BMR Quarries Pty Ltd
Mount Winton Quarry Expansion
Application for Section 96 Modification for DA0199/2012

July 2012
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1. Introduction

Development Application DA0199/2012 for the expansion of area and increase in production at the Mount Winton Quarry was approved by the Northern Joint Regional Planning Panel (JRPP) on 19 April 2012 subject to the amendment of a number of conditions of consent as previously determined by Tamworth Regional Council (TRC) Development Assessment Planning and Road Engineering staff, as well as the addition of two new conditions of consent.

The amended and additional conditions of consent were based on public submissions to the JRPP and a site inspection of the haulage route undertaken by members of the JRPP prior to the meeting.

The purpose of this report is to support the application to modify development consent from DA0199/2012 pursuant to Section 96 of the Environmental Planning and Assessment Act 1979 for the following:

- Condition of Consent No. 6;
- Condition of Consent No. 22; and
- Condition of Consent No. 22B.
2. Background

BMR Quarries Pty Ltd (BMR) has existing development consent from TRC and an existing licence from the Environmental Protection Authority for the extraction of up to 50,000 tonnes per annum of andesite from the Mount Winton Quarry. This andesite material is then processed into various gravel materials which are then transported from the quarry site on a designated haulage route for use in Tamworth and the surrounding region.

In 2011/2012 an Environmental Impact Statement (EIS) was prepared for the expansion of area and increase in production at the Mount Winton Quarry. This included a Traffic Impact Assessment (TIA), to assess the traffic related impacts for the associated increase in truck movements along the existing designated haulage route.

The TIA was prepared based on the proposed maximum extraction of 150,000 tonnes per annum proposed from the quarry. The existing quarry has a maximum allowable extraction of 50,000 tonnes per annum and the recommendations of the TIA were based on the analysis of the increase in vehicle movements along the designated haulage route as a result of the expansion and associated increase in production.

As detailed in Section 3.1.3 of the TIA, it was determined that for the existing quarry operation, there is on average 14 heavy vehicle movements per day, to and from the site. Based on the time it takes to load and weigh the haulage vehicles at the quarry site, together with the number of available heavy vehicles that would be available at any one time in the region to complete a return trip from the quarry site to a location within the Tamworth city limits, it was estimated that there would be an additional 28 heavy vehicle movements per day should the demand of the construction and related industries warrant the supply of the additional 100,000 tonnes of material.

Therefore, should there be sufficient demand in the area during any one year for 150,000 tonnes of gravel material from the quarry, then this would represent up to 42 heavy vehicle movements per day, to and from the quarry site or approximately 4 to 5 heavy vehicle movements per hour during a ten hour day.

It should be noted however that should there be a high demand for gravel products as per the existing 50,000 tonne licence, it would be expected that there could be up to 42 heavy vehicle movements per day to transport the material to satisfy the demand. That is, vehicle movements per day for the existing 50,000 tonne licence would vary between zero and 42 vehicle movements per day subject to demand.

As a result of the increase in vehicle movements, a number of road mitigation measures and upgrades were determined as detailed in Section 5 of the TIA. It should be noted that the proposed road upgrades were discussed in detail with Council’s road engineering staff as part of the preparation of the TIA and prior to the submission of the development application. The proposed road upgrade measures, together with the expected Section 94 contributions towards road maintenance of the designated haulage route, were then costed by BMR to ascertain the commercial viability of pursuing the quarry expansion as detailed in Table 1.

Furthermore, and as indicated in Section 4.4.2 of the TIA, the existing quarry operation was subject to conditions of consent relating to the upgrade of a section of the Duri-Winton Road between the quarry entrance and McGowans Lane. Whilst it is acknowledged that the upgrade works were not completed within the timeframe as per the existing development consent, on investigation of the proposed quarry expansion BMR consulted with TRC road engineering staff in early 2011 with regards to any additional measures that may be required for this section of Duri-Winton Road should BMR pursue an approval for
expansion of the quarry. TRC advised that given that the upgrade works had not been completed in accordance with the existing consent and should BMR seek approval for an expansion of the quarry, then a revised pavement thickness and design would be required as a result of the increased haulage operations that would be generated from the quarry expansion.

As a result and in good faith, BMR elected to upgrade the section of Duri-Winton Road in accordance with the revised pavement design and associated thickness suitable for increased haulage operations. At the time of the inspection by the JRPP members, the pavement construction had been completed to the new design however the bitumen seal had not yet been applied. It is advised that sealing works for the upgraded section of Duri-Winton Road have now been undertaken.

Table 1 – Estimated Cost of Road Upgrade Works for Quarry Expansion

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
</table>
| 1    | Duri-Winton Road – increased pavement thickness over and above existing development consent requirements.  
|(This does not included the costs associated with the original pavement thickness and bitumen seal as per the existing development consent) | $400,000 |
| 2    | New Winton Road – shoulder widening and sealing (4km)  
|(Based on the length of shoulder widening as discussed with TRC prior to submission of the development application) | $240,000 |
| 3    | Section 94 contributions based on 150,000 tonnes  
|(It is noted that Section 94 contributions are contributions payable to TRC by BMR for ongoing road maintenance of the haulage route based on annual extractions amounts from the quarry) | $76,500 |
|      | **Total**                                                                   | **$716,500** |

Based on the costs associated with the preparation of the EIS (approximately $80,000) and the road upgrade estimates and Section 94 contributions as detailed in Table 1, it was considered by BMR that the investment of approximately $800,000 was acceptable to proceed with quarry expansion development application.
3. **Conditions of Consent**

Determination of approval for DA0199/2012 by the JRPP included amendments to conditions of consent 12 and 22, previously determined by TRC development assessment planners and road engineering staff, and the addition of new conditions of consent 22A and 22B as determined by the JRPP.

All conditions of consent for DA0199/2012 have been reviewed by BMR and in accordance with Section 96 of the Environmental Planning and Assessment Act 1979, an application for modification to the following conditions is submitted for consideration and approval.

3.1 **Condition of Consent No. 22**

This condition includes the provision of shoulder widening works for New Winton Road from Tangaratta Creek Bridge to Ridds Creek, a distance of approximately 7 kilometres, to form a 9 metre wide road formation with an 8 metre 20/10 bitumen seal applied over the entire width of the road.

3.1.1 **Shoulder Widening Provision**

This condition represents an increase of approximately 3 kilometres of shoulder widening on both sides of the road compared to the 4 kilometres of shoulder widening as previously discussed with TRC during the preparation of the TIA. Together with the requirement to provide a 500mm overlap for each pavement layer to tie into the existing pavement, the cost to undertake this additional 3 kilometres of shoulder widening has been estimated at $315,000.

The condition states that the shoulder widening on either side of the road shall be keyed into the existing pavement with a minimum 500mm overlap at each layer. This requirement is considered excessive as TRC’s normal design practice for the integration of new pavements to existing pavements is a minimum of 300mm overlap at each layer. In addition and in particular on roads that are widened without a formal pavement design, it is considered highly unlikely that shoulder widening works are keyed in with a 300mm overlap and are merely constructed with a single longitudinal vertical join between the existing and new pavement. It is therefore considered that the condition be amended to allow for a 300mm overlap at each layer which is consistent with TRC’s normal design practice for pavement integration. Whilst the additional 3 kilometres in shoulder widening represents a significant increase in costs to BMR as compared to those used to determine the commercial viability of the quarry expansion, given the concerns expressed by the community, BMR has accepted that the additional 3 kilometres of shoulder widening provides a benefit to both the quarry and the community.

Shoulder widening works are considered to be capital upgrade works and when undertaken on existing sealed roads, it is generally normal practice to apply a bitumen seal to the shoulder with at least a 200mm wide bitumen seal overlap onto the existing bitumen seal of the road. Condition 22 states however that an 8 metre wide bitumen seal is to be applied over the entire length of the road effectively providing a full width reseal.
3.1.2 Full Width Bitumen Seal Provision

Every year TRC undertakes a bitumen resealing program (reseals) as part of their annual road maintenance program. Reseals are a preventative maintenance treatment that are necessary approximately every 10 years as the bituminous wearing surface of the road becomes brittle and porous and eventually cracks. The degradation of the bitumen is due to the UV radiation that the road surface is subject to over time however bitumen seals also become polished and slippery due to the continuous action of vehicle tyres on the aggregate, particularly those roads with high volumes of traffic. As indicated in Section 2.1.1 of the TIA, the traffic volumes along New Winton Road where the road widening is proposed are less than 500 vehicles per day. The designated haulage route, particularly at this location, would be considered to be a low volume traffic road with a low classification in terms of the road hierarchy for TRC’s road network.

The estimated cost to undertake a full width 20/10 bitumen reseal for this section of the haulage route has been estimated at approximately $670,000 however given that resealing works is a preventative maintenance measure for all road users as described above and BMR is required to pay annual Section 94 contributions towards maintenance along the designated haulage route, it is considered that the requirement for a full width bitumen seal for this condition be removed.

3.1.3 Guidepost Provision

The condition also states that the provision of guideposts shall also be installed for delineation. TRC has a responsibility to ensure that their roads, no matter what the road hierarchy, are maintained to a minimum standard and level of service. The increased haulage operations of the quarry will not change the hierarchy of the haulage road in terms of maintenance or capital investment from TRC funding sources however the level of service will be improved by the investment provided by BMR in terms of capital upgrades. The lack of guideposts to satisfy the minimum road standard would be considered an existing deficiency or maintenance defect and is the responsibility of TRC.

3.1.4 Construction Timeframe Provision

Furthermore, the condition states that the shoulder widening works are to be completed before any increase in quarry operations can commence. Should there be no modification granted to Condition 22, it is estimated that BMR would be required to outlay approximately $1,225,000 in upfront costs to satisfy the requirements of this condition alone as detailed in Table 2.
Table 2 – Estimated Upfront Costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>New Winton Road – shoulder widening inclusive of 300mm pavement overlap and prime seal of the shoulder only (4km) (Based on the length of shoulder widening as discussed with TRC prior to submission of the development application)</td>
<td>$240,000</td>
</tr>
<tr>
<td>2</td>
<td>New Winton Road – shoulder widening inclusive of 500mm pavement overlap (3km)</td>
<td>$315,000</td>
</tr>
<tr>
<td>3</td>
<td>8 metre wide 20/10 bitumen seal (7km)</td>
<td>$670,000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>$1,225,000</strong></td>
</tr>
</tbody>
</table>

These increased upfront costs would significantly jeopardise the commercial viability of the quarry expansion given that it has been stated in the EIS that whilst approval was sought to increase extraction to 150,000 tonnes per annum, this was subject to the future demands for gravel material from the construction and associated industries in the region. It is not envisaged that 150,000 tonnes per annum would be extracted every year and as indicated in Section 3.1.1 of the TIA, BMR’s initial estimate for extraction over the next ten years have been estimated at an average of between 100,000 and 120,000 tonnes per annum. It should be noted that these estimated averages represent extraction in any one year from as low as 50,000 tonnes up to 150,000 tonnes per annum subject to demand for the quarry products.

To sustain the commercial viability of the quarry and given the additional 3 kilometres of shoulder widening imposed by this condition, it is therefore considered that shoulder widening be staged over at least 24 months subject to an approved program to be submitted to TRC. The staging of the works would then allow BMR to undertake the works required by not subjecting the business to any potential major financial disadvantage should the demand for the quarry products be less than that estimated should there be a downturn in construction related activities in the region.

3.1.5 Recommendation

As a result of the information provided above, a suggested rewording of Condition 22 is provided below:

"New Winton Road between the bridge over Tangaratta Creek (Tangaratta Creek Bridge) and the bridge over Mountain Creek (Ridds Bridge) shall be widened to a 9 metre formation with a 10mm bitumen seal applied over the widened shoulders only with a 200mm bitumen overlap onto the existing bitumen seal of the road. The widening of either side of the road shall be keyed into the existing pavement with a minimum 300mm overlap at each layer. The widening of the pavement shall ensure the longitudinal joins along the road are clear of the outer wheel paths of heavy vehicles. The travel lanes shall each be 3.5 metres wide and delineated with line marking in accordance with AS 1742.2."
A pavement design for the widening shall be prepared in accordance with Council’s Engineering Design Guidelines for Subdivisions and Developments and submitted to Council for approval prior to the works commencing.

A works program detailing staged shoulder widening works shall be submitted and approved by Council before any increase in operations as approved by this development consent. All works associated with this condition are to be completed within 24 months of notification from Council of the approved program.”

It is further considered that Council has the necessary powers under the Environmental Planning and Assessment Act to suspend operations at the quarry should the roadworks not be completed within the 24 month period.

3.2 Condition of Consent No. 22B

The condition to widen the existing culvert crossing adjacent to the Duri-Wallamore Road and New Winton Road intersection was included following the site inspection by the JRPP prior to the meeting held on 19 April 2012.

It should be noted that the width of the culvert crossing was assessed as part of the TIA in consultation with TRC road engineering staff and upgrade works for this culvert were not considered necessary for the following reasons:

- The culvert is located on a long straight section of New Winton Road with sight distance to the culvert and the adjacent New Winton Road and Duri-Wallamore Road intersection in excess of 500 metres in both directions;
- There are existing give way controls in place for road users approaching the culvert from the west. Road users from the east have right of way and given the sight distance to the culvert, there is sufficient time for road users from the west to identify and give way to road users approaching the culvert from the east; and
- There is no recorded accident history at the culvert location in the past five years, as provided by TRC, however it is noted that there was an incident involving a station wagon hitting an object back at the culvert location in 1998 however this occurred approximately 7 years prior to the reopening of the quarry by BMR in 2005.

3.2.1 Site Inspection

Based on the comments of the JRPP members and representations made by the public, there appears to be a presumption that the existing culvert is unsafe and needs to be widened to accommodate the increase in haulage operations associated with the quarry expansion. Following a site inspection, the condition of the existing culvert crossing and associated road pavement is considered to be poor however the poor condition is considered to be a direct result of flood damage. The damage to the pavement near the headwalls has reduced the trafficable width and the lack of rectification of this damage has exacerbated the presumption that this culvert is unsafe and needs to be widened. The following pictures provide details of the existing defects.
Plate 1 – Cracks in the upstream headwall

Plate 2 – Pavement damage adjacent to upstream headwall
Plate 3 – Pavement damage adjacent to downstream headwall

Plate 4 – Pavement damage adjacent to downstream headwall
3.2.2 Commentary

The following commentary provides further information with regards to why the widening of the culvert crossing should not be a direct cost to BMR and that the associated Condition 22B be removed from the consent for DA0199/2012.

(i) New Winton Road at the culvert crossing has a posted speed limit of 100kph. Using the principles associated with road and intersection design, performance is dependent upon adequate horizontal and vertical sight distance for approaching vehicles.

Stopping sight distance (or approach sight distance) as defined by the RTA Road Design Guide is:

"the minimum distance required by an average driver of a vehicle travelling at a given speed to react and stop before reaching an object in the vehicle path."

The stopping sight distance on level bituminous surfaces is as follows:

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<th>Design Speed (kph)</th>
<th>Stopping Sight Distance (m)</th>
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</thead>
<tbody>
<tr>
<td>100</td>
<td>150/175</td>
</tr>
<tr>
<td>110</td>
<td>210</td>
</tr>
<tr>
<td>120</td>
<td>250</td>
</tr>
<tr>
<td>130</td>
<td>300</td>
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Table 2.1.8 - Extract from RTA Road Design Guide

The existing posted speed limit is 100kph and the sight distance from each approach to the culvert is approximately 500 metres in length. There is existing give way controls in place on New Winton Road for road users approaching the culvert crossing from the west and given the low traffic volumes together with the adequate stopping sight distance provisions for each approach to the culvert, it is considered that the existing road infrastructure is within acceptable limits.

(ii) The culvert crossing has an existing width of 6 metres between the face of the guardrails. Roads and Maritime Services (RMS) route assessment criteria for B-doubles (Refer APPENDIX A) indicates that for low volumes rural roads (AADT between 100 and 500), a minimum sealed shoulder width of 6 metres is required with a minimum carriageway width of 7 metres however structures (including bridges) can be narrower than the road width where they are relatively short in length and have adequate sight distance for oncoming vehicles.

The RMS route assessment criteria states that the minimum horizontal width for B-doubles at the culvert location would be 7.2 metres, unless the structure is appropriately signposted (eg: one way traffic; no passing on bridge).

Whilst no B-doubles will be used for the transportation of quarry materials, this information has been provided as it clearly demonstrates that the existing dimensions of New Winton Road on approach to the culvert, the existing width of the culvert crossing together with the existing give way control measures and approach
(iii) Whilst there has been no recorded accident history at or adjacent to the culvert site in the past five years, representations made to the JRPP by the public during the meeting indicated there had been near misses however these did not involve any heavy vehicles, either from the quarry or those associated with farming activities in the area.

(iv) The culvert widening has not been identified in any of TRC’s previous or current road upgrade programs neither has it been included in any formal submissions to the state and federal government black spot programs.

(v) Whilst the quarry expansion will generate additional heavy vehicle traffic movements, it is considered that the maximum number of heavy vehicle movements (estimated at up to 42 per day) will be no more in any one day than that of the existing quarry operation. The only difference is that there will be a greater number of days per year when there will be up to 42 heavy vehicle movements which will be dependent on demand for the quarry products.

(vi) Road user behaviour is a factor that can be controlled somewhat by BMR with regards to the code of conduct of drivers undertaking haulage operations to and from the quarry however, the road user behaviour of the general public in this area is the responsibility of individual drivers complying with the road rules. With regards to the culvert and give way provisions for road users from the west, there are two options for drivers, road users from the west slowing down to allow road users from the east to pass across the culvert or road users from the west speeding up such that they don’t have to give way. Obviously the latter behaviour is undesirable and would ultimately be a matter for the NSW Police Force. In this regard it would be expected that if there is such an issue with speeding drivers, the installation of road classifiers, which measure speed, would be something for TRC to consider with the information forwarded to the NSW Police Force so it can be analysed and included as necessary as part of their ongoing speed monitoring programs within the region.

(vii) The condition states that the upgrade of the culvert must be completed before any increase in quarry operations as approved by the development consent for DA0199/2012.

Based on the preliminary site inspection of the culvert as described in Section 3.2.1 of this report, there may be issues regarding the structural integrity of the existing culvert crossing. As the culvert widening works will require structural design requirements, the structural integrity of the existing culvert crossing would need to be assessed by TRC in terms of the augmentation.

Should assessment of the existing culvert crossing conclude that the structure requires rehabilitation or replacement, it is considered that the time that it would take TRC to approve funding, complete the required investigations and detailed design and ultimately complete construction of the new culvert, should not be at the detriment to the commencement of the increased quarrying operation.

Should Condition 22B not be removed from the consent, it is estimated that BMR would be required to outlay approximately $300,000 in upfront costs for detailed design and construction to satisfy the requirements of this condition. Based on the current configuration and dimensions of the culvert, the widening would need to be undertaken as concrete cast in-situ works as opposed to the placement of precast concrete culvert units.
It is therefore considered that if the structural integrity of the existing culvert crossing is determined to be deficient, then the widening of the culvert would need to be completed in conjunction with the rehabilitation and/or replacement of the existing structure by TRC. As a result, increased quarrying operations as per DA0199/2012 should not be prevented from commencing given the existing deficiency is not directly attributable to the haulage operations associated with the quarry.

### 3.2.3 Recommendation

It is considered that whilst the increased quarry operation will result in increased traffic movements along the designated haulage route, the requirement for BMR to upgrade the existing culvert is not supported by current road design principles or due to road safety issues. TRC was consulted as part of the preparation of the TIA and the provision of upgrading the culvert was not considered necessary by TRC as a result of this development.

To improve the existing advanced warning sign and line marking layout for the culvert, it is considered that duplication of signs on both sides of the carriageway on approach to the culvert, as well as the provision for larger signs than existing, will further emphasise to road users the required give way and no passing requirements. Furthermore, the provision of edge line marking will also provide improved delineation to road users by defining a single lane width over the culvert.

Based on the information provided above, it is therefore considered that requirement to widen the culvert be removed from Condition 22B and be replaced with the provision of duplicate advanced warning signs on both sides of the carriageway as well as edge line marking adjacent to the guardrail to define a single lane.

As a result of the information provided above, a suggested rewording of Condition 22B is provided below:

"The quarry operator shall be responsible for the provision of Class B advanced warning signs on the approach to the culvert located approximately 200 metres east of the New Winton Road and Duri-Wallamore Road intersection. These signs shall match and replace the existing advanced warning signs for the culvert and shall be duplicated on both sides of the carriageway. In addition, the quarry operator shall be responsible for the provision of edge line marking to delineate a single 4 metre wide lane over the culvert. All works are to be in accordance with Council’s Engineering Guidelines for Subdivisions and Developments.

This work must be completed before any increase in operations as approved by this development consent."
3.3 Condition of Consent No. 6

This condition states that the increase in extractive material to 150,000 tonnes per annum shall not exceed 16 years from the commencement of operations under this consent. The EIS was prepared based on full production of the quarry every year until the 2.4 million tonnes of processed andesite material within the additional 3.84 hectare area had been exhausted which was estimated at approximately 16 years.

3.3.1 Commentary

As previously indicated, the demand for gravel products from the quarry for the next 10 years has been estimated on average at between 100,000 and 120,000 tonnes per annum. Based on the initial 10 year estimates and given the potential for a decline in gravel products from the quarry from expected future downturns in the construction industry, it is therefore considered that the 2.4 million tonnes of andesite material will not be extracted and processed within this 16 year period. If there are continuing trends beyond the 10 year initial estimates, it is therefore estimated that full of extraction of the 2.4 million tonnes of andesite based on production of 100,000 to 120,000 tonnes per annum will take approximately 20 to 24 years.

In terms of long terms strategic and financial planning for the quarry, it is considered that the 16 year period as stipulated by Condition 6 is restrictive and diminishes the commercial viability of the quarry. Given the capital outlay required by BMR for the road upgrades, it is considered more economically sustainable for the period associated with the quarrying operation to be limited to the time to extract and produce the 2.4 million tonnes of andesite material.

3.3.2 Recommendation

BMR is required to submit annual extraction records to TRC and the NSW Department of Primary Industries. It is considered that these records are appropriately managed by both of these government organisations and as such cumulative extraction from the quarry over future years would be easily monitored. Should extraction be greater than that predicted, it would therefore be expected the period for quarrying operations would then be limited to that of the 2.4 million extraction limit and the period taken to exhaust the resource from the approved area.

As a result and to ensure an economically sustainable regional business, it is considered that the period for quarrying operations be amended from 16 years to up to 24 years or the period for extraction and processing of 2.4 million tonnes of andesite, whichever comes first. A suggested rewording of Condition 6 is provided below:

"To confirm and clarify the terms of approval, consent is granted for an increase in extractive material extraction to a maximum of 150,000 tonnes per annum for a period not exceeding 24 years or for the period it takes to extract and process 2.4 million tonnes of andesite material, whichever comes first, from the commencement of operations under this consent. The quarry operator is required to inform Council of the commencement date of operations approved under this consent. Council will then provide written confirmation of the lapsing date for quarrying operations under this development consent."
4. Conclusion

Application is made by BMR Quarries for the modification of consent DA0199/2012 in accordance with Section 96 of the Environmental and Planning Assessment Act.

BMR is seeking modification of conditions of consent 6, 22 and 22B. The financial impacts associated with conditions 22 and 22B require BMR to complete roadworks in the amount of approximately $1,525,000 prior to the commencement of any increased quarrying operations. This upfront cost of $1,525,000 compared to the $640,000 in upfront costs used to assess the commercial viability of the proposed quarry expansion, based on the discussions with TRC, are considered to be excessive and diminish any long term prospects for this regional business.

Based on the information provided in the body of the report, it is recommended that the following conditions of consent for DA0199/2012 be reconsidered and modified as follows:

Condition of Consent No. 22

Suggested rewording as follows:

"New Winton Road between the bridge over Tangaratta Creek (Tangaratta Creek Bridge) and the bridge over Mountain Creek (Ridds Bridge) shall be widened to a 9 metre formation with a 10mm bitumen seal applied over the widened shoulders only with a 200mm bitumen overlap onto the existing bitumen seal of the road. The widening of either side of the road shall be keyed into the existing pavement with a minimum 300mm overlap at each layer. The widening of the pavement shall ensure the longitudinal joins along the road are clear of the outer wheel paths of heavy vehicles. The travel lanes shall each be 3.5 metres wide and delineated with line marking in accordance with AS 1742.2.

A pavement design for the widening shall be prepared in accordance with Council’s Engineering Design Guidelines for Subdivisions and Developments and submitted to Council for approval prior to the works commencing.

A works program detailing staged shoulder widening works shall be submitted and approved by Council before any increase in operations as approved by this development consent. All works associated with this condition are to be completed within 24 months of notification from Council of the approved program."

A pavement design for the widening shall be prepared in accordance with Council’s Engineering Design Guidelines for Subdivisions and Developments and submitted to Council for approval prior to the works commencing.

A works program detailing staged shoulder widening works shall be submitted and approved by Council before any increase in operations as approved by this development consent. All works associated with this condition are to be completed within 24 months of notification from Council of the approved program."
Condition of Consent 22B

Suggested rewording as follows:

“The quarry operator shall be responsible for the provision of Class B advanced warning signs on the approach to the culvert located approximately 200 metres east of the New Winton Road and Duri-Wallamore Road intersection. These signs shall match and replace the existing advanced warning signs for the culvert and shall be duplicated on both sides of the carriageway. In addition, the quarry operator shall be responsible for the provision of edge line marking to delineate a single 4 metre wide lane over the culvert. All works are to be in accordance with Council’s Engineering Guidelines for Subdivisions and Developments.

This work must be completed before any increase in operations as approved by this development consent.”

Condition of Consent 6

Suggested rewording as follows:

“To confirm and clarify the terms of approval, consent is granted for an increase in extractive material extraction to a maximum of 150,000 tonnes per annum for a period not exceeding 24 years or for the period it takes to extract and process 2.4 million tonnes of andesite material, whichever comes first, from the commencement of operations under this consent. The quarry operator is required to inform Council of the commencement date of operations approved under this consent. Council will then provide written confirmation of the lapping date for quarrying operations under this development consent.”
APPENDIX A
Freight Route Criteria
Table 2.2 Road width for 25 metre B-doubles and 36.5 metre road trains on unsealed roads

<table>
<thead>
<tr>
<th>Traffic</th>
<th>Rural AADT</th>
<th>Road Hierarchy Class</th>
<th>25 m B-doubles</th>
<th>36.5 m Road Trains</th>
<th>36.5 m AB or B-triple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1–100</td>
<td>1R</td>
<td>5.5 (1)</td>
<td>5.5 (1)</td>
<td>5.5 (1)</td>
</tr>
<tr>
<td></td>
<td>100–500</td>
<td>1R</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>500–1000</td>
<td>1R</td>
<td>8.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Higher</td>
<td>1000–2000</td>
<td>2R</td>
<td>8.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The AADT break points in this table are approximate so that a lower road width could be acceptable if supported by experience with similar roads.

(1) The table assumes two-way travel. Where the road is limited to movements in only one direction, the minimum carriageway width is 3.4 m.

Table 2.3 Road width for 25 metre B-doubles on 2 lane sealed rural roads

<table>
<thead>
<tr>
<th>Traffic</th>
<th>Rural AADT</th>
<th>Road Hierarchy Class</th>
<th>SSW (m)</th>
<th>Carriageway Width (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1–100</td>
<td>1U, 1R</td>
<td>3.5 (1)</td>
<td>5.5 (2)</td>
</tr>
<tr>
<td></td>
<td>100–500</td>
<td>1U, 1R</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>500–1000</td>
<td>1U, 1R</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>1000–2000</td>
<td>1U, 2R</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td>High</td>
<td>2000–6000</td>
<td>1U, 2U, 2R, 3R</td>
<td>6.0</td>
<td>8.4</td>
</tr>
<tr>
<td></td>
<td>&gt; 6000</td>
<td>3U–6U, 4R–6R</td>
<td>6.5</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Note: The AADT break points in this table are approximate so that a lower road width could be acceptable if supported by previous experience with similar roads.

(1) A width greater than 4.5 m but less than 6.0 m may lead to two vehicles trying to pass with each remaining on the seal (Austroads Guide to Road Design Part 3 Section 4.2.6).

(2) In conjunction with roadside areas where vehicles can safely pull over to allow passing.
Table 2.4 Road width for 36.5 metre road trains (A-double, AB or B-triple) on 2 lane sealed rural roads

<table>
<thead>
<tr>
<th>Traffic</th>
<th>Rural AADT</th>
<th>Road Hierarchy Class</th>
<th>36.5 m A-double</th>
<th>36.5 m AB or B-triple</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SSW (m)</td>
<td>Carriageway Width (m)</td>
<td>SSW (m)</td>
</tr>
<tr>
<td>Low</td>
<td>1–100</td>
<td>1U, 1R</td>
<td>3.7 (1)</td>
<td>5.5 (2)</td>
</tr>
<tr>
<td></td>
<td>100–500</td>
<td>1U, 1R</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Moderate</td>
<td>500–1000</td>
<td>1U, 1R</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td></td>
<td>1000–2000</td>
<td>1U, 2R</td>
<td>6.0</td>
<td>8.0</td>
</tr>
<tr>
<td>High</td>
<td>2000–6000</td>
<td>1U, 2U, 2R, 3R</td>
<td>6.5</td>
<td>8.9</td>
</tr>
<tr>
<td></td>
<td>6000–10000</td>
<td>3U–6U, 4R–6R</td>
<td>Investigate widths</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Note: The AADT break points in this table are approximate so that a lower road width could be acceptable if supported by previous experience with similar roads.

1. A width greater than 4.8 m but less than 5.0 m may lead to two vehicles trying to pass with each remaining on the seal (Austroads Guide to Road Design Part 2 Section 4.2.3).
2. In conjunction with roadside areas where vehicles can safely pull over to allow passing.
3. Less width because of better tracking characteristics in a straight path compared to A-double.

2.4.6 Structure width (including bridge width)

Structures can be narrower than the road width where they are relatively short in length and have adequate sight distance for oncoming vehicles.

The structure width is the lesser horizontal dimension of the following:

- Width between safety barriers on a bridge, culvert or underpass.
- Width between inside of edge markers of a causeway/ford.
- Width between inside of supports of an overhead structure (i.e. piers or abutments of overbridges).

The minimum horizontal widths for B-doubles and road trains are summarised in Table 2.5. As a further guide for a two-way structure, the ratio of approach road width to horizontal width should be less than or equal to 1.25, unless the structure is appropriately signposted (e.g. One Way Traffic, No Passing on Bridge).
Table 2.5 Structure width for B-doubles and road trains

<table>
<thead>
<tr>
<th>Traffic</th>
<th>AADT</th>
<th>Road hierarchy class</th>
<th>Lanes on structure</th>
<th>Structure Width (metres)</th>
<th>25 metre B-doubles</th>
<th>36.5 metre A-double</th>
<th>36.5 metre AB or B-triple</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1—100</td>
<td>1U, 1R</td>
<td>Single lane</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td>1—100</td>
<td>1U, 1R</td>
<td>Two lane</td>
<td>7.0</td>
<td>7.4</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100—500</td>
<td>1U, 1R</td>
<td>Two lane</td>
<td>7.2</td>
<td>7.4</td>
<td>7.4</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>500—1000</td>
<td>1U, 1R</td>
<td>Two lane</td>
<td>7.4</td>
<td>8.0</td>
<td>8.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1000—2000</td>
<td>1U, 2R</td>
<td>Two lane</td>
<td>8.0</td>
<td>8.4</td>
<td>8.1 (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2000—6000</td>
<td>1U, 2U, 2R, 3R</td>
<td>Two lane</td>
<td>8.4</td>
<td>8.9</td>
<td>8.6 (3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 6000</td>
<td>3U, 4U, 5U, 6U, 4R, 5R, 6R</td>
<td>Two lane</td>
<td>8.4</td>
<td>Investigate</td>
<td>8.6</td>
<td></td>
</tr>
</tbody>
</table>

Source: adapted from PBS Scheme – Network Classification Guidelines Table 6

Where a structure width is less than the investigation level, consider the following when carrying out risk assessment:

- The speed limit (< 90 km/h can tolerate less width).
- Approach sight distance from each direction.
- Ability of drivers on approach to see oncoming vehicles.
- Behaviour of drivers approaching to accommodate large vehicles.
- Surface roughness of the road approaches 100 metres each side of the bridge and the bridge deck as this will influence the truck sway.

Where the structure width between supports of an overhead structure is less than investigation level, the risk assessment should consider collision protection of unprotected piers as a treatment.

2.4.7 Rail crossings at-grade

Section 10 of the Austroads Guide to Road Design – Part 4 outlines geometric guidelines for typical situations for at-grade rail/road level crossings. An overview of traffic management considerations for rail crossings is provided in Section 7 of the Austroads Guide to Traffic Management – Part 6. The primary references for treatments and traffic control at rail level crossings are the Australian Standard AS 1742.7.

The Rail Safety Act requires that all rail infrastructure managers and roads authorities enter into interface agreements to manage safety at rail crossings where they hold responsibilities. These interface agreements are contractual responsibilities between the bodies. A change to the operating environment must be referred to the relevant bodies for their consideration.

The body under the Independent Transport Safety Regulator responsible for a rail crossing on a proposed route interface agreement is to be involved.

A restricted access vehicle changes the operating environment where performance is less favourable compared with the vehicle that was the basis for the current safety management plan for that rail crossing.