Traffic Impact Assessment

Proposed Warehouse and Industrial Development
62 Ferndell Street, South Granville

Reference: 18.498r01v05
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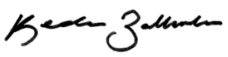
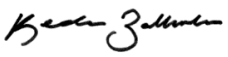
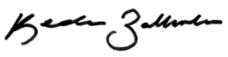
v03	11/12/2018	Jason Huang	Kedar Ballurkar	
v04	31/05/2019	Kedar Ballurkar	Kedar Ballurkar	
v05	04/06/2019	Kedar Ballurkar	Kedar Ballurkar	

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Contents

Appendices

1. Introduction

TRAFFIX has been commissioned by Dexus Wholesale Management Limited to undertake a Traffic Impact Assessment of a proposed warehouse and industrial development at 62 Ferndell Street in South Granville. Approval is sought to construct a four warehouse buildings split into multiple industrial/warehousing tenancies that also accommodate ancillary office space and a café.

The development site is situated within the Cumberland Council local government area, however prior to a merger in May 2016, was included within the City of Parramatta local government area. As of May 2019, Cumberland Council has not released a comprehensive development control plan that is applicable to the site, and accordingly, the proposed development has been assessed under the *Parramatta Development Control Plan 2011*.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects prepared separately. The proposed development is of a scale that will require referral of the development application to the Roads and Maritime Services under the provisions of *State Environmental Planning Policy (Infrastructure) 2007*.

The report is structured as follows:

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

2. Location and Site

The site is located at 62 Ferndell Street in South Granville, on the western side of the road, approximately 1.7 kilometres north of Chester Hill Station. It is legally described as Lot 50 in DP816718.

The site has a rectangular shaped configuration with a site area of 100,301m^2, inclusive of a biodiversity area to the south-east comprising 6,783m^2. It has a single frontage to Ferndell Street to the east, which measures approximately 297 metres in length. The remainder of the site is bounded by industrial developments to the north for 344 metres, the Campbell Hill Pioneer Reserve to the west for 288 metres and industrial developments to the south for 339 metres.

The site presently accommodates two vacant industrial buildings, with other structures having been progressively demolished since 2017. The previous development on-site consisted of a single tenancy with approximately 27,000m^2 gross floor area of factory space and approximately 8,650m^2 gross floor area of office space.

Prior to demolition and excavation, the site was estimated to contain approximately 480 car parking spaces. It is served by two (2) vehicular crossings from Ferndell Street:

- A primary access situated opposite Everley Road, with entry and exit lanes separated by an internal median island; and
- A secondary access, adjacent to the southern site boundary, facilitating combined entry-exit movements.

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

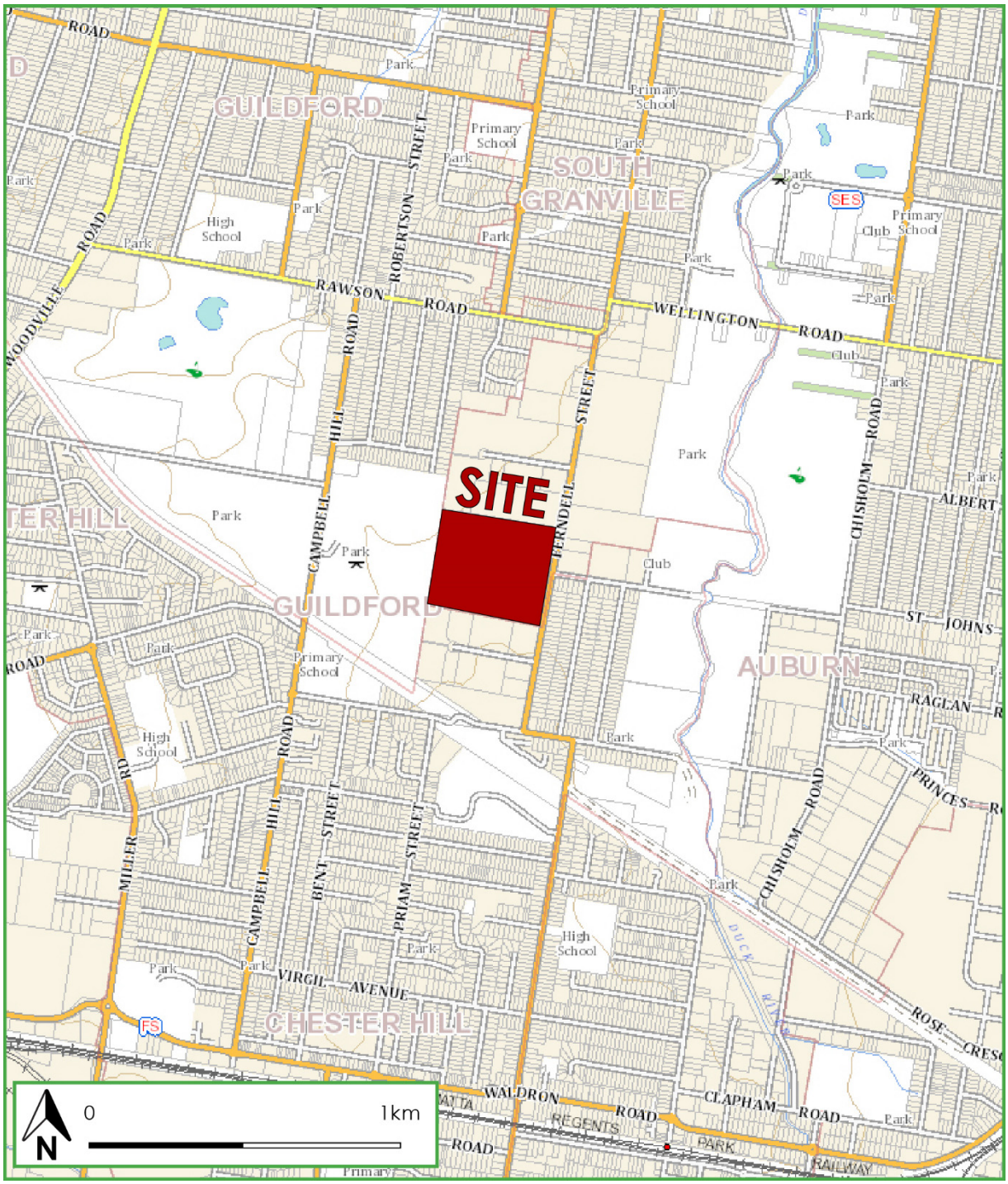


Figure 1: Location Plan

Figure 2: Site Plan

3. Existing Traffic Conditions

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 and described briefly:

- Rawson Road: a classified Secondary Road (SR2096) that runs in an east-west direction between Clyde Street in the east and Woodville Road to the west. In the vicinity of the site it accommodates two lanes of traffic in each direction within a line marked carriageway. Rawson Road has a posted speed limit of 60 km/h, with kerbside parking generally prohibited during peak periods. It is an approved B-Double route under the RMS *Restricted Access Vehicle Map*.

- Clyde Street: an unclassified Regional Road (RR7707) that runs in a north-south direction between William Street in the north and Rawson Road to the south. It generally accommodates one lane of traffic in each direction, with auxiliary turn lanes provided on approach key intersections. Clyde Street has a posted speed limit of 60 km/h with kerbside parking generally permitted. It is an approved B-Double route under the RMS *Restricted Access Vehicle Map*.

- Ferndell Street: an unclassified regional road (RR7701) that runs in a north-south direction between Rawson Road in the north and Boundary Road to the south. It accommodates one lane of traffic in each direction separated by a dashed centreline. Ferndell Street has a posted speed limit of 60 km/h and whilst kerbside parking is generally permitted, the site frontage has been signposted as No Stopping, with the exception of two Bus Zones. It is an approved B-Double route under the RMS *Restricted Access Vehicle Map*.

- Boundary Road: a local road (regional status between Ferndell Street and Hector Street) that runs in an east-west direction, extending between Priam Street to the west and terminating past Merle Street to the east. In the vicinity of the site, it accommodates one lane of traffic in each direction within a line marked carriageway. Between Ferndell Street and Hector Street, Boundary Road has a posted speed limit of 60 km/h with kerbside parking generally permitted. It is an approved B-Double route under the RMS *Restricted Access Vehicle Map*.

It is evident that the site directly accesses the regional road network with key routes to the north and south.

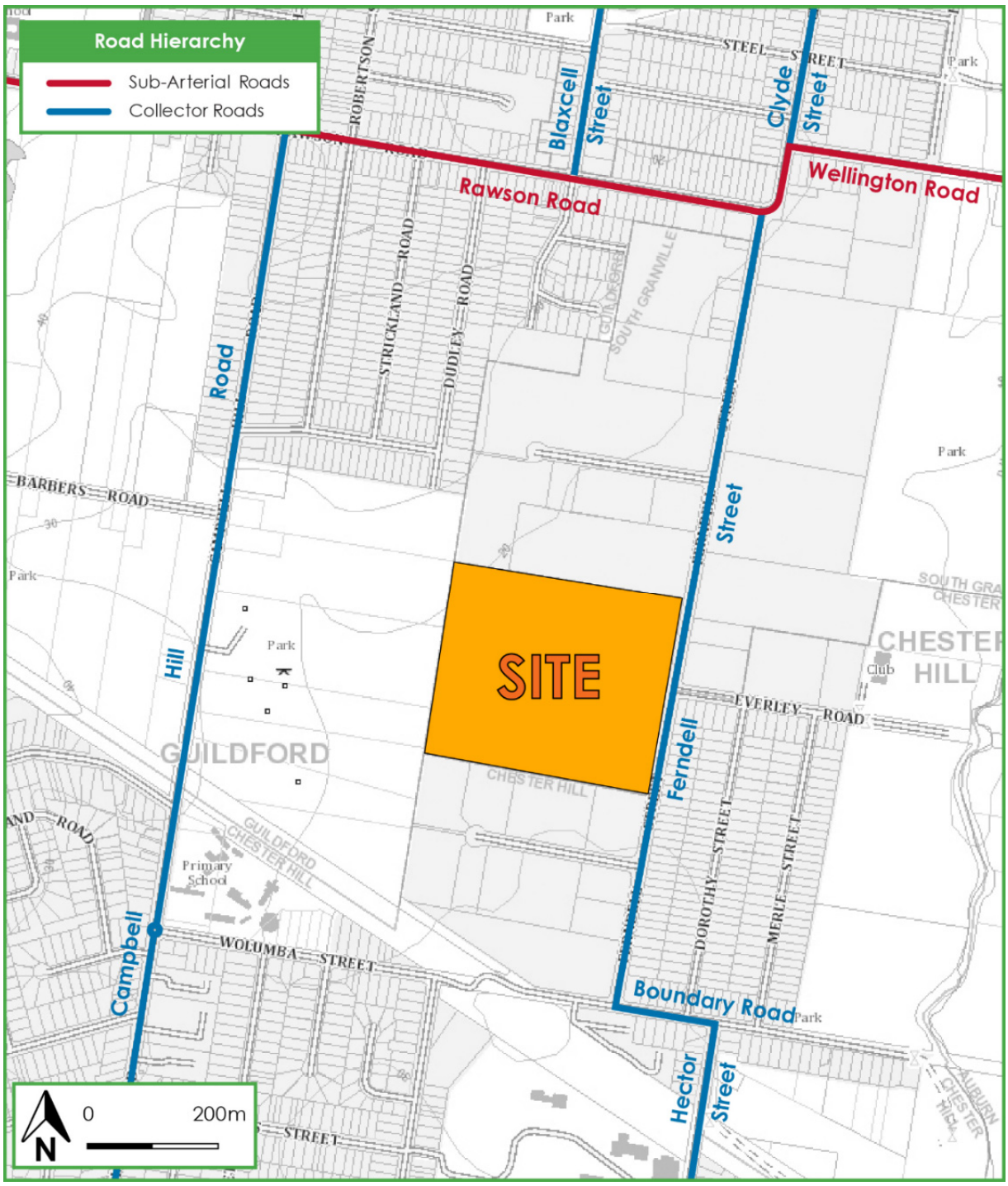


Figure 3: Road Hierarchy

3.2 Key Intersections

Two (2) key intersections have been identified in the vicinity of the site. These intersections are located at each end of Ferndell Street, which is the frontage road of the site; and will be the critical intersections that will be impacted by the proposed development.

3.2.1 Rawson Road, Clyde Road and Ferndell Street

Figure 4: Intersection of Rawson Road, Clyde Street and Ferndell Street

It can be seen from **Figure 4** that the intersection of Rawson Road, Clyde Street and Ferndell Street forms a three-legged signalised intersection. The main attributes of each leg are outlined below:

- Rawson Road (west leg):
  - Two approach lanes are provided, with one lane proceeding straight onto Clyde Street and the other forming a right turn lane into Ferndell Street.
  - Two exit lanes are provided.
  - A signalised pedestrian crossing is provided.
- Clyde Street (east leg):
  - Two approach lanes are provided, which both permit through movements onto Rawson Road. The kerbside lane will permit a left turn onto Ferndell Street.
  - A single exit lane is provided.
- Ferndell Street (south leg)
  - Two approach lanes are provided, with one lane for left turns onto Rawson Road and the other used for right turns onto Clyde Street.
  - Two exit lanes are provided.
  - A signalised pedestrian crossing is provided.

3.2.2 Boundary Road and Ferndell Street

Figure 5: Intersection of Boundary Road and Ferndell Street

It can be seen from **Figure 5** that the intersection of Boundary Road and Ferndell forms a three-legged priority controlled intersection, with the priority movement being along Ferndell Street and the eastern leg of Boundary Road. The main attributes of each approach are outlined below:

- Boundary Road (east leg):
  - Single approach lane provided.
  - Single exit lane provided.
- Boundary Road (west leg):
  - Single approach lane provided.
  - Single exit lane provided.

- Ferndell Street (north leg):
  - Single approach lane provided.
  - Single exit lane provided.
  - An unsignalised pedestrian crossing is provided.

3.3 Public Transport

The public transport network operating in the locality is shown in **Figure 6**. It is evident that bus stops are provided directly along the site frontage, which are serviced by the routes shown in **Table 1**. These services provide direct connections to nearby railway stations at Chester Hill and other regional destinations.

Table 1: Bus Routes

Bus Number	Route Description
911	Bankstown to Auburn
M91	Hurstville to Parramatta
S2	Sefton to Parramatta

These routes are available for use by both staff and visitors to the proposed development and it may be assumed that Council's DCP parking controls reflect this level of public transport accessibility.

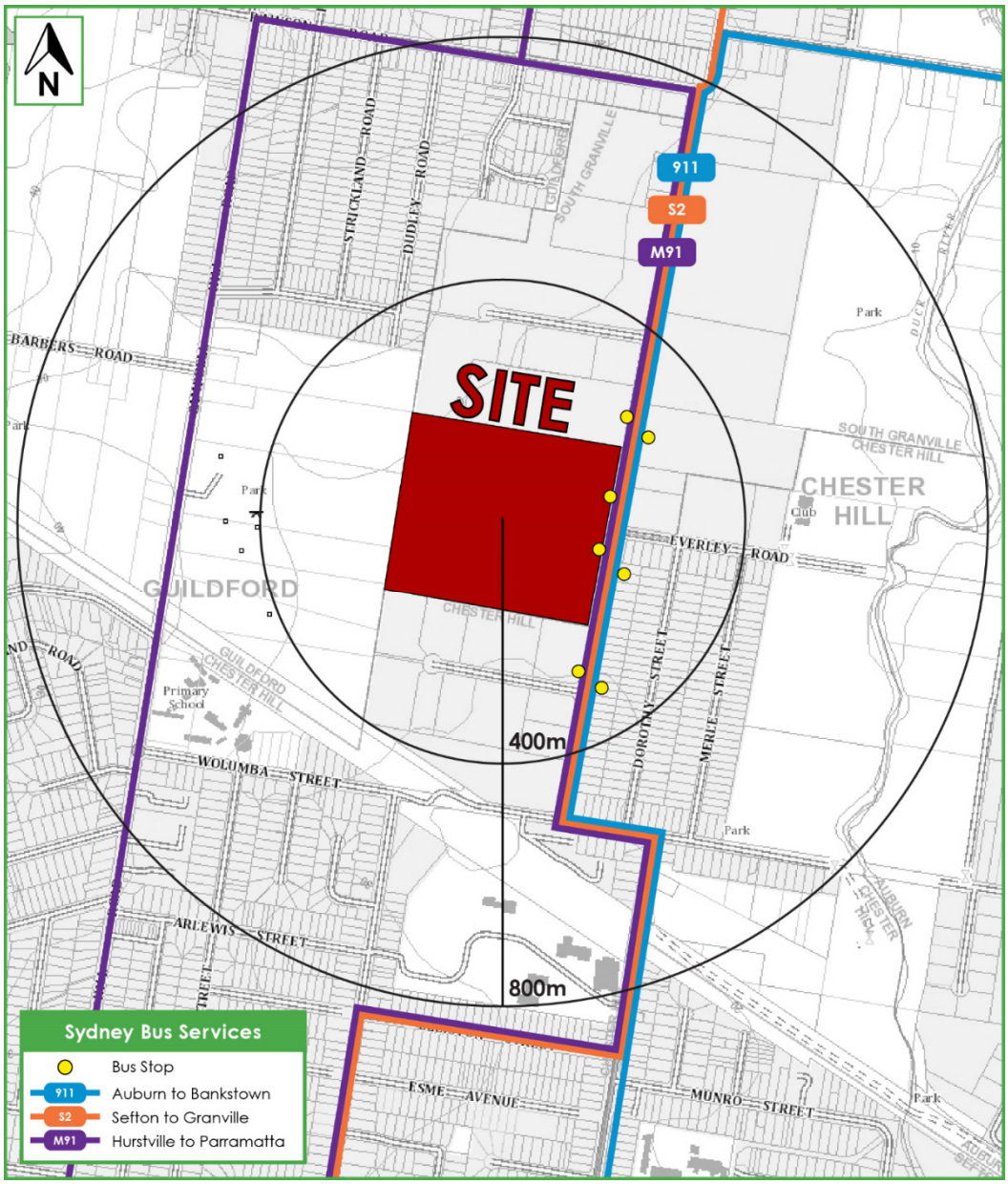


Figure 4: Public Transport

3.4 Existing Intersection Performance

Traffic surveys were undertaken of the abovementioned intersections described in Section 3.2, which are considered to be most critical in relation to the site. These counts were undertaken on 16th October 2018 during the network peak periods, being between 7:00am and 9:00am (AM Peak Period) and 4:00pm and 6:00pm (PM Peak Period).

The traffic volumes in these surveys formed the base case volumes for software modelling undertaken to assess intersection performance characteristics under existing traffic conditions. A summary of the results using SIDRA Intersection 8 software under existing conditions is provided in **Table 2** below. Reference should also be made to the detailed outputs included in **Appendix B**.

Table 2 – Existing Intersection Performance

Intersection	Scenario	Control Type	Period	Degree of Saturation (DoS)	Intersection Delay	Level of Service
Rawson Road, Clyde Street and Ferndell Street	Existing	Signalised	AM	0.643	30.6	C
			PM	0.753	33.4	C
Boundary Road and Ferndell Street	Existing	Priority[1]	AM	0.309	15.3	C
			PM	0.259	19.6	C

[1] Movement with the worst-case delay adopted in accordance the RMS *Guide To Traffic Generating Developments* for a priority controlled intersection.

It can be seen that both the intersection of Rawson Road, Clyde Street and Ferndell Street and Boundary Road and Ferndell Street presently operate with a Level of Service of C during AM and PM peak periods. Under RMS guidelines this indicates satisfactory performance, however as the site is vacant, these results do not account for traffic that could be generated by a permissible development under current consents/controls.

3.5 Site Traffic Generation

The previous development on-site comprised of a factory development with an estimated gross floor area of 35,650m^2, including approximately 8,650m^2 of ancillary office space. Under the RMS *Guide to Traffic Generating Developments*, this land use attracts a peak trip generation rate of 1 vehicle trip per 100m^2 gross floor area per hour.

Notwithstanding, for the purposes of assessing a worst case scenario, it is assumed due to the size of the existing facility that warehousing would have been accommodated in addition to manufacturing. On this basis, the RMS guide recommends a reduced peak trip generation rate of 0.5 vehicle trips per 100m^2. When also conservatively adopting the same trip rate for ancillary office use (a trip rate of 2 vehicle trips per 100m^2 per hour is published), the site is estimated to have previously generated the following traffic:

- 178 vehicle trips per hour during the AM peak period (142 in and 36 out); and
- 178 vehicle trips per hour during the PM peak period. (36 in and 142 out).

As the site is presently vacant, these volumes were not accounted for in the traffic surveys undertaken for the Ferndell Street intersections. Nonetheless, they are useful in understanding the traffic generation of the proposed development relative with what has historically occurred. This is discussed further in **Section 6**.

4. Description of Proposed Development

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, approval is sought for the demolition of all structures on-site and for the construction of four (4) warehouse/industrial buildings split into 25 units (and a café). The proposed development will have the following combined areas and provisions:

- 18,615m^2 gross floor area of warehouse space;
- 20,675m^2 gross floor area of industrial space;
- 6,258m^2 gross floor area of ancillary office space; and
- a café containing 145m^2 gross floor area.
- the following parking provisions, accessed from Ferndell Street:
  - 657 car parking spaces; and
  - 66 loading spaces.

The parking requirements and traffic impacts arising from the proposed development are discussed in **Section 5** and **Section 6**, respectively.

The abovementioned gross floor areas have been established in accordance with the definitions under the *Parramatta Local Environment Plan 2011*, which exclude *"any space used for the loading or unloading of goods (including access to it)"*. In this respect, **Section 7** defines the spatial requirements for loading spaces based on the operational requirements for vehicle size and method of unloading.

Reference should be made to the architectural plans and documentation submitted separately to Council, including drawings of the Masterplan and undercroft parking levels which are particularly relevant to this assessment and are presented at reduced scale in **Appendix C**.

5. Parking Requirements

5.1 Car Parking

Part 3.6 of the *Parramatta Development Control Plan (DCP) 2011* requires parking for industrial developments to be provided in accordance with the rate shown listed in **Table 3**. This rate has also been adopted for units allocated for warehousing purposes.

Table 3: DCP Parking Rates and Provision

Type	GFA	Minimum Parking Rate	Spaces Required[1]	Spaces Provided
Industrial Development				657
Warehouse	18,615m^2	1 space per 70m^2 GFA	651	
Industrial	20,675m^2			
Ancillary Office	6,258m^2			
Retail Premises				
Café	145m^2	1 space per 30m^2 GFA	5	
		Total	**656**	**657**

[1] Parking spaces rounded up to the next whole number in accordance with DCP.

It can be seen that the proposed development is required to provide a minimum of 656 parking spaces. In response, provision for 657 parking spaces has been made, thereby complying with the DCP. This is considered an ideal outcome noting that it assumes all units will operate with an intensity associated with industrial uses, which typically have a higher employee density than warehousing uses. This will allow flexibility for units to be leased in the future for any purpose, without reliance on on-street parking demands.

It is noted that 12 parking spaces for units at Warehouse 1 and Warehouse 2 are provided adjacent to a total four (4) roller doors. This is considered to remain a practicable arrangement noting that vehicles can be immediately returned after a truck has entered the loading area within the structure. Notwithstanding, it is emphasised that these loading spaces are supplementary (units are provided with two loading spaces) as there is an overall surplus of loading spaces over the minimum DCP requirement as discussed in Section 5.4 below.

5.2 Accessible Parking

The DCP requires accessible parking to be provided in accordance with Table D3.5 of the Building Code of Australia (BCA). Accordingly, the following requirements are stipulated under this code:

- Class 5 (Office): 1 space for every 100 car parking spaces or part thereof.
- Class 7b (Warehouse): 1 space for every 100 car parking spaces or part thereof.
- Class 6 (Retail): 1 space for every 50 car parking spaces or part thereof.

Based on the respective parking requirements for each component, the proposed development is required to provide five (5) accessible parking spaces. In response, provision for seven (7) accessible parking spaces has been made within undercroft parking areas, thus satisfying the requirements of the BCA and PDCP.

5.3 Bicycle Facilities

For industrial, office and retail uses, the DCP requires bicycle parking to be provided at a rate of 1 bicycle space per 200m^2 or floor space. This equates to a nominal requirement for 228 bicycle parking spaces in the case of the proposed development. This is considered to be excessive, again noting that the majority of space will be used for industrial and warehousing purposes, both having lower employee densities than retail and commercial uses. Hence, provision of 58 bicycle parking spaces (rails) has made within the undercroft parking areas. Importantly, this is based on the bicycle parking rate of 1 space per 1,000m^2 gross floor area stipulated under Austroads *Guide to Traffic Management Part 11 – Parking*. There is however an opportunity to provide additional bicycle parking spaces on-site, which could be conditioned if necessary.

5.4 Service Vehicles

For industrial uses, the DCP requires one loading bay to be provided per 800m^2 gross floor area. When applying this rate to the combined 45,548m^2 gross floor area, this equates to a requirement for 57 loading bays (the café will not warrant a loading bay base on the applicable rate of 1 loading space per 800m^2 gross floor area for retail developments).

In response, the proposed development accommodates a total of 66 loading bays on-site, where each warehouse tenancy has been afforded a minimum of one bay. 64 loading spaces can accommodate

19.0m Articulated Vehicle, with two (2) supplementary bays for Unit 4A and Unit 3F capable of accommodating a 12.5m Heavy Rigid Vehicle. These provisions are considered ample and flexible to cater for the various operational demands of tenants.

6. Traffic Impacts

6.1 Trip Generation

The proposed development comprises a total of 45,693m^2 gross floor area and noting the multiple tenancies on-site, would be best described as an industrial estate for the purposes of estimating traffic generation. The RMS *Technical Direction TDT 2013/04a* provides trip generation rates for industrial estates based on surveys conducted in 2012 which are also applicable for business parks and would thus also be considered suitable for estimating the traffic generation of the ancillary office space. It recommends an average Sydney based trip generation rate of 0.52 vehicle trips per 100m^2 gross floor area during the AM peak period and 0.56 vehicle trips per 100m^2 gross floor area during the PM peak period. When applying this rate to the total gross floor area (including the café which has an insignificant area), the proposed development is estimated to generate the following traffic:

- 238 vehicle trips per hour during the AM peak period (190 in and 48 out); and
- 256 vehicle trips per hour during the PM peak period. (51 in and 205 out).

Compared with the previous use on the site as assessed in Section 3.4, this represents net volume increases as follows:

- 60 vehicle trips per hour during the AM peak period (48 in and 12 out); and
- 78 vehicle trips per hour during the PM peak period. (15 in and 63 out).

These are considered moderate increases overall, having regard for the size of the site. However, as the site was vacant at the time of the traffic surveys, an assessment of intersection performance is included below.

6.2 Peak Period Intersection Performances

For the submitted Development Application, a scheme of 57,242m^2 gross floor area was assessed, which represents a 25% increase over the current scheme of 45,693m^2 gross floor area. The below analysis is thus considered to be highly conservative, based on the following net increase in traffic volumes associated with the earlier and larger scheme:

- 120 vehicle trips per hour during the AM peak period (96 in and 24 out); and
- 143 vehicle trips per hour during the PM peak period. (28 in and 115 out).

The performance of key signalised intersections in the vicinity of the site having regard for the additional volumes is summarised in **Table 4** below. After observing the turning movements of base case traffic volumes from the intersection surveys, the modelling incorporates the following distribution of development traffic:

- Intersection of Rawson Road, Clyde Street and Ferndell Street:
  - 25% of entering traffic to turn left from Clyde Street onto Ferndell Street;
  - 25% of entering traffic to turn right from Rawson Road onto Ferndell Street;
  - 25% of exiting traffic to turn left from Ferndell Street onto Rawson Street; and
  - 25% of exiting traffic to turn right from Ferndell Street onto Clyde Street.
- Intersection of Boundary Road and Ferndell Street:
  - 75% of entering traffic to turn right from Boundary Road onto Ferndell Street;
  - 25% of entering traffic to turn left from Boundary Road onto Ferndell Street;
  - 75% of exiting traffic to turn left from Ferndell Street onto Boundary Road; and
  - 25% of exiting traffic to turn right from Ferndell Street onto Boundary Road.

Reference should also be made to the detailed SIDRA outputs included in **Appendix B**.

Table 4 – Existing and Future Intersection Performance

Intersection	Scenario	Control Type	Period	Degree of Saturation (DoS)	Intersection Delay	Level of Service
Rawson Road, Clyde Street and Ferndell Street	Existing	Signalised	AM	0.643	30.6	C
			PM	0.753	33.4	C
	Future		AM	0.697	32.0	C
			PM	0.808	37.0	D
Boundary Road and Ferndell Street	Existing	Priority[1]	AM	0.309	15.3	C
			PM	0.259	19.6	C
	Future	Signalised	AM	0.309	15.4	C
			PM	0.259	19.7	C

[1] Movement with the worst-case delay adopted in accordance the RMS *Guide To Traffic Generating Developments* for a priority controlled intersection.

It can be seen that the intersection of Rawson Road, Clyde Street and Ferndell Street will continue to perform at a Level of Service of C during the AM peak period and will operate with a Level of Service of D during the PM peak period. Conversely, the intersection of Boundary Road and Ferndell Street will remain almost unaffected, continuing to perform at a Level of Service of C. Under RMS Guidelines, these intersections will thus perform within capacity and with no upgrades required, notwithstanding that a more conservative scheme has been tested to the proposed development (25% larger).

In fact, the maximum increase in average delay at any intersection is only 3.6 seconds when the development is superimposed onto the existing surveyed volumes with the site presently vacant. If the previous use of the site were to be considered, the increase would be even less.

In summary, the proposed development is expected to have minimal to negligible impacts on the surrounding road network, with key intersections continuing to perform within capacity.

7. Access & Internal Design Aspects

7.1 Access

The proposed development will accommodate 657 (Class 2) parking spaces with a total of four (4) accesses provided from Ferndell Street. Under AS2890.1 (2004), it nominally requires a Category 4 driveway, defined as having separate entry and exit accesses with a width between 6.0m to 8.0m. However, where a site has multiple access points, the standard permits each access to be designed for the number of parking spaces it effectively serves.

In response, the proposed development provides the following accesses from Ferndell Street:

- A 14.0m wide entry only access, adjacent to the southern site boundary, suitable for trucks and cars. This access connects to the general circulation road network, including car parking and loading areas.
- A 6.6m wide combined entry-exit access, adjacent to Warehouse Building 1, which serves an undercroft car park containing 101 (Class 2) parking spaces. This is consistent with a Category 2 driveway (the nominal threshold of 100 spaces by exceeded only a single space), defined as a combined entry-exit access width a width between 6.0m to 9.0m.
- A 15.9m combined-entry exit access, between Warehouse Building 1 and Warehouse Building 3, suitable for trucks and cars. This access connects to the general circulation road network, including car parking and loading areas.
- A 19.5m wide exit only access, adjacent to the northern site boundary, suitable for trucks and cars. This access connects to the general circulation road network, including car parking and loading areas.

The above accesses have been tested with a swept path analysis for the largest relevant design vehicle to access each site access. The results are presented in **Appendix D** and demonstrate satisfactory operation for all intended site movements in accordance with the provisions of AS2890.2 (2002), which allows for the design of accesses to be based on computer generated plots (Clause 3.4.3).

The proposed access arrangements will therefore considered to operate satisfactorily and will allow for the circulation of trucks to be rationalised on-site, which enhances safety and efficiency. It is also noted that the Ferndell Street frontage has been signposted as No Stopping (with the exception of Bus Zones) and thus no loss of on-street parking will arise from the introduction of these accesses.

7.2 Internal Design

All car parking and loading areas comply with the requirements of AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009) with the following considered noteworthy:

7.2.1 Parking Modules

- All 90° parking spaces have been designed in accordance with a Class 2 user and are provided with a minimum space length of 5.4m a minimum width of 2.5m and a minimum aisle width of 5.8m.
- All parallel parking spaces are provided with a minimum space length of 5.9m and an increased space length of 6.2 for obstructed end spaces.
- All accessible parking spaces have been designed in accordance with AS2890.6 (2009) and are provided with a minimum space width of 2.4m that is adjacent to a 2.4m wide shared area.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.

7.2.2 Gradients

- There is no reliance on ramps on-site, with parking either being at-grade or undercroft.
- The first 6.0m inside the property for all accesses is limited to a maximum gradient of 1:20 (5%).
- All car parking spaces are aisles are to be limited to a maximum gradient of 1:20 (5%).

7.2.3 Clear Head heights

- A minimum clear head height of 2.2m is to be provided for all car parking and circulation area as required by AS2890.1 (2004).
- A minimum clear head height of 2.5m is to be provided above all accessible spaces and shared areas as required by AS2890.6.

7.2.4 Circulation and Loading Areas

- All circulation roads have a minimum width of 3.5m for one-way flow and 6.5m for two-way flow, which satisfies the provisions of AS2890.2 for the largest design vehicle on-site, being a 19.0m Articulated Vehicle. These roads have been widened to accommodate turning movements and a swept path analysis has been undertaken to demonstrate satisfactory geometry, with the results presented in **Appendix D**.

- Loading bays within the proposed buildings have been configured to allow the unloading of 19.0m articulated vehicles and comprise the following components for on-grade spaces:
    - Allowance for an articulated vehicle 2.5m wide
    - 2 x forklift manoeuvring zones 3.5m wide
    - Total 9.5m wide
- The gradient for all loading docks (including recessed loading docks) shall be limited to a maximum gradient of 1:25 (4%).
- A minimum head height clearance of 4.5m is required for all circulation areas accessed by trucks, as well as loading bays.
- A swept path analysis has been undertaken to demonstrate that adequate apron widths have been provided for the loading docks. This is presented in **Appendix D** and includes all critical movements for each warehouse building.

In summary, the internal design of the proposed development complies with AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009). It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.

8. Conclusions

The following matters are noteworthy:

- The development application seeks approval for the construction of an industrial/warehousing development at 62 Ferndell Street, South Granville. Across four buildings, it comprises of 18,615m^2 gross floor area of warehouse space, 20,675m^2 gross floor area of industrial space, 6,258m^2 gross floor area of ancillary office space and a café containing 145m^2 gross floor area.

- The site is located in an area previously administered under the City of Parramatta local government area and has been assessed under the *Parramatta Development Control Plan 2011.* This policy requires a minimum of 656 parking spaces to be provided on-site, to which the proposal includes 657 parking spaces. The proposed development will thus contain all parking demands on-site, including for all various types of permissible industrial uses.

- The proposed development is predicted to generate 238 vehicle trips per hour during the AM peak period and 256 vehicle trips per hour during the PM peak period over and above surveyed (existing) volumes. This is however only moderately over volumes that occurred under the previous uses on the site. Even so, software modelling using SIDRA Intersection 8 for a larger (previous) scheme has demonstrated that intersections on Ferndell Street, including at Rawson Road/Clyde Street and at Boundary Road, will all continue to perform within capacity.

- The proposed development includes four (4) accesses on Ferndell Street which will optimise traffic distribution onto the external road network and also on-site circulation of trucks and cars. In addition, no loss of on-street parking will arise given the existing No Stopping restrictions which are signposted on the western kerbside.

- The design of all car parking, loading areas and circulation areas complies with AS2890.1 (2004), AS2890.2 (2002) and AS2890.6 (2009) as appropriate, with swept path analysis demonstrating satisfactory geometry for critical vehicular movements.

It is therefore concluded that the proposed development is supportable on transport planning grounds and will operate satisfactorily.

Appendix A

Photographic Record

View on Ferndell Street looking east at existing primary site access.

View on Ferndell Street looking east at secondary site access.

View on Ferndell Street looking south with subject site on right-hand side.

View on Ferndell Street looking north with subject site on left-hand side.

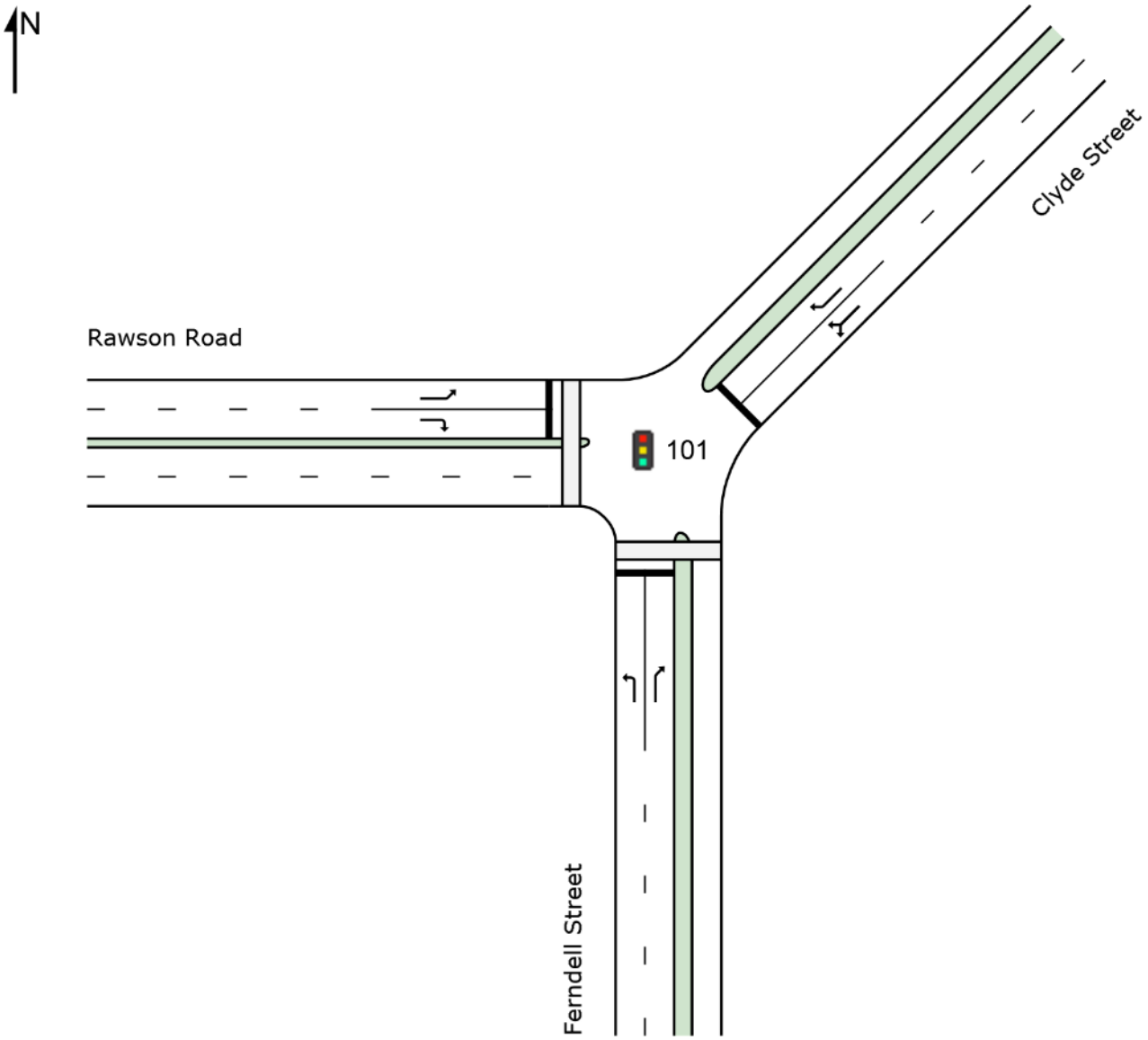
Appendix B

SIDRA Outputs

SITE LAYOUT

Site: 101 [Ferndell St x Rawson Rd x Clyde St EX AM]

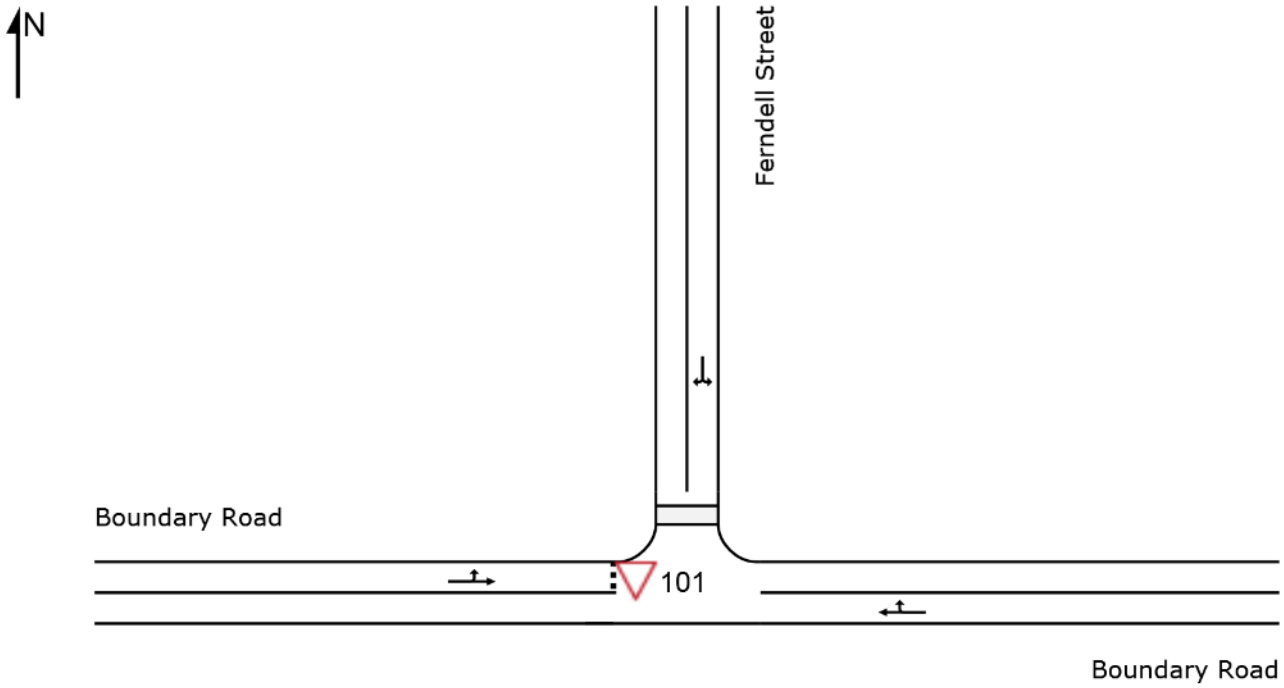
Site Category: (None)
Signals - Fixed Time Isolated



SITE LAYOUT

Site: 101 [Ferndell Street x Boundary Road EX AM]

Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [Ferndell St x Rawson Rd x Clyde St EX AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	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: Ferndell Street												
1	L2	312	8.4	0.350	24.4	LOS C	10.8	80.8	0.64	0.76	0.64	45.8
3a	R1	257	9.0	0.635	50.6	LOS D	13.8	103.8	0.96	0.83	0.96	35.5
Approach		568	8.7	0.635	36.2	LOS D	13.8	103.8	0.78	0.79	0.78	40.8
NorthEast: Clyde Street												
24a	L1	348	5.4	0.639	36.0	LOS D	21.3	156.3	0.85	0.84	0.85	40.1
26a	R1	571	6.1	0.639	36.1	LOS D	21.7	159.7	0.87	0.84	0.87	21.4
Approach		919	5.8	0.639	36.1	LOS D	21.7	159.7	0.86	0.84	0.86	31.5
West: Rawson Road												
10a	L1	804	4.5	0.643	16.9	LOS B	26.5	192.9	0.62	0.79	0.62	31.4
12	R2	334	9.5	0.598	38.8	LOS D	15.1	114.5	0.90	0.95	1.16	41.0
Approach		1138	5.9	0.643	23.3	LOS C	26.5	192.9	0.70	0.84	0.78	36.8
All Vehicles		2625	6.5	0.643	30.6	LOS C	26.5	192.9	0.78	0.83	0.81	36.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		105	54.3	LOS E			0.95	0.95

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 [Ferndell St x Rawson Rd x Clyde St EX PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	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: Ferndell Street												
1	L2	349	8.4	0.443	29.8	LOS C	13.9	104.6	0.74	0.79	0.74	43.7
3a	R1	327	4.5	0.731	51.3	LOS D	18.1	131.8	0.98	0.86	1.01	35.4
Approach		677	6.5	0.731	40.2	LOS D	18.1	131.8	0.85	0.83	0.87	39.5
NorthEast: Clyde Street												
24a	L1	388	6.2	0.753	33.4	LOS C	29.3	214.3	0.87	0.86	0.87	41.1
26a	R1	867	3.6	0.753	33.6	LOS C	30.5	220.2	0.89	0.86	0.89	22.5
Approach		1256	4.4	0.753	33.5	LOS C	30.5	220.2	0.88	0.86	0.88	31.2
West: Rawson Road												
10a	L1	592	4.4	0.485	15.9	LOS B	17.1	123.9	0.54	0.75	0.54	32.2
12	R2	287	8.4	0.732	52.6	LOS D	15.2	114.3	0.99	1.04	1.43	37.0
Approach		879	5.7	0.732	27.9	LOS C	17.1	123.9	0.69	0.85	0.83	35.2
All Vehicles		2812	5.4	0.753	33.4	LOS C	30.5	220.2	0.82	0.85	0.86	35.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		105	54.3	LOS E			0.95	0.95

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 [Ferndell St x Rawson Rd x Clyde St FU AM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	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: Ferndell Street												
1	L2	327	8.0	0.361	23.9	LOS C	11.2	84.0	0.64	0.76	0.64	46.0
3a	R1	273	8.5	0.697	52.7	LOS D	15.1	113.2	0.98	0.85	1.00	35.0
Approach		600	8.2	0.697	37.0	LOS D	15.1	113.2	0.79	0.80	0.80	40.6
NorthEast: Clyde Street												
24a	L1	412	4.6	0.696	37.6	LOS D	23.7	172.7	0.89	0.85	0.89	39.6
26a	R1	571	6.1	0.696	37.8	LOS D	24.0	176.7	0.90	0.85	0.90	20.9
Approach		982	5.5	0.696	37.7	LOS D	24.0	176.7	0.89	0.85	0.89	31.7
West: Rawson Road												
10a	L1	804	4.5	0.635	16.3	LOS B	25.9	187.9	0.61	0.78	0.61	31.9
12	R2	397	8.0	0.694	42.2	LOS D	17.8	133.1	0.93	1.00	1.30	39.9
Approach		1201	5.6	0.694	24.8	LOS C	25.9	187.9	0.71	0.86	0.84	36.8
All Vehicles		2783	6.1	0.697	32.0	LOS C	25.9	187.9	0.79	0.84	0.85	36.2

Site Level of Service (LOS) Method: Delay (SIDRA). 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
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		105	54.3	LOS E			0.95	0.95

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 [Ferndell St x Rawson Rd x Clyde St FU PM]

Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	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: Ferndell Street												
1	L2	417	7.1	0.496	28.7	LOS C	16.6	123.2	0.74	0.80	0.74	44.2
3a	R1	395	3.7	0.794	52.2	LOS D	22.7	164.1	0.99	0.90	1.07	35.1
Approach		812	5.4	0.794	40.1	LOS D	22.7	164.1	0.86	0.85	0.90	39.6
NorthEast: Clyde Street												
24a	L1	405	6.0	0.808	38.4	LOS D	32.5	237.2	0.92	0.89	0.95	39.3
26a	R1	867	3.6	0.808	38.6	LOS D	33.8	243.8	0.94	0.89	0.97	20.7
Approach		1273	4.4	0.808	38.5	LOS D	33.8	243.8	0.93	0.89	0.96	29.4
West: Rawson Road												
10a	L1	592	4.4	0.504	17.5	LOS B	18.3	133.1	0.58	0.77	0.58	30.9
12	R2	304	8.0	0.807	60.6	LOS E	17.1	128.2	1.00	1.09	1.61	35.0
Approach		896	5.6	0.807	32.2	LOS C	18.3	133.1	0.72	0.88	0.93	33.6
All Vehicles		2980	5.1	0.808	37.0	LOS D	33.8	243.8	0.85	0.88	0.94	34.3

Site Level of Service (LOS) Method: Delay (SIDRA). 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
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		105	54.3	LOS E			0.95	0.95

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 [Ferndell Street x Boundary Road EX AM]

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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: Boundary Road												
5	T1	66	1.6	0.393	0.8	LOS A	2.5	18.2	0.36	0.53	0.36	54.5
6	R2	541	5.8	0.393	6.3	LOS A	2.5	18.2	0.36	0.53	0.36	55.2
Approach		607	5.4	0.393	5.7	NA	2.5	18.2	0.36	0.53	0.36	55.1
North: Ferndell Street												
7	L2	367	8.3	0.298	5.8	LOS A	1.1	7.9	0.12	0.53	0.12	55.5
9	R2	152	2.8	0.298	5.8	LOS A	1.1	7.9	0.12	0.53	0.12	55.4
Approach		519	6.7	0.298	5.8	NA	1.1	7.9	0.12	0.53	0.12	55.5
West: Boundary Road												
10	L2	181	3.5	0.309	7.8	LOS A	1.4	9.8	0.61	0.84	0.71	51.4
11	T1	36	2.9	0.309	15.3	LOS C	1.4	9.8	0.61	0.84	0.71	47.0
Approach		217	3.4	0.309	9.1	LOS A	1.4	9.8	0.61	0.84	0.71	50.9
All Vehicles		1343	5.6	0.393	6.3	NA	2.5	18.2	0.31	0.58	0.32	54.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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 [Ferndell Street x Boundary Road EX PM]

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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: Boundary Road												
5	T1	63	1.7	0.367	1.2	LOS A	2.2	16.0	0.44	0.56	0.44	54.3
6	R2	460	6.6	0.367	6.7	LOS A	2.2	16.0	0.44	0.56	0.44	55.0
Approach		523	6.0	0.367	6.1	NA	2.2	16.0	0.44	0.56	0.44	55.0
North: Ferndell Street												
7	L2	523	5.0	0.431	5.7	LOS A	2.0	14.1	0.14	0.52	0.14	55.6
9	R2	241	0.4	0.431	5.8	LOS A	2.0	14.1	0.14	0.52	0.14	55.4
Approach		764	3.6	0.431	5.8	NA	2.0	14.1	0.14	0.52	0.14	55.5
West: Boundary Road												
10	L2	102	3.1	0.259	7.0	LOS A	1.0	7.0	0.61	0.79	0.66	50.8
11	T1	37	2.9	0.259	19.6	LOS C	1.0	7.0	0.61	0.79	0.66	46.2
Approach		139	3.0	0.259	10.3	LOS B	1.0	7.0	0.61	0.79	0.66	50.0
All Vehicles		1426	4.4	0.431	6.3	NA	2.2	16.0	0.30	0.56	0.31	54.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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 [Ferndell Street x Boundary Road FU AM]

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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: Boundary Road												
5	T1	66	1.6	0.393	0.8	LOS A	2.5	18.2	0.36	0.53	0.36	54.5
6	R2	541	5.8	0.393	6.3	LOS A	2.5	18.2	0.36	0.53	0.36	55.2
Approach		607	5.4	0.393	5.7	NA	2.5	18.2	0.36	0.53	0.36	55.1
North: Ferndell Street												
7	L2	367	8.3	0.298	5.8	LOS A	1.1	7.9	0.12	0.53	0.12	55.5
9	R2	152	2.8	0.298	5.8	LOS A	1.1	7.9	0.12	0.53	0.12	55.4
Approach		519	6.7	0.298	5.8	NA	1.1	7.9	0.12	0.53	0.12	55.5
West: Boundary Road												
10	L2	181	3.5	0.309	8.0	LOS A	1.4	9.8	0.61	0.85	0.71	51.8
11	T1	36	2.9	0.309	15.4	LOS C	1.4	9.8	0.61	0.85	0.71	47.6
Approach		217	3.4	0.309	9.2	LOS A	1.4	9.8	0.61	0.85	0.71	51.3
All Vehicles		1343	5.6	0.393	6.3	NA	2.5	18.2	0.31	0.58	0.32	54.6

Site Level of Service (LOS) Method: Delay (SIDRA). 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 [Ferndell Street x Boundary Road FU PM]

Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	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: Boundary Road												
5	T1	63	1.7	0.367	1.2	LOS A	2.2	16.0	0.44	0.56	0.44	54.3
6	R2	460	6.6	0.367	6.7	LOS A	2.2	16.0	0.44	0.56	0.44	55.0
Approach		523	6.0	0.367	6.1	NA	2.2	16.0	0.44	0.56	0.44	55.0
North: Ferndell Street												
7	L2	523	5.0	0.431	5.7	LOS A	2.0	14.1	0.14	0.52	0.14	55.6
9	R2	241	0.4	0.431	5.8	LOS A	2.0	14.1	0.14	0.52	0.14	55.4
Approach		764	3.6	0.431	5.8	NA	2.0	14.1	0.14	0.52	0.14	55.5
West: Boundary Road												
10	L2	102	3.1	0.259	7.0	LOS A	1.0	7.0	0.61	0.79	0.66	51.0
11	T1	37	2.9	0.259	19.7	LOS C	1.0	7.0	0.61	0.79	0.66	46.5
Approach		139	3.0	0.259	10.4	LOS B	1.0	7.0	0.61	0.79	0.66	50.1
All Vehicles		1426	4.4	0.431	6.3	NA	2.2	16.0	0.30	0.56	0.31	54.8

Site Level of Service (LOS) Method: Delay (SIDRA). 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.

Appendix C

Architectural Plans (Reduced Scale)

Area Schedule

Gross Site Area	100,301 m2

Building 1

Light Industrial	5,410 m2
Office	1,522 m2
Cafeteria	145 m2
Common lobby	27 m2
Loading Area	1,804 m2
Total GFA (Exc.Loading Area)	7,104 m2

Building 2

Warehouse	8,848 m2
Light Industrial	5,682 m2
Office	2,205 m2
Loading Area	3,968 m2
Total GFA (Exc.Loading Area)	16,735 m2

Building 3

Light Industrial	9,583 m2
Office	1,482 m2
Loading Area	2,526 m2
Total GFA (Exc.Loading Area)	11,065 m2

Building 4

Warehouse	9,767 m2
Office	1,049 m2
Loading Area	2,400 m2
Total GFA (Exc.Loading Area)	10,816 m2

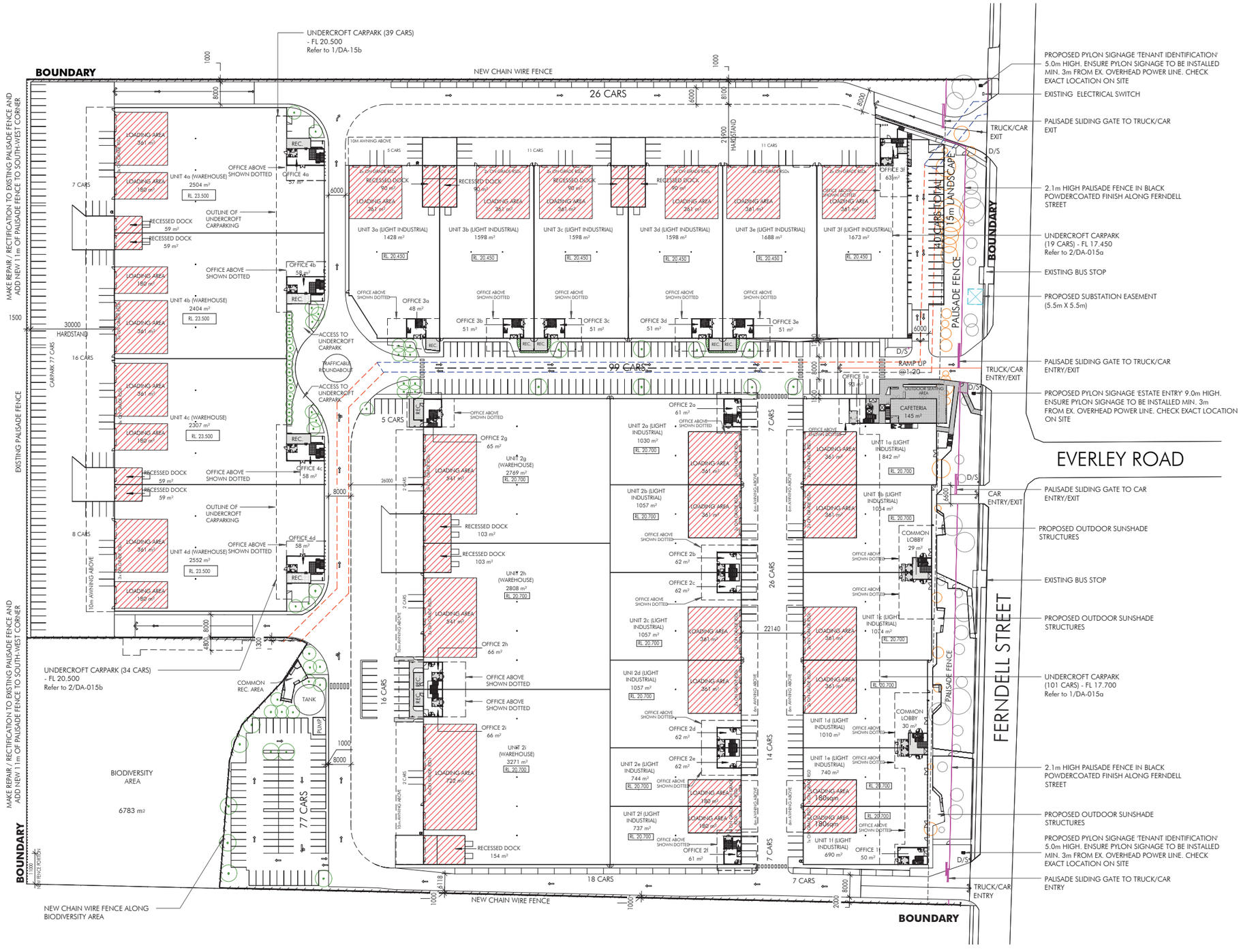
Total Warehouse	18,615m2
Total Light Industrial	20,675m2
Total Office	6,258 m2
Cafeteria	145 m2
Common Lobby	27 m2
Total Loading Area	10,698 m2
Total GFA (Exc.Loading Area)	45,720 m2

Carpark Provided

Undercroft Carpark Provided	193
On-ground Carpark Provided	464
Total Carpark Provided	657

LEGEND

- EXISTING STORMWATER
- PROPOSED STORMWATER
- EXISTING TREE TO BE RETAINED WITHIN 15m LANDSCAPE ZONE
- EXISTING TREE TO BE REMOVED WITHIN 15m LANDSCAPE ZONE
- PROPOSED NEW TREE
- NEW 1.8m HIGH BLACK VINYL COATED CHAIN WIRE MESH FENCE 3 ROWS OF BARBED WIRE OF BARBED WIRE ON TOP (2.1m TOTAL HEIGHT)
- D/S TENANT DIRECTIONAL SIGNAGE (CARPARK/HARDSTAND)



1 Masterplan
1 : 750

FOR REVIEW & COORDINATION

Client: dexus

Issue	Description	Date
P1	ISSUED FOR REVIEW	29.05.19

FOR REVIEW & COORDINATION

Builder

Project Name
Dexus Granville

Project Address
54-70 Ferndell Street, South Granville, NSW

Key Plan
0 15000 37500

Drawing Title: Masterplan

Author:	Checker:	Sheet Size:	Scale:
HS	MC	A1	1:750

Drawing Number: **10876_SK055**

Issue: **P1**

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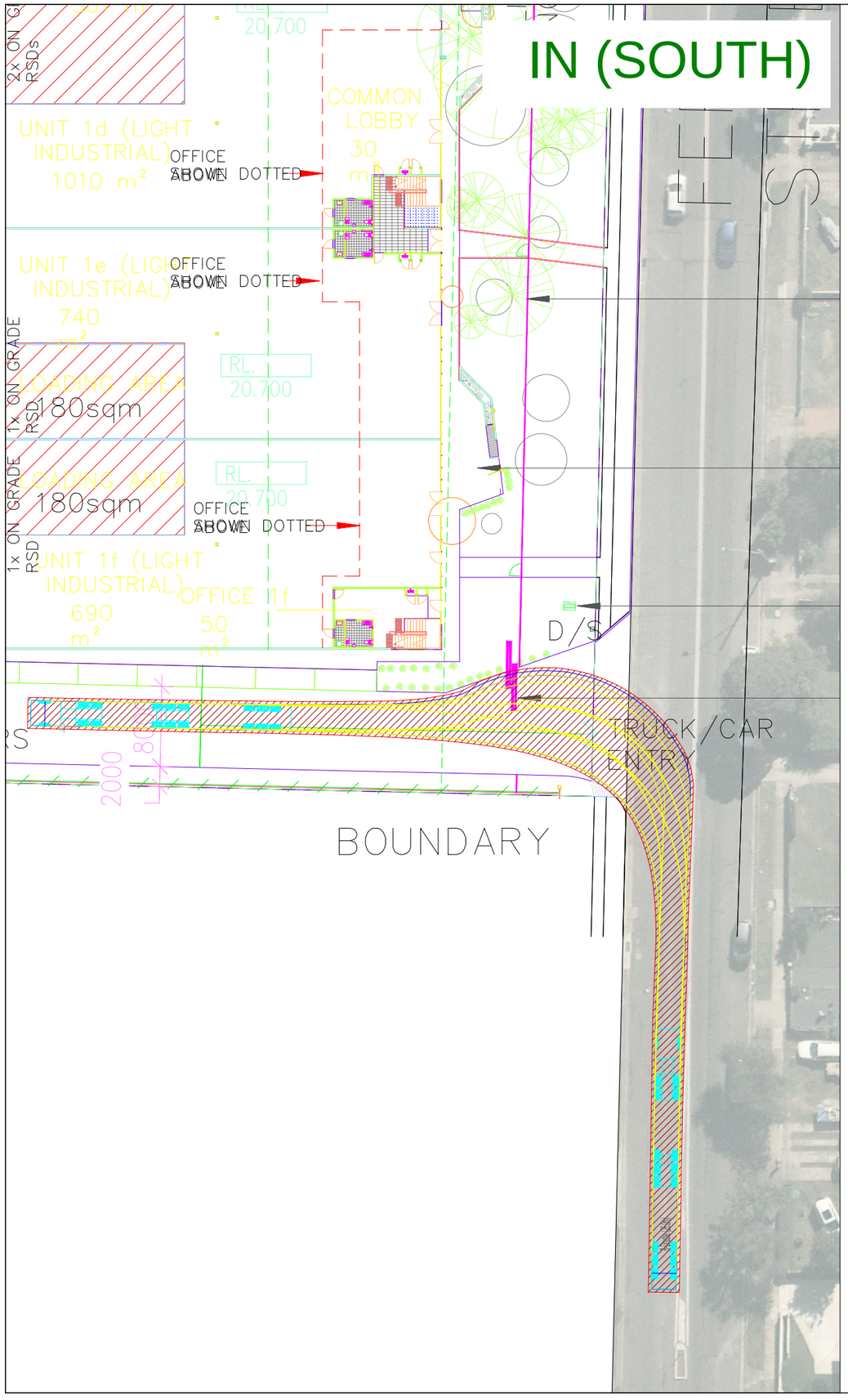
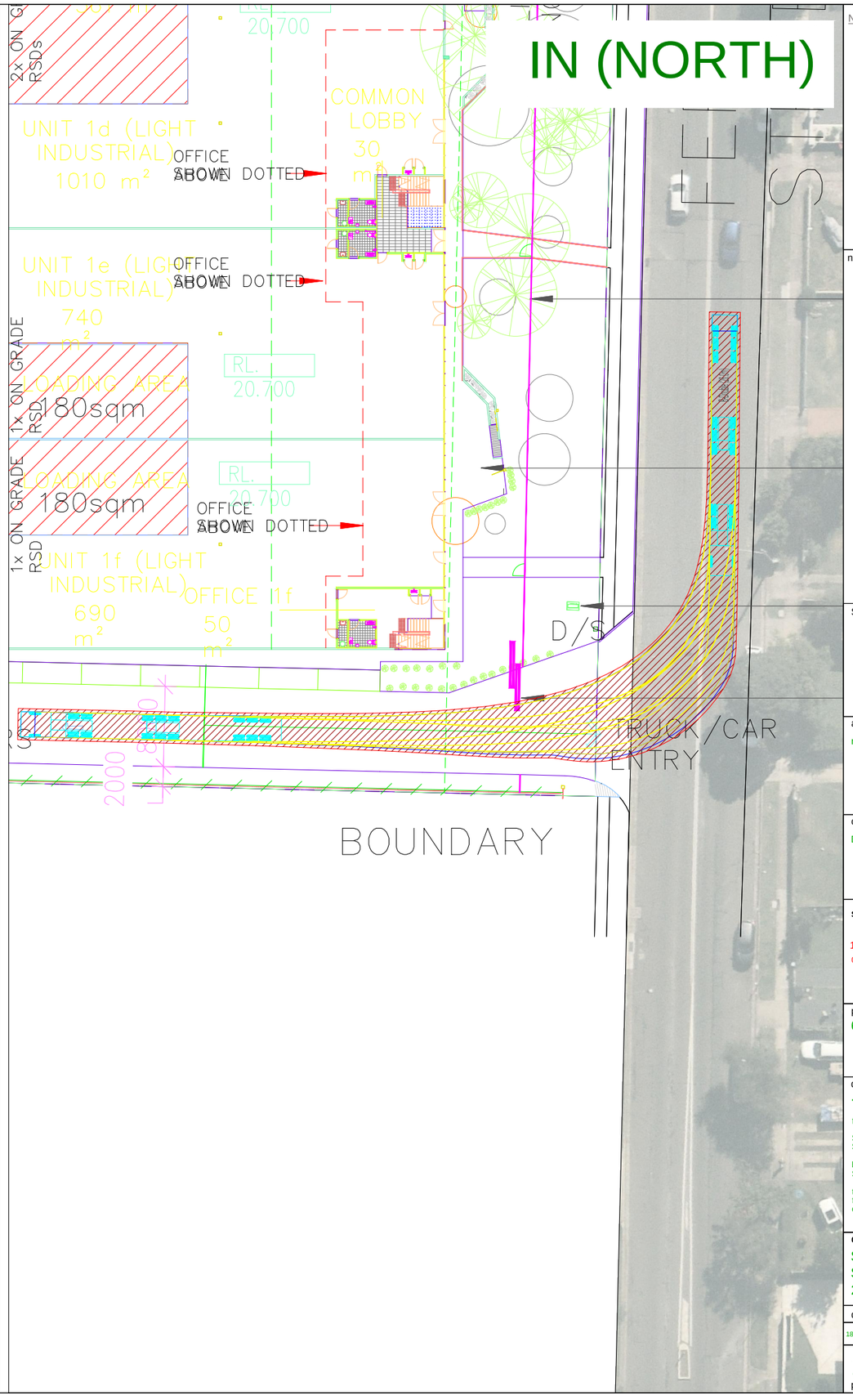
nettleton tribe partnership pty ltd ABN 58 161 683 122
117 Willoughby Road, Crows Nest, NSW 2065
t +61 2 9431 6431
e: sydney@nettletontribe.com.au w: nettletontribe.com.au

Appendix D

Swept Path Analysis





Notes

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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:500 @ A3
0m 5 10 15 20

project
62 Ferndell Street, South Granville

drawing prepared by
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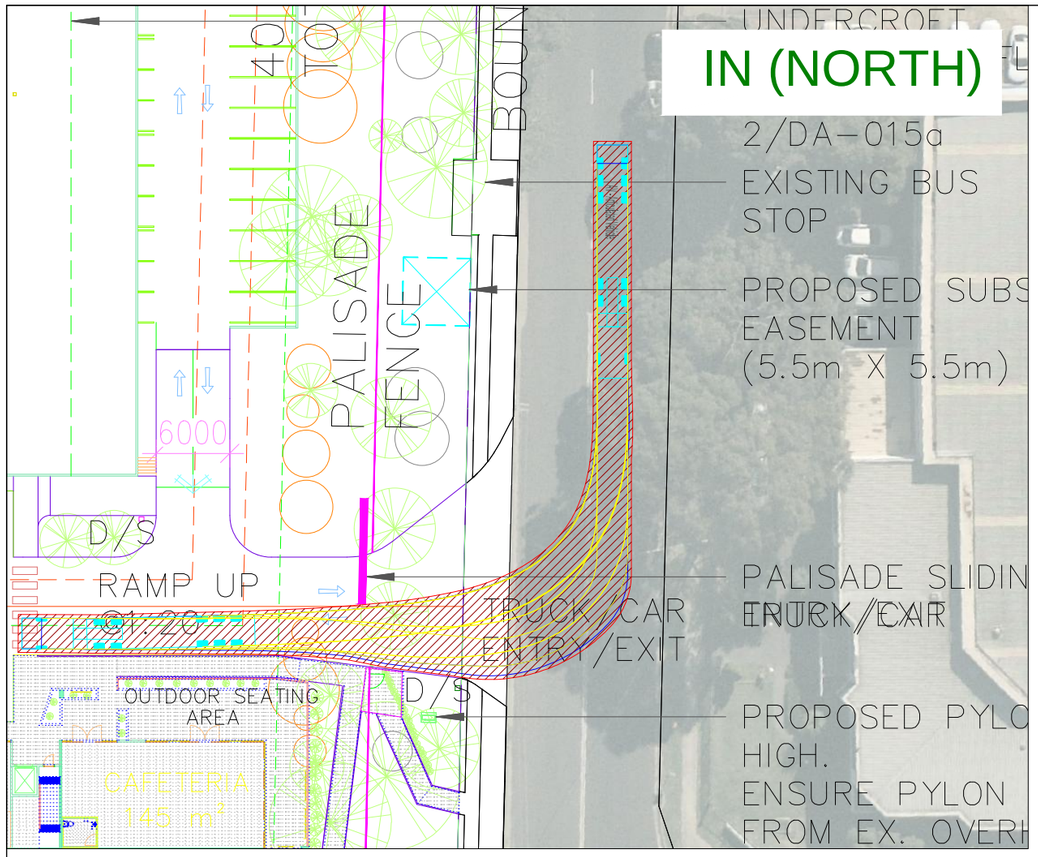
traffic & transport planners

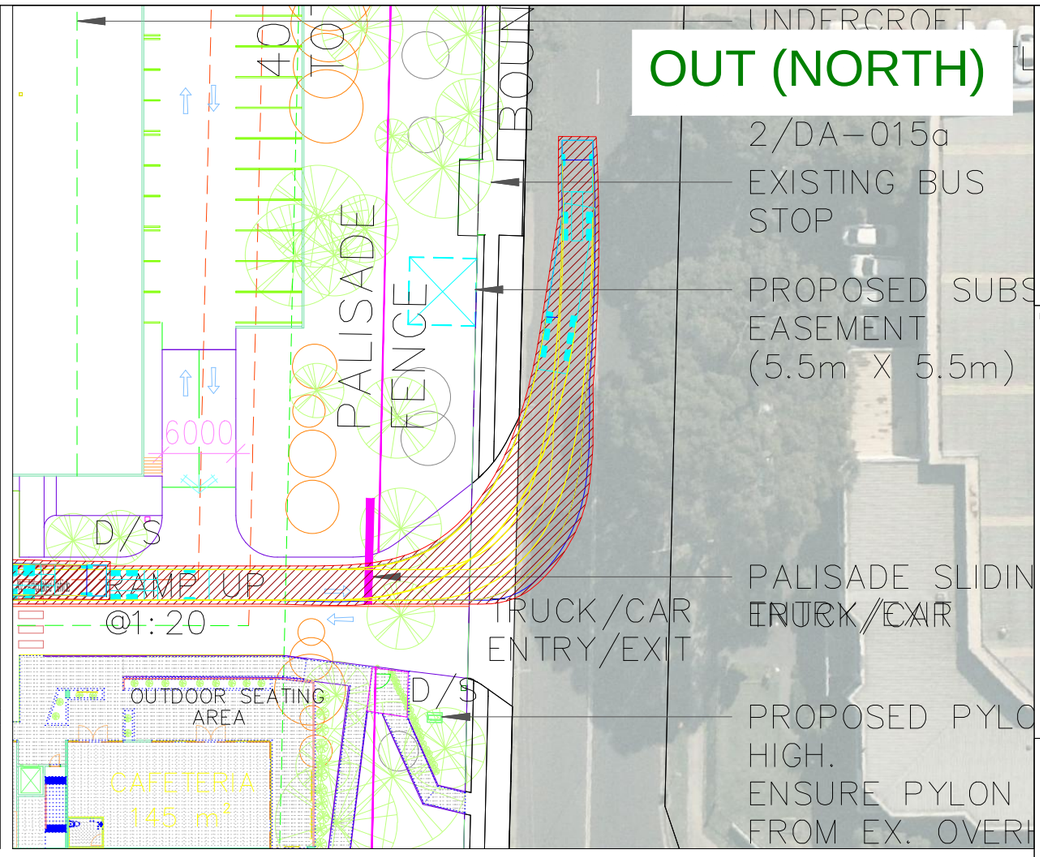
drawing title
Swept Path Analysis
Southern Site Access
26.0m B-Double Access

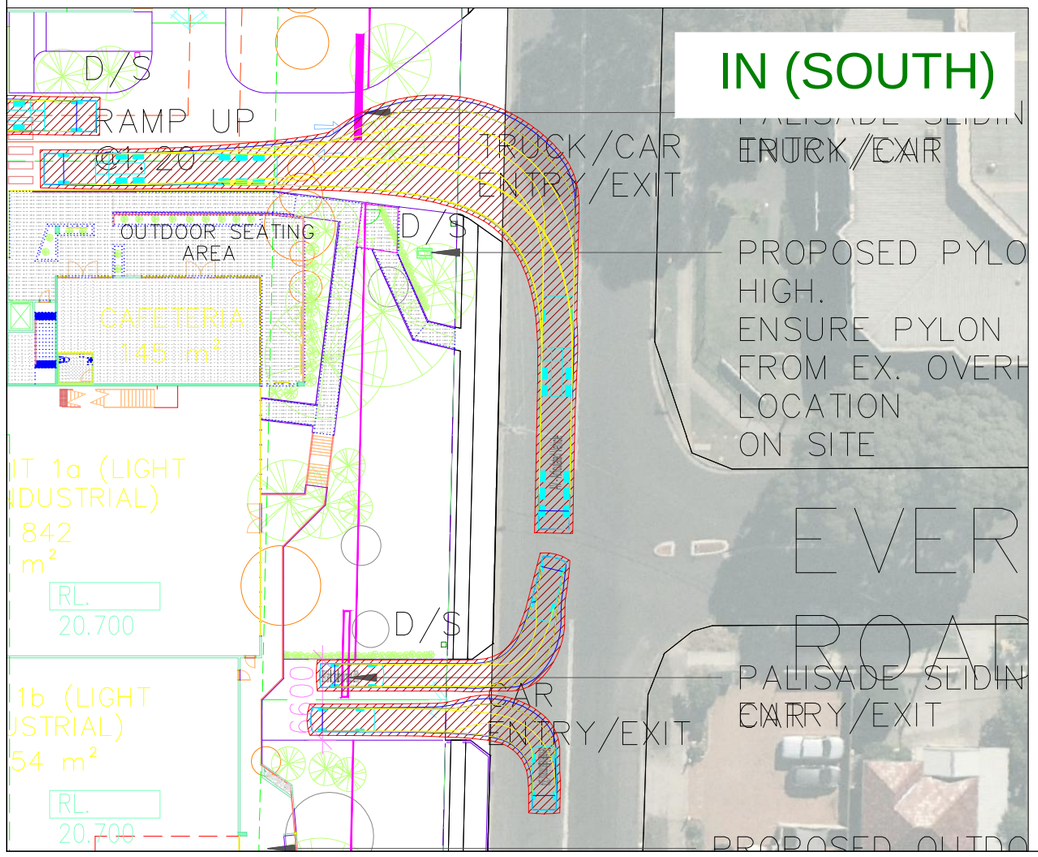
drawn:	checked:	date:
KB	KB	30 May 19

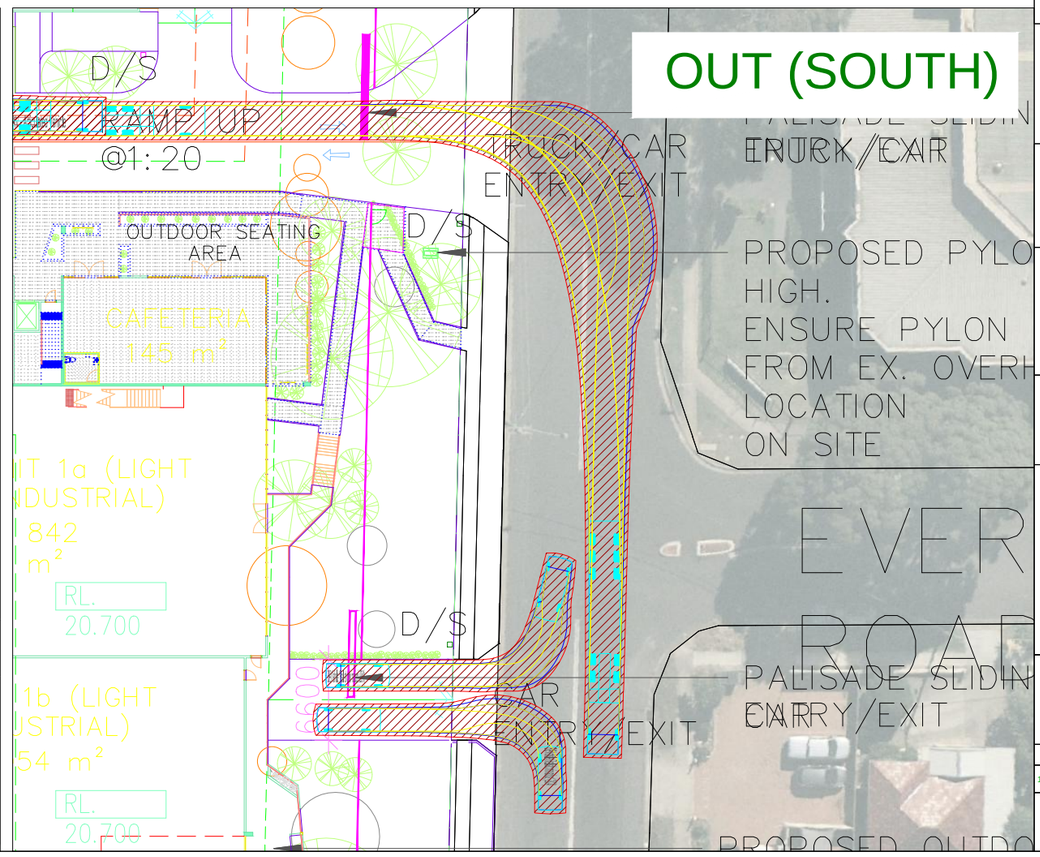
18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.01	-









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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:500 @ A3
0m 5 10 15 20

project
62 Ferndell Street, South Granville

drawing prepared by

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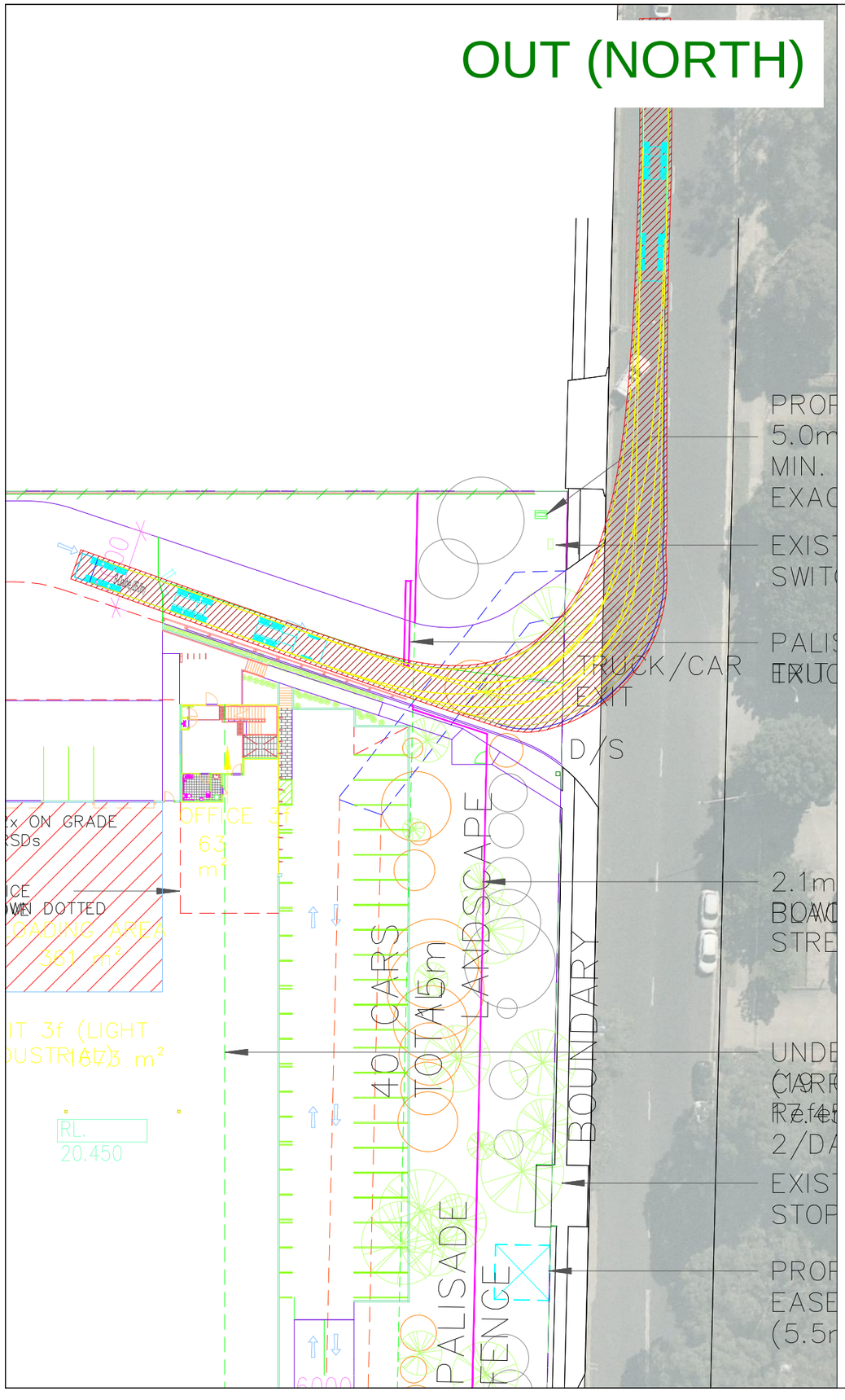
drawing title
Swept Path Analysis
Central Site Accesses
19.0m Articulated Vehicle & B99 Vehicle

drawn:	checked:	date:
KB	KB	30 May 19

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.02	-

OUT (NORTH)



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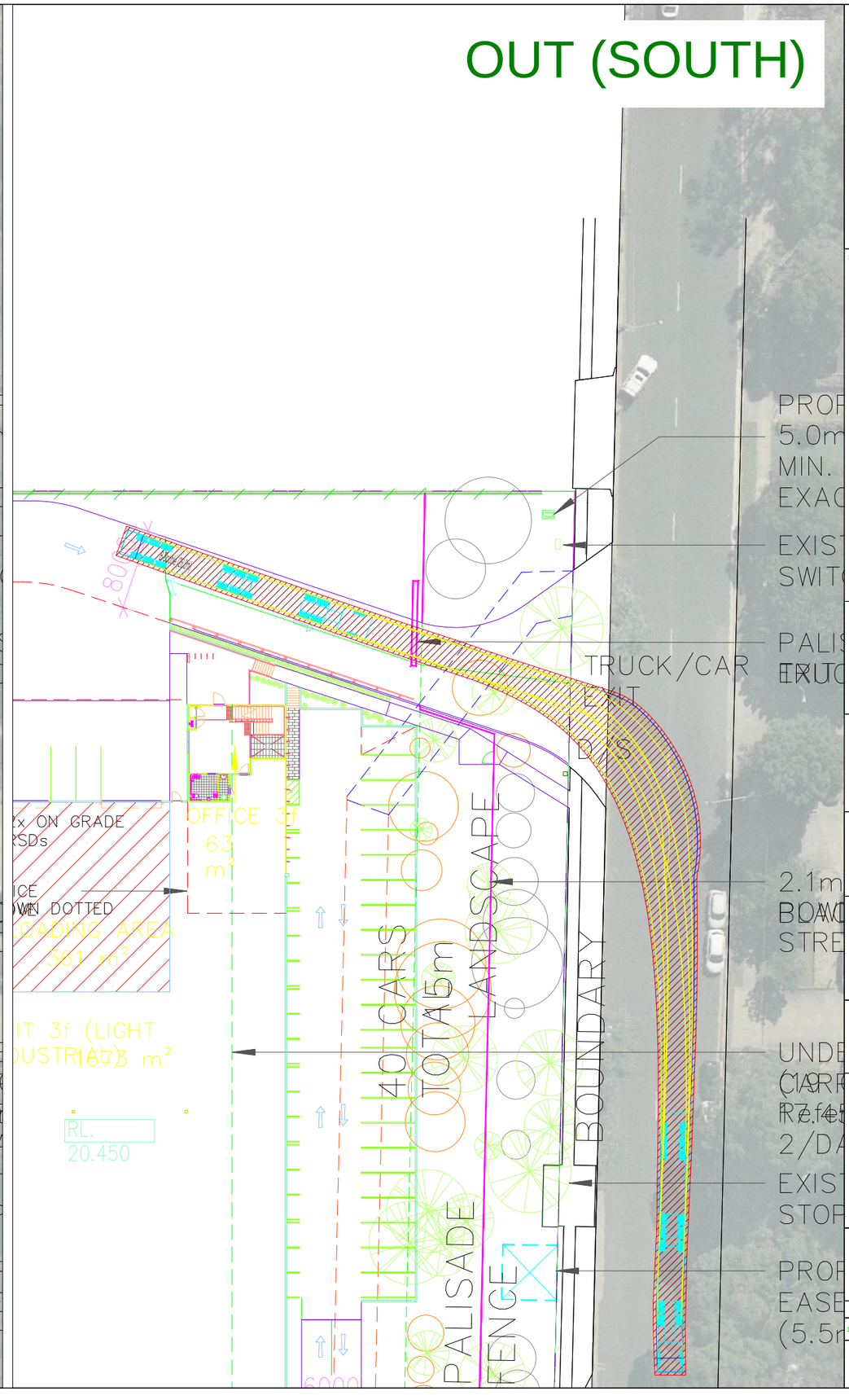

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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:500 @ A3
0m 5 10 15 20

project
62 Ferndell Street, South Granville

drawing prepared by

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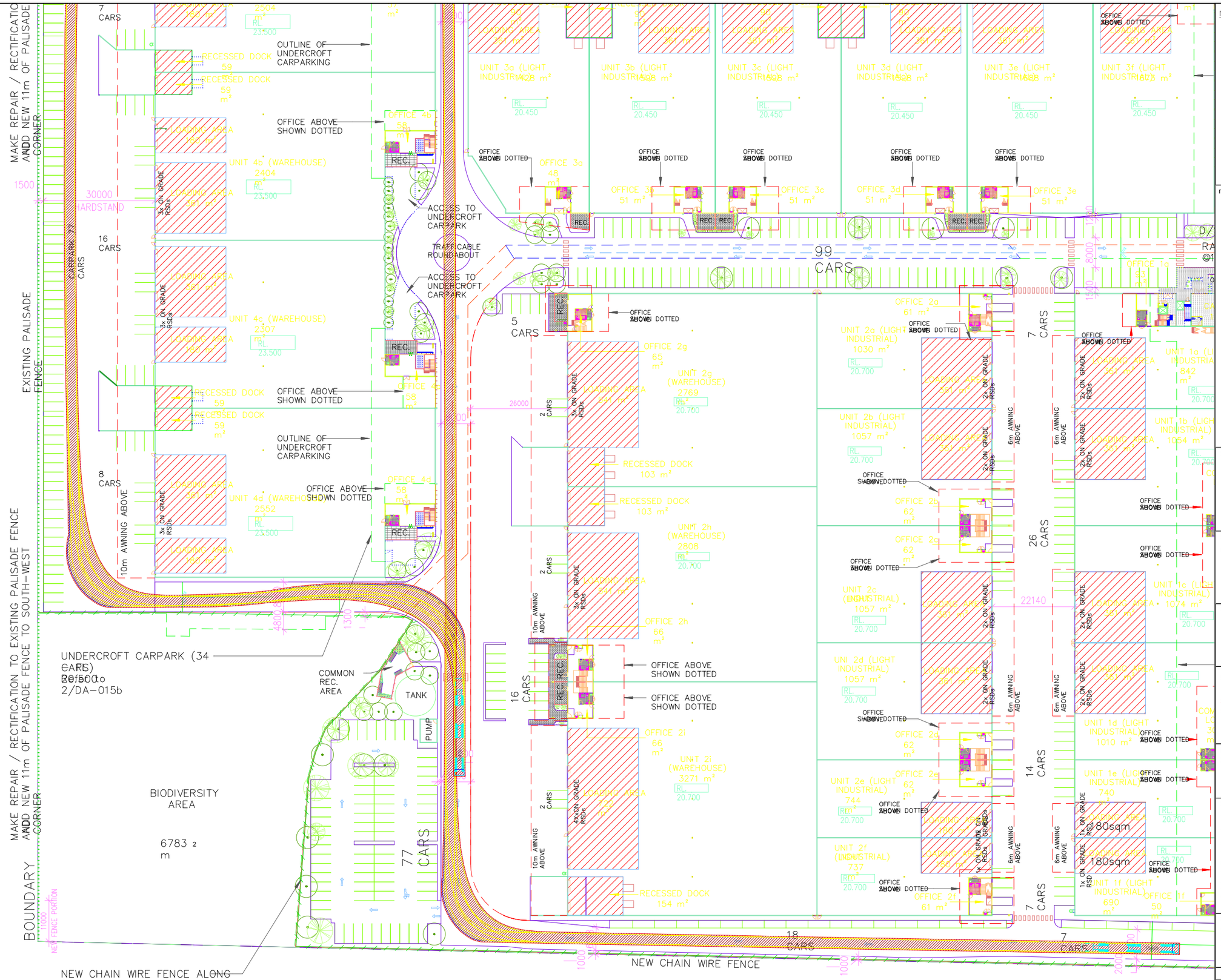
traffic & transport planners

drawing title
Swept Path Analysis
Northern Site Access
26.0m B-Double

drawn:	checked:	date:
KB	KB	30 May 19

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.03	-



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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:1000 @ A3
0m 10 20 30 40

project
62 Ferndell Street, South Granville

drawing prepared by

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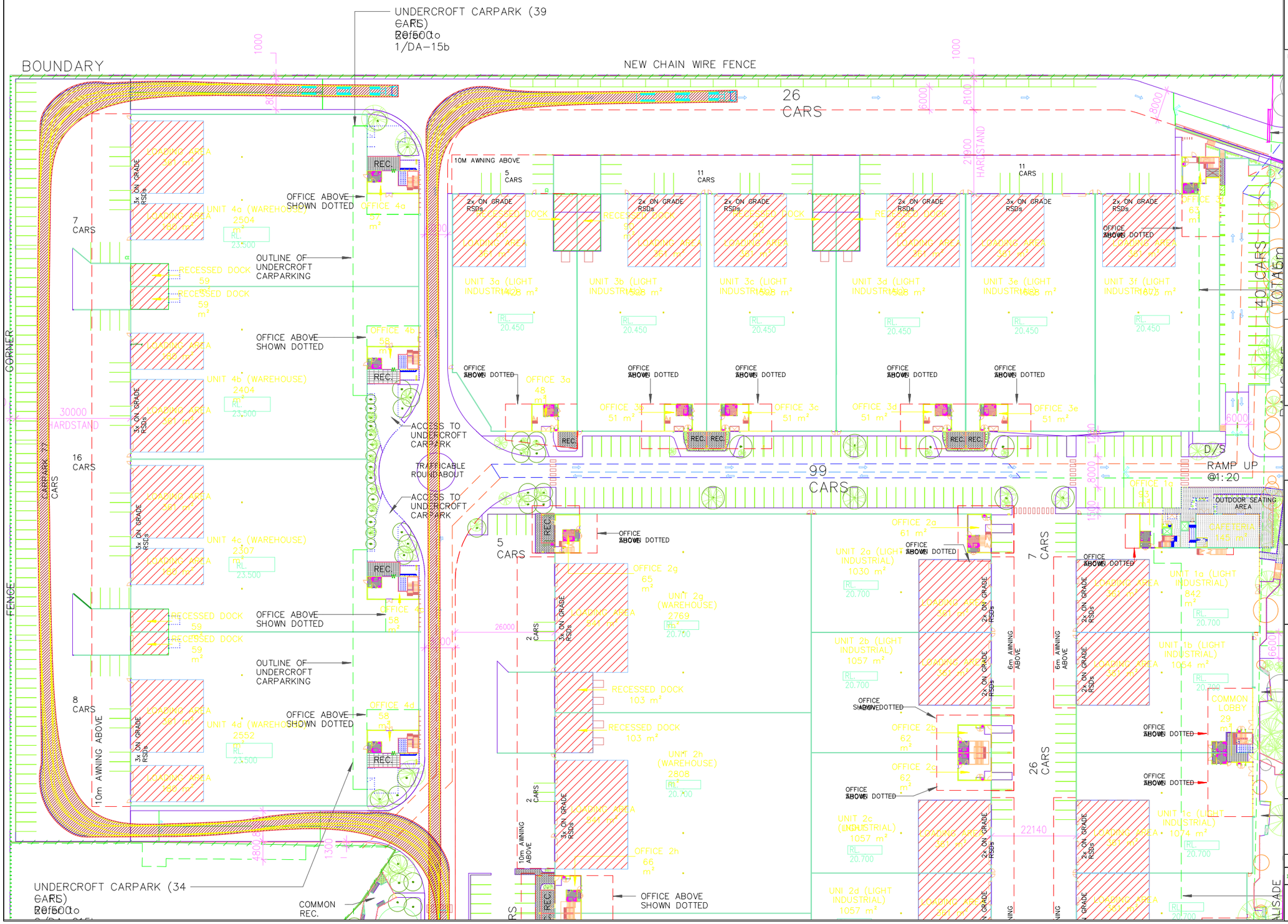
traffic & transport planners

drawing title
Swept Path Analysis
General Site Circulation - South
26.0m B-Double

drawn:	checked:	date:
KB	KB	30 May 19

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.04	-



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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:1000 @ A3
0m 10 20 30 40

project
62 Ferndell Street, South Granville

drawing prepared by

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traffix
traffic & transport planners

drawing title
Swept Path Analysis
General Site Circulation - North
26.0m B-Double

drawn:	checked:	date:
KB	KB	30 May 19

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.05	-

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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:1000 @ A3
0m 10 20 30 40

project
62 Ferndell Street, South Granville

drawing prepared by

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traffix
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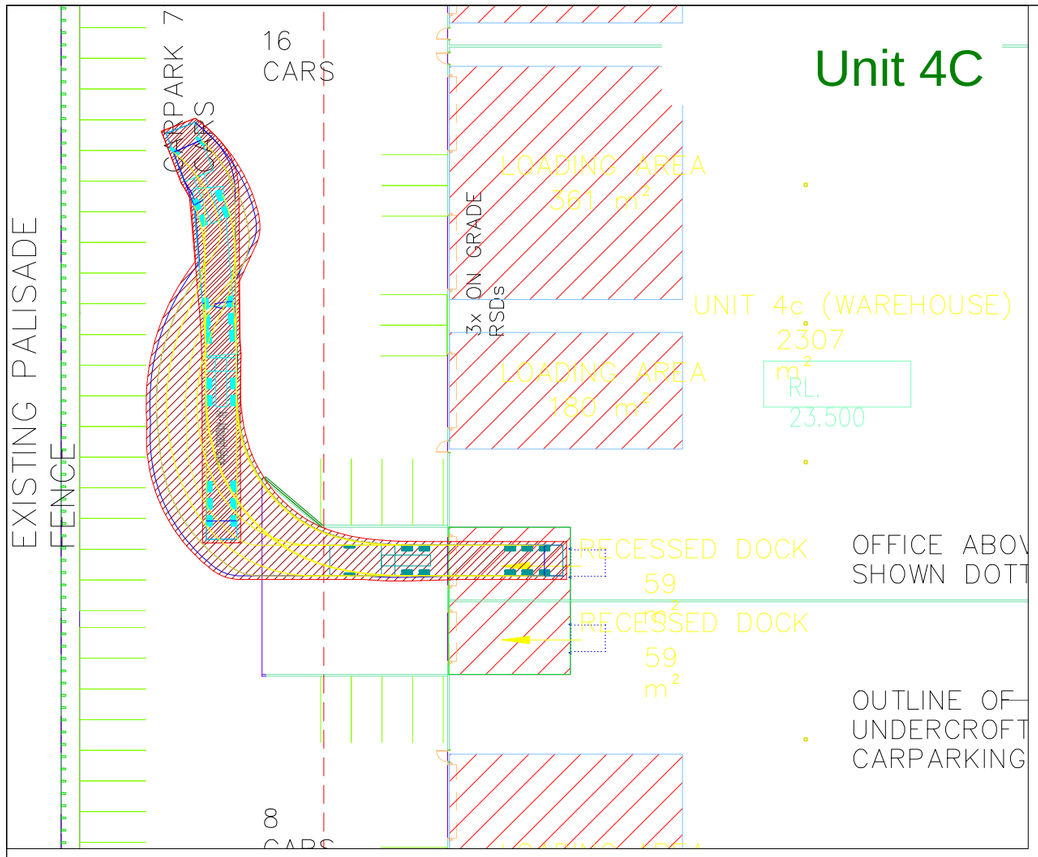
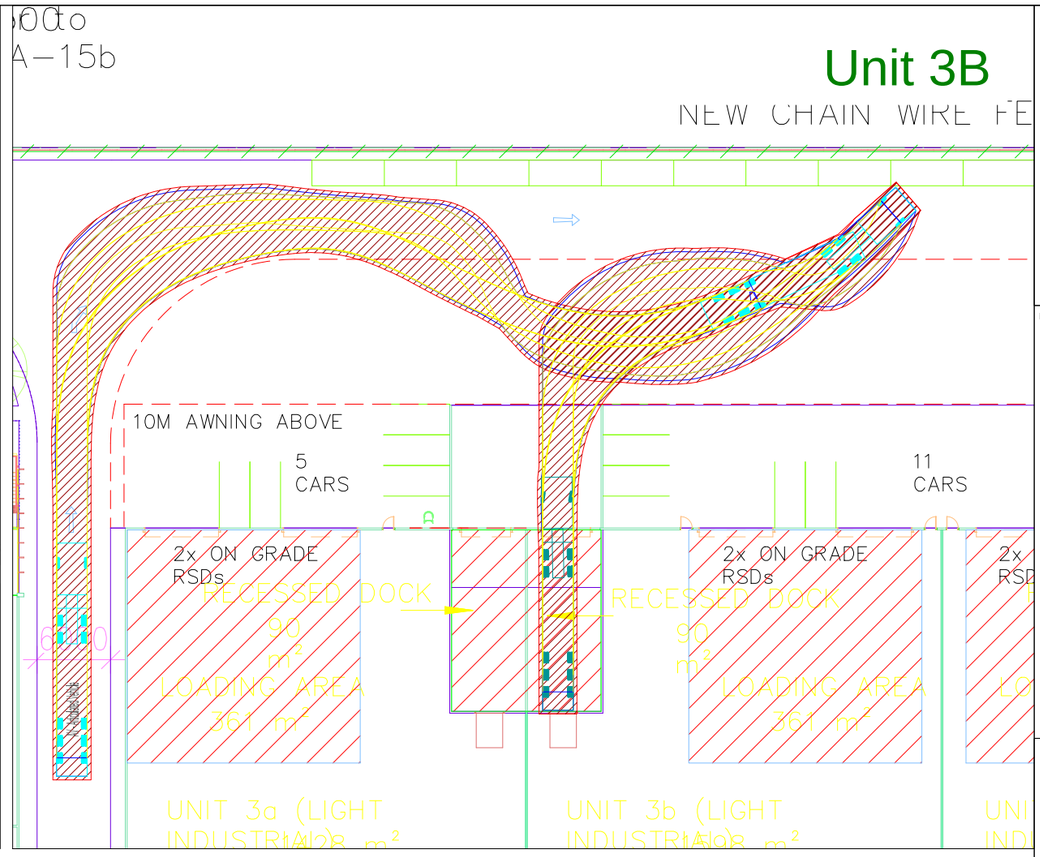
drawing title
Swept Path Analysis
Warehouse 1 & Warehouse 2
19.0m Articulated Vehicle

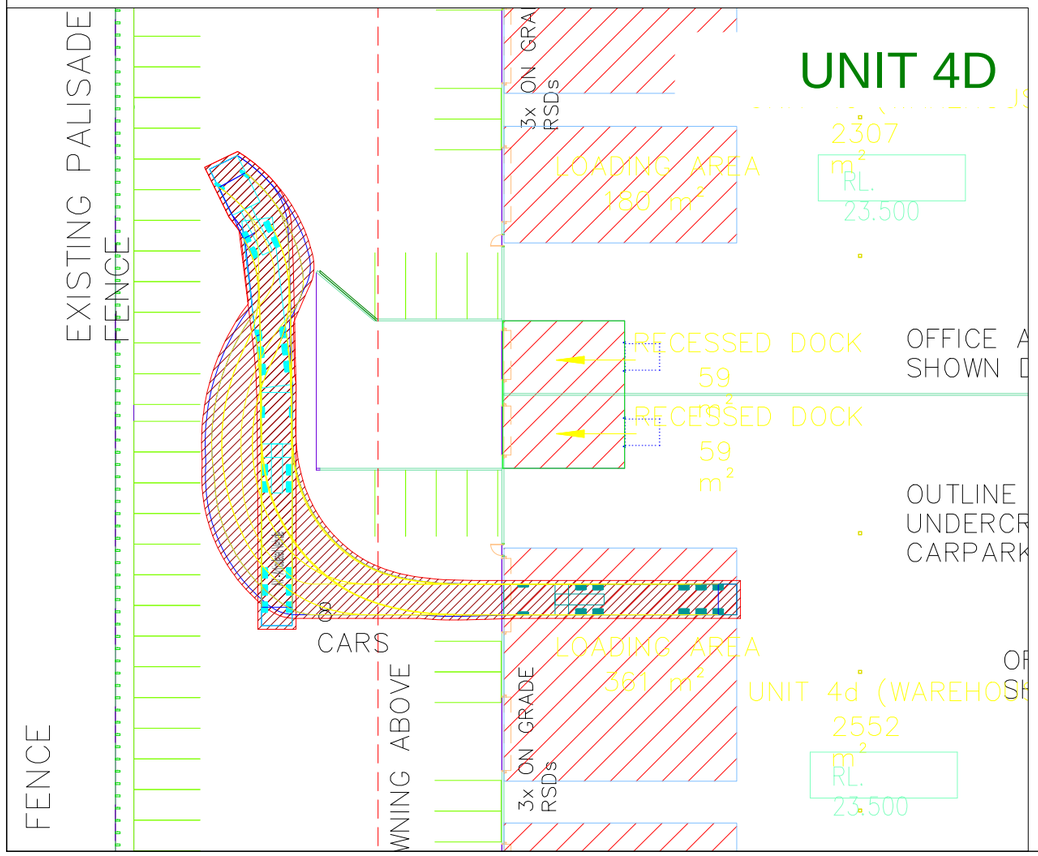
drawn:	checked:	date:
KB	KB	30 May 19

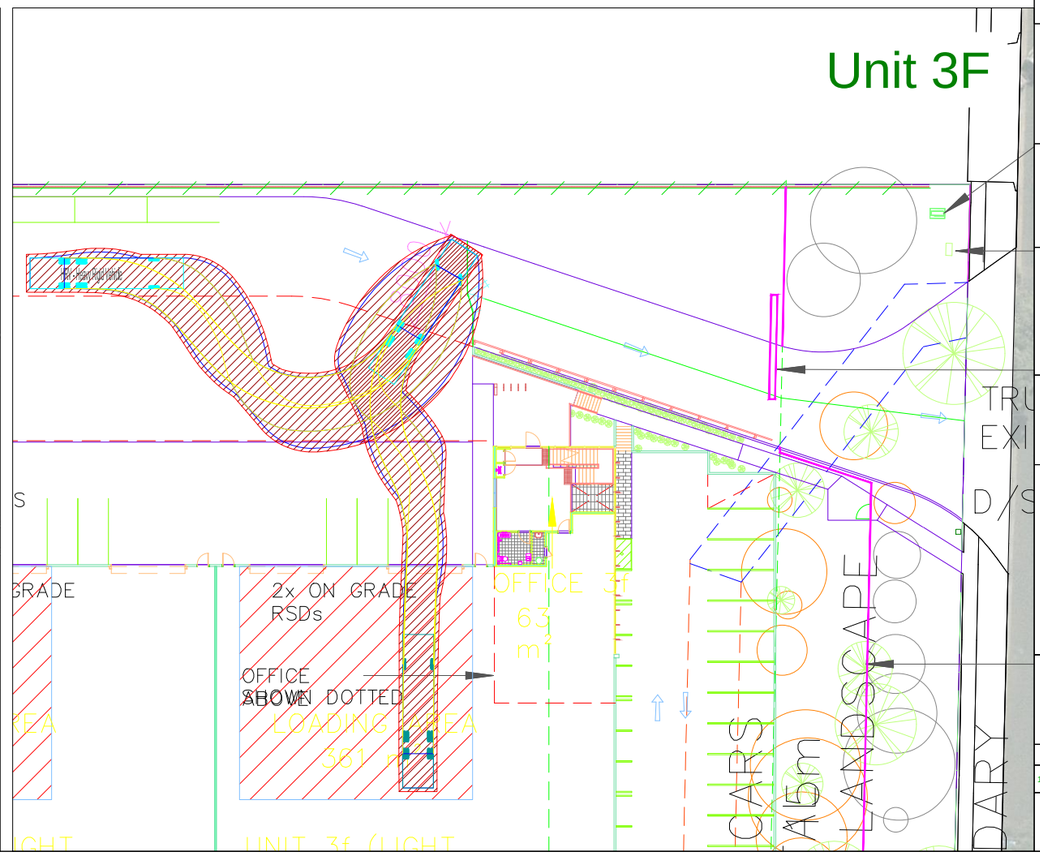
18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.06	-









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no.	revision note	by.	date

Swept Path Legend:

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:500 @ A3
0m 5 10 15 20

project
62 Ferndell Street, South Granville

drawing prepared by
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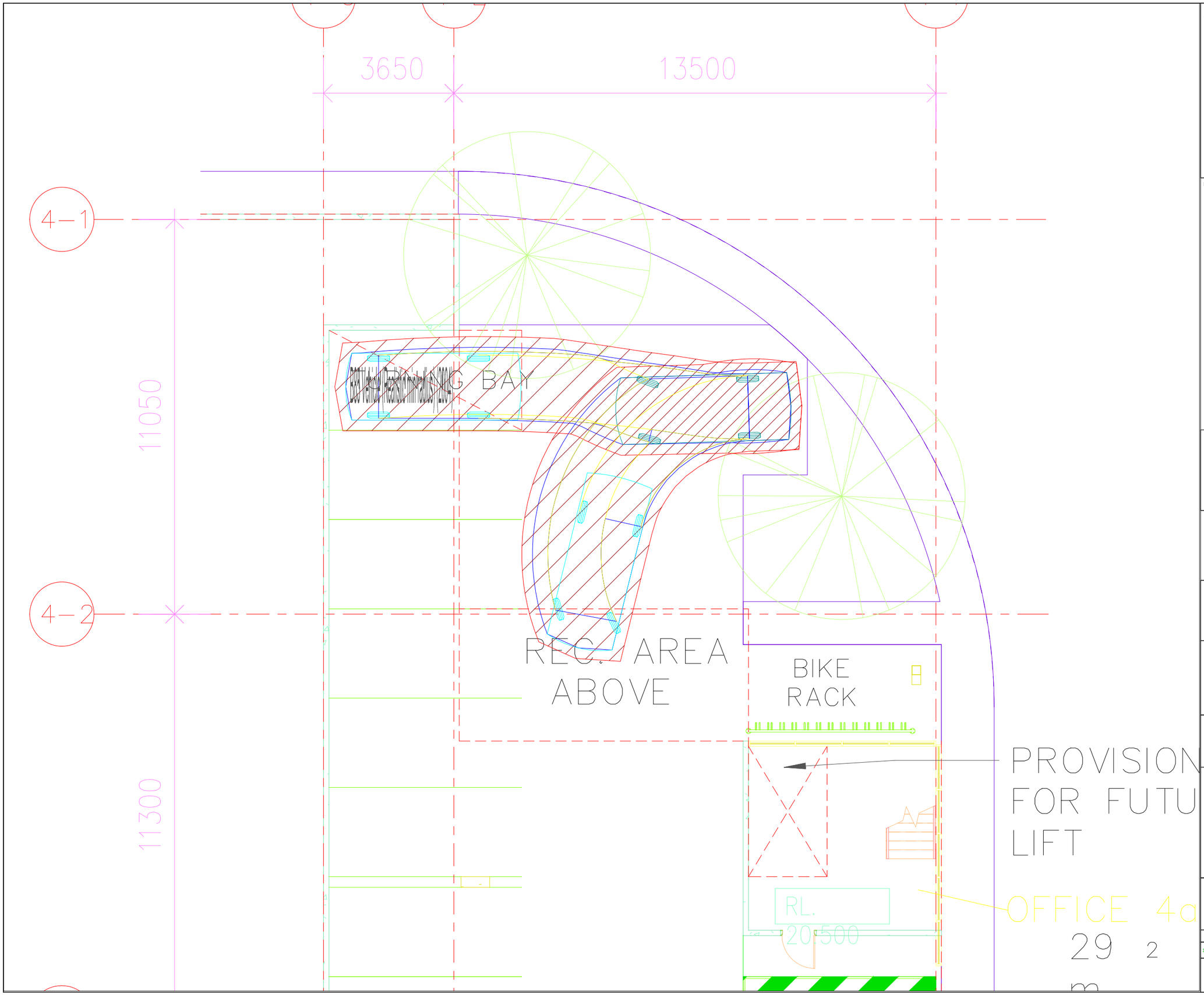
traffic & transport planners

drawing title
Swept Path Analysis
Warehouse 3 & Warehouse 4
19.0m Articulated Vehicle and 12.5m HRV

drawn:	checked:	date:
KB	KB	31 May 19

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

18.498	DA	TX.07	-
project no.	drawing phase.	drawing no.	rev



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no.	revision note	by.	date

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- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

architect
nettletontribe

client
Dexus

scale
1:100 @ A3
0m 1 2 3 4

project
62 Ferndell Street, South Granville

drawing prepared by
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traffix
traffic & transport planners

drawing title
Swept Path Analysis
Warehouse Building 4 - Undercroft Parking
B85 Vehicle

drawn:	checked:	date:
KB	KB	11 Dec 18

18.498d06v02 TRAFFIX [190529 Plans] Design Review.dwg

project no.	drawing phase.	drawing no.	rev
18.498	DA	TX.08	-