



Traffic Impact Assessment

Orica Southlands Warehouse Estate
28 McPherson Street, Banksmeadow

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1. Introduction

TRAFFIX has been commissioned by Orica to undertake a Traffic Impact Assessment (TIA) to accompany a State Significant Development Application (SSD) relating to a proposed warehouse development consisting of two (2) warehouse and two (2) ancillary office buildings with a combined Gross Floor Area (GFA) of 19,780m² and 2,000m², respectively, located at 28 McPherson Street, Banksmeadow (Lot 9 DP 1205673).

The site is located in the Bayside Local Government Area (LGA) and has been assessed under Bayside Council's relevant controls. It is noted that given the scale of the proposed development and its State significant status, commentary has been received from State Government authorities, including the Roads and Maritime Services (RMS), Department of Planning and Environment and Transport for NSW, in addition to the requirements of Council.

This report documents the findings of our investigations and should be read in the context of the Environmental Impact Statement (EIS).

The report is structured as follows:

- ➊ Section 2: Describes the site and its location
- ➋ Section 3: Documents existing traffic conditions
- ➌ Section 4: Describes the proposed development
- ➍ Section 5: Assesses the parking requirements
- ➎ Section 6: Assesses traffic impacts
- ➏ Section 7: Discusses access and internal design aspects
- ➐ Section 8: Presents the overall study conclusions.



2. Location and Site

The subject site at 28 McPherson Street, Banksmeadow is located approximately 1.5 kilometres north of Port Botany and is legally known as Lot 9 in DP 1205673. More specifically, it is situated on land adjacent to McPherson Street and Nant Street.

The site is irregular in configuration, with a total site area of 41,290m². It has a northern boundary of 91 metres and an eastern boundary of 344 metres to neighbouring industrial developments. The southern frontage to McPherson Street and western frontage to Nant Street, measure 145 metres and 302 metres, respectively.

It is pertinent to note that development has been realised on the neighbouring sites on McPherson Street with the subject site being one of the few undeveloped sites in this area.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should be made to the Photographic Record presented in **Appendix A**, which provides an appreciation of the general character of roads and other key attributes within proximity of the site.

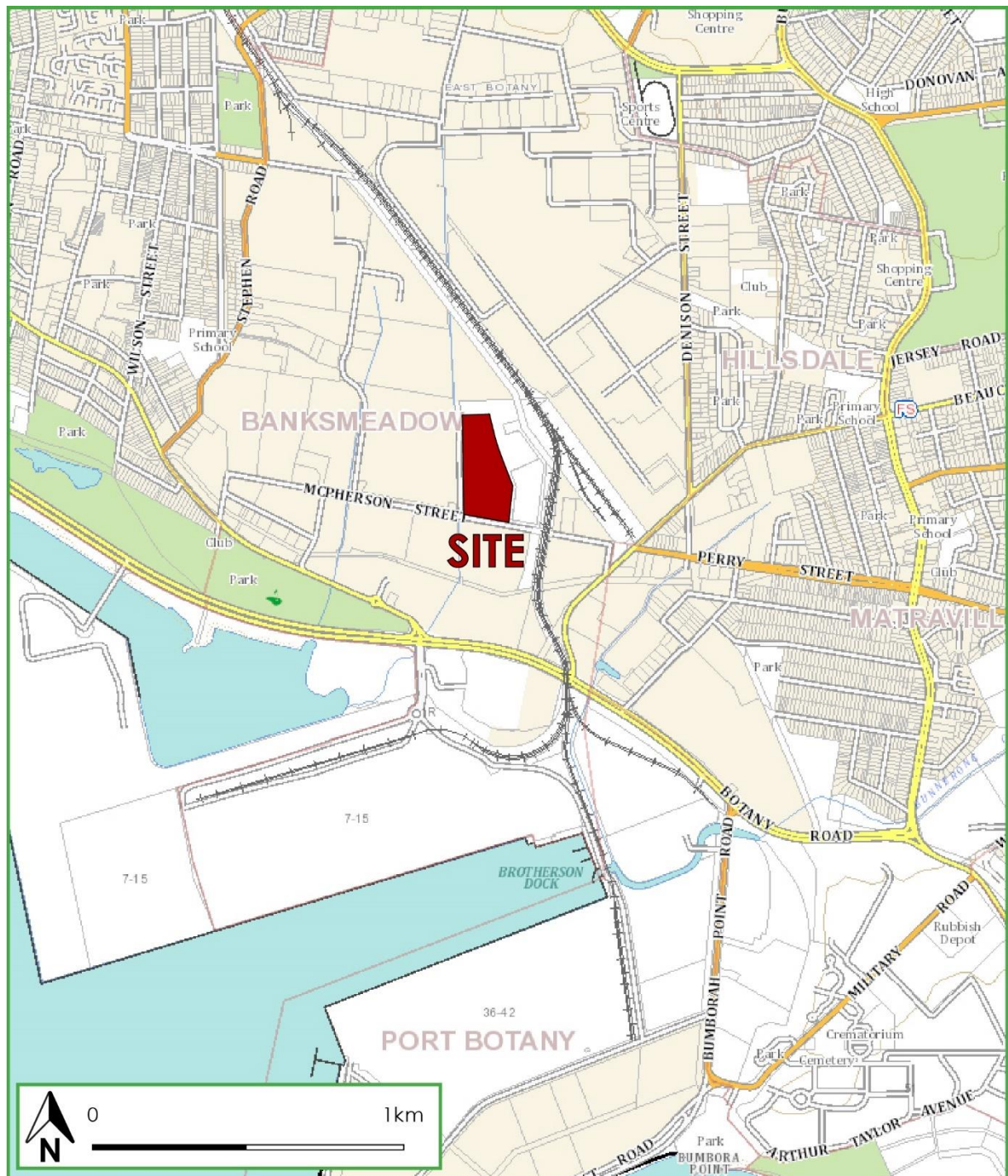


Figure 1: Location Plan



Figure 2: Site Plan



3. Existing Traffic Conditions

The TIA has assessed critical routes on the surrounding network as impacted by the current operation of the industrial area, notably Botany Road, Foreshore Road, McPherson Street, Hill Street, Exell Street and Nant Street. These have been assessed for the critical peak period conditions based on surveys in the AM and PM peak periods. The following aspects have been considered in the assessment of existing conditions:

- ➊ Daily Vehicle Movements: All roads surveyed, the peak volumes would typically be 10% of peak hourly volumes as surveyed on all intersection approaches.
- ➋ Peak Vehicle Movements: These have been surveyed at the five (5) most critical intersections as outlined in the TIA and the intersection performances have been assessed using SIDRA intersection modelling in **Section 3.3**.
- ➌ Public Transport Facilities: These are assessed in the TIA in terms of available routes and services as detailed in **Section 3.4**. As the public transport facilities are limited with respect to the site, minimal impacts are expected.
- ➍ Pedestrian Facilities: Existing pedestrian facilities for each approach are detailed in **Sections 3.1 and 3.2**.
- ➎ Bicycle Facilities: Existing bicycle facilities are detailed in **Section 3.5**.



3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

-  **Botany Road:** an RMS main road (MR 170) that generally traverses in a north-south direction between Regent Street in the north and Bunnerong Road in the south. Within the vicinity of the site, it is subject to 50km/hr speed zoning and accommodates one (1) lane of traffic in each direction. Botany Road permits B-Double access to the east of Hills Street. A pedestrian footpath is provided along both sides, for sections west of Foreshore Road.
-  **Foreshore Road:** an RMS main road (MR 617) that traverses in an east-west direction between Botany Road in the east and General Holmes Drive in the west. It is typically subject to 80km/hr speed zoning and accommodates two (2) lane of traffic in each direction. Foreshore Road permits B-Double access along its duel carriageway. Due to the nature of this road, no footpaths are provided along the road, with pedestrian access provided via separate trails and footpaths near the vicinity of the road.
-  **McPherson Street:** a local road that traverses in an east-west direction between a cul-de-sac in the east and Hills Street in the west. It is noted that McPherson Street is separated into two (2) sections at Exell Street, with the west section accommodating a single one-way (eastbound) lane, and the eastern section accommodating a single lane of traffic in each direction. McPherson Street is subject to 50km/hr speed zoning and permits B-Double access. Pedestrian footpaths are generally available along both sides and in particular along the frontage of the subject site.
-  **Hills Street:** a local road that traverses in a north-south direction between McPherson Street in the north and Botany Road in the south. It is subject to 50km/hr speed zoning and accommodates a single one-way (northbound) lane of traffic. Hills Street permits B-Double access however, imposed travel conditions restrict B-Doubles to right-turn only movements from Botany Road. Orica undertook an upgrade to the intersection of Hills and Botany Road in 2015, as part of its works to facilitate the development of the wider site known as Southlands. Pedestrian footpaths are available along both sides of the road.



- ➡ Exell Street: a local road that traverses in a north-south direction between McPherson Street in the north and Botany Road in the south. It is subject to 50km/hr speed zoning and accommodates a single one-way (southbound) lane of traffic. Exell Street permits B-Double access however, imposed travel conditions restrict all vehicles to left-turn only movements onto Botany Road. Pedestrian footpaths are available along both sides of the road.
- ➡ Nant Street: an unformed access road that traverses in a north-south direction between the Qenos Tank Farm in the north and McPherson Street in the south. It is used as the primary access for the Qenos Tank Farm with access restricted by a gate. We are advised that Qenos and Orica (and their contractors) are the only parties permitted to access Nant Street. As such, Nant Street does not accommodate general vehicular or pedestrian traffic.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region, whilst **Figure 4** identifies the approved B-Double routes connecting the site to the arterial network.

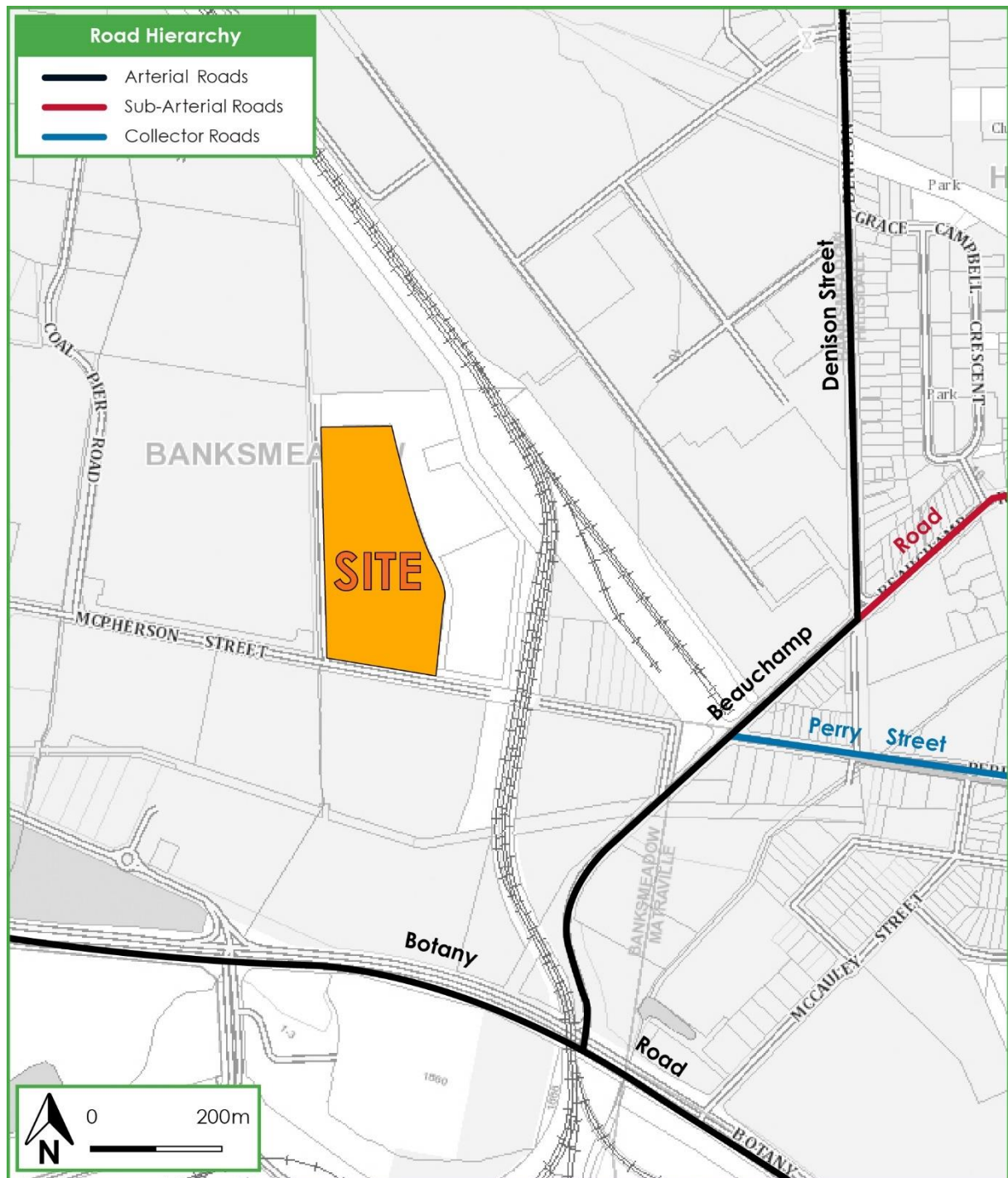


Figure 3: Road Hierarchy



Figure 4: B-Double Access Routes



3.2 Key Intersections

The key intersections in the locality are discussed in this section and provide an understanding of the existing road geometry and alignment. These key intersections are summarised in **Figure 5** below.

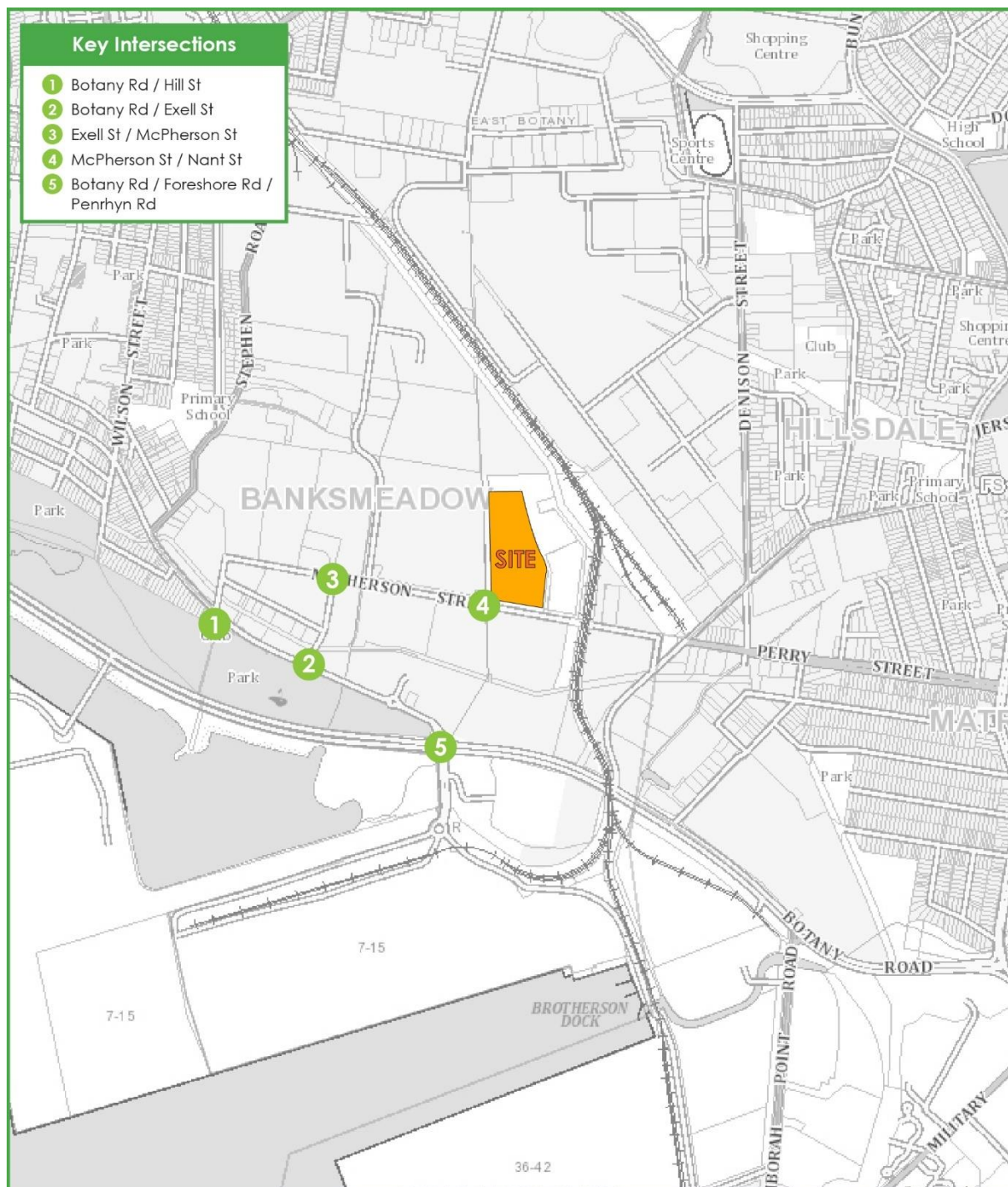


Figure 5: Key Intersections in the Locality



3.2.1 Botany Road and Hills Street

It can be seen from **Figure 6** below that the intersection of Botany Road and Hills Street is a three-legged 'T' priority-controlled intersection, with the major road being Botany Road.



Figure 6: Intersection of Botany Road and Hills Street

The main attributes of each approach are outlined below:

📍 Botany Road (northwest-southeast)

- The north-western approach provides a single through lane from which all turns can be made. It is noted that imposed travel conditions restrict 'vehicles over 12.5m' from turning left onto Hills Street.
- The south-eastern approach provides a single through lane and one (1) right-turn only lane, measuring approximately 75.2 metres onto Hills Street.

📍 Hills Street (north)

- Hills Street is a one-way (northbound traffic) road that provides a single through lane from which Botany Road traffic can enter the precinct.
- It is noted that Orica made improvements to this intersection in 2015, to facilitate developments of its larger site, known as Southlands.



3.2.2 Botany Road and Exell Street

It can be seen from **Figure 7** below that the intersection of Botany Road and Exell Street is a three-legged 'T' priority-controlled intersection, with the major road being Botany Road.

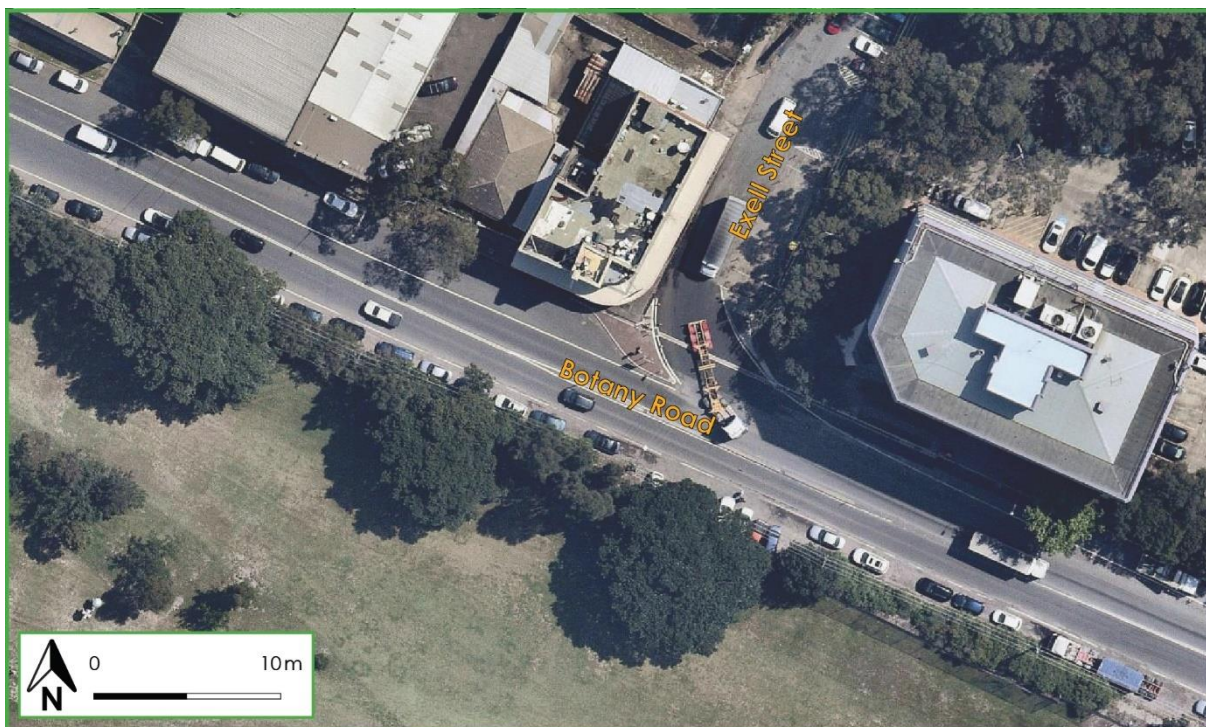


Figure 7: Intersection of Botany Road and Exell Street

The main attributes of each approach are outlined below:

📍 Botany Road (east-west)

- The eastern approach provides a single through lane, with a median separating both approaches to prevent un-authorised right-turn movements onto Exell Street.
- The western approach provides a single through lane, with an island median located on the northwest corner of the intersection, which prevents un-authorised left-turn movements onto Exell Street.

📍 Exell Street (north)

- Exell Street is a one-way (southbound traffic) road that provides a single left-turn only lane from which traffic can access Botany Road from the precinct.



3.2.3 Exell Street and McPherson Street

It can be seen from **Figure 8** below that the intersection of Exell Street and McPherson Street is a three-legged 'Stop' priority-controlled intersection, with the priority given to the western approach from McPherson Street.



Figure 8: Intersection of Exell Street and McPherson Street

The main attributes of each approach are outlined below:

➤ Exell Street (south)

- Exell Street is a one-way (southbound) road that provides a single through lane from which McPherson Street traffic can enter.

➤ McPherson Street (east-west)

- The eastern approach provides a single lane from which left-turn movements can be made onto Exell Street. A 'Stop' sign is installed prior to the intersection, which prioritises the western approach onto Exell Street.
- The western approach provides a single through lane from which all turns can be made. It is noted that the single through lane is not line-marked however, does provide sufficient width to permit simultaneous through and right-turn movements onto McPherson Street and Exell Street, respectively.



3.2.4 McPherson Street and Nant Street

It can be seen from **Figure 9** below that the intersection of McPherson Street and Nant Street is a three-legged 'T' priority-controlled intersection, with the major road being McPherson Street.



Figure 9: Intersection of McPherson Street and Nant Street

The main attributes of each approach are outlined below:

➤ McPherson Street (east-west)

- The eastern approach provides a single through lane from which all turns can be made.
- The western approach provides a single through lane from which all turns can be made.

➤ Nant Street (north)

- The northern approach provides a single through lane from which all turns can be made. It is noted that Nant Street is an unformed public road that is utilised primarily as access for the Qenos Tank Farm development. We are advised that Qenos and Orica (and their contractors) are the only parties permitted to access Nant Street. As such, Nant Street is gated off and does not accommodate general traffic.



3.2.5 Botany Road, Foreshore Road and Penrhyn Road

It can be seen from **Figure 10** below that the intersection of Botany Road, Foreshore Road and Penrhyn Road is a four-legged signalised cross intersection that provides a left-turn slip lane at each corner of the intersection.



Figure 10: Intersection of Botany Road, Foreshore Road and Penrhyn Road

The main attributes of each approach are outlined below:

📍 Botany Road (north-east)

- The northern approach provides two (2) lanes, comprising of a single through lane from which through and right-turn movements can be made, and a single left-turn only lane onto a slip lane. It is noted that the single through lane is not line-marked however, does provide sufficient width to permit simultaneous through and right-turn movements onto Penrhyn Road and Foreshore Road, respectively.
- The eastern approach provides five (5) lanes, comprising of a three (3) through lanes, a single left-turn only lane onto a slip lane and a single right-turn only lane. A signalised pedestrian crossing is provided for pedestrians to cross Slade Road.



② Foreshore Road (west)

- The western approach provides four (4) lanes, comprising of two (2) through lanes, a single left-turn only lane onto a slip lane and a single right-turn only lane. A signalised pedestrian crossing is provided for pedestrians to cross Foreshore Road, as well as a pedestrian 'zebra' crossing located on the left-turn slip lane.

② Penrhyn Road (south)

- The southern approach provides three (3) lanes, comprising of a single through lane, a single left-turn only lane onto a slip lane and a single right-turn only lane. A signalised pedestrian crossing is provided for pedestrians to cross the left-turn slip lane.

3.3 Existing Intersection Performance

TRAFFIX has previously undertaken an assessment of the traffic impacts of developments surrounding the subject site for numerous recent developments in the area. As part of these studies traffic studies, numerous surveys of the critical weekday morning and evening peak period were conducted at the following four key intersections:

- ② Botany Road / Hills Street – 2015 and 2017 surveys;
- ② Botany Road / Exell Street – 2015 survey;
- ② Exell Street / McPherson Street – 2015 survey;
- ② Botany Road / Foreshore Road - 2015 and 2017 surveys

For the purposes of assessing the traffic impacts of this most recent development, updated intersection surveys were undertaken on the most critical intersections within proximity of the subject site. These surveys were performed on Thursday 25 October 2018 during the AM peak period between 7:30am to 9:30am and the PM peak period between 4:00pm and 6:00pm. The key intersections that were surveyed in this latest study are summarised below:

- ② T-intersection of Botany Road and Hills Street;
- ② T-intersection of Botany Road and Exell Street;
- ② T-intersection of Exell Street and McPherson Street;
- ② T-intersection of McPherson Street and Nant Street; and
- ② Signalised cross-intersection of Botany Road, Foreshore Road and Penrhyn Road.



The surveys were analysed using the SIDRA Intersection 8 computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

DoS – the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.

AVD – the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LoS – this is a comparative measure which provides an indication of the operating performance of an intersection as shown in **Table 1** below.

Table 1 – Intersection Performance Indicators

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



A summary of the modelled results are provided below in **Table 2**. Reference should also be made to the SIDRA outputs provided in **Appendix B** which provide detailed results for each movement.

It is noted the results of the current assessment are largely consistent with the results from previous assessments of the intersections in this precinct as demonstrated below.

Table 2 – Existing Intersection Performance during the AM and PM Peak Periods

Intersection	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Botany Road and Hills Street	Give-way	AM	0.573	17.0	B
		PM	0.208	10.5	A
Botany Road and Exell Street	Give-way	AM	0.403	11.9	A
		PM	0.471	9.1	A
Exell Street and McPherson Street	Give-way	AM	0.129	6.9	A
		PM	0.211	6.5	A
McPherson Street and Nant Street	Give-way	AM	0.002	4.7	A
		PM	0.013	4.6	A
Botany Road, Foreshore Road and Penrhyn Road	Signalised	AM	0.879	28.0	B
		PM	0.763	27.1	B

Anecdotal advice from neighbours and the local community indicates concern around the performance of some of these intersections in the Peak Hours. However it can be seen from **Table 2** that the intersection with the highest intersection delay is the intersection of Botany Road, Foreshore Road and Penrhyn Road, with an overall LoS B indicating an acceptable performance.

It is noted from the modelling outputs and site observations that this signalised intersection does experience a reduced LoS for specific movements, notably the right turn movement from Foreshore Road (west), with an average delay of 83.6 seconds and 84.8 seconds during the AM and PM peak periods, respectively.

This form of SIDRA assessment is the industry standard method and provides a snapshot on a typical weekday. It is accepted that conditions can vary markedly from day to day, particularly in relation to Port Botany activities.



As can be seen from previous assessments, reproduced here in **Table 3** and **Table 4**, the intersection of Botany Road / Foreshore Drive is operating with acceptable spare capacity (LoS B), with an average intersection delay of 27-28 seconds (recorded as 25-26 seconds in 2015 & 2017). As noted whilst longer delays can be experienced for specific movements, the intersection is operating with spare capacity overall.

The remaining intersections are operating with a LoS A, with the exception of the Botany Road and Hills Street intersection, which operates at a LoS B during the morning peak with an average delay of 10-17 seconds (recorded as 8-13 seconds in 2015 & 2017). The results of this analysis will be used to compare the relative change in the performance parameters as a result of the proposed development. This is discussed further in **Section 6**.

Table 3 – Existing Intersection Performance (2015 Assessment)

Intersection Description	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Botany Rd / Hills St	Give Way	PM	0.277	9.8	A
Botany Rd / Exell St	Give Way	PM	0.345	7.8	A
McPherson St / Exell St	Give Way	PM	0.132	10.7	A
Botany Rd / Foreshore Dr	Signals	PM	0.924	26.2	B

Table 4 – Existing Intersection Performance (2017 Assessment)

Intersection Description	Control Type	Period	Degree of Saturation	Intersection Delay (sec)	Level of Service
Botany Rd / Hills St	Give Way	AM	0.396	12.9	A
		PM	0.119	9.4	A
Botany Rd / Foreshore Road / Penrhyn Road	Signals	AM	0.983	40.4	C
		PM	0.724	25.6	B



3.4 Public Transport

The existing public transport services that operate within the locality are shown in **Figure 11**. The subject site is in proximity to several bus stops that are serviced by existing bus operations using Botany Road and Beauchamp Road. These bus stops provide services to the following routes:

- 📍 307 – Port Botany to Mascot
- 📍 309 – Port Botany Depot to Central Railway Square
- 📍 309X – Port Botany Depot to Central Railway Square (Express Service)
- 📍 310X – Banksmeadow to Central Railway Square (Express Service)
- 📍 L09 – Port Botany to Redfern (Limited Stops)
- 📍 X09 – Banksmeadow to Central Railway Square (Express Service)

3.5 Cycling Facilities

The heavy industrial use of the surrounding network results in minimal or no bicycle facilities available within the immediate vicinity of the subject site. The closest connection to the subject site includes the 'on road' cycle route on Foreshore Road, mixing with significant volumes of heavy vehicles.

It is noted the cycle facilities within the Banksmeadow area largely consist of 'on road' bicycle routes with varying degrees of difficulty.

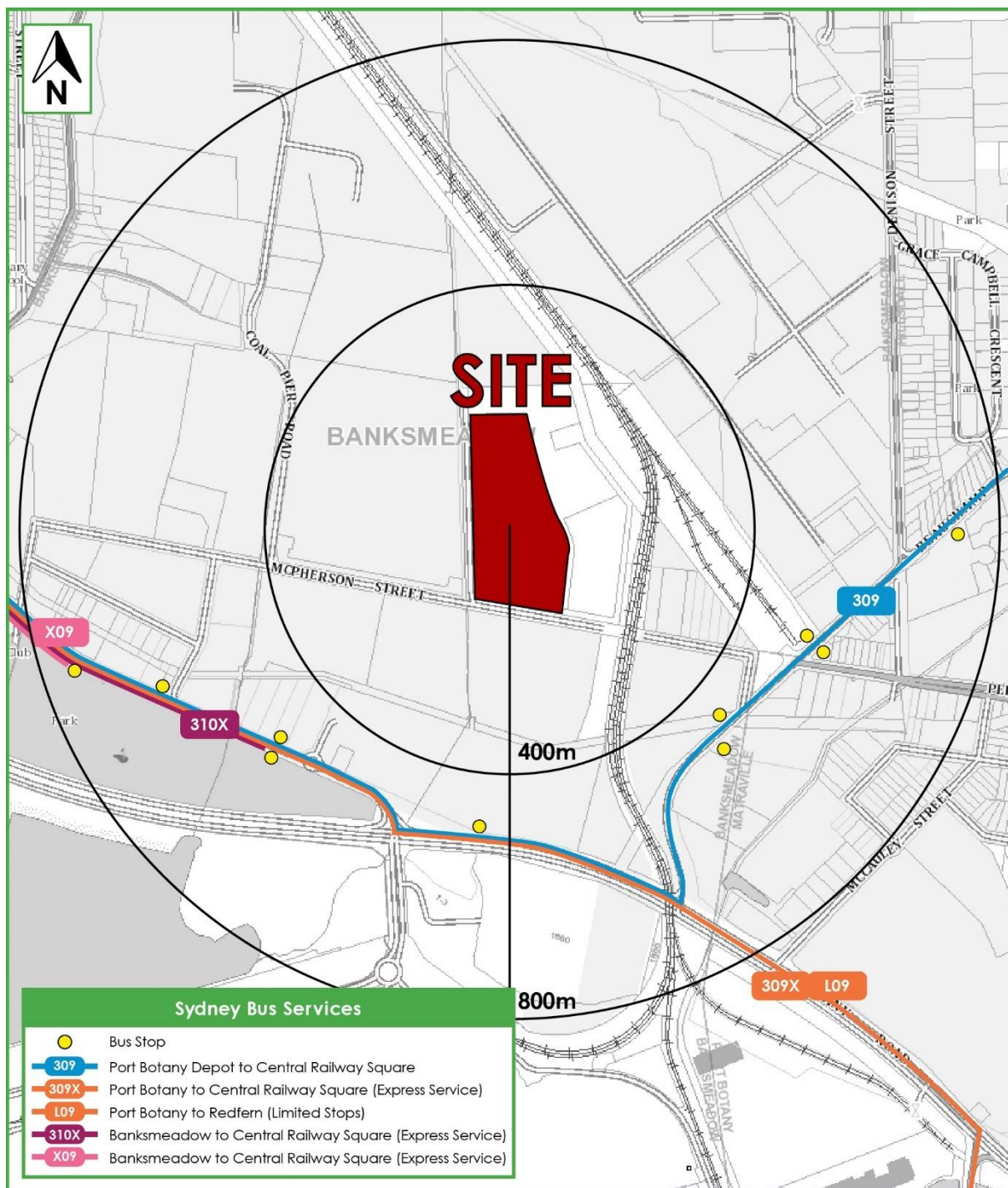


Figure 11: Public Transport



4. Description of Proposed Development

A detailed description of the proposal can be found in the EIS. In summary, the development for which approval is sought comprises of the following:

- ➊ Construction of two (2) warehouse buildings with a combined GFA of **19,780m²**, consisting of:
 - Warehouse 1 – 10,135m² GFA; and
 - Warehouse 2 – 9,645m² GFA
- ➋ Construction of two (2) office buildings with a combined GFA of **2,000m²**, consisting of:
 - Office 1 – 1,000m² GFA; and
 - Office 2 – 1,000m² GFA.
- ➌ The total provision of 13 docks that can accommodate 19.0m articulated vehicles (AV); and
- ➍ The total provision of 117 car parking spaces.

It is noted that Nant Street is to be left unaffected by the development and will continue to provide access to the Qenos tank farm and the surface level of the compensatory flood basin. Nant Street will remain as a locked unformed public road. Access to the subject site is therefore independent of Nant Street.

The parking requirements and traffic impacts arising from this proposed development are discussed in **Section 5** and **Section 6**, respectively. Reference should also be made to the architectural drawings submitted as part of the EIS, for which plans have been presented at reduced scale in **Appendix C**.



5. Parking Requirements

5.1 Car Parking

The subject site is zoned under the State Environmental Planning Policy (Three Ports) 2013 (Three Ports SEPP). However, the SEPP does not provide specific parking rates for this type of development. The Botany Bay Development Control Plan 2013 (DCP) provides the *minimum* car parking rates for warehouse developments and as such was adopted to assess the car parking provision. The DCP stipulates the following car parking rate for warehouse or distribution centres:

- ② 2 spaces or 1 space per 300m² GFA (whichever is greater); plus
- ② 1 space per 40m² GFA of ancillary office.

Application of the above rates to the proposed total warehouse of 19,780m² GFA and associated ancillary offices of 2,000m² GFA, results in the parking requirements as summarise in **Table 3** below.

Table 5 – DCP Minimum Car Parking Rates and Provisions

Type	GFA	DCP Minimum Parking Rate	Parking Required*	Spaces Provided
<i>Warehouse or Distribution Centres</i>				
Warehouse	19,780m ²	1 space per 300m ² GFA	67	117
Ancillary Office	2,000m ²	1 space per 40m ² GFA	50	
Totals			117	117

* Car parking calculations rounded up to the nearest whole figure, as per DCP.

It can be seen from **Table 5** that the overall development will generate a minimum requirement for 117 parking spaces. In response, the development proposes to provide a total of 117 parking spaces, thereby complying with the minimum requirements of the Botany Bay DCP 2013.

5.2 Motorcycle Parking

The Botany Bay DCP 2013 does not provide motorcycle parking rates and provisions for a warehouse development. As such, the development proposes no motorcycle parking spaces.



5.3 Accessible Parking

The Botany Bay DCP 2013 stipulates accessible parking rates for warehouse developments containing more than 49 car parking spaces should be compliant with Table D3.5 of the Building Code of Australia (BCA). The proposed development is classified as a Class 7b Building under the BCA, with the associated rate summarised below:

- 1 space for every 100 car parking spaces or part thereof

Application of the above rate with the proposed 117 car parking spaces, results in the requirement for two (2) accessible parking spaces. In response, the development proposes two (2) accessible parking spaces, thereby compliant with the BCA and the Botany Bay DCP 2013.

5.4 Bicycle Parking

The Botany Bay DCP 2013 stipulates the following bicycle parking ratio for all new developments that are more than 600m² GFA (except houses and multi-unit housing):

- 10% of the required car spaces or part thereof

Application of the above ratio to the proposed 117 car parking spaces, results in the requirement for 12 bicycle parking spaces. In response, the development proposes to provide a total of 12 bicycle parking spaces in the form of two (2) bicycle racks, located at the entry to each office area. This provision is therefore compliant with the Botany Bay DCP 2013.

5.5 Refuse Collection and Servicing

The Botany Bay DCP 2013 stipulates the following service bay requirements for warehouse developments over 8,000m² GFA:

- 1 service bay for a medium rigid vehicle (MRV) or larger per 800m² GFA.

In response, it is proposed that each warehouse building will provide an internal loading area capable of accommodating a design vehicle up to and including a 19.0m AV. A swept path analysis has been undertaken for the largest design vehicle anticipated that demonstrates satisfactory operation (refer to **Appendix D**).



6. Traffic Assessment

6.1 Proposed Traffic Generation

The technical direction relating to the RMS Guide to Traffic Generating Developments (*TDT 2013/04a*) provides the traffic generation rates for business parks and industrial estates. It is noted that these rates account for the ancillary office uses of the estate and the heavy vehicle movements from site. These rates are summarised as follows:

- ② 0.52 vehicle trips per 100m² GFA during the AM peak period; and
- ② 0.56 vehicle trips per 100m² GFA during the PM peak period.
- ② 4.5 vehicle trips per 100m² GFA per day.

Application of the above rates to the proposed total 21,780m² GFA results in the following anticipated traffic generation:

- ② 113 veh/hr during the AM peak period (79 in, 34 out); and
- ② 122 veh/hr during the PM peak period (37 in, 85 out).
- ② 980 veh/day (split between in and out).

This peak hour traffic generation represents approximately two (2) vehicle trips per minute during the AM and PM peak hour periods. Traffic intersection modelling has been undertaken in **Section 6.3** to determine the impact of these additional vehicle trips on the surrounding network during the critical network peak periods.

6.2 Trip Distribution

The net traffic generation is distributed around the local road network in order to analyse the impacts on key intersections. The aforementioned traffic surveys of the surrounding key intersections and existing site access were used to obtain the trip percentages to and from the subject site. It is noted that the vehicle trips were separated into approximately 85% light and 15% heavy vehicles, as the majority of movements during the AM and PM peak periods are attributed to staff arrivals and departures.

The main routes and distributions for the proposed vehicles accessing (IN) and departing (OUT) the site during the AM and PM peak periods are summarised as follows.



6.2.1 AM Peak Period

As per the aforementioned traffic generation during the AM peak period, the anticipated total traffic generation equates to 113 veh/hr (79 in, 34 out), comprising of:

- 79 vehicles IN (67 light, 12 heavy); and
- 34 vehicles OUT (29 light, 5 heavy).

These above trip distributions are presented below for vehicles arriving to site (IN) and departing site (OUT) in **Figure 12** and **Figure 13**, respectively. It is noted that imposed travel conditions restrict heavy vehicles (larger than 12.5m) to right-turn only movements from Botany Road onto Hills Street. As such, all heavy vehicles are presumed to arrive via the key intersection of Botany Road, Foreshore Road and Penrhyn Road.

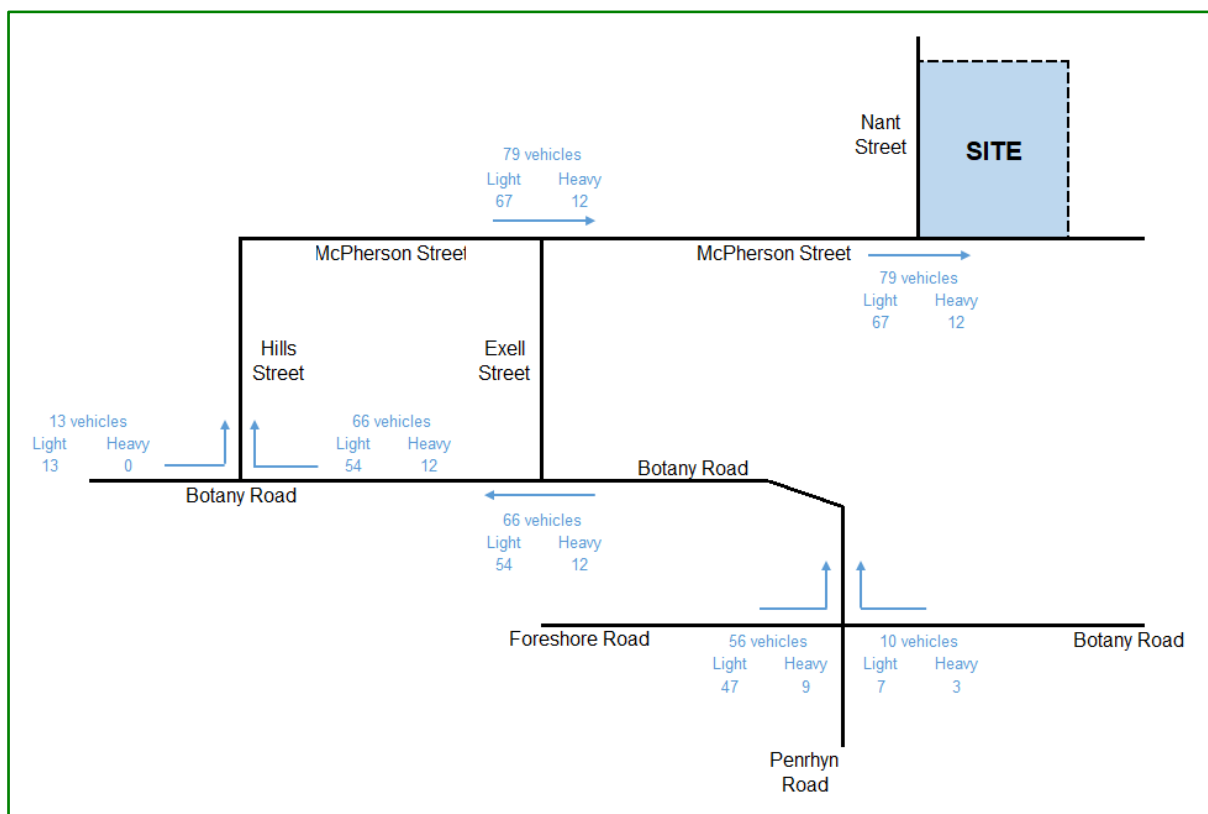


Figure 12 – AM Peak Period Vehicle Distribution to Site (IN)



It can be seen from Figure 12 that a total of 66 vehicles (54 light, 12 heavy) arrive via the key intersection of Botany Road, Foreshore Road and Penrhyn Road, and turn right onto Hills Street. The remaining 13 light vehicles arrive via Botany Road (west) and turn left onto Hills Street. All vehicles then proceed to site via McPherson Street.

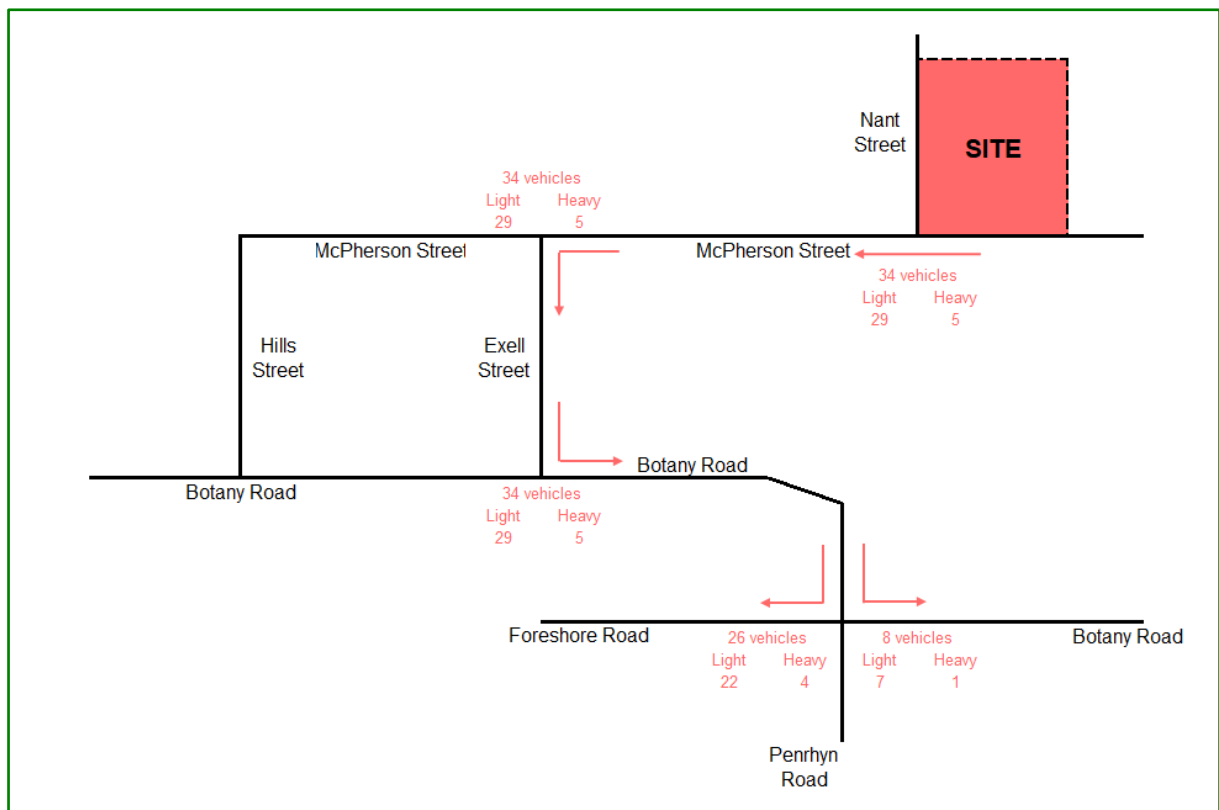


Figure 13 – AM Peak Period Vehicle Distribution from Site (OUT)

It can be seen from Figure 13 that all 34 vehicles (29 light, 5 heavy) depart the site via McPherson Street, and undertake left-turn movements onto Exell Street and Botany Road. At the key intersection of Botany Road, Foreshore Road and Penrhyn Road, 26 vehicles (22 light, 4 heavy) make right-turn movements onto Foreshore Road (westbound), whilst eight (8) vehicles (7 light, 1 heavy) make left-turn movements onto Botany Road (eastbound).



6.2.2 PM Peak Period

As per the aforementioned traffic generation during the PM peak period, the anticipated total traffic generation equates to 122 veh/hr (37 in, 85 out), comprising of:

- ⑦ 37 vehicles IN (31 light, 6 heavy); and
- ⑦ 85 vehicles OUT (72 light, 13 heavy).

These above trip distributions are presented below for vehicles arriving to site (IN) and departing site (OUT) in **Figure 14** and **Figure 15**, respectively. It is noted that imposed travel conditions restrict heavy vehicles (larger than 12.5m) to right-turn only movements from Botany Road onto Hills Street. As such, all heavy vehicles are presumed to arrive via the key intersection of Botany Road, Foreshore Road and Penrhyn Road.

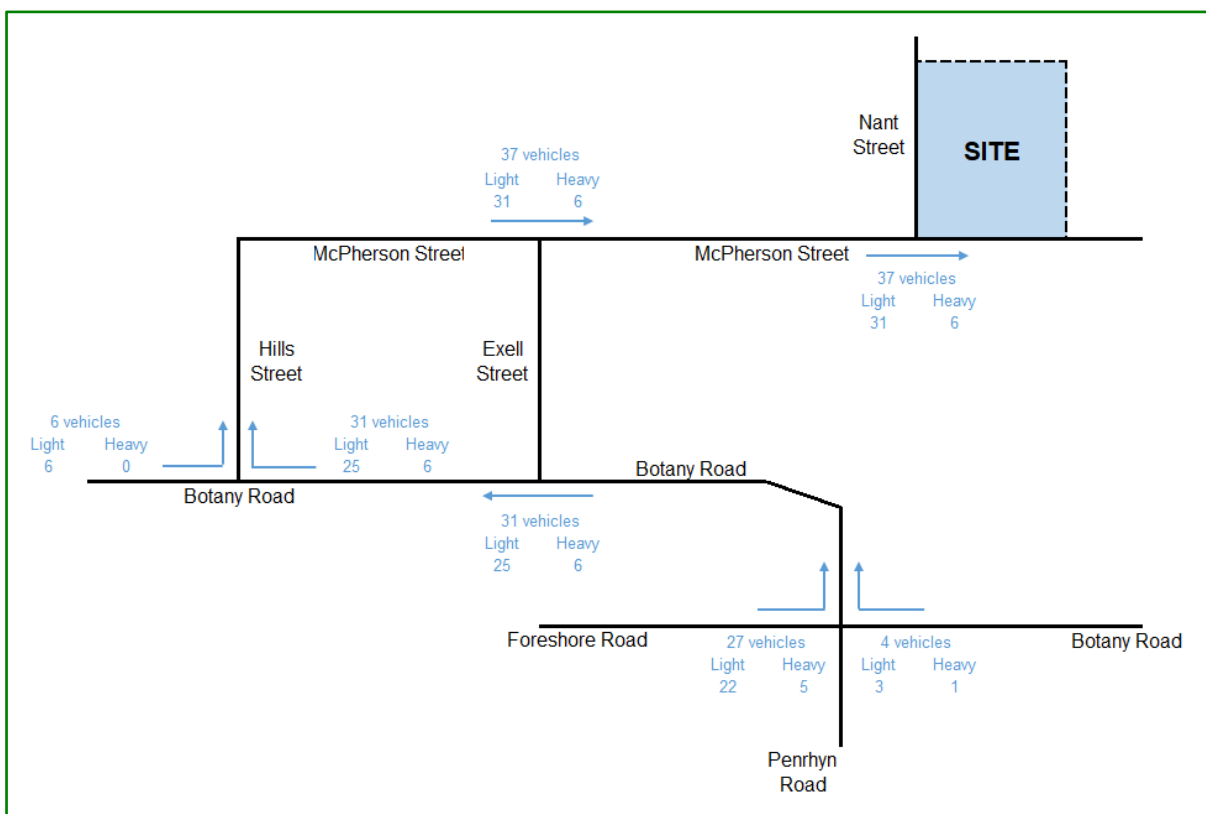


Figure 14 – PM Peak Period Vehicle Distribution to Site (IN)



It can be seen from Figure 14 that a total of 31 vehicles (25 light, 6 heavy) arrive via the key intersection of Botany Road, Foreshore Road and Penrhyn Road, and turn right onto Hills Street. The remaining six (6) light vehicles arrive via Botany Road (west) and turn left onto Hills Street. All vehicles then proceed to site via McPherson Street.

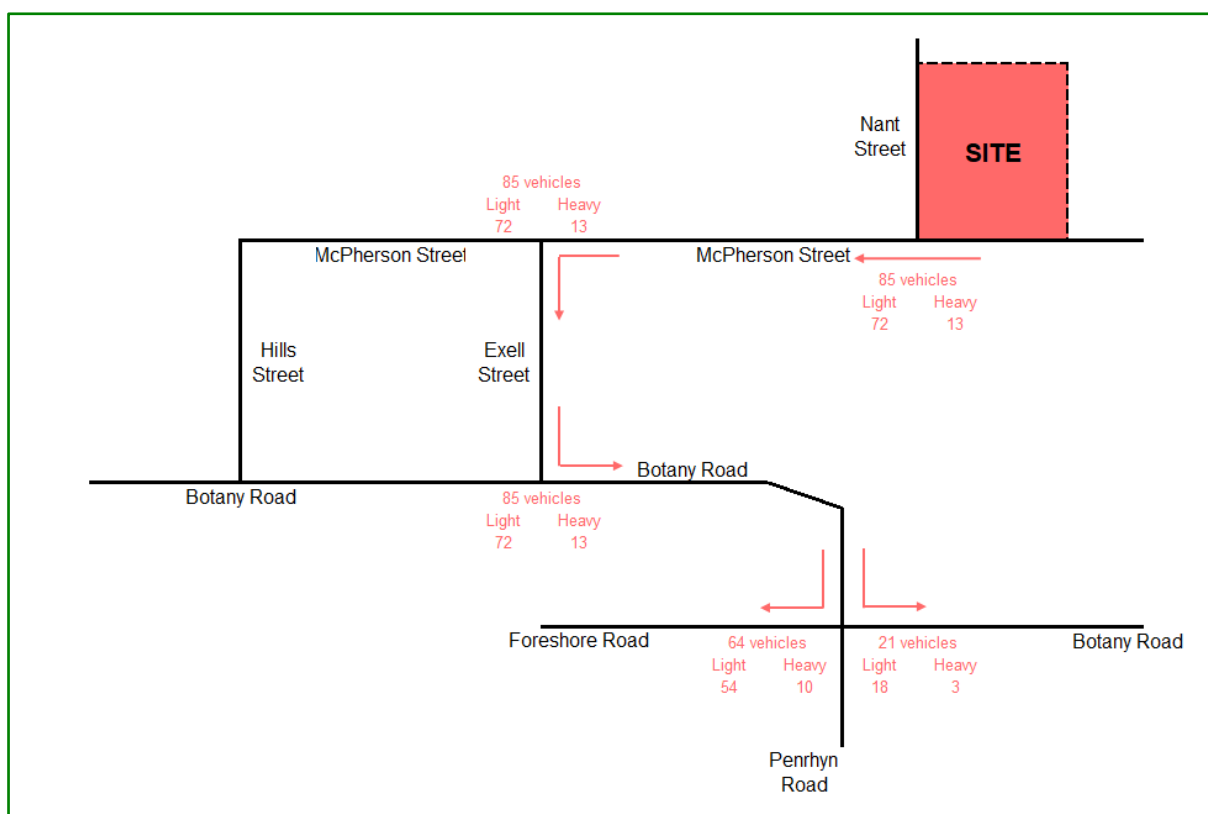


Figure 15 – PM Peak Period Vehicle Distribution from Site (OUT)

It can be seen from Figure 15 that all 85 vehicles (72 light, 13 heavy) depart the site via McPherson Street, and undertake left-turn movements onto Exell Street and Botany Road. At the key intersection of Botany Road, Foreshore Road and Penrhyn Road, 64 vehicles (54 light, 10 heavy) make right-turn movements onto Foreshore Road (westbound), whilst 21 vehicles (18 light, 3 heavy) make left-turn movements onto Botany Road (eastbound).

6.3 Person Trips

In addition to the above traffic generation an assessment of the total anticipated 'person trips' has been made, representing all trips anticipated over all travel modes. These have been further broken into the anticipated mode splits for no vehicle trips as per the rates found in Appendix E of the RMS



Technical Direction TDT2013/04a for industrial estates in the Sydney Area. These rates are summarised as follows:

- ⑦ 0.7 trips per 100m² GFA per peak hour period;
- ⑦ 4.9 trips per 100m² GFA per day;

Application of the above rates to the proposed total 21,780m² GFA results in the following anticipated traffic generation:

- ⑦ 153 people/hr during the peak period (split in and out);
- ⑦ 1,067 people per day (split in and out)

Subtracting the vehicle-based trips identified in **Section 6.1** yields the following anticipated peak hour trips for alternative modes:

- ⑦ 40 veh/hr during the AM peak period; and
- ⑦ 31 veh/hr during the PM peak period.
- ⑦ 87 trips per day.

These trips are split between bus, walking and cycling in the following ratios:

- ⑦ 73% walking, 22% bus and 5% cycle

This gives the following anticipated non-car related trips shown in **Table 6**:

Table 6 – Trip Generation by Public and Active Transport

Mode	AM Peak	PM Peak
Walking	29	22
Bus	9	7
Cycle	2	2



6.4 Peak Period Intersection Performances

The traffic distribution in the section above was added to the existing 'base case' scenario. A summary of the modelled results are provided in **Table 7** below. Reference should also be made to the SIDRA outputs provided in Appendix B which provide detailed results for each movement.

Table 7 – Existing vs Future Intersection Performance

Intersection	Scenario	Period	Degree of Saturation	Intersection Delay	Level of Service
Botany Road and Hills Street	Existing	AM	0.573	17.0	B
	Future		0.699	19.8	B
	Existing	PM	0.208	10.5	A
	Future		0.246	10.4	A
Botany Road and Exell Street	Existing	AM	0.403	11.9	A
	Future		0.443	12.0	A
	Existing	PM	0.471	9.1	A
	Future		0.559	9.9	A
Exell Street and McPherson Street	Existing	AM	0.129	6.9	A
	Future		0.155	6.8	A
	Existing	PM	0.211	6.5	A
	Future		0.278	6.5	A
McPherson Street and Nant Street	Existing	AM	0.002	4.7	A
	Future		0.032	5.5	A
	Existing	PM	0.013	4.6	A
	Future		0.025	5.5	A
Botany Road, Foreshore Road and Penrhyn Road	Existing	AM	0.879	28.0	B
	Future		0.919	33.0	C
	Existing	PM	0.763	27.1	B
	Future		0.792	29.8	C

It can be seen from **Table 5** that all key intersections experience only a minor increase in average intersection delay of 1-5 seconds with the majority experiencing no change in 'levels of service'. It is noted the signalised intersection of Botany Road, Foreshore Road and Penrhyn Road experiences a reduction in 'level of service' from a LoS B, to a LoS C for both the AM and PM peak periods, indicating this intersection shall maintain an acceptable overall standard. The SIDRA modelling indicates all intersections shall continue to operate satisfactorily with the anticipated traffic generation of the proposed development with no external changes required to the network to facilitate the proposal.



7. Sustainable Travel

7.1 Workplace Travel Plan

A detailed Workplace Travel Plan (WTP) can be prepared for the development, with the primary aim to assist employees with travelling to and from work. Such a plan typically includes encouraging alternative modes of transportation such as walking, cycling, carpooling and public transport use, thereby reducing the reliance on private vehicles. This is regarded as an important part of managing the transport demand generated by a development.

A comprehensive WTP is considered to be the most effective travel planning measure to encourage employees and visitors to travel by alternative means other than by private car. The WTP provides relevant transport and access information that would be relayed to employees of the development. In addition, the development proposes bicycle parking at the entrance of each building in order to further encourage bicycle trips. The WTP information that would be provided to staff include:

- Local bus facilities and network maps;
- Local cycle route maps; and
- Information on car-pooling schemes.

The development of a WTP is encouraged to promote alternative modes of transport however, it is highly noteworthy that such a document is generally more effective for new developments. The implementation of such a plan on a new development would assist in reducing the dependency on private vehicles, prior to the establishment of travel patterns and behaviours.

Whilst Council's objective to reduce private vehicle usage is acknowledged, it is clear that the site is located in an area where available routes for cyclists approaching site require bikes to share the road with frequent heavy vehicle traffic, creating a hostile environment.. As such, travel targets in this case would be uniquely tailored to encourage alternative modes of transportation, such as carpool schemes.



7.2 Travel Access Guide

A comprehensive Travel Access Guide (TAG) is considered to be another effective travel planning measure to educate employees to travel by alternative means, other than private vehicles. The TAG can be distributed to employees and visitors of the development in order to provide information on relevant transport, access and car pool schemes.

In summary, a comprehensive WTP and associated TAG can be finalised, prior to the release of an Occupation Certificate for the proposed development. This WTP and TAG would assist in encouraging alternative modes of transportation and thus reducing the reliance upon personal vehicles.



8. Access & Internal Design Aspects

8.1 Access

In accordance with AS 2890.2 (2002), the proposed development requires an access with a minimum width of 12.5 metres. In response, the development proposes a two-way access off McPherson Street with a width of approximately 14.3 metres. This access is considered superior to the minimum requirements of AS 2890.2 (2002) and as such is considered appropriate.

It is noted that the access is located on the southwest corner of the site and is situated within approximately 3.1 metres from Nant Street. In accordance with AS 2890.1 (2004) Figure 3.1, access driveways are prohibited from being within 6.0 metres of the tangent point of another intersection. In this regard, TRAFFIX is advised that Nant Street is primarily utilised as the main access for Qenos Tank Farm, located to the immediate north of the site on an intermittent basis only. As such, access is restricted with a rarely opened gate and the road does not accommodate general traffic. Due to this, Nant Street is not regarded as a typical intersection, therefore the location of the proposed access is considered acceptable.

A swept path analysis has been undertaken with 19.0m Articulated Vehicles (AV) and 26.0m B-Double design vehicles that demonstrate satisfactory operation of the proposed access. The Swept Path Analysis is provided in Appendix D for reference.

8.2 Internal Design

The internal design of the car park complies with the requirements of AS 2890.1 (2004), AS 2890.2 (2002) and AS 2890.6 (2009), with the following characteristics noteworthy:

8.2.1 Parking Modules

- ② All car parking spaces have been designed in accordance with AS 2890.1 (2004) User Class 1A, being a minimum width of 2.4m, length of 5.4m and an aisle width of 5.8m.
- ② All accessible parking spaces have been designed in accordance with AS 2890.6 (2009), being a minimum width of 2.4m, length of 5.4m and have an adjacent shared zone with the same dimensions.



- ② All dead-end aisles have been provided with a 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004).
- ② All spaces located adjacent to obstructions of greater than 150mm in height have been provided with an additional width of 300mm.

8.2.2 Other Considerations

- ② All columns are to be located outside of the parking space design envelope shown in Figure 5.2 of AS2890.1 (2004).
- ② All ramps are to provide a maximum rate of change gradient of 1 in 16 (6.25%) in 10m of travel.
- ② A visual splay has been maintained at the property boundary, compliant with the requirements of Figure 3.3 of AS2890.1 (2004).
- ② A swept path analysis of all critical movements has been undertaken to confirm geometry and compliance with the relevant standards. The swept path assessment is included in **Appendix D**.

In summary, the internal configuration of the car park and loading docks have been designed in accordance with AS 2890.1 (2004), AS 2890.2 (2002) and AS 2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards. As such, any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



9. Construction Traffic Management Plan

A detailed construction Traffic Management Plan (CTMP) will be prepared and submitted to Council separate to this Development Application, in response to any future DA Conditions of Consent. The below analysis addresses the overall management principles for the site during the construction stages. It is noted that the preparation of a detailed CTMP report would require significant input from the appointed builder and would heavily rely upon the construction methodology, which at this point cannot be confirmed.

9.1 Construction Stages

The following information is to be confirmed for all stages of construction:

- Construction stage duration and commencement;
- Truck type and size to be utilised during construction stages;
- Frequency of daily vehicle arrivals and departures; and
- Maximum number of workers on site at any one time.

The expected truck volumes should be discussed and confirmed in the detailed CTMP, however it is anticipated that the traffic generation during construction of the development would be in line with the expected truck volumes for the proposed development, assessed in **Section 6** above, in addition peak volumes during construction typically occur outside of the network peak period. As such, the expected truck volumes during construction are anticipated to be acceptable, with minimal impacts (if any) on the surrounding road network.

9.2 Contractor Parking

Contractors utilising private vehicles will be encouraged to ride share to / from the site, thereby reducing car parking demands. In addition, it is noted that parking for contractor vehicles can be made available on-site, ensuring no impact on the on-street parking provision in the locality.



9.3 Traffic Control Plans

Traffic Control Plans (TCPs) will be designed in accordance with the RMS Traffic Control at Worksites Manual and AS 1742.3. The TCP's would be prepared for use under all construction stages to ensure all vehicular and pedestrian traffic is managed safely and efficiently.

9.4 Truck Routes

The subject site is located in an area that is considered to have a high proportion of industrial use. As such, the surrounding road network is already capable of accommodating heavy vehicle movements, with approved B-Double (26.0 metres) routes connecting the site to the arterial network. Due to this, the existing road network is able to accommodate the maximum-sized construction vehicles, being 19.0m articulated vehicles (AVs) and 19.6m truck & dog vehicles.

The proposed truck routes are to be confirmed during the preparation of the detailed CTMP however, the surrounding road network and imposed travel conditions restrict heavy vehicle movements. As a result, the truck routes are anticipated to be:

- ➡ Routes arriving to site:
 1. Trucks will arrive on Foreshore Road, eastbound.
 2. Turn left onto Botany Road, north-westbound.
 3. Turn right onto Hills Street, northbound.
 4. Continue onto McPherson Street, eastbound.
 5. Trucks will turn left onto site.

- ➡ Routes departing from site:
 1. Trucks will depart right from site.
 2. Continue onto McPherson Street, westbound.
 3. Turn left onto Exell Street, southbound.
 4. Turn left onto Botany Road, south-eastbound.
 5. Turn right onto Foreshore Road, westbound.

The truck routes utilised during the construction stages would use the arterial road network where possible. A copy of those routes would be provided to all drivers prior to attending the site and all trucks serving the site will do so via the proposed route only.



The proposed truck routes are recommended so that all vehicles can access the site in a forward direction where possible and likewise the vehicle could also exit the site in a forward direction. The route is therefore recommended to ensure no reverse manoeuvres on the public roadway, where possible.

In summary, the proposed development would adhere to the general CTMP principles as outlined above, which are provided for information purposes only.



10. Conclusion

In summary:

- ② TRAFFIX has been commissioned by Orica to undertake a TIA to accompany a SSD relating to a proposed warehouse development consisting of two (2) warehouse and two (2) ancillary office buildings with a combined Gross Floor Area (GFA) of 19,780m² and 2,000m², respectively, located at 28 McPherson Street, Banksmeadow (Lot 9 DP 1205673).
- ② The Botany Bay DCP 2013 provides the *minimum* car parking rates for warehouse developments and as such was adopted to assess the parking provision. Application of these rates results in the overall development generating a minimum requirement for 117 car parking spaces. In response, the development proposes to provide a total of 117 parking spaces, thereby meeting the minimum requirements of the DCP.
- ② The traffic generation of the proposed 21,780m² GFA warehouse and ancillary office development is anticipated to be 113 veh/hr (79 in, 34 out) during the AM peak period and 122 veh/hr (37 in, 85 out) during the PM peak period. This is considered to be moderate and represents approximately two (2) vehicle trips per minute during the AM and PM peak periods.
- ② The SIDRA assessment demonstrates that the majority of the key intersections have minor increases in intersection delays and no change in levels of service. All intersections shall operate satisfactorily with the anticipated traffic generation of the proposed development with no external improvement works considered necessary.
- ② The internal configuration of the basement car parking levels have been designed in accordance with AS 2890.1 (2004), AS 2890.2 (2002) and AS 2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards. As such, any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.
- ② The preliminary CTMP demonstrates that construction vehicles are able to utilise the existing road network to access the site. It is anticipated that a standard condition of consent would be imposed requiring a site specific CTMP be provided for this development application.

It is therefore concluded that the proposal is supportable on traffic planning grounds and will operate satisfactorily.



Appendix A

Photographic Record



View looking northwest from McPherson Street towards the subject site.



View looking east along McPherson Street towards the cul-de-sac.





View looking west along McPherson Street towards frontage of the subject site.



View looking north towards the Botany Road and Hills Street intersection.





View looking east from Hills Street towards Botany Road.



View looking west towards the McPherson Street and Exell Street intersection.





View looking south from McPherson Street towards Exell Street.



View looking east towards the Botany Road and Exell Street intersection.





View looking south towards the Botany Road and Foreshore Road intersection.



View looking east from Foreshore Road towards the Botany Road intersection.





Appendix B

SIDRA Outputs

SITE LAYOUT

▽ Site: 101 [A - Botany Rd x Hills St - EX_AM]

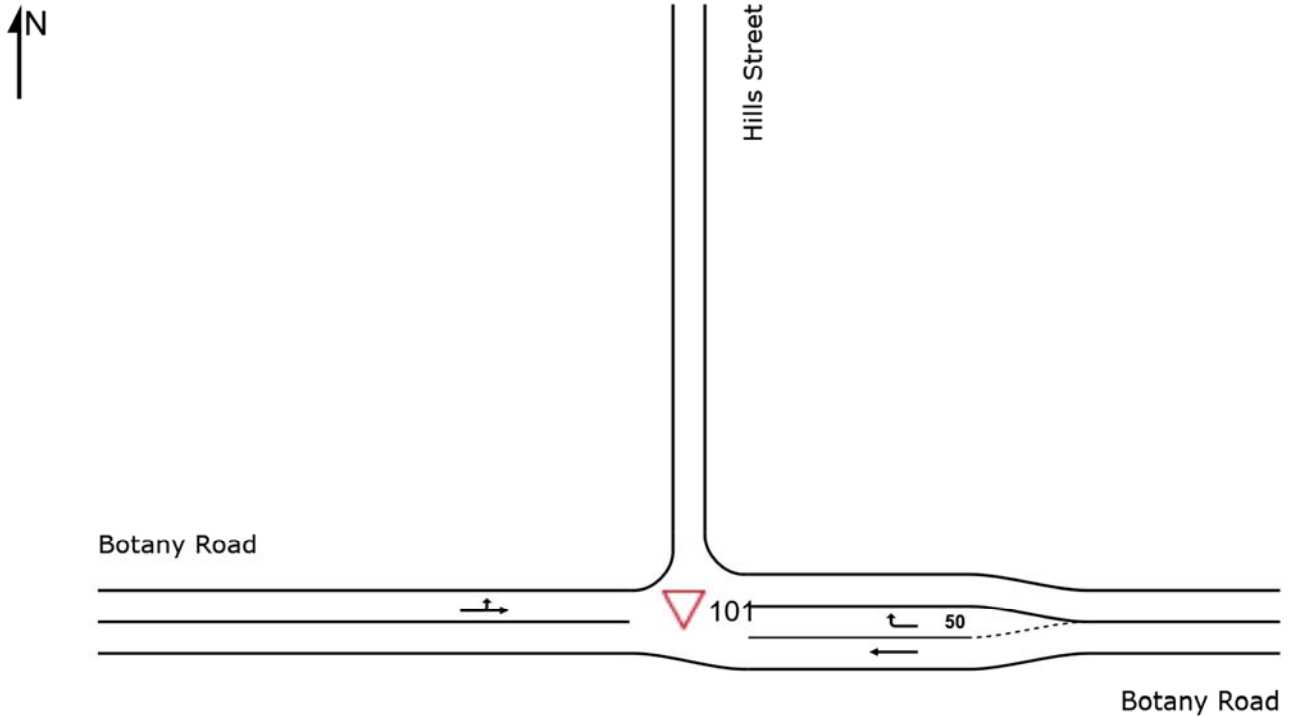
Intersection Name: Botany Road x Hills Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)



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Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 16, 2019 9:18:44 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 101 [A - Botany Rd x Hills St - EX_AM]

Intersection Name: Botany Road x Hills Street
 Period: AM Peak
 Scenario: Existing
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	296	20.3	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	308	36.5	0.573	17.0	LOS B	3.7	34.0	0.81	1.12	1.38	38.3
Approach		604	28.6	0.573	8.7	NA	3.7	34.0	0.41	0.57	0.70	49.3
West: Botany Road												
10	L2	218	9.7	0.397	5.7	LOS A	0.0	0.0	0.00	0.18	0.00	29.4
11	T1	495	10.6	0.397	0.1	LOS A	0.0	0.0	0.00	0.18	0.00	58.3
Approach		713	10.3	0.397	1.8	NA	0.0	0.0	0.00	0.18	0.00	48.8
All Vehicles		1317	18.7	0.573	5.0	NA	3.7	34.0	0.19	0.36	0.32	49.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

Site: 201 [F - Botany Rd x Hills St - FU_AM]

Intersection Name: Botany Road x Hills Street
 Period: AM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	296	20.3	0.362	2.2	LOS A	1.9	15.9	0.64	0.00	0.64	57.4
6	R2	378	33.1	0.699	19.8	LOS B	5.5	49.5	0.86	1.26	1.81	36.5
Approach		674	27.5	0.699	12.1	NA	5.5	49.5	0.76	0.71	1.30	46.1
West: Botany Road												
10	L2	232	9.1	0.404	5.7	LOS A	0.0	0.0	0.00	0.19	0.00	29.3
11	T1	495	10.6	0.404	0.1	LOS A	0.0	0.0	0.00	0.19	0.00	58.2
Approach		726	10.1	0.404	1.9	NA	0.0	0.0	0.00	0.19	0.00	48.4
All Vehicles		1400	18.5	0.699	6.8	NA	5.5	49.5	0.37	0.44	0.63	47.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

Site: 101 [K - Botany Rd x Hills St - EX_PM]

Intersection Name: Botany Road x Hills Street

Period: PM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	545	10.2	0.300	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	145	55.8	0.208	10.5	LOS A	0.9	9.4	0.61	0.83	0.61	42.9
Approach		691	19.8	0.300	2.2	NA	0.9	9.4	0.13	0.17	0.13	56.9
West: Botany Road												
10	L2	99	28.7	0.276	5.9	LOS A	0.0	0.0	0.00	0.12	0.00	29.5
11	T1	393	8.3	0.276	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	59.1
Approach		492	12.4	0.276	1.2	NA	0.0	0.0	0.00	0.12	0.00	52.6
All Vehicles		1182	16.7	0.300	1.8	NA	0.9	9.4	0.08	0.15	0.08	55.0

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

 **Site: 201 [P - Botany Rd x Hills St - FU_PM]**

Intersection Name: Botany Road x Hills Street
 Period: PM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	545	10.2	0.300	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	178	49.1	0.246	10.4	LOS A	1.1	11.0	0.62	0.84	0.63	43.1
Approach		723	19.8	0.300	2.6	NA	1.1	11.0	0.15	0.21	0.15	56.4
West: Botany Road												
10	L2	105	27.0	0.280	5.9	LOS A	0.0	0.0	0.00	0.12	0.00	29.5
11	T1	393	8.3	0.280	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	59.0
Approach		498	12.3	0.280	1.3	NA	0.0	0.0	0.00	0.12	0.00	52.2
All Vehicles		1221	16.7	0.300	2.1	NA	1.1	11.0	0.09	0.17	0.09	54.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

SITE LAYOUT

▽ Site: 101 [B - Botany Rd x Exell St - EX_AM]

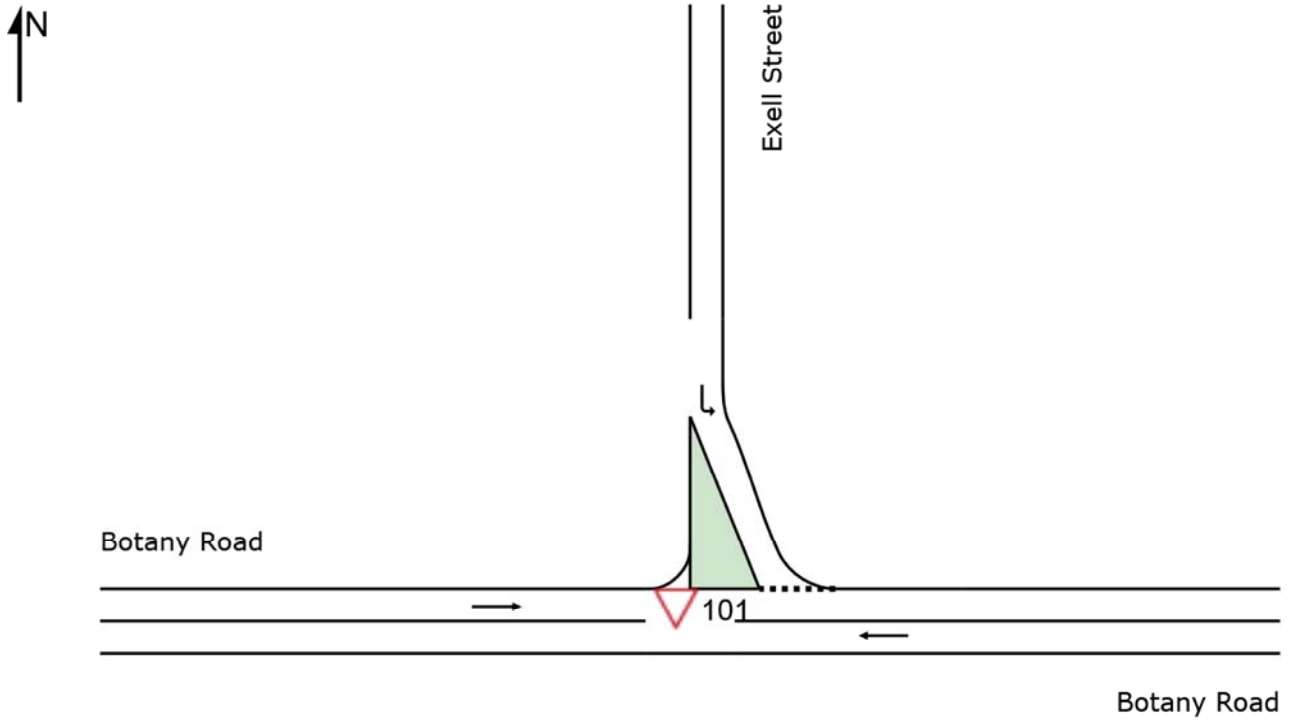
Intersection Name: Botany Road x Exell Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)



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Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 16, 2019 9:18:57 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 101 [B - Botany Rd x Exell St - EX_AM]

Intersection Name: Botany Road x Exell Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	632	30.0	0.387	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		632	30.0	0.387	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Exell Street												
7	L2	247	63.0	0.403	11.9	LOS A	2.2	23.6	0.65	0.92	0.87	30.0
Approach		247	63.0	0.403	11.9	LOS A	2.2	23.6	0.65	0.92	0.87	30.0
West: Botany Road												
11	T1	502	9.2	0.273	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		502	9.2	0.273	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1381	28.4	0.403	2.2	NA	2.2	23.6	0.12	0.16	0.16	53.3

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

▽ Site: 201 [G - Botany Rd x Exell St - FU_AM]

Intersection Name: Botany Road x Exell Street

Period: AM Peak

Scenario: Future

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	701	28.8	0.427	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		701	28.8	0.427	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Exell Street												
7	L2	283	56.9	0.443	12.0	LOS A	2.6	26.8	0.66	0.95	0.93	30.6
Approach		283	56.9	0.443	12.0	LOS A	2.6	26.8	0.66	0.95	0.93	30.6
West: Botany Road												
11	T1	502	9.2	0.273	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		502	9.2	0.273	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
All Vehicles		1486	27.5	0.443	2.3	NA	2.6	26.8	0.13	0.18	0.18	53.1

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Wednesday, January 16, 2019 9:14:16 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 101 [L - Botany Rd x Exell St - EX_PM]

Intersection Name: Botany Road x Exell Street

Period: PM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	669	19.5	0.387	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		669	19.5	0.387	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Exell Street												
7	L2	459	21.3	0.471	9.1	LOS A	3.2	26.9	0.59	0.84	0.78	37.4
Approach		459	21.3	0.471	9.1	LOS A	3.2	26.9	0.59	0.84	0.78	37.4
West: Botany Road												
11	T1	380	8.6	0.206	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		380	8.6	0.206	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		1508	17.3	0.471	2.8	NA	3.2	26.9	0.18	0.26	0.24	52.8

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Wednesday, January 16, 2019 9:25:30 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m02v02 TRAFFIX Lot 9 - McPherson Street, Botany (PM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 201 [Q - Botany Rd x Exell St - FU_PM]

Intersection Name: Botany Road x Exell Street
 Period: PM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Botany Road												
5	T1	702	19.5	0.406	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		702	19.5	0.406	0.0	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: Exell Street												
7	L2	548	20.3	0.559	9.9	LOS A	4.6	38.2	0.63	0.92	0.94	36.8
Approach		548	20.3	0.559	9.9	LOS A	4.6	38.2	0.63	0.92	0.94	36.8
West: Botany Road												
11	T1	380	8.6	0.206	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		380	8.6	0.206	0.0	NA	0.0	0.0	0.00	0.00	0.00	60.0
All Vehicles		1631	17.2	0.559	3.3	NA	4.6	38.2	0.21	0.31	0.32	51.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [C - Exell St x McPherson St - EX_AM]

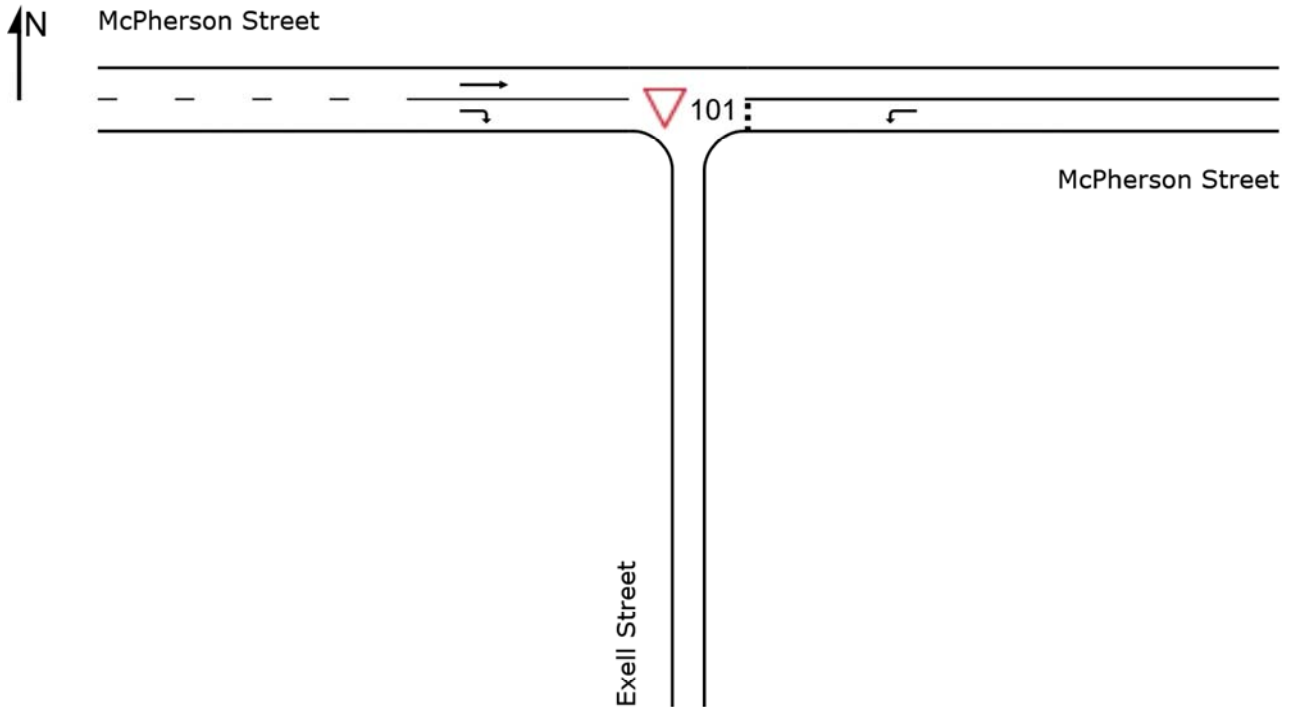
Intersection Name: Exell Street x McPherson Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)



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Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 16, 2019 9:19:06 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 101 [C - Exell St x McPherson St - EX_AM]

Intersection Name: Exell Street x McPherson Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
4	L2	143	51.5	0.129	6.9	LOS A	0.6	5.6	0.29	0.57	0.29	47.7
Approach		143	51.5	0.129	6.9	LOS A	0.6	5.6	0.29	0.57	0.29	47.7
West: McPherson Street												
11	T1	252	27.2	0.152	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	120	43.9	0.085	6.3	LOS A	0.0	0.0	0.00	0.63	0.00	42.9
Approach		372	32.6	0.152	2.0	NA	0.0	0.0	0.00	0.20	0.00	55.7
All Vehicles		515	37.8	0.152	3.4	NA	0.6	5.6	0.08	0.30	0.08	53.3

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

▽ Site: 201 [H - Exell St x McPherson St - FU_AM]

Intersection Name: Exell Street x McPherson Street

Period: AM Peak

Scenario: Future

Site Category: (None)

Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
4	L2	179	44.1	0.155	6.8	LOS A	0.7	6.6	0.29	0.57	0.29	48.1
Approach		179	44.1	0.155	6.8	LOS A	0.7	6.6	0.29	0.57	0.29	48.1
West: McPherson Street												
11	T1	335	24.2	0.199	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	120	43.9	0.085	6.3	LOS A	0.0	0.0	0.00	0.63	0.00	42.9
Approach		455	29.4	0.199	1.7	NA	0.0	0.0	0.00	0.17	0.00	56.5
All Vehicles		634	33.6	0.199	3.1	NA	0.7	6.6	0.08	0.28	0.08	54.0

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

 **Site: 101 [M - Exell St x McPherson St - EX_PM]**

Intersection Name: Exell Street x McPherson Street

Period: PM Peak

Scenario: Existing

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h	
East: McPherson Street													
4	L2	269	23.4	0.211	6.5	LOS A	1.0	8.2	0.29	0.57	0.29	49.5	
Approach		269	23.4	0.211	6.5	LOS A	1.0	8.2	0.29	0.57	0.29	49.5	
West: McPherson Street													
11	T1	147	45.0	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0	
12	R2	129	21.1	0.080	6.0	LOS A	0.0	0.0	0.00	0.63	0.00	44.9	
Approach		277	33.8	0.098	2.8	NA	0.0	0.0	0.00	0.30	0.00	54.4	
All Vehicles		546	28.7	0.211	4.6	NA	1.0	8.2	0.14	0.43	0.14	51.8	

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Wednesday, January 16, 2019 9:25:30 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m02v02 TRAFFIX Lot 9 - McPherson Street, Botany (PM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 201 [R - Exell St x McPherson St - FU_PM]

Intersection Name: Exell Street x McPherson Street
 Period: PM Peak
 Scenario: Future
 Site Category: (None)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
4	L2	359	21.4	0.278	6.5	LOS A	1.4	11.3	0.30	0.57	0.30	49.5
Approach		359	21.4	0.278	6.5	LOS A	1.4	11.3	0.30	0.57	0.30	49.5
West: McPherson Street												
11	T1	186	39.0	0.120	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	129	21.1	0.080	6.0	LOS A	0.0	0.0	0.00	0.63	0.00	44.9
Approach		316	31.7	0.120	2.5	NA	0.0	0.0	0.00	0.26	0.00	55.2
All Vehicles		675	26.2	0.278	4.6	NA	1.4	11.3	0.16	0.43	0.16	52.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
 Vehicle movement LOS values are based on average delay per movement.
 Minor Road Approach LOS values are based on average delay for all vehicle movements.
 NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
 SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
 Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

▽ Site: 101 [D - McPherson St x Nant St - EX_AM]

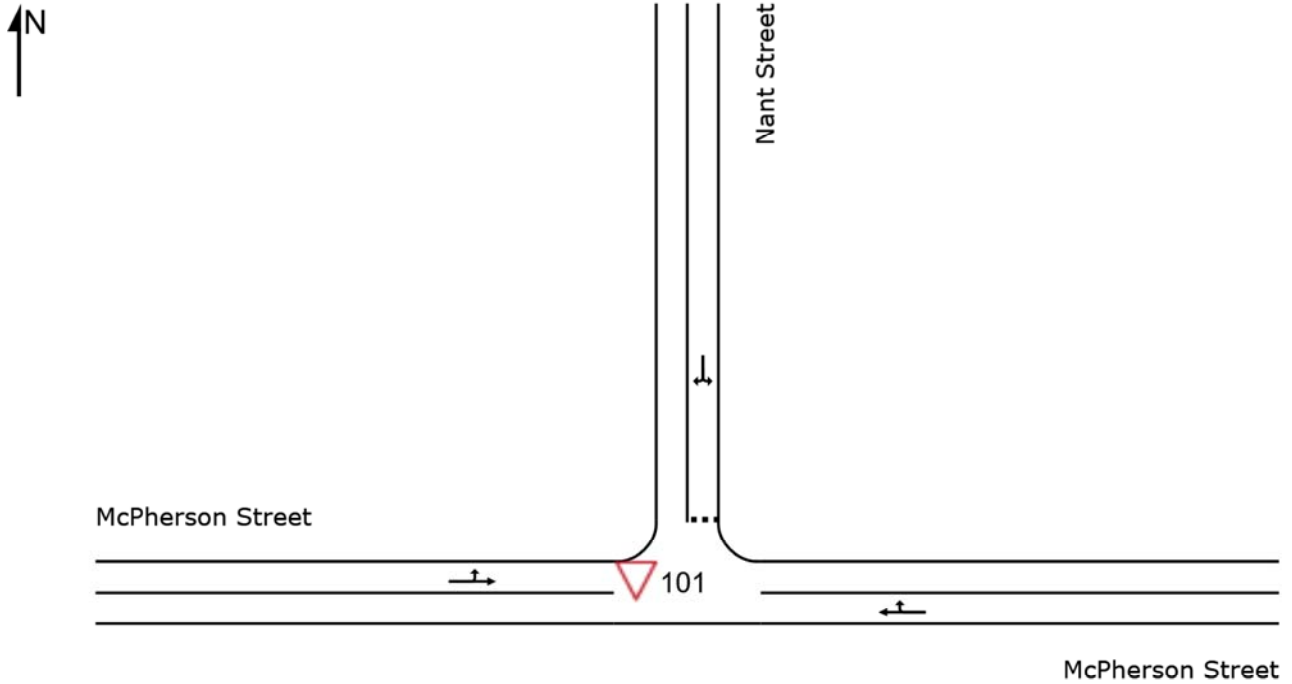
McPherson Street x Nant Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveaway / Yield (Two-Way)



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Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 16, 2019 9:19:19 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 101 [D - McPherson St x Nant St - EX_AM]

McPherson Street x Nant Street

Period: AM Peak

Scenario: Existing

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
5	T1	18	41.2	0.012	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	49.5
6	R2	1	0.0	0.012	4.6	LOS A	0.0	0.1	0.01	0.03	0.01	47.8
Approach		19	38.9	0.012	0.3	NA	0.0	0.1	0.01	0.03	0.01	49.4
North: Nant Street												
7	L2	1	0.0	0.002	4.6	LOS A	0.0	0.0	0.09	0.51	0.09	44.0
9	R2	1	0.0	0.002	4.7	LOS A	0.0	0.0	0.09	0.51	0.09	44.9
Approach		2	0.0	0.002	4.7	LOS A	0.0	0.0	0.09	0.51	0.09	44.5
West: McPherson Street												
10	L2	1	0.0	0.016	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.1
11	T1	23	45.5	0.016	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.6
Approach		24	43.5	0.016	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.6
All Vehicles		45	39.5	0.016	0.4	NA	0.0	0.1	0.01	0.05	0.01	49.2

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Wednesday, January 16, 2019 9:14:13 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

▽ Site: 201 [I - McPherson St x Nant St - FU_AM]

McPherson Street x Nant Street

Period: AM Peak

Scenario: Future

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h	
East: McPherson Street													
5	T1	54	23.5	0.032	0.1	LOS A	0.0	0.1	0.01	0.02	0.01	56.4	
6	R2	1	0.0	0.032	5.5	LOS A	0.0	0.1	0.01	0.02	0.01	50.3	
Approach		55	23.1	0.032	0.2	NA	0.0	0.1	0.01	0.02	0.01	56.3	
North: Nant Street													
7	L2	1	0.0	0.002	4.9	LOS A	0.0	0.0	0.21	0.50	0.21	43.6	
9	R2	1	0.0	0.002	5.1	LOS A	0.0	0.0	0.21	0.50	0.21	44.6	
Approach		2	0.0	0.002	5.0	LOS A	0.0	0.0	0.21	0.50	0.21	44.2	
West: McPherson Street													
10	L2	1	0.0	0.063	5.3	LOS A	0.0	0.0	0.00	0.02	0.00	56.0	
11	T1	106	21.8	0.063	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	57.8	
Approach		107	21.6	0.063	0.1	NA	0.0	0.0	0.00	0.02	0.00	57.8	
All Vehicles		164	21.8	0.063	0.2	NA	0.0	0.1	0.01	0.03	0.01	57.0	

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

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Organisation: TRAFFIX PTY LTD | Processed: Wednesday, January 16, 2019 9:14:17 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY

Site: 101 [N - McPherson St x Nant St - EX_PM]

McPherson Street x Nant Street

Period: PM Peak

Scenario: Existing

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
5	T1	23	13.6	0.013	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	49.7
6	R2	1	0.0	0.013	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	48.0
Approach		24	13.0	0.013	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.7
North: Nant Street												
7	L2	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.02	0.53	0.02	44.3
9	R2	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.02	0.53	0.02	45.1
Approach		2	0.0	0.001	4.6	LOS A	0.0	0.0	0.02	0.53	0.02	44.8
West: McPherson Street												
10	L2	1	0.0	0.003	4.6	LOS A	0.0	0.0	0.00	0.14	0.00	48.1
11	T1	3	33.3	0.003	0.0	LOS A	0.0	0.0	0.00	0.14	0.00	48.4
Approach		4	25.0	0.003	1.1	NA	0.0	0.0	0.00	0.14	0.00	48.3
All Vehicles		31	13.8	0.013	0.6	NA	0.0	0.0	0.00	0.08	0.00	49.1

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

MOVEMENT SUMMARY

Site: 201 [S - McPherson St x Nant St - FU_PM]

McPherson Street x Nant Street

Period: PM Peak

Scenario: Future

Site Category: (None)

Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: McPherson Street												
5	T1	113	15.0	0.064	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	57.8
6	R2	1	0.0	0.064	5.4	LOS A	0.0	0.1	0.00	0.01	0.00	50.8
Approach		114	14.8	0.064	0.1	NA	0.0	0.1	0.00	0.01	0.00	57.8
North: Nant Street												
7	L2	1	0.0	0.002	4.7	LOS A	0.0	0.0	0.12	0.51	0.12	43.9
9	R2	1	0.0	0.002	5.1	LOS A	0.0	0.0	0.12	0.51	0.12	44.8
Approach		2	0.0	0.002	4.9	LOS A	0.0	0.0	0.12	0.51	0.12	44.4
West: McPherson Street												
10	L2	1	0.0	0.025	5.5	LOS A	0.0	0.0	0.00	0.02	0.00	56.9
11	T1	42	17.5	0.025	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	58.9
Approach		43	17.1	0.025	0.1	NA	0.0	0.0	0.00	0.02	0.00	58.9
All Vehicles		159	15.2	0.064	0.1	NA	0.0	0.1	0.00	0.02	0.00	57.8

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

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

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

SITE LAYOUT

 **Site: 101 [E - Botany Rd x Foreshore Rd x Penrhyn Rd - EX_AM]**

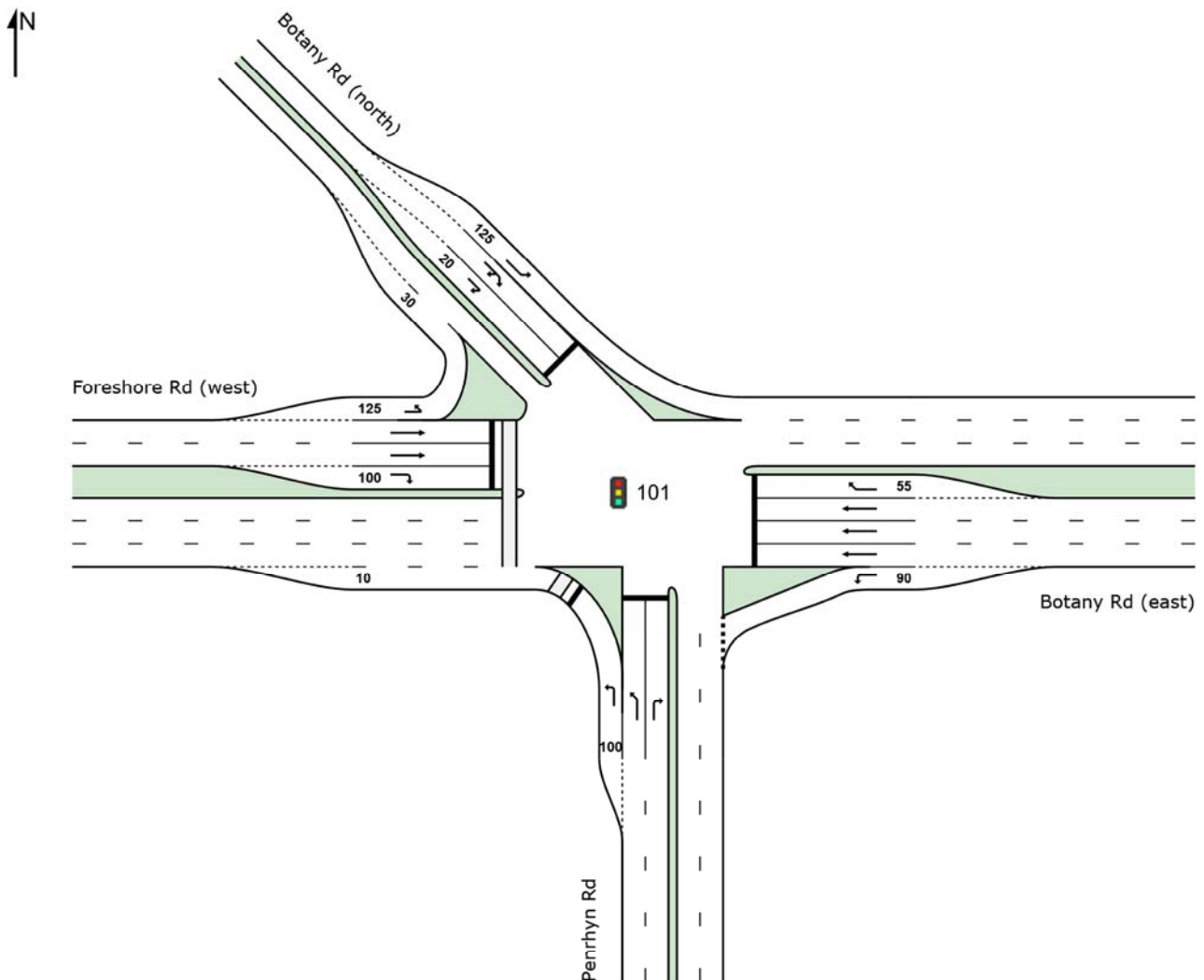
Botany Rd x Foreshore Rd x Penrhyn Road

Period: AM Peak

Scenario: Existing

Site Category: (None)

Signals - Fixed Time Isolated



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Organisation: TRAFFIX PTY LTD | Created: Wednesday, January 16, 2019 9:19:27 AM

Project: T:\Synergy\Projects\12\12.060\Modelling\12.060m01v02 TRAFFIX Lot 9 - McPherson Street, Botany (AM Peak Period).sip8

MOVEMENT SUMMARY



Site: 101 [E - Botany Rd x Foreshore Rd x Penrhyn Rd - EX_AM]

Botany Rd x Foreshore Rd x Penrhyn Road

Period: AM Peak

Scenario: Existing

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Penrhyn Rd												
1	L2	47	88.9	0.201	53.6	LOS D	2.7	33.6	0.87	0.72	0.87	32.9
1a	L1	38	44.4	0.242	64.8	LOS E	2.5	23.7	0.95	0.72	0.95	14.4
3	R2	28	59.3	0.203	67.1	LOS E	1.8	19.4	0.95	0.72	0.95	18.7
Approach		114	66.7	0.242	60.7	LOS E	2.7	33.6	0.92	0.72	0.92	24.2
East: Botany Rd (east)												
4	L2	68	49.2	0.058	8.2	LOS A	0.5	5.0	0.16	0.61	0.16	50.0
5	T1	957	23.0	0.266	7.8	LOS A	7.7	64.2	0.39	0.34	0.39	63.5
6a	R1	257	25.4	0.873	54.3	LOS D	15.1	128.7	1.00	0.96	1.25	25.7
Approach		1282	24.9	0.873	17.1	LOS B	15.1	128.7	0.50	0.48	0.55	54.9
NorthWest: Botany Rd (north)												
27a	L1	402	18.8	0.238	3.3	LOS A	0.0	0.0	0.00	0.41	0.00	46.7
29a	R1	28	70.4	0.871	84.2	LOS F	6.0	67.1	1.00	1.05	1.48	11.8
29b	R3	124	71.2	0.871	87.5	LOS F	6.0	67.1	1.00	1.03	1.48	26.6
Approach		555	33.2	0.871	26.3	LOS B	6.0	67.1	0.28	0.58	0.41	34.7
West: Foreshore Rd (west)												
10b	L3	342	19.7	0.237	8.3	LOS A	0.0	0.0	0.00	0.60	0.00	60.4
11	T1	1382	16.0	0.879	38.6	LOS C	48.3	384.2	0.87	0.87	0.97	46.3
12	R2	56	41.5	0.681	83.6	LOS F	4.1	38.8	1.00	0.82	1.15	28.7
Approach		1780	17.5	0.879	34.2	LOS C	48.3	384.2	0.71	0.82	0.79	47.4
All Vehicles		3731	23.9	0.879	28.0	LOS B	48.3	384.2	0.58	0.66	0.65	47.2

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1S	South Slip/Bypass Lane Crossing	53	6.6	LOS A	0.1	0.1	0.31	0.31	
P4	West Full Crossing	21	64.2	LOS F	0.1	0.1	0.96	0.96	
All Pedestrians		74	23.1	LOS C			0.49	0.49	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 201 [J - Botany Rd x Foreshore Rd x Penrhyn Rd - FU_AM]

Botany Rd x Foreshore Rd x Penrhyn Road

Period: AM Peak

Scenario: Future

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Penrhyn Rd												
1	L2	47	88.9	0.188	51.6	LOS D	2.7	32.9	0.85	0.71	0.85	33.3
1a	L1	38	44.4	0.214	62.4	LOS E	2.4	23.2	0.94	0.71	0.94	14.8
3	R2	28	59.3	0.179	64.7	LOS E	1.8	19.0	0.93	0.72	0.93	19.1
Approach		114	66.7	0.214	58.5	LOS E	2.7	32.9	0.90	0.71	0.90	24.6
East: Botany Rd (east)												
4	L2	68	49.2	0.058	8.2	LOS A	0.5	5.0	0.16	0.61	0.16	50.0
5	T1	957	23.0	0.271	8.5	LOS A	8.0	67.4	0.41	0.36	0.41	62.9
6a	R1	267	25.6	0.908	59.5	LOS E	16.4	140.3	1.00	1.00	1.33	24.3
Approach		1293	24.9	0.908	19.1	LOS B	16.4	140.3	0.52	0.50	0.58	53.5
NorthWest: Botany Rd (north)												
27a	L1	411	18.7	0.243	3.4	LOS A	0.0	0.0	0.00	0.41	0.00	46.8
29a	R1	28	70.4	0.919	92.1	LOS F	7.3	79.6	1.00	1.11	1.59	11.0
29b	R3	152	61.1	0.919	95.1	LOS F	7.3	79.6	1.00	1.08	1.59	25.4
Approach		591	32.1	0.919	31.2	LOS C	7.3	79.6	0.30	0.61	0.48	33.1
West: Foreshore Rd (west)												
10b	L3	401	19.2	0.278	8.2	LOS A	0.0	0.0	0.00	0.60	0.00	59.5
11	T1	1382	16.0	0.917	49.8	LOS D	55.4	441.3	0.90	0.96	1.07	42.2
12	R2	56	41.5	0.681	83.6	LOS F	4.1	38.8	1.00	0.82	1.15	28.7
Approach		1839	17.5	0.917	41.7	LOS C	55.4	441.3	0.71	0.88	0.84	44.1
All Vehicles		3836	23.7	0.919	33.0	LOS C	55.4	441.3	0.59	0.70	0.70	44.7

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1S	South Slip/Bypass Lane Crossing	53	7.2	LOS A	0.1	0.1	0.32	0.32	
P4	West Full Crossing	21	64.2	LOS F	0.1	0.1	0.96	0.96	
All Pedestrians		74	23.5	LOS C			0.50	0.50	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY



Site: 101 [O - Botany Rd x Foreshore Rd x Penrhyn Rd - EX_PM]

Botany Rd x Foreshore Rd x Penrhyn Road

Period: PM Peak

Scenario: Existing

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Penrhyn Rd												
1	L2	86	46.3	0.222	44.9	LOS D	4.5	44.4	0.81	0.72	0.81	36.2
1a	L1	32	46.7	0.114	51.6	LOS D	1.8	17.6	0.86	0.67	0.86	16.7
3	R2	27	26.9	0.091	53.3	LOS D	1.5	13.3	0.85	0.69	0.85	22.7
Approach		145	42.8	0.222	48.0	LOS D	4.5	44.4	0.83	0.70	0.83	30.6
East: Botany Rd (east)												
4	L2	35	48.5	0.028	7.6	LOS A	0.1	1.4	0.11	0.59	0.11	50.6
5	T1	1245	11.1	0.387	12.7	LOS A	14.4	110.7	0.51	0.45	0.51	59.9
6a	R1	324	14.6	0.689	32.1	LOS C	12.5	98.8	0.95	0.83	0.95	34.2
Approach		1604	12.6	0.689	16.5	LOS B	14.4	110.7	0.59	0.53	0.59	55.6
NorthWest: Botany Rd (north)												
27a	L1	386	11.7	0.219	3.3	LOS A	0.0	0.0	0.00	0.41	0.00	46.8
29a	R1	6	50.0	0.763	63.3	LOS E	9.2	75.7	0.94	0.88	1.11	14.3
29b	R3	272	19.8	0.763	65.8	LOS E	9.2	75.3	0.94	0.88	1.11	31.7
Approach		664	15.4	0.763	29.4	LOS C	9.2	75.7	0.39	0.60	0.46	36.6
West: Foreshore Rd (west)												
10b	L3	97	41.3	0.076	8.5	LOS A	0.0	0.0	0.00	0.59	0.00	59.0
11	T1	939	14.2	0.733	41.1	LOS C	27.9	219.5	0.93	0.82	0.93	45.4
12	R2	18	76.5	0.347	84.8	LOS F	1.3	15.2	1.00	0.71	1.00	28.6
Approach		1054	17.8	0.733	38.8	LOS C	27.9	219.5	0.84	0.80	0.84	45.8
All Vehicles		3467	16.0	0.763	27.1	LOS B	27.9	219.5	0.64	0.63	0.65	47.5

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1S	South Slip/Bypass Lane Crossing	53	10.1	LOS B	0.1	0.1	0.38	0.38	
P4	West Full Crossing	21	62.3	LOS F	0.1	0.1	0.94	0.94	
All Pedestrians		74	25.0	LOS C			0.54	0.54	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY



Site: 201 [T - Botany Rd x Foreshore Rd x Penrhyn Rd - FU_PM]

Botany Rd x Foreshore Rd x Penrhyn Road

Period: PM Peak

Scenario: Future

Site Category: (None)

Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Penrhyn Rd												
1	L2	86	46.3	0.188	39.1	LOS C	4.2	41.1	0.75	0.69	0.75	38.0
1a	L1	32	46.7	0.090	45.2	LOS D	1.7	16.3	0.81	0.64	0.81	18.2
3	R2	27	26.9	0.072	46.9	LOS D	1.4	12.3	0.80	0.67	0.80	24.2
Approach		145	42.8	0.188	41.9	LOS C	4.2	41.1	0.77	0.68	0.77	32.4
East: Botany Rd (east)												
4	L2	35	48.5	0.028	7.6	LOS A	0.1	1.4	0.11	0.59	0.11	50.6
5	T1	1245	11.1	0.438	16.6	LOS B	17.4	133.2	0.58	0.52	0.58	57.4
6a	R1	328	14.7	0.780	36.1	LOS C	13.0	102.6	0.99	0.88	1.06	32.2
Approach		1608	12.6	0.780	20.4	LOS B	17.4	133.2	0.66	0.59	0.67	53.1
NorthWest: Botany Rd (north)												
27a	L1	408	11.9	0.231	3.4	LOS A	0.0	0.0	0.00	0.41	0.00	47.1
29a	R1	6	50.0	0.792	60.0	LOS E	11.2	91.7	0.91	0.89	1.09	14.9
29b	R3	339	18.9	0.792	62.5	LOS E	11.2	91.4	0.91	0.89	1.09	32.4
Approach		754	15.4	0.792	30.5	LOS C	11.2	91.7	0.42	0.63	0.50	36.7
West: Foreshore Rd (west)												
10b	L3	125	36.1	0.095	8.2	LOS A	0.0	0.0	0.00	0.58	0.00	58.0
11	T1	939	14.2	0.784	45.4	LOS D	29.2	229.5	0.96	0.87	0.98	43.7
12	R2	18	76.5	0.347	84.8	LOS F	1.3	15.2	1.00	0.71	1.00	28.6
Approach		1082	17.8	0.784	41.8	LOS C	29.2	229.5	0.85	0.83	0.87	44.5
All Vehicles		3589	16.0	0.792	29.8	LOS C	29.2	229.5	0.67	0.68	0.70	46.0

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

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate	
P1S	South Slip/Bypass Lane Crossing	53	12.9	LOS B	0.1	0.1	0.43	0.43	
P4	West Full Crossing	21	55.9	LOS E	0.1	0.1	0.89	0.89	
All Pedestrians		74	25.2	LOS C			0.56	0.56	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

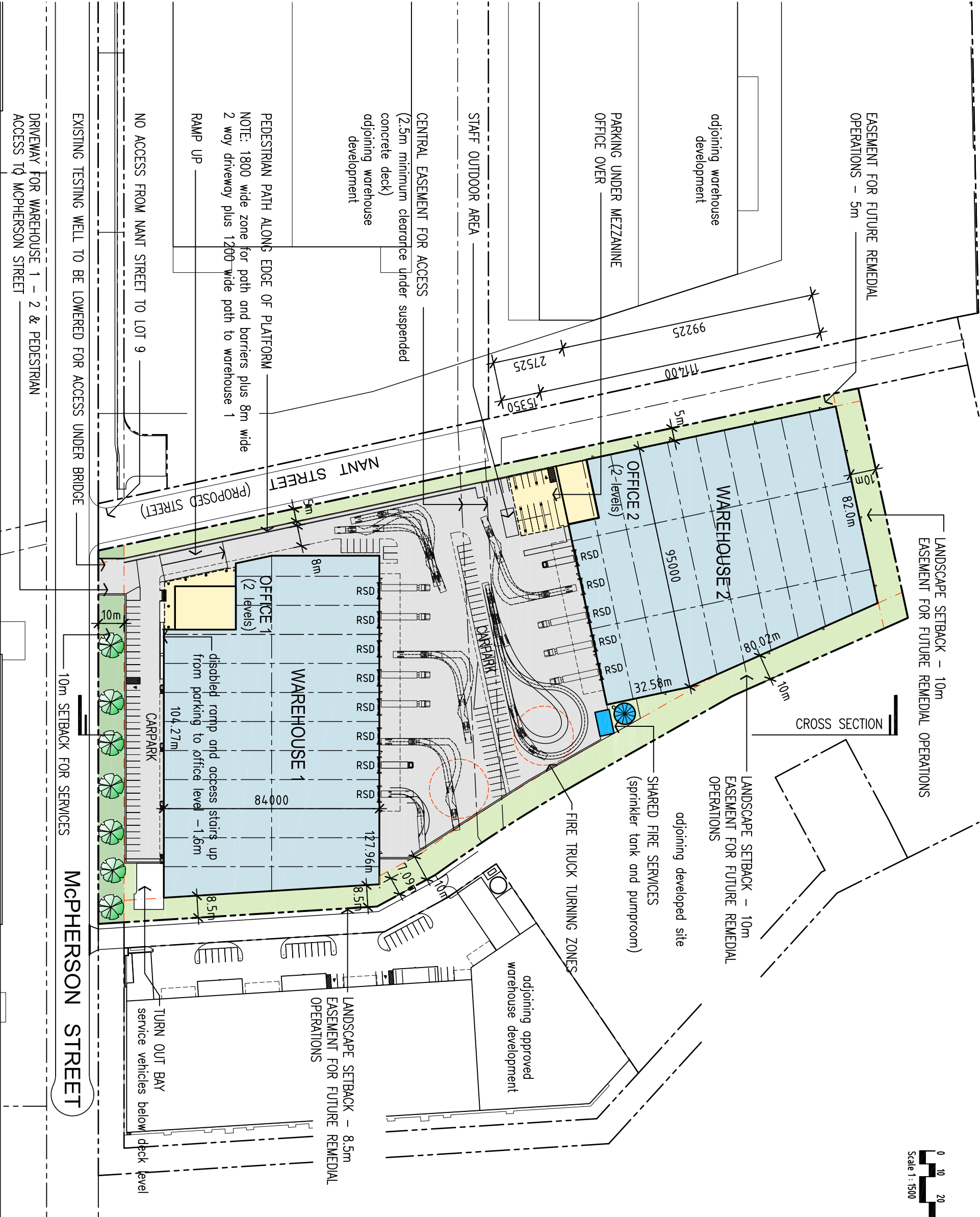
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.



Appendix C

Reduced Plans



SCHEDULE OF AREAS

SITE AREA	41 290 sqm
SITE AREA - less 1 459 sqm for 10m front setback services zone to McPherson St.	39 831 sqm
CONCRETE PLATFORM	34 130 sqm
suspended concrete platform to support buildings & hardstand / parking areas above basin including crossover over easement to McPherson Street	
BUILDING 1	
for services)	
WAREHOUSE 1	10 135 sqm
OFFICE 1 - 2 storey	1 000 sqm
405 gnd floor + 595 first floor	
TOTAL BUILDING AREA	11 135 sqm
AWNING 1 - 8m wide	740 sqm
59 carspaces including 1 disabled space provided on site for building 1	
BUILDING 2	
WAREHOUSE 2	9 645 sqm
OFFICE 2 - 2 storey	1 000 sqm
280 gnd floor + 720 first floor	
TOTAL BUILDING AREA	10 645 sqm
AWNING 1 - 8m wide	496 sqm
58 carspaces including 1 disabled space provided on site for building 2	
COUNCIL CARPARK REQUIREMENTS	
WAREHOUSE DISTRIBUTION AREA	1 CAR / 300m2
OFFICE AREA	1 CAR / 40m2

Drawing :

SITE PLAN - OPTION 6
NO ACCESS VIA NANT STREET

Scale : 1 : 1500 @A3
Drawn : AA
Date : Jan 2018
Project No :
Drawing No :
Issue :
180101 SK - A 106 P2



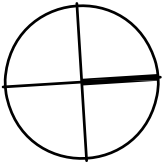
PROPOSED WAREHOUSE DISTRIBUTION
AND OFFICE DEVELOPMENT

ORICA AUSTRALIA

lot 9 McPherson Street, Banksmedow. NSW



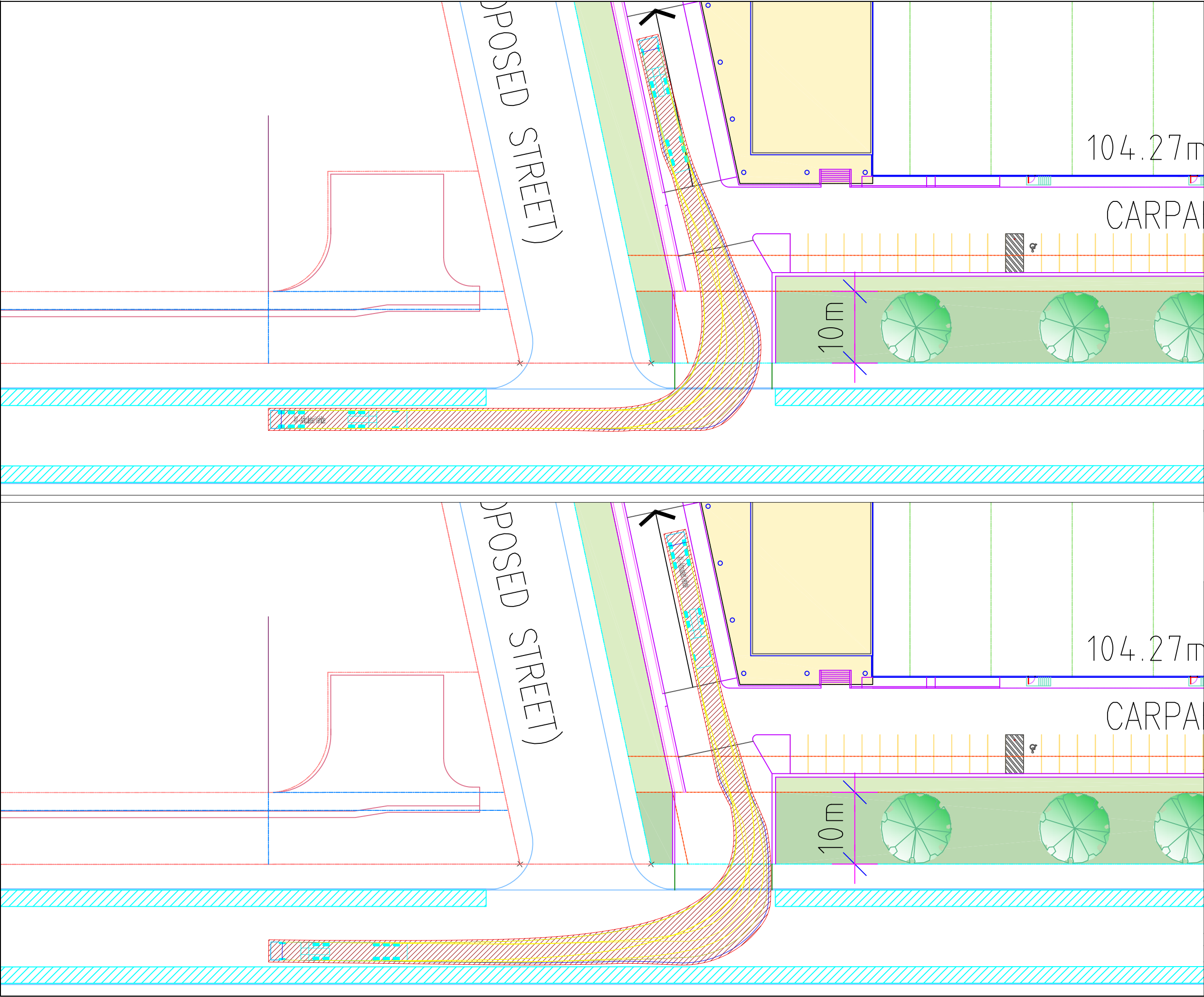
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AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997





Appendix D

Swept Path Analysis



Notes

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 *Parking facilities - Off-street car parking*, and/or AS 2890.2-2002 *Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX
traffic and transport planners

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Sunny Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au



traffix
traffic & transport planners

drawing title

Site Access - McPherson Street
19.0m Articulated Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.01

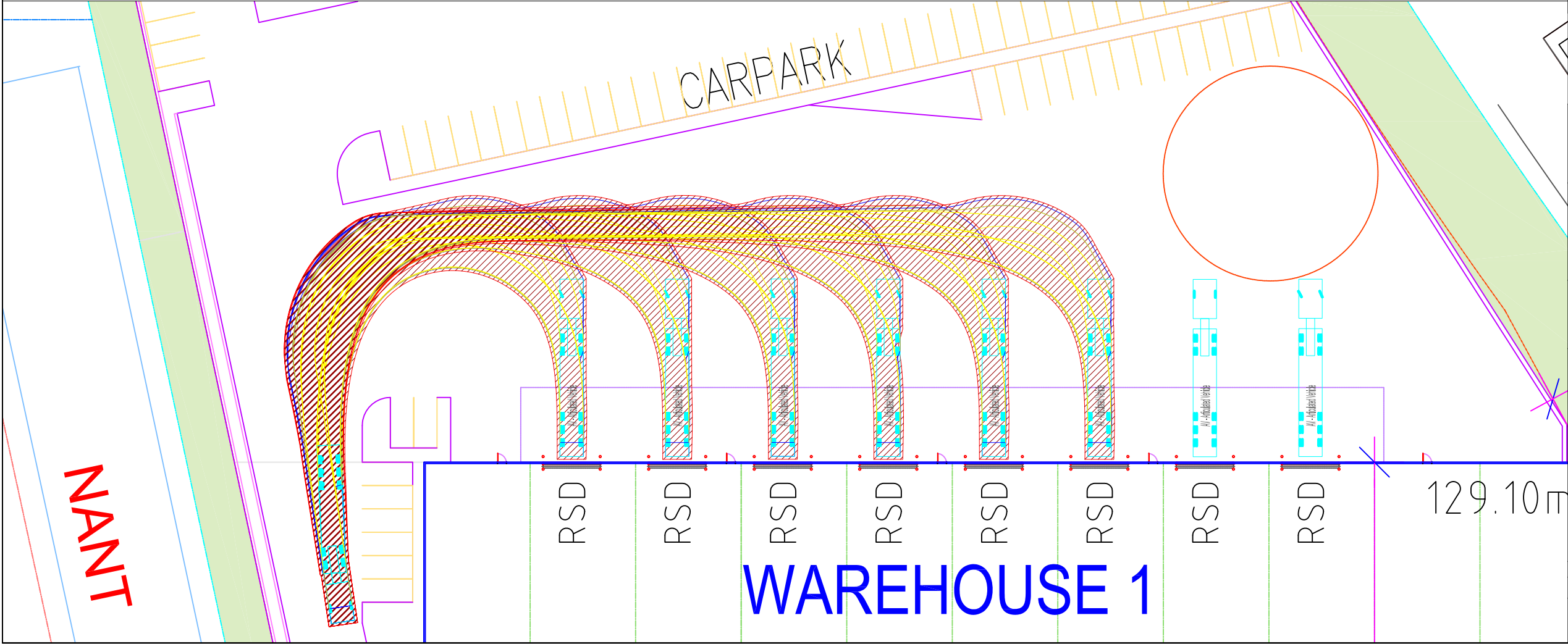
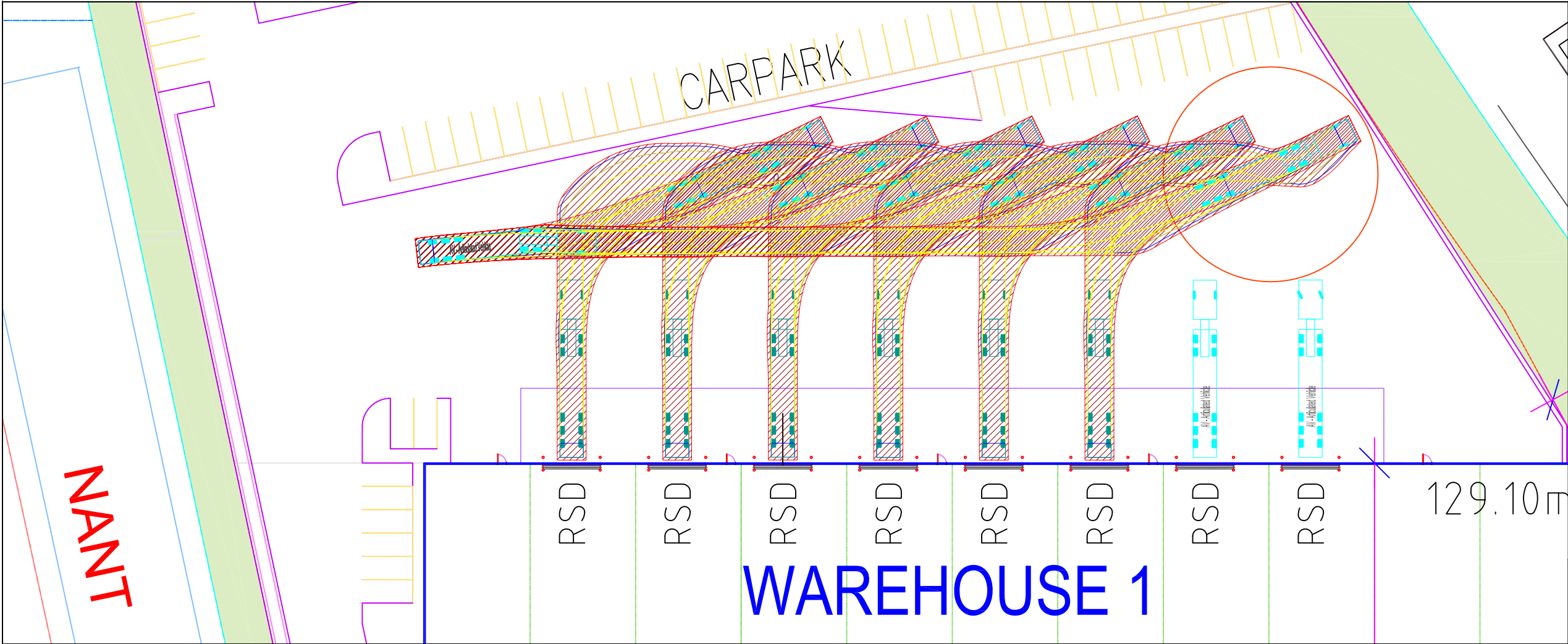
-

project no.

drawing phase.

drawing no.

rev



Notes

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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX

traffic and transport planners

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Strawberry Hills NSW 2012

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f: +61 2 9380 4481
e: info@traffix.com.au

traffix

traffic & transport planners

drawing title

Warehouse 1 - Dock 1 to Dock 6
19.0m Articulated Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.02

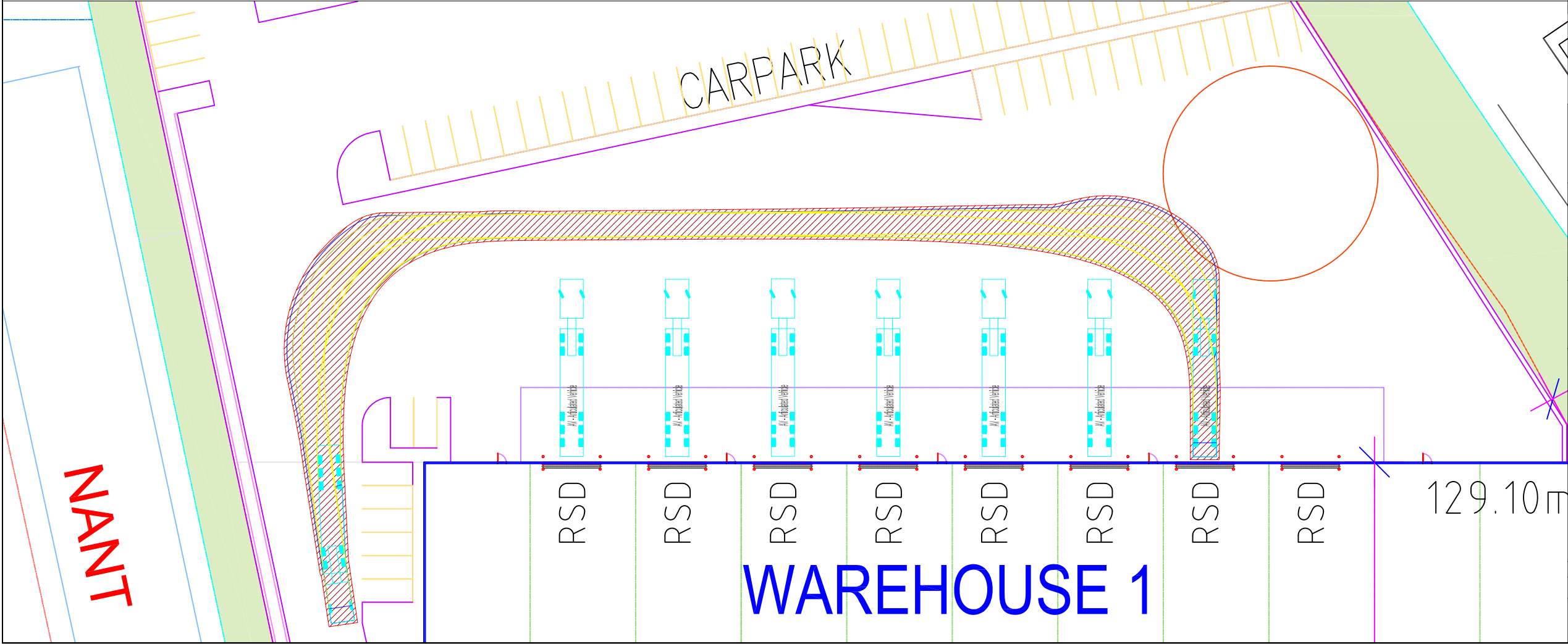
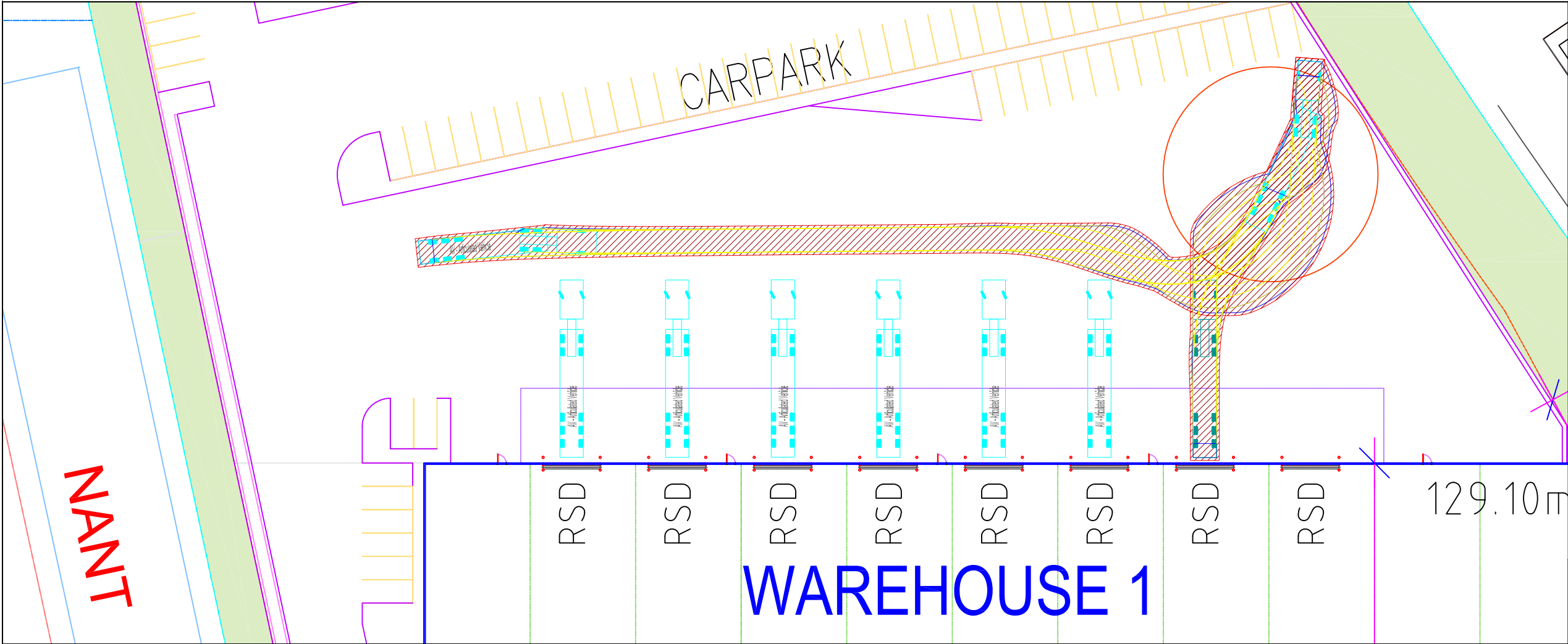
-

project no.

drawing phase.

drawing no.

rev



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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX
traffic and transport planners

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Sunny Hills NSW 2010
PO Box 1124
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f: +61 2 9380 4481
e: info@traffix.com.au


traffix
traffic & transport planners

drawing title

Warehouse 1 - Dock 7
19.0m Articulated Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.03

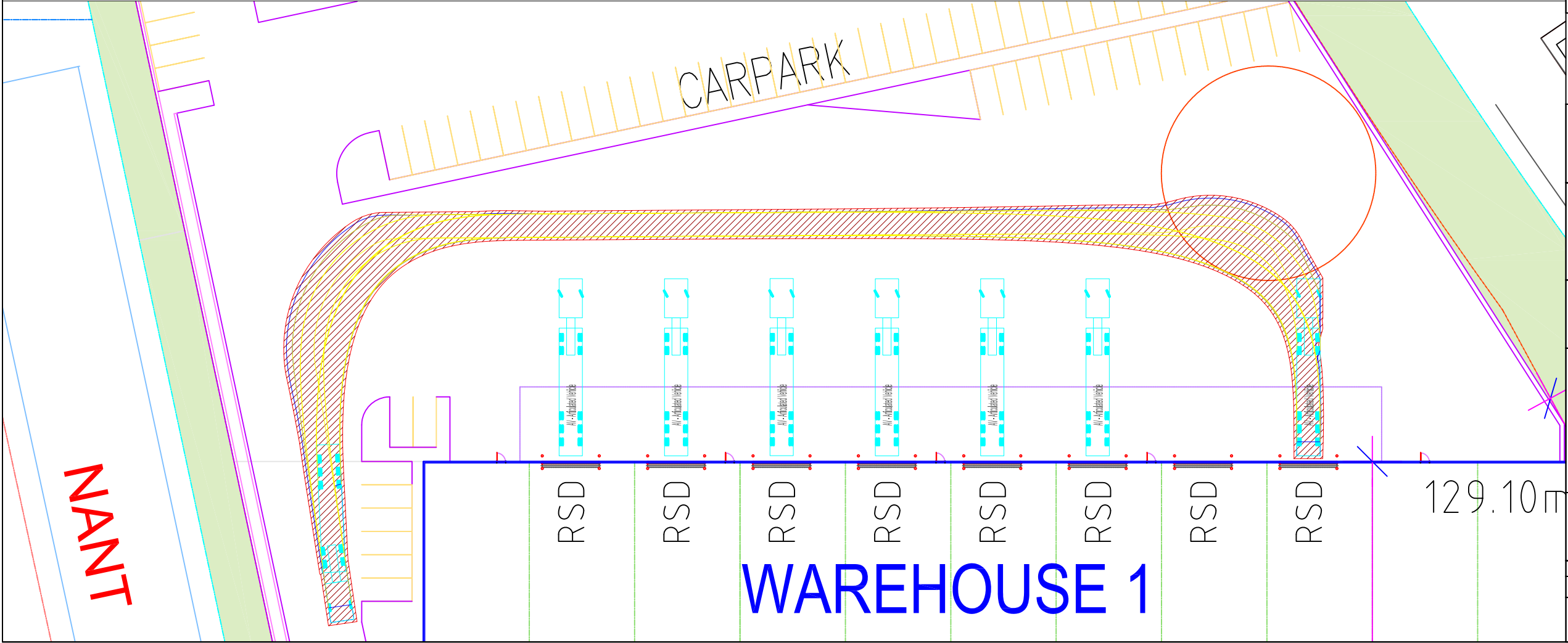
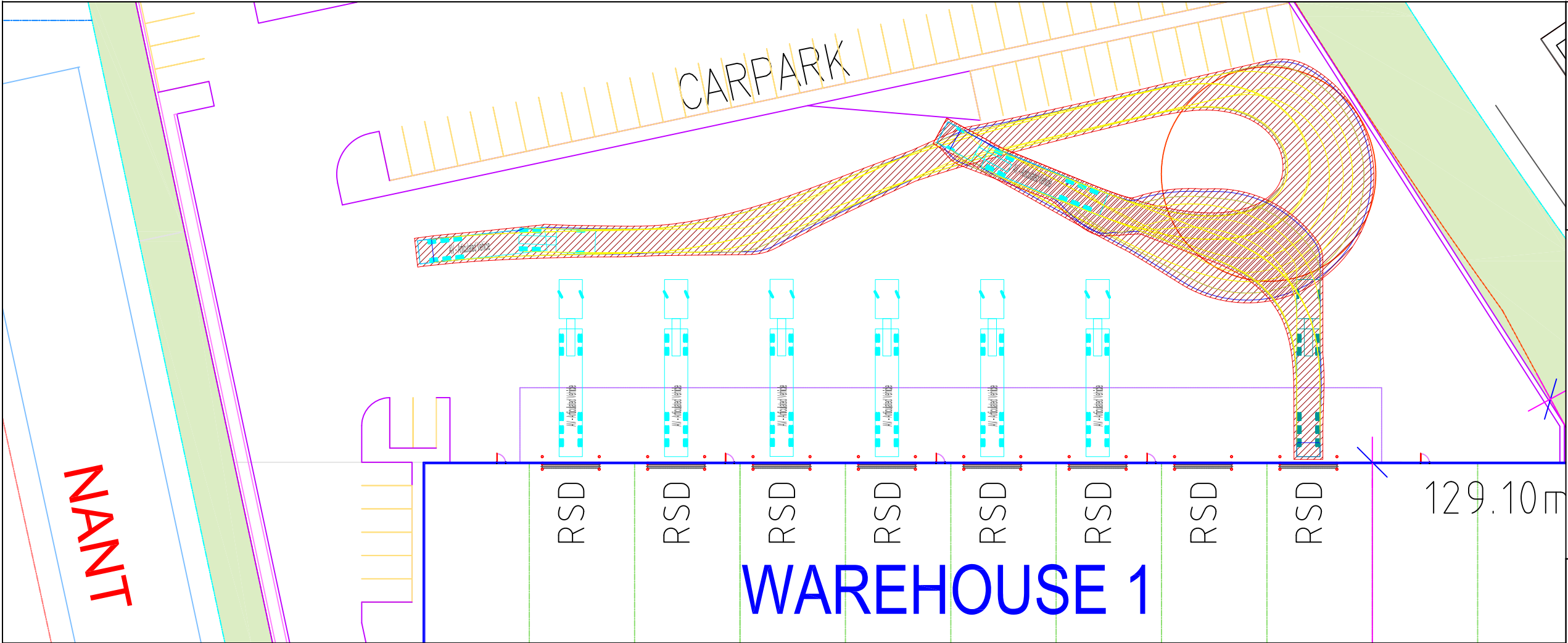
-

project no.

drawing phase.

drawing no.

rev



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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX
traffic and transport planners

Suite 2.08, 50 Holt Street
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f: +61 2 9380 4481
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traffix
traffic & transport planners

drawing title

Warehouse 1 - Dock 8
19.0m Articulated Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.04

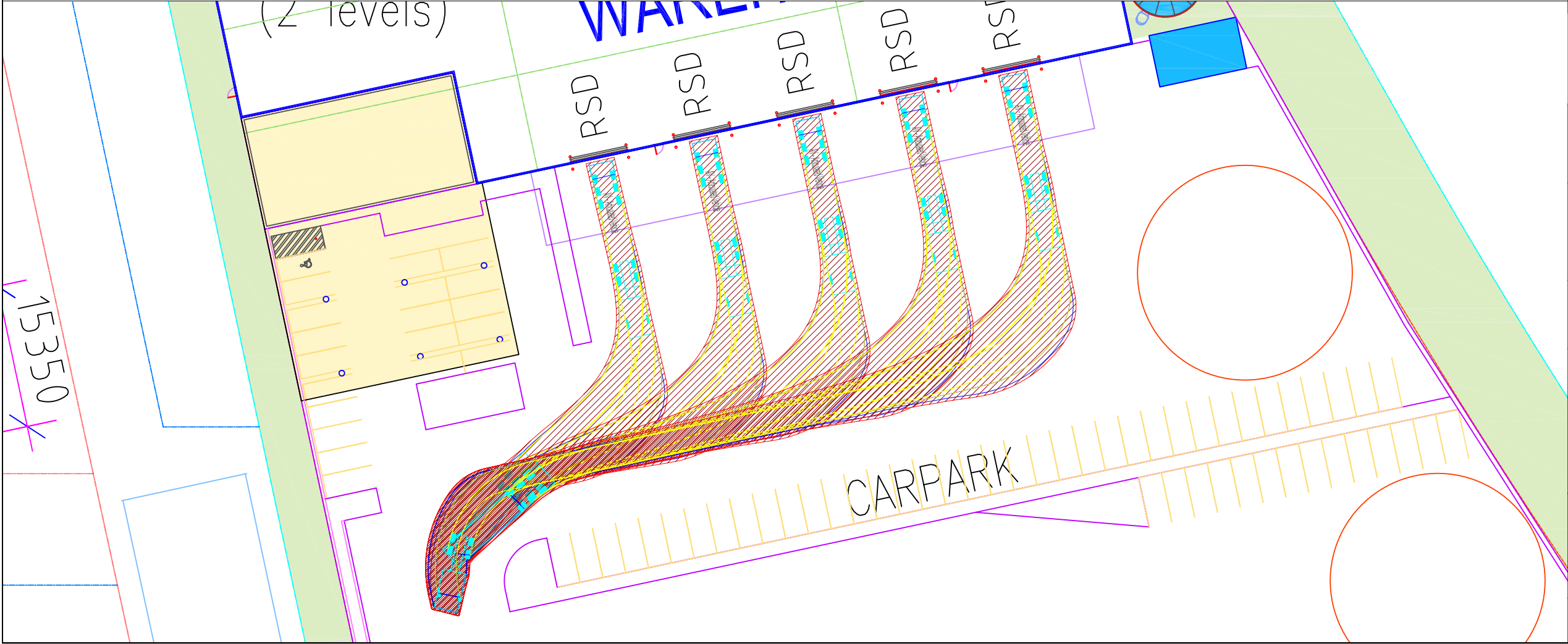
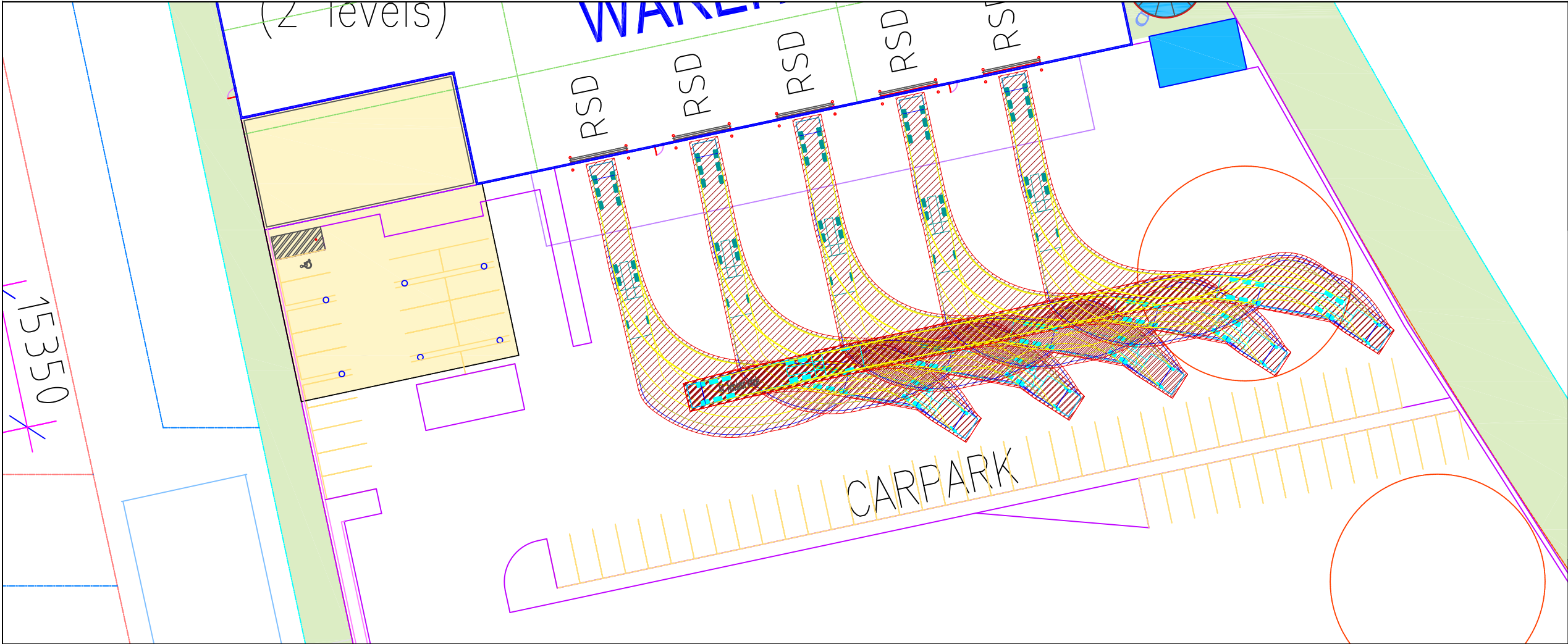
-

project no.

drawing phase.

drawing no.

rev



Notes

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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Sunny Hills NSW 2010
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f: +61 2 9380 4481
e: info@traffix.com.au


traffix
traffic & transport planners

drawing title

Warehouse 2 - Dock 1 to Dock 5
19.0m Articulated Vehicle
Vehicle Entry and Exit Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.05

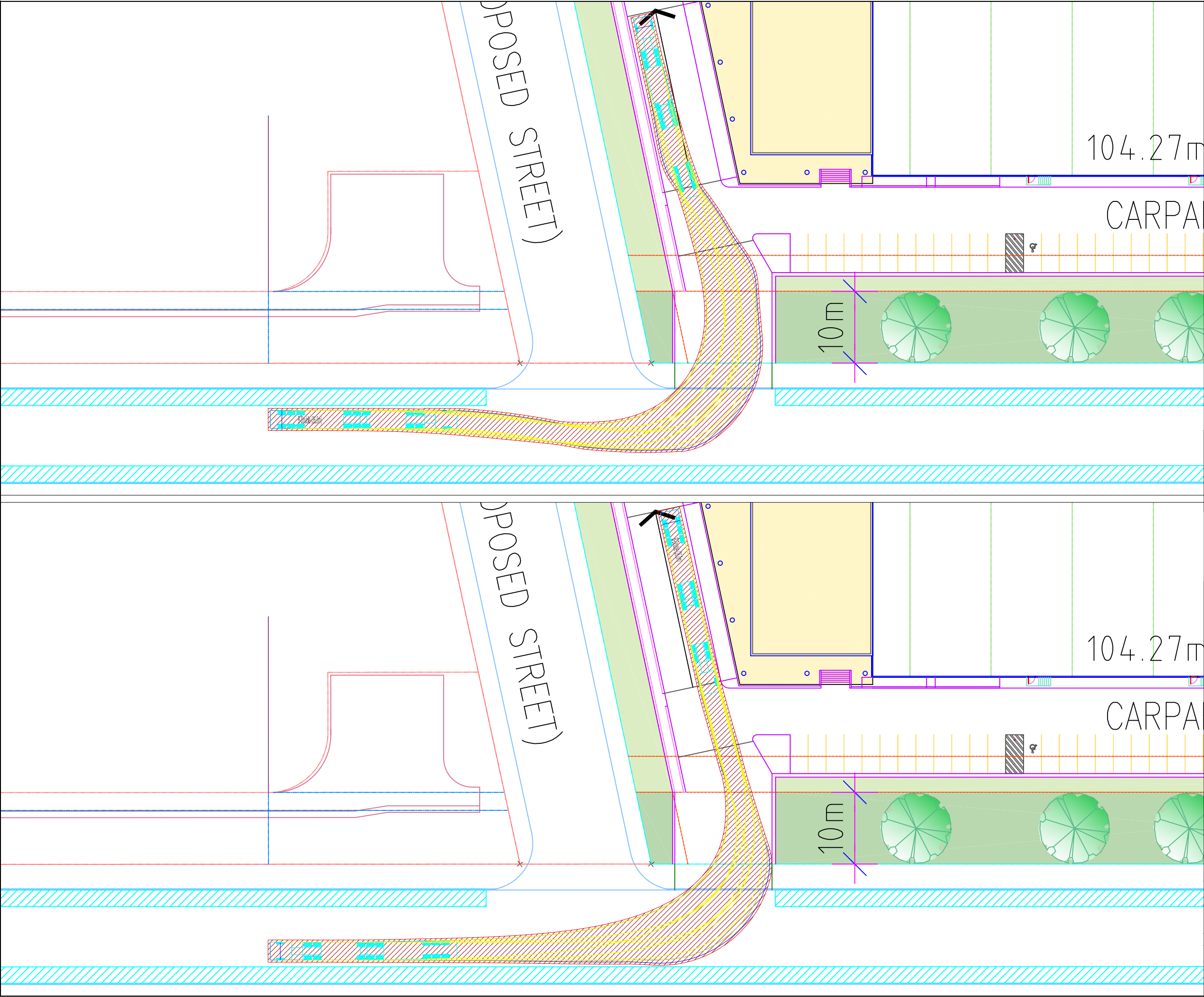
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project no.

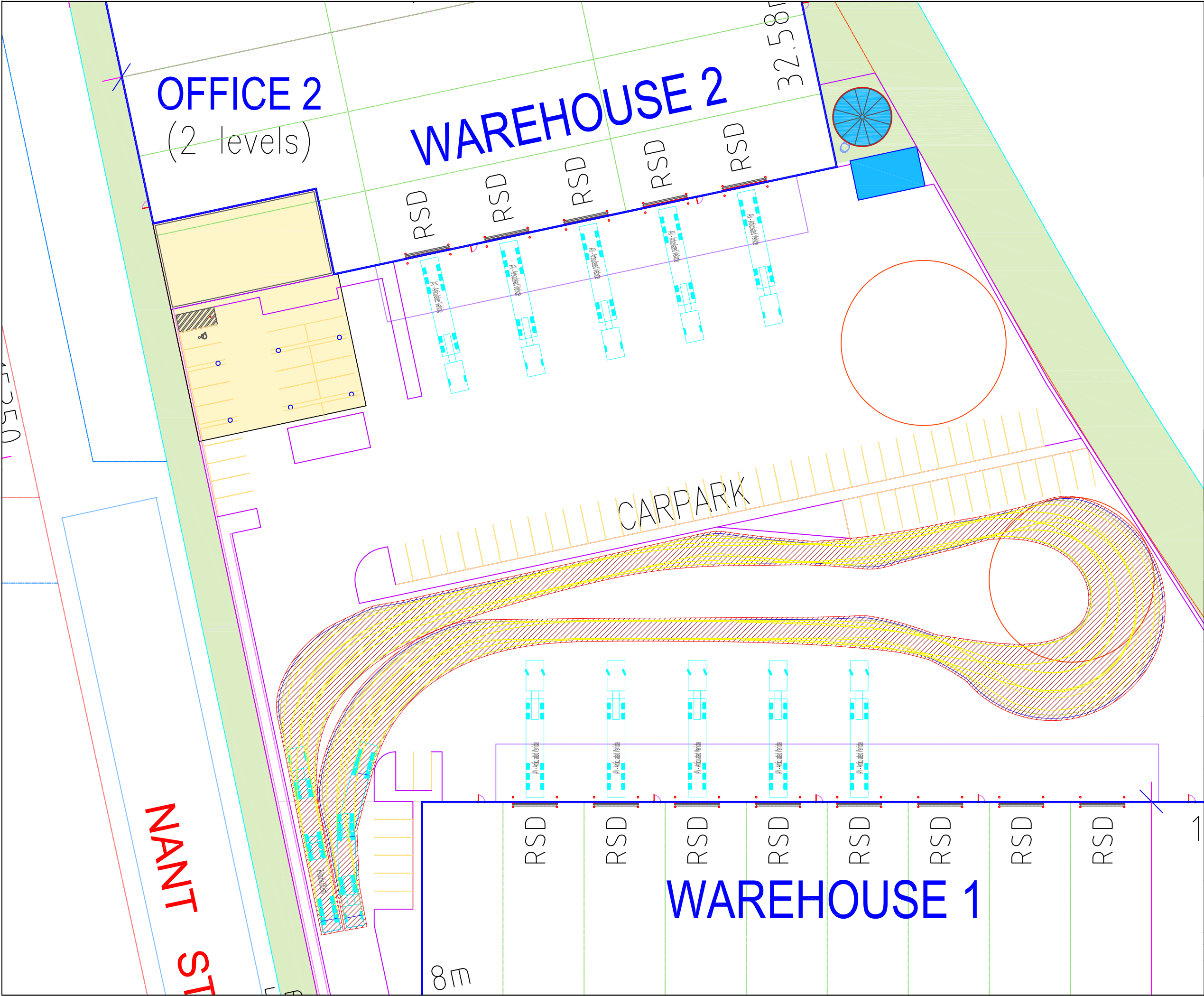
drawing phase.

drawing no.

rev



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no. revision note		by. date	



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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3

0m

5

10

15

20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX

traffic and transport planners

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traffix

traffic & transport planners

drawing title

Warehouse 1
26.0m B-Double Vehicle
Vehicle Circulation Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.07

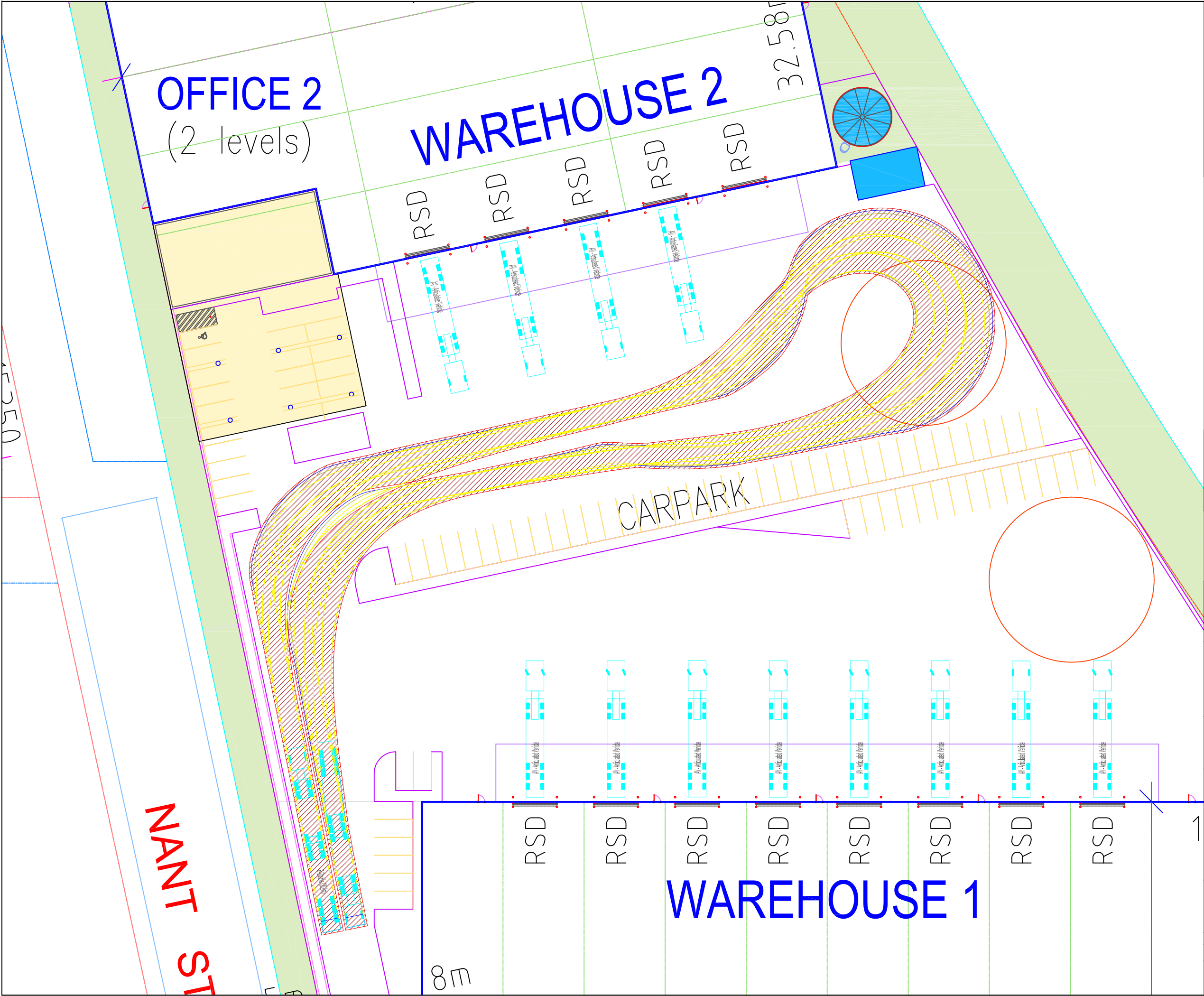
-

project no.

drawing phase.

drawing no.

rev



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no. revision note

by. date

Swept Path Legend:

Wheel Path

Vehicle Body Envelope

Clearance Envelope (300mm)

architect

Axis Architectural
4 / 112 Cronulla Street
CRONULLA NSW 2230

client

DBL Property
Level 6, 432 Kent Street
SYDNEY NSW 2000

scale

1:500 @ A3
0m 5 10 15 20

project

Orica Southlands
Lot 9 McPherson Street
BOTANY NSW 2019

drawing prepared by

TRAFFIX

traffic and transport planners

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f: +61 2 9380 4481

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traffix

traffic & transport planners

drawing title

Warehouse 2
26.0m B-Double Vehicle
Vehicle Circulation Movements

drawn: NC

checked: GH

date: 13-11-2018

12.060

-

TX.08

-

project no.

drawing phase.

drawing no.

rev

