

Traffix Group

Traffic Management Plan

Proposed Quarry Extension

98 Hopkins Falls Road, Panmure

Prepared for
Bants Quarries

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1. Introduction

Traffix Group has been engaged to prepare a Traffic Management Plan for a proposed extension of the quarry at 98 Hopkins Falls Road in Panmure. The Traffic Management Plan has been requested by Moyne Shire Council as part of a further information request dated 13 May 2025.

The following report provides a traffic engineering assessment of the existing conditions of Hopkins Falls Road, an assessment of the volume and direction of expected truck movements to the site, an assessment of any road works required for the proposed relocated site access and provides advice on maintenance requirements for Hopkins Falls Road.

2. Existing Conditions

2.1. Subject Site

The subject site is located on the northeast side of Hopkins Falls Road approximately 1km northwest of Princes Highway in Panmure. The location of the site is presented on a locality map at Figure 1 and an aerial photograph at Figure 2.

The subject site is an extension of the existing quarry operating under a Work Authority at 98-100 Hopkins Fall Road in Panmure, with the extension to the east of the existing quarry within land that is currently zoned as farming land and used for dairy farming. The site is irregular in shape with an area of approximately 39.78ha and has direct frontage to Hopkins Falls Road of approximately 600m. Land use in the vicinity of the site is generally farmland, with another quarry located approximately 700m to the west of the site.

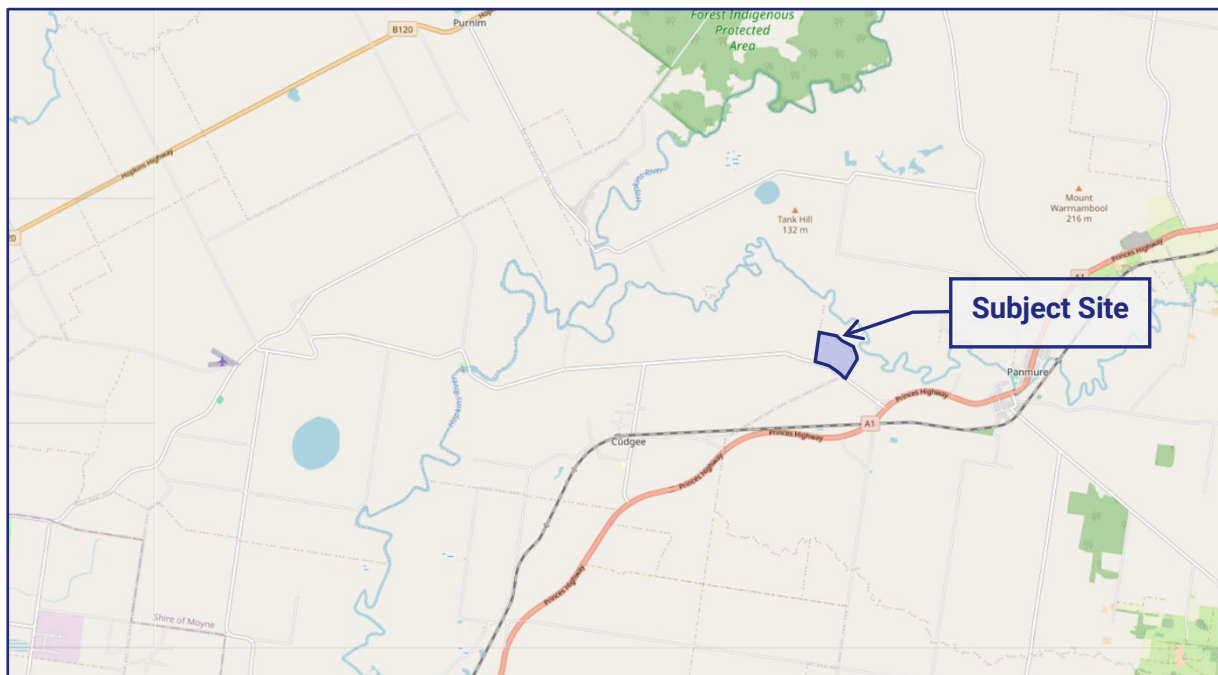


Figure 1: Locality Map

Source: <https://www.openstreetmap.org/>



Figure 2: Aerial Photograph

Source: <https://apps.nearmap.com/> (Image Date: 8 March 2025)

Hopkins Falls Road is a Council Road managed by the Moyne Shire Council and is classified as a Class 3 rural link road on the Moyne Shire Council's road register. In the vicinity of the site, Hopkins Falls Road consists of a sealed road with a width of approximately 6.75m that accommodates two-way traffic. There are 3m wide gravel shoulders provided on each side of Hopkins Falls Road.

A centreline is generally provided along Hopkins Falls Road, but we note that the centreline was missing adjacent to the subject site at the time of inspection. A temporary reduced speed limit of 80km/h was in place on Hopkins Falls Road in the vicinity of the site, but it is understood that a default rural speed limit of 100km/h generally applies.

Photographs showing Hopkins Falls Road in the vicinity of the site are presented in Figure 3 and Figure 4.



Figure 3: Hopkins Falls Road - View Northwest



Figure 4: Hopkins Falls Road - View Southeast

Spot counts undertaken for a 30-minute period during the middle of the day on a typical weekday counted 10 vehicles using Hopkins Falls Road during this period, with 40% of these vehicles being trucks. This would suggest that Hopkins Falls Road carries approximately 20 vehicles per hour throughout the day. However, it is understood, from information published by the Moyne Shire Council, that Hopkins Falls Road can carry up to 600 vehicles per day at the bridge over Hopkins Falls.

3. Proposal

3.1. Proposed Quarry Extension

The proposal seeks to secure additional resource by extending the extraction limits to the east and to the north of the existing quarry, within the subject site. The proposed extension of extraction limits is intended to lengthen the life of the existing quarry operation, rather than increasing the rate at which resources are produced.

For the initial stages of the quarry expansion, access to the site will continue to be via the existing quarry access. However, at a later stage during the quarry expansion access to the site will be relocated to an access point near the eastern site boundary. Once the new access is operational, the existing access road will be closed off and the nature strip will be rehabilitated. The extent of the proposed quarry expansion and relocated access point is presented at Figure 5.



Figure 5: Proposed Quarry Expansion Limits

3.2. Proposed Vehicle Access Location

The relocated access point near the eastern site boundary coincides with the location of an existing farm gate on the northeast side of Hopkins Falls Road, approximately 100m to the southeast of the intersection with Fearnlys Road. An aerial photograph of the proposed quarry access/existing farm gate access is shown on an aerial photograph at Figure 6 and a photograph is presented at Figure 7.



Source: <https://apps.nearmap.com/> (Image Date: 8 March 2025)

Figure 6: Aerial Photograph of Proposed Quarry Access Location



Figure 7: Photograph of Proposed Quarry Access

3.3. Sight Distance Assessment of Access Location

Recommended sight distance criteria are set out in *Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections*, May 2023. Clause 3.2 of the Austroads guidelines sets out that:

The types of sight distance that must be provided in the design of all intersections include:

- *approach sight distance (ASD)*
- *safe intersection sight distance (SISD)*
- *minimum gap sight distance (MGSD).*

AS2890.2 also sets out requirements for commercial vehicle traffic entering a public roadway from an access driveway, which are equivalent to the MGSD requirements.

The guidelines define the terms “Approach Sight Distance” (ASD), “Safe Intersection Sight Distance” (SISD) and “Minimum Gap Sight Distance” (MGSD) as follows:

ASD

ASD is defined as the minimum level of sight distance which must be available on the minor road approaches to all intersections to ensure that drivers are aware of the presence of an intersection.

ASD is measured from a driver’s eye height (1.1 m) to 0.0 m, which ensures that a driver is able to see any line marking and kerbing at the intersection.

ASD is also desirable on the major road approaches so that drivers can see the pavement and markings within the intersection and should be achieved where practicable.

SISD

SISD is the minimum sight distance which should be provided on the major road at any intersection. SISD provides sufficient distance for a driver of a vehicle on the major road to observe a vehicle on a minor road approach moving into a collision situation and to decelerate to a stop before reaching the collision point.

SISD allows for a 3 second observation time for a driver on the priority legs of the intersection to detect the problem ahead (e.g. car from minor road stalling in through lane), plus the distance required to stop (also known as Stopping Sight Distance (SSD)).

SISD is measured along the carriageway from the approaching vehicle to the conflict point; the line of sight having to be clear to a point 7.0 m (5.0 m minimum) back along the side road from the conflict point

MGSD

MGSD is based on distances corresponding to the critical acceptance gap that drivers are prepared to accept when undertaking a crossing or turning manoeuvre at intersections.

MGSD is measured from a point 1.1 m (driver’s eye height) to a point 0.65 m (object height – typically a vehicle indicator light) above the travelled way.

The default rural speed limit which would typically apply along Hopkins Falls Road in the vicinity of the site access is 100km/h. Accordingly, the sight distance requirements for a

110km/h design speed have been adopted in accordance with requirements from the Department of Transport and Planning Supplement to Austroads Guide to Road Design.

The various minimum sight distance requirements for a 110km/h design speed under the Austroads Guidelines for a flat grade are presented in Table 1.

Table 1: Sight Distance Requirements

Design Speed	Austroads Guide to Road Design Part 4A		
	ASD	SISD	MGSD
110km/h	209m ⁽¹⁾ (Rt 2.5 sec ⁽²⁾)	300m ⁽¹⁾ (Rt 2.5 sec ⁽²⁾)	153m (5 sec gap ⁽³⁾)
Notes: 1. Hopkins Falls Road in the vicinity of the site is relatively flat, therefore no grade corrections have been applied. 2. General minimum value for high speed rural intersections. 3. Assumes, the critical acceptance gap would be for the right turn movement out of the minor road onto a two lane/two way major road.			

Sight distance from the location of the proposed relocated site access near the eastern site boundary was measured to be approximately 310m to the northwest and over 400m to the southeast. These values are considered to be relevant for each of the ASD, SISD and MGSD requirements.

Accordingly, the available sight distance along the Hopkins Falls Road from the site access in each direction meets the recommended sight distance requirements specified in the Austroads Guide to Road Design Part 4A.

Photographs showing the existing sight distance which is available at the proposed relocated access point are provided at Figure 7 and Figure 8.



Figure 8: Sight Distance from Proposed Relocated Access - View Southeast



Figure 9: Sight Distance from Proposed Relocated Access - View Northwest

The land within the subject site, where the access is to be located is relatively flat and free from obstructions, as shown in the photograph at Figure 9 .



Figure 10: Sight Distance - View Northeast at Proposed Access

Accordingly, it is considered that there will be sufficient sight distance along the proposed internal access road to meet ASD requirements for this approach.

4. Traffic Impact Assessment

4.1. Traffic Distribution

Small to medium quarries, including the subject site, generally service the local area, to facilitate local road construction, maintenance and construction of farm tracks without expensive hauling costs.

The proposed relocated access is located approximately 840m northwest of the Princes Highway intersection, which will generally provide the most convenient access to many nearby localities via a higher order road.

We also note that based on existing quarry operations, Dwarroon Road is not a delivery route due safety concerns raised by VicRoads in the past about the Dwarroon Road/Princes Highway intersection. Whilst it is understood that this intersection has since been upgraded, it is unlikely that Dwarroon Road would be used for access, since it is more convenient to access Princes Highway directly via Hopkins Falls Road.

Similarly, documentation for the existing quarry stated that loaded trucks were not to use the Hopkins Falls Bridge to the northwest of the site based on old advice from Moyne Shire Council. However, it is understood that upgrade works have recently been undertaken to strengthen and widen the Hopkins Falls Bridge and that recent advice is that it can now be utilised by loaded trucks. Notwithstanding this, it is still expected that the majority of trips to and from the site will still utilise Princes Highway to the southeast, unless they have a local origin or destination (i.e. Wangoom or Purnim).

4.2. Traffic Generation

As the proposed extension of extraction limits is intended to lengthen the life of the existing quarry operation, rather than increasing the rate at which resources are produced, traffic generated by the quarry is not expected to increase as a result of the proposed extension.

Sales from the quarry are expected to be in the range of 3 to 5 truckloads per day, which would represent 6 to 10 truck movements to and from the site per day. Truck movements are expected to generally involve tip truck and trailer combinations with a combined length of approximately 20m.

Staffing at the quarry is expected to generally be relatively minimal and is not expected to generate any significant trip demand, especially during operating hours of the quarry when truck movements are expected to occur, with staff assumed to arrive at the start and end of shifts.

These traffic volumes and size of trucks are considered to be appropriate and within normal expectations for a rural link road.

4.3. Required Access Works

Any works to be undertaken at the relocated site access should be designed in accordance with the relevant Austroads Guides. Guidance regarding the types of treatment for the

development has been taken from the Austroads' "Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings".

The referenced chart that has been adopted is relevant for speeds more than or equal to 100km/h based on the default rural speed limit of 100km/h that would generally apply to Hopkins Falls Road.

Based on the general assumption that peak hour through volumes represent 10% of daily traffic, and the 600 vehicles per day reported by Council at the Hopkins Falls Bridge, this would represent a peak hour two-way traffic volume on Hopkins Falls Road of 60 vehicles per hour.

Figure 11 provides an assessment of entry turn movements against the warrants for intersection treatments outlined in the Austroads Guide to Traffic Management. The volumes conservatively assume that all 5 trucks that could be expected on a day, occur within the same hour and approach from the same direction (noting that most movements would be expected to be right turn in movements but have been tested for the left turn in as well for completeness).

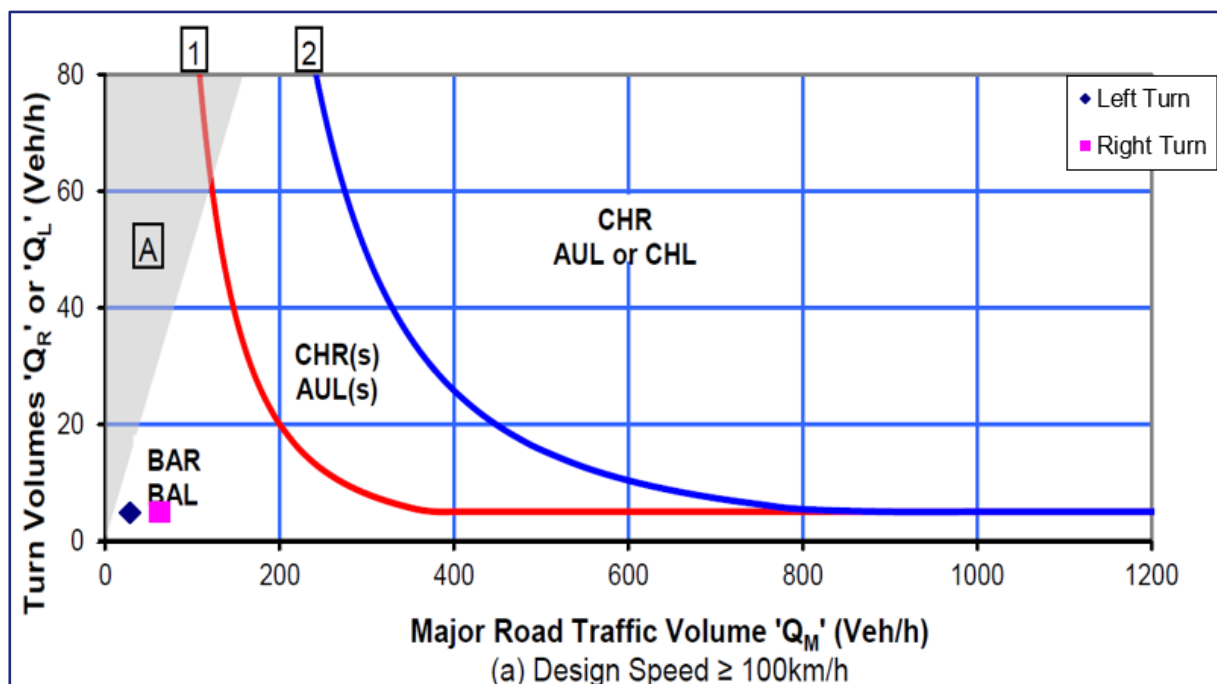


Figure 11: Turn Lane Warrants Assessment

The assessment identifies that under the Austroads warrants the vehicle entry to the proposed development would only be expected to meet the warrants for a basic auxiliary left turn (BAL) and basic auxiliary right turn (BAR) intersection treatment.

A BAL treatment requires that a trafficable shoulder be provided for 35m on approach to the site access, with a minimum width of 6.0m from the centreline. This width is generally already achieved with the existing shoulders, however, may require the relocation of a reflector post.

A BAR treatment requires that a trafficable shoulder be provided on approach to and past the site access, with a minimum width of 6.5m from the centreline on the opposite side to the access, to allow a vehicle to pass to the left of a stationary vehicle waiting to turn right into the site.

The Austroads Guide to Road design indicates that the shoulders within a BAL or BAR turn treatments should be sealed or maintained with a sound and even surface. Given the relatively low traffic volumes on Hopkins Falls Road and low turning volumes expected at the access, we consider that unsealed shoulders could be adequately maintained and were observed to currently be in a good trafficable condition.

Additionally, the property access will likely need to be widened with appropriate return radii provided to facilitate entry to and exit from the site for 20m long tip truck and trailers. Swept path analysis should be undertaken to inform the design of the proposed access. However, the proposed access would likely be consistent with the Infrastructure Design Manual's Standard Drawing 265.

5. Road Condition Assessment

Hopkins Falls Road was observed to generally be in good condition in the vicinity of the subject site and appeared to have recently been resurfaced/reconstructed based on the condition of the road, reduced speed limit and lack of a centreline at the time of inspection. Accordingly, we recommend that Council reinstate a centreline along this section of Hopkins Falls Road.

However, we note that the pavement on the Hopkins Falls Road approach to the Princes Highway intersection is in poor condition, as shown at Figure 12, and in need of maintenance.



Figure 12: Hopkins Falls Road/Princes Highway Pavement Condition

As mentioned previously, the expected traffic volumes expected to be generated by the site and the size of trucks expected to be used are considered to be within the normal expectations for a rural link road and therefore are not expected to result in unreasonable wear and tear on a road of this classification. Accordingly, we consider that maintenance of Hopkins Falls Road and the Princes Highway intersection is the responsibility of Moyne Shire Council and Department of Transport and Planning, under their respective road maintenance plans.

6. Conclusion

Having undertaken an assessment of the proposed quarry assessment at 98 Hopkins Falls Road in Panmure, we are of the opinion that:

- a) The proposed quarry extension is not expected to increase traffic to and from the site, with only 6-10 truck movements and a small number of staff movements expected each day, as per current quarry operations.
- b) The majority of these movements are expected to be to and from the Princes Highway to the southeast, due to the convenient access of the site to Princes Highway, unless the trip has a local origin or destination to the northwest (i.e. Wangoom or Purnim).
- c) Sight distance measurements at the proposed site access location exceed Austroads requirements and accordingly the proposed access location is considered appropriate.
- d) The proposed relocated access is expected to only meet the warrants for Basic Auxiliary Left Turn and Basic Auxiliary Right Turn treatments, which require a trafficable shoulder be maintained on approach to and/or past the site access, and do not require the construction of dedicated turn lanes.
- e) The existing farm gate access, at the proposed relocated site access, will likely require widening to and other relevant works to facilitate access by 20m long tip truck and trailer combinations.
- f) Hopkins Falls Road in the vicinity of the site is in good condition but requires the centreline to be reinstated, whereas the approach to the Princes Highway intersection is in poor condition and requires maintenance works.
- g) We consider that the expected size and volumes of vehicles trips generated by the site would be within the normal expectations for a rural link road and therefore are not expected to result in unreasonable wear and tear on a road of this classification.