Ropes Creek Precinct Lot 5

Concept and First Stage Project Application

Transport Report

August 2010

Prepared for

Jacfin Pty Ltd

Halcrow

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This report has been issued and amended as follows:

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Contents

1 Introduction

This report relates to the transport implications of a proposed Concept Plan for the development of Lot 5 DP262213 in the Ropes Creek Employment Precinct at Eastern Creek. It also covers a Project Application for development of the first two lots on the site.

The Ropes Creek precinct is within the Western Sydney Employment Hub in which industrial, warehousing, distribution and other uses are permissible. The site is owned by Jacfin Pty Ltd which has a long history of development within the Hub. The site is located on the southern side of the proposed Erskine Park Link Road which the State Government has committed to build. This new road will connect Lenore Lane in Erskine Park to Old Wallgrove Road and thence Wallgrove Road and the M7 Motorway in Eastern Creek.

Chapter 2 of this report addresses the proposed Concept Plan. It covers the transport planning background in the area, the expected traffic generation of the site and the proposed major internal road network.

Chapter 3 addresses the Project Application for development of the first two lots on the site plus the local road which would provide initial access to them.

Chapter 4 lists the study requirements related to Transport considerations provided by the Director General of the Department of Planning pursuant to the Director's acceptance of the concept application within the EP&A Act Part 3A assessment process. It then outlines how these requirements have been addressed in the application.

In parallel with this application, Jacfin has also prepared a concept plan for its land holding in Horsley Park. That is the subject of a separate Concept Application. As appropriate the assessment in this report takes the traffic effects of that proposal into account as well.

2 Ropes Creek Concept Plan

2.1 Transport Planning Background

The location of the Ropes Creek Lot 5 Site is indicated on **Figure 1** which shows the whole Western Sydney Employment Hub west of Wallgrove Road. This is divided into three distinct sections as follows:

- West of Ropes Creek – Erskine Park within Penrith LGA
- East of Ropes Creek, north of the water pipeline – Eastern Creek/Ropes Creek within the Blacktown LGA
- South of the water pipeline – Horsley Park within the Penrith and Holroyd LGA.

Over recent years there have been a number of transport studies undertaken for the Hub area. The studies and plans of most relevance to this proposed Ropes Creek Concept Plan are as follows:

- Eastern Creek Precinct Plan, Blacktown council, December 2005
- Proposed Erskine Park Link Road Environmental Assessment, RTA, May 2007
- Proposed Erskine Park Link Road Preferred Project Report, RTA, December 2008
- RTA traffic modelling for Erskine Park Link Road design, June 2010, unpublished
- State Environmental Planning Policy (Western Sydney Employment Area) 2009
- Oakdale Central Concept Plan.

The Eastern Creek Precinct Plan relates to only the original Eastern Creek employment land which is generally west of the Ropes Creek precinct and bounded by the M4 Motorway, Wallgrove Road and the water pipeline. This area was the subject of a traffic planning exercise on which basis a road hierarchy plan for the area was produced by Blacktown Council. This is reproduced in **Figure 2** of this report.

WESTERN SYDNEY EMPLOYMENT HUB

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION

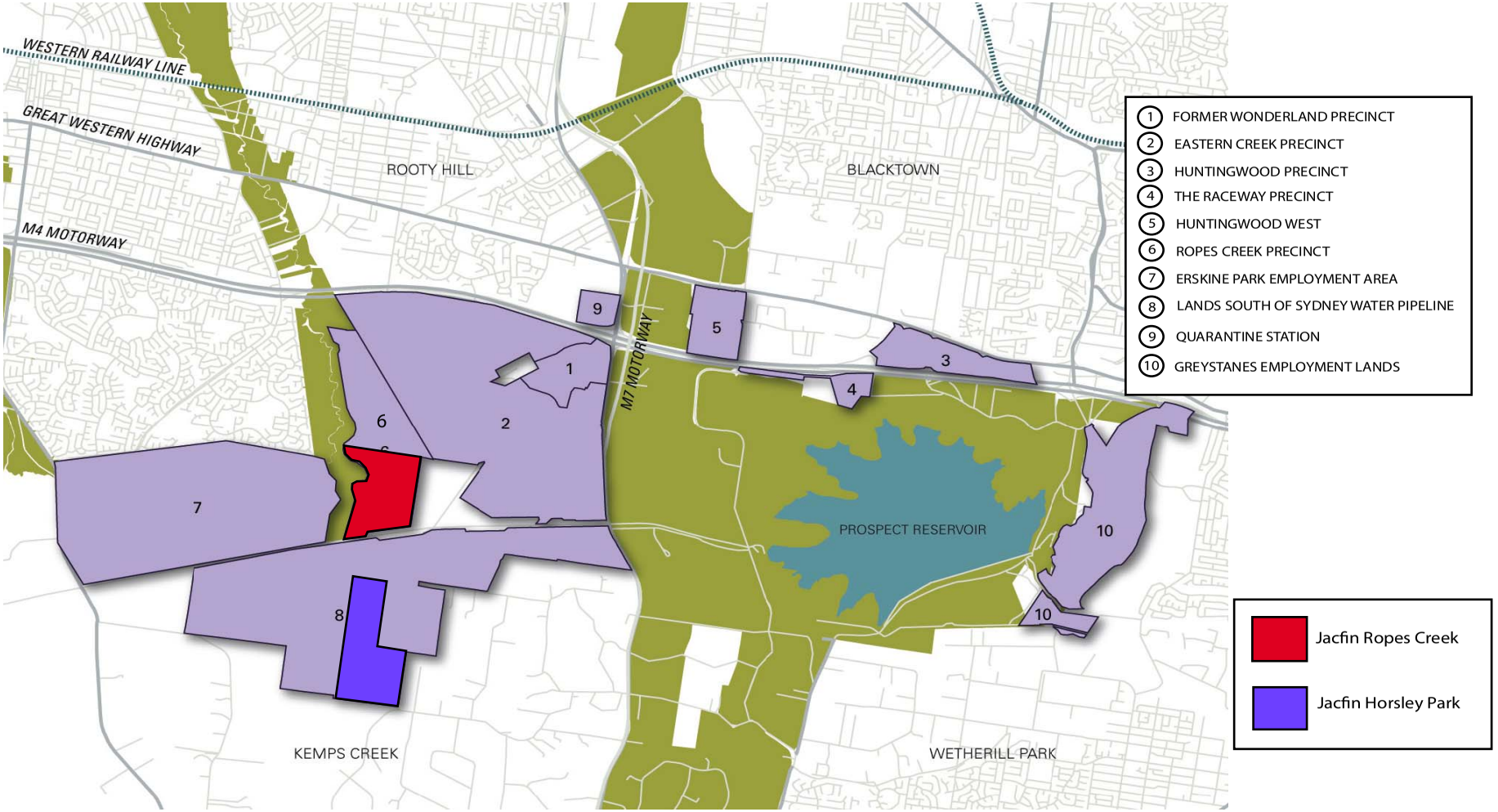

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Figure 1

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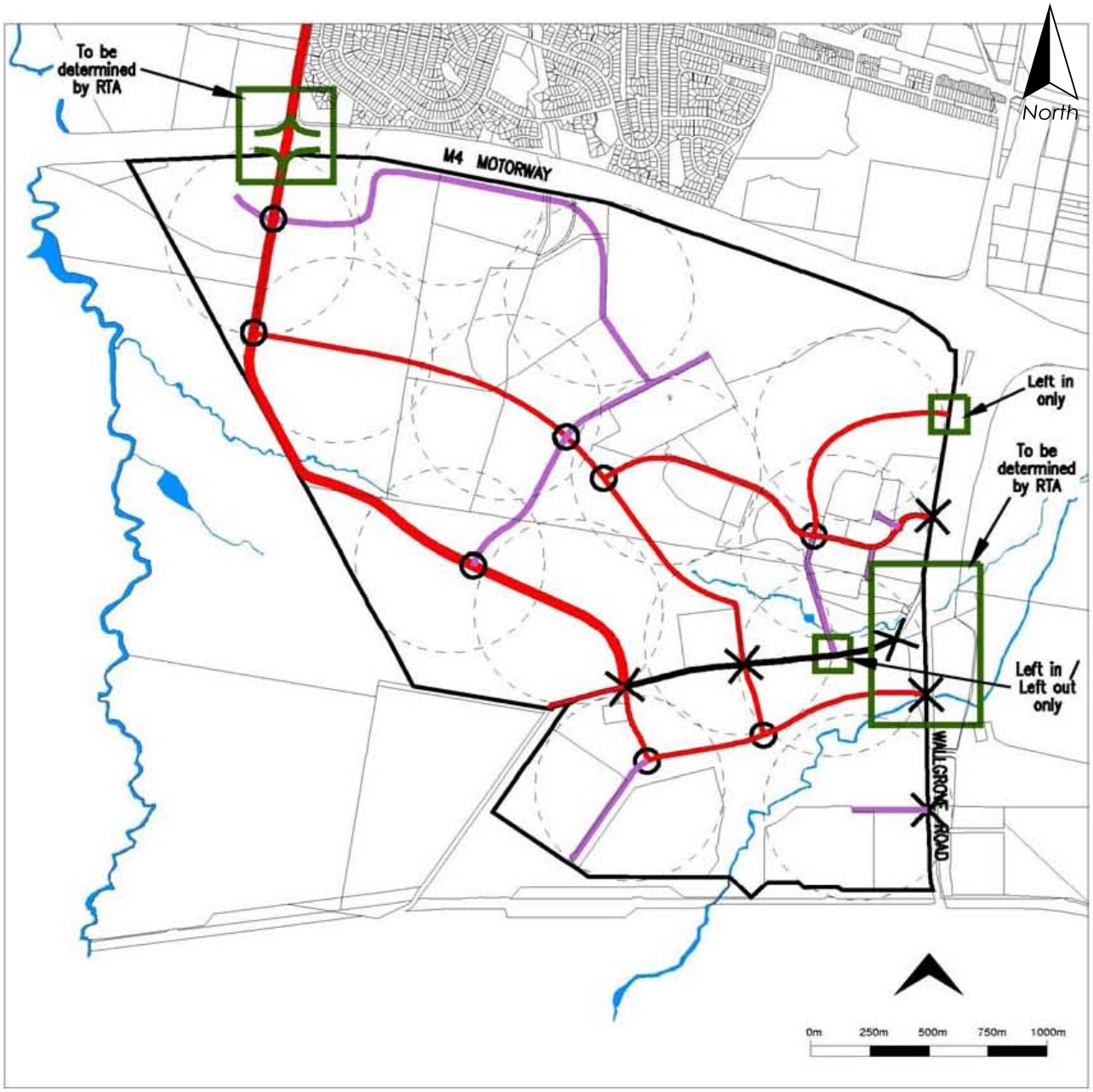
ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT



Sub-arterial Road

Local Road

Main Collector Road

Standard Collector Road

Traffic Signals

Roundabout

400m Coverage from Public Transport

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Figure 2

The Eastern Creek Precinct Road Hierarchy provides for Old Wallgrove Road to operate as a sub-arterial road between Wallgrove Road and a new Major Collector Road on the western side. This Major Collector will be formed by an extension of Archbold Road south of the M4 Motorway which will connect to the partly constructed Eastern Creek Drive which has a southeast to northwest alignment. Between Eastern Creek Drive and Wallgrove Road a "normal" collector road is proposed generally parallel to but east of Eastern Creek Drive. This will also connect to Archbold Road extension. This "normal" collector will connect to two other east west collector roads from Wallgrove Road through the Wonderland Estate.

Planning for the Erskine Park Link Road was undertaken by the RTA in conjunction with the formulation of a SEPP. The SEPP defines a corridor for the Link Road plus three north south connections to it as follows (See **Figure 3**):

- extension of Archbold Road from the M4 Motorway to the Link Road in a north-south direction
- a new link across the Link Road as a prolongation of the Archbold Road extension diagonally across the Jacfin Ropes Creek site to cross the water pipeline and join the southern section of Old Wallgrove Road to the south of the Transgrid site. This link is then shown to run southwards through land south of the pipeline to join an east west extension of Bakers Lane in Kemps Creek. That road connects to Mamre Road; and
- a second north south link from the Link Road in Erskine Park across the water pipeline that would also connect to the Bakers Lane extension.

The two RTA Erskine Park Link Road assessment reports established that, when fully developed, the entire Hub area west of Wallgrove Road would need to be served by the Erskine Park Link Road and connections as described above plus by a major east west road south of the pipeline on an alignment that connected Bakers Lane in the west with the M7 Motorway in the east. The RTA is currently investigating an alignment for this new road in the eastern section but the most likely connection point would be via Chandos Road which has a grade separated crossing of the M7 Motorway.

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION

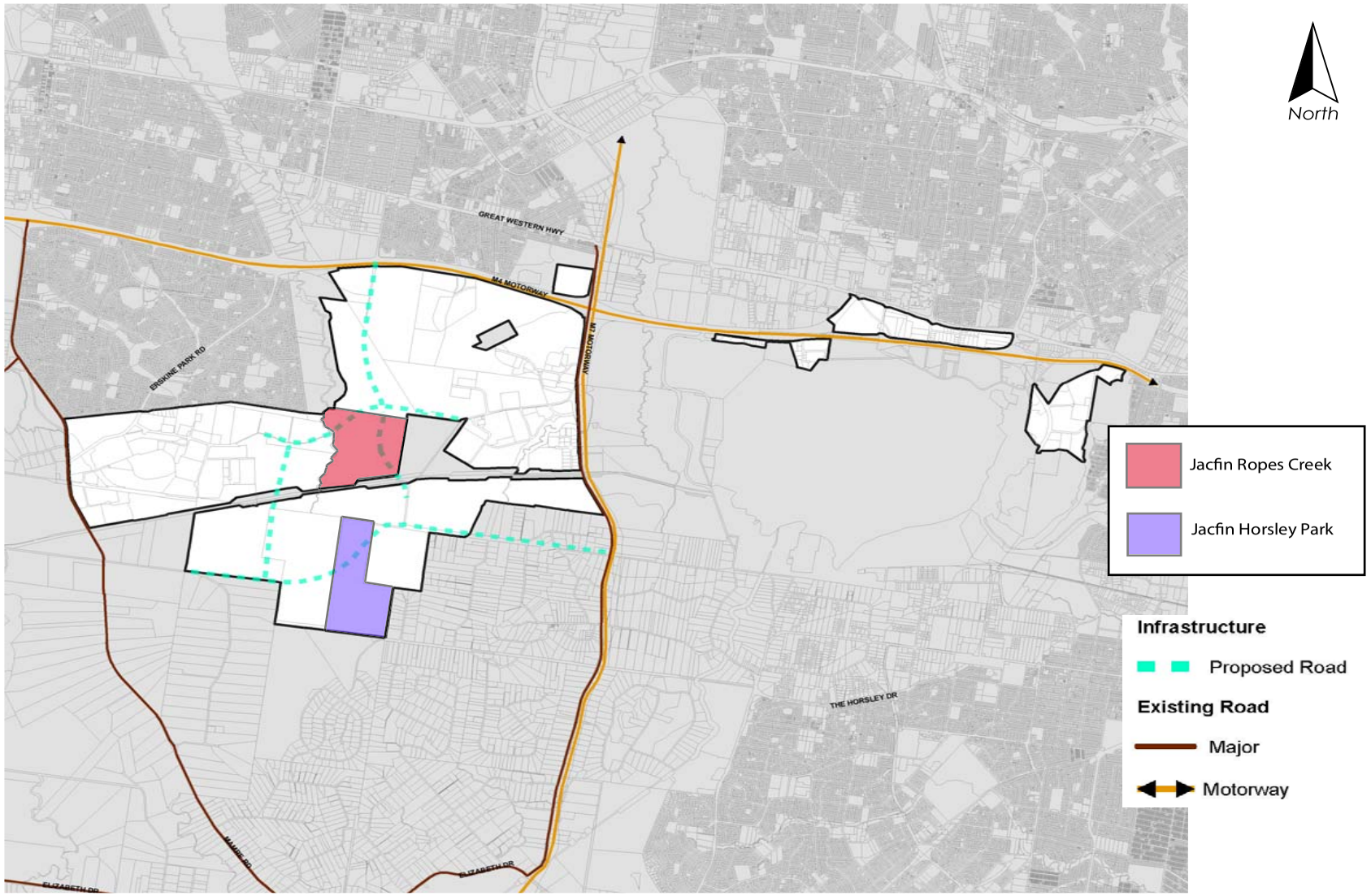

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Figure 3

In the Preferred Project report for the Erskine Park Link Road, the RTA also investigated an interim arrangement that would provide access to the Horsley Park area prior to the completion of this east-west road south of the pipeline. This system would rely on:

- the Erskine Park Link Road such that traffic could access all of Erskine Park, Ropes Creek, Eastern Creek and initial parts of Horsley Park from either Mamre Road in the west or Wallgrove Road and the M7 Motorway in the east
- a Y Link (RTA labelled "mini-Link") connection at the eastern end of Old Wallgrove Road to provide separate feeds of traffic across Wallgrove Road to the split interchange intersection with the M7 Motorway,
- the Archbold Road extension south to the Erskine Park Link Road including east facing ramps to/from the M4 Motorway, and
- use of Old Wallgrove Road to connect development land south of the water pipeline to the M7.

This system would be similar to the required ultimate road system except that it would not have the major east-west road south of the water pipeline. The RTA modelling was based on Transport Data Centre (TDC) supplied employment forecasts. The following level of development corresponded to the interim access arrangement analysis:

- Erskine Park – fully developed (277 ha)
- Eastern Creek – 390 ha
- Ropes Creek – 182 ha
- Horsley Park (south of pipeline) – 165 ha

Jacfin's lot 5 comprises approximately 81 ha of the Ropes Creek land.

Overall the interim plan would allow a total of 1014 ha of employment land to be fully developed. In practice development sites tend to be built in stages with it being normal in many cases for full development potential to be taken up progressively. Thus to achieve the planned initial road capacity related employment potential, more than 1014 ha of land would need to be available for development.

2.2 Background Traffic Forecasts and Intersection Configurations

In its detailed planning for the Erskine Park Link Road the RTA has produced updated morning peak traffic forecasts for use in the determination of intersection capacity needs. These are provided in **Appendix A**.

These RTA forecasts are used below in the formulation of traffic forecasts for the Jacfin proposed Ropes Creek and Horsley Park Concept Plans.

2.3 Design of Erskine Park Link Road

The Director General's Requirements for this investigation require impacts of the proposal on Wallgrove Road and the intersection of Old Wallgrove Road/Wallgrove Road and the M7.

In this regard the RTA is currently preparing designs for the whole of the Erskine Park Link Road/Old Wallgrove Road route to the M7. These will be based on the traffic forecasts which they have provided to Jacfin which allow for development in both the Ropes Creek and Horsley Park precincts. In view of this it was deemed inappropriate to prepare a second set of designs and analysis for these intersections within this investigation.

2.4 Oakdale Concept Plan

The Oakdale and Jacfin sites occupy the land south of the pipeline connected directly to Old Wallgrove Road. A concept plan approval has been given recently to the Central Precinct of Oakdale covering appropriately 40 ha of developable land. A project approval was received for sites 1A and 2A covering 12.6 ha of developable land incorporating 54,350m^2 of warehouse and ancillary office space with 390 parking spaces.

The Project Application indicates an expectation that this development would generate some 164 vehicle trips per peak hour. By way of comparison it is noted that the RTA has adopted a traffic generation rate of 15 vehicle trips per ha per peak hour in its traffic analysis. Application of this rate to the 18 ha as covered by the first Oakdale Project Application would produce about 270 vehicle trip per peak hour. This difference in traffic generation rates for the purposes of future traffic estimation is discussed further below.

2.5 Assumed Traffic Generation Rates

In relation to these forecasts it is noted that the RTA used a traffic generation rate of 15 vehicle trips per hectare of developable land per peak hour during peak periods for land within Blacktown and Horsley Park. This rate was established by Blacktown Council from surveys of the traffic generation of the established Huntingwood Estate.

Penrith Council found that the nature of development in the Erskine Park industrial area was different such that completed developments tend to generate considerably less than 15 vehicle trips per hectare per hour in peak periods.

As a check on this the traffic generation of two Coles distribution warehouses in Eastern Creek was surveyed in June 2008. The two sites are occupied by the first stages of development on these sites with a total occupied area of about 30.2 ha for both sites.

The survey found that these sites generated 161 two way vehicle movements in the morning peak hour and 190 in the evening. These equate to traffic generation rates of 5.3 and 6.3 vehicles per hectare per hour. When applying these rates to an undeveloped concept plan area it would be appropriate to scale them up to take into account roads and other elements that could not be built on. Applying a scale up factor of say 25% (i.e. assuming say 80% development potential within gross developable area) this suggests that large format distribution warehouses would only generate in the order of 6.6 to 7.9 vehicle trips per hectare of developable area per hour.

In our traffic forecasts for the proposed Jacfin Concept Plans for Ropes Creek and Horsley Park we have adhered to the original planning traffic generation rate of 15 vehicle trips per hectare per peak hour. However the recent Eastern Creek distribution warehouse survey plus Penrith Council's experience suggest that the traffic planning based on this rate may be conservatively high. If so the road system for the area as planned may have the capacity to accommodate more development than the initial expectation.

2.6 Ropes Creek Concept Plan

The proposed Ropes Creek Concept Plan is attached at **Appendix B**.

This site is crossed by major east-west electricity transmission easements which affects the usability of the land. It is also affected by environmental conservation zones.

As indicated on Figure 3, the site is crossed by the SEPP designated eastern (Archbold Road southern extension) link from the Erskine Park Link Road to the land south of the water pipeline (Regional Road One). A 40m wide corridor has been adopted for this road based on the corridor width established for the Old Wallgrove Road upgrade.

Three other local industrial roads are proposed in the plan. The main road (Local Road One) would intersect with the Erskine Park Link Road near the eastern boundary of Lot 5. It would then run along the eastern boundary before veering to the south west across the SEPP Road. The RTA has agreed to the intersection of this local road with the Erskine Park Link Road at the eastern end of the site (shown as the permanent access road in Appendix A).

However, as the timing of the Link Road is uncertain, the Concept Plan provides for this road to connect to Old Wallgrove Road. It will use the easement for access along the northern boundary of the Transgrid Site which is the only legal access to Lot 5. It would then cross over the alignment of the Erskine Park Link Road and run along Jacfin land in the Eastern Creek Precinct north of the Link Road alignment to intersect with old Wallgrove Road opposite Roberts Road. This connection would be provided as a temporary measure pending the completion of the Erskine Park Link Road after which it would be removed.

It is noted that the easement access to Lot 5 along the northern side of the Transgrid Site will be extinguished by the Erskine Park Link Road and the early land acquisition process involved in its development. This is one important reason why the temporary access road to Lot 5 is critical for both existing activities on Lot 5 and for the development proposed in this application.

Local Road Three would cross the SEPP Road about 175m south of the Erskine Park Link Road. It would have short cul-de-sac sections on each side.

Local Road Two would cross the SEPP Road midway between Local Roads Three and One. It would also have start cul-de-sac sections on each side.

Intersections along the SEPP Road would be spaced at 200 to 400m which represents a generous spacing such that there would be minimal traffic interaction between adjacent intersections.

2.7 Road Cross Sections

The SEPP Road is proposed to have a 40m wide reservation with two 7m wide carriageways and a 4m wide median. Localised widening to the road carriageway would be made at intersections as appropriate.

The Local Roads are proposed to have 21.5m wide reservations with 13.5m wide carriageways. A 4.5m wide verge suitable for a cycle pedestrian path would be provided on one side and a 3.5m wide verge on the other. This cross section would allow either two traffic lanes each way or one roadside parking and one traffic lane each way.

2.8 Intersection Controls

The two proposed intersections with the Erskine Park Link Road will be controlled by traffic signals. The designs for these intersections are currently being developed by the RTA. Both intersections are proposed as four way intersections with the roads to both the north and south to serve land on both sides of the Ropes Creek Precinct. These intersections are discussed further below in the section on traffic implications.

It is proposed that the intersections of the three local roads with the SEPP Road be controlled by roundabouts. Roundabouts are proposed as they will provide the flexibility for intermediate left in / left out road connections to the SEPP Road should such be found to be desirable at some time in the future as the estate develops.

The SEPP Road will in due course continue south of the water pipeline and intersect with Old Wallgrove Road before continuing southwards. It is anticipated that the intersection with Old Wallgrove Road will be controlled by traffic signals. That aspect is discussed further in the Jacfin Horsley Park Concept Plan report.

2.9 Traffic Implications

The traffic effects of the proposal were assessed for the situation with ultimate development of Lot 5 and assuming that the SEPP Road was connected to future development south of the water pipeline. **Figure 4** shows forecast future traffic flows at the two intersections with the Erskine Park Link Road and at the three internal intersections with the SEPP Road. It also shows traffic flows at the intersection of the Erskine Park Link Road with Old Wallgrove Road. Figure 4 traffic forecasts for the case with Lot 5 fully developed and the SEPP Road bridge over the water pipeline linking to Old Wallgrove Road in the south. It also provides short term traffic forecasts for the temporary access to Old Wallgrove Road at the intersection opposite Roberts Road. For completeness Figure 4 also shows forecast traffic flows for development of Lot A in Horsley Park.

The traffic flows shown on Figure 4 are for the morning peak hour. Evening peak hour flows would be similar but with directions reversed.

Finally in relation to the traffic forecasts it is noted that while the RTA has agreed to the provision of an eastern access to the site on the Link Road, its traffic modelling preceded this agreement and hence did not produce traffic forecasts for the intersection. In view of this traffic forecasts for the site access were separately produced having regard to the proposed internal road system within Lot 5. Traffic forecasts for the northern leg were estimated based on the RTA's forecast for the Eastern Creek Drive intersection which will be the next northerly connection to the east.

To determine intersection requirements the intersections were analysed using the SIDRA intersection analysis program which provides measures of performance. Standard RTA performance criteria yielded by SIDRA analysis are provided on **Table 2.1**. **Table 2.2** provides the results of the analyses. The intersection geometries to which these relate, and key results of the SIDRA analysis, are provided in **Appendix C**.

FUTURE MORNING PEAK HOUR TRAFFIC FLOWS

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION

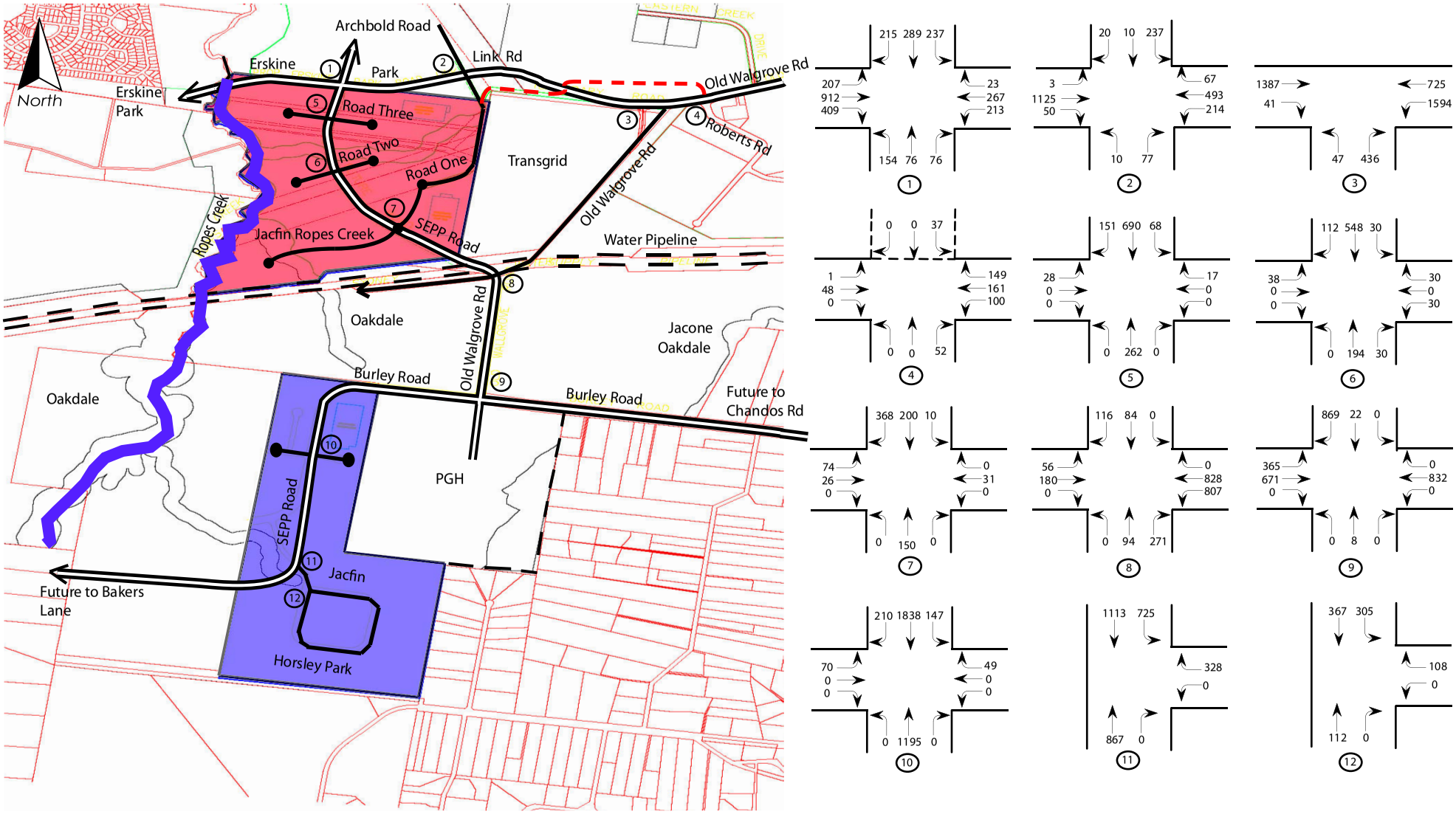

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Figure 4

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Table 2.1 – Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Signals & Roundabouts	Give Way & Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & Spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode
F	> 70	Extra capacity required	Extreme delay, traffic signals or other major treatment required

Adapted from RTA Guide to Traffic Generating Developments, 2002.

Table 2.2 – Intersection Analysis Results

ID	Intersection	Control	Morning Peak		Evening Peak	
			Av. Delay	LoS	Av. Delay	LoS
1	Link Rd / Archbold Extn. Access	Signals	39	C	49	D
2	Link Rd / Eastern Access	Signals	20	B	28	B
3	Link Rd / Old Wallgrove Rd	Signals	15	B	48	D
4	Old Wallgrove Rd / Roberts Rd / Temp Access	Priority	43	D	17	B
5	Ropes Creek - North Internal Intersection (w Road Three)	Roundabout	14	A	12	A
6	Ropes Creek - Middle Internal Intersection (w Road Two)	Roundabout	14	A	12	A
7	Ropes Creek - South Internal Intersection (w Road One)	Roundabout	11	A	12	A

Average Delay – Average Delay in seconds/vehicle. For signals relates to whole intersection. For roundabouts relates to most disadvantaged movement.

Level of Service – LoS, A = Best, F = Over Capacity, D = Acceptable

All intersections were found to have an acceptable or better level of operation.

2.10 Provisions for Public Transport

The SEPP Road and eastern Local Road One will both be suitable for use by buses. These will allow buses to circulate within the site or to pass through the site to/from the land south of the pipeline.

Bus shelters will be provided at suitable locations.

2.11 Provisions for Pedestrians and Cyclists

It is proposed to provide a shared cycle/pedestrian path on the verge on one side of each of the SEPP Road and the Local Road One. These will connect pedestrians and cyclists to the proposed cycleway along the Erskine Park Link Road and to future cycle and pedestrian routes in the Ropes Creek area when they are developed.

2.12 Car Parking

Parking requirements for each site will be highly dependent on the number of employees and on the nature of the operation of the occupier. In view of this it is proposed to allow the provision of a proportion of spaces as sealed parking and designate an undeveloped area of the site in which additional parking could be provided if there was a demonstrated need.

In relation to parking provision requirements the RTA, Penrith and Blacktown Councils suggest the following:

Table 2.3 – Relevant Parking Rates

	Warehouse	Factories/Industrial	Offices
RTA	1/300m² GFA	1.3/100m² GFA	1/40m² GFA
Penrith Council	1/100m² GFA	1/75m² GFA or 1/2 employees	1/40m² GFA
Blacktown Council	Not specified	1st 7500m² – 1/100m² GFA	1/40m² GFA

The differences between the three sets of guidelines reflect the wide variety of parking demands that industrial/warehouse development can exhibit.

For the Jacfin Ropes Creek Precinct it is proposed that:

- Sealed formal parking be provided at the following rates:
  - office: 1/40m^2 GFA;
  - factory: 1/100m^2 GFA first 100m^2 then 1/200m^2 GFA. Includes office component;
  - warehouse: 1/300m^2 GFA + 1/40m^2 for office;
- Potential overflow parking capacity be identified such that the parking supply can be brought up to the following:
  - factory: 1.3 spaces/100m^2 GFA;
  - warehouse: 1/200m^2 GFA + 1/40m^2 for office;
- Parking provision rates may be varied if detailed requirements of an occupier are known.

2.13 Conclusions in Relation to the Ropes Creek Concept Plan

The proposed road system is compatible with the SEPP (Western Sydney Employment Area) 2009 road plan and with RTA design planning for the Erskine Park Link Road. It provides for satisfactory access to each part of Lot 5 and will satisfactorily accommodate both internally generated traffic and through traffic.

Satisfactory arrangements are also proposed for pedestrians and cyclists. The system will also allow good bus coverage.

3 Project Application

3.1 Description of Proposed Development

A detailed description of the proposed development is provided in the Project Application Report prepared by JBA Planning on behalf of Jacfin. Relevant plans showing the proposed development sites are attached at **Appendix D**.

The development proposed by this project application can be summarised as follows:

Building 1 Site

- Warehouse floor area: 23,100m^2 GFA
- Office floor area: 1820m^2 GFA
- Car Parking: 122 spaces
- Loading Dock Facility accommodating articulated vehicles.

Building 2 Site

- Warehouse floor area: 16,200m^2 GFA
- Office floor area: 1350m^2 GFA
- Car Parking: 93 spaces
- Loading Dock Facility accommodating articulated vehicles.

3.2 Proposed Site Access

The sites for Buildings 1 and 2 will be accessed via the new local industrial road adjacent to the Transgrid western boundary that will intersect with Erskine Park Link Road east of the proposed intersection with Archbold Road. This local road will have a 21.5m wide reservation with a 13.5m wide carriageway. The alignment of the road is show on the Concept Plan attached at Appendix B. As mentioned above a temporary connection of this road is proposed to Old Wallgrove Road opposite Roberts Road to bridge the period prior to the completion of the Erskine Park Link Road.

The initial section of this road to be constructed will terminate just west of a truck exit from Building 1. The termination point will provide a vehicle turning area that will allow vehicles to turn around without entering the car parking or loading areas for Building 1. This cul-de-sac head will be dedicated as public road reserve on completion of the road works.

Direct access to both sites from the proposed access road would be three-fold consisting of a standard access to staff parking and the front door of the office component of the development, located between separate entry-only and exit-only access roads for trucks. Proposed access for both sites is indicated on the plans attached at Appendix D.

3.3 Traffic Generation

As outlined above in relation to the proposed Ropes Creek Concept Plan, the road system for the Jacfin Ropes Creek site proposes a road system that will accommodate all future development.

As per RTA advice, the area has been planned to accommodate traffic generated at a rate of 15 vehicle trips per hectare per peak hour. By applying this rate to site areas for Building 1 and 2, the following trips can be calculated:

- Building 1 approx. 7.2ha @ 15 trips/ha = 108 trips per hour
- Building 2 approx. 5.2ha @15 trips/ha = 78 trips per hour
- Total Trips during morning or evening peak period = 186 trips per hour

The local industrial road (Local Road One) that will serve the two sites will easily be able to accommodate this relatively low traffic volume. The volume is sufficiently low that proposed traffic signals at the intersection of the local road with Erskine Park Link Road would not be needed for the initial stage of development. Similarly, as indicated above in **Section 2.8**, traffic signals would not be needed at the intersection of the temporary site access intersection with Old Wallgrove Road and Roberts Road. An indicative layout for this intersection is attached at Appendix C.

3.4 Site Access and Internal Road Layout

The access and internal road layout arrangements comply with all relevant standards. The following factors are noted:

- The proposed road reserve would accommodate a 13.5 metre wide road pavement which will facilitate satisfactory two way vehicle access (including articulated vehicles) to and from the sites;
- The internal design complies with the requirements of AS 2890.1, Off-street car parking and AS 2890.2, Off-street commercial vehicle facilities;
- Both sites incorporate a one-way clockwise flow-through system which is safe and efficient and provides sufficient clearances to accommodate a B-Double articulated truck operating with a 12.5 metre radius turn, as shown in Appendix E;
- Extensive internal queuing capacity is provided for both sites;
- In accordance with AS 2890.2, cars and trucks are provided with separate access driveways and are separated internally, providing maximum safety for both car drivers and pedestrians;
- Available sight distances at all driveways will be satisfactory, subject to the road verge being landscaped with appropriate species; and
- The parking bays and aisles comply with the requirements of AS 2890.1 and 2890.6, Off-street parking for people with disabilities.

In summary the proposed site access and internal road layout are considered appropriate for the proposed development.

3.5 Parking Provision

It is proposed to provide parking in accordance with the parking provision rates discussed above in the Concept Plan assessment. Provisions for each building are discussed below.

3.5.1 Building 1 Site

Based on the rates set out above, the following presents the parking requirement for the Building 1 site:

Formal parking provision

• Warehouse	23,100m^2 GFA	@ 1 space/300m^2	= 77.0 spaces
• Office	1,820m^2 GFA	@ 1 space/40m^2	= 45.5 spaces
• Car Parking Requirement:			= 122.5 spaces

Formal + Overflow parking provision

• Warehouse	23,100m^2 GFA	@ 1 space/200m^2	= 115.5 spaces
• Office	1,820m^2 GFA	@ 1 space/40m^2	= 45.5 spaces
• Total Car Parking Requirement (with overflow)			= 161.0 spaces
• Therefore, net overflow parking requirement			= 38.5 spaces

The proposal for the Building 1 site includes 122 spaces in front of the office component of the building and a designated unformed area where about 40 additional parking spaces could be provided if needed in the future.

3.5.2 Building 2 Site

Based on the rates set out above, the following presents the parking requirement for the Building 2 site:

Formal parking provision

• Warehouse	16,200m^2 GFA	@ 1 space/300m^2	= 54.0 spaces
• Office	1,350m^2 GFA	@ 1 space/40m^2	= 33.8 spaces
• Car Parking Requirement:			= 87.8 spaces

Formal + Overflow parking provision

• Warehouse	16,200m^2 GFA	@ 1 space/200m^2	= 81.0 spaces
• Office	1,350m^2 GFA	@ 1 space/40m^2	= 33.8 spaces
• Total Car Parking Requirement (with overflow)			= 114.8 spaces
• Therefore, net overflow parking requirement			= 27.0 spaces

The proposal for the Building 2 site includes 93 spaces in front of the office component of the building and a hardstand area where about 25 additional parking spaces could be provided if needed in the future.

3.5.3 Parking summary

The proposed parking provision including overflow parking would more than adequately accommodate the parking demands of the proposed development for both staff and visitors.

The proposed parking layouts would accord with the design requirements of AS 2890.1-2004 and 1-2% of the total formal parking spaces would be designed and designated as disabled parking spaces in accordance with AS 2890.6-2009.

3.6 Service Vehicle (Loading) Facilities

As noted above, the proposed loading area will be separated from the car parking area.

The loading provision and layout is considered to be appropriate for the proposed warehouse uses on both sites. The layout provides significant vehicle manoeuvring area and would facilitate efficient access to and from individual loading docks. The loading and manoeuvring area would adequately accommodate access requirements of articulated vehicles, including B-Double vehicles.

3.7 Bicycles

It is proposed to provide secure bicycle parking at a rate of 1 bicycle space for each 10 car spaces. Showers and change facilities will also be provided in each building.

Initially while traffic volumes on the access road are low, bicycles will share the road carriageway with other traffic. In future a shared cycleway will be constructed along the verge once peak hourly traffic volumes are forecast to reach about 300 vehicles per hour.

3.8 Construction Traffic

Separate formal Construction Traffic Management Plans will be submitted for each site prior to the issue of a Construction Certificate as per a normal project approval conditions.

It is anticipated that typical daily flows during construction would be similar to if not less than operational traffic generation of the proposed development.
Peak construction traffic generation will occur during concrete pours and bulk earthworks should material be required to be removed or imported to the site. At these periods it is anticipated that some 20 trips per hour (10 in / 10 out) would occur. These details would be confirmed and assessed as part of a CTMP.

The following principles would be incorporated in the CTMP:

- The Construction Traffic Management Plan will include proposed truck parking areas, construction zones, crane usage, truck routes, etc;
- Trucks must enter and leave the site in a forward direction unless accredited flag persons are in place to control traffic and pedestrians;
- The Building Contractor will maintain strict traffic management procedures to ensure the safety of the public road users utilising traffic wardens;
- All vehicles carrying materials to, or from the site must have their loads covered with tarpaulins or similar covers;
- Openings in the construction fencing at the construction access driveways will be managed and controlled by qualified site personnel;
- Temporary warning signs and flashing lights will be erected adjacent to construction access driveways where appropriate.

4 Director General's Requirements

4.1 Summary of Director General's Requirements

The Department of Planning has issued Director General's Requirements for the assessment of the proposed development. Under the heading of Transport, Access and Parking, it has outlined the following issues to be considered:

- details of the traffic volumes likely to be generated during construction and operation;
- an assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network in the short and long term, and an assessment of the cumulative impact of traffic volumes from the proposal together with the existing and approved development in the area. This traffic assessment shall particularly consider impacts on Old Wallgrove Road, and the intersection of Old Wallgrove Road/Wallgrove Road and the M7;
- details of the consistency of the project with the Government's design for the new Erskine Park Link Road and all connector roads between Mamre Road and the M7/M4, and the corridor/s identified in the Government's Draft Structure Plan for the area;
- detailed plans of any proposed road upgrades;
- access, including detailed consideration of various access options and justification for the proposed location of the main access points; and
- details of the availability of non-car travel modes and measures to encourage greater use of these travel modes.

The DGR also require that the assessment take into account the RTA's *Guide to Traffic Generating Development*, the RTA's *Road Design Guide* and *State Environmental Planning Policy (Infrastructure)*.

4.2 Responses to Director General's Requirements

This traffic and transport assessment considers and responds appropriately to the comments and requirements raised by the Department of Planning and other agencies. The requirements and responses are presented in **Table 4.1**.

Table 4.1 – Responses to DGRs

Requirements	Responses
Details of the traffic volumes likely to be generated during construction and operation	These are referred to in **Section 3.3** for operational traffic and **Section 3.8** for Construction traffic.
An assessment of the predicted impacts of this traffic on the safety and capacity of the surrounding road network in the short and long term, and an assessment of the cumulative impact of traffic volumes from the proposal together with the existing and approved development in the area.	This is provided in **Section 2.9**. This found that satisfactory road system capacity would be provided.
The traffic assessment shall particularly consider impacts on Old Wallgrove Road, and the intersection of Old Wallgrove Road/Wallgrove Road and the M7	The proposed development is consistent with that being taken into account by the RTA in its detailed planning of the Erskine Park Link Road/Old Wallgrove Road system. Accordingly, as outlined in **Section 2.3** of the report this assessment is deferred to the RTA.
Details of the consistency of the project with the Government's design for the new Erskine Park Link Road and all connector roads between Mamre Road and the M7/M4, and the corridor/s identified in the Government's Draft Structure Plan for the area	**Sections 2.6** to **2.8** show that the Concept Plan proposals have been planned so that the alignment of access roads, proposed road cross sections and proposal intersection controls are consistent with the structure plan. Proposed road connections to the Erskine Park Link Road have been discussed with the RTA and are consistent with its planning for the Link Road.
Detailed plans of any proposed road upgrades	See **Appendix C** for the proposed intersection layouts. Detailed engineering plans are separately submitted in the Environmental Assessment report.
Access, including detailed consideration of various access options and justification for the proposed location of the main access points	This is referred to in **Section 3.2**. In accordance with desirable practice the design separates truck access/egress from car park access. Swept-path analysis (see **Appendix E**) shows that both sites are fully accessible for all forecasted truck sizes and the accesses with the local road network suitable for all short and log term requirements.

Requirements	Responses
Details of the availability of non-car travel modes and measures to encourage greater use of these travel modes	**Section 2.10** covers public transport provisions and notes that the SEPP Road and eastern Local Road One will be suitable for use by buses, once the DOT consider it appropriate to start running buses through the area. **Sections 2.11** and **3.7** set out provisions for Pedestrians and Cyclists including shared cycle pedestrian paths on the SEPP Road and Local Road One.

5 Summary

This report presents the findings of a transport assessment of a proposed Concept Plan for Lot 5 in Ropes Creek Employment Precinct at Eastern Creek. It also provides an assessment of a Project Application for the development of the first two lots within the site.

The following are the key findings of the Concept Plan Assessment:

- The Concept Plan envisages development on about 81ha within the site for a range of industrial and warehouse uses.
- Road access to and across the site is proposed at two points off the proposed Erskine Park Link Road.
- The western access from the Link Road will be formed as a southern prolongation of Archbold Road and will ark across the site to eventually cross the water pipeline south of the site and connect to development land in Horsley Park south of the water pipeline. This road is in accordance with the road shown on the site in SEPP (Western Sydney Employment Area).
- The eastern access to the site will be provided along its eastern boundary adjacent to the Transgrid site. It will turn to the west about halfway along the eastern boundary of the site and connect to the SEPP Road.
- Traffic requirements for the Concept Plan were determined based on traffic forecasts that were produced by the RTA for the design of the Erskine Park Link Road.
- Based on these forecasts, intersection configurations have been formulated which provide acceptable or better operation for the ultimate level of development.
- Roads within the Concept Plan area are proposed to have the same cross sections as is required in the Eastern Creek Precinct Plan.
- Cycle and pedestrian paths are proposed along the major roads. These will connect to the shared cycle/pedestrian way proposed along the Erskine Park Link Road.
- The road system will allow buses to traverse and loop through the site satisfactorily.

- Overall it is concluded that the proposed Concept Plan accords with previous traffic and transport planning for the area and that transport aspects of it will be satisfactory.

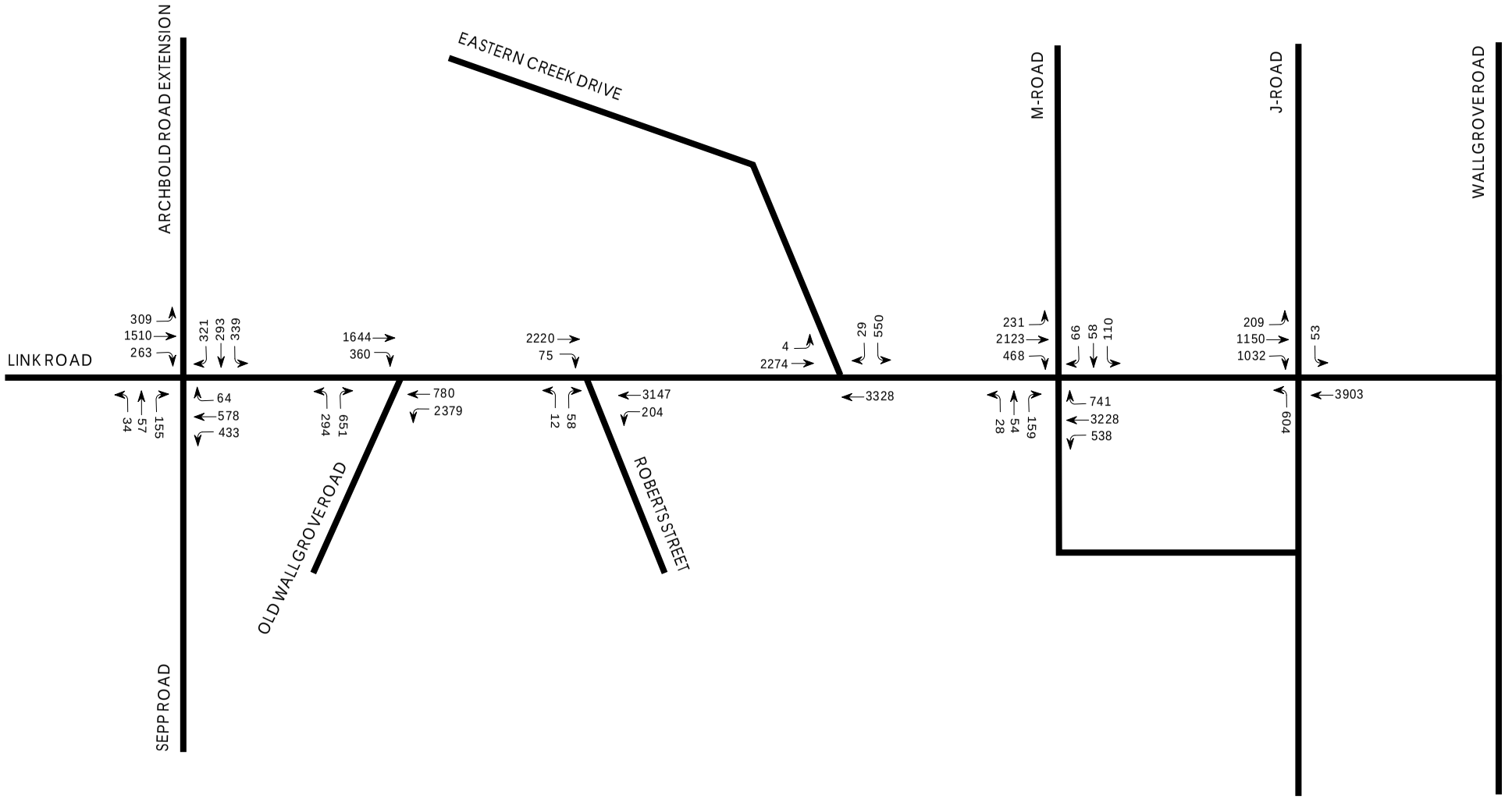
The following are the key findings of the Project Application assessments of proposed development on the first two lots:

- Each site will have access via the proposed internal access road along the eastern boundary of the Ropes Creek site.
- This will be constructed along part of its length with a temporary cul-de-sac head to be provided at its termination point at Building 1.
- Development on each site is proposed to comprise a distribution warehouse with separate car parking and generous truck manoeuvring and loading and unloading areas.
- Separate car parking is proposed on each site with an appropriate provision that could be readily augmented should additional parking be required.
- Separate car and truck access and circulation systems are proposed such that trucks and cars would be kept separate on the site at all times.
- Site access, internal roads and car and truck parking and loading areas are proposed to comply with the relevant Australian Standard.
- Bicycle parking and shower facilities are also proposed.
- Overall it is considered that transport aspects of the two Project Application developments will be satisfactory.

Appendix A RTA Traffic Forecasts

RTA AM PEAK 2-HOUR TRAFFIC FORECASTS FOR ERSKINE PARK LINK ROAD

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION



Halcrow

Figure A.1

Filename: CTLRLTdi06.ai

Date: 13 August 2010

Appendix B Ropes Creek Concept Plan

CP010 Concept Plan

Key

- Site Boundary
- E2 Environmental Conservation Zone
- Existing Trees/Vegetation
- Existing Pylons with 15m Setback Zone
- Transmission Line Easements
- Defendable Space
- SC — Potential Service Centre Location (Subject to Road and E2 Alignment)
- Indicative Lot Boundary
- Developable Area Outside Easements
- Stage I Project Application Buildings
- 20m Building Line Setback to Regional Road
- Indicative Building Footprint
- Regional Road One: 40m Reserve
- Temporary Access Road
- Local Road One: 21.5m Reserve
- Local Road Two: 21.5m Reserve
- Local Road Three: 21.5m Reserve
- Indicative Internal Road Access
- Permanent Access Road to be Provided when Erskine Park Link Road is Operational
- Roundabout
- Erskine Park Link Road

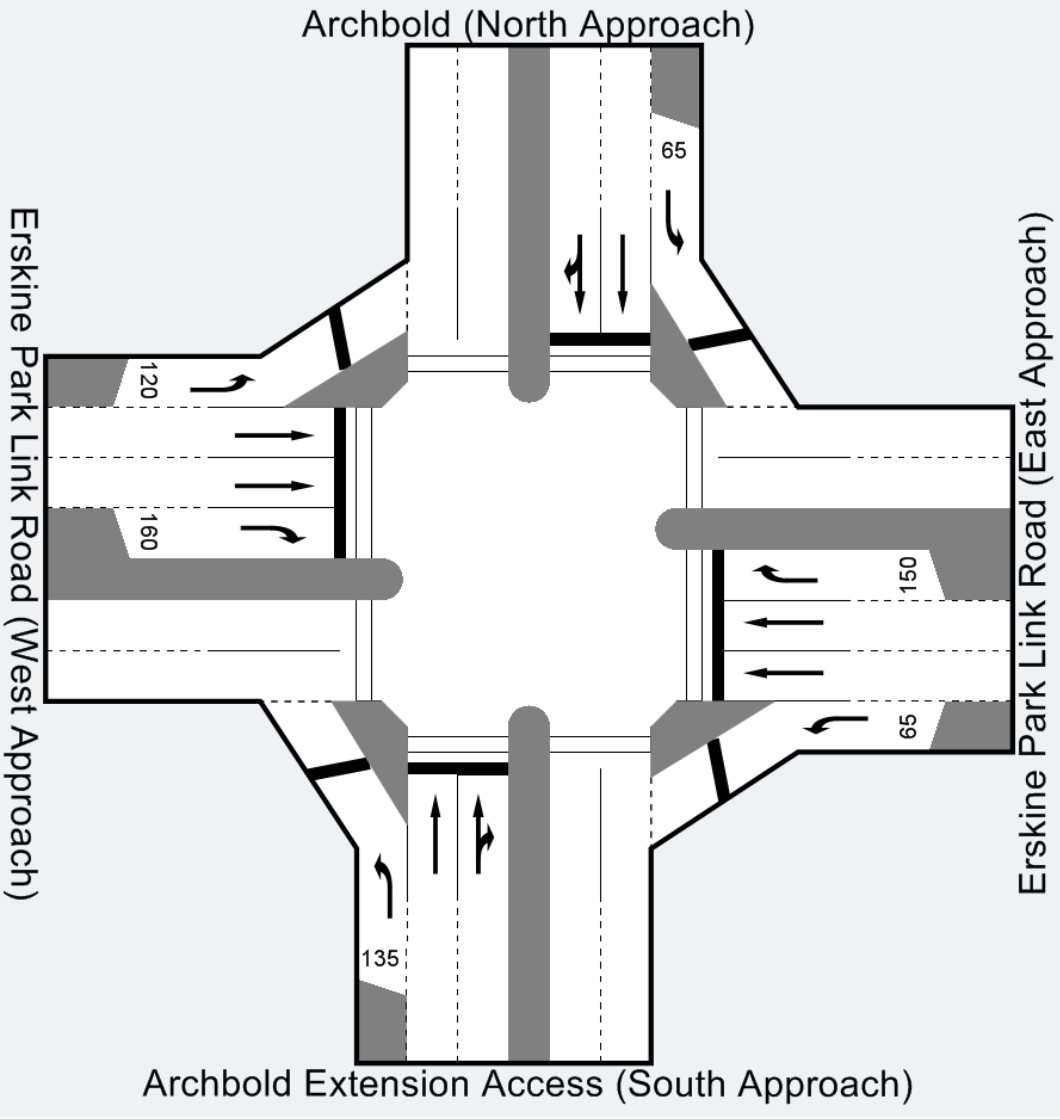
N

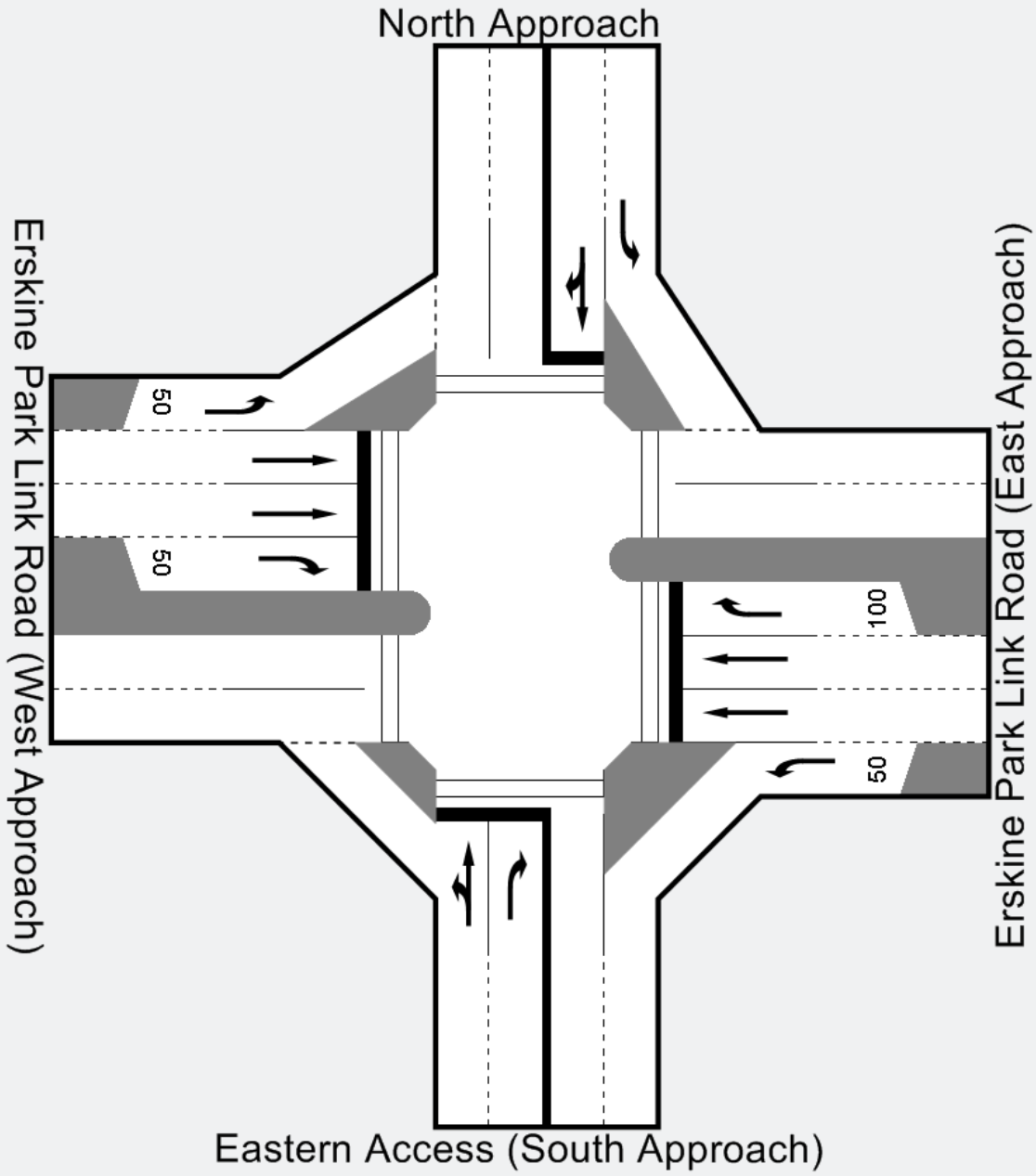
Lot 5 DP 262213, Ropes Creek Employment Precinct - Concept Plan

Prepared for Jacfin Pty Ltd
6 August 2010
1:5000 @ A3

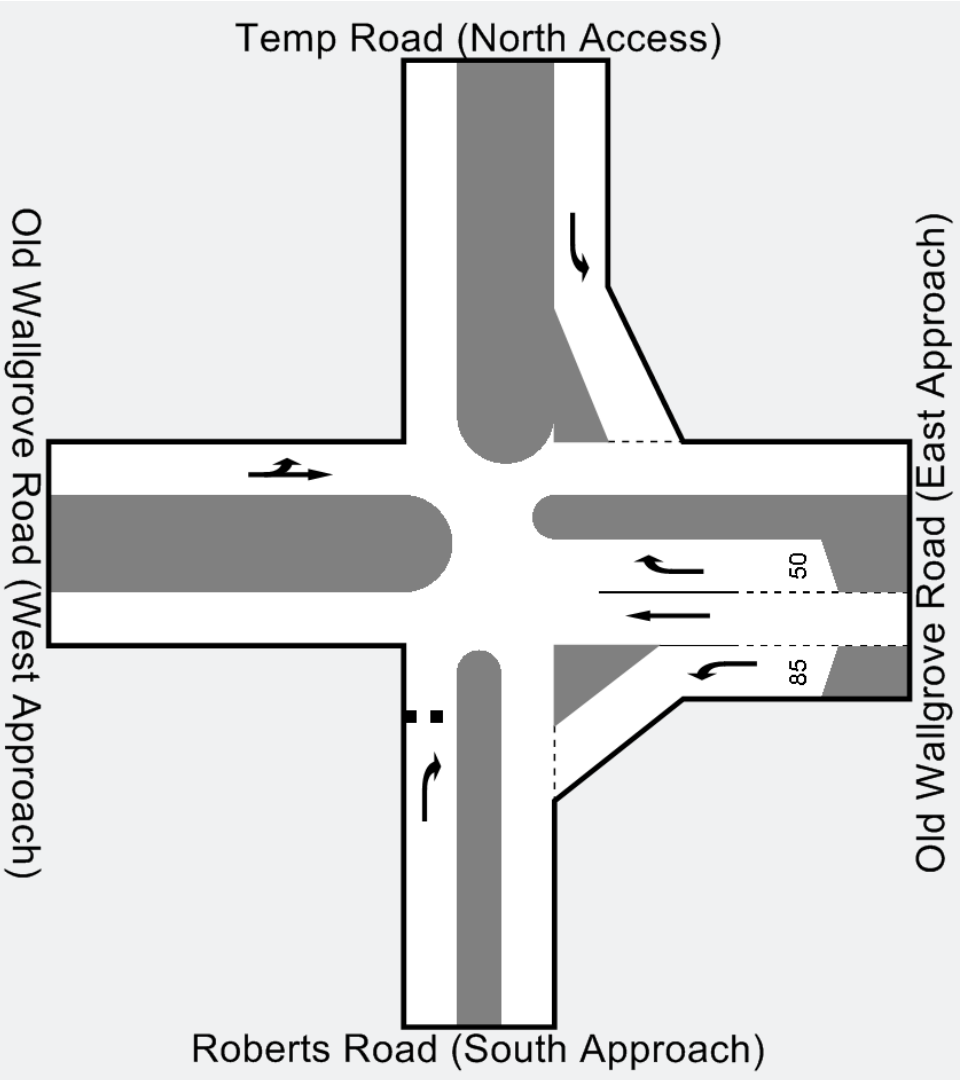
JBA planning

Appendix C SIDRA Intersection Layouts

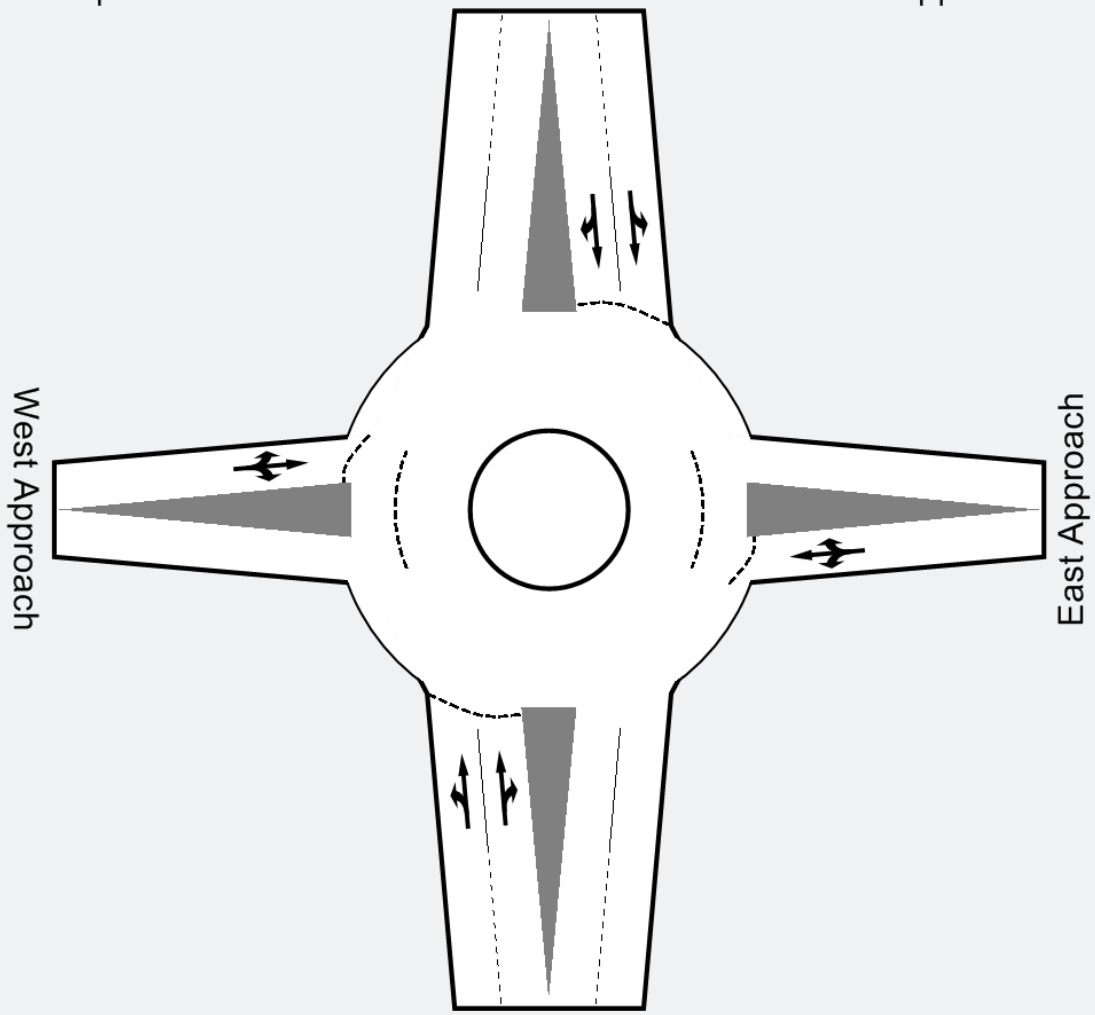

Archbold (North Approach)
Erskine Park Link Road (West Approach)
Erskine Park Link Road (East Approach)
Archbold Extension Access (South Approach)
65
120
160
150
65
135


North Approach
Erskine Park Link Road (West Approach)
Erskine Park Link Road (East Approach)
Eastern Access (South Approach)
50
50
100
50

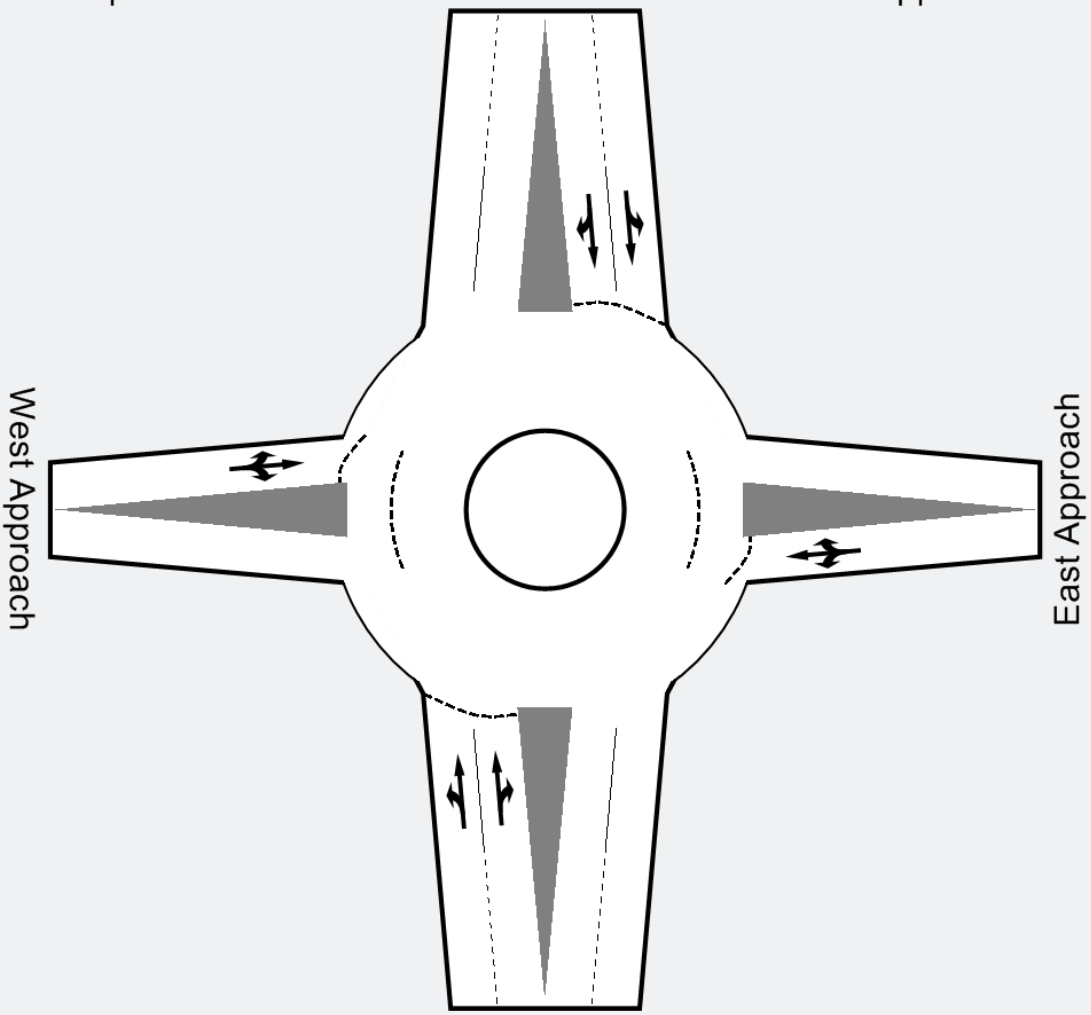
Erskine Park Link Road (West Approach)
Erskine Park Link Road (East Approach)
Old Wallgrove Road (South Approach)
100
50
50


Temp Road (North Access)
Old Wallgrove Road (West Approach)
Old Wallgrove Road (East Approach)
50
85
Roberts Road (South Approach)

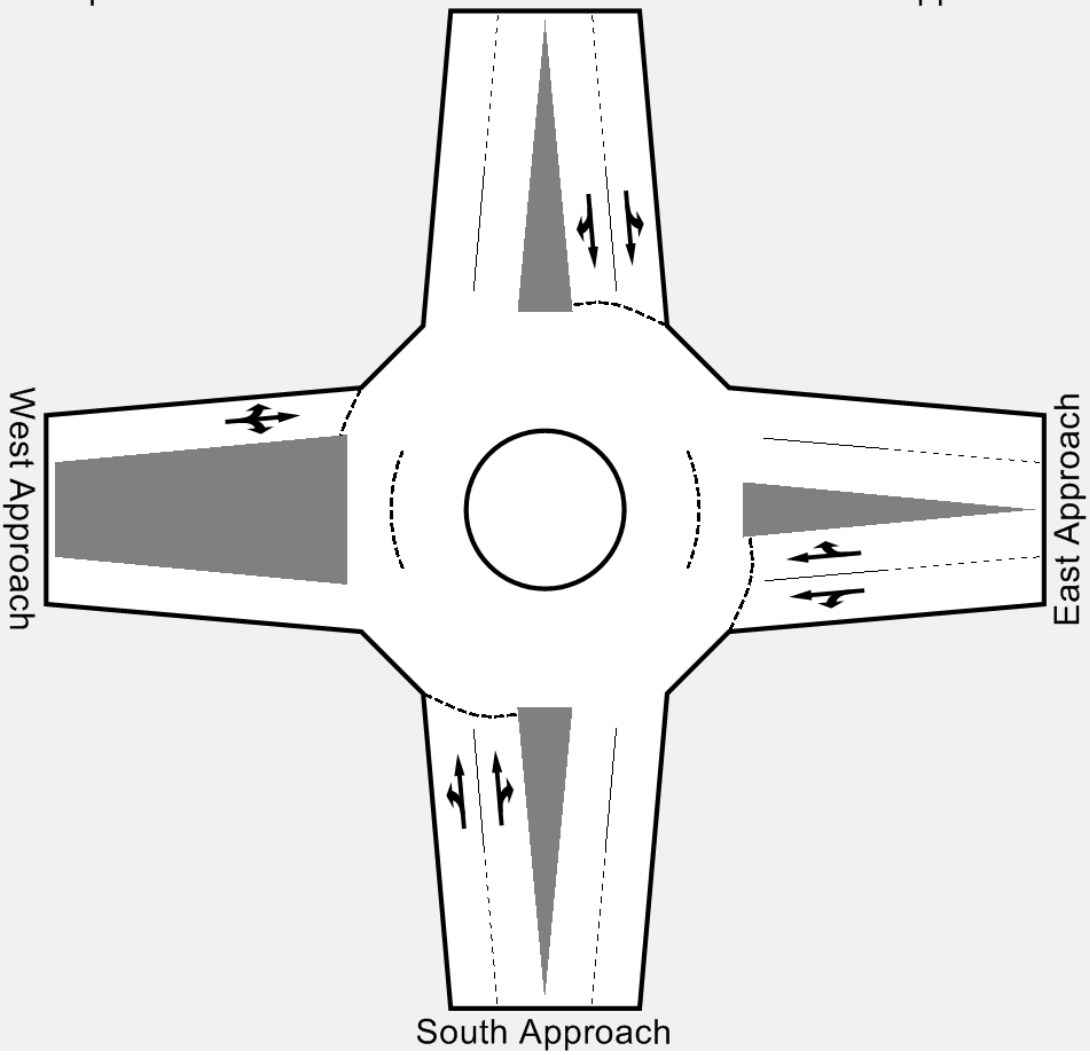
Ropes Creek - Northern Internal Roundabout - North Approach



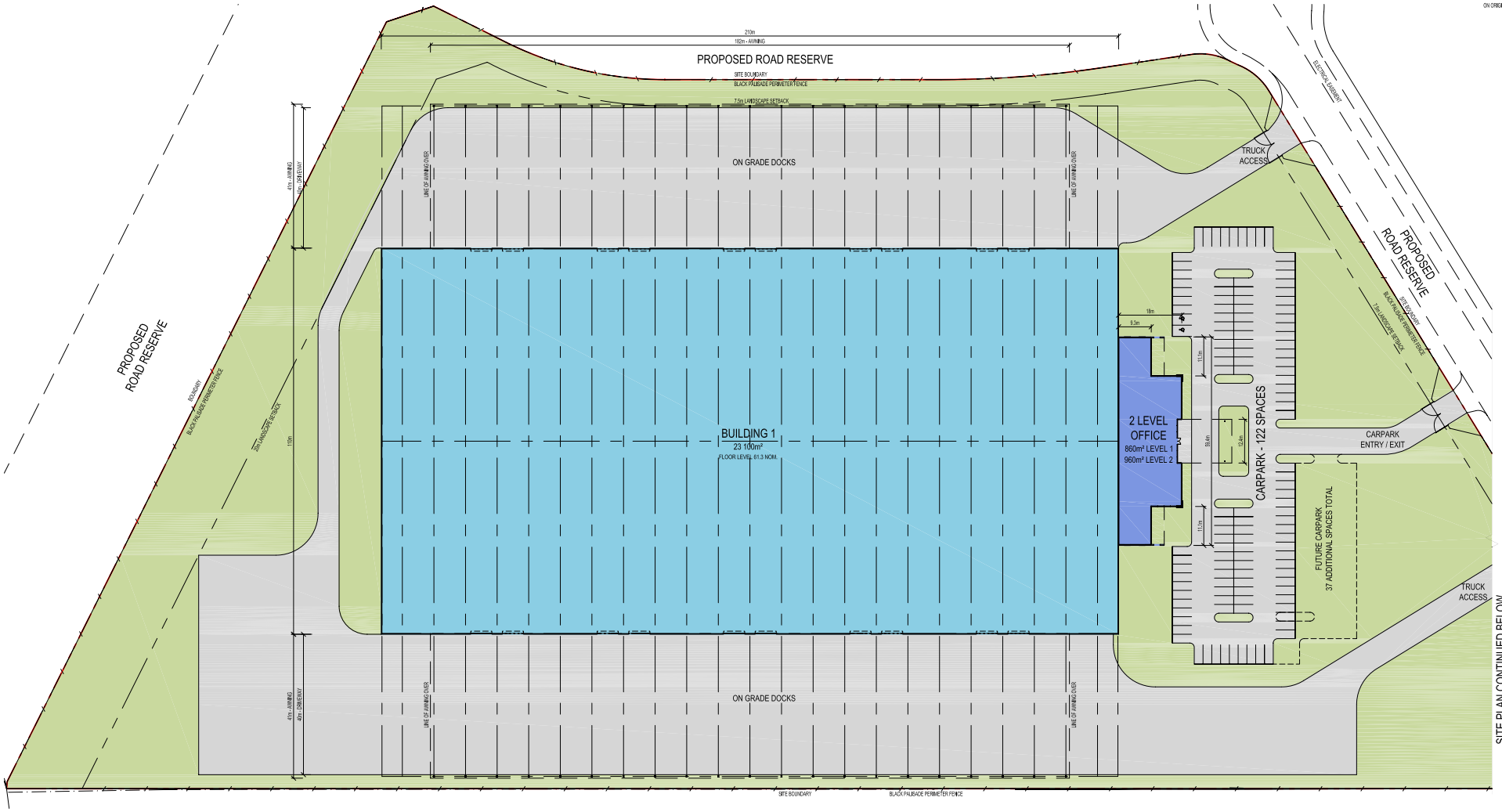
Ropes Creek - Middle Internal Roundabout - North Approach



Ropes Creek - Southern Internal Roundabout - North Approach



Appendix D Project Application Plans



KEY PLAN

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DIMENSIONS MUST NOT BE SCALED FROM DRAWINGS.

ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.

AREAS

WAREHOUSE	23 100m²
DOCK AWNINGS	14 900m²
OFFICES	1 820m²
• LEVEL 1 - 860m²	
• LEVEL 2 - 960m²	
SITE AREA	7.6 HA

REV.	DATE	AMENDMENT	SIGNED
B	16-08-10	KERB LINES TO TRUCK ACCESS DRIVEWAYS REVISED AS PER HALCROW DWG CTLRLTa001 (REC 06-08-10)	JTC
A	28-07-10	ISSUED FOR PLANNING APPROVAL	JTC

CLIENT
JACFIN PTY LTD

PROJECT
ROPES CREEK
EMPLOYMENT PRECINCT
LOT 5 DP 262213

ARCHITECT
MNIA ARCHITECTS
Level 4, 8 Help Street
PO Box 1212
Chatswood NSW 2067
Telephone (02) 9495 6400
Facsimile (02) 9495 6444
mail@mnia.com.au

TITLE
ROPES CREEK BUILDING 1
MASTER SITE PLAN

DATE	16-07-10	PROJECT No.	STATUS
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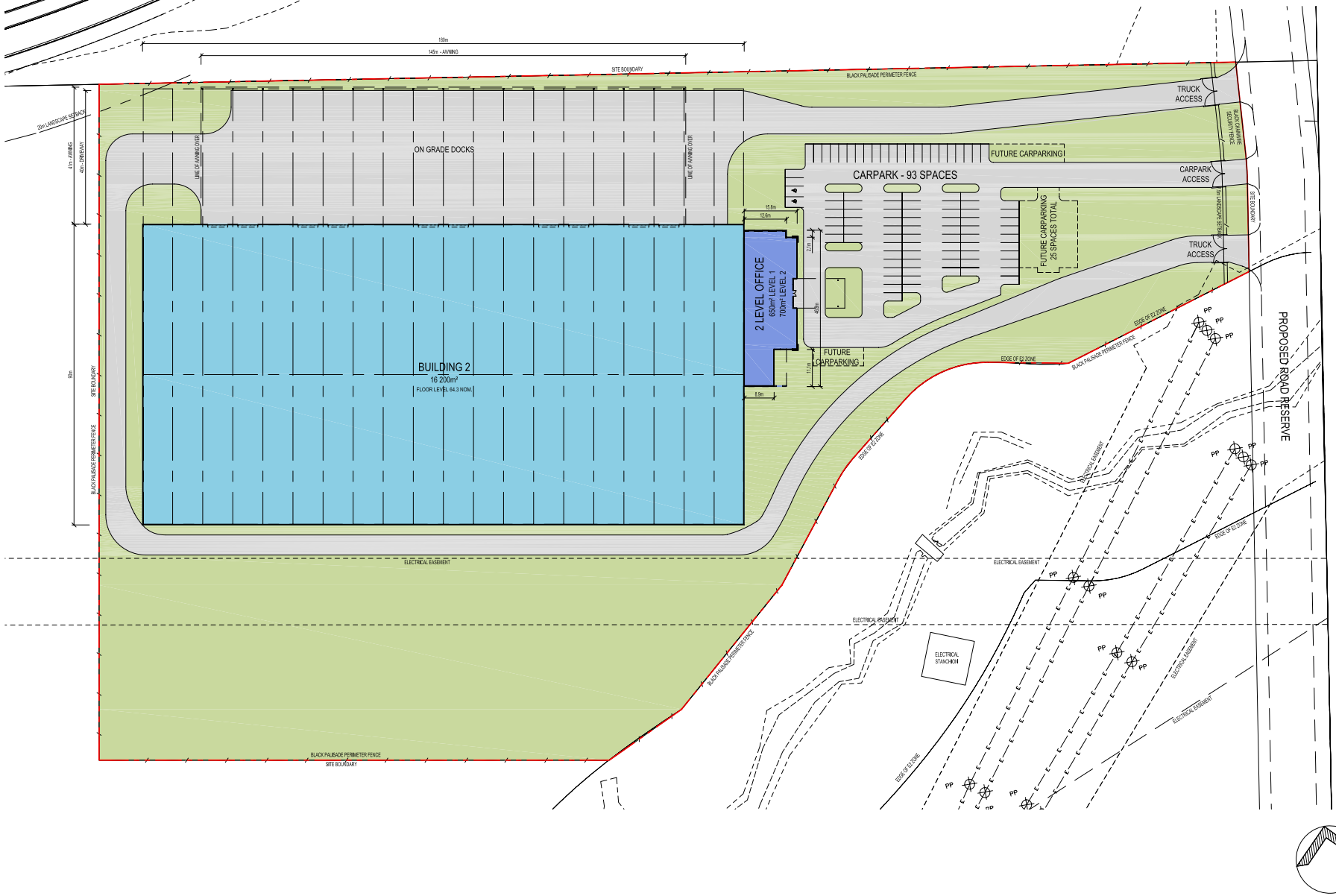
DRAWN	JTC		
CHECKED		DWG No.	REV No.
APPROVED		DA 01	/B



0 5 10 20 30 40 50 100mm
ON ORIGINAL

KEY PLAN

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CONSEQUENTIAL DAMAGES ARISING FROM UNWARRANTED OR UNAUTHORISED USE SHALL NOT RENDER MNIA ARCHITECTS PTY LTD LIABLE.

DIMENSIONS MUST NOT BE SCALED FROM DRAWINGS.

ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.

AREAS

WAREHOUSE	16 200m²
DOCK AWNINGS	5 950m²
OFFICES	1 350m²
• LEVEL 1 - 650m²	
• LEVEL 2 - 700m²	
SITE AREA	5.3 HA

REV.	DATE	AMENDMENT	SIGNED
B	16-08-10	KERB LINES TO TRUCK ACCESS DRIVEWAYS REVISED AS PER HALCROW DWG CTLRLTex012 (REC 06-08-10)	JTC
A	28-07-10	ISSUED FOR PLANNING APPROVAL	JTC

CLIENT
JACFIN PTY LTD

PROJECT
ROPES CREEK
EMPLOYMENT PRECINCT
LOT 5 DP 262213

ARCHITECT
MNIA ARCHITECTS
Level 4, 8 Help Street
PO Box 1212
Chatswood NSW 2067
Telephone (02) 9495 6400
Facsimile (02) 9495 6444
mail@mnia.com.au

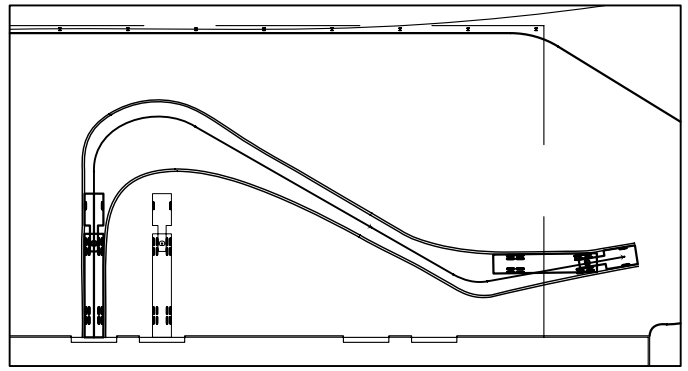
TITLE
ROPES CREEK BUILDING 2
MASTER SITE PLAN

DATE	16-07-10	PROJECT No.	STATUS
SCALE	1:500 (B1)	1023	AR/DA
DRAWN	JTC		
CHECKED		DWG No.	REV No.
APPROVED		DA 10	/B

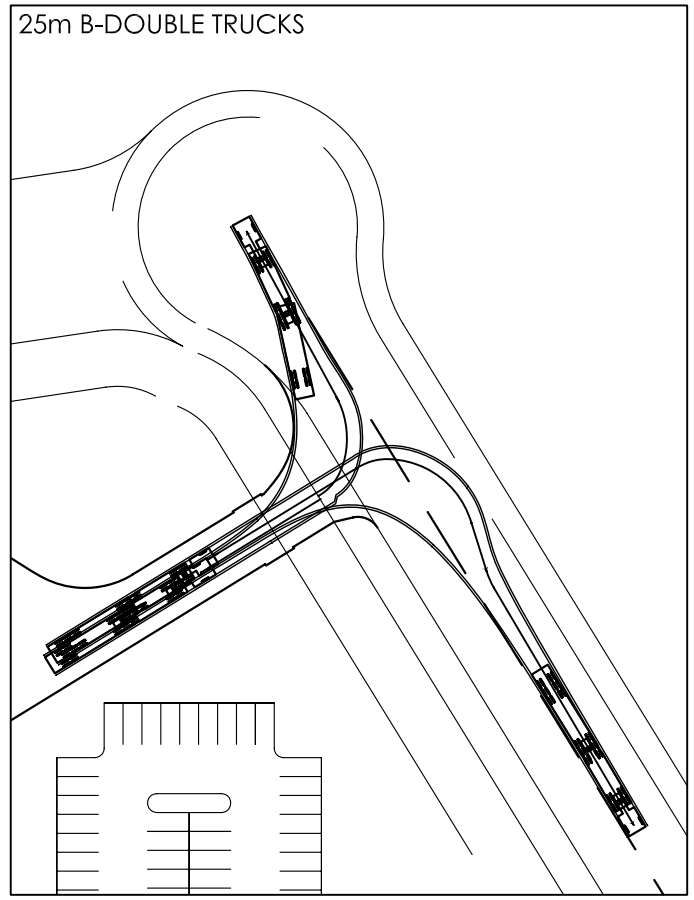
Appendix E Swept-Path Analysis

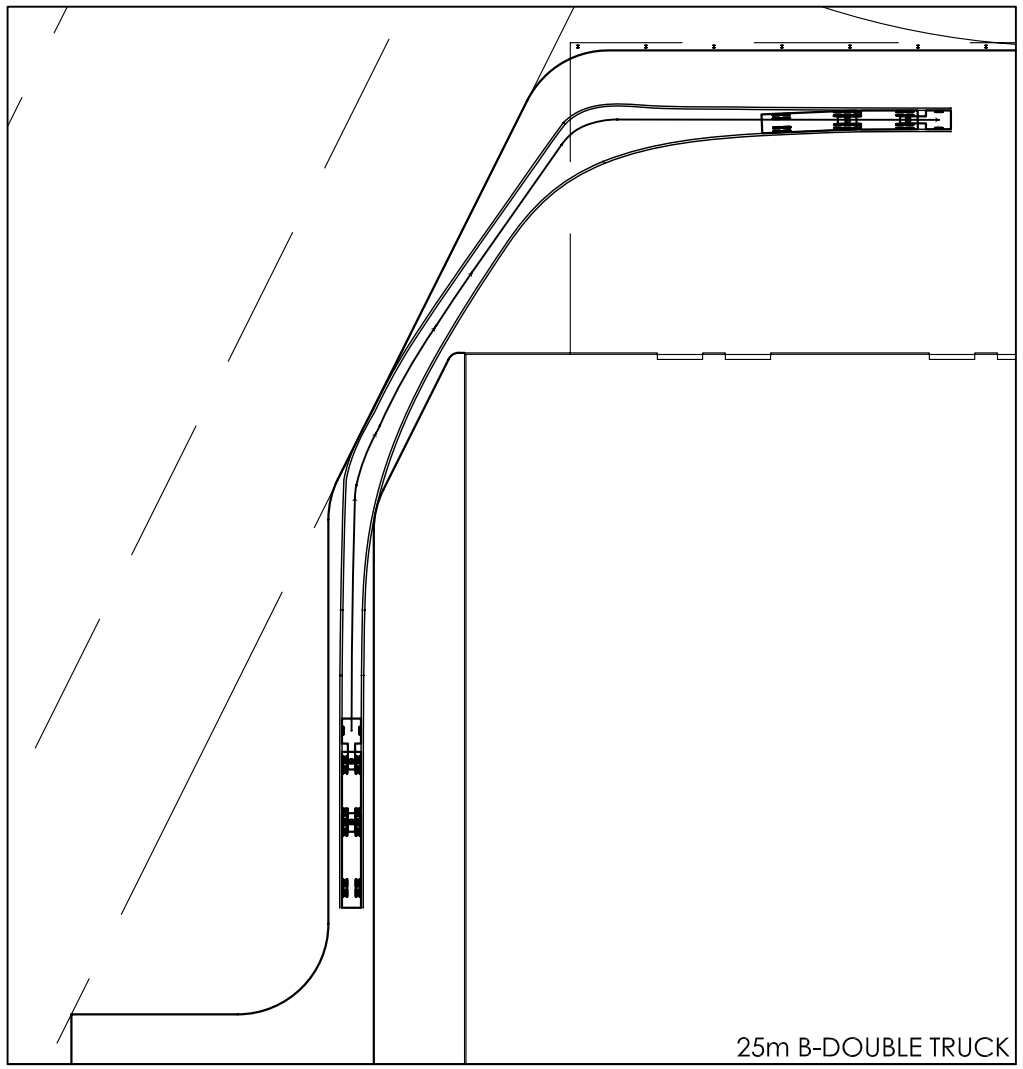
TRUCK SWEPT PATH ANALYSIS - BUILDING 1

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION

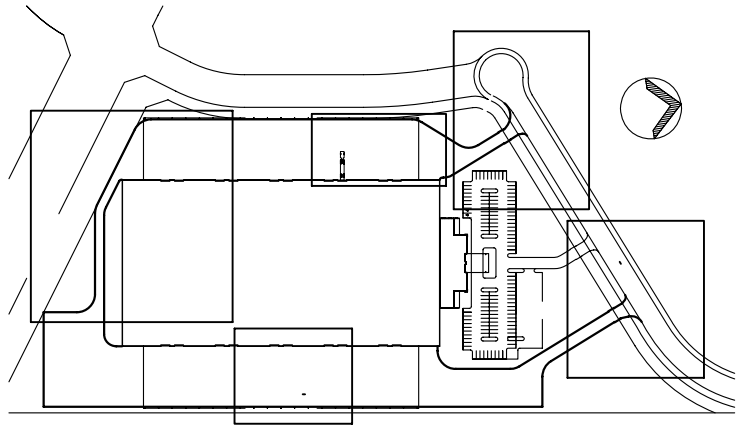


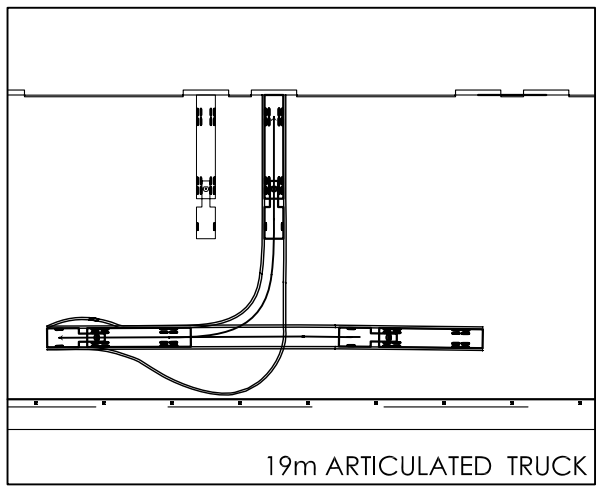
19m ARTICULATED TRUCK



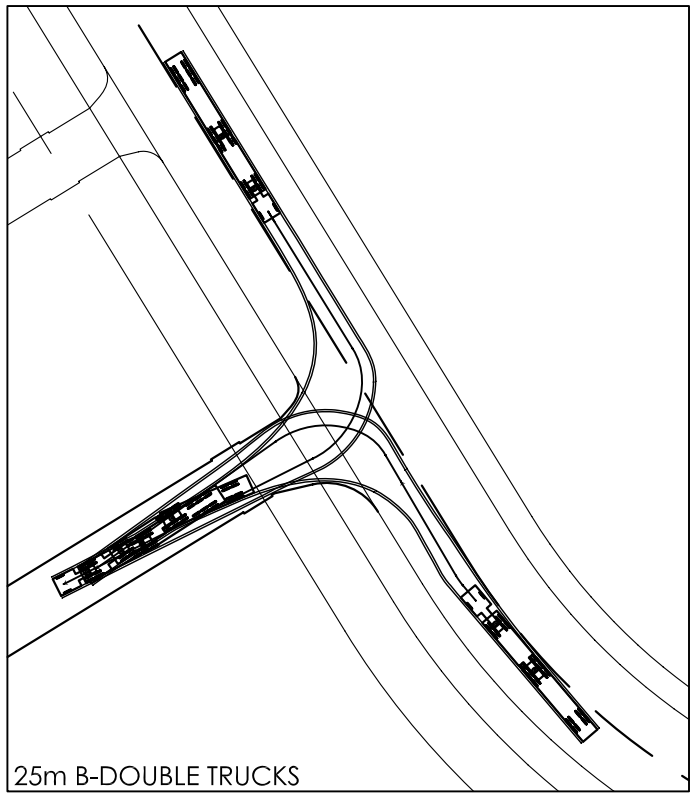


25m B-DOUBLE TRUCK





19m ARTICULATED TRUCK



25m B-DOUBLE TRUCKS

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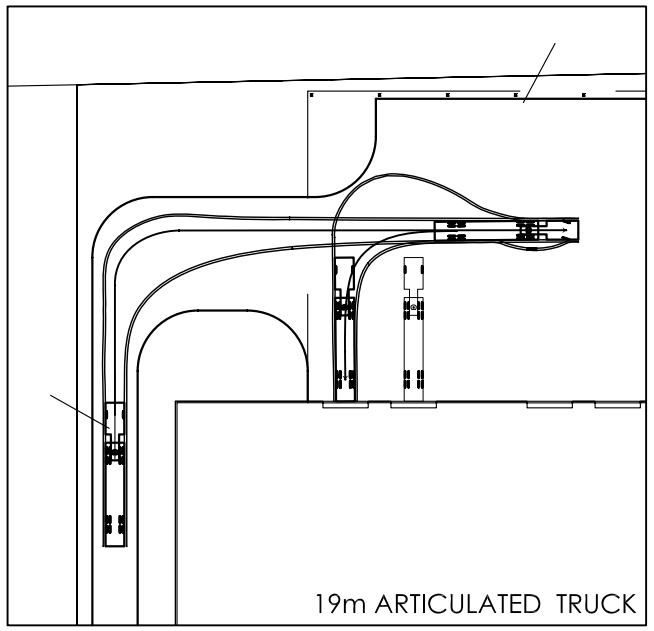
Filename: CTLRLTda02

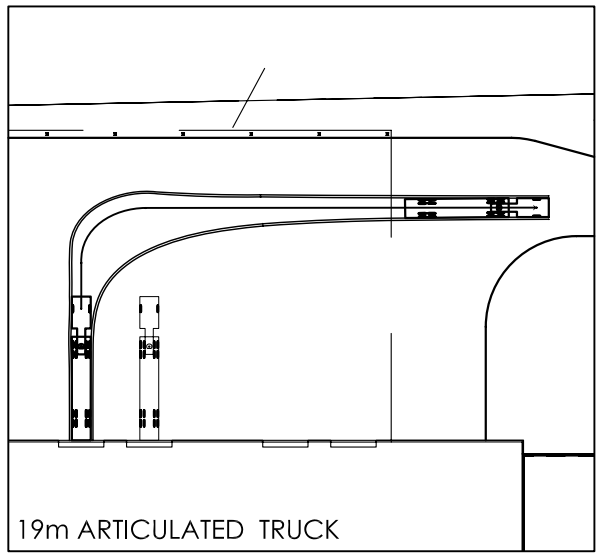
Figure E.1

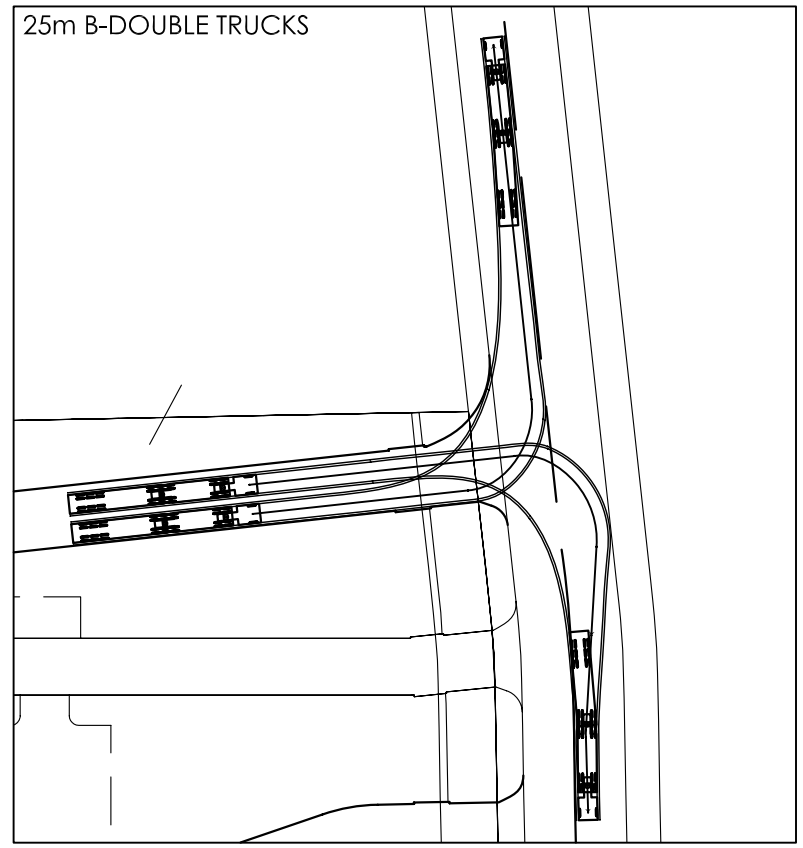
Date: 18 August 2010

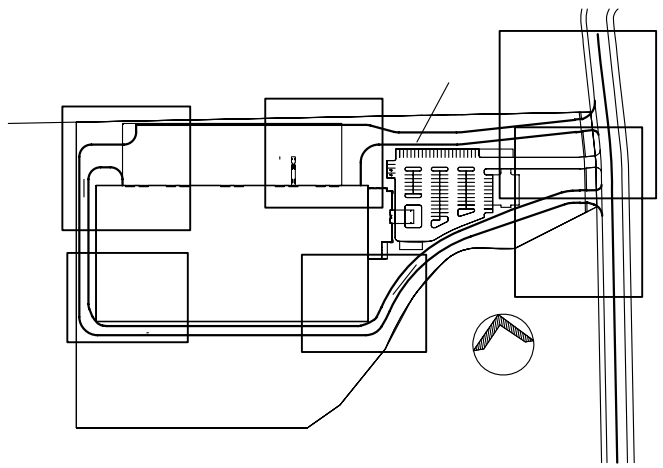
TRUCK SWEPT PATH ANALYSIS - BUILDING 2

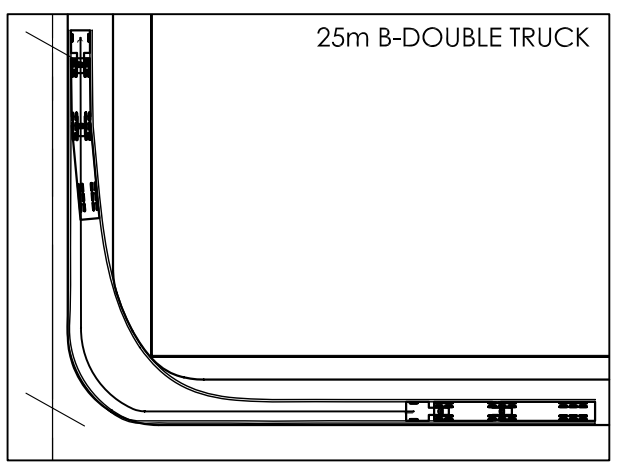
ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION

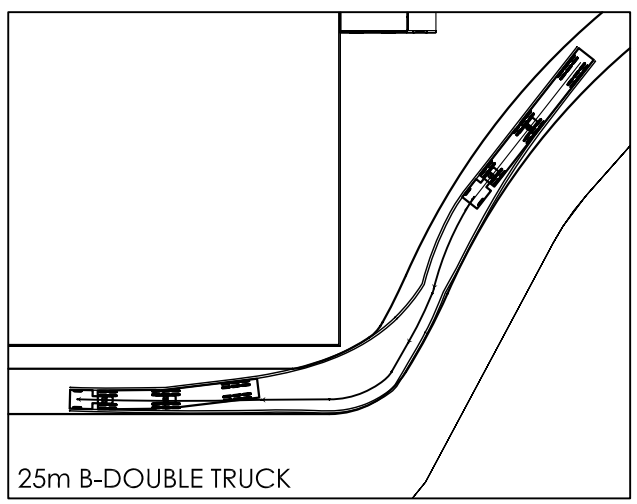


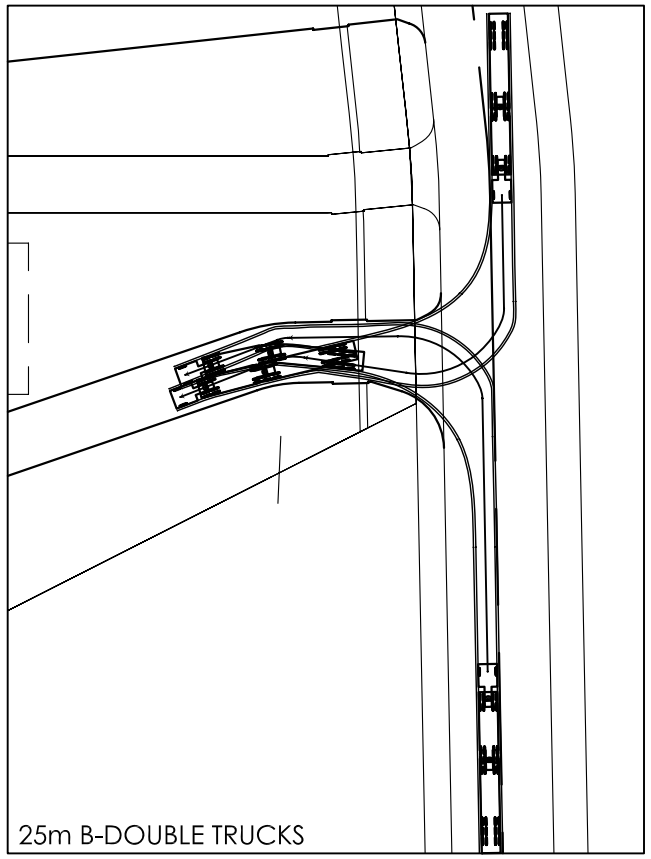












Scale: 1:1000@A3

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Filename: CTLRLTda03

Figure E.2

Date: 18 August 2010

Halcrow
Suite 20, 809 Pacific Highway, Chatswood NSW 2067 Australia
Tel +61 2 9410 4100 Fax +61 2 9410 4199
www.halcrow.com/australasia

Jacfin Pty Ltd
PO Box 1588
NORTH SYDNEY
NSW 2059

1 November 2010

Attention: Jennie Buchanan

Dear Jennie

Re: Eastern Creek Part 3A Application
Response to RTA and Department of Planning Correspondence

The following is provided in response to the recent correspondence submitted by the RTA (issued 20 September 2010) and the Department of Planning (issued 7 October 2010).

Response to Technical Issues Raised by RTA

The RTA letter notes that "*the three proposed roundabout intersection located along the proposed Regional Road may not be suitable. Therefore, the draft EA report will need to examine these three key intersections in further detail by providing detailed traffic modelling outputs which examine these intersections under both roundabout and signal control.*"

We have undertaken an analysis of the three intersections using SIDRA 5.0. **Table 1.1** below presents a comparison of the three intersections under both roundabout and signal control.

Table 1.1 – Future Peak Hour Intersection Operation

ID	Intersection	Control	Morning Peak		Evening Peak	
			Av. Del	LoS	Av. Del	LoS
5	Ropes Creek - North Internal Intersection (w Road Three)	Signals	17	B	16	B
		Roundabout	14	A	12	A
6	Ropes Creek - Middle Internal Intersection (w Road Two)	Signals	17	B	16	B
		Roundabout	14	A	12	A
7	Ropes Creek - South Internal Intersection (w Road One)	Signals	20	B	18	B
		Roundabout	11	A	12	A

Average Delay – Average Delay in seconds/vehicle. For signals relates to whole intersection. For roundabouts relates to most disadvantaged movement.
Level of Service – LoS, A = Best, F = Over Capacity, D = Acceptable

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All three intersections were found to have an acceptable level of delay and have spare capacity under signal control.

The geometries of the signalised intersections used in SIDRA are provided in **Appendix A.**

Response to Technical Issues Raised by Department of Planning NSW

1. *"The traffic assessment does not provide adequate discussion of traffic volumes for the entire concept plan area". "The traffic assessment should also specify the estimated number of heavy vehicles (per hour and daily)".*

The Peak Hour Traffic Flows as shown in the Ropes Creek Precinct Lot 5 – Concept and First Stage Project Application **Figure 5** have been scaled to determine the following:

- Future Daily (Total) Traffic Flows;
- Future Daily Commercial Vehicle Traffic Flows; and
- Future Peak Hour Commercial Vehicle Traffic Flows.

The traffic flow diagrams are attached in **Figures 1 - 3**.

Table 1.2 presents the future two way peak mid-block hour flows along the SEPP Road and Road One.

Table 1-2 – Future Two Way Peak Hour Traffic Volumes

Link	Future Peak Hour (Total) Traffic Flows (vph)	Future Daily (Total) Traffic Flows (vpd)	Future Daily (Commercial) Traffic Flows (vpd)	Future Peak Hour (Commercial) Traffic Flows (vph)
SEPP Road (between Erskine Park Link Road and Road Three)	1217	8196	142	50
SEPP Road (between Road Three and Road Two)	952	6412	111	39
SEPP Road (between Road Two and Road One)	802	5401	93	33
SEPP Road (between Road One and Old Walgrove Road)	351	2364	41	14
Road One (between SEPP Road and Link Road	31	209	4	1

2. *"It may also be worthwhile to compare the traffic generation estimates for the Project to the Concept Plan calculations"*.

Response:

As per RTA advice, the area has been planned to accommodate traffic generated at a rate of 15 vehicle trips per hectare per peak hour. This rate was used for both the Concept Plan and the Project Plan assessments. This was done to maintain consistency although our report acknowledges that the actual Project Plan warehouse proposals would most likely generate considerably less traffic. This is because the 15 vehicle trip per hectare rate also covers manufacturing type establishments which exhibit somewhat higher employment densities and traffic generation than warehouse developments.

In conclusion we note that:

- the traffic volumes used in the assessment were based on area wide traffic generation rates agreed by Blacktown Council, on RTA Guideline rates and on RTA traffic forecasts for the proposed Erskine Park Link Road,
- similarly daily and service vehicle traffic forecasts provided in this response are based on RTA Guidelines,
- while our analysis finds that both traffic signals and roundabouts would work satisfactorily, we recommend roundabouts as these would afford more flexibility in terms of traffic access, have reduced ongoing operating costs and would moderate traffic speeds; and finally
- the road layouts proposed for the precinct are more than adequate to cater for expected traffic levels and types and would operate well within capacity.

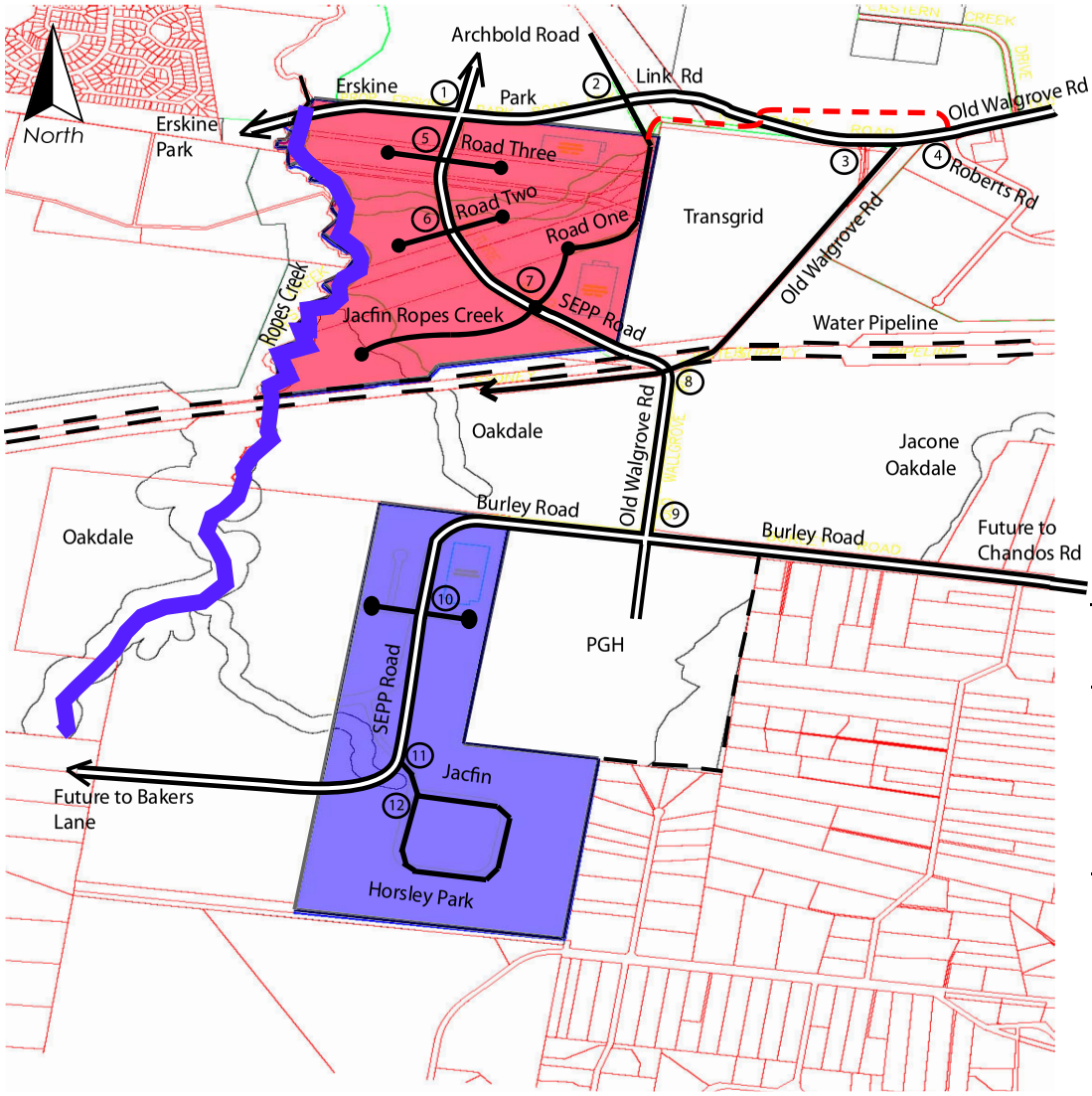
We trust that this provides adequate information and request that if you have any queries regarding the above or require further information, please do not hesitate to contact me.

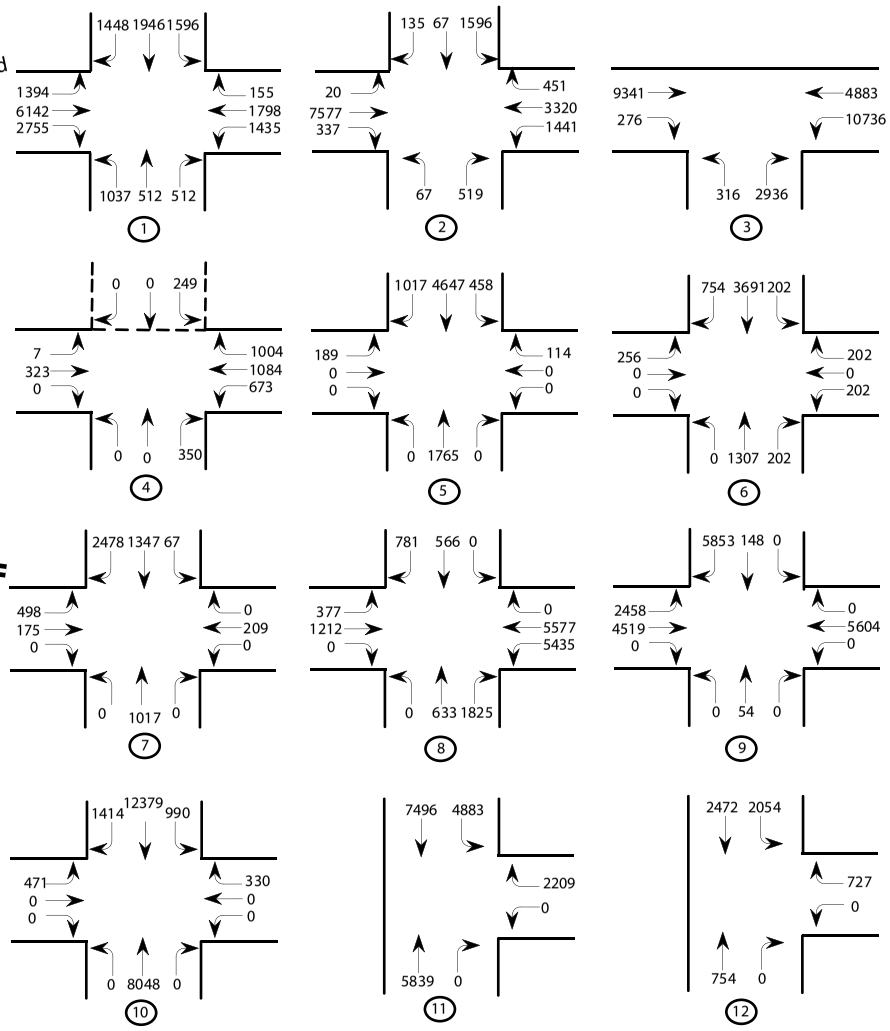
Yours sincerely

Bruce Masson
Director – Transport Planning

FUTURE DAILY (TOTAL) TRAFFIC FLOWS

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION





Halcrow

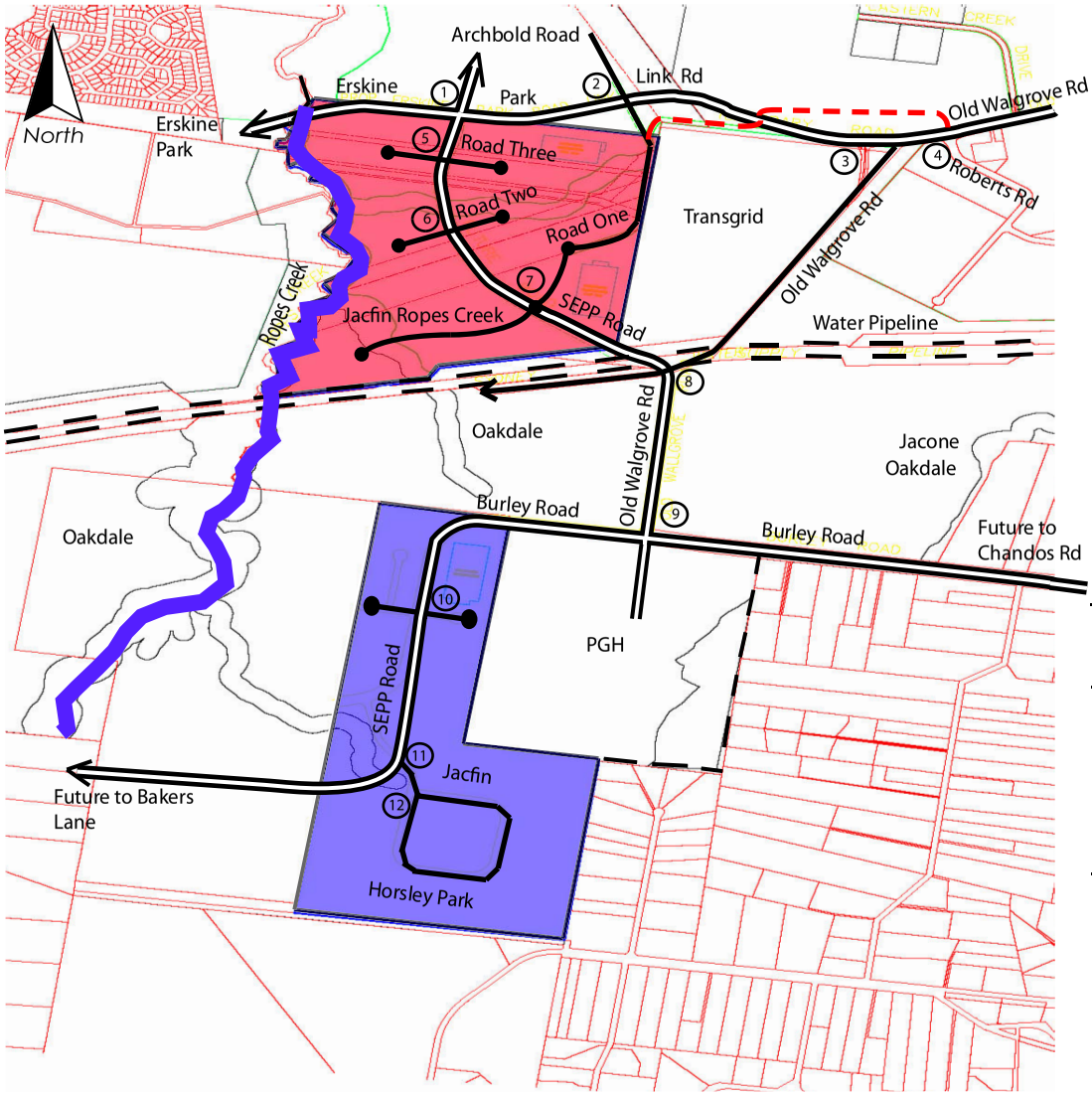
Figure 1

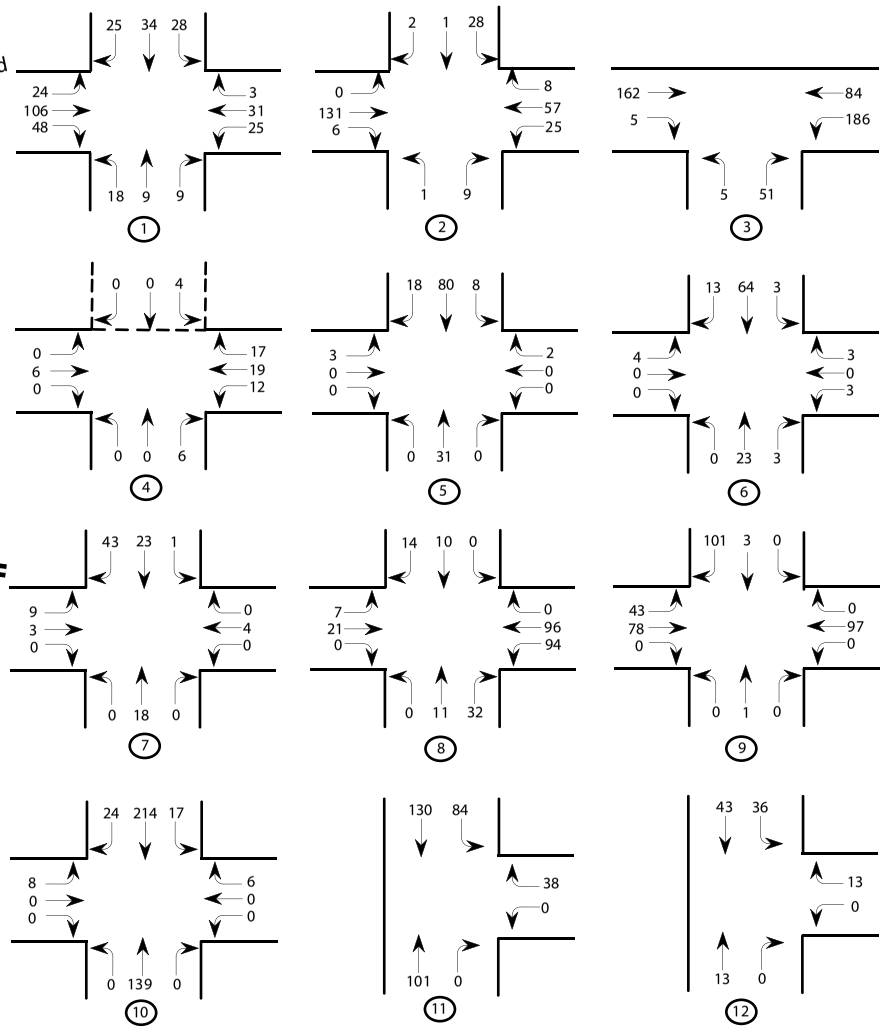
Filename: CTLRLTdi07(R).ai

Date: 28 October 2010

FUTURE DAILY COMMERCIAL VEHICLE TRAFFIC FLOWS

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION





Halcrow

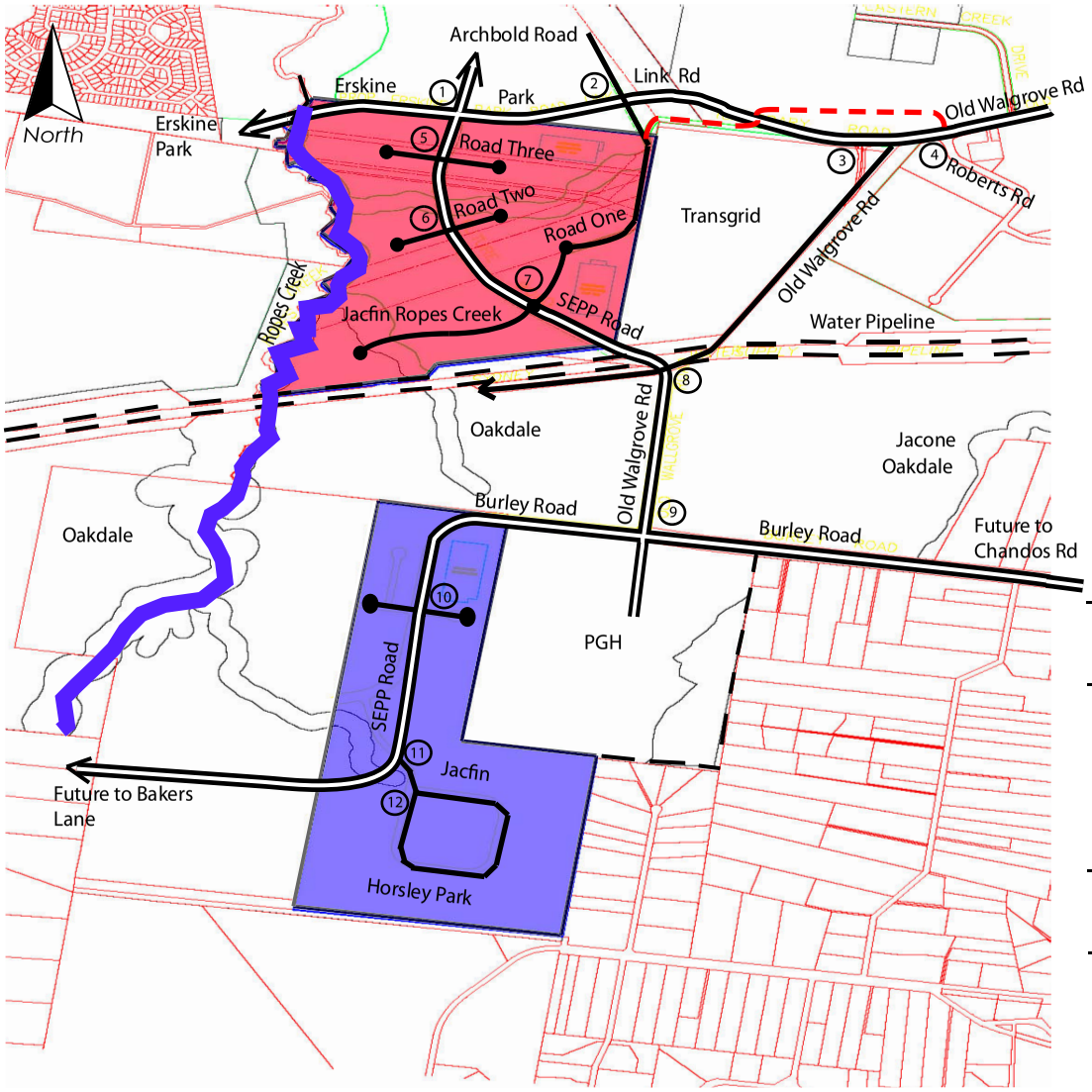
Figure 2

Filename: CTLRLTdi08(R).ai

Date: 28 October 2010

FUTURE PEAK HOUR COMMERCIAL VEHICLE TRAFFIC FLOWS

ROPES CREEK PRECINCT LOT 5 - CONCEPT & FIRST STAGE PROJECT APPLICATION



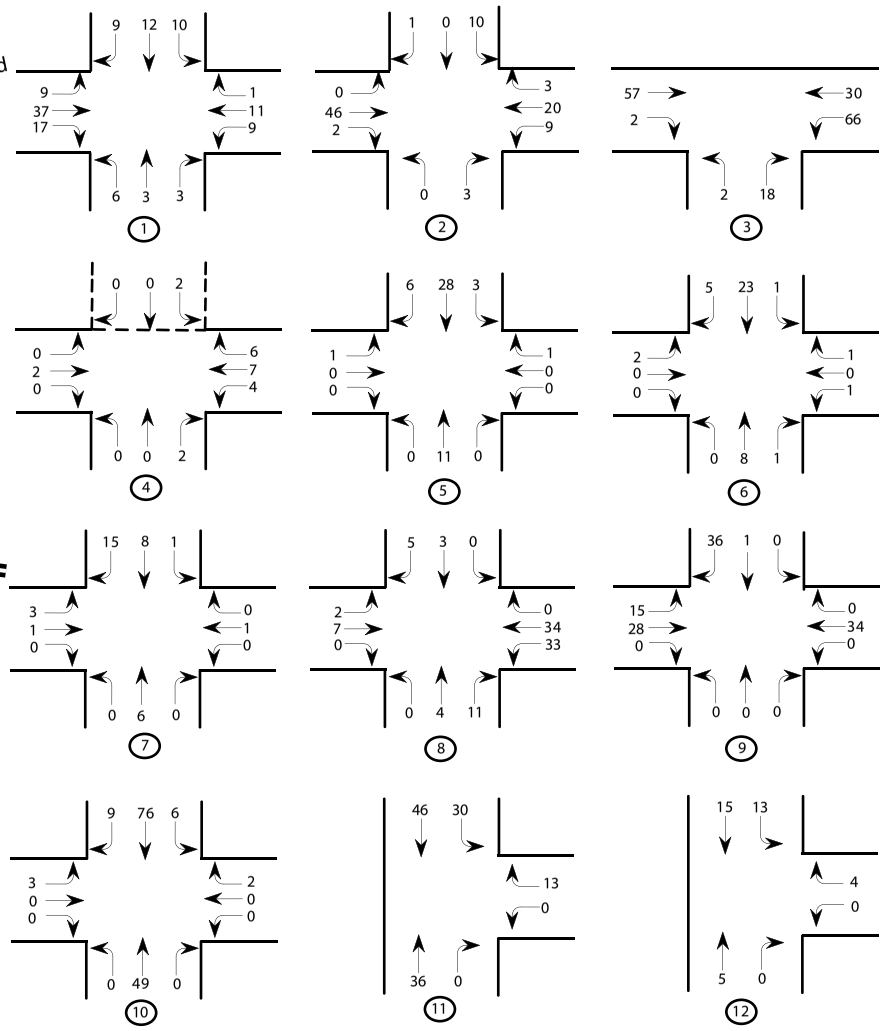


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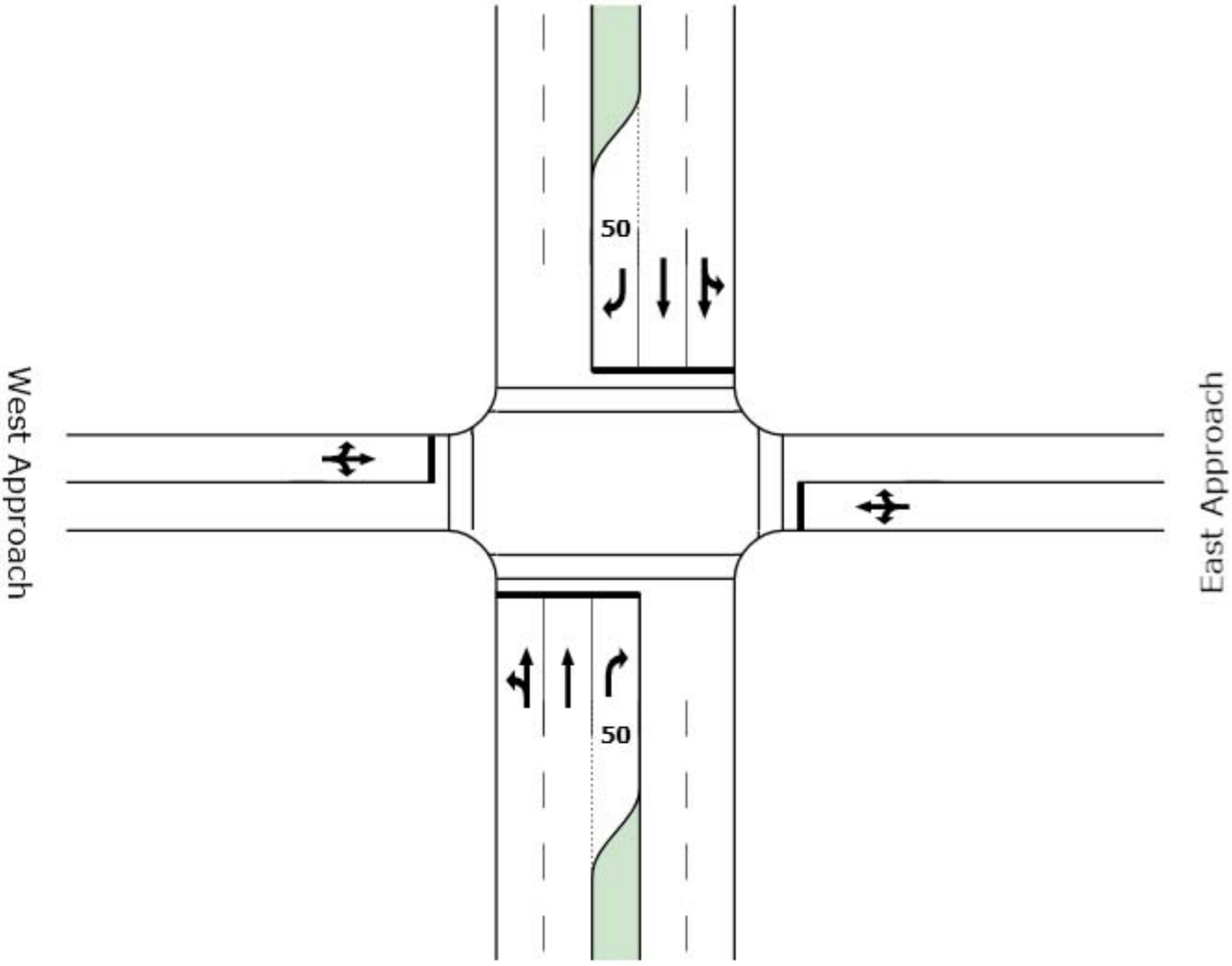
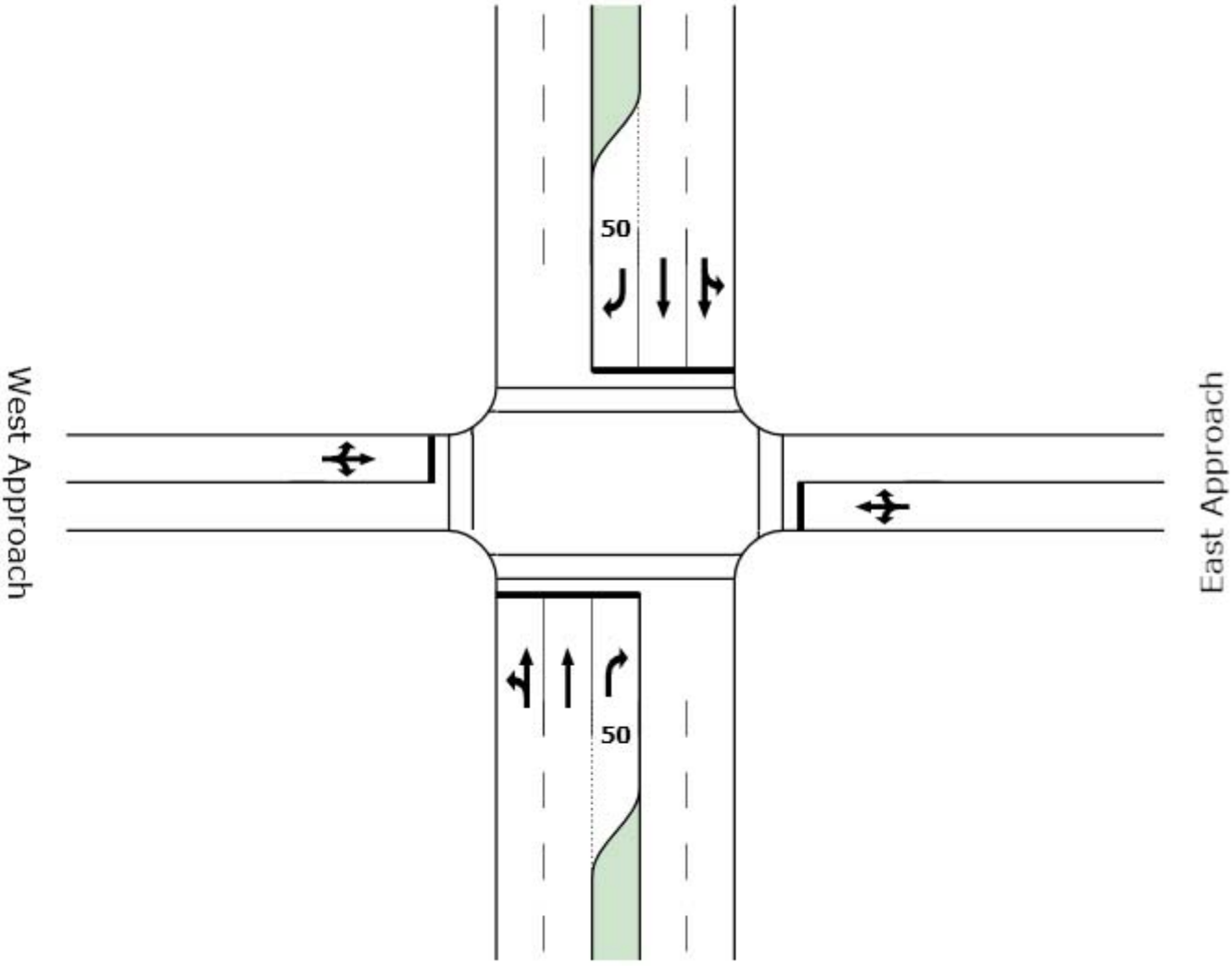
Figure 3

Appendix A - Geometric Intersection Layout (SIDRA Analysis)

Ropes Creek - Northern Internal Roundabout - North Approach



Ropes Creek - Middle Internal Roundabout - North Approach



Ropes Creek - Southern Internal Roundabout - North Approach