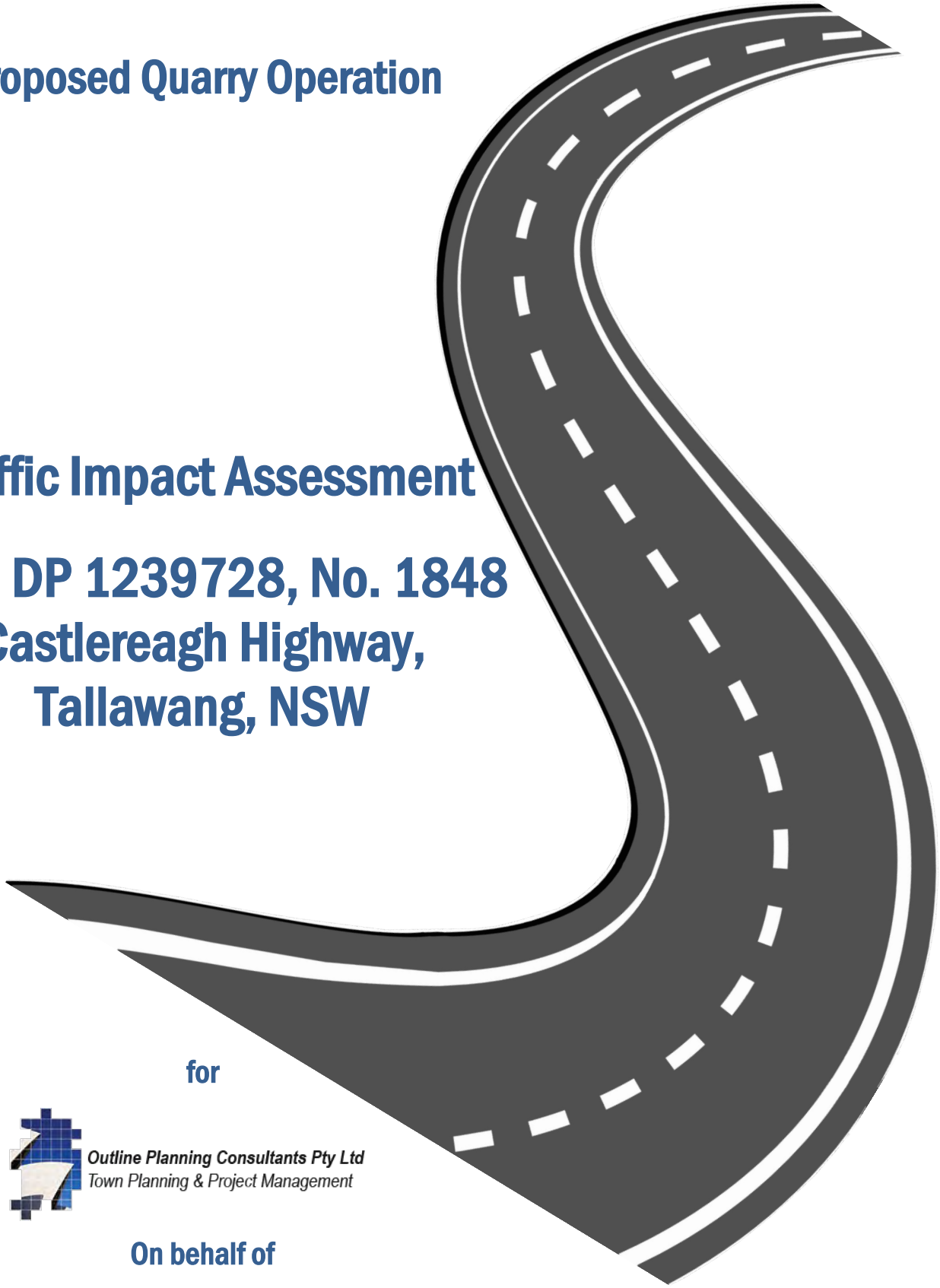
Proposed Quarry Operation



Traffic Impact Assessment

Lot 1 DP 1239728, No. 1848 Castlereagh Highway, Tallawang, NSW

for

Outline Planning Consultants Pty Ltd
Town Planning & Project Management

On behalf of

Hamish & Sally Drury

Talinga Pastoral Company

25 September 2024

Traffic Impact Assessment Details

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CONTENTS

APPENDICES

1. BACKGROUND

1.1 Introduction

StreetWise Road Safety and Traffic Services have been engaged by Outline Planning Consultants, on behalf of Hamish and Sally Drury Talinga Pastoral Company to prepare a Traffic Impact Assessment (TIA) to commence a quarry operation on Lot 1 DP 1239728, No. 2058 Castlereagh Highway, Tallawang (Gulgong).

1.2 Quarry Location

The proposed quarry is to be located at No.1848 (Lot 1 DP 1239728) Castlereagh Highway, Tallawang, New South Wales. The proposed quarry is located approximately 21.5km by road to the north of the township of Gulgong in the Mid-Western Regional Council local government area. The project site has an area of 7.34ha. The site of the quarry is currently used for the grazing of livestock and as a borrow pit, the latter which has been in operation since circa 1964.

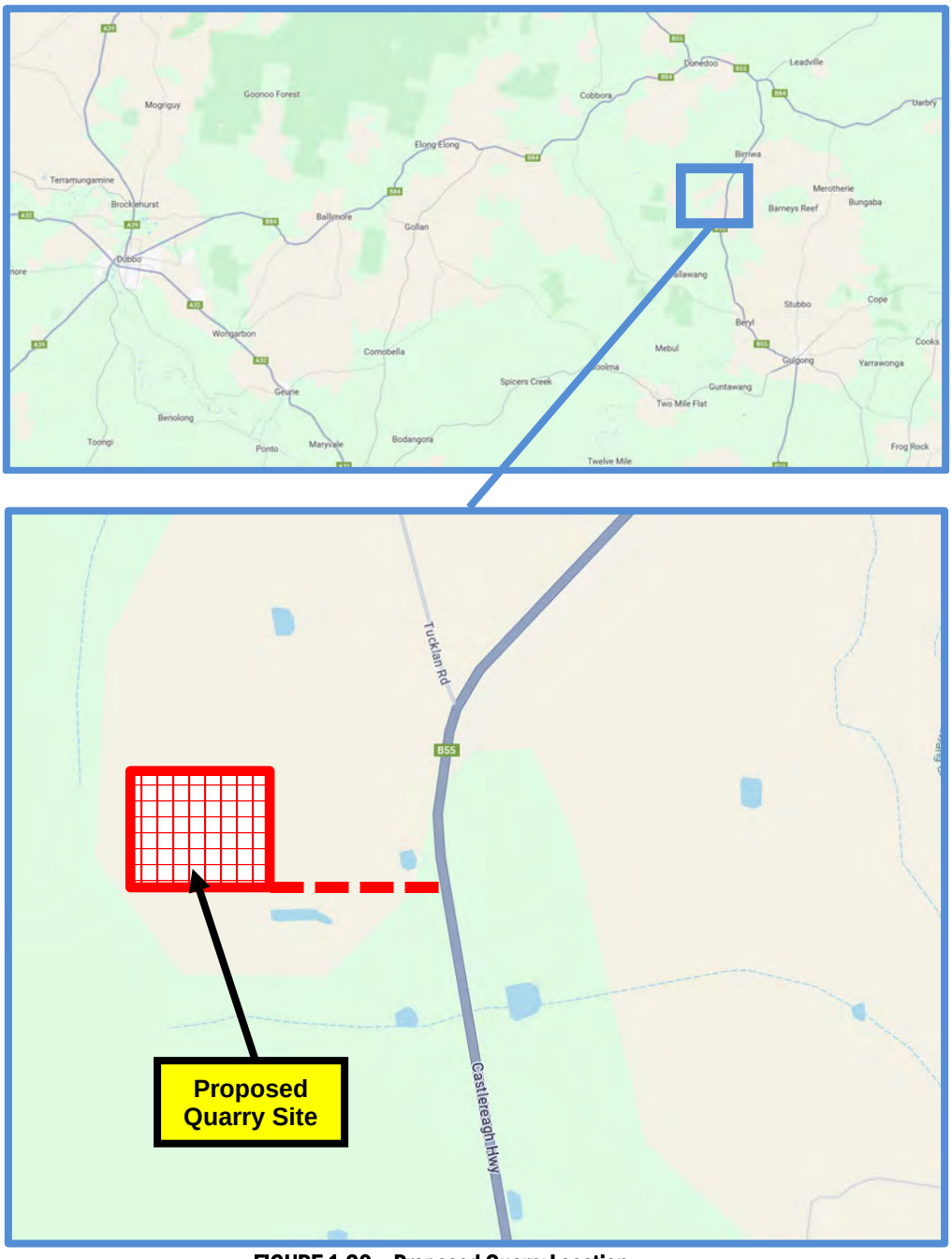


FIGURE 1.20 – Proposed Quarry Location

1.3 The Proposal

The proposed quarry operation is privately owned and will be operated by the Hamish and Sally Drury Talinga Pastoral Company .

An elevated stony hill on the proposed quarry site is currently used as a borrow pit for supplying hard rock for farm-related purposes. The owners propose to establish a quarry on the site to extract and to process up to 350,000 tonnes per annum of quarry material within a quarry footprint of 7.34ha and a total resource of about 4.6 million tonnes. The proposed quarry will utilise and existing internal access route which connects directly with the Castlereagh Highway. The quarry site is located approximately 500m west of the Castlereagh Highway.

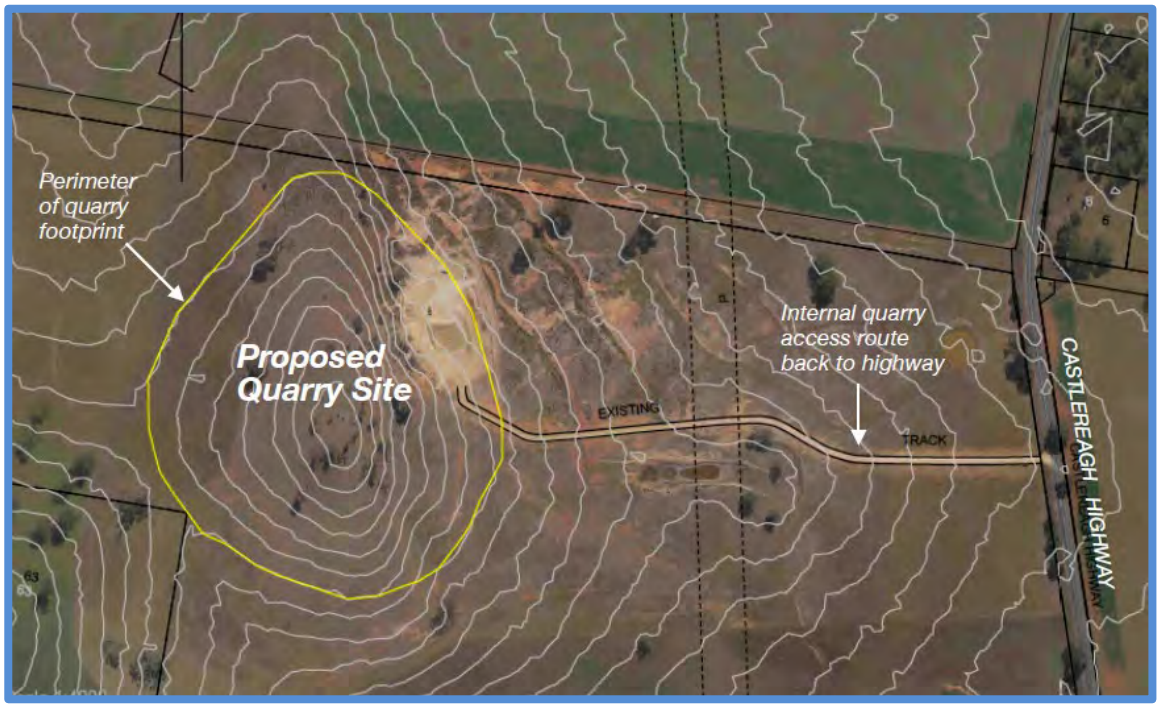


FIGURE 1.30 – Locality Plan

The hard rock resource found on the elevated hill be quarried and used as a road base or select fill **primarily** to service nearby infrastructure projects.

- EnergyCo's extensive, 1km wide CWO-REZ transmission, generation, firming and storage project on a large corridor of land located within approximately 3.1km to the north of the project site, and
- Acciona's Orana Wind Farm project, involving 92 wind turbines located as close as 2km to the project site. The wind turbines are proposed to be connected to the above CWO-REZ transmission line.

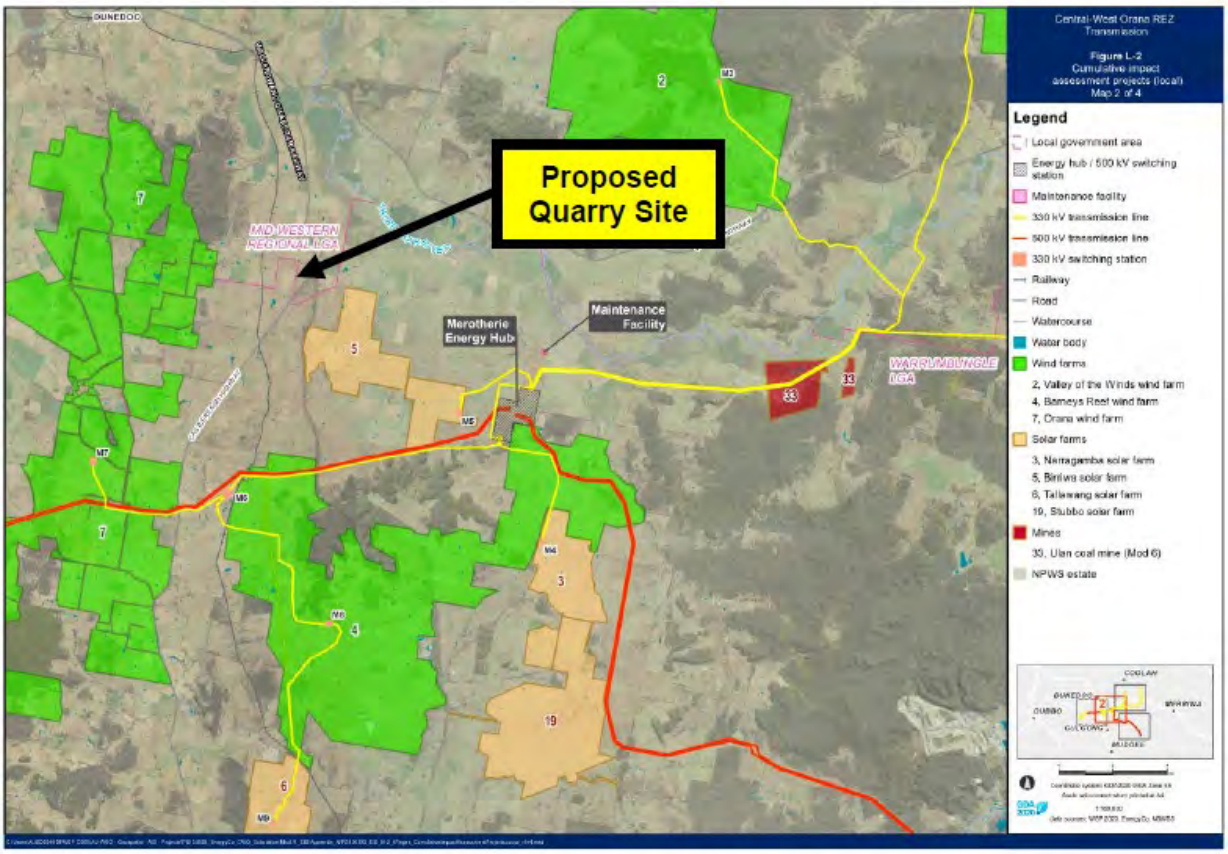


FIGURE 1.31 – Relationship of Proposed CWO-REZ Projects to Proposed Quarry Location

Table 1.30 provides a summary of the proposed projects located near the quarry site including their planning status and likely construction and operation commencement dates.

Project	*Stage reached*	*Likely construction, operation*
EnergyCo transmission line project	Development consent issued 26 June 2024.	Contracts to be issued in 2nd half of 2024, with construction from late 2024. Initial operation by 2028 (source: EnergyCo website 31 July 2024).
Tallawang Solar Farm, south of project site	SSD application currently being assessed.	If approved, construction unlikely to commence until 2025, with operation after 2027.
Stubbo Solar Farm, east of project site	Development consent issued 29 June 2021	Construction commenced 2024, with 50% of the solar panels installed by June 2024. Operation likely by 2025.
Orana Wind Farm	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.
Barneys Reef Wind Farm, to the NE of project site	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.

Birriwa Wind Farm, to the NE of project site	SSD application currently being assessed, determination imminent.	If approved, construction unlikely to commence until 2025 at earliest, with operation after 2027.
Mavis Solar Farm, north of Gulgong	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.
Beryl Battery Energy Storage System	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.
Bellambi Heights Battery Energy Storage System	Development consent issued 2 May 2024	Targeted construction date early 2025, with likely operation by 2026.
Mayfair Solar Farm	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.
Narragamba Solar Farm	EIS yet to be lodged in support of project.	If approved, construction unlikely to commence until 2026-2027, with operation after 2028-2029.
Beryl Solar Farm	Development consent issued 27 January 2017	Constructed.

TABLE 1.30 – Summary of Proposed Project Located Near the Quarry Site

(Sources: NSW Major Projects Planning Portal 31 July 2024-1 August 2024 and websites of individual energy projects 31 July 2024-1 August 2024)

Typical infrastructure required for the onsite operation of the quarry will be as follows:-

- Mobile jaw crusher (eg. a Metso LT125/Kleeman MC110/McCloskey J50 or equivalent) with a scalping screen/radial stacker attached to jaw crusher. Rock screens are vitally important to any company that deals with the crushing of quarry product. Screens assist in separating crushed quarry rock to various sizes to meet the customer's specifications for road base and fill.
- Mobile cone crusher, similar to Metso LT220D/Findlay 1540RS(or equivalent), with built in screens/ conveyors.
- CAT D8 Dozer and a 38/50T Kobelco excavator/Doosan DX225LC 23 (or equivalents).
- CAT 740/Terex TA400 Articulated Dump Truck (or equivalent).
- CAT 972/950 Front End Loader (or equivalent)
- Return conveyors to cone crusher and screens for reprocessing of oversized material, if required.

Infrastructure required for the quarry operation external to the site typically will be truck and dog vehicles (32 to 42 tonne in capacity).

1.3.1 Project Staging and Remediation

The project site is strategically positioned in terms of its close proximity to and ability to service the SSD projects with road making material, located as it is in the northern part of the Mid-Western Regional Council LGA. In particular, the project site is located approximately 3.1km to the north of EnergyCo's extensive, 1km wide CWO-REZ project, approved on 26 June 2024, and as close as 2km to Acciona's Orana Wind

Farm project. Both projects will require vast amounts of road making material to service their developments-refer Figure 1.31 showing the location of these two CWO-REZ projects and nearness to the proposed quarry site.

The following quarry operation staging is proposed:-

- Stage 1: Retain the steeper part of the elevated knoll and carry out quarrying behind this feature, while achieving a satisfactory depth of quarrying. Quarrying commences in the southern section of the site to achieve a quarry depth of between 10m-14m below natural ground level. Quarrying proceeds behind existing topography, working progressively to the north-west from the southern end of the pit.
- Stage 2: Stage 2 of the quarry development is planned to involve a progressive lateral extension of the quarrying operation towards the east and north-east. Quarrying will be undertaken relying on the existing quarry floor level established at Stage 1. Quarry benches no longer in use would be decommissioned and rehabilitated progressively. With a suitable depth achieved the remainder of eh elevated knoll is removed.

It is anticipated that once production significantly increases a quarry weighbridge may be installed. A weighbridge of the type commonly used in quarries of this scale will typically have dimensions of 28m x 3.5m with a concrete deck. If utilised, the weigh bridge would be installed within 100m of the site entry from the highway, on the northern side of the internal access route.

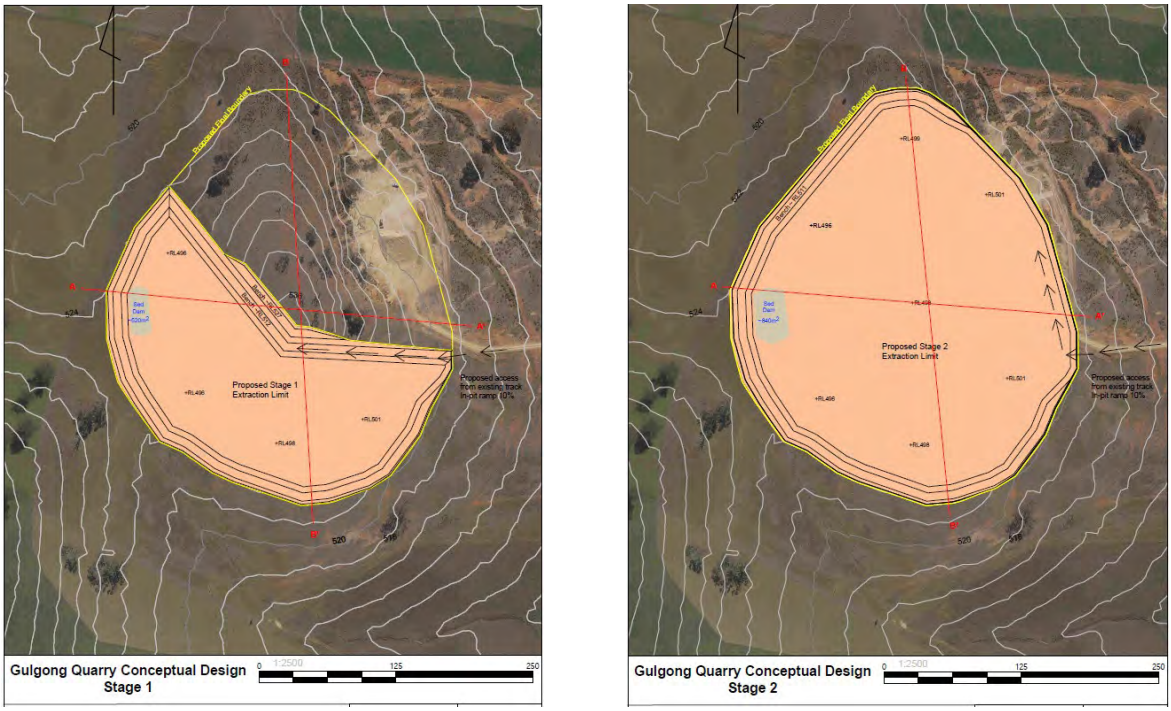


FIGURE 1.32 – Indicative Quarry Operation Staging Plans

Following is an extract from the project Environmental Impact Statement for indicative remediation plan to be implemented on cessation of the quarry operation.

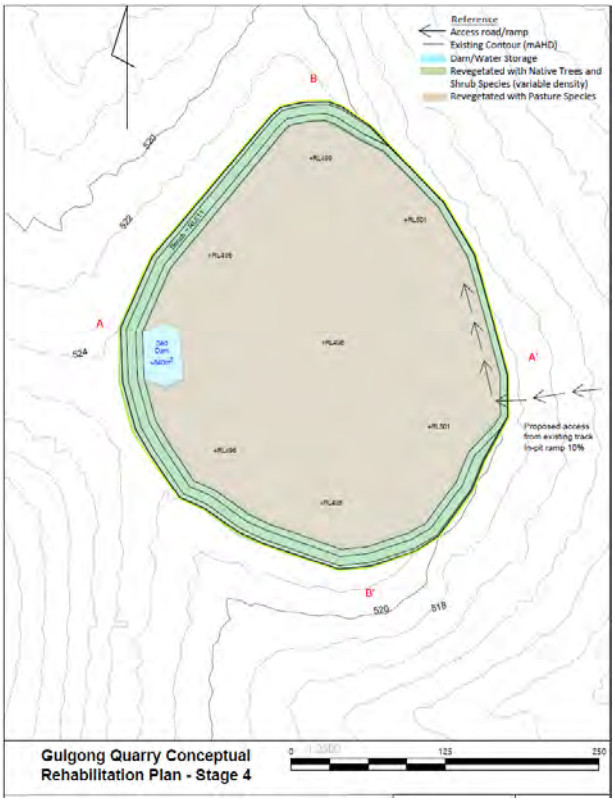


FIGURE 1.33 – Indicative Quarry Remediation Plan

1.4 SEARs Requirements

The Planning Secretary's Environmental Planning Requirements (SEARs) for this project states the following general requirements are required for a Traffic Impact Assessment to be completed as part of the proposal.

Assessment Condition Requirement	Response
Accurate predicts 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 the transportation of quarry products.	(*See Sections 1.3 and 4.0 of this report)*
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 the local and regional roads.	(*See Sections 4.0, 5.0 and 7.0 of this report)*
A description of the measures that would be implemented to maintain and / or improve the capacity, efficiency and safety of the road network (particularly the proposed transport routes) over the life of the development.	(*See Section 5.0 of this report)*
Evidence of any consultation with relevant road authorities, regarding the establishment of agree contributions towards road upgrades or maintenance; and	(*See Section 1.6 of this report)*
A description of access roads, specifically in relation to nearby Crown roads and fire trails.	(*See Section 1.3 of this report)*

TfNSW have provided separate requirements to be addressed in a Traffic Impact Assessment as part of the overall SEARs.

The TfNSW key interests are the safety and efficiency of the transport network, the needs of our customers and the integration of land use and transport in accordance with the Future Transport Strategy 2056. To ensure that TfNSW's key interests are addressed, TfNSW requests that any future application be submitted with an Environmental Impact Assessment (EIA) containing a Traffic Impact Assessment (TIA), prepared by a suitably qualified person/s in accordance with the Austroads Guide to Traffic Management Part 12, Australian Standards and any complementary TfNSW Supplements, and Roads and Maritime Guide to Traffic Generating Developments.

1.4.1 Traffic Impact Assessment (TIA)

The purpose of the TIA is to address the impact of traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project.

The requested TIA should be tailored to the scope of the proposed development and include, but not be limited to, the following:

Assessment Condition Requirement	Response
Detailed plans identifying the location of any: - Proposed and existing project-related infrastructure within and outside of the project boundary. - Any other project-related structures within the road reserve. Include demarcation of local and classified road reserves. - Identify existing and proposed access crossings from the classified road network required for the project. Where access is proposed from the classified road in lieu of local road access, the TIA should address s.2.119 of State Environmental Planning Policy (Transport and Infrastructure) 2021. - Structures on the road network that could be sensitive to blasting (e.g. bridges, pump stations, etc). Note, if any structures are likely to be affected, an assessment of the impact must ensure that the peak particle velocity is limited to an acceptable level to TfNSW. - The necessary road network infrastructure upgrades that are required to cater for and mitigate the impact of project related traffic on both the local and classified road network for the development (for instance, road widening and/or intersection treatments). In this regard, preliminary concept drawings should be submitted with the application for any identified road infrastructure upgrades. It should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of TfNSW and Council.	(*See Section 1.3 of this report*) (*See Section 1.3 of this report*) (*See Section 1.3 of this report*) (*See Section 2.1.1 of this report*) (*See Section 5.3 of this report*)
An assessment should be undertaken as a part of the EIS and TIA to identify the projects that will have overlapping construction periods and assess the cumulative traffic impacts with emphasis on the following: - The cumulative impacts from traffic generated from the construction workforces in terms of the origin-destination routes,	(*See Section 4.0 of this report*) (*See Section 4.1 of this report*)

access, AM/PM peaks where there is overlap with other projects. - The cumulative impacts of heavy vehicle movements in terms of AM/PM peaks and routes where there is an overlap with other projects.	(*See Section 4.1 of this report*)
Heavy vehicle routes: - National Heavy Vehicle Regulator (NHVR) approved routes identified on the Restricted Access Maps (RAV MAP) are to be utilised for the heavy vehicle routes for the proposed development.	(*See Section 2.0 of this report*)
Project schedule: - Phases and stages of the project, including construction, operation and decommissioning / rehabilitation, as applicable, and - Operational hours and days of work, number of shifts and start and end times.	(*See Section 1.31 of this report*) (*See Section 1.31 of this report*)
Traffic volumes including: - Existing background traffic, - Project-related traffic for each phase or stage of the project, - Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement.	(*See Section 3.0 of this report*) (*See Section 4.0 of this report*) (*See Section 4.1 of this report*)
Traffic characteristics including: - Number and ratio of heavy vehicles to light vehicles, - Peak times for existing traffic justified by up-to-date traffic counts, - Peak times for project-related traffic including commuter periods, - Proposed hours for transportation and haulage, - Interactions between existing and project-related traffic.	(*See Section 4.1 of this report*) (*See Section 3.1 of this report*) (*See Section 4.1 of this report*) (*See Section 4.1 of this report*) (*See Section 4.1 of this report*)
Capacity analysis using SIDRA or other relevant application, to identify an acceptable Level of Service (LOS) at intersections with the classified (State) road/s, and where relevant, analysis of any other intersections along the proposed transport route/s. - The origins, destinations and routes for: - Commuter (employee and contractor) light vehicles and pool vehicles, - Heavy (haulage) vehicles and OSOM vehicles (where applicable).	(*See Sections 3.3 and 5.2 of this report*)
Road safety assessment of key haulage route/s. Note, where road safety concerns are identified at a specific location along the proposed haulage routes, TfNSW suggests that the TIA be supported by a targeted Road Safety Audit undertaken by suitably qualified persons in accordance with the Austroads Guidelines.	(*See Section 7.0 of this report*)
Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD).	(*See Sections 5.2 and 7.0 of this report*)
Consideration of the local climate conditions that may affect road safety during the life of the	(*See Section 7.3 of this report*)

project (e.g. fog, wet and dry weather, icy road conditions).	
The layout of the internal road network, parking facilities and infrastructure.	(*See Section 1.3 of this report)*
Impact on rail corridors and level crossings detailing any proposed interface treatments. Note, the rail authority for rail corridors in the vicinity of the site is ARTC.	(*Not Applicable as there are no nearby rail corridors that the proposal will impact)*
Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as carpooling and shuttle buses during construction.	(*See Section 8.0 of this report)*
Identification and assessment of potential environmental impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads.	(*Refer to overall Environmental Impact Statement for the proposal)*
Controls for transport and use of any dangerous goods in accordance with State Environmental Planning Policy No. 33 – Hazardous and Offensive Development, the Australian Dangerous Goods Code and AS4452 Storage and Handling of Toxic Substances.	(*See Section 7.5 of this report)*
A draft Traffic Management Plan (TMP) that could be implemented following approval of the EIS, in consultation with relevant Councils and TfNSW. The TMP should identify strategies to manage the impacts of project related traffic, including any community consultation measures for peak haulage periods.	(*See Appendix C of this report)*
Propose a Driver Code of Conduct for haulage operations which could include, but not be limited to: - Safety initiatives for haulage through residential areas and/or school zones. - An induction process for vehicle operators and regular toolbox meetings. - A public complaint resolution and disciplinary procedure.	(*See Appendix D of this report)*

1.4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

In accordance with Section 2.119 of the State Environmental Planning Policy the development proposal needs to address the following.

2.119 Development with frontage to classified road

(1) The objectives of this section are —

a) to ensure that new development does not compromise the effective and ongoing operation and function of classified roads, and

(b) to prevent or reduce the potential impact of traffic noise and vehicle emission on development adjacent to classified roads.

(2) The consent authority must not grant consent to development on land that has a frontage to a classified road unless it is satisfied that —

(a) where practicable and safe, vehicular access to the land is provided by a road other than the classified road, and

(b) the safety, efficiency and ongoing operation of the classified road will not be adversely affected by the development as a result of —

(i) the design of the vehicular access to the land, or

(ii) the emission of smoke or dust from the development, or

(iii) **the nature, volume or frequency of vehicles using the classified road to gain access to the land, and**

(c) the development is of a type that is not sensitive to traffic noise or vehicle emissions, or is appropriately located and designed, or includes measures, to ameliorate potential traffic noise or vehicle emissions within the site of the development arising from the adjacent classified road."

See Section 1.4 and 1.4.1 for responses to the SEARs requirements that incorporate addressing Section 2.119 of the State Environmental Planning Policy.

1.5 Assessment Scope of Work

This traffic impact assessment will assess the implementation of the proposed Gulgong Quarry operation based on the NSW Department of Planning, Housing and Infrastructure SEARs and the separate TfNSW Traffic Impact Assessment requirements.

1.6 Consultation

As part of completing the assessment of this quarry expansion StreetWise Road Safety & Traffic Services has consulted with:-

- Mid-Western Regional Council, and
- Transport for NSW Development West.
- Essential Energy

See Appendix B for details for consultation with the above agenties.

2. ROAD NETWORK

2.1 Local Road Network

The proposed Gulgong Quarry operation is located approximately 21.50km north of the township of Gulgong in the state of New Sate Wales. (See Figure 1.20)

As stated in Section 1.30 of this report it is intended the proposed quarry operation will service a number of projects within the Central-West Orana Renewable Energy Zone.

The main haul route (road) will generally be to the north and northwest via the Castlereagh Highway (B55) for the distance of 0.50km north to the intersection of the Castlereagh Highway and Tucklan Road then travelling along Tucklan Road as nominated by the CWO-REZ project.

2.1.1 Castlereagh Highway (B55)

The Castlereagh Highway (B55) is a classified road providing a connection between Wallerawang in the south and the Golden Highway in the north via townships such as Mudgee and Gulgong. The formation generally provides for a single travel lane in each direction with widenings at intersections and for overtaking lanes along its route.

In the vicinity of the proposed quarry the travel lanes are generally 3.20m wide in each direction with 0.50 to 1.00m wide sealed. There are no bridge structures, pump stations, etc located within the blast zone.

The posted speed limit in the vicinity of the proposed quarry operation is 100km/h.

The Castlereagh Highway is an approved B Double route for heavy vehicles up to a length of 26.0m long.

2.1.2 Golden Highway (B84)

The Golden Highway (B84) is a classified road providing a connection between Dubbo in the west and the locality of Belford in the east via townships such as Dunedoo and Merriwa. The formation generally provides for a single travel lane in each direction with widenings at intersections and for overtaking lanes along its route.

The posted speed limit in the vicinity of the proposed quarry operation is 100km/h.

The Golden Highway is an approved B Double route for heavy vehicles up to a length of 26.0m long.

2.1.3 Tucklan Road

Tucklan Road is a local rural access road providing access to rural properties and the township of Dunedoo in the north. There is a gravel section of Tucklan Road between the Castlereagh Highway and 500m north of Artz Lane which is approximately 6.20km north of the Castlereagh Highway.

The gravel formation width of Tucklan Road varies in width between 6.0 and 7.0m wide.

The posted speed limit of Tucklan Road in the vicinity of the proposed quarry operation is unrestricted (drive to the conditions).

It shall be noted that the CWO-REZ project has nominated Tucklan Road as one of a number of construction route providing access to the transmission lines.

2.1.4 Intersection of Castlereagh Highway (B55) & Tucklan Road

The "T Junction" intersection of Castlereagh Highway (B55) Tucklan Road generally conforms to a minimum standard BAR / BAL intersection treatment.

The intersection is bitumen sealed with the seal terminated approximately 15 to 20m into the Tucklan Road leg of the intersection. The horizontal alignment of the intersection is located on an approximately 300m northbound right hand curve on generally a flat vertical grade (up to 5% longitudinal grade).

At least 1.0m wide sealed shoulders are provided through the Castlereagh Highway leg of the intersection with left hand edge and double barrier linemarking installed.

3. EXISTING TRAFFIC VOLUMES

3.1 Castlereagh Highway

As part of the TIA completed for the CWO-REZ project the following TfNSW permanent counter sites were referenced and used as the background information.

- Station ID 6163: Golden Highway east of Merriwa town
- Station ID 6364: Golden Highway west of Sandy Hollow
- Station ID 6145: Newell Highway north of Dubbo.
- Station ID 6149: Newell Highway south of Dubbo.

The above stations are considered to be outside the study area of this report and therefore will not be considered. However, the CWO-REZ report did reference the following data for the Castlereagh Highway in 2022.

Location	Average Daily Traffic (ADT)	Vehicle Classification		Peak Hour Volumes (Veh / hour)			
		Light Vehicle %	Heavy Vehicle %	AM Peak		PM Peak	
				Nthbd	Sthbd	Nthbd	Sthbd
Castlereagh Hwy (Between Golden Hwy & Tucklan Rd), Birriwa	725	80.60%	19.40%	29	41	38	34
Castlereagh Hwy (Northwest of Old Mill Rd), Gulgong	1445	81.50%	18.50%	52	64	65	61

Transport for NSW (TfNSW) have advised they do not have any traffic data information near the location of the proposed quarry site. However, they did indicate there was traffic data available for a site on the Castlereagh Highway approximately 4kms north of Gulgong in 2021 where the two way volumes were 1 366 vehicles per day with approximately 15.70% of them being heavy vehicles.

3.2 Tucklan Road

Mid-Western Regional Council were consulted with to see if they had any traffic data information for Tucklan Road which is approximately 500m to the north of the site and will be used as one of the main access roads for the CWO-REZ project.

The following information is summarized for counts completed in November / December 2015 and February to April 2019.

Location	Average Daily Traffic (ADT)	Vehicle Classification		Peak Hour Volumes (Veh / hour)	
		Light Vehicle %	Heavy Vehicle %	AM Peak	PM Peak
Tucklan Road (580m north of Artz Lane) 2015	112	90%	10%	12	16
Tucklan Road (580m north of Artz Lane) 2019	92	90%	10%	8	11

3.3 Existing Roadway Capacity

Road capacity can have a major impact on the road safety of a road. These impacts can relate to gaps in traffic, impatience by drivers where gaps in traffic flows are minimal, acceptable travel times, ability for traffic to merge with through traffic.

The Austroads Guide to Traffic Management uses the HCM method for the determination of roadway capacity on two lane two way rural roads. HCM 2016 provides for three (3) categories for two lane highways.

- ***Class I*** *– These are two-lane highways on which motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary arterials connecting major traffic generators, daily commuter routes, or primary links in state or national highway networks generally are assigned to Class I. Class I facilities most often serve long-distance trips or provide connecting links between facilities that serve long-distance trips.*

- ***Class II*** *– These are two-lane highways on which motorists do not necessarily expect to travel at high speeds. Two-lane highways that function as access routes to Class I facilities, serve as scenic or recreational routes that are not primary arterials, or pass through rugged terrain generally are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning and ending portions of longer trips, or trips for which sightseeing plays a significant role.*
- ***Class III*** *– These are two-lane highways serving moderately developed areas. They may be portions of a Class I or Class II highway that pass through small towns or developed recreational areas. On such segments, local traffic often mixes with through traffic, and the density of unsignalised roadside access points is noticeably higher than in a purely rural area. Class III highways may also be longer segments passing through more spread-out recreational areas, also with increased roadside densities. Such segments are often accompanied by reduced speed limits that reflect the higher activity level.*

For the purposes of this assessment the Castlereagh Highway will be referred to as a Class I category.

HCM considers the Level of Service (LoS) for Class I highways on which efficient mobility is paramount is defined in terms of both per cent time-spent-following and average travel speed.

For the purposes of this assessment the Castlereagh Highway is considered to have a *Directional Flow Rate* of 65 per hour in one direction for an average travel speed of 100km/h.

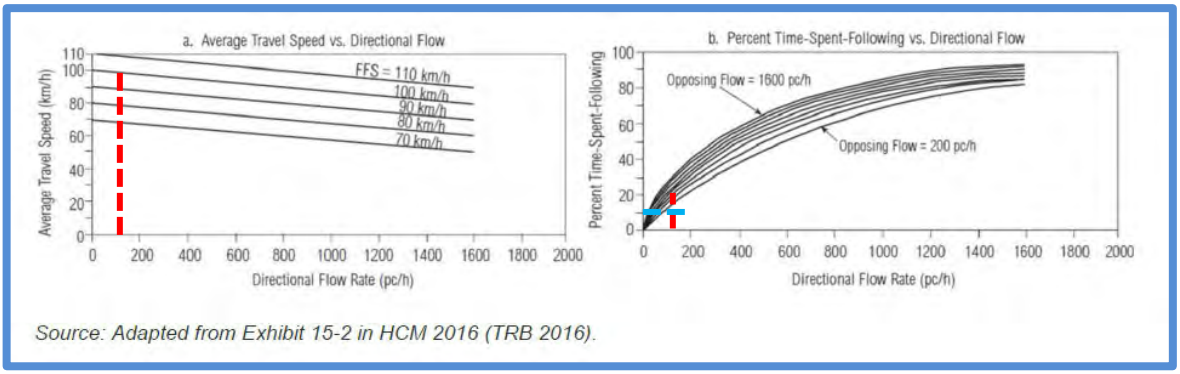


FIGURE 3.10 – Speed-flow and per cent time-spent-following relationships for directional segments with base conditions (Assessment for Castlereagh Highway)

Figure 3.10 above provides the *Percent Time Spent – Following* for the existing Castlereagh Highway operation to be 10%. Therefore, the existing Los for the Castlereagh Highway (Class I) can be determined as LoS A using Figure 5.2 from the Austroads Guide to Traffic Management – Part 3.

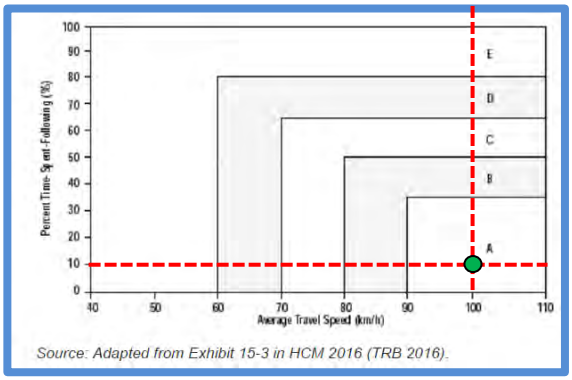


FIGURE 3.11 – LOS criteria for two-lane highways in Class I (Austroads GTTM – Part 3)
(Existing Castlereagh Highway Operation)

The Austroads Guide to Traffic Management prescribes the following definitions for Level of Service (LoS) with the various levels of service as follows:

- ***LOS A*** describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to manoeuvre within the traffic stream. Control delay at the boundary intersections is minimal. The travel speed exceeds 80% of the base free-flow speed (BFFS).

- ***LOS B*** describes reasonably unimpeded operation. The ability to manoeuvre within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the BFFS.

- ***LOS C*** describes stable operation. The ability to manoeuvre and change lanes at mid- segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the BFFS.

- ***LOS D*** indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the BFFS.

- ***LOS E*** is characterised by unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the BFFS.

- ***LOS F*** is characterised by flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the BFFS.

LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections has a VCR ratio greater than 1.0.

A similar assessment for Tucklan Road using a *Directional Flow Rate* of 15 per hour indicates Tucklan Road currently operates at a LoS A.

4. FUTURE TRAFFIC ASSESSMENT

4.1 Proposed Quarry Traffic Generation

It is intended that the quarry material won from the proposed Gulgong Quarry will be used for a range of purposes, primarily as a roadbase or select fill servicing local and regional infrastructure projects, in particular the various renewable energy infrastructure projects approved or proposed within the Central-West Orana Renewable Energy Zone (CWO-REZ), including EnergyCo's extensive transmission line project, about 3.1km to the north, and Acciona's Orana Wind Farm project, located as close as 2km away.

A mix of truck and dog combinations (32 & 37.50 tonnes), with larger (42 tonne truck and dog) and smaller trucks used where road weight limits allow. It is estimated that the future proposed quarry may generate up to a maximum of 60 laden quarry trucks per day.

Table 4.10 provides a summary of the annual average and maximum operation for the proposed quarry.

Annual Output (tonnes)	Proposed Operation
Annual Output (tonnes)	**350 000**
Vehicle Capacity (Truck & Dog / tonnes)	32 or 37.50
Available working weeks per year	48
Maximum No. of Laden Trucks (Yr)	**9 333 or 10 938**
Max. Working Hours (wk) (1)	66
Max. No. of Laden Trips (day)	*60*
Max. No. of Laden Trips (week)	**360**
Max. No. of Laden Trips (hr) (2)	**8.00**
Average No. of Laden Trips (hr)	**5.50**
Average No. of Return Trips (hr) - Laden & Unladen	**11**
No. of Max Days (Yr)	*132*

TABLE 4.10 – Annual Maximum Expanded Quarry Operation Calculation

Notes:-

1. *Hours of Operation*
   - *7.00am to 6.00pm (Monday to Friday)*
   - *7.00am to 6.00pm (Saturdays)*
   - *No Work Sundays*
2. *Maximum number of peak hour trips can be expected at the start of the daily shift (first hour) Where trucks will be more than likely be parked up from the end of the previous shift.*

The proposed quarry will employ up to 6 staff working on site plus contractors such as blasting contractors, machinery servicing and refuellers. Given the location of the quarry this will more than likely generate an additional 20 daily trips or an average of 2 trips per hour to and from the quarry.

4.2 Summary Traffic Generation

Table 4.20 provides a summary of the predicted traffic generation to be generated by the proposed quarry operation which will be used in future assessments in this report moving forward.

Table 4.20 provides a summary of a predicted peak hour scenario.

Land Use Operation	Proposed Peak Hour Traffic Generation
Proposed Quarry Material Generation (Laden and Unladen Trips) (Maximum)	60 daily laden trips 120 daily laden & unladen trips 8.0 laden trips / hour
General Quarry Operation (staff & contractors)	Up to 20 daily trips or 2 trips / peak hour
Total Peak Hour Trip Generation	**8.0 laden trips / hour** ***13 laden / unladen / General Operation trips*** ***140 laden / unladen / General Operation trips / day***

TABLE 4.20 – Summary of Total Peak Hour Trip Generation

4.3 CWO-REZ Projects

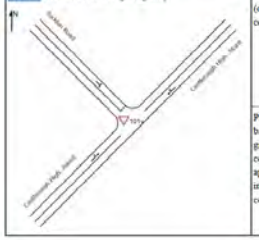
As indicated in section 1.3 of this report there are a number of projects within the CWO-REZ the proposed quarry can service. At the time of this report being prepared only 4 projects have development approval with construction estimated to commence in the near future. The following summary is provided with regard to Traffic Impact Assessments prepared for these projects relating to construction traffic and ongoing increased operational traffic.

There are many other proposed renewable energy projects as well as other developments in the region, at various stages of the planning approval process. The construction timings for most of these projects unknown.

From the summary table it can be shown these projects have considered construction phase trips external to the site and the impacts these extra trips will have on the local road network.

Project	Construction Traffic Impacts	Operational Traffic Impacts
EnergyCo Transmission Line Project (Prepared by WSP, Amendment Report, March 2024)	A desktop assessment was carried out to assess the proposed amendments. The same assessment approach methodology detailed in Section 3 of Technical Paper 13 was applied for the assessment of traffic and transport impacts for the amended project. The assessment of the proposed amendments and refinements included: • revised assessment of the potential traffic and transport impacts to sensitive receivers as a result of updates to the proposed construction and operational study area. • additional construction and operational scenarios not previously assessed in Technical Paper 13, including changes to construction traffic generation/distribution, two newly assessed intersections with updated traffic survey counts, updates to background traffic assumptions, updates to traffic data, additional microwave repeater sites, local road upgrades.	*"Transport for NSW requires further information on the assumptions regarding traffic generation of the project, broken down into delivery trucks required for water, excavation, fill, concrete, crushing, delivery of workforce accommodation, equipment, workforce (at the peak of construction), and workforce prior to the erection of workforce accommodation."* **The traffic generation numbers summarised in the TTIA presents the hourly traffic volumes presented in the peak hours of the day during the peak periods of construction (mid-2025 to mid-2026). These present the worst-case scenario for the project.** **Whilst there may be variation in construction traffic demand in various stages of construction, the assessed traffic generation volumes present the maximum and most conservative construction traffic volume that would be on the road network during the extent of the project. As such, any identified upgrade works based on traffic impacts have been based on the worst-case scenario to ensure they are suitable to manage variations in traffic demand during construction.**
	"Transport for NSW requires further information on the assumptions regarding traffic generation of the project, broken down into delivery trucks required for water, excavation, fill, concrete, crushing, delivery of workforce accommodation, equipment, workforce (at the peak of construction), and workforce prior to the erection of workforce accommodation." **The traffic generation numbers summarised in the TTIA presents the hourly traffic volumes presented in the peak hours of the day during the peak periods of construction**	

	(mid-2025 to mid-2026). These present the worst-case scenario for the project. **Whilst there may be variation in construction traffic demand in various stages of construction, the assessed traffic generation volumes present the maximum and most conservative construction traffic volume that would be on the road network during the extent of the project. As such, any identified upgrade works based on traffic impacts have been based on the worst-case scenario to ensure they are suitable to manage variations in traffic demand during construction.**	
	The source of Transport for NSW's rate of 1.5 per cent and 1.6 per cent annual growth rates on the State Road network is unclear, although may relate to the Corridor Strategy for the respective highways, with the Golden Highway Corridor Study released in October 2016 reporting a 1.6 per cent traffic growth trends preceding its publication. **Notwithstanding the above, an analysis has been completed applying a 1.6 per cent growth annually to the base traffic volume on the Golden Highway and Castlereagh Highway.** *This demonstrates that the background traffic growth would not significantly add to the base traffic volume to impact mid-block road capacity, with an increase of up to four vehicles per hour in each direction of travel on the State Road network in the year 2026, noting a peak construction period between mid-2025 and mid-2026.*	
	In terms of traffic and transport impacts, the amendment would maintain access via Spir Road and Tucklan Road, which are part of existing construction route to provide access track to the transmission lines. Both roads are unsealed roads, which will be maintained to a safe standard during and post construction.	

Intersection Name and Layout	Scenario	Peak Period	Intersection Approach: Road Name	Level of Service	Average Delay (seconds per vehicle)	Back of Queue (metres)	Degree of Saturation
Tucklan Road and Castlereagh Highway 	Existing Condition (current intersection configuration)	AM	Northeast: Castlereagh Highway	LoS A	5.5	0.2	0.027
			Northwest: Tucklan Road	LoS A	5.7	0.2	0.007
			Southwest: Castlereagh Highway	LoS A	5.5	0.0	0.019
		PM	Northeast: Castlereagh Highway	LoS A	5.6	0.2	0.024
			Northwest: Tucklan Road	LoS A	5.7	0.1	0.003
			Southwest: Castlereagh Highway	LoS A	5.5	0.0	0.026
	Project Case (with background traffic growth and construction traffic applied on current intersection configuration)	AM	Northeast: Castlereagh Highway	LoS A	6.9	5.0	0.118
			Northwest: Tucklan Road	LoS A	6.3	0.2	0.009
			Southwest: Castlereagh Highway	LoS A	6.2	0.0	0.030
		PM	Northeast: Castlereagh Highway	LoS A	5.8	0.3	0.033
			Northwest: Tucklan Road	LoS A	7.4	3.1	0.063
			Southwest: Castlereagh Highway	LoS A	5.6	0.0	0.066

During construction, the intersection of Tucklan Road and Castlereagh Highway is anticipated to experience up ***to 50 traffic movements along Castlereagh Highway and 50 traffic movements turning in/out of Tucklan Road each peak hour as determined from the previous assessment undertaken*** in Technical paper 13 for project traffic generation. This includes traffic demand into/out of transmission lines and switching stations work sites.

Project	Construction Traffic Impacts	Operational Traffic Impacts
Stubbo Solar Farm (Prepared by SCT Consulting, December 2020)	Based on conservative assumptions, the two-year construction phase of the solar farm is expected to generate the following peak construction traffic demand for the site: • 60 heavy vehicles per day • Up to 400 employees per day, who would likely travel in a combination of individual vehicles and minivans / shuttle buses. As part of the construction traffic management plan (CTMP), the contractor may consider providing minivans for moving non-local workers to site from the more populated townships, thus reducing the number of light vehicle movements. This impact assessment assumes no minivans /shuttle buses and is therefore based on a conservative assumption for light vehicle movements. Assuming sharing of private vehicles by construction staff staying in Gulgong or Mudgee, it is forecast that 230 light vehicles per day would be generated to transport construction staff. • 20 over dimensional vehicles would access the site during construction, operation and maintenance phases of the project. The vehicle movements would peak during 2023 of the construction phase, when the majority of PV modules are being delivered to site and the peak workforce numbers are reached. ***These traffic generation numbers also include other construction materials, such as gravel, sand, concrete, water trucks, etc. On either side of this peak time period, the vehicle movements would be fewer, as the level of activity and number of deliveries would be ramping up/down.***	There is significantly less traffic during the operational phase than the construction phase. • A total of 10 operational staff is forecast to generate 20 daily light vehicle trips. It is assumed that 10 cars would enter the site during AM peak hour and 10 cars would leave the site in the PM peak hour respectively, assuming a worst case that staff do not share cars. • Heavy vehicles would be required only for infrequent repairs and maintenance.

Project	Construction Traffic Impacts	Operational Traffic Impacts
Bellambi Heights Battery Energy Storage System (Prepared by EMM Consulting P/L, July 2023)	The following daily construction vehicle movements are anticipated: • Average of 40 light vehicle trips per day (40 in and 40 out) during the construction works phase (with bus transport to be used to bring personnel to the work site during peak periods) • Average of 40 heavy vehicle trips per day (40 in and 40 out) during months 4 and 5 of the construction works phase and remaining times approximately 10 heavy vehicles a day.	No material traffic impacts are expected during the operation phase. Accordingly, no mitigation measures are proposed for the operation phase.
	The following assumptions have been made to anticipate peak hour construction vehicle movements: • 20 light vehicle trips during the morning and evening peak hour (20 in and 20 out) assuming all construction workers will arrive and depart the site during the AM and PM peak hours • Four heavy vehicle trips during the peak hour (4 in and 4 out) assuming 10% of heavy vehicles will arrive and depart the site during the AM and PM peak hours. Shuttle bus operation is expected to occur outside the peak hours.	Limited traffic impacts are expected during the decommissioning phase as all mitigation measures proposed during construction stage will have been implemented. Accordingly, no additional mitigation measures are expected for the decommissioning phase.

Project	Construction Traffic Impacts	Operational Traffic Impacts
	The proposed timeline for the project indicates that approximately 40 employees would be required during the first month rising to 150 employees during the peak construction period (approximately 6 months. Preliminary plans for the site propose parking for approximately 60 vehicles. If the proposed carpark was utilised to full capacity, this would result in approximately 120 vehicle movements per day to and from the site. Buses may be used to transport workers to and from the site. Approximately 150 construction personnel would be required on site during the peak construction period. Assuming an uptake rate 80% and a 20 person capacity, up to 6 bus trips would be required per day during peak construction. During non-peak periods, approximately half as many buses are expected to be required.	

4.4 Traffic Growth

The CWO-REZ report used an annual traffic growth rate of 1.60% for its assessments of the Castlereagh and Golden Highways. This figure was based on statements in a 2016 report for the Golden Highway Corridor Study where indicated the annual traffic growth rate of 1.60% was indicative prior to this report being released.

Assessing the TfNSW 2021 traffic data (Section 3.10) against the CWO-REZ 2022 data the annual traffic growth equates to an increase in traffic volumes of 5.45% per annum.

4.5 Assessment Design Horizon

For the purposes of this assessment a design horizon of 5 years (2025 to 2030) into the future will be used to assess the impacts of the local road network allowing for ongoing CWO-REZ construction projects.

4.5.1 Assessment Summary

The following summary scenario is provided for traffic growth based on Average Daily Traffic (ADT) on the Castlereagh Highway for the year 2024 and the CWO-REZ construction design horizon of 5 years.

Location	CWO-REZ (1.60%) 2024	CWO-REZ (1.60%) 2030	TfNSW (5.45%) 2024	TfNSW (5.45%) 2030
Castlereagh Hwy	(725) 748	818	804	1041

4.6 Traffic Distribution

For the purposes of this assessment the following traffic distribution has been assumed:-

- 100% of laden trips out in a peak hour, and
- 80% of return unladen trips in, in a peak hour.

For both the average and maximum peak hour proposed quarry operation at the quarry access location.

4.7 Traffic Assignment

As indicated previously in this report it is expected the majority of the generated material produced by the proposed quarry will service the CWO-REZ project located to the north of the proposed quarry.

It can be generally expected a percentage of this material may be trafficked south of the site along with onsite staff and contractor trips generally originating from Gulgong in the south.

For the purposes of this assessment the following traffic distribution is provided:-

- 90% to the north
- 10% to the south

4.8 Summary of Predicted Traffic Generation, Distribution & Assignment

Based on the assumptions and assessments completed in Section 4.0 of this report the following summary (Figure 4.70) is provided for the calculated traffic generation considering traffic distribution and assignment for a peak period of the proposed quarry operation. Both an average and maximum scenario are provided and will be used in the further assessments for determining the site access requirements and impacts on the local road network.

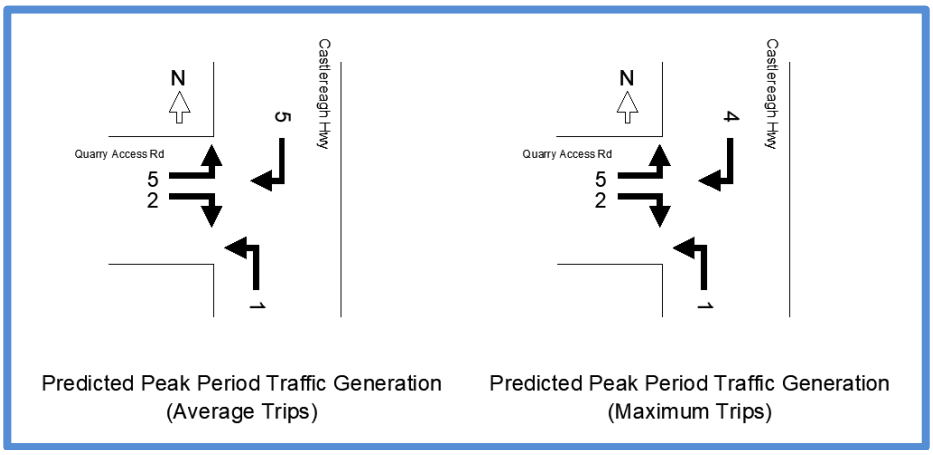


FIGURE 4.70 – Predicted Peak Hour Traffic Generation for Proposed Quarry Operation

5. FUTURE PREDICTED TRAFFIC VOLUMES

The following extracted quote from the CWO – REZ report states the following with respect to any local road network upgrades resulting from construction and operation of these projects.

*"While upgrades to state roads will be shared by multiple proponents, **local road work will typically be specific to individual projects.** Each developer will be responsible for minimising and mitigating impacts of their project on the surrounding communities and environment under the requirements of their respective planning approvals. **Any proposed road upgrades required to meet construction and operational requirements will be outlined in each project's Environmental Impact Statement** (EIS).*

5.1 Future Predicted Traffic Volumes

Based on the provided base case traffic volumes and the assumptions and assessments completed in Section 4.0 of this report the following scenarios are provided for the proposed quarry access location and the intersection of the Castlereagh Highway for:-

- Quarry Access
  (CWO-REZ 1.60% Traffic Growth on the Castlereagh Highway and Proposed Traffic Generation, 2024 & 2030)
- Quarry Access
- (TfNSW 5.45% Traffic Growth on the Castlereagh Highway and Proposed Traffic Generation, 2024 & 2030)

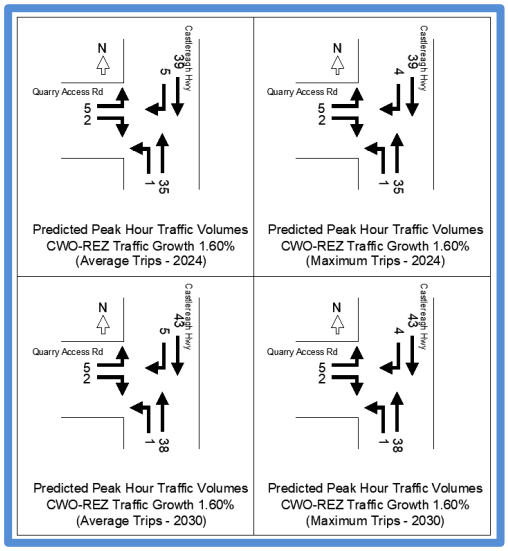


FIGURE 5.10 – Predicted Peak Hour Traffic Volumes for Proposed Quarry Access & Castlereagh Highway (CWO-REZ Report 1.60% Traffic Growth)

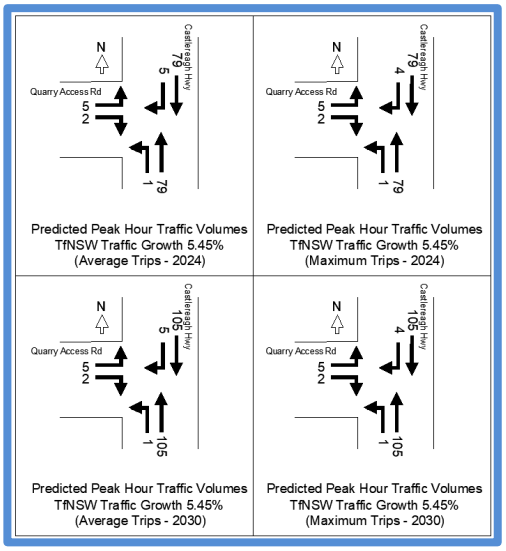


FIGURE 5.11 – Predicted Peak Hour Traffic Volumes for Proposed Quarry Access & Castlereagh Highway (TfNSW 5.45% Traffic Growth)

5.1 Predicted Roadway Capacity

Based on a similar assessment completed for the existing operation of the Castlereagh Highway and Tucklan Road the following predicted LoS at the year 2030 is provided for both considering the calculated predicted volumes.

For the purposes of this assessment the Castlereagh Highway is considered to have a predicted *Directional Flow Rate* of 105 (worst case) per hour in one direction for an average travel speed of 100km/h.

The *Percent Time Spent – Following* for the predicted Castlereagh Highway operation is considered to be 12%. So therefore, the Los for the Castlereagh Highway (Class I) is determined to be still operating at LoS A.

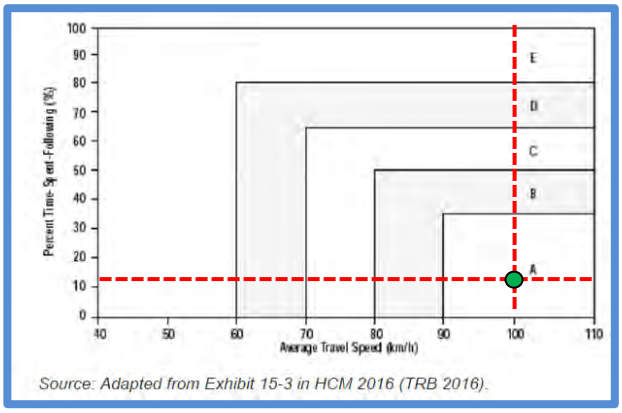


FIGURE 5.20 – LOS criteria for two-lane highways in Class I (Austroads GTTM – Part 3)
(Predicted Castlereagh Highway Operation)

A similar assessment for the predicted LoS on Tucklan Road using a *Directional Flow Rate* of 19 per hour indicates Tucklan Road will operate at a LoS A.

Based on the road capacity assessments completed in this report it is not considered it to be necessary to complete further Sidra intersection modelling given the Level of Service for the Proposed Quarry Access and the intersection of the Castlereagh Highway and Tucklan Road is LoS A.

5.2 Intersection Requirements

This section will assess the intersection requirements for the proposed quarry access with the Castlereagh Highway considering both the CWO-REZ and TfNSW traffic growth rates.

5.2.1 Proposed Quarry Access (CWO-REZ Traffic Growth)

Based on Figure 3.25a of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings the following intersection warrant assessment is provided for the proposed quarry access in relation to the CWO-REZ traffic growth predicted peak hour traffic flows (Figures 5.10).

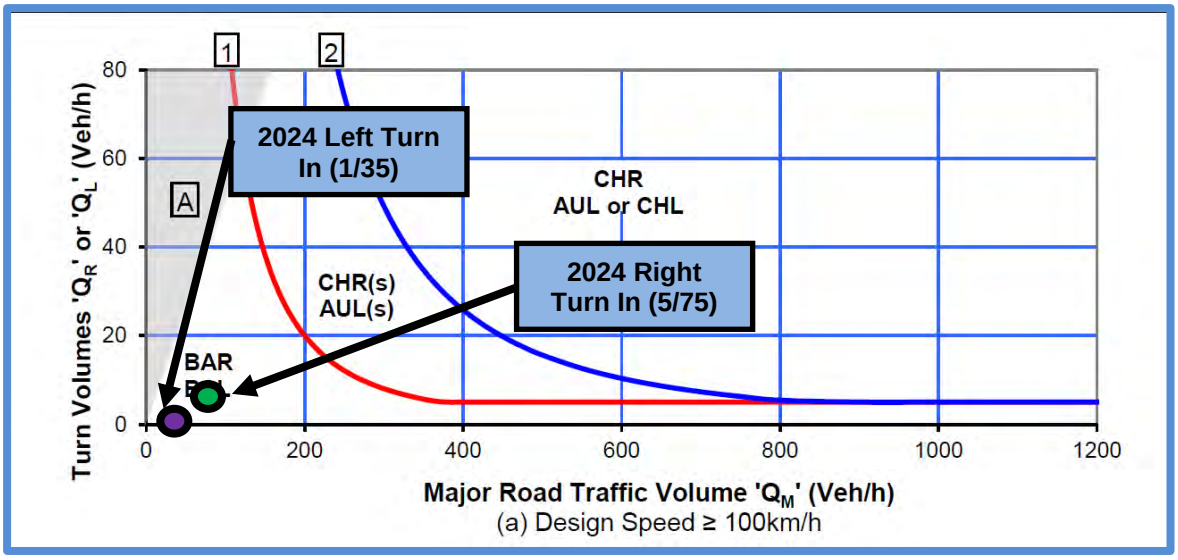


FIGURE 5.20 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS
(PROPOSED QUARRY ACCESS & CASTLEREAGH HIGHWAY – 2024, CWO-REZ Traffic Growth)

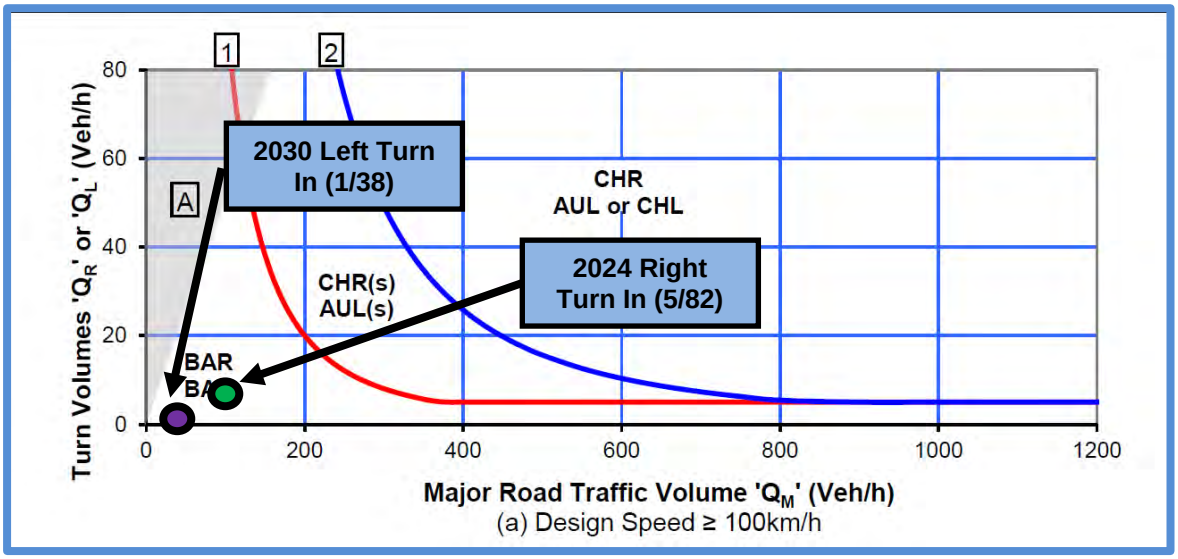


FIGURE 5.21 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (PROPOSED QUARRY ACCESS & CASTLEREAGH HIGHWAY – 2030, CWO-REZ Traffic Growth)

The assessment above, indicates the proposed quarry access with the Castlereagh Highway will adequately operate as a Type BAR intersection layout for the year 2024 and into the future for the year 2030.

This assessment has considered only the construction phase of the project. It is considered after the year 2030 there will be a marked drop in traffic volumes for the operational phase of the CWO – REZ.

5.2.2 Proposed Quarry Access (TfNSW Traffic Growth)

Based on Figure 3.25a of the Austroads Guide to Traffic Management, Part 6 – Intersections, Interchanges and Crossings the following intersection warrant assessment is provided for the proposed quarry access in relation to the TfNSW traffic growth predicted peak hour traffic flows (Figures 5.11).

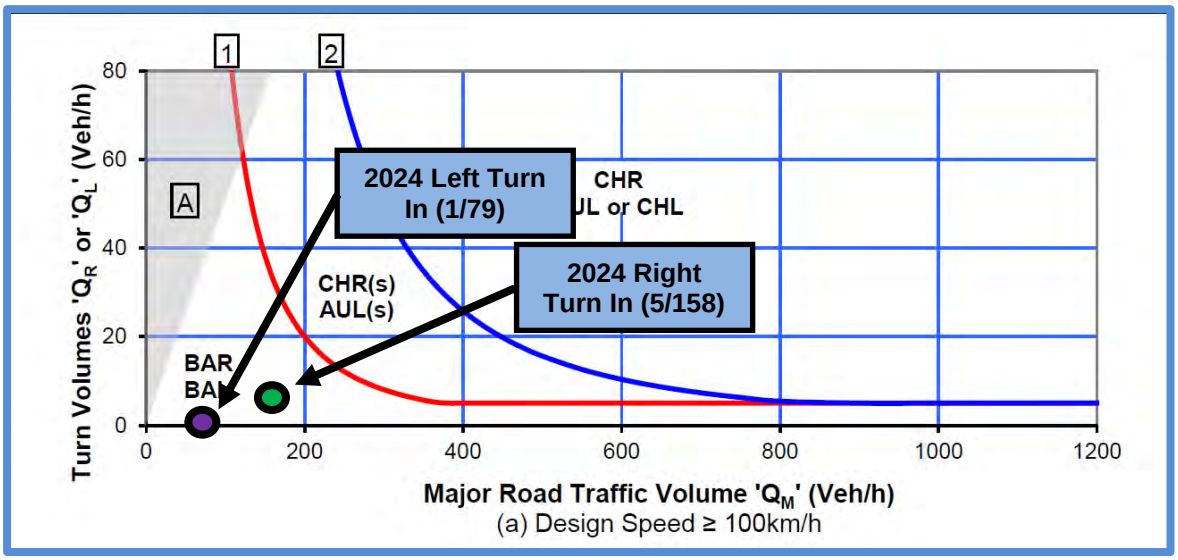


FIGURE 5.20 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (PROPOSED QUARRY ACCESS & CASTLEREAGH HIGHWAY – 2024, TfNSW Traffic Growth)

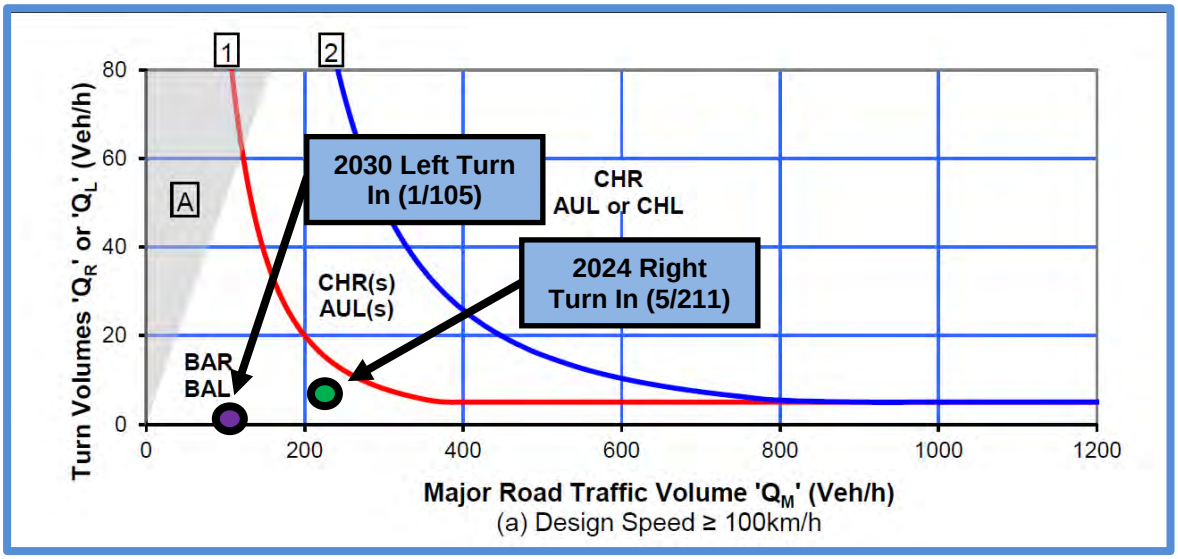


FIGURE 5.21 – WARRANTS FOR TURN TREATMENTS FOR THE MAJOR ROAD AT UNSIGNALISED INTERSECTIONS (PROPOSED QUARRY ACCESS & CASTLEREAGH HIGHWAY – 2030, TfNSW Traffic Growth)

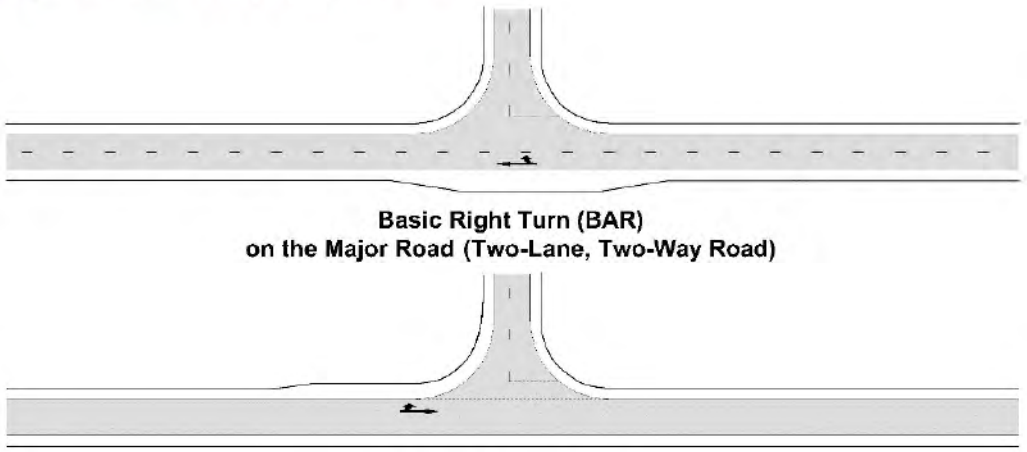
The assessment above, indicates the proposed quarry access with the Castlereagh Highway will adequately operate as a Type BAR intersection layout for the year 2024 and into the future for the year 2030.

6. SITE ACCESS

In accordance with the assessments completed in section 5.0 of this report it has been determined the proposed intersection for the quarry access and the Castlereagh Highway will adequately operate as an Austroads rural BAL / BAR layout treatment.

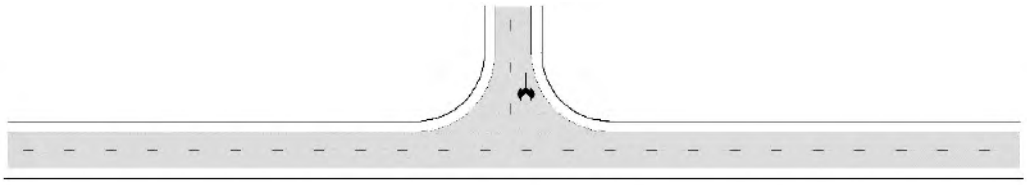
Figure 3.1 From the Austroads Guide to Traffic Management, Part 6 - Intersections, Interchanges and Crossings Management provides the following indicative BAL / BAR layout treatments. For the purposes of this assessment the Castlereagh Highway is considered to be the major road with the proposed quarry access considered to be the minor road.

Figure 3.1: Rural basic (BA) turn treatments



Basic Right Turn (BAR) on the Major Road (Two-Lane, Two-Way Road)

Basic Left Turn (BAL) on the Major Road



Basic Left Turn (BAL)
on the Minor Road

The guide prescribes where the major road is sealed the widened shoulders should also be sealed unless they can be adequately maintained in all conditions.

Considering the proposed operation and the number of heavy vehicles that will travel through and turn at this intersection it is recommended the shoulders be sealed in accordance with the guide requirements.

In this case the sealing of the shoulders will improve the amenity of the intersection along with improving road safety and reduce the inherent maintenance issues that comes with heavy vehicles turning at intersections.

7. ROAD SAFETY

As part of assessing the future intersection requirements for the proposed operation of the quarry road safety for all road users will need to be considered given the traffic mix. Therefore, the following assessment will be completed with regard to road safety around the access intersection:-

- Safe Intersection Sight Distance (SISD).
- Crash History, and
- Climate Conditions.

7.1 Safe Intersection Sight Distance

In accordance with Table 3.2 of the Austroads Guide to Road Design, Part 4a – Unsignalised and Signalised Intersections considering the posted speed limit on the Castlereagh Highway in the vicinity of the proposed quarry access is 100km/h the SISD required is 300m for a desirable reaction time (R_T) of 2.5 seconds for a design speed of 110km/h.

Figure 7.10 provides an indication of the SISD requirements for the horizontal plane for the quarry access.

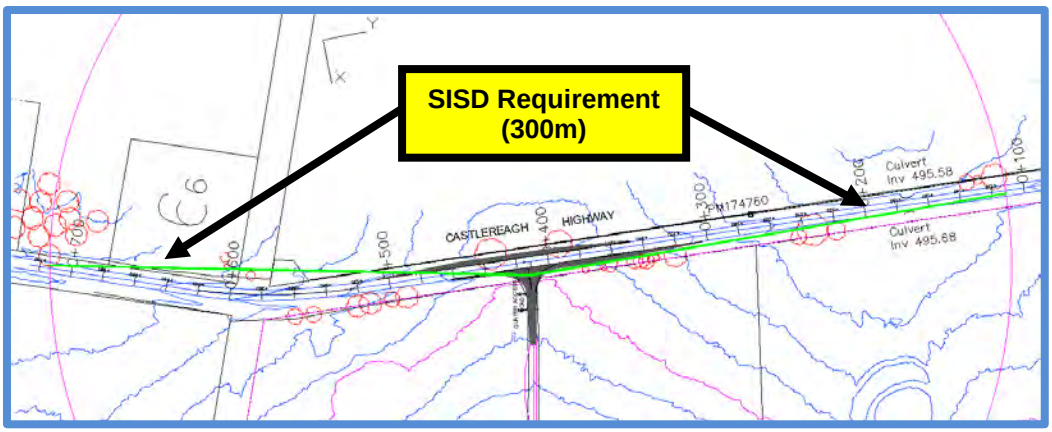


FIGURE 7.10 – DESKTOP SAFE INTERSECTION SIGHT DISTANCE (SISD) CHECK – HORIZONTAL PLANE (PROPOSED QUARRY ACCESS & CASTKEREAGH HIGHWAY)

A site inspection of the proposed quarry access location indicates the access will have adequate sight distance (at least 300m) in both directions for both the horizontal and vertical planes along the Castlereagh Highway from the proposed access location.

	
Looking North from Access – Castlereagh Highway	Looking South from Access – Castlereagh Highway

In order to make drivers more aware of heavy vehicles in the area and to improve road safety around the quarry access it is recommended W5 – 22 (B size) signs be erected at 150m on approach to each side of the quarry access.

FIGURE 7.11 – TYPICAL W5-22 SIGN FACE (TfNSW)

7.2 Crash History

The New South Wales Centre for Road Safety website does not indicate any heavy vehicle crashes in the vicinity of the proposed quarry access for the period from 2018 to 2022. However, the website indicates 3 (2 Moderate Injury, 1 Non-Casualty Tow Away) light vehicle crashes in the vicinity of the Tucklan Road intersection on the Castlereagh Highway. There was also 1 reported serious injury crash on Tucklan Road.

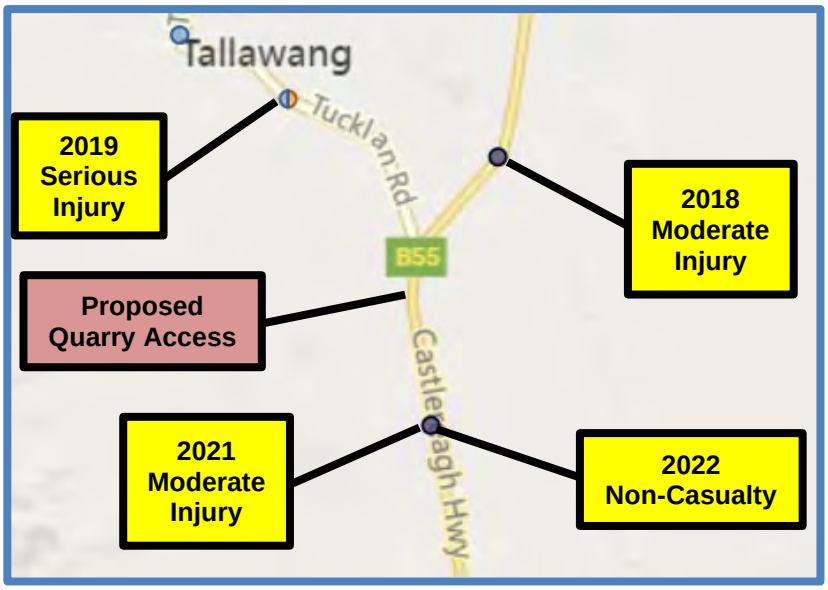


FIGURE 7.20 – Extract of Castlereagh Highway & Tucklan Road Crash Map (NSW Centre for Road Safety)

7.3 Climate Conditions

Information obtained (Talinga Farm) indicates recent rainfall in the location of the proposed quarry to be:-

- January 2023 to December 2023 = 721.5mm
- January 2024 to July 2024 = 385.5mm

A review of the Commonwealth Bureau of Meteorology indicates for the period between August 2021 and July 2024 the Gulgong Post Office recorded 2354.8mm for the period or an annual average of 784.9mm. These figures are in keeping with the recoded figures provided by Talinga Farm.

Local anecdotal evidence indicates the location of the proposed quarry does receive fog at times however the location has not had any snow or indication of ice on the roads.

It is noted the crash data did not indicate any of the recorded crashes were related to inclement weather condition (ie. rain events) on either the Castlereagh Highway or Tucklan Road.

7.4 Haulage Route

As previously indicated in this report initially the quarry operation will service the proposed nearby infrastructure projects undertaken within the Central-West Orana Renewable Energy Zone (CWO-REZ) with the main haulage route being to the northwest via Tucklan Road located 500m north of the proposed quarry access off the Castlereagh Highway.

The following desktop assessment of the haulage route is provided.

7.4.1 Castlereagh Highway

The Castlereagh Highway provides north south access providing connection between Wallerawang in the south and the Golden Highway in the north via townships such as Mudgee and Gulgong. The formation generally provides for a single travel lane in each direction with widenings at intersections and for overtaking lanes along its route.

In the vicinity of the proposed quarry the travel lanes are generally 3.20m wide in each direction with 0.50 to 1.00m wide sealed. Additional “Vibra Line” pavement markings are provided for the centreline and both edges of the formation in this location. This section of the haulage route is speed posted at 100km/h.

Heading north from the quarry access there is a 350m radius right hand curve located approximately 120m from the access. An advanced curve warning sign (No recommended speed plate) is installed on approach to this curve. Beyond this curve there is a 100m straight section of alignment before another 380m radius right hand curve where the Tucklan Road intersection is located approximately halfway around the curve. An advanced curve warning sign with a recommended 85km/h speed plate is installed on approach to this curve.

It is noted based on today’s design standards the 350m radius curve falls slightly below the minimum requirement for a posted speed limit of 100km/h and for a design speed of 110km/h both curves are outside the minimum requirement of 529m for 6%

superelevation hence why both these curves are signposted with advanced curve warning signage.

Intersection Sight Distance at the Tucklan Road intersection turning right out of Tucklan Road generally conforms to the SISD requirement of 300m (110km/h design speed). There maybe some restriction in available sight distance to the south into the future where the existing vegetation located within the private property may encroach into the sight distance envelope.

7.5 Transportation and Storage of Dangerous Goods

All explosives will be transported by experienced blasting contractors in accordance with AS 2187.2-2006 "Explosives - Storage, Transport and Use".

A new quarry access intersection is to be designed and constructed in accordance with the relevant standards and guidelines so to ensure efficient road safety between the quarry site and the Castlereagh Highway.

On site traffic management will provide for a maximum speed limit of 30km/h for all vehicles travelling around the quarry site.

The only hazardous materials to be stored at the quarry will be restricted to diesel fuel and hydrocarbon products. Any fuel storage will be self-bunded and in full conformance to the Australian Standard AS1940-2017.

8. PUBLIC TRANSPORT

Currently there are no approved public bus routes in the vicinity of the quarry access on either the Castlereagh Highway or Tucklan Road. However, following consultation with Ogden's Coaches they have advised the following school bus routes run in the vicinity of the proposed quarry site.

South of the Quarry Site

- ***Lahey's Creek*** - Commences at the intersection of Upper Lahey's Creek Road and Spring Ridge Road and travels along Spring Ridge Road to the Castlereagh Highway and terminates at Gulgong schools at the end of the run.

North of the Quarry Site

- ***Tucklan*** – Commences at the intersection of Corish's Lane and Suzanne Road and travels down Tucklan Road to the Castlereagh Highway and terminates at Gulgong schools at the end of the run.

Impacts on these services will be minimal considering the minor amount of traffic to be generated by the quarry operation given the interactions may be only for a half hour period in the morning for pickup to the schools and the afternoon for the drop off from the schools.

9. SITE SERVICING

9.1 Site Access

The proposed quarry site is located within Lot 1 in DP 1239728, approximately 500 metres to the west of the Castlereagh Highway. The proposed quarry is currently used as a farm borrow pit which has an existing gravel track between it and the Castlereagh Highway. The existing track does cross an electricity transmission easement.

Consultation with Essential Energy has indicated the existing track / proposed access road will need to be located a minimum of 4.50m from any pole / tower infrastructure in the horizontal plane and a minimum of 3.00m from the overhead 66kv power lines in the vertical plane.

A preliminary investigation has indicated the existing track is located 2.30m from its nearest edge to the existing transmission poles. Therefore, the proposed quarry access will need to be relocated so the minimum offset is 4.50m to the poles. Figure 9.10 provides an indicative relationship between the existing track / proposed quarry access road and the transmission easement.

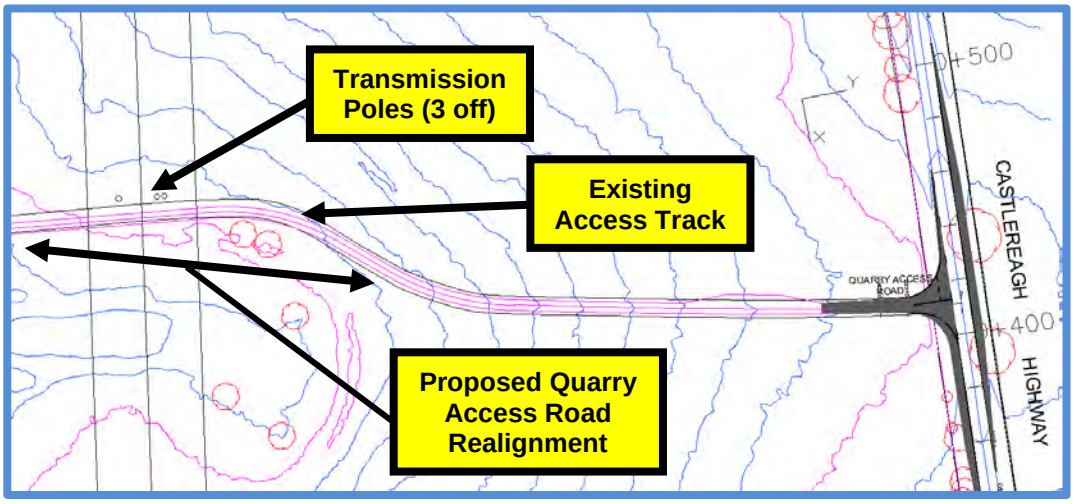


FIGURE 9.10 – Existing Track / Proposed Quarry Access Road relationship to Transmission Easement

As part of maintaining safe access between the quarry pit and the Castlereagh Highway 2 passing laybys are to be provided along the proposed access road. One for out bound traffic located 70.0m west of the proposed access road intersection and a second inbound bay located just before entry to the quarry pit area.

Further detailed design is recommended for the relocation of the proposed quarry access road in order to satisfy the Essential Energy requirements.

9.2 On Site Amenities

It is proposed to establish on site amenities once the quarry pit of is sufficient size, including a small demountable site office with staff amenities. Initially, front-end loaders with calibrated scales will be used for loading and weighing of the hard rock resource won from the site into road trucks. It is anticipated that once production significantly increases a weighbridge will be installed.

Any fuels stored on site will be contained within self-bunded fuel tanks. Chemical storage may include a bunded lockable container for oils and lubricants for minor servicing.

A sediment basin, coupled with silt raps where required, will be established within the proposed quarry footprint, to be used as a supply of water for dust mitigation. Upon completion of quarrying, the quarry will be rehabilitated to a suitable landform for continuing rural activities.

As part of the provision of onsite amenities it is proposed that a sewage pump-out system will be used to service the quarry site.

10. SUMMARY

StreetWise Road Safety and Traffic Services have been engaged by Outline Planning Consultants, on behalf of Hamish and Sally Drury Talinga Pastoral Company to prepare a Traffic Impact Assessment (TIA) to commence a quarry operation on Lot 1 DP 1239728, No. 2058 Castlereagh Highway, Tallawang (Gulgong).

The proposed quarry is to be located at No.1848 (Lot 1 DP 1239728) Castlereagh Highway, Tallawang, New South Wales. The proposed quarry is located approximately 21.5km by road to the north of the township of Gulgong in the Mid-Western Regional Council local government area. The project site has an area of 7.34ha. The site of the quarry is currently used for the grazing of livestock and as a borrow pit, the latter which has been in operation since circa 1964.

The proposed quarry operation is privately owned and will be operated by the Hamish and Sally Drury Talinga Pastoral Company .

An elevated stony hill on the proposed quarry site is currently used as a borrow pit for supplying hard rock for farm-related purposes. The owners propose to establish a quarry on the site to extract and process up to 350,000 tonnes per annum of quarry material within a quarry footprint of 7.34ha and a total resource of about 4.6 million tonnes. The proposed quarry will utilise and existing internal access route which connects directly with the Castlereagh Highway. The quarry site is located approximately 500m west of the Castlereagh Highway.

The hard rock resource found on the elevated hill be quarried and used as a road base or select fill **primarily** to service nearby infrastructure projects.

- EnergyCo's extensive, 1km wide CWO-REZ transmission, generation, firming and storage project on a large corridor of land located within approximately 3.1km to the north of the project site, and
- Acciona's Orana Wind Farm project, involving 92 wind turbines located as close as 2km to the project site. The wind turbines are proposed to be connected to the above CWO-REZ transmission line.

Typical infrastructure required for the onsite operation of the quarry will be as follows:-

- Mobile jaw crusher (eg. a Metso LT125/Kleeman MC110/McCloskey J50 or equivalent) with a scalping screen/radial stacker attached to jaw crusher.
- Mobile cone crusher, similar to Metso LT220D/Findlay 1540RS(or equivalent), with built in screens/ conveyors.
- CAT D8 Dozer and a 38/50T Kobelco excavator/Doosan DX225LC 23 (or equivalents).
- CAT 740/Terex TA400 Articulated Dump Truck (or equivalent).
- CAT 972/950 Front End Loader (or equivalent)
- Return conveyors to cone crusher and screens for reprocessing of oversized material, if required.

Infrastructure required by the quarry operation external to the site typically will be truck and dog vehicles (32 to 42 tonne in capacity).

The quarry operation staging is proposed to be:-

- Stage 1: Retain the steeper part of the elevated knoll and carry out quarrying behind this feature, while achieving a satisfactory depth of quarrying. Quarrying will commence in the southern section of the site. Quarrying proceeds behind existing topography, working progressively to the north-west from the southern end of the pit.
- Stage 2: Stage 2 of the quarry development is planned to involve a progressive lateral extension of the quarrying operation towards the east and north-east. Quarrying will be undertaken relying on the existing quarry floor level established at Stage 1. Quarry benches no longer in use would be decommissioned and rehabilitated progressively. With a suitable depth achieved the remainder of eh elevated knoll is removed.

The Planning Secretary's Environmental Planning Requirements (SEARs) for this project states a Traffic Impact Assessment to be completed as part of the proposal.

In lieu of available base traffic data nearby to the proposed site data used in the CWO-REZ assessment was used for the base case traffic data on the Castlereagh Highway. The data referenced for the Castlereagh Highway was for the year 2022.

Location	Average Daily Traffic (ADT)	Vehicle Classification		Peak Hour Volumes (Veh / hour)			
		Light Vehicle %	Heavy Vehicle %	AM Peak		PM Peak	
				Nthbd	Sthbd	Nthbd	Sthbd
Castlereagh Hwy (Between Golden Hwy & Tucklan Rd), Birriwa	725	80.60%	19.40%	29	41	38	34
Castlereagh Hwy (Northwest of Old Mill Rd), Gulgong	1445	81.50%	18.50%	52	64	65	61

Mid-Western Regional Council were consulted for available traffic data information for Tucklan Road which is approximately 500m to the north of the site and will be used as one of the main access roads for the CWO-REZ project.

The following information is summarized for counts completed in November / December 2015 and February to April 2019.

Location	Average Daily Traffic (ADT)	Vehicle Classification		Peak Hour Volumes (Veh / hour)	
		Light Vehicle %	Heavy Vehicle %	AM Peak	PM Peak
Tucklan Road (580m north of Artz Lane) 2015	112	90%	10%	12	16
Tucklan Road (580m north of Artz Lane) 2019	92	90%	10%	8	11

A Level of Service assessment was completed for both the Castlereagh Highway and Tucklan Road where it was found both roads currently operated at a LoS A.

The Austroads Guide to Traffic Management prescribes the following for Level of Service A condition on a roadway:

- ***LOS A*** describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to manoeuvre within the traffic stream. Control delay at the boundary intersections is minimal. The travel speed exceeds 80% of the base free-flow speed (BFFS).

The table below provides a summary of the annual average and maximum operation for the proposed quarry.

Annual Output (tonnes)	Proposed Operation
Annual Output (tonnes)	**350 000**
Vehicle Capacity (Truck & Dog / tonnes)	32 or 37.50
Available working weeks per year	48
Maximum No. of Laden Trucks (Yr)	**9 333 or 10 938**
Max. Working Hours (wk) (1)	66
Max. No. of Laden Trips (day)	*60*
Max. No. of Laden Trips (week)	**360**
Max. No. of Laden Trips (hr) (2)	**8.00**
Average No. of Laden Trips (hr)	**5.50**
Average No. of Return Trips (hr) - Laden & Unladen	**11**
No. of Max Days (Yr)	*132*

Notes:-
1. Hours of Operation
- *7.00am to 6.00pm (Monday to Friday)*
- *7.00am to 6.00pm (Saturdays)*
- *No Work Sundays*

2. Maximum number of peak hour trips can be expected at the start of the daily shift (first hour) Where trucks will be more than likely be parked up from the end of the previous shift.

The proposed quarry will employ up to 6 staff working on site plus contractors such as blasting contractors, machinery servicing and refuellers. Given the location of the quarry this will more than likely generate an additional 20 daily trips or an average of 2 trips per hour to and from the quarry.

The table below provides a summary of a predicted peak hour scenario for the quarry operation.

Land Use Operation	Proposed Peak Hour Traffic Generation
Proposed Quarry Material Generation (Laden and Unladen Trips) (Maximum)	60 daily laden trips 120 daily laden & unladen trips 8.0 laden trips / hour
General Quarry Operation (staff & contractors)	Up to 20 daily trips or 2 trips / peak hour
Total Peak Hour Trip Generation	**8.0 laden trips / hour** ***13 laden / unladen / General Operation trips*** ***140 laden / unladen / General Operation trips / day***

This report has indicated there are a number of projects within the CWO-REZ the proposed quarry can service. At the time of this report being prepared only 4 projects have development approval with construction estimated to commence in the near future. A review of completed Traffic Impact Assessments for these projects relating to construction traffic and ongoing increased operational traffic was completed as part of this assessment summarized in Section 4.3 of this report.

The summary review indicates these projects have considered construction phase trips external to the site and the impacts these extra trips will have on the local road network.

There are many other proposed renewable energy projects as well as other developments in the region, at various stages of the planning approval process. The construction timings for most of these projects unknown.

The CWO-REZ report used an annual traffic growth rate of 1.60% for its assessments of the Castlereagh. This figure was based on statements in a 2016 report for the Golden Highway Corridor Study where it indicated the annual traffic growth rate of 1.60% was indicative prior to this report being released.

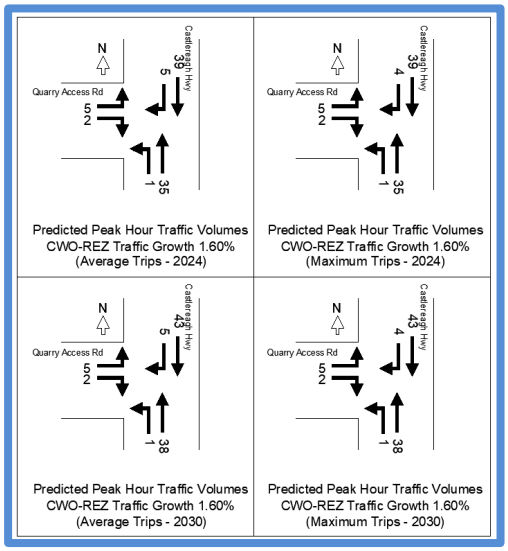
Assessing the TfNSW 2021 traffic data against the CWO-REZ 2022 data the annual traffic growth equates to an increase in traffic volumes of 5.45% per annum.

A design horizon of 5 years (2025 to 2030) into the future was used to assess the impacts of the local road network allowing for ongoing CWO-REZ construction projects.

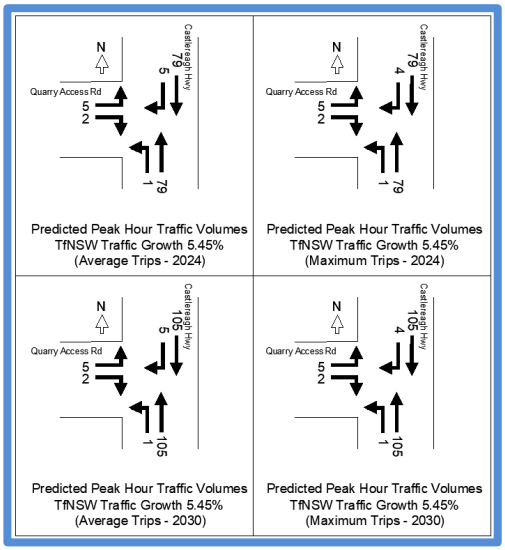
Using the above scenarios for traffic growth the following Average Daily Traffic (ADT) volumes on the Castlereagh Highway and Tucklan Road were derived.

Location	CWO-REZ (1.60%) 2024	CWO-REZ (1.60%) 2030	TfNSW (5.45%) 2024	TfNSW (5.45%) 2030
Castlereagh Hwy	(725) 748	818	804	1041

When the predicted traffic generations are added to the above traffic growth ADT figures the following predicted traffic volumes can be assumed for the Quarry Access and the Castlereagh Highway and Tucklan Road intersection.



(CWO-REZ Report 1.60% Traffic Growth)



(TfNSW 5.45% Traffic Growth)

An assessment was completed for the proposed quarry access site and the intersection with the Castlereagh Highway using both the CWO-REZ and TfNSW traffic growth rates and the predicted traffic generation for the quarry operation indicating the access intersection will operate as a Type BAL / BAR intersection layout into the future (2030).

The Austroads Guide prescribes where the major road is sealed the widened shoulders should also be sealed unless they can be adequately maintained in all conditions. Considering the proposed operation and the number of heavy vehicles that will travel through and turn at this intersection it is recommended the shoulders be sealed in accordance with the guide requirements. In this case the sealing of the shoulders will improve the amenity of the intersection along with improving road safety and reduce the inherent maintenance issues that comes with heavy vehicles turning at intersections.

In accordance with Table 3.2 of the Austroads Guide to Road Design, Part 4a – Unsignalised and Signalised Intersections the Safe Intersection Stopping Distance (SISD) required is 300m for a desirable reaction time (R_T) of 2.5 seconds for a design speed of 110km/h.

A site inspection of the proposed quarry access location indicates the access will have adequate sight distance (at least 300m) in both directions for both the horizontal and vertical planes along the Castlereagh Highway from the proposed access location.

SISD at the Castlereagh Highway and Tucklan Road intersection turning right out of Tucklan Road generally conforms to the requirement of 300m (110km/h design speed) in both directions. There maybe some restriction in available sight distance to the south into the future where the existing vegetation located within the private property may encroach into the sight distance envelope.

To make drivers more aware of heavy vehicles in the area and to improve road safety around the quarry access it is recommended W5 – 22 (B size) signs be erected at 150m on approach to each side of the quarry access.

TYPICAL W5-22 SIGN FACE (TfNSW)

The New South Wales Centre for Road Safety website does not indicate there has been any heavy vehicle crashes in the vicinity of the proposed quarry access for the period from 2018 to 2022. However, the website indicates 3 (2 Moderate Injury, 1 Non-Casualty Tow Away) light vehicle crashes in the vicinity of the Tucklan Road intersection on the Castlereagh Highway. There was also 1 reported serious injury crash on Tucklan Road.

Considering the local climatic conditions the crash data did not indicate any of the recorded crashes were related to inclement weather condition (ie. rain events, etc) on either the Castlereagh Highway or Tucklan Road.

A desktop assessment of the haulage route, Castlereagh Highway between the proposed quarry access and Tucklan Road and Tucklan Road itself indicates they generally conform to the 85th percentile design standard. Where there are departures, adequate signposting has been installed as a road safety measure.

The quarry operation will generate a maximum of 6 laden trips and 6 unladen trips per hour or 60 trips (120 return trips) per day. This is a very minor number of trips when considering the overall construction phase of the CWO-REZ project.

Currently there are no approved public bus routes in the vicinity of the quarry access on the Castlereagh Highway. Following consultation with Ogden's Coaches they advised there are school bus routes that run in the vicinity of the proposed quarry site.

Impacts on these services will be minimal considering the minor amount of traffic to be generated by the quarry operation given the interactions may only be for a half hour period in the morning for pickup to the schools and the afternoon for the drop off from the schools.

The proposed quarry is currently used as a farm borrow pit with an existing gravel track running between it and the Castlereagh Highway. The existing track does cross an electricity transmission easement.

Consultation with Essential Energy has indicated the existing track / proposed access road will need to be located a minimum of 4.50m from any pole / tower infrastructure in the horizontal plane and a minimum of 3.00m from the overhead 66kv power lines in the vertical plane.

A preliminary investigation has indicated the existing track is located 2.30m from its nearest edge to the existing transmission poles. Therefore, the proposed quarry access will need to be relocated so the minimum offset is 4.50m to the poles.

So, to maintain safe access between the quarry pit and the Castlereagh Highway 2 passing laybys are to be provided along the proposed access road. One for out bound traffic located 70.0m west of the proposed access road intersection and a second inbound bay located just before entry to the quarry pit area.

Further detailed design is recommended for the relocation of the proposed quarry access road in order to satisfy the Essential Energy requirements.

It is proposed to establish on site amenities once the quarry pit of is sufficient size, including a small demountable site office with staff amenities. Initially, front-end loaders with calibrated scales will be used for loading and weighing of the hard rock resource won from the site into road trucks. It is anticipated that once production significantly increases a weighbridge will be installed.

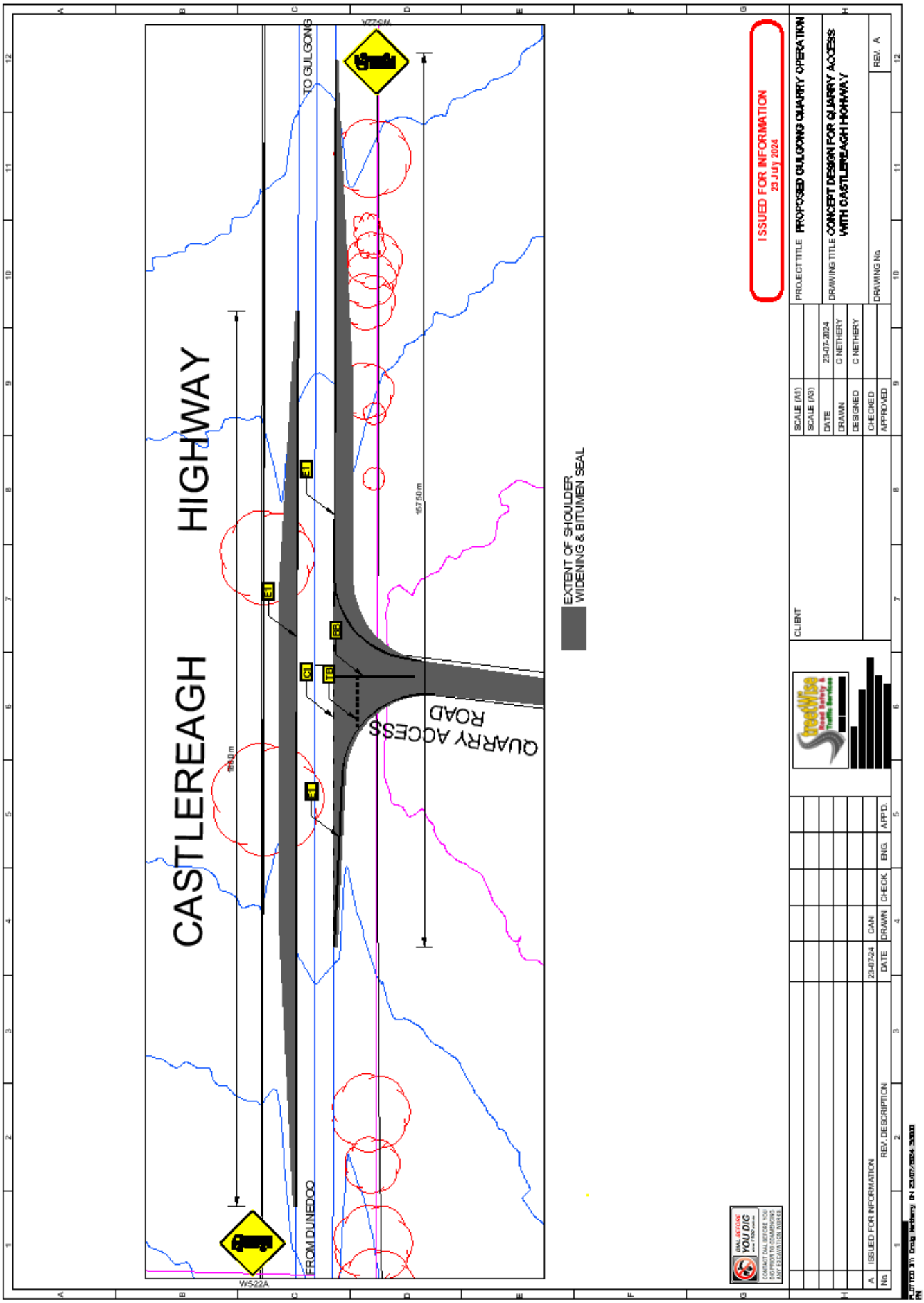
11. RECOMMENDATIONS

- **Design and Construction a Type BAR / BAL intersection treatment for the quarry access.**

- **W5-22 Advanced Warning signage is to be erected on both sides of the approach to the intersection to make drivers more aware of heavy vehicles in this location thus improving road safety.**

In summary, StreetWise Road Safety and Traffic Services recommend that the proposed development as being a suitable development based on the predicted traffic impacts. The additional vehicle trips to be generated by the development will not have a significant impact on the efficiency or safety of the local road network, and that the local roads and intersections have the capacity to cater for the additional trips generated by the development, with minimal upgrades required.

Appendix A
Concept Design for Quarry Site Access with Castlereagh Highway


CASTLEREAGH HIGHWAY
TO GULGONG
FROM DUNEDOO
QUARRY ACCESS ROAD
EXTENT OF SHOULDER WIDENING & BITUMEN SEAL
ISSUED FOR INFORMATION
23 July 2024
PROJECT TITLE PROPOSED GULGONG QUARRY OPERATION
DRAWING TITLE CONCEPT DESIGN FOR QUARRY ACCESS WITH CASTLEREAGH HIGHWAY
DRAWING No.
REV. A
CLIENT
SCALE (A1)
SCALE (A3)
DATE 23-07-2024
DRAWN C METHERY
DESIGNED C METHERY
CHECKED
APPROVED
A ISSUED FOR INFORMATION 23-07-24 CAN
REV. DESCRIPTION DATE DRAWN CHECK. ENG. APP'D.
StreetWise Road Safety & Traffic Services

Appendix B
Consultation

From: Jace Russell
To: craig@streetwisersa.com.au
Subject: FW: SATP-0013557 STREETWISE ROAD SAFETY & TRAFFIC SERVICES PTY LTD 2058 CASTLEREAGH HWY TALLAWANG
Date: Tuesday, 9 July 2024 12:41:04 PM
Attachments: image001.png
image002.png
image004.png
image006.png
image008.png
image003.png
image005.png
image007.png
image009.png
image018.png
image019.png
image020.png
image021.png
NEW SATP-CEOF1132.pdf

Hi Craig,

Could you please send more information so I can assess exactly what you are after out there.

If you could please attach a detailed map with details on where you will be working that would help me understand where exactly this work is taking place.

Regards

Jace Russell
Acting Resource Supervisor
Dunedoo Depot

Essential Energy

M: 0417 511 358
E: jace.russell@essentialenergy.com.au
PO Box 5730, Port Macquarie NSW 2444
essentialenergy.com.au
General Enquiries: 13 23 91
Outages & Faults (24hrs): 13 20 80

From: Construction Works <construction.works@essentialenergy.com.au>
Sent: Tuesday, July 9, 2024 12:37 PM
To: Jace Russell <jace.russell@essentialenergy.com.au>
Subject: SATP-0013557 STREETWISE ROAD SAFETY & TRAFFIC SERVICES PTY LTD 2058 CASTLEREAGH HWY TALLAWANG

Hi Jace,

SATP – 0013557

*****PLEASE NOTE***THIS WAS ORIGINALLY SENT TO PORT MACQUARIE AS IT HAS PORT MACQUARIE POSTCODE AND PORT ADVISED IT'S A DUNEDOO DEPOT JOB**

See below enquiry form 1130 enquiry has been received in the Construction Works mailbox on Friday, July 5, 2024. Please see attached Request for Safety Advice, please contact Craig Nethery and arrange a site visit.

Please send the completed forms and Chargeable Works dockets back to the Construction Works email – construction.works@essentialenergy.com.au as soon as you have actioned for further follow up. If we are not required to complete any work, please advise asap so the TotalSafe CWA can be closed.

All documents related to the Construction Works process are available on Documents on Demand via this link.

Regards,
Cathy

atherine Hoare
Service Delivery Officer

Essential Energy

M: 0419 264 089
E: catherine.hoare@essentialenergy.com.au
PO Box 5730, Port Macquarie NSW 2444
essentialenergy.com.au
General Enquiries: 13 23 91
Outages & Faults (24hrs): 13 20 80

From: info@essentialenergy.com.au <info@essentialenergy.com.au>
Sent: Friday, July 5, 2024 12:17 PM
To: Construction Works <construction.works@essentialenergy.com.au>
Subject: SATP-0013557 STREETWISE ROAD SAFETY & TRAFFIC SERVICES PTY LTD 2058 CASTLEREAGH HWY TALLAWANG

WARNING: Do not click links or open attachments unless you recognise the source of the email and know the contents are safe.

New form submission data:

T&Cs acceptance: True
Contact name: Craig Nethery
Company name: StreetWise Road Safety & Traffic Services P/L
ABN/ACN: 45 604 145 315
Street/Postal address: PO BOX 1395
Suburb: Port Macquarie
State: NSW
Postcode: 2444
Phone: 0412009558
craig@streetwisersa.com.au

From:	info@essentialenergy.com.au
To:	craig@streetwisersa.com.au
Subject:	Essential Energy - Request for safety advice - 2058 Castlereagh Hwy
Date:	Friday, 5 July 2024 12:17:00 PM

Hello Craig Nethery,

Thank you for submitting a request for safety advice. Your submission will be reviewed and a representative will be in touch within 14 days. For further information please email construction.works@essentialenergy.com.au.

From:	Jace Russell
To:	Construction Works; craig@streetwisersa.com.au
Cc:	Ben Forgione
Subject:	SATP-0013557 STREETWISE ROAD SAFETY & TRAFFIC SERVICES PTY LTD 2058 CASTLEREAGH HWY TALLAWANG
Date:	Wednesday, 10 July 2024 1:27:54 PM
Attachments:	image001.png image002.png image004.png image006.png image008.png image003.png image005.png image007.png image009.png Safework work near OH powerlines.pdf 2058 Castlereagh Hwy, Tallawang.pdf 2058 Clearances.jpg IMG_0344.jpg IMG_0345.jpg IMG_0346.jpg IMG_0347.jpg IMG_0348.jpg

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Hi,

Please see the attached per your request for Safety Advice.

The access track will need to be 4.5m from the poles in the attached pic. You will also need to remain 3000mm or more from the 66kv Overhead mains at all times.

If you have any further questions please get in touch.

Regards

Jace Russell
Acting Resource Supervisor
Dunedoo Depot

Essential Energy

M: 0417 511 358
E: jace.russell@essentialenergy.com.au
PO Box 5730, Port Macquarie NSW 2444
essentialenergy.com.au
General Enquiries: 13 23 91
Outages & Faults (24hrs): 13 20 80

From:	Don Cottee
To:	Craig Nethery
Cc:	Hannah Draper
Subject:	FW: Proposed Gulgong Quarry
Date:	Thursday, 25 July 2024 4:26:47 PM
Attachments:	image004.png image005.png Weekly Vehicle Count_Tucklan Road_2019.pdf Daily Vehicle Count_Tucklan Rd_2016.xlsx Daily Vehicle Count_Tucklan Rd_2019.xlsx Weekly Vehicle Count_Tucklan Rd_2016.pdf

Hi Craig,
For your reference.
Regards
Don Cottee

From: Mohammad Rana <Mohammad.Rana@midwestern.nsw.gov.au>
Sent: Thursday, July 25, 2024 4:09 PM
To: Don Cottee <Don.Cottee@midwestern.nsw.gov.au>
Subject: RE: Proposed Gulgong Quarry

Hi Don,
Please find attached reports on Traffic count at Tucklan Road from 2016 and 2019.
The coordinates for the traffic counter (2016) are -32.155653,149.417283.

Regards.
Rana

Mohammad Rana
Asset Engineer
Mid-Western Regional Council
t 02 6357 5013 | m 0459 619 341
e Mohammad.Rana@midwestern.nsw.gov.au
a 86 Market Street | PO Box 156 Mudgee NSW 2850
w www.midwestern.nsw.gov.au
facebook | twitter | youtube

From: Don Cottee <Don.Cottee@midwestern.nsw.gov.au>
Sent: Wednesday, July 24, 2024 4:10 PM
To: Mohammad Rana <Mohammad.Rana@midwestern.nsw.gov.au>
Subject: FW: Proposed Gulgong Quarry

Hi Mohammad
Do we have any data on this road ie Tucklan Road
Thankyou
Don

From: craig@streetwisersa.com.au <craig@streetwisersa.com.au>

Sent: Wednesday, July 24, 2024 2:14 PM
To: Don Cottee <Don.Cottee@midwestern.nsw.gov.au>; Hannah Draper <Hannah.Draper@midwestern.nsw.gov.au>
Cc: 'Andrew Davis' <andy@streetwisersa.com.au>; 'Gary Peacock' <gpeacock@outline.com.au>
Subject: Proposed Gulgong Quarry

Don

As you are aware our company is preparing the TIA for the abovementioned project.

As part of the assessment background traffic data is required to be used in the assessment.

Does Council have any traffic volume information for Tucklan Road that can used in this assessment.

Regards

Craig Nethery *(Director)*
StreetWise Road Safety & Traffic Services Pty Ltd
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 **Email:-** craig@streetwisersa.com.au
Or
Andy Davis *(Director)*
Mob:- 0422 011 353 **Email:-** andy@streetwisersa.com.au
Web:- streetwisersa.com.au

From:	Don Cottee
To:	Gary Peacock; Hannah Draper
Cc:	Hamish & Sally Drury; Craig Nethery; Jackie Perring
Subject:	RE: Proposed Gulgong Quarry: Minutes of meeting held 2 July 2024
Date:	Monday, 8 July 2024 10:41:02 AM
Attachments:	image001.png

Good Morning Gary

A search has been made of Council's Legal documents register and it has been found that there is no legal document for the taking of gravel from the property.

Regards

Don Cottee

From: Gary Peacock <gpeacock@outline.com.au>
Sent: Friday, July 5, 2024 11:43 AM
To: Hannah Draper <Hannah.Draper@midwestern.nsw.gov.au>
Cc: Don Cottee <Don.Cottee@midwestern.nsw.gov.au>; Hamish & Sally Drury <talingapast@bigpond.com>; Craig Nethery <Craig@streetwisersa.com.au>
Subject: Proposed Gulgong Quarry: Minutes of meeting held 2 July 2024

Hannah Draper
Town Planner
Mid Western Regional Council

Good morning Hannah,

Please find attached our short minutes of the meeting held with Council last Tuesday.

Any errors are mine.

Kind regards,

Gary Peacock
Managing Director
OUTLINE PLANNING CONSULTANTS PTY LTD
TOWN PLANNING CONSULTANTS
No. 432 CAROOL ROAD
CAROOL NSW 2486
www.outline.com.au
Tel: 02 9262 3511
Mobile: 0418 242 762

Outline Planning Consultants Pty Ltd acknowledges the Traditional Owners of the land and waters, and pays our respect for Elders past, present and emerging.

From:	Development West
To:	craig@streetwisersa.com.au; Brendan Croft
Cc:	"Gary Peacock"; "Andrew Davis"
Subject:	WST24/00177 - Proposed Gulgong Quarry (2058 Castlereagh Hwy, Tallawang)
Date:	Thursday, 11 July 2024 4:08:45 PM
Attachments:	image001.png image002.png image003.png image004.png image005.png

Hi Craig,

Transport for NSW (TfNSW previously RMS) has received your email below.

The development assessment officer assigned to this matter is Brendan Croft who can be reached at - brendan.croft@transport.nsw.gov.au.

Reference - WST24/00177
Please ensure any future correspondence is sent to development.west@transport.nsw.gov.au.

Kind Regards,

Rosa Gillogly
Development Assessment Support Officer
Development Services West
Regional and Outer Metropolitan
Transport for NSW

E rosa.gillogly@transport.nsw.gov.au

transport.nsw.gov.au

Level 1 51-55 Currajong Street
Parkes NSW 2870

I work flexibly. Unless it suits you, I don't expect you to read or respond to my emails outside of your normal work hours.

NSW GOVERNMENT Transport for NSW

I recognise and acknowledge that modern New South Wales is an overlay on Aboriginal land and that many of the transport routes of today follow songlines Aboriginal people have followed for tens of thousands of years. I pay my respects to the Aboriginal people of NSW and Elders past and present.

Please consider the environment before printing this email.

From: craig@streetwisersa.com.au <craig@streetwisersa.com.au>
Sent: Wednesday, July 10, 2024 3:14 PM
To: Development West <development.west@transport.nsw.gov.au>
Cc: 'Gary Peacock' <gpeacock@outline.com.au>; 'Andrew Davis' <andy@streetwisersa.com.au>
Subject: Proposed Gulgong Quarry (2058 Castlereagh Hwy, Tallawang)

Attention Kylie-Anne Pont

Kylie further to our discussion yesterday please note the following regarding the Quarry proposal located
at 2058 Castlereagh Highway, Tallawang.

The following comments can be read with the attached doc as an explanation.

- The quarry site is located approximately 1.95km north of the Talinga property access where there is an existing
  property access. (see attached sketch)
- The proposed quarry when approved will service a number of solar and wind farm projects to the north of the site
  During their construction. It shall be noted the majority of trips to and from the site will be generated to the north
  to Tucklan Road (approx. 420m north on the Castlereagh Hwy) where these projects have indicated this will be the
  main access point to these projects. (see attached)
- SISD of 300m (110km/h) to the north is obstructed by a single tree located at approximately 220m north of the
  quarry access. A visual inspection indicates a majority of this tree is dead and maybe a possible road safety hazard
  if it was to fall onto the highway carriageway. (see attached)
- SISD of 300m (110km/h) to the south has no obstruction issues. (see attached)
- It proposed the quarry will generate a maximum of 50 laden trips (100 laden / unladen) per day during a 10 hour
  shift generating a maximum of 10peak period trips. An initial site access assessment has assumed 75% of the
  generated trips will be to and from the north. (see attached)
- The assessment indicated site access with the Castlereagh Hwy will need to provide a BAR / BAL intersection layout.
  as part of this proposal the adjacent 3.0m wide shoulder is to be sealed so as to provide an all weather access and

minimise maintenance. (see attached)

The client has been asked to provide materials for the abovementioned projects. It would be appreciated if TfNSW could
provide an in principle acceptance to the initial assessment for the existing access location so as the approval process can be
minimised.

Happy to discuss further should you need clarification of the information provided.

Regards

Craig Nethery *(Director)*
StreetWise Road Safety & Traffic Services Pty Ltd
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 **Email:-** craig@streetwisersa.com.au
Or
Andy Davis *(Director)*
Mob:- 0422 011 353 **Email:-** andy@streetwisersa.com.au
Web:- streetwisersa.com.au

From:	Brendan Croft
To:	craig@streetwisersa.com.au
Cc:	"Gary Peacock"; "Andrew Davis"; Development West
Subject:	RE: TfNSW Response - Proposed Gulgong Quarry (2058 Castlereagh Hwy, Tallawang)
Date:	Thursday, 25 July 2024 2:36:44 PM
Attachments:	image003.png image004.png image005.png 201607-0116-mass-and-dimension-limits.pdf

Good afternoon Craig,

Thanks for your e-mail correspondence regarding the preparation of supporting documentation to obtain approval for the abovementioned project. It is understood you are seeking 'in-principle approval' prior to lodgement of the proposal (EARs).

Please be advised TfNSW is not the consent authority for the prospective development Further, TfNSW will provide advice to the relevant consent authority in the assessment of the application following a formal referral via the ePlanning Portal. TfNSW does not provide 'in-principle support' or otherwise prior to the receipt of a referral, comprehensive review and consultation with internal subject matter experts (where required).

Traffic Impact Assessment (TIA)

As you have previously mentioned, a Traffic Impact Assessment (TIA) is to be prepared, and tailored to the scope of the development and include the following information:

a. Cumulative impacts from traffic generated from the proposed quarry including origin-destination routes, access to and from the site, AM/PM volume peaks, mitigation measures to ensure fluent site entry and exit and consideration of any surrounding sensitive land uses (e.g. school zones).
b. All traffic characteristics related to operations including (but not limited to) peak times, hours of operation, volumes, workforce commuter traffic, identification of haulage routes, alternative haulage routes, trip distribution, intersection analysis (including Turn Warrant Assessment under Part 6 of Austroads Guide to Traffic Management) and interactions between existing and project related traffic.
c. Consider on-site parking, access and queuing potential during peak times and if convoys are entering / exiting the site. The development must not result in any parking or queuing onto the classified (State) road network or road reserve.
d. Confirmation on largest class of vehicle to be used during operations and reference to the National Heavy Vehicle Regulator (NHVR) approved routes.
e. If any road safety concerns are identified at specific locations along proposed haulage routes, the TIA will need to be supported by a Road Safety Assessment by a suitably qualified persons in accordance with *Austroads Guidelines.*

It is acknowledged some preliminary information has been provided in your previous e-mail to TfNSW that will be encapsulated in the submitted TIA.

Traffic Management Plan / Drivers Code of Conduct

-

Additionally, A TMP (and accompanying Driver Code of Conduct) should be prepared for review by TfNSW and the consent authority in support of the proposed quarry, in consultation with the principal contractor(s).

-

The Traffic Management Plan (TMP) and Driver Code of Conduct is to outline measures to manage traffic related issues associated with all phases of the development (e.g. deliveries, construction, operation, maintenance, decommissioning), any construction or excavated materials, machinery and personnel involved. The TMP is to detail the potential impacts associated with the development, the measures to be implemented, and the procedures to monitor and ensure compliance. The TMP is to address (but not be limited to):

a) Details of origin, destination, quantity, size and frequency of vehicle movements associated with the development including those accessing and egressing the site.

b) Timings and staging of operation of the development.

c) Existing and projected background traffic, peak hour volumes and types and their interaction with projected development related traffic.

d) Loads, weights, lengths and number of movements of haulage and construction related vehicles including Over Size Over Mass (OSOM) loads.

e) The management and coordination of construction and staff vehicle movements to the site and measures to limit disruption to other motorists, including special OSOM management measures.

f) Scheduling of haulage vehicle movements to occur outside of daily commuter peak periods, local special event times, school bus (both in rural and town areas) and school zone operating hours.

g) Active communication procedures for traffic such as school buses or haulage vehicles from other quarries, or near potential safety hazards.

h) Scheduling of heavy vehicle movements to minimise convoy or platoon lengths.

i) Consideration to minimise the route length for road transport, particularly for OSOM loads.

j) Any OSOM movements will be the subject of separate permits through the National Heavy Vehicle Regulator.

k) Mitigation of local climate conditions that may affect road safety for vehicles used during construction, operation and decommissioning of the facility (e.g. scheduling during daylight hours, or outside of fog, wet weather, ice or snow).

l) Transport of hazardous materials in accordance with the relevant transport codes.

m) Specific mitigation measures along the approved transport routes. Road and intersection improvement works are to be completed prior to the commencement of haulage under this DA unless specifically approved otherwise in the conditions of consent.

n) Consultation and engagement with affected stakeholders, including regulatory authorities, landowners, businesses, bus operators and so forth.

o) Policies and procedures for addressing concerns raised by the community on project related matters.

p) Dust suppression and mitigation measures on public roads and within the site boundaries.

q) Toolbox meetings to facilitate continuous improvement initiatives and incident awareness.

r) Truckloads are to be covered at all times when being transported, to minimise dust and loss of material onto roads which may form a traffic hazard.

s) Measures to ensure responsible fatigue management and discourage driving under the influence of alcohol and/or drugs, dangers of mobile phone use and driving to the conditions, and adherence to posted speed limits.

Other matters

You have previously advised that assessment has indicated a BAR/BAL intersection treatment is required at the site access point on the Castlereagh Highway (HW18). This would need to be supported by an accurate turn warrant assessment and provide detail that the BAR / BAL would be able to accommodate a passing 26m b-double and be constructed in accordance with Part of 3 of Austroads Guide to Road Design. Swept Paths would also be required to show the design vehicle can achieve simultaneous entry and exit at the access driveway.

The Safe Intersection Sight Distance (SISD) is to be in accordance with Part 4a of the Austroads Guide to Road Design, as you have identified, a min. 300m SISD is required for the design speed of 110km/h. Should vegetation require removal to facilitate compliant SISD, consultation with the relevant consent authority (in this instance Council) is needed.

In reference to your e-mails sent 24/07/24, whilst TfNSW does not have any direct data at the subject site, a 2021 count about 4km NW of Gulgong on HW18 located near MR598 provided the following:
ADT: 1,366
HV%: 15.7

Additionally, please find the attached document providing some clear direction regarding vehicle mass and dimension limits, which should be read in conjunction with the NHVR website. The link provides the mapping to indicate vehicle restrictions on all roads. National Network Map | NHVR Portal

I trust the above is of assistance to you and should you wish to discuss further, please let me know.

Kind regards,

Brendan Croft
Development Services Case Officer
Community and Place
Regional and Outer Metropolitan - West
Transport for NSW
transport.nsw.gov.au

| **P** 0422 936 702 | **E** brendan.croft@transport.nsw.gov.au

OFFICIAL

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Craig Nethery *(Director)*
StreetWise Road Safety & Traffic Services Pty Ltd
ABN:- 45 604 145 315
PO BOX 1395
Port Macquarie NSW 2444
Mob:- 0412 009 558 **Email:-** craig@streetwisersa.com.au
Or
Andy Davis *(Director)*
Mob:- 0422 011 353 **Email:-** andy@streetwisersa.com.au
Web:- streetwisersa.com.au

Appendix C
Quarry Operational Traffic Management Plan (TMP)

Appendix D
Quarry Driver's Code of Conduct (DCC)