



# Traffic Impact Assessment

## Kingaroy Concrete Batching Plant

### Kingaroy Quarry Supplies Pty Ltd

1304 Wattlegrove Road,  
Wattlegrove QLD 4610

Prepared by:

**SLR Consulting Australia**

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## Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Kingaroy Quarry Supplies Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



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## 1.0 Introduction

### 1.1 Context

SLR Consulting Australia Pty Ltd (**SLR**) has been engaged by Quarry Assets Pty Ltd (**Quarry Assets**) to provide traffic engineering advice in relation to a Development Application (**DA**) for a Material Change of Use - High Impact Industry (Concrete Batching Plant) at River Road, Kingaroy QLD 4610, properly described as Lot 102 on SP349662. Development plans have been prepared by SLR Consulting and are included at **Appendix A**.

### 1.2 Planning Context

This Traffic Impact Assessment (**TIA**) report has been prepared to inform South Burnett Regional Council's (**Council**) and the Department of Transport and Main Roads (**DTMR**) assessment of the DA by identifying and addressing the relevant traffic and transport matters. This report addresses traffic engineering design matters, including site access and internal traffic arrangements, pavement impacts, and compliance of the proposal with the relevant Council and State transport codes.

### 1.3 Assessment Scope

The TIA has been carried out in accordance with the technical guidance outlined in both Council's planning scheme and DTMR's Guide to Traffic Impact Assessment (**GTIA**). The objective of the TIA is to identify potential impacts of the Project on the Council and State-controlled road network, and where appropriate, identify management and mitigation strategies.

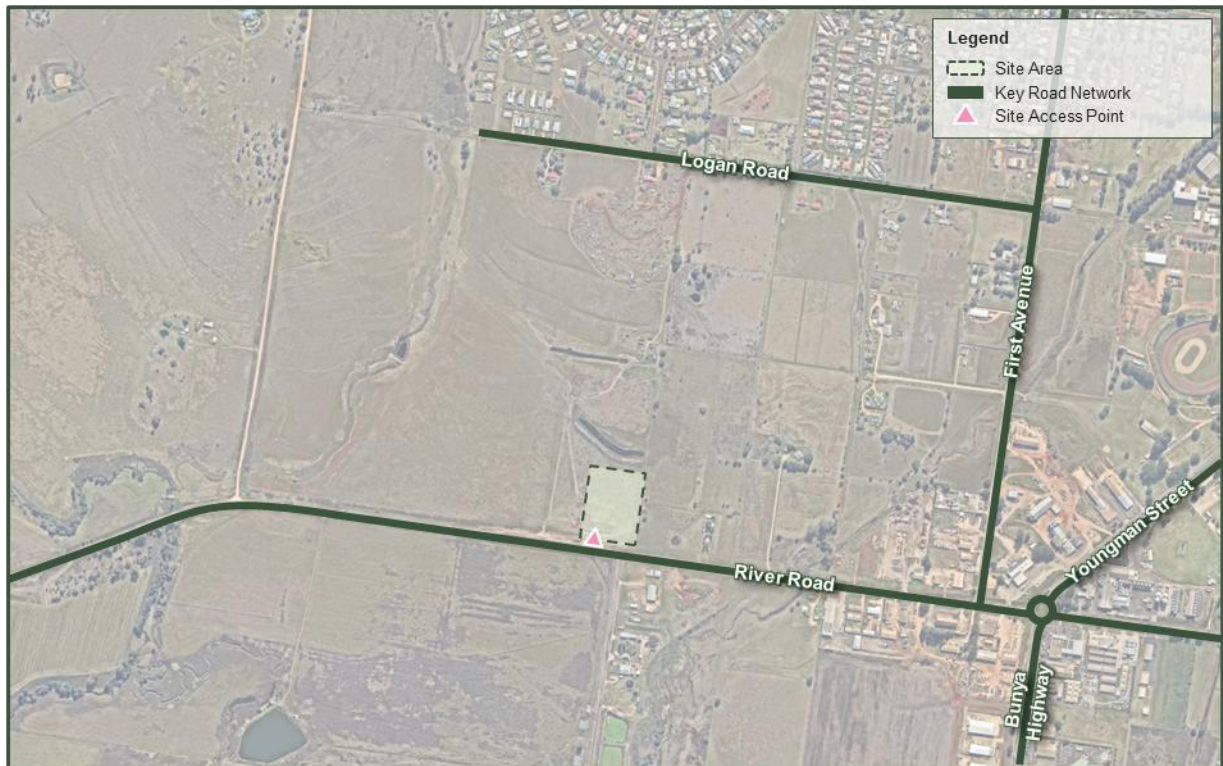


## 2.0 Site Context

### 2.1 Subject Site

The subject site is situated at River Road, Kingaroy, within the Rural zone of the *South Burnett Regional Planning Scheme (Planning Scheme)* and is more formally described as part of Lot 102 on SP349662. The site, which is shown in the context of the local area on **Figure 1**, is bound by River Road to the south, Logan Road to the north, vacant industrial land to the east and west.

**Figure 1 Subject Site**



Source: Nearmap.

The site is currently vacant, with access provided via River Road. The location of the existing access is shown in **Figure 1**.

### 2.2 Key Roads

Details of the key roads surrounding the subject site are provided in **Table 1**.

**Table 1 Key Roads**

| Road Name     | Hierarchy  | Existing Form                                                                                                                  | Posted Speed | Road Authority |
|---------------|------------|--------------------------------------------------------------------------------------------------------------------------------|--------------|----------------|
| Bunya Highway | Arterial   | 6.5m sealed pavement facilitating a 3.25m traffic lane with a 1.0m painted median and 1.0m sealed shoulder in both directions. | 100km/h      | TMR            |
| River Road    | Local Road | 8m sealed pavement facilitating 4m traffic lanes and a wide landscaped verge in both directions.                               | 60km/h       | Council        |



## 2.3 Transport Network Planning

### 2.3.1 Council Road Network

The Planning Scheme *Local Government Infrastructure Plan (LGIP)* has been reviewed to identify the location and nature of any planned trunk movement infrastructure works, indicating that no improvements to the surrounding transport networks are planned within the nearby vicinity of the subject site.

### 2.3.2 State-Controlled Network

The Queensland Transport and Roads Investment Program (**QTRIP**) has been reviewed to identify the location and nature of any planned trunk movement infrastructure works, indicating that no improvements to the surrounding State-controlled road network are planned within the nearby vicinity of the subject site.



## 3.0 Proposed Development

### 3.1 Overview

Based on the information provided by Quarry Assets and the development plans prepared by SLR, which are included at **Appendix A**, a High Impact Industry (Concrete batching plant) development is proposed on the subject site. A summary of the development's proposed operational details of relevance from a traffic engineering perspective are provided in **Table 2**.

**Table 2 Development Operational Summary**

| Element                            | Details                                                                                                                                                                          |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Land use                           | High Impact Industry (Concrete Batching Plant)                                                                                                                                   |
| Estimated concrete production      | Annual: 60,000m <sup>3</sup> per year<br>Daily (average): 200m <sup>3</sup> per day                                                                                              |
| Hours of operation                 | Mon-Sat 5am to 6pm                                                                                                                                                               |
| Site based staff                   | Up to 10 staff (includes managers, production personnel and drivers)                                                                                                             |
| Car parking provision              | 12 car parking spaces to be provided.                                                                                                                                            |
| Largest anticipated design vehicle | Provisions have been made for access, circulation and loading by vehicles up to 19m Truck and Dog combinations for material delivery, and onsite parking for concrete agitators. |

### 3.2 Site Traffic Arrangements

Vehicular access to the development will be provided via the existing driveway crossover location to River Road, with the access described as follows:

- A southern driveway crossover (i.e. 10.0m wide at the property boundary) is designed to accommodate Concrete Agitator entry and exit movements, in addition to being reviewed for 19m Truck and Dog entry and exit.

The driveway crossover will be sealed between the edge of the existing River Road pavement and the property boundary. The location of the access can be seen in **Figure 1**.

12 car parking spaces are to be provided for the use of staff and visitors to the site. Parking on site for up to six (6) Concrete Agitators is proposed within the shed.

Internal site circulation has been designed to accommodate vehicles up to 19m Truck and Dog combination vehicle.

Reflective of the above, the developments proposed traffic arrangements can be seen within the development plan prepared by SLR Consulting, included in **Appendix A**.



## 4.0 Parking and Servicing Considerations

### 4.1 Car Parking

#### 4.1.1 Car Parking Provision

For an 'industry' use, *Table 8.4.5* (Vehicle parking and service vehicle requirements) of the Council Planning Scheme requires car parking to be provided at a rate of 'One (1) space per 50m<sup>2</sup> gross floor area for the first 500m<sup>2</sup>, then 1 space per 100m<sup>2</sup> gross floor area thereafter' to meet the relevant acceptable outcome (i.e. AO6.1) of Council's 'Service and Works' code. Given the limited gross floor area provided and unique operational nature for the proposed use, the relevant Council code performance outcome has been considered.

Performance outcome PO6 states the following:

***"Vehicle parking and access is provided to meet the needs of occupants, employees, visitors and other users"***

With regard to the peak car parking demand expected to be generated by the development based on the development's operational details, it is noted that:

- Based on a maximum of 10 site-based staff and up to one (1) visitor on-site at any one time, the development's peak car parking demand would be for up to 11 spaces at any one time;
- The development's proposed car parking provision of 12 spaces, which is sufficient to accommodate the development's peak demand for up to 11 car parking spaces.

Accordingly, the development's car parking provision of 12 spaces readily satisfies the relevant 'Service and Works' code performance outcome (PO6).

#### 4.1.2 PWD Car Parking

It is understood that there is no specific requirement by the National Construction Code (NCC) based on the class of buildings proposed as part of the development.

### 4.2 Bicycle Parking

The development is not conducive to access by active transport modes, and hence no bicycle parking is proposed or considered to be warranted.

### 4.3 Servicing Provisions

Whilst *Table 8.4.5* of Councils Planning Scheme outlines the requirement for service vehicle access for Articulated Vehicles, it is proposed that servicing provisions be based on PO6 of the 'Service and Works' code as outlined above. Based on information provided by the Client, access to the development will be required for Concrete Agitators and Truck and Dogs (delivering material, including aggregate and cement). Noting this, the proposed on-site arrangements of six (6) parking spaces for heavy vehicles (i.e. Concrete Agitators) is sufficient to meet Quarry Assets' operational demands.



## 5.0 Design Considerations

### 5.1 Overview

A detailed review of the proposed site access and traffic arrangements has been undertaken against the following relevant documents:

- Council's Design and Construction Standards Planning Scheme Policy;
- Council's Service and Works Code;
- Australian Standard for Parking facilities *Part 1: Off-street car parking (AS2890.1)*;
- Australian Standard for Parking facilities *Part 2: Off-street commercial vehicle facilities (AS2890.2)*.

### 5.2 Access

The following is noted with respect to the design of the site access to River Road:

- Driveway crossovers are to be design and constructed in accordance with Council's Design and Construction Standards, which requires compliance with AS2890.1 and AS2890.2, ensuring they are able to accommodate swept path movements of the relevant design vehicles;
- River Road is straight and flat in the vicinity of the subject site, and hence all proposed driveway crossovers readily accommodate the sight distance required by AS2890.1 and AS2890.2 for the posted speed (i.e. 83m required for a 60km/h posted speed);
- Allowances have been made for the provision of 2.5m x 2.0m pedestrian sight splays in accordance with AS2890.1 and AS2890.2;
- With respect for queuing provision for vehicles entering and exiting the site, the proposed provisions are considered to be acceptable based on the following:
  - For light vehicles, car parking spaces are not provided within one (1) vehicle length (i.e. approximately 6m) of the property boundary, which is considered sufficient to contain any probable vehicle queuing within the site given the low-turnover nature (i.e. predominantly for employee car parking) of the car parking area proposed;
  - For heavy vehicles, plant and heavy vehicle parking spaces are not provided within one (1) design vehicle length (i.e. 19m for a Truck and Dog) of the property boundary.
- It is understood that security gates will be used to secure the site when the development is not operating, however, will remain open at all other times to not restrict access for site-based staff and visitors;

Accordingly, the proposed site access arrangements are considered to achieve the relevant Council 'Service and Works' code assessment benchmarks (PO6).



### 5.3 Car Parking Areas

The design of the proposed car parking area is to be assessed against the requirements of AS2890.1 as required by acceptable outcome AO6.1 of Council's 'Service and Works' code. A summary of the applicable design assessment criteria is presented in **Table 3**.

**Table 3 Car Parking Layout Design Compliance**

| Element                                                      | Proposed Design                                                | AS2890.1 Compliant |
|--------------------------------------------------------------|----------------------------------------------------------------|--------------------|
| 90° car parking spaces (Staff & Visitor)                     | 2.5m x 5.4m                                                    | ✓                  |
| Parking/ circulation aisle width (Staff & Visitor)           | 5.8m                                                           | ✓                  |
| Blind parking aisle extension                                | 1m+ extension adjacent to last parking space/ turnaround space | ✓                  |
| Height Clearance                                             | Unrestricted                                                   | ✓                  |
| Turnaround provisions for blind parking aisle >6 spaces long | Turnaround space provided                                      | ✓                  |

As demonstrated in **Table 3**, all assessed car park elements comply with the relevant requirements of AS2890.1.

Based on the above, the proposed design of car parking and circulation areas satisfies the relevant AS2890.1 requirements, and therefore the development achieves the relevant 'Service and Works' code acceptable outcome (AO6.1).

### 5.4 Servicing and Site Circulation

The design of the proposed servicing and site circulation arrangements has been assessed against AS2890.2 as required by AO6.1 of the 'Service and Works' code.

Swept path assessments have been prepared, and are included at **Appendix B**, which demonstrate that:

- All vehicles can enter and exit the site in a forward direction;
- 19m Truck and Dogs can circulate the site with clearances more than that required by AS2890.2 (300mm on both sides of the vehicle for low-speed manoeuvres). Accordingly, all smaller design vehicles are also able to access and circulate the site in accordance with AS2890.2, including concrete agitators;
- A suitable area is provided within the shed to accommodate the parking of 6 Concrete Agitators. In accordance with AS2890.2, the dimensions required for heavy vehicle parking spaces are 12.5m in length by 3.5m in width.

Height clearance is unrestricted for the site. Grading is not indicated on the development plans; however, it is understood that grading is generally provided in accordance with AS2890.2.

Reflective of the above, the proposed servicing arrangements satisfy the requirements of AS2890.2 and hence also achieves the relevant Service and Works' code assessment benchmarks (AO6.2).



## 6.0 Assessed Traffic Demands

### 6.1 Surveyed Traffic Demands

To ascertain the existing traffic demands on the road network surrounding the site, SLR commissioned Austraffic to conduct traffic surveys at the Bunya Highway/ River Road/ Youngman Street intersection. The surveys were undertaken on Tuesday 11 November 2025 to capture existing traffic demands for a regular weekday AM and PM peak period. The results of the survey found the following peak hours on the road network:

- **AM Peak Hour:** 8:00am to 9:00am.
- **PM Peak Hour:** 3:00pm to 4:00pm.

The traffic volumes surveyed in the network peak hour periods are provided at **Appendix C**, along with the assessment traffic volumes reflecting the assumptions discussed herein.

### 6.2 Development Traffic Demands

#### 6.2.1 Traffic Generation

SLR has considered the traffic demands expected to be generated by the proposed development and their impact on the operation of the surrounding road network. The following operational details, as provided by Quarry Assets, have been utilised to calculate the daily traffic generating potential for the development:

- An average production rate of 200m<sup>3</sup> of concrete per day.
- The use of two (2) different concrete agitators, with 30% of the fleet with a 6.5m<sup>3</sup> payload and the remaining 70% of the fleet with a 7.6m<sup>3</sup> payload.
- An average import of 335 tonnes of material per day.
- 10 staff onsite across the day.

Based on the above operational information, the estimated maximum daily traffic generating potential for the site is outlined in **Table 4**.

**Table 4 Development Daily Traffic Generating Potential**

| Operational Vehicles                                          | Quantity                                                                        | Total Vehicles Per Day (vpd)<br>Two-Way |
|---------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------|
| Concrete Agitator (6.5m <sup>3</sup> - 3 Axle Rigid)          | 30% of 200m <sup>3</sup> = 60m <sup>3</sup> ÷ 6.5m <sup>3</sup><br>≈ 10 trucks  | 20 vpd                                  |
| Concrete Agitator (7.6m <sup>3</sup> - 4 Axle Twinstar Rigid) | 70% of 200m <sup>3</sup> = 140m <sup>3</sup> ÷ 7.6m <sup>3</sup><br>≈ 19 trucks | 38 vpd                                  |
| Other Heavy Vehicles - Material Import (Truck & Dog)          | 335t ÷ 36t payload = 9.3 loads<br>≈ 10 trucks                                   | 20 vpd                                  |
| Light Vehicles - Staff                                        | 10 staff                                                                        | 20 vpd                                  |
| <b>Total</b>                                                  |                                                                                 | <b>98 vpd</b>                           |

It is expected that heavy vehicle (truck) trips would be distributed across the operational hours of the development, with a large portion occurring outside of the road network peak (as identified in **Section 6.1**). In addition, as the operational hours of the development extend beyond the road network peak, majority of staff are expected to enter and exit the site outside



the road network peak. However, as a conservative approach, the following assumptions have been made for the operational assessment documented herein:

- 100% of staff enters the site during the AM Peak, with 100% exiting during the PM Peak.
- 1/3 of all daily truck movements (Concrete Agitators and Material Imports) enter and exit the site during the AM and PM peak.

Based on the above, the resultant peak hour traffic generation for the site is outlined in **Table 5**.

**Table 5 Development Peak Hour Traffic Demands**

| Operational Vehicles   | AM Peak       |               | PM Peak       |               |
|------------------------|---------------|---------------|---------------|---------------|
|                        | In            | Out           | In            | Out           |
| Concrete Agitators     | 10 vph        | 10 vph        | 10 vph        | 10 vph        |
| Truck and Dogs         | 4 vph         | 4 vph         | 4 vph         | 4 vph         |
| Light Vehicles - Staff | 10 vph        | 0 vph         | 0 vph         | 10 vph        |
| <b>Total</b>           | <b>24 vph</b> | <b>14 vph</b> | <b>14 vph</b> | <b>24 vph</b> |

### 6.3 Traffic Distribution

The external distribution of development traffic has been estimated based on the indicative customer catchment area for the proposed Concrete Batching Plant and the location of material (aggregate) supply sources relative to the site. The routes associated with each direction are shown on **Figure 2**.

**Figure 2 External Distribution Routes**



Source: Nearmap.



The adopted external distribution assumptions for each vehicle type are as follows:

- **Concrete Agitators** – 40% to/ from the north, 40% to/ from the east, 15% to/ from the south, and 5% to/ from the west. This distribution reflects the primary concrete delivery market across the Kingaroy catchment area and surrounds, and towards townships to the east and north of the site.
- **Material Import Trucks** – 45% to /from the north, 30% to/ from the east, and 25% to/ from the south, consistent with the anticipated location of quarry and supply sources serving the site.
- **Staff** – 60% to/ from the north, 30% to/ from the east, and 10% to/ from the south, based on the indicative residential catchment of Kingaroy relative to the site.

Based on the above distribution, the development's peak hour traffic demands on the external road network has been summarised in **Table 6** and documented in the traffic volume diagrams provided at **Appendix C**.

**Table 6 Development Distributed Peak Hour Traffic Volumes**

| Direction    | AM            |               | PM            |               |
|--------------|---------------|---------------|---------------|---------------|
|              | In            | Out           | In            | Out           |
| North        | 12 vph        | 6 vph         | 6 vph         | 12 vph        |
| South        | 4 vph         | 3 vph         | 3 vph         | 4 vph         |
| East         | 8 vph         | 5 vph         | 5 vph         | 8 vph         |
| West         | 1 vph         | 1 vph         | 1 vph         | 1 vph         |
| <b>Total</b> | <b>24 vph</b> | <b>14 vph</b> | <b>14 vph</b> | <b>24 vph</b> |

## 6.4 Background Traffic Growth

A linear annual growth rate of 1.25% has been applied to the background traffic movements to project future background traffic volumes. This growth rate was taken from DTMR's *Traffic census for the Queensland state-declared road network*<sup>1</sup> open data portal, which provides a 10-year growth rate for the Bunya Highway (Site ID 30107).

<sup>1</sup> <https://www.data.qld.gov.au/dataset/traffic-census-for-the-queensland-state-declared-road-network>

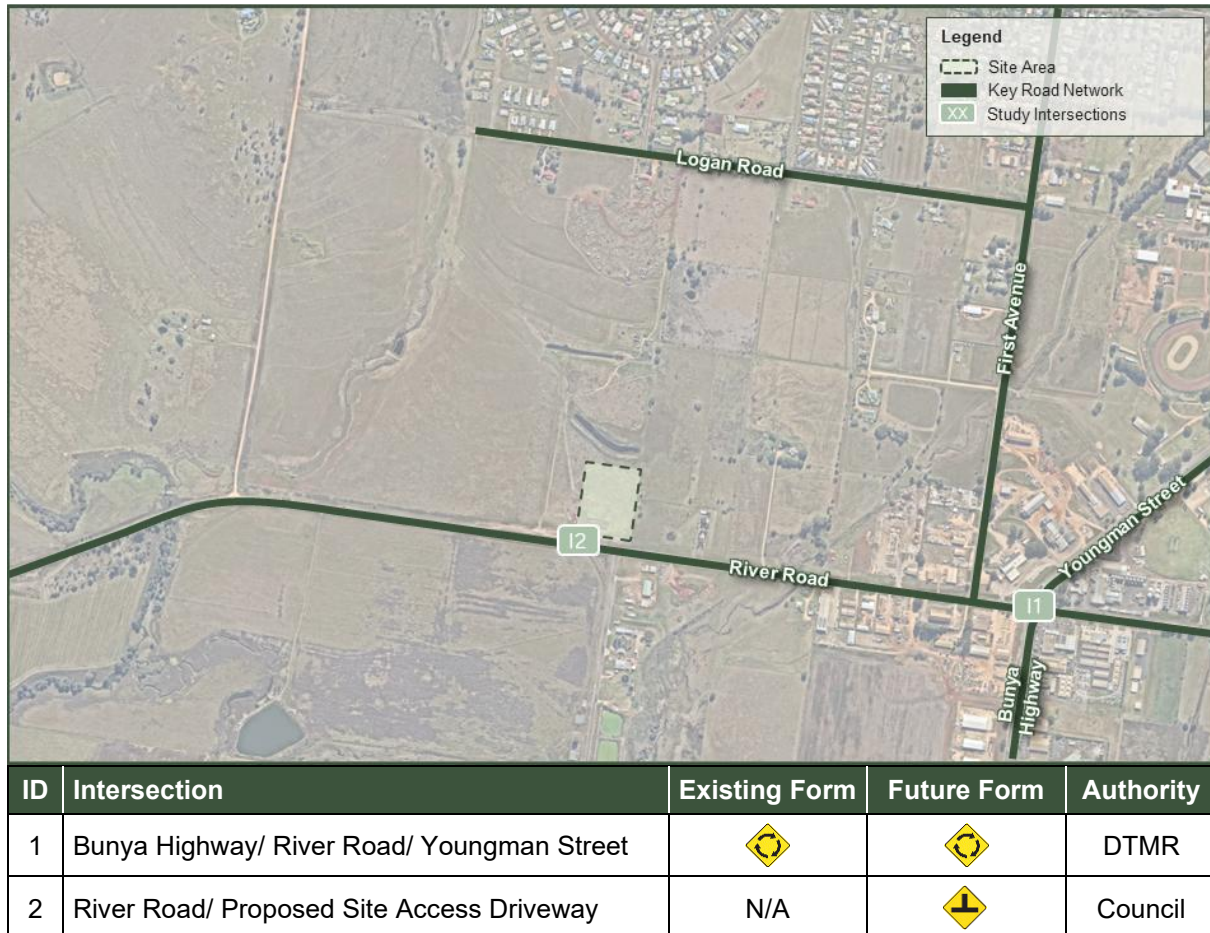


## 7.0 Operational Assessment

### 7.1 Study Intersections

A detailed analysis of the potential impacts of the proposed development on the operation of the external road network and the proposed access has been undertaken at the two (2) locations identified on **Figure 3**.

**Figure 3 Study Intersections**



### 7.2 Assessment Scenarios

For the purposes of the traffic assessment conducted herein, SLR has assumed that the development would be operational as soon as possible. As such, an opening year of 2027 has been assumed for the following assessment. Reflective of this, the following assessment scenarios have been assessed:

- State-controlled intersection:
  - 2025 'Surveyed'**: To establish existing operational conditions.
  - 2027 'Background'**: To establish the year of opening background operational performance in the absence of any development.
  - 2027 'With Development'**: To identify the impact of the proposed development generated traffic demands plus background traffic at the year of opening.
- Proposed site access intersection:



- **2027 'With Development':** To ensure that the proposed site access will operate with an appropriate level of service at the year of opening.
- **2037 'With Development':** To ensure that the proposed site access will operate with an appropriate level of service at the design horizon.

The operation of the road network during the weekday AM and PM peak hour periods were assessed for all the above scenarios. Traffic flow diagrams for the above scenarios are provided in **Appendix C**.

## 7.3 Performance Criteria

### 7.3.1 Intersection Performance Thresholds

The study intersections have been analysed for each of the traffic demand scenarios set out in **Section 7.2** using SIDRA Intersection 9.1 (**SIDRA**). SIDRA is an industry recognised analysis tool used to estimate the capacity and performance of intersections based on input parameters, including geometry and traffic volumes. SIDRA provides an estimate of an intersection's Degree of Saturation (**DOS**), queues and delays.

DOS thresholds are defined in Section 4.2.4 of *Austroads Guide to Traffic Management Part 3: Transport Study and Analysis Method (2020)* (**AGTM3-20**) have been used to understand the operational performance of the study intersections. The DOS thresholds, as defined in AGTM3-20, are presented in **Table 7** below.

**Table 7 Degree of Saturation Capacity Thresholds**

| Intersection Type                 | DoS Threshold              |
|-----------------------------------|----------------------------|
| Signalised intersections          | Less than or equal to 0.90 |
| Roundabout                        | Less than or equal to 0.85 |
| Priority-controlled intersections | Less than or equal to 0.80 |

DOS values exceeding those presented in **Table 7** indicate that an intersection is nearing its practical capacity, and upgrade works may be required. Above these thresholds, users of the intersection are likely to experience rapidly increasing delays and queues.

### 7.3.2 Critical Delay

Importantly, it is noted that DOS is not the only performance indicator and that other measures such as delay should also be considered when assessing the performance of an intersection.

Section 7.4.5 of AGTM3-20 provides a summary of Level of Service (**LOS**) criteria based on the average delay per vehicle at intersections and makes further reference to guidance contained in the *Guide to Traffic Generating Developments* (TfNSW, October 2002), the latter of which states that average delay statistic for the critical movement provides a better indication of intersection performance and safety for roundabouts and priority-controlled intersections than DOS. A summary of the delay thresholds recommended by TfNSW is provided in **Table 8**.



**Table 8 Critical Delay Capacity Thresholds**

| LOS | Critical Delay (sec/ vehicle) | Priority-Controlled Intersections                   |
|-----|-------------------------------|-----------------------------------------------------|
| A   | < 14                          | Good operation                                      |
| B   | 15 – 28                       | Good with acceptable delays and spare capacity      |
| C   | 29 – 42                       | Satisfactory, but accident study required           |
| D   | 43 – 56                       | Operating near capacity and accident study required |
| E   | 57 – 70                       | At capacity, requires other control mode            |

The LOS D threshold (i.e. critical delay > 43 seconds) is important and has been adopted to evaluate the operational and safety of the existing and future priority-controlled intersections formation.

### 7.3.3 Net Worsening of Intersection Delay

It is noted that the GTIA states that where traffic generated by a development increases the delay to base traffic by less than 5% in aggregate, no mitigation treatments are required. Importantly, vehicle delays for multiple intersections are calculated network-wide (i.e. if a development has a delay impact at one intersection, its delay may be offset by providing significant improvements at a different intersection).

The GTIA introduced a 'no net worsening' methodology for intersection delay, whereby the impact of development generated traffic requires mitigation should the increase in intersection delay under 'with development' conditions increase by 5% or more compared with that of the 'base case' conditions. Intersection delay is calculated using the below equation:

$$ID = \sum_{i=1}^n WD - \sum_{i=1}^n BC$$

- Where:
- ID** is the aggregate intersection-delay impact in vehicle-minutes.
  - WD** is with-development intersection vehicle-minutes for the design peak periods. This is calculated by multiplying the with-development average delay by movement to the base case volume on each movement, thus not counting the impact as delays to development traffic, but rather only to pre-existing traffic that is affected by the additional delays.
  - BC** is the base case intersection vehicle-minutes for the design peak periods.
  - n** is the number of study intersections.
  - i** is each study intersection.

It is noted that Section 11.3.1 of the GTIA states that, where traffic generated by the subject development increases the delay to base traffic by less than 5% in aggregate, no mitigation works are required.

## 7.4 Intersection Assessment

### 7.4.1 I1 – Bunya Highway/ River Road/ Youngman Street

The Bunya Highway/ River Road/ Youngman Street intersection is currently a four-leg roundabout. The existing layout and assessed SIDRA intersection form are shown on



**Figure 4.** The results of the SIDRA assessment are summarised in **Table 9**, with the detailed SIDRA outputs are provided at **Appendix D**.

**Figure 4 Bunya Highway/ River Road/ Youngman Street – Existing Intersection Form**

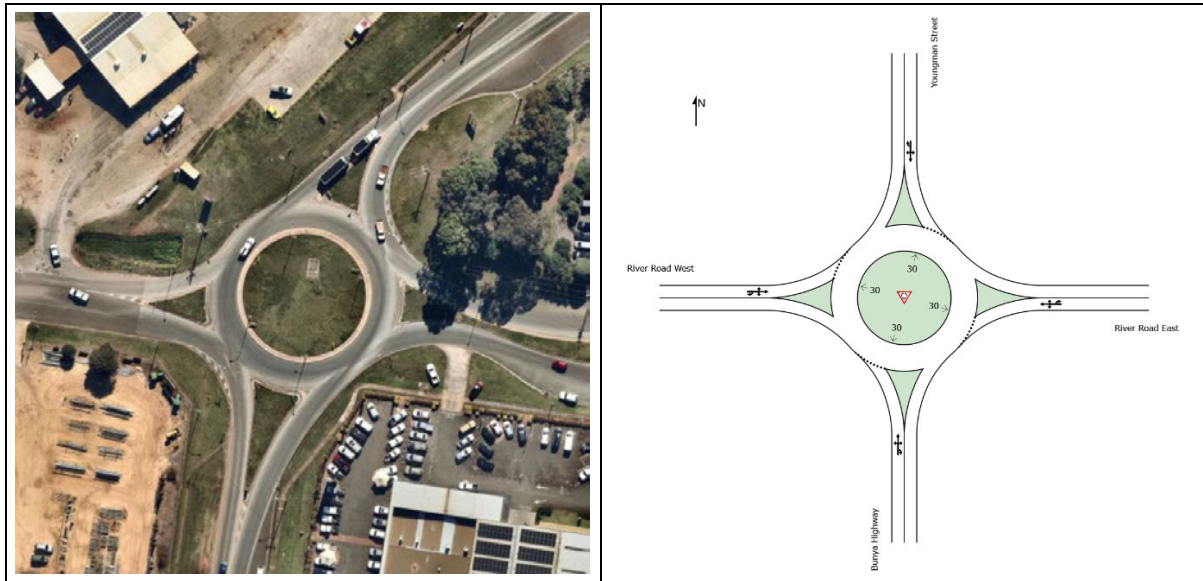


**Table 9 SIDRA Outputs: Bunya Highway/ River Road/ Youngman Street Intersection**

| Scenario                   | AM Peak Hour |                    |                                  | PM Peak Hour |                    |                                  |
|----------------------------|--------------|--------------------|----------------------------------|--------------|--------------------|----------------------------------|
|                            | DOS          | Critical Delay (s) | 95 <sup>th</sup> %tile Queue (m) | DOS          | Critical Delay (s) | 95 <sup>th</sup> %tile Queue (m) |
| <b>Without Development</b> |              |                    |                                  |              |                    |                                  |
| 2025 Survey                | 0.28         | 13.4               | 12.9                             | 0.23         | 13.0               | 9.8                              |
| 2027 Background            | 0.29         | 13.5               | 13.4                             | 0.23         | 13.0               | 10.1                             |
| <b>With Development</b>    |              |                    |                                  |              |                    |                                  |
| 2027 With Development      | 0.30         | 13.6               | 14.1                             | 0.24         | 13.1               | 10.6                             |

The SIDRA analysis summarised in **Table 9** identifies that the existing intersection form will operate at an acceptable performance level, with significant spare capacity, at the project opening year (i.e. 2027) and beyond. Therefore, no upgrades to the existing intersection are required as part of the proposed development.

#### 7.4.2 I2 – River Road/ Proposed Site Access Driveway

The proposed River Road/ Site Access driveway will be formed as a three-leg priority-controlled driveway. The assessed SIDRA intersection form is shown on **Figure 5**. The results of the SIDRA assessment are summarised in **Table 10**, with the detailed SIDRA outputs are provided at **Appendix D**.



**Figure 5 River Road/ Proposed Site Access Driveway – Proposed Access Form**

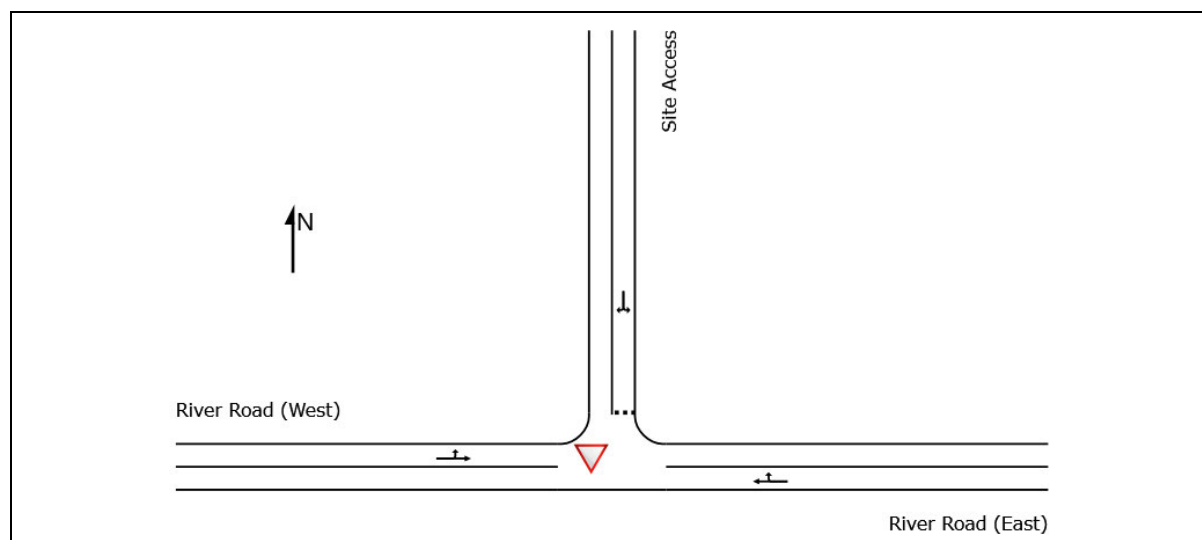


**Table 10 SIDRA Outputs: River Road/ Proposed Site Access Driveway Intersection**

| Scenario                | AM Peak Hour |                    |                                 | PM Peak Hour |                    |                                 |
|-------------------------|--------------|--------------------|---------------------------------|--------------|--------------------|---------------------------------|
|                         | DOS          | Critical Delay (s) | 95 <sup>th</sup> tile Queue (m) | DOS          | Critical Delay (s) | 95 <sup>th</sup> tile Queue (m) |
| <b>With Development</b> |              |                    |                                 |              |                    |                                 |
| 2027 With Development   | 0.08         | 7.3                | 1.8                             | 0.06         | 7.2                | 1.3                             |
| 2037 With Development   | 0.09         | 7.4                | 1.8                             | 0.06         | 7.2                | 1.3                             |

The SIDRA analysis summarised in **Table 10** identifies that the existing intersection form will operate an acceptable performance level, with significant spare capacity, at the design horizon (i.e. 2037). Therefore, the proposed access arrangement is considered suitable to cater for the anticipated development traffic demands.

## 7.5 Net Delay Assessment

Intersection delay for the State-controlled road network has been calculated in accordance with the GTIA 'no net worsening' methodology as described in **Section 7.3.3** for the Bunya Highway/ River Road/ Youngman Street intersection. The sum of the intersection delay for the 'With Development Case' is compared to the 'Base Case' for the year of opening (2027) peak hour periods to determine the Aggregate Intersection Delay Impact in vehicle-minutes, as well as the percentage change, as summarised within **Table 11**.

**Table 11 Net Worsening Assessment Outputs**

| Peak Period  | $\Sigma BC$<br>(Total Base Case Delays) | $\Sigma WD$<br>(Total 'With Development' Delays) | ID = $\Sigma WD - \Sigma BC$ |             |
|--------------|-----------------------------------------|--------------------------------------------------|------------------------------|-------------|
|              |                                         |                                                  | $\Delta$                     | %           |
| AM           | 133 veh-min                             | 135 veh-min                                      | 2 veh-min                    | 1.3%        |
| PM           | 105 veh-min                             | 106 veh-min                                      | 1 veh-min                    | 1.0%        |
| <b>Total</b> | <b>238 veh-min</b>                      | <b>240 veh-min</b>                               | <b>3 veh-min</b>             | <b>1.1%</b> |



The above demonstrates that when comparing the intersection delay for the 'With Development Case' against the 'Base Case', the net delay increases by approximately 1.3% and 1.0% in the AM and PM peak, respectively, and therefore the average delay is within the 5% threshold for both the weekday peak periods. In accordance with the methodology for assessing the aggregate intersection delay impacts, no mitigation to treat the intersection delay is required.



## 8.0 Pavement Impacts

### 8.1 Context

A Pavement Impact Assessment (**PIA**) was completed in accordance with TMR's Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment (**PIA Practice Note**). The PIA documented herein has been conducted in accordance with the PIA Practice Note (with the steps summarised within the following sections of this document). The purpose of the PIA is to determine the impact of additional heavy vehicle traffic associated with the project on the service life of the external road network, and to identify if a suitable contribution to offset this potential impact should be applied.

### 8.2 Impact Assessment Area

The spatial extents of the PIA considered herein are as follows:

- **Bunya Highway (Dalby to Kingaroy):** TDIST (i.e. through distance in the gazettal direction in kilometres) 82.37-109.88;
- **Bunya Highway (Kingaroy to Goomeri):** TDIST 0.00-21.41;
- **D'Angular Highway (Yarraman - Kingaroy):** TDIST 0.00-45.72.

### 8.3 Methodology

Following establishment of the 'impact assessment area' (**Step 1**) and the collection of representative pavement data (**Step 2**) provided by DTMR, the PIA methodology defined within the PIA Practice Note consists of the following steps:

- **Step 3:** Calculate background Standard Axle Repetitions (**SARs**) for granular pavement (**SAR4s**) without the proposed development base on data provided by TMR;
- **Step 4:** Calculate the additional SAR4s with the proposed development consistent with the assumptions summarised herein;
- **Step 5:** Distribute the development generated SAR4s across the state-controlled road network consistent with the assumptions summarised herein;
- **Step 6:** identify where on the assessed road network the additional SAR4s would result in a 5% or greater increase over background SAR4s;
- **Step 7:** calculate the maintenance contribution required to offset development impacts on road sections where SAR4s would increase by 5% or greater with the proposed development in place.

A summary of the PIA calculations for Stages 5 and 6 are included at **Appendix E** for reference, with the detailed PIA calculation spreadsheet available upon request.

### 8.4 Assessed Heavy Vehicle Demands

Based on operational information provided by Quarry Assets, the key assumption relevant to annual concrete exports and material imports summarised in **Table 12** and **Table 13**, with the resultant annual heavy vehicle trips summarised in **Table 14**.



**Table 12 PIA Assumptions - Concrete Export**

| Assumption                                 | Details                                                                                                                                                                                                                  |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Annual concrete production                 | 60,000m <sup>3</sup> per annum                                                                                                                                                                                           |
| Design vehicles for concrete export        | 6.5m <sup>3</sup> Concrete Agitator (Vehicle Class 4 - 3 Axle Rigid Truck) – 30%<br>7.6m <sup>3</sup> Concrete Agitator (Vehicle Class 5 - 4 Axle Twinstar Rigid) – 70%                                                  |
| Adopted concrete export trip distributions | 40% to/from the North via Youngman Street<br>40% to/from the East via River Road and the D'Aguilar Highway<br>15% to/from the South via the Bunya Highway<br>5% to/from the West via the Council-controlled road network |

**Table 13 PIA Assumptions – Material Import**

| Assumption                                 | Details                                                                                                                                                                                                                  |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Annual material import <sup>[1]</sup>      | 100,000 tonnes per annum                                                                                                                                                                                                 |
| Design vehicle for material import         | 3 Axle Truck & 4 Axle Dog (Vehicle Class 10)                                                                                                                                                                             |
| Adopted material import trip distributions | 45% to/from the North via Youngman Street<br>30% to/from the East via River Road and the D'Aguilar Highway<br>25% to/from the South via the Bunya Highway<br>0% to/from the West via the Council-controlled road network |

[1] This allows for the materials delivered to the site, including aggregates and cement, with the exact breakdown in portions not outlined as part of this assessment.

**Table 14 Annual Heavy Vehicle Demands**

| Vehicle Type              | Austroads Class | Annual       |                |
|---------------------------|-----------------|--------------|----------------|
|                           |                 | Loaded Trips | Unloaded Trips |
| 3 Axle Rigid              | 4               | 2,632        | 2,632          |
| 4 Axle Twinstar Rigid     | 5               | 4,290        | 4,290          |
| 3 Axle Truck & 4 Axle Dog | 10              | 1,528        | 1,528          |
| <b>Total</b>              |                 | <b>8,449</b> | <b>8,449</b>   |

## 8.5 Pavement Impact Assessment Summary

The annual pavement maintenance contribution required to offset the impacts relating to the proposed development, including the haulage of the concrete, in addition to the import of the materials, is calculated at \$15,120 per annum. This equates to a contribution rate of \$0.25/m<sup>3</sup> of concrete exported per annum.



## 9.0 QLD SDAP Code Responses

The traffic and transport aspects of the development have been assessed against the requirements of State Code 6. Responses to State Code 6 have been prepared and are included at **Appendix F**, demonstrating that the traffic and transport aspects of the proposed development satisfy all the relevant assessment benchmarks.



## 10.0 Summary and Recommendations

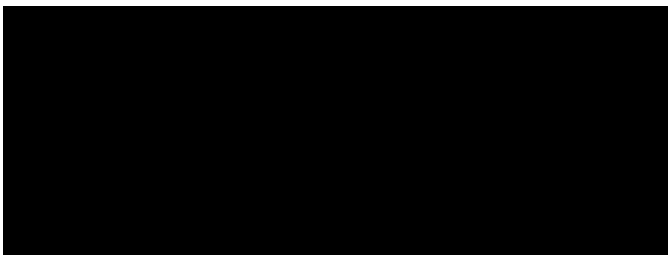
SLR has been engaged by Quarry Assets to provide traffic engineering advice in relation to DA for a Material Change of Use - High Impact Industry (Concrete Batching Plant) over land situated at River Road, Kingaroy. Based on the analysis and discussion documented herein, the following is concluded:

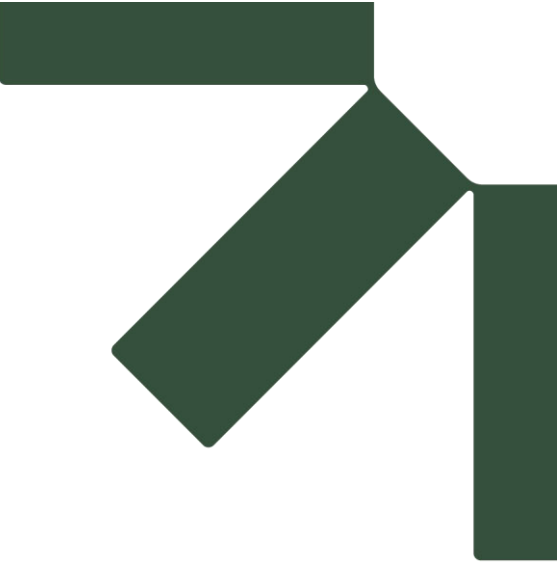
- The development's proposed car parking and servicing provisions are considered sufficient to cater for the demands anticipated to be generated by the development, therefore satisfying the relevant 'Service and Works' code assessment benchmarks.
- The design of site access, car parking and servicing arrangements satisfies the relevant 'Service and Works' code and AS2890 criteria.
- The development is expected to generate approximately 98vpd (two way), with a conservative 38vph assessed during road network periods. The operational assessments showed that the development traffic will not materially impact on the operation or safety of the surrounding road network.
- The developments pavement impacts on the state-controlled road network are found on the Bunya Highway (southbound to Dalby), requiring an annual contribution of \$15,120, or \$0.25/m<sup>3</sup> of concrete exported to offset the impacts of the heavy vehicles associated within the development.
- The traffic and transport aspects of the proposed development have been assessed against the SDAP State Code and are considered to satisfy all the relevant assessment benchmarks.

## 11.0 RPEQ Certification

This traffic assessment and report have been prepared under the direction of a Registered Professional Engineer of Queensland (**RPEQ**) who is experienced in traffic engineering and transport planning. The report is endorsed by that RPEQ accordingly.

Sincerely,





# Appendix A    Development Plans

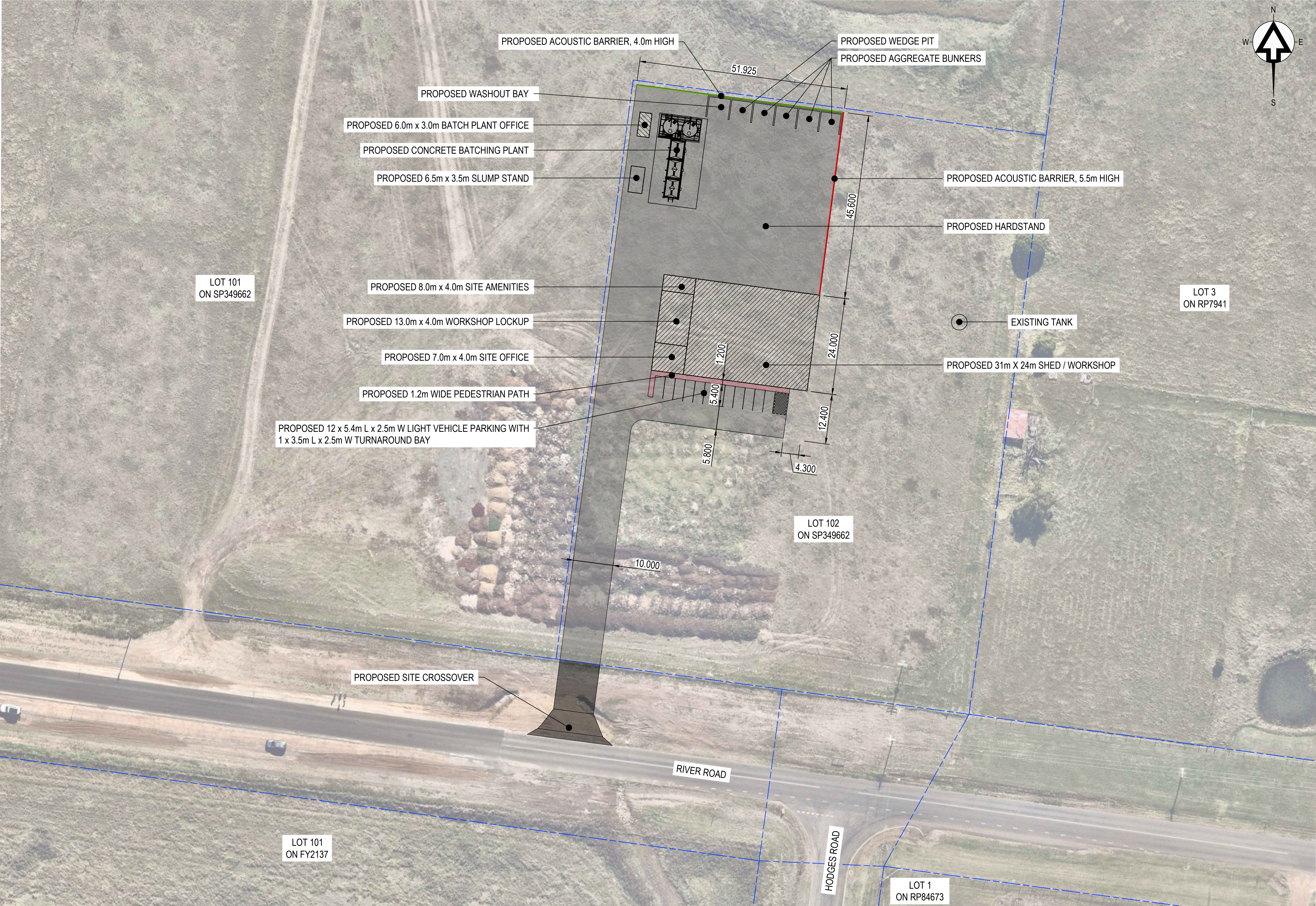
## **Traffic Impact Assessment**

**Kingaroy Concrete Batching Plant**

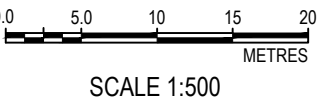
**Kingaroy Quarry Supplies Pty Ltd**

SLR Project No.: 625.010554.00001

27 May 2026



SITE LAYOUT PLAN  
SCALE 1: 500



PLOT DATE 11/05/2026 1:33:47 PM

| REVISIONS | F | 11/05/2026 | FOR INFORMATION ONLY | JW       |
|-----------|---|------------|----------------------|----------|
|           | E | 08/05/2026 | FOR INFORMATION ONLY | JW       |
|           | D | 10/02/2025 | FOR INFORMATION ONLY | JW       |
|           | C | 05/02/2025 | FOR INFORMATION ONLY | JW       |
|           | B | 29/01/2026 | FOR INFORMATION ONLY | JW       |
|           | A | 28/01/2026 | FOR INFORMATION ONLY | JW       |
|           |   | DATE       | DESCRIPTION          | APPROVED |



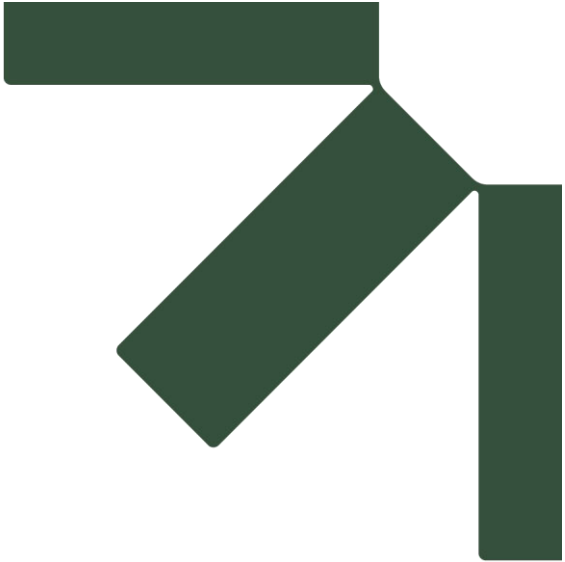
THIS DRAWING IS THE PROPERTY OF SLR CONSULTING AUSTRALIA AND MUST NOT BE RETAINED, COPIED OR USED WITHOUT THE CONSENT OF THE COMPANY.

|                                  |                  |
|----------------------------------|------------------|
| DRAWN: SJH                       | DATE: 28/01/2026 |
| DESIGN: SJH                      | DATE: 28/01/2026 |
| DWG. CHECK: SJH                  | DATE: 28/01/2026 |
| DES. CHECK: JW                   | DATE: 28/01/2026 |
| RESPONSIBLE PRINCIPAL SIGNATURE: | DATE: 28/01/2026 |
| RPEQ:                            |                  |



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| CLIENT: QUARRY ASSETS PTY LTD                                                     |  |                                    |                                   | SIZE        |
|-----------------------------------------------------------------------------------|--|------------------------------------|-----------------------------------|-------------|
| PROJECT: KINGAROY CONCRETE BATCHING PLANT<br>53 LOGAN STREET, KINGAROY, QLD, 4610 |  | DRAWING TITLE: SITE LAYOUT PLAN    |                                   | A1          |
| STATUS: FOR INFORMATION ONLY                                                      |  | SCALE: 1:500<br>DATUM: GDA2020 Z54 | DRAWING NUMBER: 625.010554-SK-001 | REVISION: F |



# **Appendix B    Swept Path Assessment**

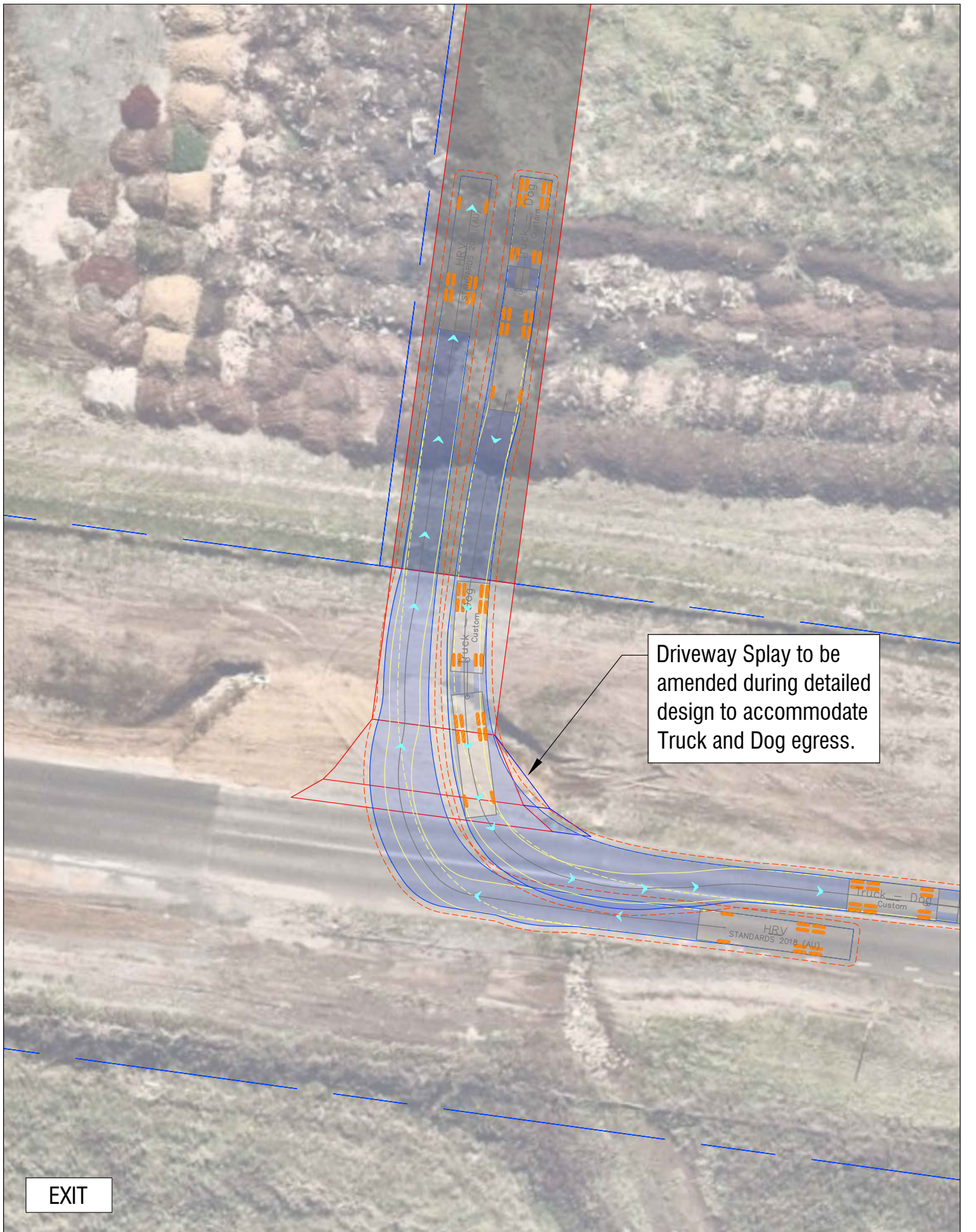
## **Traffic Impact Assessment**

**Kingaroy Concrete Batching Plant**

**Kingaroy Quarry Supplies Pty Ltd**

SLR Project No.: 625.010554.00001

27 May 2026

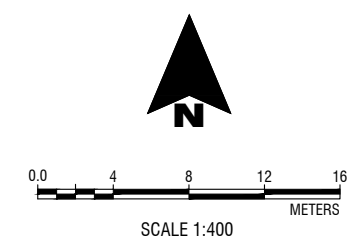


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| Date:       | 21/05/26   |
| Drawn by:   | DN         |
| Checked by: | TB         |
| Sheet Size: | A3         |
| Projection: | -          |

| SWEEP PATH LEGEND |                       |
|-------------------|-----------------------|
|                   | Vehicle Path          |
|                   | Vehicle Body          |
|                   | Body Clearance (0.5m) |
|                   | Front Wheels          |
|                   | Rear Wheels           |

|                    |      |
|--------------------|------|
|                    |      |
| Truck - Dog        |      |
| First Unit Width   | 2.50 |
| Trailer Width      | 2.60 |
| First Unit Track   | 2.50 |
| Trailer Track      | 2.55 |
| Lock to Lock Time  | 6.0  |
| Steering Angle     | 28.4 |
| Articulating Angle | 70.0 |

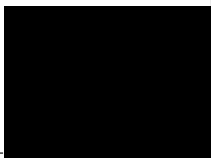


Kingaroy Quarry Supplies Pty Ltd  
Kingaroy Concrete Batching Plant

### Truck and Dog SPA Site Access

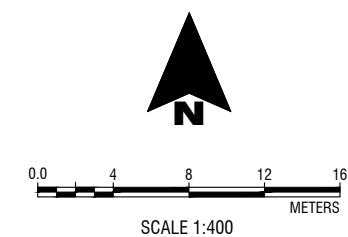
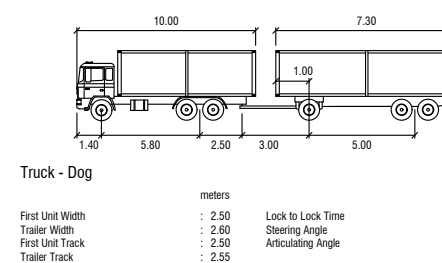
FIGURE SK01

This aerial map illustrates a proposed water treatment facility layout. A winding canal, highlighted in blue with yellow dashed lines and cyan arrows indicating flow direction, enters from the bottom left and curves around a large, hatched rectangular building. To the right of the building is a parking lot with several marked spaces. Further along the canal, it curves around a cluster of circular storage tanks and associated mechanical equipment. The entire facility is enclosed by a red boundary line. A red diagonal banner in the top left corner reads "CONCEPT ONLY".



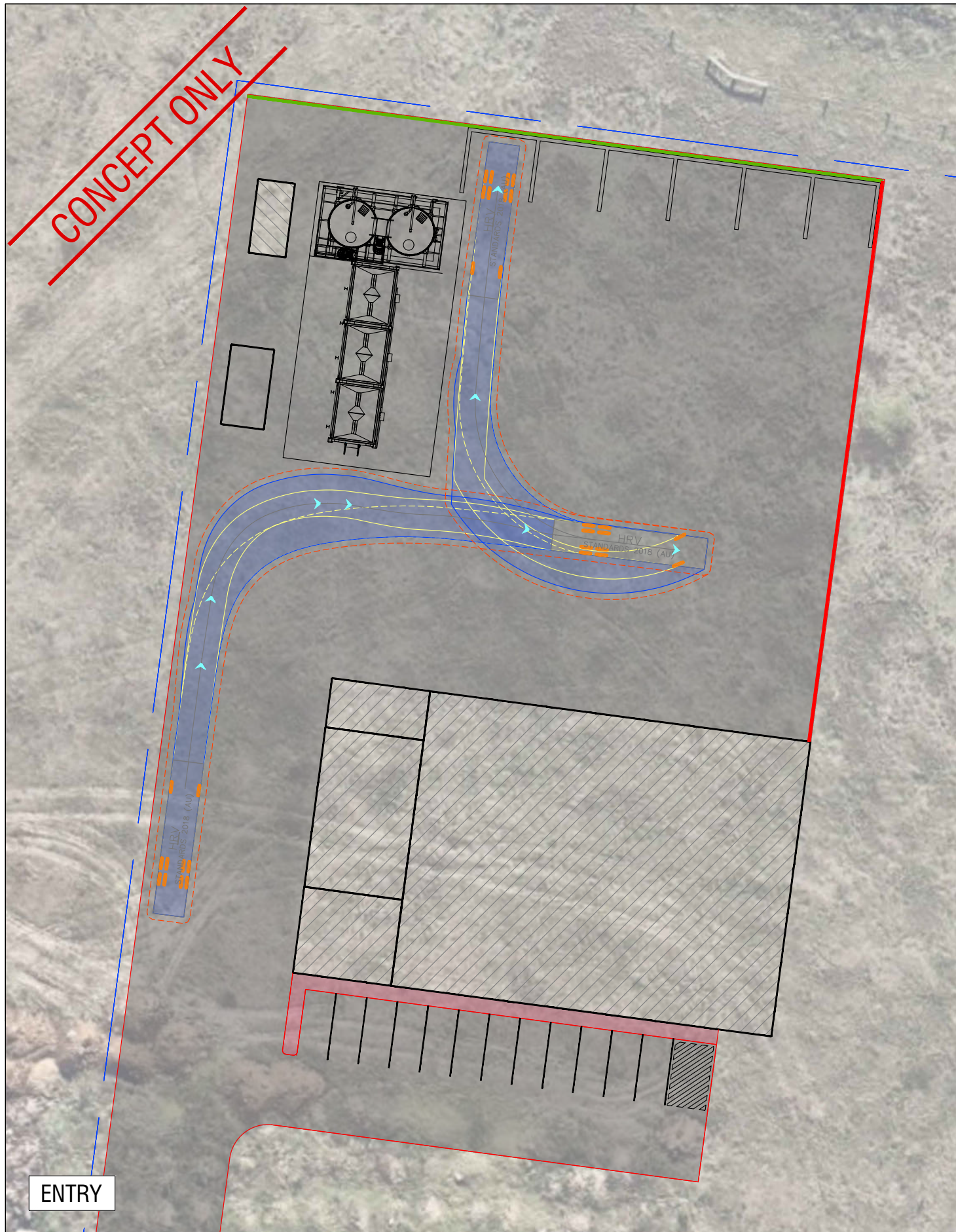
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|-------------|------------|
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| Date:       | 21/05/26   |
| Drawn by:   | DN         |
| Checked by: | TB         |
| Sheet Size: | A3         |
| Projection: | -          |

-  Vehicle Path
-  Vehicle Body
-  Body Clearance (0.5m)
-  Front Wheels
-  Rear Wheels



### Truck and Dog SPA Internal Site Circulation

FIGURE SK02



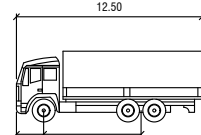


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|             |            |
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| Date:       | 21/05/26   |
| Drawn by:   | DN         |
| Checked by: | TB         |
| Sheet Size: | A3         |
| Projection: | -          |

**SWEPT PATH LEGEND**

- Vehicle Path
- Vehicle Body
- Body Clearance (0.5m)
- Front Wheels
- Rear Wheels



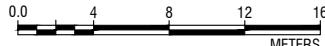
HRV

|                   |       |
|-------------------|-------|
| Width             | 12.50 |
| Track             | 2.20  |
| Lock to Lock Time | 6.85  |
| Steering Angle    | 36.7  |

meters



N



SCALE 1:400

0.0 4 8 12 16 METERS

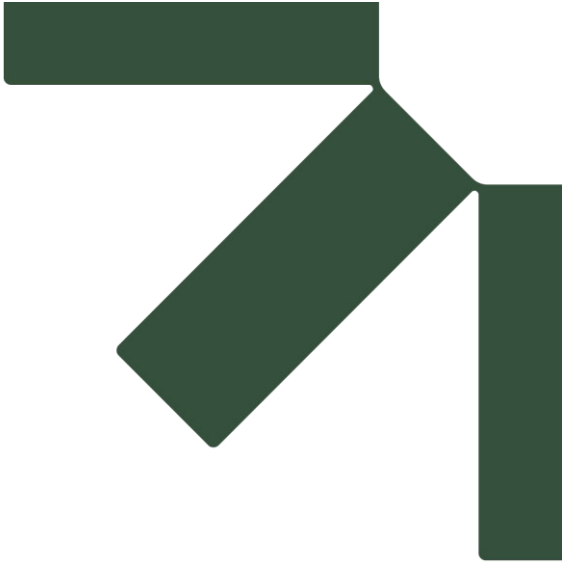
Kingaroy Quarry Supplies Pty Ltd

Kingaroy Concrete Batching Plant

**Concrete Agitator (HRV) SPA**

**Washbay Parking**

FIGURE SK03



# Appendix C    Traffic Volume Diagrams

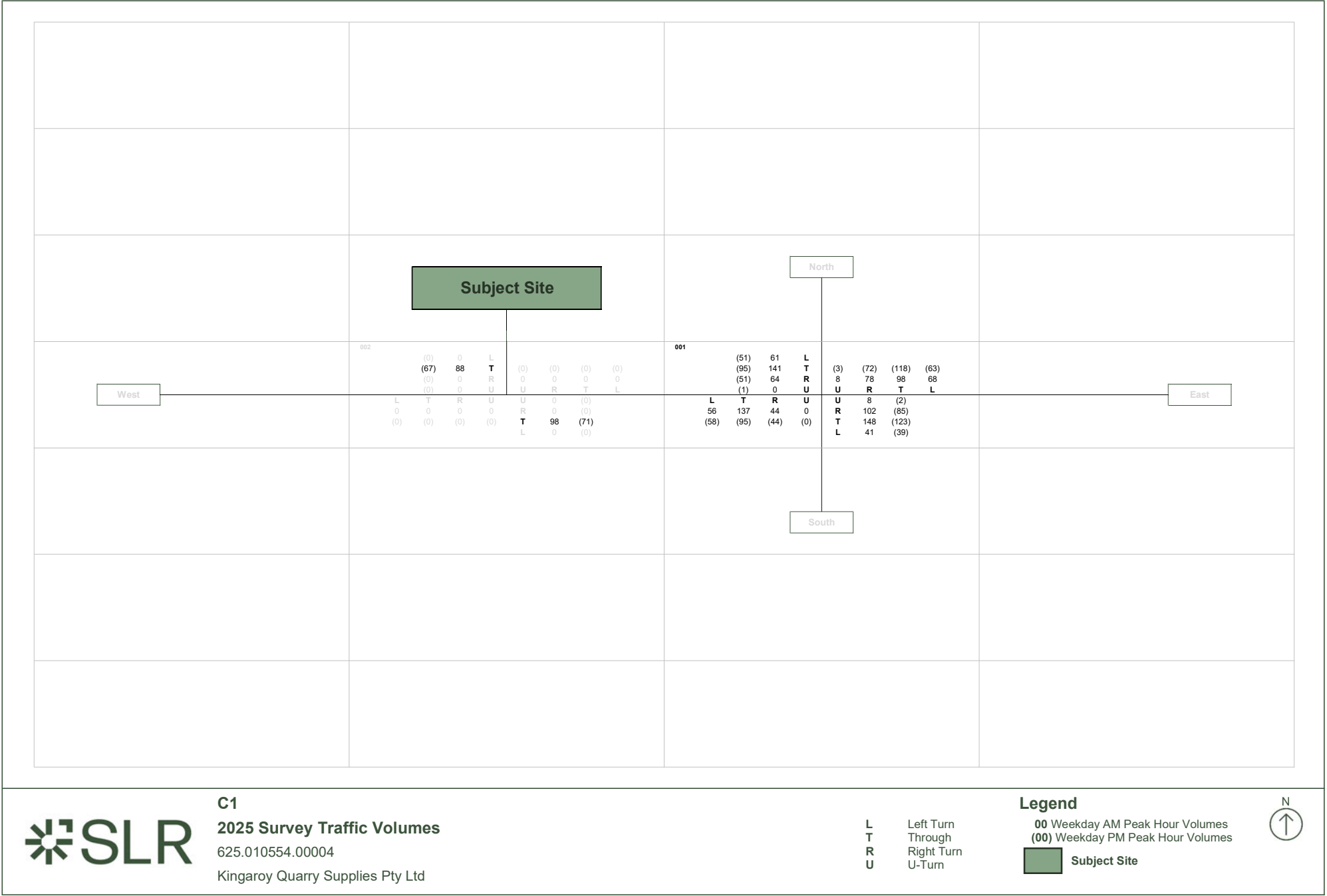
## **Traffic Impact Assessment**

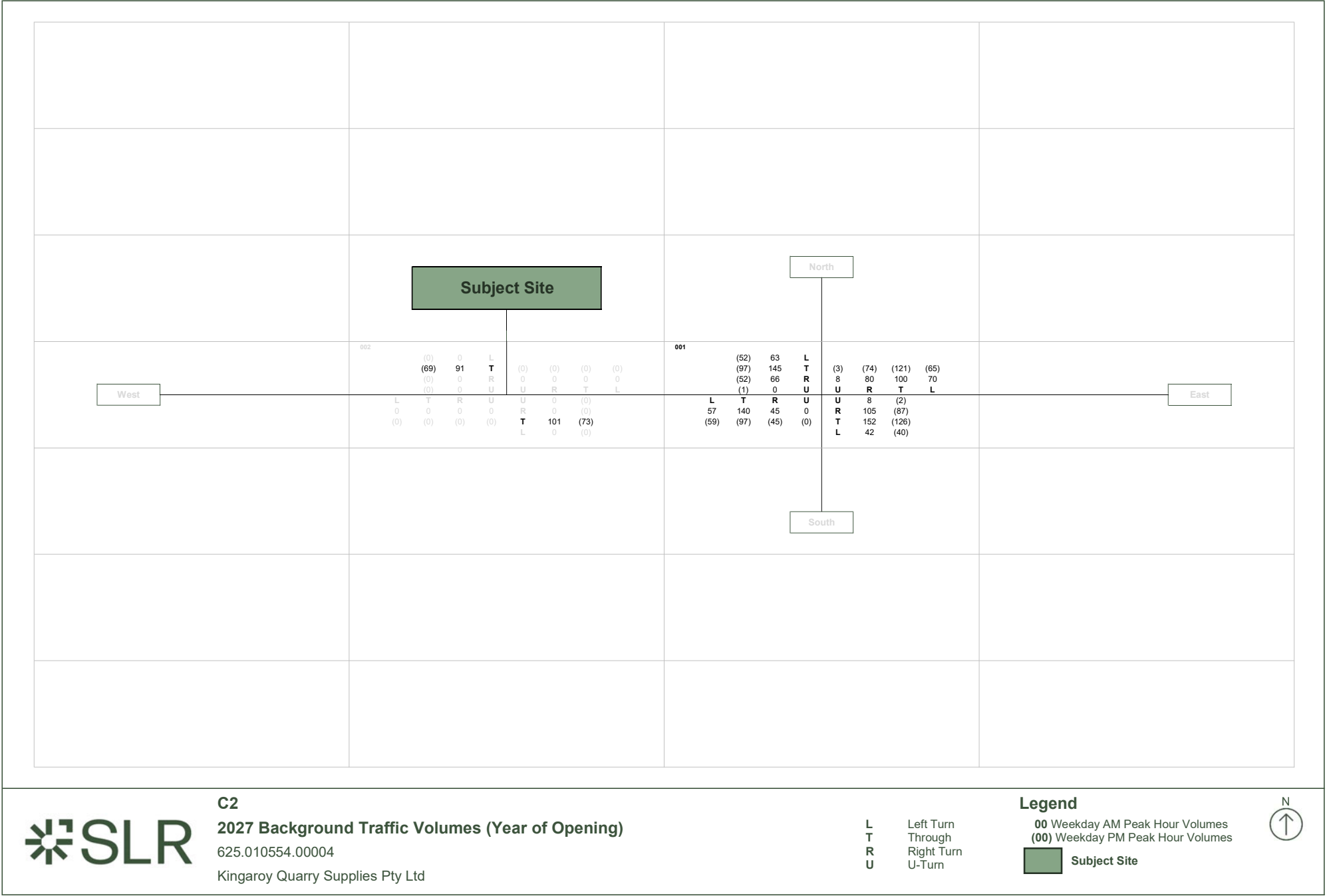
**Kingaroy Concrete Batching Plant**

**Kingaroy Quarry Supplies Pty Ltd**

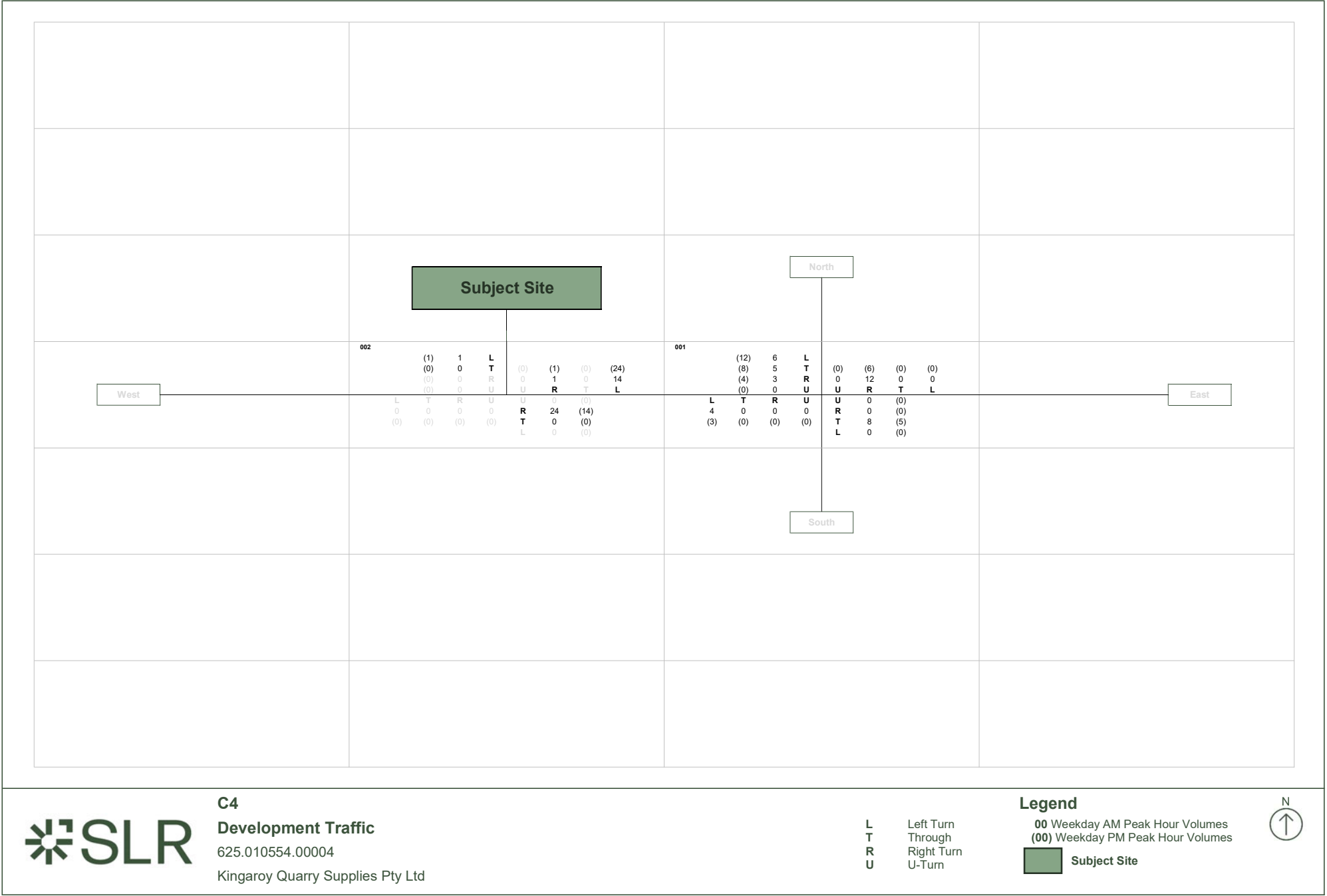
SLR Project No.: 625.010554.00001

27 May 2026









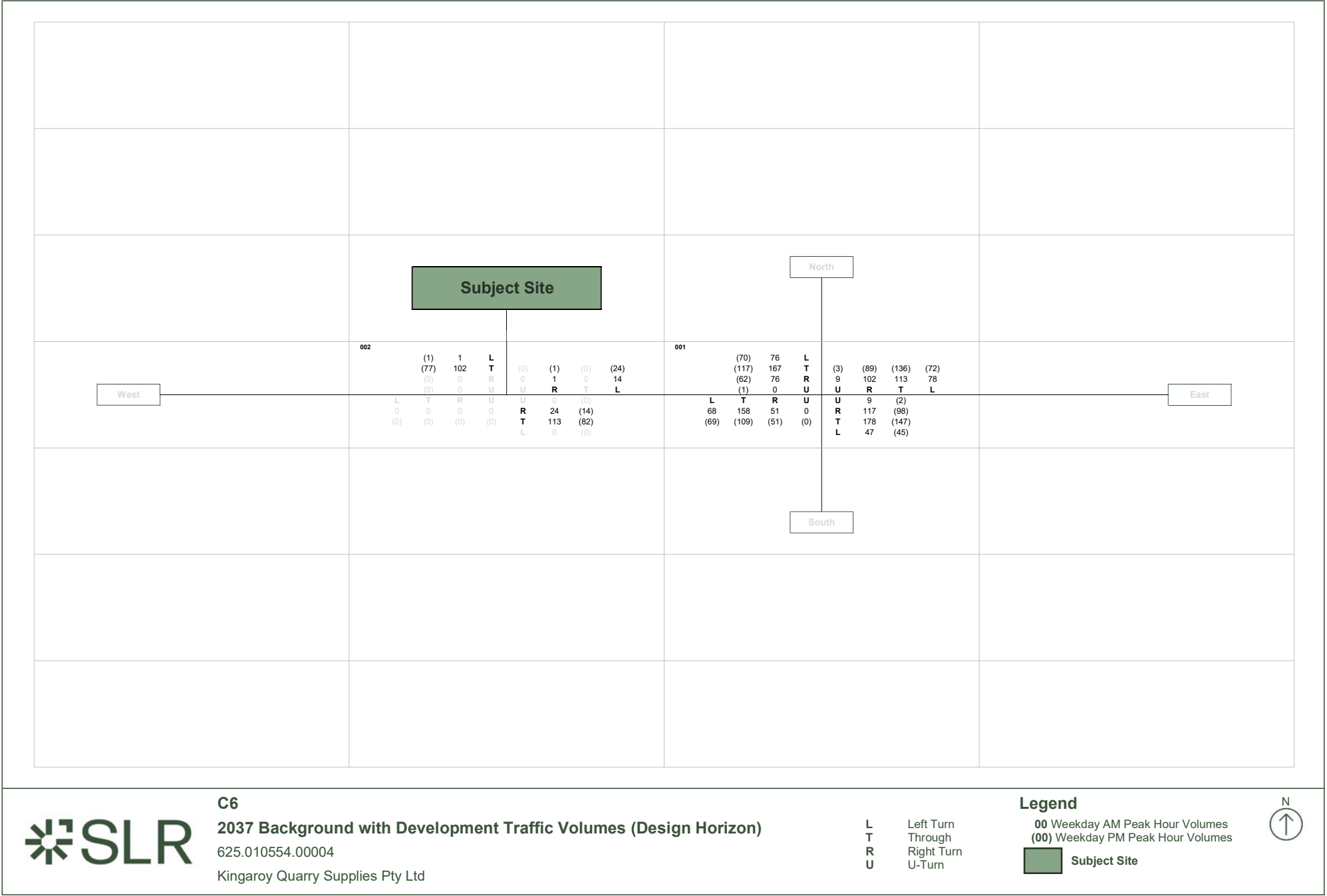
**C4**  
**Development Traffic**  
625.010554.00004  
Kingaroy Quarry Supplies Pty Ltd

L Left Turn  
T Through  
R Right Turn  
U U-Turn

**Legend**  
00 Weekday AM Peak Hour Volumes  
(00) Weekday PM Peak Hour Volumes  
 Subject Site





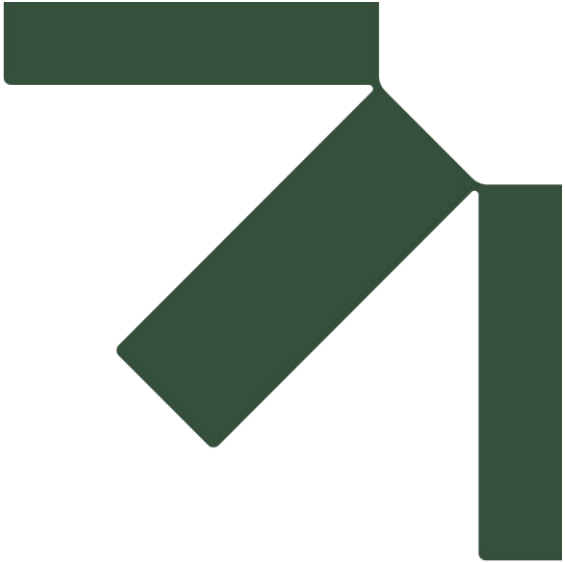


**C6**  
**2037 Background with Development Traffic Volumes (Design Horizon)**  
625.010554.00004  
Kingaroy Quarry Supplies Pty Ltd

L Left Turn  
T Through  
R Right Turn  
U U-Turn

**Legend**  
00 Weekday AM Peak Hour Volumes  
(00) Weekday PM Peak Hour Volumes  
Subject Site





# **Appendix D   Detailed Sidra Outputs**

## **Traffic Impact Assessment**

**Kingaroy Concrete Batching Plant**

**Kingaroy Quarry Supplies Pty Ltd**

SLR Project No.: 625.010554.00001

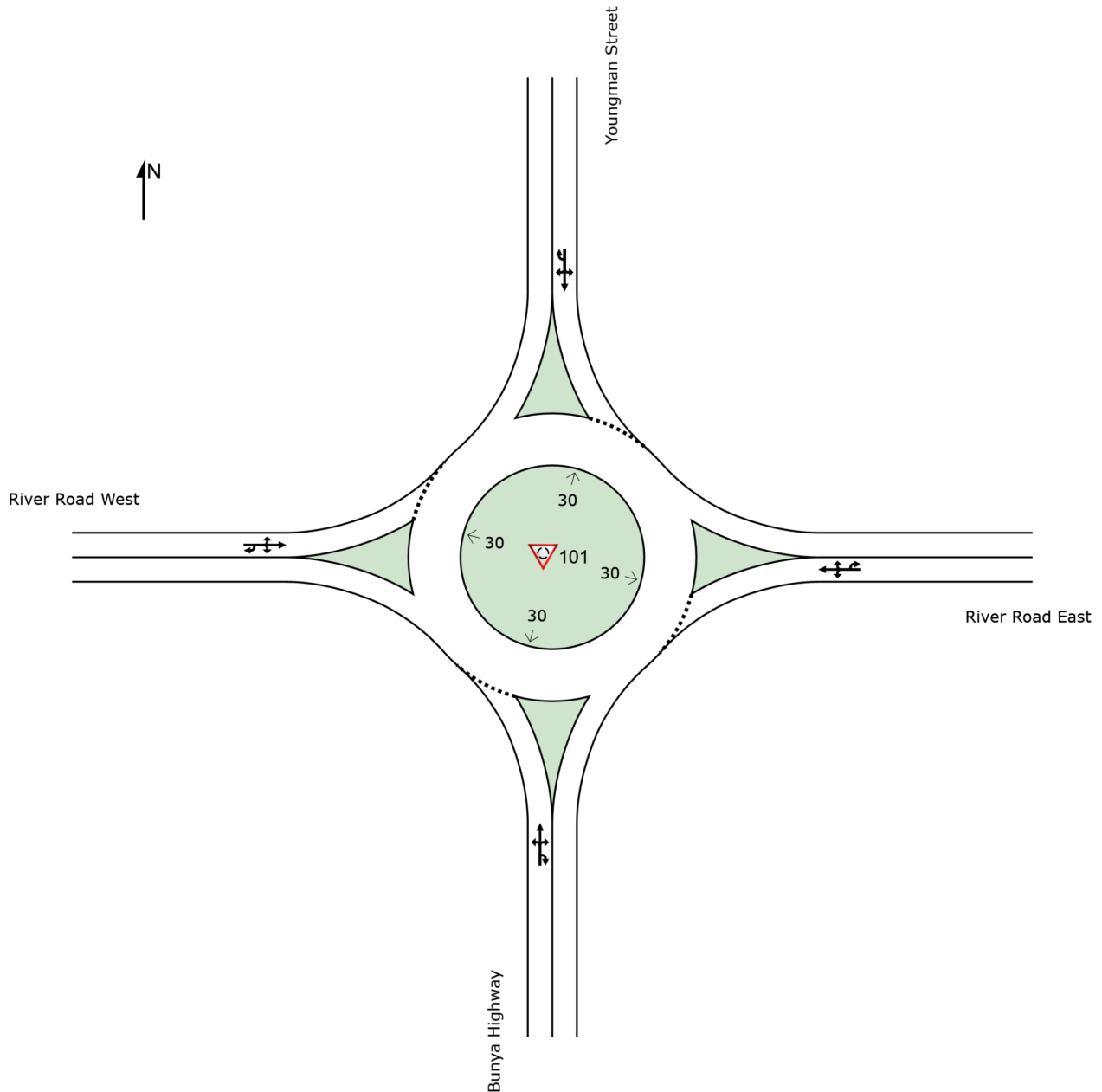
27 May 2026

# SITE LAYOUT

 Site: 101 [1\_Bunya Highway\_River Rd (2025 Survey) (AM)  
(Site Folder: General)]

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



**SIDRA INTERSECTION 9.1 | Copyright © 2000-2024 Akcelik and Associates Pty Ltd | [sidrasolutions.com](http://sidrasolutions.com)**

Organisation: SLR CONSULTING AUSTRALIA | Licence: NETWORK / 1PC | Created: Wednesday, 20 May 2026 11:10:20 AM

Project: \\au.slr.local\Corporate\Projects-SLR\625-MIL\625.010554.00001 Kingaroy - Wattle Grove Workers\00004 - Traffic\02 Analysis\2026 01 - TIA\02 Sidra\625.010554-v0.2 Kingaroy 20260430.sip9

# MOVEMENT SUMMARY

 Site: 101 [1\_Bunya Highway\_River Rd (2025 Survey) (AM)  
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %    | [ Total HV ]  | %    |           |             |                  | [ Veh. ]          | Dist ] |           |                |                     |             |
|                              |      |           | veh/h        |      | veh/h         |      | v/c       | sec         |                  | veh               | m      |           |                |                     | km/h        |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 59           | 10.7 | 59            | 10.7 | 0.239     | 5.6         | LOS A            | 1.4               | 10.7   | 0.56      | 0.57           | 0.56                | 52.3        |
| 2                            | T1   | All MCs   | 144          | 6.6  | 144           | 6.6  | 0.239     | 5.5         | LOS A            | 1.4               | 10.7   | 0.56      | 0.57           | 0.56                | 52.7        |
| 3                            | R2   | All MCs   | 46           | 2.3  | 46            | 2.3  | 0.239     | 11.1        | LOS B            | 1.4               | 10.7   | 0.56      | 0.57           | 0.56                | 51.9        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.239     | 13.4        | LOS B            | 1.4               | 10.7   | 0.56      | 0.57           | 0.56                | 51.9        |
| Approach                     |      |           | 251          | 6.7  | 251           | 6.7  | 0.239     | 6.6         | LOS A            | 1.4               | 10.7   | 0.56      | 0.57           | 0.56                | 52.5        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                            | L2   | All MCs   | 43           | 7.3  | 43            | 7.3  | 0.280     | 5.0         | LOS A            | 1.7               | 12.9   | 0.51      | 0.56           | 0.51                | 52.0        |
| 5                            | T1   | All MCs   | 156          | 8.8  | 156           | 8.8  | 0.280     | 5.1         | LOS A            | 1.7               | 12.9   | 0.51      | 0.56           | 0.51                | 52.4        |
| 6                            | R2   | All MCs   | 107          | 5.9  | 107           | 5.9  | 0.280     | 10.8        | LOS B            | 1.7               | 12.9   | 0.51      | 0.56           | 0.51                | 51.4        |
| 6u                           | U    | All MCs   | 8            | 0.0  | 8             | 0.0  | 0.280     | 12.9        | LOS B            | 1.7               | 12.9   | 0.51      | 0.56           | 0.51                | 51.6        |
| Approach                     |      |           | 315          | 7.4  | 315           | 7.4  | 0.280     | 7.2         | LOS A            | 1.7               | 12.9   | 0.51      | 0.56           | 0.51                | 52.0        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                            | L2   | All MCs   | 72           | 8.8  | 72            | 8.8  | 0.242     | 5.0         | LOS A            | 1.5               | 11.2   | 0.50      | 0.56           | 0.50                | 52.2        |
| 8                            | T1   | All MCs   | 103          | 13.3 | 103           | 13.3 | 0.242     | 5.1         | LOS A            | 1.5               | 11.2   | 0.50      | 0.56           | 0.50                | 52.5        |
| 9                            | R2   | All MCs   | 82           | 9.0  | 82            | 9.0  | 0.242     | 10.8        | LOS B            | 1.5               | 11.2   | 0.50      | 0.56           | 0.50                | 51.5        |
| 9u                           | U    | All MCs   | 8            | 12.5 | 8             | 12.5 | 0.242     | 13.2        | LOS B            | 1.5               | 11.2   | 0.50      | 0.56           | 0.50                | 51.4        |
| Approach                     |      |           | 265          | 10.7 | 265           | 10.7 | 0.242     | 7.1         | LOS A            | 1.5               | 11.2   | 0.50      | 0.56           | 0.50                | 52.1        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                           | L2   | All MCs   | 64           | 14.8 | 64            | 14.8 | 0.264     | 5.5         | LOS A            | 1.6               | 12.2   | 0.53      | 0.56           | 0.53                | 52.3        |
| 11                           | T1   | All MCs   | 148          | 4.3  | 148           | 4.3  | 0.264     | 5.2         | LOS A            | 1.6               | 12.2   | 0.53      | 0.56           | 0.53                | 52.9        |
| 12                           | R2   | All MCs   | 67           | 21.9 | 67            | 21.9 | 0.264     | 11.4        | LOS B            | 1.6               | 12.2   | 0.53      | 0.56           | 0.53                | 51.3        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.264     | 13.1        | LOS B            | 1.6               | 12.2   | 0.53      | 0.56           | 0.53                | 52.0        |
| Approach                     |      |           | 281          | 10.9 | 281           | 10.9 | 0.264     | 6.8         | LOS A            | 1.6               | 12.2   | 0.53      | 0.56           | 0.53                | 52.3        |
| All Vehicles                 |      |           | 1112         | 8.9  | 1112          | 8.9  | 0.280     | 6.9         | LOS A            | 1.7               | 12.9   | 0.52      | 0.56           | 0.52                | 52.2        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [1\_Bunya Highway\_River Rd (2025 Survey) (PM)**  
**(Site Folder: General)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %    | [ Total HV ]  | %    |           |             |                  | [ Veh. veh        | Dist ] m |           |                |                     |             |
|                              |      |           | veh/h        |      | veh/h         |      | v/c       | sec         |                  |                   |          |           |                |                     | km/h        |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 1                            | L2   | All MCs   | 61           | 12.1 | 61            | 12.1 | 0.187     | 5.2         | LOS A            | 1.1               | 7.8      | 0.49      | 0.54           | 0.49                | 52.5        |
| 2                            | T1   | All MCs   | 100          | 2.1  | 100           | 2.1  | 0.187     | 4.9         | LOS A            | 1.1               | 7.8      | 0.49      | 0.54           | 0.49                | 53.1        |
| 3                            | R2   | All MCs   | 46           | 2.3  | 46            | 2.3  | 0.187     | 10.7        | LOS B            | 1.1               | 7.8      | 0.49      | 0.54           | 0.49                | 52.1        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.187     | 13.0        | LOS B            | 1.1               | 7.8      | 0.49      | 0.54           | 0.49                | 52.2        |
| Approach                     |      |           | 208          | 5.1  | 208           | 5.1  | 0.187     | 6.3         | LOS A            | 1.1               | 7.8      | 0.49      | 0.54           | 0.49                | 52.7        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 4                            | L2   | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.227     | 4.7         | LOS A            | 1.3               | 9.7      | 0.47      | 0.55           | 0.47                | 52.5        |
| 5                            | T1   | All MCs   | 129          | 4.9  | 129           | 4.9  | 0.227     | 4.8         | LOS A            | 1.3               | 9.7      | 0.47      | 0.55           | 0.47                | 52.7        |
| 6                            | R2   | All MCs   | 89           | 7.1  | 89            | 7.1  | 0.227     | 10.6        | LOS B            | 1.3               | 9.7      | 0.47      | 0.55           | 0.47                | 51.7        |
| 6u                           | U    | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.227     | 12.8        | LOS B            | 1.3               | 9.7      | 0.47      | 0.55           | 0.47                | 51.9        |
| Approach                     |      |           | 262          | 4.8  | 262           | 4.8  | 0.227     | 6.9         | LOS A            | 1.3               | 9.7      | 0.47      | 0.55           | 0.47                | 52.3        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 66           | 6.4  | 66            | 6.4  | 0.225     | 4.5         | LOS A            | 1.3               | 9.8      | 0.42      | 0.51           | 0.42                | 52.7        |
| 8                            | T1   | All MCs   | 124          | 6.8  | 124           | 6.8  | 0.225     | 4.6         | LOS A            | 1.3               | 9.8      | 0.42      | 0.51           | 0.42                | 53.1        |
| 9                            | R2   | All MCs   | 76           | 8.3  | 76            | 8.3  | 0.225     | 10.3        | LOS B            | 1.3               | 9.8      | 0.42      | 0.51           | 0.42                | 52.0        |
| 9u                           | U    | All MCs   | 3            | 0.0  | 3             | 0.0  | 0.225     | 12.5        | LOS B            | 1.3               | 9.8      | 0.42      | 0.51           | 0.42                | 52.3        |
| Approach                     |      |           | 269          | 7.0  | 269           | 7.0  | 0.225     | 6.3         | LOS A            | 1.3               | 9.8      | 0.42      | 0.51           | 0.42                | 52.7        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 54           | 5.9  | 54            | 5.9  | 0.179     | 4.7         | LOS A            | 1.0               | 7.4      | 0.43      | 0.52           | 0.43                | 52.8        |
| 11                           | T1   | All MCs   | 100          | 6.3  | 100           | 6.3  | 0.179     | 4.7         | LOS A            | 1.0               | 7.4      | 0.43      | 0.52           | 0.43                | 53.1        |
| 12                           | R2   | All MCs   | 54           | 5.9  | 54            | 5.9  | 0.179     | 10.4        | LOS B            | 1.0               | 7.4      | 0.43      | 0.52           | 0.43                | 52.1        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.179     | 12.6        | LOS B            | 1.0               | 7.4      | 0.43      | 0.52           | 0.43                | 52.3        |
| Approach                     |      |           | 208          | 6.1  | 208           | 6.1  | 0.179     | 6.2         | LOS A            | 1.0               | 7.4      | 0.43      | 0.52           | 0.43                | 52.8        |
| All Vehicles                 |      |           | 948          | 5.8  | 948           | 5.8  | 0.227     | 6.4         | LOS A            | 1.3               | 9.8      | 0.45      | 0.53           | 0.45                | 52.6        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Roundabout LOS Method: SIDRA Roundabout LOS.  
Vehicle movement LOS values are based on average delay per movement.  
Intersection and Approach LOS values are based on average delay for all vehicle movements.  
Roundabout Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 **Site: 101 [1\_Bunya Highway\_River Rd (2027 BG) (AM) (Site Folder: General)]**

**Output produced by SIDRA INTERSECTION Version: 9.1.6.228**

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] |      | [ Total HV ]  |      |           |             |                  | [ Veh.            | Dist ] |           |                |                     |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |           |                |                     | km/h        |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 60           | 10.7 | 60            | 10.7 | 0.248     | 5.7         | LOS A            | 1.5               | 11.2   | 0.57      | 0.57           | 0.57                | 52.2        |
| 2                            | T1   | All MCs   | 148          | 6.6  | 148           | 6.6  | 0.248     | 5.6         | LOS A            | 1.5               | 11.2   | 0.57      | 0.57           | 0.57                | 52.7        |
| 3                            | R2   | All MCs   | 47           | 2.3  | 47            | 2.3  | 0.248     | 11.2        | LOS B            | 1.5               | 11.2   | 0.57      | 0.57           | 0.57                | 51.8        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.248     | 13.5        | LOS B            | 1.5               | 11.2   | 0.57      | 0.57           | 0.57                | 51.9        |
| Approach                     |      |           | 257          | 6.7  | 257           | 6.7  | 0.248     | 6.7         | LOS A            | 1.5               | 11.2   | 0.57      | 0.57           | 0.57                | 52.4        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                            | L2   | All MCs   | 44           | 7.3  | 44            | 7.3  | 0.290     | 5.1         | LOS A            | 1.8               | 13.4   | 0.52      | 0.57           | 0.52                | 52.0        |
| 5                            | T1   | All MCs   | 160          | 8.8  | 160           | 8.8  | 0.290     | 5.1         | LOS A            | 1.8               | 13.4   | 0.52      | 0.57           | 0.52                | 52.4        |
| 6                            | R2   | All MCs   | 110          | 5.9  | 110           | 5.9  | 0.290     | 10.8        | LOS B            | 1.8               | 13.4   | 0.52      | 0.57           | 0.52                | 51.4        |
| 6u                           | U    | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.290     | 13.0        | LOS B            | 1.8               | 13.4   | 0.52      | 0.57           | 0.52                | 51.6        |
| Approach                     |      |           | 323          | 7.4  | 323           | 7.4  | 0.290     | 7.3         | LOS A            | 1.8               | 13.4   | 0.52      | 0.57           | 0.52                | 52.0        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                            | L2   | All MCs   | 73           | 8.8  | 73            | 8.8  | 0.251     | 5.1         | LOS A            | 1.5               | 11.6   | 0.51      | 0.56           | 0.51                | 52.1        |
| 8                            | T1   | All MCs   | 106          | 13.3 | 106           | 13.3 | 0.251     | 5.2         | LOS A            | 1.5               | 11.6   | 0.51      | 0.56           | 0.51                | 52.5        |
| 9                            | R2   | All MCs   | 84           | 9.0  | 84            | 9.0  | 0.251     | 10.8        | LOS B            | 1.5               | 11.6   | 0.51      | 0.56           | 0.51                | 51.5        |
| 9u                           | U    | All MCs   | 9            | 12.5 | 9             | 12.5 | 0.251     | 13.3        | LOS B            | 1.5               | 11.6   | 0.51      | 0.56           | 0.51                | 51.4        |
| Approach                     |      |           | 272          | 10.7 | 272           | 10.7 | 0.251     | 7.2         | LOS A            | 1.5               | 11.6   | 0.51      | 0.56           | 0.51                | 52.0        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                           | L2   | All MCs   | 66           | 14.8 | 66            | 14.8 | 0.273     | 5.5         | LOS A            | 1.7               | 12.7   | 0.54      | 0.56           | 0.54                | 52.2        |
| 11                           | T1   | All MCs   | 152          | 4.3  | 152           | 4.3  | 0.273     | 5.2         | LOS A            | 1.7               | 12.7   | 0.54      | 0.56           | 0.54                | 52.8        |
| 12                           | R2   | All MCs   | 69           | 21.9 | 69            | 21.9 | 0.273     | 11.5        | LOS B            | 1.7               | 12.7   | 0.54      | 0.56           | 0.54                | 51.3        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.273     | 13.2        | LOS B            | 1.7               | 12.7   | 0.54      | 0.56           | 0.54                | 52.0        |
| Approach                     |      |           | 288          | 10.9 | 288           | 10.9 | 0.273     | 6.8         | LOS A            | 1.7               | 12.7   | 0.54      | 0.56           | 0.54                | 52.3        |
| All Vehicles                 |      |           | 1139         | 8.9  | 1139          | 8.9  | 0.290     | 7.0         | LOS A            | 1.8               | 13.4   | 0.53      | 0.57           | 0.53                | 52.2        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 Site: 101 [1\_Bunya Highway\_River Rd (2027 BG) (PM) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] |      | [ Total HV ]  |      |           |             |                  | [ Veh. veh        | Dist ] |           |                |                     | km/h        |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  |                   | m      |           |                |                     |             |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 63           | 12.1 | 63            | 12.1 | 0.192     | 5.2         | LOS A            | 1.1               | 8.1    | 0.50      | 0.55           | 0.50                | 52.5        |
| 2                            | T1   | All MCs   | 103          | 2.1  | 103           | 2.1  | 0.192     | 5.0         | LOS A            | 1.1               | 8.1    | 0.50      | 0.55           | 0.50                | 53.0        |
| 3                            | R2   | All MCs   | 47           | 2.3  | 47            | 2.3  | 0.192     | 10.7        | LOS B            | 1.1               | 8.1    | 0.50      | 0.55           | 0.50                | 52.1        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.192     | 13.0        | LOS B            | 1.1               | 8.1    | 0.50      | 0.55           | 0.50                | 52.1        |
| Approach                     |      |           | 214          | 5.1  | 214           | 5.1  | 0.192     | 6.4         | LOS A            | 1.1               | 8.1    | 0.50      | 0.55           | 0.50                | 52.6        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                            | L2   | All MCs   | 42           | 0.0  | 42            | 0.0  | 0.234     | 4.8         | LOS A            | 1.4               | 10.1   | 0.48      | 0.55           | 0.48                | 52.4        |
| 5                            | T1   | All MCs   | 133          | 4.9  | 133           | 4.9  | 0.234     | 4.9         | LOS A            | 1.4               | 10.1   | 0.48      | 0.55           | 0.48                | 52.7        |
| 6                            | R2   | All MCs   | 92           | 7.1  | 92            | 7.1  | 0.234     | 10.7        | LOS B            | 1.4               | 10.1   | 0.48      | 0.55           | 0.48                | 51.6        |
| 6u                           | U    | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.234     | 12.8        | LOS B            | 1.4               | 10.1   | 0.48      | 0.55           | 0.48                | 51.9        |
| Approach                     |      |           | 269          | 4.8  | 269           | 4.8  | 0.234     | 6.9         | LOS A            | 1.4               | 10.1   | 0.48      | 0.55           | 0.48                | 52.3        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                            | L2   | All MCs   | 68           | 6.4  | 68            | 6.4  | 0.231     | 4.6         | LOS A            | 1.4               | 10.1   | 0.43      | 0.52           | 0.43                | 52.7        |
| 8                            | T1   | All MCs   | 127          | 6.8  | 127           | 6.8  | 0.231     | 4.6         | LOS A            | 1.4               | 10.1   | 0.43      | 0.52           | 0.43                | 53.1        |
| 9                            | R2   | All MCs   | 78           | 8.3  | 78            | 8.3  | 0.231     | 10.4        | LOS B            | 1.4               | 10.1   | 0.43      | 0.52           | 0.43                | 52.0        |
| 9u                           | U    | All MCs   | 3            | 0.0  | 3             | 0.0  | 0.231     | 12.5        | LOS B            | 1.4               | 10.1   | 0.43      | 0.52           | 0.43                | 52.3        |
| Approach                     |      |           | 276          | 7.0  | 276           | 7.0  | 0.231     | 6.3         | LOS A            | 1.4               | 10.1   | 0.43      | 0.52           | 0.43                | 52.6        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                           | L2   | All MCs   | 55           | 5.9  | 55            | 5.9  | 0.184     | 4.7         | LOS A            | 1.0               | 7.6    | 0.44      | 0.52           | 0.44                | 52.7        |
| 11                           | T1   | All MCs   | 103          | 6.3  | 103           | 6.3  | 0.184     | 4.7         | LOS A            | 1.0               | 7.6    | 0.44      | 0.52           | 0.44                | 53.1        |
| 12                           | R2   | All MCs   | 55           | 5.9  | 55            | 5.9  | 0.184     | 10.5        | LOS B            | 1.0               | 7.6    | 0.44      | 0.52           | 0.44                | 52.1        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.184     | 12.7        | LOS B            | 1.0               | 7.6    | 0.44      | 0.52           | 0.44                | 52.3        |
| Approach                     |      |           | 214          | 6.1  | 214           | 6.1  | 0.184     | 6.2         | LOS A            | 1.0               | 7.6    | 0.44      | 0.52           | 0.44                | 52.7        |
| All Vehicles                 |      |           | 972          | 5.8  | 972           | 5.8  | 0.234     | 6.5         | LOS A            | 1.4               | 10.1   | 0.46      | 0.53           | 0.46                | 52.6        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 Site: 101 [1\_Bunya Highway\_River Rd (2027 BG+Dev) (AM)  
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %    | [ Total HV ]  | %    | v/c       | sec         |                  | [ Veh. veh        | Dist ] m |           |                |                     | km/h        |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 1                            | L2   | All MCs   | 64           | 10.7 | 64            | 10.7 | 0.256     | 5.8         | LOS A            | 1.6               | 11.6     | 0.59      | 0.58           | 0.59                | 52.2        |
| 2                            | T1   | All MCs   | 148          | 6.6  | 148           | 6.6  | 0.256     | 5.7         | LOS A            | 1.6               | 11.6     | 0.59      | 0.58           | 0.59                | 52.6        |
| 3                            | R2   | All MCs   | 47           | 2.3  | 47            | 2.3  | 0.256     | 11.3        | LOS B            | 1.6               | 11.6     | 0.59      | 0.58           | 0.59                | 51.8        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.256     | 13.6        | LOS B            | 1.6               | 11.6     | 0.59      | 0.58           | 0.59                | 51.8        |
| Approach                     |      |           | 260          | 6.8  | 260           | 6.8  | 0.256     | 6.8         | LOS A            | 1.6               | 11.6     | 0.59      | 0.58           | 0.59                | 52.3        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 4                            | L2   | All MCs   | 44           | 7.3  | 44            | 7.3  | 0.301     | 5.2         | LOS A            | 1.9               | 14.1     | 0.54      | 0.57           | 0.54                | 51.9        |
| 5                            | T1   | All MCs   | 168          | 8.8  | 168           | 8.8  | 0.301     | 5.2         | LOS A            | 1.9               | 14.1     | 0.54      | 0.57           | 0.54                | 52.3        |
| 6                            | R2   | All MCs   | 110          | 5.9  | 110           | 5.9  | 0.301     | 10.9        | LOS B            | 1.9               | 14.1     | 0.54      | 0.57           | 0.54                | 51.4        |
| 6u                           | U    | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.301     | 13.1        | LOS B            | 1.9               | 14.1     | 0.54      | 0.57           | 0.54                | 51.5        |
| Approach                     |      |           | 331          | 7.4  | 331           | 7.4  | 0.301     | 7.3         | LOS A            | 1.9               | 14.1     | 0.54      | 0.57           | 0.54                | 51.9        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 73           | 8.8  | 73            | 8.8  | 0.264     | 5.1         | LOS A            | 1.6               | 12.4     | 0.52      | 0.57           | 0.52                | 52.0        |
| 8                            | T1   | All MCs   | 106          | 13.3 | 106           | 13.3 | 0.264     | 5.3         | LOS A            | 1.6               | 12.4     | 0.52      | 0.57           | 0.52                | 52.3        |
| 9                            | R2   | All MCs   | 97           | 9.0  | 97            | 9.0  | 0.264     | 10.9        | LOS B            | 1.6               | 12.4     | 0.52      | 0.57           | 0.52                | 51.3        |
| 9u                           | U    | All MCs   | 9            | 12.5 | 9             | 12.5 | 0.264     | 13.3        | LOS B            | 1.6               | 12.4     | 0.52      | 0.57           | 0.52                | 51.2        |
| Approach                     |      |           | 284          | 10.7 | 284           | 10.7 | 0.264     | 7.4         | LOS A            | 1.6               | 12.4     | 0.52      | 0.57           | 0.52                | 51.9        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 72           | 14.8 | 72            | 14.8 | 0.287     | 5.6         | LOS A            | 1.8               | 13.5     | 0.55      | 0.56           | 0.55                | 52.2        |
| 11                           | T1   | All MCs   | 158          | 4.3  | 158           | 4.3  | 0.287     | 5.3         | LOS A            | 1.8               | 13.5     | 0.55      | 0.56           | 0.55                | 52.8        |
| 12                           | R2   | All MCs   | 72           | 21.9 | 72            | 21.9 | 0.287     | 11.5        | LOS B            | 1.8               | 13.5     | 0.55      | 0.56           | 0.55                | 51.2        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.287     | 13.2        | LOS B            | 1.8               | 13.5     | 0.55      | 0.56           | 0.55                | 52.0        |
| Approach                     |      |           | 302          | 11.0 | 302           | 11.0 | 0.287     | 6.8         | LOS A            | 1.8               | 13.5     | 0.55      | 0.56           | 0.55                | 52.3        |
| All Vehicles                 |      |           | 1178         | 9.0  | 1178          | 9.0  | 0.301     | 7.1         | LOS A            | 1.9               | 14.1     | 0.55      | 0.57           | 0.55                | 52.1        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

 Site: 101 [1\_Bunya Highway\_River Rd (2027 BG+Dev) (PM)  
(Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Roundabout

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] |      | [ Total HV ]  |      |           |             |                  | [ Veh. veh        | Dist ] |           |                |                     |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  |                   | m      |           |                |                     | km/h        |
| South: Bunya Highway         |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 1                            | L2   | All MCs   | 65           | 12.1 | 65            | 12.1 | 0.197     | 5.3         | LOS A            | 1.1               | 8.4    | 0.51      | 0.55           | 0.51                | 52.4        |
| 2                            | T1   | All MCs   | 103          | 2.1  | 103           | 2.1  | 0.197     | 5.1         | LOS A            | 1.1               | 8.4    | 0.51      | 0.55           | 0.51                | 53.0        |
| 3                            | R2   | All MCs   | 47           | 2.3  | 47            | 2.3  | 0.197     | 10.8        | LOS B            | 1.1               | 8.4    | 0.51      | 0.55           | 0.51                | 52.0        |
| 3u                           | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.197     | 13.1        | LOS B            | 1.1               | 8.4    | 0.51      | 0.55           | 0.51                | 52.1        |
| Approach                     |      |           | 216          | 5.1  | 216           | 5.1  | 0.197     | 6.4         | LOS A            | 1.1               | 8.4    | 0.51      | 0.55           | 0.51                | 52.6        |
| East: River Road East        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 4                            | L2   | All MCs   | 42           | 0.0  | 42            | 0.0  | 0.240     | 4.8         | LOS A            | 1.4               | 10.5   | 0.49      | 0.55           | 0.49                | 52.4        |
| 5                            | T1   | All MCs   | 138          | 4.9  | 138           | 4.9  | 0.240     | 4.9         | LOS A            | 1.4               | 10.5   | 0.49      | 0.55           | 0.49                | 52.7        |
| 6                            | R2   | All MCs   | 92           | 7.1  | 92            | 7.1  | 0.240     | 10.7        | LOS B            | 1.4               | 10.5   | 0.49      | 0.55           | 0.49                | 51.6        |
| 6u                           | U    | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.240     | 12.9        | LOS B            | 1.4               | 10.5   | 0.49      | 0.55           | 0.49                | 51.9        |
| Approach                     |      |           | 274          | 4.8  | 274           | 4.8  | 0.240     | 6.9         | LOS A            | 1.4               | 10.5   | 0.49      | 0.55           | 0.49                | 52.3        |
| North: Youngman Street       |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 7                            | L2   | All MCs   | 68           | 6.4  | 68            | 6.4  | 0.239     | 4.7         | LOS A            | 1.4               | 10.6   | 0.44      | 0.53           | 0.44                | 52.6        |
| 8                            | T1   | All MCs   | 127          | 6.8  | 127           | 6.8  | 0.239     | 4.7         | LOS A            | 1.4               | 10.6   | 0.44      | 0.53           | 0.44                | 53.0        |
| 9                            | R2   | All MCs   | 84           | 8.3  | 84            | 8.3  | 0.239     | 10.4        | LOS B            | 1.4               | 10.6   | 0.44      | 0.53           | 0.44                | 51.9        |
| 9u                           | U    | All MCs   | 3            | 0.0  | 3             | 0.0  | 0.239     | 12.6        | LOS B            | 1.4               | 10.6   | 0.44      | 0.53           | 0.44                | 52.1        |
| Approach                     |      |           | 282          | 7.1  | 282           | 7.1  | 0.239     | 6.5         | LOS A            | 1.4               | 10.6   | 0.44      | 0.53           | 0.44                | 52.5        |
| West: River Road West        |      |           |              |      |               |      |           |             |                  |                   |        |           |                |                     |             |
| 10                           | L2   | All MCs   | 67           | 5.9  | 67            | 5.9  | 0.205     | 4.7         | LOS A            | 1.2               | 8.7    | 0.45      | 0.52           | 0.45                | 52.8        |
| 11                           | T1   | All MCs   | 111          | 6.3  | 111           | 6.3  | 0.205     | 4.8         | LOS A            | 1.2               | 8.7    | 0.45      | 0.52           | 0.45                | 53.1        |
| 12                           | R2   | All MCs   | 59           | 5.9  | 59            | 5.9  | 0.205     | 10.5        | LOS B            | 1.2               | 8.7    | 0.45      | 0.52           | 0.45                | 52.1        |
| 12u                          | U    | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.205     | 12.7        | LOS B            | 1.2               | 8.7    | 0.45      | 0.52           | 0.45                | 52.3        |
| Approach                     |      |           | 238          | 6.1  | 238           | 6.1  | 0.205     | 6.2         | LOS A            | 1.2               | 8.7    | 0.45      | 0.52           | 0.45                | 52.8        |
| All Vehicles                 |      |           | 1011         | 5.8  | 1011          | 5.8  | 0.240     | 6.5         | LOS A            | 1.4               | 10.6   | 0.47      | 0.54           | 0.47                | 52.5        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

## SITE LAYOUT

▽ Site: 101 [2\_River Rd\_Access (2027 BG+Dev) (AM) (Site Folder: General)]

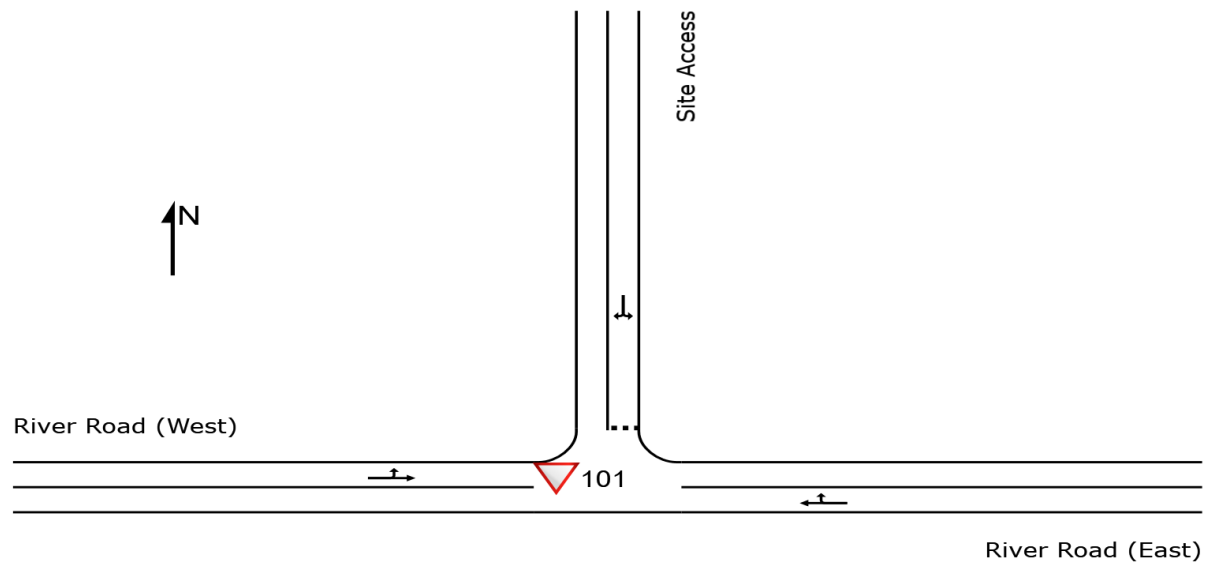
Prepared by: AM

Reviewed by:

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Organisation: SLR CONSULTING AUSTRALIA | Licence: NETWORK / 1PC | Created: Wednesday, 20 May 2026 11:10:32 AM

Project: \\au.slr.local\Corporate\Projects-SLR\625-MIL\625.010554.00001 Kingaroy - Wattlegrove Workers\00004 - Traffic\02 Analysis\2026 01 - TIA\02 Sidra\625.010554-v0.2 Kingaroy 20260430.sip9

# MOVEMENT SUMMARY

Site: 101 [2\_River Rd\_Access (2027 BG+Dev) (AM) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|-------|---------------|-------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |       | Arrival Flows |       | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %     | [ Total HV ]  | %     | v/c       | sec         |                  | [ Veh. ]          | [ Dist ] |           |                |                     | km/h        |
| East: River Road (East)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 5                            | T1   | All MCs   | 106          | 9.2   | 106           | 9.2   | 0.082     | 0.2         | LOS A            | 0.2               | 1.8      | 0.12      | 0.15           | 0.12                | 59.0        |
| 6                            | R2   | All MCs   | 25           | 60.0  | 25            | 60.0  | 0.082     | 6.7         | LOS A            | 0.2               | 1.8      | 0.12      | 0.15           | 0.12                | 53.3        |
| Approach                     |      |           | 131          | 18.8  | 131           | 18.8  | 0.082     | 1.4         | NA               | 0.2               | 1.8      | 0.12      | 0.15           | 0.12                | 57.8        |
| North: Site Access           |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 14           | 100.0 | 14            | 100.0 | 0.015     | 7.3         | LOS A            | 0.1               | 0.8      | 0.24      | 0.53           | 0.24                | 47.5        |
| 9                            | R2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.015     | 6.4         | LOS A            | 0.1               | 0.8      | 0.24      | 0.53           | 0.24                | 50.7        |
| Approach                     |      |           | 15           | 96.6  | 15            | 96.6  | 0.015     | 7.3         | LOS A            | 0.1               | 0.8      | 0.24      | 0.53           | 0.24                | 47.6        |
| West: River Road (West)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.053     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 57.2        |
| 11                           | T1   | All MCs   | 95           | 10.9  | 95            | 10.9  | 0.053     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 96           | 10.9  | 96            | 10.9  | 0.053     | 0.0         | NA               | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| All Vehicles                 |      |           | 241          | 20.4  | 241           | 20.4  | 0.082     | 1.2         | NA               | 0.2               | 1.8      | 0.08      | 0.12           | 0.08                | 57.9        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

▼ Site: 101 [2\_River Rd\_Access (2027 BG+Dev) (PM) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|-------|---------------|-------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |       | Arrival Flows |       | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %     | [ Total HV ]  | %     |           |             |                  | [ Veh. ]          | [ Dist ] |           |                |                     |             |
|                              |      |           | veh/h        |       | veh/h         |       | v/c       | sec         |                  | veh               | m        |           |                |                     | km/h        |
| East: River Road (East)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 5                            | T1   | All MCs   | 77           | 7.5   | 77            | 7.5   | 0.059     | 0.1         | LOS A            | 0.2               | 1.3      | 0.10      | 0.12           | 0.10                | 58.5        |
| 6                            | R2   | All MCs   | 14           | 100.0 | 14            | 100.0 | 0.059     | 7.2         | LOS A            | 0.2               | 1.3      | 0.10      | 0.12           | 0.10                | 51.2        |
| Approach                     |      |           | 91           | 21.9  | 91            | 21.9  | 0.059     | 1.2         | NA               | 0.2               | 1.3      | 0.10      | 0.12           | 0.10                | 57.2        |
| North: Site Access           |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 25           | 60.0  | 25            | 60.0  | 0.022     | 6.6         | LOS A            | 0.1               | 0.9      | 0.18      | 0.53           | 0.18                | 50.0        |
| 9                            | R2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.022     | 6.1         | LOS A            | 0.1               | 0.9      | 0.18      | 0.53           | 0.18                | 51.8        |
| Approach                     |      |           | 25           | 58.9  | 25            | 58.9  | 0.022     | 6.6         | LOS A            | 0.1               | 0.9      | 0.18      | 0.53           | 0.18                | 50.0        |
| West: River Road (West)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.039     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 57.2        |
| 11                           | T1   | All MCs   | 73           | 6.0   | 73            | 6.0   | 0.039     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 73           | 6.0   | 73            | 6.0   | 0.039     | 0.0         | NA               | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| All Vehicles                 |      |           | 189          | 20.7  | 189           | 20.7  | 0.059     | 1.5         | NA               | 0.2               | 1.3      | 0.07      | 0.13           | 0.07                | 57.1        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

▼ Site: 101 [2\_River Rd\_Access (2037 BG+Dev) (AM) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|-------|---------------|-------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |       | Arrival Flows |       | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %     | [ Total HV ]  | %     | v/c       | sec         |                  | [ Veh. veh        | Dist ] m |           |                |                     | km/h        |
| East: River Road (East)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 5                            | T1   | All MCs   | 119          | 9.2   | 119           | 9.2   | 0.090     | 0.2         | LOS A            | 0.2               | 1.8      | 0.12      | 0.14           | 0.12                | 59.1        |
| 6                            | R2   | All MCs   | 25           | 60.0  | 25            | 60.0  | 0.090     | 6.8         | LOS A            | 0.2               | 1.8      | 0.12      | 0.14           | 0.12                | 53.4        |
| Approach                     |      |           | 143          | 18.0  | 143           | 18.0  | 0.090     | 1.3         | NA               | 0.2               | 1.8      | 0.12      | 0.14           | 0.12                | 58.0        |
| North: Site Access           |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 14           | 100.0 | 14            | 100.0 | 0.016     | 7.4         | LOS A            | 0.1               | 0.8      | 0.25      | 0.53           | 0.25                | 47.5        |
| 9                            | R2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.016     | 6.5         | LOS A            | 0.1               | 0.8      | 0.25      | 0.53           | 0.25                | 50.6        |
| Approach                     |      |           | 15           | 96.6  | 15            | 96.6  | 0.016     | 7.4         | LOS A            | 0.1               | 0.8      | 0.25      | 0.53           | 0.25                | 47.6        |
| West: River Road (West)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.059     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 57.2        |
| 11                           | T1   | All MCs   | 107          | 10.9  | 107           | 10.9  | 0.059     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 108          | 10.9  | 108           | 10.9  | 0.059     | 0.0         | NA               | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| All Vehicles                 |      |           | 266          | 19.4  | 266           | 19.4  | 0.090     | 1.1         | NA               | 0.2               | 1.8      | 0.08      | 0.11           | 0.08                | 58.0        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

# MOVEMENT SUMMARY

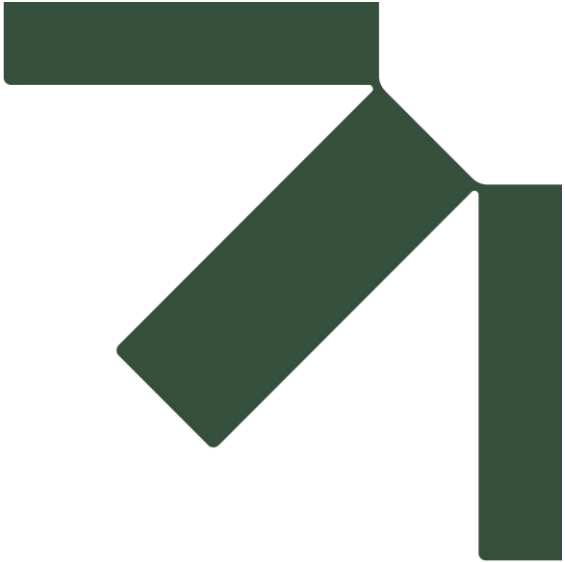
▼ Site: 101 [2\_River Rd\_Access (2037 BG+Dev) (PM) (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Prepared by: AM  
Reviewed by:  
Site Category: (None)  
Give-Way (Two-Way)

| Vehicle Movement Performance |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
|------------------------------|------|-----------|--------------|-------|---------------|-------|-----------|-------------|------------------|-------------------|----------|-----------|----------------|---------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |       | Arrival Flows |       | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |          | Prop. Que | Eff. Stop Rate | Aver. No. of Cycles | Aver. Speed |
|                              |      |           | [ Total HV ] | %     | [ Total HV ]  | %     | v/c       | sec         |                  | [ Veh. veh        | Dist ] m |           |                |                     | km/h        |
| East: River Road (East)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 5                            | T1   | All MCs   | 86           | 7.5   | 86            | 7.5   | 0.064     | 0.1         | LOS A            | 0.2               | 1.3      | 0.10      | 0.11           | 0.10                | 58.6        |
| 6                            | R2   | All MCs   | 14           | 100.0 | 14            | 100.0 | 0.064     | 7.2         | LOS A            | 0.2               | 1.3      | 0.10      | 0.11           | 0.10                | 51.3        |
| Approach                     |      |           | 100          | 20.6  | 100           | 20.6  | 0.064     | 1.1         | NA               | 0.2               | 1.3      | 0.10      | 0.11           | 0.10                | 57.4        |
| North: Site Access           |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 7                            | L2   | All MCs   | 25           | 60.0  | 25            | 60.0  | 0.022     | 6.6         | LOS A            | 0.1               | 0.9      | 0.20      | 0.53           | 0.20                | 49.9        |
| 9                            | R2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.022     | 6.2         | LOS A            | 0.1               | 0.9      | 0.20      | 0.53           | 0.20                | 51.8        |
| Approach                     |      |           | 25           | 58.9  | 25            | 58.9  | 0.022     | 6.6         | LOS A            | 0.1               | 0.9      | 0.20      | 0.53           | 0.20                | 50.0        |
| West: River Road (West)      |      |           |              |       |               |       |           |             |                  |                   |          |           |                |                     |             |
| 10                           | L2   | All MCs   | 1            | 5.0   | 1             | 5.0   | 0.044     | 5.6         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 57.2        |
| 11                           | T1   | All MCs   | 81           | 6.0   | 81            | 6.0   | 0.044     | 0.0         | LOS A            | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| Approach                     |      |           | 82           | 6.0   | 82            | 6.0   | 0.044     | 0.0         | NA               | 0.0               | 0.0      | 0.00      | 0.00           | 0.00                | 59.9        |
| All Vehicles                 |      |           | 208          | 19.5  | 208           | 19.5  | 0.064     | 1.4         | NA               | 0.2               | 1.3      | 0.07      | 0.12           | 0.07                | 57.3        |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).  
Vehicle movement LOS values are based on average delay per movement.  
Minor Road Approach LOS values are based on average delay for all vehicle movements.  
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).  
Two-Way Sign Control Capacity Model: SIDRA Standard.  
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).  
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.  
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).  
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.  
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



# **Appendix E   Pavement Impact Scoping Calculations**

## **Traffic Impact Assessment**

**Kingaroy Concrete Batching Plant**

**Kingaroy Quarry Supplies Pty Ltd**

SLR Project No.: 625.010554.00001

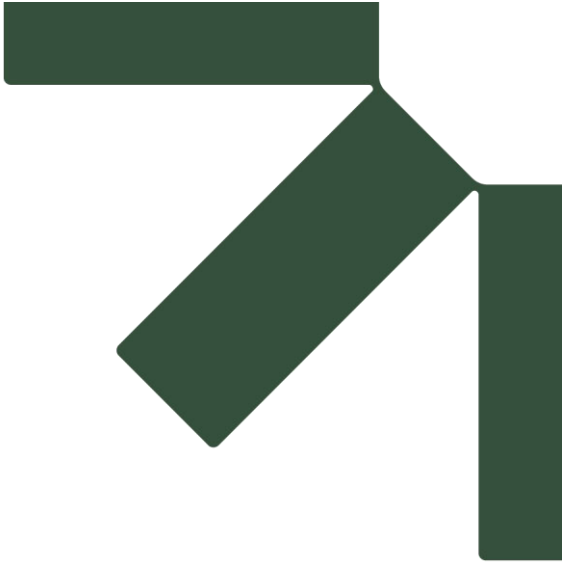
27 May 2026

## Step 5: Assign development SAR4s (ESAs) onto the SCR network

| Row ID | SLR Road Segment ID | State Road Section ID | Road Data                               |            |                  |               | Total_SAR4 | % distribution | Development Volumes |          |            |
|--------|---------------------|-----------------------|-----------------------------------------|------------|------------------|---------------|------------|----------------|---------------------|----------|------------|
|        |                     |                       | Road Name                               | Direction  | In/Out Direction | Section       |            |                | Loaded              | Unloaded | Total_SAR4 |
| 1      | 1                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 82.4 - 99.4   | 152,324    | 90%            | 10,519              | 0        | 10,519     |
| 2      | 1                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 82.4 - 99.4   | 175,804    | 10%            | 0                   | 1,222    | 1,222      |
| 3      | 2                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 99.4 - 104.3  | 152,324    | 62%            | 10,519              | 371      | 10,890     |
| 4      | 2                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 99.4 - 104.3  | 175,804    | 38%            | 5,317               | 1,222    | 6,539      |
| 5      | 3                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 104.3 - 108.1 | 157,278    | 62%            | 10,519              | 371      | 10,890     |
| 6      | 3                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 104.3 - 108.1 | 187,062    | 38%            | 5,317               | 1,222    | 6,539      |
| 7      | 4                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 108.1 - 108.2 | 157,278    | 62%            | 10,519              | 371      | 10,890     |
| 8      | 4                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 108.1 - 108.2 | 187,062    | 38%            | 5,317               | 1,222    | 6,539      |
| 9      | 5                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Inbound          | 108.2 - 109.9 | 252,765    | 11%            | 0                   | 934      | 934        |
| 10     | 5                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Outbound         | 108.2 - 109.9 | 683,012    | 89%            | 7,342               | 0        | 7,342      |
| 11     | 6                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Southbound | Inbound          | 0.0 - 5.9     | 418,135    | 11%            | 0                   | 934      | 934        |
| 12     | 6                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Northbound | Outbound         | 0.0 - 5.9     | 313,942    | 89%            | 7,342               | 0        | 7,342      |
| 13     | 7                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Southbound | Inbound          | 5.9 - 21.4    | 344,256    | 11%            | 0                   | 934      | 934        |
| 14     | 7                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Northbound | Outbound         | 5.9 - 21.4    | 324,577    | 89%            | 7,342               | 0        | 7,342      |
| 15     | 8                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 0.0 - 4.7     | 431,278    | 56%            | 9,063               | 445      | 9,508      |
| 16     | 8                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 0.0 - 4.7     | 418,932    | 44%            | 6,380               | 1,127    | 7,507      |
| 17     | 9                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 4.7 - 17.7    | 458,553    | 56%            | 9,063               | 445      | 9,508      |
| 18     | 9                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 4.7 - 17.7    | 457,545    | 44%            | 6,380               | 1,127    | 7,507      |
| 19     | 10                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 17.7 - 20.9   | 723,889    | 56%            | 9,063               | 445      | 9,508      |
| 20     | 10                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 17.7 - 20.9   | 405,659    | 44%            | 6,380               | 1,127    | 7,507      |
| 21     | 11                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 20.9 - 21.2   | 723,889    | 56%            | 9,063               | 445      | 9,508      |
| 22     | 11                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 20.9 - 21.2   | 405,659    | 44%            | 6,380               | 1,127    | 7,507      |
| 23     | 12                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 21.2 - 21.7   | 723,889    | 56%            | 9,063               | 445      | 9,508      |
| 24     | 12                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 21.2 - 21.7   | 405,659    | 44%            | 6,380               | 1,127    | 7,507      |
| 25     | 13                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 21.7 - 42.6   | 252,805    | 56%            | 9,063               | 445      | 9,508      |
| 26     | 13                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 21.7 - 42.6   | 656,067    | 44%            | 6,380               | 1,127    | 7,507      |
| 27     | 14                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 42.6 - 42.7   | 252,805    | 56%            | 9,063               | 445      | 9,508      |
| 28     | 14                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 42.6 - 42.7   | 656,067    | 44%            | 6,380               | 1,127    | 7,507      |
| 29     | 15                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 42.7 - 43.0   | 252,805    | 56%            | 9,063               | 445      | 9,508      |
| 30     | 15                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 42.7 - 43.0   | 656,067    | 44%            | 6,380               | 1,127    | 7,507      |
| 31     | 16                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 43.0 - 45.7   | 763,379    | 56%            | 9,063               | 445      | 9,508      |
| 32     | 16                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 43.0 - 45.7   | 539,725    | 44%            | 6,380               | 1,127    | 7,507      |

## Step 6: Identify road links with >5% development SAR4s (ESAs) impact

| Row ID | SLR Road Segment ID | State Road Section ID | Road Name                               | Direction  | In/Out Direction | Section       | Background Total_SAR4 | Development Total_SAR4 | % background | >5% |
|--------|---------------------|-----------------------|-----------------------------------------|------------|------------------|---------------|-----------------------|------------------------|--------------|-----|
| 1      | 1                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 82.4 - 99.4   | 152,324               | 10,519                 | 6.91%        | Yes |
| 2      | 1                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 82.4 - 99.4   | 175,804               | 1,222                  | 0.70%        | No  |
| 3      | 2                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 99.4 - 104.3  | 152,324               | 10,890                 | 7.15%        | Yes |
| 4      | 2                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 99.4 - 104.3  | 175,804               | 6,539                  | 3.72%        | No  |
| 5      | 3                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 104.3 - 108.1 | 157,278               | 10,890                 | 6.92%        | Yes |
| 6      | 3                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 104.3 - 108.1 | 187,062               | 6,539                  | 3.50%        | No  |
| 7      | 4                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Outbound         | 108.1 - 108.2 | 157,278               | 10,890                 | 6.92%        | Yes |
| 8      | 4                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Inbound          | 108.1 - 108.2 | 187,062               | 6,539                  | 3.50%        | No  |
| 9      | 5                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Southbound | Inbound          | 108.2 - 109.9 | 252,765               | 934                    | 0.37%        | No  |
| 10     | 5                   | 45A                   | Bunya Highway (Dalby to Kingaroy)       | Northbound | Outbound         | 108.2 - 109.9 | 683,012               | 7,342                  | 1.07%        | No  |
| 11     | 6                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Southbound | Inbound          | 0.0 - 5.9     | 418,135               | 934                    | 0.22%        | No  |
| 12     | 6                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Northbound | Outbound         | 0.0 - 5.9     | 313,942               | 7,342                  | 2.34%        | No  |
| 13     | 7                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Southbound | Inbound          | 5.9 - 21.4    | 344,256               | 934                    | 0.27%        | No  |
| 14     | 7                   | 45B                   | Bunya Highway (Kingaroy to Goomeri)     | Northbound | Outbound         | 5.9 - 21.4    | 324,577               | 7,342                  | 2.26%        | No  |
| 15     | 8                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 0.0 - 4.7     | 431,278               | 9,508                  | 2.20%        | No  |
| 16     | 8                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 0.0 - 4.7     | 418,932               | 7,507                  | 1.79%        | No  |
| 17     | 9                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 4.7 - 17.7    | 458,553               | 9,508                  | 2.07%        | No  |
| 18     | 9                   | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 4.7 - 17.7    | 457,545               | 7,507                  | 1.64%        | No  |
| 19     | 10                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 17.7 - 20.9   | 723,889               | 9,508                  | 1.31%        | No  |
| 20     | 10                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 17.7 - 20.9   | 405,659               | 7,507                  | 1.85%        | No  |
| 21     | 11                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 20.9 - 21.2   | 723,889               | 9,508                  | 1.31%        | No  |
| 22     | 11                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 20.9 - 21.2   | 405,659               | 7,507                  | 1.85%        | No  |
| 23     | 12                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 21.2 - 21.7   | 723,889               | 9,508                  | 1.31%        | No  |
| 24     | 12                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 21.2 - 21.7   | 405,659               | 7,507                  | 1.85%        | No  |
| 25     | 13                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 21.7 - 42.6   | 252,805               | 9,508                  | 3.76%        | No  |
| 26     | 13                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 21.7 - 42.6   | 656,067               | 7,507                  | 1.14%        | No  |
| 27     | 14                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 42.6 - 42.7   | 252,805               | 9,508                  | 3.76%        | No  |
| 28     | 14                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 42.6 - 42.7   | 656,067               | 7,507                  | 1.14%        | No  |
| 29     | 15                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 42.7 - 43.0   | 252,805               | 9,508                  | 3.76%        | No  |
| 30     | 15                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 42.7 - 43.0   | 656,067               | 7,507                  | 1.14%        | No  |
| 31     | 16                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Eastbound  | Outbound         | 43.0 - 45.7   | 763,379               | 9,508                  | 1.25%        | No  |
| 32     | 16                  | 40C                   | D'Aguilar Highway (Yarraman - Kingaroy) | Westbound  | Inbound          | 43.0 - 45.7   | 539,725               | 7,507                  | 1.39%        | No  |



# **Appendix F    QLD SDAP Code Responses**

## **Traffic Impact Assessment**

**Kingaroy Concrete Batching Plant**

**Kingaroy Quarry Supplies Pty Ltd**

SLR Project No.: 625.010554.00001

27 May 2026

# State code 6: Protection of state transport networks

**Table 6.2 Development in general**

| Performance outcomes                                                                                                                                                        | Acceptable outcomes                  | Response                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Network impacts</b>                                                                                                                                                      |                                      |                                                                                                                                                                                                                                                                                                                                                                   |
| <b>PO1</b> Development does not compromise the safety of users of the <b>state-controlled road</b> network.                                                                 | No acceptable outcome is prescribed. | <b>Complies with PO1</b><br>The development will not impact on the safety of users of the state-controlled road network. Refer to the SLR TIA for further details.                                                                                                                                                                                                |
| <b>PO2</b> Development does not adversely impact the structural integrity or physical condition of a <b>state-controlled road</b> or <b>road transport infrastructure</b> . | No acceptable outcome is prescribed. | <b>Complies with PO2</b><br>The development will not impact on the structural integrity or physical condition of the state-controlled road network or road transport infrastructure.                                                                                                                                                                              |
| <b>PO3</b> Development ensures <b>no net worsening</b> of the operating performance the <b>state-controlled road</b> network.                                               | No acceptable outcome is prescribed. | <b>Complies with PO3</b><br>The development will not impact on the operation of the state-controlled road network. Refer to <b>Section 7.0</b> of the SLR TIA for further details.                                                                                                                                                                                |
| <b>PO4</b> Traffic movements are not directed onto a <b>state-controlled road</b> where they can be accommodated on the <b>local road</b> network.                          | No acceptable outcome is prescribed. | <b>Complies with PO4</b><br>Where applicable, traffic movements would utilise the local road network. However, due to the nature of the proposed development, the state-controlled road network will be utilised for the major movement of heavy vehicles associated with the development, prior to the local routing of the vehicles via the local road network. |
| <b>PO5</b> Development involving haulage exceeding 10,000 tonnes per year does not damage the pavement of a <b>state-controlled road</b> .                                  | No acceptable outcome is prescribed. | <b>Complies with PO5</b><br>The development which includes the haulage of material to the site and export of concrete from the site will result in pavement impacts. Contributions as calculated in the SLR TIA are proposed to offset the impact of the proposed development of the development. Refer to <b>Section 8.0</b> of the SLR TIA for further details. |

| Performance outcomes                                                                                                                                                                                              | Acceptable outcomes                  | Response                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PO6</b> Development does not require a new <b>railway</b> level crossing.                                                                                                                                      | No acceptable outcome is prescribed. | <b>Complies with PO6</b><br>The development does not require a new railway crossing.                                                                                          |
| <b>PO7</b> Development does not adversely impact the operating performance of an existing <b>railway crossing</b> .                                                                                               | No acceptable outcome is prescribed. | <b>Complies with PO7</b><br>The development does not impact the operating performance of an existing railway crossing.                                                        |
| <b>PO8</b> Development does not adversely impact on the safety of an existing <b>railway crossing</b> .                                                                                                           | No acceptable outcome is prescribed. | <b>Complies with PO8</b><br>The development does not impact the safety of an existing railway crossing.                                                                       |
| <b>PO9</b> Development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a <b>railway crossing</b> .                                                                | No acceptable outcome is prescribed. | <b>Complies with PO9</b><br>The development is designed and constructed to allow for on-site circulation to ensure vehicles do not queue in a railway crossing.               |
| <b>PO10</b> Development does not create a safety hazard within the <b>railway corridor</b> .                                                                                                                      | No acceptable outcome is prescribed. | <b>Complies with PO10</b><br>The development does not create a safety hazard within a railway corridor.                                                                       |
| <b>PO11</b> Development does not adversely impact the operating performance of the <b>railway corridor</b> .                                                                                                      | No acceptable outcome is prescribed. | <b>Complies with PO11</b><br>The development does not adversely impact the operating performance of a railway corridor.                                                       |
| <b>PO12</b> Development does not interfere with or obstruct the <b>railway transport infrastructure</b> or <b>other rail infrastructure</b> .                                                                     | No acceptable outcome is prescribed. | <b>Complies with PO12</b><br>The development does not interfere with or obstruct the railway transport infrastructure or other rail infrastructure.                           |
| <b>PO13</b> Development does not adversely impact the structural integrity or physical condition of a <b>railway corridor</b> or <b>rail transport infrastructure</b> .                                           | No acceptable outcome is prescribed. | <b>Complies with PO13</b><br>The development does not adversely impact the structural integrity or physical condition of a railway corridor or rail transport infrastructure. |
| <b>Stormwater and overland flow</b>                                                                                                                                                                               |                                      |                                                                                                                                                                               |
| <b>PO14</b> Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of a <b>state transport corridor</b> or <b>state transport infrastructure</b> . | No acceptable outcome is prescribed. | <b>Not assessed herein</b><br>This is not a traffic engineering matter and has not been assessed herein.                                                                      |
| <b>PO15</b> Stormwater run-off or overland flow from the development site does not result in a material worsening of operating performance of a <b>state</b>                                                      | No acceptable outcome is prescribed. | <b>Not assessed herein</b><br>This is not a traffic engineering matter and has not been assessed herein.                                                                      |

| Performance outcomes                                                                                                                                                                                                       | Acceptable outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Response                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>transport corridor or state transport infrastructure.</b>                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                          |
| <b>PO16</b> Stormwater run-off or overland flow from the development site does not interfere with the structural integrity or physical condition of the <b>state transport corridor or state transport infrastructure.</b> | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Not assessed herein</b><br>This is not a traffic engineering matter and has not been assessed herein. |
| <b>PO17</b> Development associated with a <b>state-controlled road or road transport infrastructure</b> ensures that stormwater is lawfully discharged.                                                                    | <p><b>AO17.1</b> Development does not create any new points of discharge to a <b>state transport corridor or state transport infrastructure.</b></p> <p>AND</p> <p><b>AO17.2</b> Development does not concentrate flows to a <b>state transport corridor.</b></p> <p>AND</p> <p><b>AO17.3</b> Stormwater run-off is discharged to a <b>lawful point of discharge.</b></p> <p>AND</p> <p><b>AO17.4</b> Development does not worsen the condition of an existing <b>lawful point of discharge</b> to a <b>state transport corridor or state transport infrastructure.</b></p> | <b>Not assessed herein</b><br>This is not a traffic engineering matter and has not been assessed herein. |
| <b>Flooding</b>                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                          |
| <b>PO18</b> Development does not result in a material worsening of flooding impacts within a <b>state transport corridor or state transport infrastructure</b>                                                             | <p><i>For a <b>state-controlled road or road transport infrastructure</b>, all of the following apply:</i></p> <p><b>AO18.1</b> For all flood events up to 1% <b>annual exceedance probability</b>, development ensures there are negligible impacts (within +/- 10mm) to existing flood levels within a <b>state transport corridor.</b></p>                                                                                                                                                                                                                               | <b>Not assessed herein</b><br>This is not a traffic engineering matter and has not been assessed herein. |

| Performance outcomes                                                                                       | Acceptable outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Response                                                                                                            |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
|                                                                                                            | <p>AND</p> <p><b>AO18.2</b> For all flood events up to 1% <b>annual exceedance probability</b>, development ensures there are negligible impacts (up to a 10% increase) to existing peak velocities within a <b>state transport corridor</b>.</p> <p>AND</p> <p><b>AO18.3</b> For all flood events up to 1% annual exceedance probability, development ensures there are negligible impacts (up to a 10% increase) to existing time of submergence of a <b>state transport corridor</b>.</p> <p><i>No acceptable outcome is prescribed for a <b>railway corridor</b> or <b>rail transport infrastructure</b>.</i></p> |                                                                                                                     |
| <b>Drainage infrastructure</b>                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                     |
| <b>PO19</b> Drainage infrastructure does not create a safety hazard in a <b>state transport corridor</b> . | <p><i>For a <b>state-controlled road</b> environment, both of the following apply:</i></p> <p><b>AO19.1</b> Drainage infrastructure associated with, or in a <b>state-controlled road</b> is wholly contained within the development site, except at the <b>lawful point of discharge</b>.</p> <p>AND</p> <p><b>AO19.2</b> Drainage infrastructure can be maintained without requiring access to a <b>state transport corridor</b>.</p> <p><i>For a <b>railway</b> environment both of the following apply:</i></p>                                                                                                   | <p><b>Not assessed herein</b></p> <p>This is not a traffic engineering matter and has not been assessed herein.</p> |

| Performance outcomes                                                                                                                                                                                                                                                                                            | Acceptable outcomes                                                                                                                                                                                                                                                                                                      | Response                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                 | <p><b>AO19.3</b> Drainage infrastructure associated with a <b>railway corridor</b> or <b>rail transport infrastructure</b> is wholly contained within the development site.</p> <p>AND</p> <p><b>AO19.4</b> Drainage infrastructure can be maintained without requiring access to a <b>state transport corridor</b>.</p> |                                                                                                                                         |
| <b>PO20</b> Drainage infrastructure associated with, or in a <b>state-controlled road</b> or <b>road transport infrastructure</b> is constructed and designed to ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage network is maintained. | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                     | <p><b>Not assessed herein</b></p> <p>This is not a traffic engineering matter and has not been assessed herein.</p>                     |
| <b>Planned upgrades</b>                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                         |
| <b>PO21</b> Development does not impede delivery of <b>planned upgrades of state transport infrastructure</b> .                                                                                                                                                                                                 | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                     | <p><b>Complies with PO21</b></p> <p>The development does not impede delivery of planned upgrades of state transport infrastructure.</p> |

**Table 6.3 Public passenger transport infrastructure and active transport**

| Performance outcomes                                                                                                                                                               | Acceptable outcomes                  | Response                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PO22</b> Development does not damage or interfere with <b>public passenger transport infrastructure, active transport infrastructure</b> or <b>public passenger services</b> .  | No acceptable outcome is prescribed. | <p><b>Complies with PO22</b></p> <p>The development does not damage or interfere with public passenger transport infrastructure, active transport infrastructure or public passenger services.</p>  |
| <b>PO23</b> Development does not compromise the safety of <b>public passenger transport infrastructure, public passenger services</b> and <b>active transport infrastructure</b> . | No acceptable outcome is prescribed. | <p><b>Complies with PO23</b></p> <p>The development does not compromise the safety of public passenger transport infrastructure, public passenger services and active transport infrastructure.</p> |
| <b>PO24</b> Development does not adversely impact the operating performance of <b>public passenger</b>                                                                             | No acceptable outcome is prescribed. | <p><b>Complies with PO24</b></p> <p>The development does not adversely impact the operating performance of public passenger</p>                                                                     |

| Performance outcomes                                                                                                                                                                                                                                                                              | Acceptable outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Response                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>transport infrastructure, public passenger services and active transport infrastructure.</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | transport infrastructure, public passenger services and active transport infrastructure.                                                                                                                |
| <b>PO25</b> Development does not adversely impact the structural integrity or physical condition of <b>public passenger transport infrastructure</b> and <b>active transport infrastructure</b> .                                                                                                 | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Complies with PO25</b><br>The development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure. |
| <b>PO26</b> Upgraded or new <b>public passenger transport infrastructure</b> and <b>active transport infrastructure</b> is provided to accommodate the demand for <b>public passenger transport</b> and <b>active transport</b> generated by the development.                                     | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Not applicable</b>                                                                                                                                                                                   |
| <b>PO27</b> Development is designed to ensure the location of <b>public passenger transport infrastructure</b> prioritises and enables efficient <b>public passenger services</b> .                                                                                                               | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Not applicable</b>                                                                                                                                                                                   |
| <b>PO28</b> Development enables the provision or extension of <b>public passenger services, public passenger transport infrastructure</b> and <b>active transport infrastructure</b> to the development and avoids creating indirect or inefficient routes for <b>public passenger services</b> . | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Not applicable</b>                                                                                                                                                                                   |
| <b>PO29</b> New or modified road networks are designed to enable development to be serviced by <b>public passenger services</b> .                                                                                                                                                                 | <b>AO29.1</b> Roads catering for buses are arterial or <b>sub-arterial roads</b> , collector or their equivalent.<br><br>AND<br><br><b>AO29.2</b> Roads intended to accommodate buses are designed and constructed in accordance with:<br>1. Road Planning and Design Manual, 2nd Edition, Volume 3 – Guide to Road Design; Department of Transport and Main Roads;<br>2. Supplement to Austroads Guide to Road Design (Parts 3, 4-4C and 6), Department of Transport and Main Roads; | <b>Not applicable</b>                                                                                                                                                                                   |

| Performance outcomes                                                                                                                                                                                        | Acceptable outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Response              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|                                                                                                                                                                                                             | <p>3. Austroads Guide to Road Design (Parts 3, 4-4C and 6);</p> <p>4. Austroads Design Vehicles and Turning Path Templates;</p> <p>5. Queensland Manual of Uniform Traffic Control Devices, Part 13: Local Area Traffic Management and AS 1742.13-2009 Manual of Uniform Traffic Control Devices – Local Area Traffic Management;</p> <p>AND</p> <p><b>AO29.3</b> Traffic calming devices are not installed on roads used for buses in accordance with section 2.3.2 Bus Route Infrastructure, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.</p> |                       |
| <b>PO30</b> Development provides safe, direct and convenient access to existing and future <b>public passenger transport infrastructure</b> and <b>active transport infrastructure</b> .                    | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Not applicable</b> |
| <b>PO31</b> On-site vehicular circulation ensures the safety of both <b>public passenger transport services</b> and pedestrians.                                                                            | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Not applicable</b> |
| <b>PO32</b> <b>Taxi facilities</b> are provided to accommodate the demand generated by the development.                                                                                                     | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Not applicable</b> |
| <b>PO33</b> Facilities are provided to accommodate the demand generated by the development for community transport services, courtesy transport services, and <b>booked hire services</b> other than taxis. | No acceptable outcome is prescribed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Not applicable</b> |

| Performance outcomes                                                                                                                                                                                                 | Acceptable outcomes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Response                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| <p><b>PO34 Taxi facilities</b> are located and designed to provide convenient, safe and equitable access for passengers.</p>                                                                                         | <p><b>AO34.1 A taxi facility</b> is provided parallel to the kerb and adjacent to the main entrance.</p> <p>AND</p> <p><b>AO34.2 Taxi facilities</b> are designed in accordance with:</p> <ol style="list-style-type: none"> <li>1. AS2890.5–1993 Parking facilities – on-street parking and AS1428.1–2009 Design for access and mobility – general requirements for access – new building work;</li> <li>2. AS1742.11–1999 Parking controls – manual of uniform traffic control devices</li> <li>3. AS/NZS 2890.6–2009 Parking facilities –off street parking for people with disabilities;</li> <li>4. Disability standards for accessible public</li> <li>5. transport 2002 made under section 31(1) of the Disability Discrimination Act 1992;</li> <li>6. AS/NZS 1158.3.1 – Lighting for roads and public spaces, Part 3.1: Pedestrian area (category P) lighting – Performance and design requirements;</li> <li>7. Chapter 7 Taxi Facilities, Public Transport Infrastructure Manual, Department of Transport and Main Roads, 2015.</li> </ol> | <p><b>Not applicable</b></p> |
| <p><b>PO35</b> Educational establishments are designed to ensure the safe and efficient operation of <b>public passenger services</b>, pedestrian and cyclist access and <b>active transport infrastructure</b>.</p> | <p><b>AO35.1</b> Educational establishments are designed in accordance with the provisions of the Planning for Safe Transport Infrastructure at Schools, Department of Transport and Main Roads, 2011.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p><b>Not applicable</b></p> |