

Traffic Impact Assessment

**Alterations & Additions to an Existing Warehouse
84 Links Road, Saint Marys**

traffix
traffic & transport planners

Reference: 18.320r01v02 TRAFFIX TIA Report
Date: August 2018

w: www.traffix.com.au
abn: 66065132961



Document Verification

Job Number:	18.320			
Project:	Alterations & Additions to an Existing Warehouse at 84 Links Road, Saint Marys			
Client:	Full Tilt Constructions Pty Ltd			
Revision	Date	Prepared By	Approved By	Signature
v02	23/08/2018	Justin Pindar	Vince Doan	



Contents

1. Introduction	1
2. Location and Site	2
3. Existing Traffic Conditions	5
3.1 Road Network	5
3.2 Existing Site Generation	7
4. Description of Proposed Development	8
5. Parking Requirements	9
5.1 Car Parking	9
5.2 Accessible Parking	9
5.3 Bicycle Facilities	10
5.4 Servicing and Refuse Collection	10
6. Traffic Impacts	12
7. Access & Internal Design Aspects	13
7.1 Access	13
7.2 Internal Design	14
8. Conclusions	16

Appendices

Appendix A:	Reduced Plans
Appendix B:	Swept Path Analysis



1. Introduction

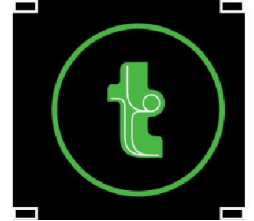
TRAFFIX has been commissioned by Full Tilt Constructions Pty Ltd to undertake a traffic impact assessment in support of a development application (DA) associated with an existing warehouse development at 84 Links Road, Saint Marys. Specifically, the DA proposes the construction of an additional warehouse of 2,845m² gross floor area (GFA).

The site is located within Penrith Local Government Area (LGA) and has been assessed under that Council's controls, accordingly.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately. The proposed development comprises less than 15,000m² of additional floor area with access to a local road. Accordingly, the application does not require referral to the Roads and Maritime Services (RMS) under the provisions of SEPP (Infrastructure) 2007.

The report is structured as follows:

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



2. Location and Site

The site is located approximately 43 kilometres north-west of the Sydney CBD and 2.4 kilometres north of Werrington Railway Station. More specifically, it has a northern frontage to Links Road and is generally bound by neighbouring industrial developments.

The site is irregular in configuration having a total site area of 10,158m². It accommodates a single warehouse building, having a total GFA of 1,360m². The subject development involves construction of an additional warehouse of 1,485m² GFA to the adjoining southern wall of the existing warehouse.

Vehicular access to the site is provided by two separated existing driveways onto Links Road providing an eastern driveway width of 9.1 metres and a western driveway width of 12.8 metres.

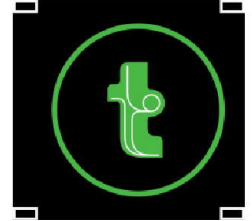
A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**.



Figure 1: Location Plan




Figure 2: Site Plan





3. Existing Traffic Conditions


3.1 Road Network

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

-  Forrester Road: a collector road that generally runs in a north-south direction between Palmyra Avenue in the north and forms a cul-de-sac in the south. It generally carries two (2) lanes of traffic in each direction. Forester Road north of the intersection with Links Road has a posted speed limit of 70km/h and south of that intersection has a posted speed limit of 60km/h.

-  Ropes Crossing Boulevard: a local road that runs a north-south direction between Beston Drive on the north and Forrester Road in the south. Ropes Crossing Boulevard is constructed within a divided carriageway and provides a single lane of traffic in either direction with a posted speed limit of 50km/hr.

-  Links Road: a local road that runs in a circular direction providing access to the subject site and other industrial developments between its intersection with Forrester Road and Ropes Crossing Boulevard in the east and forms a cul-de-sac in the southwest. Links Road is constructed within an undivided carriageway and provides a single lane of traffic in each direction. It is subject to posted 60km/h speed zoning within the vicinity of the site and unrestricted parallel parking is available along both kerbsides.

-  Wianamatta Parkway: a newly constructed local road that traverses in a north-south direction between its intersection with Jubilee Drive in the north and Links Road in the south. Wianamatta Parkway is under construction and future upgrades are proposed in this regard.

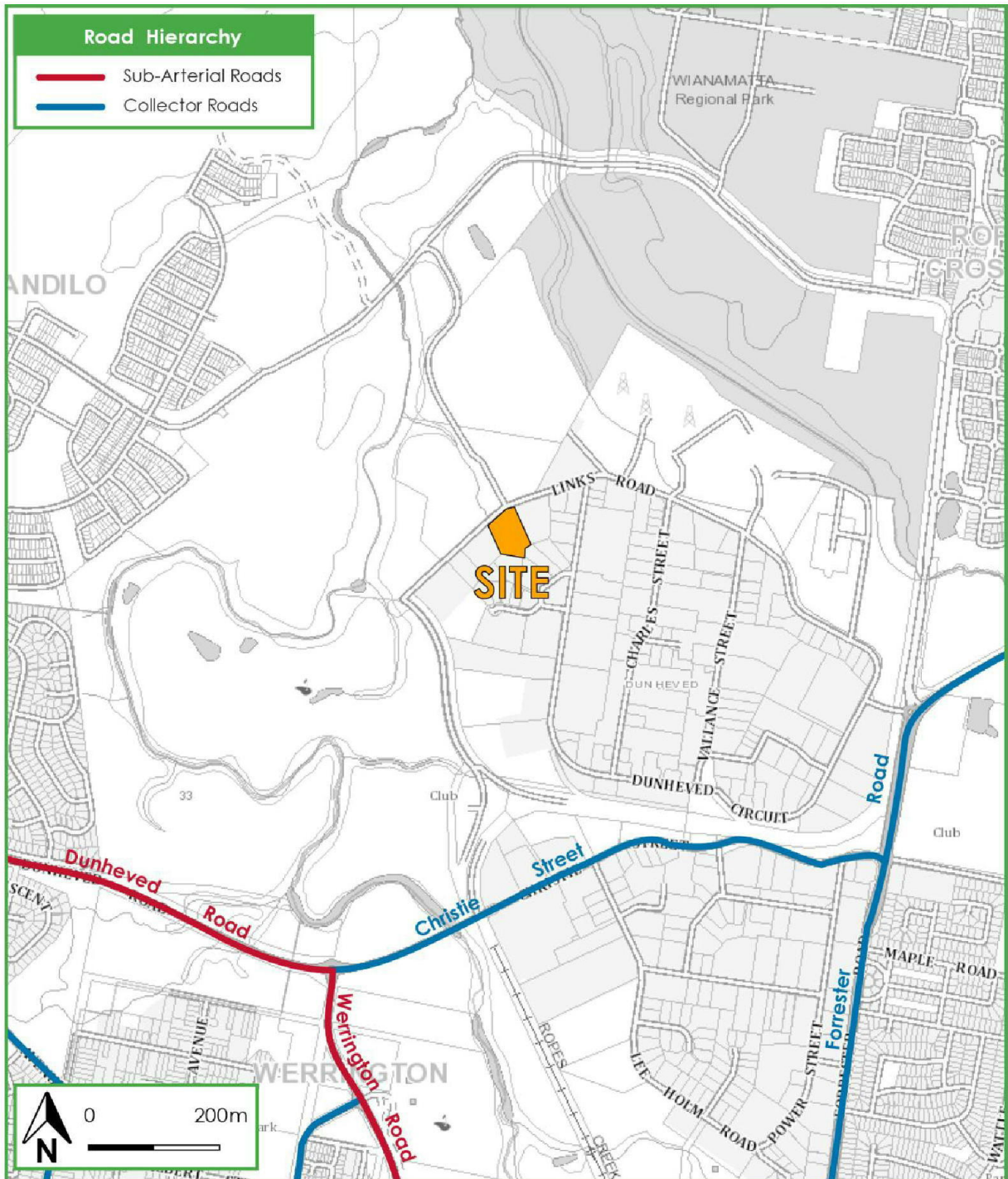


Figure 3: Road Hierarchy



3.2 Existing Site Generation

The existing site accommodates a single building with 1,360m² of warehouse GFA. The RMS *Guide to Traffic Generating Developments* recommends application of a peak period traffic generation rate of 0.5 trips / 100m² GFA, for warehouse developments. Application of this rate to the above area results in a total of 7 vehicle trips per hour during both the morning (AM) and evening (PM) peak periods.



4. Description of Proposed Development

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is now sought comprises the following components:

- Retention of the existing warehouse building having a total of 1,360m² GFA. No change to the current loading arrangement.
- Construction of a new warehouse adjoining the southern wall of the existing building resulting in an increase in warehouse GFA of 2,845m². In addition, ancillary office and amenities GFA of 94m².
- The provision of 45 car parking spaces for both the existing and proposed warehouses.
- Retain of all existing vehicular accesses from Links Road. The proposal of a one-way circulation arrangement with all entry movements via the eastern driveway and all egress movements via the western driveway.

The parking and traffic impacts arising from this application are discussed in Sections 5 and 6 respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix A**.



5. Parking Requirements

5.1 Car Parking

The car parking requirement has been assessed having regard for the parking rates outlined in the Penrith Council DCP (2014). The car parking requirement under the Penrith Council DCP (2014) is shown in **Table 1** below.

Table 1: Council Parking Rates and Provision

Type	Area (GFA)	Council Parking Rates	Spaces Required	Spaces Provided
Warehouse Existing + Proposed	4,205m ²	1 space / 100m ²	42	45
<i>Totals</i>			42	45

It can be seen from **Table 1** that with 4,205m² of warehouse GFA (existing plus proposed), the combined development requires a minimum of 42 car parking spaces. In response, the proposed development proposes a total of 45 car parking spaces and therefore exceeds (superior to) the minimum requirements of the Penrith Council DCP (2014).

5.2 Accessible Parking

No specific rate for accessible parking is provided in the Penrith Council DCP (2014). Notwithstanding, the Penrith Council DCP (2014) requires new developments to comply with the accessible parking guidelines outlined in the Building Code of Australia (BCA) Table D3.5. Under the guidelines, the subject development is classified as a Class 7b building being for a building storage. Accordingly, the development is required to provide one (1) accessible space per 100 parking spaces or part thereof. Therefore, the development is required to provide one (1) accessible parking space. In response, the development proposes one (1) accessible parking space and therefore satisfies the minimum requirement of the Building Code of Australia.



5.3 Bicycle Facilities

The proposed use is, by its very nature, car dependant and therefore the provision of bicycle parking facilities is unlikely to be utilised to any significant extent. As such, the development does not propose any on-site bicycle parking facilities with this arrangement and considered acceptable. Notwithstanding, it is noted that there is ample space / storage area available for on-site bicycle parking spaces to be provided within the site, in the event that they are required by Council.

5.4 Servicing and Refuse Collection

The RMS *Guide to Traffic Generating Developments* requires service vehicle parking bays to be provided at a rate of 1 service bay per 800m² GFA for industrial developments, where the development has less than 8,000m² GFA. Application of this rate to the proposed increase in GFA of 2,845m² results in a requirement for four (4) additional loading bays. In response, the development proposes to provide an area which can accommodate two (2) loading bays for 12.5m heavy rigid vehicles (HRV) and hence, is theoretically deficient by two (2) bays. This area would accommodate a single B-double when required.

It is however noted that from experience, operators that may consider occupying the proposed development have been known to successfully operate comparable developments with less loading docks than would nominally apply were RMS' rates to be strictly applied. This is presumably a result of the advanced management arrangements involved in the delivery processes associated with these users.

In this regard, the reduced on-site servicing provision is considered acceptable having regard for the following:

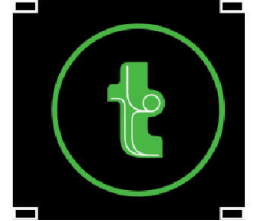
- Delivery scheduling will be managed by a building / dock manager.
- A Loading Dock Management Plan can be prepared and submitted prior to issue of a Construction Certificate.
- In the unlikely event that all bays are occupied, there is adequate area for trucks to stand within the site without affecting through to the vehicular access, such that, this wouldn't result in adverse safety impacts which might otherwise be a concern of Council.



Efficient management of the loading bays would therefore ensure that the provision of two (2) loading bays are sufficient for the development and hence, the proposed service vehicle parking provision is considered acceptable.

Garbage collection will continue to be undertaken on-site.

Overall, the servicing arrangements are considered to be acceptable and appropriate given the nature and scale of the development.



6. Traffic Impacts

Application of the RMS *Guide to Traffic Generating Developments* for warehouse developments (as per Section 3.2) to the proposed increase in warehouse GFA of 2,845m², results in a predicted generation of 14 vehicle trips per hour during both the AM and PM peak periods.

The proposed development will result in one additional trip every 4-5 minutes during the peak periods. The increases in traffic volumes at the intersections in the vicinity of the site are expected to be marginal, and in any case, well within typical fluctuations in background traffic volumes. As a result, no external road improvements are considered to be required to support the proposed development from a capacity or an amenity perspective.



7. Access & Internal Design Aspects

7.1 Access

The development proposes to retain all existing vehicular accesses. The access driveways comply with the requirements of AS2890.2 (2002) and have also been assessed using the computer program Auto Track, as permitted by AS 2890.2.

In addition to the above, Council has advised of a proposed roundabout at the 'T' intersection of Links Road with Wianamatta Parkway which is shown below in **Figure 4**. Furthermore, Council have recommended a one-way circulation arrangement with all entry movements via the eastern driveway and all egress movements via the western driveway. Access and egress swept path analysis have been undertaken for the largest size vehicle accessing the site being a 26 metre B-Double. Reference should be made to **Appendix B** for swept path analysis diagrams.

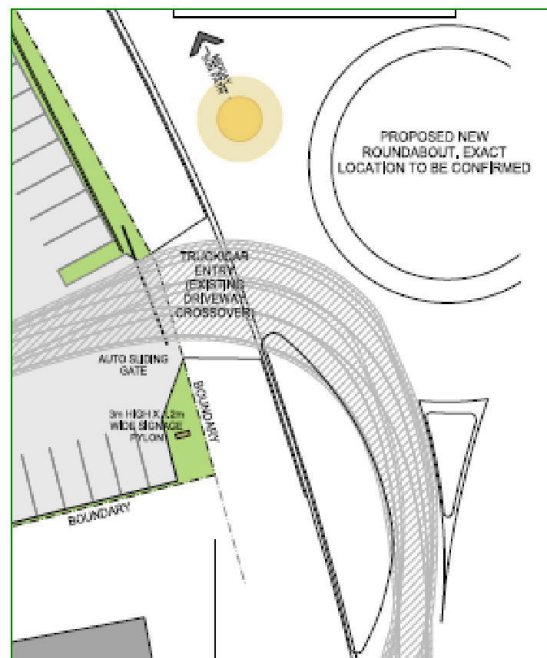


Figure 4: Proposed Roundabout at the intersection of Links Road with Wianamatta Parkway



7.2 Internal Design

As required by the NSW Fire Brigade, provision must be made within the development to ensure that a fire truck is able to satisfactorily circulate the extents of the proposed warehouse. In this regard, a swept path analysis has been undertaken with the use of a 12.5 metre Heavy Rigid Vehicle (HRV), noting that this is of similar size to a NSW Fire Brigade Aerial Appliance. Swept paths analysis showing a 12.5m HRV circulating the site is provided in Appendix B. Therefore, a Fire Appliance Truck is able to comfortably circulate the proposed warehouse. These arrangements therefore comply with the NSW Fire Brigade requirements and are considered acceptable.

The internal design complies with the requirements of AS 2890.1 (2004) and AS 2890.2 (2002). In this regard the following characteristics are considered noteworthy:

7.2.1 Car Park Design

- ❑ All staff and visitor parking spaces exceed (superior to) the requirements for a Class 1A user under AS2890.1. In this regard the design includes the provision of a minimum space length of 5.4m a minimum width of 2.5m and a minimum aisle width of 6.2m.
- ❑ All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- ❑ A single accessible parking space is designed in accordance with AS2890.6. The space is provided with a clear width of 2.4m and located adjacent to a minimum shared area of 2.4m.
- ❑ Appropriate visual splays are to be provided in accordance with the requirements of Figure 3.4 of AS2890.2 at the egressing vehicular driveway (western driveway).

7.2.2 Internal Circulation and Access

- ❑ The internal service vehicle circulation roadway has been designed to allow for one-way clockwise circulation. Appropriate signposting and line marking will be provided and will clearly outline appropriate circulation paths and internal intersection priorities.
- ❑ All drivers accessing the development will be required to adhere to a site management plan which will outline the operational requirements of all vehicles accessing the site. This will ensure that a high level of safety is met at all times.



7.2.3 Service Area Design

- ❑ The internal design of the service area has been undertaken in accordance with the requirements of AS28090.2 for the maximum length vehicle accessing the site being a 26.0m B-Double. A swept path analysis has been undertaken to confirm compliance.
- ❑ A minimum clear head height of 4.5m is to be provided within all areas traversed by service vehicles.
- ❑ A minimum bay width of 3.5m is provided for all service bays however it is understood that all loading will be side loading with minimal to no reversing movements.
- ❑ The proposed access arrangements comply with AS2890.2 and a swept path analysis has been undertaken which demonstrates compliance. Further reference should be made to Appendix B in this regard.

In summary, the internal configuration of the car park and loading areas have been designed in accordance with the both AS2890.1 and AS2890.2. It is however envisaged that a condition of consent would be imposed requiring compliance with these standards and as such any minor amendments considered necessary (if any) can be dealt with prior to the release of a Construction Certificate.



8. Conclusions

In summary:

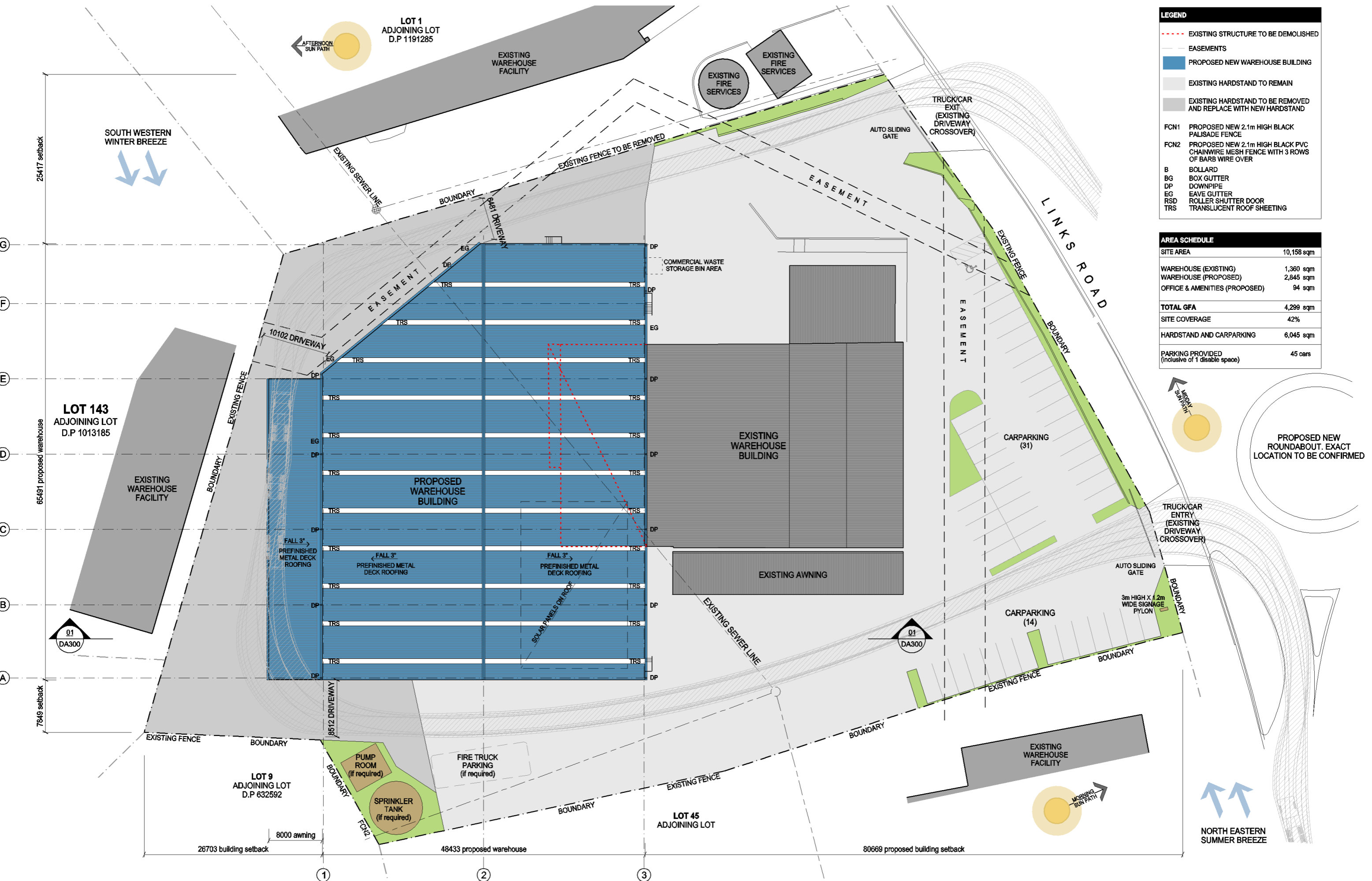
- ➊ TRAFFIX has been commissioned by Full Tilt Constructions Pty Ltd to undertake a traffic impact assessment in support of a development application (DA) associated with an existing warehouse development at 84 Links Road, Saint Marys. Specifically, the DA proposes the construction of an additional warehouse of 2,845m² gross floor area (GFA) and no changes to the existing warehouse development of 1,360m² GFA.
- ➋ The development (existing plus proposed) with 4,205m² GFA requires a minimum of 42 car parking spaces. In response, the development proposes a total of 45 car parking spaces and therefore exceeds (superior to) the minimum requirements of the Penrith Council DCP (2014).
- ➌ The servicing arrangements are considered to be acceptable and appropriate given the nature and scale of the development.
- ➍ The proposed development will result in one additional trip every 4-5 minutes during the peak periods. The increases in traffic volumes at the intersections in the vicinity of the site are expected to be marginal, and in any case, well within typical fluctuations in background traffic volumes. As a result, no external road improvements are considered to be required to support the proposed development from a capacity or an amenity perspective.
- ➎ The proposed loading arrangements comply with the requirements of AS2890.2 (2002). In the unlikely event that all bays are occupied, there is adequate area for trucks to stand within the site without affecting through to the vehicular access, such that, this wouldn't result in adverse safety impacts which might otherwise be a concern of Council.
- ➏ The proposed access driveways, car park and loading areas complies with the requirements of AS2890.1 (2004), AS 2890.2 (2002) and AS 2890.6 (2009). The access driveways, car park and loading areas have also been assessed using the computer program Auto Track, as permitted by AS 2890 and operates safely and efficiently.

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



Appendix A

Reduced Plans



LEGEND

- EXISTING STRUCTURE TO BE DEMOLISHED
- - - EASEMENTS
- █ PROPOSED NEW WAREHOUSE BUILDING
- █ EXISTING HARDSTAND TO REMAIN
- █ EXISTING HARDSTAND TO BE REMOVED AND REPLACE WITH NEW HARDSTAND
- FCN1 PROPOSED NEW 2.1m HIGH BLACK PALISADE FENCE
- FCN2 PROPOSED NEW 2.1m HIGH BLACK PVC CHAINWIRE MESH FENCE WITH 3 ROWS OF BARB WIRE OVER
- B BOLLARD
- BG BOX GUTTER
- DP DOWNPIPE
- EG EAVE GUTTER
- RSD ROLLER SHUTTER DOOR
- TRS TRANSLUCENT ROOF SHEETING

AREA SCHEDULE

SITE AREA	10,158 sqm
WAREHOUSE (EXISTING)	1,360 sqm
WAREHOUSE (PROPOSED)	2,845 sqm
OFFICE & AMENITIES (PROPOSED)	94 sqm
TOTAL GFA	4,299 sqm
SITE COVERAGE	42%
HARDSTAND AND CARPARKING	6,045 sqm
PARKING PROVIDED (inclusive of 1 disable space)	45 cars

25417 setback
65491 proposed warehouse
7649 setback

G
F
E
D
C
B
A

1 2 3

SBA ARCHITECTS
 Commercial | Industrial | Residential | Retail | Structural Design
 Suite 752, 63 Mount Street, North Sydney, NSW 2060
 T: 02 9550 2291 F: 02 9550 2292
 www.sba-architects.com.au

ISSUE	REV.	DESCRIPTION	DATE
A	1	DA ISSUE	22.08.2018

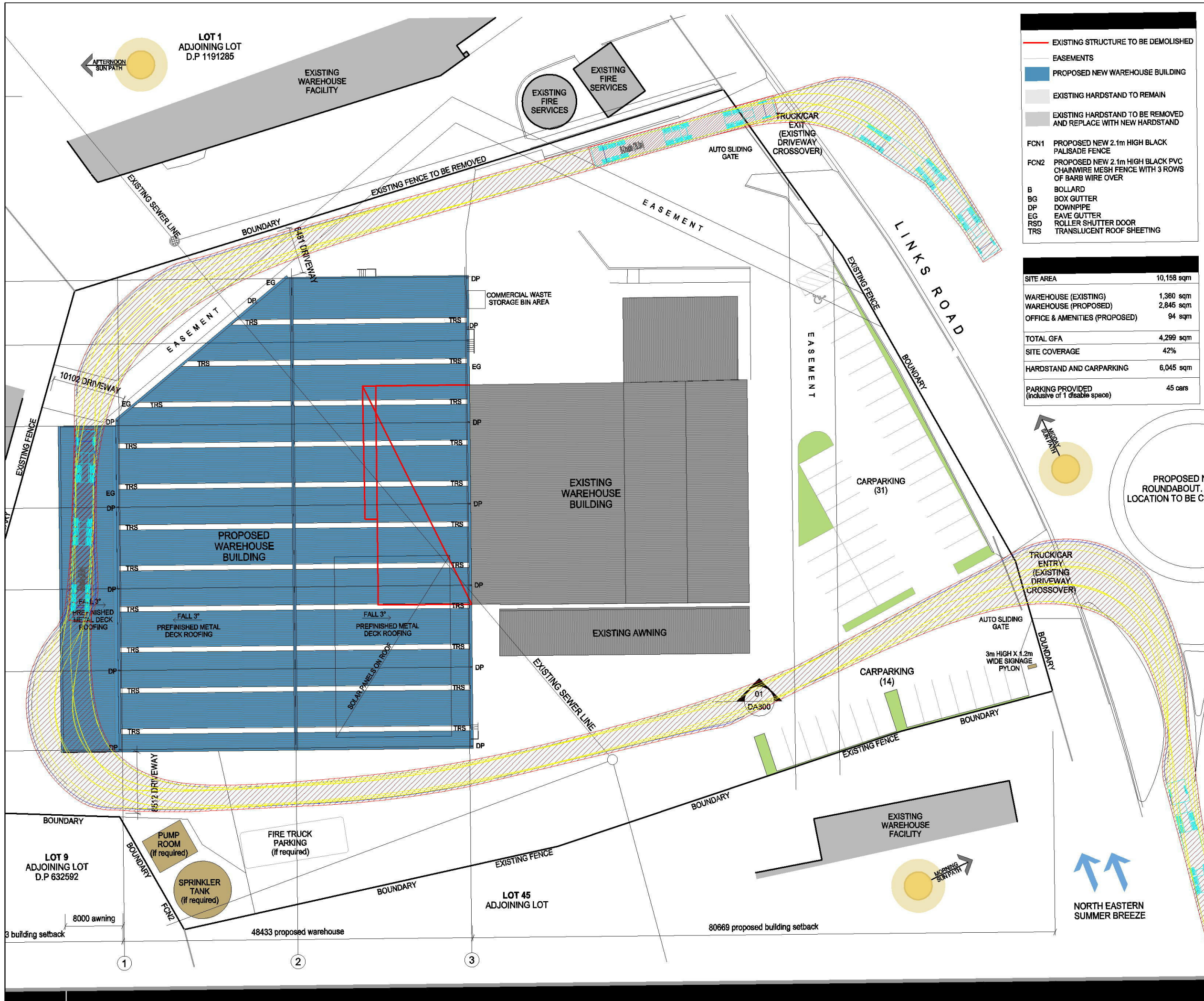
Proposed Warehouse Facility
 84 LINKS ROAD, ST MARYS NSW. Lot 44 in DP 1185482

Site/Roof & Site Analysis Plan
 DATE: 22.08.2018 SCALE: 1:500 (A3) 1:250 (A1) JOB NO.: 18176 DRAWING NO.: DA 100



Appendix B

Swept Path Analysis



- EXISTING STRUCTURE TO BE DEMOLISHED
 - EASEMENTS
 - PROPOSED NEW WAREHOUSE BUILDING
 - EXISTING HARDSTAND TO REMAIN
 - EXISTING HARDSTAND TO BE REMOVED AND REPLACE WITH NEW HARDSTAND
- FCN1 PROPOSED NEW 2.1m HIGH BLACK PALISADE FENCE
 FCN2 PROPOSED NEW 2.1m HIGH BLACK PVC CHAINWIRE MESH FENCE WITH 3 ROWS OF BARB WIRE OVER
- B BOLLARD
 BG BOX GUTTER
 DP DOWNPIPE
 EG EAVE GUTTER
 RSD ROLLER SHUTTER DOOR
 TRS TRANSLUCENT ROOF SHEETING

SITE AREA	10,158 sqm
WAREHOUSE (EXISTING)	1,380 sqm
WAREHOUSE (PROPOSED)	2,845 sqm
OFFICE & AMENITIES (PROPOSED)	94 sqm
TOTAL GFA	4,299 sqm
SITE COVERAGE	42%
HARDSTAND AND CARPARKING	6,045 sqm
PARKING PROVIDED (inclusive of 1 disable space)	45 cars

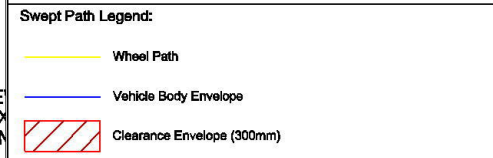
Notes

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

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

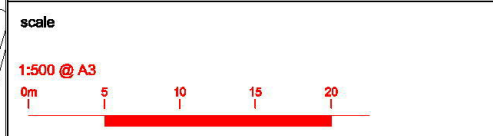
Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (AS/NZS 2890.1-2004 Parking facilities - Off-street car parking, and/or AS 2890.2-2002 Parking facilities - Off-street commercial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

no.	revision note	by.	date
A	Review	JP	08-08-2018
B	Updated Plans	VD	23-08-2018



architect
 SBA Architects Pty Ltd

client
 Full Tilt Constructions Pty Ltd
 80 Argyle Street,
 South Windsor NSW 2756



project
 84 Links Road,
 St Marys NSW 2760

drawing prepared by
TRAFFIX
 traffic and transport planners

Suite 2.08, 50 Holt Street
 Sully Hills NSW 2010

PO Box 1124
 Strawberry Hills NSW 2012

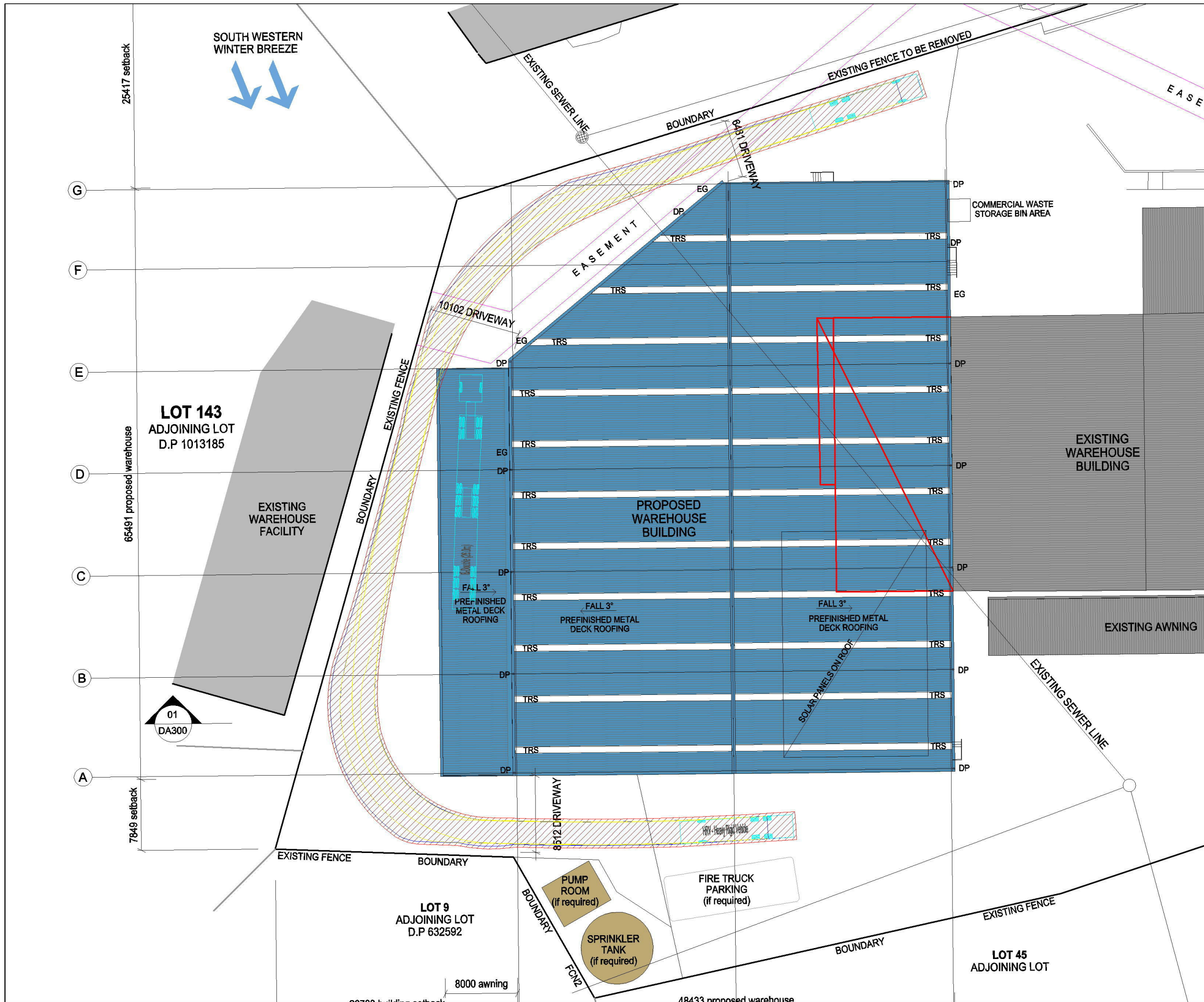
t: +61 2 8324 8700
 f: +61 2 9380 4481
 e: info@traffix.com.au

drawing title
**Swept Path Analysis
 26m B-Double
 Circulation**

drawn: JP checked: VD date: 08-08-2018

18.320d03v01 TRAFFIX Design Review 84 Links Road, St Marys.dwg

18.320 - **TX.01** **B**
 project no. drawing phase. drawing no. rev



Notes

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

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

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

no.	revision note	by.	date
A	Review	JP	08-08-2018
B	Updated Plans	VD	23-08-2018

Swept Path Legend:

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

architect
SBA Architects Pty Ltd

client
Full Tilt Constructions Pty Ltd
80 Argyle Street,
South Windsor NSW 2756

scale
1:400 @ A3

project
84 Links Road,
St Marys NSW 2760

drawing prepared by
TRAFFIX
traffic and transport planners
Suite 2.08, 50 Holt Street
Sunny Hills NSW 2010
PO Box 1124
Strawberry Hills NSW 2012
t: +61 2 8324 8700
f: +61 2 9380 4481
e: info@traffix.com.au

drawing title
Swept Path Analysis
12.5m Heavy Rigid Vehicle (Fire Truck)
Internal Circulation

drawn: JP	checked: VD	date: 08-08-2018
-----------	-------------	------------------

18.320d03v01 TRAFFIX Design Review 84 Links Road, St Marys.dwg

18.320	-	TX.02	B
--------	---	-------	---

project no. drawing phase. drawing no. rev