Management; AND **AO29.3** Traffic calming devices are not installed on roads used for buses in accordance with section 2.3.2 Bus Route Infrastructure, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	
PO30 Development provides safe, direct and convenient access to existing and future **public passenger transport infrastructure** and **active transport infrastructure**.	No acceptable outcome is prescribed.	**Not applicable (PO30)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not require access to existing and future public passenger transport infrastructure and active transport infrastructure. Refer to section 2, 4 and 6 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO31 On-site vehicular circulation ensures the safety of both **public passenger transport services** and pedestrians.	No acceptable outcome is prescribed.	**Not applicable (PO31)** The proposed development is an Extractive industry, being the establishment of a gravel pit.

Performance outcomes	Acceptable outcomes	Response
		The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development does not require new access or changed access to the state-controlled road network. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5, Figure 6 and Figure 36 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd
PO32 Taxi facilities are provided to accommodate the demand generated by the development.	No acceptable outcome is prescribed.	**Not applicable (PO32)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not require or generate a need for taxi facilities. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO33 Facilities are provided to accommodate the demand generated by the development for community transport services, courtesy transport	No acceptable outcome is prescribed.	**Not applicable (PO33)** The proposed development is an Extractive industry, being the establishment of a gravel pit.

Performance outcomes	Acceptable outcomes	Response
services, and **booked hire services** other than taxis.		The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not require or generate a demand for community transport services, courtesy transport services, and booked hire services other than taxis. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.
PO34 Taxi facilities are located and designed to provide convenient, safe and equitable access for passengers.	**AO34.1** A **taxi facility** is provided parallel to the kerb and adjacent to the main entrance. AND **AO34.2 Taxi facilities** are designed in accordance with: 1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work; 2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices 3. AS/NZS 2890.6–2009 Parking facilities –off street parking for people with disabilities; 4. Disability standards for accessible public 5. transport 2002 made under section 31(1) of the Disability Discrimination Act 1992; 6. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area	**Not applicable (PO34)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and the use does not require or generate a demand for taxis. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.

Performance outcomes	Acceptable outcomes	Response
	(category P) lighting – Performance and design requirements; 7. Chapter 7 Taxi Facilities, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.	
PO35 Educational establishments are designed to ensure the safe and efficient operation of **public passenger services**, pedestrian and cyclist access and **active transport infrastructure**.	**AO35.1** Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.	**Not applicable (PO35)** The proposed development is an Extractive industry, being the establishment of a gravel pit. The vehicular access to the proposed development is from Runnymede Road a local controlled road via Fernlee Road a local controlled road and the Balonne Highway being a state-controlled road. The proposed development is in a rural area and is not an educational establishment. Refer to section 2, 4 and 5 and Figure 3, Figure 4, Figure 5 and Figure 6 of the material change of use development application for the proposed development by RDC Engineers Pty Ltd.