

Date Issued: 8 October 2020

NOTICE OF AN APPLICATION FOR A PLANNING PERMIT

The land affected by the application is located at: **533 Zanelli Road,
Nagambie VIC 3608**

The application is for a Permit for: **Use and development of land
for a code of practice small
quarry for the extraction of clay
to supply to customers for road
base and earthen fill**

The applicant for the Permit is: **Sonny Hoang**

The application Reference Number is: **P2020-112**

You may view the application and any documents that support the application at the office of the Responsible Authority:

**Strathbogie Shire Council
109A Binney Street Euroa
Telephone: (03) 5795 0000**

This can be done during office hours and is free of charge.

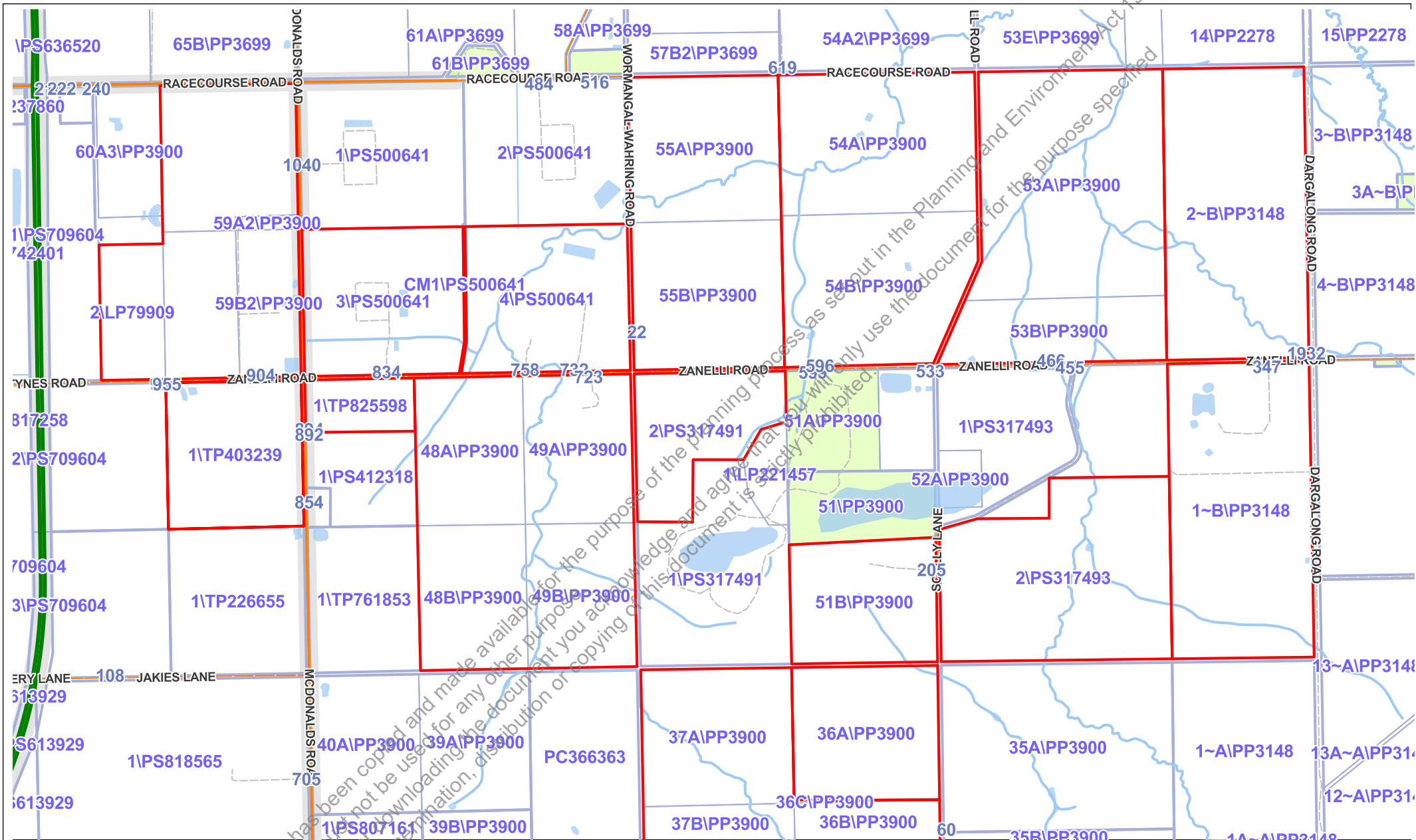
Any person who may be affected by the granting of the Permit may object or make other submissions to the Responsible Authority.



An objection must be sent to the Responsible Authority in writing, include the reasons for the objection and state how the objector would be affected.

The Responsible Authority will not decide on the application before: 29 October 2020

All objections are placed on the relevant Planning Permit application file, which is publicly available at all times. Objections can therefore be read and used by other parties.

An objection form is available from Strathbogie Shire Council office, by phoning Council on (03) 5795 0000 or at <https://www.strathbogie.vic.gov.au/development/statutory-planning/objections>



	<p>Shire Of Strathbogie</p> <p>Prepared By: Melissa Crane</p>	<p>Disclaimer Note This map is a representation of the information currently held by Strathbogie Shire Council. While every effort has been made to ensure the accuracy of the data, Council disclaims all liability for any loss, cost, damage or injury, howsoever arising or connected with the use of this data. Any feedback on omissions or errors would be appreciated. Contains Council Information © Strathbogie Shire Council Contains Vicmap Information © Department of Environment, Land, Water & Planning</p>	<p>29/09/2020</p>	<p>1:27879</p> 
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PLANNING PROPOSAL REPORT

“Clay Quarry”

Version 1

Property Address: 533 Zanelli Road
Nagambie VIC 3608

Lot: 1

Plan Number: PS317493

Client: Nagambie Resources Limited



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DOCUMENT CONTROL

Reference	Status	Date	Prepared	Checked	Authorised
SCL20-14	Version 0	August 2020	Sonny Hoang	Sonny Hoang	Sonny Hoang
SCL20-14	Version 1	September 2020	Sonny Hoang	Sonny Hoang	Sonny Hoang

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1.0 THE PROPOSAL

1.1 Objective of the proposal

The primary objective of the proposal is to develop a clay quarry under the 'Code of Practice for Small Quarries' for the extraction of clay for use as road base and earthen fill.

1.2 Consideration of alternatives

The proponent has considered other locations but these would be cost prohibitive and uneconomical. The proposed site is suitable as it contains an abundant source of clay, is in close proximity to an all-weather access storage area within the property boundaries of the Nagambie mine.

1.3 Site Description

The subject property is located 533 Zanelli Road Nagambie in the shire of Strathbogie as per **Appendix A** "533 Zanelli Road Nagambie- Land Property Report". The property is a "brown field" site consisting of 6 parcels of land, the proposed site is located on Lot 1 Plan Number PS317493 as shown in **Appendix B** "SCL20-14-001 - A - SURVEY FEATURE MAP" (See **Figure 1**).

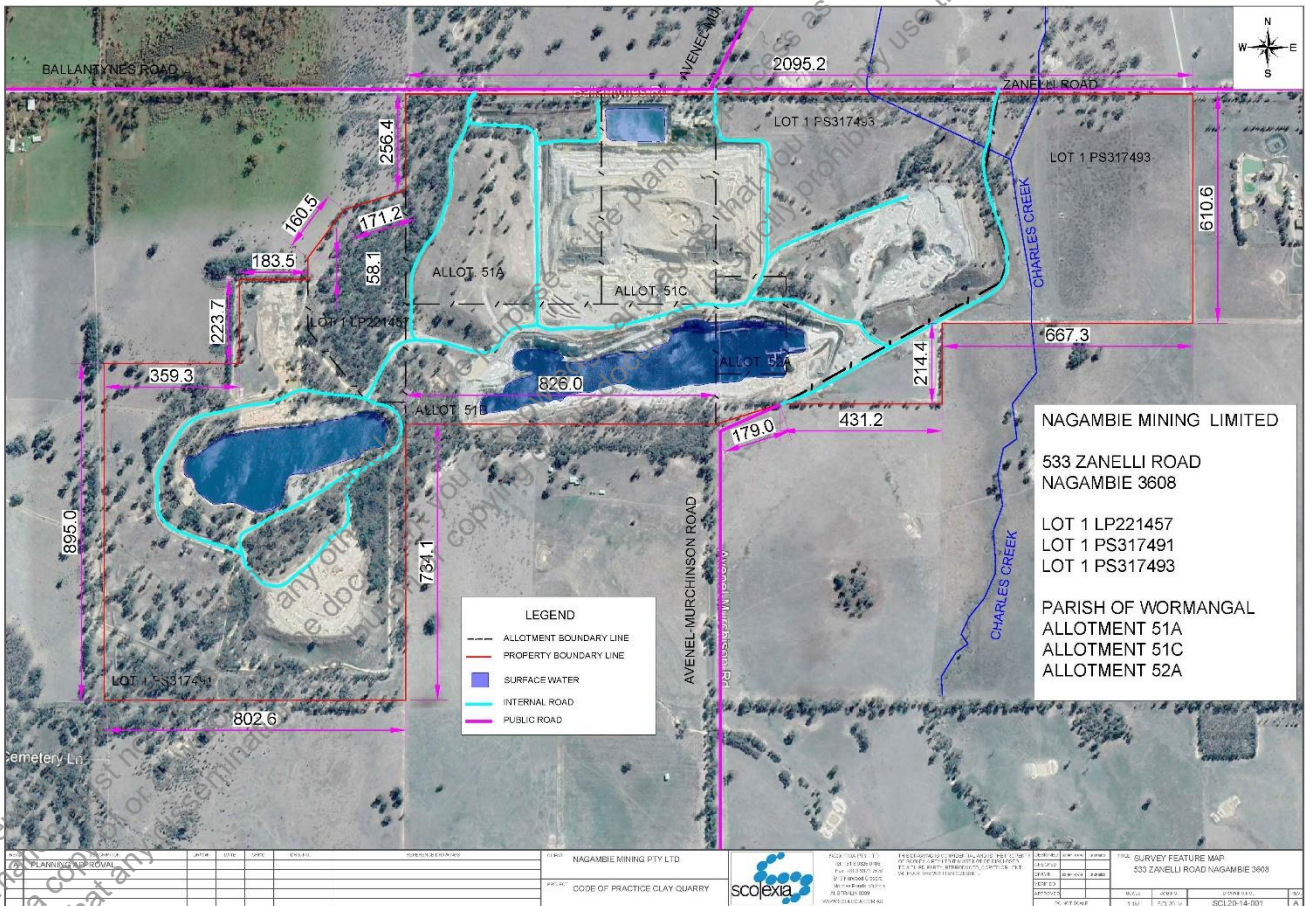


Figure 1: Survey Feature Map

1.4 Detailed Description of Proposal

The proposed clay quarry would be located on Lot 1 Plan Number PS317493 as per **Appendix C** "SCL20-14-002 - A - GENERAL SITE LAYOUT" (See **Figure 2**). The area to be excavated progressively would be 0.95 Ha in total and at less than 2m in depth as per **Appendix D** "SCL20-14-003 - A - GENERAL ARRANGEMENT" (See **Figure 3**). The ground water table is approximately 7m to 9m metres below ground level, hence ground water is not expected to affect the pit. The existing internal access road will be used to access the quarry pit, transport vehicles will access Zanelli Road using the existing main entrance via the existing internal road network.

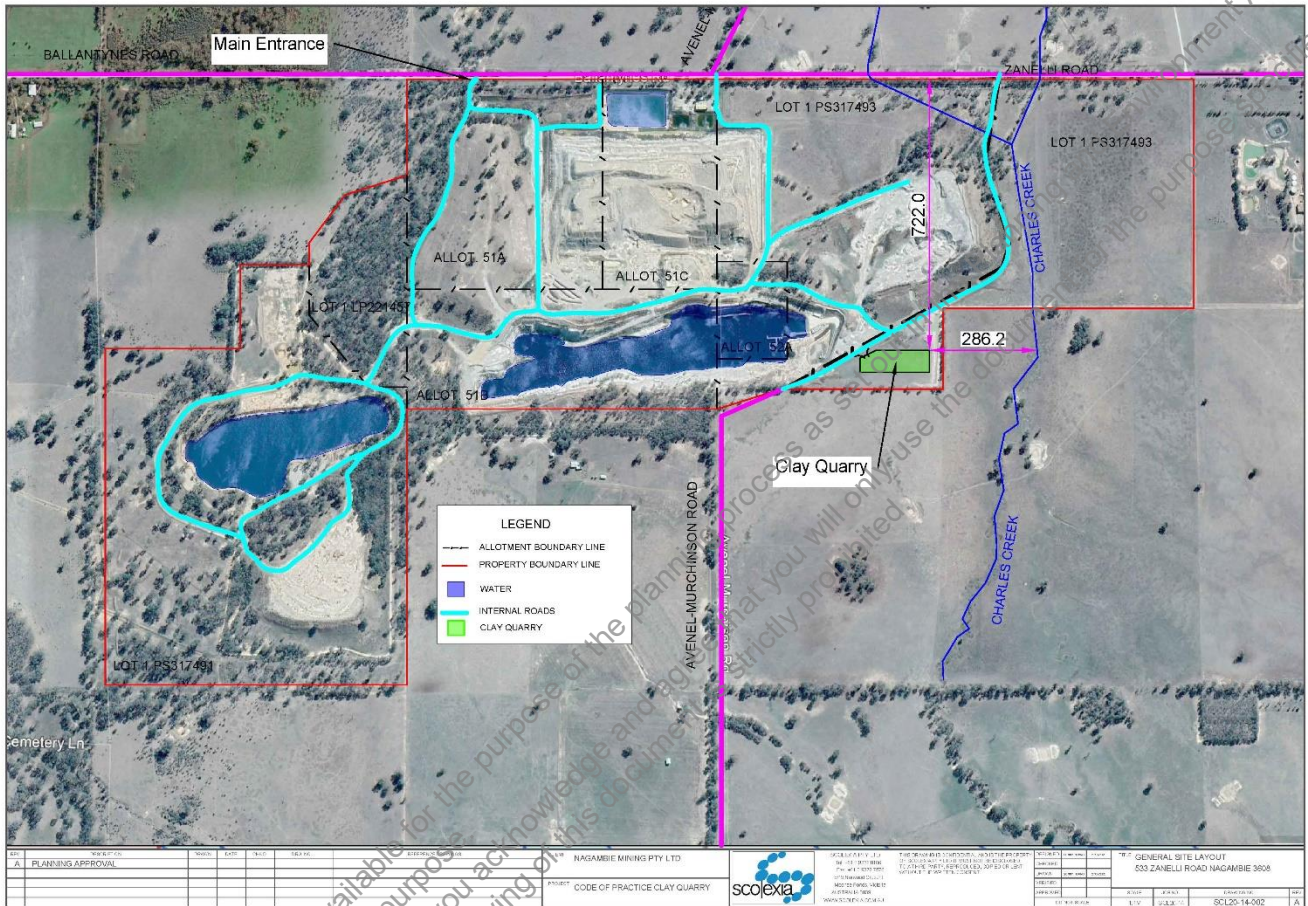


Figure 2: General Site Layout

The quarry will be surrounded by an earthen bund as shown in **Appendix E** "SCL20-14-004-A - Quarry and Bund Detail" (See **Figure 4**). The bund wall surrounding the quarry pit will divert any surface water run-off to the existing cut off drain leading to the water retention basin. The fall of the land is from south-west to north-east at a slope ratio of 1:5, surrounding properties are protected from overland surface water flows by the existing earth bund on the property boundary. The bund wall will be built from excavated top soil within the quarry pit area. Any water within the bund wall will be contained within the quarry pit and is expected to evaporate or be absorbed into the water table. There is no intention to release any sediment water beyond the boundaries of the quarry pit.

The proponent intends to extract the clay "as required" to fulfil contractual arrangements, in order to minimise the area of disturbance. Clay will be extracted from the pit using an excavator and/or a bull dozer. The extracted clay will then be transported to a stockpile storage area using road trucks at the main Nagambie mining site. The stock piling of clay would allow the safe and efficient loading of trucks in all weather conditions. The stockpiles will be managed in compliance with the 'Code of Practice for Small Quarries' (CoP) to prevent erosion, the movement of sediment laden runoff and to manage surface water drainage on site. The proponent does not intend to build any buildings on the site. Staff amenities will be provided via the existing amenities located at the main Nagambie mining site.

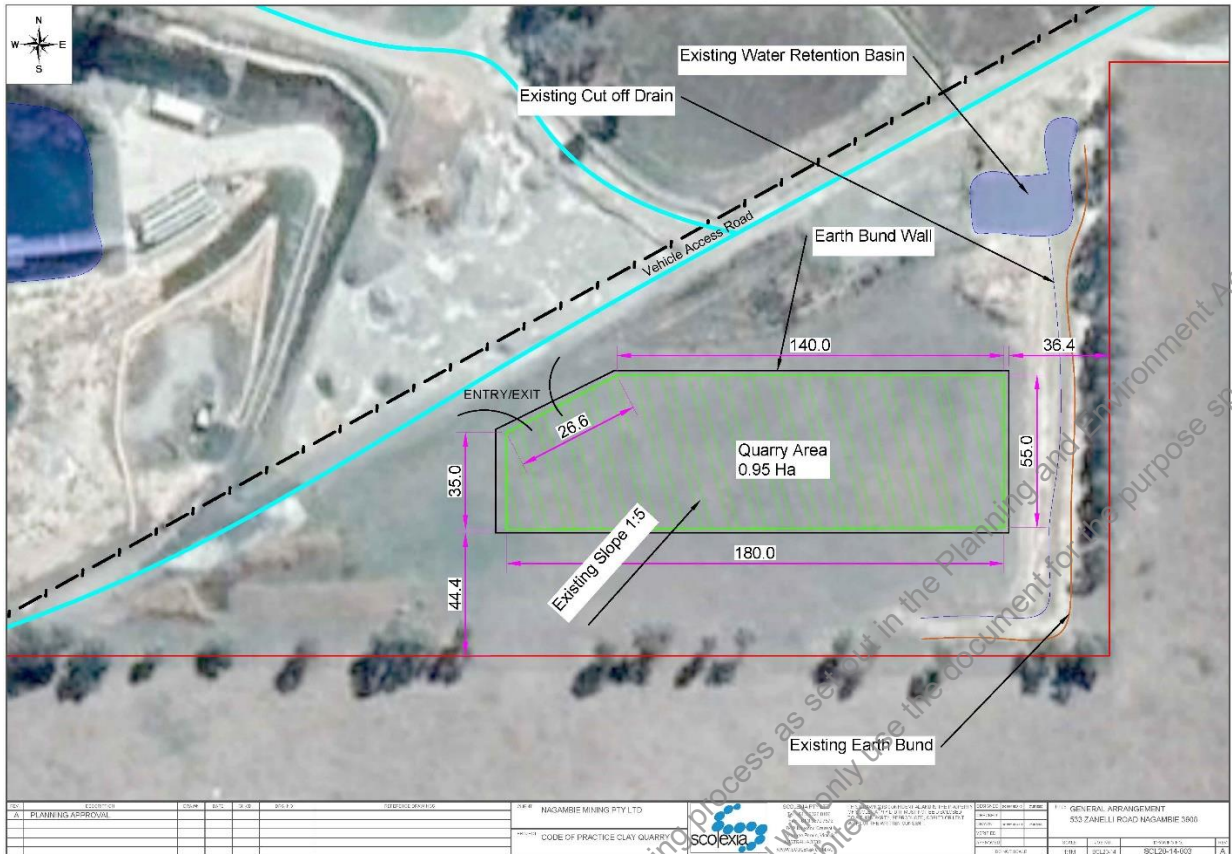


Figure 3: General Arrangement

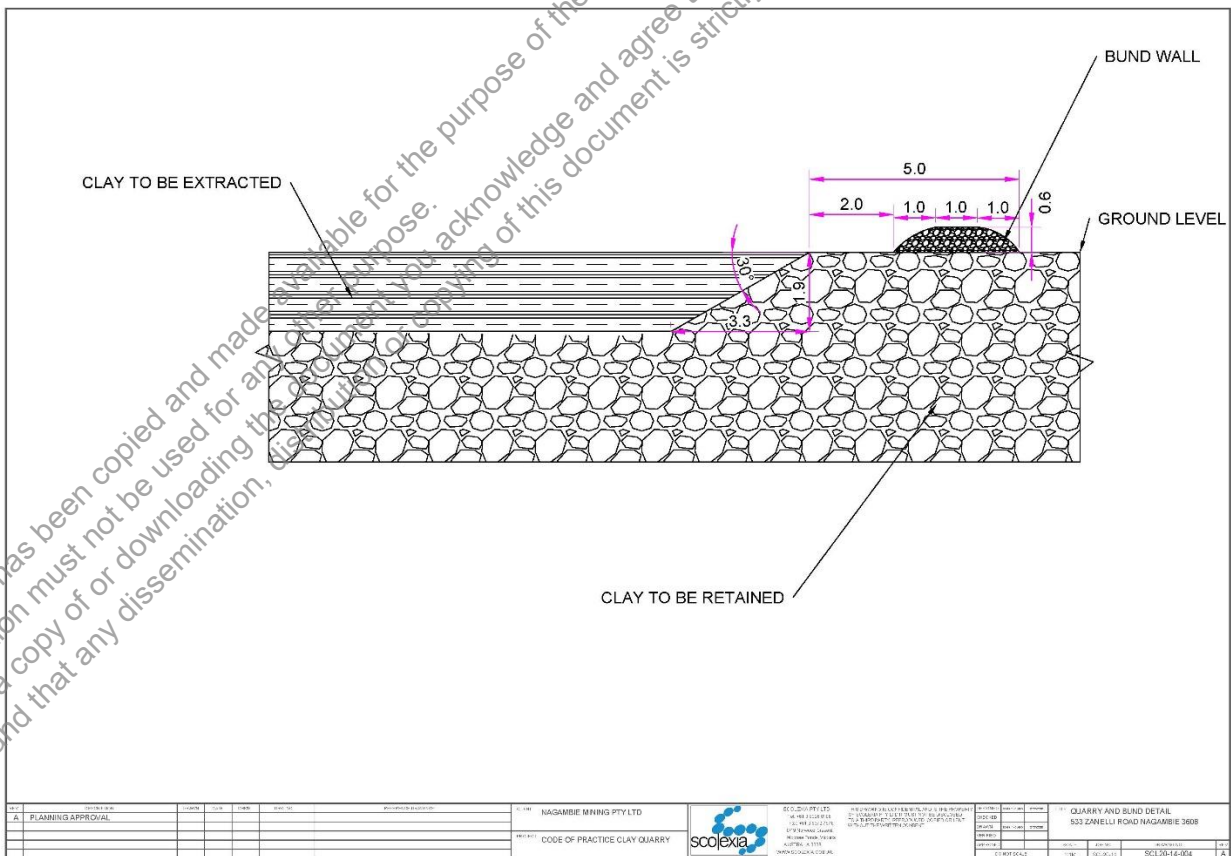


Figure 4: Quarry and Bund Detail

1.5 Floor and Elevation Plans of Buildings

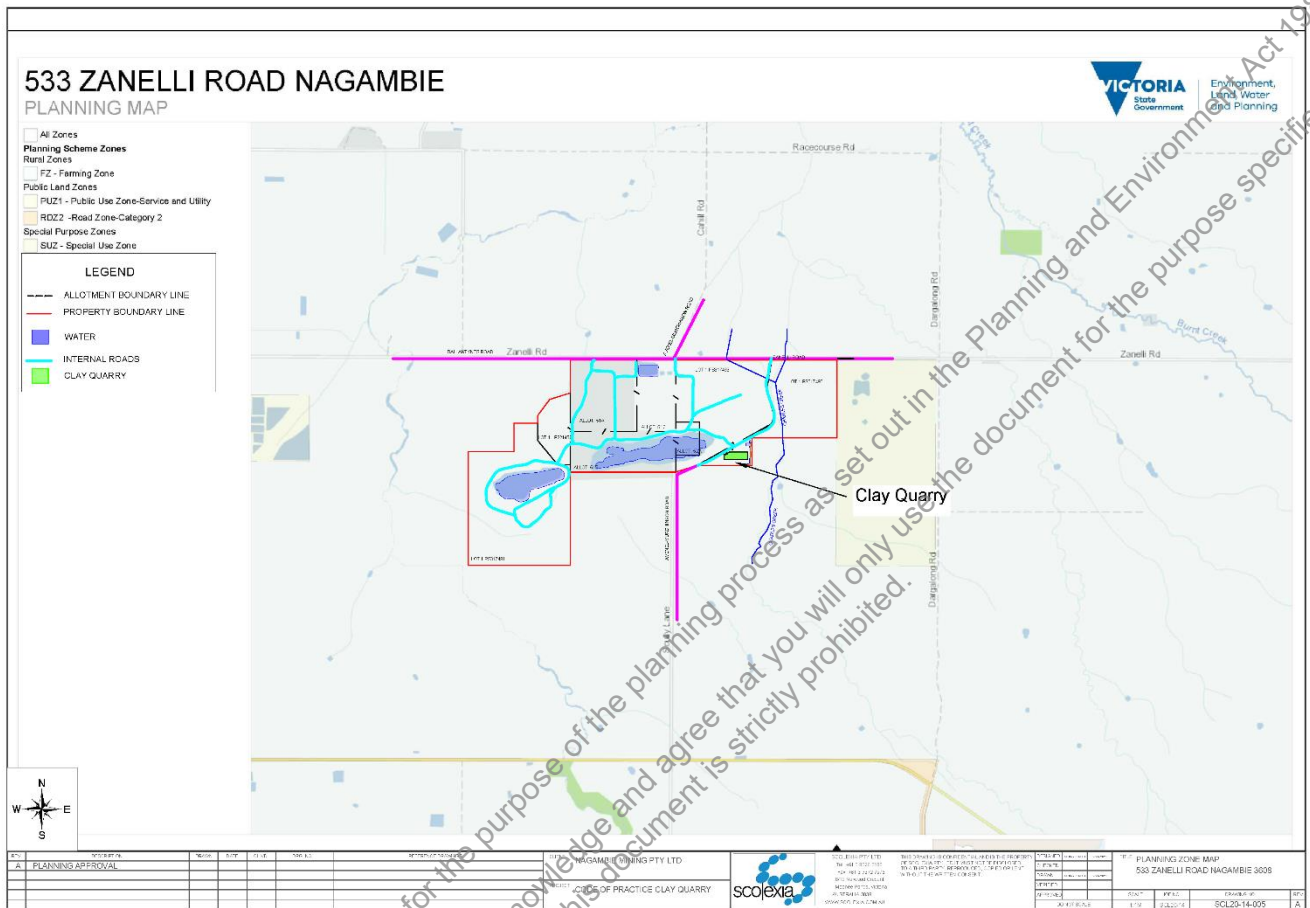
There are no buildings required for this development.

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2.0 RELEVANT PLANNING PROVISIONS

2.1 Strathbogie planning scheme zoning

The subject property is zoned FZ – Farming Zone pursuant to Strathbogie planning scheme as per **Appendix F** “SCL20-14-005 - A - PLANNING ZONE MAP” (See **Figure 5**).



The use of the property for a small quarry falls within the use category of “Any other use not in Section 1 or 3” of the Strathbogie planning scheme and **PERMITTED** upon approval of a permit.

Zone Objectives

The primary purpose of the FZ Farming Zone is to provide a suitable location for agricultural uses.

The specific objectives of the FZ Farming Zone are:

- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.
- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.

The proposed site is part of the Nagambie mine and is not currently used for agricultural purposes. The proposed site is of marginal agricultural value due to the poor soils. The proposed site will be less than 1Ha in size and is isolated from other agricultural enterprises and is within the property boundaries of the existing mine. Hence the development will not affect the use of surrounding land for agriculture.

The proposal is an appropriate use of the FZ Farming Zone, as it would encourage employment opportunities and the retention of employment at the Nagambie mine. The quarry will be operated on using sustainable land practices as governed by the "Code of Practice". In addition, the land will be remediated upon completion of extraction to allow other uses in the future.

2.2 Planning overlay provisions

The property **IS SUBJECT** to the following planning overlays pursuant to the Strathbogrie planning scheme as per **Appendix A** "533 Zanelli Road Nagambie-Planning Property Report" and **Appendix G** "SCL20-14-006 - 4 - PLANNING OVERLAY MAP" (See **Figure 6**):

- i. Floodway overlay (FO)
- ii. Land subject to inundation overlay (LSIO)
- iii. Bushfire Management Overlay (BMO)

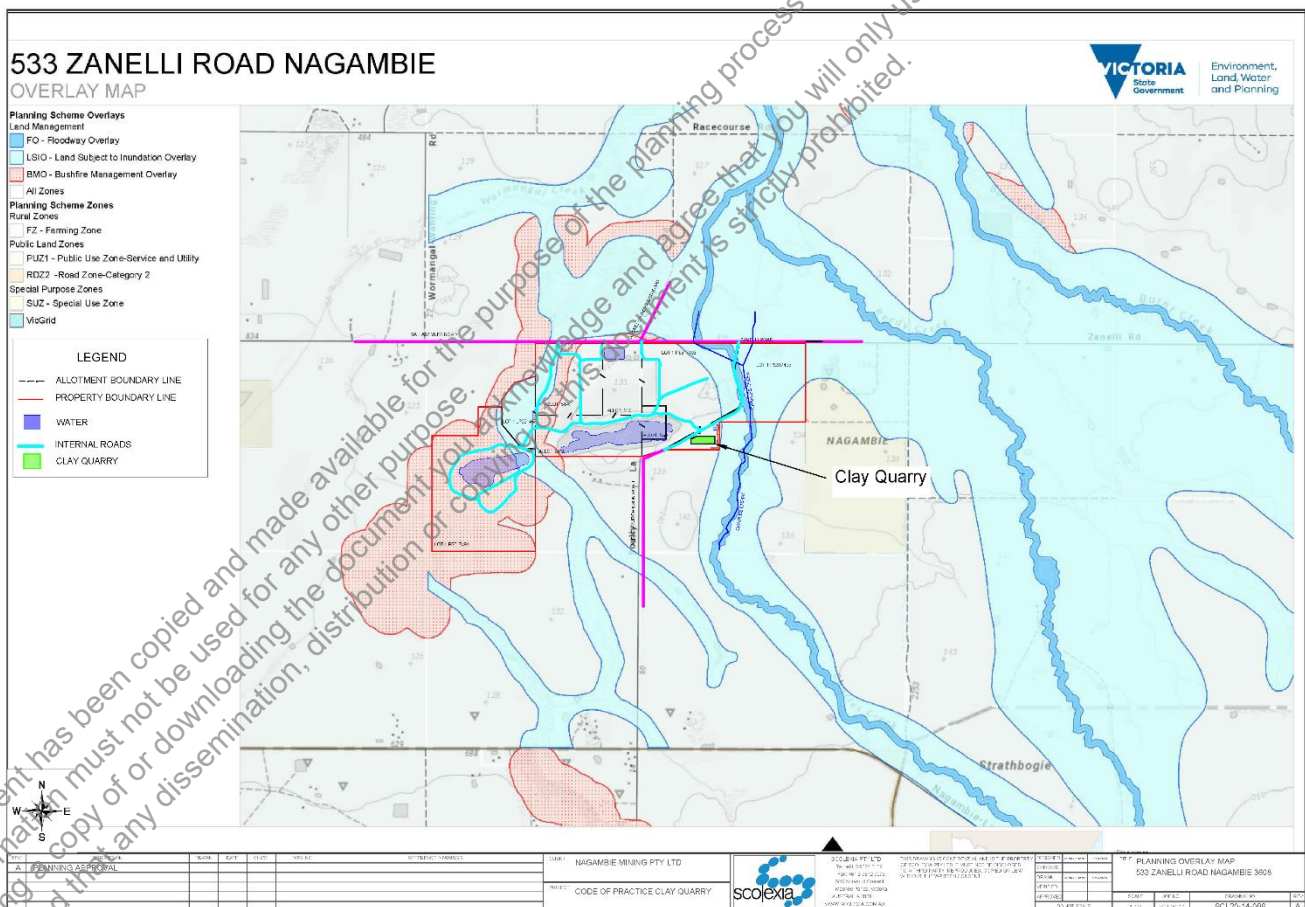


Figure 6: Planning Overlay Map

The location of the proposed clay quarry is not within the overlays detailed above; it is outside the areas subject to inundation so is not prone to surface water flows from the LSIO or FO overlays. There are no buildings proposed which may

be affected by the BMO overlay and the siter is not within the BMO overlay; hence does not require a bush fire management plan or bushfire attack level assessment to be completed.

2.3 Areas of Aboriginal Cultural Heritage Sensitivity

The property contains some areas which are **SUBJECT** to “Aboriginal Cultural Heritage Sensitivity” pursuant to the Strathbogie planning scheme as per **Appendix A** “533 Zanelli Road Nagambie-Planning Property Report” and **Appendix H** “SCL20-14-007 - A - ABORIGINAL CULTURAL HERITAGE SENSITIVITY MAP” (See **Figure 7**). However, the proposed site lies at least 25m from the area of Aboriginal cultural heritage sensitivity, hence a cultural heritage plan assessment is **NOT REQUIRED** to be completed.

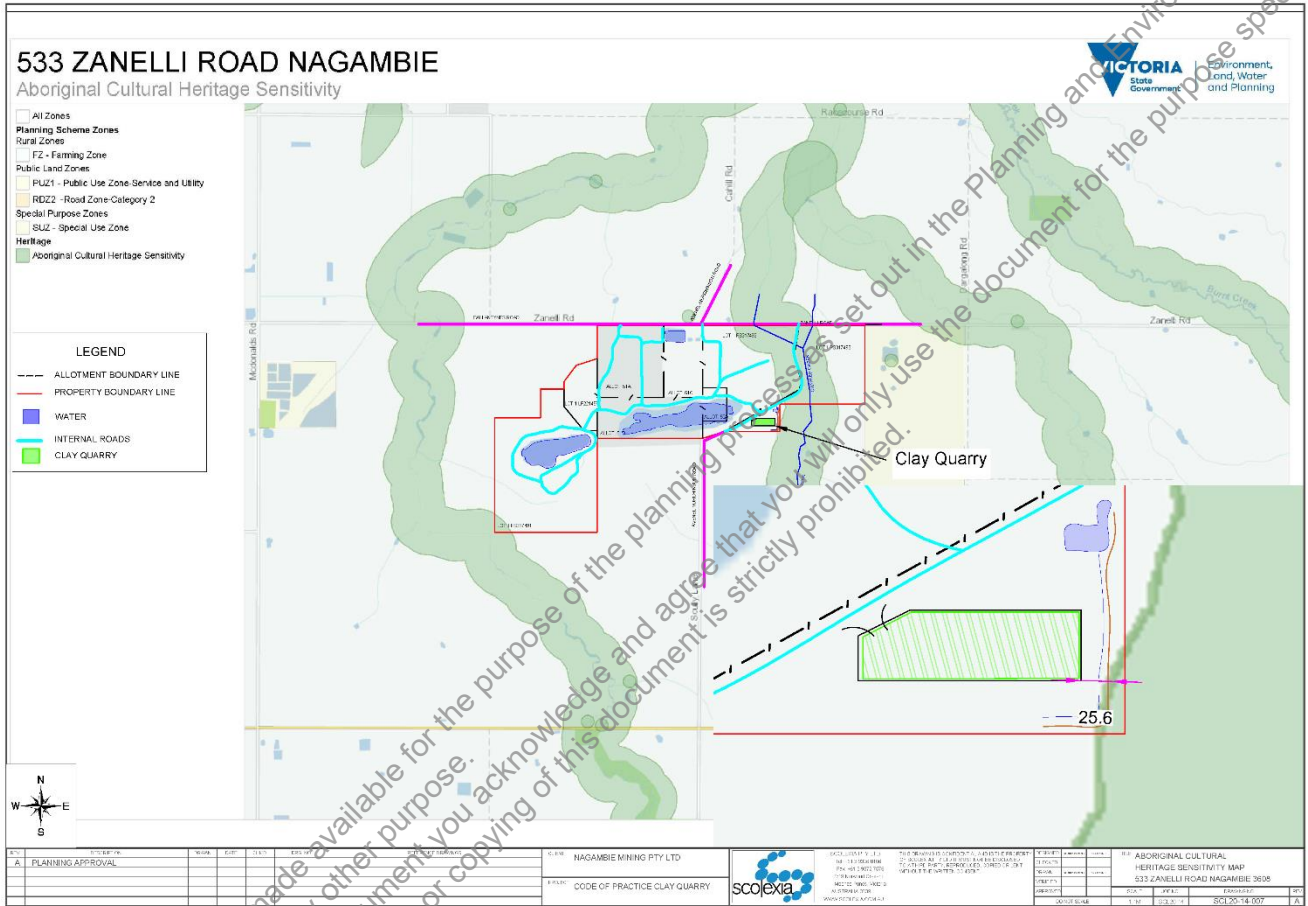


Figure 7: Areas of Aboriginal Cultural Heritage Sensitivity

2.4 Bush fire prone area provisions

The property **IS WITHIN** a bush fire prone area as per **Appendix A** “533 Zanelli Road Nagambie-Planning Property Report”. The proposal will comply with the relevant guidelines as set out in the Strathbogie planning scheme and specifically:

- Any relevant approved State, regional and municipal fire prevention plan.

3.0 EFFECTS ON SURROUNDING LOCALITY

3.1 Noise

The noise generated on the site **IS NOT** expected to be audible to the nearest sensitive receptor given their relative low volumes, their absorption by the earthen bund wall and clay pit walls.

3.2 Air Emissions

Air emissions anticipated to occur as a result of the operation of this facility are:

- Dust
- Greenhouse Gases

None of the listed emissions are expected to have significant effects on the air quality in the immediate vicinity of the property or atmosphere in general. The use of water to control dust when required and the presence of the earthen bund wall and clay pit walls would minimise dust generation and transmission.

3.3 Hours of operation

Site access hours 6am - 6pm (Monday – Saturday)

Use of mobile plant from 7.00 am to 5pm (Monday – Saturday)

3.4 Waste disposal

The proponent does not anticipate any waste or foreign material from the operation except general domestic waste which will appropriately collected and disposed of.

3.5 Car parking and local traffic

Two car parking spaces will be provided for at the end of the access road.

3.6 Native Vegetation

A biodiversity assessment report has been conducted for the site as per **Appendix I** "Biodiversity Assessment Report". According to the report, the site has been highly modified from past use as part of the mining operations. From site inspections there are no threatened flora or fauna observed on the site. The proposed quarry does not require the removal of trees located on the southern boundary or disturb the wetland habitat located in the south-eastern corner of the property (See page 39 of the report). The proposed development does not require the removal of any native vegetation.

4.0 LEGISLATIVE REQUIREMENTS FOR MINING

4.1 Mineral Resources Act 1990

The development of the small quarry in the state of Victoria is required to comply with the “Mineral Resources (Sustainable Development) Act 1990”. The proponent anticipates to **FULLY COMPLY** with Mineral Resources (Sustainable Development) Act 1990.

4.2 Earth Resource Regulations Victoria and Work Authority

Earth Resource Regulations Victoria in accordance with the Mineral Resources (Sustainable Development) Act 1990 (MRSD Act) has a code of Practice for Small Quarries as per **Appendix J** “Code of Practice for Small Quarries - DPI Earth Resources”. According to the code (Page 1):

From 1 January 2010, quarries that are less than five hectares in area and less than five metres in depth, provided that no blasting or native vegetation clearance occurs, will be exempt from the requirement to work to an approved Work Plan (section 77G of MRSD Act). Such small quarries are instead required to comply with the Code, which is made under sections 89A – 89H of the MRSD Act.

The Code does not apply to quarries that are less than one hectare in area and less than two metres in depth. These quarries are exempt from regulation under the MRSD Act.

The proposed quarry is less than 1 Ha in area and is less than 2m in depth as shown in **Figure 3** and **Figure 4**. In accordance with the approval process flow diagram detailed in the code on page 3 (See **Figure 8**), the proposed quarry does not require a work plan and is exempt from regulation under the MRSD Act; Planning approval from the local municipal authority is only required.

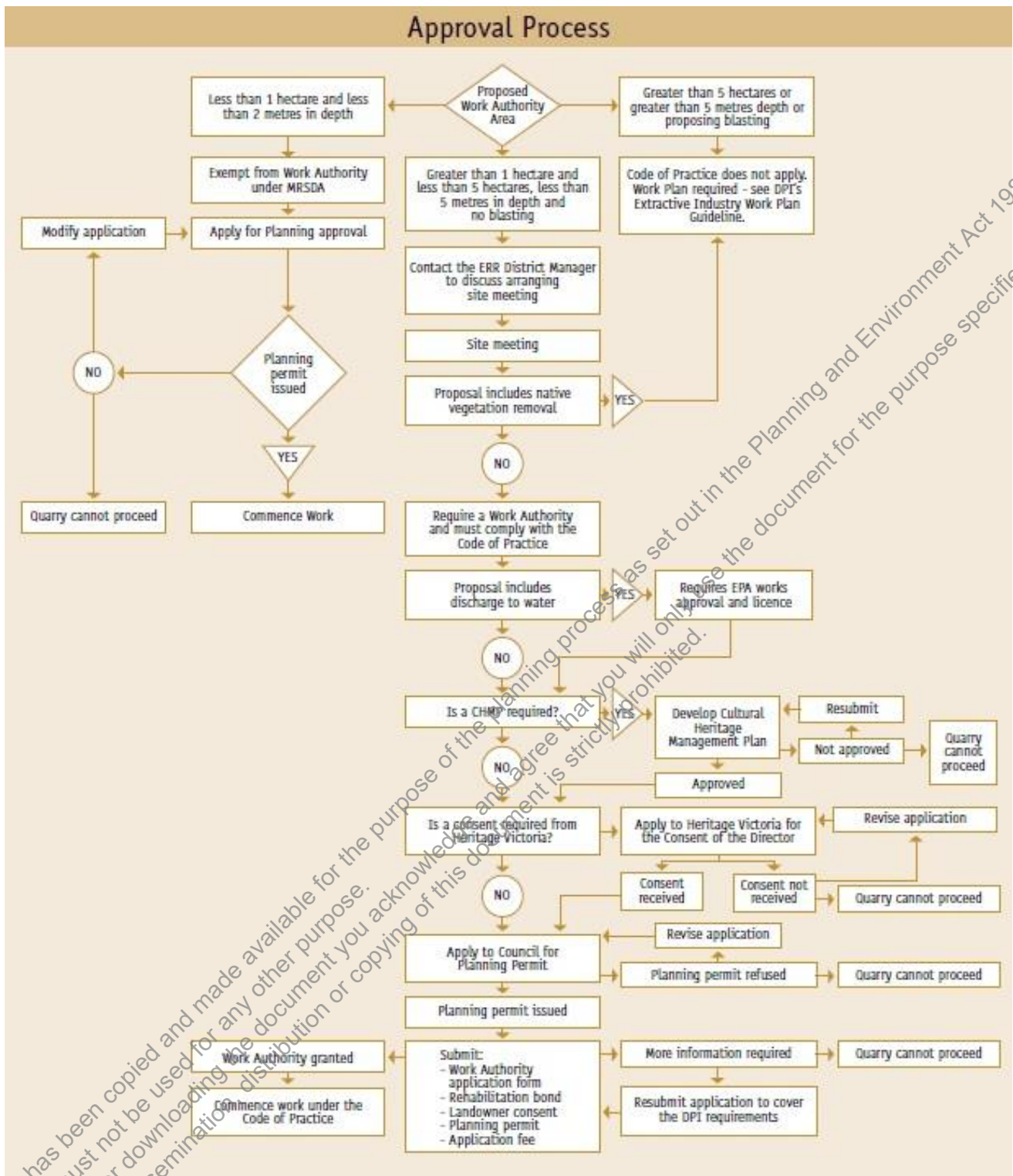


Figure 8: Small Quarry Approval Process Flow Diagram

5.0 MITIGATION MEASURES

5.1 Location and siting

The proposed site has been located on a source of clay as indicated by exploration drilling. It is located 722m from Zanelli Road and will be screened by the existing mining operations. The pit being less than 1 Ha in area and being surrounded by the bund wall will ensure minimal visual impact on the surrounding landscape.

5.2 Surface water, ground water and land contamination mitigation

As mentioned above, the bund to be constructed will divert surface water around the pit to minimise the amount of sediment water. All sediment water will be contained within the pit and will not be released to the surrounding land. As shown in Figure 4, the bund wall will protect the pit from erosion and direct surface waters around the pit along existing drainage pathway.

5.3 Dust mitigation

The facility has been designed to minimise dust generation from truck traffic by limiting their access to the roadways. Roadways will be sprayed with water to minimise dust when required. Good management practices will be implemented to ensure excessive amounts of water for dust suppression is avoided to prevent undue run-off.

5.4 Noise mitigation

The facility operating hours will be limited to the following:

- Site access hours 6am - 6pm (Monday – Saturday)
- Use of mobile plant from 7.00am to 5pm (Monday – Saturday)
- No mobile plant operation on Sundays or public holidays

5.5 Litter mitigation

The facility is surrounded by an earthen bund wall which will prevent litter from leaving the site. The facility will be operated with policies and procedures for regular litter removal and cleaning.

5.6 Greenhouse gas emissions mitigation

Facility infrastructure and equipment will include using efficient vehicles, machinery and technology.

6.0 CONCLUSION

The primary objective for the proposal is to provide an efficient facility for the extraction of clay. In the absence of the proposed development, clay would have to be sourced from other areas; at a higher cost, providing less efficient customer service and greater environmental impact in terms of higher energy consumption and emissions associated with increased truck kilometres travelled.

The proposed development would result in a small loss of marginal agricultural land but would encourage the increase and retention of employment at the Nagambie mine which directly supports the local rural community. If the proposal does not proceed the associated jobs would be relocated to another area. The site is suitable for the proposed development and is located on flat ground away from surface waters. The property contains a land subject to inundation overlay, flood overlay and bushfire management overlay; however the site of the quarry is not within any of the overlays. The property contains areas of Aboriginal cultural heritage sensitivity; however the site itself is located outside these areas. The proposed development does not require the removal of any native vegetation.

The proponent intends to comply with industry best practice and adherence to the “Code of Practice for Small Quarries” to ensure impacts will be minimised.

In view of the above, the proponent considers the proposal to be a suitable and justifiable use of the site, with minimal impact on local amenities and in a manner consistent with the Shire of Strathbogie planning scheme. As such we request council’s favourable consideration of the proposal and the granting of a planning permit.

----- End of Main Body -----

7.0 FIGURES LIST

FIGURE	TITLE
1	Survey Feature Map
2	General Site Layout
3	General Arrangement
4	Quarry and Bund Detail
5	Planning Zone Map
6	Planning Overlay Map
7	Areas of Aboriginal Cultural Heritage Sensitivity
8	Small Quarry Approval Process Flow Diagram

8.0 TABLES LIST

None.

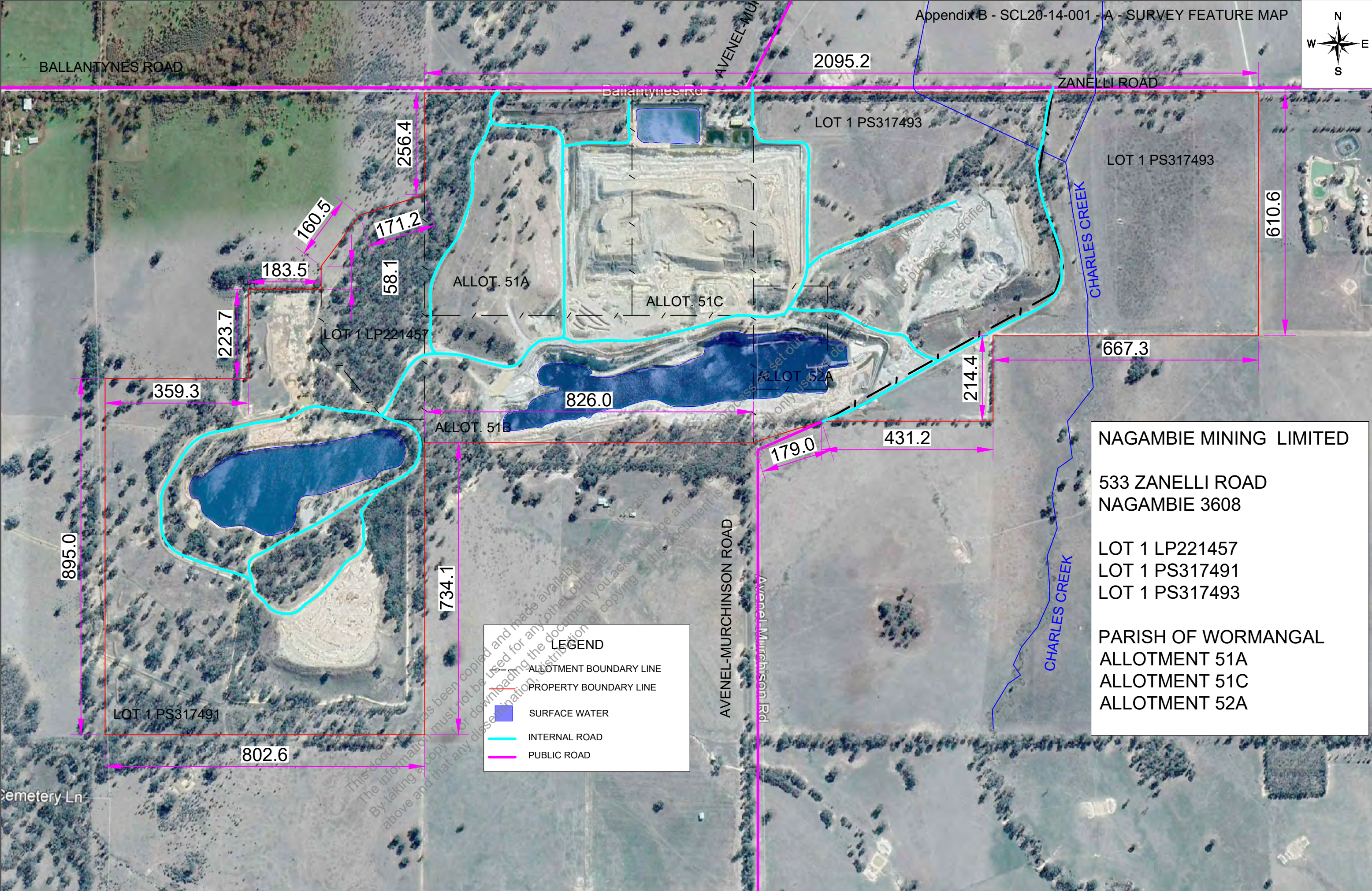
9.0 APPENDICES

APPENDIX	TITLE
A	533 ZANELLI ROAD - Planning Property Report
B	SCL20-14-001 - A - SURVEY FEATURE MAP
C	SCL20-14-002 - A - GENERAL SITE LAYOUT
D	SCL20-14-003 - A - GENERAL ARRANGEMENT
E	SCL20-14-004 - A - QUARRY AND BUND DETAIL
F	SCL20-14-005 - A - PLANNING ZONE MAP
G	SCL20-14-006 - A - PLANNING OVERLAY MAP
H	SCL20-14-007 - A - ABORIGINAL CULTURAL HERITAGE SENSITIVITY MAP
I	Biodiversity Assessment Report
J	Code Of Practice for Small Quarries - DPI Earth Resources

10.0 REFERENCES

None.

-----End of Document -----



LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- SURFACE WATER
- INTERNAL ROAD
- PUBLIC ROAD

NAGAMBIE MINING LIMITED
 533 ZANELLI ROAD
 NAGAMBIE 3608

LOT 1 LP221457
 LOT 1 PS317491
 LOT 1 PS317493

PARISH OF WORMANGAL
 ALLOTMENT 51A
 ALLOTMENT 51C
 ALLOTMENT 52A

REV.	DESCRIPTION	DRAWN	DATE	CHK'D	DRG. NO.	REFERENCE DRAWINGS
A	PLANNING APPROVAL					

CLIENT NAGAMBIE MINING PTY LTD

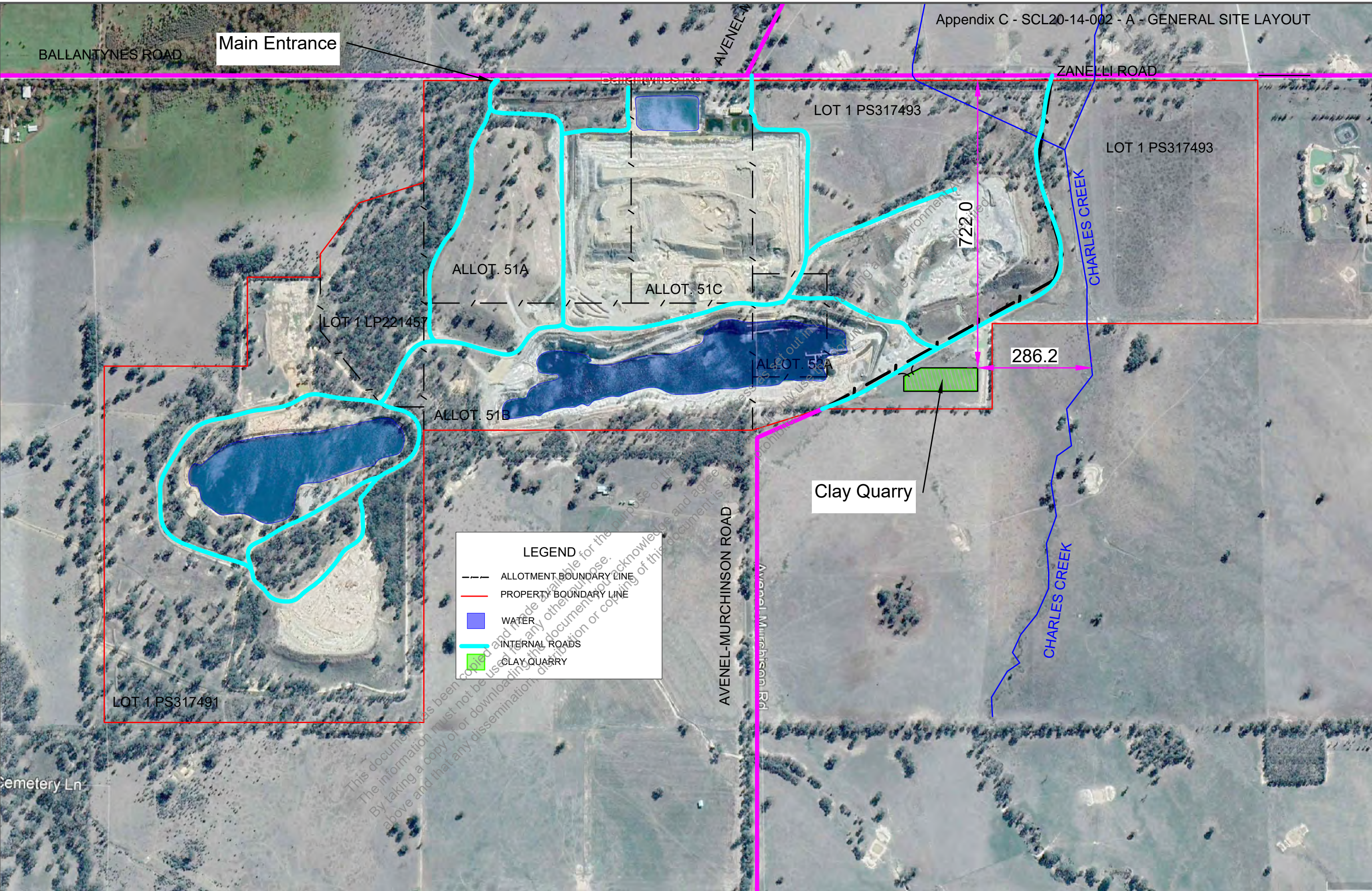
PROJECT CODE OF PRACTICE CLAY QUARRY



SCOLEXIA PTY LTD
 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
 8/19 Norwood Crescent
 Moonee Ponds, Victoria
 AUSTRALIA 3039
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LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- WATER
- INTERNAL ROADS
- CLAY QUARRY

REV.	DESCRIPTION	DRAWN	DATE	CHKD	DRG. NO.	REFERENCE DRAWINGS
A	PLANNING APPROVAL					

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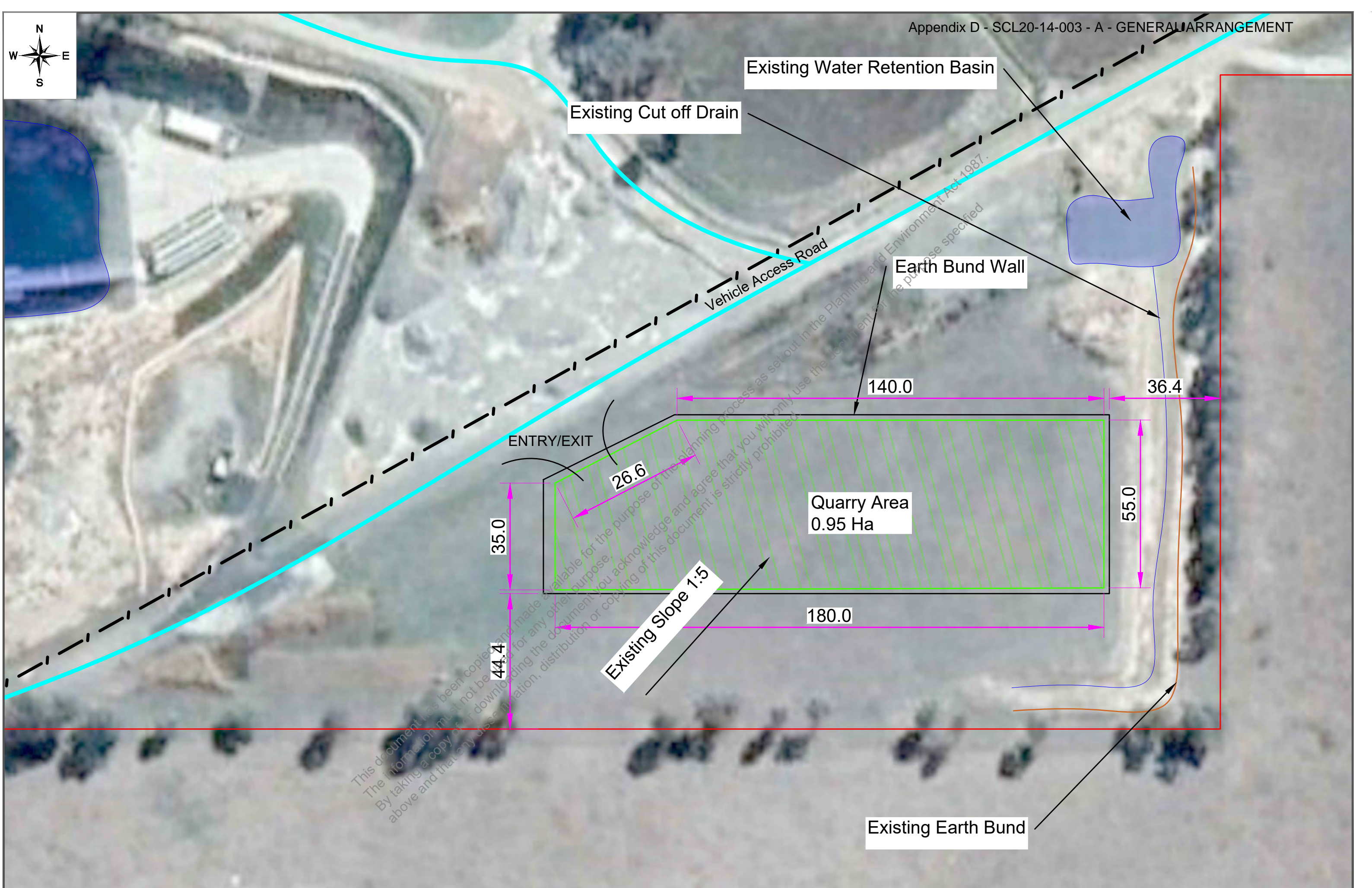
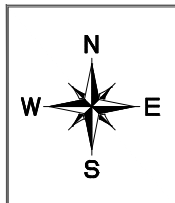


SCOLEXIA PTY LTD
 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
 8/19 Norwood Crescent
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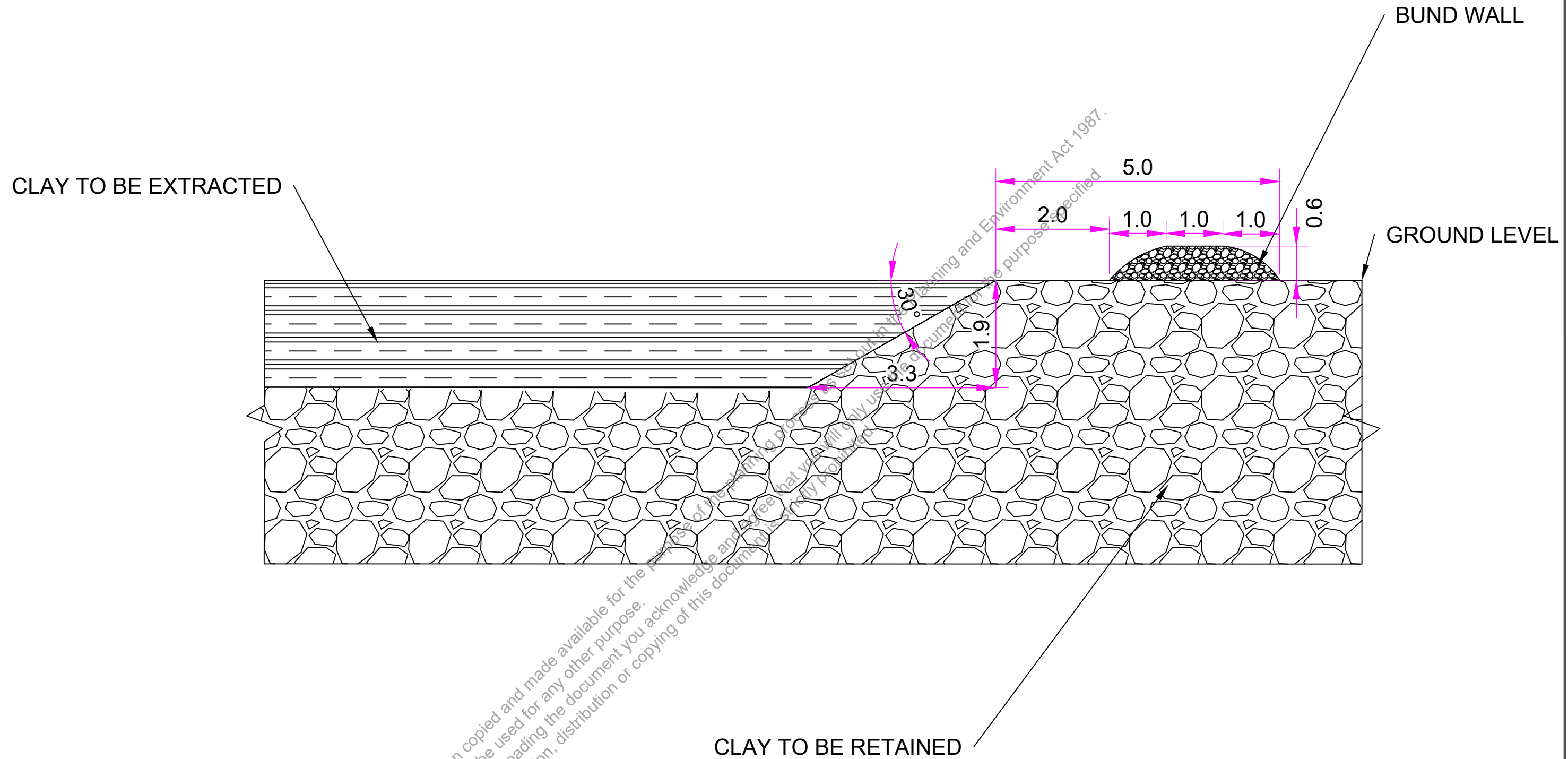
DESIGNED	SONNY HONG	27/07/2020
CHECKED		
DRAWN	SONNY HONG	27/07/2020
VERIFIED		
APPROVED		

TITLE		GENERAL SITE LAYOUT	
		533 ZANELLI ROAD NAGAMBIE 3608	
SCALE	JOB NO.	DRAWING NO.	REV.
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A	PLANNING APPROVAL						NAGAMBIE MINING PTY LTD	CODE OF PRACTICE CLAY QUARRY	SCOLEXIA PTY LTD Tel: +61 3 9326 0106 Fax: +61 3 9372 7576 8/19 Norwood Crescent Moonee Ponds, Victoria AUSTRALIA 3039 WWW.SCOLEXIA.COM.AU	THIS DRAWING IS CONFIDENTIAL AND IS THE PROPERTY OF SCOLEXIA PTY LTD IT MUST NOT BE DISCLOSED TO A THIRD PARTY, REPRODUCED, COPIED OR LENT WITHOUT THE WRITTEN CONSENT.	SCOLBY HOBBS 27/07/2020	SCOLBY HOBBS 27/07/2020	SCOLBY HOBBS 27/07/2020	GENERAL ARRANGEMENT 533 ZANELLI ROAD NAGAMBIE 3608	DO NOT SCALE	1:1M	SCL20-14	SCL20-14-003	A



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A	PLANNING APPROVAL						NAGAMBIE MINING PTY LTD	CODE OF PRACTICE CLAY QUARRY	SONNY HANG		SONNY HANG			DO NOT SCALE	1:1M	SCL20-14	SCL20-14-004	A



SCOLEXIA PTY LTD
 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
 8/19 Norwood Crescent
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DESIGNED	SONNY HANG	27/07/2020	TITLE	QUARRY AND BUND DETAIL
CHECKED				533 ZANELLI ROAD NAGAMBIE 3608
DRAWN	SONNY HANG	27/07/2020		
VERIFIED				
APPROVED				

533 ZANELLI ROAD NAGAMBIE

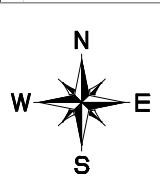
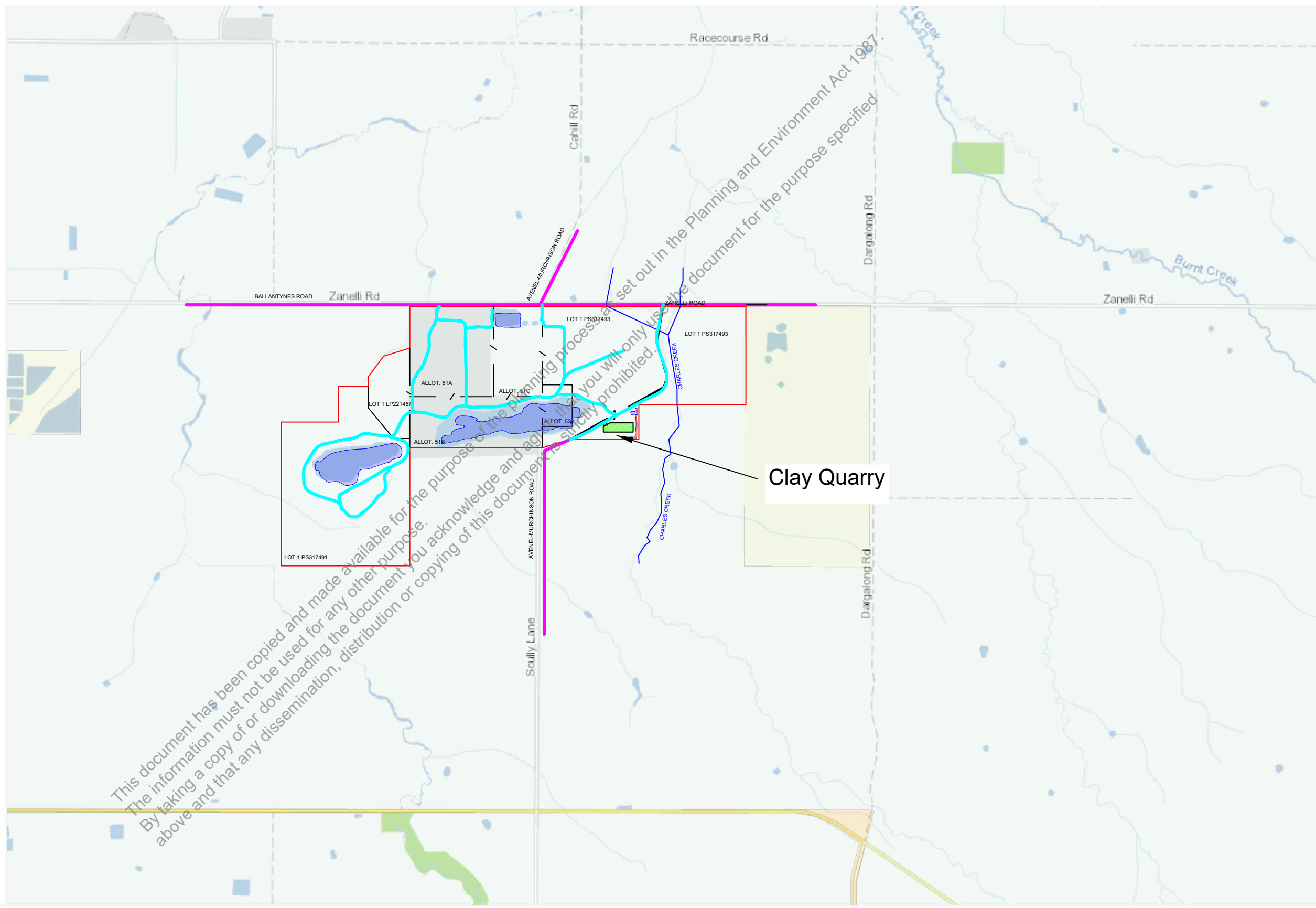
PLANNING MAP



- All Zones
- Planning Scheme Zones**
- Rural Zones
 - FZ - Farming Zone
- Public Land Zones
 - PUZ1 - Public Use Zone-Service and Utility
 - RDZ2 - Road Zone-Category 2
- Special Purpose Zones
 - SUZ - Special Use Zone

LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- WATER
- INTERNAL ROADS
- CLAY QUARRY



REV.	DESCRIPTION	DRAWN	DATE	CHKD	DRG. NO.	REFERENCE DRAWINGS	CLIENT	PROJECT	DESIGNED	CHECKED	DRAWN	VERIFIED	APPROVED	TITLE	SCALE	JOB NO.	DRAWING NO.	REV.
A	PLANNING APPROVAL						NAGAMBIE MINING PTY LTD	CODE OF PRACTICE CLAY QUARRY	SONNY HOANG	SONNY HOANG	SONNY HOANG			PLANNING ZONE MAP 533 ZANELLI ROAD NAGAMBIE 3608	1:1M	SCL20-14	SCL20-14-005	A



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533 ZANELLI ROAD NAGAMBIE

OVERLAY MAP

Planning Scheme Overlays

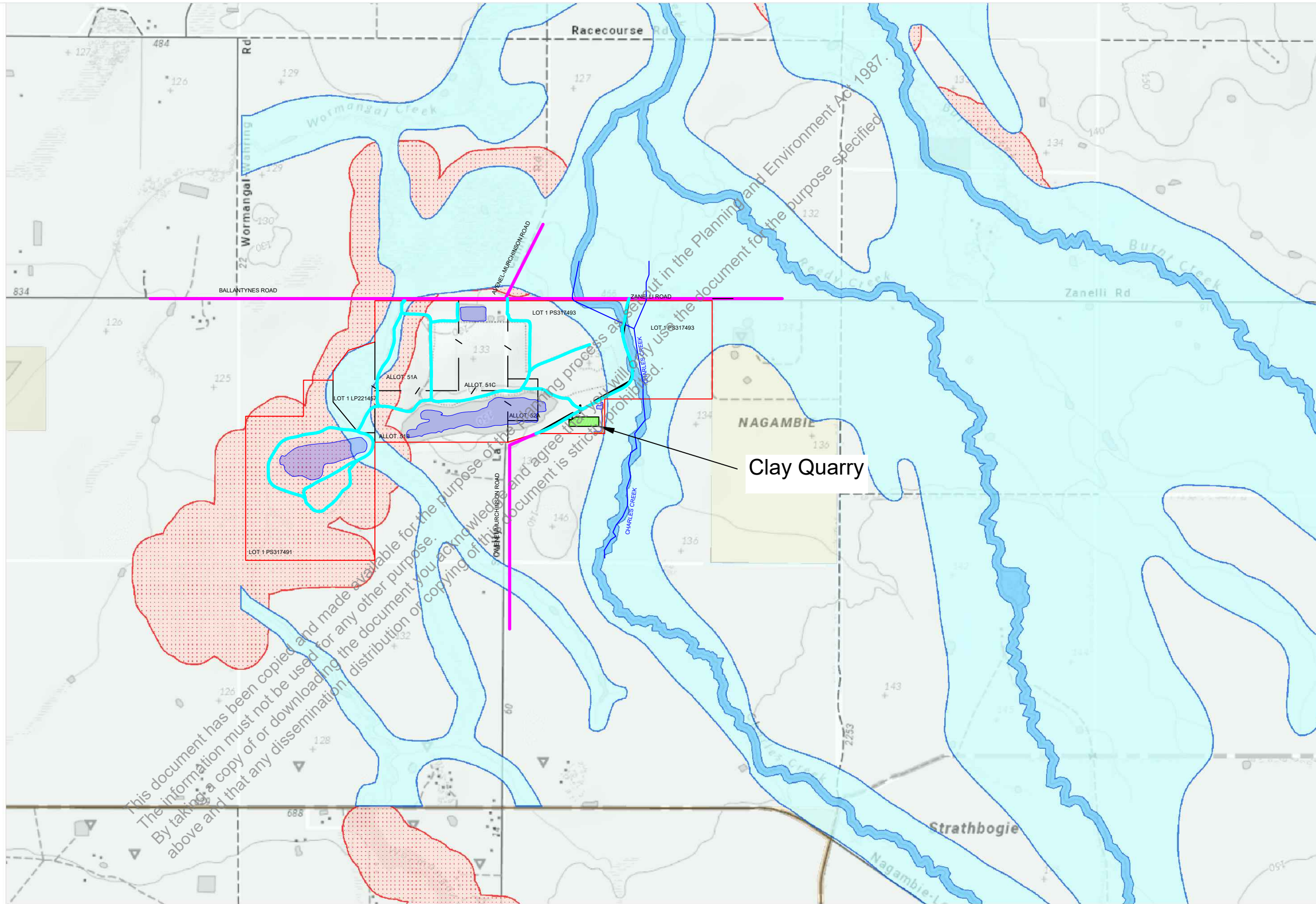
- Land Management
- FO - Floodway Overlay
- LSIO - Land Subject to Inundation Overlay
- BMO - Bushfire Management Overlay
- All Zones

Planning Scheme Zones

- Rural Zones
- FZ - Farming Zone
- Public Land Zones
- PUZ1 - Public Use Zone-Service and Utility
- RDZ2 -Road Zone-Category 2
- Special Purpose Zones
- SUZ - Special Use Zone
- VicGrid

LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- WATER
- INTERNAL ROADS
- CLAY QUARRY



REV.	DESCRIPTION	DRAWN	DATE	CHKD	DRG. NO.	REFERENCE DRAWINGS
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TITLE	PLANNING OVERLAY MAP		
	533 ZANELLI ROAD NAGAMBIE 3608		
SCALE	JOB NO.	DRAWING NO.	REV.
DO NOT SCALE	SCL20-14	SCL20-14-006	A

533 ZANELLI ROAD NAGAMBIE

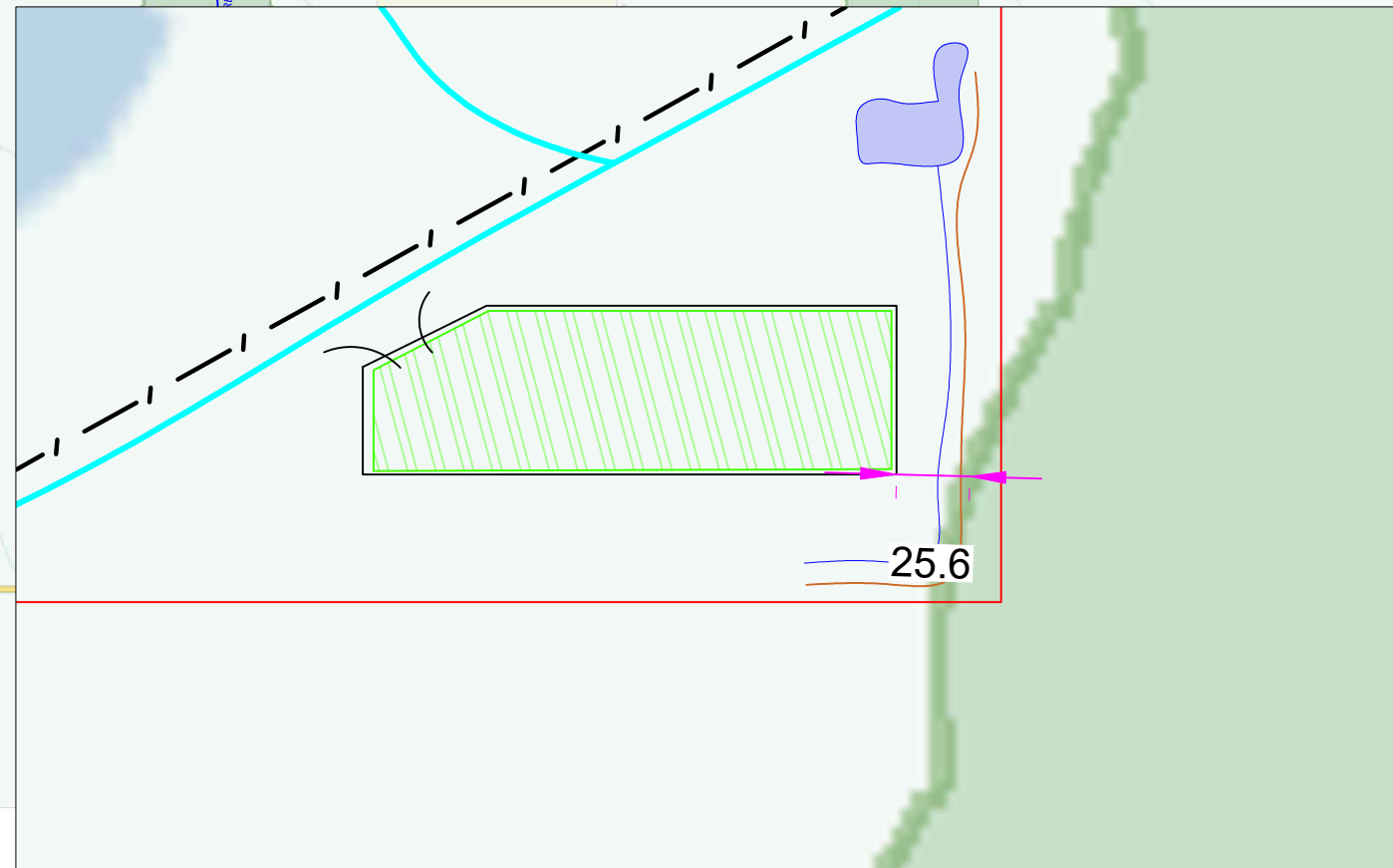
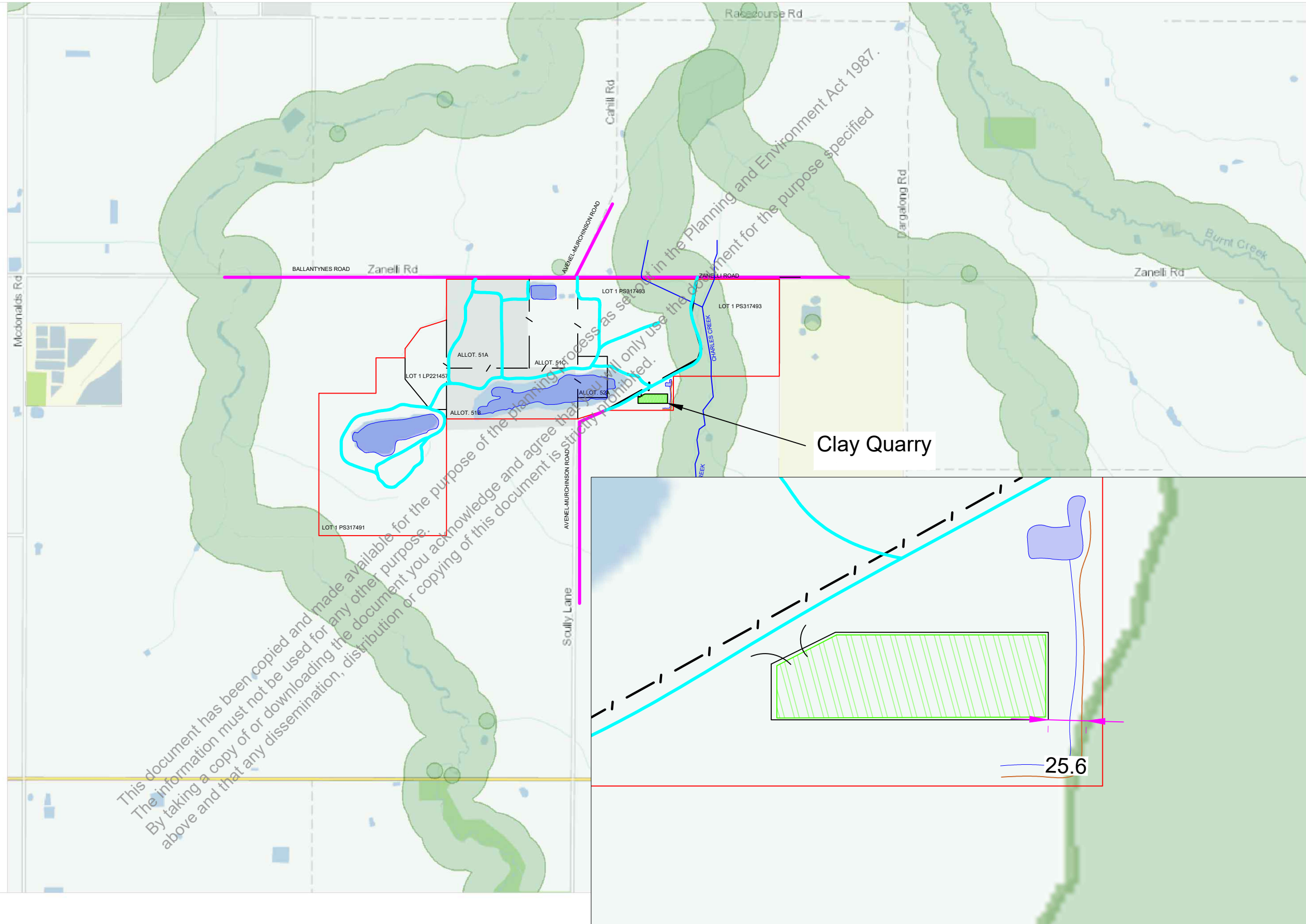
Aboriginal Cultural Heritage Sensitivity



- All Zones
- Planning Scheme Zones**
- Rural Zones
 - FZ - Farming Zone
- Public Land Zones
 - PUZ1 - Public Use Zone-Service and Utility
 - RDZ2 - Road Zone-Category 2
- Special Purpose Zones
 - SUZ - Special Use Zone
- Heritage**
 - Aboriginal Cultural Heritage Sensitivity

LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- WATER
- INTERNAL ROADS
- CLAY QUARRY



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A	PLANNING APPROVAL						NAGAMBIE MINING PTY LTD	CODE OF PRACTICE CLAY QUARRY	SONNY HOANG	SONNY HOANG	SONNY HOANG			ABORIGINAL CULTURAL HERITAGE SENSITIVITY MAP	1:1M	SCL20-14	SCL20-14-007	A



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 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
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BIODIVERSITY ASSESSMENT REPORT

533 ZANELLI ROAD, NAGAMBIE



WILDLIFE EXPERIENCES PTY LTD




JUNE 2020

DOCUMENTATION CONTROL

Report Title: Biodiversity Assessment Report, 533 Zanelli Road, Nagambie

Client: Nagambie Resources

Version No.: 1.0

Version No.		Author	Date	Signature
1.0	Author	John Harris	19 June 2020	
1.0	Mapping	Kathy Himbeck	12 June 2020	
1.0	Review	Kathy Himbeck	19 June 2020	

Cover photos: Looking across the study area to the eastern boundary of the property (Image – G.Scott-Walker).

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ACKNOWLEDGEMENTS

Surveys were undertaken by John Harris and Geordie Scott-Walker.

James Earle from Nagambie Resources provided information on extent of study area and background information.

Kathy Himbeck produced the maps showing the study area and regional context.

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1 SUMMARY

Nagambie Resources commissioned Wildlife Experiences Pty Ltd to conduct a Biodiversity Assessment of an area of land, approximately 2.5 hectares, at their gold mine at 533 Zanelli Road, Nagambie.

The purpose of the Biodiversity Assessment was to identify any remnant native vegetation, listed ecological communities and habitat for threatened fauna and flora species, associated with a planned application for a quarry on the site. This report presents the results of the field assessment, discusses potential impacts associated with the proposed works and details relevant Commonwealth, State and local legislative implications and approvals required as part of the project.

FLORA RESULTS

Forty-three (43) vascular plant species were recorded in the study area, comprising 17 indigenous and 26 introduced species. No *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed flora species were recorded during the assessment or are considered likely to occur on the site.

One small patch of native vegetation corresponding to the Plains Grassy Woodland Ecological Vegetation Class (EVC 55_62) occurs in the study area. This patch is of poor quality and does not conform to the description of any of EPBC Act listed plant communities that had the potential to occur within the study area.

FAUNA RESULTS

Thirteen (13) species of fauna were recorded across the study area and adjacent wetland. No Commonwealth or State-listed fauna species were observed during the field assessment. The result reflects the poor quality and condition of the limited habitat in the study area.

REGULATORY IMPLICATIONS OF FINDINGS

No Matters of National Environmental Significance (NES) under the *Environment Protection and Biodiversity Conservation Act 1999* were found during the field assessment of the study area. The threatened ecological communities identified in the PMST are not considered currently present in the study area and not likely to occur into the future. Targeted surveys were not undertaken for threatened fauna as the study area, in its current condition, provides very limited habitat for any species identified in the PMST.

Under the *Catchment and Land Protection Act 1994*, five noxious weeds were recorded in the study area. Spear Thistle **Cirsium vulgare*, Stinkwort **Dittrichia graveolens*, Spiny Rush **Juncus acutus* ssp *acutus*, Horehound **Marrubium vulgare* and Bathurst Burr **Xanthium spinosum*. Landowners are legally responsible for the control of CaLP Act-listed weeds. Measures to prevent the spread of any noxious weeds prior to, during and following completion of any construction works should be implemented to prevent the spread of weeds into nearby areas and further afield.

Under the *Wildlife Act 1975*, any persons engaged in the salvage, translocation and/or handling of native fauna during any construction works must have a management authorisation under the *Wildlife Act 1975*.

The *Planning and Environment Act 1987: Guidelines for the Removal, Destruction or Lopping of Native Vegetation* (Clause 52.17) (the *Guidelines*), does not apply to this proposed development as no native vegetation as defined in the Guidelines, whilst present on the site, is not proposed be removed for the development of the quarry.

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2 BACKGROUND INTRODUCTION

In May 2020, Nagambie Resources commissioned Wildlife Experiences to undertake an ecological assessment and prepare a Biodiversity Assessment Report for an area of land within their property at 533 Zanelli Road, Nagambie. The study area is proposed for the establishment of a small, shallow clay pit, requiring planning approval from the Strathbogie Shire Council.

The purpose of the Biodiversity Assessment was to identify remnant native vegetation, listed ecological communities and habitat for threatened fauna and flora species, associated with the planned development.

This report presents the results of the field assessment, discusses potential impacts associated with the proposed works and details relevant Commonwealth, State and local legislative implications and approvals required as part of the project. In particular, the report is intended to inform the planning process, providing an assessment of implications in accordance with the *Guidelines for the removal, destruction or lopping of native vegetation* ("the Guidelines") (DELWP 2017) as required under Victorian Planning Provisions. Other relevant legislation requiring consideration is the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Victorian *Wildlife Act 1975* and *Catchment and Land Protection Act 1994* (CaLP Act).

The locality of the study area and surrounding areas are shown in Figure 1.

2.2 STUDY AREA AND SURROUNDING CONTEXT

The study area encompasses a total area of 2.8ha of land south of Zanelli Road, Nagambie, within the Nagambie Resources property. The study area is roughly triangular in shape, excluding the vegetation in the northern corner along the existing drainage line. Also excluded from the study area on the eastern side are the existing mounds of dirt, presumably from the excavation of the wetland, and the wetland itself. On the southern side, the study area is inside the row of trees along the southern property boundary. The extent of the study area and the area surveyed is shown in Figure 2.

Bounding the southern and eastern sides of the study area is private property. To the north and west is other lots within the Nagambie Resources property.

The surrounding area is zoned for farming and current uses include sheep grazing and intensive chicken production.

Currently the study area consists primarily of pasture grasses (Image 1) with occasional shrubs. Along the southern boundary, immediately outside of the study area, there are a row of planted trees (Image 2). Adjacent to the track on the western side of the study area (Image 3), there are stockpiles of rock material (Image 4).

Land Disturbance History

The study area is part of the Nagambie Resources property and is operating as a gold mine. From aerial interpretation and the site assessment it is obvious that the land has been historically cleared of native vegetation, similar to the condition of the surrounding landscape, except for the creek lines, rises and scattered trees in paddocks. Unlike the immediate surrounding area, the study site is not regularly grazed but is managed to maintain a modified grassland.

2.3 LITERATURE REVIEW

Relevant literature and online databases were reviewed prior to the field assessment to obtain information on known ecological values associated with the study area, including the following:

- The Victorian Biodiversity Atlas (VBA) for previously documented records of flora and fauna in the locality (DELWP 2020a);
- Ecological Vegetation Class (EVC) benchmarks for descriptions and characteristics of each bioregion (DELWP 2020b);
- The DELWP NatureKit (DELWP 2020c) for the modelled extent of current and historic Ecological Vegetation Classes (EVC's);
- The Commonwealth Department of the Environment and Energy (DoEE) Protected Matters Search Tool (PMST) for matters of National Environmental Significance (NES) listed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) (DoEE 2020);
- The Victorian Planning Portal (DELWP 2020d) and Planning Schemes Online (DELWP 2020e) for the zoning and overlays relevant to the study area;
- Aerial photography of the study area.

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STRATHBOGIE SHIRE
VICTORIAN RIVERINA BIOREGION

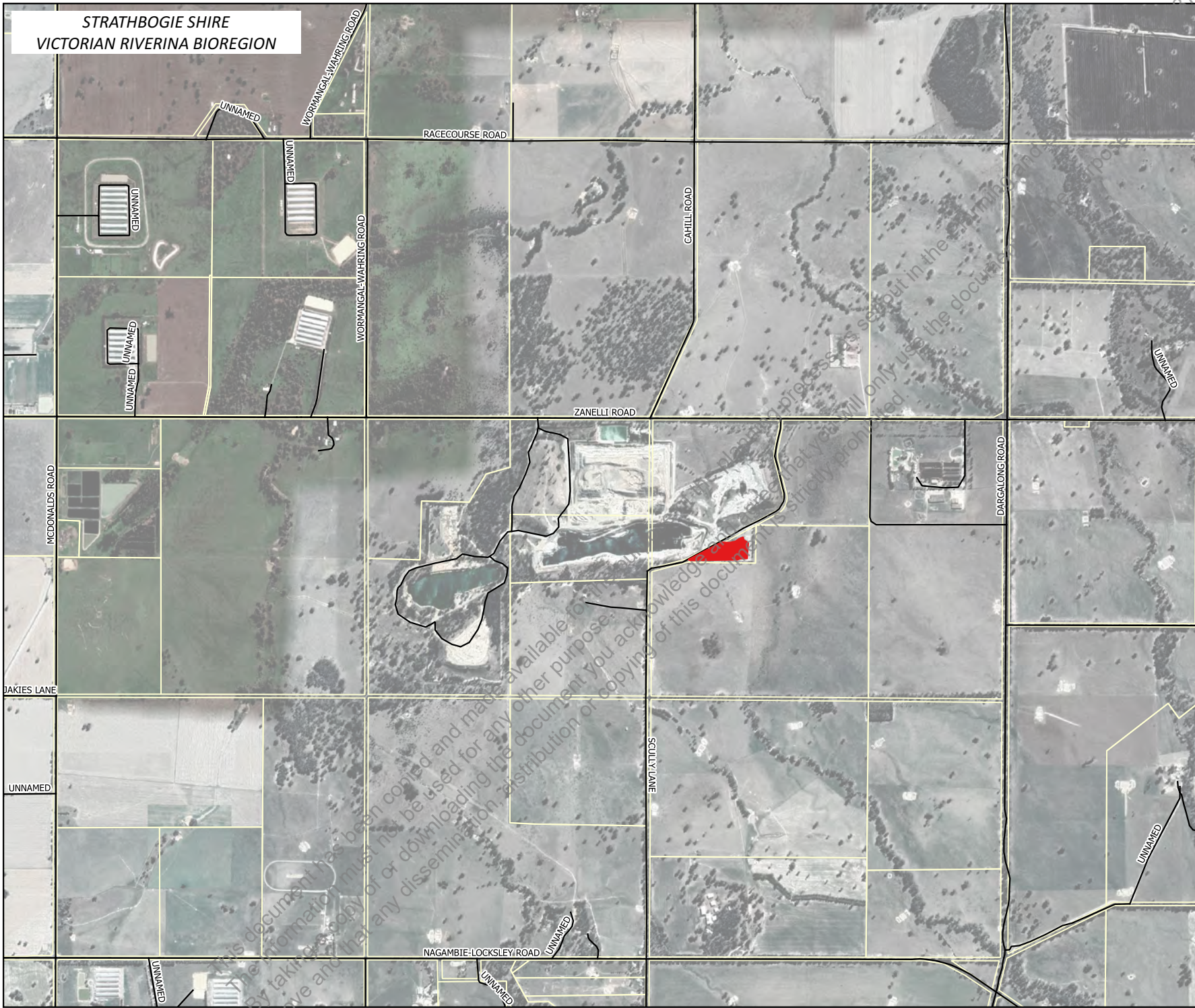






FIGURE 1
Locality of assessment
area and surrounds, 533
Zanelli Road, Nagambie

LEGEND

-  Assessment Area
-  Road
-  Cadastre

 GDA94 : A4
1:30000
0 0.4 0.8 1.2 km



Map created: 11 May 2020
Author: K. Himbeck





VicMap Data: The information in this map has been sourced from the State of Victoria. No responsibility or liability is given for the accuracy of this data.

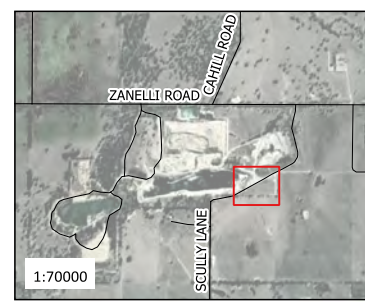
FIGURE 2
Extent of assessment
area, 533 Zanelli Road,
Nagambie

LEGEND

-  Native Vegetation (0.08 ha)
-  Assessment Area (2.8 ha)

 GDA94 : A4
1:1800
 0 25 50 75 m

Map created: 12 June 2020
Author: K. Himbeck



Native vegetation assessed as
EVC 55_62 Riverina Plains
Grassy Woodland

Area of 2.38 ha available
to construct a pit



VicMap Data: The information in this map has been sourced from the State of Victoria. No responsibility or liability is given for the accuracy of this data.

3 LEGISLATION, REGULATIONS AND THE STRATHBOGIE COUNCIL PLANNING SCHEME

The key biodiversity protection legislation and regulations potentially relevant to the study area are the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Wildlife Act 1975* and *Catchment and Land Protection Act 1994* (CaLP Act). The *Guidelines for the removal, destruction or lopping of native vegetation* ("the *Guidelines*") (DELWP 2017) is the principal document that informs biodiversity regulation under the planning scheme.

The requirements associated with the relevant legislation are summarised below.

Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the primary Commonwealth legislation for environment protection. Under the EPBC Act, an action will require approval from the Commonwealth Environment Minister if it is likely to have a potential significant impact on a matter of National Environmental Significance (NES) and it is not subject to certain specified exceptions.

Matters of NES trigger the Commonwealth's environmental assessment and approval responsibilities. These matters that are most relevant to this study area and immediate surrounds are: Ramsar wetlands of international importance, nationally listed threatened species and ecological communities, migratory species protected under international agreements and the Commonwealth marine environment.

If a project is likely to have a potential significant impact on a matter of NES, a referral to the Commonwealth Minister for the Environment is required. If the Minister considers it likely that a proposed action may have a significant impact on matters of NES, the action may be considered 'controlled' and requires a detailed assessment and the grant of a permit to proceed.

Wildlife Act 1975

The *Wildlife Act 1975* is the primary State legislation for protecting and managing fauna in Victoria. This Act covers indigenous vertebrate species (except declared pest species), invertebrate species listed under the *Flora and Fauna Guarantee Act 1988* and some introduced game species but does not apply to fish defined under the *Fisheries Act 1995*. Its main aims are the protection and conservation of wildlife, prevention of wildlife taxa becoming extinct in Victoria and to regulate the activities of persons engaged in activities concerning or relating to wildlife.

Threatened Species in Victoria

The Department of Environment, Land, Water and Planning maintains advisory lists of threatened fauna species in Victoria compiled by experts from within and outside of the Department. Listing of a species does not automatically confer FFG Act protection or any other legislative protection, however, listing can trigger enhanced vegetation protection via the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017).

The *Advisory List of Threatened Invertebrate Fauna in Victoria* (DSE 2009) lists those native invertebrate fauna species that are considered threatened (vulnerable, endangered, critically endangered or extinct in the wild) along with species considered extinct, near threatened or data

deficient. The latter three categories are not considered 'threatened' (DSE 2009) and are therefore not considered in this report.

The *Advisory List of Threatened Vertebrate Fauna in Victoria* (DSE 2013) lists those native fauna species that are considered threatened (vulnerable, endangered, critically endangered or extinct in the wild) along with species considered extinct, near threatened or data deficient. The latter three categories are not considered 'threatened' (DSE 2013) and are therefore not considered in this report.

The *Advisory List of Rare or Threatened Plants in Victoria* (DEPI 2014) lists those native flora species that are considered threatened (vulnerable and endangered) along with species considered extinct, rare or poorly known. The latter three categories are not considered 'threatened' (DEPI 2014) and are therefore not considered in this report.

Catchment and Land Protection Act 1994

The CaLP Act seeks to protect Victorian land and water resources from degrading processes.

Under the Act, landowners are required to conserve soil, protect water resources, eradicate 'Controlled' and 'Prohibited' weeds as listed by Agriculture Victoria (2019), eradicate pest animals and avoid actions that may result in land degradation on neighboring properties. In certain instances, landowners may be served with a Land Management Notice that may prohibit or regulate land use, or specify management actions required to be undertaken on their property.

Strathbogie Council Planning Scheme

According to Victorian Planning Portal (DELWP 2020d), the parcel supporting the study area is zoned Farming Zone (FZ), with no environmental overlays, but it is in a designated bushfire prone area. The parcel also supports the following overlays:

- Floodway Overlay (FO)
- Land Subject to Inundation Overlay (LSIO)

Planning and Environment Act 1987 (Native Vegetation Removal Regulations)

In Victoria, a permit is required to remove, destroy or lop native vegetation. Regulation of planning proposals for which impacts to native vegetation are a possibility is governed by the Victorian Native Vegetation Removal Regulations.

The *Guidelines* (DELWP 2017) outline how native vegetation removal is assessed and offset. The Guidelines also seek to ensure permitted clearing of native vegetation results in no net loss in the contribution made by native vegetation to Victoria's biodiversity. Assessment of the Pathway and, where appropriate, a Vegetation Quality Assessment is integral to achieving no net loss. These are defined as:

No net loss – the outcome that the native vegetation removal regulations achieve by ensuring that native vegetation removal is avoided, minimized and offset.

Vegetation Quality (Habitat Hectare) Assessment – A site-based measure of the condition of native vegetation with reference to the benchmark for the same type of native vegetation (DSE 2004). The assessment generates a habitat score of between 0.00 and 1.00.

Strategic planning plays a primary role in avoiding and minimising the impacts of uses and developments on native vegetation that makes a significant contribution to biodiversity. In Victoria, the key strategies for ensuring the objective for permitted clearing of native vegetation is achieved at the permit level are:

- Avoid the removal, destruction or lopping of native vegetation;
- Minimise impacts on Victoria's biodiversity from the removal, destruction and lopping of native vegetation; and,
- Provide an offset to compensate for the biodiversity impact from the removal, destruction or lopping of native vegetation.

Application Requirements

An application to remove, destroy or lop native vegetation must be classified as one of the following risk-based pathways: Basic, Intermediate or Detailed, as defined in the Guidelines (DELWP 2017a). The application requirements and decision guidelines included in Clause 52.17 of the planning scheme must be applied in accordance with the classified pathway.

All applications to remove, destroy or lop native vegetation must comply with the mandatory application requirements. In addition to the mandatory application requirements, an application in the Detailed assessment pathway must also comply with the Detailed assessment pathway application requirements (Tables 4 and 5 in DELWP 2017a).

Mandatory application requirements are as follows:

- The assessment pathway and reason for the assessment pathway. This includes the location category of the native vegetation to be removed;
- A description of the native vegetation to be removed that includes:
 - Whether the native vegetation is a patch or scattered tree or both and the extent in hectares;
 - the number, Diameter at Breast Height (DBH)/circumference of any large trees in patches and/or scattered trees (large or small);
 - The Strategic Biodiversity Value score;
 - The condition score (obtained from a field-based Vegetation Quality Assessment [habitat hectares]) of the native vegetation as required;
 - Whether it includes endangered Ecological Vegetation Classes (EVCs); and,
 - Whether a sensitive wetland and/or coastal areas are present.
- Maps showing the native vegetation and property in context and containing:
 - scale, north point and property boundaries;
 - location of any patches of native vegetation and the number of large trees within the patch proposed to be removed; and,
 - location of scattered trees proposed to be removed, including their size.

- The offset requirement, determined in accordance with section 5 of the Guidelines, that will apply if the native vegetation is approved to be removed;
- Topographic and land information relating to the native vegetation to be removed, showing ridges, crests and hilltops, wetlands and waterways, slopes of more than 20 percent, drainage lines, low lying areas, saline discharge areas, and areas of existing erosion, as appropriate;
- Recent, dated photograph of the native vegetation;
- Details of any other native vegetation approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged;
- An avoid and minimise statement. The statement describes any efforts to avoid the removal of, and minimise the impacts on the biodiversity and other values of native vegetation, and how these efforts focus on areas of native vegetation that have the most value;
- A copy of any Property Vegetation Plan contained within an agreement made pursuant to section 69 of the *Conservation, Forests and Lands Act 1987* that applies to the native vegetation to be removed;
- Where the removal of native vegetation is to create defensible space, a written statement explaining why the removal of native vegetation is necessary. This statement must have regard to other available bushfire risk mitigation measures. This statement is not required when the creation of defensible space is in conjunction with an application under the Bushfire Management Overlay;
- If the application is under Clause 52.16, a statement that explains how the proposal responds to the Native Vegetation Precinct Plan considerations at decision guideline 8.
- An offset statement providing evidence that an offset that meets the offset requirements for the native vegetation to be removed has been identified, and can be secured in accordance with the Guidelines. A suitable statement includes evidence that the required offset:
 - is available to purchase from a third party; or,
 - will be established as a new offset and has the agreement of the proposed offset provider; or,
 - can be met by a first party offset.

Additional requirements for applications in the Detailed assessment pathway include the following:

- A site assessment report of the native vegetation to be removed, including:
 - A habitat hectare assessment of any patches of native vegetation, including the condition, extent (in hectares), Ecological Vegetation Class and bioregional conservation status;
 - The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any large trees within patches; and,

- The location, number, circumference (in centimetres measured at 1.3 metres above ground level) and species of any scattered trees, and whether each tree is small or large.
- Information about impacts on rare or threatened species habitat, including:
 - The relevant section of the Habitat importance map for each rare or threatened species requiring a species offset;
 - For each rare or threatened species that the native vegetation to be removed is habitat for, according to the habitat importance maps:
 - the species' conservation status;
 - the proportional impact of the removal of native vegetation on the total habitat for that species; and,
 - whether their habitats are highly localised habitats, dispersed habitats, or important areas of habitat within a dispersed species habitat.

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4 METHODS

4.1 Pre-existing Information Search

The Victorian Biodiversity Atlas (DELWP 2020a) was queried for all fauna and flora species of conservation significance (listed under the EPBC Act and the *Advisory List of Threatened Invertebrate Fauna in Victoria* (DSE 2009), *Advisory List of Threatened Vertebrate Fauna in Victoria* (DSE 2013) or *Advisory list of rare or threatened plants in Victoria* (DEPI 2014) recorded within a five kilometre radius of the study area. The results of the search provided baseline data that assisted in determining potential threatened species that might inhabit the study area.

The EPBC Act Protected Matters Search Tool (DoEE 2020) was also queried to determine if any protected flora and fauna related matters were likely to occur in the vicinity of the study area. The results of the PMST search also provided historic information to assist with determining the likelihood of species utilising the study area.

A detailed list of resources reviewed for the project is provided in Section 1.3.

4.2 Field Assessment

A desktop investigation of pre-existing information on the study area was completed, prior to the field assessment in May 2020. The purpose of the field assessment was to gather information regarding the fauna and flora values present in the study area with particular emphasis on the presence / absence of native vegetation, fauna and flora.

Currently the study area consists primarily of a mixture of native and exotic grasses with the exotic species being dominant. There are some planted indigenous trees along the southern boundary of the property immediately outside of the study area, while declared noxious weeds Spear Thistle **Cirsium vulgare*, Stinkwort **Dittrichia graveolens* (Image 5), Spiny Rush **Juncus acutus ssp acutus*, Horehound **Marrubium vulgare* (Image 6) and Bathurst Burr **Xanthium spinosum* are scattered across, and adjacent to, the study area.

During the field assessment, a list of flora and fauna species observed was compiled and notes were made of any rare or threatened flora species or their habitat in the study area. Ecological Vegetation Classes (EVCs) were determined using modelled pre-1750s and extant EVC mapping and published descriptions (DELWP 2020b, 2020c). The extent of native vegetation within the study area was mapped. Matters listed under the Commonwealth EPBC Act, in particular flora species and ecological communities, were also determined during the field assessment.

As remnant native vegetation was present in the western part of the study area (Image 7), a habitat hectare assessment was conducted in accordance with the *Vegetation Quality Assessment Manual: Guidelines for applying the habitat hectares scoring method, Version 1.3* (DSE 2004).

4.3 Fauna Habitat

The quality and estimated value of habitat for fauna within the study area was determined by assessment against the criteria described below.

Habitat Quality Classification

Low: Habitat areas classed as being of low quality are usually fragmented and have lost most structural elements such as tussock/hummock forming grasses or sedges, inter-tussock spaces, understorey shrubs, logs, rocks and hollow-bearing trees. Connectivity with higher quality patches may be limited or absent. Such remnants are generally weed infested, have little or no natural regeneration and remaining indigenous species are under threat from invasive exotic species.

Moderate: Some structural elements have been lost, and invasive species are not dominant over indigenous species but pose a significant threat. There is some connectivity with adjacent remnant habitat of equal or greater quality. The patch may provide suitable habitat for fauna of conservation significance known or likely to occur in the area.

High: Most structural elements are present, understorey species are healthy, most life forms are present and weed invasion is low, with the majority of invasive species not posing a significant threat. The patch is part of a mosaic of reasonably contiguous remnant areas of moderate to high quality vegetation. The patch provides suitable habitat for fauna of conservation significance known or likely to occur in the area.

4.4 Biodiversity Assessment under the *Guidelines* (DELWP 2017)

As defined by the *Guidelines for the removal, destruction or lopping of native vegetation* (DELWP 2017) native vegetation can either be a patch or a scattered tree. These are explained below:

Patch

A patch of native vegetation is:

- an area of vegetation where at least 25 per cent of the total perennial understorey plant cover is native, or
- any area with three or more native canopy trees where the drip line of each tree touches the drip line of at least one other tree, forming a continuous canopy, or
- any mapped wetland included in the current wetlands map, available in DELWP systems and tools.

Scattered tree

A scattered tree is a native canopy tree that does not form part of a patch.

Scattered trees are assigned to two size classes (Large or Small) based on the Diameter at Breast Height (DBH) benchmark in the applicable EVC (DELWP 2020b). Trees greater than or equal to the Large tree benchmark DBH are considered Large, while trees below the Large tree benchmark DBH are classified as Small.

A Large tree is assigned a default extent of 0.070 hectares (15 metre radius), while a Small tree has a default extent of 0.031 hectares (10 metre radius) (DELWP 2017).

Assessment Pathway

An application to remove, destroy or lop native vegetation must be classified as one of the following risk-based pathways: Basic, Intermediate or Detailed, as defined in the *Guidelines* (DELWP 2017). The application requirements and decision guidelines included in this clause must be applied in accordance with the classified pathway.

The assessment pathway is determined by the modelled Location category (1, 2 or 3) and extent of native vegetation proposed for removal. The total extent is the combined area in hectares of patches and any scattered trees. The applicable assessment pathway is used to determine the level of information required to adequately inform the biodiversity and planning application assessment process (DELWP 2017).

The determination of the assessment pathway based on relevant criteria is summarised in Table 1.

Table 1. Assessment pathway matrix (DELWP 2017)

Extent of native vegetation	Location 1	Location 2	Location 3
Less than 0.5 hectares and not including any large trees	Basic	Intermediate	Detailed
Less than 0.5 hectares and including one or more large trees	Intermediate	Intermediate	Detailed
0.5 hectares or more	Detailed	Detailed	Detailed

Note: *The determination of the assessment pathway includes any other native vegetation that was approved to be removed, or that was removed without the required approvals, on the same property or on contiguous land in the same ownership as the applicant, in the five year period before the application for a permit is lodged (DELWP 2017).

The three assessment pathways are defined according to the potential impact on biodiversity in Victoria (DELWP 2017):

- **Basic** – limited impacts on biodiversity;
- **Intermediate** – could impact on large trees, endangered EVCs, and sensitive wetlands and coastal areas; and,
- **Detailed** – could impact on large trees, endangered EVCs, sensitive wetlands and coastal areas and could significantly impact on habitat for rare or threatened species.

The three Location categories are shown on the interactive location map (DELWP 2017) and indicate the potential risk to biodiversity from removing a small amount of native vegetation (DELWP 2017).

The Location categories have the following attributes:

- **Location 3** – includes locations where the removal of less than 0.5 hectares of native vegetation could have a significant impact on habitat for a rare or threatened species;
- **Location 2** – includes locations that are mapped as endangered EVCs and/or sensitive wetlands and coastal areas and are not included in Location 3; and,
- **Location 1** – includes all remaining locations in Victoria not included within Location categories 2 or 3.

4.5 Survey Limitations

Biodiversity assessments generally do not capture all flora and fauna species present in the study area. Time and seasonal constraints, the lack of diagnostic features, especially when flora species are not flowering, or transient fauna, can result in some species being absent or overlooked in short-term studies. For example, some rare and threatened flora only flowers intermittently and when not in flower may be very inconspicuous. Observations of fauna species are likewise limited by weather conditions, seasonality and the cryptic nature of some species.

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5 FLORA RESULTS

5.1 Desktop Results

Pre-1750 modelling indicates that the Ecological Vegetation Class (EVC) 55: Plains Grassy Woodland dominated most of the study area with EVC 61: Box Ironbark Forest occurring only in the western part of the study area (DELWP 2020c). Current mapping (DELWP 2020c) shows that the majority of the study area has been highly modified from the Pre-1750 modelling and now supports only limited areas of Plains Grassy Woodland and Box Ironbark Forest.

The VBA search (DELWP 2020a) contains three listed taxa that have State threatened status while the EPBC Act PMST (DoEE 2020) search lists five species that are 'likely to occur' or 'may occur' within the 5km buffer of the study area. None of these PMST species appeared on both data sets, and have not been previously recorded within the 5km buffer of the study area.

A list of threatened flora species previously recorded on the VBA within the buffer area is presented in Appendix 2, while those listed on the PMST search can be found in Appendix 3.

5.2 Vegetation assessment results

A site inspection of the study area was undertaken on 27 May 2020 by an experienced Zoologist and Botanist. At the time of the assessment, the study area consisted primarily of a mixture of native and exotic grasslands with the exotic species being dominate. There are some planted indigenous trees along the southern boundary of the property immediately outside of the study area, while declared noxious weeds Spear Thistle **Cirsium vulgare*, Stinkwort **Dittrichia graveolens*, Spiny Rush **Juncus acutus* ssp *acutus*, Horehound **Marrubium vulgare* and Bathurst Burr **Xanthium spinosum* are scattered across the study area.

5.3 Species Observed

Forty-three (43) vascular plant species were recorded from the study area. This number includes 17 indigenous and 26 exotic species. A list of vascular plants recorded during the site assessment is provided in Appendix 1, this includes .

5.4 Ecological Vegetation Communities

The study area supports a very small patch (0.08ha) of native vegetation which corresponds to the Plains Grassy Woodland EVC as identified on the 2005 EVC mapping (DELWP 2020c). There are two forms of this EVC in the Victorian Riverina Bioregion, depending on geology and rainfall (DELWP 2020b). EVC 55_61 Plains Grassy Woodland is described as an open, eucalypt woodland to 15 m tall. It occupies well drained, fertile soils on flat or gently undulating plains at low elevations in areas with >600 mm annual rainfall. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous ground layer characterised by summer-growing grasses. (DELWP 2020b). *Riverina* Plains Grassy Woodland (EVC 55_62) is an open, eucalypt woodland to 15 m tall occurring on a number of geologies and soil types. It occupies fertile clays and clay loam soils on flat or gently undulating plains at low elevations in areas with <600mm annual rainfall. The understorey consists of a few sparse shrubs over a species-rich grassy and herbaceous groundlayer and chenopods are often present (DELWP 2020b).

The patch is considered to align closer to EVC 55_62 *Riverina Plains Grassy Woodland*. This determination was made as the study site supports clay soils and the annual rainfall for Nagambie is 590mm. A discussion of this EVC, its extent, species composition and quality is provided below.

Riverina Plains Grassy Woodland (EVC 55_62)

The patch of native vegetation occurring in the western part of the study area was assessed as EVC 55_62 *Riverina Plains Grassy Woodland* being approximately 100m long and only a few metres wide for the most part. It is positioned between the rock piles, adjacent gravel track and slightly elevated areas to the south. These features being elevated from the natural profile of the land have created a localised hydrology promoting a suite of species adapted to seasonally wet clay soils that are likely to rapidly dry out in warmer months in the absence of rain. At the time of the field assessment there was a small area of the patch functioning as a seasonally inundated grassy wetland (Image 8). Indigenous species characteristic of the *Riverina Plains Grassy Woodland* community found in the study area were Bristly Wallaby-grass *Rytidosperma setaceum* and Windmill Grass *Chloris truncata* with other indigenous species including Brown-back Wallaby-grass *Rytidosperma duttonianum*, Rigid Panic *Walwhalleya prolata*, Hollow Rush *Juncus amabilis* also present, with Finger-leaf Rush *J. subsecundus* growing on drier margins.

Following the Habitat Hectare assessment, this small patch was assessed as being low quality *Riverina Plains Grassy Woodland*, missing many of the essential life forms found in higher quality patches such as eucalypts, shrubs and groundcovers.

5.5 Rare and Threatened Flora Species

No Commonwealth or State – threatened flora species were recorded in the study area during the field assessment.

5.6 Determination of Listed Ecological Communities

Threatened Ecological Communities of National or State Conservation Significance

The EPBC Act Protected Matters Search Tool identified five threatened ecological communities listed as having the potential to occur within five kilometres of the study area (DoEE 2020):

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions
- Grey Box *Eucalyptus microcarpa* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia.
- Natural Grassland of the Murray Valley Plains
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains
- White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland

Given the extensive coverage of exotic vegetation across the study area, the limited amount and condition of native vegetation and within the study area does not correspond to the description or benchmarks of any of these ecological communities.

5.7 Likelihood of Occurrence

The likelihood of occurrence, in the study area, for the eight threatened flora species (see Section 5.1) was determined. When determining the likelihood-of-occurrence, a number of criteria including

species habitat preferences, local distribution, record dates and habitats present within the study area were evaluated.

Due to the highly modified state of the study area, all nine species were considered absent or unlikely to occur.

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6 FAUNA RESULTS

6.1 Desktop Results

The VBA search (DELWP 2020a) contains 17 listed taxa that have State threatened status while the EPBC Act PMST (DoEE 2020) search lists 14 species that are known to occur or have the potential to occur within the 5km buffer of the study area. Four of these PMST species appeared on both data sets having been previously recorded within the 5km buffer of the study area.

A list of threatened fauna species previously recorded on the VBA within the buffer area is presented in Appendix 5, while those listed on the PMST search can be found in Appendix 6.

6.2 Species observed

Thirteen (13) species of fauna were recorded across the study area and adjacent wetland, comprising 11 species of birds and two frogs. All bird species recorded were common farmland species including Australian Magpie *Gymnorhina tibicen*, Australian Pipit *Anthus australis*, Sulphur-crested Cockatoo *Cacatua galerita* and Willie Wagtail *Rhipidura leucophrys*. The two frog species were Common Eastern and Plains Froglets, *Crinia signifera* and *C. parinsignifera* respectively.

No Commonwealth or State-listed fauna species were observed during the field assessment. The result reflects the poor quality and condition of limited habitat in the study area.

The list of fauna observed during the field assessments can be found in Appendix 4.

6.3 Habitat Types and Assessment of Quality

The grassland vegetation is the primary habitat type across the study area, providing habitat for common fauna species. The rock piles and wet depressions provide some habitat especially for frogs such as those listed above.

Grassland

The grassland across the study area is of low quality, predominantly composed of exotic pasture species, only providing habitat for common farmland species such as those in Section 6.2. The wetlands adjacent the eastern side of the study area (Image 9) provide habitat for common waterbirds like Grey Teal *Anas gracilis* and White-faced Heron *Egretta novaehollandiae*. The lower lying parts of the study area, which contained water at the time of the field assessment, were ideal habitat for the two frog species.

6.4 Habitat Suitability and Likelihood of Occurrence for Threatened Fauna

Based on habitat requirements for the range of threatened fauna species that are known to occur or have the potential to occur locally, it is considered likely that the study area provides negligible or no habitat for the threatened fauna species identified in the desktop assessment.

7 BIODIVERSITY ASSESSMENT UNDER THE *GUIDELINES*

7.1 Habitat Hectare Assessment

The Vegetation Quality Assessment (VQA) or habitat hectare assessment was conducted on the patch of native vegetation occurring in the western part of the study area. The assessment is a site-based measure of the condition of native vegetation with reference to the benchmark for the relevant EVC (DELWP 2020b). The patch was assessed as EVC 55_62 *Riverina* Plains Grassy Woodland, with an extent of 0.08ha. Table 4 details the habitat hectare results for the habitat zone.

Table 4. Habitat Hectare assessment for the patch of native vegetation within the study area at 533 Zanelli Road, Nagambie.

Habitat Zone		1	
Bioregion		Victorian Riverina Bioregion	
EVC Name		EVC 55_62: <i>Riverina</i> Plains Grassy Woodland	
EVC Status		Endangered	
Area (ha)		0.08	
Benchmark criteria		Max. Score	Assessed Score
Site condition	Large Old Trees	10	0
	Canopy Cover	5	0
	Understorey	15	4
	Lack of weeds	25	5
	Recruitment	10	0
	Organic litter	5	0
	Logs	5	0
Landscape value	Patch Size	10	1
	Neighbourhood	10	1
	Distance to core	5	4
Habitat quality score		100	15
Habitat score (habitat points/100)		0.15	

7.2 Proposed Native Vegetation Loss (Permitted Clearing Assessment)

The study area is in Location 2, meaning that if all of the assessed native vegetation is to be removed (0.08ha) then the Intermediate Pathway would be required.

The study area comprises more than 2.38ha of land that does not support any native vegetation as defined in the *Guidelines* (DELWP 2017), as shown in Figure 2. This allows more than adequate space for the construction of a small, shallow clay pit proposed to be of less than 1 hectare in size to be positioned to avoid the existing patch of native vegetation.

8 LEGISLATIVE IMPLICATIONS

There are few legislative implications, under State laws, arising from the proposal to construct a small shallow clay pit on the study area. These implications are discussed below.

Environment Protection and Biodiversity Conservation Act 1999

No Matters of National Environmental Significance (NES) were found during the field assessment and given the nature of the study area, none are predicted to occur in the study area either.

Wildlife Act 1975

Under the *Wildlife Act 1975* there needs to be consideration of the impacts on common fauna species known to occur in the study area and surrounds. This can be achieved by ensuring an experienced and licenced zoologist(s) is on site during the preliminary earthworks, including vegetation removal, where it is likely most of the impact to fauna would occur.

Catchment and Land Protection Act 1994

As obligated under the CaLP Act, landowners are required to eradicate 'Regionally Controlled' or 'Prohibited' noxious weed and limit the spread of 'Restricted' noxious weeds. Two Restricted and three Regionally Controlled weeds occur on the study area; Spear Thistle and Stinkwort, Bathurst Burr, Horehound and Spiny Rush respectively.

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9 CONCLUSIONS

The study area is highly modified due to past land use practices and as such, the site now only supports a small patch of low-quality native vegetation, while still providing some habitat for common fauna.

No threatened flora or fauna were observed throughout and given the highly modified nature of the study area; it is unlikely that such species would be present.

The study area comprises more than 2.38ha of land that does not support any native vegetation as defined in the *Guidelines* (DELWP 2017), as shown in Figure 2. This allows more than adequate space for the construction of a small, shallow clay pit of less than 1 hectare to be positioned to avoid the existing patch of native vegetation. In doing so there will be no need to apply for a permit to remove native vegetation or to purchase vegetation offsets if the pit is situated away from the native vegetation.

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10 RECOMMENDATIONS

Although the study area has been highly modified and now supports low quality habitat values, there are a number of mitigation measures that should be considered to protect existing native vegetation and fauna. These are outlined below in no particular order of priority.

Protection of Existing Native Vegetation

It is recommended that the patch of native vegetation be identified on the ground using bunting or similar to demarcate the area not to be impacted.

Control of weeds

The presence of Regionally Controlled and Restricted noxious weeds on the study area requires the landowner to take actions to eradicate these. Care should also be taken if excess soil is to be removed offsite, so as not to spread soil that may contain noxious weed seeds.

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Appendix 1. Flora Species Recorded

The following flora species were observed during the field assessment conducted on 27 May 2020 at 533 Zanelli Road, Nagambie. The list includes the planted eucalypts along the southern boundary fence, adjacent to the study site.

Note: While every effort was made to determine the correct identification of the species observed in the study area, given the time of year of the assessment or size of plants, some of the key identifying characteristics were not present (i.e. flowers), limiting the ability to undertake this.

Legend:

* – Introduced species

RC – Regionally Controlled noxious weed (Agriculture Victoria 2020)

P - Planted

R – Restricted noxious weed (Agriculture Victoria 2020)

Origin	Scientific Name	Common Name	Status
	<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass	
*	<i>Arctotheca calendula</i>	Cape weed	
	<i>Austrostipa</i> spp.	Spear Grass	
*	<i>Avena barbata</i>	Bearded Oat	
*	<i>Bromus hordeaceus</i>	Soft Brome	
	<i>Cassinia sifton</i>	Drooping Cassinia	
*	<i>Cirsium vulgare</i>	Spear Thistle	R
	<i>Chloris truncate</i>	Windmill Grass	
	<i>Crassula</i> spp.	Crassula	
*	<i>Dittrichia graveolens</i>	Stinkwort	R
*	<i>Erodium botrys</i>	Big Heron's-bill	
*	<i>Erodium cicutarium</i>	Common Heron's-bill	
P	<i>Eucalyptus camaldulensis</i> var. <i>camaldulensis</i>	River Red-gum	
P	<i>Eucalyptus leucoxylon</i>	Yellow Gum	
P	<i>Eucalyptus melliodora</i>	Yellow Box	
P	<i>Eucalyptus microcarpa</i>	Grey Box	
	<i>Euchiton sphaericus</i>	Annual Cudweed	
	<i>Geranium</i> sp. 5	Naked Crane's-bill	
*	<i>Helminthotheca echioides</i>	Ox-tongue	
*	<i>Hordeum</i> spp.	Barley Grass	
*	<i>Hypochaeris radicata</i>	Flatweed	
*	<i>Juncus acutus</i> subsp. <i>acutus</i>	Spiny Rush	C
	<i>Juncus amabilis</i>	Hollow Rush	
	<i>Juncus</i> spp.	Rush	
	<i>Juncus subsecundus</i>	Finger Rush	
*	<i>Leontodon saxatilis</i> subsp. <i>saxatilis</i>	Hairy Hawkbit	

Origin	Scientific Name	Common Name	Status
*	<i>Lolium rigidum</i>	Wimmera Rye-grass	
*	<i>Lotus subbiflorus</i>	Hairy Bird's-foot Trefoil	
	<i>Lythrum hyssopifolia</i>	Small Loosestrife	
*	<i>Marrubium vulgare</i>	Horehound	C
	<i>Oxalis perennans</i>	Grassland Wood-sorrel	
*	<i>Panicum capillare</i>	Common Millet	
*	<i>Paspalum dilatatum</i>	Paspalum	
*	<i>Phalaris aquatica</i>	Toowoomba Canary-grass	
*	<i>Polygonum aviculare</i> s.s.	Hogweed	
*	<i>Romulea rosea</i>	Onion Grass	
*	<i>Rumex crispus</i>	Curled Dock	
	<i>Rytidosperma duttonianum</i>	Brown-back Wallaby-grass	
	<i>Rytidosperma racemosum</i> var. <i>racemosum</i>	Slender Wallaby-grass	
	<i>Rytidosperma setaceum</i>	Bristly Wallaby-grass	
*	<i>Spergularia rubra</i> s.s.	Red Sand-spurrey	
*	<i>Trifolium angustifolium</i> var. <i>angustifolium</i>	Narrow-leaf Clover	
*	<i>Trifolium subterraneum</i>	Subterranean Clover	
	<i>Vittadinia cuneata</i>	Fuzzy New Holland Daisy	
*	<i>Vulpia bromoides</i>	Squirrel-tail Fescue	
	<i>Walwhalleya proluta</i>	Rigid Panic	
*	<i>Xanthium spinosum</i>	Bathurst Burr	C

Appendix 2. Threatened Flora Species Previously Recorded Within 5km of the Study area

The list below provides Victorian Biodiversity Atlas records for threatened flora species previously recorded within 5km of the study area (DELWP 2020a).

Legend:

FFG Act – *Flora and Fauna Guarantee Act 1988*

- L = Listed

DELWP - Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014)

- en = endangered; vu = Vulnerable

Scientific Name	Common Name	No. of Records	Year (Latest record)	EPBC Act	FFG Act	DELWP
<i>Amyema linophylla</i> subsp. <i>orientalis</i>	Buloke Mistletoe	2	2003			vu
<i>Allocasuarina luehmannii</i>	Buloke	4	1993		L	en
<i>Dianella tarda</i>	Late-flower Flax-lily	2	2011			vu



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Appendix 3. EPBC Act Protected Matters Search Tool Results – Flora

The EPBC Act Protected Matters Search Tool was queried for EPBC Act related matters for flora, occurring or likely to occur within five kilometres of the study area (DoEE 2020).

Species	EPBC Act Status	Likely occurrence or habitat in the search area
Communities		
Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions	Endangered	Community may occur within area
Grey Box <i>Eucalyptus macrocarpa</i> Grassy Woodlands and Derived Native Grasslands of SE Australia.	Endangered	Community likely to occur within area
Natural Grasslands of the Murray Valley Plains	Critically Endangered	Community may occur within area
Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains	Critically Endangered	Community likely to occur within area
White Box – Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area
Plants		
<i>Amphibromus fluitans</i> River Swamp Wallaby-grass	Vulnerable	Species or species habitat likely to occur within area
<i>Brachyscome muelleroides</i> Mueller Daisy	Vulnerable	Species or species habitat may occur within area
<i>Glycine latrobeana</i> Clover Glycine	Vulnerable	Species or species habitat likely to occur within area
<i>Pimelea spinescens</i> subsp. <i>spinescens</i> Spiny Rice-flower	Critically Endangered	Species or species habitat may occur within area
<i>Prasophyllum validum</i> Sturdy Leek-orchid	Vulnerable	Species or species habitat may occur within area

Appendix 4. Fauna Species recorded during the field assessment, Zanelli Road, Nagambie

The following fauna species were recorded during the field assessment on 27 May 2020, at Nagambie Resources, Zanelli Road, Nagambie.

Origin	Common Name	Scientific Name	Status	Location
AMPHIBIANS				
	Common Froglet	<i>Crinia signifera</i>		Site
	Plains Froglet	<i>Crinia parinsignifera</i>		Site
BIRDS				
	Australian Magpie	<i>Gymnorhina tibicen</i>		Site
	Australian Pipit	<i>Anthus australis</i>		Site
	Australian Raven	<i>Corvus coronoides</i>		Site
	Grey Teal	<i>Anas gracilis</i>		Wetland
	Long-billed Corella	<i>Cacatua tenuirostris</i>		Site
	Sulphur-crested Cockatoo	<i>Cacatua galerita</i>		Site
	Superb Fairywren	<i>Malurus cyaneus</i>		Site
	White-faced Heron	<i>Egretta novaehollandiae</i>		Wetland
	White-fronted Chat	<i>Ephianura albifrons</i>		
	White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>		Site
	Willie Wagtail	<i>Rhipidura leucophrys</i>		Site

Appendix 5. Threatened Fauna Species Previously Recorded Within 5km the Study area

The list below provides Victorian Biodiversity Atlas records for threatened fauna species previously recorded within 5km of the study area (DELWP 2020a).

Legend:

EPBC Act – Environment Protection and Biodiversity Conservation Act 1999

- CR = Critically Endangered; EN = Endangered : VU = Vulnerable

FFG Act – Flora and Fauna Guarantee Act 1988

- L = Listed; N = Nominated

DELWP - Advisory List of Rare or Threatened Plants in Victoria (DEPI 2014)

- cr = critically endangered; en = endangered; vu = Vulnerable.

Scientific Name	Common Name	No. of Records	Year (Latest Record)	EPBC Act	FFG Act	DELWP
BIRDS						
<i>Antigone rubicunda</i>	Brolga	5	2017			vu
<i>Ardea alba</i>	Great Egret	4	2012		L	vu
<i>Ardea intermedia plumifera</i>	Plumed Egret	1	2017		L	en
<i>Aythya australis</i>	Hardhead	8	2019			vu
<i>Biziura lobata</i>	Musk Duck	7	2019			vu
<i>Grantiella picta</i>	Painted Honeyeater	1	1987	VU	L	vu
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler	2	1993		L	en
<i>Porzana pusilla</i>	Baillon's Crake	1	2017		L	vu
<i>Rostratula australis</i>	Australian Painted-snipe	1	1931	EN	L	cr
<i>Spatula rhynchotis</i>	Australasian Shoveler	8	2019			vu
<i>Stictonetta naevosa</i>	Freckled Duck	1	1999		L	en
FROGS						
<i>Litoria raniformis</i>	Growling Grass Frog	1	1788	VU	L	en
<i>Pseudophryne bibronii</i>	Brown Toadlet	1	1965		L	en
INSECTS						
<i>Synemon plana</i>	Golden Sun Moth	1	1760	CR	L	cr
MAMMALS						
<i>Ornithorhynchus anatinus</i>	Platypus	4	1965		N	
<i>Petaurus norfolcensis</i>	Squirrel Glider	2	1997		L	en
REPTILES						
<i>Pogona barbata</i>	Bearded Dragon	2	1996			vu



Appendix 6. EPBC Act Protected Matters Search Tool Results – Fauna

The EPBC Act Protected Matters Search Tool was queried for EPBC Act related matters for fauna, occurring or likely to occur within five kilometres of the study area (DoEE 2020).

Species	EPBC Act Status	Likely occurrence or habitat in the search area
Birds		
<i>Anthochaera phrygia</i> Regent Honeyeater	Critically Endangered	Foraging, feeding or related behaviour likely to occur within areas
<i>Botaurus poiciloptilus</i> Australasian Bittern	Endangered	Species or species habitat likely to occur within area
<i>Calidris ferruginea</i> Curlew Sandpiper	Critically Endangered	Species or species habitat may occur within area
<i>Grantiella picta</i> Painted Honeyeater	Vulnerable	Species or species habitat likely to occur within area
<i>Hirundapus caudacutus</i> White-throated Needletail	Vulnerable, Migratory	Species or species habitat likely to occur within area
<i>Lathamus discolor</i> Swift Parrot	Critically Endangered	Species or species habitat known to occur within area
<i>Numenius madagascariensis</i> Eastern Curlew	Critically Endangered	Species or species habitat may occur within area
<i>Pedionomus toquatus</i> Plains-wanderer	Critically Endangered	Species or species habitat likely to occur within area
<i>Rostratula australis</i> Australian Painted Snipe	Endangered	Species or species habitat likely to occur within area
Fish		
<i>Galaxias rostratus</i> Flathead Galaxias	Critically Endangered	Species or species habitat likely to occur within area
<i>Macquaria australasica</i> Macquarie Perch	Endangered	Species or species habitat may occur within area
Frogs		
<i>Crinia sloanei</i> Sloane's Froglet	Endangered	Species or species habitat may occur within the area
<i>Litoria raniformis</i> Growling Grass Frog	Vulnerable	Species or species habitat likely to occur within the area
Insects		
<i>Synemon plana</i> Golden Sun Moth	Critically Endangered	Species or species habitat may occur within area

Species	EPBC Act Status	Likely occurrence or habitat in the search area
Mammals		
<i>Dasyurus maculatus maculatus</i> Spot-tailed Quoll	Endangered	Species or species habitat may occur within area
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	Vulnerable	Foraging, feeding or related behaviour may occur within area
Reptiles		
<i>Aprasia parapulchella</i> Pink-tailed Worm-lizard	Vulnerable	Species or species habitat may occur within area
<i>Delma impar</i> Striped Legless Lizard	Vulnerable	Species or species habitat likely to occur within area
Migratory Terrestrial Species		
<i>Monarcha melanopsis</i> Black-faced Monarch		Species or species habitat likely to occur within area
<i>Motacilla flava</i> Yellow Wagtail		Species or species habitat may occur within area
<i>Myiagra cyanoleuca</i> Satin Flycatcher		Species or species habitat likely to occur within area
<i>Rhipidura rufifrons</i> Rufous Fantail		Species or species habitat may occur within area

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Appendix 7. Photo log

Below are photos from the study area taken during the field assessment, referenced in the report.



Image 1. Looking across the study area to the south-east corner. From the track



Image 2. Row of planted indigenous trees along southern boundary of the property, outside study area



Image 3 Looking south-west across study area with rock piles in top right corner of image.



Image 4 Rock piles in the western part of the study area.



Image 5 Stinkwort, a CaLP Act Restricted noxious weed



Image 6. Horehound, growing on the rock piles, is a CaLP Act Regionally Controlled Weed



Image 7. Patch of Plains Grassy Woodland in western part of the study area, adjacent to rock piles



Image 8. Part of the patch of native vegetation inundated with water at the time of the assessment



Image 9 Wetland habitat adjacent to the study area in south-eastern corner



Date: 29th September 2020

APPLICANT: SCOLEXIA PTY LTD
PLANNING APPLICATION: P2020-112

PROPERTY ADDRESS: 533 Zanelli Road, Nagambie VIC 3608
L1 PS317493 V10132 F734 Parish of Wormangal

RE: RESPONSE TO 20200910 P2020-112 – Request for further information

To whom it may concern:

Scolexia Pty Ltd on behalf of Nagambie Resources Pty Ltd (“**Proponent**”) is committed to operating a best practice business at 533 Zanelli Road, Nagambie VIC 3608. In reference to the “Request for further information” as per **Appendix A** “20200910 P2020-112 Further info request”, the proponent would like to provide the following information:

1. Details of traffic types and numbers of movements expected as part of this proposal.

- i. The proponent has prepared a Traffic impact assessment report as per attachment 1. The expected traffic generated by the development is 70 vehicles per day (VPD) of which 64 are heavy vehicles; consisting of 35 vpd entering and 35 vpd exiting the site. The vehicle movements will only occur during transport of the clay to customers, this is expected to average at 10 days per month. At all other times, vehicle movements will be 3 vpd entering and 3 vpd exiting the site for staff performing the clay extraction.

2. Advice on how much clay is expected to be extracted, and the period of time the quarry is expected to operate for.

- i. The area to be excavated is approximately 0.95 Ha which consists of 200mm of top soil. The maximum exaction depth is 1.9m, hence the amount of clay expected to be excavated is 16150 m³(1.7 x 9500). The length of time the quarry will be operated depends on the sale of the clay, it is expected the clay resource will be exhausted within 2 years.

3. Compliance with Mineral Resources (Sustainable Development) Act 1990 and code of Practice.

- i. In accordance with the Mineral Resources Act 1990, a work authority is required to operate unless exempt in accordance with the Code of Practice for Small Quarries. As detailed on page 2 of the code, “*The Code sets out the minimum mandatory requirements that Work Authority holders must meet*”. **The proposed development is exempt from requiring a “work Authority”** as discussed in page 12 of the proposal report and is not bound by the code of practice. However, the proponent intends to implement the following methods to mitigate the potential impact of the development:
 - a. Details of the quarry design is provided in Appendix D - SCL20-14-003 - A - GENERAL ARRANGEMENT and Appendix E - SCL20-14-004 - A - QUARRY AND BUND DETAIL in the proposal report. There are no gates or driveways as the property is secured via existing fencing and is no readily accessible by the public.
 - b. There is no plant or equipment located within the clay quarry area. Mobile equipment will be used during excavation and will be parked beside the existing internal road when not in use.
 - c. An excavator will be used to remove the top soil and excavate the clay. The clay will be placed into rigid trucks which will transport the clay using the internal roads to the storage pad within the Nagambie resources site.
 - d. The top soil will be used to create a bund wall around the excavation area as detailed in Appendix E - SCL20-14-004 - A - QUARRY AND BUND DETAIL. It is expected this

office address: 8/19 Norwood Crescent, Moonee Ponds, Victoria Australia 3039

postal address: 16 Learmonth Street, Moonee Ponds, Victoria Australia 3039

telephone: +61 (0) 3 9326 0106 **facsimile:** +61 (0) 3 9372 7576 **email:** info@scolexia.com.au

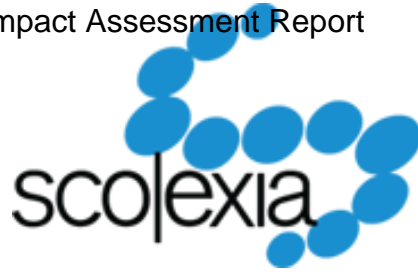
will use all the top soil. The bund surface will then be seeded with ground cover to prevent erosion.

- e. The site will be managed in accordance with the operating procedures and company policies for OH&S of the existing Nagambie mining site.
- f. Weeds will be managed in accordance with the operating procedures and company policies for OH&S of the existing Nagambie mining site. This will include slashing and spraying when required. Weed spraying will be undertaken to control outbreaks of grasses and woody weed species to maintain fire breaks.
- g. Once excavated, all rainwater collected within the quarry site will be contained within the bund walls. There will be no release of the sediment water. It is expected the water will evaporate or be absorbed into the water table. The surrounding bund wall will prevent surface water from entering the quarry pit, and direct the water around the pit and into the existing cut-off drain and water retention basin as shown in Appendix D - SCL20-14-003 - A - GENERAL ARRANGEMENT of the proposal report.
- h. There is no runoff from the quarry as all sediment water will be contained by the bund wall.
- i. There are no slimes generated by the quarry. It is expected that the excavation will be done during the dry months of the year, where there is no water or slimes present within the clay pit.
- j. Emergencies will be managed in accordance with the operating procedures and company policies for OH&S of the existing Nagambie mining site.
- k. There are no hazardous materials or fuel kept on site. All hazardous materials or fuel are kept within the existing mining site facilities. Portable fuel tanks will be used to fuel the excavator when needed and will be stored within the mining site facilities.
- l. Dust will be managed in accordance with the operating procedures and company policies for OH&S of the existing Nagambie mining site. This will consist of water trucks wetting the access roads and pit when required to minimise dust.
- m. The quarry will be progressively excavated as required to build the bund wall and expose the clay layer. Once the site is spent, the bund walls will be used to fill the pit as well as other top soil available on site. Wall gradients will be reduced to a stable incline and the area will be seeded with pasture. Surface mulches will be applied around growing seedlings on the inclines to prevent erosion, weed establishment, to conserve moisture and add nutrient to the soil. The site will be monitored in accordance with the operating procedures and company policies for the environment of the existing Nagambie mining site.
- n. Upon cessation and remediation of the quarry, the land will revert to grass pasture and can be used for grazing.
- o. Upon cessation of mining, all equipment will be removed from the area including any litter. The site will be remediated as detailed in item m of this letter.

We hope the above explanations have addressed the concerns raised. If you have any further queries please do not hesitate to contact us to discuss further. Please call Sonny Hoang on 0477 770 814 or email to shoang@scolexia.com.au.

With regards

Sonny Hoang
Scolexia Pty Ltd



TRAFFIC IMPACT ASSESSMENT REPORT

“Clay Quarry”

Version 1

Property Address: 533 Zanelli Road
Nagambie Victoria 3608

Lot No: 1

Plan Number: PS317493

Client: Nagambie Resources Pty Ltd



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Reference	Status	Date	Prepared	Checked	Authorised
SCL20-14	VERSION 1	15/09/2020	Sonny Hoang	Sonny Hoang	Sonny Hoang

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1.0 INTRODUCTION

This report aims to assess the likely traffic impact for the proposed development at 533 Zanelli Road, Nagambie Victoria 3608. This report has been written in support of a planning permit application. The assessment will discuss the likely traffic impact, site access design and heavy vehicle routes for the proposed development.

In particular, the report will address the following:

- i. Assess likely impacts of the traffic generated and traffic distribution on the existing road network;
- ii. Review the site access/egress point to ensure it complies with the minimum design standards specified in the Austroads Guideline;
- iii. Review heavy vehicle movements and routes through the existing road network;
- iv. Heavy vehicle sweep path design checks to ensure that the site access/egress points can accommodate the proposed heavy vehicle movements.

2.0 PROPOSED DEVELOPMENT

2.1 Site Location

The subject property is located at 533 Zanelli Road Nagambie. It is identified as lot 1 plan number PS317493 as per **Appendix A** "533 Zanelli Road Nagambie Property Planning Report".

2.2 Site Description

A description of the facility is contained in section "1.4- Detailed Description of Proposal" of the planning proposal report of which this report is attached to.

3.0 EXISTING CONDITIONS

3.1 Road Network

3.1.1 Zanelli Road

Zanelli Road is a two lane, two-way sealed local road. It is **NOT** a major arterial road under the care and control of VicRoads pursuant to the Victorian Road Management Act 2004. It consists of a 6.0 m carriageway with unsealed shoulders and grass verges. The road runs along an east-west direction and is straight and flat in the vicinity of the development (See **Figure 1** and **Figure 2**). The road is a local council road used to service the local area. An unposted speed limit of 100 Km/Hr applies to Zanelli Road. Zanelli Road intersects with McDonalds Road.



Figure 1: 533 Zanelli Rd Eastern Direction



Figure 2: 533 Zanelli Rd Western Direction

3.1.2 McDonalds Road

McDonalds Road is a two lane, two-way sealed local road between Zanelli and Racecourse Road. It is **NOT** a major arterial road under the care and control of VicRoads pursuant to the Victorian Road Management Act 2004. It consists of a 6.0 m carriageway with unsealed shoulders and grass verges. The road runs along a North-South direction and is straight and flat in the vicinity of the development (See **Figure 3**). The road is a local council road used to service local industries. An

unposted speed limit of 100 Km/Hr applies to McDonalds Road. McDonalds Road intersects with Racecourse Road, the road design after the intersection is a two-way unsealed local road; it consists of a 4.0 m carriageway with unsealed shoulders and grass verges (See **Figure 4**). McDonalds Road then intersects with Grimwade Road (See **Figure 5**).



Figure 3: McDonalds Road Northern Direction Towards Racecourse Road



Figure 4: McDonalds Road between Racecourse and Grimwade Road



Figure 5: McDonalds and Grimwade Road Intersection

3.1.3 Grimwade Road

Grimwade Road is a two lane, two-way sealed local road. It is **NOT** a major arterial road under the care and control of VicRoads pursuant to the Victorian Road Management Act 2004. It consists of a 6.0 m carriageway with unsealed shoulders and grass verges. The road runs along a East-West direction and is straight and flat in the vicinity of the development (See **Figure 6** and **Figure 7**). The road is a local council road used to service the local area. A posted speed limit of 80 Km/Hr applies to this section of Grimwade Road. Grimwade Road is connected to the Goulburn Valley Freeway via dedicated entry and exit ramps (See **Figure 8**).



Figure 6: Grimwade Road Eastern Direction



Figure 7: Grimwade Road Western Direction



Figure 8: Grimwade Road – Goulburn Valley Freeway Entrance

3.1.4 Goulburn Valley Freeway

Goulburn Valley Freeway M39 is a two lane, two-way sealed freeway, it is a major arterial road under the care and control of VicRoads pursuant to the Victorian Road Management Act 2004. It consists of two 10.0m carriageways with sealed shoulders and grass verges. The road runs along a North-South direction (See **Figure 9** and **Figure 10**). A posted speed limit of 110 Km/H applies to the Goulburn Valley Freeway.



Figure 9: Goulburn Valley Freeway North Direction



Figure 10: Goulburn Valley Freeway South Direction

3.1.5 Site Access Road

The main entrance for Nagambie Resources Pty Ltd will be used to access the internal road network for the property. The entrance and road network is capable to allow B-Doubles to enter the site and to the existing mine stockpile area, where the clay is intended to be stored. There is an existing internal access road located beside the proposed clay pit, which will allow tipper truck access to transport the clay to the stockpile site (See **Figure 11**).



Figure 11: Access Road Beside Proposed Quarry Site

3.2 Intersections

3.2.1 Zanelli/McDonalds Road

The intersection of Zanelli/McDonalds Road is a 4-leg unsignalised intersection operating under “give way” conditions. Zanelli Road forms the eastern and western leg, McDonalds Road forms the north-south leg (See **Figure 12**).



Figure 12: McDonalds and Zanelli Road Intersection Eastern Direction

3.2.2 McDonalds/Racecourse Road

The intersection of McDonalds/Racecourse Road is a 4-leg unsignalised intersection operating under “give way” conditions. Racecourse Road forms the eastern and western leg, McDonalds Road forms the north-south leg (See **Figure 13**).



Figure 13: McDonalds and Racecourse Road Northern Direction Intersection

3.2.3 McDonalds/Grimwade Road

The intersection of McDonalds/Grimwade Road is a 3-leg unsignalised intersection operating under “give way” conditions. Grimwade Road forms the eastern and western leg, McDonalds road forms the southern leg (See **Figure 14**).



Figure 14: McDonalds and Grimwade Intersection

3.3 Traffic Data

3.3.1 Casualty Accident Statistics

VicRoad’s Crashstats database indicates there has been 3 serious injury crashes and 0 fatal crash recorded on the Goulburn Valley Freeway. No accidents have been recorded along Zanelli Road, Grimwade Road or McDonalds Road as shown in **Appendix B** “VicRoads Crashstats –2015 to 2020” (See **Figure 16**).

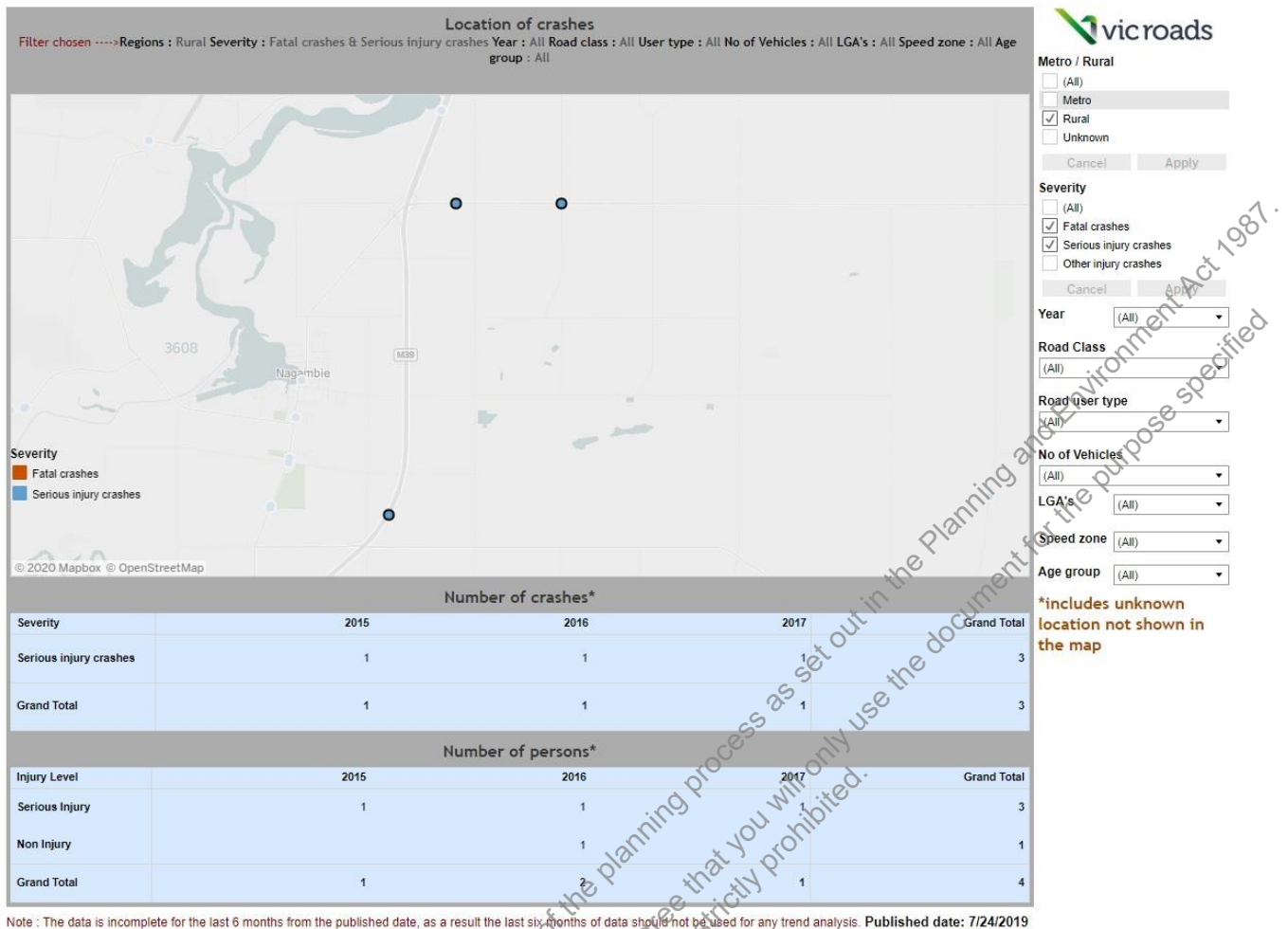


Figure 15: Crash Statistics 2015 to 2020

3.3.2 Midblock Traffic Volumes

VicRoads Open Data has provided midblock traffic volumes on the Goulburn Valley Freeway, between Nagambie Main Road & Grimwade Road which is part of the Victoria’s Gazetted B-Double Network. A recent traffic survey has been conducted by the Shire of Strathbogie for the intersections of Zanelli, McDonalds and Racecourse Road as per **Appendix C** “Strathbogie Shire Traffic Data”.

The data indicates the following daily two-way traffic volumes:

- i. Goulburn Valley Freeway, between Nagambie Main Road & Grimwade Road – North Bound – 3,600 vehicles per day, 26% heavy vehicles
- ii. Goulburn Valley Freeway, between Nagambie Main Road & Grimwade Road – South Bound – 3,700 vehicles per day, 25% heavy vehicles
- iii. Goulburn Valley Freeway ramps at Grimwade Road - South Bound – 4,000 vehicles per day, 24% heavy vehicles
- iv. Goulburn Valley Freeway ramps at Grimwade Road - North Bound – 4,000 vehicles per day, 23% heavy vehicles
- v. Zanelli Road (Ballantynes Rd) – Both Directions - 109 vehicles per day, no data on % heavy vehicles

- vi. Racecourse Road – Both Directions – estimated as 109 vehicles per day, no data on % heavy vehicles
- vii. McDonalds Road south of Racecourse Road Intersection– Both Directions – 183 vehicles per day, no data on % heavy vehicles
- viii. McDonalds Road north of Nagambie Locksley Road Direction – Both Directions – 191 vehicles per day, no data on % heavy vehicles

The annual growth rates for the roads are as follows:

- i. Goulburn Valley Freeway, between Nagambie Main Road & Grimwade Road – North Bound – 1.9%
- ii. Goulburn Valley Freeway, between Nagambie Main Road & Grimwade Road – South Bound – 2.0%
- iii. Goulburn Valley Freeway ramps at Grimwade Road - South Bound – 2.6%
- iv. Goulburn Valley Freeway ramps at Grimwade Road - North Bound – 1.9%
- v. Zanelli Road (Ballantynes Rd) – 1% growth estimate
- vi. Racecourse Road – 1% growth estimate
- vii. McDonalds Road – 1% growth estimate

3.4 Intersection Volumes

Based on the available data, the traffic volumes for the intersections have been derived using the following assumptions.

3.4.1 Zanelli/McDonalds Road Intersection

- i. Vehicle peak periods as per Shire of Strathbogie data
- ii. The distribution of traffic along Zanelli Road is 50% turns north and 50% turns south from the west
- iii. The distribution of traffic along Zanelli Road is 50% turns north and 50% turns south from the east
- iv. The distribution of traffic turning onto Zanelli Road is 50% turns east from the north and 40% turns east from the south along McDonalds Road

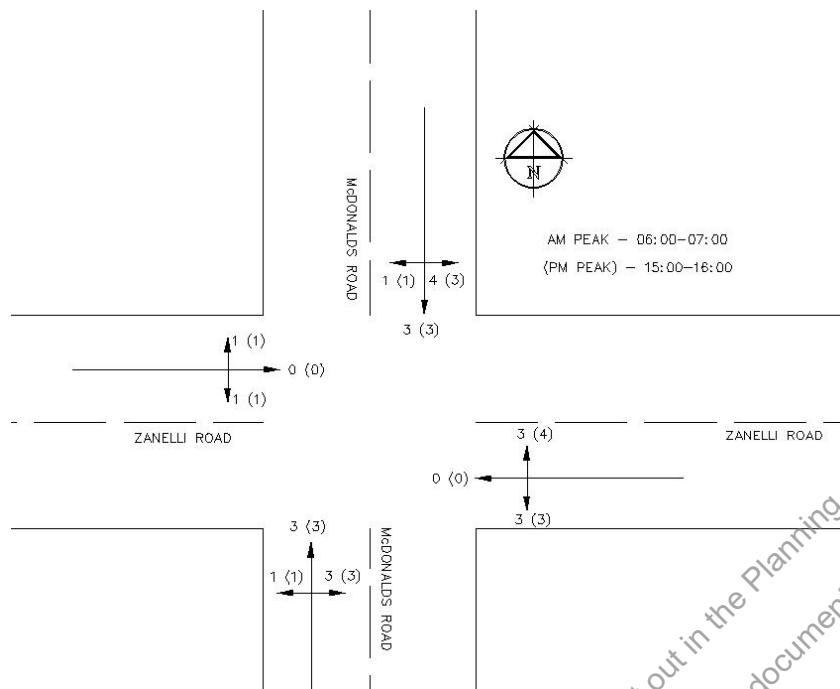


Figure 16: Zanelli/McDonald Road Intersection - Existing AM PM Peak Hour Traffic Volumes

3.4.2 McDonalds/Racecourse Road Intersection

- i. Vehicle peak periods as per Shire of Strathbogie data
- ii. The distribution of traffic along McDonalds Road from the south is 15% turns east and 30% turns west from the south
- iii. The distribution of traffic along McDonalds Road from the north is 30% turns east and 15% turns west
- iv. The distribution of traffic turning along Racecourse Road from the east is 50% turns north and south
- v. The distribution of traffic turning along Racecourse Road from the west is 25% turns north and 50% turns south

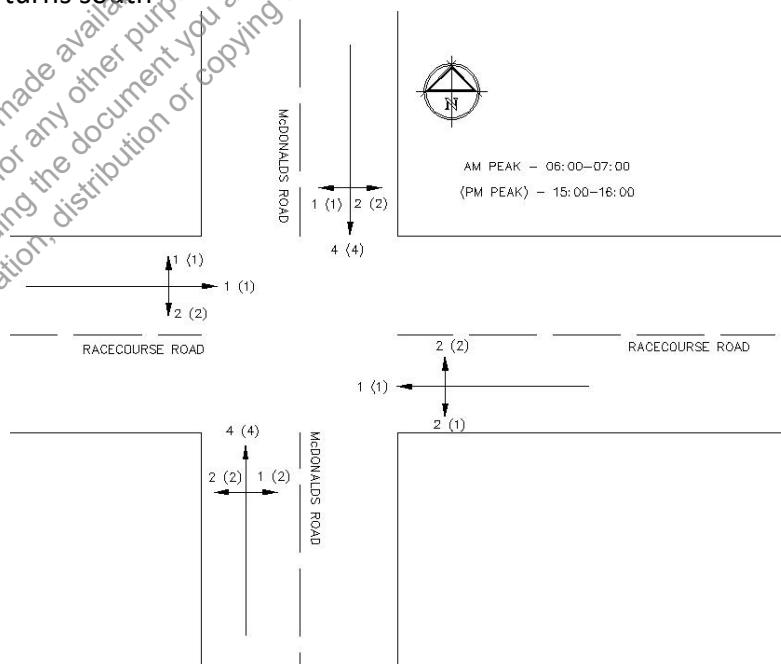


Figure 17: McDonald/Racecourse Road Intersection - Existing AM PM Peak Hour Traffic Volumes

3.4.3 McDonalds/Grimwade Road Intersection

- i. Vehicle peak periods 10% of daily traffic volume
- ii. The estimated distribution of traffic along Grimwade Road from the east is 20% daily traffic volume of on ramp volume of south bound ramp
- iii. The estimated distribution of traffic along Grimwade Road from the west is 20% daily traffic volume of on ramp volume of North bound ramp

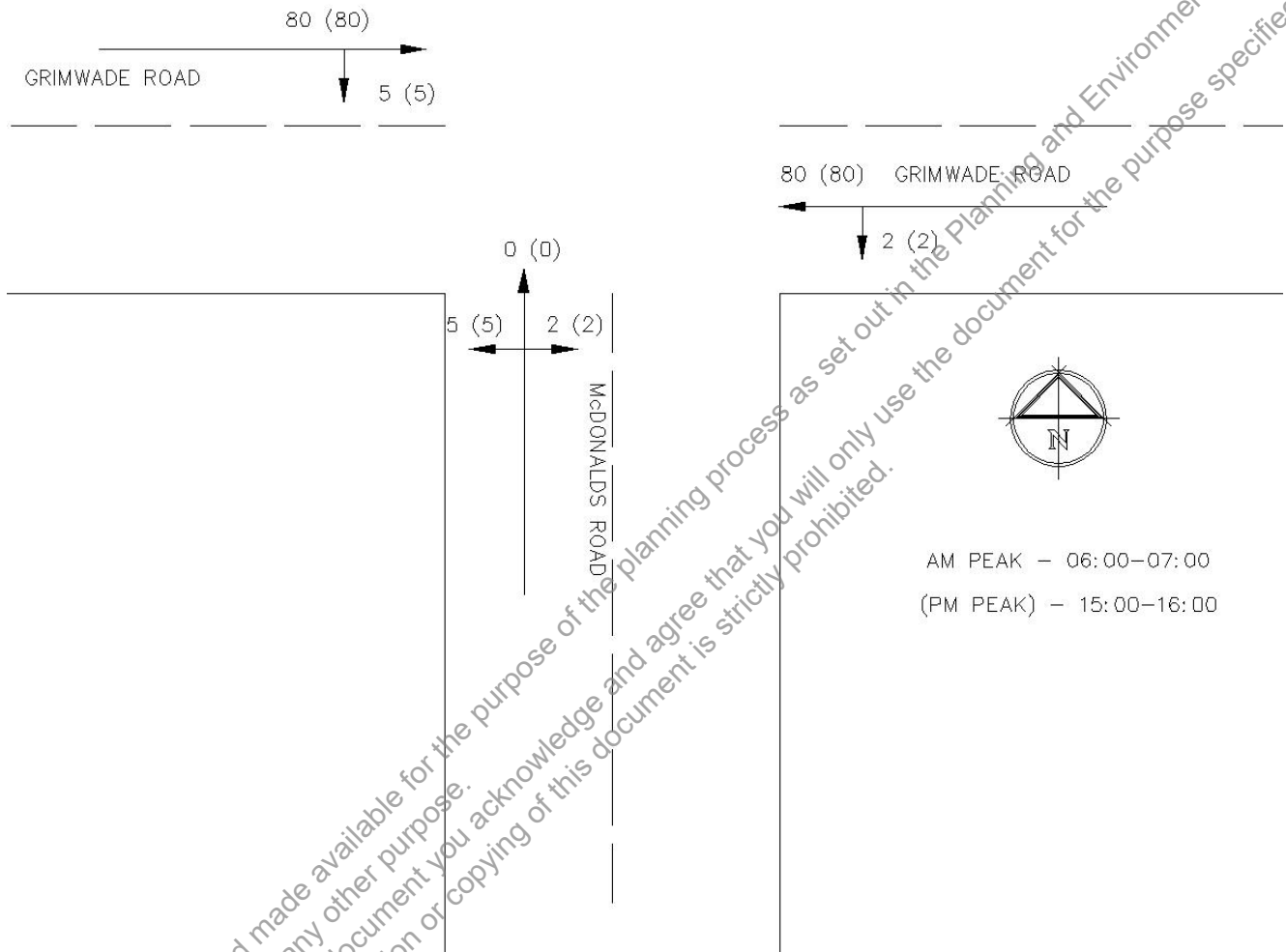


Figure 18: McDonalds/Grimwade Road Intersection - Existing AM PM Peak Hour Traffic Volumes

3.5 Intersections Peak Hour Analysis

3.5.1 Analysis Methodology

Traffic congestion during peak hours is caused by the interaction of passing through and turning vehicles at an intersection. As traffic volumes or geometric constraints increase (ie. Slow turning by heavy vehicles), the ability to pass decreases and platoons of vehicles are formed, thereby causing the delays experienced by motorists to increase. (Transport Research Board, Highway Capacity Manual Washington, D.C. 1994).

The level of service “LOS” is a qualitative measure used to assess operating conditions of an intersection. With “A” representing the best operating conditions and “F” the worst. The LOS is

correlated against the degree of saturation of the roadway; which is defined as the ratio of traffic flow arriving at the intersection to the carrying capacity of the roadway known as the V/C ratio. The V/C ratios close to zero indicate low volume traffic flows and close to one indicate saturated flow. For a multilane highway, the capacity flowrate is 2,200 passenger cars per hour in both directions.

As the subject intersections are of a simple design and the traffic data is of a low order of magnitude, a SIDRA analysis was not completed. Instead **Table 1** based on the data from the Highway Capacity Manual was used to categorise the LOS as an equivalent analysis method. The intersections can be considered as a level terrain, 100% No-Passing Zone, note the speed values presented in the table are for miles/hr. For non-highway roads which are on flat terrain and with no passing at the intersection, the capacity flowrate is 900 passenger cars per hour (Austroads Guide To Traffic Management, Part 3: Traffic Studies and Analysis, Section 5.2)

Level of Service Criteria for General Two-Lane Highway Segments

LOS	% Time Delay	Avg. ^b Speed	V/C Ratio ^a																			
			Level Terrain						Rolling Terrain						Mountainous Terrain							
			% No-Passing Zone						% No-Passing Zone						% No-Passing Zone							
0	20	40	60	80	100	Avg. ^b Speed	0	20	40	60	80	100	Avg. ^b Speed	0	20	40	60	80	100			
A	≤ 30	> 58	0.15	0.12	0.09	0.07	0.05	0.04	> 57	0.15	0.10	0.07	0.05	0.04	0.03	> 56	0.14	0.09	0.07	0.04	0.02	0.01
B	≤ 45	> 55	0.27	0.24	0.21	0.19	0.17	0.16	> 54	0.26	0.23	0.19	0.17	0.15	0.13	> 54	0.25	0.20	0.16	0.13	0.12	0.10
C	≤ 60	> 52	0.43	0.39	0.36	0.34	0.33	0.32	> 51	0.42	0.39	0.35	0.32	0.30	0.28	> 49	0.39	0.33	0.28	0.23	0.20	0.16
D	≤ 75	> 50	0.64	0.62	0.60	0.59	0.58	0.57	> 49	0.62	0.57	0.52	0.48	0.46	0.43	> 45	0.58	0.50	0.45	0.40	0.37	0.33
E	> 75	> 45	1.00	1.00	1.00	1.00	1.00	1.00	> 40	0.97	0.94	0.92	0.91	0.90	0.90	> 35	0.91	0.87	0.84	0.82	0.80	0.78
F	100	< 45	--	--	--	--	--	--	< 40	--	--	--	--	--	--	< 35	--	--	--	--	--	--

^a Ratio of flow rate to an ideal capacity of 2,800 passenger cars per hour in both directions.

^b Average travel speed of all vehicles (in mph) for highways with design speed ≥ 60 mph; for highways with lower design speeds, reduce speed by 4 mph for each 10-mph reduction in design speed below 60 mph; assumes that speed is not restricted to lower values by regulation.

≤ less than or equal to

> greater than or equal to

Source: Transportation Research Board. *Highway Capacity Manual, Special Report 209* (Washington, D.C., 1994), pp. 8-5.

Level of Service	Description	V/C Ratio*
A	Free-flow conditions with unimpeded manoeuvrability. Stopped delay at signalized intersection is minimal.	$X < 0.04$
B	Reasonably unimpeded operations with slightly restricted manoeuvrability. Stopped delays are not bothersome.	$0.04 < X < 0.16$
C	Stable operations with somewhat more restrictions in making mid-block lane changes than LOS B. Motorists will experience appreciable tension while driving.	$0.16 < X < 0.32$
D	Approaching unstable operations where small increases in volume produce substantial increases in delay and decreases in speed.	$0.32 < X < 0.57$
E	Operations with significant intersection approach delays and low average speeds.	$0.57 < X < 1.00$
F	Operations with extremely low speeds caused by intersection congestion, high delay, and adverse signal progression.	$1.00 < X$

Table 1: Level of service criteria for a general two-lane highway

3.5.2 Zanelli/McDonalds Road Intersection

The Zanelli/McDonalds Road intersection is considered to be a two-lane roadway where each single lane is used by traffic for a single direction. The intersection is considered to be a four way intersection where there is no passing of turning vehicles. As per the traffic volumes presented in section “3.5 Intersection Volumes” the LOS for the intersection is shown below in **Table 2**.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Zanelli Road (East Direction)	0.007	A	0.008	A
Zanelli Road (West Direction)	0.002	A	0.002	A
McDonalds Road (North Direction)	0.009	A	0.008	A
McDonalds Road (South Direction)	0.008	A	0.008	A

Table 2: Level of Service at Zanelli/McDonald Road Intersection

3.5.3 McDonalds/Racecourse Road Intersection

The McDonalds/Racecourse Road intersection is considered to be a two-lane roadway where each single lane is used by traffic for a single direction. The intersection is considered to be a four way intersection where there is no passing of turning vehicles. As per the traffic volumes presented in section “3.5 Intersection Volumes” the LOS for the intersection is shown below in **Table 3**.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Racecourse Road (East Direction)	0.004	A	0.004	A
Racecourse Road (West Direction)	0.006	A	0.004	A
McDonalds Road (North Direction)	0.008	A	0.008	A
McDonalds Road (South Direction)	0.008	A	0.008	A

Table 3: Level of Service at McDonalds/Racecourse Road Intersection

3.5.4 McDonalds/Grimwade Road Intersection

The McDonalds/Grimwade Road intersection is considered to be a two-lane roadway where each single lane is used by traffic for a single direction. The intersection is considered to be a T-intersection where there is no passing of turning vehicles. As per the traffic volumes presented in section “3.5 Intersection Volumes” the LOS for the intersection is shown below in **Table 4**.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Grimwade Road (East Direction)	0.091	B	0.091	B
Grimwade Road (West Direction)	0.094	B	0.094	B
McDonalds Road (South Direction)	0.008	A	0.008	A

Table 4: Level of Service at McDonalds/Grimwade Road Intersection

3.6 Public Transport

3.6.1 Train

The development site is not serviced by Victoria's regional train system. The closest station is Nagambie station which is approximately 6.9 km away.

3.6.2 Bus

The development site is not serviced by public buses.

It is expected that staff and visitors will use private vehicles to access the site.

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4.0 TRAFFIC IMPACT ASSESSMENT

4.1 Traffic Generation

The proposed development is expected to employ three fulltime staff to excavate and transport the clay using the existing internal road network to the storage pad located within the Nagambie Resources mining site. From the storage site it is transported to customer sites as required. It is expected the extraction will occur during six months of the year when the weather is dry. **Table 5** shows the expected vehicle movements per annum. Zanelli Road has on average 70 vehicle movements per day during business days, this represents a road usage of 8% of road capacity (road capacity of 900 Vpd). The total road usage would then be 22.4%, representing an increase of 8.4%. During the winter months, there will be no traffic generated by the development as all excavation and transport activities would cease.

The additional vehicle trips generated are expected to have a negligible effect on the local road network. All the local roads are currently operating well below capacity as per the data supplied by Strathbogie Shire and allow passing when necessary. Dedicated turnoff areas for passing traffic is not deemed necessary due to the low traffic volume per hour and clear road vision along the proposed route.

Purpose	Vehicle Type	Calculation	Movements per annum	Movements per day
Employees	Car(V) or similar	$3(V) \times 24w \times 6d \times 2 \text{ trips}$	1080	6
Transport Truck	Rigid Truck (RT)	$1(RT) \times 39wx 64 \text{ trips}$	2496	64

Table 5: Traffic Movements per Annum

4.2 Traffic Generation Volume Profile

The site access hours are between 6am to 6pm, **Figure 19** shows the traffic volume profile generated by the proposed development.

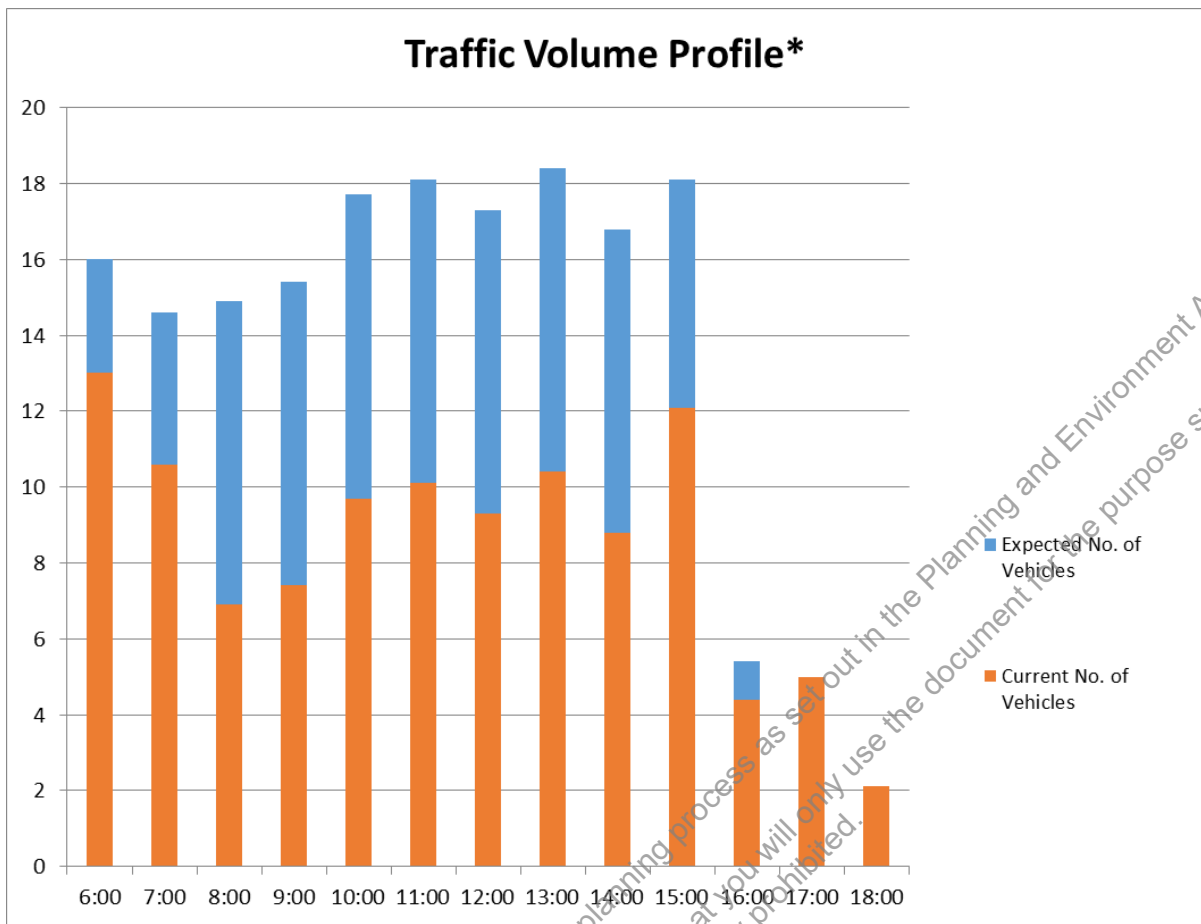


Figure 19: Traffic Generation Volume Profile

4.3 Summary

The highest AM one hour volume is 18 vehicle movements and occurs between 10:00-11:00.

The AM peak hour volume consists of:

- 8 movements of the transport truck
- 10 movements from existing traffic

The highest PM one hour volume is 18 vehicle movements and occurs between 15:00-16:00.

The PM peak hour volume consists of:

- 2 movements by employees
- 4 movements of the transport truck
- 12 movements from existing traffic

4.4 Traffic Distribution

The site is located on Zanelli Road which serves as the main access route to the site. It is assumed all heavy vehicles will enter and exit from the west as Zanelli Road after Dargalong road is unsuitable for heavy vehicles. The transport truck would enter and exit the Nagambie Resources site entrance only. For staff vehicles, it is assumed all would be entering from the west into the site entrance only as shown in **Figure 20**.



Figure 20: Traffic Distribution During Peak Hours

4.5 Impact on Zanelli/McDonalds Road Intersection

The Zanelli/McDonalds road intersection has a low amount of traffic during the weekday peak period, the average AM weekday peak period is 13 vehicles at 6:00-7:00am. The development is expected to change the current average AM weekday peak number of vehicles to 16. The expected average AM weekday peak period after development is 18 vehicles at 10:00-11:00am. The current average PM weekday peak period is 12 vehicles at 15:00 -16:00pm. The development is expected to change the current average PM weekday peak period number of vehicles to 18 vehicles at 15:00-16:00 pm.

A compound growth rate of 1.0% has been used for the Zanelli and McDonalds Road in order to estimate future year external traffic volumes. The future LOS for the intersection after development during peak periods is shown in **Table 6**. It is expected there will be no change in the level of service for the intersection.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Zanelli Road (East Direction)	0.010	A	0.014	A
Zanelli Road (West Direction)	0.002	A	0.002	A
McDonalds Road (North Direction)	0.012	A	0.012	A
McDonalds Road (South Direction)	0.012	A	0.012	A

Table 6: Level of Service in Year 2027 – Zanelli/McDonalds Road Intersection

4.6 Impact on McDonalds/Racecourse Road Intersection

The McDonalds/Racecourse road intersection has a low amount of traffic during the weekday peak period, the average AM weekday peak period is 17 vehicles at 8:00-9:00am. The development is expected to change the current average AM weekday peak period number of vehicles to 20 vehicles at 8:00-9:00 am. The current average PM weekday peak period is 18 vehicles at 14:00 -15:00pm. The development is expected to change the average PM weekday peak period number of vehicles to 21 vehicles at 14:00-15:00pm. The assessment is based on employee vehicle and transport truck movements only.

A compound growth rate of 1.0% has been used for the McDonalds and Racecourse Road in order to estimate future year external traffic volumes. The future LOS for the intersection after development during peak periods is shown in **Table 7**. It is expected there will be no change in the level of service for the intersection.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Racecourse Road (East Direction)	0.004	A	0.004	A
Racecourse Road (West Direction)	0.006	A	0.004	A
McDonalds Road (North Direction)	0.013	A	0.013	A
McDonalds Road (South Direction)	0.013	A	0.013	A

Table 7: Level of Service in Year 2027 – McDonalds/Racecourse Road Intersection

4.7 Impact on McDonalds/Grimwade Road Intersection

The McDonalds/Grimwade road intersection connects to the north and south bound ramps for the Goulburn Valley highway and to the Nagambie township. A site survey has been conducted and the estimated average AM weekday peak period is 167 vehicles at 6:00-7:00am. The development is expected to change the current average AM weekday peak period number of vehicles to 179 vehicles. The current average PM weekday peak period is 167 vehicles at 15:00 - 16:00pm. The development is expected to change the average PM weekday peak period number of vehicles to 179 vehicles. The assessment is based on employee vehicles and transport truck movements only, as the stockpile truck would does not travel through the intersection.

A compound growth rate of 1.0% has been used for the McDonalds and 2% for Grimwade Road in order to estimate future year external traffic volumes. The future LOS for the intersection after development during peak periods is shown in **Table 8**. It is expected there will be no change in the level of service for the intersection.

Approach	AM		PM	
	Degree of Saturation (V/C)	LOS	Degree of Saturation (V/C)	LOS
Grimwade Road (East Direction)	0.104	B	0.100	B
Grimwade Road (West Direction)	0.103	B	0.118	B
McDonalds Road (South Direction)	0.013	A	0.013	A

Table 8: Level of Service in Year 2027 – McDonalds/Grimwade Road Intersection

4.8 Turn Treatment Assessment

Section 4.8 of the “Austroads Guide to Road Design, Part 4A: Unsignalised and Signalised Intersections” defines the design of turn warrants which apply for intersection turn treatments. It specifies the requirements for basic, auxiliary lane and channelised layouts for unsignalised intersections. Figure 4.9(b) of the Austroads guide has been used to determine the turn treatments required based on the traffic volume parameters: Q_m , Q_L and Q_R (See **Figure 21**).

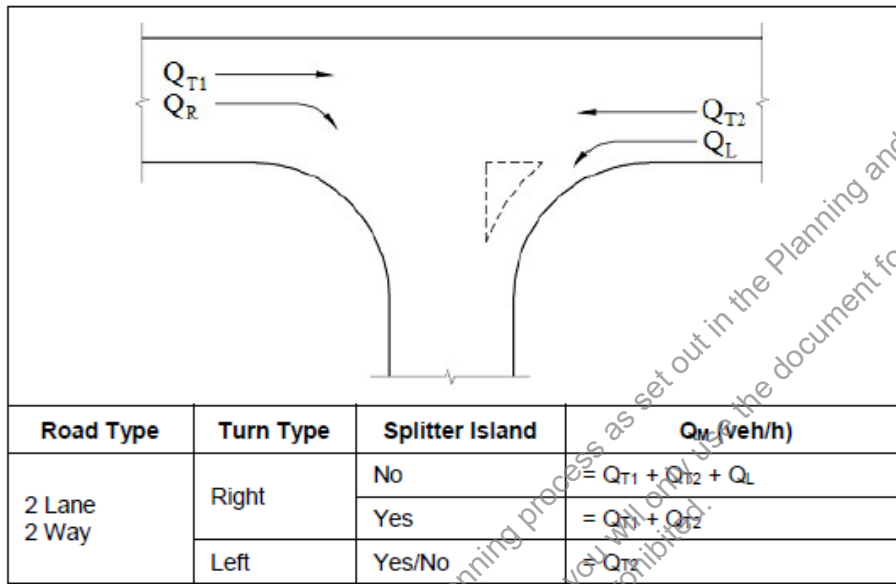


Figure 21: Calculation of Q_M Traffic Volume Parameter

The results are then plotted against a chart to indicate what type of turn treatments are required to cope with the volume of traffic (See **Figure 22**).

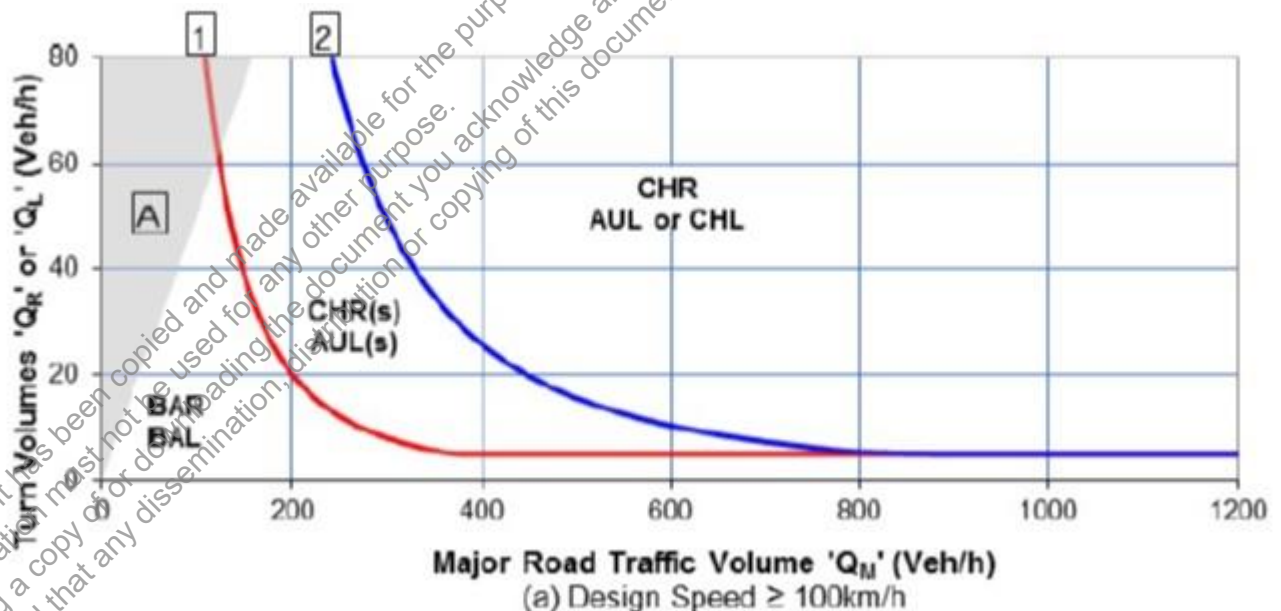


Figure 22: Turn Treatment Chart

4.8.1 Zanelli/McDonalds Road Intersection

The assessment results as shown in **Table 9** (See **Figure 23** and **Figure 24**) indicate that basic left (BAL) and basic right (BAR) turn treatments are required. The intersection currently has complying BAL and BAR treatments.

Major Road	AM Peak			
	Existing Layout	Movement (Q _m)	Movement (Q _l or Q _r)	Turn Treatment Required
McDonalds Road (North Direction)	Basic Left	4	4	Basic Left (BAL)
	Basic Right	14	1	Basic Right (BAR)
McDonalds Road (South Direction)	Basic Left	6	1	Basic Left (BAL)
	Basic Right	12	3	Basic Right (BAR)
PM Peak				
McDonalds Road (North Direction)	Basic Left	4	3	Basic Left (BAL)
	Basic Right	13	1	Basic Right (BAR)
McDonalds Road (South Direction)	Basic Left	6	1	Basic Left (BAL)
	Basic Right	11	3	Basic Right (BAR)

Table 9: Turn Treatment Assessment Zanelli/McDonalds Road

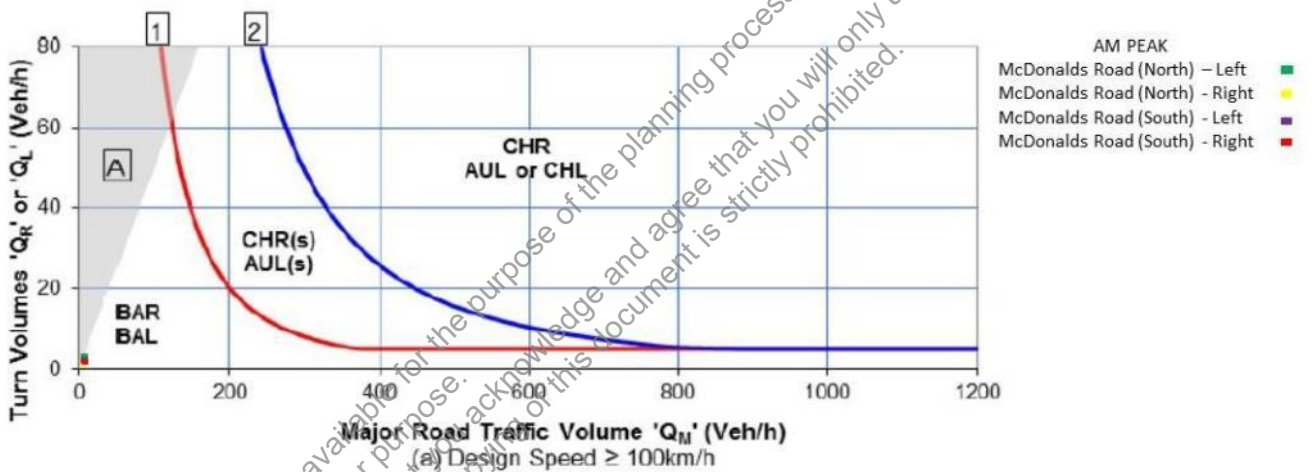


Figure 23: Turn Treatment Chart AM Peak

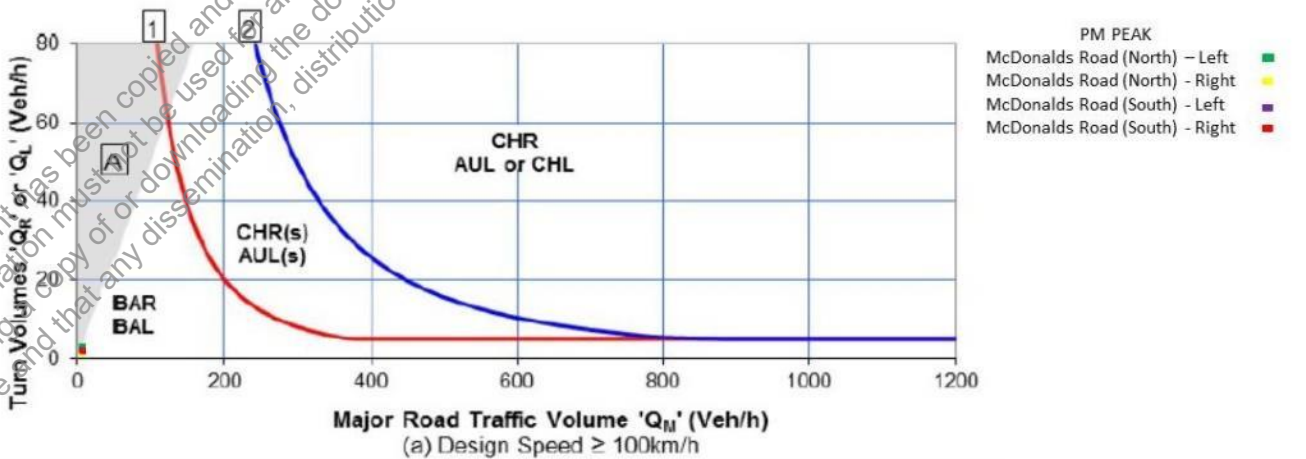


Figure 24: Turn Treatment Chart PM Peak

4.8.2 McDonalds/Racecourse Road Intersection

The assessment results as shown in **Table 10** (See **Figure 25** and **Figure 26**) indicate that basic left (BAL) and basic right (BAR) turn treatments are required. The intersection currently has complying BAL and BAR treatments.

Major Road	AM Peak			Turn Treatment Required
	Existing Layout	Movement (Q _m)	Movement (Q _l or Q _r)	
McDonalds Road (North Direction)	Simple Left	5	2	Basic Left (BAL)
	Basic Right	13	1	Basic Right (BAR)
McDonalds Road (South Direction)	Basic Left	5	2	Basic Left (BAL)
	Simple Right	13	1	Basic Right (BAR)
PM Peak				
McDonalds Road (North Direction)	Simple Left	5	2	Basic Left (BAL)
	Basic Right	14	1	Basic Right (BAR)
McDonalds Road (South Direction)	Basic Left	6	1	Basic Left (BAL)
	Simple Right	13	2	Basic Right (BAR)

Table 10: Turn Treatment Assessment McDonalds/Racecourse Road

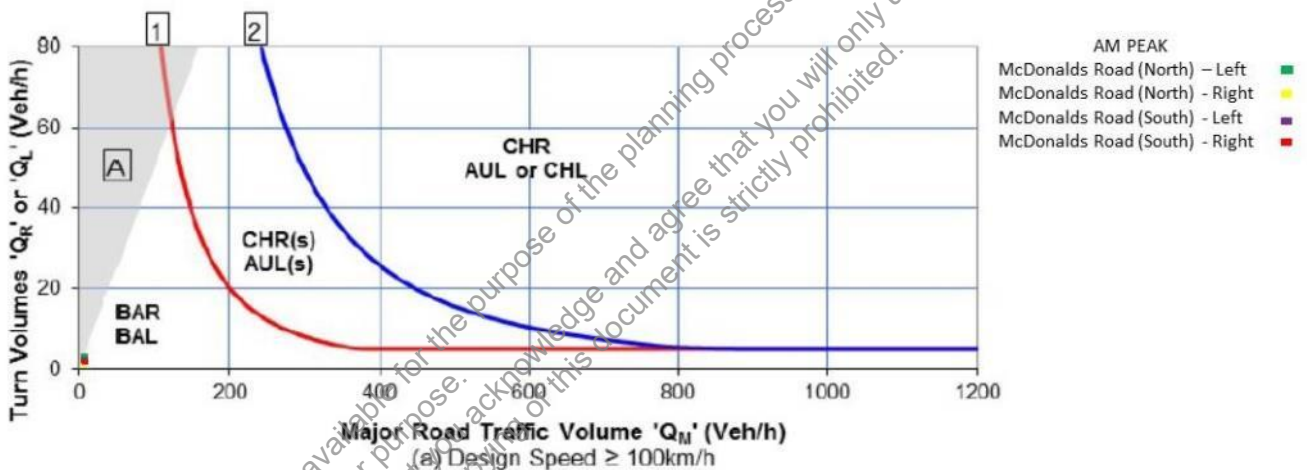


Figure 25: Turn Treatment Chart AM Peak

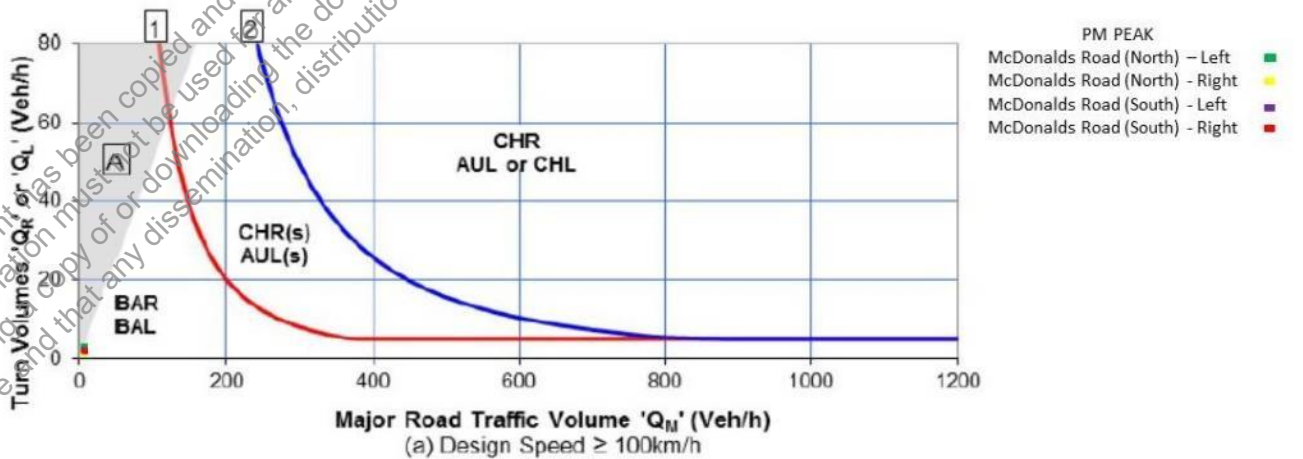


Figure 26: Turn Treatment Chart PM Peak

4.8.3 McDonalds/Grimwade Road Intersection

The assessment results as shown in **Table 11** (See **Figure 27** and **Figure 28**) indicate that basic left (BAL) and basic right (BAR) turn treatments are required. The intersection currently has complying BAL and BAR treatments.

Major Road	AM Peak			
	Existing Layout	Movement (Q _m)	Movement (Q _l or Q _r)	Turn Treatment Required
Grimwade Road (West Direction)	Basic Left	N/A	N/A	Basic Left (BAL)
	Basic Right	162	5	Basic Right (BAR)
Grimwade Road (East Direction)	Basic Left	80	2	Basic Left (BAL)
	Basic Right	N/A	N/A	Basic Right (BAR)
	PM Peak			
Grimwade Road (West Direction)	Basic Left	N/A	N/A	Basic Left (BAL)
	Basic Right	162	5	Basic Right (BAR)
Grimwade Road (East Direction)	Basic Left	80	2	Basic Left (BAL)
	Basic Right	N/A	N/A	Basic Right (BAR)

Table 11: Turn Treatment Assessment McDonalds/Grimwade Road

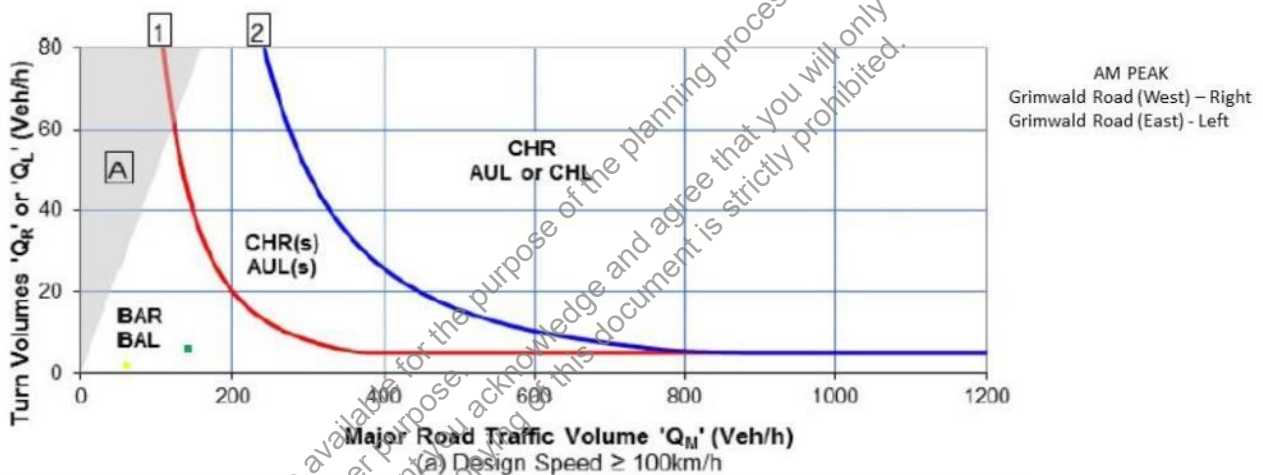


Figure 27: Turn Treatment Chart AM Peak

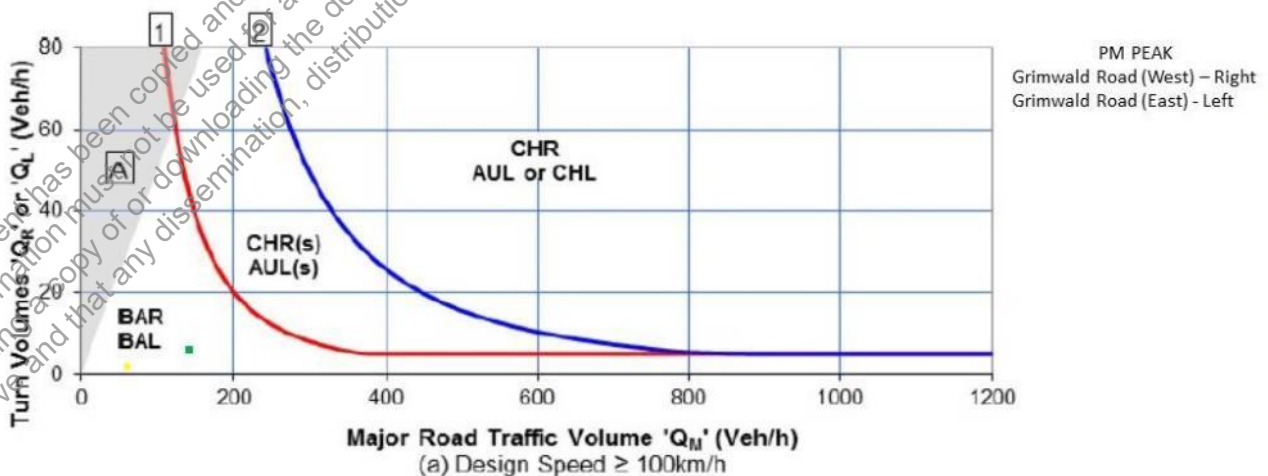


Figure 28: Turn Treatment Chart PM Peak

5.0 ANCILLARY TRAFFIC ASSESSMENT

5.1 Site Access/ Egress points

There is an existing site access from Zanelli Road is shown in **Appendix D** “SCL20-14-002 - A - GENERAL SITE LAYOUT”. The development does not require new road entrance to be built to allow B-Double trucks to enter the Nagambie Resources site. The existing internal road network will be used to access the quarry as shown in **Appendix D** “SCL20-14-002 - A - GENERAL SITE LAYOUT”.

5.2 Internal Vehicle Circulation

To access the quarry site, rigid trucks will use the internal access road to reach the quarry area. The quarry entrance will consist of an earth ramp to allow the rigid truck to drive over the surrounding earth bund and into the pit area as shown in **Appendix E** “SCL20-14-003 - A - GENERAL ARRANGEMENT”. The quarry will be developed with open areas allowing heavy vehicle movement without reversing at any point in order to exit the quarry.

5.3 Proposed Heavy Vehicle Route

The site is located on Zanelli Road which is a designated road for B-Double traffic. All heavy vehicles will access the site via the exit ramps at Grimwade road. The vehicles will then turn onto McDonalds road which is intersected by Zanelli road. The proposed route is shown in **Appendix F** “Proposed Heavy Vehicle Route” (See **Figure 29**). The alternate route via Racecourse road was not chosen in order to minimise the heavy vehicle impact on housing located near the township of Nagambie. All roads are all-weather roads allowing year around access.



Figure 29: Proposed Heavy Vehicle Route

6.0 PARKING REQUIREMENTS

6.1 Car Parking Requirements

As shown in **Table 5** of this report, the majority of vehicles to be parked on site are from staff vehicles. Hence permanent car spaces are only required to cater for staff and a small number of visitors or contractors.

6.2 Proposed Car Parking Provisions

The proposed development is for a quarry which will contain no buildings. It is expected that vehicles will be parked within the mine site.

6.3 Adequacy of Car Parking Provisions

It is expected that there will be 3 full-time staff members at the site and plus on occasion a single casual employee. The internal access road will be marked-out to allow at least 6 vehicles to be parked. This is deemed to be adequate for a quarry facility. There will be no allowance for disability parking as the development is unsuitable for disabled access.

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7.0 ROAD NETWORK IMPROVEMENTS

7.1 Road Improvements

7.1.1 Zanelli Road

Zanelli Road is part of the proposed route to and from site. The proposed development is not anticipated to affect the traffic function of Zanelli Road. As discussed in section 4.0, it is anticipated that Zanelli Road is functionally and geometrically capable of servicing the traffic generated by the development. The traffic generated by the development will have a negligible effect on the operation of Zanelli Road; hence **NO CHANGE** to Zanelli Road is required.

7.1.2 McDonalds Road

McDonalds Road is part of the proposed route to and from site. The proposed development is not anticipated to affect the traffic function of McDonalds Road. As discussed in section 4.0, it is anticipated that McDonalds Road is functionally and geometrically capable of servicing the traffic generated by the development. The traffic generated by the development will have a negligible effect on the operation of McDonalds Road; hence **NO CHANGE** to McDonalds Road is required.

7.1.3 Grimwade Road

Grimwade Road is part of the proposed route to and from site. The proposed development is not anticipated to affect the traffic function of Grimwade Road. As discussed in section 4.0, it is anticipated that Grimwade Road is functionally and geometrically capable of servicing the traffic generated by the development. The traffic generated by the development will have a negligible effect on the operation of Grimwade Road; hence **NO CHANGE** to Grimwade Road is required.

7.1.4 Site Access Road

No site access road is required for the development.

7.2 Intersection Improvements

7.2.1 Zanelli/McDonalds Road Intersection

The existing Zanelli/McDonalds Road intersection is part of the proposed route to and from site. As discussed in section 4.0, the additional traffic generated by the development site is expected to have a negligible effect. There will be no change in the existing LOS, hence **NO CHANGE** to the Zanelli/McDonalds Road intersection is required.

7.2.2 McDonalds/Racecourse Road Intersection

The existing McDonalds/Racecourse Road intersection is part of the proposed route to and from site. As discussed in section 4.0, the additional traffic generated by the development site is expected to have a negligible effect. There will be no change in the existing LOS, hence **NO CHANGE** to the McDonalds/Racecourse Road intersection is required.

7.2.3 McDonalds/Grimwade Road Intersection

The existing McDonalds/Grimwade Road intersection is part of the proposed route to and from site. As discussed in section 4.0, the additional traffic generated by the development site is expected to have a negligible effect. There will be no change in the existing LOS, hence **NO CHANGE** to the McDonalds/Grimwade Road intersection is required.

7.2.4 Zanelli/ Site Access Road

The existing Nagambie Resource site entrance is able to accommodate a B-Double heavy vehicle and does not need to be modified for this development.

7.3 Pedestrian/Cyclist Improvements

It is recommended that pedestrian footpaths and/or cycle paths should not be incorporated into the proposed development. It is expected that staff and visitors are unlikely to walk or cycle to the site, as the site is isolated from the nearest public transport.

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8.0 CONCLUSION

The proposed quarry facility is not expected to have an adverse impact on the existing road network.

The likely impact of the development will be as follows:

- The projected total traffic generated by the facility will be approximately 70 vehicles per day (vpd); consisting of 35 vpd entering and 35 vpd exiting the site;
- During the AM peak, the highest one hour volume is approximately 18 vehicle movements which occur 10:00 – 11:00;
- During the PM peak, the highest one hour volume is approximately 18 vehicle movements which occur 15:00 – 16:00;
- It is anticipated that 100% of the heavy vehicles travelling to/from the site will come from the Goulburn Valley Freeway before turning into Grimwade Road to McDonalds Road and then Zanelli Road;
- It is anticipated that 100% of the staff will travel to the site from the west via Zanelli Road;
- The proposed development will have a negligible effect on the capacity of the local road network along the proposed route of Zanelli/McDonalds/Grimwade/Goulburn Valley Freeway.
- Analysis shows that in the design year 2027, the Zanelli/McDonalds intersection would operate adequately, with a “A” Level of Service classification;
- Analysis shows that in the design year 2027, the McDonalds/Racecourse Road intersection would operate adequately, with a “A” Level of Service classification;
- Analysis shows that in the design year 2027, the McDonalds/Grimwade Road intersection would operate adequately, with a “B” Level of Service classification;
- A turn warrant assessment shows that a BAL and BAR intersection treatments as existing are adequate with no intersection improvements required;
- Zanelli Road does not require road widening or turn off areas for passing traffic;
- The existing access road at Zanelli Road will used to access the quarry site for heavy vehicles.

----- End of Main Body -----

9.0 FIGURES LIST

FIGURE	TITLE
1	533 Zanelli Rd Eastern Direction
2	533 Zanelli Rd Western Direction
3	McDonalds Road Northern Direction Towards Racecourse Road
4	McDonalds Road between Racecourse and Grimwade Road
5	McDonalds and Grimwade Road Intersection
6	Grimwade Road Eastern Direction
7	Grimwade Road Western Direction
8	Grimwade Road – Goulburn Valley Freeway Entrance
9	Goulburn Valley Freeway North Direction
10	Goulburn Valley Freeway South Direction
11	Location of New Access Road
12	McDonalds and Zanelli Road Intersection Eastern Direction
13	McDonalds and Racecourse Road Northern Direction Intersection
14	McDonalds and Grimwade Intersection
15	Crash Statistics 2011 to 2017
16	Zanelli/McDonald Road Intersection - Existing AM PM Peak Hour Traffic Volumes
17	McDonald/Racecourse Road Intersection - Existing AM PM Peak Hour Traffic Volumes
18	McDonald/Grimwade Road Intersection - Existing AM PM Peak Hour Traffic Volumes
19	Traffic Generation Volume Profile
20	Traffic Distribution During Peak Hours
21	Calculation of Q_M Traffic Volume Parameter
22	Turn Treatment Chart
23	Turn Treatment Chart AM Peak
24	Turn Treatment Chart PM Peak
25	Turn Treatment Chart AM Peak
26	Turn Treatment Chart PM Peak
27	Turn Treatment Chart AM Peak
28	Turn Treatment Chart PM Peak
29	Proposed Heavy Vehicle Route

10.0 TABLES LIST

TABLE	TITLE
1	Level of service criteria for a general two-lane highway
2	Level of Service at Zanelli/McDonald Road Intersection
3	Level of Service at McDonalds/Racecourse Road Intersection
4	Level of Service at McDonalds/Grimwade Road Intersection
5	Traffic Movements per Annum
6	Level of Service in Year 2027 – Zanelli/McDonalds Road Intersection
7	Level of Service in Year 2027 – McDonalds/Racecourse Road Intersection
8	Level of Service in Year 2027 – McDonalds/Grimwade Road Intersection
9	Turn Treatment Assessment Zanelli/McDonalds Road
10	Turn Treatment Assessment McDonalds/Racecourse Road
11	Turn Treatment Assessment McDonalds/Grimwade Road

11.0 APPENDICES

APPENDIX	TITLE
A	533 Zanelli Road Nagambie-Planning Property Report
B	VicRoads Crashstats - 2015 to 2020
C	Strathbogie Shire Traffic Data
D	SCL20-14-002 - A - GENERAL SITE LAYOUT
E	SCL20-14-003 - A - GENERAL ARRANGEMENT
F	Proposed Heavy Vehicle Route

12.0 REFERENCES

- I. Highway Capacity Manual, Special Report 209, *Transport Research Board, Washington, D.C., 1994*
- II. Austroads Guide to Traffic Management, Part 3: Traffic Studies and Analysis, Section 5.2

-----End of Document -----

PLANNING PROPERTY REPORT

From www.planning.vic.gov.au at 28 August 2020 12:25 PM

PROPERTY DETAILS

Address: **533 ZANELLI ROAD NAGAMBIE 3608**
 Crown Description: **More than one parcel - see link below**
 Standard Parcel Identifier (SPI): **More than one parcel - see link below**
 Local Government Area (Council): **STRATHBOGIE**
 Council Property Number: **40002060.1300**
 Planning Scheme: **Strathbogie**
 Directory Reference: **Vicroads 46 E6**

www.strathbogie.vic.gov.au

[Planning Scheme - Strathbogie](#)

This property has 6 parcels. For full parcel details get the free Property report at [Property Reports](#)

UTILITIES

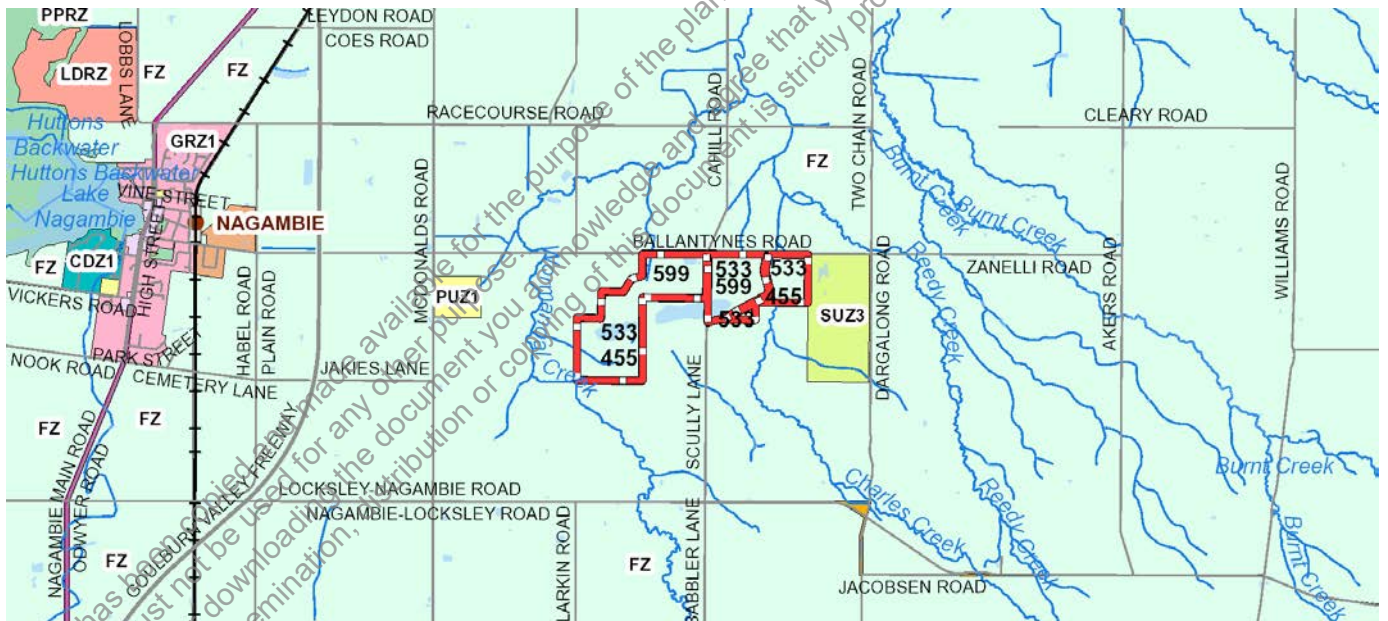
Rural Water Corporation: **Goulburn-Murray Water**
 Urban Water Corporation: **Goulburn Valley Water**
 Melbourne Water: **Outside drainage boundary**
 Power Distributor: **AUSNET**
[View location in VicPlan](#)

STATE ELECTORATES

Legislative Council: **NORTHERN VICTORIA**
 Legislative Assembly: **EUROA**

Planning Zones

[FARMING ZONE \(FZ\)](#)
[SCHEDULE TO THE FARMING ZONE \(FZ\)](#)

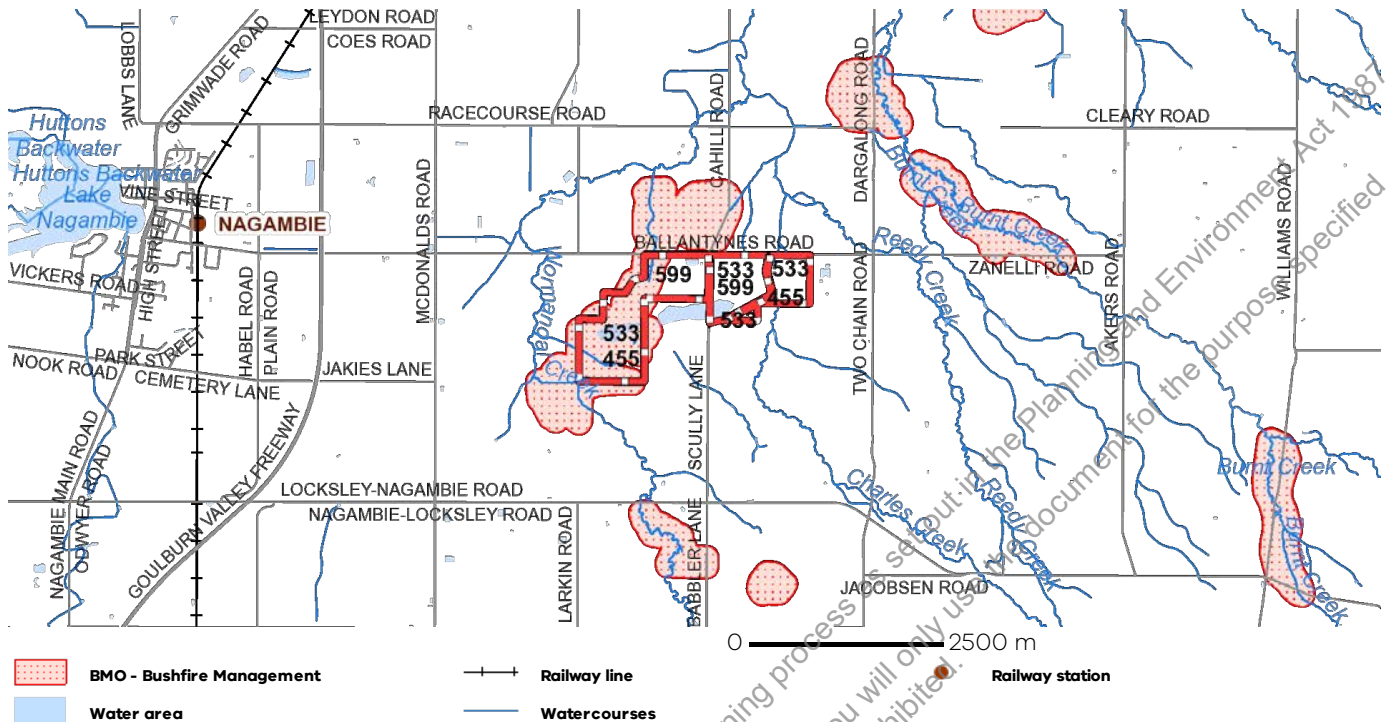


- | | | |
|------------------------------------|---------------------------------------|--------------------------------|
| C1Z - Commercial 1 | CDZ - Comprehensive Development | FZ - Farming |
| GRZ - General Residential | IN1Z - Industrial 1 | LDRZ - Low Density Residential |
| PPRZ - Public Park and Recreation | PUZ1 - Public Use-Service and Utility | PUZ4 - Public Use-Transport |
| PUZ6 - Public Use-Local Government | RDZ1 - Road-Category 1 | RDZ2 - Road-Category 2 |
| SUZ - Special Use | Railway line | Railway station |
| Water area | Watercourse | |

Note: labels for zones may appear outside the actual zone - please compare the labels with the legend.

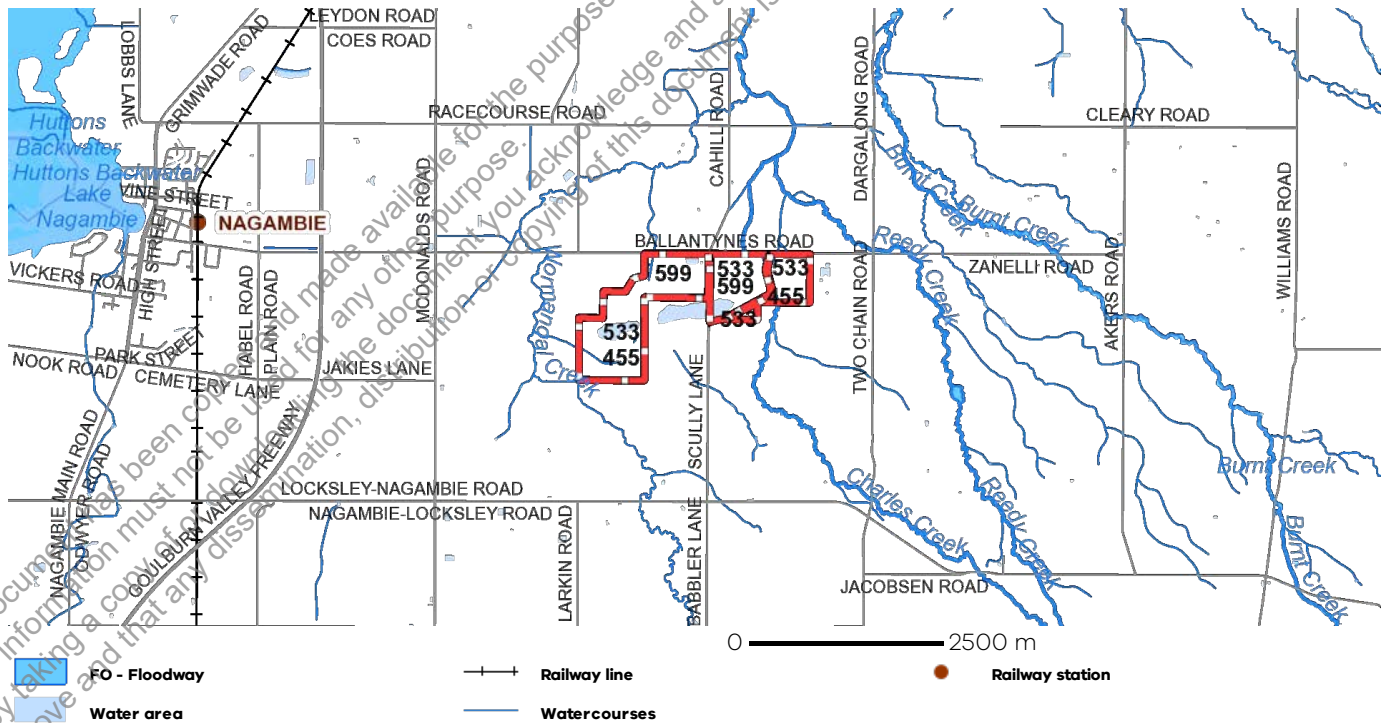
Planning Overlays

BUSHFIRE MANAGEMENT OVERLAY (BMO)



FLOODWAY OVERLAY (FO)

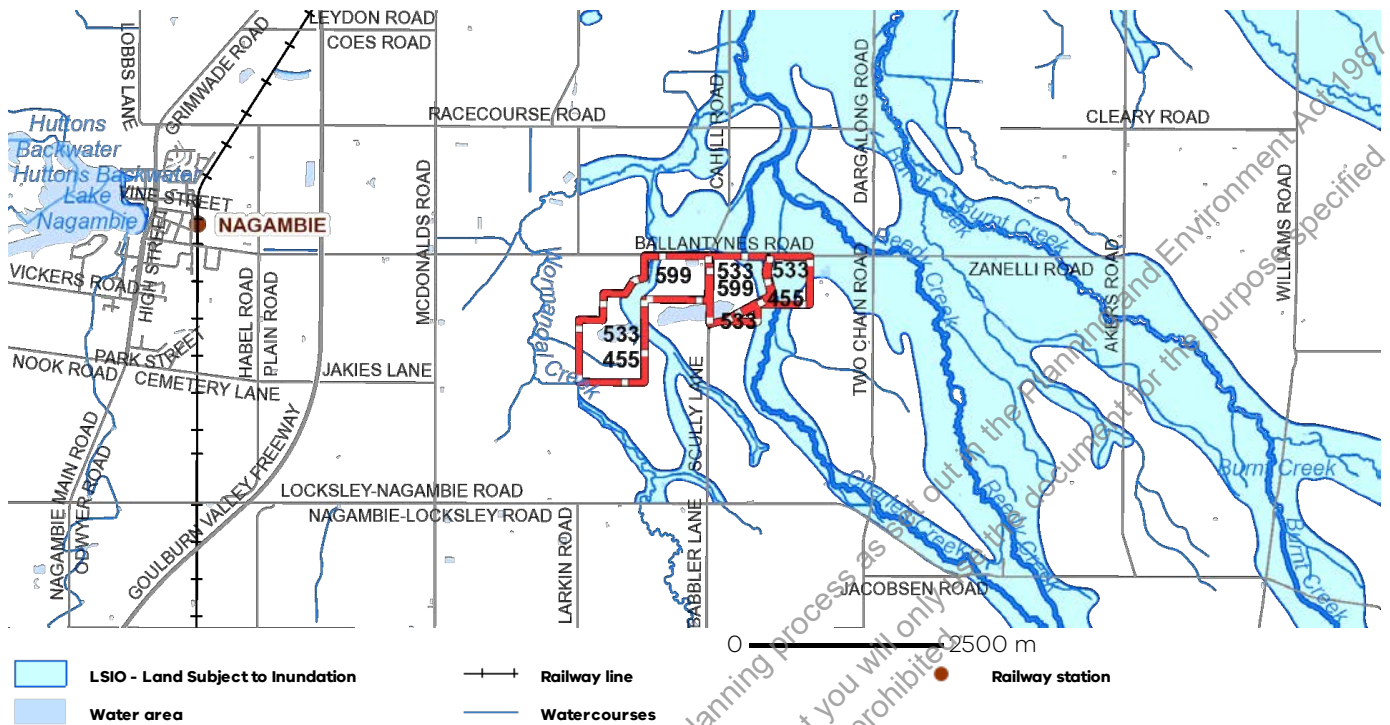
FLOODWAY OVERLAY SCHEDULE (FO)



Planning Overlays

LAND SUBJECT TO INUNDATION OVERLAY (LSIO)

LAND SUBJECT TO INUNDATION OVERLAY SCHEDULE (LSIO)



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PLANNING PROPERTY REPORT

OTHER OVERLAYS

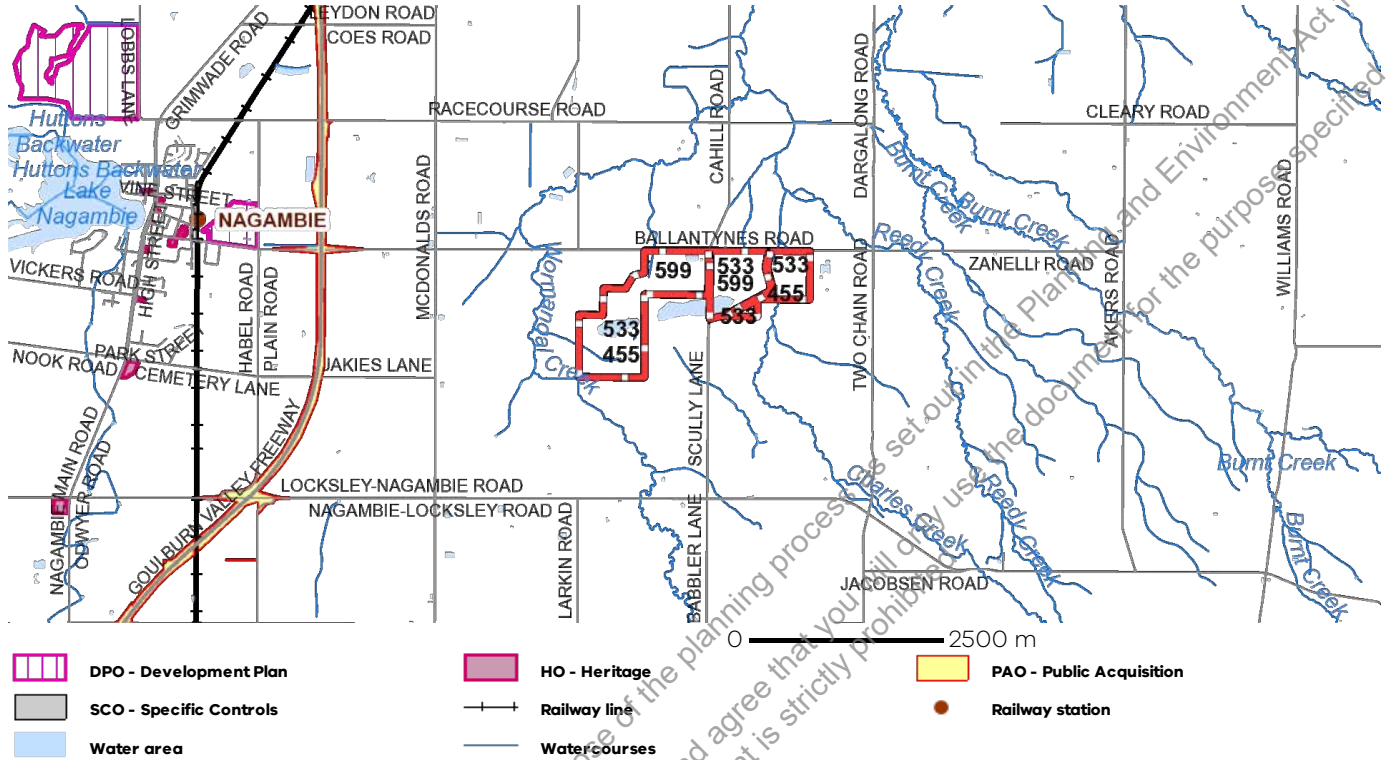
Other overlays in the vicinity not directly affecting this land

[DEVELOPMENT PLAN OVERLAY \(DPO\)](#)

[HERITAGE OVERLAY \(HO\)](#)

[PUBLIC ACQUISITION OVERLAY \(PAO\)](#)

[SPECIFIC CONTROLS OVERLAY \(SCO\)](#)



Note: due to overlaps, some overlays may not be visible, and some colours may not match those in the legend

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Areas of Aboriginal Cultural Heritage Sensitivity

All or part of this property is an 'area of cultural heritage sensitivity'.

'Areas of cultural heritage sensitivity' are defined under the Aboriginal Heritage Regulations 2018, and include registered Aboriginal cultural heritage places and land form types that are generally regarded as more likely to contain Aboriginal cultural heritage.

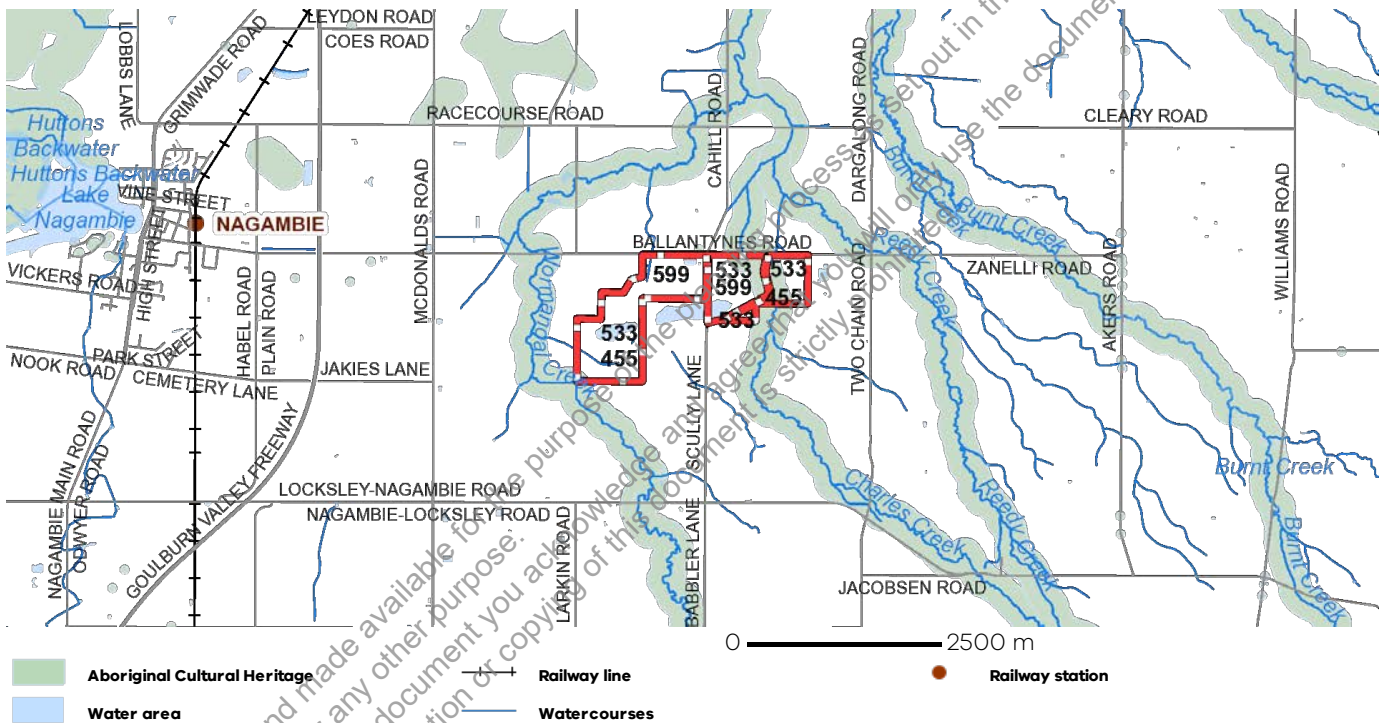
Under the Aboriginal Heritage Regulations 2018, 'areas of cultural heritage sensitivity' are one part of a two part trigger which require a 'cultural heritage management plan' be prepared where a listed 'high impact activity' is proposed.

If a significant land use change is proposed (for example, a subdivision into 3 or more lots), a cultural heritage management plan may be triggered. One or two dwellings, works ancillary to a dwelling, services to a dwelling, alteration of buildings and minor works are examples of works exempt from this requirement.

Under the Aboriginal Heritage Act 2006, where a cultural heritage management plan is required, planning permits, licences and work authorities cannot be issued unless the cultural heritage management plan has been approved for the activity.

For further information about whether a Cultural Heritage Management Plan is required go to <http://www.aav.nrms.net.au/aavQuestion1.aspx>

More information, including links to both the Aboriginal Heritage Act 2006 and the Aboriginal Heritage Regulations 2018 can also be found here - <https://www.aboriginalvictoria.vic.gov.au/aboriginal-heritage-legislation>



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Further Planning Information

Planning scheme data last updated on 26 August 2020.

A **planning scheme** sets out policies and requirements for the use, development and protection of land.

This report provides information about the zone and overlay provisions that apply to the selected land.

Information about the State and local policy, particular, general and operational provisions of the local planning scheme that may affect the use of this land can be obtained by contacting the local council

or by visiting <https://www.planning.vic.gov.au>

This report is NOT a **Planning Certificate** issued pursuant to Section 199 of the **Planning and Environment Act 1987**.

It does not include information about exhibited planning scheme amendments, or zonings that may affect the land.

To obtain a Planning Certificate go to Titles and Property Certificates at Landata - <https://www.landata.vic.gov.au>

For details of surrounding properties, use this service to get the Reports for properties of interest.

To view planning zones, overlay and heritage information in an interactive format visit

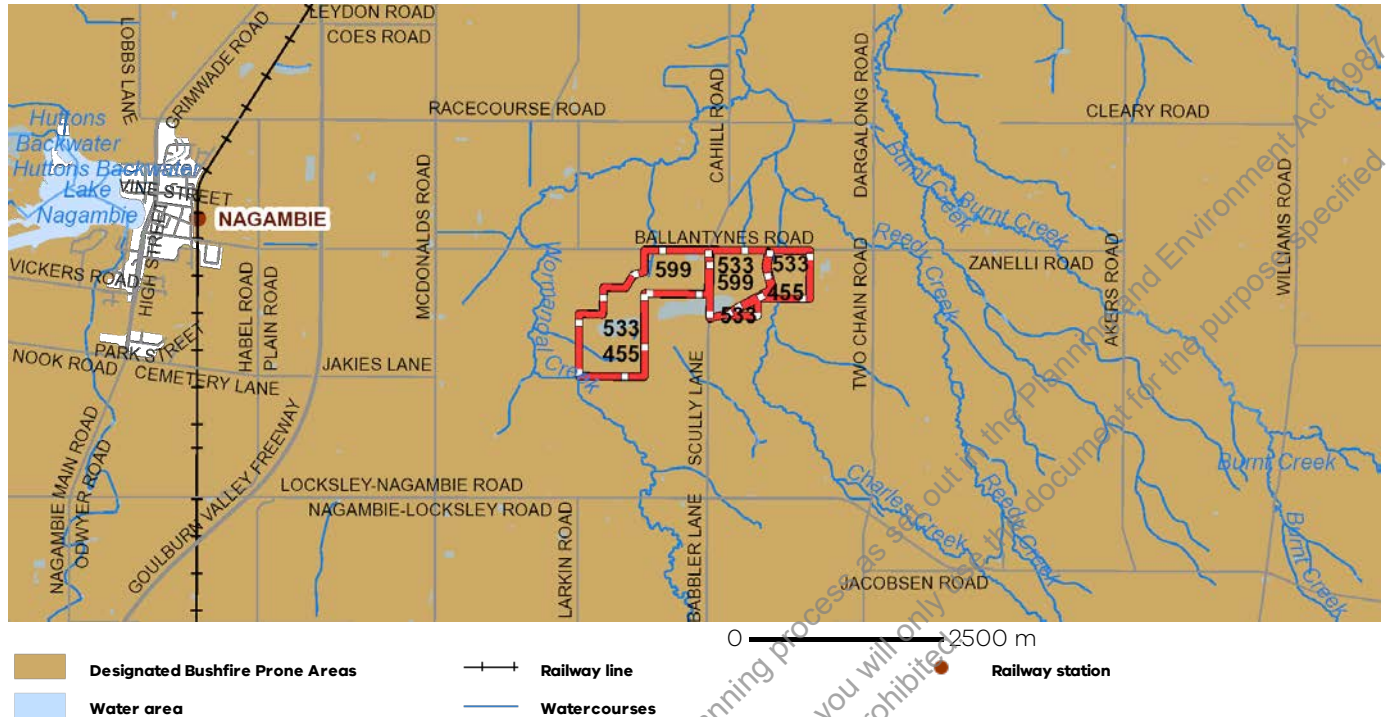
<https://mapshare.maps.vic.gov.au/vicplan>

For other information about planning in Victoria visit <https://www.planning.vic.gov.au>

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Designated Bushfire Prone Areas

This property is in a designated bushfire prone area.
Special bushfire construction requirements apply. Planning provisions may apply.



Designated bushfire prone areas as determined by the Minister for Planning are in effect from 8 September 2011 and amended from time to time.

The Building Regulations 2018 through application of the Building Code of Australia, apply bushfire protection standards for building works in designated bushfire prone areas.

Designated bushfire prone areas maps can be viewed on VicPlan at <https://mapshare.maps.vic.gov.au/vicplan> or at the relevant local council.

Note: prior to 8 September 2011, the whole of Victoria was designated as bushfire prone area for the purposes of the building control system.

Further information about the building control system and building in bushfire prone areas can be found on the Victorian Building Authority website <https://www.vba.vic.gov.au>

Copies of the Building Act and Building Regulations are available from <http://www.legislation.vic.gov.au>

For Planning Scheme Provisions in bushfire areas visit <https://www.planning.vic.gov.au>

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Location of crashes



Filter chosen ---->Regions : Rural Severity : Fatal crashes & Serious injury crashes Year : All Road class : All User type : All No of Vehicles : All LGA's : All Speed zone : All Age group : All

Metro / Rural
 (All)
 Metro
 Rural
 Unknown
 Cancel Apply

Severity
 (All)
 Fatal crashes
 Serious injury crashes
 Other injury crashes
 Cancel Apply

Year (All) ▼

Road Class (All) ▼

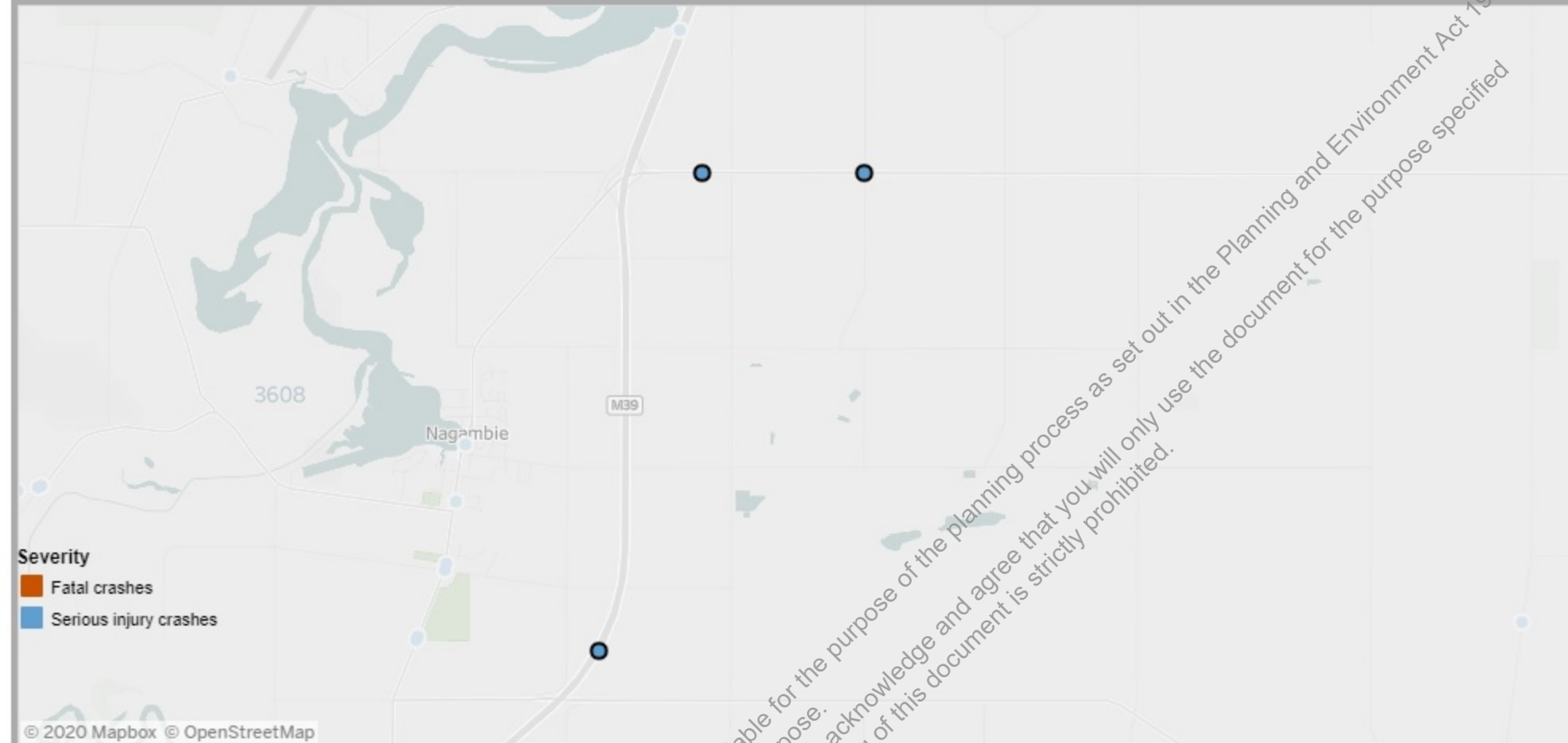
Road user type (All) ▼

No of Vehicles (All) ▼

LGA's (All) ▼

Speed zone (All) ▼

Age group (All) ▼



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Number of crashes*

Severity	2015	2016	2017	Grand Total
Serious injury crashes	1	1	1	3
Grand Total	1	1	1	3

Number of persons*

Injury Level	2015	2016	2017	Grand Total
Serious Injury	1	1	1	3
Non Injury		1		1
Grand Total	1	2	1	4

*includes unknown location not shown in the map

Note : The data is incomplete for the last 6 months from the published date, as a result the last six months of data should not be used for any trend analysis. Published date: 7/24/2019

MetroCount Traffic Executive Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-283 -- English (ENA)

Datasets:

Site: [Zanelli Rpad] McDonalds Road
Attribute: Nagambie
Direction: 0 - Unused or unknown. **Lane:** 0
Survey Duration: 13:00 Friday, 26 May 2017 => 14:26 Tuesday, 6 June 2017,
Zone:
File: Zanelli Road 0 2017-06-06 1426.EC0 (Plus)
Identifier: EF37TZZJ MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:00 Friday, 26 May 2017 => 14:26 Tuesday, 6 June 2017 (11.0602)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = ???
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 1184 / 1225 (96.65%)

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Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-283

Site: Zanelli Rpad.0.0X

Description: McDonalds Road

Filter time: 13:00 Friday, 26 May 2017 => 14:26 Tuesday, 6 June 2017

Scheme: Vehicle classification (ARX)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
0000-0100	2.5	1.5	0.0	1.0	5.0	1.5	0.0	2.0	1.5
0100-0200	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.3	0.4
0200-0300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0300-0400	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.7	0.5
0400-0500	4.5	3.5	5.0	6.0	0.0	2.0	0.0	3.9	2.8
0500-0600	5.0	6.5	5.0	3.0	2.0	5.0	1.5	4.7	4.2
0600-0700	12.0	14.5	10.0	14.0	14.0	1.5	6.0	13.0	9.6
0700-0800	9.5	10.5	12.0	14.0	8.0	4.5	2.0	10.6	7.9
0800-0900	5.5	6.5	7.0	10.0	7.0	3.5	3.5	6.9	5.5
0900-1000	7.0	9.5	6.0	11.0	2.0	6.0	3.5	6.4	6.5
1000-1100	11.0	12.0	9.0	8.0	5.0	2.5	4.0	9.7	7.4
1100-1200	12.5	11.5	5.0	9.0	9.0	4.5	6.0	10.1	8.4
1200-1300	6.5	12.0	8.0	10.0	10.0	3.5	5.5	9.3	7.5
1300-1400	12.0	12.5	8.0	7.0	9.5	6.5	4.0	10.4	8.7
1400-1500	10.5	5.5	9.0	8.0	10.5	8.5	4.0	8.8	7.9
1500-1600	15.5	11.0	7.0	17.0	9.5	2.5	9.5	12.1	9.9
1600-1700	5.0	4.0	6.0	4.0	3.5	4.5	4.5	4.4	4.5
1700-1800	6.0	2.0	8.0	4.0	4.5	5.0	1.0	5.0	4.3
1800-1900	3.0	1.0	4.0	3.0	0.5	2.0	0.0	2.1	1.7
1900-2000	2.5	2.0	2.0	1.0	2.0	0.0	4.0	2.0	2.0
2000-2100	4.0	0.0	1.0	3.0	3.5	1.0	2.5	2.7	2.4
2100-2200	1.0	0.0	3.0	5.0	0.5	0.0	0.5	1.6	1.1
2200-2300	0.5	1.0	0.0	1.0	2.0	0.5	0.5	1.0	0.8
2300-2400	1.0	1.0	3.0	1.0	0.0	0.0	0.5	1.0	0.7
Totals									
0700-1900	104.0	98.0	89.0	105.0	79.0	53.5	47.0	96.8	80.1
0600-2200	123.5	114.5	105.0	128.0	99.0	56.0	60.0	116.1	95.2
0600-0000	125.0	116.5	108.0	130.0	101.0	56.5	61.0	118.1	96.8
0000-0000	138.0	130.0	119.0	140.0	108.0	66.0	62.5	129.7	106.1
AM Peak	1100	0600	0700	0700	0600	0900	1100		
	12.5	14.5	12.0	14.0	14.0	6.0	6.0		
PM Peak	1500	1300	1400	1500	1400	1400	1500		
	15.5	12.5	9.0	17.0	10.5	8.5	9.5		

* - No data.

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MetroCount Traffic Executive Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-286 -- English (ENA)

Datasets:

Site: [McDonalds Road] Nagambie Locksley Road
Attribute: Nagambie
Direction: 0 - Unused or unknown. **Lane:** 0
Survey Duration: 13:00 Friday, 26 May 2017 => 13:34 Tuesday, 6 June 2017,
Zone:
File: McDonalds Road 0 2017-06-06 1335.EC0 (Plus)
Identifier: EG167TWV MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 13:00 Friday, 26 May 2017 => 13:34 Tuesday, 6 June 2017 (11.0243)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = ???
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 2060 / 2305 (89.37%)

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Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-286

Site: McDonalds Road.0.0X

Description: **Nagambie Locksley Road**Filter time: **13:00 Friday, 26 May 2017 => 13:34 Tuesday, 6 June 2017**

Scheme: Vehicle classification (ARX)

Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
0000-0100	3.5	0.0	4.0	1.0	5.0	0.5	0.0	2.4	1.6
0100-0200	1.0	2.0	0.0	5.0	1.0	0.0	0.5	1.7	1.2
0200-0300	3.5	1.0	3.0	1.0	3.0	0.0	0.5	2.3	1.5
0300-0400	2.0	2.5	3.0	2.0	2.0	1.0	1.0	2.3	1.8
0400-0500	8.0	7.5	10.0	5.0	4.0	4.0	1.5	7.1	5.5
0500-0600	12.0	9.5	13.0	13.0	8.0	6.0	5.5	11.0	9.1
0600-0700	23.0	15.0	18.0	18.0	14.0	10.0	12.5	18.0	15.5
0700-0800	20.5	13.5	9.0	15.0	11.0	7.0	5.0	14.7	11.5
0800-0900	6.5	13.0	12.0	14.0	15.0	8.0	6.0	11.4	9.8
0900-1000	10.5	12.0	11.0	16.0	8.0	10.0	12.0	11.4	11.3
1000-1100	20.0	15.0	13.0	15.0	16.0	18.0	5.0	16.3	14.5
1100-1200	24.0	10.5	8.0	18.0	12.0	13.0	9.5	15.3	13.8
1200-1300	11.0	9.0	3.0	14.0	4.0	7.0	11.5	8.7	8.9
1300-1400	13.5	7.0	14.0	12.0	9.5	10.5	8.0	10.8	10.3
1400-1500	17.5	15.0	20.0	25.0	14.5	17.5	21.5	17.7	18.4
1500-1600	26.0	22.0	19.0	32.0	22.5	14.5	16.0	24.3	21.0
1600-1700	9.5	5.0	8.0	7.0	6.5	3.5	8.0	7.4	6.8
1700-1800	8.0	10.0	8.0	13.0	7.0	5.5	4.5	8.7	7.4
1800-1900	4.5	5.0	1.0	3.0	4.5	6.0	3.5	3.9	4.2
1900-2000	1.5	0.0	3.0	5.0	2.0	3.0	5.5	2.1	2.9
2000-2100	2.0	2.0	1.0	4.0	2.5	0.5	1.0	2.3	1.7
2100-2200	5.0	8.0	9.0	5.0	0.5	1.5	2.0	4.7	3.6
2200-2300	3.0	2.0	2.0	2.0	0.0	0.0	2.5	1.7	1.5
2300-2400	4.0	3.0	3.0	1.0	1.0	0.5	3.5	2.4	2.3

Totals

0700-1900	171.5	137.0	126.0	184.0	130.5	120.5	110.5	150.6	137.9
0600-2200	203.0	162.0	157.0	206.0	149.5	135.5	131.5	177.8	161.7
0600-0000	210.0	167.0	162.0	219.0	150.5	136.0	137.5	181.9	165.5
0000-0000	240.0	189.5	195.0	246.0	173.5	147.5	146.5	208.8	186.3
AM Peak	1100	1000	0600	1100	1000	1000	0600		
	24.0	15.0	18.0	18.0	16.0	18.0	12.5		
PM Peak	1500	1500	1400	1500	1500	1400	1400		
	26.0	22.0	20.0	32.0	22.5	17.5	21.5		

* - No data.

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MetroCount Traffic Executive Weekly Vehicle Counts (Virtual Week)

VirtWeeklyVehicle-285 -- English (ENA)

Datasets:

Site: [McDonalds Rd] Before Racecoarce Rd
Attribute: Nagambie
Direction: 0 - Unused or unknown. **Lane:** 0
Survey Duration: 15:39 Wednesday, 14 June 2017 => 13:59 Wednesday, 21 June 2017,
Zone:
File: McDonalds Rd 0 2017-06-21 1400.EC0 (Plus)
Identifier: EF37TZZJ MC56-L5 [MC55] (c)Microcom 19Oct04
Algorithm: Factory default axle (v4.06)
Data type: Axle sensors - Paired (Class/Speed/Count)

Profile:

Filter time: 15:40 Wednesday, 14 June 2017 => 13:59 Wednesday, 21 June 2017 (6.93015)
Included classes: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Speed range: 10 - 160 km/h.
Direction: North, East, South, West (bound), P = ???
Separation: Headway > 0 sec, Span 0 - 100 metre
Name: Default Profile
Scheme: Vehicle classification (ARX)
Units: Metric (metre, kilometre, m/s, km/h, kg, tonne)
In profile: Vehicles = 1233 / 1242 (99.28%)

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Weekly Vehicle Counts (Virtual Week)

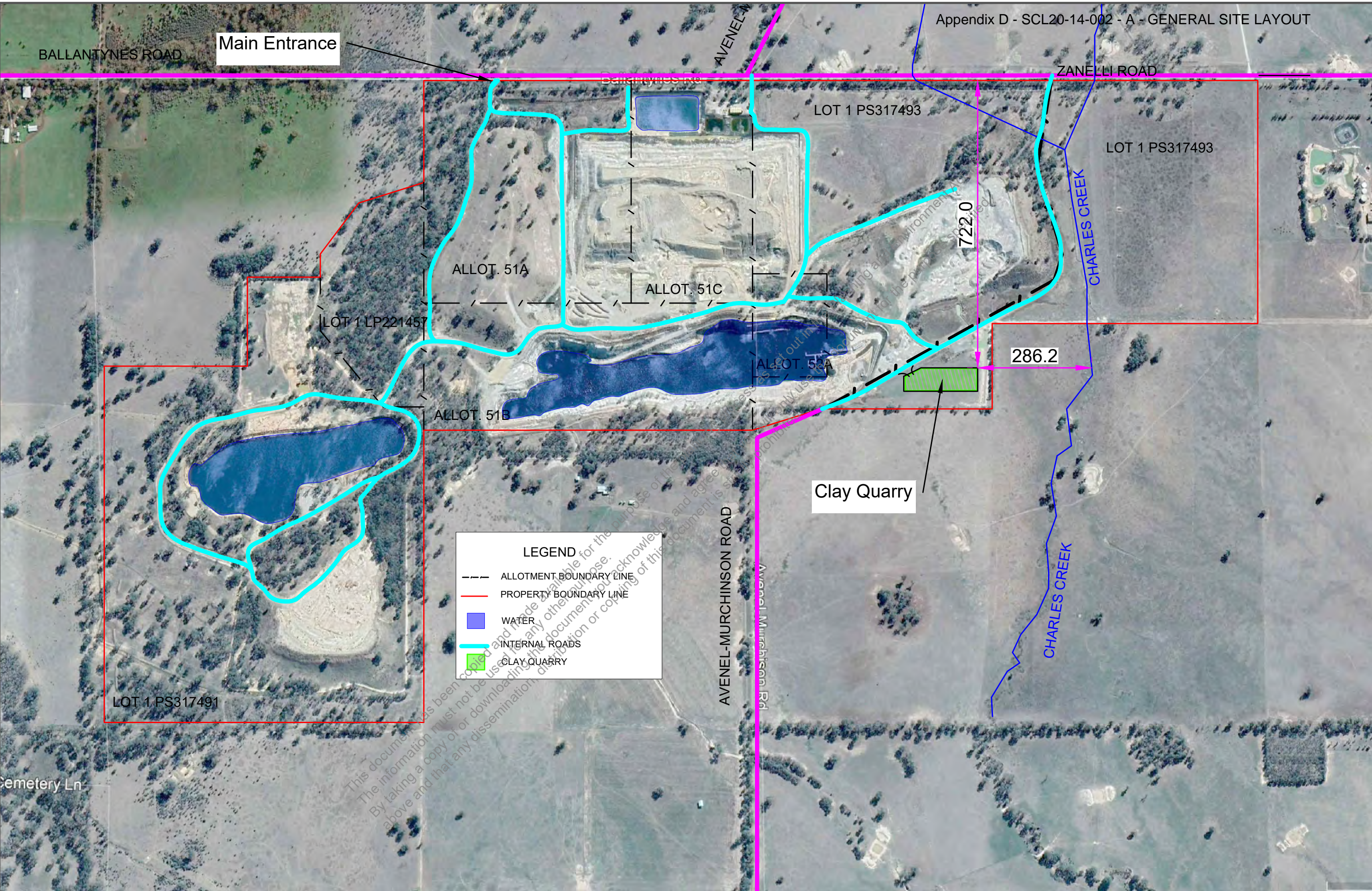
VirtWeeklyVehicle-285

Site: McDonnalds Rd.0.0X
Description: Before Racecoarce Rd
Filter time: 15:40 Wednesday, 14 June 2017 => 13:59 Wednesday, 21 June 2017
Scheme: Vehicle classification (ARX)
Filter: Cls(1 2 3 4 5 6 7 8 9 10 11 12) Dir(NESW) Sp(10,160) Headway(>0) Span(0 - 100)

Hour	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Averages	
								1 - 5	1 - 7
0000-0100	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3
0100-0200	3.0	1.0	3.0	2.0	0.0	0.0	1.0	1.8	1.4
0200-0300	1.0	1.0	2.0	5.0	0.0	2.0	0.0	1.8	1.6
0300-0400	5.0	3.0	6.0	2.0	3.0	0.0	2.0	3.8	3.0
0400-0500	4.0	5.0	7.0	5.0	2.0	3.0	3.0	4.6	4.1
0500-0600	10.0	9.0	5.0	8.0	5.0	7.0	3.0	7.4	6.7
0600-0700	8.0	15.0	13.0	16.0	18.0	10.0	6.0	14.0	12.3
0700-0800	10.0	12.0	7.0	17.0	13.0	5.0	4.0	11.8	9.7
0800-0900	21.0	15.0	13.0	19.0	18.0	8.0	6.0	17.2	14.3
0900-1000	18.0	15.0	11.0	18.0	13.0	14.0	11.0	15.0	14.3
1000-1100	14.0	15.0	10.0	14.0	8.0	21.0	6.0	12.2	12.6
1100-1200	10.0	11.0	9.0	22.0	15.0	15.0	10.0	13.4	13.1
1200-1300	10.0	9.0	6.0	10.0	11.0	5.0	32.0	9.2	11.9
1300-1400	15.0	19.0	6.0	10.0	16.0	5.0	16.0	13.2	12.4
1400-1500	16.0	14.0	*	27.0	17.0	17.0	20.0	18.5	18.5
1500-1600	21.0	16.0	7.0	21.0	22.0	11.0	12.0	17.4	15.7
1600-1700	12.0	14.0	17.0	8.0	6.0	10.0	8.0	11.4	10.7
1700-1800	9.0	4.0	7.0	7.0	3.0	6.0	3.0	6.0	5.6
1800-1900	5.0	3.0	6.0	4.0	9.0	5.0	3.0	5.4	5.0
1900-2000	1.0	2.0	3.0	2.0	0.0	1.0	1.0	1.6	1.4
2000-2100	6.0	1.0	0.0	4.0	1.0	0.0	2.0	2.4	2.0
2100-2200	2.0	0.0	0.0	1.0	0.0	2.0	0.0	0.6	0.7
2200-2300	1.0	0.0	1.0	0.0	1.0	0.0	0.0	0.6	0.4
2300-2400	0.0	3.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0
Totals									
0700-1900	161.0	147.0	*	177.0	151.0	122.0	131.0	150.7	143.8
0600-2200	178.0	165.0	*	200.0	170.0	135.0	140.0	169.3	160.2
0600-0000	179.0	168.0	*	200.0	172.0	136.0	141.0	170.9	161.6
0000-0000	203.0	188.0	*	222.0	182.0	148.0	150.0	190.7	178.8
AM Peak	0800	1000	0800	1100	0800	1000	0900		
	21.0	15.0	13.0	22.0	18.0	21.0	11.0		
PM Peak	1500	1300	*	1400	1500	1400	1200		
	21.0	19.0	*	27.0	22.0	17.0	32.0		

* - No data.

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LEGEND

- ALLOTMENT BOUNDARY LINE
- PROPERTY BOUNDARY LINE
- WATER
- INTERNAL ROADS
- CLAY QUARRY

REV.	DESCRIPTION	DRAWN	DATE	CHKD	DRG. NO.	REFERENCE DRAWINGS
A	PLANNING APPROVAL					

CLIENT	NAGAMBIE MINING PTY LTD
PROJECT	CODE OF PRACTICE CLAY QUARRY

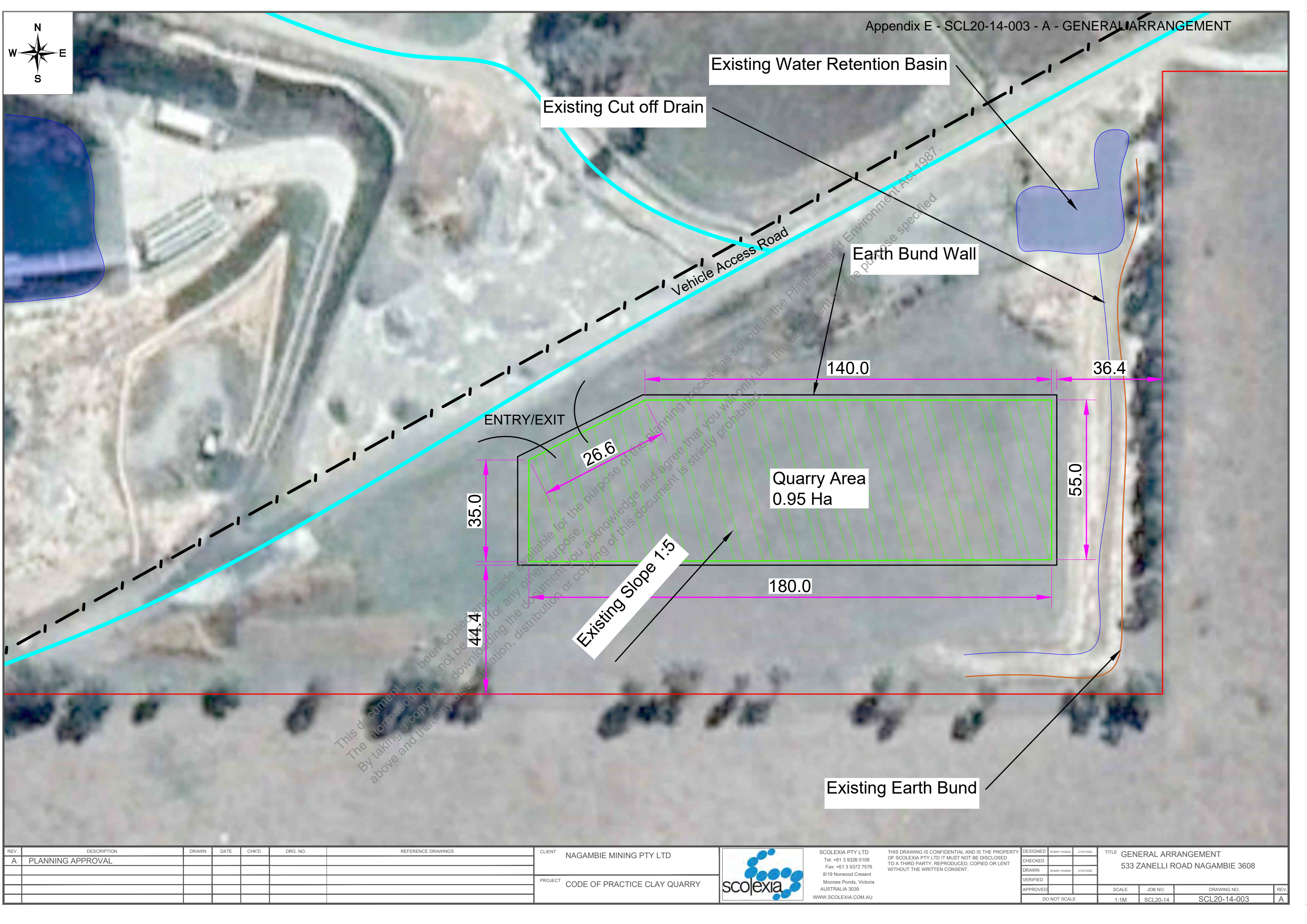
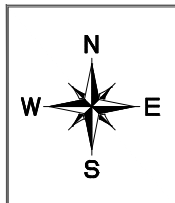


SCOLEXIA PTY LTD
 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
 8/19 Norwood Crescent
 Moonee Ponds, Victoria
 AUSTRALIA 3039
 WWW.SCOLEXIA.COM.AU

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DESIGNED	SONNY HOANG	27/07/2020
CHECKED		
DRAWN	SONNY HOANG	27/07/2020
VERIFIED		
APPROVED		

TITLE		GENERAL SITE LAYOUT	
		533 ZANELLI ROAD NAGAMBIE 3608	
SCALE	JOB NO.	DRAWING NO.	REV.
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REV.	DESCRIPTION	DRAWN	DATE	CHKD	DRG. NO.	REFERENCE DRAWINGS
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PROJECT	CODE OF PRACTICE CLAY QUARRY



SCOLEXIA PTY LTD
 Tel: +61 3 9326 0106
 Fax: +61 3 9372 7576
 8/19 Norwood Crescent
 Moonee Ponds, Victoria
 AUSTRALIA 3039
 WWW.SCOLEXIA.COM.AU

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DRAWN	SCANNY HORRO	27/07/2020
VERIFIED		
APPROVED		

TITLE	GENERAL ARRANGEMENT		
	533 ZANELLI ROAD NAGAMBIE 3608		
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2km

145.314 -36.796 Degrees