

FRASERS PROPERTY

EASTERN CREEK BUSINESS HUB
AMENDED STAGE 2 DA –
PROPOSED SPECIALISED RETAIL
CENTRE FOR LOT 1 –
TRANSPORT ASSESSMENT

SEPTEMBER 2019
(AMENDED DECEMBER 2019)

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I. INTRODUCTION

I.1 This amended report has been prepared to support the Amended Stage 2 Development Application of a specialised retail, fast food outlet and associated car parking on lot 1, Rooty Hill Road South, Eastern Creek. This assessment has been prepared in accordance with Concept Approval SSD 5175. The amended report has been prepared to address traffic matters raised by DPIE in its letter dated 28 November 2019. The matters raised by DPIE are summarised below:

- Clarify the loading and unloading arrangements for buildings 2 and 3;
- Update the traffic report based on the proposed 11,598m² GFA' and
- Provide further detail on service vehicle movements;
- Clarify how the indoor recreation traffic generation rate was developed; and
- Consider pedestrian safety in the vicinity (raised by RMS).

I.2 Lot 1 forms part of the Eastern Creek Business Hub which is located on a parcel of land between Rooty Hill Road South, M7 Motorway and Great Western Highway, as shown in figure I.1. The site has development consent for a concept plan which includes 52,800m² GFA within three lots, comprising:

- 14,000m² large format retail (such as hardware/building supplies) on lot 1.
- 9,500m² retail centre (including a 3,500m² to 4,000m² supermarket plus 5,500m² to 6,000m² specialty retail) on lot 2; and
- 29,300m² bulky goods on lot 3.



Figure I.1: Lot I Site Location

Source: Sydway

- I.3 The main vehicular access to the site is approved from Rooty Hill Road South, via a new signalised intersection at Cable Place (with a left turn deceleration lane and right turn bay on Rooty Hill Road South into the site). This intersection would provide access to the site via a new internal access road. A minor upgrade to the intersection of Great Western Highway/Rooty Hill Road South/Wallgrove Road is required in association with the development.
- I.4 A separate DA for some 9,500m² of retail development on lot 2 was submitted in 2017. The lot 2 submission was in accordance with the concept approval.
- I.5 Since the Concept Plan was approved (SSD 5175), bulky goods has been replaced as a defined use by specialised retail. Thus the amended DA includes specialised retail area (replacing the previous bulky goods). The Eastern Creek Business Hub Guidelines have been updated to reflect the change in definition.
- I.6 The amended proposed lot I development includes:

- 8,390m² specialised retail;
- 100m² café;
- 400m² tyre service centre;
- 2,010m² indoor recreation centre; and
- A future PAD site (498m²).

- 1.7 The scale of development for the Stage 2 DA is similar is consistent with that approved for Lot 1 in the Concept Approval for the Eastern Creek Business Hub. The overall traffic effects of development in the concept approval have been assessed and appropriate traffic measures agreed with the authorities. This includes a new traffic signal controlled access on Rooty Hill Road South at Cable Place and an upgrade to the intersection of Great Western Highway/Rooty Hill Road South/Wallgrove Road. As the Stage 2 DA does not materially change the traffic impacts compared to the concept approval, this report assesses the Stage 2 DA with respect to parking, site access, service arrangements, internal car park layout and cumulative traffic effects of Lots 1 and 2.
- 1.8 Development on the PAD site would be subject to a future DA. However, for the purposes of assessing the traffic and parking effects of the Stage 2 DA, it has been assumed that a fast food outlet (with 105 seats - 70 internal and 35 external) would be on the PAD site.
- 1.9 The findings of the transport assessment are set down in Chapter 2.
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2. TRANSPORT ASSESSMENT

2.1 The transport assessment is set down through the following sections:

- ❑ site location and road network;
- ❑ proposed development;
- ❑ public transport;
- ❑ parking provision;
- ❑ access, internal circulation and service arrangements;
- ❑ traffic effects;
- ❑ response to traffic matters raised by Council;
- ❑ response to traffic matters raised by DPIE; and
- ❑ summary.

Site Location and Road Network

- 2.2 The site is located north of the Great Western Highway at Eastern Creek, as shown in Figure 1.1. It is bounded by Great Western Highway to the south, M7 Motorway to the east and Rooty Hill Road South to the west. Beggs Road and Belmore Road are unformed dead-end roads north of the site that link with Rooty Hill Road South at their western end. The site is generally undeveloped.
- 2.3 The M7 Motorway is a major road in Sydney's arterial road network. It has north-facing ramps with the Great Western Highway, adjacent to the site. The intersections of the M7 ramps with Great Western Highway are controlled by traffic signals.
- 2.4 Great Western Highway is another major road in Sydney's road network, connecting Sydney with areas to the west. It intersects with Rooty Hill Road South at a signalised intersection, adjacent to the site.
- 2.5 Rooty Hill Road South connects Rooty Hill in the north with the Great Western Highway. It provides a four lane undivided carriageway with two traffic lanes in each
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direction. As noted above, it has a signalised intersection with the Great Western Highway. Wallgrove Road forms a fourth (southern) approach to the intersection.

- 2.6 North of the site, Rooty Hill Road South connects with Francis Road and Eastern Road at a signalised intersection. Opposite the site, on the western side of Rooty Hill Road South, there are several local residential streets, including Penfold Street, Cawarra Street and Cable Place which intersect with Rooty Hill Road South at priority controlled intersections.

Proposed Development

- 2.7 The Stage 2 DA is shown in Figure 2.1 and proposes the following development on Lot 1:
- 8,390m² specialised retail
 - 400m² tyre service centre (tenancy to be determined);
 - 100m² café;
 - 2,010m² indoor recreation centre (similar to Monkey Mania, Chipmunks or Skyzone);
 - future PAD site;
 - 355 at-grade parking spaces; and
 - combined customer and service vehicle access driveway via the internal access road on the lot 1 northern boundary.

- 2.10 The site will be accessible by active forms of transport such as walking and cycling, with a pedestrian/cyclist connection linking Lot 1 to the existing infrastructure on Rooty Hill Road South. Bicycle parking (some 30 spaces) will be provided for both customers and staff internal to the site. Customers will be able to make use of bicycle racks conveniently located within the public domain. As part of staff induction, it is recommended that transport information be provided including how the site is accessible by means other than car (bus, walk and cycle).
- 2.11 The site provides opportunities for people to travel to the site by means other than car, with the proposal therefore being consistent with the following government objectives and planning principles of:
- (a) improving accessibility to employment and services by walking, cycling, and public transport;
 - (b) improving the choice of transport and reducing dependence solely on cars for travel purposes;
 - (c) moderating growth in the demand for travel and the distances travelled, especially by car; and
 - (d) supporting the efficient and viable operation of public transport services.

Parking

- 2.12 The Eastern Creek Business Hub Design Guidelines suggest car parking rates for specific land uses. These include a rate of one space per 60m² GFA for specialised retail. The guidelines do not include parking rates for indoor recreation centres, tyre service centre, or the future PAD site. For these uses, RMS rates or surveys of other similar uses have been adopted. For the café a rate of 1 space per 25m² has been adopted. For the indoor recreation centre a rate of 1 space per 30m² has been adopted. This is the same rate as used to estimate parking requirements in a recent DA for a proposed Monkey Mania at Blacktown Mega Centre and is based on surveys of an existing indoor recreation centre. For the future PAD site, the RMS rate for a fast

food outlet has been adopted (the greater of one space per two internal seats or one space per three internal plus external seats).

- 2.13 The parking requirements are summarised in Table 2.1 noting that such a parking provision assumes all land uses experience peak demand at the same time.

Table 2.1: Parking Requirements				
Use	Source	Parking Rate	Size/no.	Parking Requirement
Specialised retail	Business Hub Design Guidelines	1 space per 60m ²	8,388 m ² GFA	140
Tyre service centre	RMS and surveys of similar uses	3 space per 100m ²	400 m ² GFA	12
Indoor recreation Centre		1 space per 30m ²	2,012m ² GFA	67
Cafe		1 space per 25m ²	100m ² GFA	4
PAD Site		the greater of 1 space per 2 internal seats or 1 space per 3 internal plus external seats	105 seats (70 internal + 35 external)	35
Total				258

- 2.14 Table 2.1 indicates that the Stage 2 development of Lot 1 would require 258 parking spaces. The provision of 355 car parking spaces and 18 motor cycle space satisfies this requirement.
- 2.15 With regards to staff parking, it is included within the parking rates set out in the Eastern Creek Business Hub Design Guidelines. No separate rate is provided for staff parking. As a guide, for specialised retail, staff parking requirements would typically be some 10% of total parking required. On this basis, with some 355 spaces provided, some 35 spaces would be required for staff. No dedicated staff parking is proposed with staff encouraged to park within the southern section of the car park (along the Rooty Hill Road frontage).

Access, Internal Circulation and Servicing

- 2.16 As discussed, access to the site is proposed via a new signalised intersection on Rooty Hill Road South at Cable Place. This intersection will be upgraded as per the approved concept plan and completed as part of the Stage 1 development on Lot 2. Also required prior to the completion of Lot 2 is construction of the internal access road from Rooty Hill Road South to east of the access point to Lot 2.
- 2.17 As part of the Stage 2 development on Lot 1 the internal access road from Rooty Hill Road South will be extended further east of the access to Lot 2 to provide access to Lot 1, with a roundabout provided at the end of the internal access road. The roundabout has been provided to allow vehicles access between Lots 1 and 2 and allow vehicles that inadvertently turn off Rooty Hill Road to turn around without entering either Lot 1 or Lot 2. The roundabout has been designed to allow a 12.5 metre rigid truck to complete a u-turn. Access to Lot 1 will be off the southern side of the roundabout with access to Lot 2 from the northern side. Access to Lot 3 will be provided by extending the access road to the east of the roundabout.
- 2.18 Within Lot 1, the internal road separates some 70 metres south of the roundabout to provide access to the loading dock (to the southeast) and car park area (to the west).
- 2.19 Customer parking is located within an at-grade car park on the western section of lot 1 with one connection to the internal access road. Parking spaces will be a minimum 5.4 metres long and 2.6 metres wide with 6.6 metre wide circulation aisles. Spaces with adjacent obstructions will be 0.3 metres wider. Small car spaces will be 2.3 metres wide, and disabled spaces 2.4 metres wide with a 2.4 metre wide adjacent shared area. Motorbike spaces will be 1.2 metres wide by 2.5 metres long. Staff parking will be located at the rear of the site with these spaces slightly narrower at 2.4 metres wide. Where pedestrians cross internal roads, adequate sight lines will be provided in accordance with AS2890.1-2004 (sight line splays).
- 2.20 These dimensions are considered appropriate, being in accordance with AS2890.1:2004 and AS2890.6:2009. Any such access ramps connecting the car park to
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the internal access road will be designed to comply with the requirements of AS2890.1:2004 and AS2890.2:2002 with respect to width and grade.

- 2.21 The loading area for the Building 1 is located on the eastern side of Lot 1. The service road along the eastern boundary provides for two-way traffic flow with a separate loading zone located between the service road and buildings. Trucks would access the loading zones for each tenancy by driving along the service road, undertake a three point turn using the turning area at the southern end of the service road and unload adjacent to the tenancy. The service road and turning area have been designed to accommodate 12.5 metre long large rigid trucks and 20 metre long articulated trucks. The loading area and internal circulation roads will be designed to comply with AS2890.2:2018 with regards to turning areas, aisle widths and grades, and allow service vehicles to enter and exit the site in a forward direction. Truck turn paths are attached to this report.
- 2.22 Customers picking up large goods would on occasions access the loading area. This arrangement is typical of specialised retail centres and given the design of the service area (with vehicle circulation is separate to unloading areas) and the relatively low number of trucks that service specialised retail developments (typically 2 to 3 deliveries per day), such an arrangement is considered satisfactory.
- 2.23 Smaller service vehicles (up to 8.8 metre long medium rigid trucks) will require access to the Building 3, the PAD site and café. These vehicles will use the at-grade car park to access each building, with deliveries occurring outside of operating hours. Building 2 will be serviced by vehicles up to 6.4 metre small rigid vehicles and will also have deliveries occur outside of operating hours.
- 2.24 Overall, subject to detailed design, the proposed access arrangements, internal circulation and loading arrangements are appropriate and will be designed to comply with the requirements of AS2890.1:2004, AS2890.2:2002 and AS2890.6:2009.
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Traffic Effects

- 2.25 As previously discussed, the proposed scale of development on Lot 1 is similar to the approved concept plan that indicated some 14,000m² of large format retail. It is noted that the agreed road works, including the new internal access road, traffic signal controlled intersection at Cable Place and an upgrade to the intersection of Great Western Highway/Rooty Hill Road South/Wallgrove Road will be completed as part of the Stage 1 Lot 2 works.
- 2.26 The traffic generation rates approved as part of the concept plan include 2.7 vehicles two-way per 100m² for large format retail and 1.46 vehicles two-way per 100m² for specialised retail during the weekday afternoon peak period. With 14,000m² of large format retail, the approved concept plan for Lot 1 would have generated some 380 vehicles per hour (two way) in the weekday afternoon peak hour.
- 2.27 Applying these rates to the proposed 8,390m² of specialised retail on Lot 1 would have a weekday afternoon traffic generation of some 125 vehicles per hour two-way.
- 2.28 For the PAD site, RMS guidelines include design generation rates of 180 vehicles per hour two-way for a fast food outlet. Taking into passing trade (35%) and linked trips with other uses on the site (15%), the additional traffic on the surrounding road network from the fast food outlet would be reduced to some 90 vehicles per hour two-way during the weekday afternoon peak period.
- 2.29 For the indoor recreation centre, a weekday afternoon traffic generation of 50 vehicles per hour has been adopted for the weekday afternoon peak period. This represents 50% of the peak weekend traffic generation (as the indoor recreation centre would not be as busy late on a weekday afternoon compared to the middle of the day on the either weekend or weekdays).
- 2.30 For the tyre service centre RMS guidelines suggest a generation rate of 1 vehicle (two-way) per 100m².
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2.31 The café would be ancillary and used by people already on the site and thus generate no additional traffic.

2.32 Thus the traffic generation of the proposed development on Lot 1 would be some 270 vehicles per hour (two way) in the weekday afternoon peak hour. This is less than the 380 vehicles per hour (two way) for the 14,000m² of large format retail on Lot 1 as part of the approved concept plan.

2.33 The cumulative traffic effects of development on Lots 1 and 2 on the following intersections have been undertaken using SIDRA:

- Rooty Hill Road South/Cable Place/Site Access; and
- Internal roundabout connecting Lots 1 and 2.

2.34 The internal roundabout is located some 100 metres east of the intersection with Rooty Hill Road South. To ensure appropriate separation between these two intersections, SIDRA network modelling of the three intersections has been undertaken.

2.35 SIDRA analyses intersections controlled by traffic signals, roundabouts and signs and provides a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:-

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity

57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:-

0 to 14	=	"A"	Good
15 to 28	=	"B"	Acceptable delays and spare capacity
29 to 42	=	"C"	Satisfactory but accident study required
43 to 56	=	"D"	Near capacity and accident study required
57 to 70	=	"E"	At capacity and requires other control Mode.
>70	=	"F"	Unsatisfactory and requires other control mode

2.36 It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

2.37 The SIDRA analysis found that:

- with Stage 1 and 2 DA traffic in place and under traffic signal control, the intersection of Cable Place/Rooty Hill Road South/Site Access would operate with average delays per vehicle of 20 seconds per vehicle in the weekday afternoon peak hour. This represents level of service B, a good level of service with spare capacity; and
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- with Stage 1 and 2 DA traffic in place, the roundabout connecting Lots 1 and 2 would operate with average delays per vehicle of 13 seconds per vehicle in the weekday afternoon peak hour. This represents level of service A/B, a good level of service. Vehicle queues between the roundabout and intersection with Rooty Hill Road would not extend between the intersections (some 100 metres apart) with westbound queues of some 73 metres and eastbound queues some 5 metres.

2.38 Thus in summary the SIDRA analysis has found that with the identified intersection upgrades, the intersections will perform at acceptable levels of service and can satisfactorily accommodate Stages 1 DA traffic.

Response to Traffic Matters Raised by Council

2.39 For the previous DA, Council raised a number of traffic matters. The matter raised and our response is set out below.

i. That new roads should be designed and constructed to Council requirements

2.40 As per the approved concept plan, new roads will be designed in accordance with the Eastern Creek Business Hub Design Guidelines. It is noted that new roads within the site will be private roads.

ii. that additional traffic generated by the proposed development can be accommodated within the existing and new road network

2.41 This matter has been addressed in the section on traffic effects. In summary the traffic analysis has demonstrated that the existing/new road network can satisfactorily accommodate traffic generated by approved/proposed development on the site.

iii. The turning diagrams show that a 19 metre long articulated truck would have difficulty to turn at the roundabout as well as along the tight bends on the proposed truck

2.42 The attached truck turn paths show that a 20 metre long articulated truck can access Lot 1 and travel through the roundabout satisfactorily.

iv. That parking provision must comply with the relevant Blacktown DCP

2.43 As per the approved concept plan, parking for development within the site will be provided in accordance with the Eastern Creek Business Hub Design Guidelines. Where parking rates for a proposed use are not included in the Design Guidelines, parking will be provided taking into account BCC DCP rates, RMS Guidelines and/or surveys of similar developments.

v. That the design of the car parking and loading dock areas comply with the requirements of AS2890.1-2004 and AS2890.2-2002

2.44 Noted. We agree that the car park and loading dock areas for development with the Eastern Creek Business Hub should be designed to comply with the requirements of AS2890.1-2004 and AS2890.2-2018. This requirement could be included as a condition of consent for any DA approval.

vi. That there is provision for adequate sight distances for vehicles and pedestrians (in accordance with the requirements of AS2890.1-2004) at the proposed site driveway

2.45 Noted. We agree and note that this matter could be addressed (as per the previous matter) through a condition of consent for any DA approval requiring the car park and loading dock areas to be designed to comply with the requirements of AS2890.1-2004 and AS2890.2-2018.

vii. That private waste need to undertake waste collection from the proposed development

2.46 Noted. We understand that a private contractor will be engaged to collect waste from future development within the Eastern Creek Business Hub.

Response to Traffic Matters Raised by DPIE

Clarify the loading and unloading arrangements for buildings 2 and 3

- 2.47 Building 2 will be serviced by vehicles up to 6.4 metre long small rigid trucks. Building 3 and the PAD site will be serviced by vehicles up to 8.8 metre long medium rigid trucks. A loading dock will be provided for each building with access via the at-grade car park. Deliveries will occur outside of busy trading hours. Service vehicle swept paths are attached.

Update the traffic report based on the proposed 11,598m² GFA'

- 2.48 The updated traffic report is based on 11,398m² GFA comprising:

- 8,390m² specialised retail
- 400m² tyre service centre (tenancy to be determined);
- 100m² café;
- 2,010m² indoor recreation centre; and
- future PAD site (498m² GFA);

Provide further detail on service vehicle movements

- 2.49 RMS guidelines suggest that the average number of service movements per day will be 0.16 vehicles per 100m² per day (two way) with a peak generation of 0.5 vehicles per 100m² per day (two way). Applying this rate the proposed development with some 11,598m² would generate an average of some 20 service vehicle movements per day with a peak of some 60 service vehicle movements per day (two way). These comprise all service vehicles with the majority being small to large rigid trucks with the majority of service vehicle movements occurring during the week (outside of the peak activity which would occur on the weekend).

Clarify how the indoor recreation traffic generation rate was developed;

- 2.50 Surveys of similar indoor recreation facilities found that peak traffic generation occurred on weekends with a generation of some 100 vehicles per hour (two way). As noted in this report the traffic generation in the weekday afternoon was assumed to be 50% of the peak weekend traffic generation based on the centre not being as busy in the weekday afternoon and that the majority of patrons would be leaving the centre at this time.

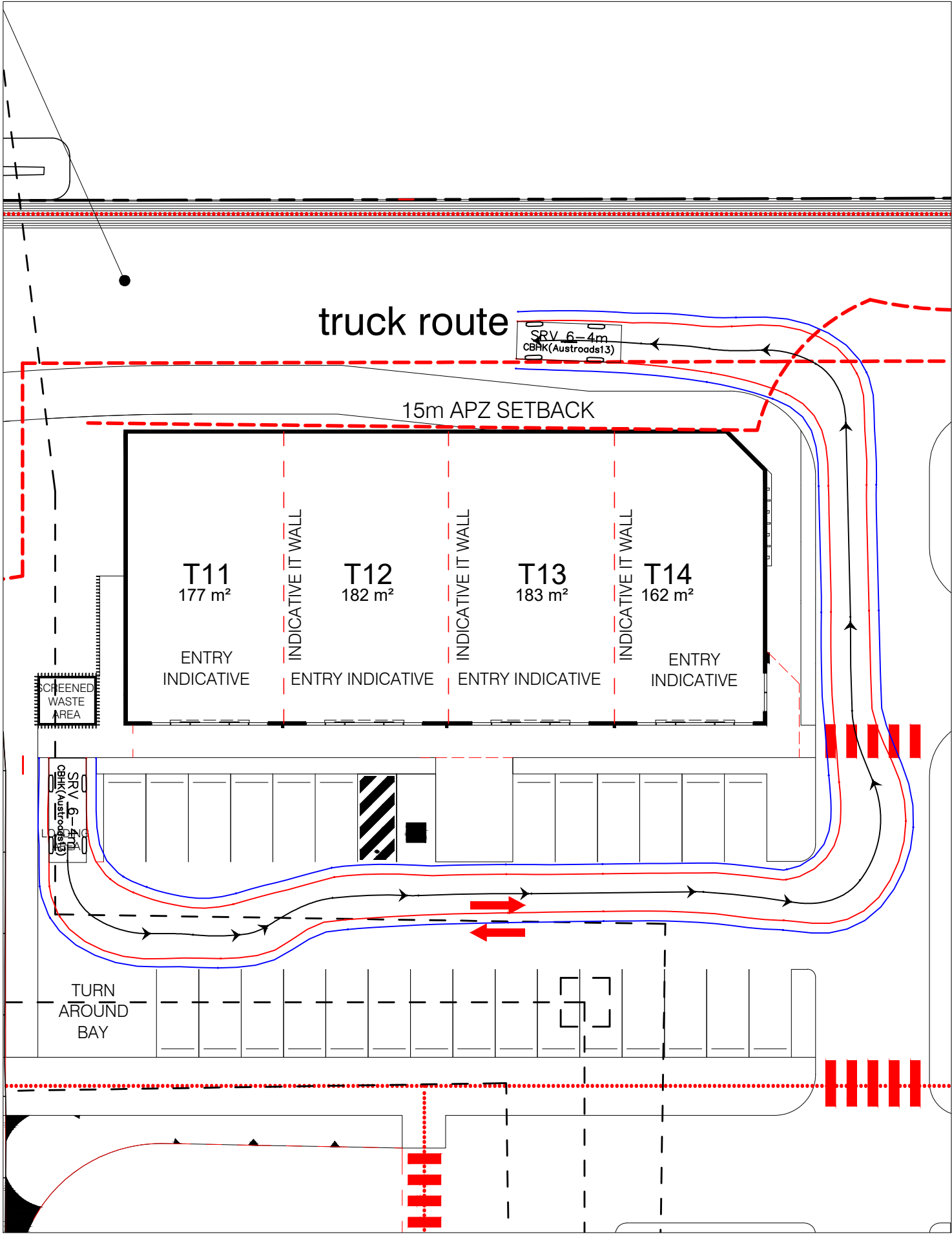
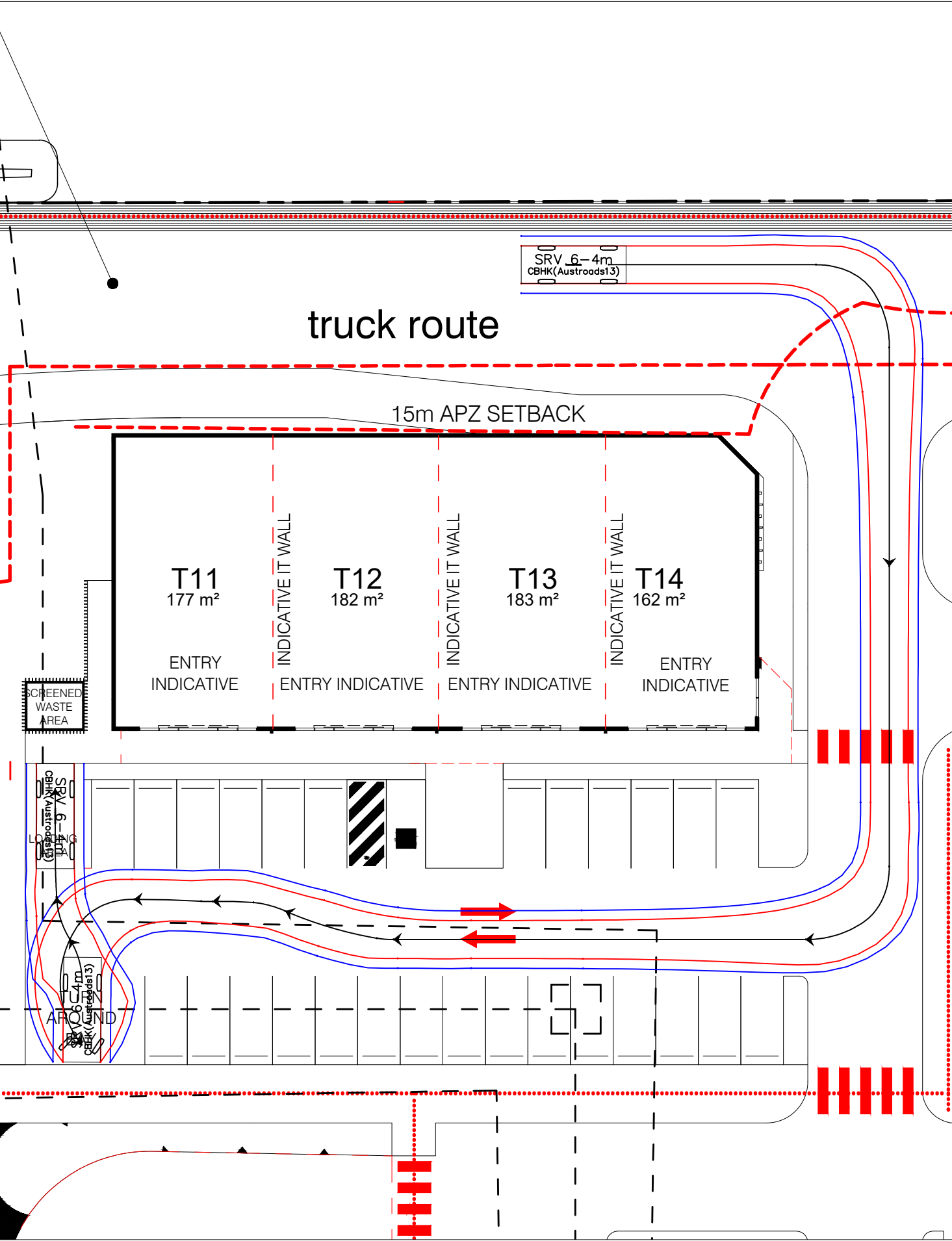
Consider pedestrian safety in the vicinity (raised by RMS)

- 2.51 A dedicated pedestrian path will be provided that links the proposed uses in Lot 1 and the PAD site with the signalised intersection of Cable Place and Rooty Hill Road South. The signals at this intersection provide pedestrian crossings across all approaches to the intersection. There is an existing footpath on the western side of Rooty Hill Road South. As part of the Stage 1 DA (Lot 2), a new footpath will be constructed on the eastern side of Rooty Hill Road South (along the frontage of the site). These footpaths will provide access to the bus stops in proximity to Cawarra Street.

Summary

- 2.52 In summary, the key findings of the traffic assessment for the proposed Stage 2 DA on lot 1 in the Eastern Creek Business Hub are:
- i) the concept approval includes a total of 52,800m² GFA across three stages, including 14,000m² large format retail on Lot 1;
 - ii) development on the PAD site would be subject to a future DA;
 - iii) the site is accessible by bus services and active transport;
 - iv) the proposed parking provision on Lot 1 is appropriate;
 - v) access arrangements and internal circulation are appropriate;

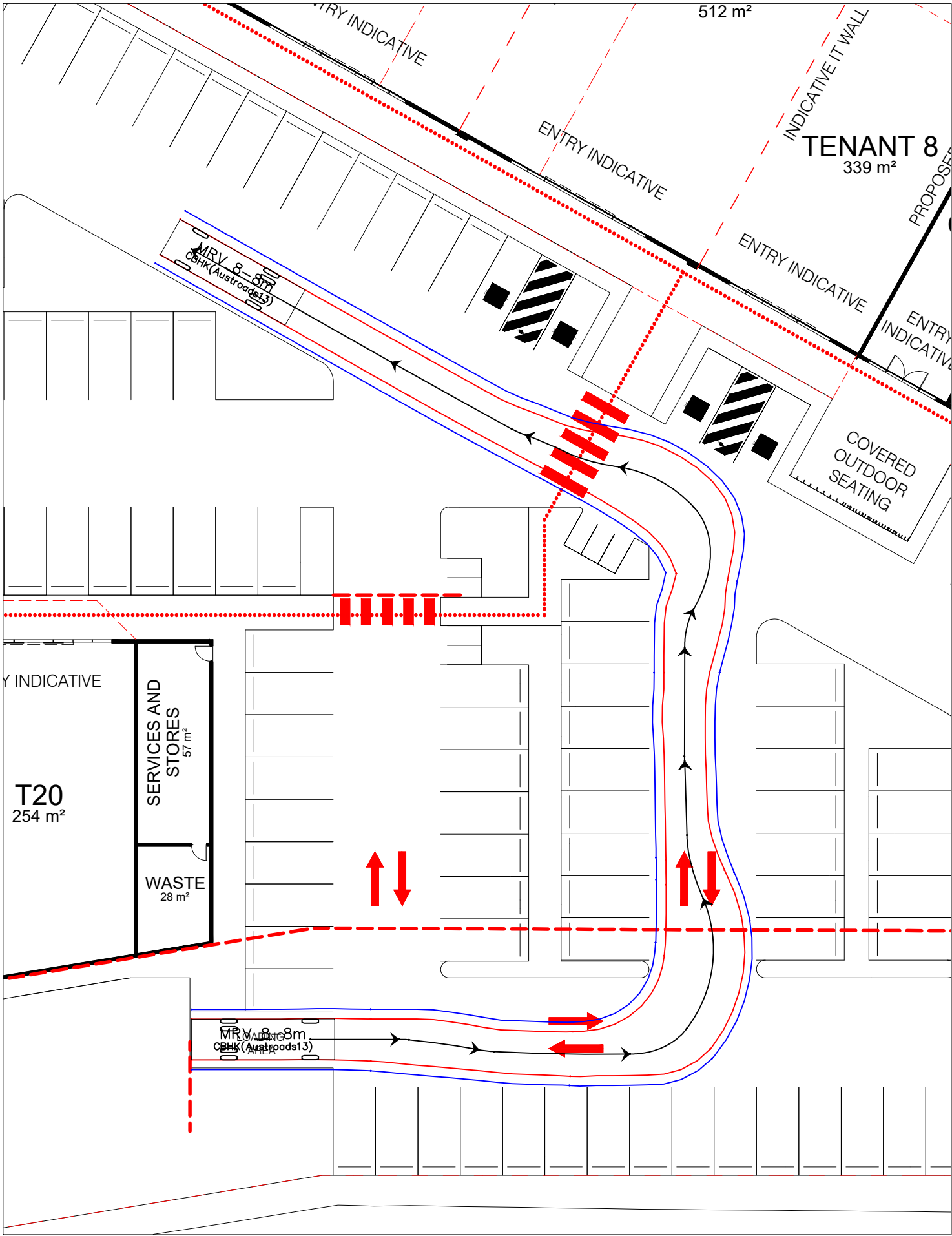
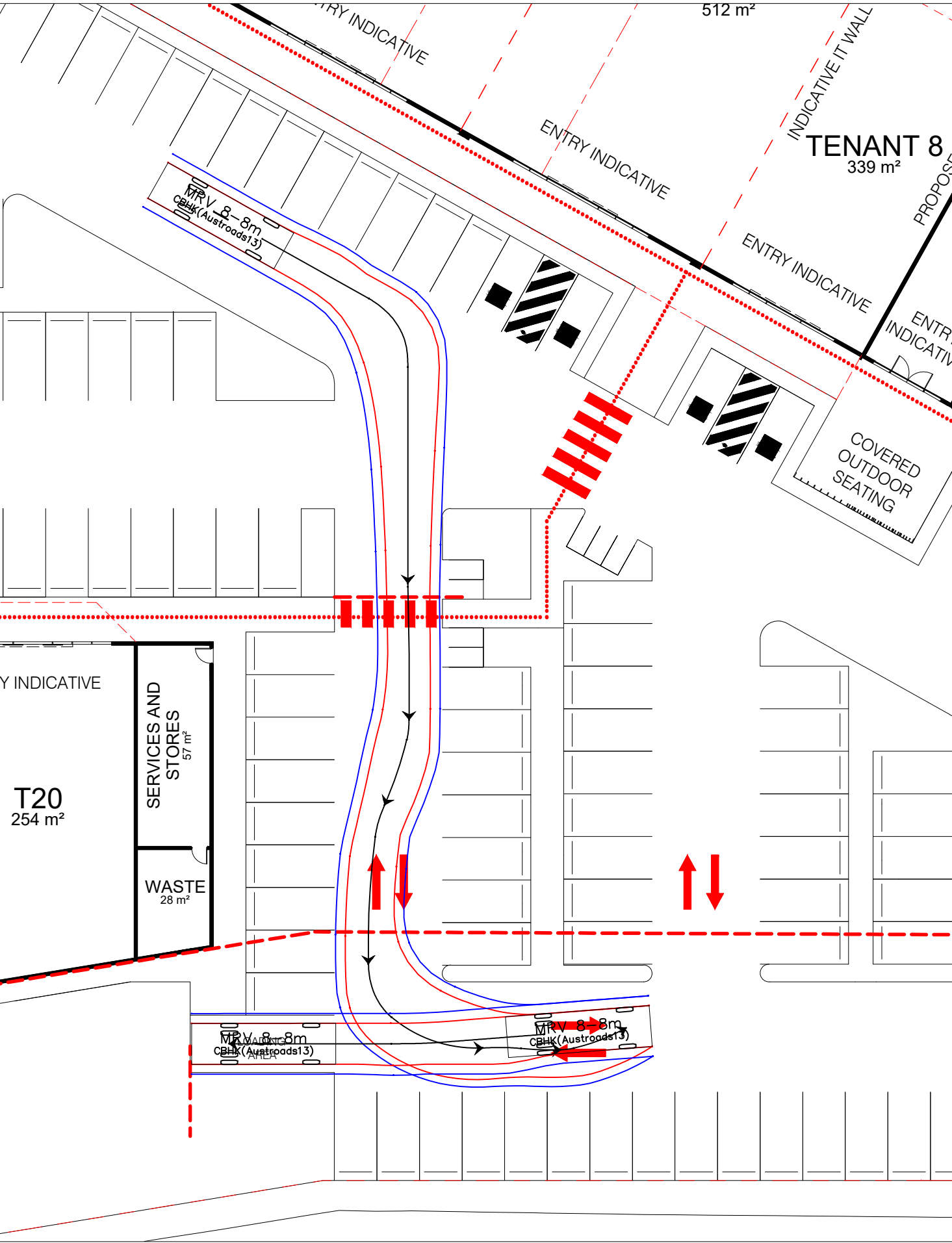
- vi) loading arrangements are appropriate, being located separately to the customer car park and providing for trucks to enter and exit the site in a forward direction;
- vii) traffic generation associated with Lot 1 will be less than included as part of the concept approval;
- viii) a series of road works has been approved on Rooty Hill Road South and Great Western Highway in association with the approved concept plan and required for completion as part of the Stage 1 works on Lot 2;
- ix) the previously approved road works will be appropriate to cater for the proposed development on Lot 1;
- x) traffic matters raised by Council on the previous DA have been addressed; and
- xi) traffic matters raised by DPIE have been addressed



NOTE:
SKETCH PLAN ONLY. PROPERTY BOUNDARIES,
UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO
SURVEY AND FINAL DESIGN. TRAFFIC MEASURES
PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND
ARE SUBJECT TO FINAL DESIGN BY CIVIL ENGINEERS.

— Swept Path of Vehicle Body
— Swept Path of Clearance to Vehicle Body

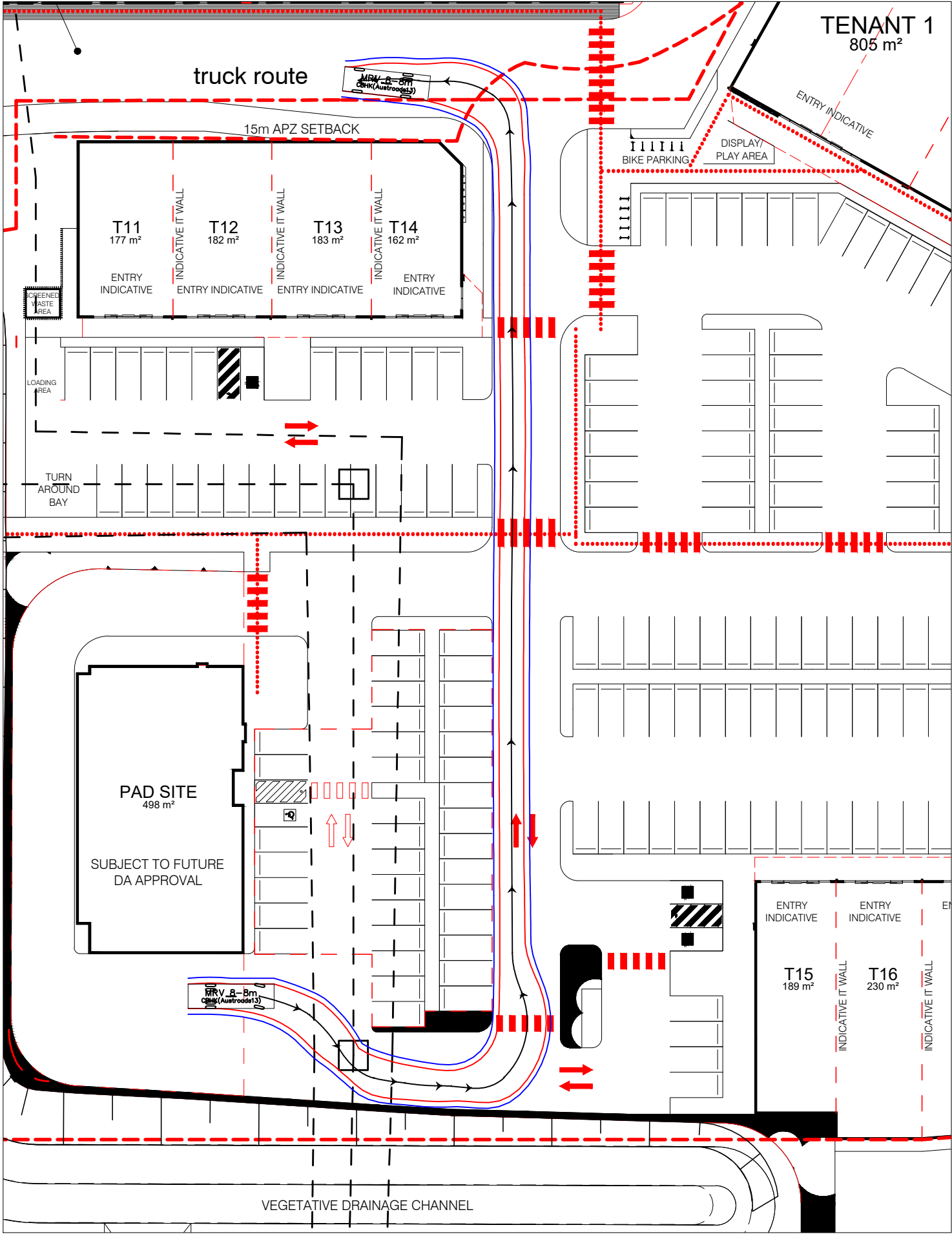
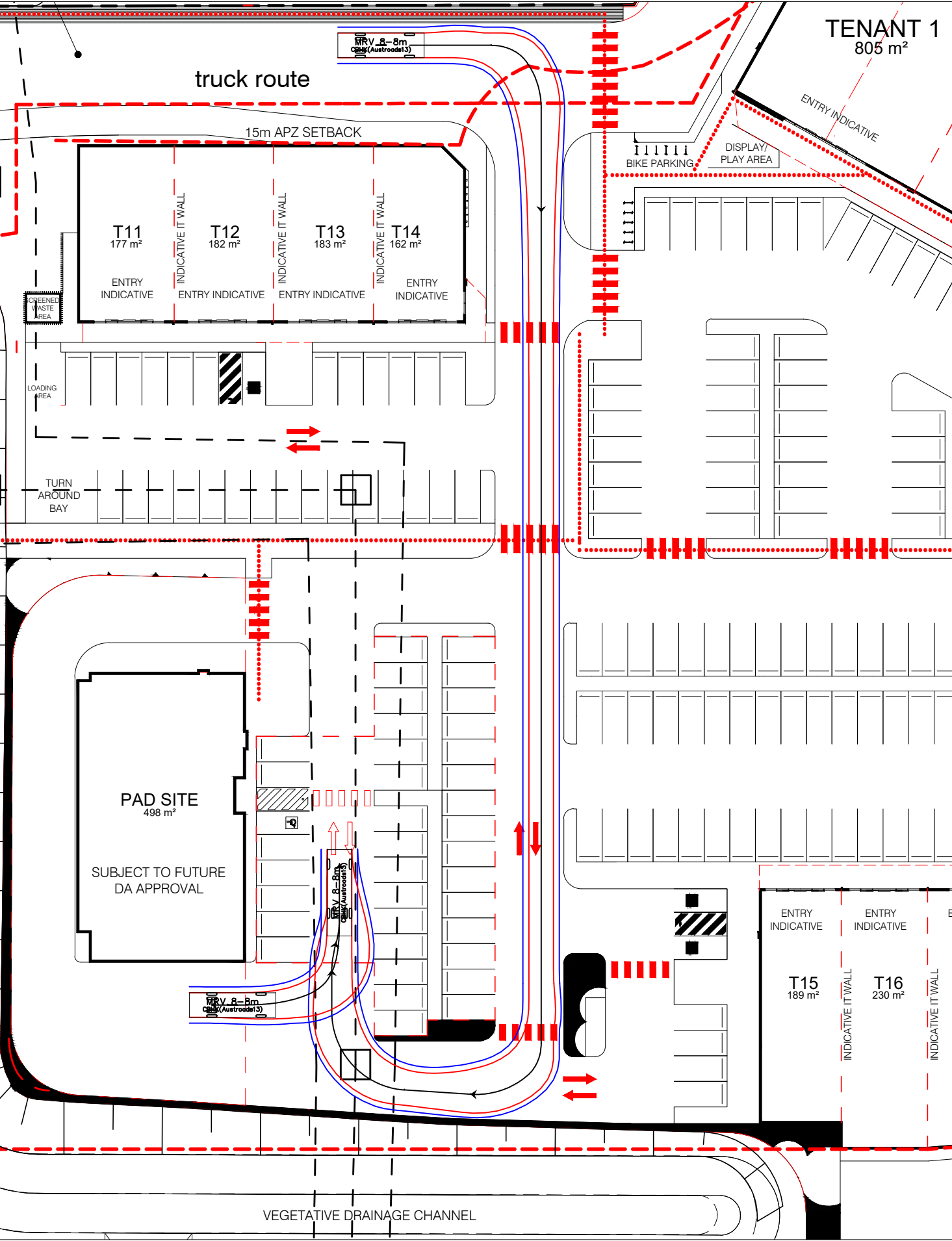
6.4m SMALL RIGID VEHICLE
SWEPT PATHS



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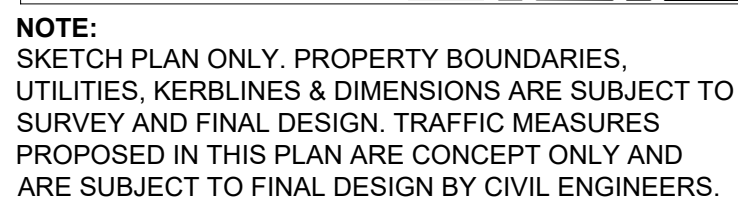
8.8m MEDIUM RIGID VEHICLE
SWEPT PATHS



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8.8m MEDIUM RIGID VEHICLE
SWEPT PATHS



20.0m ARITUCLATED VEHICLE SWEEP PATHS