"PRESTONS INDUSTRIAL ESTATE"

PROPOSED WAREHOUSE DEVELOPMENT

S96(1A) APPLICATION (MOD 2)

CNR YARRUNGA STREET AND BERNERA ROAD PRESTONS

Assessment of Traffic and Parking Implications

June 2017
(Rev C)

Reference 15168

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1. INTRODUCTION

This report has been prepared to accompany a S96(1A) Application to Planning and Environment NSW for a proposed modification to the approved warehouse 3 + 4 within the "Prestons Industrial Estate" which is located in the eastern part of the large industrial precinct at Prestons (Figure 1).

The Prestons area is a developing mixed industrial precinct which has evolved on largely vacant land bound by Kurrajong Road, Westlink M7 and Cabramatta Creek. There is a wide range of industrial, manufacturing, warehouse, waste recycling and other uses in the area which has excellent access to the arterial road system that links to the regional motorway systems.

Approval has been granted for the staged development of the "Prestons Industrial Estate" comprising 5 warehouse buildings with ancillary offices. Warehouses 2 and 5 have been constructed and occupied while by a separate S96(1A) application it is proposed to extend the Estate site to the west and to:

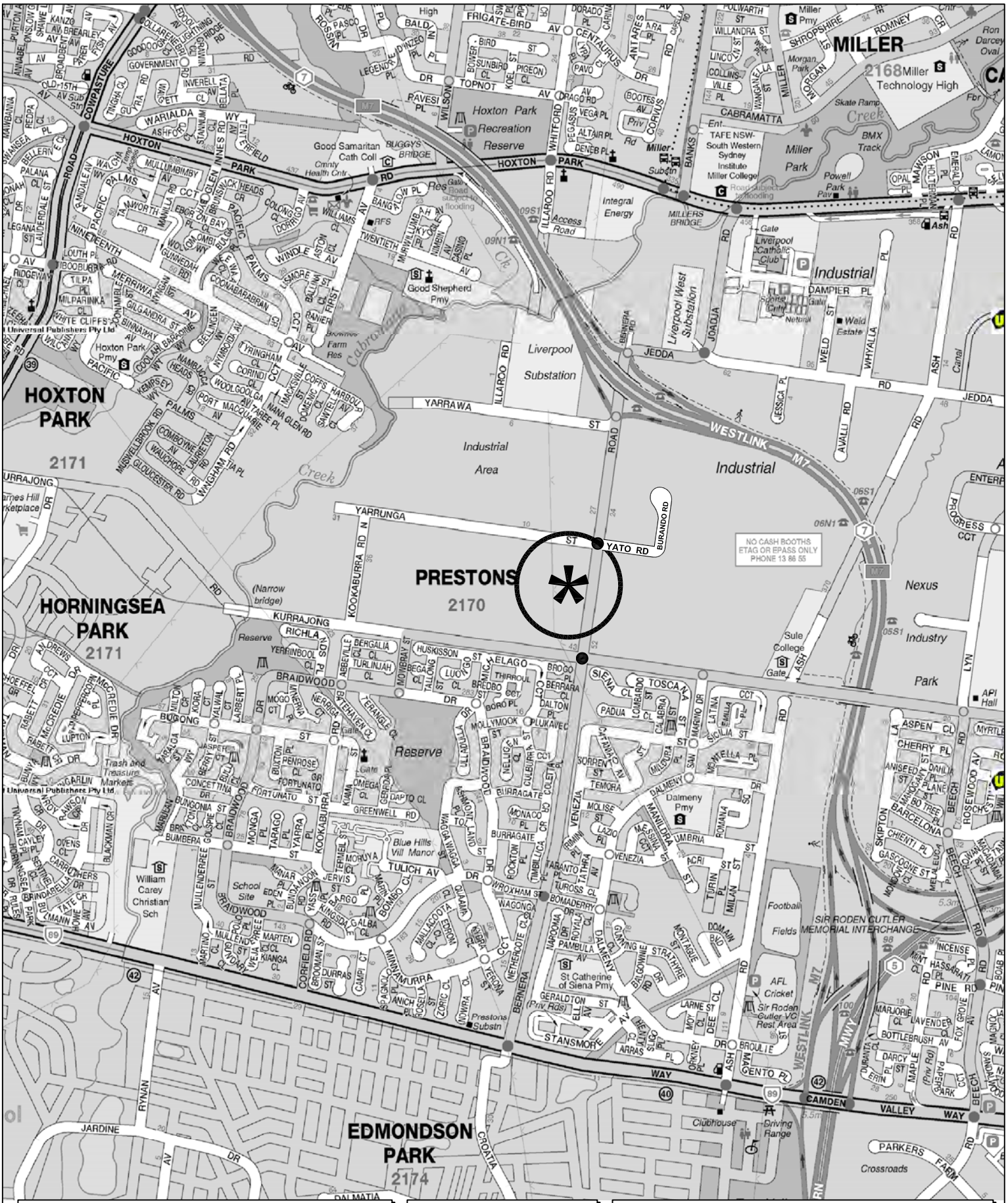
- extend the approved Warehouse 1 west (Building 1B)
- provide a Sales, Spare Parts and Servicing facility for Volvo

The subject S96(1A) Application proposes to divide the approved Warehouse 3 into three smaller warehouses (3A, 3B & 3C) and to introduce an Indoor Sports and Recreation Centre use into Warehouse 4.

The purpose of this report is to:

* describe the site, the approved development scheme and the proposed S96(1A) modification

* describe the road network serving the site and the prevailing traffic conditions



LEGEND

LOCATION

FIG 1

- assess the potential traffic implications in the context of the two S96(1A) applications (as described above) having regard for the proposed access intersection upgrade

- assess the adequacy of the proposed parking provision

- assess the suitability of the proposed vehicle access, internal circulation and servicing arrangements

2. PROPOSED DEVELOPMENT

2.1 SITE AND CONTEXT

The Prestons Industrial Estate site (Figure 2) has been expanded to incorporate Lots A and B in DP 408207 and now occupies an irregular shaped total area of approximately 24.34ha with frontages to the Yarrunga Street, Bernera Road and Kookaburra Road in the southern part of the Prestons Industrial Precinct.

The nearby uses comprise:

* the surrounding existing and developing industrial uses
* the residential area extending to the south of Kurrajong Road

2.2 APPROVED DEVELOPMENT

The approved total development scheme for Prestons Industrial Estate comprises:

WAREHOUSE FACILITY 1	
Warehouse	26,950m^2
Office	1,800m^2

WAREHOUSE FACILITY 2	
Warehouse	30,005m^2
Office	820m^2

WAREHOUSE FACILITY 3	
Warehouse	12,280m^2
Office Area	1,100m^2

WAREHOUSE FACILITY 4	
Warehouse	3,285m^2
Office	300m^2

WAREHOUSE FACILITY 5	
Warehouse	32,400m^2
Warehouse Mezzanine	6,560m^2
Dock Office	55m^2
Office Area	650m^2

TOTAL	
Warehouse	111,480m^2
Office	4,725m^2
Building	116,205m^2

LEGEND

LOCATION

FIG 2

The approved vehicle accesses comprise:

* 2 ingress/egress driveways on the Yarrunga Street frontage for truck access
* 4 combined ingress/egress driveways on the Yarrunga Street frontage for cars
* An ingress/egress driveway on the Bernera Street frontage for cars
* An ingress/egress driveway on the Bernera Street frontage for trucks

Details of the approved development scheme are provided on the plans prepared by Axis Architectural which are reproduced in part in Appendix A.

2.3 OTHER DEVELOPMENT

The relevant major nearby development is the Charter Hall warehouse complex (M5M7 Logistics Estate) which has frontages to Yato Road and Kurrajong Road. This development scheme involves 4 large warehouse buildings together with an extension of Yato Road and comprises:

Building 1	**Building 3**
Warehouse 15,000m^2	Warehouse 30,000m^2
Office 250m^2	Office 569m^2

Building 2	**Building 4**	**Total**
Warehouse 10,000m^2	Warehouse 25,800m^2	Warehouse 80,000m^2
Office 300m^2	Office 500m^2	Office 1,619m^2

This warehouse complex will have its vehicle access through the Bernera Road, Yarrunga Road and Yato Road intersection and details of this development scheme are provided in Appendix B.

2.4 PROPOSED S96(1A) SCHEME

The proposal is to:

* divide the approved Warehouse 3 into three smaller warehouse buildings comprising:

	Warehouse	Office	Parking
Warehouse 3A	5,000m^2	315m^2	32 spaces
Warehouse 3B	3,335m^2	400m^2	27 spaces
Warehouse 3C	2,665m^2	300m^2	21 spaces

  Vehicle access will replicate that of the approved scheme apart from the proposed provision of a truck egress to Bernera Road from a "breezeway" through site 3B which will be restricted to left turn out only.

* introduce an Indoor Sports and Leisure Centre use into the approved Building 4 (3,500m^2). The proposed tenant operates an existing comparable facility at Seven Hills (Hills Indoor Sports) and the proposed facility will most likely comprise:

  - small Snap Fitness 24/7 gym (or similar)
  - Aquabliss School of Swim (25m and wading pools)
  - Sports Hall
  - Café
  - Physio
  - Amenities

A total of 124 parking spaces are to be provided with vehicle access comprising the approved driveway on Bernera Road (left turn IN/OUT only with central median island enforcement).

Details of the S96(1A) development scheme are provided on the plans prepared by Axis Architectural which accompany the Application and are reproduced in part in Appendix C.

3. ROAD NETWORK AND TRAFFIC CONDITIONS

3.1 ROAD NETWORK

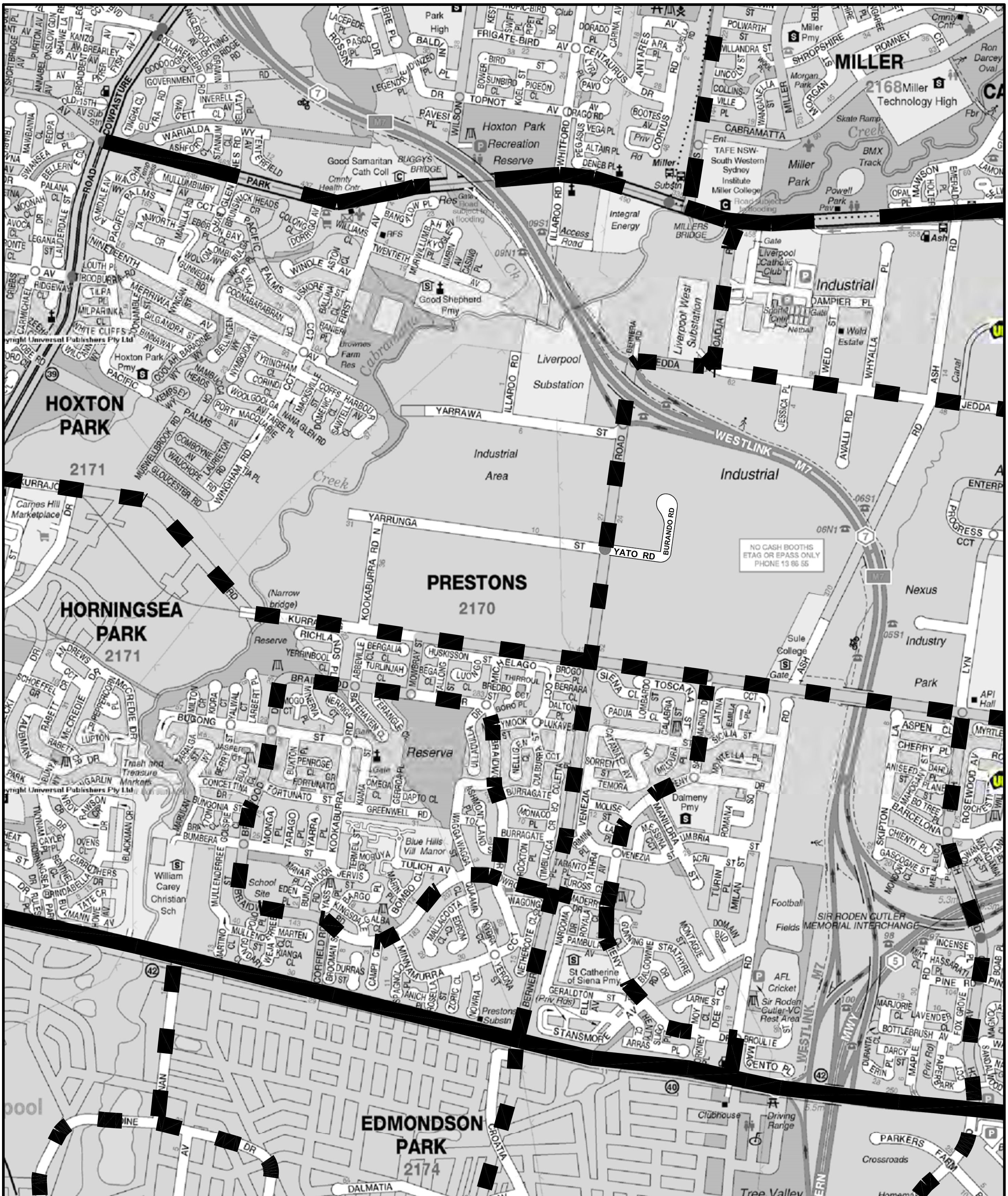
The road network serving the Prestons area (Figure 1) comprises:

Arterial and Sub-Arterial Routes

- *Westlink (M7) Motorway* which links between the M2 Motorway at Seven Hills and the M5 Motorway at Prestons
- *South Western (M5) Motorway* which links across the Georges River and continues southwards past Campbelltown
- *Hume Highway* which runs along the western edge of Liverpool CBD to The Crossroads
- *Camden Valley Way* which extends from The Crossroads across Cowpasture Road to Camden
- *Hoxton Park Road* which extends from Hume Highway to Cowpasture Road
- *Cowpasture Road* which extends northwards from Camden Valley Way across Hoxton Park Road

Collector Road Routes

- *Kurrajong Road* which extends westerly from Hume Highway and will connect to Cowpasture Road when the current upgrading over Cabramatta Creek is completed
- *Bernera Road* which extends (north-south) between Camden Valley Way and Hoxton Park Road (via sections of Jedda Road and Joadja Road)
- Ryan Avenue which extends which extends to the south of Camden Valley Way
- Croatia Avenue which extends to the south of Camden Valley Way



LEGEND

ARTERIAL

SUB-ARTERIAL

COLLECTOR

ROAD NETWORK

FIG 3

There are also numerous other 'lower order' collector routes through the Prestons, Hoxton Park, Horningsea Park, Casula and Lurnea areas including Yarrunga Street/Kookaburra Road North.

3.2 TRAFFIC CONTROLS

The existing traffic controls on the road system (Figure 4) are largely concentrated on the arterial and sub-arterial perimeter roads. Numerous intersections are controlled by traffic signals particularly along the Hume Highway and Camden Valley Way routes providing controlled access and crossing for the collector and local road system.

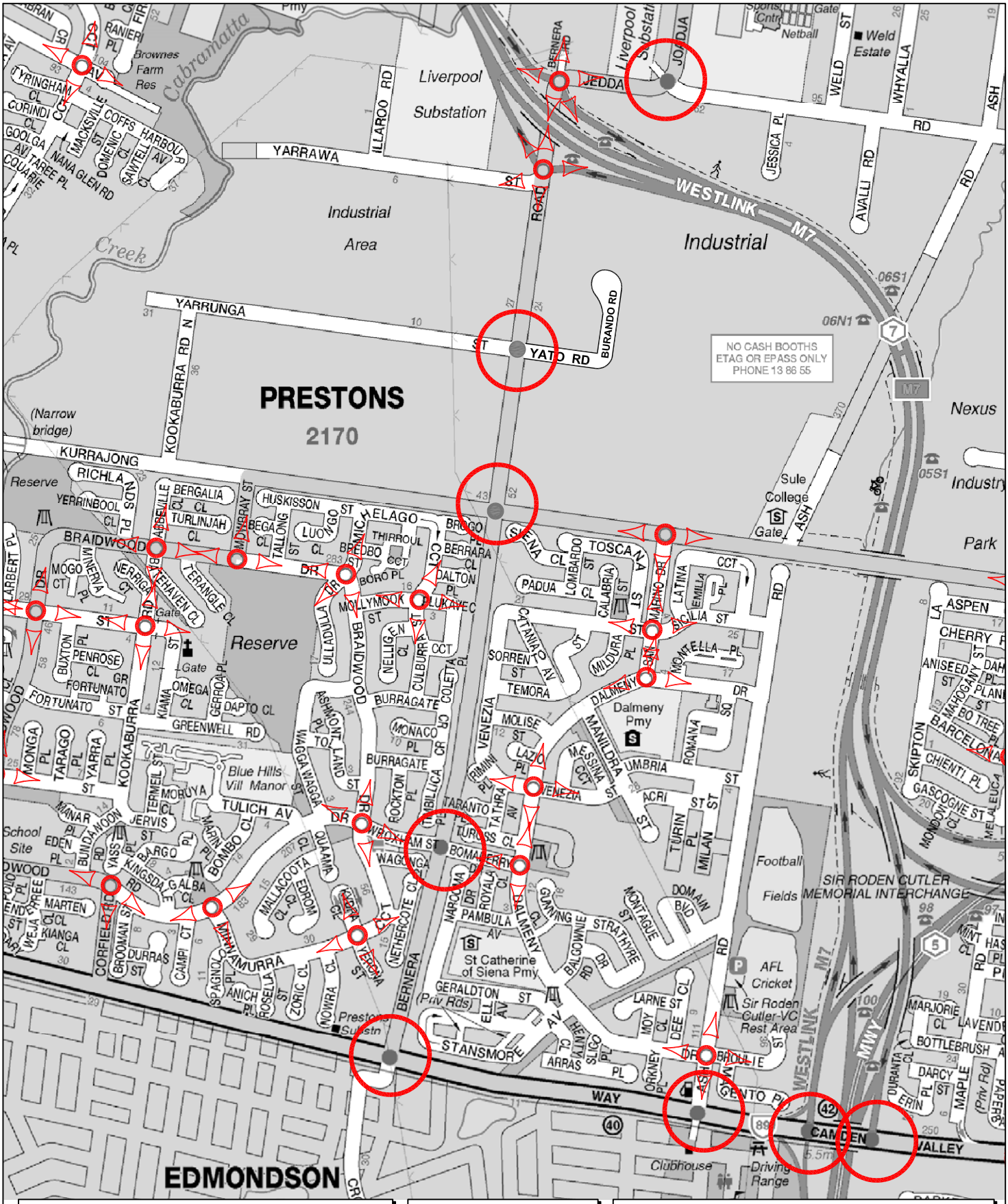
Of particular relevance to the access provisions for the development site are:

* traffic signal control at the Camden Valley Way, Bernera Road and Croatia Avenue intersection
* traffic signal control at the Kurrajong Road and Bernera Road intersection
* traffic signal control at the Bernera Road and Yarrunga Street intersection
* roundabout controls at the intersections of Bernera Road and Jedda Road with the M7 ON/OFF Ramp intersections

A 70 kmph speed restriction applies along the Camden Valley Way route, however the speed limit on the local and collector road systems is generally 50 kmph.

3.3 TRAFFIC CONDITIONS

An indication of the existing morning and afternoon peak traffic conditions in the area is provided by traffic surveys undertaken at the principal intersections relevant to the site. The results of these surveys are summarised in Figure 5 and the operational performance of these intersections was assessed using SIDRA for the earlier application. The results for the morning and afternoon peak periods are summarised in the following while the criteria for interpreting SIDRA output is reproduced overleaf:



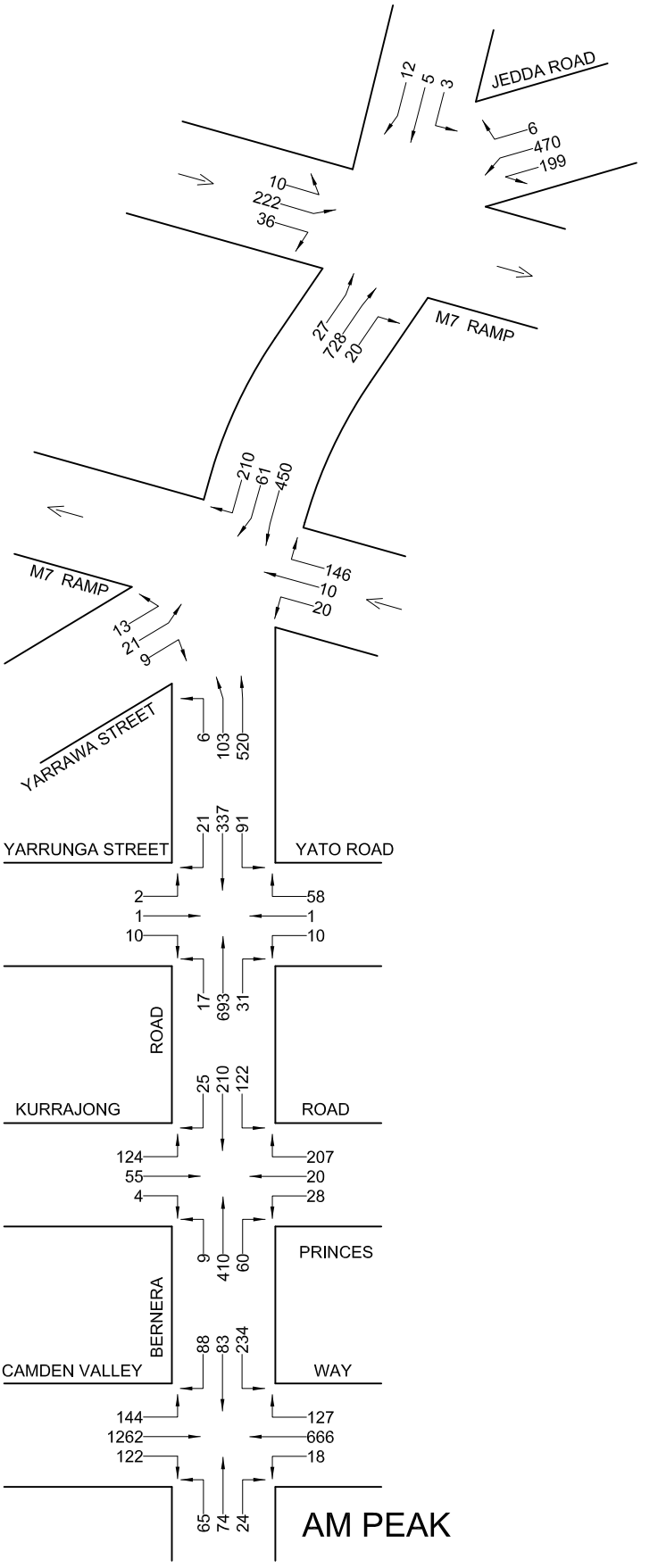
LEGEND

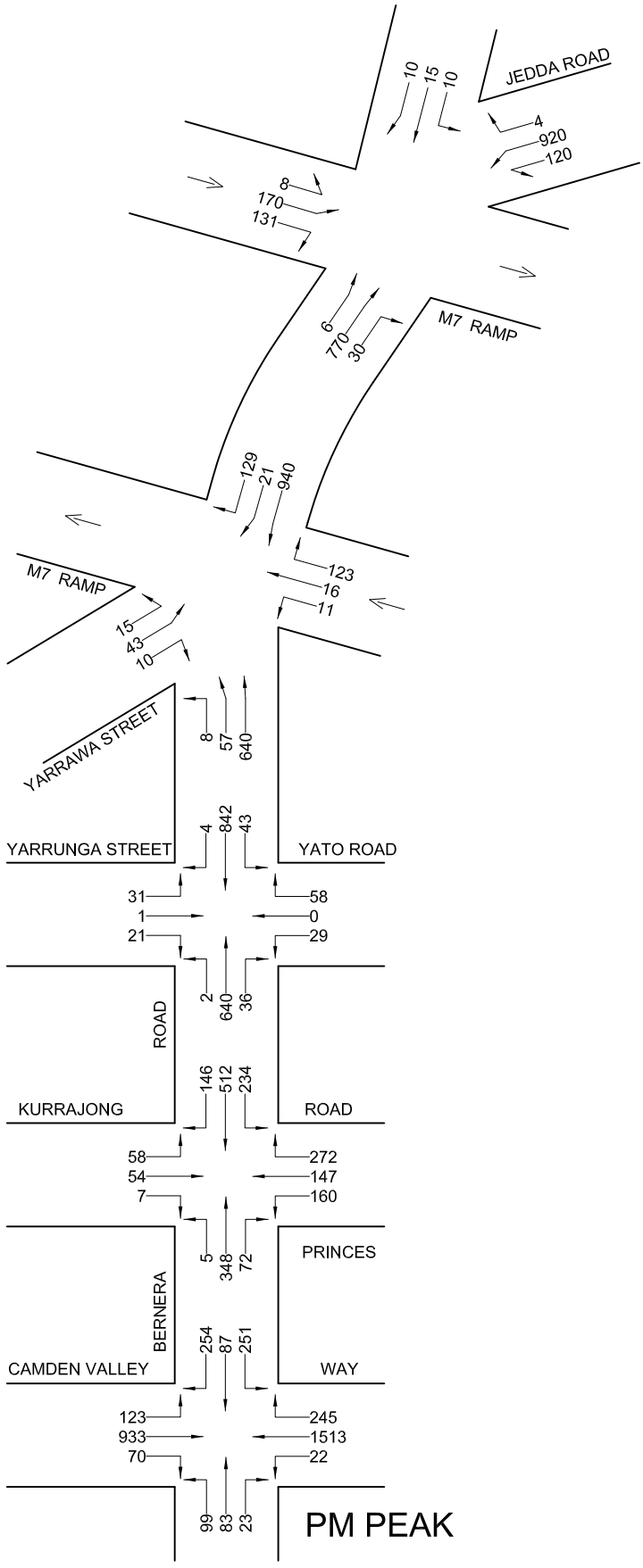
- TRAFFIC SIGNAL CONTROL
- ROUNDABOUT
- RESTRICTED TURNING MOVEMENT

N

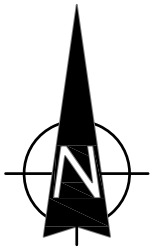
TRAFFIC CONTROLS

FIG 4





LEGEND



EXISTING PEAK TRAFFIC MOVEMENTS

FIG 5

	AM		PM	
	LOS	**AVD**	**LOS**	**AVD**
Bernera/Yarrunga	A	9.4	A	10.4
Bernera/Kurrajong	B	23.5	B	25.1
CVWY/Bernera	B	17.2	B	25.9
Bernera/M7	A	5.8	A	4.6
Jedda/M7	A	6.6	A	6.7

The results of this assessment indicate that all intersections operate with a satisfactory level of service.

3.4 PROPOSED INTERSECTION UPGRADE

In order to accommodate the additional traffic demands of development on both the Prestons Industrial Estate and the M5M7 Logistic Estate, it has been agreed that the Bernera Road, Yarrunga Street and Yato Road intersection will be significantly upgraded. Details of the upgrading scheme are provided on the plan prepared by Costin Roe Consulting which is reproduced in Appendix D.

3.5 TRANSPORT SERVICES

At the present time, there is only somewhat limited public transport servicing of the Prestons area. The railway stations at Edmondson Park, Glenfield, and Casula are some 3 to 4km from the site where the Cumberland, Airport and East Hills, Inner West and Southern Railway lines provide connections to the Liverpool, Campbelltown, Fairfield, Bankstown, Parramatta and the Sydney CBD areas.

'Busabout' currently operates along Camden Valley Way with the Route 864 and 867 services providing connection to Glenfield Railway Station and Route 856 and 857 providing connection to Liverpool Railway Station and Interchange (see Appendix E details).

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. TRAFFIC

The traffic generation rate adopted for the previous Prestons Industrial Estate assessment had regard for the results of surveys of comparable warehouse sites in a recent RMS publication. The relevant surveyed results for Sites 1 and 3 from TDT 2013-4b are as follows:

	Site 1	Site 3	Average
Site Peak AM	0.15	0.20	0.18
Site Peak PM	0.16	0.19	0.18
Network Peak AM	0.13	0.17	0.15
Network Peak PM	0.14	0.17	0.16

These are very consistent results and the reasons for the difference between these generation rates and the earlier former RTA criteria are:

- large contemporary warehouses with low staffing levels
- 12 hour shifts where worker arrival/departure does not occur during the network commuter peak periods

It is appropriate to assess the compound traffic outcome resultant to the two proposed S96(1A) applications as follows:

Warehouse 1B		**Warehouse 3 (Total of 3)**	
Warehouse	35,370m^2	Warehouse	10,854m^2
Office	1,200m^2	Office	1,500m^2
Warehouse 2		**Warehouse 5**	
Warehouse	30,005m^2	Warehouse	32,400m^2
Office	820m^2	Mezzanine	6,560m^2
		Office	705m^2
Total Warehouse	**108,629m^2**		
Total Office	**4,225m^2**		
Total	**112,854m^2**		

Application of a worst case peak generation rate derived from the RMS working paper of say 0.19 vtph per 100m^2 (i.e. rather than 0.15-0.17) to the total warehouse building area of 119,070m^2 indicates a total traffic generation of 226 vtph for the AM & PM on-street peak periods. The proposed Volvo facility will be a replication (and relocation) of their existing facility at 120 Hume Highway, Chullora (building of 6,860m^2). Traffic surveys have been undertaken at the existing Chullora site, which has accesses on Hume Highway and Anzac Street, and the following peak access movements were recorded.

		AM		PM	
		Truck	**Car**	**Truck**	**Car**
Anzac	IN	8	23	4	3
	OUT	7	5	2	29
Highway	IN	3	14	2	3
	OUT	2	3	1	15
Total	**IN**	**48**		**12**	
	OUT	**17**		**47**	

The projected total traffic generation of all of the warehouses together with the Volvo facility is as follows:

AM		PM	
IN	**OUT**	**IN**	**OUT**
206	85	80	205

The proposed Sports and Leisure use in Building 4 will reflect that of the comparable existing Hills Sports Centre at 20 Distribution Place, Seven Hills which is identified on the image overleaf. The results of traffic surveys undertaken at this centre during the weekday morning and afternoon road network peak periods are provided in Appendix F and summarised in the following.

Total Peak Traffic Generation

AM (7.45 – 8.45)		PM (5.00 – 6.00)	
IN	**OUT**	**IN**	**OUT**
33	9	60	72


11/28/2015
20 Distribution Pl
Google Earth

Assessment of the directional distribution of the vehicle movements generated by development on the Prestons Industrial Estate has had regard for the survey results of the existing industrial access movements at the Bernera Road/Yarrunga Street/Yato Road intersection. All of the existing, proposed warehouse and Volvo elements will have vehicle access on Yarrunga Road except for the very minor truck "breezeway" egress for Building 3B while the proposed Indoor Sports Centre element will have left turn IN/OUT access on Bernera Road.

Assessment of the existing intersection movements indicate:

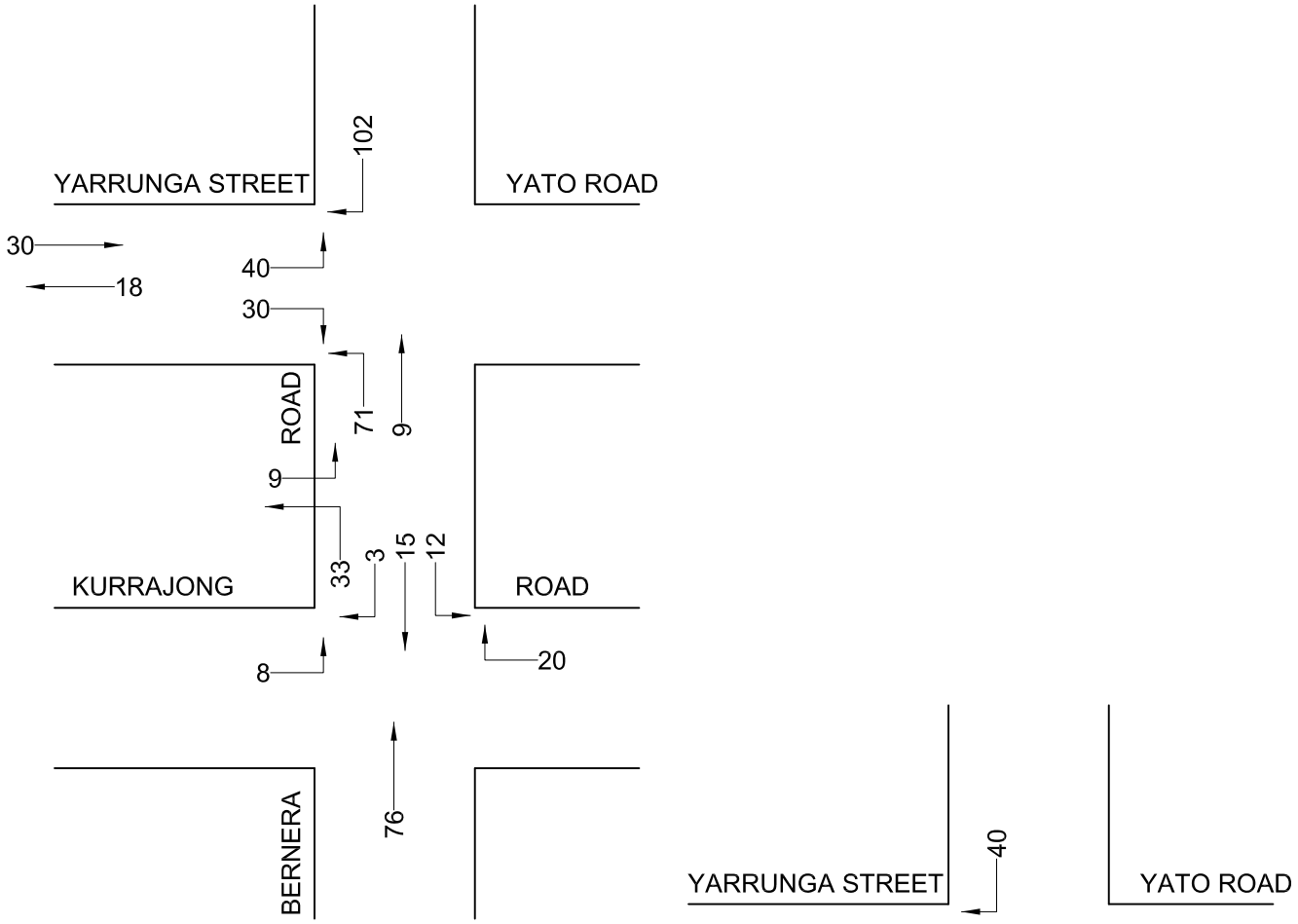
- a peak directional split (i.e. IN/OUT) of 70%/30%
- a geographical split of 60% north and 40% south on Bernera Road

The assessed generated traffic movements resultant to the two S96(1A) applications for the AM and PM "network" peak periods on this basis (incorporating the Sports Centre movements) are shown on Figure 6.

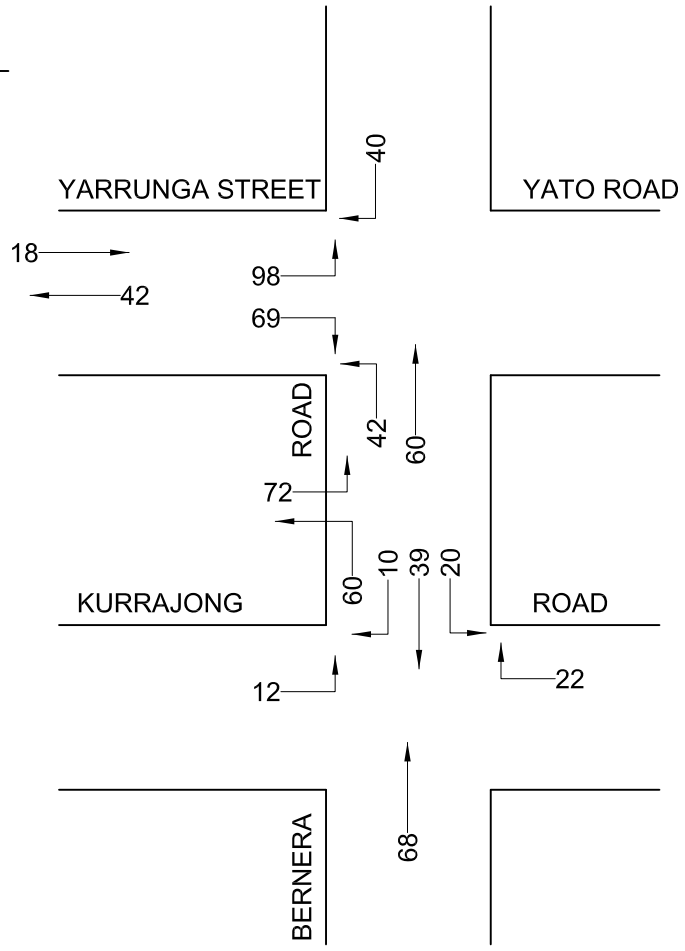
The proposed Charter Hall development in Yato Road has a projected total traffic generation of 173 vtph in the AM and PM road network peak periods. The projected traffic movements at the Bernera Road, Yarrunga Street and Yato Road intersection consequential to the S96(1A) applications and the Charter Hall development are shown on Figure 7.

A SIDRA intersection assessment has been undertaken in relation to this outcome. The results of the SIDRA modelling indicating a satisfactory operational performance outcome are provided in Appendix G and summarised in the following:

	AM		**PM**	
	LOS	**AVD**	**LOS**	**AVD**
Bernera/Yarrunga	C	32.6s	D	48.7s

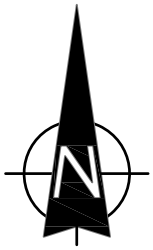


AM PEAK



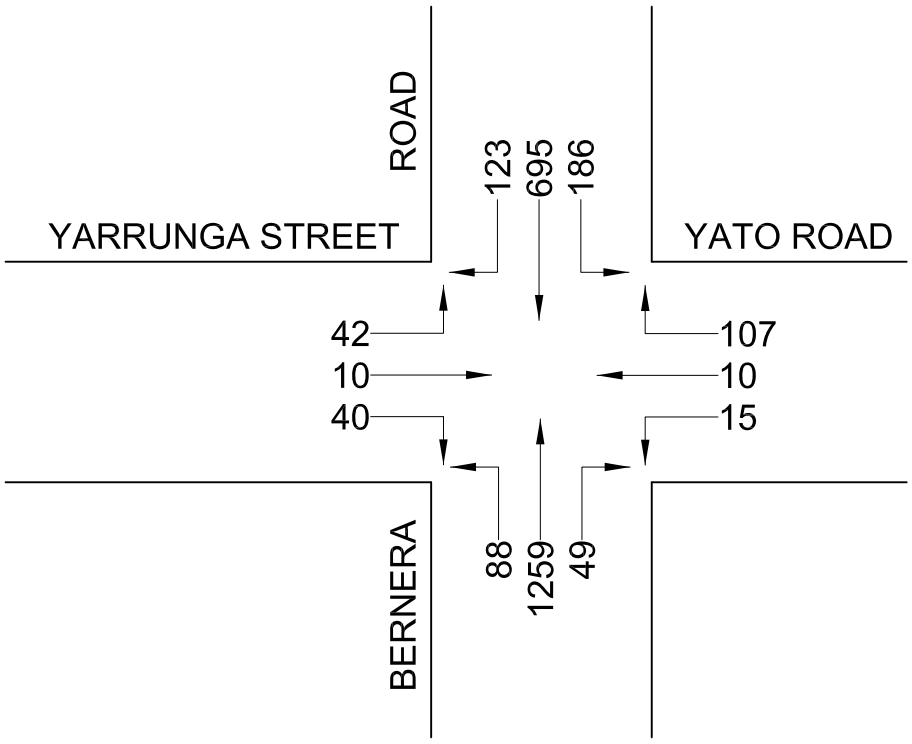
PM PEAK

LEGEND

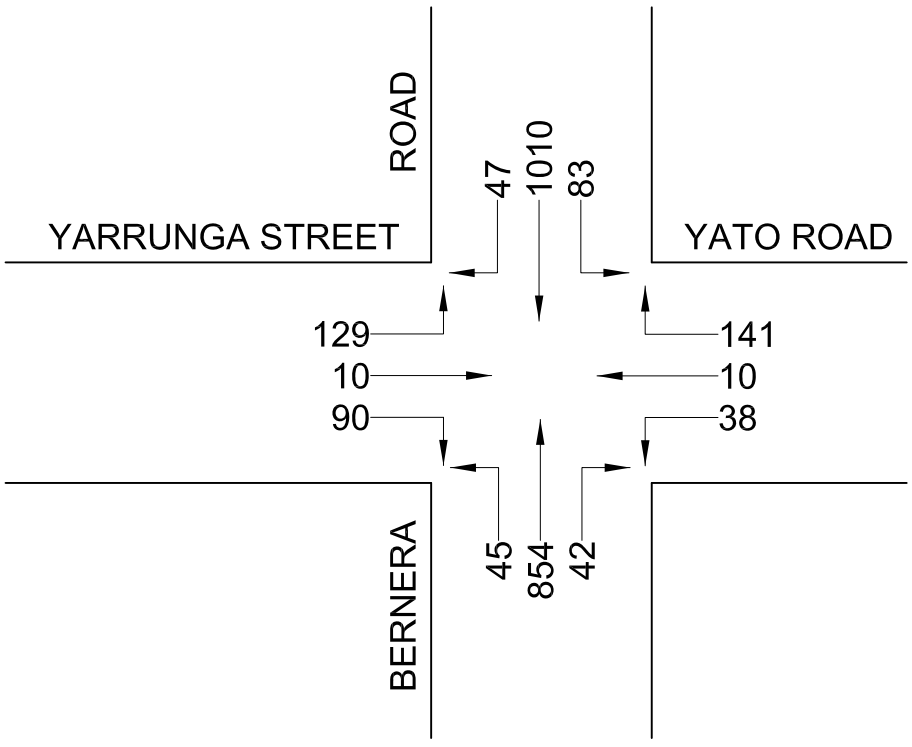


GENERATED TRAFFIC MOVEMENTS

FIG 6

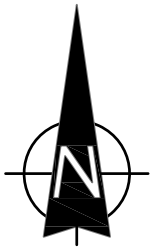


AM PEAK



PM PEAK

LEGEND



TOTAL PEAK TRAFFIC MOVEMENTS

FIG 7

5. PARKING

The parking provision criteria for 'warehouse' use contained in a number of Metropolitan Councils DCP's do not reflect the realities of contemporary warehouse and distribution centre type uses. Liverpool City Councils parking criteria is typical in specifying the following.

Warehouse

- 1 space per 35m^2 of office LFA
- 1 space per 75m^2 of warehouse LFA

It has been the accepted practice for large contemporary warehouse developments to assess parking provision with reference to the RMS Guidelines which specify a parking provision for warehouse use of 1 space per 300m^2 (warehouse and office floorspace) and this was the accepted approach for the previous approvals for the Prestons Industrial Estate and M5M7 Logistic Estate developments.

For these developments, it has been accepted that a parking provision in the range of 1 space per 200m^2 to 300m^2 is applicable and the parking provision for the proposed S96(1A) warehouse outcome are as follows:

Warehouse 3A	5,315m^2	-	32 spaces	(1 space per 166m^2)
Warehouse 3B	3,735m^2	-	27 spaces	(1 space per 139m^2)
Warehouse 3C	1,965m^2	-	21 spaces	(1 space per 142m^2)

It is apparent that the proposed parking provision will be suitable and appropriate.

Council's DCP does not contain any criteria which is exactly relevant to the proposed Indoor Sports and Leisure Centre due to the large area taken up by the swimming pools and the fact that 24/7 gyms do not reflect the large group class characteristics of a Fitness First type gymnasium.

It is normal in this circumstance to assess a comparable existing facility to provide guidance. The existing Hills Indoor Sports Centre at Seven Hills has 60 on-site parking spaces provided and the results the surveys provided in Appendix F indicate a normal peak parking demand of 59 spaces although there is likely to have been some on-street parking activity as well.

It is proposed to provide a total of 124 spaces including 3 accessible spaces and it is apparent that this will be quite adequate and satisfactory given:

- the nature of the gym element
- the floor area occupied by the pools
- the fact that there will not generally be concurrent peak activities in the various elements

6. ACCESS, INTERNAL CIRCULATION AND SERVICING

ACCESS

The proposed changed/additions to the approved vehicle access provisions for the proposed S96(1A) development comprise:

- a 7.0m wide egress driveway for trucks egressing from the Building 3B breezeway on the Bernera Street frontage. This driveway will be restricted to left turn IN/OUT by central median island in Bernera Road
- modification of the access connections to Private Access Road 2 for Buildings 3A, 3B and 3C

The proposed vehicle accesses will be located where good sight distances are available and there will be appropriate separation from intersections and each other. The truck accesses will accommodate all vehicles requiring access to the site as indicated on the turning path diagrams in Appendix H.

INTERNAL CIRCULATION

The design of the carpark areas complies with the requirements of AS2830.1 and 6 with quite satisfactory provision for turning and manoeuvring.

The design of Warehouses 3A, 3B and 3C will also comply with AS2890.2 and will accommodate semi-trailers.

The ability for trucks to manoeuvre on the site is confirmed by the turning path assessments for representative movements which are depicted on the diagrams in Appendix H.

SERVICING

Refuse will be removed by contract vehicle and this vehicle as well as other service vehicles will be able to utilise the large hardstand areas provided.

7. CONCLUSION

This assessment of the potential traffic and parking implications of the proposed S96(1A) (MOD1A) development scheme for the Prestons Industrial Estate has concluded that:

* there will not be any unsatisfactory traffic implications
* the proposed parking provision will be suitable and adequate
* the proposed vehicle access arrangements will appropriate and will accommodate all vehicles requiring to access the site
* the proposed internal circulation arrangements will be suitable and appropriate for the manoeuvring and standing of trucks and cars

APPENDIX A

APPROVED PLANS

Note: Sound Barrier
existing residential uses sold for industrial use.
Sound barriers only required if residential occupation still in use during construction - refer to acoustic report

Note: Sound Barrier
existing residential uses sold for industrial use.
Sound barriers only required if residential occupation still in use during construction - refer to acoustic report

617620

10405 | 177835 warehouse 1 | 42950 | 12000 | 21300 | 176500 warehouse 2 | 6480 | 12000 | 67150 | 82000 warehouse 3 | 15000 | 6000

black painted steel palisade style street front fence and gates at 1800 high with pointed spear tops - to Yarrunga & Bernera Roads only

corporate pylon sign up to 12m high - Building Tenant pylon sign

2.4m high solid lapped and capped timber fence sound barrier - refer to acoustic report

corporate pylon sign up to 12m high - Building Tenant pylon sign

emergency gate for access to building 3 only used if Transgrid block private access road during maintenance to powerline tower

2.4m high solid lapped and capped timber fence sound barrier - refer to acoustic report

YARRUNGA STREET

277°47'30" 201.168

97°47'30" 221.285

277°47'30" 201.168

20m landscape setback with screening plants to landscape architect details

20m building setback with screening plants to landscape architect details

HIGH VOLTAGE POWER LINE TOWER

STAFF / VISITORS CARPARK

OFFICE 1

RWT

vertical masonry retaining wall along boundary with varying heights to civil engineers details

WAREHOUSE 1
FSL 43.800
final finished floor level subject to final civil engineers design

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only)

PRIVATE ACCESS ROAD 1

HARDSTAND

TRUCK TURNING AREA

RL 42.550
WAREHOUSE 2
FSL 42.100
final finished floor level subject to final civil engineers design

carpark access ramp

vertical masonry retaining wall along boundary with varying heights to civil engineers details

access stairs for fire fighting purposes

PRIVATE ACCESS ROAD 2

16880 | 15000

150 high kerb

HARDSTAND

NOTE:
building 3 includes internal load zone to ensure trucks are clear of easement line

WAREHOUSE 3
FSL 35.000
final finished floor level subject to final civil engineers design

STAFF / VISITORS CARPARK

TRUCK TURNING AREA

OFFICE 3

BERNERA ROAD

OFFICE 2-A

OFFICE 2-B

RECESSED DOCK

SHARED HARDSTAND AREA

OFFICE 5

WAREHOUSE 4
FSL 35.800
final finished floor level subject to final civil engineers design

OFFICE 4

external enclosed staff outdoor area with sail shades over

lift bay

WAREHOUSE 5
FSL 42.100
final finished floor level subject to final civil engineers design

WAREHOUSE MEZZANINE LEVEL SHOWN DOTTED

carpark access ramp

STAFF / VISITORS CARPARK BUILDING 5

SYDNEY WATER

153°05'50" 67.245

150 high kerb

HIGH VOLTAGE POWER LINE TOWER

97°47'20" 187.69

20m landscape setback with screening plants to landscape architects details

277°47'20" 221.35

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only)

FIRE TRUCK EMERGENCY ACCESS - (emergency vehicle use only)

KURRAJONG ROAD

ADJOINING FUTURE INDUSTRIAL DEVELOPMENT

2.4m high solid lapped and capped timber fence sound barrier - refer to acoustic report

vertical masonry retaining walls with varying heights to civil engineers details

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only)

ADJOINING FUTURE INDUSTRIAL DEVELOPMENT

black PVC coated chain link fence at 1800 high with 3 rows of black barbed wire

97°48'16" 201.168

187°48'16" 201.168

187°47'29" 201.527

116°59'45" 25.17

201170 | 30755 | 10000 | 169995 warehouse 2 | 151550 warehouse 1 | 21220 | 8865

201525 | 61610 | 7000 | 120000 warehouse 5 | 7000 | 20000 landscape setback

316755 | 160000 warehouse 3 | 24805 | 86000 warehouse 4 | 41950 | 121425

270000 warehouse 5 | 131040

8000 | 409040

1. Water tank and pump room added to Warehouse 2 and from Warehouse 5 to Warehouse 2.
2. Battery charge facilities added to Warehouse 5.
3. Lift omitted from staff and visitor car parking facilities with disabled compliant space added to warehouse 5 carparking.
4. Sub station omitted from Warehouse 5.
5. Water tank and pump room removed Warehouse 5 and added to Warehouse 2.
6. External sun shading removed from Southern facade of Warehouse 2 Office 2A.
7. External sun shading removed from Southern facade of Warehouse 2 Office 2B.

ABBREVIATIONS - GENERAL

FP	footpath - street path 1.2m wide
F-1	fence type 1 - 1800 high black palisade fence with pointed spear tops
F-2	fence type 2 - 1800 high black chain link fence with 3 rows of barb wire
FSL	finished structural level
G-SLD	gate - sliding
G-H	gate - hinged
PR	pump room for fire service
PS	pylon sign
RSD	roller shutter door - power operated
RWT	rain water tank
SBW	sound barrier wall - 2.4m high lapped timber
SWT	sprinkler water tank for fire service

corporate pylon sign up to 12m high - Estate and Tenant identification pylon sign

screening plants to landscape architects details

15m building setback to to warehouse 3 with 14m wide easement to drain water for length of building - refer to civil engineers details (10m building setback by council)

black painted steel palisade style street front fence and gates at 1800 high with pointed spear tops - to Yarrunga & Bernera Roads only

corporate pylon sign up to 12m high - Building Tenant pylon sign

turning bay for staff carpark area

ABORIGINAL ARCHAEOLOGICAL ZONE
archaeological zone with history signage and landscaped areas to landscape architects details

10m building setback by council

corporate pylon sign up to 12m high - Building Tenant pylon sign

new 900 wide median strip in front of driveway to control left in left out traffic restrictions to traffic enters details - truck and car entry /exit

vertical masonry retaining walls with varying heights to civil engineers details

2.4m high solid lapped and capped timber fence sound barrier - refer to acoustic report

SITE PLAN
1 : 1000 scale

SECTION 96 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue	Date	Amendment
A	28/11/15	ISSUED FOR DEVELOPMENT APPLICATION
G	21/04/16	additional roller door added to warehouse 5
H	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
I	12/05/16	LIFT FROM CARPARK RELOCATED ADJCENT TO BUILDING 5
J	28/09/16	ISSUED FOR SECTION 96 APPLICATION

0 10 20 30 40 50 100m - @ A1
0 20 40 60 80 100 200m - @ A3
1 : 1000 scale @ A1 / 1 : 2000 scale @ A3

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Project Manager :
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Project :
PRESTONS INDUSTRIAL ESTATE
PROPOSED WAREHOUSE DEVELOPMENT
Cnr YARRUNGA STREET & BERNERA ROAD , PRESTONS NSW

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e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997

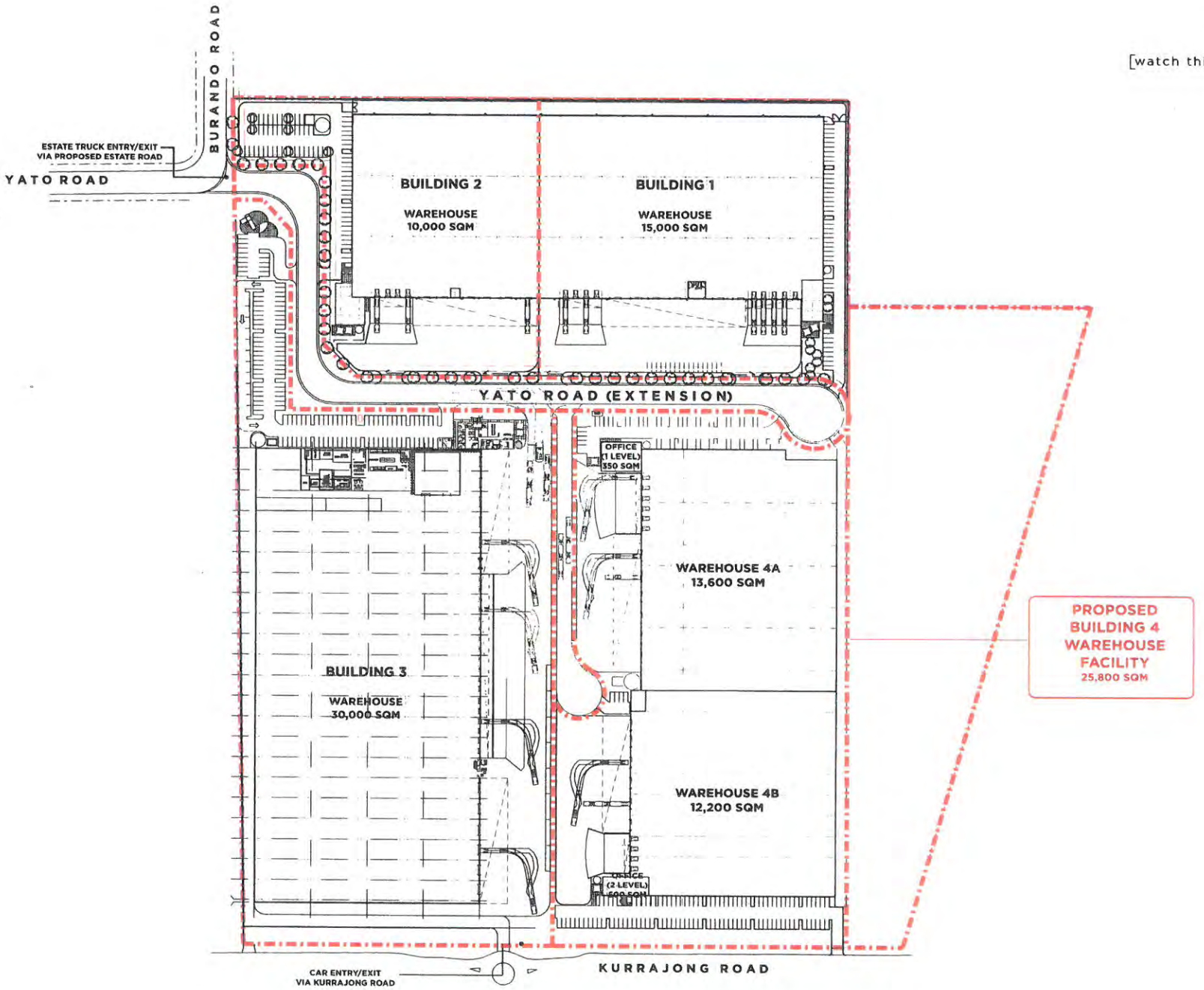
Drawing :
SITE PLAN - COLOURED OVERALL ESTATE PLAN

Drawn	Project No	Drawing No	Issue
AA	140604	S96 - A 102	J

Date : November 2015
Scale : 1 : 1000 @ A1
1 : 2000 @ A3

APPENDIX B

OTHER DEVELOPMENT PLANS



[watch this SPACE design]

Charter Hall

NSW - Prestons Industrial Estate

Lot 1, 290 Kurrajong Road, Prestons, NSW 2170

PROPOSED BUILDING 4 DEVELOPMENT

PRELIMINARY

ESTATE MASTERPLAN | 1 : 2000 @ A3

24 APR 17 PM | CHPRES MP SK10(A)

[watch this SPACE design]
www.watchthisspacedesign.com

APPENDIX C

S96(1A) PLANS

Note: Sound Barrier
existing residential uses sold for industrial use.
Sound barriers only required if residential occupation still in use during construction - refer to acoustic report

Note: Sound Barrier
existing residential uses sold for industrial use.
Sound barriers only required if residential occupation still in use during construction - refer to acoustic report

617620

10405 | 177835 warehouse 1 | 42950 | 12000 | 21300 | 176500 warehouse 2 | 6480 | 12000 | 67150 | 82000 warehouse 3 | 15000 | 6000

black painted steel palisade style street front fence and gates at 1800 high with pointed spear tops - to Arrange & Berne Roads only

corporate pylon sign up to 12m high - Building Tenant pylon sign

corporate pylon sign up to 12m high - Building Tenant pylon sign

HIGH VOLTAGE POWER LINE TOWER

YARRUNGA STREET

FTP | F-1 | G-SLD | 277°47'30" 201.168 | 10m landscape setback with screening plants to landscape architects details | 97°47'30" 221.285 | 10m building setback with screening plants to landscape architects details | 277°47'30" 201.168 | FTP | F-1 | PS | 6000

STAFF / VISITORS CARPARK

WT

vertical masonry retaining wall along boundary with varying heights to civil engineers details

WAREHOUSE 1
FSL 43.800
final finished floor level subject to final civil engineers design

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only)

ADJOINING FUTURE INDUSTRIAL DEVELOPMENT

PRIVATE ACCESS ROAD 1

HARDSTAND

TRUCK TURNING AREA

TOLL HBO
WAREHOUSE 2
EXISTING OCCUPIED FACILITIES
APPROVED UNDER CURRENT DEVELOPMENT APPLICATION

PRIVATE ACCESS ROAD 2

retaining walls

HARDSTAND

WAREHOUSE 3A
FSL 35.000
final finished floor level subject to final civil engineers design

OFFICE

WAREHOUSE 3B
FL 35.000
final finished floor level subject to final civil engineers design

TRUCK TURNING AREA

OFFICE

WAREHOUSE 3C
FL 35.000
final finished floor level subject to final civil engineers design

final finished floor level subject to final civil engineers design

WAREHOUSE 4
FSL 35.800

BERNERA ROAD

201170 | 30755 | 10000 | 170000 warehouse 2 | 151550 warehouse 1 | 21210 | 8865

187°48'16" 201.168 | 104.15 | 104.50

97°48'16" 201.168

vertical masonry retaining walls with varying heights to civil engineers details

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only)

ADJOINING FUTURE INDUSTRIAL DEVELOPMENT

ADJOINING FUTURE INDUSTRIAL DEVELOPMENT

black PVC coated chain link fence at 1800 high with 3 rows of black barbed wire

65.15 | 7000 | 187°47'29" 201.527 | 120000 warehouse 5 | 7000 | 20000 landscape setback

TOLL ENTERPRISE
WAREHOUSE 5
EXISTING OCCUPIED FACILITIES
APPROVED UNDER CURRENT DEVELOPMENT APPLICATION

STAFF / VISITORS CARPARK BUILDING 5

97°50'34" 52.782 | 176°59'45" 25.17 | 153°05'50" 67.245

SYDNEY WATER

HIGH VOLTAGE POWER LINE TOWER

277°47'20" 221.35 | 97°47'20" 187.69

FIRE TRUCK EMERGENCY ACCESS (emergency vehicle use only) | KURRAJONG ROAD | FIRE TRUCK EMERGENCY ACCESS - (emergency vehicle use only)

BERNERA ROAD

160000 warehouse 3 | 316755 | 24805 | 86000 warehouse 4 | 41950

270000 warehouse 5 | 131040 | 8000 | 409040

corporate pylon sign up to 12m high - Estate and Tenant identification pylon sign

screening plants to landscape architects details

15m building setback to to warehouse 3 with 14m wide easement to drain water for length of building - refer to civil engineers details (10m building setback by council)

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ABORIGINAL ARCHAEOLOGICAL ZONE
archaeological zone with history signaled and landscaped areas to landscape architects details

10m building setback by council

corporate pylon sign up to 12m high - Building Tenant pylon sign

new 900 wide median strip in front of driveway to control left in left out traffic restrictions to traffic enters details - truck and car entry /exit

vertical masonry retaining walls with varying heights to civil engineers details

MODIFICATIONS FOR SECTION 96 / No. 2 APPLICATION

(A) WAREHOUSE 3 DIVIDED INTO 3 TENANCIES WITH ADDITIONAL OFFICE SPACE PROVIDED FOR WAREHOUSE 3B & 3C
(B) WAREHOUSE 4 TENANCY MODIFIED FOR INDOOR SPORTS AND RECREATION CENTRE
(C) MODIFICATION TO STAFF AND VISITOR CAR PARKING FOR WAREHOUSE 5 TO REFLECT AS BUILT CONDITIONS
(D) MODIFICATION TO PRIVATE ACCESS ROAD FROM YARRUNGA STREET AND AREA AROUND TRANSGRID ELECTRICAL TOWER BASE

SITE PLAN
1 : 1000 scale

(e office areas)

ABBREVIATIONS - GENERAL

FTP	footpath - street path 1.2m wide
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G-H	gate - hinged
PR	pump room for fire service
PS	pylon sign
SD	roller shutter door - power operated
WT	rain water tank
SW	sound barrier wall - 2.4m high lapped timber
SW	sprinkler water tank for fire service

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue	Date	Amendment
H	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
I	12/05/16	LIFT FROM CARPARK RELOCATED ADJCENT TO BUILDING 5
J	28/09/16	ISSUED FOR SECTION 96 APPLICATION
K	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 10 20 30 40 50 100m - @ A1
0 20 40 60 80 100 200m - @ A3
1 : 1000 scale @ A1 / 1 : 2000 scale @ A3

Development Manager:
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Project:
PRESTONS INDUSTRIAL ESTATE
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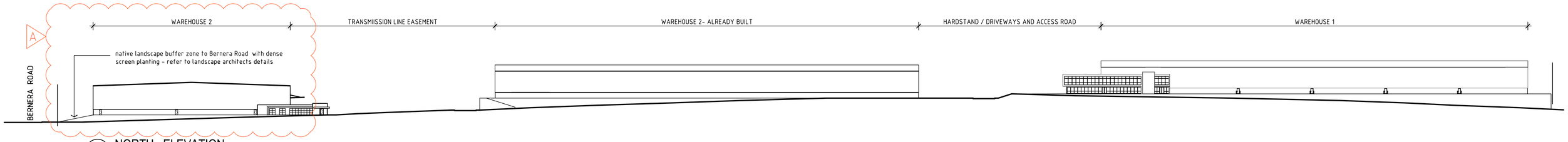
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997
Member Australian Institute of Architects

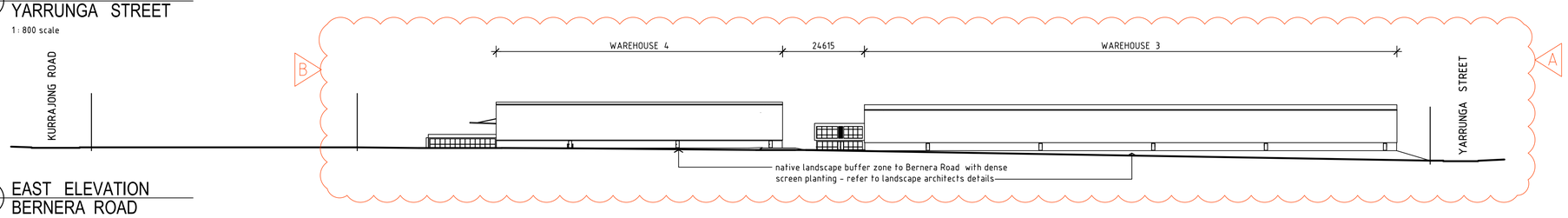
Drawing:
SITE PLAN - COLOURED OVERALL ESTATE PLAN

Drawn: AA	Project No:	Drawing No:	Issue:
Date: November 2015	140604	S96 - A 102	K
Scale: 1 : 1000 @ A1, 1 : 2000 @ A3			



NORTH ELEVATION
YARRUNGA STREET

1 : 800 scale



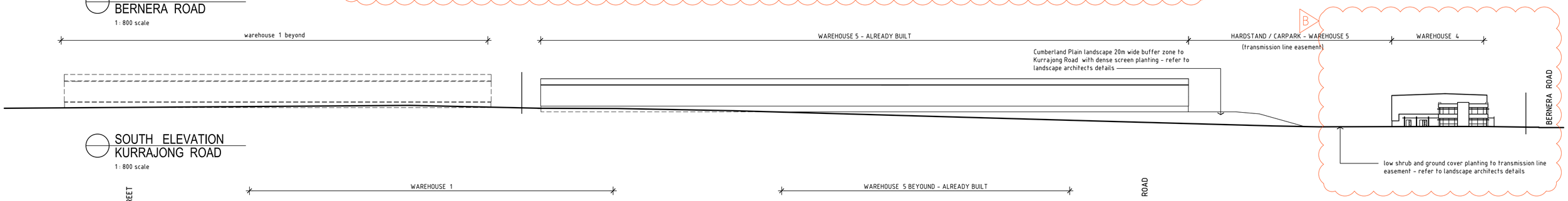
EAST ELEVATION
BERNERA ROAD

1 : 800 scale

MODIFICATIONS FOR SECTION 96 / No. 2 APPLICATION

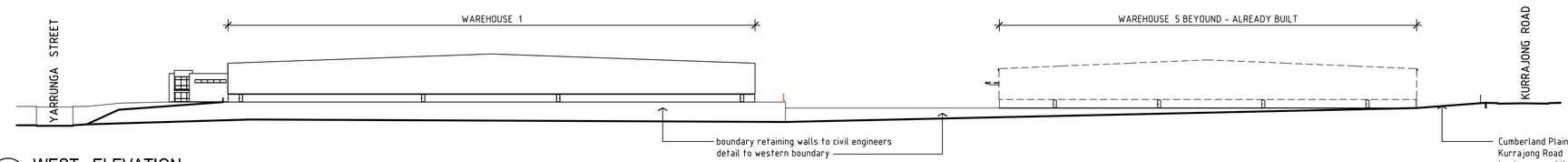
(A) WAREHOUSE 3 DIVIDED INTO 3 TENANCIES WITH ADDITIONAL OFFICE SPACE PROVIDED FOR WAREHOUSE 3B & 3C

(B) WAREHOUSE 4 TENANCY MODIFIED FOR INDOOR SPORTS AND RECREATION CENTRE



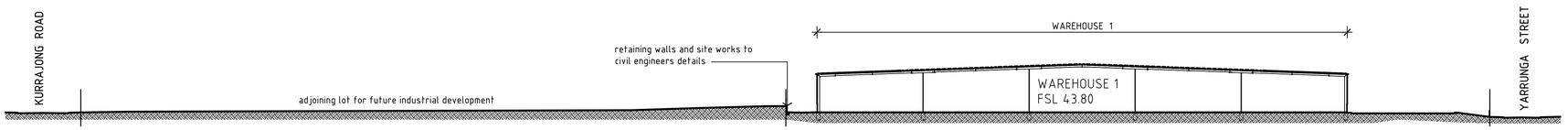
SOUTH ELEVATION
KURRAJONG ROAD

1 : 800 scale



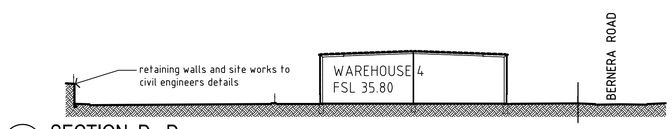
WEST ELEVATION

1 : 800 scale



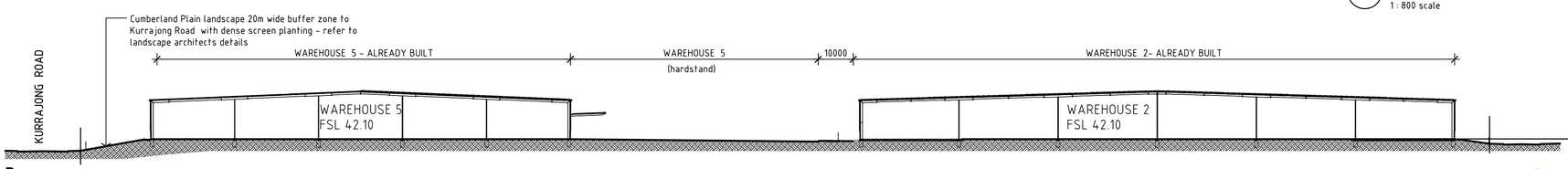
SECTION A - A

1 : 800 scale



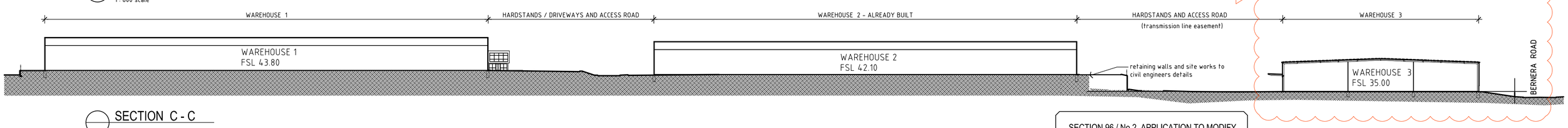
SECTION D - D

1 : 800 scale



SECTION B - B

1 : 800 scale



SECTION C - C

1 : 800 scale

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

NOTE:
REFER TO LANDSCAPE ARCHITECTS DETAILS FOR STREET VIEWS AND SECTIONS FOR SCREEN PLANTING

Issue :	Date:	Amendment:
B	15/02/16	UPDATED BUILDINGS 1, 2 & 5
C	07/03/16	sound wall added to elevations
D	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
E	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 10 20 30 40 80m
0 20 40 60 80 160m

1 : 800 scale @ A1 / 1 : 1600 scale @ A3

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Project :

PRESTONS INDUSTRIAL ESTATE

PROPOSED WAREHOUSE DEVELOPMENT

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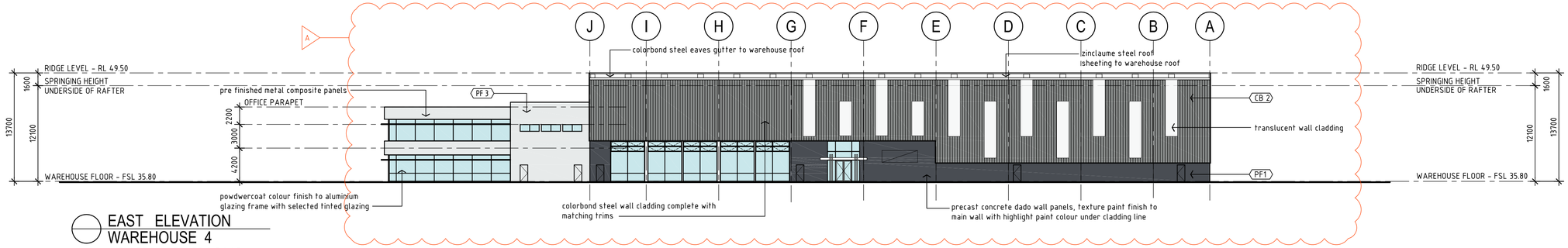
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997

Drawing :
STREET ELEVATIONS & SECTIONS

Drawn : AA	Project No :	Drawing No :	Issue :
Date : November 2015	140604	S96 - A 107	E
Scale : 1 : 800 @ A1, 1 : 1600 @ A3			



EAST ELEVATION WAREHOUSE 4

VIEW FROM BERNERA ROAD

1 : 300 scale

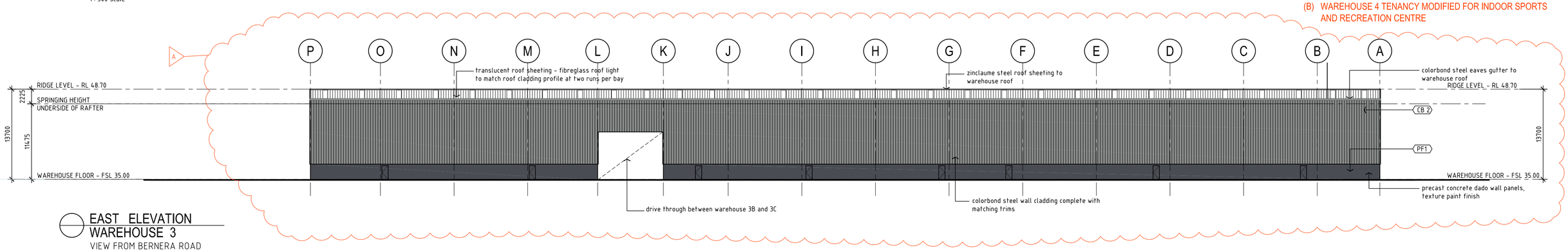
EXTERNAL COLOUR SCHEDULE

- CB 1 Colorbond steel - Surfmist
- CB 2 Colorbond steel - Windspray
- PF 1 Paint finish - Dulux / Ticking
- PF 2 Paint Finish - Dulux / Teahouse
- PF 3 Paint Finish - Dulux / Lexicon

MODIFICATIONS FOR SECTION 96 / No. 2 APPLICATION

(A) WAREHOUSE 3 DIVIDED INTO 3 TENANCIES WITH ADDITIONAL OFFICE SPACE PROVIDED FOR WAREHOUSE 3B & 3C

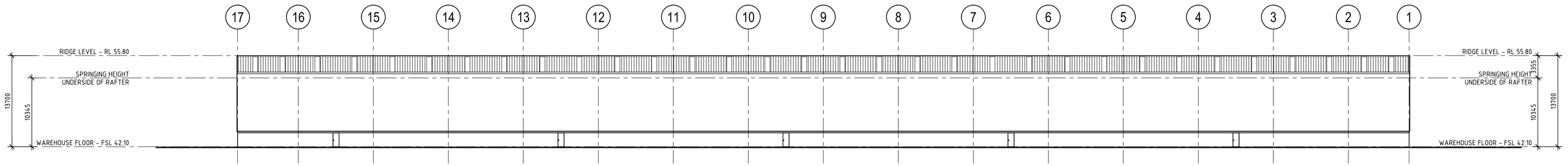
(B) WAREHOUSE 4 TENANCY MODIFIED FOR INDOOR SPORTS AND RECREATION CENTRE



EAST ELEVATION WAREHOUSE 3

VIEW FROM BERNERA ROAD

1 : 300 scale



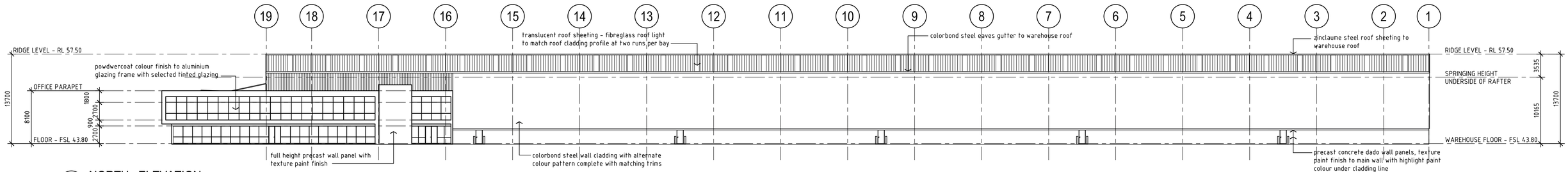
NORTH ELEVATION WAREHOUSE 2

VIEW FROM YARRUNGA STREET

1 : 300 scale

NOTE:

WAREHOUSE 2 ALREADY BUILT



NORTH ELEVATION WAREHOUSE 1

VIEW FROM YARRUNGA STREET

1 : 300 scale

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue	Date	Amendment
A	28/11/15	ISSUED FOR DEVELOPMENT APPLICATION
B	15/02/16	UPDATED BUILDINGS 1, 2 & 5
C	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
D	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 5 10 20 30m
0 10 20 40 60m

1 : 300 scale @ A1 / 1 : 600 scale @ A3

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Project :

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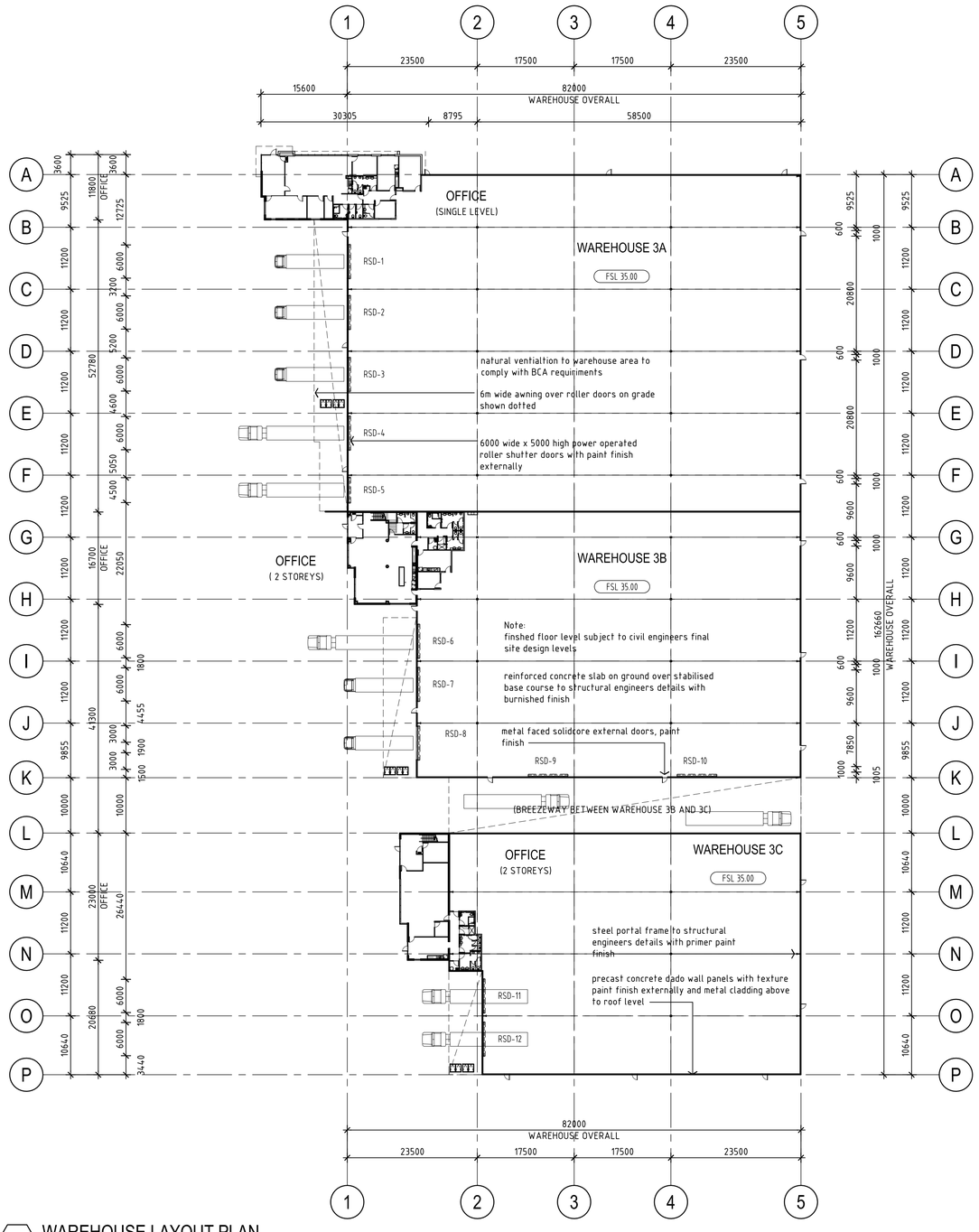
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997
Member Australian Institute of Architects

Drawing :

COLOURED ELEVATIONS 1

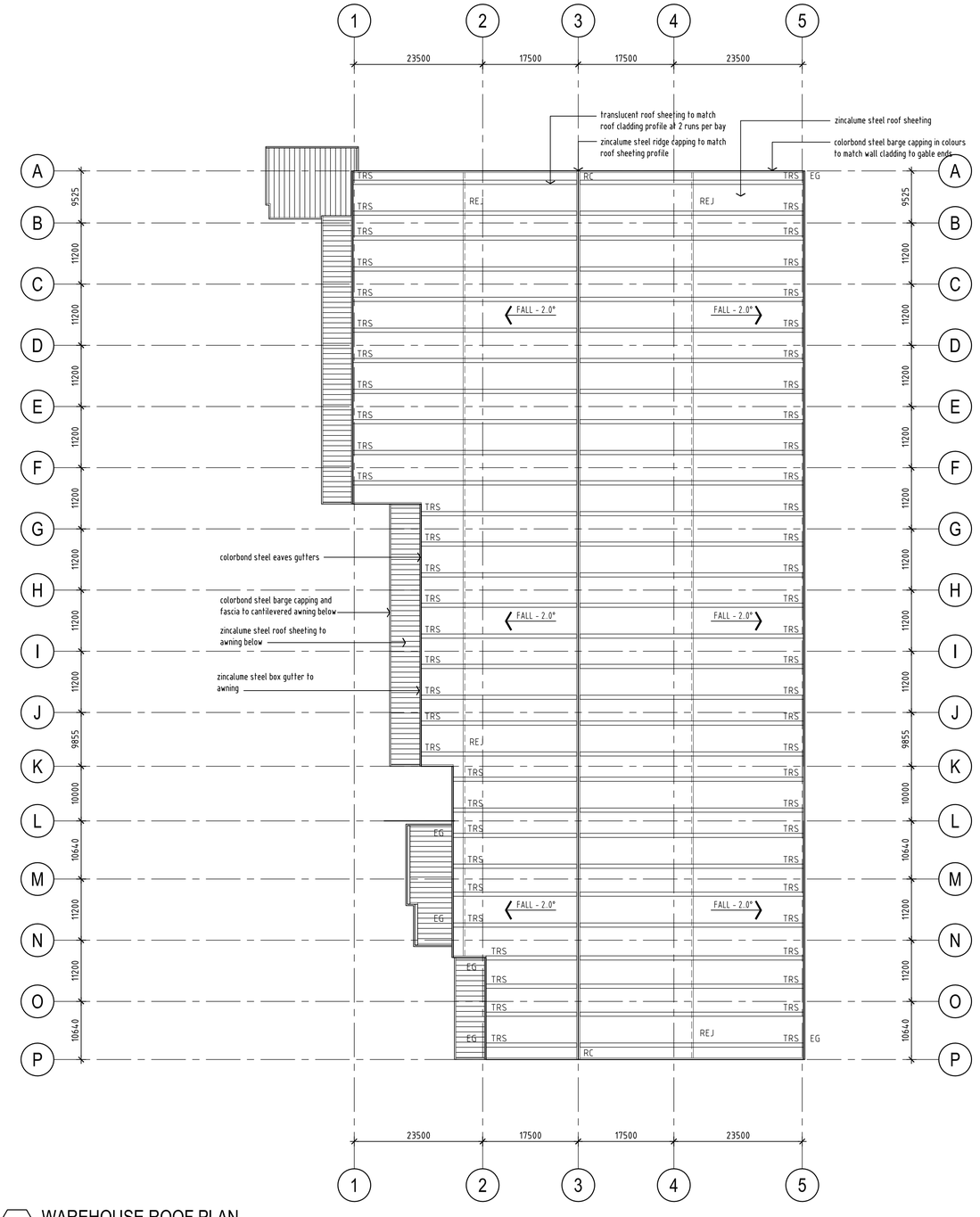
Drawn:	Project No :	Drawing No :	Issue :
AA	140604	DA - A 108	D
Date : November 2015			
Scale : 1 : 300 @ A1 1 : 600 @ A3			



WAREHOUSE LAYOUT PLAN
WAREHOUSE 3

1 : 500 scale

ABBREVIATIONS - ROOF	
BG	box gutter
EG	eaves gutter
RC	ridge capping - notched to suit roof sheet profile
REJ	roof expansion joint
TRS	translucent roof sheeting



WAREHOUSE ROOF PLAN
WAREHOUSE 3

1 : 500 scale

MODIFICATIONS FOR SECTION 96 / No. 2 APPLICATION

(A) WAREHOUSE 3 DIVIDED INTO 3 TENANCIES WITH ADDITIONAL OFFICE SPACE PROVIDED FOR WAREHOUSE 3B & 3C

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

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B	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
C	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 5 10 20 30 40 50m
0 10 20 40 60 80 100m

1 : 500 scale @ A1 / 1 : 1000 scale @ A3

Development Manager :

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Project :

PRESTONS INDUSTRIAL ESTATE

PROPOSED WAREHOUSE DEVELOPMENT

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e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997

Drawing :

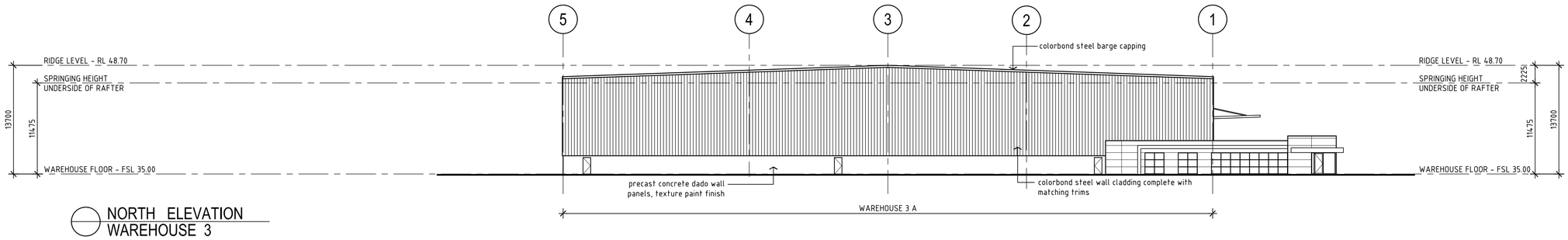
WAREHOUSE 3
BUILDING FLOOR PLAN

Drawn: AA	Project No :	Drawing No :	Issue :
Date: November 2015	140604	S96 - A 231	C
Scale : 1 : 500 @ A1 1 : 1000 @ A3			

MATERIALS KEY	
CB 1	COLORBOND - SURFMIST
CB 2	COLORBOND - WINDSPRAY
CB 3	COLORBOND - BASLT
PF 1	PAINT FINISH - DULUX / MILTON MOON
PF 2	PAINT FINISH - DULUX / MANORBURN
PF 3	PAINT FINISH - DULUX / SOFT SUN
PF 4	PAINT FINISH - DULUX / RICH RED VIOLET
PF 5	PAINT FINISH - DULUX / BLUE BOTTOM BOAT
AC	ALUMINIUM CLADDING - PREFINISHED

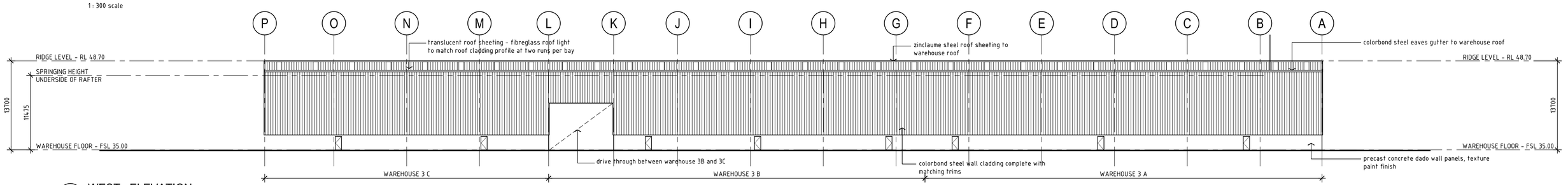
NORTH ELEVATION WAREHOUSE 3

1 : 300 scale



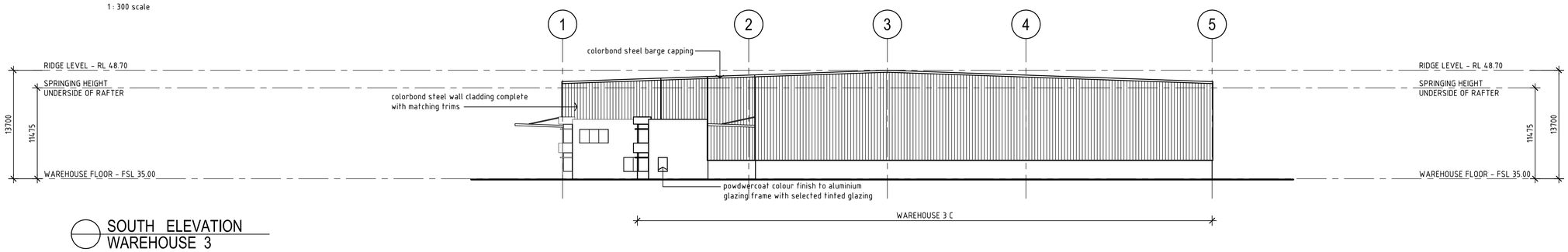
WEST ELEVATION WAREHOUSE 3

1 : 300 scale



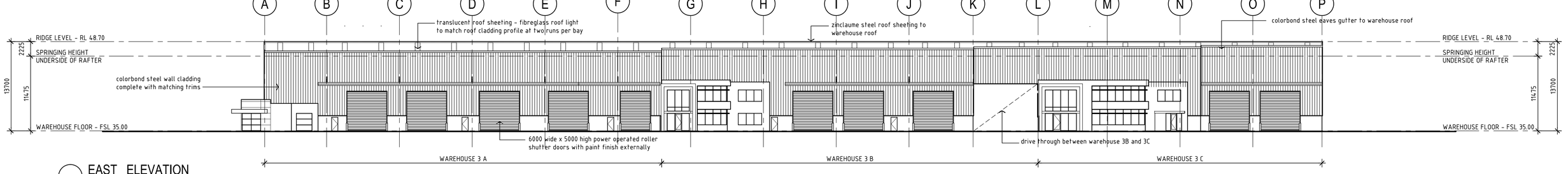
SOUTH ELEVATION WAREHOUSE 3

1 : 300 scale



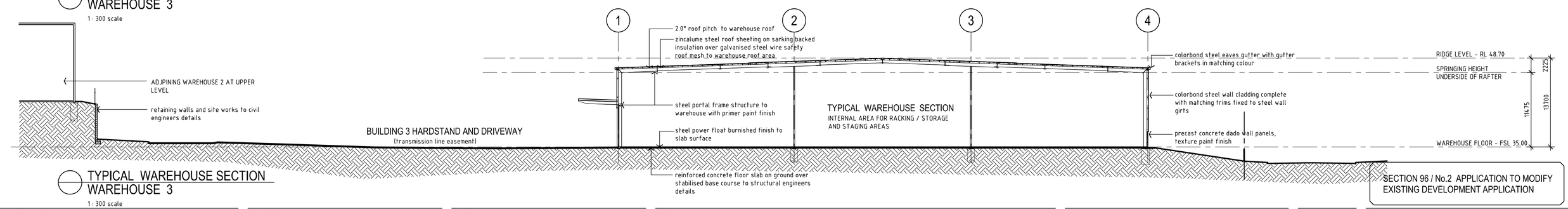
EAST ELEVATION WAREHOUSE 3

1 : 300 scale



TYPICAL WAREHOUSE SECTION WAREHOUSE 3

1 : 300 scale



MODIFICATIONS FOR SECTION 96 / No. 2 APPLICATION

(A) WAREHOUSE 3 DIVIDED INTO 3 TENANCIES WITH ADDITIONAL OFFICE SPACE PROVIDED FOR WAREHOUSE 3B & 3C

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue :	Date:	Amendment:
A	28/11/15	ISSUED FOR DEVELOPMENT APPLICATION
B	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
C	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 5 10 20 30m
0 10 20 40 60m
1 : 300 scale @ A1 / 1 : 600 scale @ A3

Development Manager :
LOGOS Property Group
Suite 12.02 / 167 Macquarie Street
Sydney NSW 2000
t: + 61 2 9119 6066 F: + 61 2 9231 0948

Project Manager :
DBL PROPERTY
Project / Development Managers
Level 6 / 432 Kent Street
Sydney NSW 2000
t: + 61 2 9267 4267 F: + 61 2 9267 4265

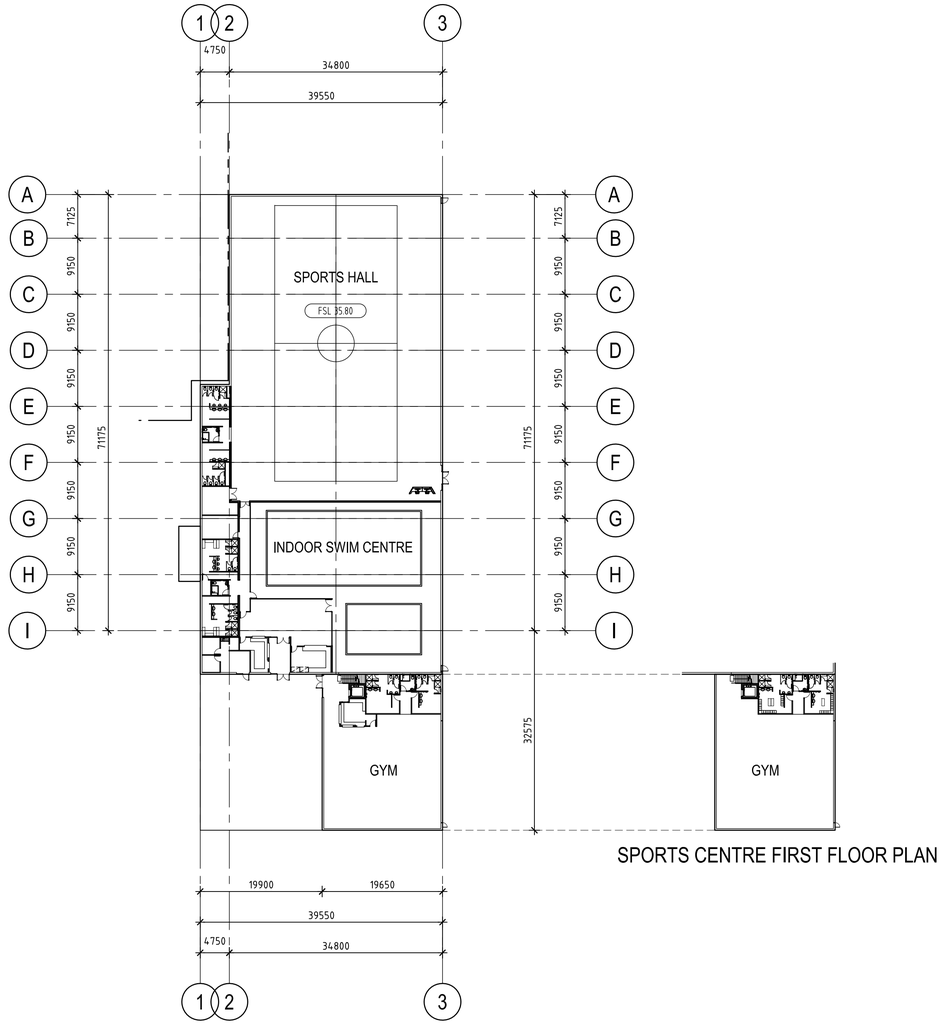
Project :
PRESTONS INDUSTRIAL ESTATE
PROPOSED WAREHOUSE DEVELOPMENT
Cnr YARRUNGA STREET & BERNERA ROAD , PRESTONS NSW

AXIS ARCHITECTURAL
4 / 112 Cronulla Street, Cronulla NSW 2230
p + 02 9523 7858 / m + 0414 954 405
e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997

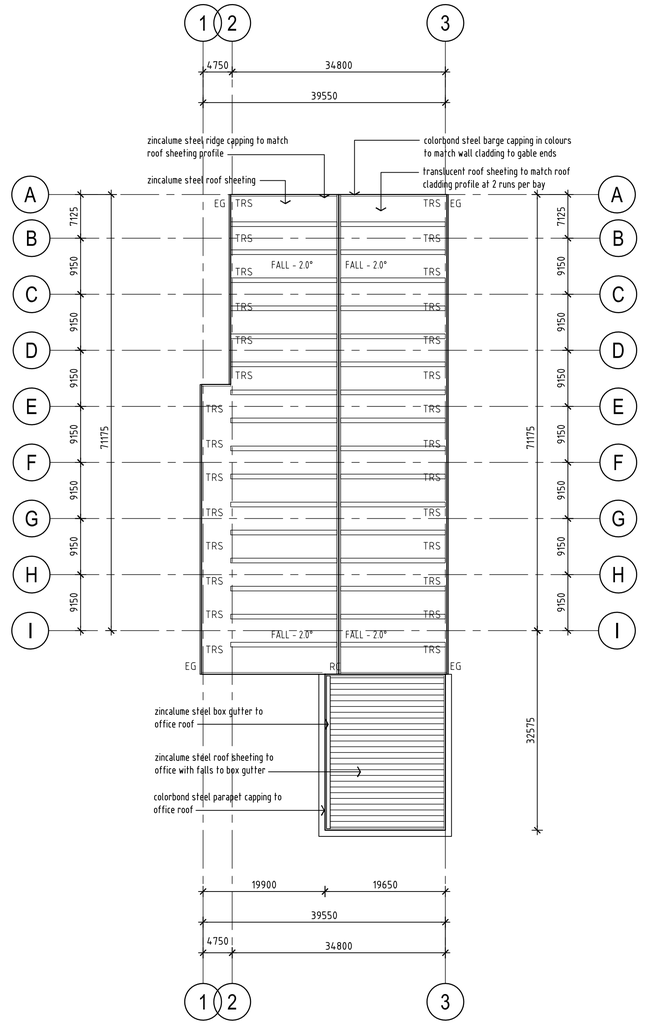
Drawing :
WAREHOUSE 3
BUILDING ELEVATIONS

Drawn: AA	Project No :	Drawing No :	Issue :
Date : November 2015	140604	S96 - A 232	C
Scale : 1 : 300 @ A1, 1 : 600 @ A3			

ABBREVIATIONS - ROOF	
BG	box gutter
EG	eaves gutter
RC	ridge capping - notched to suit roof sheet profile
REJ	roof expansion joint
TRS	translucent roof sheeting



SPORTS CENTRE FIRST FLOOR PLAN



SPORTS CENTRE ROOF PLAN
WAREHOUSE 4 - SPORT / RECREATION CENTRE
1 : 500 scale

SPORTS CENTRE LAYOUT PLAN
WAREHOUSE 4 - SPORT / RECREATION CENTRE
1 : 500 scale

(A) WAREHOUSE 4 TENANCY MODIFIED FOR INDOOR SPORTS AND RECREATION CENTRE

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue :	Date:	Amendment:
A	28/11/15	ISSUED FOR DEVELOPMENT APPLICATION
B	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
C	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 5 10 20 30 40 50m
0 10 20 40 60 80 100m
1 : 500 scale @ A1 / 1 : 1000 scale @ A3

Development Manager :
LOGOS Property Group
Suite 12.02 / 167 Macquarie Street
Sydney NSW 2000
t: + 61 2 9119 6066 F: + 61 2 9231 0948

Project Manager :
DBL PROPERTY
Project / Development Managers
Level 6 / 432 Kent Street
Sydney NSW 2000
t: + 61 2 9267 4267 F: + 61 2 9267 4265

Project :
PRESTONS INDUSTRIAL ESTATE
PROPOSED WAREHOUSE DEVELOPMENT
Cnr YARRUNGA STREET & BERNERA ROAD , PRESTONS NSW

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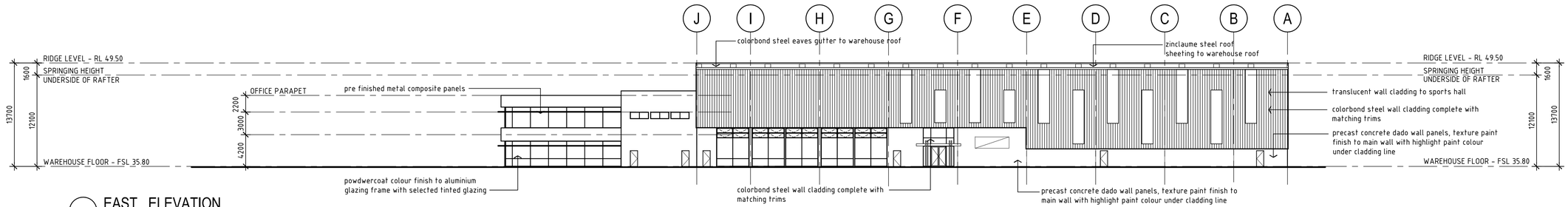
4 / 112 Cronulla Street, Cronulla NSW 2230
p + 02 9523 7858 / m + 0414 954 405
e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997

Drawing :
WAREHOUSE 4 - SPORTS CENTRE
BUILDING FLOOR PLAN

Drawn :	AA	Project No :	Drawing No :	Issue :
Date :	November 2015	140604	S96 - A 241	C
Scale :	1 : 500 @ A1 1 : 1000 @ A3			

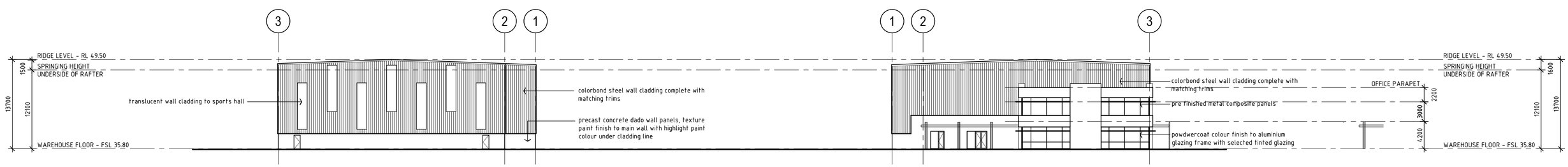
MATERIALS KEY

CB 1	COLORBOND - SURFMIST
CB 2	COLORBOND - WINDSPRAY
CB 3	COLORBOND - BASLT
PF 1	PAINT FINISH - DULUX / MILTON MOON
PF 2	PAINT FINISH - DULUX / MANORBURN
PF 3	PAINT FINISH - DULUX / SOFT SUN
PF 4	PAINT FINISH - DULUX / RICH RED VIOLET
PF 5	PAINT FINISH - DULUX / BLUE BOTTOM BOAT
AC	ALUMINIUM CLADDING - PREFINISHED



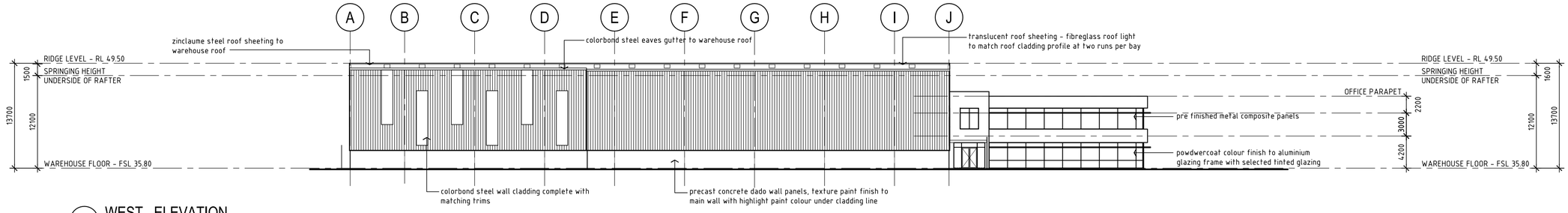
EAST ELEVATION
WAREHOUSE 4 - SPORTS CENTRE

1 : 300 scale



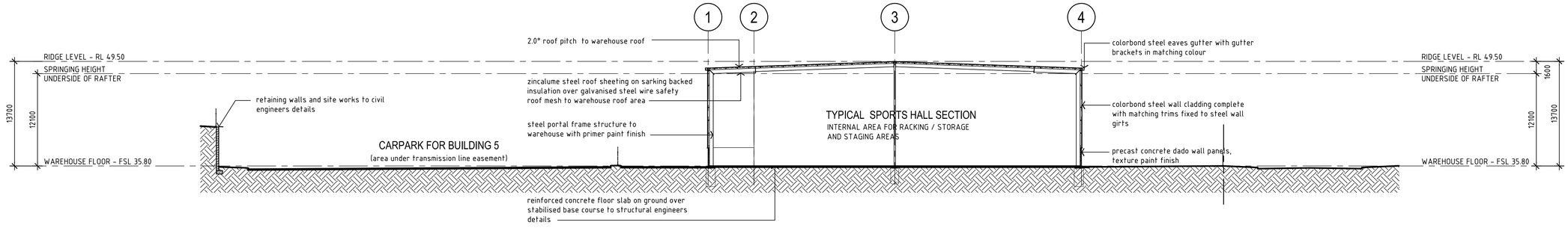
NORTH ELEVATION
WAREHOUSE 4 - SPORTS CENTRE

SOUTH ELEVATION
WAREHOUSE 4 - SPORTS CENTRE



WEST ELEVATION
WAREHOUSE 4 - SPORTS CENTRE

1 : 300 scale



TYPICAL WAREHOUSE SECTION
WAREHOUSE 4 - SPORTS CENTRE

1 : 300 scale

(A) WAREHOUSE 4 TENANCY MODIFIED FOR INDOOR SPORTS AND RECREATION CENTRE

SECTION 96 / No.2 APPLICATION TO MODIFY EXISTING DEVELOPMENT APPLICATION

Issue :	Date:	Amendment:
A	28/11/15	ISSUED FOR DEVELOPMENT APPLICATION
B	26/04/16	RESUBMISSION FOR PLANNING APPROVAL
C	15/06/17	ISSUED FOR SECTION 96 - No. 2 APPLICATION

0 5 10 20 30m
0 10 20 40 60m
1 : 300 scale @ A1 / 1 : 600 scale @ A3

Development Manager :
LOGOS Property Group
Suite 12.02 / 167 Macquarie Street
Sydney NSW 2000
t: + 61 2 9119 6066 F: + 61 2 9231 0948

Project Manager :
DBL PROPERTY
Project / Development Managers
Level 6 / 432 Kent Street
Sydney NSW 2000
t: + 61 2 9267 4267 F: + 61 2 9267 4265

Project :
PRESTONS INDUSTRIAL ESTATE
PROPOSED WAREHOUSE DEVELOPMENT
Cnr YARRUNGA STREET & BERNERA ROAD , PRESTONS NSW

AXIS ARCHITECTURAL
4 / 112 Cronulla Street, Cronulla NSW 2230
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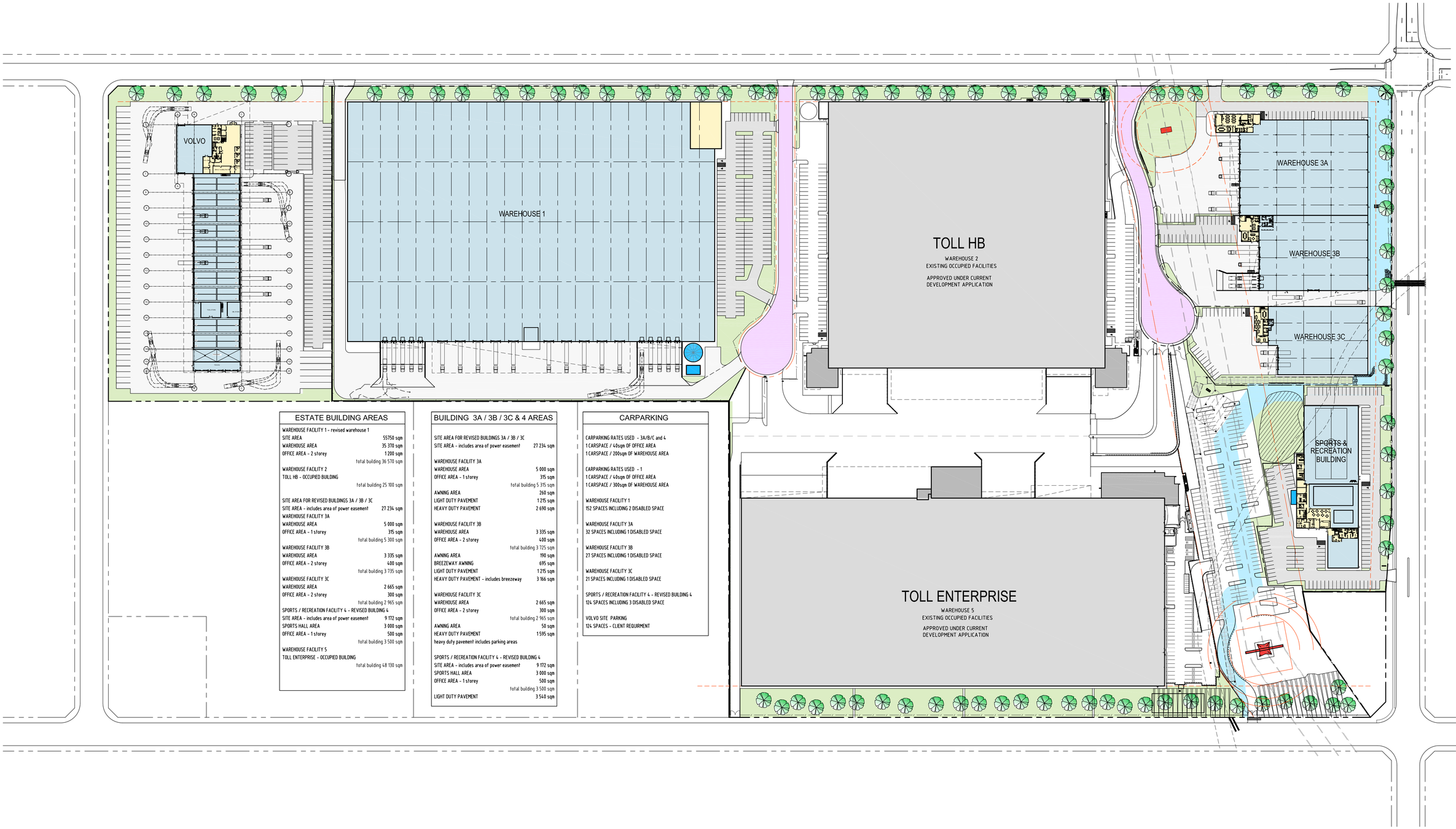
e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997
Member Australian Institute of Architects

Drawing:
WAREHOUSE 4
BUILDING ELEVATIONS

Drawn: AA	Project No :	Drawing No :	Issue :
Date : November 2015	140604	S96 - A 242	C
Scale : 1 : 300 @ A1 1 : 600 @ A3			



ESTATE BUILDING AREAS

WAREHOUSE FACILITY 1 - revised warehouse 1

SITE AREA	55750 sqm
WAREHOUSE AREA	35 370 sqm
OFFICE AREA - 2 storey	1 200 sqm
total building	36 570 sqm

WAREHOUSE FACILITY 2
TOLL HB - OCCUPIED BUILDING

total building	25 100 sqm

SITE AREA FOR REVISED BUILDINGS 3A / 3B / 3C

SITE AREA - includes area of power easement	27 234 sqm

WAREHOUSE FACILITY 3A

WAREHOUSE AREA	5 000 sqm
OFFICE AREA - 1 storey	315 sqm
total building	5 300 sqm

WAREHOUSE FACILITY 3B

WAREHOUSE AREA	3 335 sqm
OFFICE AREA - 2 storey	400 sqm
total building	3 735 sqm

WAREHOUSE FACILITY 3C

WAREHOUSE AREA	2 665 sqm
OFFICE AREA - 2 storey	300 sqm
total building	2 965 sqm

SPORTS / RECREATION FACILITY 4 - REVISED BUILDING 4

SITE AREA - includes area of power easement	9 172 sqm
SPORTS HALL AREA	3 000 sqm
OFFICE AREA - 1 storey	500 sqm
total building	3 500 sqm

WAREHOUSE FACILITY 5
TOLL ENTERPRISE - OCCUPIED BUILDING

total building	48 130 sqm

BUILDING 3A / 3B / 3C & 4 AREAS

SITE AREA FOR REVISED BUILDINGS 3A / 3B / 3C

SITE AREA - includes area of power easement	27 234 sqm

WAREHOUSE FACILITY 3A

WAREHOUSE AREA	5 000 sqm
OFFICE AREA - 1 storey	315 sqm
total building	5 315 sqm
AWNING AREA	260 sqm
LIGHT DUTY PAVEMENT	1 215 sqm
HEAVY DUTY PAVEMENT	2 690 sqm

WAREHOUSE FACILITY 3B

WAREHOUSE AREA	3 335 sqm
OFFICE AREA - 2 storey	400 sqm
total building	3 725 sqm
AWNING AREA	190 sqm
BREEZEWAY AWNING	695 sqm
LIGHT DUTY PAVEMENT	1 215 sqm
HEAVY DUTY PAVEMENT - includes breezeway	3 166 sqm

WAREHOUSE FACILITY 3C

WAREHOUSE AREA	2 665 sqm
OFFICE AREA - 2 storey	300 sqm
total building	2 965 sqm
AWNING AREA	50 sqm
HEAVY DUTY PAVEMENT	1 595 sqm

heavy duty pavement includes parking areas

SPORTS / RECREATION FACILITY 4 - REVISED BUILDING 4

SITE AREA - includes area of power easement	9 172 sqm
SPORTS HALL AREA	3 000 sqm
OFFICE AREA - 1 storey	500 sqm
total building	3 500 sqm
LIGHT DUTY PAVEMENT	3 540 sqm

CARPARKING

CARPARKING RATES USED - 3A/B/C and 4
1 CARSPACE / 40sqm OF OFFICE AREA
1 CARSPACE / 200sqm OF WAREHOUSE AREA

CARPARKING RATES USED - 1
1 CARSPACE / 40sqm OF OFFICE AREA
1 CARSPACE / 300sqm OF WAREHOUSE AREA

WAREHOUSE FACILITY 1
152 SPACES INCLUDING 2 DISABLED SPACE

WAREHOUSE FACILITY 3A
32 SPACES INCLUDING 1 DISABLED SPACE

WAREHOUSE FACILITY 3B
27 SPACES INCLUDING 1 DISABLED SPACE

WAREHOUSE FACILITY 3C
21 SPACES INCLUDING 1 DISABLED SPACE

SPORTS / RECREATION FACILITY 4 - REVISED BUILDING 4
124 SPACES INCLUDING 3 DISABLED SPACE

VOLVO SITE PARKING
124 SPACES - CLIENT REQUIRMENT

SITE PLAN

1 : 1200 scale

Issue : Date: Amendment:

Development Manager :

LOGOS Property Group

Suite 12.02 / 167 Macquarie Street
Sydney NSW 2000
t: + 61 2 9119 6066 F: + 61 2 9231 0948

Project Manager :

Project :

PRESTONS INDUSTRIAL ESTATE

PROPOSED WAREHOUSE DEVELOPMENT

Cnr YARRUNGA STREET & BERNERA ROAD , PRESTONS NSW

AXIS ARCHITECTURAL
4 / 112 Cronulla Street, Cronulla NSW 2230
p + 02 9523 7858 / m + 0414 954 405
e + david@axisarchitects.com.au
AXIS ARCHITECTURAL Pty Ltd - ABN 18 086 853 376
Nominated Architect - David McDonald NSW ARB No. 7997
Member Australian Institute of Architects

Drawing:
SITE PLAN - COLOURED
OVERALL ESTATE PLAN

Drawn: AA
Date: November 2015
Scale: 1 : 1200 @ A1
1 : 2400 @ A3

Project No : 140604

Drawing No : S96 - A 103

Issue : P2

APPENDIX D

INTERSECTION DETAILS

REFER TO RIGHT FOR CONTINUATION

KIP TO SUIT NEW KERB ALIGNMENT WITH EXTENDED PIT CHAMBER TO SUIT EXISTING PIPE ALIGNMENT.

MATCH LINE

RELOCATE EXISTING VARIABLE MESSAGE SIGN TO SUIT NEW ALIGNMENT. FOOTING DETAILS AND FINAL LOCATION TO BE PROVIDED BY RMS

R2.9

EXISTING K&G TO REMAIN

ADJUST EXISTING PIT TO SUIT NEW KERB ALIGNMENT. REFER TO DRAWING R250.

RELOCATE EXISTING POWER POLE. REFER TO ELECTRICAL CONSULTANT.

EXISTING SMH TO REMAIN. REMOVE KERB & MATCH LEVELS TO SUIT EXISTING MANHOLE.

ADJUST EXISTING PIT TO SUIT NEW KERB ALIGNMENT. REFER TO DRAWING R250.

RELOCATE EXISTING POWER POLE. REFER TO ELECTRICAL CONSULTANT.

RELOCATE EXISTING POWER POLE. REFER TO ELECTRICAL CONSULTANT.

START NEW K&G. MATCH EXISTING LEVELS & ALIGNMENT AT INTERFACE OF NEW & EXISTING KERBS.

EXISTING K&G REMAINS

BERNERA ROAD

PROPOSED SITE BOUNDARY

EXISTING SITE BOUNDARY

MATCH LINE

REFER TO RIGHT FOR CONTINUATION

REFER TO YARRUNGA STREET ROADWORKS PACKAGE FOR CONTINUATION

YARRUNGA STREET INTERSECTION WORKS

START NEW K&G. MATCH EXISTING LEVELS & ALIGNMENT AT INTERFACE OF NEW & EXISTING KERBS.

REMOVE EXISTING KERB AS REQUIRED & PROVIDE NEW PAVEMENT & KERB AS SHOWN

YARRUNGA STREET

PIT R06

PAVEMENT AS CONSTRUCTED AS PART OF YARRUNGA STREET UPGRADE WORKS. REFER TO YARRUNGA STREET ROADWORKS PACKAGE FOR CONTINUATION.

SITE - BOUNDARY

REFER TO LEFT FOR CONTINUATION

MATCH LINE

END NEW K&G. MATCH EXISTING LEVELS & ALIGNMENT AT INTERFACE OF NEW & EXISTING KERBS.

ADJUST BOUNDARY 2m OVER 30m LENGTH

RELOCATE EXISTING TRAFFIC SIGNAL POST TO SUIT NEW ALIGNMENT. FINAL LOCATION TO BE PROVIDED BY RMS.

RELOCATE EXISTING POWER POLE. REFER TO ELECTRICAL CONSULTANT.

REMOVE & REPLACE EXISTING PRAM RAMPS

3.6m WIDE PEDESTRIAN CROSSING

EXISTING STORMWATER PIPE

RELOCATE EXISTING TRAFFIC SIGNAL POST TO SUIT NEW ALIGNMENT. FINAL LOCATION TO BE PROVIDED BY RMS.

PIT R07

EXISTING K&G TO BE REMOVED & PAVEMENT WIDENED. MATCH EXISTING LEVELS AT INTERFACE

EXISTING BOUNDARY TO BE REALIGNED

EXISTING PIT. REFER TO DRAWING R250.

RELOCATE EXISTING POWER POLE. REFER TO ELECTRICAL CONSULTANT.

RELOCATE EXISTING TRAFFIC SIGNAL POST TO SUIT NEW ALIGNMENT. FINAL LOCATION TO BE PROVIDED BY RMS.

NEW K&G

EXISTING PIT. REFER TO DRAWING R250.

PROVIDE NEW KERB INLET PIT TO LIVERPOOL CITY COUNCIL REQUIREMENTS. NEW KIP TO SUIT NEW KERB ALIGNMENT WITH EXTENDED PIT CHAMBER TO SUIT EXISTING PIPE ALIGNMENT.

MATCH LINE

EXISTING K&G TO REMAIN

EXISTING K&G TO REMAIN

YATO ROAD

BERNERA ROAD

PROPOSED SITE BOUNDARY

EXISTING SITE BOUNDARY

REFER TO LEFT FOR CONTINUATION

LEGEND:

LEVELS DATUM IS AHD.

EXISTING SITE LEVELS AND DETAILS BASED ON SURVEY INFORMATION PROVIDED BY LANDPARTNERS TITLED SY073596.000_DETAIL SURVEY DATED 30/03/15.

- SGGP, SINGLE GRATED GULLY PIT
- SJP, SEALED JUNCTION PIT
- KIP, KERB INLET PIT
- 50.00 – FINISHED PAVEMENT CONTOUR (MAJOR) 0.5m INTERVALS
- 50.10 – FINISHED PAVEMENT CONTOUR (MINOR) 0.1m INTERVALS

ROADWORKS LAYOUT PLAN

SCALE 1:200

2m 0 5 10 15 20m

SCALE 1:200 AT A0 SIZE SHEET

FOR APPROVAL

AMENDMENTS	DATE	ISSUE
EXTENT OF WORKS & LINEMARKING REVISED AS CLOUDED	19.01.17	E
VERGE WIDTH & SITE BOUNDARY REVISED AS CLOUDED	02.12.16	D
VERGE WIDTH & SITE BOUNDARY REVISED AS CLOUDED	06.10.16	C
KERB LAYOUT REVISED AS CLOUDED	28.09.16	B
ISSUED FOR APPROVAL	09.09.16	A

ARCHITECT

CLIENT: LOGOS PROPERTY
SUITE 02, LEVEL 12
167 MACQUARIE STREET
SYDNEY NSW

PROJECT: PROPOSED DEVELOPMENT
32 YARRUNGA ROAD
PRESTONS NSW

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF:
MW	TW			A0	AS SHOWN	C08753.11-R240

Costin Roe Consulting Pty Ltd.
Consulting Engineers ACN 001 188 446
Level 1, 8 Windmill Street
Walsh Bay, Sydney NSW 2000
Tel: (02) 8251-7699 Fax: (02) 8041-3721
email: mail@costinroe.com.au ©

Costin Roe Consulting

PRECISION | COMMUNICATION | ACCOUNTABILITY

DRAWING TITLE: ROADWORKS LAYOUT PLAN

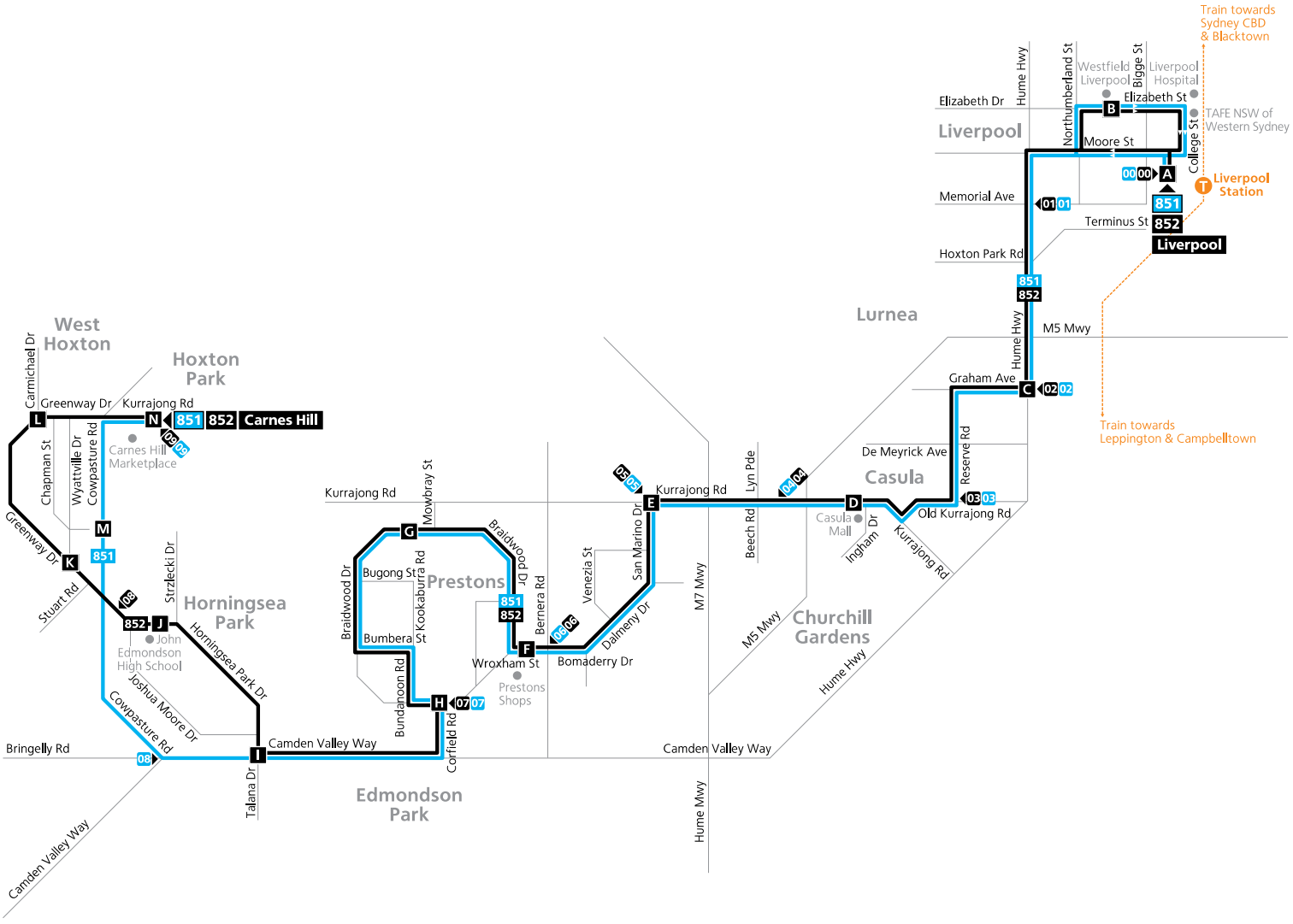
DRAWING No: C08753.11-R240 ISSUE: E

APPENDIX E

BUS SERVICES

Bus route map

851, 852



Legend

- Bus route
- 851 Bus route number
- A Timing point
- 00 Section point
- T Train line/station

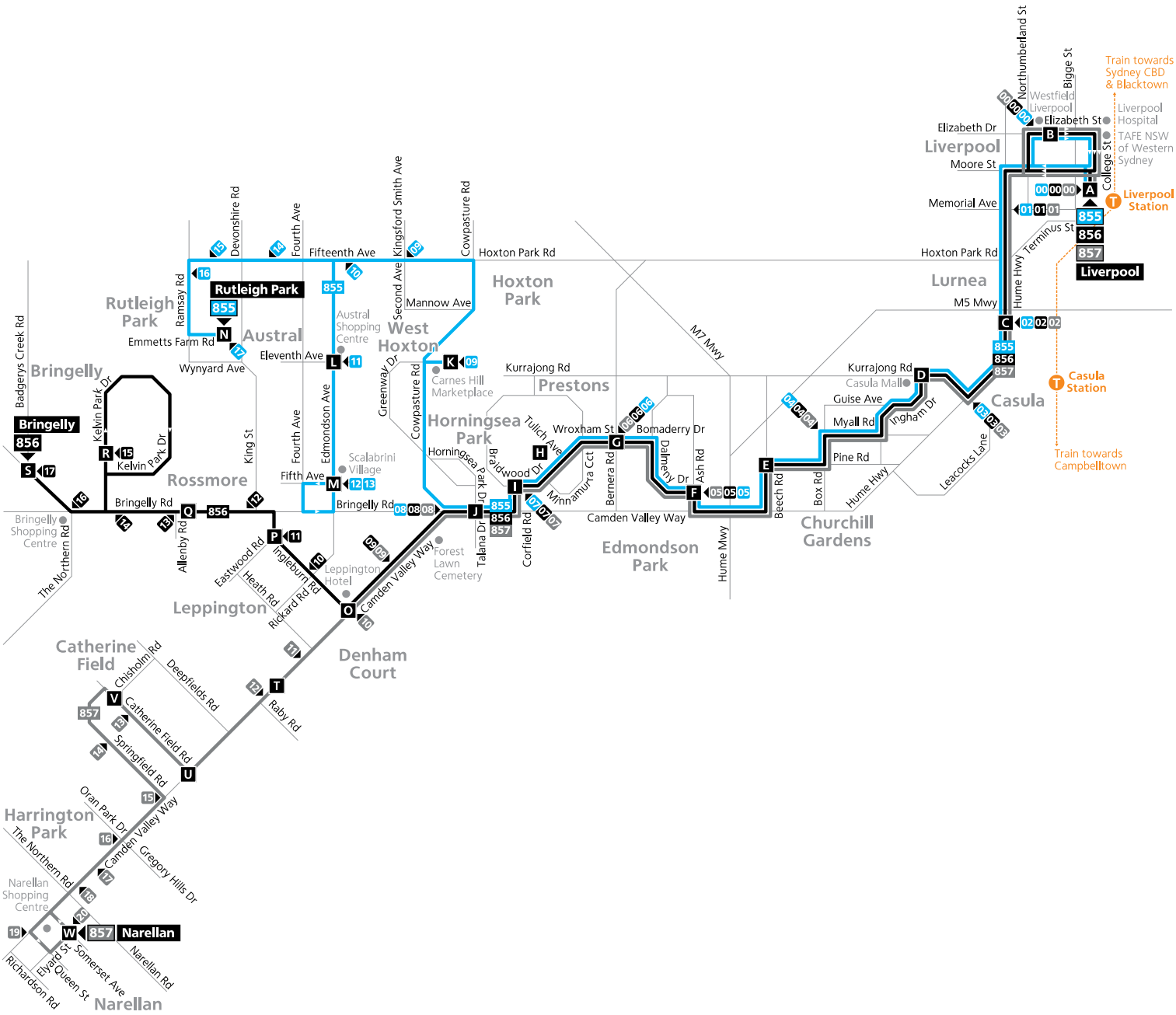
Diagrammatic Map Not to Scale

North

Transport

Bus route map

855, 856, 857



Legend

- Bus route
- 855 Bus route number
- A Timing point
- 00 Section point
- T Train line/station

Diagrammatic Map
Not to Scale
North

Transport

APPENDIX F

TRAFFIC SURVEY RESULTS

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : TTPA
Job No/Name : 6467 SEVEN HILLS 20 Distribution Pl
Day/Date : Monday 29th May 2017

Car Park

Time Per	20 DISTRIBUTION PL Car Park IN	OUT	TOT
0600 - 0615	2	1	3
0615 - 0630	0	0	0
0630 - 0645	1	2	3
0645 - 0700	0	2	2
0700 - 0715	1	1	2
0715 - 0730	5	0	5
0730 - 0745	5	3	8
0745 - 0800	8	3	11
0800 - 0815	9	2	11
0815 - 0830	7	1	8
0830 - 0845	9	3	12
0845 - 0900	5	2	7
Per End	**52**	**20**	**72**

Capacity 60

At Start 5

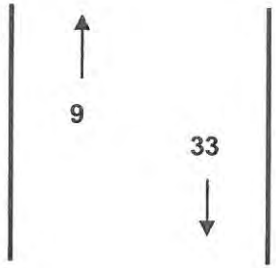
Time Per	CAR PARK Accumul
0600 - 0615	6
0615 - 0630	6
0630 - 0645	5
0645 - 0700	3
0700 - 0715	3
0715 - 0730	8
0730 - 0745	10
0745 - 0800	15
0800 - 0815	22
0815 - 0830	28
0830 - 0845	34
0845 - 0900	37
At Finish	37

Car Park

Peak Per	20 DISTRIBUTION PL Car Park IN	OUT	TOT
0600 - 0700	3	5	8
0615 - 0715	2	5	7
0630 - 0730	7	5	12
0645 - 0745	11	6	17
0700 - 0800	19	7	26
0715 - 0815	27	8	35
0730 - 0830	29	9	38
0745 - 0845	33	9	42
0800 - 0900	30	8	38
PEAK HR	**33**	**9**	**42**

AM PEAK HOUR
0745 - 0845

Distribution Pl



Capacity 60

At Start 45

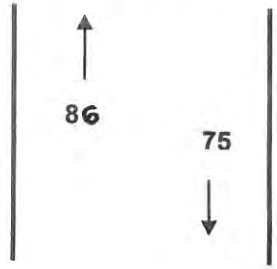
Time Per	CAR PARK Accumul
1600 - 1615	49
1615 - 1630	51
1630 - 1645	51
1645 - 1700	57
1700 - 1715	58
1715 - 1730	59
1730 - 1745	44
1745 - 1800	45
1800 - 1815	50
1815 - 1830	55
1830 - 1845	55
1845 - 1900	54
At Finish	54

Time Per	20 DISTRIBUTION PL Car Park IN	OUT	TOT
1600 - 1615	12	8	20
1615 - 1630	12	10	22
1630 - 1645	12	12	24
1645 - 1700	20	14	34
1700 - 1715	16	15	31
1715 - 1730	21	20	41
1730 - 1745	9	24	33
1745 - 1800	14	13	27
1800 - 1815	19	14	33
1815 - 1830	27	22	49
1830 - 1845	26	26	52
1845 - 1900	8	9	17
Per End	**196**	**187**	**383**

Peak Per	20 DISTRIBUTION PL Car Park IN	OUT	TOT
1600 - 1700	56	44	100
1615 - 1715	60	51	111
1630 - 1730	69	61	130
1645 - 1745	66	73	139
1700 - 1800	60	72	132
1715 - 1815	63	71	134
1730 - 1830	69	73	142
1745 - 1845	86	75	161
1800 - 1900	80	71	151
PEAK HR	**86**	**75**	**161**

PM PEAK HOUR
1745 - 1845

Distribution Pl



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

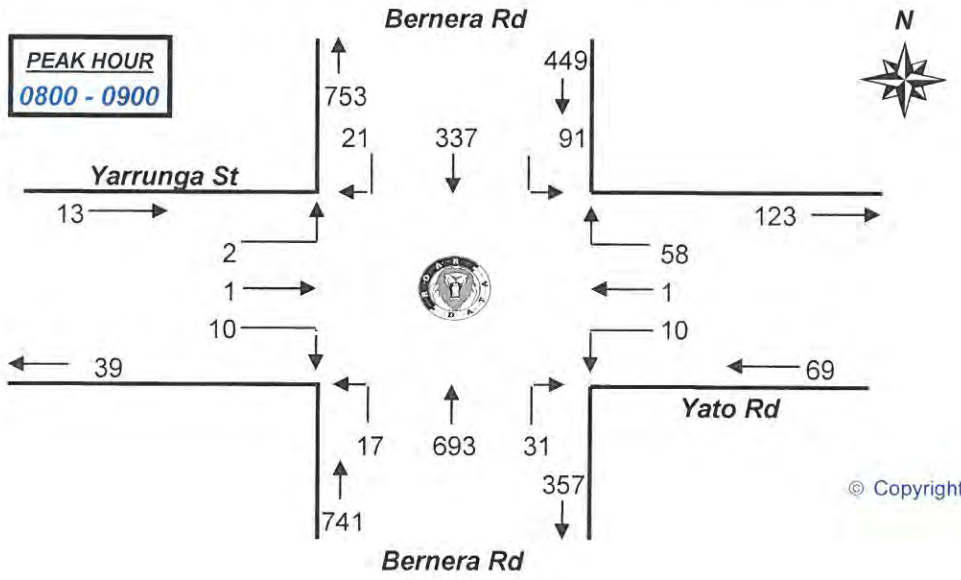
Client : T.T.P.A
Job No/Name : 5789 PRESTONS Bernera Rd
Day/Date : Thursday / 1st October 2015

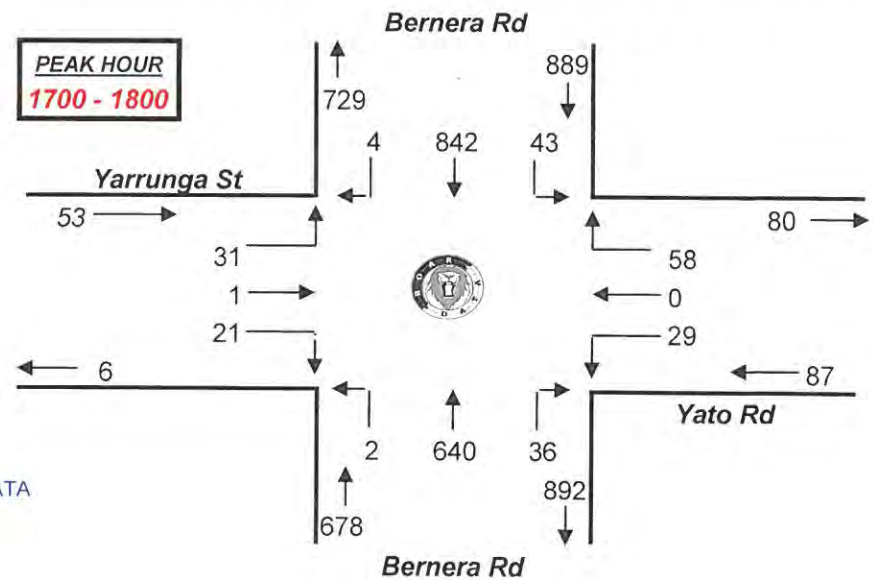
All Vehicles	NORTH Bernera Rd			WEST Yarrunga St			SOUTH Bernera Rd			EAST Yato Rd			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	17	99	8	2	1	2	3	131	2	1	0	10	276
0715 - 0730	23	103	11	0	0	0	3	135	2	0	0	9	286
0730 - 0745	15	77	4	2	0	2	0	158	6	4	0	17	285
0745 - 0800	20	107	2	0	1	2	1	160	3	1	1	5	303
0800 - 0815	26	86	4	1	1	2	2	177	7	1	1	15	323
0815 - 0830	21	74	4	0	0	2	4	170	5	2	0	12	294
0830 - 0845	13	90	8	1	0	2	3	192	10	4	0	11	334
0845 - 0900	31	87	5	0	0	4	8	154	9	3	0	20	321
Period End	166	723	46	6	3	16	24	1277	44	16	2	99	2422

All Vehicles	NORTH Bernera Rd			WEST Yarrunga St			SOUTH Bernera Rd			EAST Yato Rd			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	6	187	2	2	0	4	0	148	4	8	0	24	385
1615 - 1630	3	220	2	12	0	0	2	154	2	2	0	22	419
1630 - 1645	6	174	2	0	0	1	1	172	2	12	0	15	385
1645 - 1700	10	162	0	3	0	2	0	148	1	3	0	12	341
1700 - 1715	4	198	1	15	1	11	0	163	3	9	0	16	421
1715 - 1730	13	230	1	10	0	3	0	174	10	8	0	22	471
1730 - 1745	13	216	1	3	0	3	0	149	15	7	0	13	420
1745 - 1800	13	198	1	3	0	4	2	154	8	5	0	7	395
Period End	68	1585	10	48	1	28	5	1262	45	54	0	131	3237

	NORTH Bernera Rd			WEST Yarrunga St			SOUTH Bernera Rd			EAST Yato Rd			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	75	386	25	4	2	6	7	584	13	6	1	41	1150
0715 - 0815	84	373	21	3	2	6	6	630	18	6	2	46	1197
0730 - 0830	82	344	14	3	2	8	7	665	21	8	2	49	1205
0745 - 0845	80	357	18	2	2	8	10	699	25	8	2	43	1254
0800 - 0900	91	337	21	2	1	10	17	693	31	10	1	58	1272
PEAK HOUR	91	337	21	2	1	10	17	693	31	10	1	58	1272

	NORTH Bernera Rd			WEST Yarrunga St			SOUTH Bernera Rd			EAST Yato Rd			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	25	743	6	17	0	7	3	622	9	25	0	73	1530
1615 - 1715	23	754	5	30	1	14	3	637	8	26	0	65	1566
1630 - 1730	33	764	4	28	1	17	1	657	16	32	0	65	1618
1645 - 1745	40	806	3	31	1	19	0	634	29	27	0	63	1653
1700 - 1800	43	842	4	31	1	21	2	640	36	29	0	58	1707
PEAK HOUR	43	842	4	31	1	21	2	640	36	29	0	58	1707





APPENDIX G

SIDRA RESULTS

MOVEMENT SUMMARY

Site: S1 [C/L 120s FUT AM BERNERRA RD / YARRUNGA RD UPDATE]

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: BERNERRA RD											
1	L2	88	10.0	0.906	31.1	LOS C	37.0	281.3	0.88	0.88	39.6
2	T1	1259	10.0	0.906	25.7	LOS C	37.0	281.3	0.85	0.85	40.7
3	R2	49	10.0	0.339	60.6	LOS E	2.7	20.6	0.94	0.74	28.0
Approach		1396	10.0	0.906	27.3	LOS C	37.0	281.3	0.85	0.85	40.0
East: YATO RD											
4	L2	15	50.0	0.107	52.6	LOS D	1.3	12.6	0.88	0.69	30.2
5	T1	10	50.0	0.107	46.5	LOS D	1.3	12.6	0.88	0.69	33.0
6	R2	107	50.0	0.469	56.4	LOS E	5.9	58.5	0.95	0.79	30.3
Approach		132	50.0	0.469	55.2	LOS E	5.9	58.5	0.94	0.77	30.5
North: BERNERRA RD											
7	L2	186	10.0	0.630	34.3	LOS C	20.9	158.8	0.84	0.82	38.9
8	T1	695	10.0	0.630	28.2	LOS C	20.9	158.8	0.82	0.75	39.2
9	R2	123	10.0	0.851	73.7	LOS E	8.0	61.0	1.00	0.94	26.7
Approach		1004	10.0	0.851	34.9	LOS C	20.9	158.8	0.84	0.79	36.9
West: YARRUNGA RD											
10	L2	42	20.0	0.237	57.2	LOS E	2.8	22.9	0.93	0.74	30.6
11	T1	10	20.0	0.237	51.4	LOS D	2.8	22.9	0.93	0.74	31.3
12	R2	40	20.0	0.185	56.7	LOS E	2.1	17.5	0.92	0.74	29.0
Approach		92	20.0	0.237	56.4	LOS E	2.8	22.9	0.93	0.74	30.0
All Vehicles		2624	12.4	0.906	32.6	LOS C	37.0	281.3	0.86	0.82	37.7

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	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	26.7	LOS C	0.1	0.1	0.67	0.67
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	26.7	LOS C	0.1	0.1	0.67	0.67
All Pedestrians		211	40.5	LOS E			0.81	0.81

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: S1 [C/L 120s FUT PM BERNERRA RD / YARRUNGA RD UPDATE]

Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: BERNERRA RD											
1	L2	45	10.0	0.740	42.7	LOS D	23.8	181.2	0.94	0.84	34.8
2	T1	854	10.0	0.740	37.1	LOS D	23.8	181.2	0.93	0.83	35.7
3	R2	42	10.0	0.485	70.2	LOS E	2.6	19.6	1.00	0.74	25.9
Approach		941	10.0	0.740	38.8	LOS D	23.8	181.2	0.94	0.82	35.1
East: YATO RD											
4	L2	38	15.0	0.103	40.5	LOS D	2.1	16.5	0.78	0.70	34.1
5	T1	10	15.0	0.103	34.8	LOS C	2.1	16.5	0.78	0.70	36.5
6	R2	141	15.0	0.306	42.9	LOS D	6.6	51.8	0.84	0.78	34.6
Approach		189	15.0	0.306	42.0	LOS D	6.6	51.8	0.82	0.76	34.6
North: BERNERRA RD											
7	L2	83	10.0	0.897	61.7	LOS E	36.6	278.2	1.00	1.06	30.5
8	T1	1010	10.0	0.897	54.6	LOS D	36.6	278.2	1.00	1.06	30.0
9	R2	47	10.0	0.542	70.6	LOS E	2.9	22.1	1.00	0.75	27.4
Approach		1140	10.0	0.897	55.8	LOS E	36.6	278.2	1.00	1.05	29.9
West: YARRUNGA RD											
10	L2	129	10.0	0.599	60.1	LOS E	7.9	60.2	0.99	0.80	29.8
11	T1	10	10.0	0.599	54.5	LOS D	7.9	60.2	0.99	0.80	30.3
12	R2	90	10.0	0.389	58.3	LOS E	5.0	37.7	0.96	0.78	28.7
Approach		229	10.0	0.599	59.2	LOS E	7.9	60.2	0.98	0.79	29.4
All Vehicles		2499	10.4	0.897	48.7	LOS D	36.6	278.2	0.96	0.92	31.9

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.

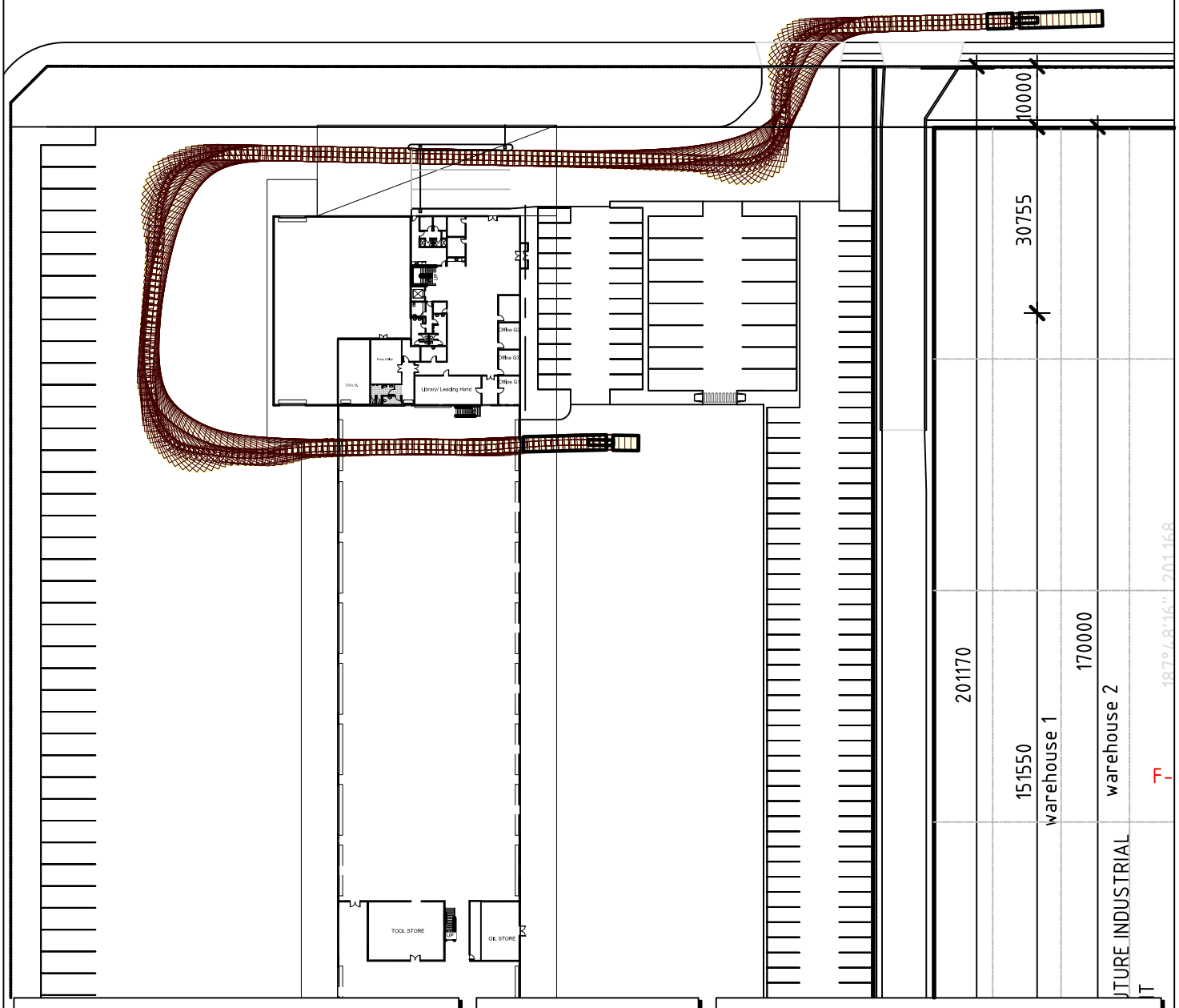
Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	43.4	LOS E	0.2	0.2	0.85	0.85
P2	East Full Crossing	53	33.1	LOS D	0.1	0.1	0.74	0.74
P3	North Full Crossing	53	54.3	LOS E	0.2	0.2	0.95	0.95
P4	West Full Crossing	53	33.1	LOS D	0.1	0.1	0.74	0.74
All Pedestrians		211	41.0	LOS E			0.82	0.82

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX H

TURNING PATH ASSESSMENT

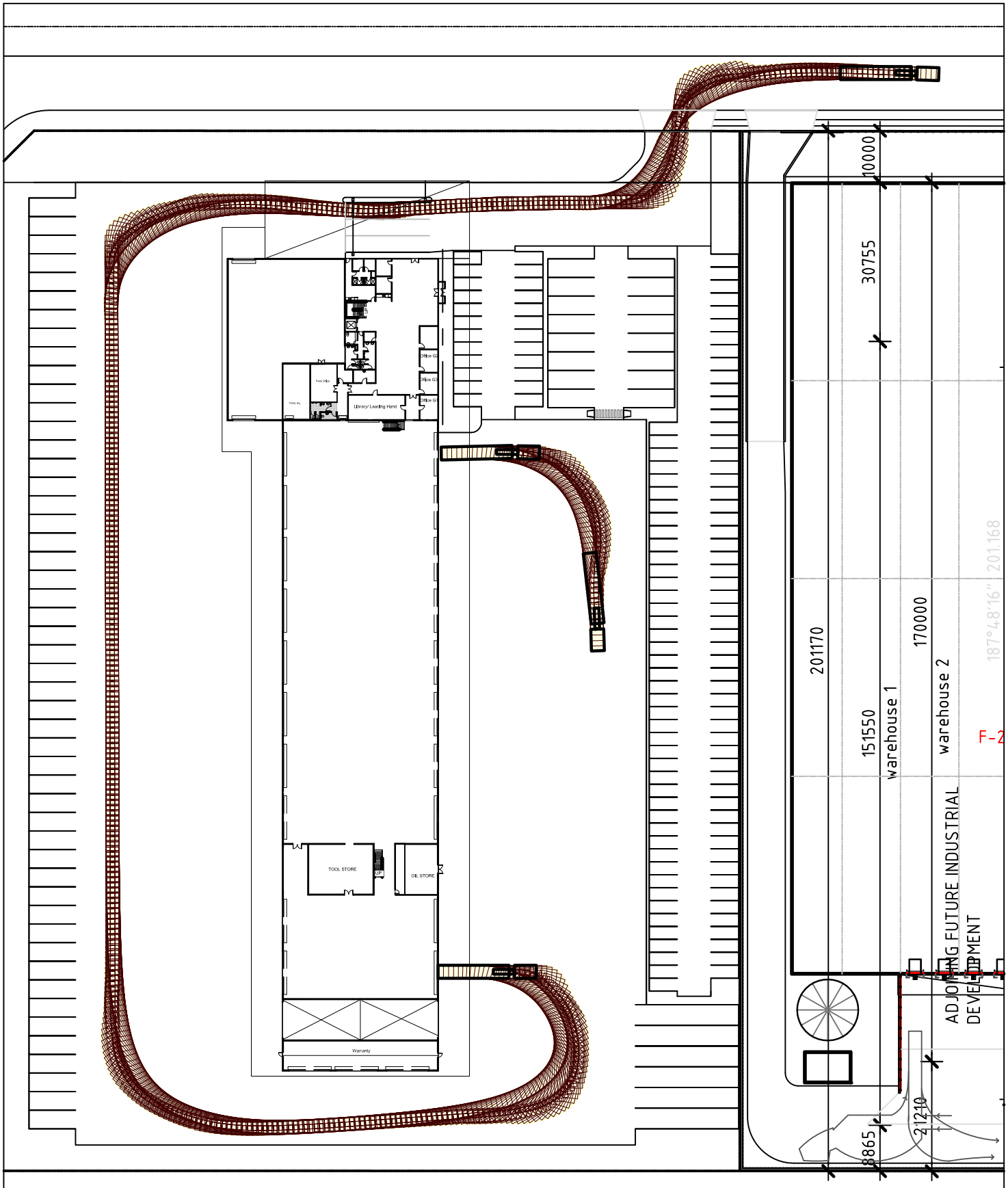


LEGEND

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 A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 1



LEGEND

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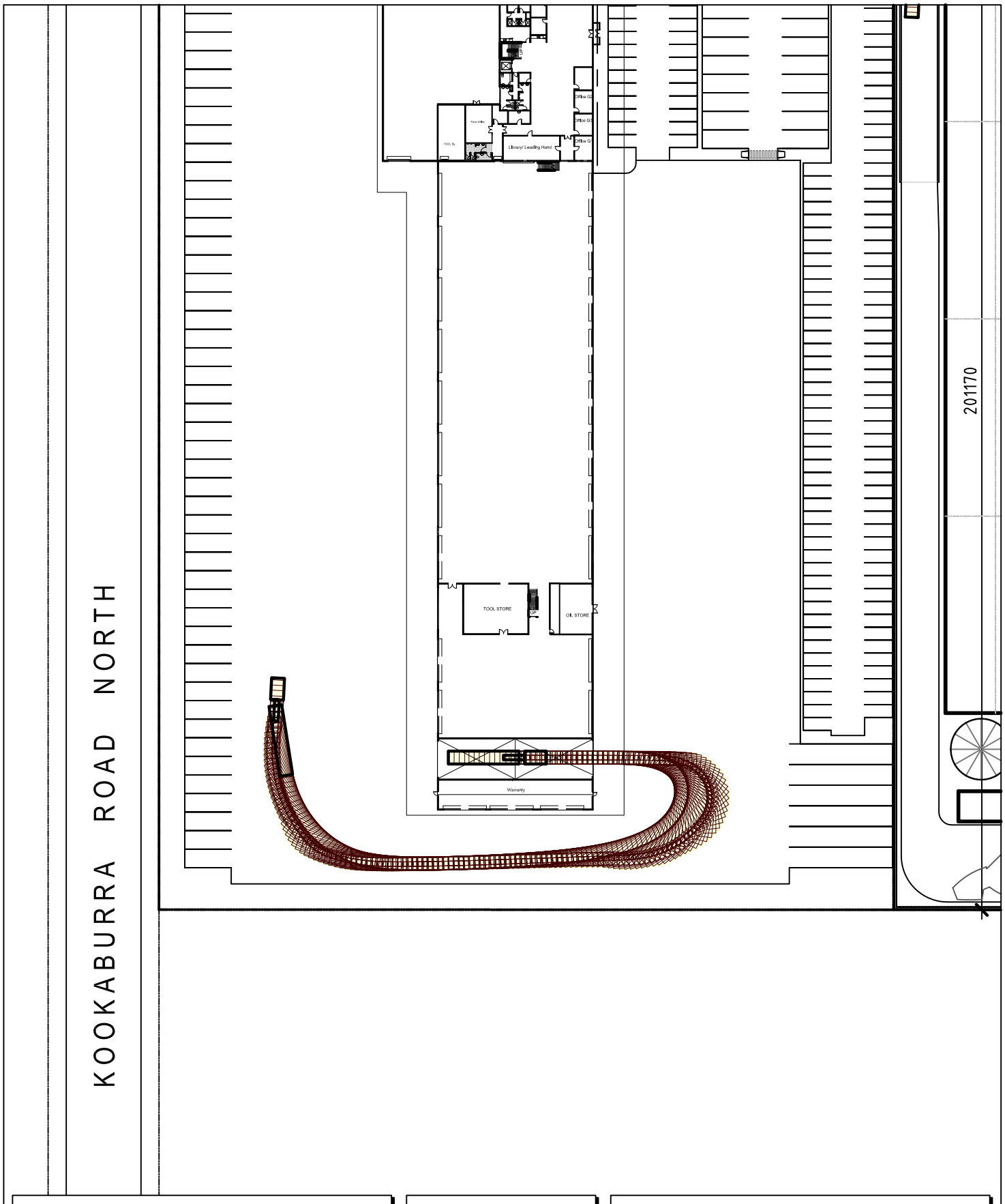
SWEPT PATH ANALYSIS OF 19m ARTICULATED VEHICLES EXITING THE SITE

SP 2



LEGEND

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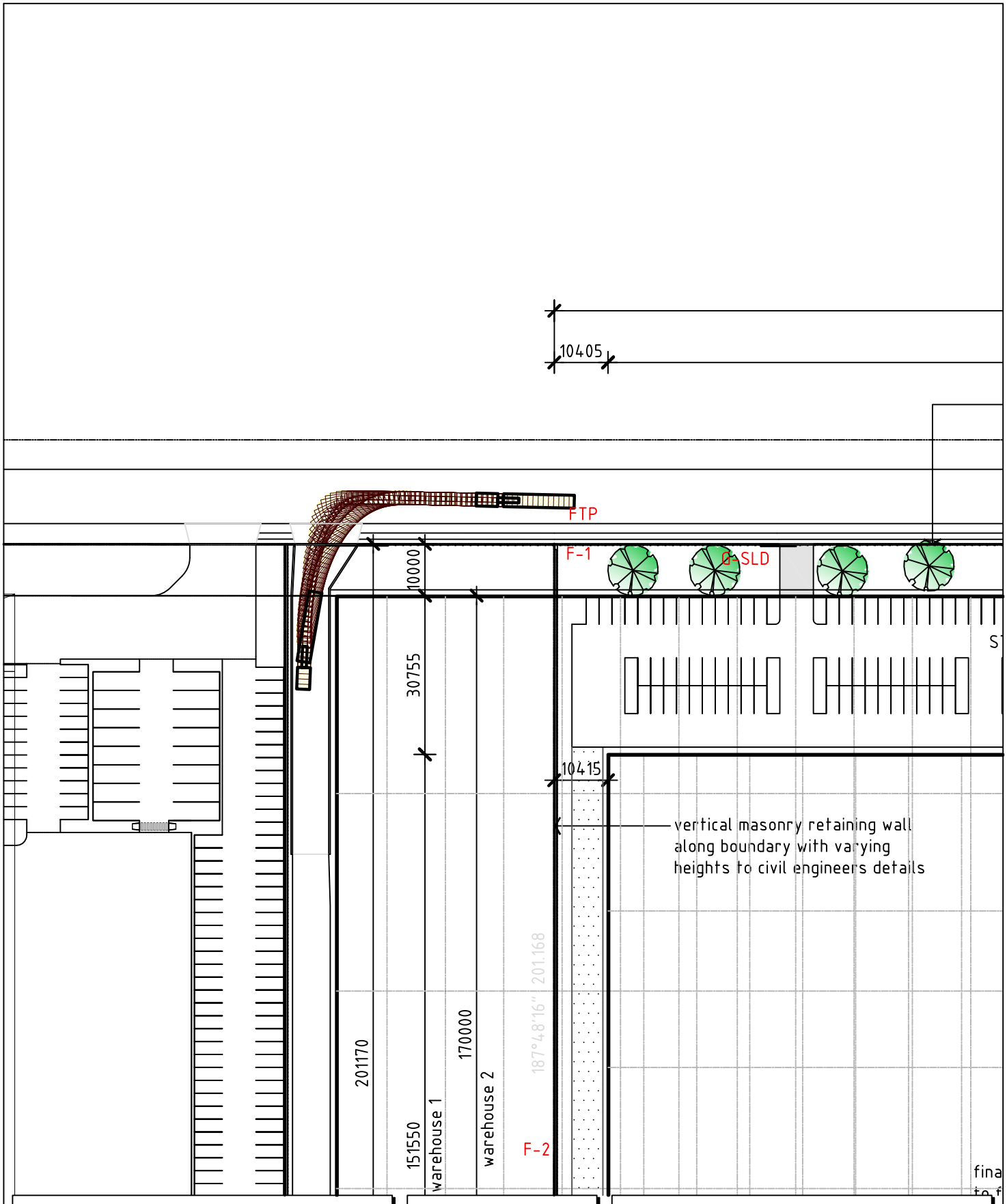
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE EXITING THE SITE

SP 3



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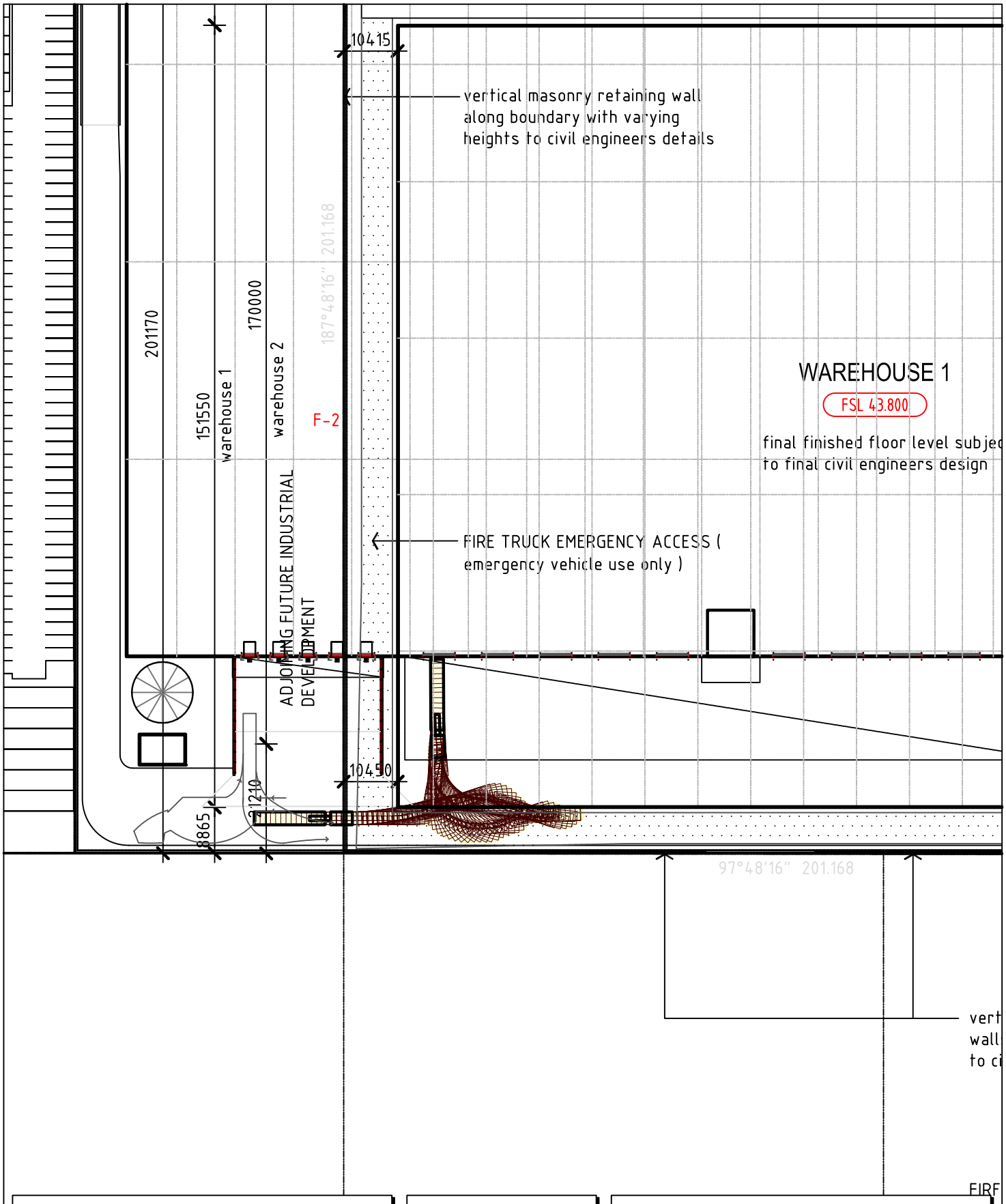
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 4



LEGEND

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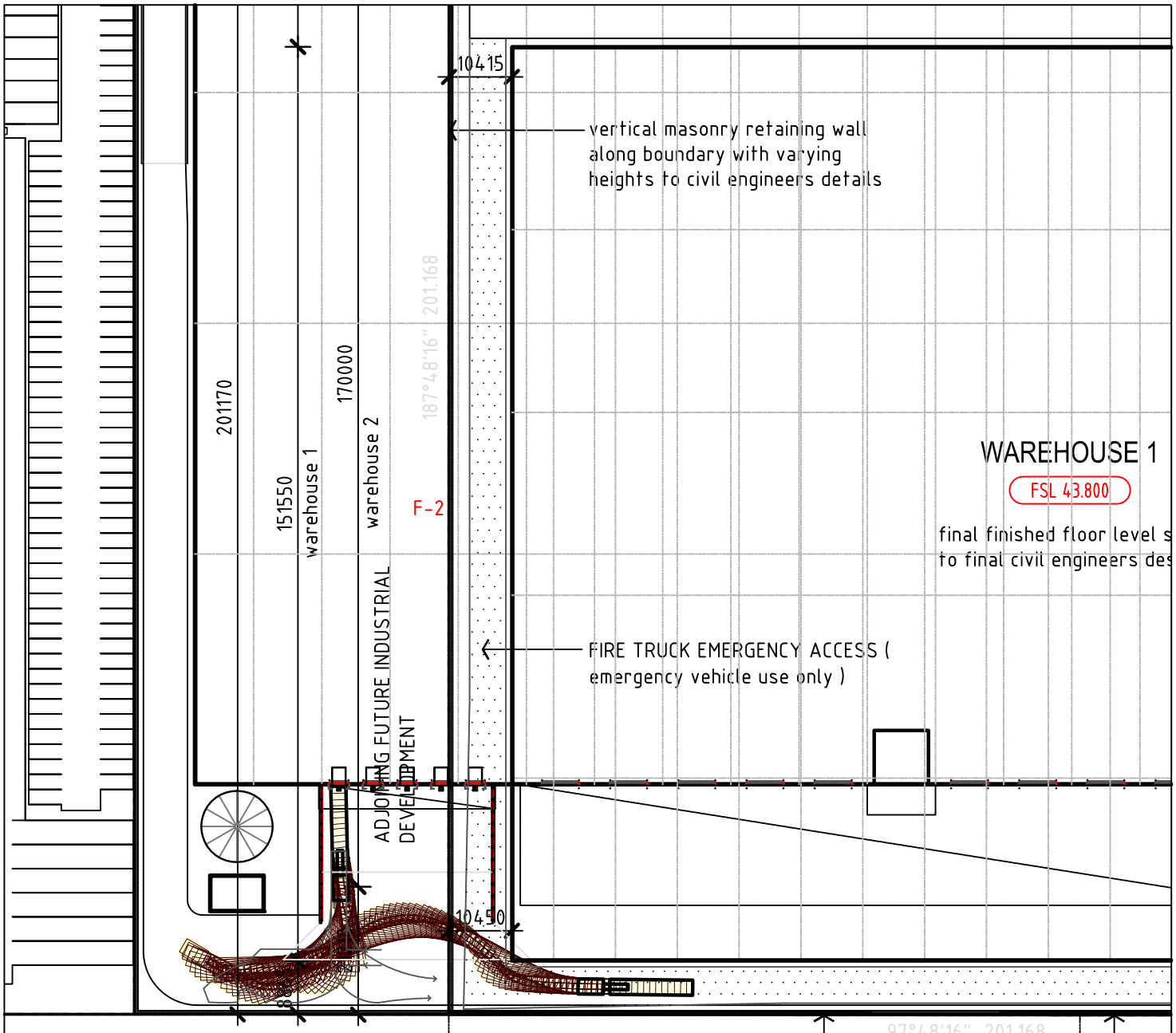
SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 5



LEGEND

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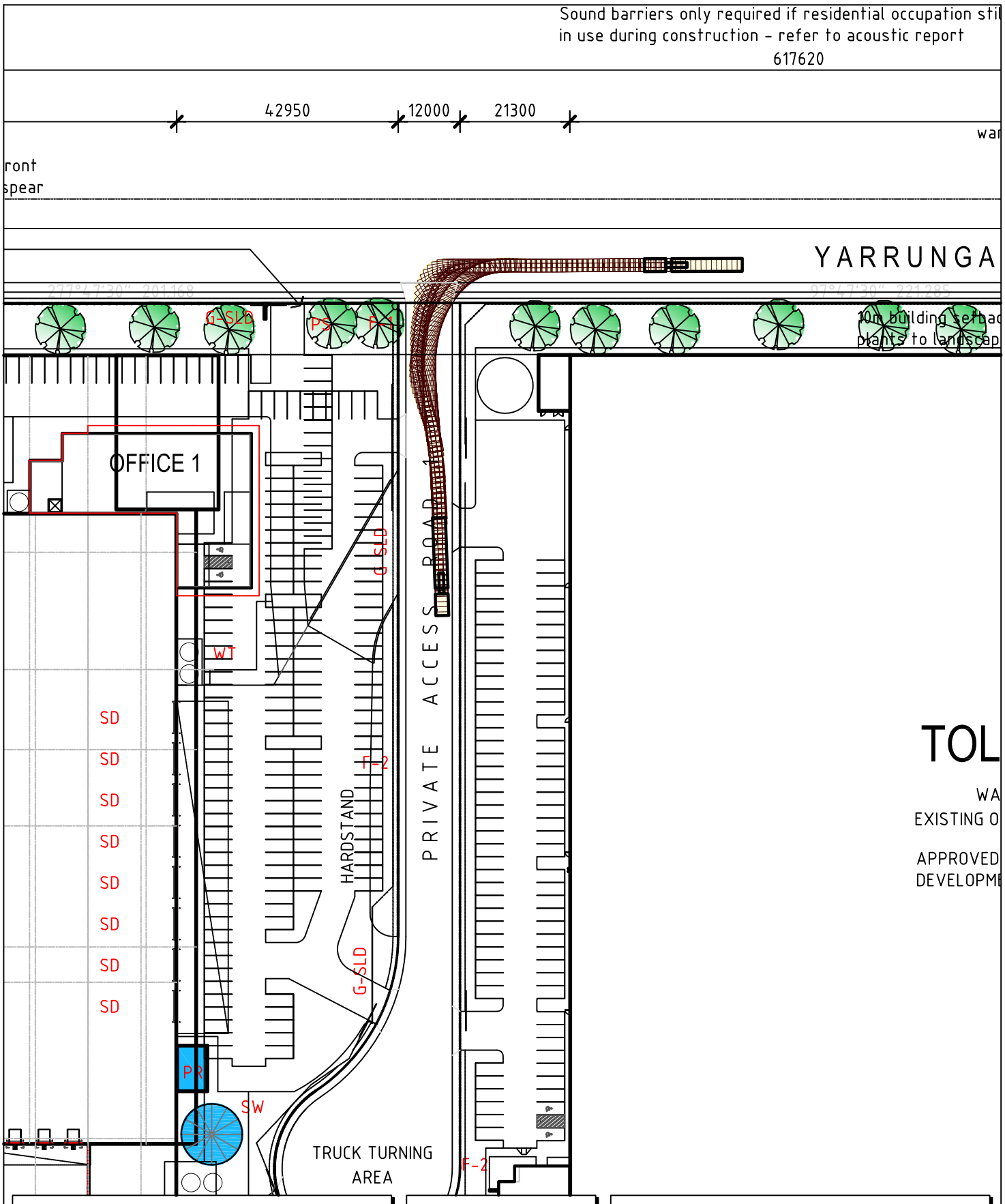
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 6



LEGEND

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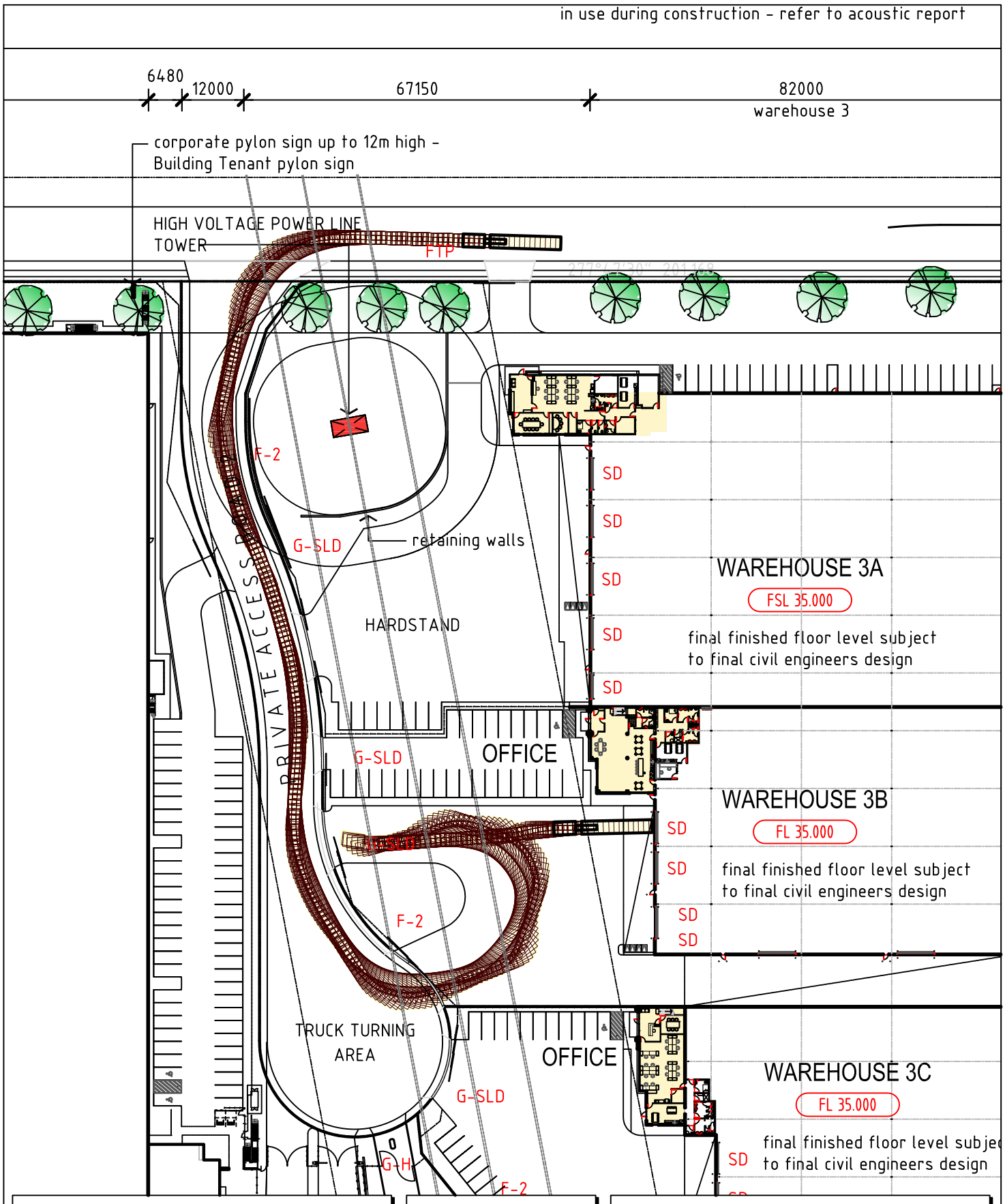
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 7



LEGEND

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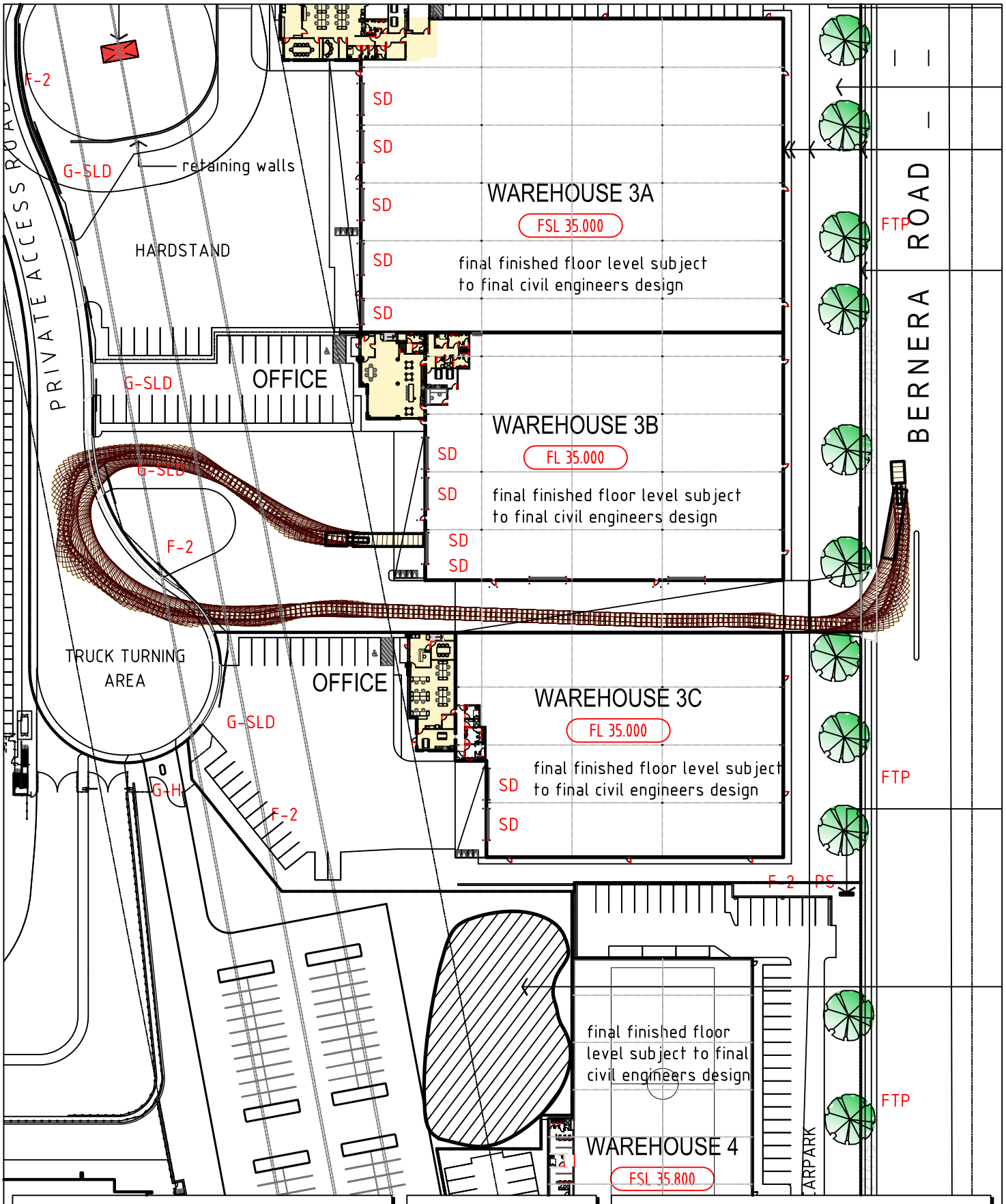
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 8



LEGEND

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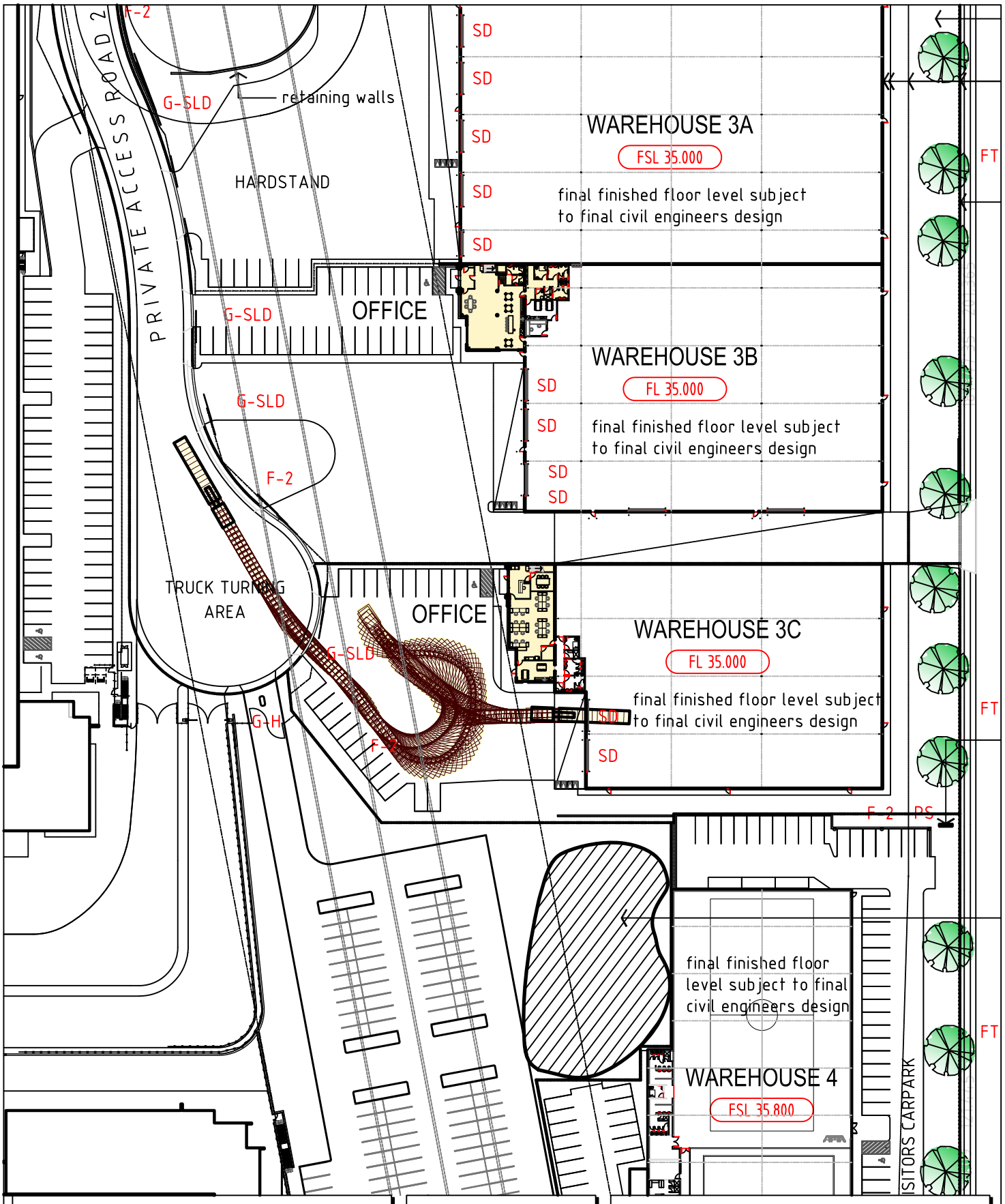
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE EXITING THE SITE

SP 9



LEGEND

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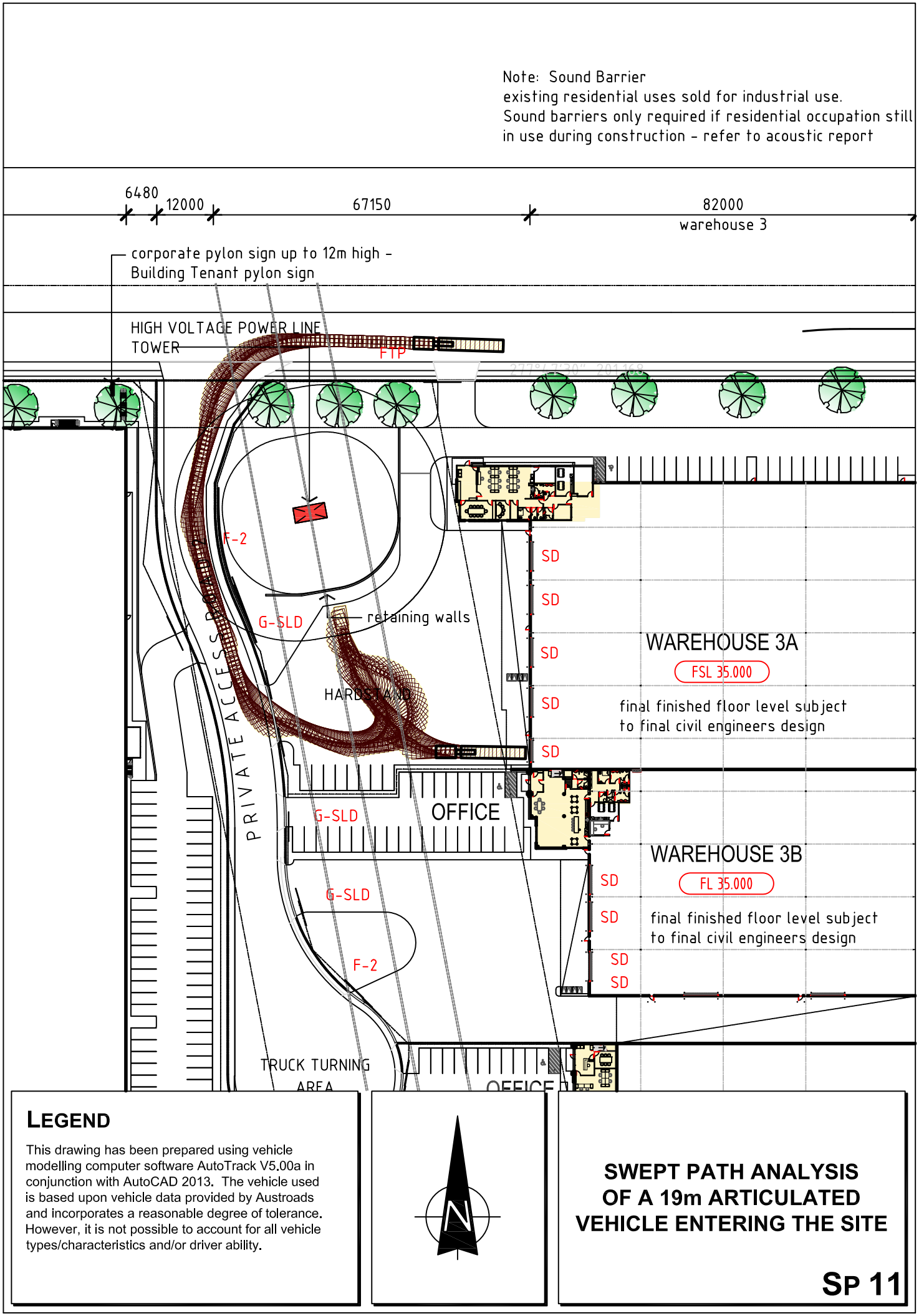
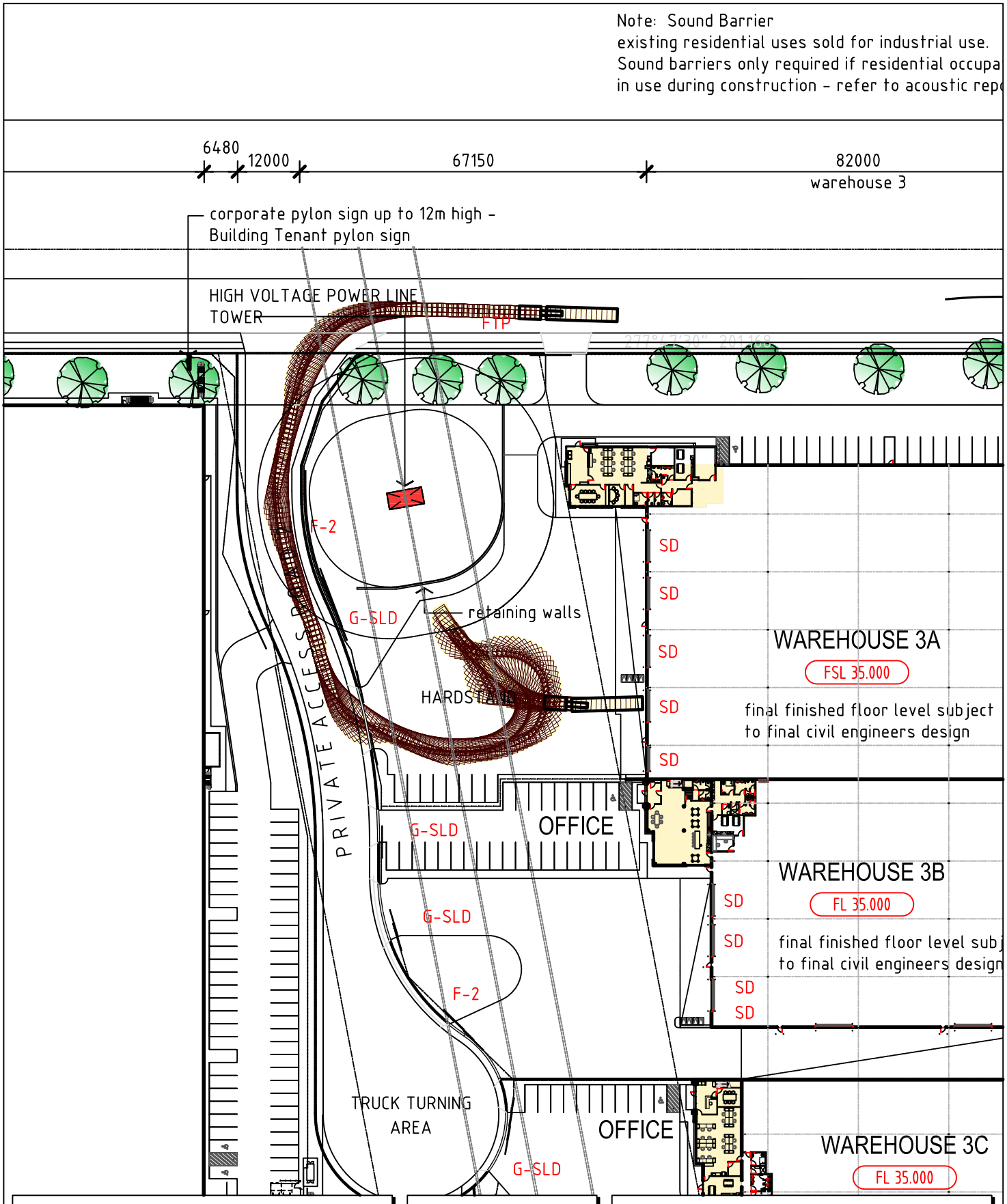
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 10


Note: Sound Barrier
existing residential uses sold for industrial use.
Sound barriers only required if residential occupation still in use during construction - refer to acoustic report
6480
12000
67150
82000
warehouse 3
corporate pylon sign up to 12m high - Building Tenant pylon sign
HIGH VOLTAGE POWER LINE TOWER
FTP
F-2
G-SLD
retaining walls
HARDSTAND
PRIVATE ACCESS ROAD
SD
WAREHOUSE 3A
FSL 35.000
final finished floor level subject to final civil engineers design
OFFICE
WAREHOUSE 3B
FL 35.000
final finished floor level subject to final civil engineers design
TRUCK TURNING AREA
OFFICE
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.
N
SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE
SP 11



LEGEND

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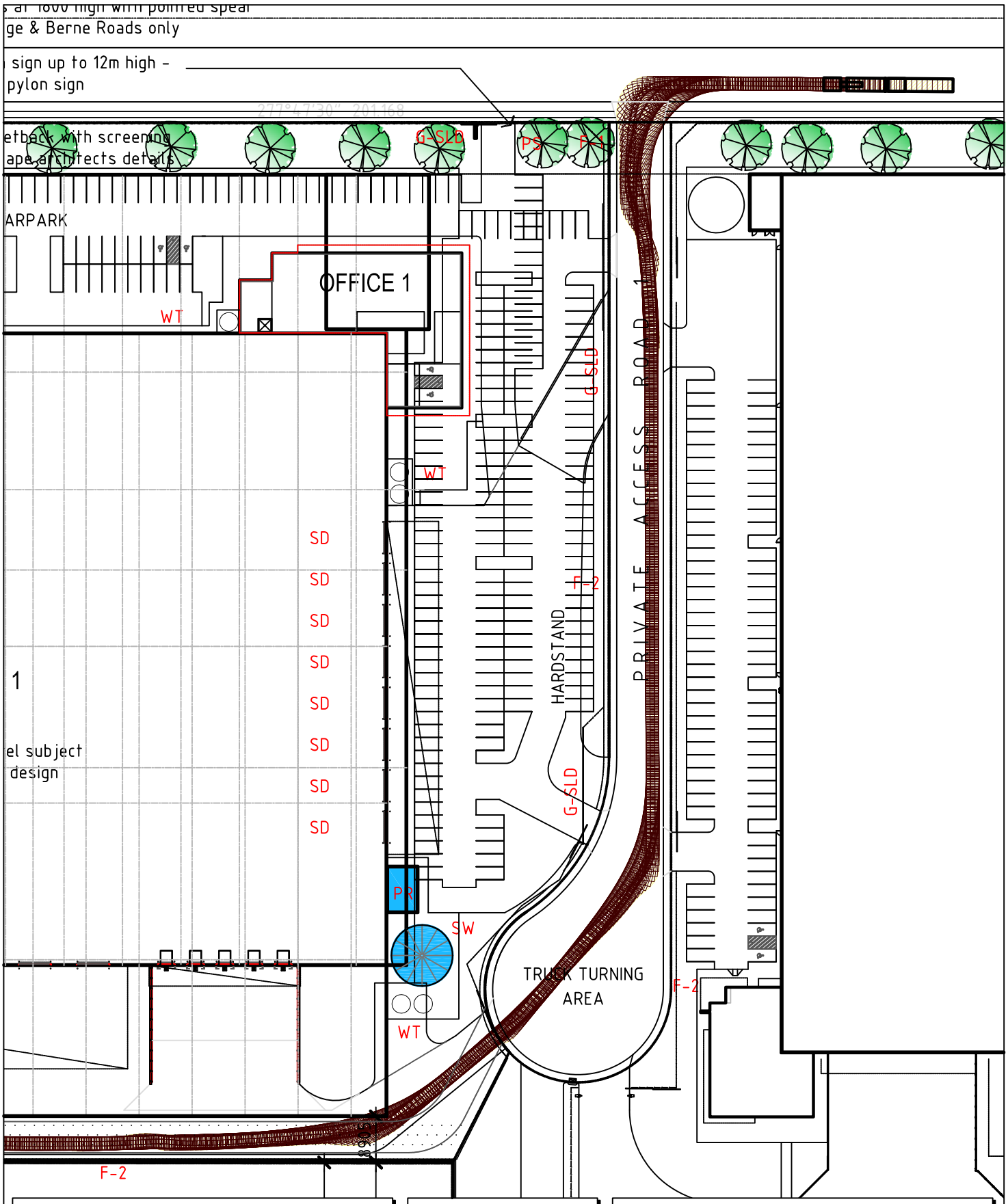
N

SWEPT PATH ANALYSIS OF A 19m ARTICULATED VEHICLE ENTERING THE SITE

SP 12



LEGEND

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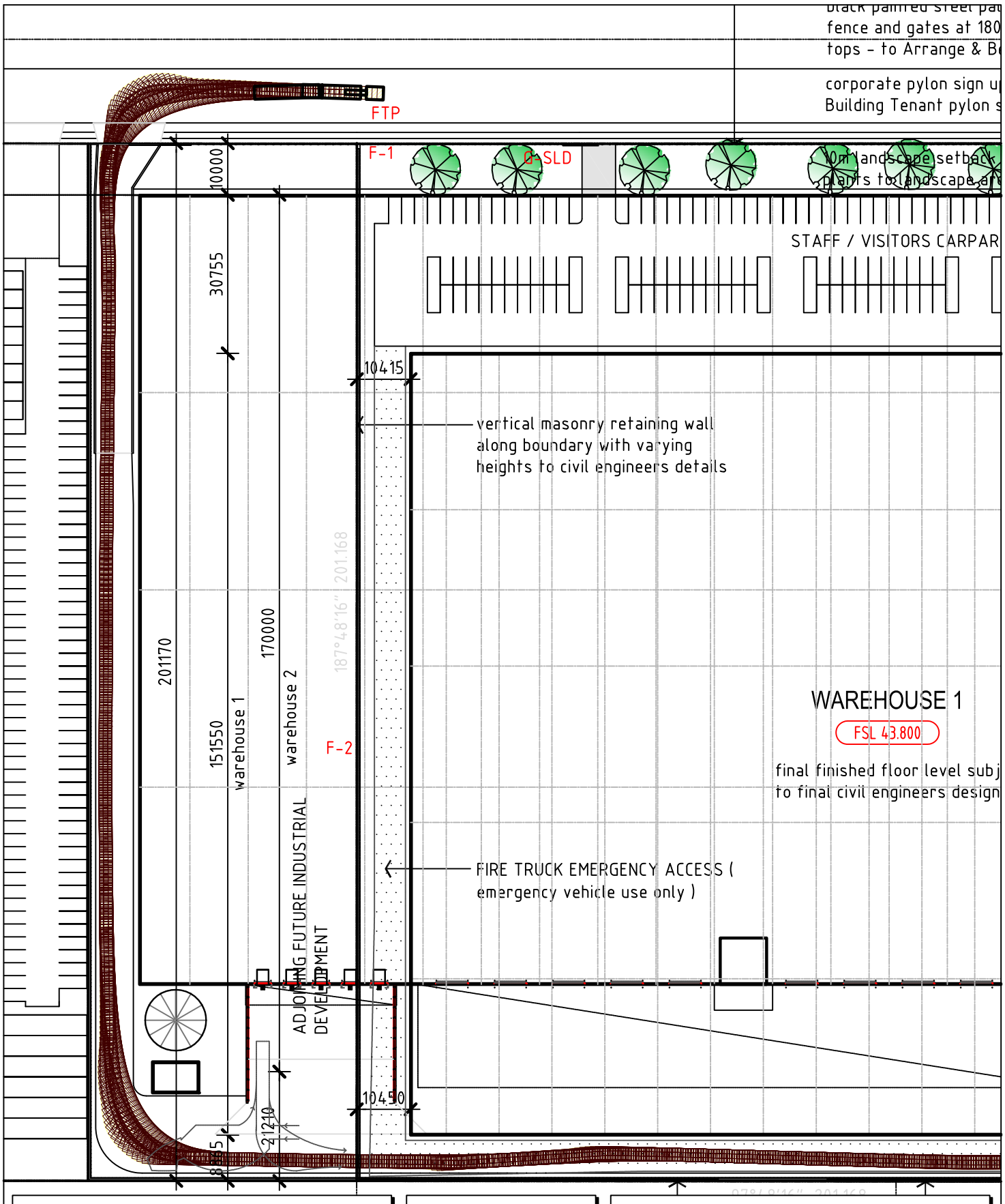
N

SWEPT PATH ANALYSIS OF A 25m ARTICULATED VEHICLE ENTERING THE SITE

SP 13



LEGEND

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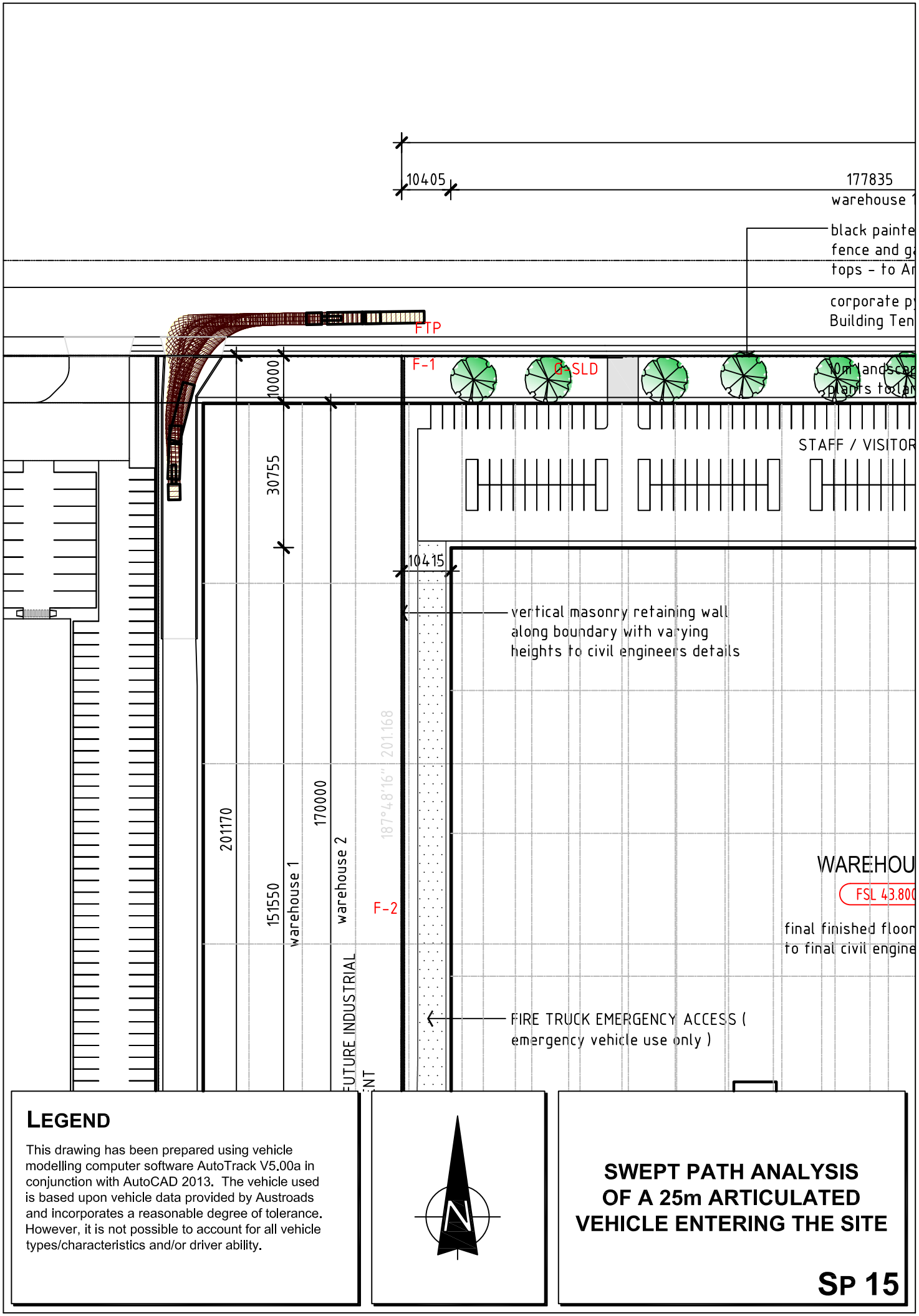
N

SWEPT PATH ANALYSIS OF A 25m ARTICULATED VEHICLE EXITING THE SITE

SP 14



LEGEND

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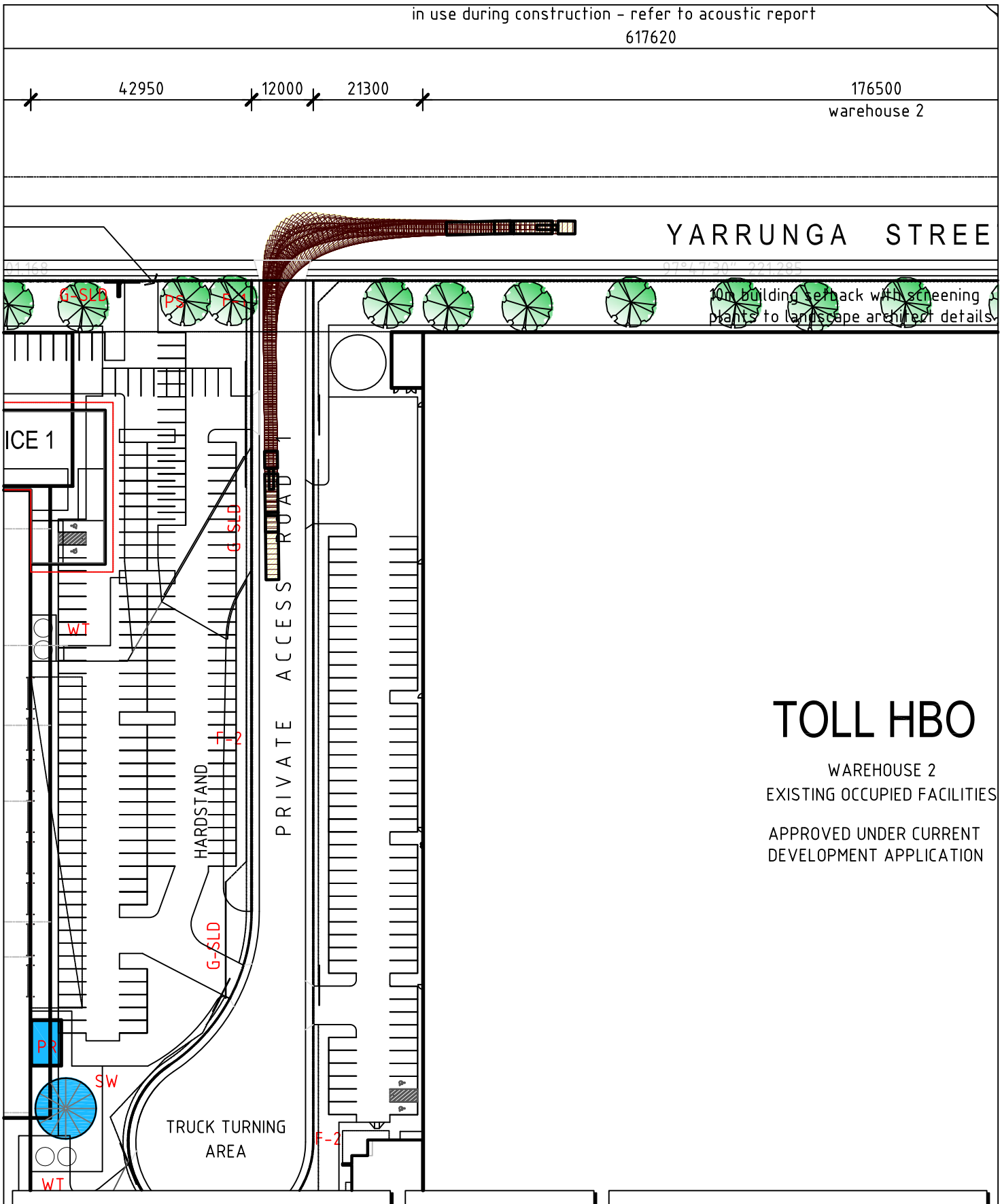
N

SWEPT PATH ANALYSIS OF A 25m ARTICULATED VEHICLE ENTERING THE SITE

SP 15



TOLL HBO

WAREHOUSE 2
EXISTING OCCUPIED FACILITIES

APPROVED UNDER CURRENT DEVELOPMENT APPLICATION

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.

N

SWEPT PATH ANALYSIS OF A 25m ARTICULATED VEHICLE EXITING THE SITE

SP 16