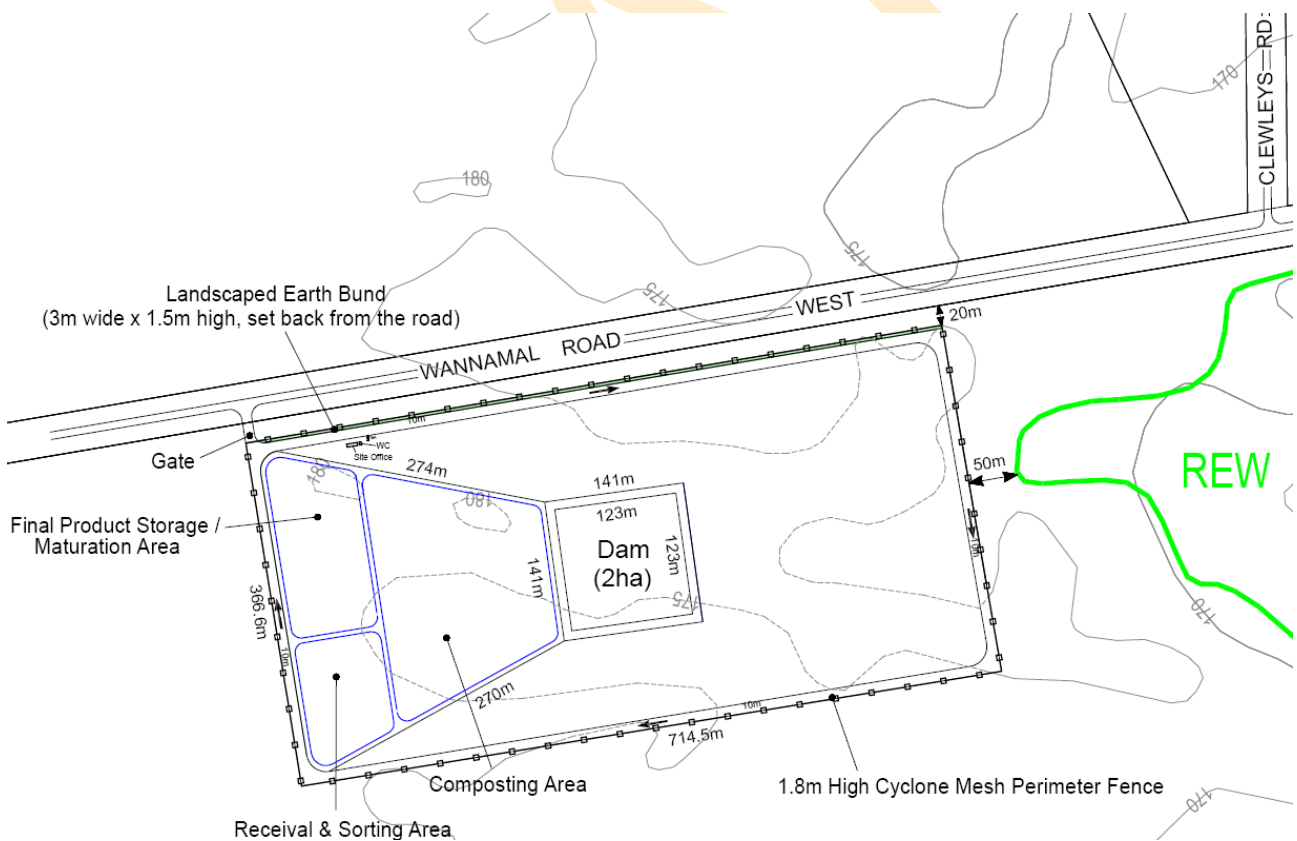




## PROPOSED COMPOSTING FACILITY

LOT 7779 WANNAMAL ROAD WEST, CULLALLA (SHIRE OF GINGIN)

## TRANSPORT IMPACT ASSESSMENT



Draft (D4-3)

Prepared by i3 consultants WA for  
Statewest Planning

# Proposed Composting Facility | Lot 7779 Wannamal Road West, Cullalla (Shire of Gingin) | Transport Impact Assessment

## Prepared by

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## Description

A Transport Impact Assessment for the development of a proposed composting facility on the south side of Wannamal Road West near Clewleys Road (Lot No 7779) in the Shire of Gingin locality of Cullalla, prepared in accordance with the 2016 WAPC Transport Impact Assessment Guidelines.

## Client

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This is not an approved document unless certified below.

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David specialises in undertaking and preparing traffic impact assessments in accordance with either the WAPC *Transport Impact Assessment Guidelines* or Austroads *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* (1). David has authored over 250 of these since 2001.

David is a member of Engineers Australia and committee member of Transport Australia society and is guided by its Charter and Code of Ethics which states that its members act in the interest of the community, ahead of sectional or personal interests towards a sustainable future.

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## 1 SUMMARY

The key components of a Transport Impact Assessment (*TIA*) for a development proposal are to:

- assess the proposed internal transport networks with respect to accessibility, circulation, and safety.
- assess the level of transport integration between the development proposal and the surrounding land uses,
- determine the impacts of the traffic generated by the development proposal on the surrounding land uses, and
- determine the impacts of the traffic generated by the development proposal on the surrounding transport networks.

This *TIA* has determined that:

- the proposed development will not result in an adverse impact on the road network in terms of capacity.
- Main Roads WA has formally assessed the suitability of Wannamal Rd West for use by Restricted Access Vehicles and has approved it for use by RAV 2-4 with conditions. On the basis that it has been assessed by Main Roads WA as safe for use by 27.5 m long combination vehicles it is reasonable to ascertain that it is also safe for use by 19 m semi-trailers.
- the proposed development is likely to result in an additional 8 semi-trailer trips and 1 light vehicle trip during the road network peak hours on Wannamal Rd West between the site and Brand Hwy.
- the proposed development is likely to result in an additional 65 semi-trailer trips and up to 6 light vehicle trips per day on Wannamal Rd West between the site and Brand Hwy.
- the proposed development is unlikely to result in total traffic volumes on the unsealed section of Wannamal Rd West exceeding 150 vehicles per day. This is Main Roads WA's threshold volume for sealing of RAV routes.

It is recommended that this *TIA* is adopted by the Shire of Gingin and Main Roads WA as an independent assessment of the traffic and transport impacts of the proposed development.



## 2 INTRODUCTION

This Transport Impact Assessment (*TIA*) report has been prepared in accordance with the WAPC publication *Transport Impact Assessment Guidelines* (2). These guidelines indicate that the level of assessment is to be discussed with the approving authority, in this case the Shire of Gingin, as shown in Table 1 below.

| LAND USE   | MODERATE IMPACT  | HIGH IMPACT  |
|--|--|--|
|  | Transport Impact Statement required                                  | Transport Impact Assessment required                           |
|  | 10 – 100 vehicle trips in the peak hour                              | > 100 vehicle trips in the peak hour                           |
| Residential  | 10–100 dwellings   | >100 dwellings   |
| Schools  | 10–100 students  | >100 students  |
| Entertainment venues, restaurants, etc.                              | 100–1000 persons (seats) OR 200–2000 m <sup>2</sup> gross floor area | >1000 persons (seats) OR >2000 m <sup>2</sup> gross floor area |
| Fast food restaurants  | 50–500 m <sup>2</sup> gross floor area                               | >500 m <sup>2</sup> gross floor area                           |
| Food retail /Shopping centres with a significant food retail content | 100–1000 m <sup>2</sup> gross floor area                             | >1000 m <sup>2</sup> gross floor area                          |
| Non-food retail  | 250–2500 m <sup>2</sup> gross floor area                             | >2500 m <sup>2</sup> gross floor area                          |
| Offices  | 500–5000 m <sup>2</sup> gross floor area                             | >5000 m <sup>2</sup> gross floor area                          |
| Service Station  | 1–7 refuelling positions   | >7 refuelling positions  |
| Industrial/Warehouse   | 1000–10,000 m <sup>2</sup> gross floor area                          | >10,000 m <sup>2</sup> gross floor area                        |
| Other Uses   | Discuss with approving authority                                     | Discuss with approving authority                               |

Table 1 – Level of assessment required (Source Table 1: WAPC Guidelines Vol 4)

The Shire of Gingin has indicated that a Transport Impact Assessment (*TIA*) is required.

An extract from the Design Drawing for the proposed development, showing the layout, is provided on the Cover Page.

The preparation of a *TIA* in accordance with the WAPC Guidelines is consistent with, and ensures compliance with, Clause 67(t) of the *Planning and Development (Local Planning Schemes) Regulations 2015* (3) which state “*due regard should be given to the amount of traffic likely to be generated by the development, particularly in relation to the capacity of the road system in the locality and the probable effect on traffic flow and safety*”.

The following sections have been prepared in a format that clearly identifies the items that are required to be assessed in a *TIA* and the responses and/ or assessments relative to these items.

**Name of applicant and consultant.**

Statewest Planning (**applicant**) and i3 consultants WA (**consultant**).

**Development location and context.**

Lot 7779 Wannamal Road West, Cullalla (Shire of Gingin).

The subject site is located in Cullalla, approximately 16 km north of Gingin township and 100 kms north of Perth. It is well served by Primary Distributor Roads at both ends of Wannamal Rd West, i.e., Brand Hwy to the west and Bindoon Moora Rd to the east, with a Local Distributor connection (Hay Flat Rd) to Great Northern Hwy (Refer Figure 1 on page 8). 90% of input and output material is expected to be transported to and from the west, i.e., Brand Hwy, and then north and south via this highway.

The property is farmland and has been privately owned by Vinsan Holdings Pty Ltd for the last 10 years.

Lot 7779 is 1,607.581 hectares, of which 25 hectares will be used as a composting facility (refer **Cover** page). The development will require clearing 25 hectares of regenerated native vegetation. The **applicant** has emphasised that the proposed clearing consists of the area where the vegetation is in the poorest condition, thereby avoiding and minimising impacts on the environment. The proposed access location is 1 km west of Clewleys Rd to avoid influencing the Wannamal Road/ Clewleys Rd intersection.

**Brief description of development proposal.**

The intention is to commence a business which receives organic wastes, including green waste, municipal-collected materials (food organics, green organics), grease trap waste and manures and other high nitrogen containing wastes. The source of such materials will include licensed waste transfer stations. Materials will be sorted on site, setting aside oversized woody material for subsequent tub grinding under contract. Appropriately sized materials will be blended, placed into windrows then have moisture added (from either a licensed bore, grease trap waste or a storm water/ leachate retention dam) to start the composting process.

Upon completion of the composting process, oversized material will be sent to a mulch storage area, and finer material will be matured on static piles prior to being sold.

The construction phase is expected to take approximately three months to complete.

**Key issues**

The identified transport issues are:

- The development of the site is likely to result in up to 50 additional 19 m semi-trailer trucks per day on Wannamal Rd West, west of the site and up to 5 additional 19 m semi-trailer trucks per day on Wannamal Rd West east of the development site (Refer **Section 6** for details).
- Wannamal Rd West is a Main Roads WA approved Tandem Drive 2-4 Restricted Access Vehicle (RAV) route for its full length between Brand Hwy and Bindoon-Moora Rd, with conditions regarding its use (Refer **Section 6** for details).

## Background information

- The Shire of Gingin is concerned that the portion of unsealed road, in its current condition, may not be structurally capable of accommodating the increased number of vehicle movements, and type of heavy vehicles associated with the proposed development, without damaging Wannamal Rd West.

The development site is currently zoned 'Rural', as defined by the Shire of Gingin's Local Planning Scheme No.9 (LPS9) <sup>(4)</sup>

The Proponent for the proposed composting facility is Wannamal Rd Organics Pty Ltd (ACN 604 725 019), an Australian company consisting of four co-directors:

- Vincent and Santo DiAngelo, trading as Vinsan Holding Pty Ltd (landowner of Lot 7779 Wannamal Rd);
- John Wynne; and,
- Peter Keating

Vincent and Santo DiAngelo (brothers) have owned and operated a demolition and salvage business for 30 years. They have been involved in concrete crushing and green waste processing industries.

John Wynne has been involved in recycling industries for over 30 years, starting on of the first recycling business in Jandakot in 1990. Processing 150,000 cubic meters of building rubble per year into reusable materials. This was eventually sold to a multinational corporation with John staying on to manage the business during an 18-month handover before he returned to earthmoving.

Peter Keating is an independent scientist who has run commercial companies, both private and public for over 35 years. Peter Keating's company, Bioscience Pty Ltd has for 30 years provided analytical and technical services for agriculture, horticulture, and aquaculture, as well as environmental and hydrogeological services and investigations.

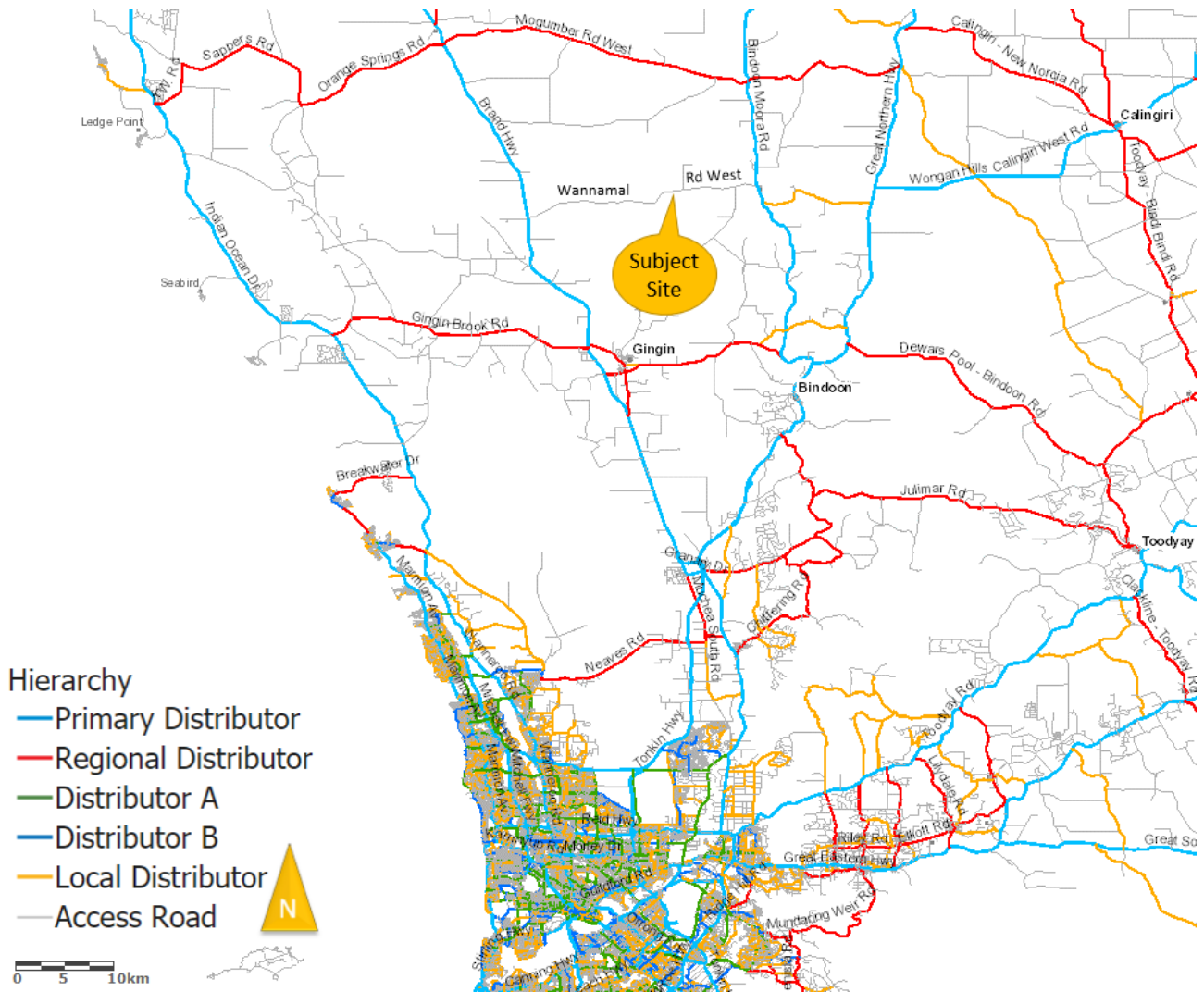


Figure 1 – Development location and road network (Hierarchy)



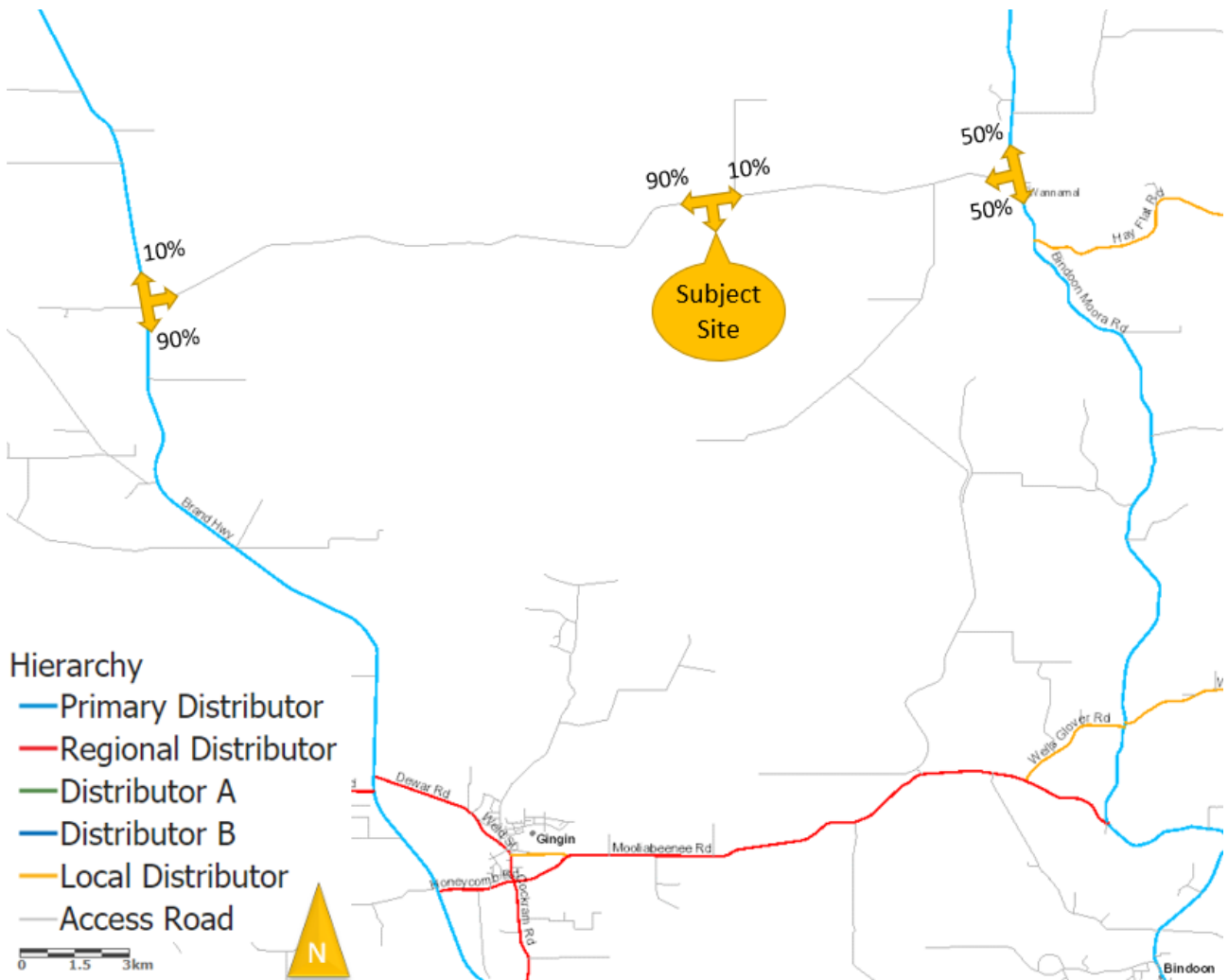


Figure 2 – Arrival & Departure Routes dictated by the road network layout and applicant’s indicated % input and output transport trip assignment north, south, east, and west

### 3 EXISTING SITUATION

#### Existing site uses.

Land area of Lot 7779 = 1,607,851 m<sup>2</sup>. Farmland with Single Residence and Farm Shed in north-west quadrant. Not currently in use.

#### Existing parking and demand.

Limited to Single Residence and Farm Shed (not currently in use).

#### Existing access arrangements

Existing Single Residence and Farm Shed accessed via 500 m unsealed access driveway meeting Wannamal Road West at the north western boundary, approximately 1,750 m west of the proposed access and Clewleys Rd.

Existing access to subject site on Wannamal Rd West opposite Clewleys Rd, as shown in Figure 3 below.

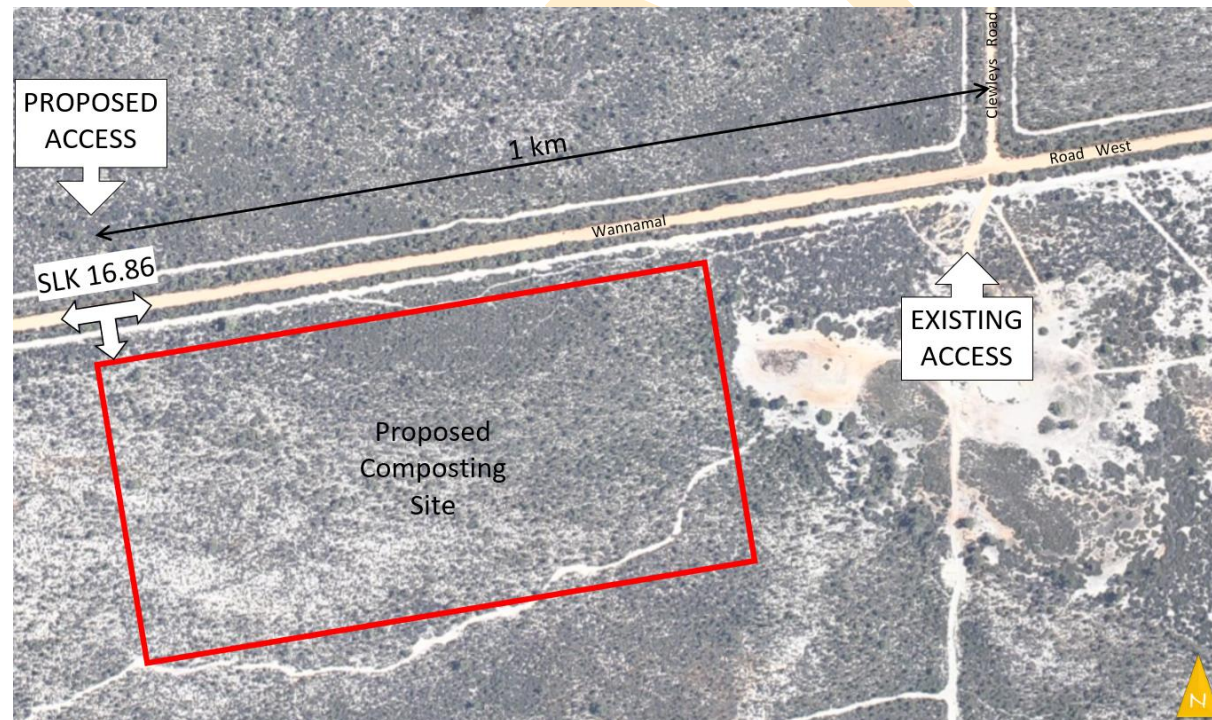


Figure 3 – Existing and proposed access off Wannamal Rd West, west of Clewleys Rd

**Existing site traffic.**

Limited to existing single residence and Farm Shed. The applicant has advised that the owners only use the property on weekends for recreational pursuits (i.e., it is currently non-residential). Normal use of a residential property would result in approximately 8 trips per day (4 IN / 4 OUT).

**Surrounding land uses.**

Properties situated to the north, east and south of the subject site are zoned 'General Rural,' as per Lot 7779. The land situated immediately to the west of the Premises is zoned as 'Parks and Recreation' and is known as the 'Boonanarring Nature Reserve.'

**Surrounding road network.**

The closest road to the site, and the only frontage road to Lot 7779, is Wannamal Rd West, a Local Access Road (5070012). The road hierarchy in the vicinity of the development site is shown in Figure 7 on page 16.

**Traffic management on frontage roads.**

Wannamal Rd West is a Main Roads WA approved Tandem Drive 2-4 Restricted Access Vehicle route for its full length between Brand Hwy and Bindoon Moora Rd, with conditions regarding its use (Refer **Section 6** for details). A sign at the Bindoon Moora Rd end states "R.A.V. NO THROUGH ROUTE," as shown in Photograph 1 below.



Photograph 1 – RAV sign on Wannamal Rd West just west of Bindoon Moora Rd

Wannamal Rd West is a 10-12 m wide unsealed gravel road between SLK 10.08 and SLK 20.75, a distance of 10.67 kms. The remainder of the road (15.02 kms) is a 7 m wide sealed road with 0.0-0.5 m sealed shoulders, as shown in Photograph 2 and Photograph 3 on the following page.



Photograph 2 – Typical layout of unsealed section of Wannamal Rd West (12 March 2024)



Photograph 3 – Typical layout of sealed section of Wannamal Rd West (12 March 2024)

The proposed access to the subject site is at SLK 16.86, resulting in 6.80 kms unsealed road towards Brand Hwy and 3.80 kms unsealed road towards Bindoon-Moora Rd. All existing signs on Wannamal Rd West are shown in Figure 4 below.

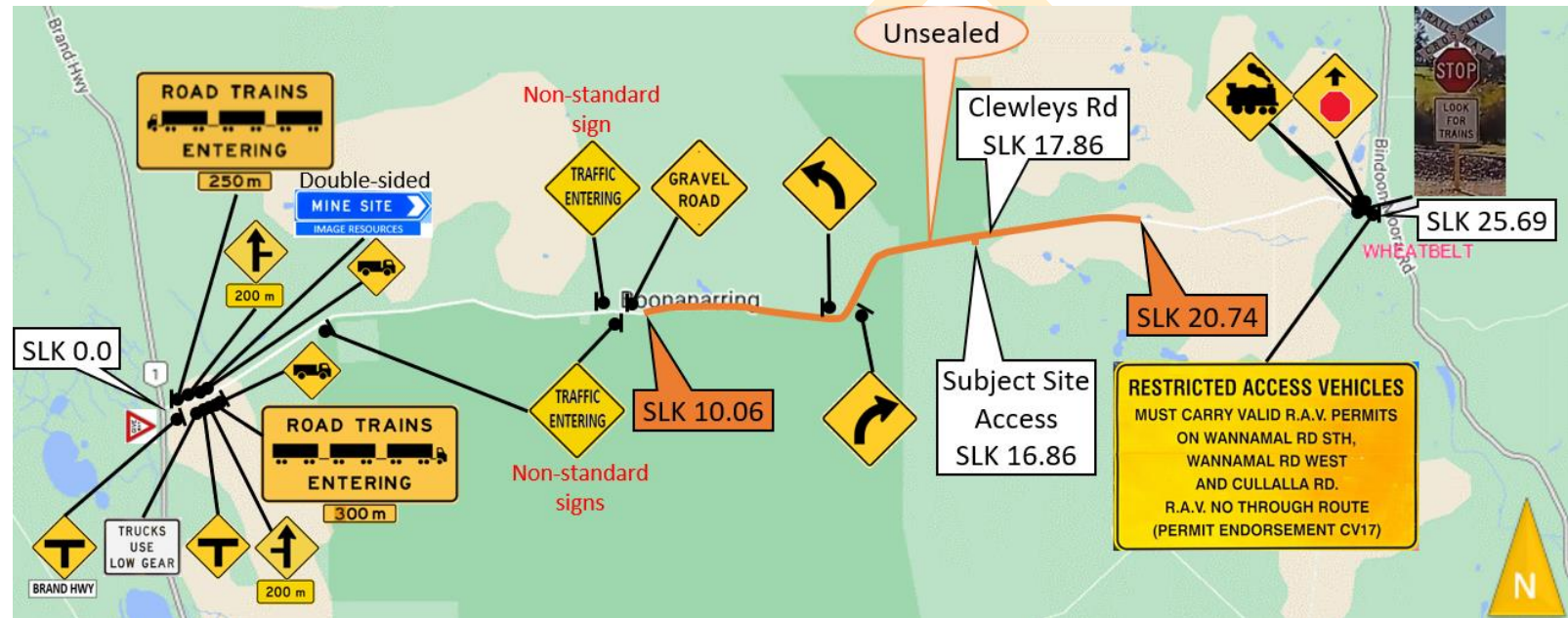


Figure 4 – Extent of unsealed road and existing traffic management signs on Wannamal Road West

**Traffic flows on surrounding roads.**

The Shire of Gingin has undertaken a number of traffic surveys on Wannamal Road West in recent years but not all have been successful in collecting data for a full week.

Main Roads WA has 2021/22 average annual data for Wannamal Rd West just west of Bindoon Moora Rd that indicates an average weekday flow of 48 vehicles with 31.3% of these heavy vehicles. The maximum hourly volume is 5 vehicles.

Main Roads WA also has a 24 hour/ 365 days per year ‘Network Performance Site’ on Brand Hwy north of Dewar Rd that indicates an average 2022/23 weekday volume of 2,974 vehicles with 26.3% of these heavy. The maximum hourly volume is 247 vehicles.

A summary of recent traffic survey data on Wannamal Road West is provided as Figure 5 on the following page.



Figure 5 – Summary of recent average daily traffic volume data collected by Shire of Gingin (SoGg) and Main Roads WA (MRWA)

The author undertook video surveys at the intersections at both ends of Wannamal Rd, i.e., at Brand Hwy and at Bindoon Moora Rd between 6 AM and 6 PM on Friday 12th August 2022 and supplemented this data with the Main Roads WA data to determine the existing road network peak hour volumes shown in Figure 7 on the following page. A video camera was also installed at the Wannamal Rd West/ Clewleys Rd intersection, but this suffered technical difficulties and only recorded between 3.30 PM and 6.25 PM.

Traffic flows at major and/ or impacted intersections.

Shown in Figure 7 on page 16.

**Operation of surrounding intersections.**

Video surveys and observations indicate very good operation with plenty of spare capacity.

[Intersection Videos Link](#)

**Existing pedestrian/cycle networks.**

Not applicable. Remote location with commercial land use.

**Existing public transport services.**

There are no public transport services in this remote rural area.

**Crash data.**

There have not been any reported crashes on the unsealed section of Wannamal Rd West in the five-year reporting period ending 31 Dec 2022. A Property Damage Only crash was recorded at SLK 1.06 at 6 PM on Fri 19 June 2020 as shown in an extract from the Main Roads WA Crash Map reporting system provided as Figure 6 below.

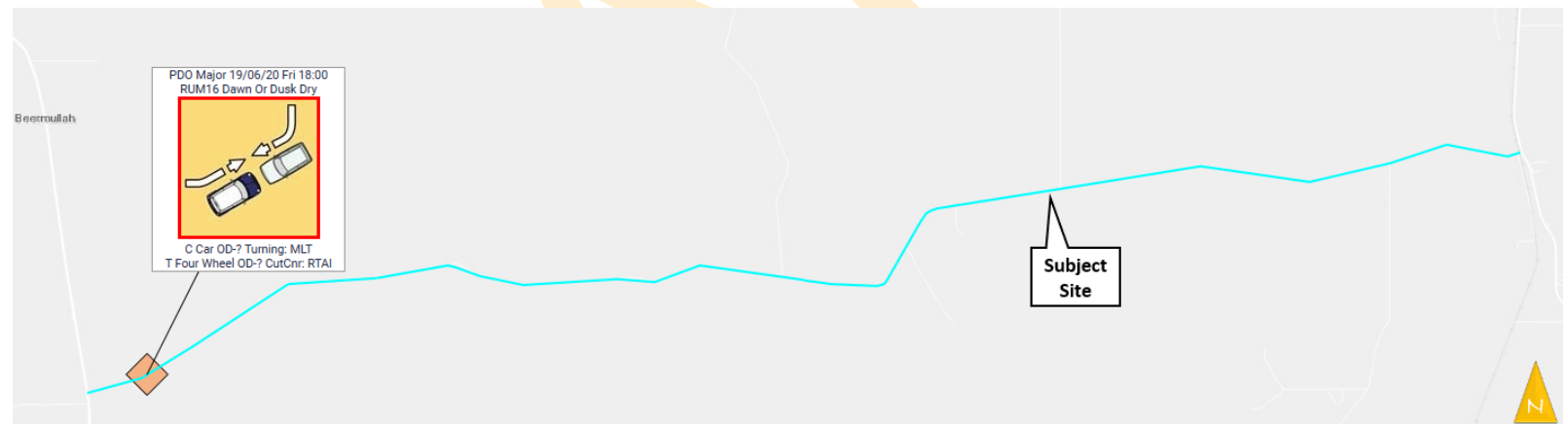


Figure 6 – Extract from Main Roads WA Crash Map reporting system for Wannamal Rd West (full length) 5 years ending 31 Dec 2022

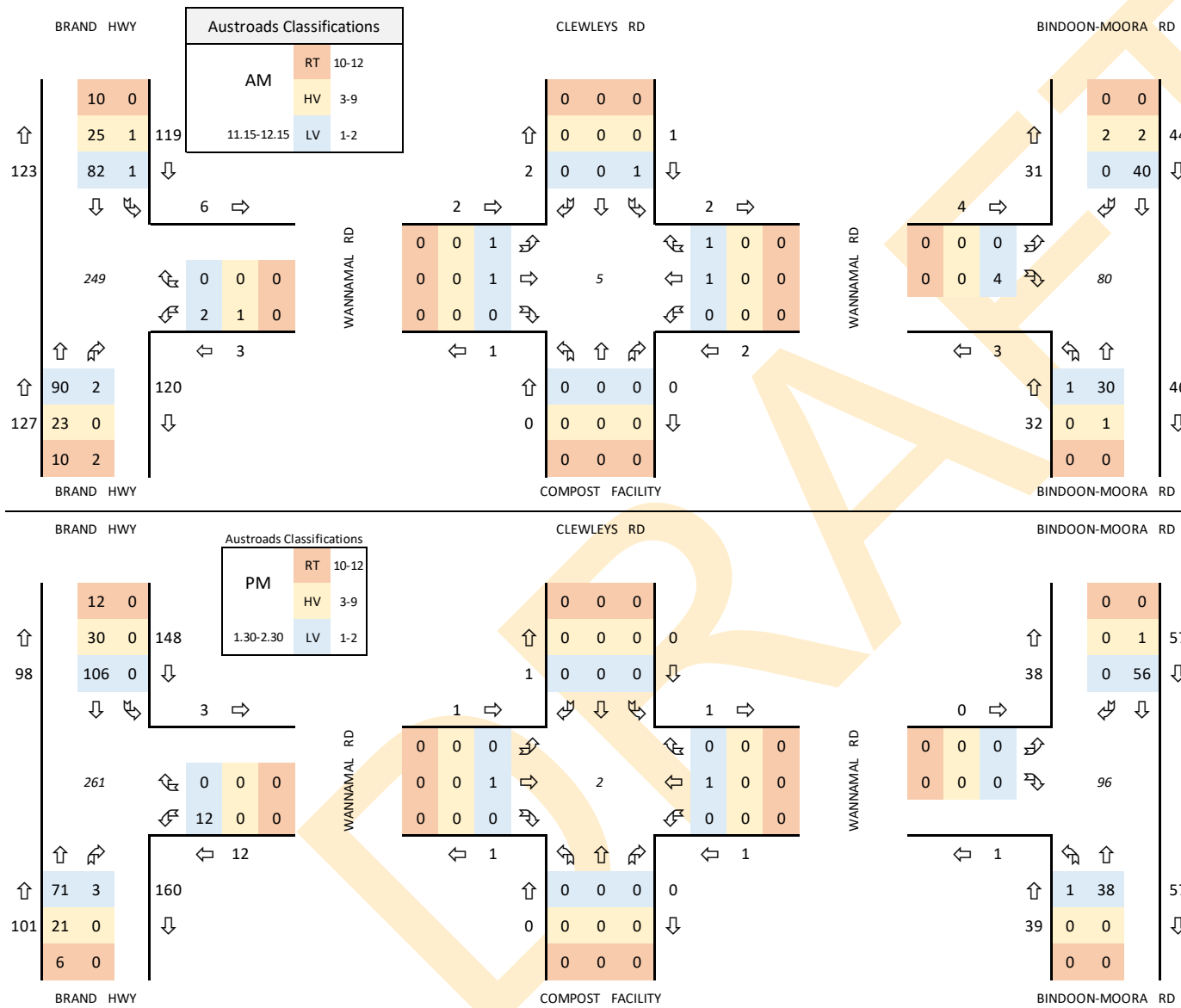


Figure 7 – Existing (2022) road network AM and PM Peak Hour Volumes showing Road Trains (RT), other Heavy Vehicles (HV), and Light Vehicles (LV)



## 4 DEVELOPMENT PROPOSAL

### Regional context.

The Shire of Gingin is predominantly a rural area within the Central Coastal Region of the Wheatbelt in Western Australia.

The Shire has an area of 3,223 km<sup>2</sup> and was home to a population of approximately 5,576 permanent residents in 2,026 dwellings in 2021. This is expected to grow to a population of 6,180 by 2031, a growth rate of 11%.<sup>\*</sup> There are five townships: Gingin, Guilderton, Lancelin, Ledge Point and Seabird. Gingin (~800 residents) and Lancelin (~600 residents) are the larger of the townships.

Geographically the Shire stretches from the coastline across the flat sandy soils of the Swan Coastal Plain in the west to the hinterland and foothills of the Darling Scarp in the east. It also embraces the lower reaches of the Moore River together with a system of fresh water lakes, streams and swamps and the watercourse of the Gingin Brook.

Agriculture is the Shire’s primary economic contributor. It accounts for 41.9% of local business and some 137,145 ha of land. However, peri-urban growth and associated pressure on market gardening has resulted in the Shire broadening its focus from traditional broad acre farming to intensive horticulture. Local industries within the Shire include cattle and sheep grazing, apiaries, irrigated horticulture, viticulture, olive groves, aquaculture, piggeries, poultry farms, wineries, abattoirs, feedlots, and cray fishing. In addition to rural industries the Shire’s economy is also based around tourism with coastal areas experiencing a large influx of people during the summer holiday season.

### Proposed land uses.

It is proposed to build the composting facility within the northern section of the lot where the vegetation is in the poorest condition. The proposed development consists of the construction of a 7 ha composting hardstand and a 2 ha dam, both made of 100 mm of asphalt overlying 300 mm of recycled demolition waste.

### Table of land uses and quantities.

| Land Use            | Quantity    |
|---------------------|-------------|
| Composting Facility | 25 hectares |

### Access arrangements.

It is proposed to provide access to Lot 7779 off Wannamal Rd West 1 km west of Clewleys Road, as shown in Figure 3 on page 10.

### Parking provision.

Staff parking and work vehicles (front end loader & water cart) will be accommodated on the extensive sealed areas. Parking locations will vary depending on the area of activity.

### End of trip facilities.

NA (no employees will walk or cycle to the site given its remote location).

<sup>\*</sup> MOSAIC data

**Any specific issues.**

As per 'Key Issues' in **Section 2** (pages 6 & 7).

**Road network.**

The road network, including classifications (hierarchy) and peak hour traffic volumes, is shown in Figure 1, Figure 2, and Figure 7 on pages 8, 9 and 16 respectively.

**Intersection layout and controls.**

The Brand Hwy/ Wannamal Rd West intersection was upgraded from a simple 'T' to a channelised intersection with a continuous left turn from Wannamal Rd West and protected right and left turns from Brand Hwy into Wannamal Rd West to provide safe access to the Image Resources mine site on the southeast corner, as shown in Photograph 4 below.



Photograph 4 – Looking west at Brand Hwy/ Wannamal Rd West intersection from south side of Wannamal Rd West

The Bindoon Moora Rd/ Wannamal Rd West intersection is an uncontrolled 'T' intersection with Wannamal Rd West the terminating road. There is a passive railway level crossing on Wannamal Rd West 34 m west of Bindoon Moora Rd, as shown in Photograph 5 and Photograph 6 on the following page.



Photograph 5 – Wannamal Rd West/ Bindoon Moora Rd intersection and railway level crossing layout



Photograph 6 – Looking east on Wannamal Rd West towards Railway Level Crossing and Bindoon Moora Rd intersection

**Pedestrian/ cycle networks and crossing facilities.**

There are no pedestrian or cycle facilities, or networks, in this remote rural area.

**Public transport services.**

There are no public transport services in this remote rural area.

DRAFT

## 5 INTEGRATION WITH SURROUNDING AREA

### Surrounding major attractors/ generators.

There are three piggeries within 4 kms of the subject site. The Karamarah Intensive Piggery is located approximately 1.4 km north-east, Westpork Intensive Piggery 3.4 kms west and an unlicensed Piggery 3.9 kms south-east. Manure from these piggeries may be used in the composting process.

The proposed composting facility is proposed to accept an annual throughput of up to 200,000 tonnes of raw green waste and FoGo material and 40,000,000 litres (40 ML) of grease trap waste. Raw green waste material will be sourced from licenced waste transfer stations while greased trap waste will be sourced from a licensed waste management transporter. The road network supports the transportation of imported and exported materials, as shown in Figure 2 on page 9.

### Committed developments and transport proposals.

The Shire of Gingin has advised the following:

- *The Mid West Wheatbelt (Central) Joint Development Assessment Panel approved a Landfill Site on Lot 98 Wannamal Road South, Cullalla in 2016. The construction phase is in process for this development. The approval relates to 150,000 tpa of waste entering the property using 27.5m Class 2 (Restricted Access Vehicle) pocket road trains over a 6-day working week, a total of 14 vehicle movements per day. Traffic will be utilising Wannamal Road West via Brand Highway and then onto Wannamal Road South. The operators entered into a Deed of Agreement with the Shire in 2009 that covers various matters, one being a road upgrade/contribution. Please note that the road upgrade is not imminent, and the Shire has had limited communication with the operators over the last 12 months due to staff changes internally, and an incident on the operators end where the point of contact unfortunately passed away. This is however on the Shire's agenda to follow-up and work through the existing deed commitments with the operator.*
- *Westpork (Lot 10 (1340) Wannamal Road West, Boonanarring) received approval in 2019 to undertake composting in addition to their piggery operation. Information in relation to this development can be found within the Council minutes at the following link (22 January 2019): <https://www.gingin.wa.gov.au/council-meetings/past/2019>. I note that this development was amended in 2021 (16 March), however I am unaware if this development has progressed, I suspect not given various conditions are outstanding.*
- *I am unaware of any other developments that may assist the preparation of the TIA in relation to this matter, or that may impact the particular area of concern (unsealed portion of Wannamal Road West).*

There are no known transport proposals in the vicinity of the subject site or the assessed road network.

**Proposed changes to land uses within 1.2 kms.**

There are no known land use changes within 1.2 kms of the subject site.

**Travel desire lines from development to these attractors/ generators.**

Shown in Figure 2 on page 9.

**Adequacy of existing transport networks.**

All assessed intersections operate at a very good level with plenty of spare capacity and no reported crashes in the last 5-year reporting period. The Shire of Gingin is concerned that the portion of unsealed road, in its current condition, may not be structurally capable of accommodating the increased number of vehicle movements, and type of heavy vehicles associated with the proposed development, without damaging Wannamal Rd West.

**Deficiencies in existing transport networks.**

Main Roads WA has formally assessed the suitability of Wannamal Rd West for use by Restricted Access Vehicles and has approved it for use by RAV 2-4 with conditions, as described in **Appendix A**. The RAV 2-4 Assessment Vehicle is a 27.5 m long B-double, as described in the extract from the Main Roads WA *Standard Restricted Access Vehicle Route Assessment Guidelines (May 2022)* (5), provided as Figure 8 below. On the basis that it has been assessed by Main Roads WA as safe for use by 27.5 m long combination vehicles it is reasonable to ascertain that it is also safe for use by 19 m semi-trailers

The author inspected and assessed the condition of Wannamal Road West on 12<sup>th</sup> March 2024 when the weather was clear, 30°C and the surface was dry and found it to be safe and comfortable for travel at a speed of 80 km in a 4WD with High 4WD activated.

| RAV Categories | Assessment Vehicle     | Maximum Length (m) |
|----------------|------------------------|--------------------|
| 2-4            | <p><b>B-double</b></p> | 27.5               |

Figure 8 – Extract from Main Roads WA Standard Restricted Access Vehicle Route Assessment Guidelines (May 2022)

There are no identified deficiencies at the recently upgraded Brand Hwy/ Wannamal Rd West intersection.

**Remedial measures to address deficiencies.**

The distance between the railway crossing westbound approach holding line and the Bindoon Moora Rd/ Wannamal Rd West intersection is 34 m. It is therefore only 'substandard' if used by 36 m long vehicles. The maximum permitted vehicle length under the RAV Tandem Drive 2-4 permit is 27.5 m, as shown in Figure 8 on the previous page.

Not applicable.

## 6 ANALYSIS OF TRANSPORT NETWORKS

**Assessment years.**

As indicated in **Section 5** of this report, the Shire of Gingin has advised there are currently two development proposals they are aware of that would result in an increase in traffic volumes on Wannamal Rd past, or west of the proposed development if and when they are approved, i.e., A Landfill site on Lot 98 Wannamal Rd South, and a composting facility at the Westpork site on Lot 10 (1340) Wannamal Rd West. The Shire has indicated that it has no confirmed dates regarding these developments and it therefore remains a possibility that they may not proceed.

Existing traffic volumes on Wannamal Rd West indicate that these have remained fairly low for several years, i.e., 37 in 2017 and 32 in 2022, as shown in Figure 5 on page 14. On this basis, this TIA assesses the impact of increased traffic associated with this proposed development only, on the basis that there is no significant annual background through traffic growth and that increased traffic from other developments can be assessed in the TIAs for those developments if and when they proceed.

**Time periods.**

The Composting Facility will be open for waste acceptance Monday to Friday: 7:00 AM – 5:00 PM. In order to assess the 'worst case scenario,' the TIA assumes that peak transportation times to and from the Composting Facility occurs at the same time as peak volumes on the road network, i.e., 11.15 AM to 12:15 PM and 1.30 PM to 2.30 PM.

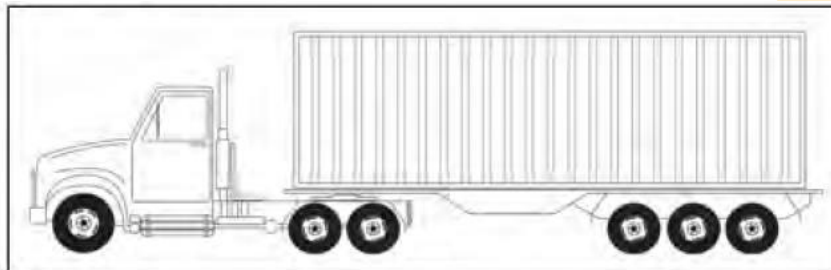
**Development generated traffic.**

An estimate of the daily and peak hour volumes of truck traffic by mode, day and time of day has been undertaken based on first principles, i.e., the tonnage of material in and out per year, the volume and carrying capacity of the 19 m Semi Trailer (ST) high sided truck and tanker and the indicated operating hours (10 hours per weekday, as per above). The forecast daily and peak hour truck volumes based on the indicated input of 200,000 tonnes per annum (tpa) compost material and 40 ML per annum Liquid Waste and output of 100,000 tpa of compost (including empty trucks to ensure that the number of arriving trucks per day is the same as the number of departing trucks) per day, is shown in Figure 10 on page 27. A summary of forecast daily and hourly development generated trips is provided as Table 2 and Table 2 on the following page.

| Truck Type        | Hourly<br>(operating hours) |     | Daily |     | Annually |       |
|-------------------|-----------------------------|-----|-------|-----|----------|-------|
|                   | IN                          | OUT | IN    | OUT | IN       | OUT   |
| 19 m Semi Trailer | 5                           | 5   | 36    | 36  | 9,072    | 9,072 |

Table 2 – Forecast Daily, Hourly (operating hours) & Annual Trip Generation (Trucks Only). Allow 6 light vehicles per day for staff.

The 19 m Semi Trailer is permitted to use the full length of Wannamal Rd West without a permit as it is a non-restricted vehicle use. Characteristics of the 19 m semi-trailer are shown in Figure 9 below.



|  |      |
|--|------|
| Maximum Permitted Mass (tonnes)                        | 42.5 |
| Estimated Payload (tonnes)                             | 25   |
| Number of axles  | 6    |
| ESA per fully loaded vehicle (based on 8.15t std axle) | 5.21 |
| ESA per unloaded vehicle (based on 8.15t std axle)     | 2.15 |

Figure 9 – Characteristics of the 19 m semi-trailer

In accordance with information provided by the Proponent, the assessment considers the use of a 19 m semi-trailer for the transport of waste and compost to and from the site. A depiction of this vehicle, including assumed operating mass and number of axles is provided above. The assumed vehicle specifications have been provided to the Proponent and no objections have been received. In accordance with advice from the Proponent, liquid waste is assumed to have a density of 1 tonne per cubic metre and that it has been assumed that the liquid waste will be transported via 19 m semi-trailer tankers.



**Distribution & assignment of generated traffic.**

The distribution (Arrival/ Departure volumes) and assignment of traffic to and from the Primary Distributor (State Road) road network has been undertaken in accordance with Figure 2 on page 9, i.e., 90% to and from Brand Hwy and 10% to and from Bindoon Moora Rd.

**Parking supply and demand.**

Staff parking and work vehicles (front end loader & water cart) will be accommodated on the extensive sealed areas. Parking locations will vary depending on the area of activity.

**Base and 'with development' traffic flows.**

The assessed Base (2022) volumes and forecast volumes through each intersection during the AM and PM road network peak hours using Semi-trailers for the transport task and 1 light vehicle IN and OUT during each assessed hour are shown in Figure 10 on page 27.

**Analysis of development accesses.**

The preliminary design shows it is proposed to provide an access driveway off Wannamal Rd West approximately 1 km west of Clewleys Rd. This avoids influencing the Wannamal Rd West Clewleys Rd intersection. The driveway will be designed according to the 'rural driveway' details for Semi Trailers shown on Main Roads WA Drawing [200431-0194](#), as per the [Main Roads WA Technical Specifications for Driveways](#).

**Impact on surrounding roads.**

Section 2.4 of the *MRWA RAV Guidelines* <sup>(6)</sup> notes that a road should be sealed if Average Annual Daily Traffic (AADT) is over 150 **and** annual freight tonnage is over 300,000 tonnes per annum for reasons of both sustainability and safety. It also states that in the absence of any traffic data, if the road is used by more than 10 RAVs per day this may also factor into whether the road requires sealing or not.

The proposed 19 m semi-trailers are not RAV vehicles and the forecast AADT with development generated traffic is less than 150. On this basis, the warrant for sealing of the road, as per the *MRWA RAV Guidelines*, is not met.

**Impact on intersections.**

The *WAPC Guidelines* indicates increased volumes less than 10 per hour is a low impact that does not warrant assessment. In addition to this, the existing volumes at each assessed intersection are low and these intersections perform at a very good level with plenty of spare capacity.

**Impact on neighbouring areas.**

There are no residential properties or accesses in the vicinity of the proposed development.

**Road Safety.**

Refer **Section 7**.

**Public transport access.**

There are no public transport services in this remote rural area, and none are warranted or proposed.

**Pedestrian access/ amenity.**

There is no existing pedestrian access to the site, and none is warranted or proposed.

**Cycle access/ amenity.**

Cycle access is very unlikely due to the remote location, nature of the business and gravel road sections.

**Analysis of pedestrian/ cycle networks.**

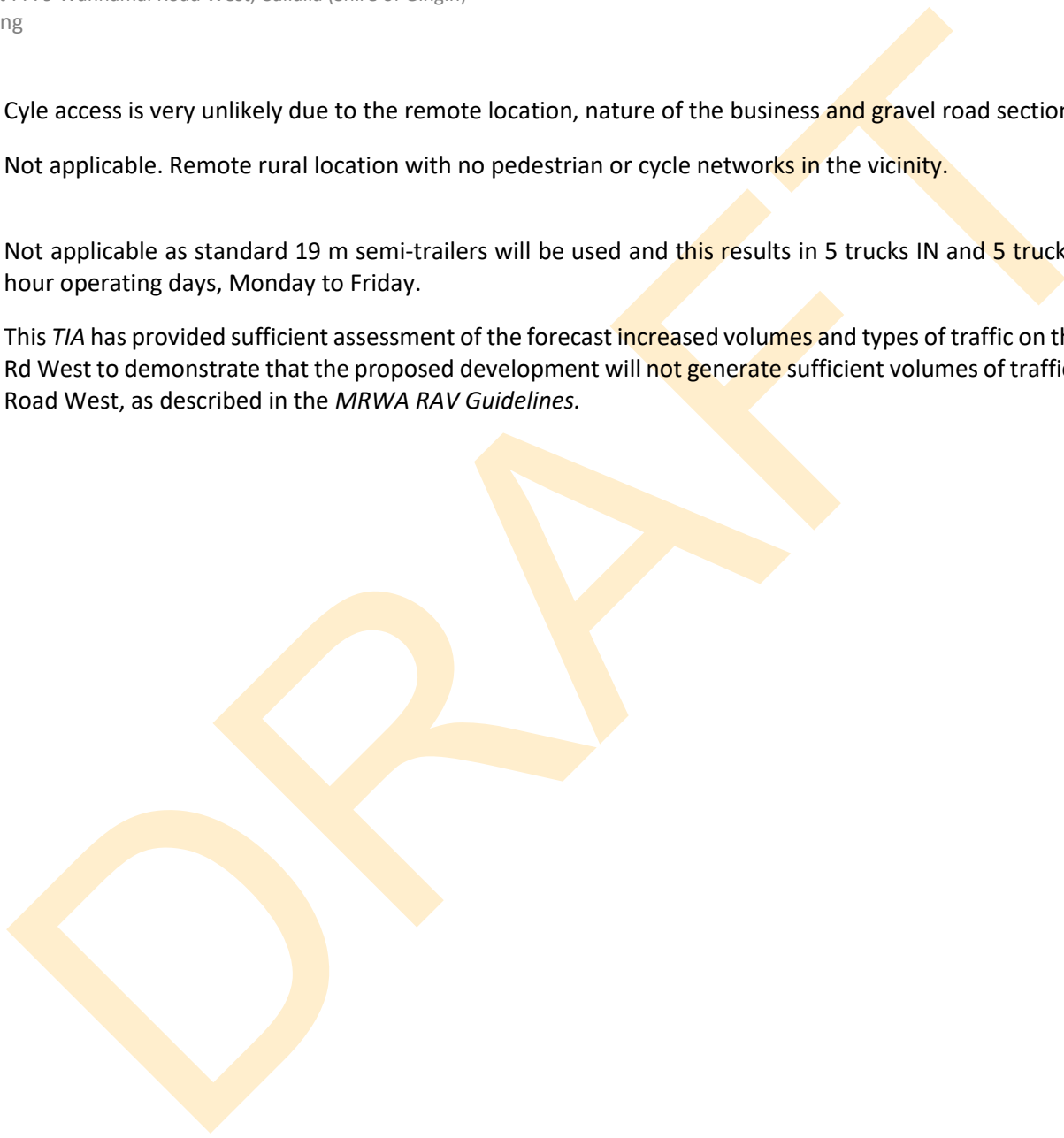
Not applicable. Remote rural location with no pedestrian or cycle networks in the vicinity.

**Traffic Management Plan.**

Not applicable as standard 19 m semi-trailers will be used and this results in 5 trucks IN and 5 trucks out during each hour of the 10 hour operating days, Monday to Friday.

**Site specific issues.**

This *TIA* has provided sufficient assessment of the forecast increased volumes and types of traffic on the unsealed section of Wannamal Rd West to demonstrate that the proposed development will not generate sufficient volumes of traffic to warrant sealing of Wannamal Road West, as described in the *MRWA RAV Guidelines*.





**INPUT MATERIAL (ARRIVALS)**

|              |                            |   |                     |
|--------------|----------------------------|---|---------------------|
| Compost      | 200,000 tonnes per year    | = | 794 t / work day    |
| Liquid Waste | 40,000,000 litres per year | = | 158,730 // work day |

(252 work days in a year)

**OUTPUT PRODUCT (DEPARTURES)**

|         |                    |   |                  |
|---------|--------------------|---|------------------|
| Compost | 100,000 t per year | = | 397 t / work day |
|---------|--------------------|---|------------------|



**Compost**

|                               | Hrly | Work Day | Year  |
|-------------------------------|------|----------|-------|
| ST (Inport) 19 m Semi Trailer | 4    | 32       | 8,064 |

Capacity 25 t (max)

**Compost**

|   | Hrly | Work Day | Year  |
|---|------|----------|-------|
| ST (Product) 19 m Semi Trailer High Sided Truck | 2    | 16       | 4,032 |
| ST (Empty)                                      | 2    | 16       | 4,032 |

**Liquid Waste**

|  |                |   |   |   |       |
|--|----------------|---|---|---|-------|
| Tanker (Import) 19 m Semi Trailer Tanker | 40,000 / (max) | = | 1 | 4 | 1,008 |
|--|----------------|---|---|---|-------|

Capacity

**Empty Tankers**

|   |  |   |   |   |       |
|---|--|---|---|---|-------|
| Tanker (Empty) 19 m Semi Trailer Tanker |  | = | 1 | 4 | 1,008 |
|---|--|---|---|---|-------|

**Total Trucks**

|           |     |   |   |    |     |   |    |       |
|-----------|-----|---|---|----|-----|---|----|-------|
| BRAND HWY | 10% | 3 | 3 | 29 | 90% | 4 | 36 | 9,072 |
|-----------|-----|---|---|----|-----|---|----|-------|

19 m Semi Trailer (ST) [High Sided Greenwaste/ Compost & Liquid Waste]

|  |                      |
|--|----------------------|
| <b>Facility Trucks per day: 36 IN &amp; 36 OUT</b> |                      |
| West of site:                                      | To the East: 7       |
| Existing West of site                              | Existing to East: 32 |
| Total West of site                                 | Total to East: 39    |

SEALING THRESHOLD: 150

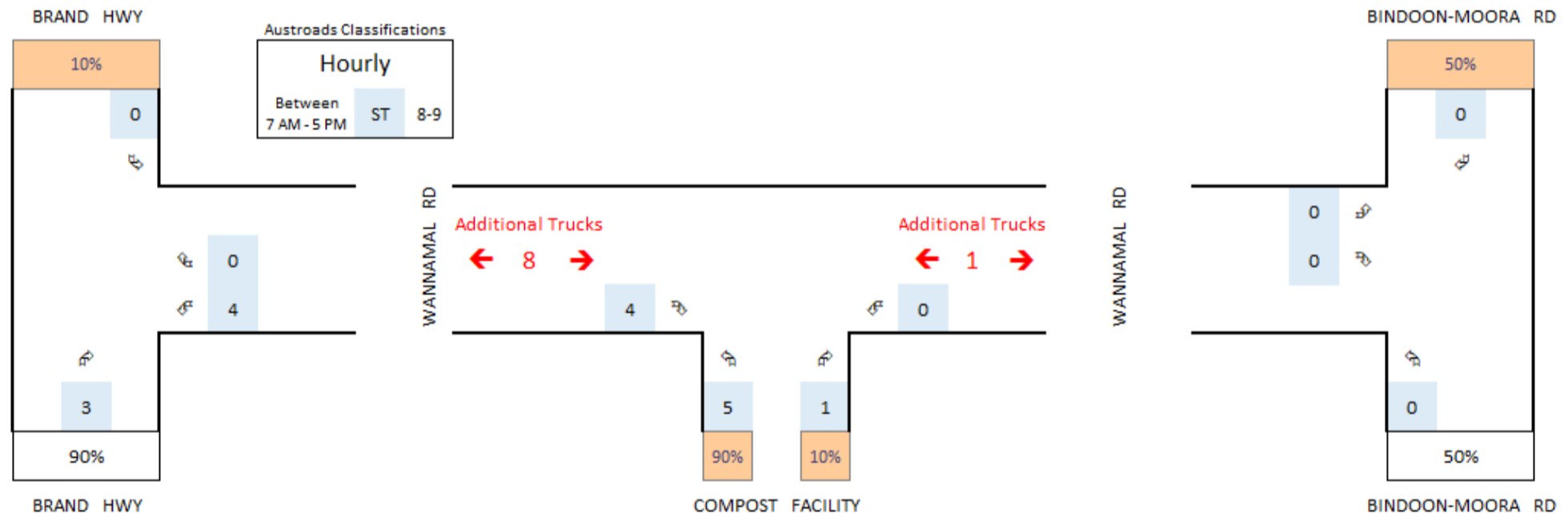
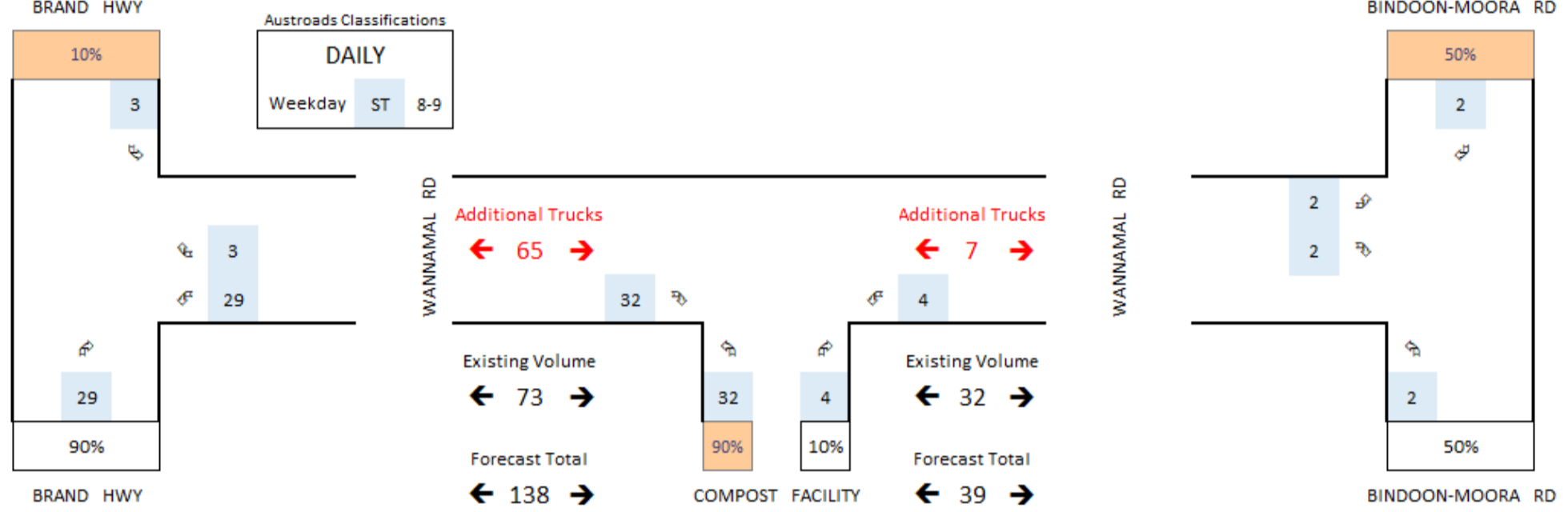


Figure 10 – Forecast daily and hourly truck trip generation volumes by input and output volumes indicated

## 7 SAFETY

As indicated in **Section 3**, there have not been any reported crashes on the unsealed section of Wannamal Rd West in the five-year reporting period ending 31 December 2022.

The Brand Hwy/ Wannamal Rd West intersection has recently been upgraded and an assessment of the existing sight lines at this intersection, as well as Bindoon Moora Rd/ Wannamal Rd West intersection has not revealed any concerns. The Railway crossing on Wannamal Rd West is only 34 m from the Bindoon Moora Rd intersection but the low volumes (existing and forecast) as well as the restriction on vehicle lengths to 19 m, addresses this concern.

The author drove the and inspected the full length of Wannamal Rd West in both directions on 13 March 2024 with Dash Cams and an electronic ball bank (to check safe operating speeds on curves). This indicated that the condition of the road was safe and comfortable when driving a 4WD with 4WD activated at speeds up to 80 km/h in hot, clear and dry conditions. The condition of unsealed roads can change significantly in adverse weather conditions and/ or between grading and it is for this reason that speed limit signs and advisory speed signs on curve warding signs are not used as indicated speeds may not be safe in all conditions.

It is for this reason that the Shire has recently installed the following unsealed road warning signs on the westbound and eastbound approaches to the unsealed road section.



Figure 11 – Unsealed Road Warning Signs (Source Fig 3.6 *Unsealed Roads Best Practice Guide*)



## 8 CONCLUSIONS

This TIA has determined that:

- the proposed development will not result in an adverse impact on the road network in terms of capacity.
- Main Roads WA has formally assessed the suitability of Wannamal Rd West for use by Restricted Access Vehicles and has approved it for use by RAV 2-4 with conditions. On the basis that it has been assessed by Main Roads WA as safe for use by 27.5 m long combination vehicles it is reasonable to ascertain that it is also safe for use by 19 m semi-trailers.
- the proposed development is likely to result in an additional 8 semi-trailer trips and 1 light vehicle trip during the road network peak hours on Wannamal Rd West between the site and Brand Hwy.
- the proposed development is likely to result in an additional 65 semi-trailer trips and up to 6 light vehicle trips per day on Wannamal Rd West between the site and Brand Hwy.
- the proposed development is unlikely to result in total traffic volumes on the unsealed section of Wannamal Rd West exceeding 150 vehicles per day. This is Main Roads WA's threshold volume for sealing of RAV routes.

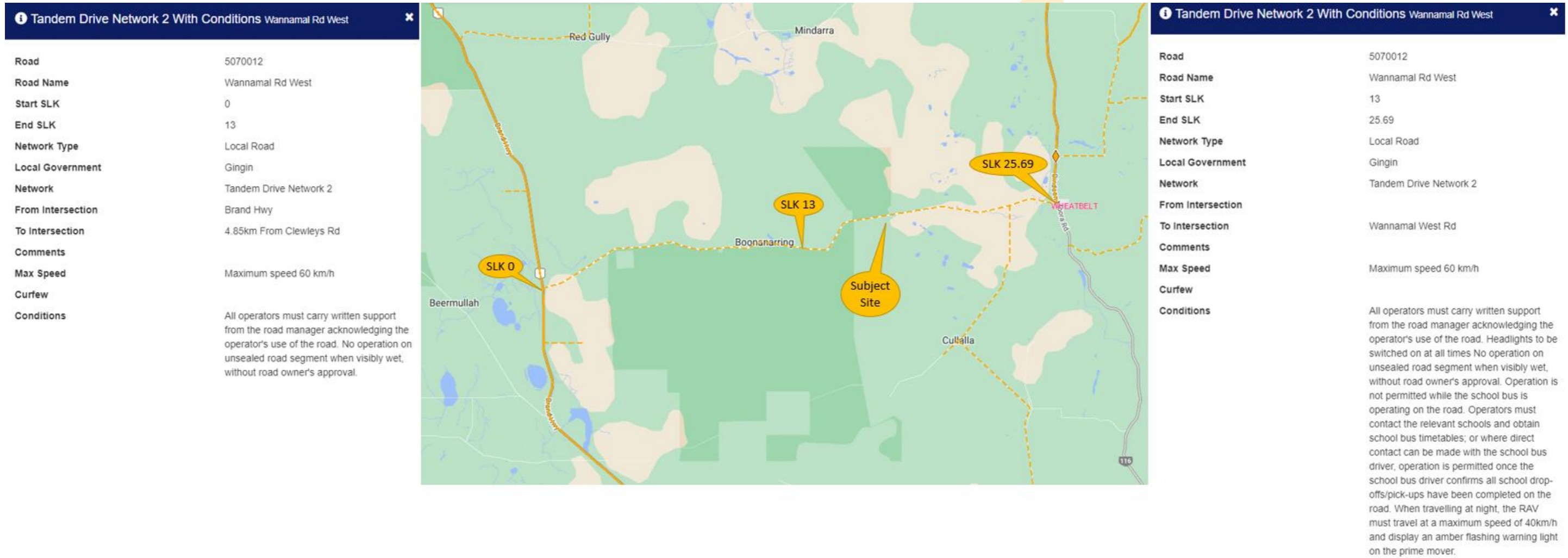
It is recommended that this TIA is adopted by the Shire of Gingin and Main Roads WA as an independent assessment of the traffic and transport impacts of the proposed development.



## References

1. **Austroads.** *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments.* Austroads. Sydney, NSW : Austroads Ltd, April 2020. p. 113, Guide to Traffic Management. ISBN 978-1-925854-86-2.
2. **Western Australian Planning Commission.** *Transport Impact Assessment Guidelines.* Department of Planning, Government of Western Australia. Perth, Western Australia : Western Australian Planning Commission, August 2016. p. 182, Revised August 2016. The current version of the TIA guidelines (August 2016) has been endorsed by the WAPC.
3. **Government of Western Australia.** *Planning and Development (Local Planning Schemes) Regulations 2015.* Perth : Government of Western Australia, As at 01 Jul 2016. p. 205. Version 00-d0-02.
4. —. *Shire of Gingin Local Planning Scheme No 9.* Department of Planning, Lands and Heritage. Perth : Department of Planning, Lands and Heritage., Updated to include AMD 21 GG 15/09/2020. p. 81, Scheme Text.
5. **Sarre, R.** Liability in negligence and the High Court decisions in Brodie and Ghanatous: where to from here for road authorities? *Road Transport Research.* 2003, Vol. 12, 4, pp. 3-12.
6. **Government of Western Australia.** *Standard Restricted Access Vehicle (RAV) Route Assessment Guidelines.* Main Roads Western Australia. Perth, WA : Main Roads Western Australia, May 2022. p. 29. D14#493277.
7. **Standards Australia.** *AS 2890.2-2002 Parking facilities Part 2: Off-street commercial vehicle facilities.* Second. Sydney : Standards Australia International, 2002. p. 49. Vol. 2. ISBN 0 7337 4870 8.

**APPENDIX A RESTRICTED ACCESS VEHICLE ROUTE LENGTH AND CONDITIONS**



| Tandem Drive Network 3 With Conditions Wannamal Rd West |   |
|---|---|
| Road  | 5070012   |
| Road Name   | Wannamal Rd West  |
| Start SLK   | 0   |
| End SLK   | 13  |
| Network Type  | Local Road  |
| Local Government  | Gingin  |
| Network   | Tandem Drive Network 3  |
| From Intersection                                       | Brand Hwy   |
| To Intersection   | 4.85km From Clewleys Rd   |
| Comments  |   |
| Max Speed   | Maximum speed 60 km/h   |
| Curfew  |   |
| Conditions  | All operators must carry written support from the road manager acknowledging the operator's use of the road. No operation on unsealed road segment when visibly wet, without road owner's approval. |



| Tandem Drive Network 3 With Conditions Wannamal Rd West |  |
|---|--|
| Road  | 5070012  |
| Road Name   | Wannamal Rd West   |
| Start SLK   | 13   |
| End SLK   | 25.69  |
| Network Type  | Local Road   |
| Local Government  | Gingin   |
| Network   | Tandem Drive Network 3   |
| From Intersection                                       |  |
| To Intersection   | Wannamal West Rd   |
| Comments  |  |
| Max Speed   | Maximum speed 60 km/h  |
| Curfew  |  |
| Conditions  | All operators must carry written support from the road manager acknowledging the operator's use of the road. Headlights to be switched on at all times No operation on unsealed road segment when visibly wet, without road owner's approval. Operation is not permitted while the school bus is operating on the road. Operators must contact the relevant schools and obtain school bus timetables; or where direct contact can be made with the school bus driver, operation is permitted once the school bus driver confirms all school drop-offs/pick-ups have been completed on the road. When travelling at night, the RAV must travel at a maximum speed of 40km/h and display an amber flashing warning light on the prime mover. |





**Tandem Drive Network 4 With Conditions Wannamal Rd West**

**Road** 5070012

**Road Name** Wannamal Rd West

**Start SLK** 0

**End SLK** 13

**Network Type** Local Road

**Local Government** Gingin

**Network** Tandem Drive Network 4

**From Intersection** Brand Hwy

**To Intersection** 4.85km From Cleweys Rd

**Comments**

**Max Speed** Maximum speed 60 km/h

**Curfew**

**Conditions** All operators must carry written support from the road manager acknowledging the operator's use of the road. No operation on unsealed road segment when visibly wet, without road owner's approval.

**Tandem Drive Network 4 With Conditions Wannamal Rd West**

**Road** 5070012

**Road Name** Wannamal Rd West

**Start SLK** 13

**End SLK** 25.69

**Network Type** Local Road

**Local Government** Gingin

**Network** Tandem Drive Network 4

**From Intersection**

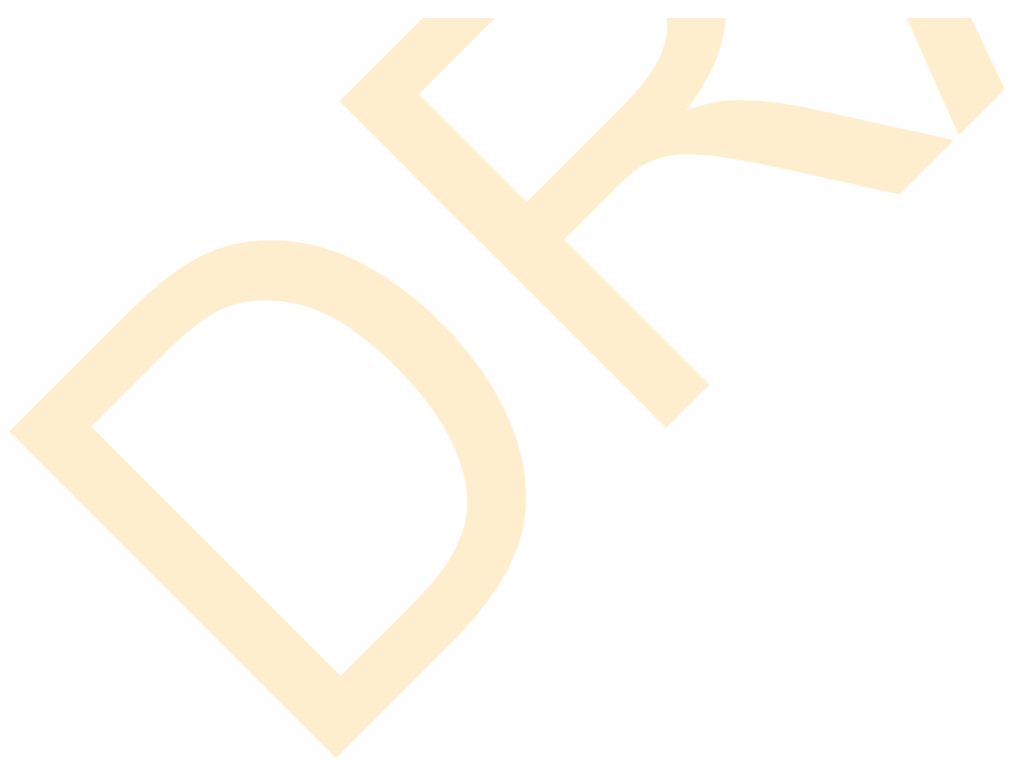
**To Intersection** Wannamal West Rd

**Comments**

**Max Speed** Maximum speed 60 km/h

**Curfew**

**Conditions** All operators must carry written support from the road manager acknowledging the operator's use of the road. Headlights to be switched on at all times No operation on unsealed road segment when visibly wet, without road owner's approval. Operation is not permitted while the school bus is operating on the road. Operators must contact the relevant schools and obtain school bus timetables; or where direct contact can be made with the school bus driver, operation is permitted once the school bus driver confirms all school drop-offs/pick-ups have been completed on the road. When travelling at night, the RAV must travel at a maximum speed of 40km/h and display an amber flashing warning light on the prime mover.



## APPENDIX B WAPC TRANSPORT IMPACT ASSESSMENT CHECKLIST

(Checklist for a transport impact assessment of a planning scheme, structure plan or activity centre plan)

Tick the 'provided' column for items for which information is provided.

Enter N/A in the 'provided' column if the item is not appropriate and enter the reason in the Comments/Proposals column.

Provide brief comments on any relevant issues.

Provide a brief description of any proposed transport improvements, for example, new bus routes or new traffic signals or extending existing footpath to the site.

| ITEM  | PROVIDED | COMMENTS/ PROPOSALS                                    |
|---|----------|--|
| <b>Summary</b>  | ✓        | <b>Section 1.</b>                                      |
| <b>Introduction/Background</b>                                      | ✓        | <b>Section 2.</b>                                      |
| name of applicant and consultant                                    | ✓        | Page 6.  |
| development location and context                                    | ✓        | Page 6.  |
| brief description of development proposal                           | ✓        | Page 6.  |
| key issues  | ✓        | Pages 6 and 7.   |
| background information  | ✓        | Pages 7 to 9.  |
| <b>Existing situation</b>   | ✓        | <b>Section 3.</b>                                      |
| existing site uses (if any)   | ✓        | Page 10.   |
| existing parking and demand (if appropriate)                        | ✓        | Page 10.   |
| existing access arrangements  | ✓        | Page 10.   |
| existing site traffic   | ✓        | Page 11.   |
| surrounding land uses   | ✓        | Page 11.   |
| surrounding road network  | ✓        | Page 11.   |
| traffic management on frontage roads                                | ✓        | Pages 11 to 13.  |
| traffic flows on surrounding roads (usually AM and PM peak hours)   | ✓        | Pages 13 and 14 and Figure 5.                          |
| traffic flows at major intersections (usually AM and PM peak hours) | ✓        | Pages 14 to 16 and Figure 7.                           |
| operation of surrounding intersections                              | ✓        | Page 15 and <a href="#">Intersection Videos Link</a> . |
| existing pedestrian/cycle networks                                  | ✓        | Page 15.   |
| existing public transport services surrounding the development      | ✓        | Page 15.   |
| crash data  | ✓        | Page 15 and Figure 6.                                  |



| ITEM   | PROVIDED | COMMENTS/ PROPOSALS   |
|--|----------|---|
| <b>Development proposal</b>  | ✓        | <b>Section 4.</b>   |
| regional context   | ✓        | Page 17.  |
| proposed land uses   | ✓        | Page 17.  |
| table of land uses and quantities                                    | ✓        | Page 17.  |
| access arrangements  | ✓        | Page 17.  |
| parking provision  | ✓        | Page 17.  |
| end of trip facilities   | ✓        | Page 17.  |
| any specific issues  | ✓        | Page 18 and <b>Section 2</b> (Pages 6 & 7).                     |
| road network   | ✓        | Page 18, Figure 1, Figure 2, and Figure 7 on pages 8, 9 and 16. |
| intersection layouts and controls                                    | ✓        | Page 18 and Photograph 4.                                       |
| pedestrian/cycle networks and crossing facilities                    | ✓        | Page 20.  |
| public transport services  | ✓        | Page 20.  |
| <b>Integration with surrounding area</b>                             | ✓        | <b>Section 5.</b>   |
| surrounding major attractors/ generators                             | ✓        | Page 21.  |
| committed developments and transport proposals                       | ✓        | Page 21.  |
| proposed changes to land uses within 1200 metres                     | ✓        | Page 22.  |
| travel desire lines from development to these attractors/ generators | ✓        | Page 22 and Figure 2 on page 9.                                 |
| adequacy of existing transport networks                              | ✓        | Page 22.  |
| deficiencies in existing transport networks                          | ✓        | Page 22.  |
| remedial measures to address deficiencies                            | ✓        | Page 23.  |
| <b>Analysis of transport networks</b>                                | ✓        | <b>Section 6.</b>   |
| assessment years   | ✓        | Page 23.  |
| time periods   | ✓        | Page 23.  |
| development generated traffic  | ✓        | Page 23 and 24 and Figure 10 on page 27.                        |
| distribution of generated traffic                                    | ✓        | Page 25 and Figure 2 on page 9.                                 |
| parking supply and demand  | ✓        | Page 25.  |
| base and 'with development' traffic flows                            | ✓        | Page 25 and Figure 10 on page 27.                               |
| analysis of development accesses                                     | ✓        | Page 25.  |
| impact on surrounding roads  | ✓        | Page 25.  |
| impact on intersections  | ✓        | Page 25.  |



| ITEM   | PROVIDED | COMMENTS/ PROPOSALS                 |
|--|----------|-------------------------------------|
| impact on neighbouring areas   | ✓        | Page 25.                            |
| road safety  | ✓        | Page 25 (refers <b>Section 7</b> ). |
| public transport access  | ✓        | Page 25.                            |
| pedestrian access/amenity  | ✓        | Page 25.                            |
| cycle access/amenity   | ✓        | Page 26.                            |
| analysis of pedestrian/cycle networks  | ✓        | Page 26.                            |
| safe walk/cycle to school<br>(for residential and school site developments only) | ✗        | Not applicable.                     |
| traffic management plan (where appropriate)                                      | ✓        | Page 26.                            |
| <b>Conclusions</b>   | ✓        | <b>Section 8.</b>                   |

**Proponent's name**

**Company**

Statewest Planning

**Date**

**Transport assessor's name**

David Wilkins

**Company**

i3 consultants WA

**Date** 13 March 2024