



STEELFORCE
Proposed Warehouse
Lot 8, Bringelly Road Business Hub
Traffic and Parking Impact Assessment

Ref: 17184

Date: December 2018

Issue: C

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1.0 Introduction

A Staged Development Application (SSD 6324) has been approved by the Minister for Planning and Environment for a Concept Plan for Bringelly Road Business Hub (BRBH) on the Western Sydney Parklands landholding on Bringelly Road at Leppington (Figure 1).

Subsequently CIP/Charter Hall submitted SSD8900 for a development on Lot 8 comprising:

Warehouse	9,210m ²
Office	800m ²
Bulk Store	521m ²
Tanker Unloading	165m ²
Total:	10,696m²

This forms part of an application to amend SSD8900 that proposes to modify the development scheme to provide a warehouse facility for Steelforce comprising:

Warehouse	10,000m ²
Office	600m ²
Total:	10,600m²

This Traffic Impact Assessment has been prepared in relation to a proposed modified warehouse facility on Lot 8 and responds to the SSD Consent which specifies the following in regards to Traffic and Access:

- ❖ *B7: Future development applications shall be accompanied by a detailed assessment of the traffic, and transport impacts on the surrounding road network and intersection capacity and shall detail provisions demonstrating that sufficient loading/unloading, access and car parking has been provided having regard to the RMS' Guide to Traffic Generating Developments, and details to promote non-car travel modes. The traffic*

and transport impact assessment shall also have specific regard to the scope and timing of road infrastructure works in the surrounding road network.

- ❖ *B8: To ensure that potential conflicts between heavy vehicles and light vehicles are minimised, future development applications for large format retail development shall include details demonstrating satisfactory arrangements have been made to separate heavy and light vehicle movements via a truck service lane or the like.*
- ❖ *B9: To ensure that sustainable transport modes are supported, all future development applications for new built form shall include a sustainable travel plan and details that pedestrian and cyclist facilities have been incorporated into the proposed development.*
- ❖ *B10: Future development applications must provide car parking at the following rates:*

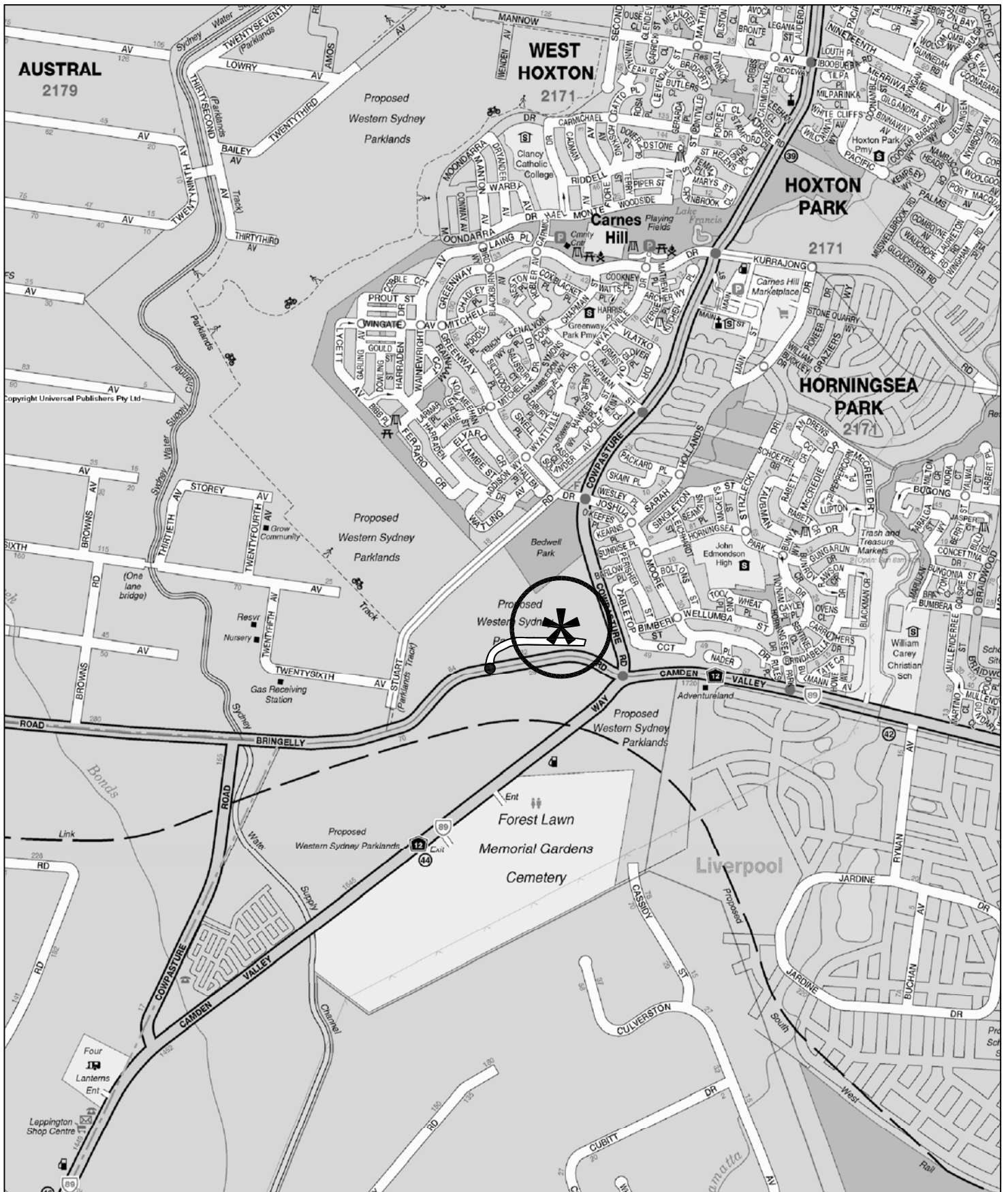
Land Use	Minimum Car Parking Requirement
<i>Large Format Retail</i>	<ul style="list-style-type: none">• 1 space per 50m² of GFA
<i>Industrial/Warehouse</i>	<ul style="list-style-type: none">• 1 space per 40m² of office GFA• 1 space per 100m² of factory GFA for the 100m², then 1 space per 200m² of GFA (includes office component)• 1 space per 300m² of warehouse GFA, plus 1 space per 40m² of office GFA
<i>Other Retail</i>	<ul style="list-style-type: none">• 1 space per 6 seats (external and internal) of takeaway food and drink premises GFA, plus queuing• 2 spaces per service station fuel outlet, 1 space per 20m² of ancillary convenience store GFA, 3 spaces per service bay plus 1 space per employee; and• 1 space per 20m² of restaurant or café GFA.

In addition to the above, the assessment also has regard for the comments and requirements outlined in the DoPE, TfNSW and RMS correspondence.

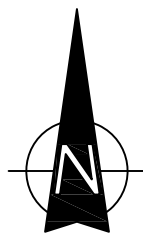
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The purpose of this report is to:

- ❖ describe the site, the approved BRBH concept, the approved development scheme and the proposed modification
- ❖ describe the road network serving the site and the prevailing traffic conditions
- ❖ assess the adequacy of the proposed parking provision
- ❖ assess the potential traffic implications
- ❖ assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements
- ❖ respond to the SSD Consent Conditions and relevant SEARs and RMS requirements



LEGEND



LOCATION

FIG 1

2.0 Proposed Development

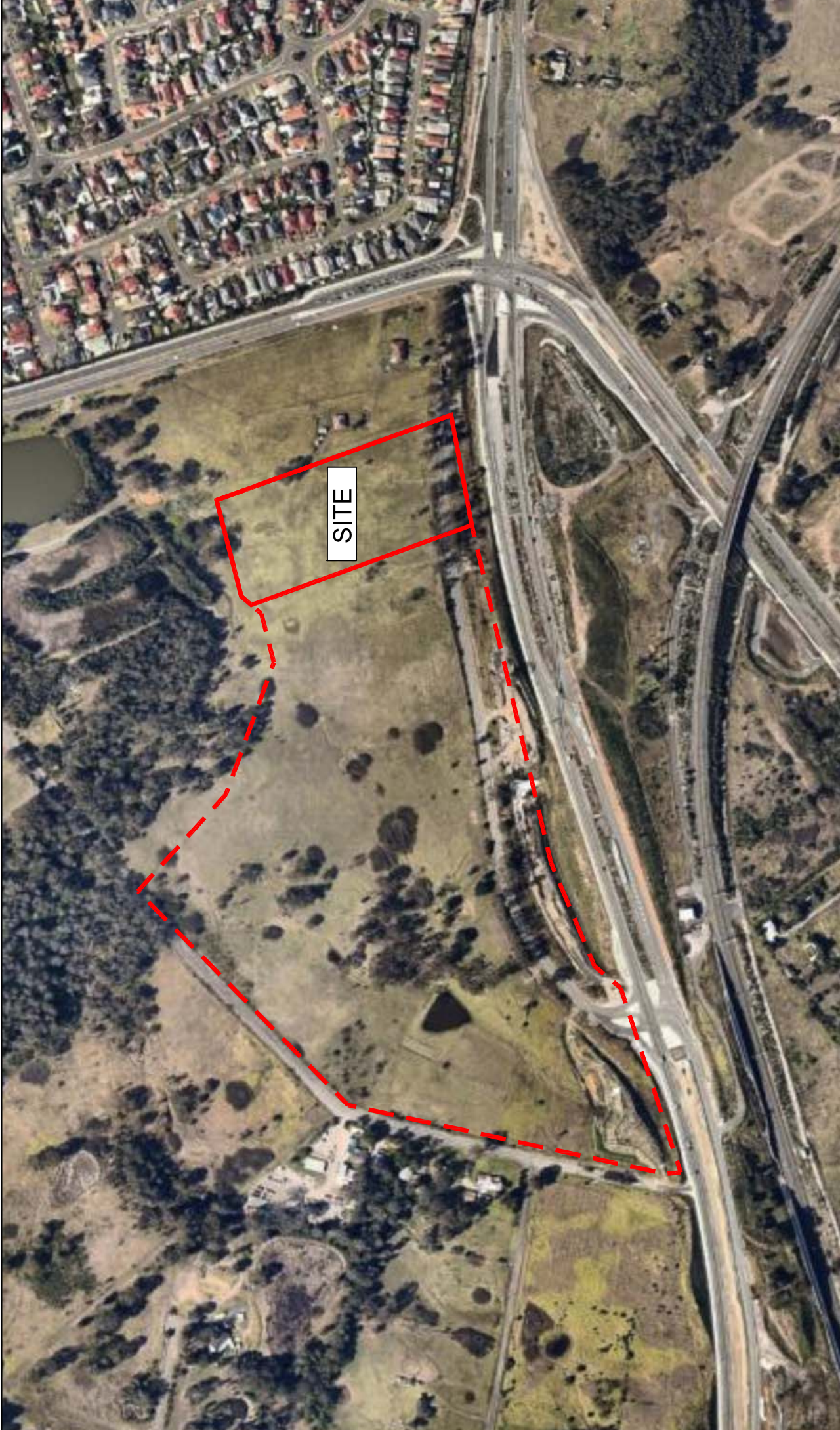
2.1 Site, Context and Existing Circumstances

The Bringelly Road Business Hub occupies a total area of some 22ha incorporating some 8,000m² of the former Bringelly Road reservation. The development site (Figure 2) is Lot 8 within the BRBH subdivision being an irregular shaped allotment of some 22,345m² with a frontage to the proposed Skyline Crescent which will connect to Bringelly Road.

The site is located just to the west of Cowpasture Road and to the north of the South West Rail Line being some 2.5 km to the east of Leppington Railway Station and the future commercial centre.

The surrounding uses comprise:

- ❖ the adjoining Lot 6 which is subject to a development proposal for warehouse facility for CFC Group
- ❖ the adjoining rural residential property to the east with access provided by Bringelly Road and the Horningsea Park residential area on the eastern side of Cowpasture Road
- ❖ the rural residential lands to the west and south
- ❖ the Carnes Hill residential area and Western Sydney Parklands extending to the north
- ❖ the Horningsea Park residential area just to the east



LEGEND



SITE

FIG 2

2.2 Bringelly Road Business Hub

The SSD consent provides for the site to be cleared with relatively minor earthworks undertaken (fill imported) to provide for the new access road system and site “benching” etc.

The proposed subdivision involves 8 lots with an envisaged range of future uses including Large Format Retail, Light industry and Service Centre. The access road system (Skyline Crescent) will:

- ❖ connect to Bringelly Road
- ❖ provide for a potential connection to another WSP landholding to the west which is envisaged to be developed for tourism, sporting and active hub uses
- ❖ provide an emergency link to Stuart Road
- ❖ maintain access for the adjoining rural residential property to the east

Details of the proposed lot layout and access road system are provided on the diagram overleaf.

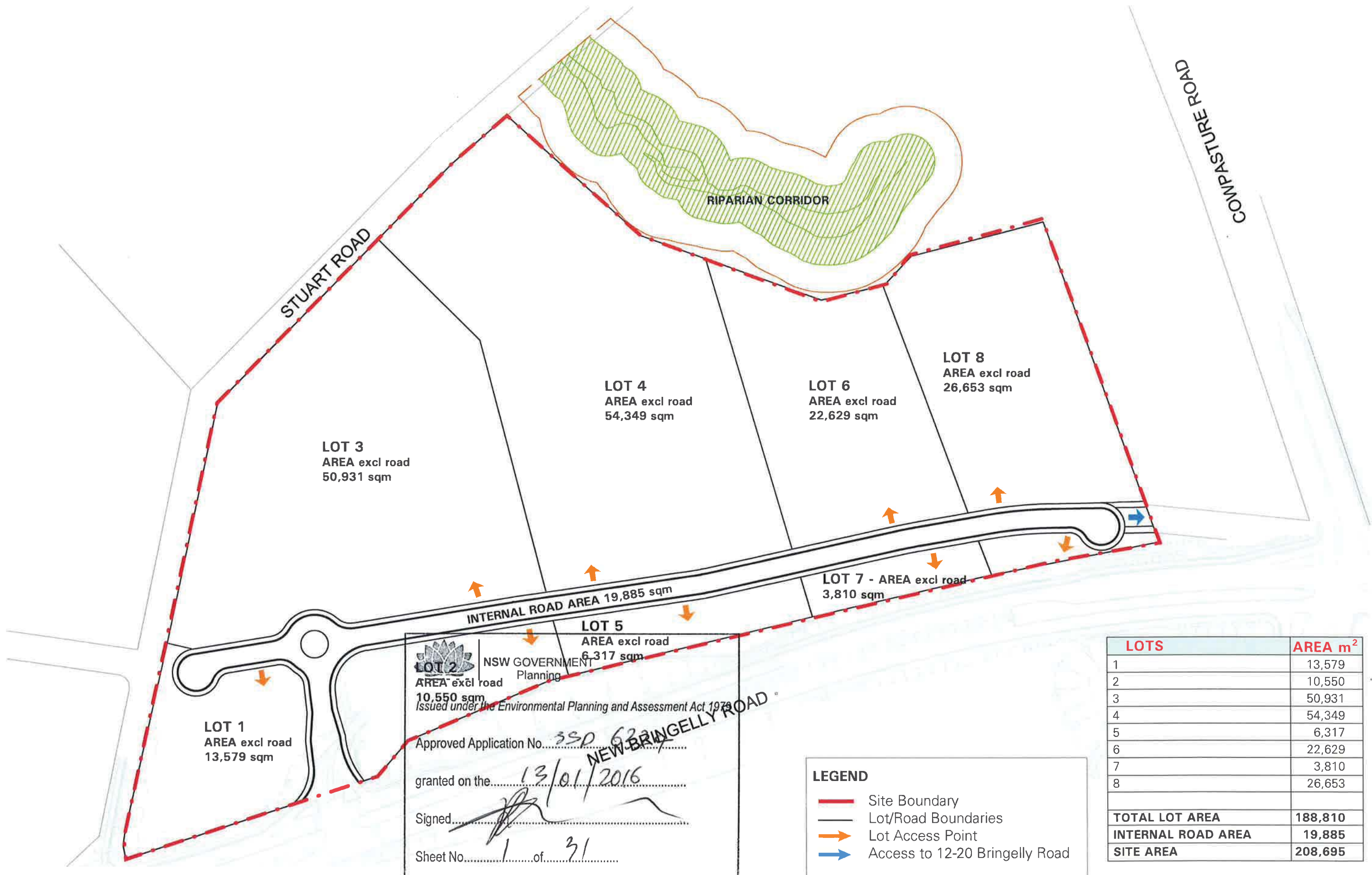
2.3 Proposed Modified Development

The proposed Steelforce development scheme involves minor earthworks and construction of a new building centrally on the site comprising:

Warehouse	10,000m ²
Office (2 level)	600m ²
Total:	10,600m²

It is proposed to provide a total of 36 parking spaces in the frontage area (with 12 contingent spaces at the rear) and 3 access driveways for cars and trucks on the Skyline Crescent frontage.

Steelforce will have a total workforce of 38 persons over 3 shifts (Monday to Friday 6am–2pm, 2pm–10pm, 10pm–6am for warehouse and 8.00am–5.30pm for office with some weekend work 6am–3pm). The average truck movements will comprise:




NSW GOVERNMENT Planning
 AREA excl road 10,550 sqm
 Issued under the Environmental Planning and Assessment Act 1979
 Approved Application No. 350 62
 granted on the 13/01/2016
 Signed [Signature]
 Sheet No. 1 of 31

LOTS	AREA m ²
1	13,579
2	10,550
3	50,931
4	54,349
5	6,317
6	22,629
7	3,810
8	26,653
TOTAL LOT AREA	188,810
INTERNAL ROAD AREA	19,885
SITE AREA	208,695

LEGEND


- Site Boundary
- Lot/Road Boundaries
- Lot Access Point
- Access to 12-20 Bringelly Road



Scale: 1:2500 @A3

Site Plan
13525 | Bringelly Road Business Hub

Drawing No. **4**


 Prepared for : Western Sydney Parklands Trust
 JBA - Urban Development Services
 ABN 84 060 735 104 ACN 060 735 104 www.jbaplanning.com.au
 Level 7, 77 Berry Street North Sydney NSW 2060 t +61 2 9955 6962

Revision No.	Revision Date	Revision Details	Approved By	File name
9	5_6_15	Site Plan	GK	SITE PLAN_18_12_14_

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- HRV 1 – 2 per day
- Semi-trailer 22 per day
- B Double 1 per week
- Containers 3 per day

Details of the proposed development are provided on the plans which accompany the Application.

3.0 Road Network and Traffic Conditions

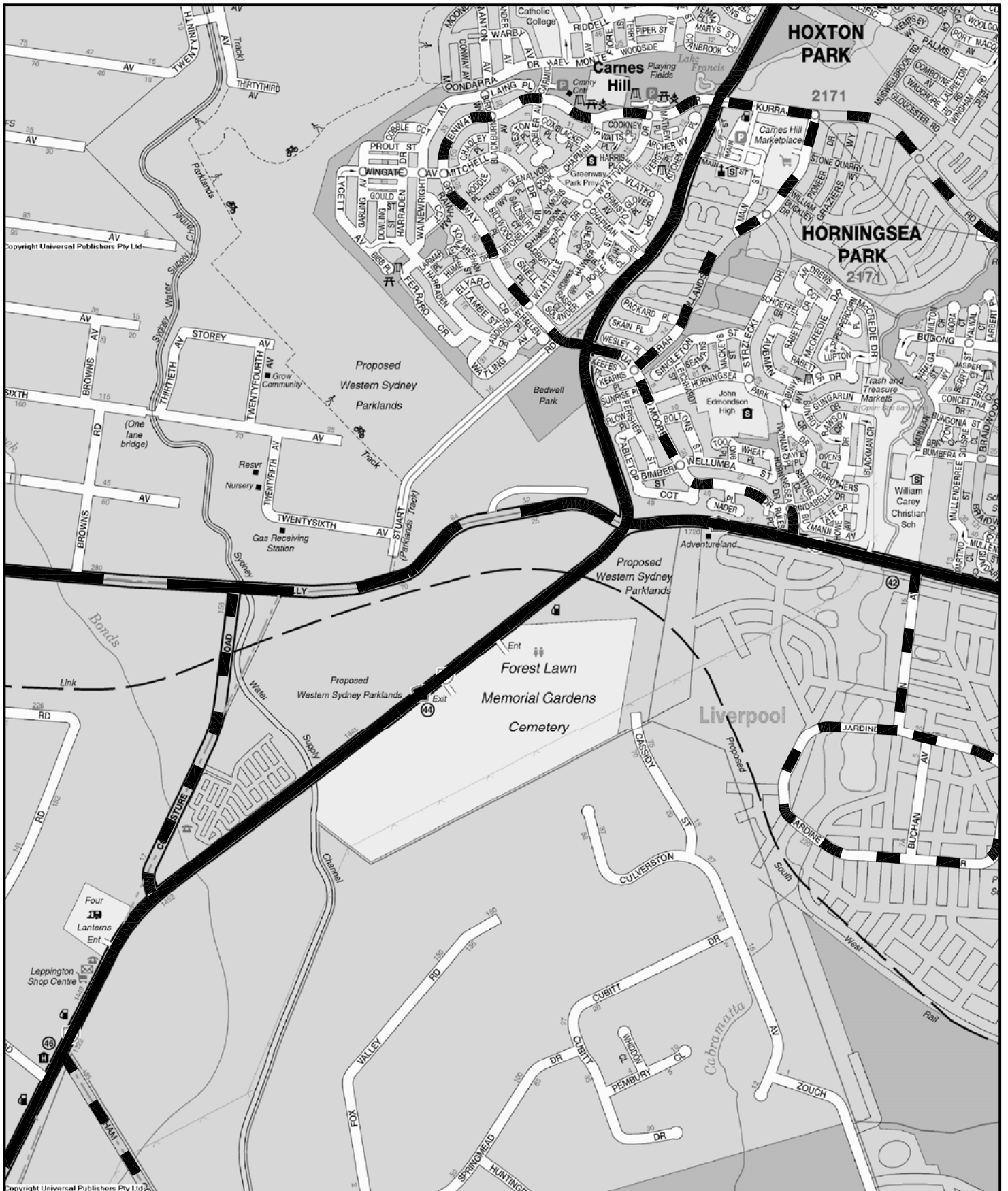
3.1 Road Network

The existing road network serving the site (Figure 3) comprises:

- ❖ *Camden Valley Way* – a State Road and arterial route which connects between the Hume Highway at Casula and Camden
- ❖ *Cowpasture Road* – a State Road and arterial route which connects between the Horsley Drive at Bossley Park and Camden Valley Way at Horningsea Park
- ❖ *Bringelly Road* – a State Road and sub-arterial route which connects between Cowpasture Road / Camden Valley Way at Horningsea Park and The Northern Road at Bringelly
- ❖ *Cowpasture Road (South)* – a State Road and Collector route which connects between Camden Valley Way and Bringelly Road
- ❖ The collector road systems serving Horningsea Park, Carnes Hill and Edmondson Park
- ❖ *Stuart Road* – a local access road, connecting to Greenway Drive

RMS are upgrading Bringelly Road over the 10km length between Camden Valley Way and The Northern Road and this work will complement the completed work on Camden Valley Way and current construction for The Northern Road.

The upgrade works on Bringelly Road are being staged and construction commenced in 2016 with the suggested schedule for completion reproduced overleaf from the AECOM Traffic and Transport Modelling Assessment undertaken for RMS.



LEGEND			<h1>ROAD NETWORK</h1>
	ARTERIAL		
	COLLECTOR		
	SUB-ARTERIAL	<h2>FIG 3</h2>	

Table 1: Intersection upgrade staging

Intersection	2011	2016	2021	2026	2031	2036
The Northern Road	Existing layout	Extend turning bay lengths	Upgrade intersection - two lanes on Bringelly Road approaches	-	-	Ultimate layout
Kelvin Park Drive	Existing layout	-	Upgrade intersection - signalisation and two lanes on Bringelly Road approaches	-	-	Ultimate layout
Jersey Road	Existing layout	-	Upgrade intersection * - signalisation and two lanes on Bringelly Road approaches	-	-	Ultimate layout
Masterfield Street	Existing layout	-	Upgrade intersection - two lanes on Bringelly Road approaches (priority intersection)	-	Upgrade intersection - signalisation and two lanes on Bringelly Road approaches	Ultimate layout
North Avenue	Existing layout	-	Upgrade intersection *- signalisation and two lanes on Bringelly Road approaches	-	-	Ultimate layout
King Street	Existing layout	-	Upgrade intersection - signalisation and two lanes on Bringelly Road approaches	-	-	Ultimate layout
Eastwood Road	Existing layout	-	Upgrade intersection *- signalisation and three lanes on Bringelly Road approaches	-	-	Ultimate layout
Fourth Avenue	Existing layout	-	Upgrade intersection - signalisation and three lanes on Bringelly Road approaches	-	-	Ultimate layout
Edmondson Avenue	Existing layout	Upgrade intersection - signalisation and three lanes on Bringelly Road approaches	-	Ban northbound and southbound right turn movements	Ban eastbound right turn movement	Ultimate layout
Browns Road	Existing layout	-	Upgrade to T intersection - signalisation and three lanes on Bringelly Road approaches	-	-	Ultimate layout
Cowpasture Road	Existing layout	Upgrade intersection - signalisation and two lanes on Bringelly Road approaches	-	-	Upgrade intersection - three lanes on Bringelly Road approaches	Ultimate layout

Source: AECOM, 2011

*- including an interim U-turn facilities to assist with local access with the upgrade of Bringelly Road to a divided carriageway

3.2 Traffic Controls

The existing traffic controls on the road network (Figure 4) comprise:

- ❖ the 70 kmph speed restriction on Bringelly Road east of Cowpasture Road (South) and 80 kmph to the west
- ❖ the traffic signals at the Bringelly Road, Cowpasture Road and Camden Valley Way intersection
- ❖ the central median island along Cowpasture Road

Details of the current and proposed arrangements at the Bringelly Road and Access Road intersection are provided on the image and plan overleaf.

3.3 Traffic Conditions

The projected traffic volumes at the Bringelly Road and Skyline Crescent intersection are identified in the study¹ undertaken for the SSD application in Figures 5a and 5b for the envisaged 80% and 100% completion of the BRBH development.

The operational performance of the Bringelly Road/Skyline Crescent intersection as assessed in the study had regard for the staging of the upgrade works and increasing traffic demands reveals the following operational satisfactory projected performances.

	AM		PM	
	LOS	AVD	LOS	AVD
2026*	A	10.5	B	22.4
2031**	A	11.1	C	25.6

*Bringelly Road 4 lanes, right turn 1 lane

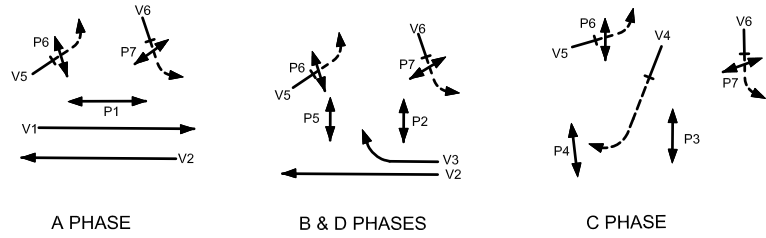
**Bringelly Road 6 lanes, right turn 2 lanes

¹ Western Sydney Parklands
Bringelly Road Business Hub
Traffic Impact Assessment
TTPA Dec. 2014

DRAWN BY CADD
DO NOT AMEND MANUALLY

WESTERN SYDNEY PARKLANDS

DATE IN SERVICE : 00/00/00



MOVEMENTS

DETECTOR SPECIFICATION

Detector	Specifications			
	FN	A(L)	A(E1)	
A	SG/PS	Ā	A	
	DS			
A-B-D	FN	A(L)	A(E2)	
	SG/PS	V2	A	
	DS	B.D	B(NEXT),D(NEXT)	
contd.	FN	B(E2)	D(E2)	
A-B-D	SG/PS	B	D	
	DS	A(NEXT),D(NEXT)	A(NEXT),B(NEXT)	
B-D	FN	B(L)	D(L)	B(E1) D(E1)
	SG/PS	V3	V3	B D
	DS	-	Z+	D(NEXT) B(NEXT)
C	FN	C(L)	C(E1)	
	SG/PS	C	C	
	DS	-	-	
P1 P.B.	FN	A(PB)	Re-introduce Wak	
	SG/PS	P1(WALK)	A.P1(WALK)	
	DS	-	B.C.D	
P2 P.B.	FN	B(PB)	D(PB)	A(L)
	SG/PS	P2(WALK)	P2(WALK)	B.P2(WALK)
	DS	-	Z+	Ā.C.D
P3 P.B.	FN	C(PB)	A(L)	
	SG/PS	P3(WALK)	C.P3(WALK)	
	DS	-	Ā.B.D	
P4 P.B.	FN	C(PB)	A(L)	
	SG/PS	P4(WALK)	C.P4(WALK)	
	DS	-	Ā.B.D	
P5 P.B.	FN	B(PB)	D(PB)	A(L)
	SG/PS	P5(WALK)	P5(WALK)	B.P5(WALK)
	DS	-	Z+	Ā.C.D

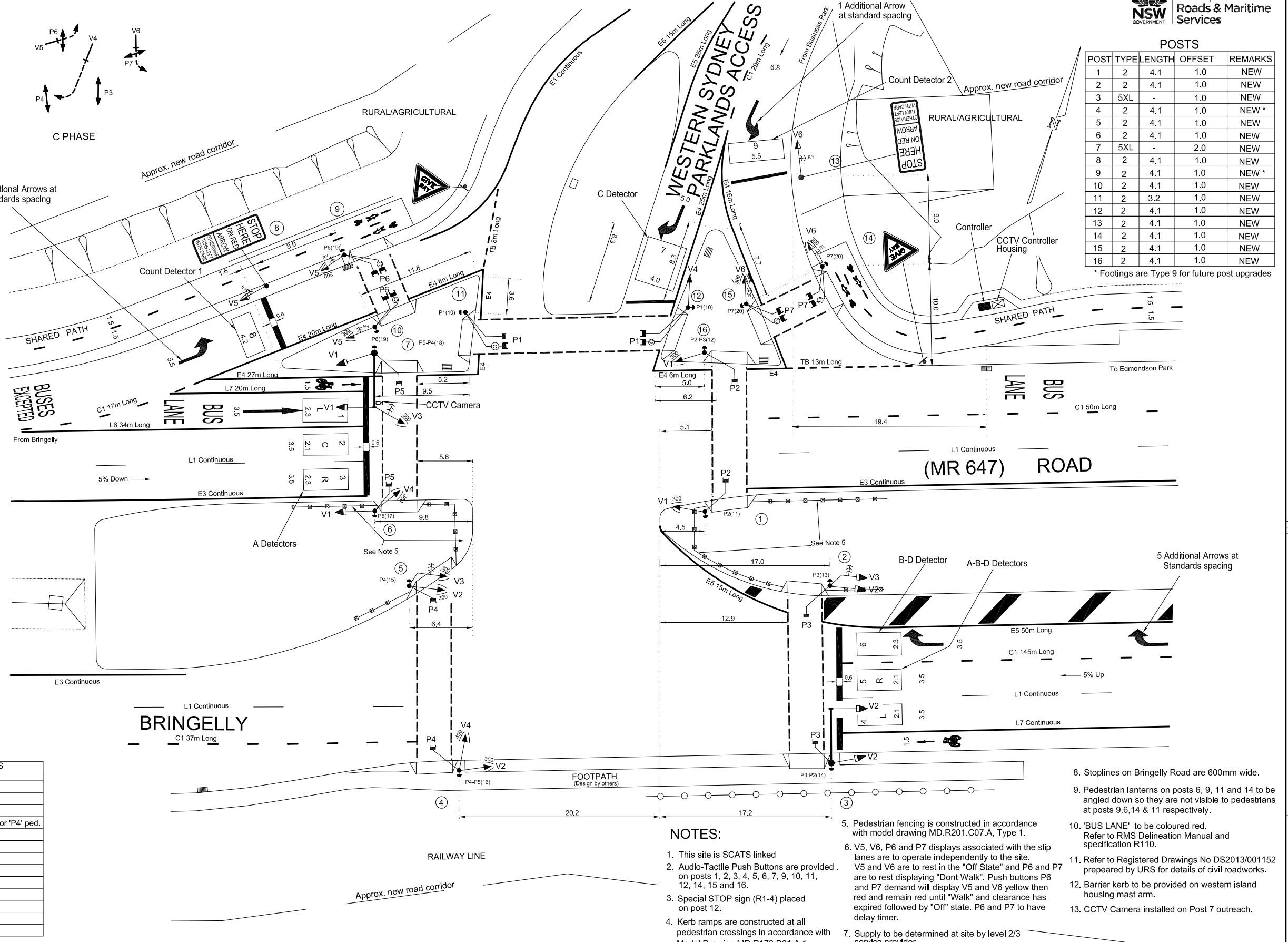
SIGNAL GROUP/PHASE CHART

SIGNAL GROUP	PHASES WHEN GREEN				STANDARD TABLE	REMARKS
	A	B	C	D		
V1	X				1	
V2	X	X		X	3	
V3		X		X	34	
V4			X		72	Full Red protection for 'P4' ped.
V5					-	See note 6
V6					-	See note 6
P1	X				3	
P2		X		X	31	
P3			X		1	
P4			X		1	
P5		X		X	31	
P6	X	X	X	X	-	See note 6
P7	X	X	X	X	-	See note 6

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	NEW
2	2	4.1	1.0	NEW
3	5XL	-	1.0	NEW
4	2	4.1	1.0	NEW *
5	2	4.1	1.0	NEW
6	2	4.1	1.0	NEW
7	5XL	-	2.0	NEW
8	2	4.1	1.0	NEW
9	2	4.1	1.0	NEW *
10	2	4.1	1.0	NEW
11	2	3.2	1.0	NEW
12	2	4.1	1.0	NEW
13	2	4.1	1.0	NEW
14	2	4.1	1.0	NEW
15	2	4.1	1.0	NEW
16	2	4.1	1.0	NEW

* Footings are Type 9 for future post upgrades



NOTES:

- This site is SCATS linked
- Audio-Tactile Push Buttons are provided on posts 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15 and 16.
- Special STOP sign (R1-4) placed on post 12.
- Kerb ramps are constructed at all pedestrian crossings in accordance with Model Drawing MD.R173.B01.A.1.
- Pedestrian fencing is constructed in accordance with model drawing MD.R201.C07.A, Type 1.
- V5, V6, P6 and P7 displays associated with the slip lanes are to operate independently to the site. V5 and V6 are to rest in the "Off State" and P6 and P7 are to rest displaying "Don't Walk". Push buttons P6 and P7 demand will display V5 and V6 yellow then red and remain red until "Walk" and clearance has expired followed by "Off" state. P6 and P7 to have delay timer.
- Supply to be determined at site by level 2/3 service provider.
- Stoppines on Bringelly Road are 600mm wide.
- Pedestrian lanterns on posts 6, 9, 11 and 14 to be angled down so they are not visible to pedestrians at posts 9, 6, 14 & 11 respectively.
- 'BUS LANE' to be coloured red. Refer to RMS Delineation Manual and specification R110.
- Refer to Registered Drawings No DS2013/001152 prepared by URS for details of civil roadworks.
- Barrier kerb to be provided on western island housing mast arm.
- CCTV Camera installed on Post 7 outreach.

A ORIGINAL ISSUE	PUBLIC UTILITY LEGEND		REFERENCE PLANS		U.B.D. Ref. Map 267 A16		DESIGN APPROVAL		RMS ACCEPTANCE		ROADS AND MARITIME SERVICES LIVERPOOL COUNCIL AREA TRAFFIC SIGNALS AT BRINGELLY ROAD (MR647) AND WESTERN SYDNEY PARKLANDS ACCESS LEPPINGTON TCS No. 4589		EXISTING <input type="checkbox"/> PROPOSED <input checked="" type="checkbox"/>	
	HYDRANT <input type="checkbox"/> STOP VALVE <input type="checkbox"/> GAS VALVE <input type="checkbox"/> SEWER MANHOLE <input type="checkbox"/> TELECOM PIT <input type="checkbox"/> ELECT LIGHT POLE <input type="checkbox"/> POWER POLE <input type="checkbox"/> STAY POLE <input type="checkbox"/> TELEPHONE BOX <input type="checkbox"/> TELECOM PILLAR <input type="checkbox"/>		SYMBOLS/ABBS. VDD003-6 STD POSIT VDD001-5 PRES. DETECT VC005-17 VEH. GROUP OP TS-TN-019 DET. LOGIC OP TS-TN-020 PED. MOVEMENT OP TS-TN-021		I.S.G. E: 284 273 CO-ORDS N: 1 241 764 DESIGNED J. SINGH CHECKED C. TOMA C. TOMA SITE CHECKED B. LO RECOMMENDED		APPROVED R. NETTLE DIRECTOR DATE 30/10/2015 DESIGN PREPARED BY TRANSPORT AND TRAFFIC PLANNING ASSOCIATES		RECOMMENDED POSITION DATE ACCEPTED POSITION DATE				CADD FILE: VV4589_1A.dgn SCALE 5 0 (1:200) 5 10 FILE SF2014/014824 SUPERSEDES SHEET/ISSUE -/- REG No. DS2014/004956 TCS No. 4589	
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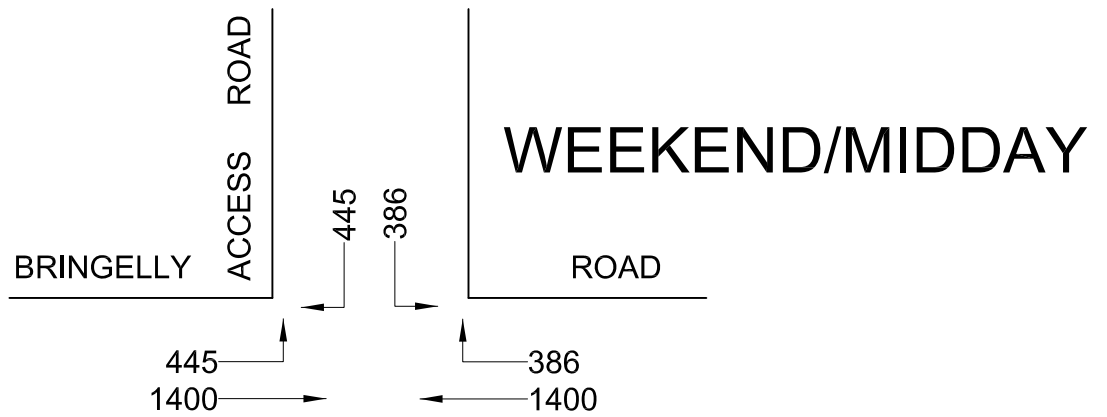
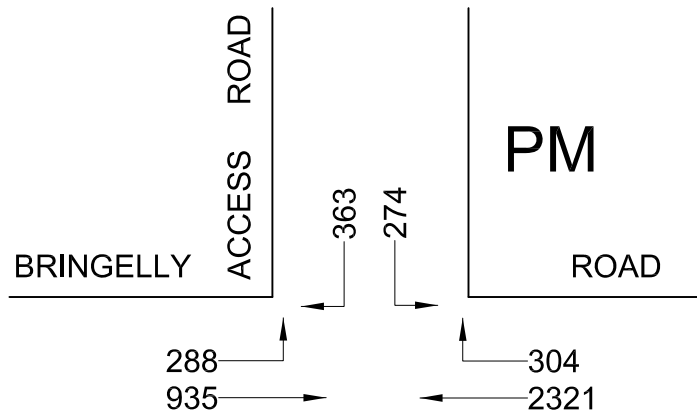
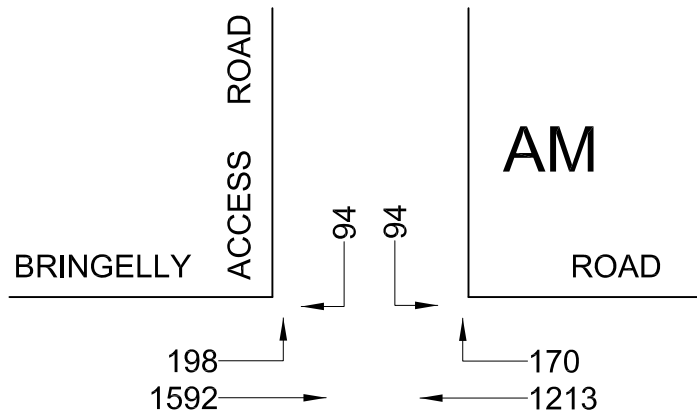
Search History

Street Maps
 Properties

nearmap
current | clear | change

10 m

Terms of Use

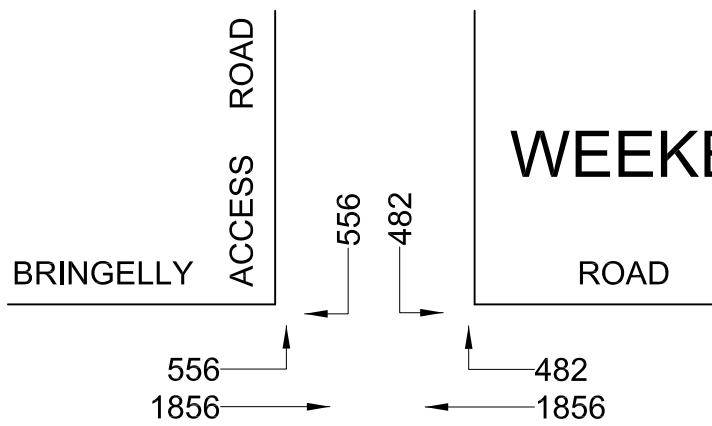
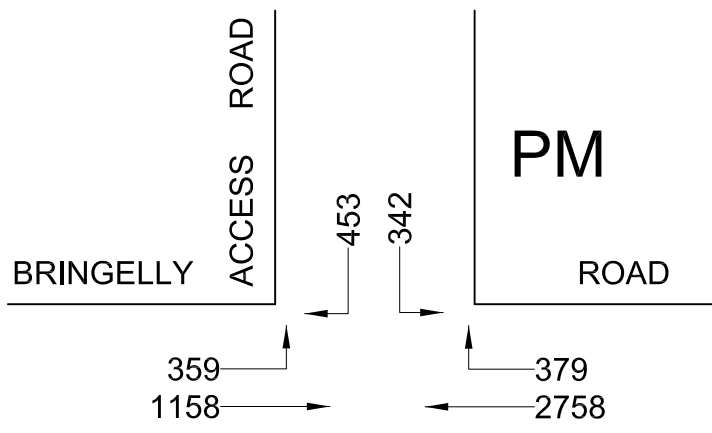
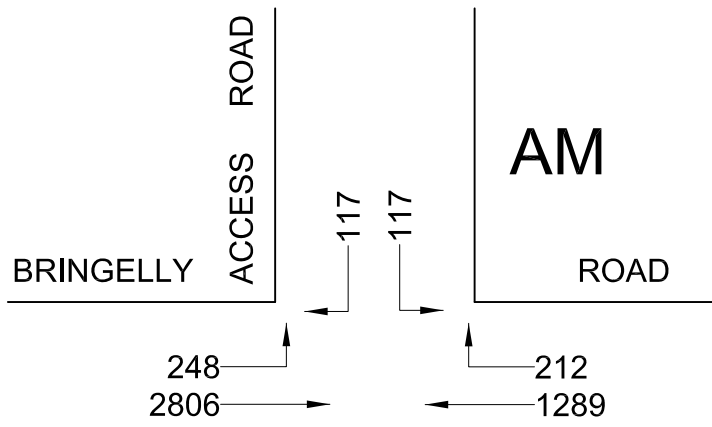


LEGEND



**PROJECTED 2026
VOLUMES
WITH DEVELOPMENT
80% TAKE UP**

FIG 5a



LEGEND



**PROJECTED 2031
VOLUMES
WITH DEVELOPMENT
100% TAKE UP**

FIG 5b

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Similarly, the operational performance of the Bringelly Road/Cowpasture Road intersection as assessed in the AECOM study having regard for the same upgrade works and increased traffic demand reveal the following projections:

	Levels of Service	
	AM	PM
2016	B	B
2021	B	B
2026	B	B
2031	B	C
2036	C	C

The criteria for interpreting SIDRA Level of Service output is reproduced overleaf. It would now appear however that the nature of development uses that will eventuate on BRBH will be of a much lower traffic generation nature than envisaged for the SSD process.

3.4 Transport Services

The Leppington Railway Station, some 2.7km to the west, provides 20-30 minutes frequency train services while 30-minute to hourly Interline bus services operate along Camden Valley Way (routes 851, 855, 856 and 857) and Horningsea Park Drive (routes 852, 854 and 864) within 600m from the site.

It is inevitable that as the upgrade of Bringelly Road is completed and development occurs in the frontage lands that bus services will be provided along Bringelly Road taking advantage of the bus stop and priority provisions incorporated into the Bringelly Road upgrade scheme.

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	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

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs

4.0 Sustainable Travel Plan

Achieving a sustainable non-car travel mode outcome for the proposed development will be facilitated by:

- ❖ The bus stops that will be provided in the bus bays located on both sides of Bringelly Road adjacent to the BRBH access intersections. The bus services will provide connections to the surrounding residential areas, the railway stations at Leppington and Liverpool and inter-connection with other regional bus services.
- ❖ The shared path provided along the northern side of Bringelly Road which will connect to the regional bicycle and pedestrian network
- ❖ The provision of traffic signals at the Bringelly Road and Skyline Crescent access intersection which will incorporate pedestrian and cyclist crossing facilities
- ❖ The provision of lockers and shower facilities
- ❖ The provision for bicycle parking

A Green Travel Plan incorporating a Transport Access Guide will be prepared and submitted as part of the Construction Certificate documentation.

5.0 Parking

Application of the SSD parking criteria to the proposed development would indicate the following:

Warehouse	10,000m ²	@ 1 per 300m ²	33.3 spaces
Office	600m ²	@ 1 per 40m ²	15.0 spaces
		Total:	48.3 spaces

Steelforce will only have a total workforce on site of 38 persons over 3 shifts. It is proposed to provide 36 spaces including 1 accessible space in the frontage area with provision for 12 contingent spaces at the rear of the building.

It is apparent that this will be a quite adequate parking provision for the needs of the development, particularly as there will also be large hard stand areas available should any further contingent need arise.

6.0 Traffic

The Traffic Assessment for the BRBH (SSD 6324) identified a projected total traffic generation for the 18.5ha of developable land of:

Assessed Traffic Outcome	Traffic Generation Rate
AM 536 vph	29 vph per ha
PM 1,064 vph	57.5 vph per ha

The proposed development on Lot 8 with a net area some of 2.23ha would, on this basis, generate the following envisaged (and approved) traffic outcome:

AM	65 vph
PM	128 vph

Steelforce will have a total workforce of 38 persons spread over 3 shifts with the warehouse and office staff starting and finishing at different times.

Other vehicle movements will comprise:

Deliveries and Dispatches	27 – 28 visitations per day
---------------------------	-----------------------------

Assessment of these activities with advice from the Steelforce company representatives indicates the following projected traffic generation for the proposed development in the AM and PM “road network peak periods”:

	AM (7-8)		PM (5-6)	
	IN	OUT	IN	OUT
Staff	10	-	-	10
Delivery/Dispatch	3	3	2	2
Total:	13 vph	3 vph	2 vph	12 vph

Transport and Traffic Planning Associates

It is apparent that the traffic generation outcome for the proposed revised development will be far less than that assessed in the SSD traffic assessment, particularly in the PM peak where the projected outcome is only 10% of what was approved for the site. Accordingly, the development will not present any unsatisfactory implications for the road system.

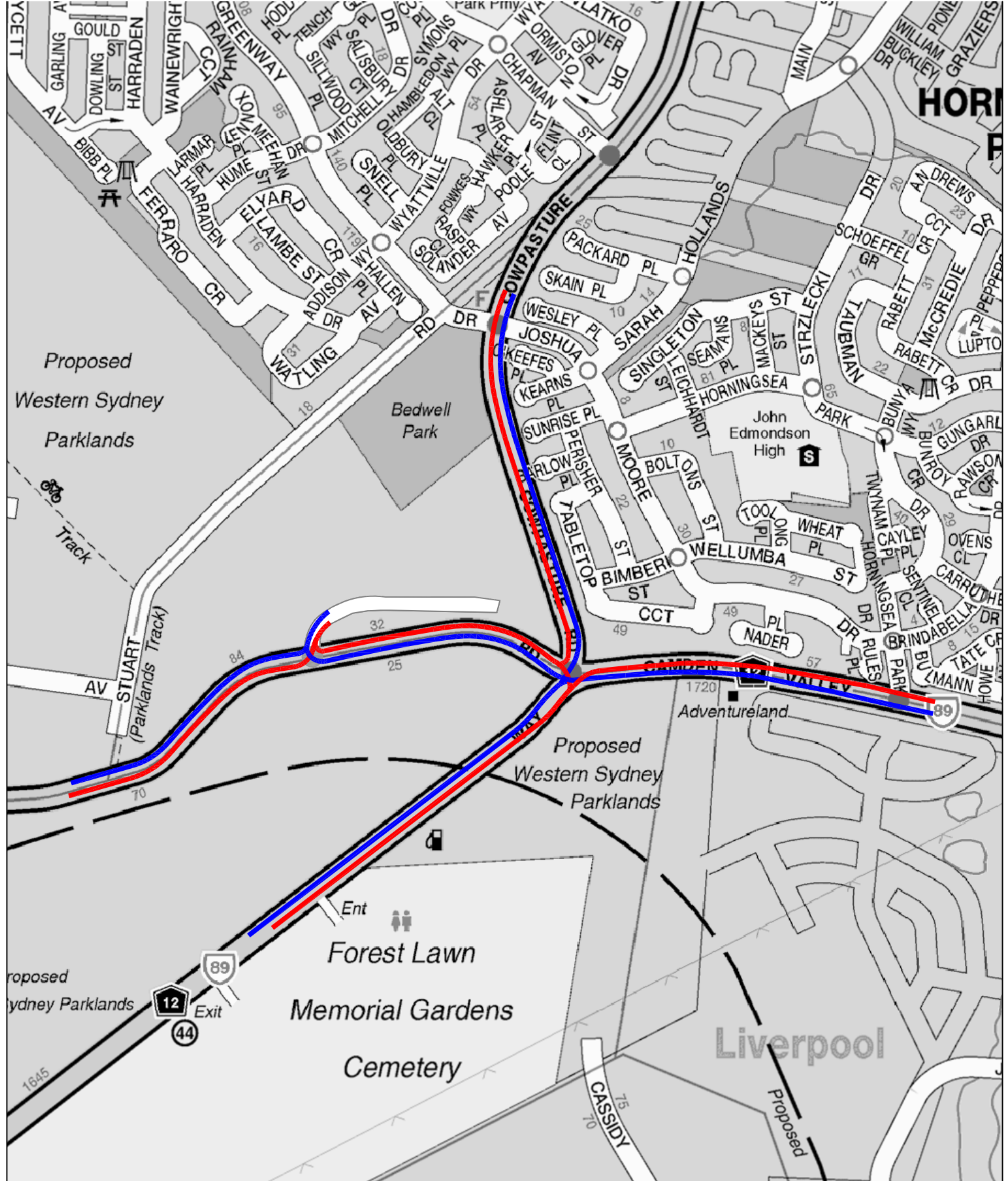
7.0 Construction Traffic Management Plan

A Construction Traffic Management Plan has been prepared for the Early Works processes for the BRBH. The elements of the Indicative Construction Traffic Management Plan in respect of the proposed development are as follows:

- ❖ Construction Hours: As per Consent Condition
- ❖ Hoarding/Fencing: A-Class fencing on site boundaries
- ❖ Vehicle Access: Driveway located towards the centre of the site boundary
- ❖ Truck Access: Via Bringelly Road access with Traffic Controller Supervision unless traffic control signals are operational
- ❖ Truck Routes: See Figure 6
- ❖ Establishment, Earthworks and Services: 3 weeks with 10-15 truck visitations per day
- ❖ Construction: 35 weeks with 4-5 truck deliveries per day (more during major concrete pours)
- ❖ Materials Handling and Storage: All contained within the site.

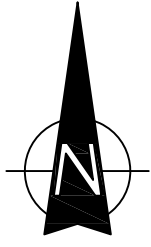
During the construction process, there will be a maximum of 70 workers on the site and it is apparent that the traffic activity during this process will be very similar to that when the development is completed and operational.

A detailed CTMP will form part of the Steelforce application and will be updated as required during the Detail Designs and Construction Certificate processes.



LEGEND

- ARRIVAL
- DEPARTURE



TRUCK ROUTES

FIG 6

8.0 Access, Internal Circulation and Servicing

8.1 Access

The proposed vehicle access arrangements for the development comprise:

- ❖ A 12m wide ingress driveway located at the eastern site boundary for truck access
- ❖ A 12m wide egress driveway located at the western site boundary for truck access
- ❖ An 6m wide combined ingress/egress driveway located in the western part of the site frontage for car park access

These driveways will accord with AS2890.1 and 2 design requirements, being located where good sight distances will be available.

8.2 Internal Circulation

The design of the internal arrangements including truck manoeuvring, carpark aisles/bays etc. have been designed in accordance with AS2890.1, AS2890.2 and AS2890.6. Truck turning paths showing the satisfactory provision for circulation movements of articulated vehicles are provided in Appendix A.

8.3 Servicing

There will only be a relatively minor level of servicing required for the development (i.e. apart from receipt and dispatch movements). The warehouse will have a loading area along the western side while there will also be “drive-thru” provisions and the facility will be capable of accommodating B-Double trucks. Refuse removal will be undertaken by contract vehicles while the expansive hardstand area will adequately provide for the standing of service vehicles. It is assessed on this basis that the proposed servicing arrangements will be adequate for the needs of the envisaged operations at the site.

9.0 Consultation Process

As part of the consultation process, a summary of the approaches/responses which form the basis of this assessment (and reproduced overleaf) was provided to TfNSW and RMS, while details of the email correspondence are provided in Appendix B.

Item No.	TTPA Approach/Response
DoPE Letter: Traffic and Access	
1	An appropriately detailed/quantified traffic impact assessment report has been undertaken in response to this request.
2	Details of operational and construction traffic movements are provided in the TIA.
3	The proposed vehicular access arrangements for the site are consistent with the approved Masterplan. Pedestrian access and circulation are facilitated by a marked pedestrian crossing on the main entry roadway and separation of carparks from truck circulation area.
4	The proposed development outcome is lesser than that approved, and its corresponding traffic generation is also less than that approved for the site. As such, traffic implications associated with the proposal would not be any worse than the approved Masterplan's envisaged outcome.
5	The warehouse will be provided with a loading area and 'drive thrus' suitable for B-Doubles will be made available and advice provided by Steelforce indicate a projected total of some 28 visitations spread across the day. Parking provision is compliant with the DCP criteria. Appropriate provision has been made for bicycles and end of trip facilities have been incorporated in the design.
TfNSW Letter	
1	The estimate of daily and peak hourly traffic movements is detailed in the TIA.
2	The traffic assessment undertaken for the Bringelly Business Hub development (up until 2031) reveal a satisfactory intersection operation and this assessment has regard for the cumulative and background traffic growth in the region.
3	The proposed development outcome is lesser than that approved, and its corresponding traffic generation is also less than that approved for the site. As such, traffic implications associated with the proposal would not be any worse than the approved Masterplan's envisaged outcome.
4	Appropriate provision has been made for bicycles and end of trip facilities have been incorporated in the design.
5	The proposed vehicular access arrangements for the site are consistent with the approved Masterplan. Pedestrian access and circulation are facilitated by a marked pedestrian crossing on the main entry roadway and separation of carparks from truck circulation area.
6	The warehouse will be provided with a loading area and 'drive thrus' suitable for B-Doubles and advice provided by Steelforce indicate a projected total of some 28 visitations spread across the day. The estimated no. of other vehicle movements for the site is detailed in the TIA.
7	The proposed vehicular access arrangements for the site are consistent with the approved Masterplan which has regard for emergency vehicle movements.
8	Details of dangerous goods will be provided by relevant expertise.
9	A preliminary CTMP is incorporated in the TIA.



Item No.	TTPA Approach/Response
RMS Letter	
1	The traffic assessment undertaken for the Bringelly Business Hub development (up until 2031) reveal a satisfactory intersection operation and this assessment has regard for the cumulative and background traffic growth in the region.
2	The proposed vehicular access arrangements for the site are consistent with the approved Masterplan. Parking provision is compliant with the DCP criteria. Swept path diagrams for critical vehicles requiring access to the site are appended to the TIA.
3	The estimated no. of service vehicle movements for the site is detailed in the TIA.
4	Appropriate provision has been made for bicycles and end of trip facilities have been incorporated in the design. Assessment of sustainable travel options is incorporated in the TIA.

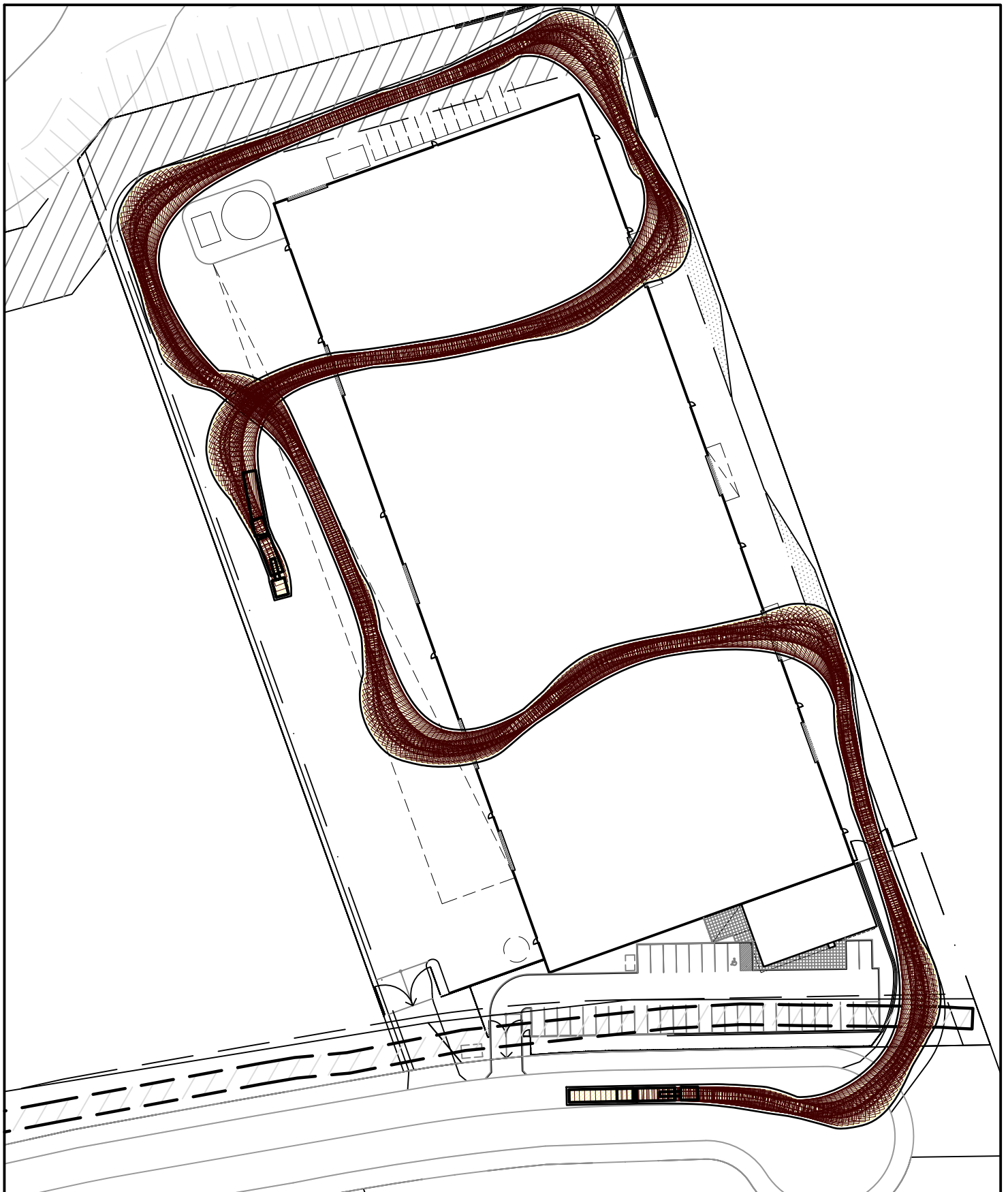
10.0 Conclusion

The proposed modified warehouse facility for Steelforce on Lot 8 in the BRBH represents a typical contemporary Business Park development outcome. The assessment, which has regard for the relevant SEARS requirements, has established that:

- ❖ the proposal is entirely consistent with the traffic analysis undertaken for the SSD (although the traffic generation outcome will be somewhat less)
- ❖ the proposal will not have any adverse traffic implications on the surrounding road network
- ❖ the proposed parking provision will be quite adequate and appropriate for the development and compliant with the SSD criteria
- ❖ the proposal will adequately provide for access, internal vehicle circulation and servicing

Appendix A

Turning Path Assessment



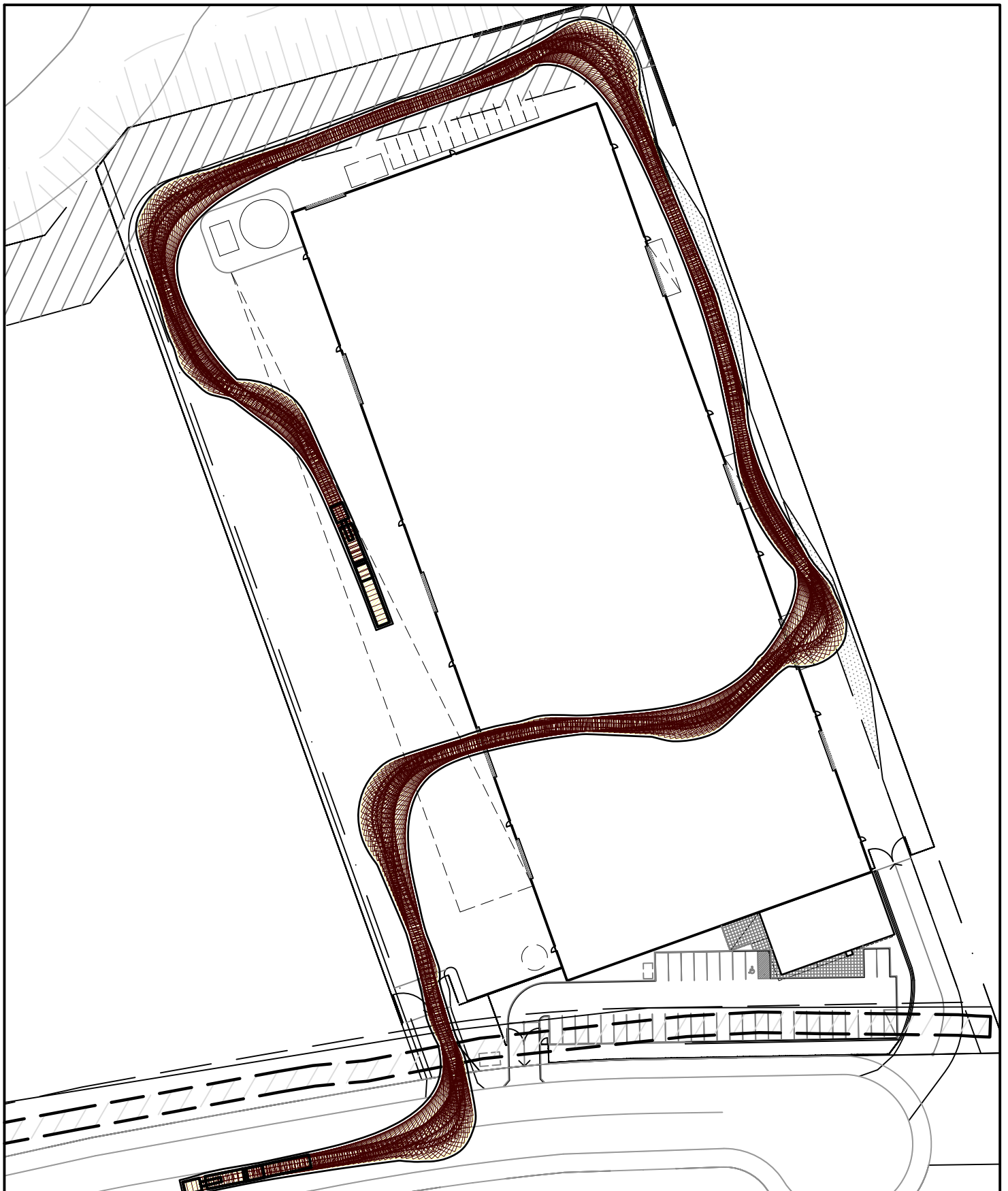
LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.



**SWEPT PATH ANALYSIS
OF 25m ARTICULATED
VEHICLES ENTERING AND
EXITING THE SITE**

SP 1



LEGEND

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.



**SWEPT PATH ANALYSIS
OF 25m ARTICULATED
VEHICLES ENTERING AND
EXITING THE SITE**

SP 2

Appendix B

Consultation Process

Ross Nettle

From: Ross Nettle <ross@tpa.com.au>
Sent: Friday, 16 November 2018 4:00 PM
To: 'billy.yung@transport.nsw.gov.au'; Development Sydney (development.sydney@rms.nsw.gov.au)
Cc: 'chloe.dunlop@planning.nsw.gov.au'
Subject: SSD 8900 (Lot 8, Bringelly Road Business Hub) (our ref. 17184)
Attachments: STEELFORCE PROJECT CONSULTATION SUMMARY 20181115.pdf

To whom it may concern

As required by the SEARs requirements, I attach herewith our tabulated approach and responses to the relevant SEARs items which briefly demonstrate how we intend to address the detailed traffic assessment for this proposal.

I invite you to contact myself at 9411-5660 should you require further clarification to the attached details.

Regards

Ross Nettle | Director

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES

Established 1994

Suite 502, Level 5, 282 Victoria Avenue, Chatswood NSW 2067

P (02) 9411 5660 **F** (02) 9904 6622 **W** tpa.com.au

