

STRATHMORE QUARRY

ENVIRONMENTAL IMPACT STATEMENT

Oats Block Pty Ltd



REVISION REGISTER

VER	DATE	REVISION REASON	MAIN CHANGES
1.0	26-9-2024	DA support document	N/A
1.1	30-12-2024	TRC additional information request (letter 10-12-2024)	- Access alternatives plan (<i>new Plan 16</i>). - TIA addendum (Letter 18-12-2024 by Kelley Covey Group) [Appendix C]. - Estimated Development Cost report (<i>new Appendix P</i>). - Biosecurity Risk Management Plan (<i>new Appendix Q</i>). - Minor alterations for additional information, including Sect. 3.5, 3.8 & 7.6.
1.2	22-2-2025	Amended in response to submissions made during public consultation.	- Biodiversity Assessment (new Appendix R), with reflective EIS alterations in Sect. 4.1.7.3, 4.3, 4.6, 7.6, 7.15 & 13. - Amendments listed in Submissions Report dated 22-2-2025 (Section 4.1).
1.3	12-8-2025	TRC additional information request (letter 22-5-2025)	- Access: TIA addendum (Letter 6-8-2025 Kelley Covey Group in [Appendix C] & Sect. 7.7.2.3, - Water supply (Sect. 7.2.2.5 & 7.2.3.6) - Signage (3.6.10, 4.1.7.5), - Greenhouse gas emissions (S.7.15 & new Appendix S), - Rezoning (3.7.1), - TfNSW quarry interaction (3.4.12), - Landscaping (7.9.3), - Operating hours (3.4.5), - Contamination (New Appendix T & Sect. 7.1.1.5) - Retail traffic (3.5.6).
1.4	3-2-2026	TRC e-mail query	New Sect. 2.4 Future land use
1.5	3-3-2025	Planning Panel request	Human Health Risk Assessment: Respirable Crystalline Silica (Appendix U)

CONTENTS

1	INTRODUCTION	6
1.1	Project overview.....	6
1.2	Project location	6
1.3	Project elements	7
1.4	Proponent details	8
1.5	Purpose and structure of this report	8
1.6	Scope and limitations	9
2	THE SITE	10
2.1	Site overview	10
2.2	Site history	11
2.3	Existing environment.....	11
2.4	Future land use	18
3	PROJECT DESCRIPTION	19
3.1	Overview.....	19
3.2	Resources and demand	19
3.3	Project establishment.....	25
3.4	Operation	26
3.5	Access and traffic.....	36
3.6	Site facilities	41
3.7	Decommissioning and rehabilitation	47
3.8	Estimated development cost	53
3.9	Alternatives to the project.....	53
4	LEGISLATIVE & STRATEGIC CONTEXT	58
4.1	NSW Environmental Planning and Assessment Act 1979	58
4.2	Regional strategic context.....	65
4.3	Biodiversity Conservation Act 2016.....	66
4.4	Water Management Act 2000.....	66
4.5	Other State legislation.....	69
4.6	Environment Protection & Biodiversity Cons. Act 1999	70
4.7	Summary of approvals required	70
5	STAKEHOLDER ENGAGEMENT.....	71
5.1	Introduction	71
5.2	Consultation with government agencies.....	71
5.3	Community consultation.....	75
5.4	Tamworth Regional Council	77
6	RISK ASSESSMENT.....	79

6.1	Introduction	79
6.2	Preliminary risk analysis results	79
7	IMPACT ASSESSMENT	81
7.1	Land resources	81
7.2	Surface water resources	86
7.3	Groundwater resources.....	95
7.4	Noise & Vibration	96
7.5	Air quality	97
7.6	Biodiversity	98
7.7	Traffic and transport.....	100
7.8	Heritage	102
7.9	Visual amenity	104
7.10	Utility infrastructure	106
7.11	Waste management.....	109
7.12	Hazards and risks	111
7.13	Socio-economic	115
7.14	Cumulative impacts.....	116
7.15	Greenhouse gas emissions.....	117
7.16	Mitigation measure summary	118
8	PROJECT JUSTIFICATION	122
8.1	Need	122
8.2	Benefits.....	122
8.3	Suitability of the site	122
8.4	Public interest	123
8.5	Objects of the EP&A Act 1979	123
8.6	Ecologically sustainable development.....	125
8.7	Environmental considerations	126
8.8	Consequences of not proceeding.....	126
9	CONCLUSION	127
10	REFERENCES	128
10.1	Documents.....	128
10.2	Databases.....	129
10.3	Mapping.....	129
11	TERMS & ACRONYMS.....	130
12	PLANS	131
13	APPENDICES	132

SUBMISSION OF ENVIRONMENTAL IMPACT STATEMENT

Prepared under Part 4 of the Environmental Planning and Assessment Act 1979

PREPARED BY

Name and Position: Matthew Goodwin, Principal Consultant, Quarry Plan NSW
Qualifications: Bachelor of Land Management, University of Sydney.
Graduate Diploma of Urban & Regional Planning, University of New England.
Address: PO Box 58, Walcha NSW 2354

APPLICANT

Company: Oats Block Pty Ltd
Address: 222 Burgmanns Lane WARRAL 2340

DEVELOPMENT

Title: Strathmore Quarry
Description: Extractive Industry, Quarry
Development Lots: Lot 1, deposited plan 755321 and lot 102 deposited plan 1288693
Spains Lane & Gowrie Road, Warral 2340

DECLARATION

I have prepared the contents of this document and to the best of my knowledge:

- It addresses the Secretary's Environmental Assessment Requirements (EAR 1786) issued by the Department of Planning and Environment on 3 July 2023;
- It has been prepared in accordance with the requirements of Part 4 of the Environmental Planning and Assessment Act 1979;
- It contains all available information that is relevant to the environmental assessment of the Development; and
- It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.



Matthew Goodwin

2 September 2024

1 INTRODUCTION

1.1 Project overview

Oats Block Pty Ltd (the “Applicant”) proposes to establish and operate a hard rock quarry (Strathmore Quarry) to extract up to 240,000 tonnes per annum and ship up to 1,600 tonnes per day for up to 30 years, with a maximum disturbance area of approximately 12 hectares (the project). Strathmore Quarry will supply mudstone rock derived quarry products primarily suitable for fill, as well as road construction and maintenance.

The property is owned by Oats Block Pty Ltd and is about 325 hectares in area, located about 8.8km in a south-westerly direction from the Tamworth central business district.

Quarry Plan NSW has been engaged by Oats Block Pty Ltd to prepare an Environmental Impact Statement (EIS) and facilitate associated specialist studies to support a Development Application under part 4 of the New South Wales Environmental Planning and Assessment Act 1979 (EP & A Act).

This EIS has been prepared in accordance with the provisions of the EP & A Act and addresses the Department of Planning and Environment Secretary’s Environmental Assessment Requirements (SEARS) (EAR 1786) issued for the project on 3 July 2023 (Appendix A).

1.2 Project location

Project is located in lot 1, deposited plan 755321 and lot 102 deposited plan 1288693.

The closest existing access driveway is via 51 Gowrie Road, Warral 2340. Lot 102 adjoins Spains Lane, but there is no viable vehicle access.

The development site is located within the “Strathmore” holding about 8.8km in a south-westerly direction from the Tamworth central business district, as shown Figure 1.1.

The site has not been previously quarried.

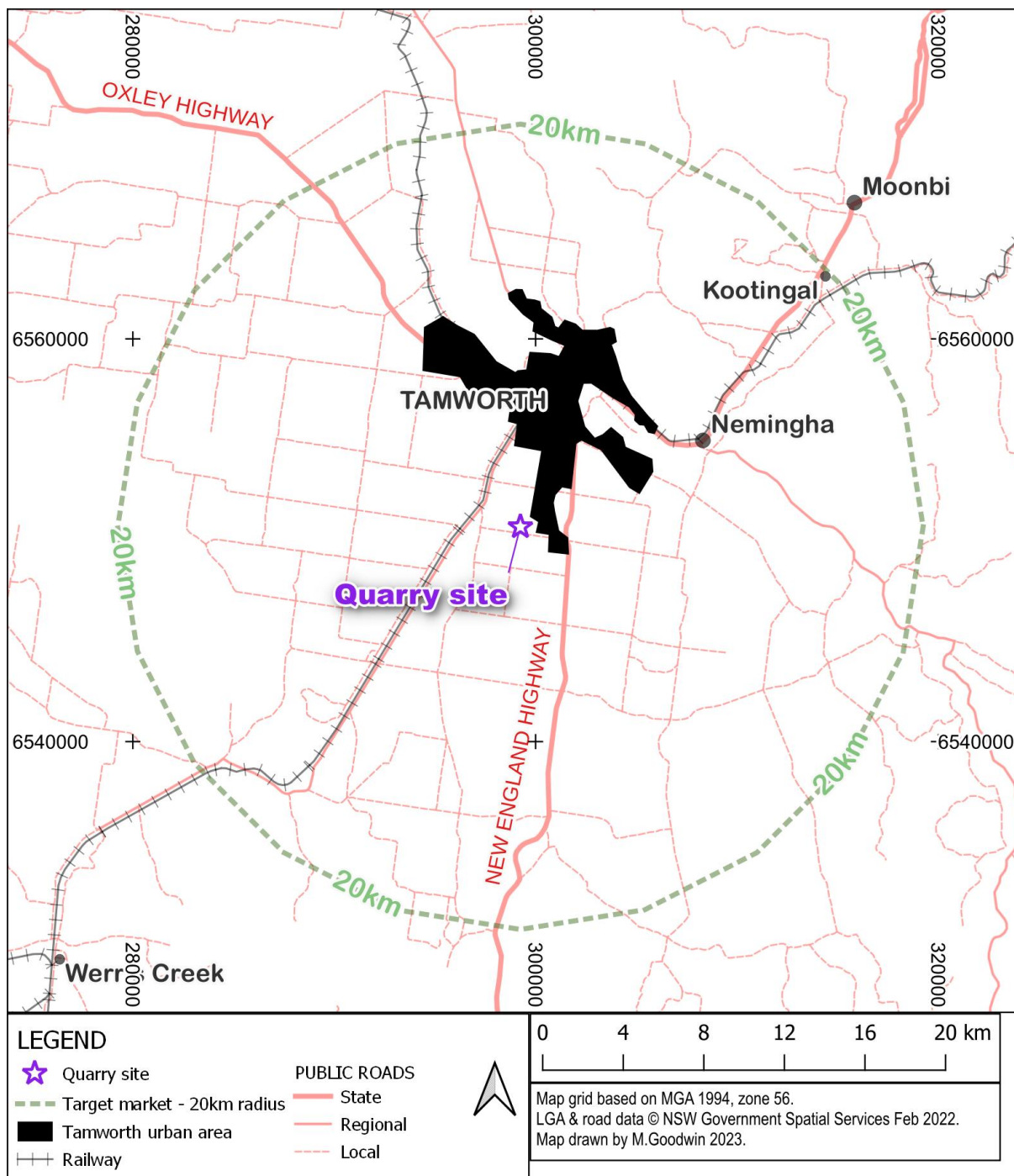


Figure 1.1 – Project location.

1.3 Project elements

The project involves the establishment of a hard rock quarry and associated facilities on the site. The proposed project includes:

- Progressive installation of environmental controls including:
 - Erosion and sediment control measures.
 - Berms to mitigate noise and aesthetic impacts.
- Delineation of the site and stockpiling areas

- Construction of fencing
- Construction of a site office, weighbridge and car parking area
- Crush and screen material at the site to use to construct the access road and intersection.
- Construction of an access road and intersection with Gowrie Road.
- Business identification sign.
- Vegetation clearance, soil stripping and stockpiling for use in landscape mounds
- Quarry operations, including crushing, screening and importing materials for blending.
- Closure and rehabilitation of quarry site.

Detailed plans of the project are provided separately as A3 pdf files and as figures within this EIS.

1.4 Proponent details

Proponent details are provided below.

INFORMATION	DETAILS
Name	Oats Block Pty Ltd ACN 650 516 420
Postal address	222 Burgmanns Lane WARRAL 2340
Site owner	Oats Block Pty Ltd
Nominated contact	Scott Waters
Contact details	Email: scott.waters@mcphee.com.au Phone: 0428 860 435

1.5 Purpose and structure of this report

Quarry Plan NSW was engaged by Oats Block Pty Ltd to prepare an EIS and facilitate associated additional specialist assessments to support a development application for the project under Part 4 of the EP&A Act. The EIS and assessments have been prepared in accordance with the requirements of Section 4.15 of the EP&A Act and the SEARs. The EIS provides:

- Details on the project, including need and alternatives considered.
- Assessment of potential key environmental impacts of the project identified by the SEARs.
- Oats Block Pty Ltd's commitments to measures to minimise and manage potential environmental impacts.

The EIS is structured as follows:

- Section 1 – Introduction.
- Section 2 – Description of the site and surrounds.
- Section 3 – Description of the project.
- Section 4 – Consideration of the legislative and policy requirements relating to the project.
- Section 5 – Overview of the consultation completed to date and ongoing consultation to be completed for the project.
- Section 6 – Identification and prioritisation of key issues and risks assessment.
- Section 7 – Assessment of the issues potentially impacted by the project.
- Section 8 – Justification for the project, including how it addresses the objects of the EP&A Act and the principles of ecologically sustainable development.
- Section 9 – Conclusion.
- Section 10 – References for the report.
- Section 11 – Terms and acronyms used in the EIS.
- Section 12 – Plans.
- Section 13 – Appendices – Additional information and specialist reports.

1.6 Scope and limitations

This report has been prepared by Matthew Goodwin trading as Quarry Plan NSW for Oats Block Pty Ltd and may only be used and relied on by Oats Block Pty Ltd.

Quarry Plan NSW otherwise disclaims responsibility to any person other than Oats Block Pty Ltd arising in connection with this report. Quarry Plan NSW also excludes implied warranties and conditions, to the extent legally permissible.

The services provided by Quarry Plan NSW in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. Quarry Plan NSW has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the report preparation date.

The opinions, conclusions and any recommendations in this report are based on assumptions made by Quarry Plan NSW described in this report. Quarry Plan NSW disclaims liability arising from any of the assumptions being incorrect.

Quarry Plan NSW has prepared this report on the basis of information provided by Oats Block Pty Ltd and others (including NSW Government authorities), which Quarry Plan NSW has not independently verified or checked beyond the agreed scope of work. Quarry Plan NSW does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

2 THE SITE

2.1 Site overview

The development lots have a combined area of about 553 hectares and are located on slightly undulating pasture and cropping land south of Tamworth (Figure 2.1).

The land has been cleared in conjunction with historical agricultural land use, with some scattered paddock trees remaining. Ongoing cultivation of crops has effectively removed most native ground cover plants (Plate 2.1).

The project site is zoned “RU4 Primary Production Small Lots” under Tamworth Regional Local Environmental Plan 2010. Two existing quarries adjoin the proposed quarry site.

The closest unrelated dwelling is located more than 550 m north east of the site.

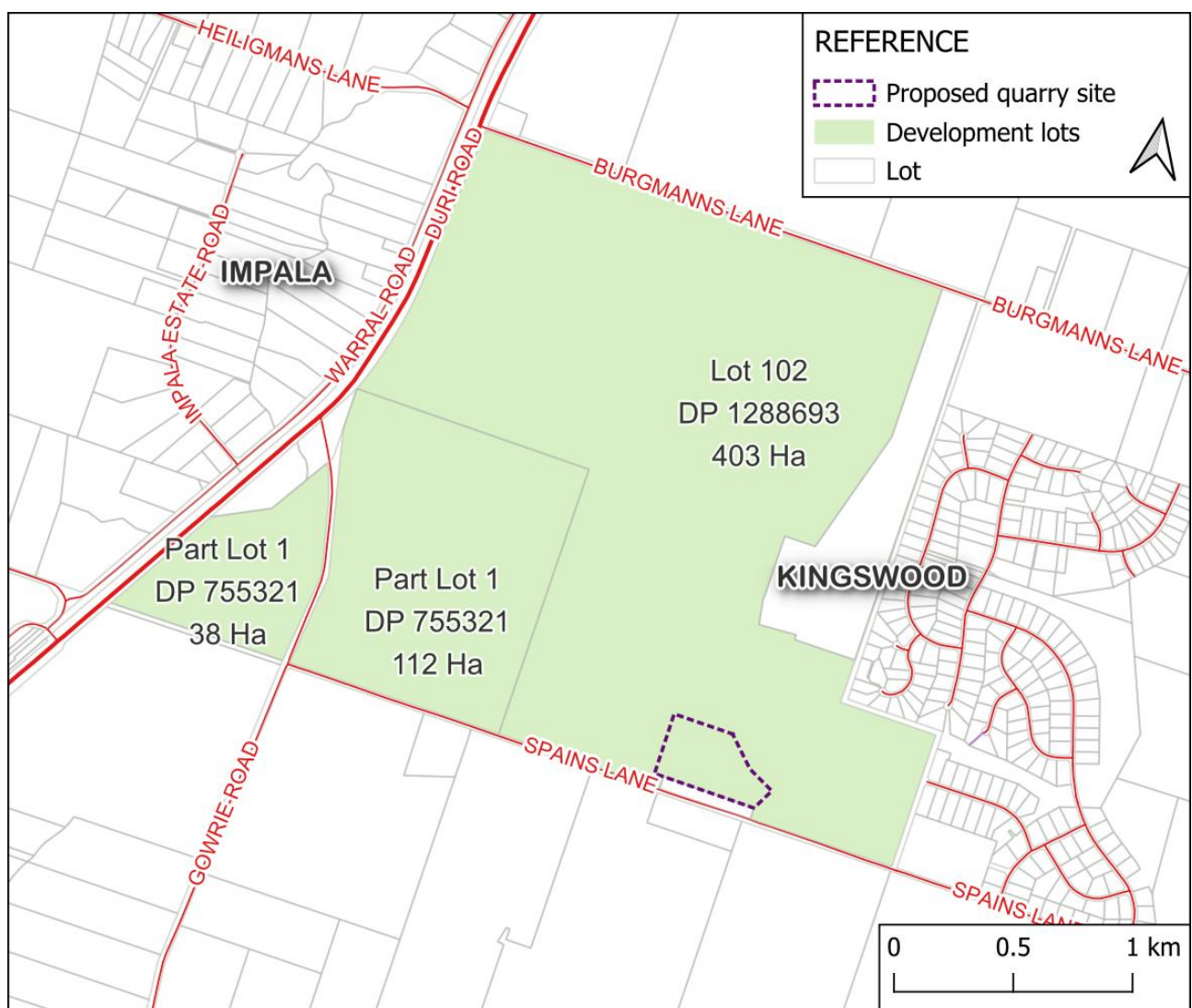


Figure 2.1 – Development lots.



Plate 2.1 – Oblique aerial drone view of proposed quarry site (fore & mid ground), looking south east, June 2024.

2.2 Site history

Historical aerial photography from 1976 ¹, shows ground features indicative of ongoing dryland cropping and grazing land use of the project site. This includes stock fencing, dams, contour banks, crops and tillage lines. Currently the dominant land use is cattle grazing on native pasture and cultivated crops, such as oats (Plate 2.1).

2.3 Existing environment

2.3.1 Regional context

The site is located in the Tamworth Regional Council local government area (LGA) which has an area of 9,884 square kilometres and population of about 62,000 people. Tamworth is the largest town within the LGA and the administrative centre.

Dominant employment sectors within the LGA are health care, retail, manufacturing, education, construction and agriculture.

¹ NSW Government Spatial Services historical imagery

2.3.2 Topography and catchments

The site is located on the crest of a ridge with a maximum elevation of 461 m Australian Height Datum (AHD) primarily sloping toward the north west reaching a minimum elevation of about 446 m AHD. The ridge is part of an area of undulating ridges trending in a general north south orientation.

No watercourses are located on the site, with the nearest mapped perennial watercourse being the Timbumburi Creek about 1,800m west of the quarry site.

2.3.3 Geology

The regional geology consists of “Tamworth Belt” rocks dominated by shallow marine sediments that have reasonably coherent stratigraphy, stratigraphic succession and lack intense deformation compared to other areas further east². Within the vicinity of the project site the rocks are dominated by Devonian period sediments that have been folded.

2.3.4 Soils

Soil landscape mapping via the Espade2 system³ shows that the project site is located within the Fullwoods Hill landscape (code 9035fh) with ridge crests generally;

“dominated by moderately deep, moderately well-drained Haplic Red Chromosols (Non-calcic Brown Soils). Sideslopes are dominated by shallow, moderately well-drained Vertic Red Chromosols (Red-brown Earths)”

Observations on the crest of the ridge and upper slopes in the project site vicinity show the local soil profile consists of about 0.3 to 0.5m of clay and weathered mudstone, as shown in Plate 2.2. This skeletal soil consists of at least 50% weathered claystone and mudstone fragments. Lower slope soil profiles tend to be more than 1m deep, dominated by clay, with sedimentary rock fragments absent from upper horizons.

² Gilligan, L.B. & Brownlow, J.W. 1987. Tamworth - Hastings 1:250 000 Metallogenic Map SH5613, SH5614. Mineral deposit data sheets and metallogenic study. Geological Survey of NSW.

³ <https://www.environment.nsw.gov.au/eSpade2Webapp/>



Plate 2.2 – Skeletal soil on ridge within proposed quarry site (0.5m square quadrat), Jan 2023.

2.3.5 Climate

Tamworth is located within a temperate climate zone that has a warm summer and cold winters ⁴, with mean daily maximums peaking at about 33° in January and minimums of 2° in July, as shown in Figure 2.2.

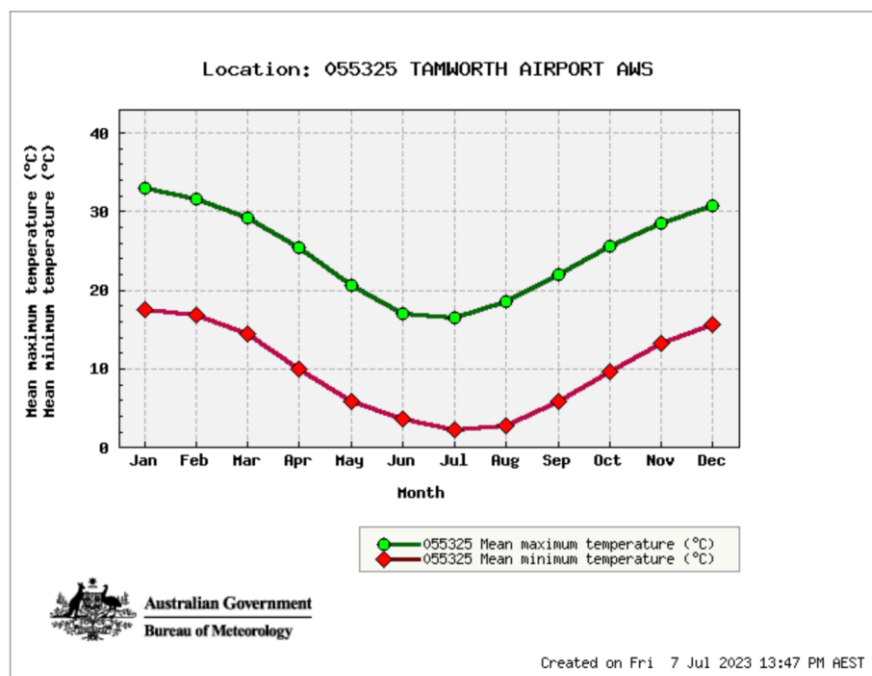


Fig 2.2 – Mean minimum & maximum temperatures 1993 to 2022.

⁴ [BOM Climate Classification Maps](#)

In the period from 1992 to 2023 the Tamworth airport automatic weather station recorded average annual rainfall as 647.8mm⁵. Average monthly rainfall peaks in the period from November to February, with maximum daily rainfall generally exceeding monthly average rainfall during this period (Figure 2.3). This indicates that storm events are not uncommon during summer months, with significant rainfall over relatively short periods.

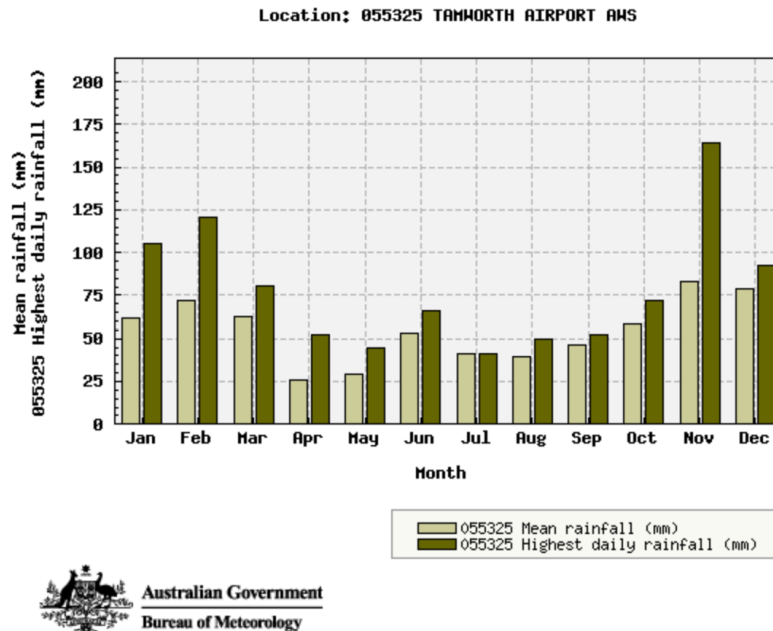


Fig 2.3 – Mean monthly rainfall & highest daily rainfall 1993 to 2022.

2.3.6 Surrounding land uses

Dominant land uses in the vicinity of the project site are primary production related, including quarries, grazing, cropping and associated rural dwellings. Urban dwellings are also located in the general vicinity. Further details are provided below.

2.3.6.1 Quarries

The proposed Strathmore Quarry adjoins an existing quarry operated sporadically by Traffic for NSW (TfNSW) within Lot 1, DP 208222. Historical aerial photography dated 1/5/1976⁶ shows the quarry has been active for at least 47 years and it reaches an estimated maximum depth of about 16m below natural ground level. As of January 2023, it is estimated that about 120,000 bank cubic metres or 280,000 tonnes of gravel has been extracted from the site.

Tamworth Regional Council records show Development consent 1995/48 was issued on 23-5-1996 by Parry Shire Council for a gravel quarry on lot 1, which involved an existing quarry.

⁵ BOM Summary climate statistics for [Tamworth Airport AWS](#)

⁶ Via www.spatial.nsw.gov.au/products_and_services/aerial_and_historical_imagery

The proponent has a current lease over the Traffic for NSW quarry and intends to extract mudstone from the vicinity of the boundary between the existing and proposed quarries to:

- Avoid leaving a comparatively narrow “buffer” of remnant mudstone between the two quarries.
- Reduce the resulting depth of the proposed quarry along the southern boundary with the TfNSW quarry, reducing potential for any ground stability issues in that area.
- Facilitate orderly extraction of the resource.

A second quarry operated by Tamworth Regional Council (TRC) is located immediately south of Spains Lane, within lot 422, DP 1035806. Approximately 200,000 bank cubic metres or 460,000 tonnes of mudstone had been extracted from this quarry (January 2023 estimate). Historical aerial photography dated 1/5/1976 ⁷ suggests that the quarry has also been active for at least 48 years.

TRC records suggest Development consent 1995/135 was issued for a gravel quarry on former lot 3, comprising an area of less than 2 hectares, which involved an existing quarry. Since then, the quarry has expanded substantially over the majority of lot 422, presumably under the provisions of 2.109 of State Environmental Planning Policy (Transport and Infrastructure) 2021 or similar preceding provisions.

The TRC and TfNSW quarries are shown in Figure 2.4 and Plate 2.3.



Plate 2.3 – Oblique aerial drone image of TfNSW quarry (left) & TRC quarry (right) separated by Spains Lane (centre), June 2024.

⁷ via www.spatial.nsw.gov.au/products_and_services/aerial_and_historical_imagery

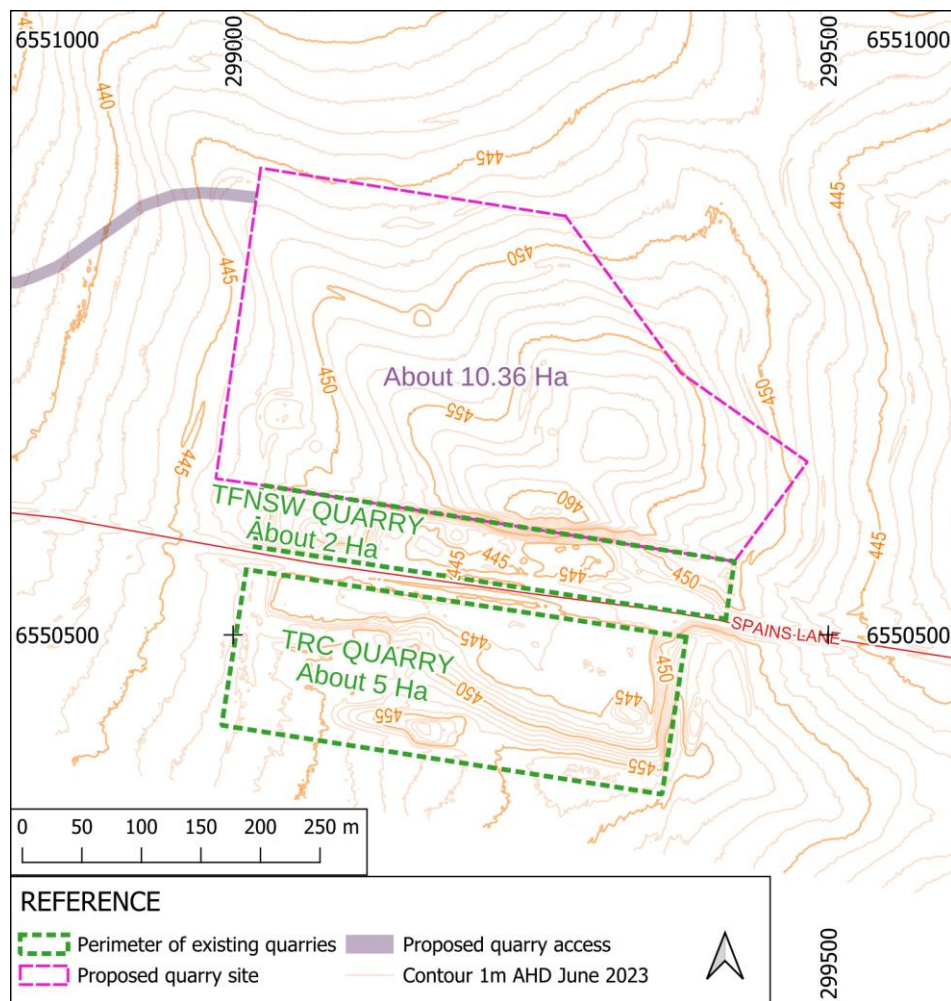


Figure 2.4 – TFNSW & TRC quarry locations relative to proposed quarry.

2.3.6.2 Agriculture

In addition to two quarries, other primary production land uses identified on land within a 500 metre radius of the project include dryland cropping and livestock grazing.

2.3.6.3 Rural dwellings

Rural dwellings identified on land within a 1,000 metre radius of the quarry site and access track include 3 related and three unrelated dwellings as shown in Figure 6.

2.3.6.4 Urban dwellings

There are two R5 Large Lot Residential zones to the east (Kingswood) and north west (Impala) of the development lots. Within 1,000 metres of the quarry site and access track there are about:

- 67 dwellings in the Kingswood area (Figure 2.5 & Plate 2.4).
- 28 dwellings in the Impala Estate area (Figure 2.5)

About 30 dwellings are apparent in aerial photography from July 1984 showing the R5 zone, but none in prior imagery dated May 1976.

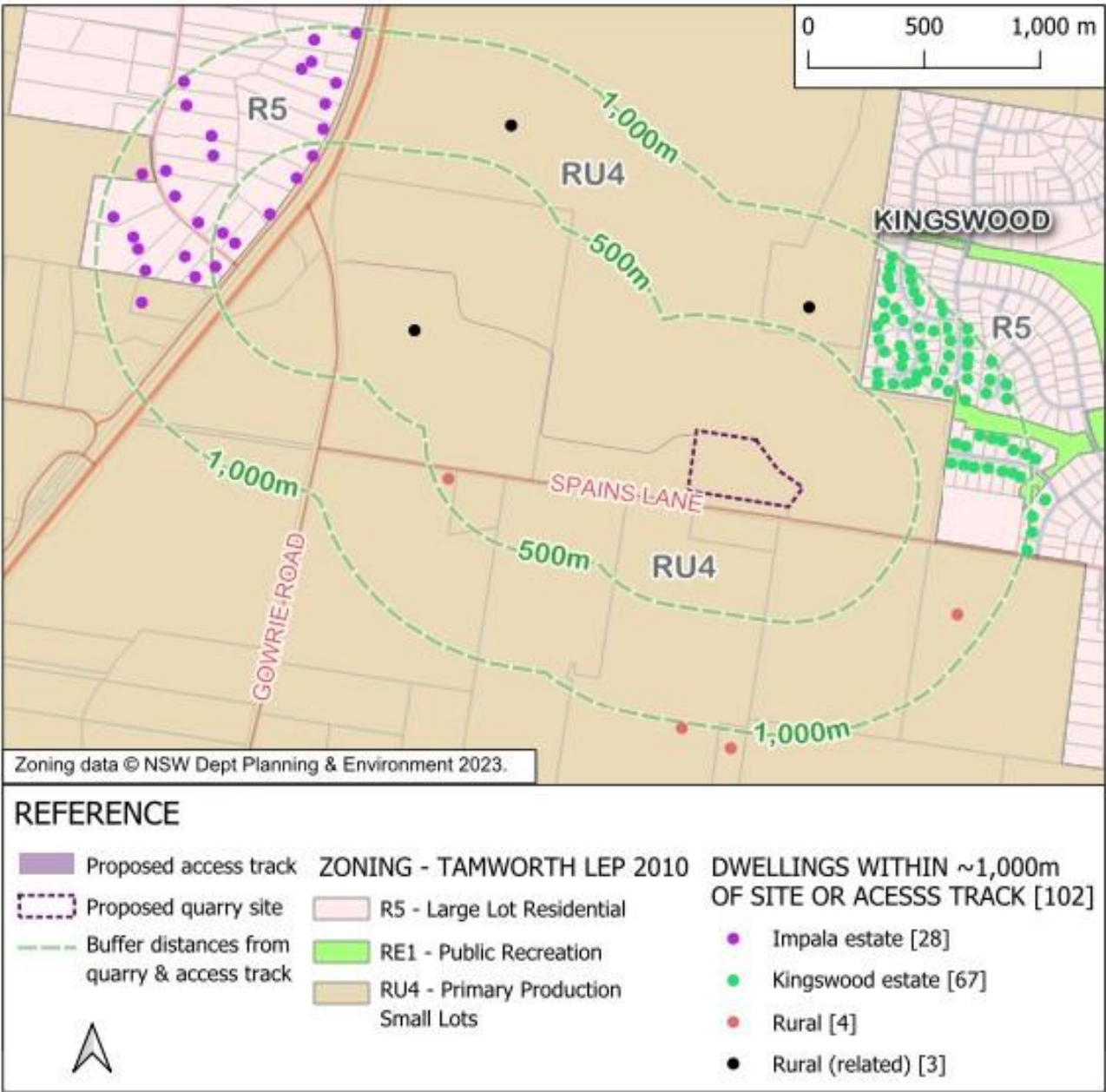


Figure 2.5 – Zoning & dwellings within 1,000m of project site.



Plate 2.4 – Oblique aerial drone image of Kingswood water reservoir (top left) & dwellings in Lawrence Avenue, view from South, June 2024.

2.4 Future land use

It is expected that in the medium to long term the project lots will be rezoned for residential land use as part of a trend of ongoing urban growth to the south of Tamworth.

Recent preparation for future residential land use includes Development Application 2026-0215 for a boundary adjustment of the project lots that was approved by Tamworth Regional Council on 27-1-2026. The applicant will not seek formal registration of the new lots until after the Development Application for the quarry project has been determined by the Northern Regional Planning Panel. The applicant is also committed to ceasing all quarry extraction within 12 months of any proponent owned land within 500 metres of the quarry site being rezoned for residential land use and a subdivision plan being registered with NSW Land Registry Services that enables such use.

3 PROJECT DESCRIPTION

3.1 Overview

The project comprises a hard rock quarry with maximum:

- Annual extraction rate of 240,000 tonnes,
- Daily shipping rate of 1,600 tonnes.
- Daily processing rate of 2,500 tonnes.
- Disturbance area of approximately 13.5 hectares which includes an extraction area of approximately 9.35 hectares.
- Heavy vehicle loads of 50 per day (100 vehicle movements), with average of 26 per day (52 vehicle movements).
- Maximum depth below existing ground level of 31 metres and minimum 16 metres.
- Mudstone resource of about 4.6 million tonnes.

The primary purpose of the project is to supply quarry products for use as fill, as well as for road construction and maintenance. Plans showing the local context, existing site features and proposed project elements are provided separately as A3 pdf files.

Proposed project activities include:

- Construction and maintenance of environmental controls including erosion and sediment control measures such as bunds and stormwater retention structures.
- Construction of a soil stockpile and landscape mound to the north and east of the quarry.
- Fence construction and maintenance to manage livestock, vehicle and pedestrian access.
- Construction of an access road and intersection with Gowrie Road, including installation of signage.
- Construction of a site office, weighbridge and car parking area.
- Soil stripping and stockpiling
- Quarry operations, including excavating rock, crushing and screening.
- Service and maintenance of quarry related equipment.
- Closure and rehabilitation of the quarry.

3.2 Resources and demand

3.2.1 Geology

The proposed quarry is located in a rock formation known as the Noumea Beds near the crest of an anticline, as shown in Figure 3.1. The rocks were deposited during the Late Devonian period and have been mapped as “*interbedded massive- and andesitic-lithic wacke, pebbly wacke, laminated siltstone and mudstone*”⁸,

⁸ NSW Surface Geology – Seamless version 2.1, 2023 © 2023 State of NSW through Regional NSW.

with laminated siltstone and mudstone prevalent in the vicinity of the existing and proposed quarry sites (Plate 3.1). Single layers tend to be less than 5cm thick and contain abundant joints (fractures).

The face of the Traffic for NSW Quarry along the southern boundary of the proposed Strathmore Quarry exposes a skeletal soil/regolith layer about 0.3m deep underlain by fractured and weathered “mudstone” at least 16m deep. Field observations and water bore logs suggest that the soil profile generally becomes deeper with increasing distance from ridge lines. Generally, contaminants such as soil or clay are expected to comprise a minor proportion of the resource.



Plate 3.1 – Laminated siltstone & mudstone, northern face of TfNSW Quarry June 2023.

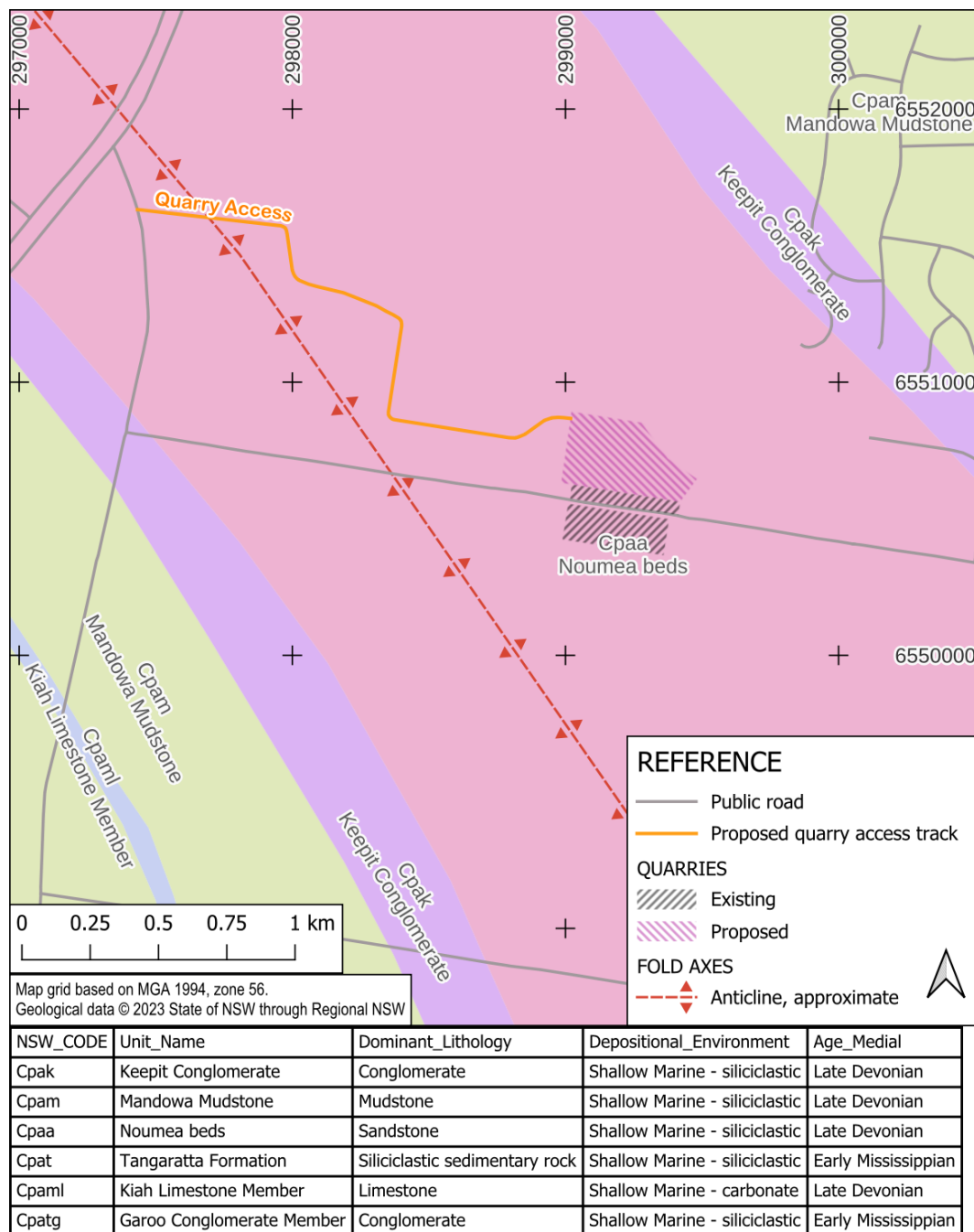


Figure 3.1 – Geological map.

3.2.2 Drilling

Drilling undertaken in June 2024 for the Groundwater Impact Assessment confirmed the general extent and depth of the inferred shale/mudstone resource (Figure 3.2 & 3.3) to 420m AHD. No other geological formations were encountered, nor intensive alteration or weathering zones, that could significantly reduce the viability of the inferred resource. Variability in the depth and intensity of weathering was observed, with a general tendency for the mudstone to be less weathered at increasing depths below ground level. Geological logs are provided with the Groundwater Impact Assessment (Appendix G) and a generalised log as Figure 3.3.

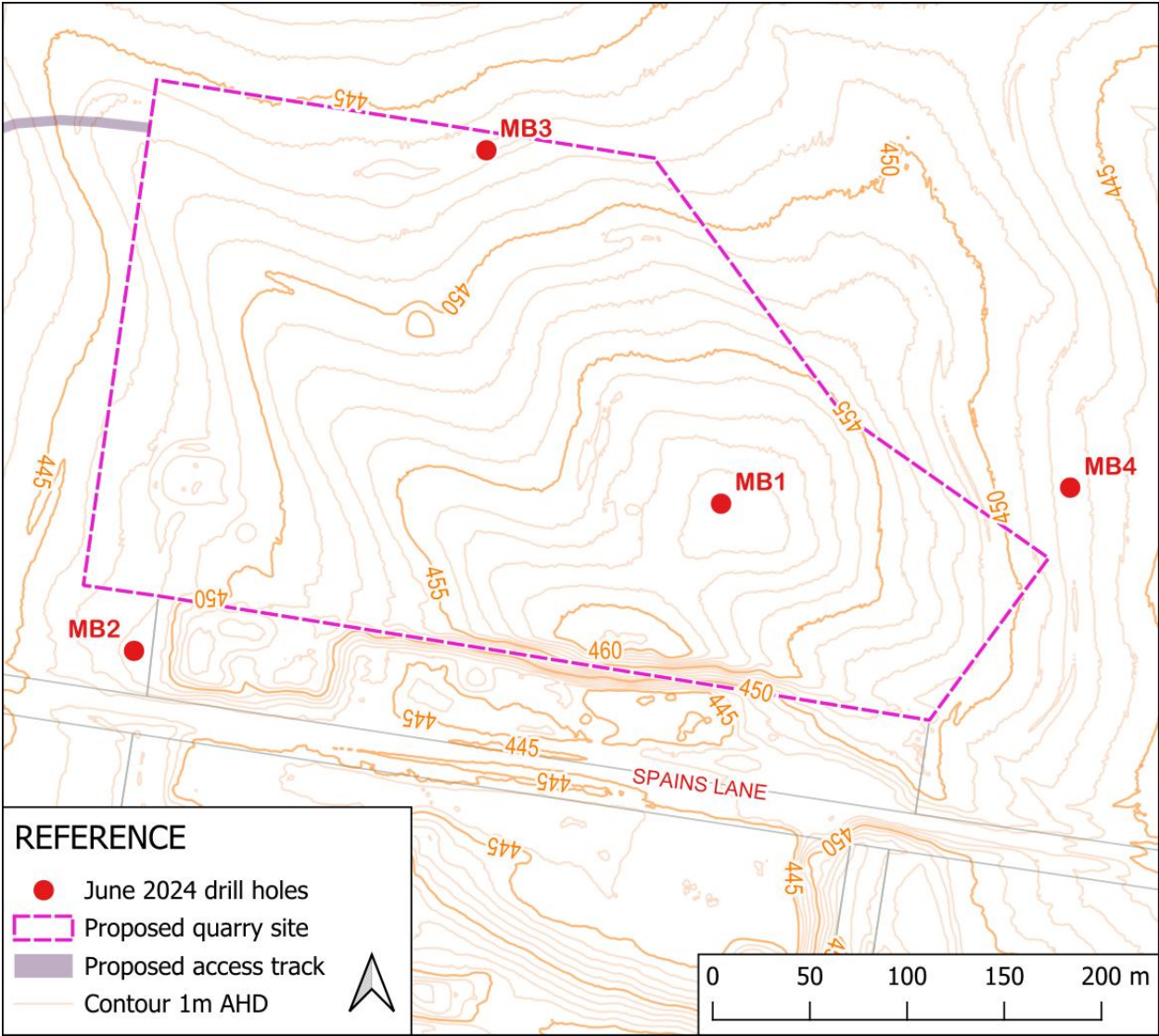


Figure 3.2 – June 2024 drill hole locations.

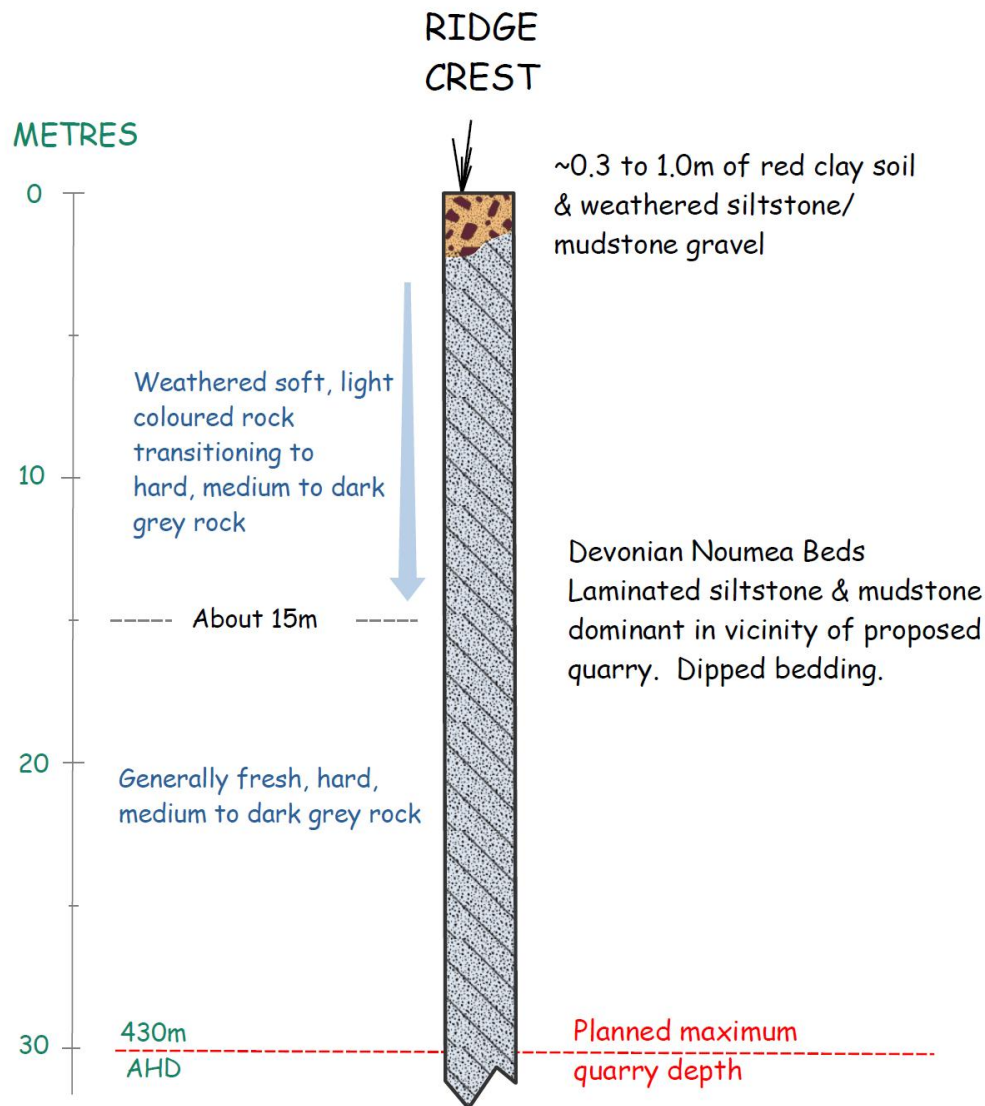


Figure 3.3 – Generalised geological profile.

3.2.3 Resource model

The proposed Strathmore Quarry void has resource of about 4,600,000 tonnes of mudstone based on the following concepts:

- A final void surface area of about 9.35 hectares over an undulating site.
- Maximum excavated depth of 31m below natural ground level.
- Average in ground density of the mudstone resource is about 2.3 tonnes per cubic metre.
- Completed quarry void volume of about 2,000,000 bank cubic metres,
- Assumed average soil depth of 0.2m with a volume of about 18,000 bank cubic metres, that will be pre-stripped and stockpiled for rehabilitation.
- Expected yield of about 1,982,000 bank cubic metres of mudstone suitable for commercial use, which equates to 4,558,600 tonnes at the modelled rock density.

3.2.4 Existing regional quarries

The range of quarry products commercially available in Tamworth are derived from a range of quarries operating in various rock types and geological formations. Operating sites identified by the proponent are detailed in Table 3.1 below.

Table 3.1 – Quarries servicing Tamworth.

NAME	LOCATION	DIST.	PRIMARY PRODUCTS	SALES
Country Road Quarry, Council	Westdale	8 km	Gravel, mudstone	No
Spains Lane - Council	Warral	9 km	Gravel, mudstone	No
Spains Lane – Traffic for NSW	Warral	9 km	Gravel, mudstone	No
Mills Quarry, Soldiers Settlement Road – Council	Bective	19 km	Gravel, mudstone	No
Attunga Limestone Mine	Attunga	21 km	Aggregates & gravels, limestone.	Yes
Boral	Currabubula	25 km	Aggregates & gravels, andesite	Yes
BMR Quarry	Winton	29 km	Aggregates & gravels, andesite	Yes
Namoi Valley Quarries	Carroll	54 km	Aggregates & gravels, rhyolite	Yes
Willow Tree Gravels Quarry	Willow Tree	76 km	Aggregates & gravels, basalt & conglomerate	Yes
Brooklyn Quarry	Walcha Road	77 km	Aggregates & gravels, basalt	Yes
Highland Quarries	Guyra	152 km	Aggregates & gravels, basalt	Yes
Sheridan's Hard Rock Quarry	Hernani	208 km	Aggregates & gravels, basalt	Yes

3.2.5 Demand

Presently there are no commercial sources of gravel within 20km of the Tamworth urban area known to the proponent. Anecdotal evidence indicates significant volumes of quarry products are being supplied by most of the quarries listed in Table 1 and they are generally operating close to their approved annual production rates.

Freight charges are a major component of the overall cost for fill and road base materials. The project will have an inherent competitive advantage arising from reduced freight costs compared to most of the existing suppliers. The applicant expects significant demand for quarry products from the proposed development given that it will be the closest commercial quarry for most of the Tamworth urban area.

3.3 Project establishment

3.3.1 Staging

Two main project phases are planned, within the establishment phase involving the construction of the access track, entrance driveway and initial excavation, followed by the operational phase.

3.3.2 Construction

Project construction and establishment is expected to take up to 3 months and involve the following elements:

- Stripping the upper soil profile to construct a bund wall at least three metres above natural ground level along the northern and eastern edges of the proposed quarry.
- Berm 1m high around remainder of site to prevent potential stormwater entry or dispersion.
- Fencing the site or bund wall to exclude grazing livestock and facilitate ground cover growth on the bund wall
- Establishment of a starter quarry and initial processing of rock to produce gravel for construction earthworks.
- Construction of the access track, culverts and site entrance off Gowrie Road.
- Establishment of site office, fuel storage, and water management system.

3.3.3 Extraction rate

The maximum proposed extraction rate is up to 240,000 tonnes of material per annum. Actual extraction rates are expected to vary in response to demand, but will not exceed 240,000 tonnes in any 12-month period.

It is expected that the quarry will require a commissioning phase for up to 2 years which includes site establishment, staff recruitment, work flow optimisation and market development.

The total available resource is estimated to be about 4,600,000 tonnes with regard for practical design considerations and future land use expectations.

The maximum daily processing rate is 2,500 tonnes while the shipping rate is 1,600 tonnes. Reaching either maximum daily rate is expected to be a rare occurrence.

The volume of material extracted from the quarry would be recorded using a loader with inbuilt scales. Once the quarry sells about 100,000 tonnes of material per annum, then it is planned to install a public weighbridge.

3.4 Operation

3.4.1 Quarry void stability

No formal geotechnical investigation of the site has been undertaken. The existing TfNSW Quarry immediately to the south of the proposed quarry has a near vertical quarry face that is up to about 16 metres below natural ground level. Field inspections during 2023 and 2024 showed the face:

- Appeared to be more than several years old.
- Appeared to be a relatively consistent laminated siltstone and mudstone.
- Showed no substantial dykes, major faulting, shear zones, breccia structures, unconformity or substantial geological variation.
- No evidence of any significant recent or historic cracking, slumping, rock falls or other deformation suggestive of instability.

Quarry walls for the project will be benched every 10m vertically (or near vertical) with a 5m wide horizontal bench. Bench heights and widths would only be changed after consideration of all relevant factors, including geotechnical issues (rock stability), safety and productivity.

The proposed quarry void will be excavated more than 40 metres away from the land comprising the Spains Lane road corridor. Given the substantial distance involved, it appears quite unlikely that there will be any significant geotechnical impact on the Spains Lane road corridor.

3.4.2 Quarry activities

3.4.2.1 Drilling and blasting

No drilling, blasting or explosive use is proposed. The adjoining Council and Traffic for NSW Quarries are understood to have operated without the use of explosives for several decades. Although the rock strength appears quite high, all exposed strata comprise thin layers extensively fractured by natural jointing, hence are expected to be amenable to ripping and excavation with suitable equipment.

3.4.2.2 Crushing and screening

It is planned to engage contractors to crush and screen the excavated rock using a mobile impact crusher located close to the extraction area.

A simplified operating schematic is provided in Figure 3.4, which involves an excavator feeding raw rock into a mobile (tracked) processing plant that crushes and screens the rock to produce two sizes of material that exit the machine via two conveyor belts. The conveyor belts create temporary conical mounds that are periodically moved with a front-end loader to designated, longer term, stockpiles on an ongoing basis during processing operations.

Adjustments will be made to the impact crusher and screens periodically to produce various sizes and types of quarry products in response to customer demand.

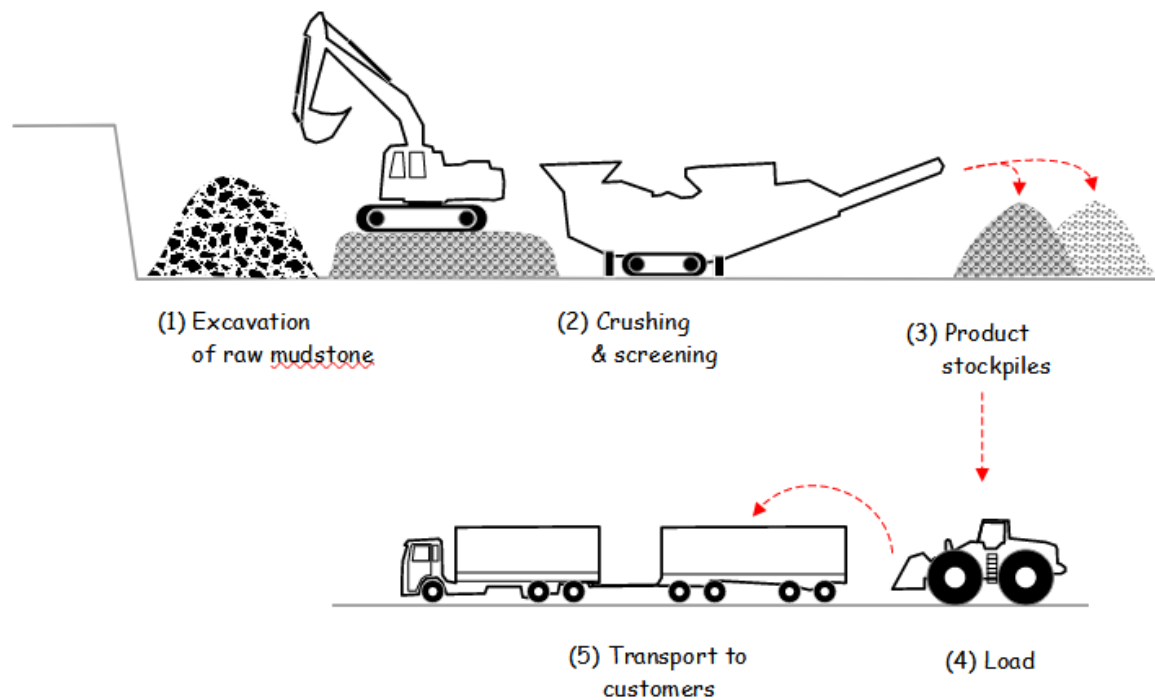


Figure 3.4 – Simplified operating schematic.

The proposed peak production level of 240,000 tonnes per year involves the crushing and screening of an average 800 tonnes per day of quarry products (based on 300 working days), if all excavated material is processed. However, quarries of this scale tend to undertake crushing and screening programs in phases of varying intensity, in this case with an expected maximum daily processing throughput of 2,500 tonnes.

3.4.2.3 Stockpiling

Quarry products will be stockpiled within designated areas within the quarry void. Material will be stored in various grades for sale or distribution and most stockpiles will be segregated for quality control purposes.

3.4.3 Imported material

No rock will be imported from offsite for commercial processing or stockpiling. Some soil that is virgin excavated natural material may be imported as a supplementary resource for rehabilitation earth works, if required to improve rehabilitation outcomes.

3.4.4 Project life

Project life will be dependent upon demand for quarry product, the quantity of expected resource (4,600,000 tonnes) and other factors. The most likely scenarios regarding project life include:

- Average demand – If production is maintained at the predicated average annual rate of 100,000 tonnes, then the project life will be about 46 years.
- Peak demand – If production is maintained around the predicated maximum annual rate of 240,000 tonnes, then the project life will be about 20 years.
- Rezoning – Consultation with Tamworth Regional Council’s planning staff on 2 March 2023 suggested that proponent owned land in the vicinity of the quarry could be rezoned for residential land use in the short to medium term. The applicant has similar expectations, hence proposes that all quarry extraction would cease within 12 months of any proponent owned land within 500 metres of the quarry site being rezoned for residential land use and a subdivision plan being registered with NSW Land Registry Services that enables such use.

In summary, it is expected that the project would operate between 5 and 30 years.

3.4.5 Operating hours

Proposed operating hours are detailed in Table 3.2 and are consistent with similar quarries elsewhere in regional NSW. Staff may enter or leave the site at other times, such as to commence or cease operations, but excavation, crushing, loading or shipping would not occur outside the specified operating hours.

Table 3.2 – Proposed maximum hours of operation.

ACTIVITY	MON TO SAT	SUNDAY & PUBLIC HOLIDAYS
Extraction, crushing & screening	Monday to Friday: 7:00AM to 6:00PM Saturday: 7:00AM to 2:00PM	No work
Loading trucks & shipping		No work
Maintenance		No work
Light maintenance, cleaning, security & administration	All hours	

“Light maintenance” includes refuelling equipment, oil & filter changes undertaken without the use of tools likely to create significant noise, such as jack picks, pneumatic impact wrenches or metal grinders. The opportunity to undertake light maintenance outside “standard” operating hours significantly reduces the frequency of bottlenecks in excavation, processing and haulage systems, hence allows the quarry to operate in a more practical and cost-effective manner.

Minimal noise or light disturbance is expected from the “*light maintenance, cleaning, security & administration*” activities as:

- Light maintenance activities will exclude noisy tools, and is only expected to be undertaken occasionally in the event of significant equipment failure.
- Illumination lighting used for outdoor maintenance and cleaning will be directional and focussed upon the work area.
- Security related activities may include vehicle patrols and responding to silent alarms from site surveillance systems installed to detect unauthorised entry, theft and vandalism incidents.
- Overall the noise or light impact within the Kingswood residential area is expected to be minimal given the nature of the proposed activities, a planned earth bund between the quarry site and Kingswood area. Also the quarry site will progressively transition to below natural ground level over time, further reducing the potential for the direct transmission of noise or light.

3.4.6 Workforce

During the establishment phase of the quarry, crushing and screening operations will be undertaken with mobile plant on a batch basis by contractors. It is planned to employ local staff in a mixture of full time and part time positions, depending on demand, with the initial operational workforce expected to include:

- Quarry Manager – 1.
- Plant operators – 3.
- Administrative support – 1.

In later years the project will acquire and use its own equipment to enable peak production of 240,000 tonnes of quarry product per year. The full-time operational workforce at peak production will increase to about 8 people, primarily additional plant operators (~6).

Previous workforce figures do not include any truck drivers or maintenance staff, which will comprise a mix of project employees, contractors and employees of companies that are customers or suppliers. This project related workforce is expected to be the equivalent of at least an additional 8 full time positions at peak production.

3.4.7 Plant and equipment

Various items of plant and equipment will be used for project establishment and initial operations, as detailed in Table 3.3. The type and number of items will change in response to operational requirements such as required production levels and product types.

A single tracked mobile crusher with recirculating screens and two output conveyors will be used during the initial phases of the project. Mobile processing equipment provides flexibility in plant location and also facilitates the replacement or adjustment of elements of the processing system. The mobile plant may be replaced by a fixed processing plant in a later phase of the project.

Table 3.3 – Proposed quarry plant & equipment.

ITEM	NUMBER ESTIMATE	USE FREQUENCY ESTIMATE	PURPOSE
Excavator, Komatsu PC300	1	100%	Excavating rock and feeding processing plant
Impact crusher & recirculating screens, I-120 Finlay	1	70%	Crushing & screening rock
Bulldozer, Caterpillar D7	1	20%	Stripping soil and excavating rock
Front end loader, Komatsu WA430	2	100%	Loading haul trucks and managing stockpiles
Water cart	1	20%	Dust suppression on haul roads.
Water pumps	2	25%	Supplying water from stormwater dam to watercart stand pipe. Dewatering sump in quarry void, if required.
Light vehicles	2	20%	Transport staff, tools & maintenance items

3.4.8 Disturbance areas & domains

The proposed quarry site of about 10.3 Ha will ultimately include a quarry void of about 9.3 Ha and a rim area about 1.0 Ha, with various operational domains outlined in Table 3.4 and Figure 3.5. Over the life of the quarry, the location and extent of domains within the quarry void will be adjusted to address operational, productivity and safety considerations associated with enabling ongoing extraction activity.

Table 3.4 – Indicative project domains & disturbance areas.

CONTEXT	DOMAIN	APPROX. AREA (Ha)	STATUS	PURPOSE
Quarry Void ~9.3 Ha	Processing	1.5	Proposed	Footprint area for crushing and screening plant. Location will change over time to meet operational requirements.
	Access & parking	1.3	Proposed	Location will change over time to meet operational requirements.
	Stockpiles	1	Proposed	Extent and location will vary over time to meet operational requirements.
	Active excavation	1	Proposed	Location will change over time to meet operational requirements.

CONTEXT	DOMAIN	APPROX. AREA (Ha)	STATUS	PURPOSE
	Sump	0.2	Proposed	
Quarry rim 1.0 Ha	Bunds (major)	0.5	Proposed	Soil storage, safety, noise & aesthetic mitigation.
	Fence	0.25	Proposed	Restrict pedestrian & livestock access to quarry faces.
	Inactive	0.25	No change	No significant ongoing use proposed.
Paddock ~3.2 Ha	Access Track	2.2	Proposed	Provide access from quarry site to Gowrie Road.
	Dam A	0.5	Existing	Stormwater storage for dust suppression. Area includes banks & spillway.
	Dam B	0.5	Existing	
	Pipelines	<1.0	Proposed	Pipeline from dams to quarry site

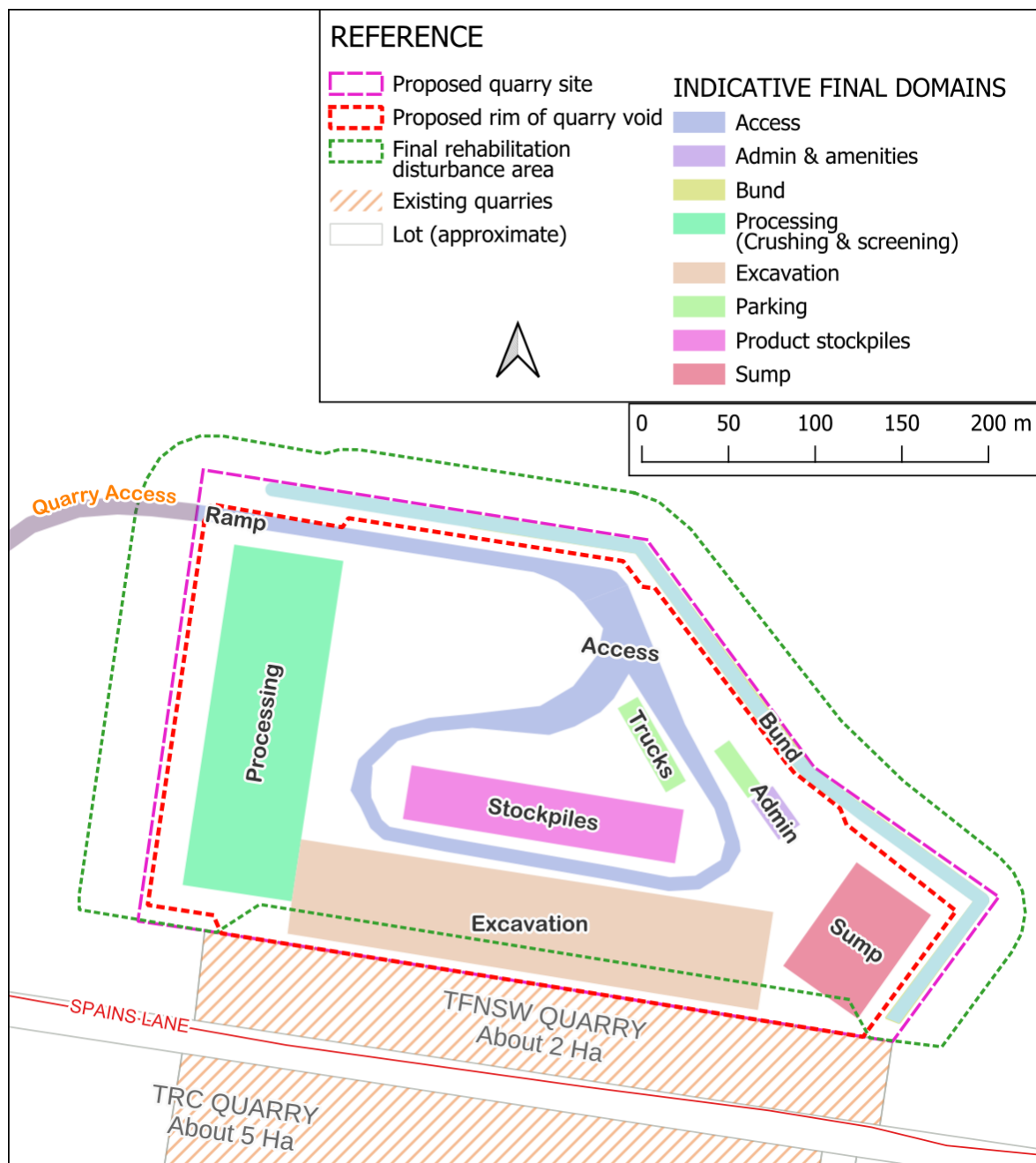


Figure 3.5 – Indicative final project site domains.

3.4.9 Earth bunds & stockpiles

Various types of bunds, berms and stockpiles will be established and maintained, usually serving multiple purposes. These features are summarised in Table 3.5, as well as being referenced elsewhere in the EIS, plans and associated documents.

Table 3.5 – Bund & stockpile summary.

FEATURE	FINAL DIMENSIONS	PURPOSE	NOTES
Soil stockpile	≥ 3m high ~ 9m wide ~ 660m long	Visibility reduction Noise reduction Stormwater diversion Safety barrier Soil & weathered rock storage	Combined soil stockpile and bund along northern and eastern quarry rim. About 14,000m ³ . Construction with regard for SD 4-1 (Figure 3.6) and Health & Safety at Quarries Guide. Domestic livestock to be excluded from stockpile to facilitate plant growth and minimise erosion. Endemic trees and shrubs will be established from tubestock on the bund to provide a visual screen of the quarry from the Kingswood Large Lot Residential Zone. Maintenance replanting will be undertaken on an annual basis to address any significant screening gaps due to vegetation deaths.
Perimeter bund	≥ 1m high ~ 5m wide ~ 310m long	Stormwater diversion Safety barrier	Along western quarry rim. About 1,000m ³ . May also be required along southern boundary, depending on future operations within the TfNSW quarry. Construction with regard for with SD 5-5 (Figure 3.7) and Health & Safety at Quarries Guide.
Traffic berms	Variable	Safety barrier	Various locations, changing in response to operational needs of quarry. Including edge of vehicle access ramp and possible quarry sump. Construction with regard for Health & Safety at Quarries Guide.
Design Guidelines: • 'Health & Safety at Quarries Guide', November 2018, NSW Resources Regulator. • Managing Urban Stormwater: Soils & Construction, Vol. 1, 4th Edition, March 2004 Landcom, 2004. • Managing Urban Stormwater, Soils & Construction, Vol. 2E Mines and Quarries, DECC, 2008			

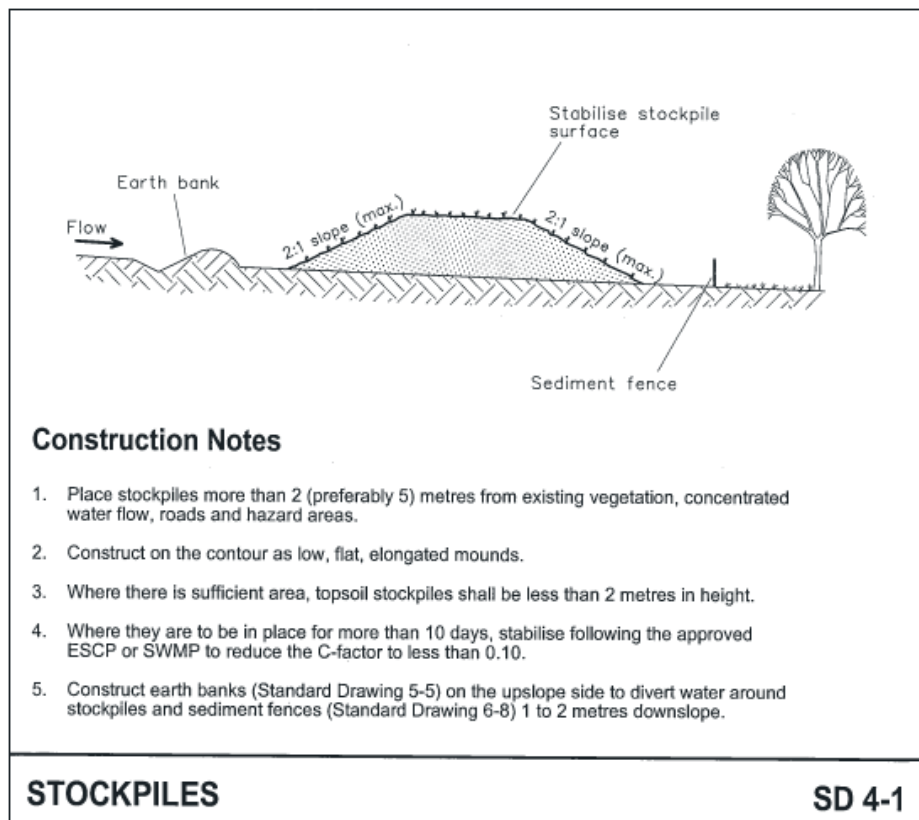


Figure 3.6 – Stockpile standard drawing from Managing Urban Stormwater: Vol. 1.

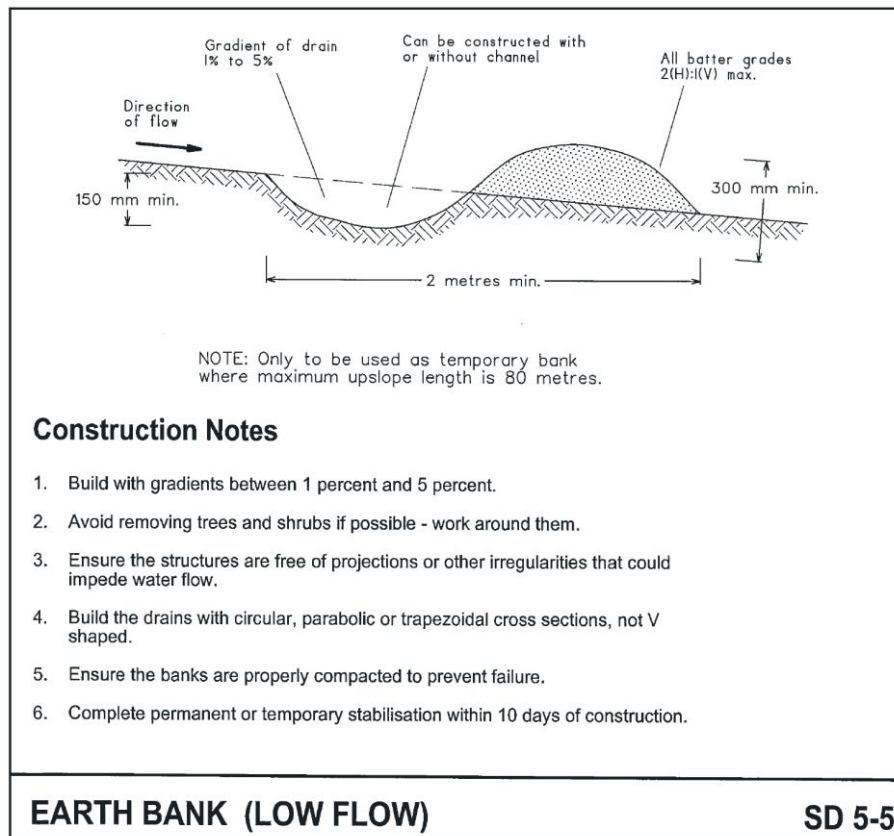


Figure 3.7 – Earth bank standard drawing, from Managing Urban Stormwater: Vol. 1.

3.4.10 Final rehabilitation domain

The proposed maximum extent of the final rehabilitation related disturbance domain is about 12.1 hectares (Figure 3.15), which involves battering the western, northern and eastern walls of the quarry. Assuming that the full 4.6 million tonne resource is extracted and there is no virgin excavated natural fill available, then battering will be undertaken by excavating up to 40 metres from the rim of the final quarry void to develop a slope no greater than 3 horizontal to 1 vertical. More information regarding rehabilitation considerations and designs is provided in Section 3.7.

3.4.11 Security

Various security and safety measures will be installed and maintained, including:

- A fence line, safety berms and signage around the perimeter of the quarry void consistent with NSW Resources Regulator requirements.
- A sign at the quarry entrance prohibiting public access.

3.4.12 Interaction with TfNSW quarry

The proponent has a current lease over the Traffic for NSW quarry and intends to extract mudstone from the vicinity of the boundary between the existing and proposed quarries to:

- Avoid leaving a comparatively narrow “buffer” of remnant mudstone between the two quarries.
- Reduce the resulting depth of the proposed quarry along the southern boundary with the TfNSW quarry, reducing potential for any ground stability issues in that area.
- Facilitate orderly extraction of the resource.

Under sections 2.108 and 2.109 of State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP Transport & Infrastructure 2021) the extraction of extractive materials used solely for road construction in or adjacent to a road corridor where the extraction is carried out by or on behalf of a public authority is “*permissible without [development] consent*”. In the above context extraction of the gravel from the TfNSW quarry would occur subject to an agreement with TfNSW that considers resource volume, safety, and includes an appropriate REF (Review of Environmental Factors) consistent with the requirements of Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Spains Lane passes between the existing TfNSW and TRC quarries, hence passing traffic effectively has visibility of all excavation, processing and shipping operations at each site. Similarly, future traffic will have a view over most operations within the proposed Strathmore Quarry. The applicant expects excavation operations in the proposed quarry will eventually create a significant depression adjoining the TfNSW quarry. The creation of the depression will require the construction and maintenance of suitable measures to manage safety and access, including fencing, signage and an earth berm at least 3m high.

3.5 Access and traffic

3.5.1 Access track – Gowrie Road

An all-weather gravelled access track will be established from Gowrie Road to the quarry site over a distance of about 2,200 metres (Figure 3.8). The track will be single lane with passing bays about 500 metres apart.

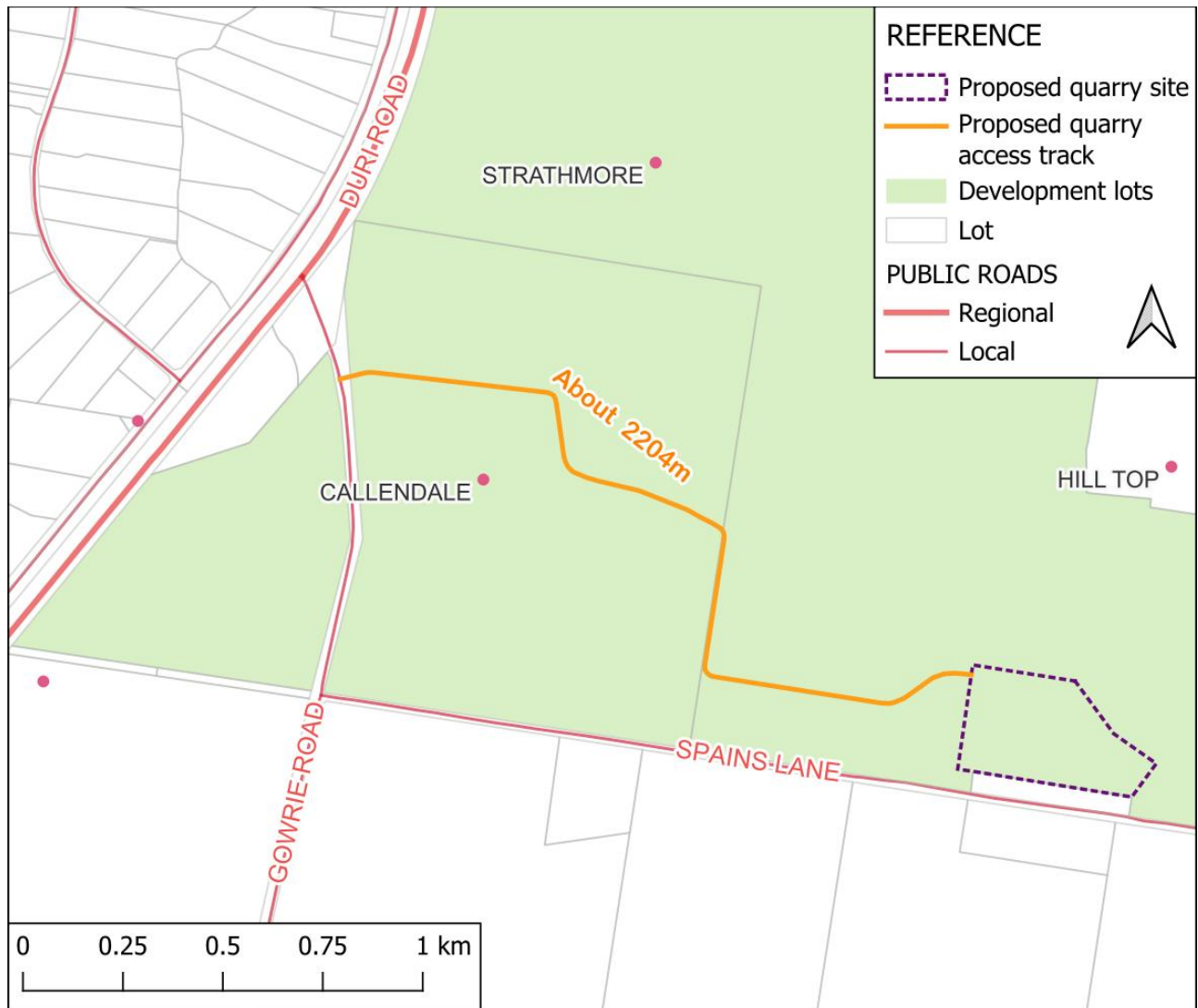
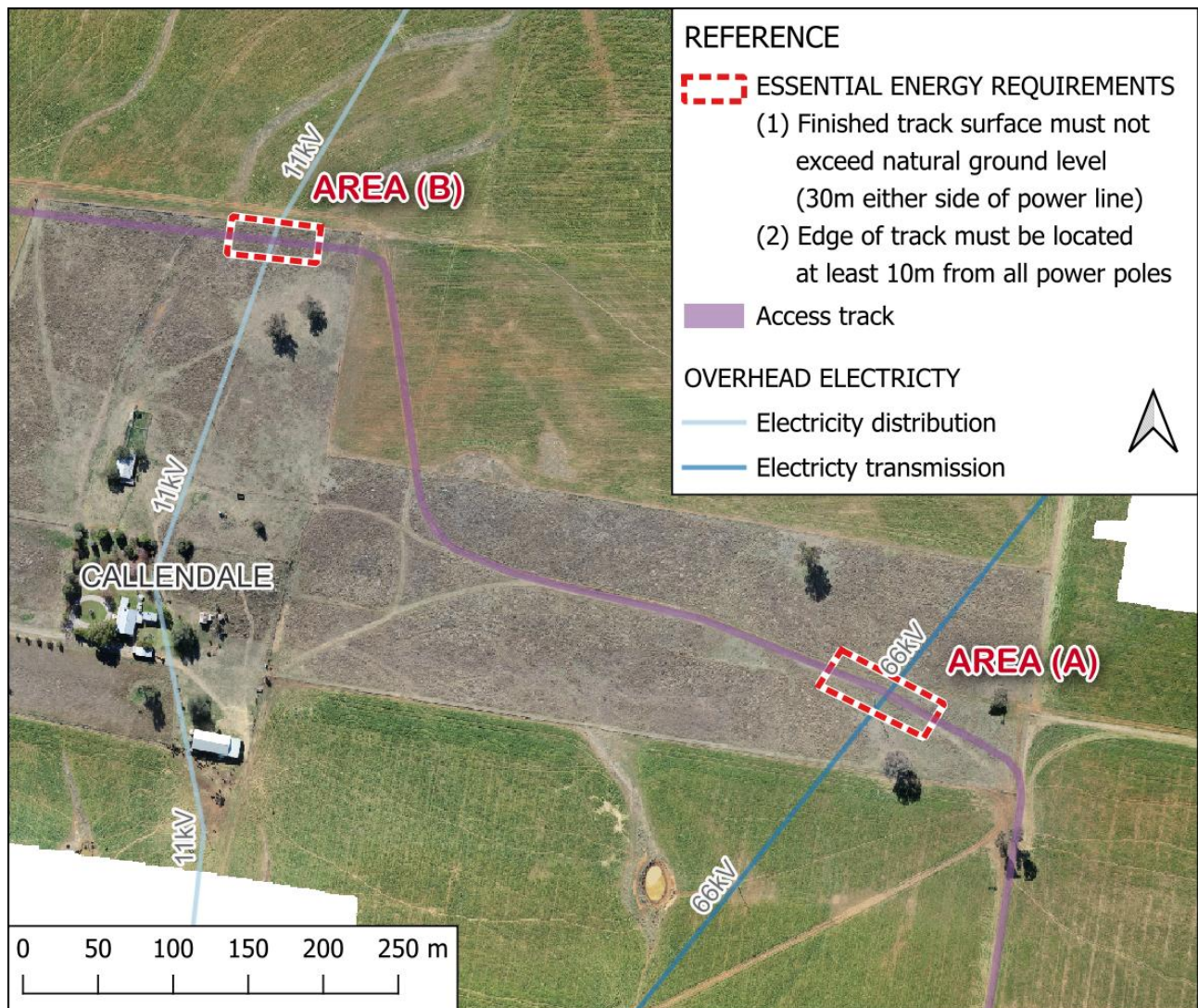


Figure 3.8 – Proposed quarry access track from Gowrie Road.

The proposed access track will pass under two overhead powerlines in the vicinity of the Callendale dwelling, with one 66kV line (Area A) and the second a 11kV line (Area B) [Figure 3.9]. In these areas the access track will be constructed to comply with Essential Energy's (Appendix J) request that:

- The ground height within the Essential Energy easements must not change during and at the completion of the construction of the access track.
- A minimum clearance of 10 metres is maintained between the access track and power poles for the life of the quarry.



3.5.2 Proposed entrance off Gowrie Road

A new entrance to the development lots is proposed off the Gowrie Road about 280 metres south east of the Gowrie Road intersection with the Duri/Werris Creek Road, as shown in Figure 3.10, Plate 3.2 and Plan 15.



Figure 3.10 – Proposed Gowrie Road & Quarry Access Intersection – Swept Path Analysis, BAL/BAR Treatment (Tipper and TriAxle Dog Design Vehicle) [Page 25, Traffic Impact Assessment].



Plate 3.2 – Indicative path of proposed access track off Gowrie Road shown as red broken line on oblique aerial drone image.

3.5.3 Alternative access track – Spains Lane

A shorter alternative access track of about 665 metres with a public road entry off Spains Lane has been proposed by the applicant, if a voluntary planning agreement can be reached with Tamworth Regional Council. More information about this alternative is provided in:

- Plan 16, Access Track Alternatives
- Letter dated 18 December 2024 by Kelley Covey Group Pty Ltd (included as an addendum to the Traffic Impact Assessment [Appendix C]).
- Voluntary Planning Agreement Offer letter dated 11 July 2024 (Appendix O).

The Kelley Covey Group Pty Ltd letter notes various matters arise in connection with the proposed alternative quarry access track, including:

However, Spains Lane is currently a 6m wide gravel sealed road, and any proposal to utilise that road as a haul/access road would require the formation to be upgraded to at least an 8m wide, bitumen sealed road to ensure the safety of all road users. Moreover, application of the intersection warrants described in the Austroads Guide to Road Design, Part 4: Intersections and Crossings – General (AGRD04-17 dated June 2017), and specifically Figure A10 in Appendix A.8 of that document indicates that an upgrade to the intersection of Spains Lane and Gowrie Road to a BAL/BAR would be required as there is currently no intersection treatment there. We note that the letter from Quarry Plan indicates a willingness to engage with Council regarding specific design criteria and shared-funding arrangements, and this will be essential if this access is to be adopted in preference to the Gowrie Road access.

An access track off Spains Lane is proposed as an alternative to the initially proposed access off Gowrie Road, not as an additional access (ie. there will be one or the other, not both). An driveway design has not been prepared, but it is expected to be similar to the indicative design shown for the proposed Gowrie Road intersection in Figure 3.10.

3.5.4 Project establishment traffic

Expected traffic associated with the establishment of the project is expected to include the following vehicle movements via Gowrie Road (existing Callendale driveway) or Burgmann Lane (Hilltop driveway):

- About 5 low loader deliveries comprising:
 - Bulldozer
 - Front end loader
 - Vibrating roller.
 - Tracked crushing and screening plant.
 - Culverts & headwalls.
- A grader (self-propelled?).
- About 2 to 4 tip trucks.
- A peak of about 10 light vehicles, transporting staff to and from site.

As noted previously in Section 3.3, establishment is expected to take up to 3 months and include:

- Stripping the upper soil profile to construct a bund wall along the northern and eastern edges of the proposed quarry.
- Excavating a starter quarry and initial processing of rock to produce gravel for construction earthworks.
- Construction of the access track, culverts and site entrance off Gowrie Road.
- Establishment of site office, fuel storage, and water management system.

Negligible impact on public road traffic is expected from most site establishment activities which will be confined to the proposed development lots. However minor disruptions to Gowrie Road traffic will arise during the construction of the proposed quarry access within the public road corridor of the Gowrie Road.

3.5.5 Operational traffic generation

Expected traffic generation from the development has been modelled as part of a separate Traffic Impact Assessment (TIA) prepared by Kelley Covey Group Pty Ltd dated April 2024 (Appendix C). Section 5.2 and 5.3 of the TIA considers traffic generation and trip distribution in detail.

3.5.5.1 Heavy vehicle traffic

Analysis within Section 5.2 of the TIA indicates an average of 26 heavy vehicle loads daily (52 movements), resulting in three (3) heavy vehicle trips per hour (six (6) movements in total – 3 in and 3 out) generated during normal operating hours. Actual heavy vehicle traffic will vary from day to day, depending on demand, but the maximum will be 50 heavy vehicle loads daily (100 movements).

3.5.5.2 Workforce traffic

The TIA estimates about 16 employee vehicle movements per day.

3.5.6 Site traffic management

Project related traffic will comprise the following main classes:

- Operational plant & equipment (excavators, water cart, front end loader) - Primarily used on the quarry site.
- Haulage trucks - Shipping quarry products to customers, mainly used on the site access track and within the designated loading area.
- Light traffic (utes, sedans, etc) – Used by staff, contractors and customers, primarily on the site access track.

Traffic management on the development lots will be implemented under a Mine Safety Management System consistent with NSW Resources Regulator requirements⁹. This is expected to include:

- Signage at the quarry office prohibiting any unauthorised entry, also requiring all visitors and contractors to report to the site office.
- Proactively excluding all people who have not been inducted, or aren't under the direct supervision of quarry employee, from entering operational areas of the quarry (eg excavation area, crushing and screening plant).
- Preparing and implementing a Driver Code of Conduct.
- Applying a signposted project related speed limit of 20km/h.
- The Quarry Manager enforcing the project speed limit.

3.6 Site facilities

3.6.1 Water management system

Key objectives of the proposed water management system (WMS) for the Strathmore Quarry are to:

- Prevent “clean” stormwater runoff from entering the quarry void;
- Ensure that there are no significant discharges of “dirty” surface water from the quarry void; and
- Maintain an adequate and reliable water supply for quarry operations.

Major WMS components are shown in Figure 3.11 including dams A and B, which are existing agricultural dams. Additional WMS components are shown in Figure 3.12, 3.13 and 3.14, with catchment areas listed in Table 3.6.

⁹ Section 5 in Health and Safety at Quarries Guide, NSW Resources Regulator November 2018

Table 3.6 – Catchment areas.

CATCHMENT	AREA	
	Ha	km ²
Dam A	25.6	0.256
Dam B	90.6	0.906
Proposed quarry void & Traffic for NSW Quarry	11.7	0.117
Upslope	0	0
Total WMS	127.9	1.279

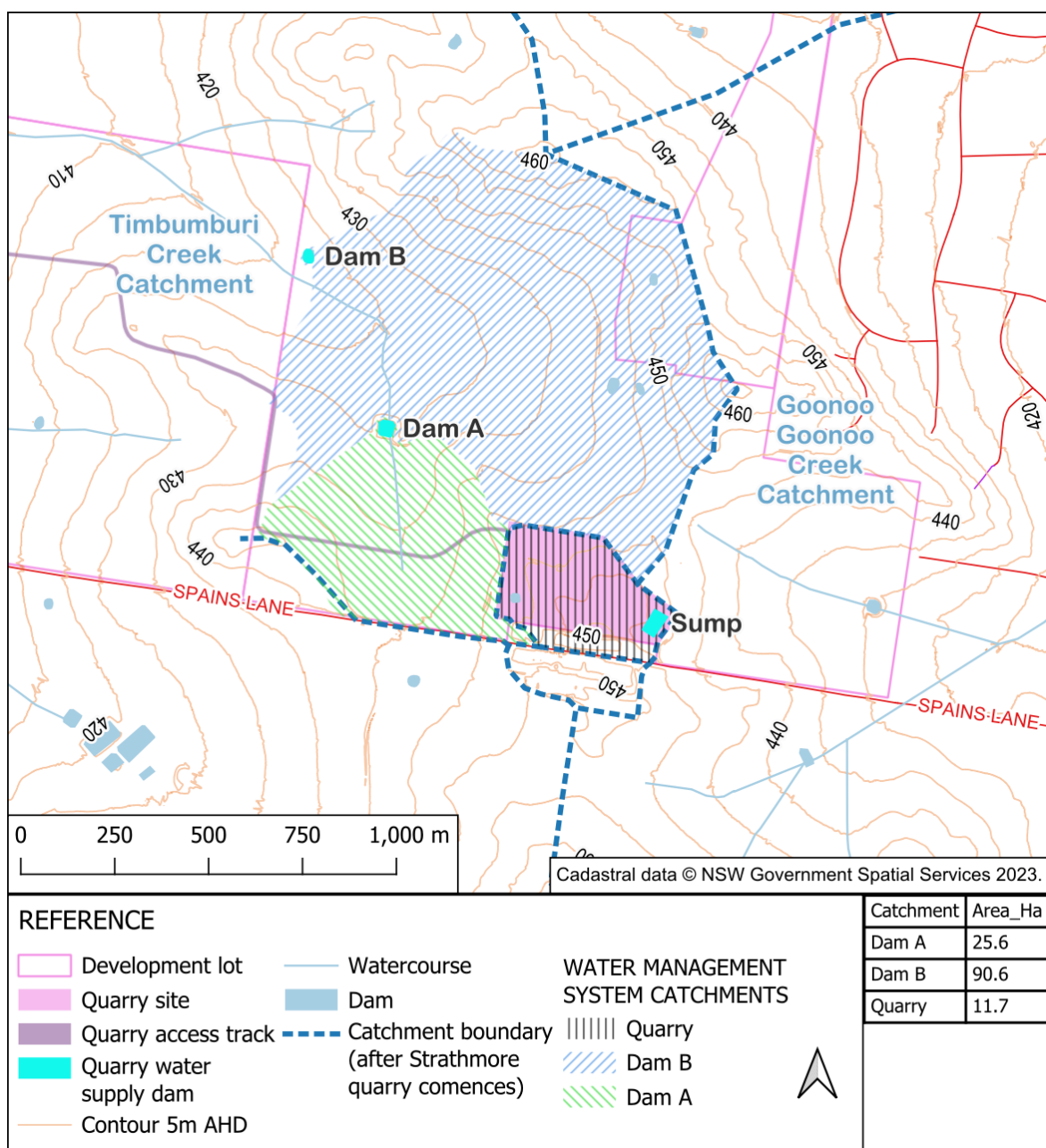


Figure 3.11 – Catchments & major water management system components.

3.6.1.1 Dirty water

The proposed Dirty Water Management System for the project primarily consists of sump within the quarry void (Figure 3.12) that receives all surface and groundwater flows from the quarry excavation footprint (about 10 Ha), as well as the adjoining Traffic for NSW quarry (about 1.6 Ha), a total area of about 11.7 Ha.

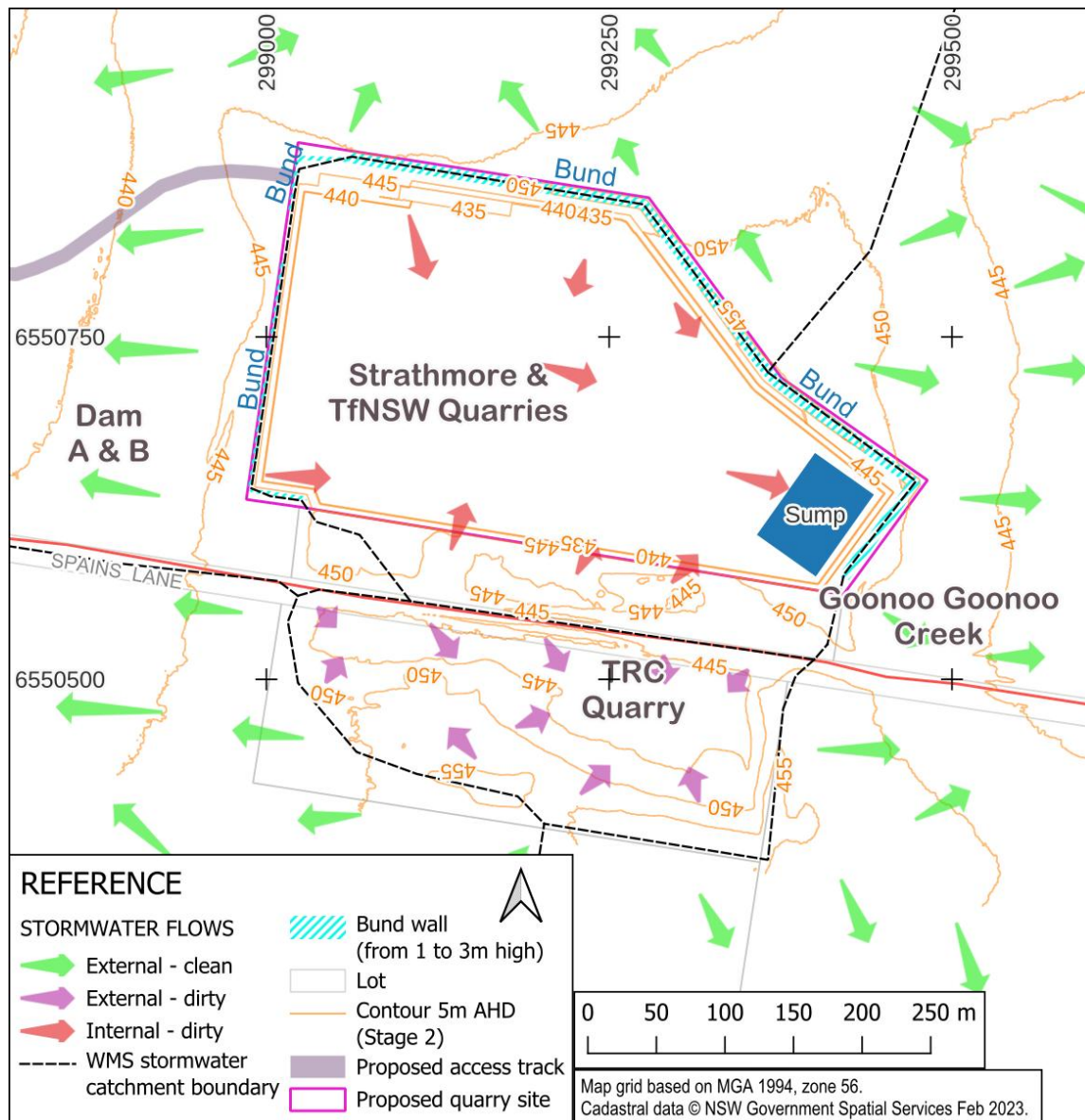


Figure 3.12 – Indicative proposed dirty water management system.

Sump location and size will be periodically altered during the operating life of the quarry to meet operational needs. Retained water will be used for dust suppression where feasible, although observations of the floors of the two nearby quarries suggests stormwater ponding tends not to be long term. The highly fractured mudstone rock may be relatively permeable, hence allow surface water infiltration in the short term, especially in situations where there is negligible overlying clay/soil to provide a permeability barrier.

Topsoil stockpiles will be temporarily considered as part of dirty water catchment until stabilised for duration of the project. Controls for the temporary disturbance of the stockpile area include diversion of clean water

surrounding the stockpile area using temporary measures, such as sediment fence, sandbags or minor earthworks.

3.6.1.2 Clean water

Overland stormwater flows will be directed away from the quarry excavation using berms (earth banks) a minimum of 1m high surrounding the void as shown in Figure 3.13. This will prevent “clean” water from entering the quarry void, while retaining the majority of quarry related “dirty” water within the void.

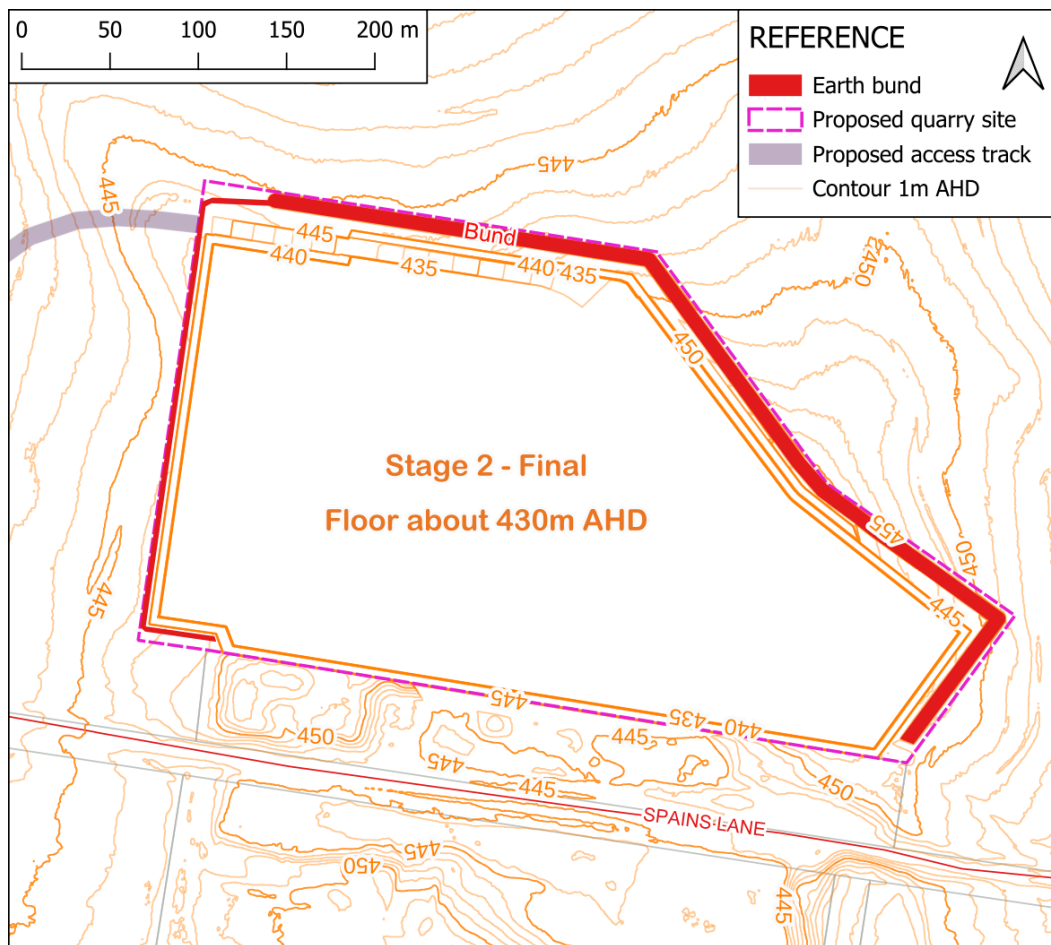


Figure 3.13 – Earth bund locations, indicative.

3.6.1.3 Water supply

The proposed water supply system for the project consists of the following elements:

- Two surface water detention dams, as shown in Figure 3.11, which are existing agricultural dams. It is expected that dams will need to be desilted prior to project commencement.
- Solar pumps and pipelines to reticulate water from the dams to a header tank on the rim of the quarry excavation (Figure 3.14).

- The header tank will have a volume of 20 to 50 thousand litres and be constructed of plastic or concrete. Initially a pump will be used to circulate water from the header tank, but as the quarry becomes deeper it should then become feasible to rely on gravity feed for distribution.

The primary purpose of the water supply system will be to enable dust suppression on haul and access roads with a water cart during dry conditions. Water will also be used for misting dust suppression systems on the crushing and screening plant, when required.

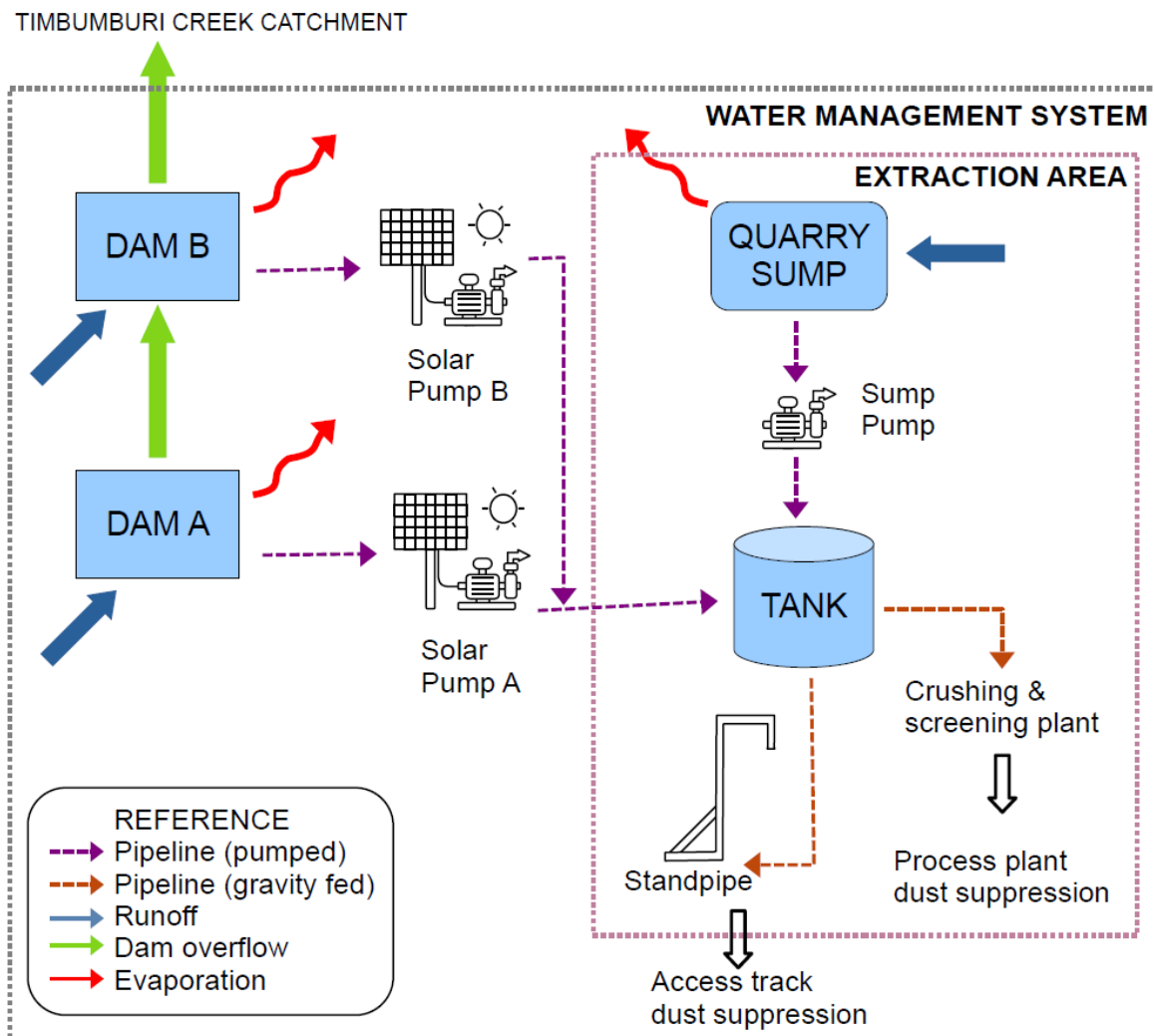


Figure 3.14 – Schematic diagram of proposed water management system.

3.6.2 Site office and carpark

An office and carpark would be constructed adjacent to the access road. The site office would consist of a prefabricated ATCO style building less than 30 square metres roof area, used for administration and as a lunchroom. Prefabricated toilets would be used to provide amenities, either within the office or as sperate structures.

3.6.3 Weighbridge

If production exceeds 100,000 tonnes per year, then the applicant may install a weighbridge near the site office. This will facilitate shipment reconciliation and avoid ongoing reliance on weigh scales included within a front-end loader.

3.6.4 Fuel storage

Plant refuelling will be undertaken using a mix of self-bunded portable fuel tanks and an onsite self-bunded tank with a capacity of up to 20,000 litres.

3.6.5 Equipment maintenance

No dedicated maintenance building is proposed, but various forms of operational maintenance will be undertaken on the quarry site, including:

- Greasing, changing oil, fuel filters, oil filters and air filters on machinery.
- Repairing and replacing consumable parts, including crusher liners/wear plates, bucket teeth, cutting edges, screens, conveyor belts and tyres.

3.6.6 Lighting

Generally, quarry operations will be restricted to daylight hours, hence minimal fixed lighting will be required, other than some security lighting. Portable LED lighting would be used occasionally for urgent overnight maintenance.

3.6.7 Security

Security measures such as fencing and signage will be installed and maintained to exclude public access outside operating hours. A silent alarm and surveillance system will also be installed to deter and detect, theft or vandalism incidents.

3.6.8 Utilities

The proponent may seek a mains electricity connection in the event that crushing and screening plant is converted from mobile equipment to fixed plant. The project site is located within about 800 to 900m of multiple three phase above ground power lines.

The proponent may also establish a fixed telecommunications connection, with the nearest existing underground lines servicing the Hill Top and Callendale dwellings.

3.6.9 Waste management

Recyclable and non-recyclable materials will be separated and temporarily stored on site prior to regular removal by quarry staff to an approved waste disposal facility. The main waste streams expected are:

- Used oil, tyres and batteries
- Used steel and alloys
- Food and drink containers,
- Cardboard and packing materials.

Excavation and processing of rock will not generate any other waste material, as all processed material would be either sold as a product or retained for use during rehabilitation.

3.6.10 Signage

A single unlit business identification sign 3m by 3m or less, no more than 5m above ground level, is proposed to be erected in the development lot within 30m of the access driveway off the public road network. Information proposed to be displayed on the sign includes;

- Business name, logo & owner
- Location based address.
- Operating hours.
- Contact phone number for sales, enquiries and complaints.

The sign will be constructed and installed with regard for;

- AS/NZS 1170.0:2002, Structural design actions, Part 0: General principles, and
- AS/NZS 1170.2:2021, Structural design actions, Part 2: Wind actions,

Safety and administrative signage will also be erected and maintained at the site entrance, access roads and on the quarry site. These signs will be less than 3m above ground level and have an area of 2 square metres or less.

3.7 Decommissioning and rehabilitation

3.7.1 Closure trigger

Closure and decommissioning of the project is expected to be triggered by one of the following events;

- Resource depletion – Once the mudstone resource has been extracted, or;
- Rezoning – The applicant is committed to ceasing all quarry extraction operations within 12 months of any proponent owned land within 500 metres of the quarry site being rezoned for residential land use and a subdivision plan being registered with NSW Land Registry Services to enable such use.

The possibility of rezoning was noted previously in Section 3.4.4. In the event of the rezoning, the closure process is expected to comprise the following stages:

1. Rezoning of land for urban residential use, which is part of current lot 102 and is also located within 500 metres of the proposed quarry site.
2. A development application is lodged and approved for subdivision of any part of lot 102 located within 500m of the quarry site which includes lots intended for residential development.
3. A subdivision plan is registered with NSW Land Registry Services for the residential lots.
4. The landowner assesses the extent and depth of quarry workings at the time the subdivision plan is registered, then develops a program for the quarry closure over the following 12 months.
5. The closure program is expected to include:
 - Identifying the preferred future land use for the site, such as stormwater management, parkland, access and/or building sites.
 - Preparing the final landform design with regard for the future land use.
 - Ongoing extraction, if required, to support construction earthworks on the rezoned land.
 - Rehabilitation earthworks.
 - Revegetation.
 - Staging and managing closure earthworks to avoid any significant impacts on residential related earthworks or dwelling construction.

The applicant owns all rural land within 1,000 metres to the north of the quarry site. In that context, they are also likely to be lodging any Development Application for future residential development of the land (or their successors in title). This will provide significant motivation for the closure and rehabilitation program to be managed in a diligent manner to optimise returns from the sale of former quarry site and adjoining land.

3.7.2 Future land use

Currently the main land use on the site is cattle grazing and dryland cropping. Post rehabilitation land use will primarily depend upon the zoning of the land at that time and the landowner's requirements. The primary scenarios are expected to be:

- Ongoing primary production related zoning - The site will be returned to cattle grazing land use. Grazing intensity and frequency will need to be managed to avoid erosion of the rehabilitated quarry void which will have steeper slopes than the original natural ridge landform.
- Residential related rezoning - Incorporating the site into urban open space such as a park, nature strip and/or stormwater retention area. There is also potential to use excess virgin excavated natural material derived from future urbanisation earthworks to reduce to volume of the remnant quarry void.

3.7.3 Rehabilitation assumptions

A concept final landform design has been prepared based on the following assumptions;

- The quarry operating until extraction of the 4.6 million tonne resource.

- No virgin excavated natural material available from other areas to facilitate rehabilitation earthworks.
- No additional excavation on the TfNSW quarry in the meantime (other than removal of the existing high wall).
- The underlying rock is relatively fractured and permeable, with existing nearby quarries not retaining significant stormwater for extended periods, hence, long term stormwater retention on the rehabilitated project site is regarded as unlikely.

3.7.4 Rehabilitation principles

The current rehabilitation plans, and any potential variations, will be guided by various principles, including;

- Ensuring a safe and stable landform suitable for the planned future land use (grazing or urban).
- Battering the edges of the quarry void to reduce the slope of walls to no steeper than 1:3 (vertical:horizontal), either by excavation, or by suitable placement of waste rock.
- The initial concept is battering the west, north and east high walls. Battering of the southern high wall will depend on the status of the associated TfNSW quarry at the time of rehabilitation.
- Deep ripping the quarry floor to facilitate infiltration and revegetation.
- Restoring a minimum veneer of 0.3m of soil/weathered mudstone to the quarry walls and floor. This can be recovered from the operational environmental bund wall along the north and eastern edges of the quarry. Additional soil can be recovered from the quarry rim as part of the rehabilitation earthworks to batter the walls.
- The soil veneer will be left with a rough surface texture to facilitate plant growth, sediment retention and water infiltration.
- Having contour banks about every 5m vertically on the quarry walls to minimise rill and gully erosion.
- Diverting stormwater flows from the contour banks to several gabion drains.
- In the medium-term establishing ground cover, shrub and tree growth from seed to stabilise the site and minimise erosion potential, especially on the walls.
- Restricting and managing grazing to minimise the potential for erosion. This will require fencing of the rehabilitation area if the land continues to be used for agriculture.
- If the land is rezoned for urban use, then the initial objective would be to incorporate the rehabilitated quarry site into urban open space such as a park, nature strip and/or temporary stormwater retention area.

3.7.5 Rehabilitation landform

An indicative rehabilitation landform design has been prepared with regard for the rehabilitation assumptions and objectives provided previously, as shown in Figure 3.15 and 3.16, with more detail in Plans 13 and 14. The final landform is a basin that will retain stormwater falling on the site while an earth bund around the rehabilitation area will divert external overland flows away from the former quarry void. Contour banks on the battered landform will divert stormwater to multiple channels lined with bedrock and gabion rock (filled areas).

There will be adequate stormwater retention capacity within the final basin for any onsite rainfall scenario listed for the Tamworth area in Table 6.3a or 6.3b in Vol 1 of Managing Urban Stormwater: Soils and Construction. Similar to the existing nearby quarries, it is expected that stormwater retention will be on a temporary or ephemeral basis while the water disperses via infiltration of the highly fractured underlying rock and evaporation.

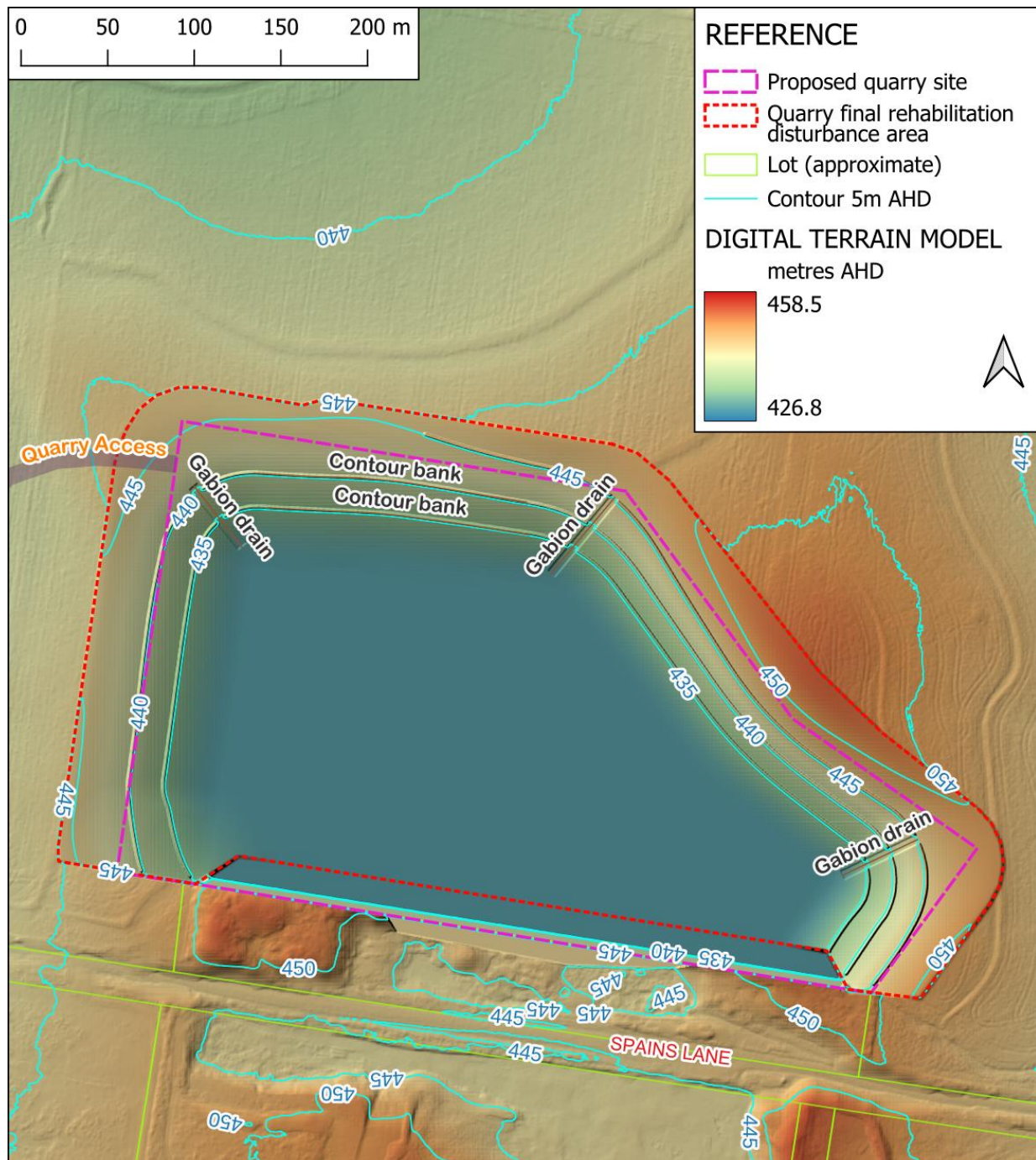


Figure 3.15 – Indicative rehabilitated landform.

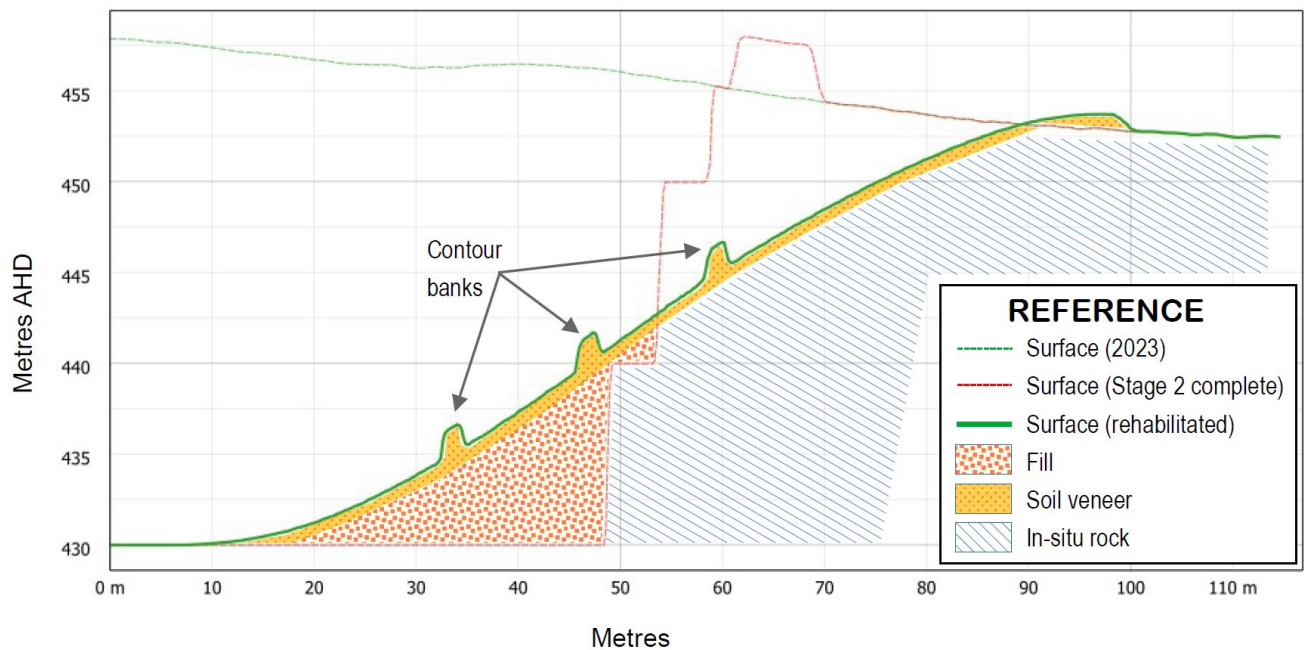


Figure 3.16 – Indicative cross section of rehabilitated N-E quarry face.

3.7.6 Rehabilitation species

The establishment of endemic native tree and shrubs on the rehabilitated site will be a priority to minimise erosion and ensure a stable long term land form. Endemic species are adapted to local soil and climate, including significant climatic events such as drought. Such species that are known from the Fulwood Hill landscape¹⁰ include:

- *Eucalyptus albens* (white box),
- *E. dealbata* (tumbledown red gum)
- *Callitris glaucophylla* (white cypress pine). Slow growing. ∞
- *Bursaria spinosa* (blackthorn), ∞
- *Senna barclayana* (smooth senna),
- *Geijera parviflora* (wilga), ∞
- *Melia azedarach* (white cedar), Vulnerable to grazing.
- *Acacia decora* (western golden wattle),
- *A. pendula* (weeping myall), Vulnerable to grazing
- *A. homalophylla* (yarran),
- *A. salicina* (cooba), Vulnerable to grazing
- *A. decora* (western golden wattle),
- *Notelaea microcarpa* (native olive),
- *Brachychiton populneus* (kurrajong), Slow growing, vulnerable to grazing.
- *Pimelea neo-anglica* (poison pimelea),
- *Dodonaea viscosa* (giant hopbush)

¹⁰ Banks, R.G. 2001, Soil Landscapes of the Tamworth 1:100k Sheet, Department of Land & Water Conservation, Sydney

- *Angophora floribunda* (rough-barked apple)

A seed mixture of at least four endemic native tree and three shrub species will be chosen from the species list above. The mixture will be sown onto the majority of the rehabilitated quarry site following the completion of earthworks. Where feasible, sowing will be undertaken during warmer months in conjunction with rainfall events, to maximise germination and survival rates.

The final ranges of species selected will have regard for:

- Seed availability and a preference for local sources.
- Although natives, some listed species are also regarded as agricultural weeds in some contexts (examples marked ∞), hence may be excluded with regard for the intended use of the land at the time of rehabilitation.
- Species from the *Eucalyptus* genus are generally resistant to grazing by livestock and native fauna.
- Species from the *Acacia* genus tend to grow quick, with relatively short lifespans.

3.7.1 Rehabilitation objectives

Proposed minimum rehabilitation objectives are detailed in Table 3.7 below. Final landform design will be influenced by morphology of the quarry void when operations cease, the configuration of the adjoining quarries and subsequent land use identified for the rehabilitated site.

Table 3.7 – Minimum rehabilitation objectives.

ELEMENT	REHABILITATION OBJECTIVE
Waste & machinery	1. All machinery removed. 2. All recycling and waste removed for appropriate disposal. 3. No evidence of significant fuel or oil spills.
Quarry void	4. Vertical edges of quarry battered to no steeper than 3H:1V. 5. A minimum veneer of 0.3m of red “soil” is applied to the quarry benches, floor and access ramp. 6. No evidence of significant quarry related erosion on site or adjoining areas. 7. Quarry product stockpiles removed. 8. Soil compacted by quarry related activities is contour ripped to facilitate plant regrowth.
Access track	9. Where ongoing use is not required by land owner, removal of gravelled access tracks and rehabilitation with soil, consistent to landowner’s requirements.
Ecosystem establishment	10. No significant weed species present on former quarry site. 11. Significant endemic shrub and tree regrowth on rehabilitated quarry walls and floor.

3.8 Estimated development cost

The applicant estimates the GST exclusive cost to construct the project is about \$1.65 million, which includes;

- \$150,000 for Environmental Impact Statement, specialist environmental assessments and drilling.
- \$500,000 for site preparation works including pre-stripping soil/weathered rock, fencing, etc.
- \$500,000 for constructing a road entrance off Gowrie Road and the quarry access track, including signage, fencing, culverts, etc.
- \$500,000 for plant and equipment, including 2 front end loaders, water cart, prefabricated office (~30m²), solar pumps, water tank, etc.

The estimated development cost does not include a tracked crusher/screener, excavator or other mobile plant that will be transported to the site and used by a contractor on an intermittent basis.

A more detailed Estimated Development Cost report (EDC) was also obtained from a quantity surveyor in December 2024 which estimated the cost at \$1,819,903 excluding GST (see Appendix P).

3.9 Alternatives to the project

3.9.1 Alternative site

An evaluation process has been undertaken to identify other areas that may be suitable for development as a mudstone quarry. The evaluation was primarily based on analysing publicly available information, including:

- Zoning data from NSW Planning & Environment.
- Digital elevation modelling and roads mapping from NSW Government Spatial Services.
- Geological mapping from the NSW Geological Survey.
- Bush fire prone land mapping from the NSW Rural Fire Service.
- Aerial imagery from NSW Government Spatial Services, Google Earth and Bing Maps.

Constraints listed within Table 3.8 are mapped in Figures 3.17 and 3.18 for a 15km radius from Tamworth. Ultimately the constraint mapping process showed five potential alternative areas as marked in Figure 3.17 and 3.18. Further analysis of those areas shows;

- None appear to have significant administrative or infrastructure related constraints, but access to sites 2 & 6 is effectively blocked by dwellings.
- Sites 3, 4, 5 & 8 have moderate to poor access.
- Site 7 is part of a hill that is a significant local landscape feature that is readily visible from surrounding land.
- The project site (Site 1), is the least constrained area based on the preliminary evaluation criteria.

Table 3.8 – Preliminary evaluation criteria for alternative sites.

CATEGORY	SITE CRITERIA	CONSTRAINT
ENVIRONMENTAL	Minimal native vegetation	Potential impacts on native flora & fauna avoided by only considering sites with no significant native vegetation.
	Suitable rock for quarrying	Unsuitable materials include unconsolidated alluvium.
	Slope must be greater than 4 degrees	Quarry voids are generally only viable on ridge land form with some relief to facilitate access and design considerations.
	Slope must be less than 18 degrees	Quarrying gravel, fill and road base style quarry products is generally not practical or viable in steep terrain.
ADMINISTRATIVE	Zoning must allow primary production, including quarries	Almost all other zones in NSW prohibit new extractive industries. Quarrying is generally compatible with other forms of primary production including agriculture and forestry.
	Must be 500m or more from unrelated dwellings or a residential zone	Facilitates management & mitigation of issues associated noise, dust, blasting, aesthetic and related matters by quarry operator. Reduces resident concerns regarding potential and actual impacts.
INFRASTRUCTURE	Must be 500m or more from highway, electricity transmission line, gas pipeline or railway line	Facilitates management of blasting activities, public safety and avoids any potential impacts on public infrastructure.
	Must be in vicinity of a sealed access road to enable access	Transport cost & complexity issues become prohibitive with increasing distance from sealed roads. Road base and fill is relatively low value quarry product that requires cost effective, all-weather access, for an extraction site to be viable.

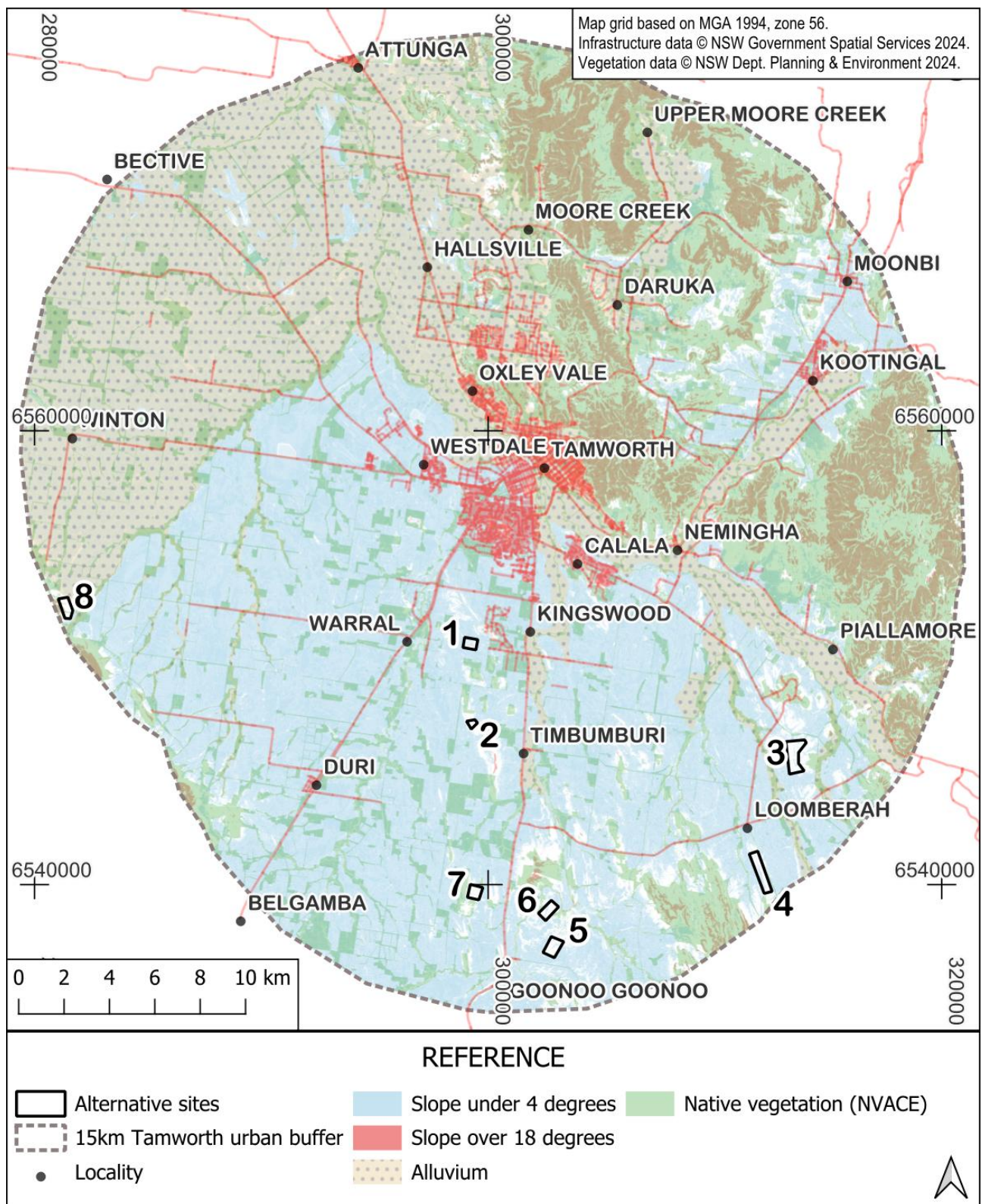


Figure 3.17 – Environmental constraints.

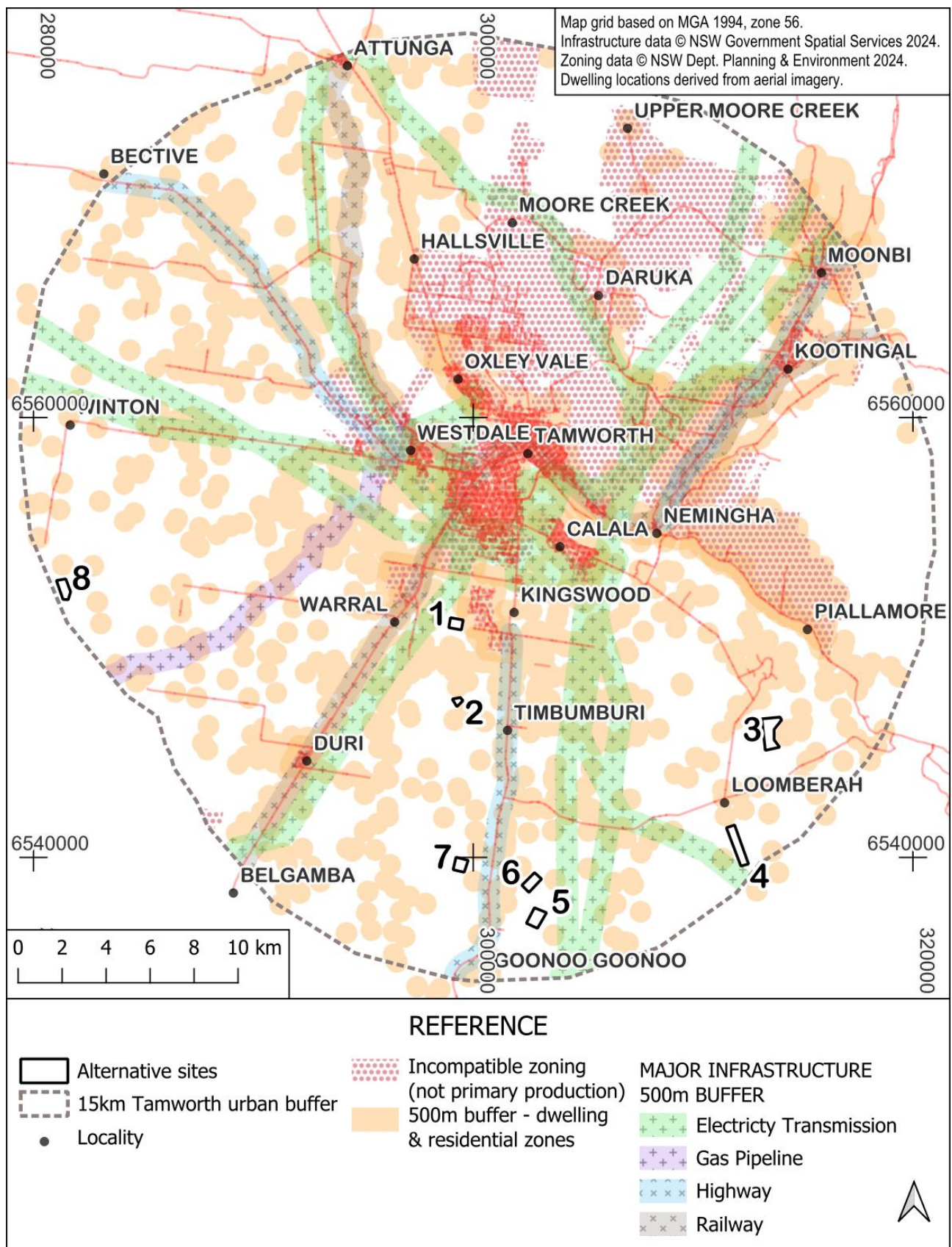


Figure 3.18 – Administrative & infrastructure constraints.

3.9.2 Do nothing

Applying the “do nothing” option has various opportunity costs, including:

- Losing an opportunity to co-locate a new quarry alongside two existing operational quarries that have been operating for several decades.
- Significant additional transportation costs for the community, as well as unnecessary greenhouse gas emissions, by the continued sourcing of quarry products for Tamworth from substantially more distant quarries.
- The existing mudstone resource on the site would not be used. The resource is also likely to be sterilised in the medium to long term by rezoning for urban land uses,
- Economic benefits from the proposal will not eventuate, including capital investment and operational expenditure such as equipment maintenance and labour.
- Increasing demand for quarry products will need to be met by existing quarries or new quarries located in areas with less suitable resources and/or greater environmental impacts.

4 LEGISLATIVE & STRATEGIC CONTEXT

4.1 NSW Environmental Planning and Assessment Act 1979

4.1.1 Regionally significant development

Under State Environmental Planning Policy (Planning Systems) 2021 an extractive industry that is “*designated development*” under the regulation is also “*regionally significant development*” (Sch 6, Sub Sect 7(1)(a) & Clause 2.19).

4.1.2 Consent Authority

Sub-section 4.5(b) of the Environmental Planning and Assessment Act 1979 deems the consent authority as “*the regional planning panel for the area in which the development is to be carried out*” for a “*regionally significant development*”. In this case the consent authority is the Northern Regional Planning Panel.

4.1.3 Designated development

The Environmental Planning and Assessment Regulation 2021 (Sch. 3, Part 2, Sect. 26) sets various thresholds at which an extractive industry such as a quarry, becomes “*designated development*”. Relevant thresholds in this case include;

- More than 2 hectares of disturbance.
- Less than 500 metres from an existing quarry that has operated in the last 5 years.
- Extraction rate greater than 30,000 cubic metres per year.

4.1.4 Integrated development

The following integrated development approvals are sought under section 4.46 of the Environmental Planning and Assessment Act 1979.

4.1.4.1 Protection of the Environment Operations Act 1997

The proposed annual production for the Strathmore Quarry exceeds 30,000 tonnes per year, the threshold specified for “*extractive activities*” at which an Environment Protection Licence is required from the NSW Environment Protection Authority for a “*premises based*” activity (Section 48 and activity 19, Part 1, Sch 1, Protection of the Environment Operations Act 1997 [POEOA Act 1997]).

It is also proposed that the quarry will process more than 30,000 tonnes of materials per year, thereby exceeding the threshold for “*crushing, grinding or separating*” activity (Section 48 and activity 16, Part 1, Sch 1, POEO Act 1997).

4.1.4.2 Roads Act 1993

As the roads relevant road authority, approval is sought from Tamworth Regional Council to connect the proposed quarry access road to Gowrie Road under sub-section 138(1)(e) of the Roads Act 1993.

4.1.5 Bush Fire Prone Land

Sub-section 4.14 of the Environmental Planning and Assessment Act 1979 provides that development consent cannot be granted for any purpose on bush fire prone land unless the consent authority;

- (a) is satisfied that the development conforms to the specifications and requirements of the version (as prescribed by the regulations) of the document entitled *Planning for Bush Fire Protection* prepared by the NSW Rural Fire Service in co-operation with the Department (or, if another document is prescribed by the regulations for the purposes of this paragraph, that document) that are relevant to the development (*the relevant specifications and requirements*), or

The Planning for Bushfire Protection 2019 document make no reference to extractive industry, or quarries, hence has no mandatory requirements relevant to this proposal. It does make some reference to mining, including;

Where mining and associated activities are carried out on BFPL, consideration should be given to any hazards and risks associated with bush fire. It may be necessary to implement measures to control and manage any identified hazards and risks.

All of the project site and access track have been mapped as bushfire prone, hence mitigation measures have been proposed in Section 7.12 that are appropriate for the context and nature of the project. The proposed development complies with the intent of the Planning for Bushfire Protection 2019 document and the risks arising from bushfires can be readily managed to avoid any significant risk to the safety of quarry staff, quarry visitors, the public and emergency responders.

4.1.6 Matters for consideration

The project must be assessed by the consent authority against the “heads of consideration” specified in section 4.15 of the Environmental Planning & Assessment Act 1979. This includes:

- Relevant Local Environmental Plan (LEP), State Environmental Planning Policies (SEPPs) and Development Control Plan (DCP) requirements.
- Likely impacts of the development, including environmental impacts on natural and built environments, as well as social and economic impacts in the locality.
- Suitability of the site for development.
- Submissions made in accordance with the Act or regulations.
- The public interest.

4.1.7 Environmental planning instruments

4.1.7.1 SEPP (Resources & Energy) 2021

State Environmental Planning Policy (Resources and Energy) 2021 (Resources SEPP) specifies various “matters for consideration” by the consent authority for a development application for an “extractive industry”, including quarries, in Part 2.3. A summary and review of clauses from Part 2.3 that relevant to this proposal is provided in Table 4.1 below.

Table 4.1 – Resources SEPP, Part 2.3 matters for consideration clauses.

RESOURCES SEPP	RESPONSE
Clause 2.16	Irrelevant. Clause only applies to mines, not extractive industries.
Clause 2.17 requires the consent authority to consider the compatibility of the proposed extractive industry with existing, approved and likely preferred land uses in the vicinity, amongst other things	The proposal is compatible with such uses as the proposed quarry: • Is within a primary production zone. • Does not involve blasting. • Is located more than 530 metres from the nearest unrelated dwelling. • Effectively adjoins two existing quarries. • Will operate concurrently with grazing and cultivation on the development lots. • In the event that the development lots are rezoned, the applicant has given a commitment to cease quarry operations.
Clause 2.18	Irrelevant. Clause only applies to State Significant Development.
Clause 2.19	Irrelevant. Clause only applies to a proposal in the vicinity of an existing extractive industry or on land identified as the location of locally, regionally or state significant resources of extractive materials.
Clause 2.20 requires that the consent authority “ <i>must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner</i> ”.	The proponent expects that the consent authority will apply relevant conditions appropriate for the nature, scale and setting of the proposal.
Clause 2.21 requires that the consent authority “ <i>must consider the efficiency or otherwise of the development in terms of resource recovery</i> ”.	Rock will be recovered from defined extraction area that has been drilled and assessed as containing a resource suitable for the intended purpose. All of the recovered rock will be utilised
Clause 2.22 requires that the consent authority refer the Development Application to the “ <i>Roads and Traffic Authority</i> ” within 7 days of receiving the application and to consider the imposition of conditions of consent regarding truck movements and transport of material on public roads.	Action is required by the consent authority.

RESOURCES SEPP	RESPONSE
Clause 2.23 requires that the consent authority “ <i>must consider whether or not the consent should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development</i> ”.	Rehabilitation objectives and indicative measures are provided in Section 3.7 of this EIS.

An extractive industry is not a mine, hence Resources SEPP provisions relating to mines do not apply (see relevant LEP definitions for “extractive industry” and “mine”).

4.1.7.2 SEPP (Transport and Infrastructure) 2021

Clause 2.48 of State Environmental Planning Policy (Transport & Infrastructure) 2021 requires a consent authority to give written notice to an electricity supply authority “*inviting comments about potential safety risks*” for any development within 5m of an “*exposed overhead electricity power line*” or “*within or immediately adjacent to an easement for electricity purposes*”. The proposed quarry access track will pass through two electricity supply easements and under two power lines located in those easements.

Clause 2.48 also requires the consent authority to “*take into consideration any response to the notice that is received within 21 days after the notice is given*” before determining a Development Application.

4.1.7.3 SEPP (Biodiversity & Conservation) 2021

State Environmental Planning Policy (Biodiversity & Conservation) 2021 has koala habitat protection provisions, including clause 4.9 which applies to the Tamworth Regional Council area. Under sub-clause 4.9(3) if the consent authority is satisfied that a proposed development is “likely to have low or no impact on koalas or koala habitat” then it may consent to the Development Application. This SEPP has been considered in Section 6.1 of the attached Biodiversity Assessment (Appendix R).

4.1.7.4 SEPP (Resilience & Hazards) 2021

Hazardous or offensive industry - State Environmental Planning Policy (Resilience & Hazards) 2021 [SEPP R&H 2021] defines a “*hazardous industry*” as one which when all location, technical, operational and organisational safeguards are employed, continues to pose a significant risk to surrounding land users. SEPP R&H 2021 also defines an “*offensive industry*” as one which, even when controls are used, has emissions which result in a significant level of offence, such as air quality impacts or noise emissions.

A project cannot be considered either “*hazardous*” or “*offensive*” until it has been assessed via the “*preliminary hazard analysis*” process required by clause 3.11 of SEPP R&H 2021, consistent with any relevant guidelines. A Preliminary Hazard Analysis (PHA) is required if a proposed project or site is classified as potentially hazardous or offensive, under the Hazardous and Offensive Industry Guidelines, January 2011.

Under the guidelines, a preliminary risk screening for the Project is necessary to determine whether a PHA is relevant.

Dangerous goods - Preliminary screening involves identification and assessment of the storage of specific dangerous goods classes that have the potential for significant off-site effects.

The only significant proposed dangerous goods storage on the site consists of diesel in an above-ground storage tank with approximately 20,000 litre capacity with a bunded area with a capacity of approximately 120 per cent. The storage system will be consistent with the requirements of AS1940-2004 The storage and handling of flammable and combustible liquids (AS1940). There is no applicable guideline threshold for diesel storage.

Preliminary risk screening conclusion - Preliminary screening concludes that under SEPP R&H 2021 the Project is not considered either 'hazardous' or 'offensive'.

Contamination - Clause 4.6 of State Environmental Planning Policy (Resilience & Hazards) 2021 imposes a requirement that a consent authority must not consent to the carrying out of any development unless “*it has considered whether the land is contaminated*”. As noted in Section 7.1, searches were made for evidence of contamination based on the land use history of the site and surrounding areas. No evidence of potential contamination was found, and it is regarded as unlikely.

4.1.7.5 SEPP (Industry & Employment) 2021

A business identification sign up to about 3m by 3m is proposed to be erected as noted previously in Section 3.6.10. An assessment of the proposed sign against relevant provisions of State Environmental Planning Policy (Industry & Employment) 2021 is provided in Table 4.2.

Table 4.2 – Review of Industry & Employment SEPP, Chapter 3.

INDUSTRY & EMPLOYMENT SEPP	RESPONSE
Part 3.1 objectives are to ensure that signage – (i) is compatible with the desired amenity and visual character of an area, and (ii) provides effective communication in suitable locations, and (iii) is of high quality design and finish, and	The size and height of the signage is intended to facilitate identification of the quarry entrance by customers, service providers and emergency services from the public road. The sign will be located within the site, have a high design quality and be constructed from all new materials that are fixed and securely installed in accordance with: (i) AS/NZS 1170.0:2002, <i>Structural design actions, Part 0: General principles</i> , and (ii) AS/NZS 1170.2:2011, <i>Structural design actions, Part 2: Wind actions</i> .
Part 3.2 Signage generally	Consent Authority must satisfy itself that proposed signage is consistent with - objectives in section 3.1(1)(a) - assessment criteria in Schedule 5
Part 3.3 Advertisements	Sub-section 3.7(1)(a) excludes the application of this part to “business identification signs”
Part 3.4 Miscellaneous	None of these sections are relevant to this proposal.

INDUSTRY & EMPLOYMENT SEPP	RESPONSE
Schedule 5 Assessment Criteria	
1. Character of the area - Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located? - Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	The proposed sign will be of a similar scale to other business identification signs adjoining public roads in the vicinity.
2. Special areas Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	Land in the immediate vicinity is currently primarily used for livestock grazing and no significant detracting to amenity or visual quality is expected.
3. Views and vistas - Does the proposal obscure or compromise important views? - Does the proposal dominate the skyline and reduce the quality of vistas? - Does the proposal respect the viewing rights of other advertisers?	No significant compromise of views or vistas will occur. No other advertisers will be affected.
4. Streetscape, setting or landscape - Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape? - Does the proposal contribute to the visual interest of the streetscape, setting or landscape? - Does the proposal reduce clutter by rationalising and simplifying existing advertising? - Does the proposal screen unsightliness? - Does the proposal protrude above buildings, structures or tree canopies in the area or locality? - Does the proposal require ongoing vegetation management?	Scale proportion and form is regarded as appropriate.
5. Site and building - Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located? - Does the proposal respect important features of the site or building, or both? - Does the proposal show innovation and imagination in its relationship to the site or building, or both?	Proposal is for a basic business identification sign in a rural setting, hence the setting is respected.
6. Associated devices and logos with advertisements and advertising structures Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	No
7. Illumination	Not applicable. No illumination proposed.

INDUSTRY & EMPLOYMENT SEPP	RESPONSE
8. Safety • Would the proposal reduce the safety for any public road? • Would the proposal reduce the safety for pedestrians or bicyclists? • Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?	No significant impact expected, and none is likely.

4.1.7.6 Tamworth Regional Local Environmental Plan 2010

Under the Tamworth Regional Local Environmental Plan 2010, the project site is zoned RU4 Primary Production Small Lots. Objectives of the zone are:

- To enable sustainable primary industry and other compatible land uses.
- To encourage and promote diversity and employment opportunities in relation to primary industry enterprises, particularly those that require smaller lots or that are more intensive in nature.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

Extractive industry, such as the proposed mudstone quarry, is a form of primary production that is permissible within the zone with development consent. It is also considered to be consistent with the objectives of the zone.

4.1.7.7 Tamworth Regional Development Control Plan 2010

The Tamworth Regional Development Control Plan 2010 (DCP) contains various development standards for specific development types and sites. None were regarded as directly relevant, or applicable, to this proposal.

4.1.7.8 Tamworth (Direct) Development Contributions Plan 2013

Tamworth Regional Council requires extractive industries to make a monetary contribution to road maintenance under section 4.4 of its “Section 94 (Direct) Development Contributions Plan 2013” within defined areas. The plan has a formula for calculating an indexed monetary contribution per tonne of material transported from the site, paid on a monthly or quarterly basis. The formula is calculated by Council and uses a range of variables, including length of haul road, expected road life, proposed quantity of material to be hauled, existing and proposed traffic.

Section 1.4 and Figure 1 of the plan indicate that this project is outside the area where it is applicable. Nevertheless, it is expected that Council will request the Northern Regional Planning Panel to apply the plan under the provisions of sub section 7.13 (2) of the Environmental Planning and Assessment Act 1979.

4.2 Regional strategic context

4.2.1 Tamworth Regional Council Local Strategic Planning Statement 2020

Tamworth is the largest Regional Centre within the New England & North West Region and the proportion of urban population residing there is increasing over time, from 6.3% in 1921 to 22.6% in 2016 ¹¹. In that context Tamworth Regional Council is planning for an additional 17,000 residents by 2041 ¹².

4.2.2 North West Regional Plan 2041

The development lots are located immediately to the south of land that has been identified in the New England North West Regional Plan 2041 for future large lot residential investigation, as shown in Figure 4.2.

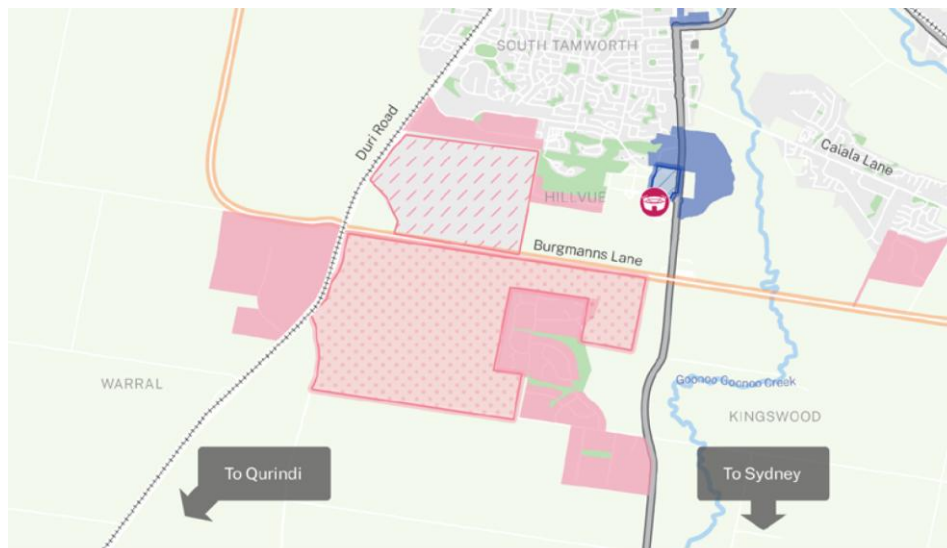


Figure 17: Tamworth regional city



Figure 4.2 – Extract from Tamworth future land use areas map ¹³.

¹¹ Page 44, New England North West Regional Plan 2041, NSW Planning & Environment, Sep 2022

¹² Page 5, Tamworth Regional Council Local Strategic Planning Statement 2020

¹³ Page 105, New England North West Regional Plan 2041, NSW Planning & Environment, Sep 2022

4.2.3 New England Renewable Energy Zone

Tamworth is located near the southern portion of the New England Renewable Energy Zone (NEREZ) in which the NSW Government is planning for ¹⁴:

- Network capacity of 8 gigawatts.
- Up to \$10.7 billion in private sector investment.
- Around 830 operational jobs and 1,250 construction jobs.

Multiple renewable energy projects are proposed within the Tamworth catchment for regional population and service industries. Although few of the projects have reached Development Application stage, it seems likely that the largest regional centre, Tamworth, will develop:

- A population cohort directly employed to provide maintenance services to the NEREZ. If 20% of the projected operational employees reside in Tamworth, then this will be around 166 new positions.
- New and expanded businesses providing construction and maintenance related services for NEREZ related projects.

4.3 Biodiversity Conservation Act 2016

The Biodiversity Conservation Act 2016 (BCA 2016) imposes various requirements for development proposals that may have an impact on native flora and fauna. Establishment of the proposed quarry will require the clearing of some vegetation.

The requirements of the Act have been considered in the attached Biodiversity Assessment (Appendix R).

4.4 Water Management Act 2000

The objects of the Water Management Act 2000 are to provide for the sustainable and integrated management of the water sources of the state for the benefit of both present and future generations.

In NSW, the regulator and policy maker for water resource management is the NSW Department of Industry – Water (DoI Water). The department develops natural resource management policy frameworks, strategies and plans related to water management. DoI Water is accountable for water sharing plans (WSPs)¹⁵.

4.4.1 Water sharing plans

Water Sharing Plans (WSP) are the legal instruments for managing water resources in NSW. Water Resource Plans are put in place to implement the Commonwealth's Basin Plan 2012, including the Namoi Surface Water Resource Plan¹⁶. WSPs define the rules for sharing the water resources of each river valley between consumptive users and the environment.

¹⁴ <https://www.energyco.nsw.gov.au/renewable-energy-zones/new-england-renewable-energy-zone>

¹⁵ [Water NSW Legislation & Guides](#)

¹⁶ [Namoi Surface Water Plan](#)

The project site is located on a ridge which straddles the boundary of the Goonoo Goonoo Creek and Timbumburi Creek catchments. This catchment divide is also the boundary between Lower Peel River Tributaries Water Source and the Goonoo Goonoo Creek Water Source under the WSP for the Namoi & Peel Unregulated Rivers Water Sources 2012. An amended draft WSP for the area was submitted to the Murray Darling Basin Authority in 2020, but had not come into effect as of July 2023.

4.4.2 Licencing

Under the Water Management Act 2000, owners or occupiers of land overlaying an aquifer or with river, estuary or lake frontage can take water without a licence for domestic (household) purposes or for stock watering (basic landholder rights). However, a water supply work approval is required to construct a groundwater bore, as well as dams in some circumstances.

Landholders are also entitled to collect a portion of runoff from their property and store it in one or more dams up to a certain capacity that are located on minor streams. This entitlement is known as a ‘harvestable right’ and is determined from the total contiguous area of land ownership. In central inland-draining catchments up to 10 per cent of the average annual regional rainfall runoff may be captured and used for any purpose¹⁷ without requiring an approval or licence under the Act.

If the maximum harvestable right for a landholding is exceeded, then an appropriate license is required for the volume of surface water to be extracted in exceedance of the available harvestable right.

4.4.3 Policies

4.4.3.1 NSW Water Strategy 2021

The NSW Water Strategy¹⁸ was published by the NSW Government in August 2021 and outlines government policy regarding seven priorities for water management in NSW, as follows:

1. Build community confidence and capacity through engagement, transparency and accountability.
2. Recognise First Nations/Aboriginal People’s rights and values and increase access to and ownership of water for cultural and economic purposes.
3. Improve river, floodplain and aquifer ecosystem health, and system connectivity.
4. Increase resilience to changes in water availability (variability and climate change).
5. Support economic growth and resilient industries within a capped system.
6. Support resilient, prosperous and liveable cities and towns.
7. Enable a future focused, capable and innovative water sector.

The strategy is a state-wide, high-level strategy that is intended to work in tandem with 12 regional water strategies and two metropolitan water strategies. The NSW Water Strategy and underlying regional or metropolitan water strategies do not replace statutory instruments (such as water sharing plans). They set the

¹⁷ [Water NSW Harvestable Rights](#)

¹⁸ [NSW Water Strategy](#)

agenda for water management into the future and are designed to contribute to water management outcomes aligned with the objects and principles of the Water Management Act 2000.

4.4.3.2 Draft Regional Water Strategy: Namoi

The Regional Water Strategy: Namoi¹⁹ was published by the NSW Government in June 2023 and aims to bring together the best and latest climate evidence with a wide range of tools and solutions to plan and manage the water needs in each NSW region over the medium term (<20 years). The strategy determines how much water a region will need to meet future demand, the challenges and choices involved in meeting those needs and the actions available to manage risks to water availability.

4.4.4 Guidelines

4.4.4.1 ANZECC Guidelines for Fresh & Marine Water Quality

The 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality²⁰ are a joint initiative between the Australian and New Zealand governments and the Australian state and territory governments. They form part of the National Water Quality Management Strategy a joint national approach to improving water quality in Australian waterways.

The guidelines provide a best-practice platform for consistent and effective water quality management and planning. They are not mandatory standards but have been used by state and territory governments to develop water management policy and/or regulation.

Within the guidelines structured considerations are provided for seven typical uses for water, with regard for local conditions. They also include guidance on selecting appropriate indicators and water quality objectives for protecting identified community values for waterways.

4.4.4.2 Stormwater management guidelines

Current stormwater management guidelines within NSW relevant to quarry sites are primarily derived from:

- Sections 5 and 6 of Volume 1 of Managing Urban Stormwater: Soils and Construction, 4th Edition (Landcom, 2004) (commonly known as the “Blue Book”).
- Additional measures are outlined in Managing Urban Stormwater, Soils and Construction, Volume 2E Mines and Quarries (DECC, 2008).

The guidelines outline various concepts intended to be used for the modelling and design of sedimentation basins for the capture, storage and treatment of stormwater prior to release from a disturbed development site.

¹⁹ [Namoi Regional Water Strategy](#)

²⁰ [ANZECC Guidelines for Fresh & Marine Water Quality 2018](#)

4.5 Other State legislation

Additional relevant NSW legislation is outlined in Table 4.3.

Table 4.3 – Additional relevant NSW legislation summary.

LEGISLATION	KEY ELEMENTS	COMMENT
Biosecurity Act 2015	Land owner has a duty to manage weeds on the project site, consistent with the requirements of the act and regulation. Administered by Tamworth Regional Council.	Operational relevance
National Parks and Wildlife Act 1974	Provisions to prevent the destruction of Aboriginal relics and the active protection and conservation of Aboriginal relics of high cultural significance. Also provides for the protection of native flora and fauna. Administered by the Department of Planning, Industry and Environment (DPIE) and.	Development Application & operational relevance
Protection of the Environment Operations Act 1997	Licensing regime for pollution generating activities in NSW. Administered by the NSW Environment Protection Authority (EPA). Under Sections 47 and 48, an EPL is required for scheduled development work and scheduled activities respectively	Integrated development – Scheduled activities include more than 30,000 tonnes per year of: - Extraction or transport of “<i>extractive material</i>” (Clause 19). - Materials “<i>crushing, grinding or separating</i>” including sand, gravel, rock (Clause 16). Operational - Enables the NSW Environment Protection Authority to address adverse environmental impacts, such as noise and dust, on sites operated under an Environment Protection Licence
Roads Act 1993	As the roads relevant road authority, approval is sought from Tamworth Regional Council to connect the proposed quarry access road to Gowrie Road under sub-section 138(1)(e).	Integrated development
Work Health and Safety (Mines and Petroleum Sites) Act 2013	Contains provisions for work health and safety issues unique to mine sites, including a quarry. At quarry sites this act is administered by NSW Resources Regulator.	Operational relevance
Work Health and Safety Act 2011	Applies to all workplaces in NSW, including quarries. At quarry sites this act is primarily administered by NSW Resources Regulator.	Operational relevance

4.6 Environment Protection & Biodiversity Cons. Act 1999

The requirements of the Act have been considered in Section 6.3 of the attached Biodiversity Assessment (Appendix R).

4.7 Summary of approvals required

Under the Tamworth Regional Local Environmental Plan 2010, the project is permissible with consent. The project is also classified as designated development within Schedule 3 of the EP&A Regulation, as it is an extractive industry:

- With an extraction rate of more than 30,000 cubic metres of material per year.
- Less than 500 metres from an existing quarry that has operated in the last 5 years.
- With more than 2 hectares of disturbance.

Being designated development, the project requires the preparation of an EIS to accompany the development application. The project is also integrated development, in accordance with Section 4.46 of the EP&A Act, and requires:

- An Environment Pollution Licence under the POEO Act
- A Section 138 approval under the Roads Act 1993

Under State Environmental Planning Policy (Planning Systems) 2021 an extractive industry that is “*designated development*” under the regulation is also “*regionally significant development*” (Sch 6, Sub Sect 7(1)(a) & Clause 2.19). Sub-section 4.5(b) of the Environmental Planning and Assessment Act 1979 then deems the consent authority as “*the regional planning panel for the area in which the development is to be carried out*”. In this case the consent authority is the Northern Regional Planning Panel.

5 STAKEHOLDER ENGAGEMENT

5.1 Introduction

Consultation with the community, Council and state government agencies was an essential aspect of the EIS preparation process and necessary to determine the range of issues of concern to them. Feedback from consultation undertaken during the Scoping Report process has helped define the scope of the EIS and associated specialist environmental assessments, while also being used to inform project design and mitigation measures.

This section provides a description of the government and community consultation activities undertaken and outlines the key issues identified and where they are addressed in this document.

5.2 Consultation with government agencies

Matters raised by NSW Government agencies in their correspondence and the SEARs are listed in Table 5.1, with guidance on where the issues have been dealt with in the EIS and associated specialist impact assessments.

Table 5.1 – Matters raised by government agencies & EIS response.

SEARS KEY ISSUES	EIS SECTIONS
In particular, the EIS must include - an executive summary - a comprehensive description of the development, including: - a detailed site description and history of any previous quarrying on the site, including a current survey plan; - identification of the resource, including amount type and composition; - the layout of the proposed works and components (including any existing infrastructure that would be used for the development); - an assessment of the potential impacts of the development, as well as any cumulative impacts, including measures that would be used to minimise, manage or offset these impacts - a detailed rehabilitation plan for the site;	Section 2 & attached plans Section 3.2. EIS & attached plans Section 7 Section 3.7, Plan 13 & 14.
- any likely interactions between the development and any existing/approved developments and land uses in the area, paying particular attention to potential land use conflicts with nearby residential development; - a list of any other approvals that must be obtained before the development may commence - the permissibility of the development, including identification of the land use zoning of the site;	Separate Land Use Conflict Assessment. Section 4.1.4 Section 4.1.7.5

SEARS KEY ISSUES	EIS SECTIONS
○ identification of sensitive receivers likely to be affected by the development using clear maps/plans, including key landform areas, such as conservation areas and waterways; ● a conclusion justifying why the development should be approved, taking into consideration: ○ alternatives ○ the suitability of the site ○ the biophysical, economic and social impacts of the project, having regard to the principles of ecologically sustainable development; and ○ whether the project is consistent with the objects of the Environmental Planning and Assessment Act 1979; and ● a signed declaration from the author of the EIS, certifying that the information contained within the document is neither false nor misleading.	Section 2.3.6 & Plan 4. Also Separate Visual Impact, Noise Impact & Air Quality Impact Assessments. Section 9 Section 3.9 Section 8.3 Section 7 & 8.6 Section 8.5 Page 4.
Consultation In preparing the EIS for the development, you should consult with relevant local, State or Commonwealth Government authorities, infrastructure and service providers and any surrounding landowners that may be impacted by the development The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.	Section 5
KEY ISSUES The EIS must assess the potential impacts of the proposal at all stages of the development, including the establishment, operation and decommissioning of the development. The EIS must address the following specific issues: Noise – including a quantitative assessment of potential: ○ construction and operational noise and off-site transport noise impacts of the development in accordance with the Interim Construction Noise Guideline, NSW Noise Policy for Industry and NSW Road Noise Policy respectively; ○ reasonable and feasible mitigation measures to minimise noise emissions; and ○ monitoring and management measures;	See Noise Impact Assessment & Section 7.4.
Blasting & Vibration – including: ○ proposed hours, frequency, methods and impacts; and ○ an assessment of the likely blasting and vibration impacts of the development, having regard to the relevant ANZECC guidelines and paying particular attention to impacts on people, buildings, livestock, infrastructure and significant natural features;	Not applicable. No blasting proposed, as noted in EIS Section 3.4.2.1.
Air – including an assessment of the likely air quality impacts of the development in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW. The assessment is to give particular attention to potential dust impacts on any nearby private receivers due to construction activities, the operation of the quarry and/or road haulage;	Section 7.5 & separate Air Quality Impact Assessment.

SEARS KEY ISSUES	EIS SECTIONS
Water – including: ○ a detailed site water balance and an assessment of any water licensing requirements or other approvals required under the Water Act 1912 and/or Water Management Act 2000, including a description of the measures proposed to ensure the development can operate in accordance with the requirements of any relevant Water Sharing Plan or water source embargo; ○ an assessment of potential impacts on the quality and quantity of existing surface and ground water resources, including a detailed assessment of proposed water discharge quantities and quality against receiving water quality and flow objectives; and ○ a detailed description of the proposed water management system, water monitoring program and other measures to mitigate surface and groundwater impacts;	Surface water - Sections 3.6.1, 4.4, & 7.2. Separate Groundwater Impact Assessment.
Biodiversity – including: - accurate predictions of any vegetation clearing on site; ○ a detailed assessment of the potential biodiversity impacts of the development, paying particular attention to threatened species, populations and ecological communities and groundwater dependent ecosystems undertaken in accordance with Sections 7.2 and 7.7 of the Biodiversity Conservation Act 2016; and ○ a detailed description of the proposed measures to maintain or improve the biodiversity values of the site in the medium to long term, as relevant.	Sections 4.3 & 7.6
Heritage – including: ○ an assessment of the potential impacts on Aboriginal heritage (cultural and archaeological), including evidence of appropriate consultation with relevant Aboriginal communities/parties and documentation of the views of these stakeholders regarding the likely impact of the development on their cultural heritage; and ○ identification of Historic heritage in the vicinity of the development and an assessment of the likelihood and significance of impacts on heritage items, having regard to the relevant policies and guidelines listed in Attachment 1;	See Section 7.8 & Land Council report (Appendix I) & AHIMS (Appendix J).
Traffic & Transport – including: ○ accurate predictions of the road traffic generated by the construction and operation of the development, including a description of the types of vehicles likely to be used for transportation of quarry products; ○ an assessment of potential traffic impacts on the capacity, condition, safety and efficiency of the local and state road networks, detailing the nature of the traffic generated, transport routes, traffic volumes and potential impacts on local and regional roads;	Section 3.5, 7.7 & separate Traffic Impact Assessment
Land Resources– including an assessment of: ○ potential impacts on soils and land capability (including potential erosion and land contamination) and the proposed mitigation, management and remedial measures (as appropriate); and ○ an assessment of activities that could cause erosion or sedimentation issues, and the proposed measures to prevent or control these impacts;	Section 7.1 Section 3.4.9, 3.6.1, 3.7, 7.1
Waste – including estimates of the quantity and nature of the waste streams that would be generated or received by the development and any measures that would be implemented to minimise, manage or dispose of these waste streams;	Section 7.11

SEARS KEY ISSUES	EIS SECTIONS
Hazards – including an assessment of the likely risks to public safety, paying particular attention to potential bushfire risks and the transport, storage, handling and use of any hazardous or dangerous goods;	Section 7.12
Visual – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, including with respect to any new landforms;	Section 7.9 & separate Visual Impact Assessment
Social & Economic – an assessment of the likely social and economic impacts of the development, including consideration of both the significance of the resource and the costs and benefits of the project; and	Section 7.13
Rehabilitation – including: ○ a detailed description of the proposed rehabilitation measures that would be undertaken throughout the development and during quarry closure; ○ a detailed rehabilitation strategy, including justification for the proposed final landform and consideration of the objectives of any relevant strategic land use plans or policies; and ○ potential impacts on landforms (topography), paying particular attention to the long-term geotechnical stability of any new landforms (such as overburden dumps, bunds etc	Section 3.7, Plans 13 & 14
Environmental Planning Instruments The EIS must take into account all relevant State Government environmental planning instruments, guidelines, policies, and plans. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies and plans that may be relevant to the environmental assessment of this development. During the preparation of the EIS you must also consult the Department's EIS Guideline – Extractive Industries – Quarries. This guideline is available at http://www.planning.nsw.gov.au/~media/Files/DPE/Guidelines/extractive-industries-quarries-eis-guideline-1996-10.ashx . In addition, the EIS must assess the development against the Tamworth Regional LEP 2010 and any relevant development control plans/strategies.	Sections 4.1 & 4.2

5.3 Community consultation

5.3.1 Completed

Preliminary community engagement regarding the proposal was undertaken via a community information session on the afternoon of Saturday 6 May 2023 at the Tamworth Community Centre. Notification of the information session was provided:

- Via an information flyer dropped in mail boxes for all dwellings located within a 750 metre radius of the proposed quarry site and access track. More than 55 flyers were delivered to dwellings.
- By posting a copy of the flyer to the “Kingswood 2340” Facebook internet group, a community information page with about 700 members.

Five people attended the community information session where an outline of the proposed project was provided along with copies of a “Community Feedback Form”. All participants were encouraged to circulate the form to other community members and copies also made available via the “Kingswood 2340” Facebook internet group.

Ultimately ten completed feedback forms were received from community members. All respondents indicated they had concerns about the proposed quarry, while five also raised concerns about the existing Council and “Railway” (Traffic for NSW) quarries. A summary of the key issues raised by community members is provided in Table 5.2 below.

Table 5.2 - Key issues raised during preliminary community engagement.

CATEGORY	ISSUES
DUST	Existing dust accumulations on evaporative air conditioner pads, swimming pools, cars, solar panels, water tanks, etc.
	Existing dust sources identified as Council Quarry, traffic on Spains Lane (unsealed section) and agricultural activities (cultivation, harvesting).
	Dominant winds from west and south west.
	Will site and access track be watered to prevent dust?
NOISE	Concern regarding operating hours and days?
	Concern about potential operating life of quarry?
	Noise may cause stress to horses in nearby paddocks.
GROUNDWATER	Local residents have experienced lowered water tables and/or dry bores due to seasonal conditions and more bores accessing the groundwater table.
	Is there enough groundwater to be used for quarry related dust suppression?
	Will the quarry adversely impact groundwater availability?
VISUAL AMENITY	Change to view from urban residences (“ugly scar”, “visually distasteful”).
	Rehabilitation of site
	Will there be visual barriers such as vegetation or earth banks?
	Too close to dwellings
HEALTH RISKS	Impact on people with existing respiratory related conditions, including asthma and lung cancer.

CATEGORY	ISSUES
	Potential for dust exposure to cause adverse respiratory health impacts.
SOCIAL IMPACTS	Impacts on property values
	Impacts on amenity and rural residential lifestyle
TRAFFIC	Deterioration of public roads.
	Condition of existing roads such as Duri Road and the corner of Gowrie Road will suffer due to the high volume of truck usage and weight. This has occurred on Burgmanns Lane already.
	Potential for quarry traffic to use Spains Lane.
	Increased truck traffic would pose a hazard to children on bikes.

Sixteen people have provided e-mail or mailing address details to Quarry Plan NSW and requested that they be kept informed of the proposed development as of 31 July 2024.

Community update newsletters regarding the project were circulated via email and the Strathmore Quarry Facebook page, as follows (Appendix N):

- Initial newsletter, April 2023 – Outline of proposed quarry, details of a discussion session on 6 May 2023 and information regarding the Development Application process.
- Update newsletter 2, July 2023 – Summary of key issues raised during preliminary community engagement.
- Update newsletter 3, July 2023 – SEARs issued and arrangements commenced for preparation of EIS and specialist assessments.
- Update 4 newsletter, March 2024 – EIS and specialist assessments in progress, with Development Application expected within the next few months.

5.3.2 Proposed

5.3.2.1 Community Information Session

Shortly after the submission of this EIS to the Northern Regional Planning Panel for public exhibition, the applicant will undertake a community information session to:

- Provide an overview of the proposed development.
- Outline and discuss key findings from the impact assessments (for example, air quality, noise, traffic), as well as proposed management and mitigation measures.
- Provide an overview of the EIS assessment and determination process, including how to review and make a formal submission.
- Remind community members that Oats Block Pty Ltd and Quarry Plan NSW staff familiar with the project will continue to be available for direct contact regarding the project during the public exhibition of the Development Application.

Notification of the community information session will be provided to the 16 people currently on the interested parties email/mail list maintained by Quarry Plan NSW, as well as via the Strathmore Quarry Facebook page.

5.3.2.2 Community information newsletter

Prior to commencing construction, the proponent will inform people on the interested parties email/mail list of the planned commencement of construction via a community information newsletter. The newsletter will advise relevant details, including general construction activities, key dates, staging, operating hours, and relevant site contact details.

5.3.2.3 Environment hotline

Prior to commencing construction, the applicant will establish an environment hotline phone number that will be advertised on the business identification site at the access driveway off Gowrie Road. The hotline can be used by the community to lodge a complaint or query about operations at the Strathmore Quarry.

Strathmore Quarry will have a process to collect, monitor, evaluate and action community feedback. Any complaints will be recorded in a register for ongoing monitoring and evaluation. Each complaint or other piece of information received from the community will be appropriately followed up in a timely manner.

5.3.2.4 Signage

Clearly visible signage will be installed at the site access driveway the Gowrie Road prior to commencing construction. The sign will provide the site name, contact details for business inquiries and an environment hotline phone number.

5.3.2.5 Website

A Strathmore Quarry website will be established prior to commencing project construction, to provide business information and enable customer contact. There will also be a digital form whereby the public can submit complaints or queries.

5.4 Tamworth Regional Council

5.4.1 Completed

After submitting a draft Scoping Report regarding the project, a consultation meeting was held with Tamworth Regional Council's planning staff on 2 March 2023. Issues discussed included:

- A request to include a quarry closure commitment in conjunction with any future residential rezoning in the vicinity of the proposed quarry.
- A request that a Land Use Conflict Risk Assessment be provided.
- An expectation for an intersection upgrade at Werris Creek Road and Gowrie Road to facilitate traffic movements to site.

5.4.2 Proposed

In a letter dated 11 July 2024 (Appendix O), Tamworth Regional Council was informed that the applicant wanted to discuss the possibility of “*entering into a Voluntary Planning Agreement under the Environmental Planning and Assessment Act 1979 (Part 7 Division 7.1 Subdivision 2) with Council, whereby:*

- *It makes a significant contribution to the sealing of Spains Lane.*
- *It receives development consent for the proposed quarry, with access via Spains Lane.*
- *The agreed contribution is reasonable with regard for project related road use.”*

As of 23-8-2024, Council’s planning and engineering staff have not yet been available to commence discussions about a voluntary planning agreement. Nevertheless, the applicant believes the project proposal can be altered to provide public road access via Spains Lane in a manner that is beneficial for road users, Council and the applicant.

The applicant remains committed to engaging in consultation with Tamworth Regional Council regarding a suitable voluntary planning agreement at the earliest opportunity.

6 RISK ASSESSMENT

6.1 Introduction

A preliminary environmental risk assessment was undertaken to identify key risks associated with environmental issues which may arise as a result of the operation of the proposed quarry. The ERA was undertaken in the form of a qualitative desktop level risk assessment, informed by site inspections and project planning to broadly assess potential environmental risks that may arise as a result of the project.

Risk assessment and management is site specific activity, as a risk assessment that is suitable for one site will not be suitable for use at another.

6.2 Preliminary risk analysis results

Findings of the preliminary environmental risk analysis are provided in Table 6.1.

Table 6.1 – Potential environmental impacts associated with project.

ASPECT	PRELIMINARY ENVIRONMENTAL RISK ANALYSIS	FURTHER ASSESSMENT REQUIRED?
Soils, land capability and use	The Project fundamentally disturb the proposed quarry void domain and substantially influence future land use options of that land. Access tracks also have potential to have environmental impacts. Soil erosion issues are addressed separately, as part of the surface water assessment.	Yes, refer to Section 7.1.
Traffic	The proposed quarry will increase heavy and light vehicle movements. The potential implications of this increase on the local road network are assessed in a detailed Traffic Impact Assessment.	Yes, refer to Section 7.7 & separate Traffic Impact Assessment (Appendix C).
Groundwater	Existing nearby quarries have no significant evidence of groundwater inflows. The proposed quarry floor will be up to about 15m below that of existing quarries. A Groundwater Impact Assessment has been completed in order to assess potential impacts.	Yes, refer to Section 7.3 & separate Groundwater Impact Assessment (Appendix G)
Surface water	The Project proposes using surface water for dust suppression. Potential impacts on surface water quality and availability have been assessed.	Yes, refer to Section 3.6.1 and 7.2.
Ecology	Given the extent of disturbance proposed, a due diligence assessment has been undertaken in relation to the potential impact of the project on ecological values.	Yes, refer to Section 7.6.
Air quality	The proposed Project may have an impact on air quality, as well as a cumulative impact when combined with existing nearby quarries and agricultural land uses. An Air Quality Impact Assessment has been completed to assess the impacts of these changes.	Yes, refer to separate Air Quality Impact Assessment (Appendix D) & Section 7.5.
Noise	Noise from traffic and quarry operations has the potential to affect dwellings outside the project lots. A noise impact has been completed to assess the impacts of these changes.	Yes, refer to separate Noise Impact Assessment (Appendix E) & Section 7.4.

ASPECT	PRELIMINARY ENVIRONMENTAL RISK ANALYSIS	FURTHER ASSESSMENT REQUIRED?
Aboriginal heritage	The project area has been disturbed by ongoing dryland cultivation. Additional consultation has been undertaken with Tamworth Local Aboriginal Land Council to determine whether any concerns arise regarding the potential for the project to impact any heritage items.	Yes, refer to Sections 7.8 & Appendix I.
European & natural heritage	A review of relevant databases and site inspection has been undertaken to confirm no other sites will be potentially impacted by the Project.	Yes, refer to Section 7.8.
Visual amenity	The Project may have potential visual amenity impacts to nearby residents and the community through extension of operations and relocation of some infrastructure. A Visual assessment has been undertaken for the Project to review expected potential impacts to visual amenity.	Yes, refer to Section 7.9 & Visual Impact Assessment.
Rehabilitation	The primary function of rehabilitation of an extractive industry site is to create as safe and stable land form that is suitable for an appropriate ongoing land use. Subsequent land use is expected to be agriculture or urban residential related.	Yes, refer to Section 3.7.
Land use conflict	The project is located in the general vicinity of urban dwellings, hence has the potential to generate land use conflict. Various issues of concern to residents have been identified via preliminary consultation with the community. A land use conflict risk assessment has been prepared to rank and prioritise potential environmental, public health and amenity impacts associated with the project.	Yes, refer to Separate Land Use Conflict Risk Assessment (Appendix H).

7 IMPACT ASSESSMENT

7.1 Land resources

This section deals with the landform, geology, soils and land use of the project site

7.1.1 Existing environment

7.1.1.1 Landform

The project site is located on the crest of a ridge with a maximum elevation of 461 m Australian Height Datum (AHD) primarily sloping toward the north west reaching a minimum elevation of about 446 m AHD. The ridge is part of an area of undulating ridges trending in a general north south orientation.

Immediately south of the project site the ridge landform has been modified by excavations at the Traffic for NSW and Tamworth Regional Council Quarries that have been operating for several decades. The existing quarries have locally reduced the height of the ridge by a maximum of about 16 metres.

7.1.1.2 Geology

The project site is located in a rock formation known as the Noumea Beds near the crest of an anticline, as shown previously in Figure 3.1, with the strata dipping at about 20 degrees to the north east.

The rocks were deposited during the Late Devonian period and have been mapped as “*interbedded massive- and andesitic-lithic wacke, pebbly wacke, laminated siltstone and mudstone*”²¹, with laminated siltstone and mudstone prevalent in the vicinity of the existing and proposed quarry sites. There is no substantial faulting or other rock types apparent in the rock exposures within the adjoining quarries.

Field observations have not shown any evidence of significant potentially deleterious sulphide mineral accumulations within outcrops or quarry exposures in project site vicinity, such as iron oxide staining (weathered) or sulphide (fresh) minerals.

7.1.1.3 Land and soil capability

Land capability is the inherent physical capacity of the land to sustain a range of land uses and management practices in the long term without degradation to soil, land, air and water resources. It is a function of landscape features and processes and is influenced by terrain, soil and climatic attributes and their interactions. Failure to manage land in accordance with its capability risks degradation of resources both on and off-site, leading to a decline in natural ecosystem values, agricultural productivity and infrastructure functionality²².

The land is mapped as land soil and capability “Class 5 Severe Limitations”²³ as shown in Figure 7.1.1. The mapping is intended to provide regional scale information broad scale agricultural use. Class 5 land has severe limitations for high impact land management uses such as cropping. This land is generally more suitable for grazing with some limitations or very occasional cultivation for pasture establishment.

²¹ NSW Surface Geology – Seamless version 2.1, 2023 © 2023 State of NSW through Regional NSW.

²² The Land & Soil Capability Assessment Scheme, Second Approximation, NSW Office of Environment & Heritage

²³ [Land and Soil Capability Mapping for NSW](#), SEED data

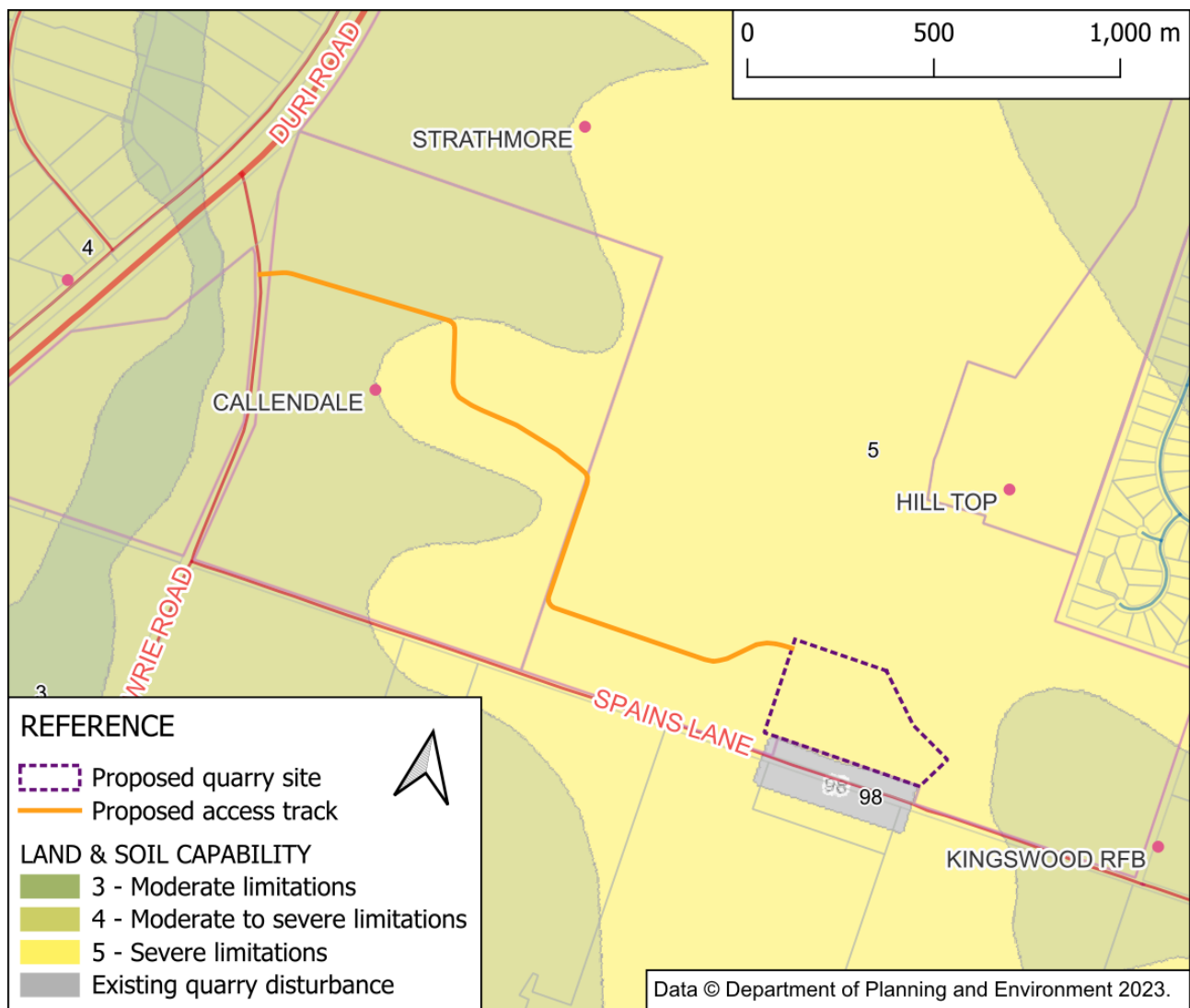


Figure 7.1.1 – Land & soil capability mapping.

7.1.1.4 Land use

Historical aerial photography from 1976²⁴, shows ground features indicative of ongoing dryland cropping and grazing land use of the project site. This includes stock fencing, dams, contour banks, crops and tillage lines. The proponent grows oats crops during winter over the majority of the development lots, where possible, to graze cattle. Cropping tends to be opportunistic and reliant on suitable weather conditions.

7.1.1.5 Contamination

Targeted searches have been made for indicators of potential contamination issues associated with cropping, grazing and quarry related land uses, including:

- Rubbish, such as tyres, lead batteries, wire, glass, car bodies, asbestos building materials, herbicide and pesticide containers.
- Sheep/cattle dips (eg. contamination from arsenic, organophosphates, etc).
- Cropping (ge. herbicide & pesticide containers).

²⁴ NSW Government Spatial Services historical imagery

- Fuel tanks/workshops (eg. oil and diesel spills).

Field observations during January 2023, June 2023 and June 2024 did not disclose any evidence of potentially significant contamination, and none is expected given the apparent land use history of the site.

In a letter dated 22 May 2025 Tamworth Regional Council stated that a “Preliminary Site Investigation (PSI) is to be provided. A PSI was undertaken by GSG Laboratories, as documented in a report dated 12-8-2025 (Appendix T) which concluded (Section 8):

The data indicates that the fifteen (15) samples collected from a depth of 0-0.2m at fourteen (14) locations (BH1 to BH14) across the focus area on Lot 102, DP1288693, 222 Burgmanns Lane Warral, NSW, 2340, were all below the NEPM HIL-A, EIL, ESL criteria and management limits.

In accordance with Section 4.6 of the State Environment Planning Policy (Resilience and Hazards) 2021, the investigated soils within the “focus area” located on Lot 102, DP1288693, 222 Burgmanns Lane Warral, NSW, 2340, do not require any further investigation and are therefore associated with a low risk to future development. This PSI did not include investigations of the vacant land surrounding the quarry development envelope identified as the focus area on Lot 102, DP1288693.

7.1.1.6 Soil erosion

Several existing erosion control contour banks are present on the quarry site and access track, predominantly on ridge crests and slopes mapped as land soil and capability “Class 5 Severe Limitations”. None of these banks appear to have been breached.

There is evidence of historic gully erosion to the west and east of the quarry site, at three locations shown in Figure 7.1.2. The gullies are currently vegetated and do not appear to be subject to active erosion. No evidence of recent rill or sheet erosion was observed during site inspections.

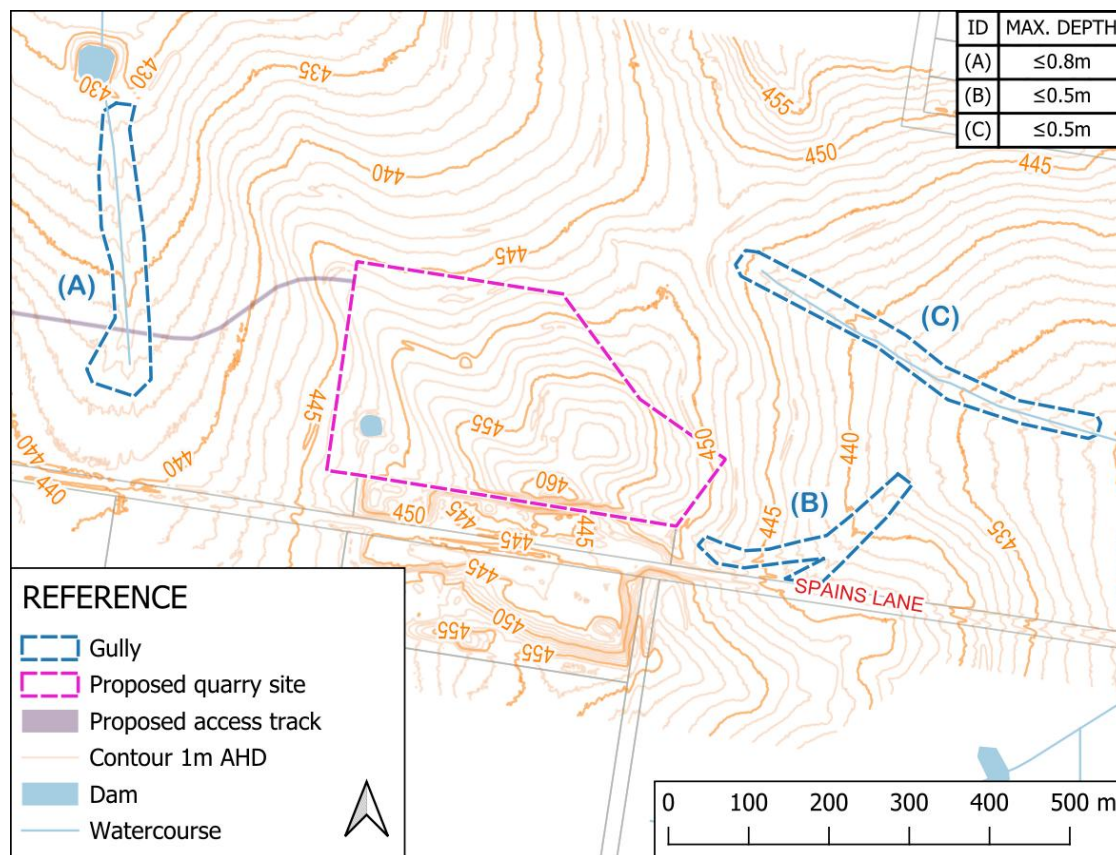


Figure 7.1.2 – Existing gully erosion.

7.1.2 Impact assessment

7.1.2.1 Landform

The project will change the topography of the site by creating an excavation 9.24 Ha in area and a maximum of 31 m deep.

7.1.2.2 Geology and soils

A minimum of around 0.3m of soil and weathered rock will be removed and stockpiled for use in the rehabilitation of the project site. Soil erosion is a potential project impact if appropriate erosion and sediment controls are not established.

7.1.2.3 Land and soil capability

After the project site has been rehabilitated it is expected to become primarily LSC Class 6, from an agricultural perspective, which is generally only suitable for grazing with limitations. The access roads will be able to be rehabilitated to their former LSC Classes 4 and 5, if they are not required by the landowner for agricultural land use.

If the land is rezoned for residential related land uses, then the comparatively steep walls of the quarry void will effectively restrict potential uses to a park, nature strip and/or stormwater retention area. There is also potential to permanently retain excess virgin excavated natural material derived from future urbanisation earthworks within the remnant quarry void.

After rehabilitation, the most significant change proposed is that about 10 to 14 hectares of land will be effectively altered from LSC class 5 to LSC class 6. The project lots have a combined area of 553 hectares, hence the reduction of usable land is about 2.5% of the development site. Given the relatively small area involved, this is not regarded as a significant adverse impact to the most likely future land uses, which are agriculture and residential related.

7.1.2.4 Land use

Extractive industry is a permissible and long-established use within the zone, so a new quarry is unlikely to have a significant impact on adjacent existing primary production activities. Potential impacts of the project on the surrounding rural holdings and urban dwellings in the vicinity are addressed throughout the relevant sections of this EIS and the associated LUCRA assessment (Appendix H).

7.1.2.5 Contamination

Potential contamination that could arise during construction and operation of the quarry include:

- Fuel, oil or chemical spills.
- Inappropriate disposal of wastes (eg batteries, oil, tyres).
- Residual fuels, oils or chemicals in soils

7.1.2.6 Soil erosion

Proposed construction and operational activities have the potential to cause or accelerate soil erosion via:

- Ground cover disturbance by earthmoving activities or vehicle movements off designated tracks.
- Concentration of stormwater flows along significant slopes, bunds and/or drains.
- Inadequate application and maintenance of appropriate stormwater and sediment controls.

7.1.3 Mitigation measures

The proponent proposes to implement various management strategies to avoid or reduce potential impacts on land resources as outlined below.

7.1.3.1 Soil

Mitigation measures intended to minimise potential impacts on soil and land capability include;

1. Topsoil will be pre-stripped and stockpiled for use in rehabilitation activities.
2. All sediment and erosion controls should be designed and implemented in accordance with the NSW Soils and Construction – Managing Urban Stormwater Volume 1 ‘the Blue Book’ (Landcom, 2004) and Volume 2E ‘Mines and Quarries’ (DECC 2008).
3. The disturbance area will be rehabilitated once quarrying is complete.
4. Regular reviews of quarry wall stability and conditions will be undertaken once the void is more than 5m below ground level.
5. Earth bunds will be used to prevent external stormwater flows from entering the quarry void.

7.1.3.2 Contamination

Mitigation measures related to minimising the potential for soil, surface water and groundwater contamination include;

1. Fuels, lubricants and chemicals will be stored and, where practicable, used within containment/hardstand areas designed to prevent the escape of spilt substances to the surrounding environment.
2. Personnel will be trained in spill containment and response procedures.
3. Appropriate spill response materials will be kept on site.
4. Appropriate maintenance schedules for plant and equipment will be followed to detect and repair leaks.
5. Spills will be reported and managed in accordance with legislative and licensing requirements.
6. In the event that there is a significant diesel fuel or oil spill (more than 100 litres), the following actions will be taken:
 - All potential ignition sources will be removed to reduce the potential for fire.
 - Access will be restricted to authorised personnel only.
 - If there is potential for diesel, oil or chemicals to flow into an open waterbody or watercourse, the spill area will be bunded to isolate the diesel spill.
 - Contaminated soil will be recovered and either:
 - Retained on the quarry site for natural attenuation (break down by natural micro-organisms), if the volume of contaminated soil is less than 2 cubic metres, or;
 - Disposed of at an authorised waste depot, if more than 2 cubic metres.

7.2 Surface water resources

7.2.1 Existing environment

7.2.1.1 Overview

The project site is located on a ridge which forms the boundary between the Goonoo Goonoo Creek and Timbumburi Creek catchments, as shown in Figure 7.2.1. The nearest natural perennial surface waterbody is the Timbumburi Creek, located more than 1800 metres to the west of the proposed quarry disturbance area. Slope analysis shows the site and surrounds are relatively free draining, with slopes generally exceeding 0.5°, and less than 7°.

There are numerous farm dams in the vicinity of the quarry, as shown in Figure 7.2.1 and Plan 3, which are primarily used as a drinking water source for domestic livestock.

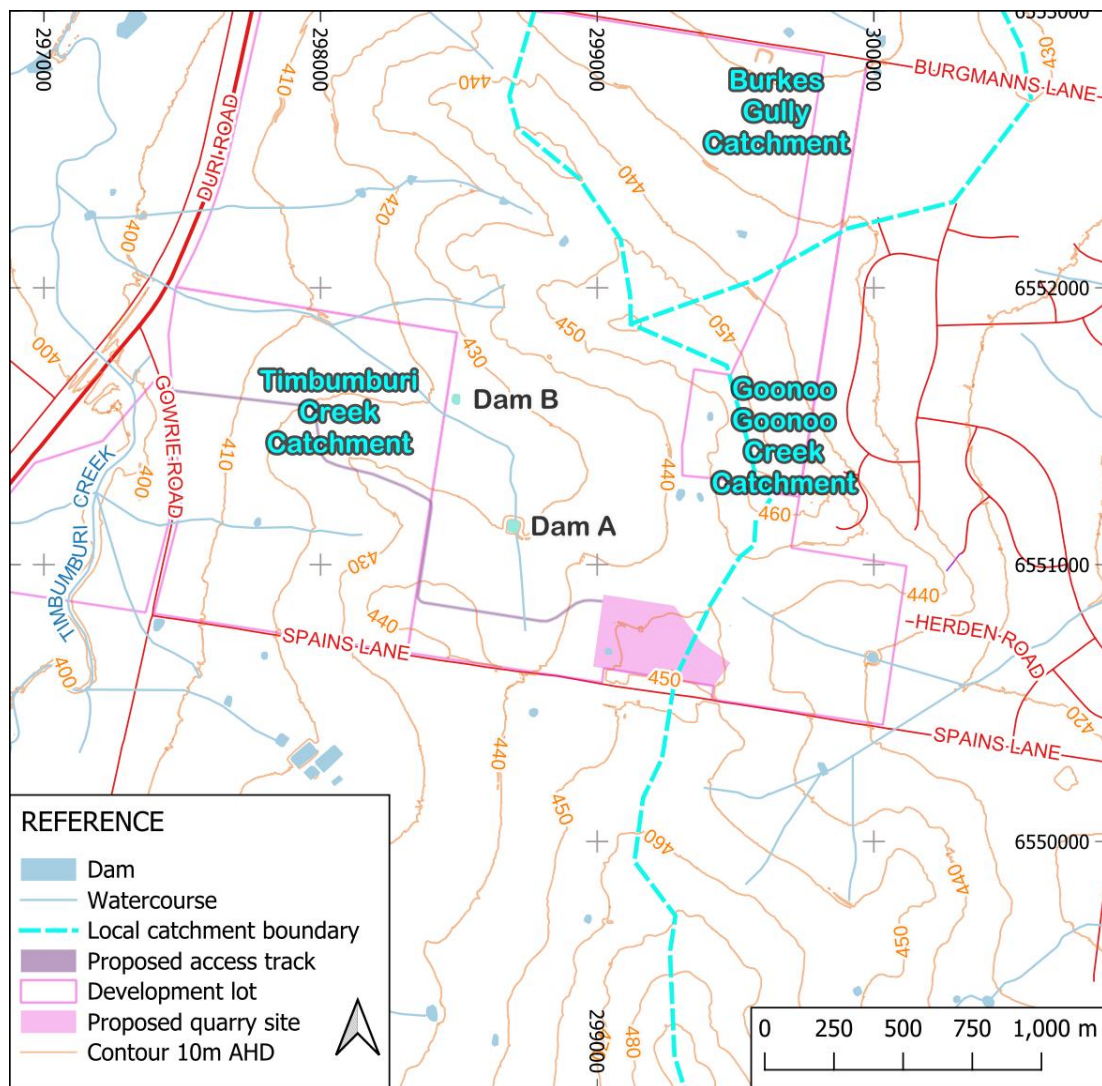


Figure 7.2.1 – Catchments & farm dams in vicinity of proposed quarry site.

7.2.1.2 Rainfall & evaporation

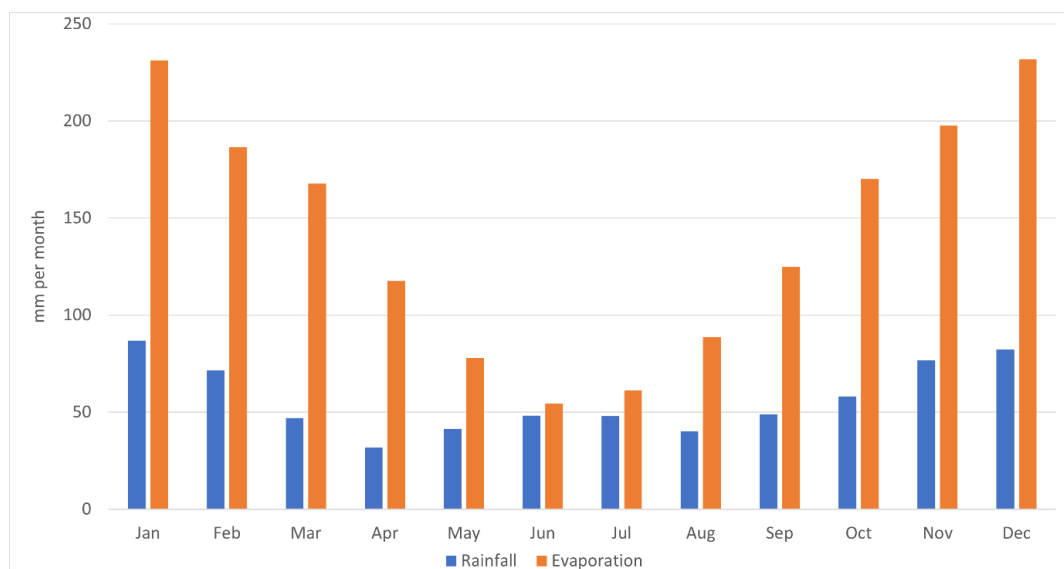
Rainfall and pan evaporation data for a point near the Kingswood locality (latitude -31.15 longitude 150.90) was obtained from the SILO database operated by the Queensland Department of Environment and Science²⁵ which provides data for all of Australia based on historical observations, primarily from the Australian Bureau of Meteorology (BOM), with missing data inferred by interpolation. Data prior to 1970 for evaporation was quite repetitive, suggesting it was dominated by generalised synthetic results, hence only data for the period from 1970 to 2022 was considered.

Average annual rainfall and evaporation figures are provided in Table 7.2.1, along with a graph of average monthly rainfall and evaporation in Figure 7.2.2. There is a clear moisture deficit apparent in the average monthly and annual data, which is about 1010mm on an annual basis.

²⁵ SILO database at <https://www.longpaddock.qld.gov.au/silo/>

Table 7.2.1 – Annual rainfall & evaporation 1970 to 2022 (SILO data).

STATISTIC	RAINFALL (mm)	PAN EVAPORATION (mm)
Minimum	243.9	1,176.7
Maximum	989.9	2,188.8
Average	667.8	1,677.5
Median	665.5	1,675.3

**Figure 7.2.2 – Average monthly rainfall & evaporation, 1970 to 2022 (SILO data).**

7.2.1.3 Runoff - AWBM

The volume of surface water runoff in the proposed quarry water management system (WMS) has been estimated using the Australian Water Balance Model (AWBM) and incorporated into the site water balance. The AWBM was developed in the early 1990s (Boughton, 1993) and is one of the most widely used rainfall–runoff models in Australia, including for quarry and mining projects.

The AWBM is a partial area saturation overland flow model that requires the assessment of nine parameters, as summarised in Table 7.2.2. The parameters are typically determined for a gauged catchment through a process of calibration, where recorded streamflow is compared to calculated streamflow. They are adjusted to produce the best match between the means and standard deviations of the daily streamflows, to match the difference in peak flow discharge (eg Boughton 2009).

Table 7.2.2 – AWBM parameters.

PARAMETER	DESCRIPTION
A1, A2, A3	Partial areas represented by surface storages
C1, C2, C3	Surface storage capacities
K _s	Daily surface flow recession constant
BFI	Baseflow index
K _{base}	Daily baseflow recession constant

AWBM parameters were calibrated using “Rainfall Runoff Library” (RRL) software version 1.0.5, published by eWater. The RRL software uses local historical flow data, evapotranspiration and rainfall data for a concurrent period to carry out the calibration. Flow gauge data from the Goonoo Goonoo Creek gauge at Meadow Lane (419097) ²⁶ was available for the period 2003 to 2022 (20 years). The gauge is about 3.5 km south east of the quarry site, with a total catchment area of 600km² and a similar biophysical context to the proposed quarry site. SILO daily rainfall and evapotranspiration point data was also used ²⁷ for the vicinity of the gauge site.

Calibrated AWBM parameters from this data were:

- BFI 0.17, KBase 0.99, KSurf 0
- C1 28.91 mm, C2 295.31 mm, C3 590.61 mm (average capacity 387.479 mm)
- A1 0.134, A2 0.433.

Runoff values were calculated using the AWBM and calibration figures derived from the process described above, as shown in Table 7.2.3. These values are regarded as indicative for the proposed quarry site, given the close proximity and similar biophysical context of the catchment and gauge data used.

²⁶ Water NSW <https://realtimedata.watersnsw.com.au/water.stm>

²⁷ Scientific Information for Landowners (SILO) at <https://www.longpaddock.qld.gov.au/silo/>

Table 7.2.3 – AWBM annual runoff values 2003 to 2022.

	AWBM CALCULATED RUNOFF ML per square kilometre
Minimum	2.75
Maximum	45.94
Average	22.07
Median	19.74

7.2.2 Impact assessment

7.2.2.1 Potable water

Potable water demand for the quarry operation is estimated to be approximately 0.1 ML per year. All potable water for the Project will continue to be sourced from off-site supplies and is delivered to site via tanker.

7.2.2.2 Water for dust suppression

During the establishment phase of the Project, existing farm dams on the development lots will be used to supply any water required for construction activities (e.g. dust suppression). If this supply is insufficient during the construction period, then a licensed water carrier would be contracted to supply any additional water required.

The development lots have a combined area of 552 hectares which provides a maximum harvestable surface water right of 38.6 ML under the Water Management Act 2000.

Water for the quarry will be sourced from Dam A, Dam B and the quarry sump as outlined in Section 3.6.1. It is expected that Dam A and B will be desilted prior to the commencement of the development, as well as periodically during the project life.

Water demand for the project has been estimated based on the project specific parameters detailed in Table 7.2.4.

Table 7.2.4 – Water demand modelling parameters.

WATER USE	PARAMETERS
Processing plant	- Water is expected to be used for dust suppression on the processing plant about 50% of the quarry working days (300), at a rate of between 10,000 and 20,000 litres per day. Process plant water will not be required when the plant is not operating or minimal dust is generated by processing. - Therefore at 150 processing days per year, with a maximum daily consumption of 20 kL, will require about 3.0 ML per annum for the processing plant.
Access tracks	- During adverse weather conditions water will be sprayed on haul roads within the quarry void and quarry access track to prevent significant adverse dust. - Primary spraying trigger will be observable dust being carried towards any dwelling not related to the quarry operation, or the Quarry Manager's expectation that these circumstances are likely to develop. - Consumption estimated at 4.0 ML per year based on 285 runs at ~14 kL per truck load.

Water use for the proposed quarry is estimated at approximately 8 ML per year, primarily for dust suppression on access tracks, as well as the crushing and screening plant. The predicted water demand for the respective activities is shown in Table 7.2.5.

Table 7.2.5 – Estimated water demand (ML per year).

AREA	PREDICTED
Processing plant	3.0
Access tracks	5.0
TOTAL	8.0

7.2.2.3 Water transfers

Estimated average annual water transfers for the project is summarised in Table 7.2.6, based on the estimated average annual runoff of 22.07 ML per square kilometre (Section 7.2.1.3) and a WMS catchment area of 1.279km² (Section 3.6.1).

Table 7.2.6 – Average annual water transfers (ML per year).

WATER MANAGEMENT ELEMENT		AVERAGE CONDITIONS ML/YEAR
INPUTS	Catchment runoff for WMS (catchment area 1.276km ² catchment	28
	Direct rainfall (dam area 0.0027km ²))	0.6
TOTAL INPUTS		28.6
OUTPUTS	Evaporation	5
	Dust suppression	8
	Uncontrolled discharges (dam overflows)	15.6
TOTAL OUTPUTS		28.6
CHANGE IN STORAGE		
Surface water storage dams		0
Total change in storage		0
Inputs – outputs – change in storage		0

Comparing average water demand to measured runoff in the period from 2003 to 2022, indicates that water deficits would have been most likely during 2006 (~1.98ML), 2018 (~9.48ML) and 2019 (~8.83ML).

7.2.2.4 Catchment alteration

The project has the potential to impact flow regimes in watercourses due to changes to surface water runoff and baseflow contributions. The project will change the catchments of Goonoo Goonoo Creek and Timbumburi Creek.

Existing catchment areas and the proposed amended areas are indicated in Table 7.2.7. The most significant impact is that the catchment area of the Strathmore Quarry proposed dirty water management system will effectively be removed from the existing creek catchments. Effectively all runoff on the quarry site will be caught and managed as part of the water management system.

Table 7.2.7 – Change in Catchment Area.

CATCHMENT	EXISTING AREA Ha	PROPOSED CHANGE Ha
Goonoo Goonoo Creek	>61,000	-2
Timbumburi Creek	>16,500	-8.4
Proposed Strathmore Quarry	0	+10.4

Table 7.2.7 shows that the project is expected to reduce the catchment area of Timbumburi Creek by less than 0.0005% and Goonoo Goonoo Creek by less than 0.00003%. Given the comparatively small change in catchment area proposed, it is quite unlikely that there will be any significant disturbance to volumes of surface water runoff and baseflow contribution arising from the project.

No significant changes are expected to flood regimes or to the stability of downstream water courses as a result of the proposed project, given the relatively small catchment areas that will be disturbed.

7.2.2.5 Water for agriculture

The associated farm holding uses a mix of surface water and ground water for livestock, primarily cattle. During previous droughts when dams have run dry, there has been an ongoing supply of water from groundwater bores (domestic & stock). The holding property is usually destocked during more severe drought periods. Based on modelling and site experience, sufficient water supply is expected for concurrent agricultural and quarry operations during typical seasons. In the event of drought, then there is sufficient groundwater supply for livestock and domestic requirements, while the quarry will be subject to the demand management strategies noted in Section 7.2.3.6.

7.2.3 Mitigation measures

As noted in Section 3.6.1, three types of water and WMS systems will be associated with the project, clean, dirty and import water.

7.2.3.1 WMS – Clean water

The proposed clean Water Management System consists of perimeter bunds around the quarry void at least 1m high that will prevent overland stormwater flows from entering the quarry void. The bunds will have multiple purposes (safety, screening and/or stormwater control) and their positions will change over time due to the operational requirements of the quarry. Indicative locations are shown in Figure 3.12 and Plan 13.

7.2.3.2 WMS – Dirty water

Observations of the existing adjoining quarries shows negligible evidence of water, sediment accumulation or vegetation growth, that would be suggestive of any significant ongoing stormwater ponding on those sites. The existing quarries currently form depressions 16 metres or more below natural ground level, and up to about 1.5Ha in area. It appears that the highly fractured mudstone is quite permeable to at least 445m AHD, hence allows surface water to readily infiltrate in periods where dissipation by evaporation does not occur.

The proposed Dirty Water Management System primarily consists of a sump within the quarry void (Figure 3.12) that receives all surface and groundwater flows from the dirty water catchment of about 11.6 Ha. Given the lack of stormwater ponding in adjoining quarries outlined previously, it is expected that all surface water retained by the sump after a storm event is likely to infiltrate the mudstone within relatively short time frames, hence there is unlikely to be significant amounts of retained stormwater available for operational purposes such as dust suppression.

Infiltration rates may reduce in later years of the project life, after the quarry floor is below 445m AHD and the mudstone rock becomes less weathered at greater depths below natural ground level. Infiltration rates

could also be intentionally reduced, if required, by adding bentonite or a similar material that expands when wet to reduce sump permeability.

Topsoil stockpiles will be temporarily considered as part of dirty water catchment until stabilised for duration of the project. Controls for the temporary disturbance of the stockpile area include diversion of clean water surrounding the stockpile area using temporary measures, such as sediment fence, sandbags or minor earthworks.

All sediment and erosion controls would be designed and implemented in accordance with the NSW Soils and Construction – Managing Urban Stormwater Volume 1 ‘the Blue Book’ (Landcom, 2004) and Volume 2E ‘Mines and Quarries’ (DECC 2008).

7.2.3.3 WMS – Import water

Import water will be sourced from commercial water carriers, primarily during periods of significantly below average rainfall when the quarry WMS cannot meet operating requirements. As noted previously in Section 7.2.2.3, modelling for the period from 2003 to 2022, indicates that water deficits would have been most likely during 2006 (~1.98ML), 2018 (~9.48ML) and 2019 (~8.83ML), or about once every 6.3 years.

Management strategies that will be used to minimise demand for import water during adverse weather conditions include one or more of the following:

- Reducing the quarry access track speed limit from 20 to 10km/h.
- Altering haulage routes within the quarry, where feasible.
- Ceasing some, or all, haulage activity until weather conditions improve.
- Where feasible, undertaking crushing and screening on a “campaign” basis when there is water available from the quarry WMS.
- Regularly reviewing long term weather forecasts for predicted El Nino events and aiming to increase stockpile volumes outside such events.

7.2.3.4 WMS – Sediment basin size

Overland stormwater flows on the quarry site will be directed to a sump within the quarry void that is maintained specifically for the retention of stormwater (consistent with section 6.2.1, Vol 2E). As quarry excavations progress, the actual location of the sump will be varied to suit the operational needs of the project. The sump will effectively operate as a sediment basin.

Determining the guideline minimum “sediment dam” storage capacity involves:

- Reviewing Table 6.3a in Vol 1 of Managing Urban Stormwater: Soils and Construction which indicates a 5 day 90th percentile rainfall event would result in a 39.2mm depth of rainfall for the Tamworth area.
- This equates to 392 cubic metres of water per hectare of catchment.
- The proposed dirty water catchment of about 10 Ha, hence requires a minimum stormwater storage volume of 3,920 cubic metres.

It is expected that the quarry void volume will exceed 30,000 cubic metres within the first 12 months of production, hence will substantially exceed the required minimum sediment dam storage capacity.

7.2.3.5 WMS - Stormwater guidelines & licensing

All sediment and erosion controls should be designed and implemented in accordance with the NSW Soils and Construction – Managing Urban Stormwater Volume 1 ‘the Blue Book’ (Landcom, 2004) and Volume 2E ‘Mines and Quarries’ (DECC 2008).

The quarry will require an EPL under the Protection of the Environment Operations Act 1997 for extraction and processing operations. The proponent expects that the NSW EPA will impose standard licence conditions requiring adherence to “Blue Book” stormwater guidelines.

7.2.3.6 Demand management

Strategies that will be used to minimise demand for water during adverse weather (eg drought conditions) include one or more of the following:

- Reducing the quarry access track speed limit from 20 to 10km/h.
- Ceasing some, or all, haulage activity until weather conditions improve.
- Where feasible, crushing and screening will be undertaken when there is water available from the quarry WMS.
- Regularly reviewing long term weather forecasts for predicted El Nino events and aiming to maximise stockpile volumes outside such occurrences.

In a worst-case scenario, import water may be sourced from commercial water carriers. This is most likely to occur during extended periods of significantly below average rainfall when the water sources and demand management strategies are unable to ensure sufficient supply for minimum operational requirements.

7.3 Groundwater resources

A Groundwater Impact Assessment (GIA) [Appendix G] dated 23 August 2024 has been prepared by Ground Doctor Pty Ltd which assesses the potential for the proposed development to impact the quantity and quality of existing groundwater resources in the vicinity of the project.

7.3.1 Existing environment

Existing environmental conditions relating to groundwater are considered within Section 3 of the GIA. The assessment process included drilling four monitoring bores in the vicinity of the proposed quarry then measuring observed groundwater flow and quality (Section 3.1).

7.3.2 Impact assessment

Sections 5, 6 and 7 of the GIA considers potential groundwater impacts associated with the proposed development with regard for the minimum impact thresholds in the NSW Aquifer Interference Policy (NSW DPI, 2012). The GIA concludes (Section 7):

“Groundwater data for MB02, MB03 and MB04 indicates there is groundwater flow away from the proposed quarry excavation. Therefore, the final quarry void will not become a groundwater sink. Any groundwater inflow or accumulated surface water within the excavation should continue to drain away

from the quarry void, consistent with the pre-development condition. The proposed development does not pose any significant change to the pre-development water balance of the local area.

Potential impacts to water quality relate primarily to the storage and handling of fuel, lubricants and hydraulic oils. These risks to groundwater quality are commensurate with risks posed by the existing operation and maintenance of agricultural machinery at the site and on surrounding properties. They can be made acceptable by ensuring the appropriate environmental controls are implemented as part of the project and as required by the Protection of the Environment Operations Act 1997.”

7.3.3 Mitigation measures

The GIA indicates potential impacts to groundwater quality relate primarily to the storage and handling of fuel, lubricants and hydraulic oils. Specific land and soil contamination mitigation measures have been proposed in Section 7.1.3.2 that will also be effective for the prevention of any significant groundwater contamination.

7.4 Noise & Vibration

Project related noise and vibration has been considered in a Construction and Operational Noise and Vibration Assessment prepared by RCA Australia dated June 2024 (CONVA) [Appendix E].

7.4.1 Existing environment

Existing environmental conditions related to noise are addressed in Section 4 of the CONVA.

7.4.2 Impact assessment

Impact assessment of construction and operational noise is considered in Sections 5 to 10 of the CONVA.

7.4.3 Mitigation measures

7.4.3.1 Bund wall

An earth bund wall at least three metres above natural ground level will be constructed along the northern and eastern edges of the proposed quarry. Terrain related noise analysis within the CONVA used three-dimensional data for notional quarry stages, as well as the earth bund at 3m above natural ground level.

7.4.3.2 Operating hours & recessed floor

The CONVA notes that the primary mitigation measure adopted by the proposal is to undertake construction activities during standard construction hours only, and to operate during “daytime” hours. Also that once the quarry pit floor was lowered, the walls of the pit provided an effective noise barrier (CONVA Section 11).

RCA found that no other mitigation measures would be necessary.

7.5 Air quality

Air quality considerations for the project have been reviewed in detail via an Air Quality Impact Assessment prepared by Northstar Air Quality Pty Ltd dated 27 March 2024 (Appendix D).

7.5.1 Existing environment

Existing environmental conditions related to air quality are primarily addressed in Section 4 of the Air Quality Impact Assessment.

7.5.2 Impact assessment

Assessment of the expected impact of the project is provided in Sections 5 and 6 of the Air Quality Impact Assessment. In summary, the assessment was performed in accordance with the requirements of the NSW Environment Protection Authority Approved Methods for the Modelling and Assessment of Air Pollutants in NSW document using atmospheric dispersion modelling. Predictions were compared with the respective annual and short-term air quality criteria at identified sensitive receptor locations in the surrounding area.

Proposed emission/dust controls are outlined in Section 5.3 of the Air Quality Impact Assessment.

The results of the assessment indicate that with the application of the proposed emission controls the predicted short-term and annual TSP, PM₁₀ and PM_{2.5} concentrations are compliant with the respective impact assessment criteria, with no additional exceedances of the 24-hour PM₁₀ and PM_{2.5} criteria. Furthermore, the addition of minor incremental impacts to background dust deposition levels results in the achievement of the impact assessment criterion

7.5.3 Mitigation measures

Proposed emission/dust control measures for the project are outlined within Section 5.3 of the Air Quality Impact Assessment (Table 7.5.1 below).

Table 7.5.1 – Emission reduction methods adopted by project (Table 9 from AQIA).

Emission control method	Control efficiency (%)
Minimising drop heights when unloading material	30
Water sprays on excavation area, transfer points and product stockpiles	50
Controlled crushing operations through mobile plant	77.7
Controlled screening operations through mobile plant	91.2
Low silt aggregate (i.e. gravel) on unpaved roads (site access)	30
Reduction in vehicle speeds to 20 km·hr ⁻¹ on unpaved roads	85
Haul route watering (excluding site access)	50
Primary rehabilitation of bund area	30
All vehicle loads are covered for transporting material off-site.	Not quantified
Limit load sizes to ensure material is not above the level of truck sidewalls	Not quantified

Some emission reduction methods will be ongoing, while others, such as water sprays on excavation areas, transfer points and product stockpiles will be periodic in response to weather conditions. Water sprays on the excavation area are only expected to be necessary during dry conditions and when the excavation is proceeding within soil and/or weathered rock that has with a significant fine particle component.

Notably, applying a 20km per hour speed limit on unpaved roads on the quarry site is expected to make substantial reduction in controlled annual and peak 24 hour particulate matter emissions compared to an uncontrolled scenario.

7.6 Biodiversity

7.6.1 Existing environment

A Biodiversity Assessment (Appendix R) prepared by Cedar Ecology, has provided a detailed assessment of existing biodiversity over the proposed project disturbance areas (Sections 2, 3 & 4).

7.6.1.1 Weeds

Various weed species have been identified in the vicinity of the proposed project, as listed in Table 7.6.2, that are predominantly species of thistle. No weeds of national significance were recognised on the project on the project site during field inspections.

The current highest risk weed species for this project are regarded as:

- Chilean needlegrass (*Nassella neesiana*) – Widespread in the Tamworth area.
- Coolatai grass (*Hyparrhenia hirta*) – Widespread in the Tamworth area.
- Parthenium weed (*Parthenium hysterophorus*) – Recorded in the Warral area.

This assessment is based on the following considerations:

- Each is a significant weed species that has been established, or recurring, within the local area.
- The species are often found on road verges and undeveloped land.
- It will be comparatively common for machinery entering and leaving the project site to also be working on road verges and undeveloped land.
- Each species is a significant seed producer, that can promptly spread and germinate in new areas after the unintended transportation of contaminated soil or organic matter.

7.6.1.2 Biosecurity

Biosecurity considerations other than weeds (previous section), include pest animal and disease threats.

Preliminary assessment has not identified any disease, vertebrate animal or invertebrate animal present on the site or nearby that is likely to pose a significant biosecurity risk to people or domestic livestock.

7.6.2 Impact assessment

The Biodiversity Assessment (Appendix R) prepared by Cedar Ecology, provides an assessment of potential biodiversity impacts of the project (Sections 5.1 and 5.2).

7.6.2.1 Weeds

Ground disturbance and frequent off site traffic movements have the potential to facilitate weed dispersal via:

- Earthmoving equipment, trucks or vehicles contaminated with seed or other propagules entering and leaving the project site.
- Soil disturbance and/or insufficient control programs enabling the growth and propagation of weeds on the project site and adjoining lands.

7.6.2.2 Biosecurity

A remote possibility exists that quarry related equipment sourced, or transported, via a pest animal infested area may also carry contamination. For example, packaging for a new or used machinery part sourced in Queensland might introduce fire ants (*Solenopsis invicta*) or cane toads (*Bufo marinus*) to the area. Potential habitat mapping indicates that cane toads are unlikely to survive²⁸, however fire ants will probably establish viable populations²⁹.

7.6.3 Mitigation measures

The Biodiversity Assessment (Appendix R) makes the following recommendations for mitigation measures within Table 5.1 of the assessment.

Impact	Mitigation
Vegetation and habitat loss	1. Mark the limits of clearing and install fencing around the construction footprint area prior to construction activities commencing to avoid unnecessary vegetation and habitat removal/ disturbance. 2. If threatened fauna is encountered, then work would stop immediately and a plan would be formulated by the ecologist to determine the most appropriate course of action.
Erosion and sedimentation	3. Erosion and sediment control measures must be installed in accordance with the Landcom/Department of Housing Managing Urban Stormwater, Soils and Construction Guidelines (the Blue Book) with specific controls installed around watercourses in the eastern portion 4. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request.
Biosecurity	5. Biosecurity risk weeds are to be managed according to requirements under the <i>Biosecurity Act 2015</i> and/or Council management measures. 6. Measures must be implemented during construction works so that machinery and plant do not introduce weed seed or propagules to the site (e.g. by adoption and implementation of the 'Arrive Clean, Leave Clean' guidelines (DoE 2015).

²⁹ <http://learnline.cdu.edu.au/units/env301/interactive/fireants.html>

7.6.3.1 Weed management

Measures that will be applied to mitigate the potential impact of weeds include:

- The Quarry Manager, or delegate, will prevent the entry or departure of any machinery with any significant residual soil and/or vegetation accumulation until they are satisfied that the equipment has been cleaned in a manner suitable to minimise opportunities for weed dispersal.
- The access track and quarry void will be maintained in a weed-free or weed-reduced state to lessen the opportunity for weed seed to be spread by vehicle movements.
- The Quarry Manager will review weed management strategies in consultation with the Strathmore Farm Manager when necessary, and at least once every three years.

The overall objective is to manage agricultural and environmental weeds in accordance with the Biosecurity Act 2015 as well as to avoid any significant introduction or dispersal from the project site.

7.6.3.2 Biosecurity

A Biosecurity Risk Management Plan has been prepared (Appendix Q) which considers biosecurity issues and outlines proposed various performance targets and management measures appropriate for the project. Management measures include;

1. Fencing of the quarry access road and site.
2. Signage at quarry driveway entrance stating conditions of entry requirements.
3. A signposted vehicle and equipment wash bay area in the immediate vicinity of the quarry office.
4. The Quarry Manager, or their delegate, will be authorised to restrict the movement of vehicles, including preventing the entry or departure of any machinery with any significant residual soil and/or vegetation accumulation until they are satisfied that the equipment has been cleaned in a suitable manner.
5. All employees and contractors will be inducted and trained in plant and equipment inspection and wash down procedures.
6. When buying or selling plant or machinery, the Quarry Manager will assess the potential for a pest animal or weed to contaminate the item. If any potential exists, then the item/s will be inspected, cleaned and managed in an appropriate manner to avoid the potential for transport of any pest species to, or from, the quarry site.

7.7 Traffic and transport

7.7.1 Existing environment

Existing traffic volumes and circumstances related to the project are considered in detail within Section 2 of a Traffic Impact Assessment (TIA) [Appendix C] prepared by Kelley Covey Group Pty Ltd dated April 2024, provided as an addendum to this EIS document.

7.7.2 Impact assessment

7.7.2.1 Establishment

Most construction activities during the establishment phase will occur within the development lots including site preparation, quarry establishment, initial crushing and screening then creation of the quarry access track. Vehicle access will initially be via Gowrie Road (existing Callendale driveway) or Burgmann Lane (Hilltop driveway). The volume of construction related traffic will be significantly less than that associated with the operational phase of the quarry.

However minor disruptions to Gowrie Road traffic will arise during the construction of a proposed new quarry access driveway within the public road corridor of the Gowrie Road. During the period of driveway construction, there will be a need to implement traffic control, including reduced speed zones.

7.7.2.2 Operational

Detailed consideration of operational traffic related impacts, including volumes, trip distributions, road pavement impacts, safety impacts, intersection capacity and designs is provided from Sections 3 through to 9 of the TIA.

Traffic volumes expected during site establishment are outlined in Section 3.5.2 of this document. Overall, negligible impact on public road traffic is expected from site establishment activities that will primarily be confined to the. However minor disruptions to Gowrie Road traffic will arise during the construction of a proposed new road access within the public road corridor of the Gowrie Road.

7.7.2.3 Administrative

In a letter dated 22 May 2025 Tamworth Regional Council stated:

“Council has reviewed the EIS, traffic report, additional information and discussed internally the access options. Council’s position is that for the quarry development to proceed, the Gowrie Road intersection needs to be upgraded. The complication is that part of Gowrie Road is a Crown Reserve, subject to a native title claim and it will take an unknown amount of time for this to be rectified. From a public interest perspective, with the amount of heavy vehicles proposed to utilise this site – the use of Spains Lane onto New England Highway is not appropriate considering the close proximity of the Kingswood large lot residential estate.

The Planning Secretary’s Environmental Assessment Requirements (SEARS) for Strathmore Quarry Project included agency comments for your information that you must have regard to when preparing the EIS. The Department of Planning and Environment – Crown Lands recommended that the proponent contact Crown Lands to discuss any requirements as soon as possible, to avoid any possible delays and to ascertain to what extent Crown land, roads or waterways are required for the proposal. Could you please detail any consultation with Crown Lands about the quarry?”

Council’s position has been considered and a detailed response provided in a letter dated 6 August 2025 by the Kelley Covery Group Pty Ltd, consulting engineers, on behalf of the applicant. The letter is included in an addendum to the Traffic Impact Assessment (Appendix C) and it concludes by noting

We believe the issues raised by Council in their request for additional information are not insurmountable and can be resolved by confirming the status of Gowrie Road as a public road and Council as the roads authority, and by adopting the established pavement maintenance and repair regimes prescribed in the S94 Plan.

7.7.3 Mitigation measures

7.7.3.1 Establishment

Construction of the proposed new quarry access driveway off Gowrie Road will be undertaken in a prompt manner to minimise nuisance impacts from construction related traffic control measures on Gowrie Road:

7.7.3.2 Operational

Proposed operational traffic related mitigation measures include:

- Establishing a new BAR/BAL intersection on the Gowrie Road to provide access to the proposed quarry (Section 7 & Appendix C, TIA).
- Establishing appropriate signage on the public road network (Para 2, Sect 9, TIA).
- Preparing and implementing a Driver Code of Conduct for the quarry to ensure all drivers of vehicles utilising the quarry are aware of their roles and responsibilities to ensure road safety as part of quarry operations (Para 3, Sect 9, TIA).
- Signposting and enforcing a 20km/h speed limit on the development site from the Gowrie Road intersection, to minimise dust generation and facilitate safety.

7.8 Heritage

7.8.1 Existing environment

7.8.1.1 Aboriginal heritage

On 17 May 2024 the Sites Officer from Tamworth Local Aboriginal Land Council undertook an inspection of the proposed quarry site and subsequently provided a Site Report indicating “*no evidence of Aboriginal activity or artefacts found*” (Appendix I).

A search of the NSW Government’s Aboriginal Heritage Information Management System (AHIMS) on 20-7-2024 showed no recorded Aboriginal sites or places within or near proposed project disturbance areas.

7.8.1.2 Natural heritage

During preliminary public consultation information was provided which indicated *Lepidodendron* sp. fossils are known to occur in Devonian rocks exposed by shallow excavations within the Kingswood residential area, hence they may also occur in the proposed quarry.

Lepidodendron sp. is a fossil plant stem or trunk, which shows a range of distinctive rhombic leaf scars that can be readily recognised by a suitably experienced observer. No obvious *Lepidodendron* sp. fossils were observed during field work in paddock rocks, outcrop or quarry faces in the vicinity of the project site.

7.8.1.3 Non-Aboriginal heritage

During field work, no items of potential European heritage were observed on the proposed site or access track. Results of heritage register searches undertaken on 20-7-2024 are provided in Table 7.7.1 below.

Table 7.7.1 – Heritage register searches

REGISTER	ACCESS POINT	RESULT
Australian Heritage Database	Commonwealth Dept of Climate Change, Energy, the Environment & Water website	No identifiable items recorded that are proximal to the proposed project.
NSW State Heritage Inventory	NSW Environment & Heritage website	No items recorded with a 1km radius of proposed project.
Tamworth Regional Local Environmental Plan 2010	LEP Schedule 5 – Environmental Heritage	No items recorded with a 1km radius of proposed project.

7.8.2 Impact assessment

7.8.2.1 Aboriginal heritage

The 17 May 2024 report from the Sites Officer of the Tamworth Local Aboriginal Land Council notes that the surveyed quarry site has a long history of farming activities and ploughing, while not finding evidence of Aboriginal activities or disturbance.

Overall, the potential for the project to have a significant impact on Aboriginal heritage is regarded as quite unlikely given the land use history of the area, no evidence being found by the Sites Officer and the absence of any recorded sites or places within the Aboriginal Heritage Information Management System.

7.8.2.2 Natural heritage

Specimens of *Lepidodendron* sp fossils from Devonian strata in the vicinity of Goonoo Goonoo, Tamworth, Manilla, Barraba and Bingara appear to be reasonably common in public and private collections. Feedback from local amateur fossil collectors indicates the fossils are widespread within outcrops, road cuttings, watercourses and quarries that expose a fossiliferous bed or beds.

No *Lepidodendron* sp fossils have been observed on the project site or immediate vicinity at this stage, but they could be exposed in the course of proposed quarrying operations. Nevertheless, no significant adverse impact on natural heritage is expected, given that the fossils are quite common within the region.

7.8.2.3 Non-Aboriginal heritage

No significant impact known, or expected.

7.8.3 Mitigation measures

No specific impact mitigation measures are proposed for Aboriginal or non-Aboriginal heritage matters.

In the event that significant specimens of *Lepidodendron* sp fossils are exposed by quarry excavations, access will be provided to recognised public institutions to recover representative specimens, if no substantial operational impacts arise and mandatory safety protocols can be complied with.

7.9 Visual amenity

Matters related to visual amenity have been considered in detail within a separate Visual Impact Assessment (VIA) [Appendix F] while also having regard for the “*Guideline for Landscape Character and Visual Impact Assessment EIA-N04*” (Visual Impact Guidelines), published by Transport for NSW in 2023. A core aspect of the guidelines is that “landscape character impact” and “visual impact” of a proposal should be separately assessed.

7.9.1 Existing environment

Existing landscape character is considered within Section 4 of the VIA, with existing site visibility in Section 5.2 and associated VIA Plans.

7.9.2 Impact assessment

Landscape character sensitivity and magnitude is considered within Section 4.3 of the VIA, while visibility analysis of the proposed quarry excavation at various depths is reviewed within Section 5.3 and associated VIA Plans.

Key visual analysis results include;

- a) Based on existing terrain and buildings, 21 lots within the Kingswood residential area have maximum potential views of up to 50% of the proposed quarry site.
- b) Based on the proposed 450m AHD interim quarry floor and existing buildings, 3 viewpoints within the Kingswood residential area have maximum potential views of the interim quarry floor, with a maximum combined view up to about 15% of the floor.
- c) Based on the proposed 445m AHD interim quarry floor and existing buildings, no viewpoints within the Kingswood residential area have potential views of the interim quarry floor.

The VIA identifies four receptors in the Kingswood large lot residential zone with the highest potential quarry visibility, due to minimal screening from existing vegetation and buildings, as well as being located nearby (Section 5.3.2). Visibility analysis results for those receptors is reproduced in Table 7.9.1.

Table 7.9.1 – Visibility analysis percentages of proposed quarry site/floor.

VIEWPOINT	ST ADDRESS	DISTANCE FROM RIM	EXISTING SITE	PROPOSED		
				3m BUND	450m FLOOR	445m FLOOR
12	19 Lawrence Ave	600m	55%	20%	15%	<2%
11	17 Lawrence Ave	570m	40%	10%	<5%	<2%
59	19 Herden Rd	700m	20%	<10%	Nil	Nil
73	16 Herden Rd	660m	20%	<10%	Nil	Nil

Data in Table 7.9.1 shows quarry visibility declines substantially after the construction of the proposed 3m bund, then further with the ongoing excavation of the quarry floor. Minor to negligible views of the floor, stockpiles and equipment will be possible from any receptor lot once the quarry exceeds 450m depth.

The VIA notes that vegetation within the Kingswood and Impala residential areas has sufficient height, density and distribution to substantially reduce the visibility of the proposed quarry and access track from the majority of dwelling lots, hence the data in Table 7.9.1 indicates the maximum potential visibility, not actual visibility.

7.9.3 Mitigation measures

The VIA notes (Section 6) that the quarry site may be partially visible from a range of urban and non-urban residential viewpoints, mainly in the event that existing vegetation is removed or reduced. It also indicates peak potential visibility is likely to occur during initial quarry operations, primarily from up to 21 dwelling lots within the Kingswood large lot residential zone.

Visibility analysis also shows the establishment of an earth bund wall 3 metres high along the northern and eastern edges of the proposed quarry void will substantially reduce potential quarry visibility from Kingswood dwelling lots.

The VIA recommends that the proposed earth bund wall be established during the construction phase of the project by:

- Pre-stripping soil and weathered rock from the initial excavation area and creating a bund wall 3m above natural ground level along the northern and eastern boundary of the operational quarry area.
- Facilitate the stability of the bund wall by:
 - Constructing the wall with slopes no greater than 2:1 horizontal: vertical.
 - Excluding livestock from the bund wall area.
 - Monitoring and maintaining the height of the bund during the operating life of the quarry.

After public exhibition of the EIS, the applicant added the following commitment (Table 3.5) which will also reduce the visibility of the quarry from the Kingswood area:

Endemic trees and shrubs will be established from tubestock on the bund to provide a visual screen of the quarry from the Kingswood Large Lot Residential Zone. Maintenance replanting will be undertaken on an annual basis to address any significant screening gaps due to vegetation deaths.

The full length and height of the bund will be established during the initial construction phase of the project, as noted in Section 3.3 and 3.4.9. Soil will be pre-stripped from the planned quarry void area and formed into a mound that is a minimum of 3m above natural ground level and about 660 metres long, with the indicative profile shown below in Figure 7.9.1.

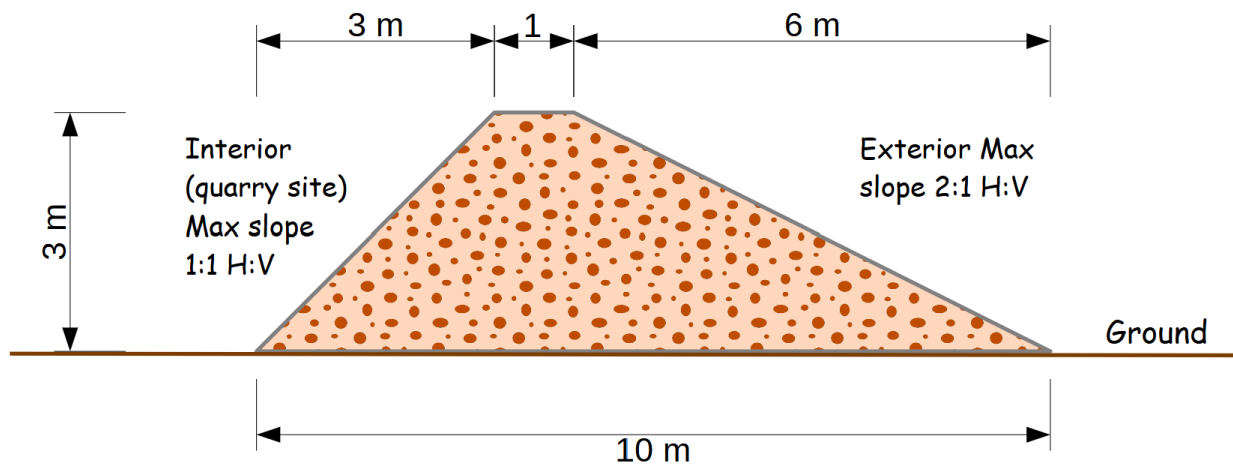


Figure 7.9.1 – Indicative soil berm & stockpile cross section.

7.10 Utility infrastructure

7.10.1 Existing environment

7.10.1.1 Telecommunications

An underground telecommunications cable is mapped by Telstra in the public road corridor of the Gowrie Road (Figure 7.10.1), although field observations suggest that the mapping accuracy is poor in some areas, hence it should be regarded as indicative only.

7.10.1.2 Electricity

The Essential Energy Network Information Panel web site shows 11 kV and 66 kV above ground electricity lines passing over the development lost as shown in Figure 7.10.1 and Plate 7.10.1. These lines are protected by multiple easements which effectively exclude the construction of structures which may interfere with their ongoing repair and maintenance.

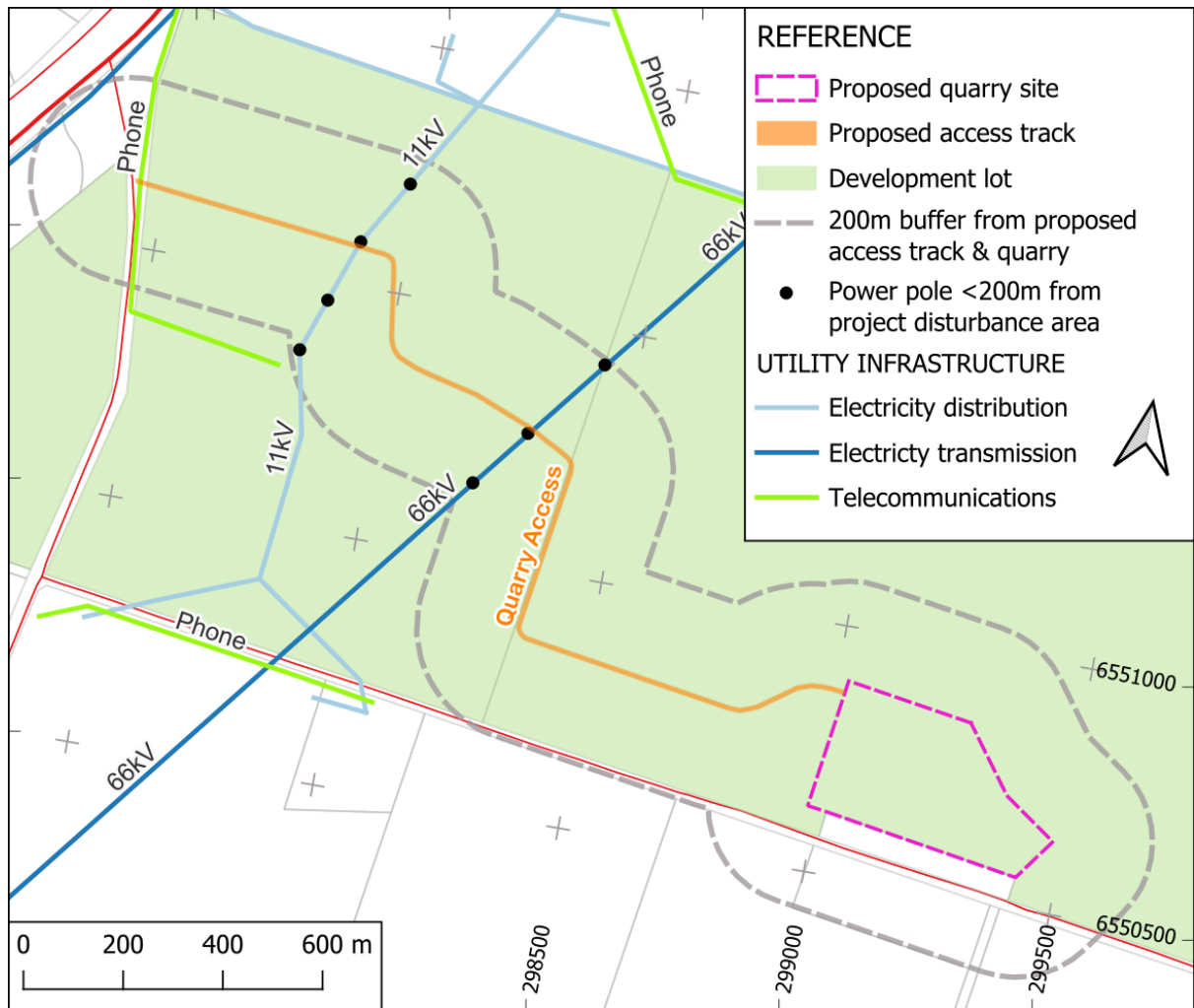


Figure 7.10.1 – Utility infrastructure.



Plate 7.10.1 – 66kV powerline pole near proposed path of quarry access track, June 2024.

7.10.1.3 Gas pipelines

There are no gas pipelines on or near the project site, which is also not part of the proposed Tamworth gas distribution network ³⁰.

7.10.2 Impact assessment

Construction or operational activities have the potential to damage underground telecommunications cables and above ground power lines without adequate planning and management.

7.10.2.1 Electricity

The proposed quarry access track links the Gowrie Road and quarry site, passing through two electricity supply easements and under two power lines located in those easements. NSW ISSC 20 Guideline deals with activities in electricity easements and close to electricity infrastructure ³¹. Guidelines aspects relevant to the project include:

- Operation “*of mobile plant and equipment having a height not exceeding 4.6 metres when fully extended including any load carried*” is permitted within an easement (NSW ISSC 20 Guideline Section 7.1.5, p 19).
- “*The placing of obstructions of any type within 5 metres of any part of a line pole or supporting guy or 10 metres of a steel structure*” is prohibited within an easement (NSW ISSC 20 Guideline Section 7.3.5, p.24).

7.10.3 Mitigation measures

The follow mitigation measures will be applied to minimise the potential for utility infrastructure to be damaged during quarry construction or operational activities.

7.10.3.1 Telecommunications

If soil excavation exceeding 10cm is proposed for the construction of the Gowrie Road access intersection, then in-ground utility locating of the telecommunications line will be undertaken prior to the commencement of site works.

7.10.3.2 Electricity

Essential Energy has been informed of the proposed quarry and access track, along with identified powerlines and easements. Essential Energy responded with a letter dated 29 May 2024 (Appendix J), the core of which is reproduced below:

³⁰ <https://www.apa.com.au/our-services/gas-distribution/tamworth-gas-distribution-network/>

³¹ ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Electricity Infrastructure, NSW Industry Steering Committee, September 2012.

Essential Energy has considered the details of your proposal and strictly based upon the documents submitted, Essential Energy consents to the encroachment of the Easement. With the following conditions:

- The ground height within Essential Energy's easements must not change during and at the completion of the construction of the quarry's access track.
- No structures are to be placed in the Essential Energy easement without a request to encroach being submitted.
- No rights are given over the Essential Energy Easement to the proponent.
- The minimum clearance from 'Power Poles' stated in the Environmental Impact Statement (10 meters) prepared for Strathmore Quarry, must be maintained during the life of the quarry.
- Any plant or trucks operating within Essential Energy's easement must not exceed 4.6 meters.
- It is the responsibility of the person/s completing any works around powerlines to understand their safety responsibilities. *Code of Practice – Work near Overhead Power Lines*. A request for safety advice may need to be lodged to Essential Energy.

Essential Energy would encourage a study be undertaken on the potential use of Spains Lane to access the quarry, this route does not impact Essential Energy's Easements at all.

Any amendments to the proposal will require Essential Energy's approval.

Prior to carrying out any works, a "Dial Before You Dig" enquiry must be undertaken in accordance with the requirements of *Part 5E (Protection of Underground Electricity Power Lines)* of the *Electricity Supply Act 1995* (NSW).

Notwithstanding Essential Energy's approval to the encroachment any activities within the easement, or in proximity to Essential Energy's infrastructure, must be undertaken in accordance with the latest industry guideline currently known as *ISSC 20 Guideline for the Management of Activities within Electricity Easements and Close to Infrastructure*. A copy of this guideline can be located at www.resourcesandenergy.nsw.gov.au/__data/assets/pdf_file/0004/466816/ISSC-20-Electricity-Easements.pdf.

The applicant is committed to compliance with the conditions imposed by Essential Energy, which are effectively mitigation measures. An example is provided in Section 3.5.1, where the access track design has been modified in the vicinity of the powerlines to comply.

During access track construction, appropriate safety management strategies and procedures are applied to ensure that plant and equipment does not exceed the 4.6 metre height restriction in the vicinity of the power lines.

7.11 Waste management

Waste will be produced in conjunction with operation of the project and this section considers the types of waste expected and the proposed management measures.

7.11.1 Existing environment

There are no existing waste management issues known on the project site.

7.11.2 Impact assessment

7.11.2.1 Imported material

No quarry products or recyclable materials will be imported from other sites to be used for or recycling related uses. Some virgin excavated natural material may be brought to the site to be used for rehabilitation related earthworks, if that facilitates rehabilitation outcomes or future land use options.

7.11.2.2 Quarry waste

The primary operational activity is the excavation and processing of mudstone rock to create quarry products, mainly gravel of various size ranges. Demand for particular product sizes will be managed by maintaining stockpiles sufficient to meet forecast demand, where feasible. As particular stockpiles become depleted, crushing and screening equipment will be adjusted during subsequent production runs to replenish appropriate stockpiles. Ultimately, all quarry products will have a range of uses and markets, hence there will be no waste stream that includes excavated rock or processed quarry products.

7.11.2.3 Ancillary waste

Expected waste streams include:

- Used oil, oil filters, air filters, grease cartridges, batteries and tyres resulting from equipment maintenance.
- Waste from the office and lunchroom area, including paper, cardboard, food and drink containers.
- Packaging materials from spare parts and equipment, including pallets, cardboard, foam and plastic wrap.
- Sewage waste from on-site amenities. It is expected that a closed sewage system will be installed into amenities, and sewage water will be collected by a licences contractor for off-site disposal. An onsite sewage system may also be considered if a closed system is impractical.

7.11.3 Mitigation measures

7.11.3.1 Waste management

Waste streams will be managed in accordance with the Waste Avoidance and Resource Recovery Act 2001, the POEO Act, and the Waste Classification Guidelines (NSW EPA, 2014) and the principles of the waste management hierarchy.

All non-recyclable waste generated will be managed by Council collection services or appropriately licensed waste contractors. No on-site disposal of waste would occur.

The project will aim to reduce, reuse and recycle its wastes by applying the mitigation strategies outlined in Table 7.11.1.

Table 7.11.1 – Proposed waste management strategies.

WASTE TYPE	WASTE MANAGEMENT HEIRACHY		
	AVOID	REUSE/RECYCLE	DISPOSE
Sewage	N/A	Consider using composting toilet or onsite sewage management system	Sewage waste removed and disposed of by an approved contractor.
Plant & equipment related	Order appropriate quantities of materials	Provide recycling drums for used oil. Ensure regular recycling collection or disposal.	Non-recyclable items stored then disposed of in accordance with Waste Classification Guidelines.
Domestic	Order appropriate quantities of materials	Provide recycling bins Ensure regular recycling collection.	Non-recyclable items stored then disposed of in accordance with Waste Classification Guidelines.
Contaminated soil	Appropriate storage and decanting of fuel & chemicals to minimise risk of spills.	Use bioremediation to break down hydrocarbon contaminated soil where appropriate.	Dispose of untreatable contaminated soil in accordance with Waste Classification Guidelines.
Green waste	Minimise clearing	Grass & ground cover can be mixed with stored soil to improve carbon content and nutrient value for future rehabilitation.	Not required.

7.12 Hazards and risks

7.12.1 Existing environment

7.12.1.1 Flood

Tamworth Regional Council provided a diagram indicating that two gullies within the development lots are within its defined flood planning area (Figure 7.12.1), as well as the channel of the Timbumburi Creek. No proposed construction or operational activities on the proposed development lots will occur within the mapped flood planning area.

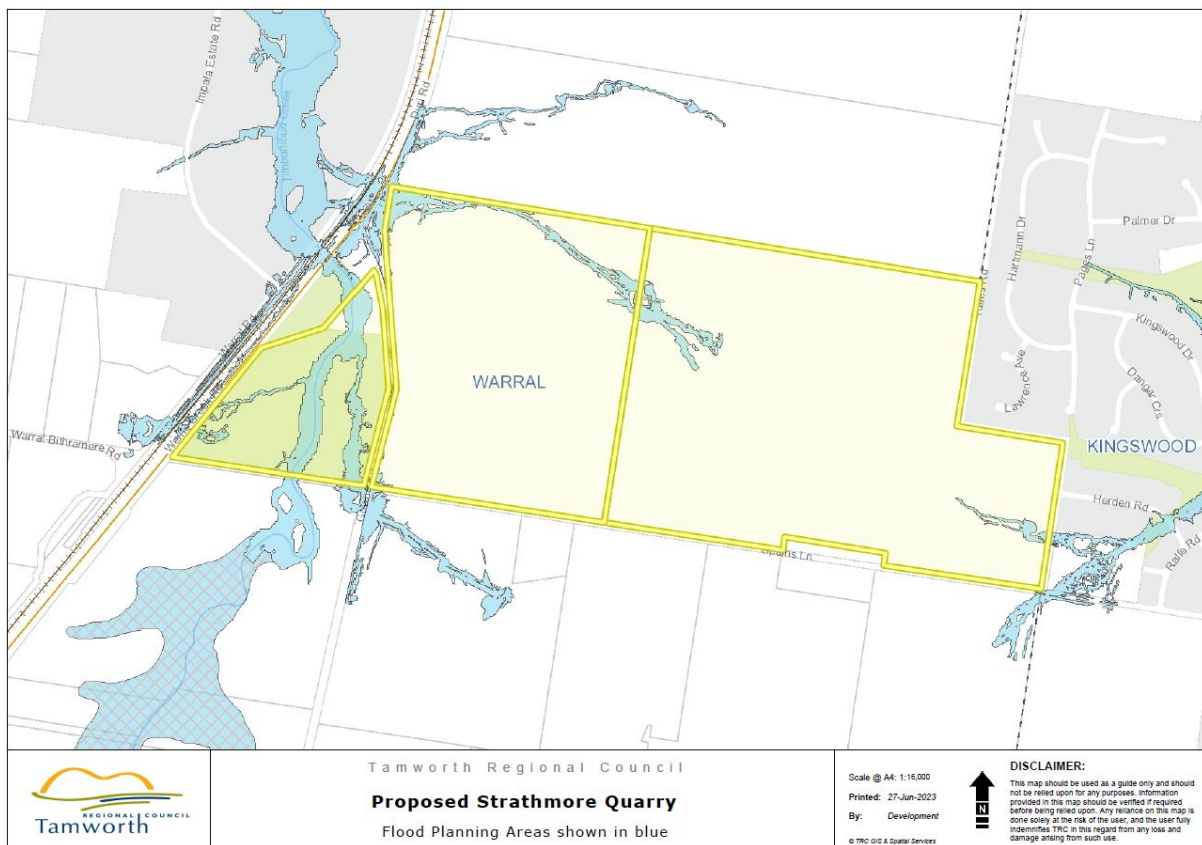


Figure 7.12.1 – TRC Flood planning area (blue shade) & development lots (yellow shade).

7.12.1.2 Bushfire

Bush fire prone land mapping data provided by the NSW Rural Fire Service shows the site and surrounding areas as Vegetation Category 3 land (Figure 7.12.2). Of three categories defined by current Bush Fire Prone Land Mapping Guidelines, this is the medium risk and consists of “*Grasslands, freshwater wetlands, semi-arid woodlands, alpine complex and arid shrublands*”³².

³² Guide for Bush Fire Prone Land Mapping, NSW RFS, Version 5b, Nov 2015

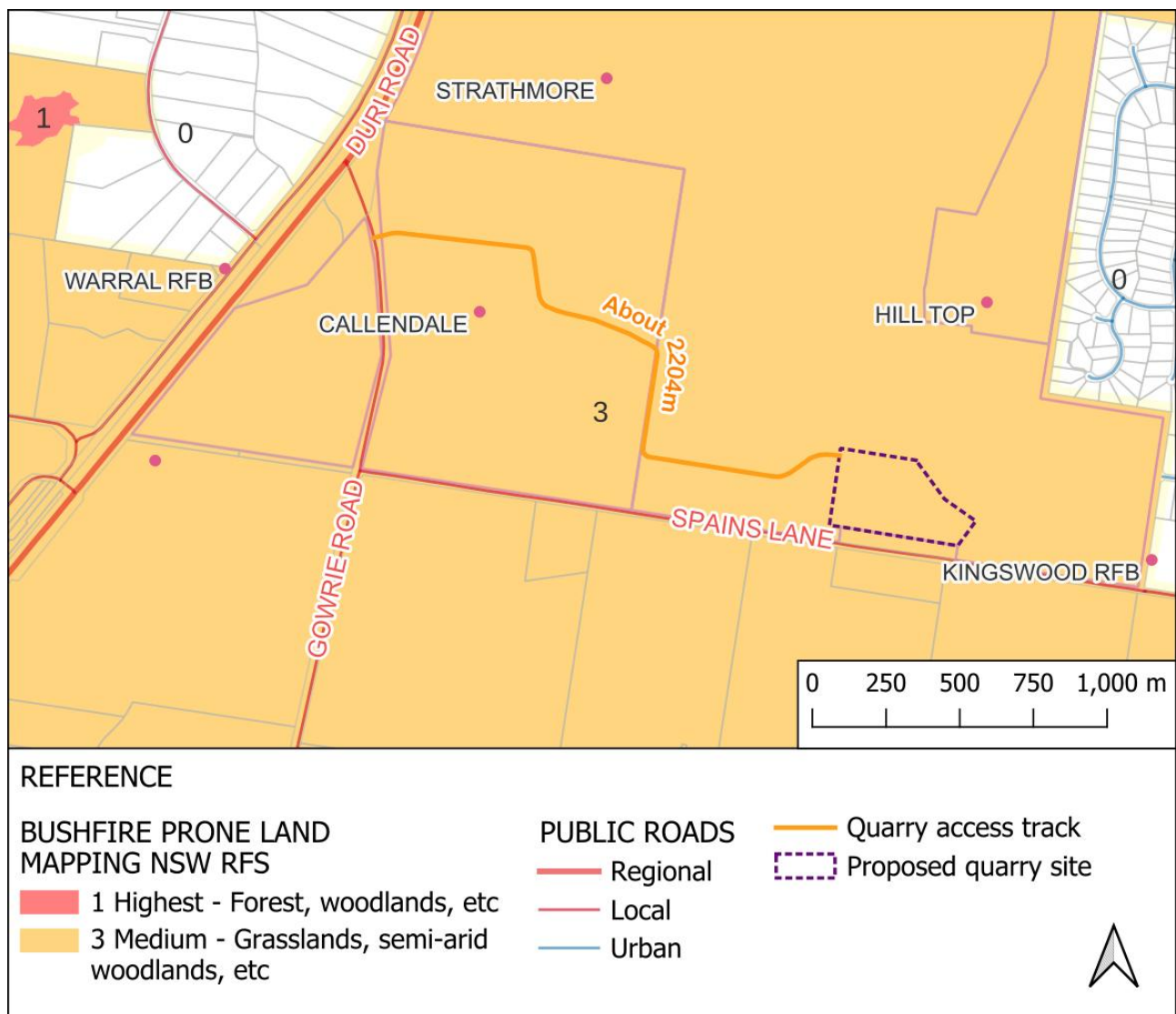


Figure 7.12.2 – Bushfire prone land mapping.

7.12.2 Impact assessment

7.12.2.1 Flood

Quarry related activity is unlikely to have any significant impact on the extent or duration of flooding in the surrounding landscape, given that the quarry and access track will be generally located on, or close to, the crest of ridge landforms.

Flood planning data provided by Council indicates that the intersection of the Gowrie Road with the Duri Road may be vulnerable to flooding. In that context a significant flood event has the potential to cut or restrict quarry access.

7.12.2.2 Bushfire

The project involves removing all soil and vegetation from most of the quarry site during early stages of the project, hence there will be minimal fuel availability. Any equipment repair activities involving welding or grinding have the potential to ignite a grass fire when undertaken in vegetated areas outside of the quarry excavation.

Notionally, in a worst-case scenario, vehicles entering or leaving the quarry could be immobilised on the access track by a breakdown during a grass fire.

Overall, risks posed by bushfire on this site are relatively low, given that:

- Grass, forbs and crops are the only significant fuel source in the vicinity for a potential fire.
- All soil and vegetation will be removed from most of the quarry site early in the project life.
- Historic grass and crop fires tend to be occasional, low to moderate intensity and usually amenable to control measures.
- Smoke from any significant fire in the vicinity will be readily visible from a substantial distance (>2km) due to the limited relief of the terrain.
- Ample warning and opportunity to evacuate the quarry area is expected in the event of a fire nearby.
- In a worst-case scenario, personnel could become trapped on the quarry site where the main hazards are likely to be smoke and embers from burning ground cover vegetation.
- The main flammable materials on the bare rock quarry floor would comprise rubber tyres, fuel and conveyor belts, which are unlikely to be ignited by blown embers from this type of fire.
- In most cases it would be feasible, although not desirable, to shelter within the quarry site during a low to medium intensity fire.

7.12.3 Mitigation measures

7.12.3.1 Flood

In the event of floodwater inundating the intersection of the Gowrie and Duri Roads, haulage of quarry product will cease, pending advice from Tamworth Regional Council that the road is open.

7.12.3.2 Bushfire

Bushfire risk will be managed and mitigated by:

- Grass and weed fuel loads in the vicinity of the quarry will be managed by herbicide, grazing or slashing to reduce bushfire risk.
- The parking and maintenance of light and heavy vehicles will be undertaken on cleared operational areas, away from long grass, crops or other vegetation which may pose a fire hazard.
- Any work with a significant fire ignition risk, such as grinding and welding, will only be undertaken on cleared operational areas with suitable fire protection equipment present (eg fire extinguishers).
- Quarry related operations will cease and the site evacuated the event of any bushfire within the vicinity that the Quarry Manager deems to be a potential hazard to quarry staff or visitors.

7.13 Socio-economic

7.13.1 Existing environment

Dominant land uses in the project vicinity include roads, quarries, livestock grazing, dryland cultivation and dwellings. Significant growth in the Tamworth population and urban footprint is planned for the medium term. Cost effective sources of quarry products are essential for the sustained growth of Tamworth, but the closest operating commercial quarries known to the applicant are located more than 20km away.

7.13.2 Impact assessment

7.13.2.1 Local amenity

Detailed assessments of potential amenity issues have been undertaken, including:

- Traffic Impact Assessment & addendum (Appendix C).
- Air Quality Impact Assessment (Appendix D).
- Noise and Vibration Assessment (Appendix E).
- Visual Impact Assessment (Appendix F).
- Land Use Conflict Risk Assessment (Appendix H).

Those assessments and this EIS have determined that the quarry can be operated in a manner consistent with relevant NSW requirements and that will not have any significant amenity impact on existing residences.

7.13.2.2 Economic

Positive economic impacts expected in conjunction with the project, include:

- A minimum workforce of five full-time equivalent (FTE) personnel during initial stages, increasing with peak production levels.
- All workers are likely to be residents of the Tamworth local government area.
- Significant local operational related expenditure is expected to include parts, fuel, maintenance services, wages, freight and light vehicles.
- Compared to material shipped from existing commercial quarries to Tamworth (≥ 20 km), reduction in haulage costs of about 50% is likely.

Some Kingswood residents have raised concerns that the quarry will devalue their dwellings due to the project altering the view scape, increasing noise, additional traffic and dispersing dust. Concerns have also been raised about the potential impacts of additional heavy vehicle traffic on local public roads.

7.13.3 Mitigation measures

7.13.3.1 Amenity

Various mitigation measures have been proposed within the EIS and associated specialist assessments that are expected to reduce the opportunity for any significant amenity impacts. Relevant measures include:

- Earth bund wall 3m above natural ground level along the northern and eastern edges of the proposed quarry void. This substantially reduce the visibility of the quarry floor, as well as the potential for noise transmission.
- A 20km/h speed limit for quarry traffic to minimise dust and noise.
- Restricted operating hours.

7.13.3.2 Economic

Some Kingswood residents have concerns that dwelling values will decline significantly due to the proposed quarry, in a context where quarrying is an ongoing land use predating most dwellings. The applicant is committed to applying the various mitigation measures proposed within the EIS and associated specialist assessments, as well as operating in a manner that addresses all reasonable concerns. A significant decline in dwelling values is not expected in these circumstances.

7.14 Cumulative impacts

7.14.1 Existing environment

Cumulative impacts for this project are those that are likely to arise from the combination of the construction and operation of the quarry with other projects and activities in the area which may interact and impact the same receivers. Cumulative impacts need to be considered at the local and regional level where the impacts could potentially be significant.

The project adjoins two ongoing quarries which need to be considered with regard for potential cumulative impacts:

- Tamworth Regional Council Quarry (TRC Quarry) – Immediately south of Spains Lane, about 200,000 bank cubic metres extracted (~460,000 tonnes).
- Traffic for NSW Quarry (TfNSW Quarry) – Immediately north of Spains Lane), about 120,000 bank cubic metres extracted (~276,000 tonnes).

Both quarries range from about 10 to 16m below natural ground level, with aerial photography from 1976³³ showing that both have been active for at least 47 years.

No additional developments are known which may result in other cumulative impacts at a local level.

7.14.2 Impact assessment

In 2023 Quarry Plan NSW requested all development consent and environmental reports from Tamworth Regional Council for the TRC and TfNSW quarries. Those documents were provided but did not contain any explicit information regarding the intended scale or extent of future operations.

Assuming both quarries continue extraction to their current maximum depth of about 444m AHD, then both have about 40% of the estimated original resource remaining (2023 estimate). Considering the historic

³³ via www.spatial.nsw.gov.au/products_and_services/aerial_and_historical_imagery

sporadic nature of extraction, this suggests each existing quarry may operate for up to 30 years, or longer, with expansion laterally or deeper.

To improve facilitate resource extraction and safety at the proposed quarry, the proponent has recently leased the land comprising the TfNSW Quarry to facilitate a potential future cooperative agreement to extract mudstone along the existing high wall between the existing TfNSW quarry and the proposed Strathmore quarry.

Detailed traffic, air quality, noise and visibility assessments have been undertaken and are provided as appendices to the EIS. Where appropriate, those studies consider the potential for cumulative impacts.

7.14.3 Mitigation measures

A cooperative agreement will be sought between the quarry operator and Traffic for NSW to remove the existing high wall between the existing TfNSW quarry and the proposed Strathmore quarry. This will facilitate resource extraction and quarry wall management between lot 1, DP 208222 and lot 102 DP 1288693.

7.15 Greenhouse gas emissions

Greenhouse gas emissions for the project have been evaluated in a Greenhouse Gas Assessment prepared by Todoroski Air Sciences dated 30 June 2025 (Appendix S).

7.15.1 Impact assessment

The Project is expected to result in maximum annual GHG emission rate of 1,378 t CO₂-e (Scope 1) during the operational phase. This is calculated to be approximately 0.0002% of the Australian GHG emissions for the period to June 2024 and approximately 0.001% of the NSW GHG emissions for the 2022 period.

7.15.2 Mitigation measures

Proposed greenhouse gas emission minimisation measures for the project are outlined within Section 4.3 of the Greenhouse Gas Assessment as reproduced below:

- Avoiding double handling of materials by optimising conditions for fleet operations.
- Recycling materials where feasible and minimising the production of waste generated on-site.
- Planning haulage routes to minimise distance where appropriate.
- Remind site and haulage staff to throttle down and switch off machinery that is not in active use via energy awareness programs.
- Investigate and utilise energy efficient plant where appropriate and review of alternative renewable energy sources.
- Undertake scheduled maintenance of plant and equipment to maintain fuel efficiency.

7.16 Mitigation measure summary

The most significant mitigation measures proposed for the project are summarised in Table 7.15.1 below.

Table 7.15.1 – Summary of proposed mitigation measure

ASPECT	MITIGATION MEASURE
SOIL	1. Topsoil will be pre-stripped and stockpiled for use in rehabilitation activities. 2. All sediment and erosion controls should be designed and implemented in accordance with the NSW Soils and Construction – Managing Urban Stormwater Volume 1 ‘the Blue Book’ (Landcom, 2004) and Volume 2E ‘Mines and Quarries’ (DECC 2008). 3. Erosion and sedimentation controls are to be checked and maintained on a regular basis (including clearing of sediment from behind barriers) and records kept and provided on request. 4. The disturbance area will be rehabilitated once quarrying is complete. 5. Regular reviews of quarry wall stability and conditions will be undertaken once the void is more than 5m below ground level. 6. Earth bunds will be used to prevent external stormwater flows from entering the quarry void. <i>More information in EIS section 3.7 & 7.1.</i>
CONTAMINATION & GROUNDWATER	1. Fuels, lubricants and chemicals will be stored and, where practicable, used within containment/hardstand areas designed to prevent the escape of spilt substances to the surrounding environment. 2. Personnel will be trained in spill containment and response procedures. 3. Appropriate spill response materials will be kept on site. 4. Appropriate maintenance schedules for plant and equipment will be followed to detect and repair leaks. 5. Spills will be reported and managed in accordance with legislative and licensing requirements. 6. In the event that there is a significant diesel fuel or oil spill (more than 100 litres), the following actions will be taken: (a) All potential ignition sources will be removed to reduce the potential for fire. (b) Access will be restricted to authorised personnel only. (c) If there is potential for diesel, oil or chemicals to flow into an open waterbody or watercourse, the spill area will be bunded to isolate the diesel spill. (d) Contaminated soil will be recovered and either: (e) Retained on the quarry site for natural attenuation (break down by natural micro-organisms), if the volume of contaminated soil is less than 2 cubic metres, or; (f) Disposed of at an authorised waste depot, if more than 2 cubic metres. <i>More information in EIS section 7.1 & 7.3., and Groundwater Impact Assessment (Appendix G).</i>

ASPECT	MITIGATION MEASURE
SURFACE WATER	7. Maintain perimeter bunds around the quarry void at least 1m high to prevent overland stormwater flows from entering the quarry void. 8. Maintain a sump within the quarry void that receives all surface and groundwater flows from the dirty water catchment. <i>Also mitigation measures 2, 6, 7, 8, 9, 10 & 11. More information in EIS section 3.6.1 & 7.2.</i>
NOISE	9. Constructing and maintaining an earth bund wall at least three metres above natural ground level along the northern and eastern edges of the proposed quarry. 10. Main operating hours restricted to 7:00AM to 6:00PM Mon to Fri, 7:00AM to 2:00PM Sat, with no work on Sunday or public holidays. <i>More information in EIS section 3.4.5 & 7.4 and Noise and Vibration Assessment (Appendix E).</i>
AIR QUALITY	11. Signposting and enforcing a 20km/h speed limit on the development site. 12. During adverse weather conditions water will be sprayed on haul roads within the quarry void and quarry access track to prevent significant adverse dust. Primary trigger will be observable dust being carried towards any dwelling not related to the quarry operation, or the Quarry Manager's expectation that these circumstances are likely to develop. 13. Controlled crushing and screening measures, including the use of in-built misting sprays on crushing and screening plant to suppress dust and ensure compliance with NSW Resource Regulator safety standards for exposure of quarry staff to respirable dust. 14. Water sprays on excavation area, transfer points and product stockpiles during adverse weather conditions. <i>More information in EIS section 7.5 and the Air Quality Impact Assessment (Appendix D).</i>
WEEDS & BIOSECURITY	15. The Quarry Manager, or delegate, will prevent the entry or departure of any machinery with any significant residual soil and/or vegetation accumulation until they are satisfied that the equipment has been cleaned in a manner suitable to minimise opportunities for weed dispersal. 16. The access track and quarry void will be maintained in a weed-free or weed-reduced state to lessen the opportunity for weed seed to be spread by vehicle movements. 17. The Quarry Manager will review weed management strategies in consultation with the Strathmore Farm Manager when necessary, and at least once every three years. <i>More information in EIS section 7.6.</i>
BIODIVERSITY	18. Mark the limits of clearing and install fencing around the construction footprint area prior to construction activities commencing to avoid unnecessary vegetation and habitat removal/disturbance 19. If threatened fauna is encountered, then work would stop immediately and a plan would be formulated by the ecologist to determine the most appropriate course of action. <i>More information in EIS section 7.6.</i>

ASPECT	MITIGATION MEASURE
TRAFFIC	1. Establishing a new BAR/BAL intersection on the Gowrie Road to provide access to the proposed quarry (Section 7 & Appendix C, TIA). 2. Establishing appropriate signage on the public road network (Para 2, Sect 9, TIA). 3. Preparing and implementing a Driver Code of Conduct for the quarry to ensure all drivers of vehicles utilising the quarry are aware of their roles and responsibilities to ensure road safety as part of quarry operations (Para 3, Sect 9, TIA). 4. Signposting and enforcing a 20km/h speed limit on the development site to facilitate safety at the Gowrie Road intersection, as well as to minimise dust generation on the quarry access track and quarry site. <i>More information in EIS section 7.7 and the Traffic Impact Assessment (Appendix C).</i>
VISUAL AMENITY	More information in the Visual Impact Assessment (Appendix F). After public exhibition of the EIS, the applicant made the following commitment (Table 3.5) which will also reduce the visibility of the quarry from the Kingswood area: 5. Endemic trees and shrubs will be established from tubestock on the bund to provide a visual screen of the quarry from the Kingswood Large Lot Residential Zone. Maintenance replanting will be undertaken on an annual basis to address any significant screening gaps due to vegetation deaths.
POWERLINES	6. The ground height within Essential Energy's overhead powerline easements will not be changed during, or after, construction of the quarry access track. 7. All plant or trucks operating within Essential Energy's overhead powerline easement will not exceed a height of 4.6 metres. 8. No structures will be placed in the Essential Energy easement. 9. A minimum clearance of 10 metres will be maintained between the access track and power poles for the life of the quarry. <i>More information in EIS section 7.10 and Appendix K.</i>
WASTE	10. The project will aim to reduce, reuse and recycle waste materials. 11. All non-recyclable waste generated will be managed by Council collection services or appropriately licensed waste contractors. 12. No on-site disposal of waste will occur. <i>More information in EIS section 7.11.</i>

ASPECT	MITIGATION MEASURE
HAZARD & RISK	13. In the event of floodwater inundating the intersection of the Gowrie and Duri Roads, haulage of quarry product will cease, pending advice from Tamworth Regional Council that the road is open. 14. Grass and weed fuel loads in the vicinity of the quarry will be managed by herbicide, grazing or slashing to reduce bushfire risk. 15. The parking and maintenance light and heavy vehicles will be undertaken on cleared operational areas, away from long grass, crops or other vegetation which may pose a fire hazard. 16. Any work with a significant fire ignition risk, such as grinding and welding, will only be undertaken on cleared operational areas with suitable fire protection equipment present (eg fire extinguishers). 17. Quarry related operations will cease and the site evacuated the event of any bushfire within the vicinity that the Quarry Manager deems to be a potential hazard to quarry staff or visitors. <i>More information in EIS section 7.12.</i>
SOCIO ECONOMIC	Mitigation measures 14, 15 and 16. <i>More information EIS section 7.13.</i>
CUMULATIVE IMPACTS	18. A cooperative agreement will be sought with Traffic for NSW to remove the existing high wall between the existing TfNSW quarry and the proposed Strathmore quarry. This will facilitate resource extraction and quarry wall management between lot 1, DP 208222 and lot 102 DP 1288693. <i>More information EIS section 7.14.</i>

8 PROJECT JUSTIFICATION

8.1 Need

The project site is strategically located for the supply of gravel for earthworks and road construction in the Tamworth area. It provides an opportunity for a substantial reduction in freight costs, fuel consumption and greenhouse gas emissions compared to existing quarries providing these materials, which tend to be located at significantly greater distances from Tamworth.

The applicant has reviewed a range of alternative sites while considering relevant preliminary social, economic and biophysical factors. Overall, the proposed location is the least constrained option with a suitable resource and the potential to provide additional gravel required for the Tamworth Regional Council's planned expansion of the Tamworth urban area and population.

8.2 Benefits

Significant benefits arising from the proposed project include:

- Medium term supply of up to 4.6 million tonnes of quarry products.
- Employment for a minimum of five quarry personnel, with additional indirect employment for road transport drivers. This will provide positive flow on economic effects to the local economy.
- A more cost-effective and less greenhouse gas intensive local source of quarry products for fill and road construction.
- Significant contributions to local, state and commonwealth government finances through payment of various taxes and levies.
- Have minimal significant environmental impact.
- The proposed use provides an increased economic return from the land compared to other currently permissible land uses.
- Will produce less greenhouse emissions than existing, or potential new quarries, located on sites that are more distant from the Tamworth urban area.

8.3 Suitability of the site

The Project site is suitable for the project for the following reasons:

- Is an appropriate and permissible use with development consent on land zoned "RU4 Primary Production Small Lots" under the Tamworth Regional LEP 2010.
- There are two existing quarry sites located near the proposed site.
- Co-location of the proposed development near existing quarries is preferable to having multiple quarries at various locations from a land use planning perspective.
- The primary land uses adjoining the project site are quarrying and agriculture.
- The project site is more than 500 metres from the nearest dwelling.
- The terrain and proposed earth bund will prevent any line of sight between dwellings and the quarry void in the vast majority of circumstances.
- The project is located on land which has been heavily modified historically by land clearing activities and disturbances associated with agricultural activities.

- The project is within the Tamworth LGA and can supply gravel aggregate to this region, which assists in reducing supply costs, greenhouse gas emissions and other environmental impacts per tonne kilometre of product transported.
- Evaluation of a range of environmental, administrative and practical land considerations indicate that the site appears to be the least constrained area within a 15km radius of Tamworth.

8.4 Public interest

The project is in the public interest as it will:

- Provide a high-quality supply of construction materials into the region to meet existing and forecast growing demand for these materials.
- Facilitates Provide an alternative source of quarry products that is expected to be more cost effective than most existing sources of similar products.
- Create new positions for a minimum of five quarry personnel, with additional indirect employment for road transport drivers. This will provide positive flow on economic effects to the local economy.
- Provide direct economic benefits in the form of initial capital investment, plus recurring expenditure associated with wages and maintenance.
- Utilise and develop skilled employees including plant operators, mechanics and a quarry manager.
- Consideration of environmental constraints and stakeholder input was integral to the project design process for appropriate avoidance, management and mitigation measures.

8.5 Objects of the EP&A Act 1979

The Environmental Planning and Assessment Act 1979 (S. 1.3) has various objects, which are effectively statements of intent. The relevance of each object is considered in Table 8.1.

Table 8.1 – Review of objects of the EP&A Act 1979.

ACT OBJECT	COMMENT
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,	The project aims to: • Provide quarry products from cost effective local source. • Supply existing & increasing demand. • Provide economic & employment opportunities • Operate in a responsible manner consistent with NSW standards and reasonable community expectations. • Reduce greenhouse gas emissions compared to existing quarry sources supplying the Tamworth area.

ACT OBJECT	COMMENT
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,	The project site and access road are cropping land, hence impacts on natural ecosystems will be limited. Project relevant economic, environmental and social considerations have been documented in the EIS and associated studies, along with suitable impact avoidance, mitigation and management strategies.
(c) to promote the orderly and economic use and development of land,	The project is a permissible use on the proposed site that: • Aims to provide quarry products from cost effective local source. • Can make a significant contribution to addressing rising local demand for quarry products. • Provides a more productive use of the land. • Will have significantly less greenhouse gas emissions compared to the majority of existing alternative quarries.
(d) to promote the delivery and maintenance of affordable housing,	Not relevant to this project.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,	The project has been planned and designed to avoid any significant remnant endemic vegetation and potential habitat.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),	The project is not located near any identifiable built or cultural heritage.
(g) to promote good design and amenity of the built environment,	Not relevant to this project.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,	Not relevant to this project.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,	Not relevant to this project.
(j) to provide increased opportunity for community participation in environmental planning and assessment.	Preliminary consultation with the community and Council was undertaken during drafting of the Scoping Report for the proposal. Feedback was received from NSW Government agencies as part of the SEARs process. The project has been designed with regard for feedback received from the community and government authorities with a view to avoiding, minimising and managing expected impacts.

8.6 Ecologically sustainable development

8.6.1 Precautionary principle

The precautionary principle is a core concept of ecologically sustainable development, typically defined as follows:

If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Within NSW the precautionary principle is usually taken into account where there is:

1. A threat of serious or irreversible environmental damage, and;
2. Scientific uncertainty as to the environmental damage.

Although the proposed quarry will permanently alter a local landform, this EIS has not identified any threats of serious or irreversible damage to the environment, therefore the precautionary principle is not relevant in this case.

8.6.2 Intergenerational equity

The principle of intergenerational equity within NSW is based on the concept that the current generation should act to;

- Conserve the diversity of resources to ensure that options are available to future generations,
- Maintain the quality of the earth so that it is not passed on in a worse condition, and;
- Give its members equitable rights of access to resources, access of which should be conserved for future generations.

The proposal seeks to balance social, financial and environmental considerations so that any foreseeable impacts do not burden future generations. This includes a plan to ensure that the project site is rehabilitated at the completion of quarrying and available for a suitable future land use.

8.6.3 Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

Given the land use history of the site and surrounding lands, the project will not have any significant impact on the biological diversity or ecological integrity of the area.

8.6.4 Improved valuation, pricing and incentive mechanisms

The principle of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposed development, including air, water, land and living things. Also, that the cost of using or protecting a resource should be borne by the developer.

Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation have been proposed and will be implemented to ensure resources are used responsibly in the first instance.

8.7 Environmental considerations

Environmental investigations were undertaken during the preparation of the EIS to assess the potential impacts. These included assessments of:

- Land resources
- Water resources (surface and groundwater)
- Noise and vibration
- Air quality
- Biodiversity
- Traffic and access
- Heritage (Aboriginal, non-Aboriginal, natural)
- Visual amenity
- Waste management
- Hazards and risks
- Socio-economic

The EIS has documented the potential impacts of the project, considering both potential positive and negative impacts, and identifies mitigation and management measures to protect the environment where required, as outlined in Section 7.

The Project also incorporates measures and design features to ensure that impacts are managed and mitigated as far as practicable. With the implementation of the identified mitigation measures, the project is not expected to have a significant negative environmental impact.

8.8 Consequences of not proceeding

Consequences of not proceeding are as follows:

- Local economic benefits from the capital investment, as well as expenditure on equipment, maintenance, fuel, training and labour, will not occur.
- A significant proportion of ongoing demand for construction materials in the vicinity of Tamworth will continue to be met by quarries located outside the LGA.
- Increasing demand for quarry products is expected to arise from Tamworth Regional Council's plans for population growth. This is likely to lead to significant increases in unit costs for quarry products in order to balance limited supply with rising demand.
- The project site will remain undeveloped, with cropping and grazing land uses continuing, which would not provide the enhanced economic benefits associated with the Project.

9 CONCLUSION

This Environmental Impact Statement (EIS) has been prepared to review the expected environmental, social and economic impacts of the proposed Strathmore Quarry.

The EIS has addressed the issues outlined in the SEARs issued on 3 July 2023 (EAR 1786).

A qualitative risk assessment, stakeholder consultation and baseline environmental surveys were undertaken to identify potential impacts, issues or concerns and ensure these matters were taken into consideration through the project design and impact assessment process. Additional specialist assessments were undertaken for key environmental impacts.

The proposed quarry can provide a local source of quarry products to address demand in the Tamworth region to enable the construction of housing and infrastructure. Tamworth Regional Council and the NSW Government is planning for increasing population and infrastructure in the medium term.

This EIS and its supporting documents have described the various elements of the proposal and assessed the likely impacts. This assessment has involved a detailed analysis of the existing environment, the potential impact of the proposed quarry and the cumulative impact of the quarry and existing uses in the area.

Overall, the environmental assessment of potential impacts indicates that significant adverse social, economic or environmental impacts which are unable to be managed or mitigated by the proposed development in a reasonable manner are quite unlikely. A range of recommendations made by specialist consultants are included as mitigation measures to ensure that measures and management principles are put in place to reduce or mitigate these potential impacts.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the applicant believes that approval of the project is justified, subject to conditions of development consent that are consistent with the scale, nature and context of the proposal.

10 REFERENCES

10.1 Documents

Government guidelines and reference documents:

- Agriculture Issues for Extractive Industry Development, NSW Department of Primary Industries 2012.
- Australian Standard AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines, Standards Australia, 2009.
- Biosecurity Risk Management in Land Use Planning and Development Guide, NSW Department of Primary Industries 2020.
- Extractive Industries Quarries EIS Guideline, NSW Urban Affairs & Planning, 1996.
- Guideline for Landscape Character and Visual Impact Assessment EIA-N04, Transport for NSW, 2023.
- Hazardous and Offensive Development Application Guidelines Applying SEPP 33, NSW Planning, 2011.
- Health and Safety at Quarries Guide, NSW Resources Regulator November 2018.
- Land and Soil Capability Assessment Scheme, 2nd approximation, NSW Office of Environment & Heritage, 2012.
- Land Use Conflict Risk Assessment (LUCRA) Guide, NSW Department of Primary Industries, 2011
- Living and Working in Rural Areas: Handbook for managing land use conflict issues, NSW DPI 2007.
- Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, March 2004 (commonly known as the “Blue Book”). Landcom, 2004. Especially sections 5 and 6.
- Managing Urban Stormwater, Soils and Construction, Volume 2E Mines and Quarries, DECC, 2008.
- Matters of National Environmental Significance Significant impact guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999, Commonwealth of Australia 2013.
- New England North West Regional Plan-2041 NSW Department of Planning and Environment 2022.
- NSW Native Vegetation Area Clearing Estimate Mapping Method, NSW Dept of Planning & Environment 2023.
- NSW Biodiversity Offsets Scheme, Local Government Resource Manual, NSW Dept of Planning & Environment 2022.
- Reviewing Biodiversity Values Map and Threshold Tool area clearing threshold results, NSW Dept of Planning & Environment 2023.
- Tamworth Regional Council Local Strategic Planning Statement 2020.
- Threatened Species Test of Significance Guidelines, Office of Environment and Heritage 2018.
- Waste Classification Guidelines – Part 1: Classification of waste, NSW Environment Protection Authority, 2014.

10.2 Databases

Databases:

- [Biodiversity Values Map and Threshold Tool](#), NSW Environment & Heritage
- [Groundwater dependent ecosystems atlas](#), Commonwealth Bureau of Meteorology.
- Heritage:
 - [Aboriginal Heritage Inventory Management System](#), Heritage NSW.
 - [Australian Heritage Database](#), Commonwealth Department of Climate Change, Energy, the Environment and Water.
 - [State Heritage Inventory](#), NSW Environment & Heritage.
- [Weeds](#), NSW Department of Primary Industries.
- [Zoning](#), SEED data, NSW Department of Planning & Environment.
- [Network Information Portal](#), Essential Energy.

10.3 Mapping

Geographic information system (GIS) data sources for underlying base maps used in plans and figures:

- [Cadastral and roads data](#), NSW Spatial Services.
- Elevation, terrain & LiDAR point clouds, NSW Spatial Services via [Elvis foundation elevation data](#).
- [Geology](#), SEED data, Department of Regional New South Wales.
- [Historical aerial imagery NSW](#), NSW Spatial Services.
- [Land & soil capability mapping](#), SEED data, NSW Department of Planning & Environment.
- [Native Vegetation Area Clearing Estimate](#), SEED data NSW Department of Planning & Environment.

11 TERMS & ACRONYMS

AHD	Australian Height Datum
BCM	Bank Cubic Metres
BDAR	Biodiversity Assessment Report
BOS	Biodiversity Offset Scheme
DCP	Development Control Plan
EIS	Environmental Impact Statement
EPA Act	Environmental Planning & Assessment Act 1979
EPL	Environment Pollution Licence
GDE	Groundwater Dependent Ecosystems
GIA	Groundwater Impact Assessment
km	kilometre
LCM	Loose Cubic Metres
LGA	Local Government Area
LEP	Local Environmental Plan
LUCRA	Land Use Conflict Risk Assessment
m	metres
NVACE	Native Vegetation Area Clearing Estimate
NPWS	NSW National Parks & Wildlife Service
NSW EPA	NSW Environment Protection Authority
NSW RFS	NSW Rural Fire Service
PM2.5	Particulate Matter 2.5
PM10	Particulate Matter 10
POEO Act	NSW Protection of the Environment Operations Act 1997
RTK	Real Time Kinematic
SEED Data	NSW Government digital mapping Sharing and Enabling Environmental Data (SEED) resources
TRC	Tamworth Regional Council
TSP	Total Suspended Particulate
VIA	Visibility Impact Assessment

12 PLANS

- 1 Context Orthophoto**
- 2 Context Terrain**
- 3 Context Land & Soil Capability**
- 4 Context Zoning & Dwellings**
- 5 Context Trees**
- 6 Site Orthophoto**
- 7 Site Terrain**
- 8 Proposed site – Stage 1 Void**
- 9 Proposed site – Stage 2 Final Void**
- 10 Proposed site – Stage 2 Final Void Cross Sections**
- 11 Proposed site - Indicative Final Domains**
- 12 Proposed site – Stormwater**
- 13 Proposed site – Rehabilitation Landform**
- 14 Proposed site – Rehabilitation Cross Sections**
- 15 Proposed – Gowrie Rd Intersection Orthophoto**
- 16 Proposed – Access Track Alternatives**
- 17 Proposed – Additional North South Cross sections**

13 APPENDICES

- A. SEARs for Strathmore Quarry Project (EAR 1786) 3 July 2023
- B. ~~Threatened Species Test of Significance~~
Superseded by Biodiversity Assessment – Appendix R
- C. Traffic Impact Assessment & addendum letters
- D. Air Quality Impact Assessment
- E. Noise & Vibration Impact Assessment
- F. Visual Impact Assessment
- G. Groundwater Impact Assessment
- H. Land Use Conflict Risk Assessment
- I. Aboriginal Heritage Site Inspection
- J. AHIMs Search
- K. Essential Energy Feedback
- L. ~~Biodiversity Values Map and Threshold Report~~
Superseded by Biodiversity Assessment – Appendix R
- M. ~~EPBC Protected Matters Report~~
Superseded by Biodiversity Assessment – Appendix R
- N. Community Information Newsletters
- O. Voluntary Planning Agreement Offer
- P. Estimated Development Cost Report
- Q. Biosecurity Risk Management Plan
- R. Biodiversity Assessment
- S. Greenhouse Gas Assessment
- T. Preliminary Site Investigation (Contamination)
- U. Human Health Risk Assessment: Respirable Crystalline Silica