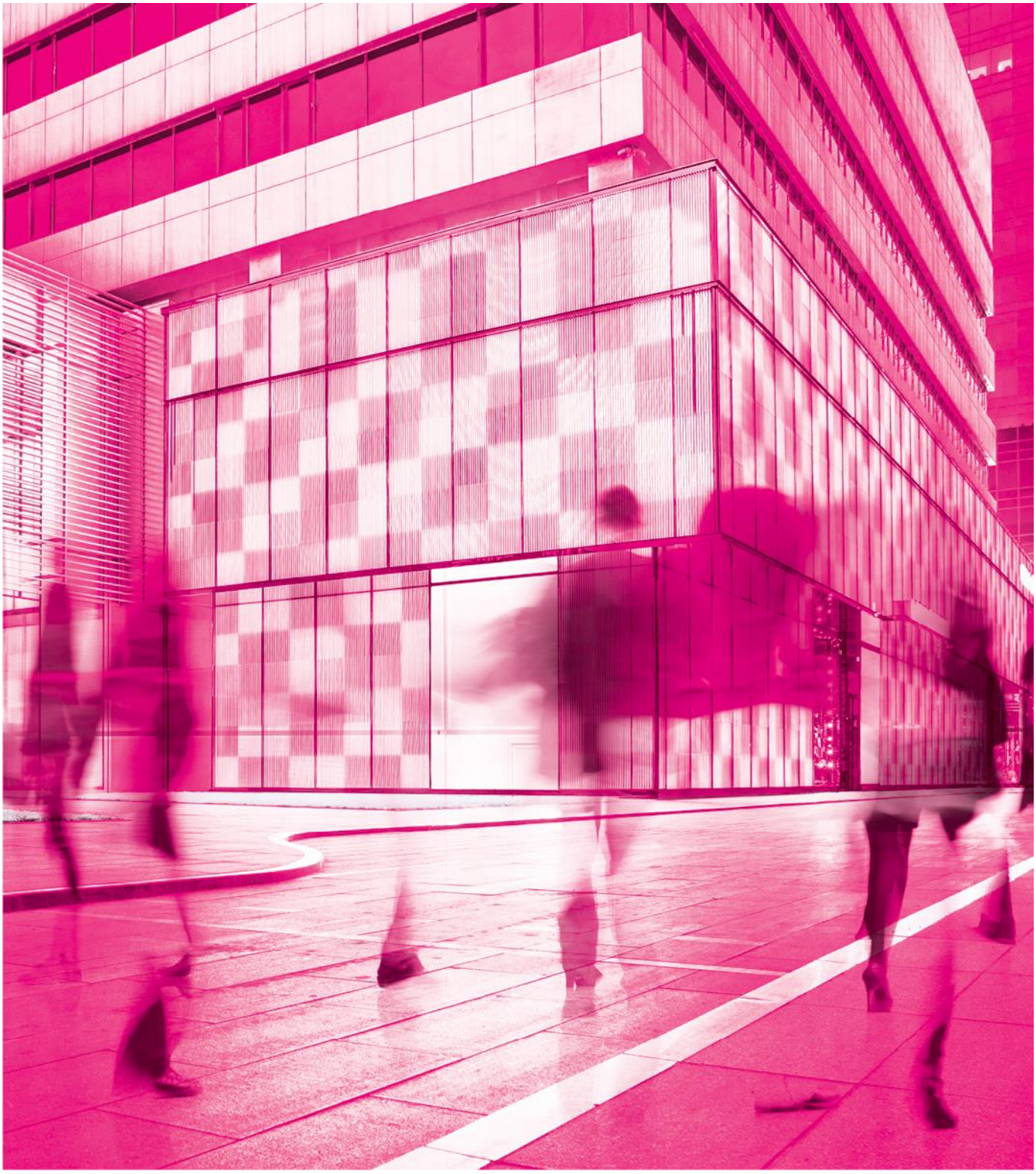

traffic impact assessment;

1-21 Grady Crescent, Erskine Park

For Element Environment Pty Ltd

10 September 2020

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

1-1-21 Grady Crescent, Erskine Park, Traffic impact assessment

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	30/07/20	Draft	PS	AM	Luke Farrell
2	19/08/20	Draft	PS	AM	Luke Farrell
3	09/09/20	Final	AP	AM	Luke Farrell
4	10/09/20	Final (Minor Amendment)	AP	AM	Luke Farrell

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Contents

1. Introduction

1.1 Project Summary

ptc. is engaged by Element Environment Pty Ltd (Element) to prepare a Traffic Impact Assessment (TIA) to accompany the Development Application (DA) for a proposed tyre recycling facility development by Tyrecycle Pty Ltd (Tyrecycle) at 1-21 Grady Crescent, Erskine Park (subject site). The subject site lies within the Penrith City Council Local Government Area (LGA) and has been assessed in the context of Council's planning controls.

Tyrecycle propose to process approximately 29,000 tonnes per annum (tpa) of passenger and four wheel drive tyres into either two or six inch pieces (known as Tyre Derived Fuel (TDF)), as well as Tyre Derived Products (TDP) through a shredding operation (the 'proposal'). The TDF are used for either energy recovery (i.e. co-processing for use within cement kilns) or for energy generation (i.e. incineration for use in power plants) within export markets, primarily to Japan and Korea. The TDP associated with the operation includes granules (1 millimetre (mm) diameter), which are commonly applied to sporting fields and playgrounds, along with rubber crumb products (0.74 mm diameter) which are used in tile manufacturing and road sectors.

This report sets out the methodology and findings of the study to assess the traffic, parking and the road network related considerations associated with the proposal.

The location of the subject site is outlined in Figure 1.

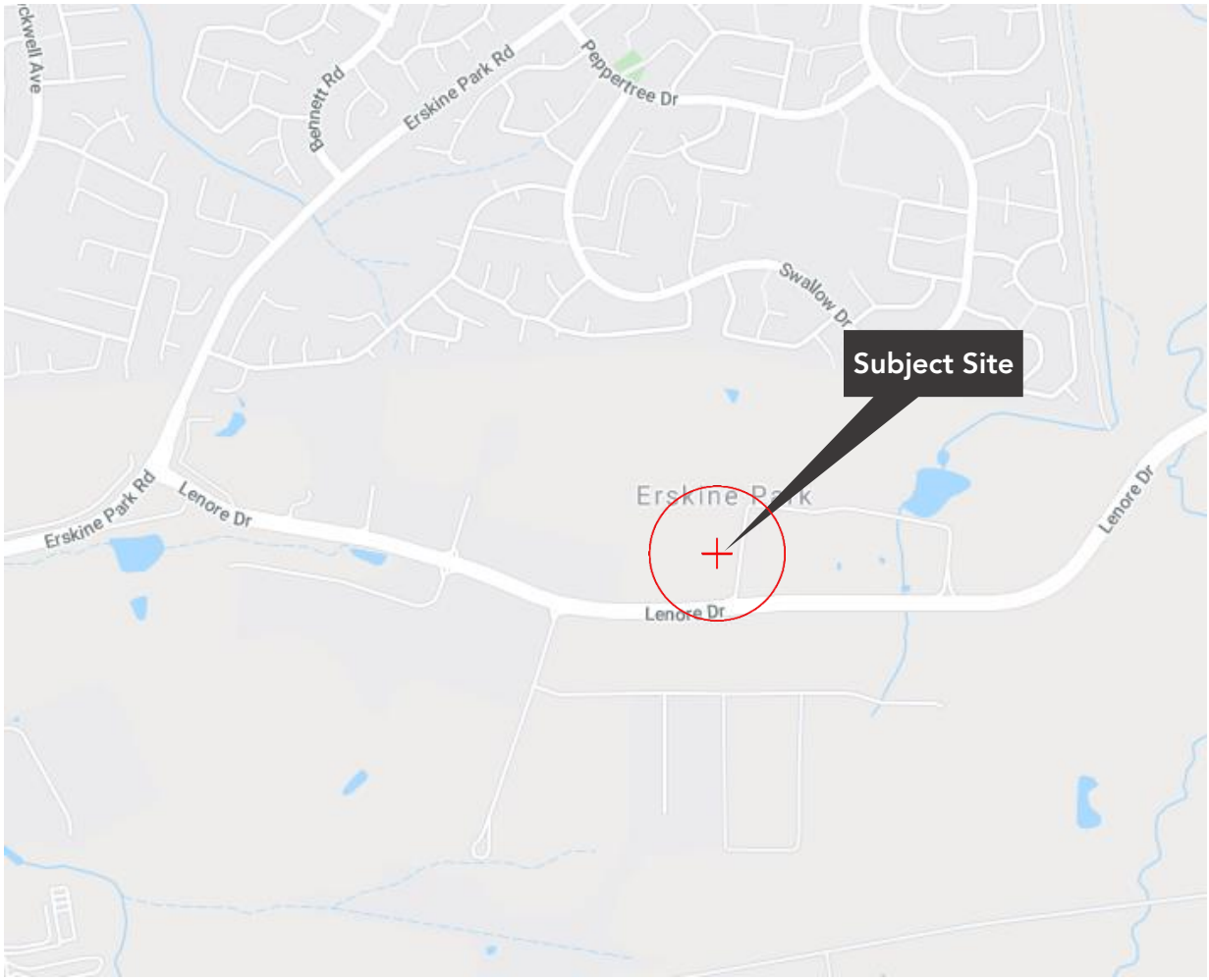


Figure 1 – Site Location (Source: Google Maps)

1.2 Purpose of the Report

The report presents the following considerations relating to the traffic and parking assessment of the development:

Section 1	Introduction of the proposal;
Section 2	Background information, including a description on the development site and the proposal;
Section 3	A description of the road network serving the development site and the existing public transportation options;
Section 5	Determination of the traffic activity associated with the development proposal, and the adequacy of the surrounding road network;
Section 4	Assessment of the proposed parking provision in the context of the relevant planning control requirements;
Section 6	Assessment of the proposed parking, access and circulation arrangements, in relation to compliance with relevant standards; and
Section 7	Conclusion

1.3 Referenced Documents

The following documents have been referenced in the preparation of this report:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- RMS Guide to Traffic Generating Developments Updated Traffic Surveys 2013 (TDT)
- Penrith City Council's Penrith Development Control Plan 2014 (DCP)
- Building Code of Australia 2016 (BCA).

2. Background Information

2.1 Site Location

The subject site is located at 1-21 Grady Crescent, Erskine Park, and identified as Lot 4 in Deposited Plan (DP) 1253870. It is located approximately 43 kilometres west of Sydney CBD within Erskine Park Employment Area (EPEA). More specifically, the subject site is located within a site shared with an existing Warehouse building for PMA Solutions. Other buildings in close proximity to the site include the Coates Hire Warehouse located on the northern side of Grady Crescent and a DHL Warehouse on the eastern side. The aerial view of the subject site is shown in Figure 2.

Figure 2 – Aerial View of the Subject Site (Source: Near Map)

2.2 Surrounding Land Use

The subject site is currently zoned as IN1 (General Industrial) under State Environmental Planning Policy (Western Sydney Employment Area) 2009, with the surrounding land use predominantly IN1 and a some E2 (Environmental Living Zones) within the vicinity of the site. The Local Land Use Map is presented in Figure 3.

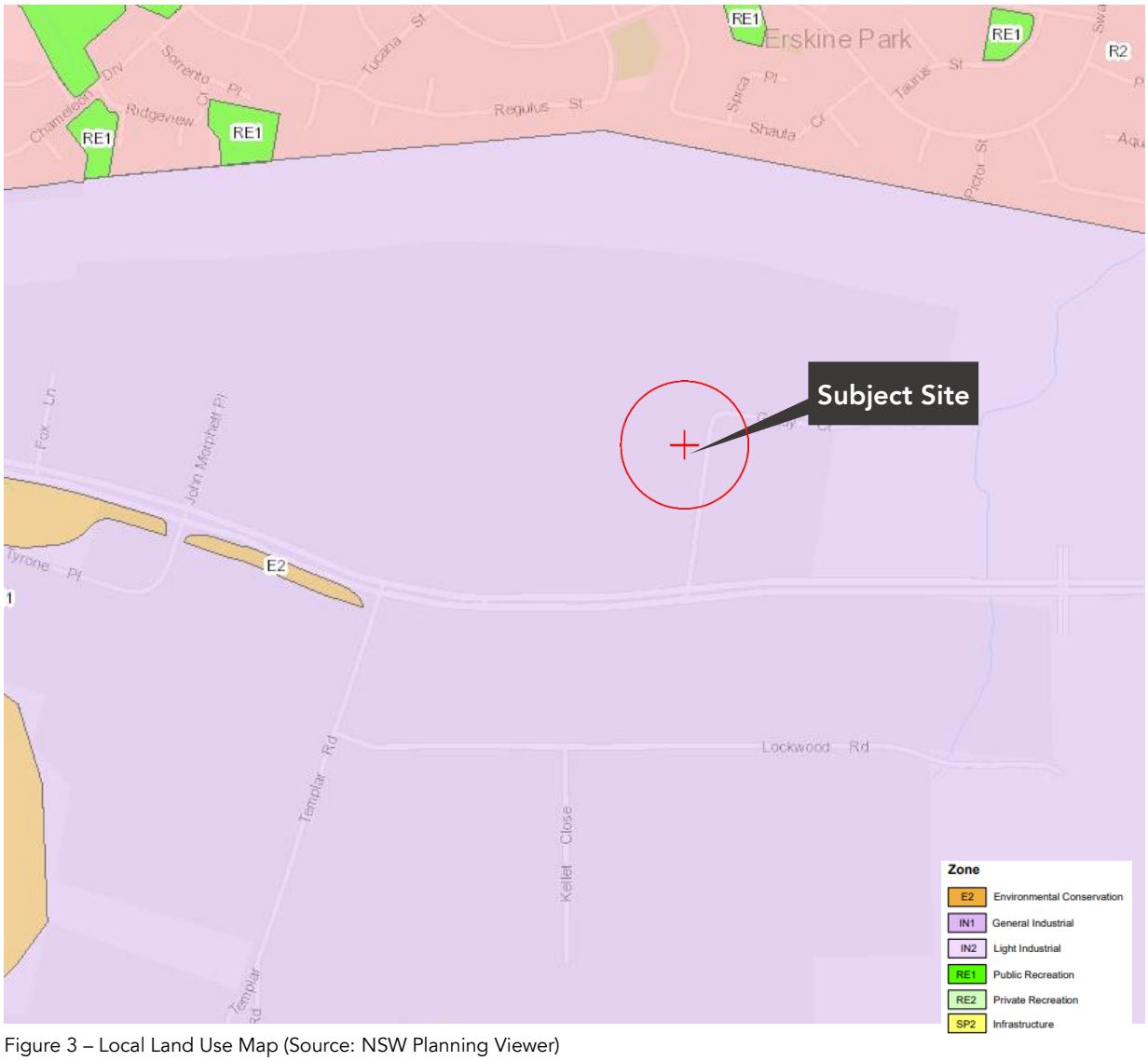


Figure 3 – Local Land Use Map (Source: NSW Planning Viewer)

2.3 Development Proposal

The subject site comprises a rectangular property with a total area of 15,500m^2, with a frontage of approximately 62 metres to Grady Crescent, being the only road frontage of the site. The existing site is a warehouse facility with associated ancillary office occupying approximately 9,620m^2 (9,300m^2 warehouse +320m^2 ancillary office area).

The site also includes a provision of six (6) truck parking spaces on ground level, and a total of 78 car parking spaces on ground and basement levels. The ground level car parking area accommodates five (5) parking spaces including two (2) accessible car spaces, and the basement car park accommodates 73 parking spaces.

Vehicular access to the existing site is provided by the two (2) driveways within the Grady Crescent frontage enabling separated car and heavy vehicle movements within the property.

Tyrecycle is seeking development consent for the project to process and transfer up to 29,000 tpa of tyres at the site. The project seeks to operate a tyre processing and transfer facility at the site with primary operational activities including:

- Receival and storage of tyres;
- Shredding of tyres; and
- Dispatch of processed TDF and other TDPs.

No modifications are made to the footprint of the existing warehouse building or car parking facilities.

2.3.1 Operational Management Plan

Based on the information provided by Tyrecycle, the proposed tyre recycling facility is estimated to operate 24 hours per day, 7 days per week, with most of the operations occurring during the weekdays and occasional work during the weekends. The operation plan and vehicle movements of the proposed tyre recycling facility during the weekdays is estimated as follows:

• Deliveries (containers):	8:00am – 5:00pm (Monday-Friday) and 8:00am – 6:00pm Saturdays (as required)
• Trucks (collection)	4:00am – 6:00pm (Monday-Friday) (Day), 5:00pm – 1:00am (Monday-Friday) (Night) and 4:00am – 6:00pm (Saturday) (As required)
• Total trucks movements:	Approximately 29 trucks in and 29 trucks out per day
• Peak hour truck volumes:	13 trucks leaving site between 5:00am – 7:00am (conservative assessment) 13 trucks returning to site between 4:00pm – 6:00pm (conservative assessment)
• Parking Requirement:	24 working staff during the day shift (7:00am – 3:00pm) 4 management staff during the day shift (8:00am – 5:00pm) 3 working staff during the afternoon shift (3:00pm – 11:00pm) 3 working staff during the night shift (11:00pm – 7:00am)

- Peak hour light vehicles movement: 24 light vehicles entering and 3 light vehicles leaving the site between 6:30am – 7:30am.

  4 light vehicles entering the site between 7:30am – 8:30am.

  3 light vehicles entering and 24 light vehicles leaving the site between 2:30pm – 3:30pm.

  4 light vehicles leaving the site between 4:30pm – 5:30pm.

  3 light vehicles entering and 3 light vehicles leaving the site between 10:30pm – 11:30pm.

3. Existing Transport Facilities

3.1 Road Hierarchy

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

State Roads - Freeways and Primary Arterials (RMS managed)

Regional Roads - Secondary or Sub Arterials (Council managed, partly funded by the State)

Local Roads - Collector and Local Access Roads (Council managed)

Figure 4 provides an illustration of the road hierarchy of the nearby road network.

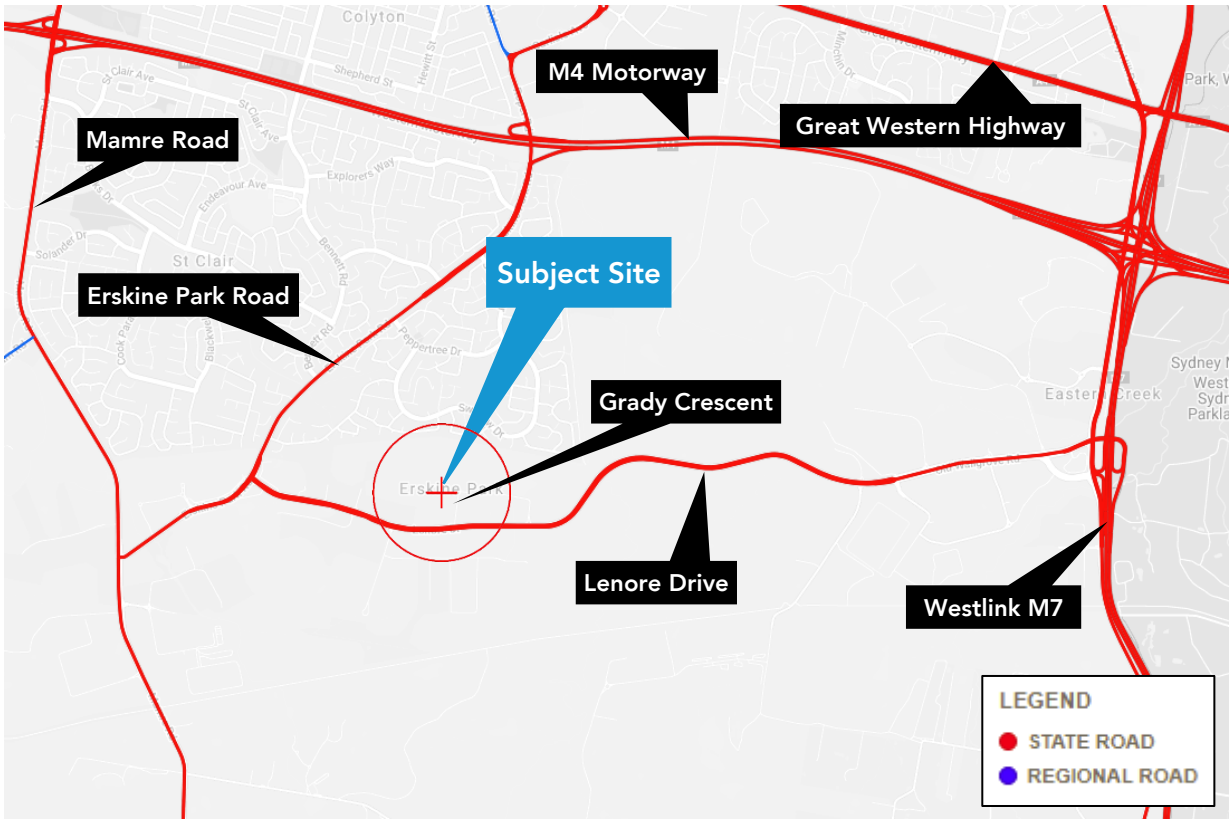


Figure 4 – Surrounding Road Network (Source: RMS Road Hierarchy)

The road network serving the site includes:

M4 Motorway comprises a 6 lane divided carriageway which has an east-west alignment along the northern side of the Erskine Park and St Clair areas and connects between the Great Western Highway at Strathfield and the Blue Mountains at Emu Plains.

M7 Motorway comprises a 4 lane divided carriageway which has a north-south alignment along the eastern side of the Erskine Park area and connects between the M2 at Baulkham Hills and the M5 at Prestons.

The **Great Western Highway** is a State Road, which connects between the City and the region to the west of the Blue Mountains. In the vicinity of Erskine Park, the Highway is aligned parallel to the M4 Motorway and operates as an alternative route to the motorway. For much of its length, the Highway carries 3 lanes in each direction, and provides connectivity to the local road network.

Mamre Road is a State Road connecting between the Great Western Highway at St Marys and Elizabeth Park at Cecil Hill.

Erskine Park Road is a State Road which provides a secondary connection between Mamre Road and the M4 Motorway.

Lenore Drive is a State Road and forms the primary access to the Erskine Park Employment Area. Lenore Drive connects with Old Walgrove Road at Eastern Creek, which connects with Walgrove Road and the M7 Motorway. The carriageway carries two lanes in each direction and is divided by a central median accommodating auxiliary right turn lane at a number of intersections.

Grady Crescent is a local access road which connects with the Lenore Drive. The carriageway has a width of 13 meters and carries a single lane in each direction.

3.2 Public Transport

The locality of the subject site has been assessed in the context of available forms of public transport that may be utilised by prospective staffs and visitors. When defining accessibility, the NSW Planning Guidelines for Walking & Cycling (2004) suggests that 400m-800m is a comfortable walking distance to access public transport and local amenities.

The only public transport available within the 800m catchment is the route 835 bus service as shown in Figure 5.

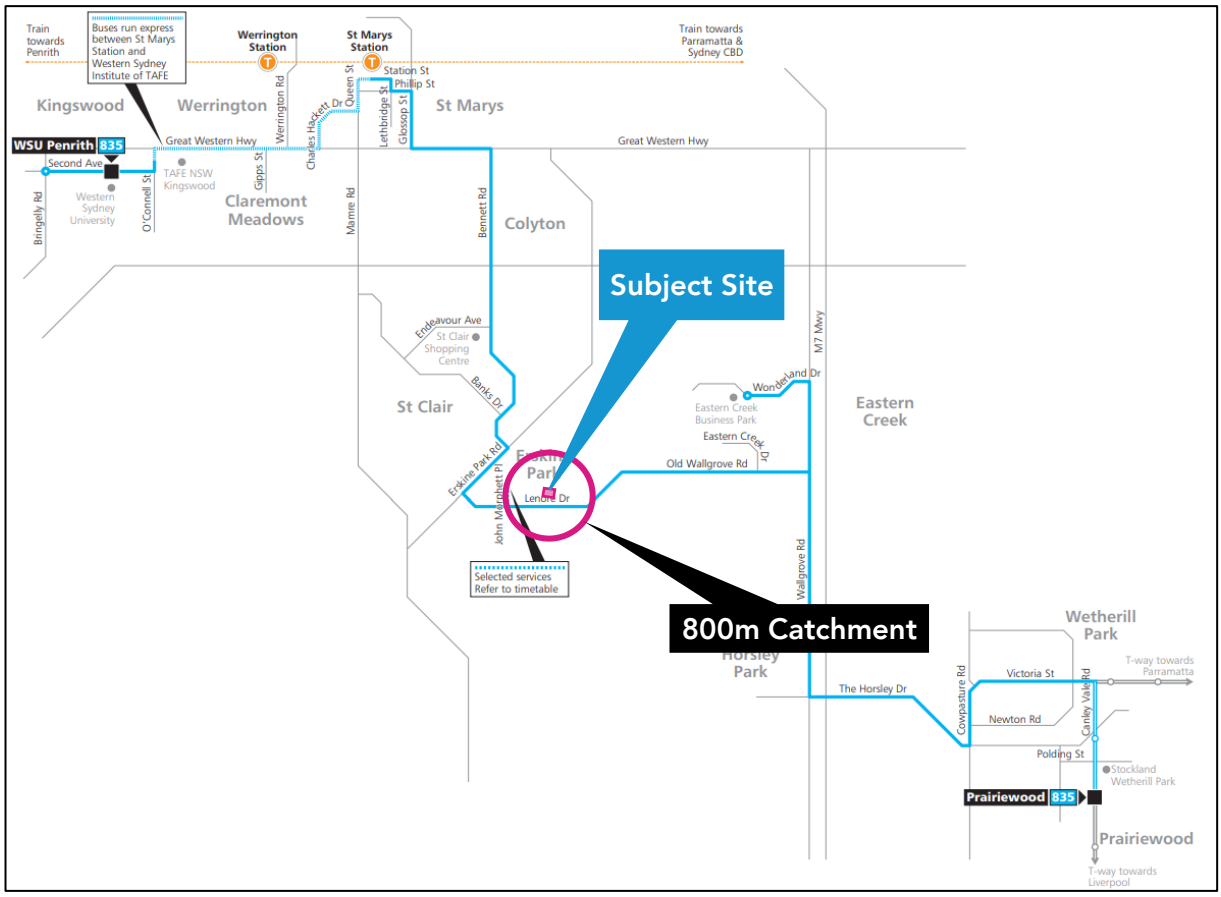


Figure 5 – Bus Service within 800m radius of the subject site (Source: Transport for NSW)

Route 835 operates along Lenore Drive past the site and operates only on weekdays providing a connection between Penrith and Prairiewood.

4. Development Traffic Assessment

4.1 Approved Traffic Generation

The existing development comprises a warehouse and in relation to this type of development, Section 3.10.2 of the RMS Guide recommends the following traffic generation rates for the morning peak hour:

- Warehouse: 0.5 trips per 100m^2 GFA during morning peak hour

Based on the Traffic Impact Assessment Report prepared by Parking and Traffic Consultants Pty Ltd on February 2013, following trips has been calculated for the existing warehouse. These trips were approved during the previous DA.

Table 1 – Approved Traffic Generation

Use	GFA	RMS Traffic Generation Rate	Approved AM Peak Hour Trips
Warehouse	**9,620 m^2**	**0.5 trips per 100m^2 GFA**	**48**

4.2 Development Traffic Generation

Neither RMS Guide nor the TDT provides any traffic generation rates for a tyre recycling facility. Hence, the traffic generation has been calculated based on first principles.

4.2.1 Morning Peak Period Traffic Volumes

Based on the information presented in Section 2.3.1, it is understood that approximately 13 outbound trucks trip will occur during 5:00am – 7:00am. This equates to approximately 7 outbound truck trips during the one-hour peak period. In regards to the light vehicle trips, from Section 2.3.1 we can see that the management staff trips do not coincide with the majority of the day shift staff during the morning peak hour, and therefore, only the working staff trips are considered for calculating the morning peak hour traffic volumes. The total morning (AM) peak hour traffic volumes for trucks and light vehicles are estimated as follows:

<u>AM Peak Hour</u>

- Truck trips: 7 (0 inbound, 7 outbound)
- Light vehicle trips: 31 (28 inbound, 3 outbound)

4.2.2 Evening Peak Period Traffic Volumes

As mentioned in Section 2.3.1, approximately 13 trucks trip (inbound movement) will occur during 4:00pm – 6:00pm. To calculate the one-hour peak volume for trucks, similar assumption as the AM peak hour has been applied. In regard to the staff trips, it is evident that the staff trips do not coincide with the tyre recycling facility evening peak hour, and since the number of staff during the evening peak period is very low, the working staff trips are considered to lie outside of the even peak period. Therefore, the total afternoon (PM) peak hour traffic volumes will be wholly dependent on trucks and is calculated as follows:

<u>PM Peak Hour</u>

- Truck trips: 7 (7 inbound, 0 outbound)

4.2.3 Total Peak Hour Traffic Volumes

Based on the calculations as shown in Section 4.2.1 and Section 4.2.1, the total future trips are summarised as follows:

Table 2 – Future Traffic Generation

Use	Total Trips for AM Peak Hour	Total Trips for PM Peak Hour
Tyre Recycling Facility	**38 (28 inbound, 10 outbound)**	**7 (7 inbound, 0 outbound)**

4.3 Net Trip Generation

In order to determine the traffic impact of the development, the net trip generation needs to be determined. This figure is calculated by subtracting the approved traffic generation from the future traffic generation. The net trip generation is summarised in Table 3.

Table 3 – Net Trip Generation

Peak Period	Future Trip Generation	Approved Trip Generation	Net Trip Generation
Weekday AM	**38**	**48**	**-10**
Weekday PM	**7**		

It is evident from Table 3 that the overall trips for the AM peak hour is expected to be reduced by 10. This equates to approximately 1 trip removed every 6 minutes and therefore, it is expected that the nearby intersection performance may improve marginally during the weekday AM peak hour.

In regard to the approved PM peak hour trips, the RMS Guideline does not provide any traffic generation rates, however, as we see that the net trip generation for the AM peak hour is reduced, it is more likely that the net trip generation for the PM peak hour will also be reduced. Additionally, as the existing warehouse and proposed tyre recycling facility are similar types of development, it is less likely that the future traffic generation will deviate from the approved generation, and therefore, the proposal will not result in a negative impact on the existing road network.

4.4 SIDRA Modelling

From Section 4.3 we can see that the future trips for the AM peak hour are less than the approved trips and the PM peak hour trips are estimated to align or be less than the approved PM peak hour trips. As such the future trips would not make a discernible impact to the existing road network and hence, SIDRA modelling is not required.

4.5 Traffic Impact on Existing Road Network

From the information provided by Tyrecycle we understand that majority of the trucks will approach the site via M4 motorway, then turn into Mamre Road or Erskine Park Road, turn into Lenore Drive and then then turn left onto Grady Crescent. When leaving the site, the trucks will exit the site via Grady Crescent, turn left into Lenore Drive and then turn into M7. From this information, it is obvious that there will be no truck movements along local roads which have the potential to impact residential receivers. Therefore, the project

will not result in significant impacts to the amenity of residential land uses or impact upon traffic network conditions.

The tuck routes are shown in Figure 6, with the pink lines for approaching trucks and blue lines for exiting trucks.

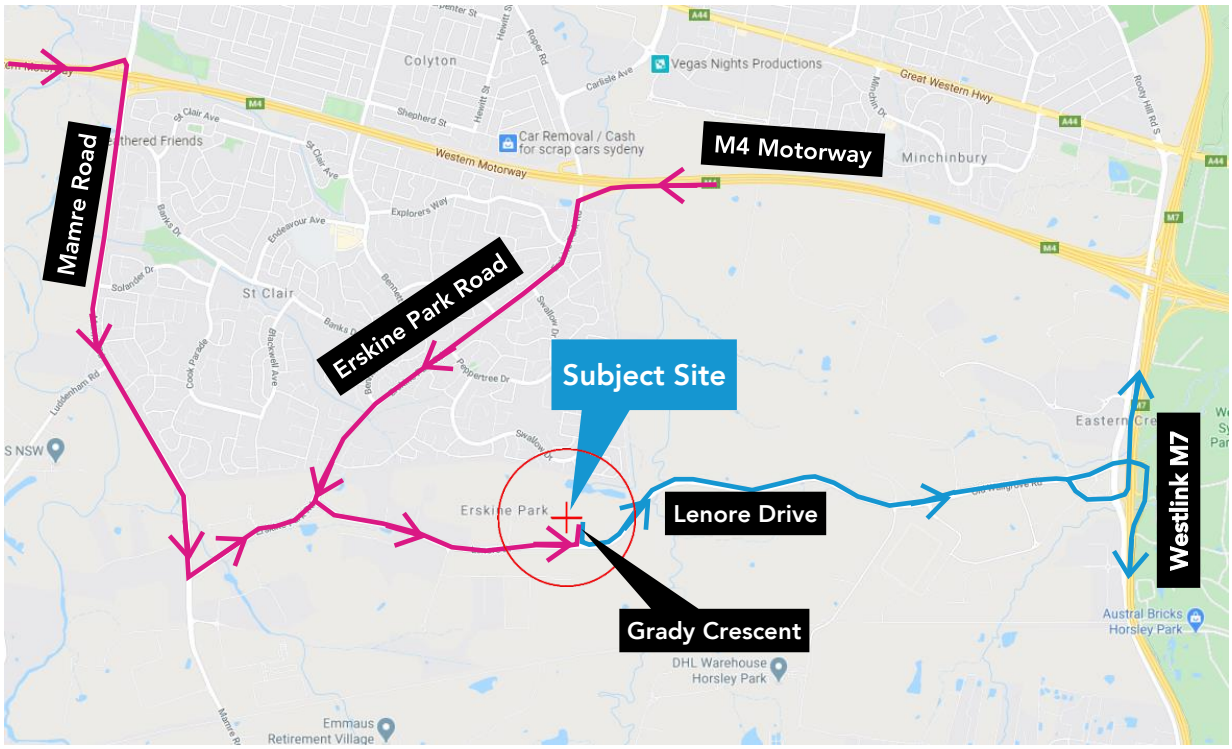


Figure 6 – Truck Routes

5. Parking Assessment

5.1 Car Parking Requirement

5.1.1 Car Parking Requirement according to the DCP

Part E6 (Erskine Business Park) of the DCP is applicable to the subject site, and the car parking rates are stipulated in Part C10 (Transport, Access and Parking) of the DCP. The DCP, however, does not provide car parking rates for the tyre recycling facility, and therefore, reference has been made to a warehouse development which is the most comparable.

It is noted that the ancillary office area is to be used in conjunction with the tyre recycling facility, meaning that a cumulative assessment of these components is not required. Applying the DCP car parking rates for warehouses to the proposed tyre recycling facility results in the following car parking requirements.

Table 4 – Car parking requirement provision according to the DCP

Use	GFA	DCP Car Parking Rate (min)	Minimum Parking Requirement	Proposed Parking Provision
Tyre Recycling Facility (Warehouse)	**9,620 m²**	**1 space per 100m² GFA**	**96**	**78**

While the DCP requires a higher parking demand, the current warehouse was approved with a lower parking provision of 78 spaces, based on reference to multiple sources as described in the following sections.

5.1.2 Car Parking Requirement according to the RMS Guide

Section 5 of the RMS Guide provides car parking rates for warehouse which is a comparable site for the tyre recycling facility. As mentioned in Section 5.1.1, ancillary office area has been used in conjunction with the tyre recycling facility. Applying the RMS Guide's car parking rates for warehouse to the proposed tyre recycling facility results in the following car parking requirements.

Table 5 – Car parking requirement provision according to the RMS Guide

Use	GFA	RMS Guide Car Parking Rate (min)	Minimum Parking Requirement	Proposed Parking Provision
Tyre Recycling Facility (Warehouse)	**9,620 m²**	**1 space per 300m² GFA**	**32**	**78**

It is evident from Table 5 that the provision of 78 car spaces exceeds and satisfies the RMS minimum requirement.

5.1.3 Car Parking Requirement according to the First Principles Assessment

From the information provided by Tyrecycle, it is understood that there will be approximately 28 staff (including 4 management staff) working during the day shift and 3 staff working during both the afternoon and night shifts. If it is assumed that all staff drive, the maximum car parking space required for staff will be

28. Therefore, based on first principles, the existing 78 car spaces exceeds the parking requirement for the proposed number of staff and visitors, and the parking demand is met.

5.1.4 Other Comparisons

Based on the GFA, the car parking provision rate of the development site is 1 per 128m^2. We have compared the parking provision available for similar developments within the EPEA which is provided at the following rates:

- For a Warehouse located at Lockwood Road – 1 per 250m^2
- For a Distribution Centre located at Lockwood Road – 1 per 300m^2
- For a Warehouse located at Grady Crescent – 1 per 300m^2

The parking provision of 1 space per 128m^2 compares favourably against the above parking provision for similar development within the EPEA, and the proposed parking provision of 78 car parking spaces exceeds the parking provision for these existing developments.

5.1.5 Car Parking Summary

While the proposed parking provision is slightly lower than indicated by the DCP, it is noted that the DCP does not provide a specific rate for tyre recycling facilities. To determine the actual parking demand of the tyre recycling facility, an assessment using RMS Guide, first principles and a comparison with similar developments within the EPEA was undertaken and, it is clear that the car parking provision exceeds the likely parking demand associated with the development. Furthermore, the provision represents a balanced approach having consideration for the location of the subject site and access to public transport and will not result in any on-street parking demand.

5.2 Accessible Car Spaces

In regard to the accessible parking, Part C10 of the DCP specifies that the accessible car spaces to be provided in accordance with the Building Code of Australia (BCA). The BCA 2016 classification for tyre recycling facility falls under Class 7B for building used for storage or display of goods or produce for sale by wholesale. The accessible car parking requirement and provisions are summarised in Table 6.

Table 6 – Accessible Car Parking Requirement and Provision

Use	Total Car Parking Provided	RMS Guide Car Parking Provision Rate (min)	Accessible Car Parking Requirement	Accessible Car Parking Provided
Class 7b - Tyre Recycling Facility	**78**	**1 space per every 100 car parking spaces or part thereof**	**1**	**2**

The provision of 78 car spaces results in a minimum requirement of one (1) accessible car parking space. The proposed provision of two (2) accessible car spaces has exceeded the accessible car parking requirement and is therefore compliant with the BCA requirement.

5.3 Loading Dock

The loading dock is provided on Ground Floor with a capacity to accommodate six (6) trucks at a time. From the information provided by Tyrecycle, it is understood that Tyrecycle owns six (6) trucks, and therefore, the trucks can be parked in the loading dock overnight.

The largest vehicle expected to access the site is a 25-metre B-Double, and from the swept path assessment as shown in Attachment 2, a B-Double is likely to occupy three (3) truck spaces. However, the B-Doubles will only be used for the forklift movements, with approximately two (2) B-Doubles movement per day. It is acknowledged that trucks movement spread across the day, and therefore, the subject site will be able to meet the future truck parking demand.

A Loading Dock Management Plan is recommended to ensure that only three (3) trucks are parked in the loading bay and the other three (3) trucks spaces are vacant during the times when B-Doubles access the site.

6. Access and Parking Assessment

The following section presents an assessment of the proposed development with reference to the requirements of AS2890.1:2004 (Off-Street Car Parking), AS2890.2:2002 (Off-street commercial vehicle facilities) and AS2890.6:2009 (Off-street parking for people with disabilities). This section is to be read in conjunction with the architectural plans provided by SBA Architects (see **Attachment 1**), dated 31.01.2013. and the swept path assessment undertaken by **ptc** (see **Attachment 2**)

The existing car park is to be predominantly used for employee and visitor parking, and therefore, the car park is assessed in accordance to AS 2890.1 for typical User Class 1A (residential/employee facilities).

6.1 Vehicular Access and Circulation

The existing warehouse site has road frontage to Grady Crescent with two access driveways for traffic movements. One driveway is 15.4m wide and is used as a truck access, while the other driveway is 6.35m wide and is used for car access. The 6.35m driveway narrows down to 6m wide private access road which continues to the basement level providing access to the basement level car park. The 6m wide private access road encircles the property on the north and west, extending from Grady Crescent to Lenore Drive (shown in Figure 7).

The basement level accommodates a total of 73 Class 1A car spaces with access from the private road (shown in Figure 7) requiring a Category 1 driveway being a combined entry and exit width of 3 to 5.5 metres. A 6.9 metres wide driveway is provided for the basement car park, and therefore, the provision is in accordance with the Standards.

The assessment of the existing driveways was previously undertaken in accordance to AS 2890.1 and AS 2890.2., and has been approved during the previous DA. No changes are proposed to the existing access arrangements, ramp grades, or headroom clearances.

The vehicular access, circulation, aisle width and car space dimensions comply with AS 2890.1 & 2890.6, however, two (2) convex safety mirrors are recommended in the basement level car park between car spaces 12 and 13, and 15 and 16 to minimise conflict between entering and exiting vehicles at the entrance to the carpark.

The design review and a swept path assessment demonstrating two-way passing of a B99 and B85 vehicle from Grady Crescent to the private access road with appropriate clearance is included in **Attachment 2**.

The location of the access driveways is shown in Figure 7.

Figure 7 - Vehicular Access to the Site

6.2 Car Parking Arrangement

6.2.1 Typical Requirements

The car park for the existing warehouse was designed according to User Class 1A for staffs and visitors. The User Class for the proposed tyre recycling facility will remain the same, and the existing car park is to be retained. The car parking spaces must comply with the following minimum requirements:

Class 1A (residential/employee facilities):

- Car Spaces: 2.4m x 5.4m
- Aisle Width: 5.8m (minimum)

  additional 300mm needs to be provided where one side of the aisle is bounded by high obstruction (i.e. wall or column)

The car spaces have been individually accessed and is in accordance with the requirements of AS 2890.1.

Blind aisle extensions have been provided.

6.2.2 Accessible Parking

All accessible parking spaces shall comply with the requirements of AS2890.6. Accessible parking spaces are to be designed based on the following dimensions:

- Accessible Space: 2.4m x 5.4m
- Adjacent Shared Bay: 2.4m x 5.4m (with bollard)

All shared bays and accessible spaces have been installed in accordance with AS2890.6, including the installation of bollards and relevant pavement markings. A minimum height clearance of 2.5m has been maintained above all accessible and shared bays.

6.3 Servicing and Loading Provisions

The servicing area for the existing warehouse was designed in accordance with AS 2890.2 and was approved to accommodate vehicles up to a 25-metre B-Double. There are no changes proposed to the existing servicing arrangements.

The loading dock is located on Ground floor level. All trucks are able to manoeuvre within the site and enter and exit the site in a forward direction, hence there are no expected queuing on public roads.

A swept path assessment has been conducted to ensure the feasibility of a 25-metre B-Double and 19-metre articulated vehicle (see Attachment 2).

6.4 Pedestrian Access

The pedestrian access to the site from Grady Crescent is provided via pedestrian walkway and zebra crossing located at the Ground Floor Level (see Figure 8).

The pedestrian access to the site from the Basement car park is provided via staircase connecting the Ground Floor Level to the Basement Level (see Figure 9).

Figure 8 – Pedestrian Access to the Site from Grady Crescent (Source: Near Map)

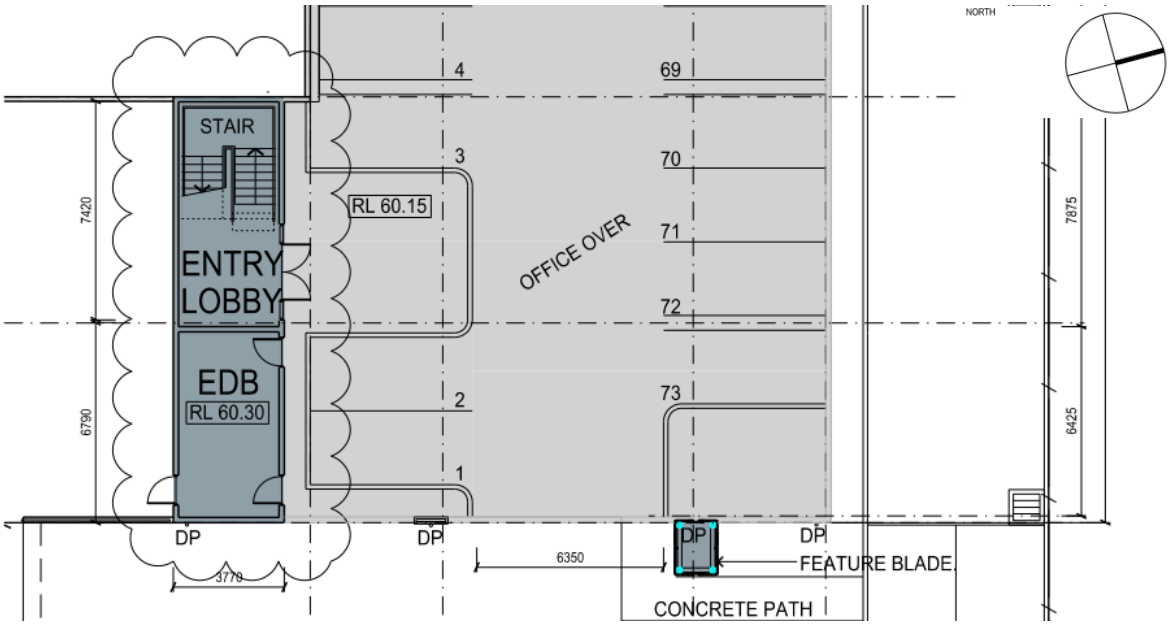


Figure 9 – Pedestrian Access to the Site from Basement Car Park (Source: SBA Architects)

7. Conclusion

This technical report has been prepared for assessing the proposed tyre recycling facility development at 1-21 Grady Crescent, Erskine Park in terms of parking provisions and traffic impacts on the surrounding road network.

The following findings have been identified through the assessment:

- The proposal is to change the use of the existing warehouse into a tyre recycling facility. No changes are proposed to the existing building footprint and parking arrangements;
- In terms of public transport, the site is accessible by bus providing transport links to the greater Sydney area;
- With reference to the most recent RMS survey data and first principles assessment, a review of the potential traffic generation of the site has revealed that the net trips for the morning peak hour is slightly reduced than the previously approved DA. For the evening peak hour, as the existing warehouse and proposed tyre recycling facility are similar types of development, it is anticipated that the future trips will not have any negative impact to the existing road network. Since the future trips does not deviate from the previously approved trips, SIDRA modelling is not required. It is also understood that the trucks mainly travel via arterial roads before entering and after exiting the site, and therefore, the truck movements will not have significant impact on residential streets;
- In context of parking, the assessment has been undertaken based on the requirements of the DCP, RMS Guide, first principles and similar land uses within the EPEA. The assessment shows that the parking provision of 78 car spaces is slightly lower than the DCP requirement, whilst, the provision exceeds the minimum RMS requirement, and assessments based on first principles and other similar developments. Therefore, it is more likely that the existing car parking spaces will satisfy the demand associated with the tyre recycling facility; and

The existing access and car park were initially designed according to AS 2890.1:2004, AS 2890.2:2002 and AS 2890.6.2009 and has been approved during the previous DA. The User Class for the proposed development remains the same and no changes are proposed to the existing access and car parking arrangements. The design assessment shows that the existing car park and loading dock complies with the standards. In light of the above, the proposed development is endorsed in the context of parking and traffic.

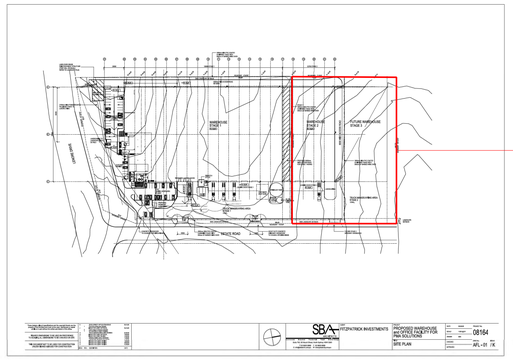
Attachment 1 Architectural Plans

DEVELOPMENT APPLICATION

PROPOSED NEW WAREHOUSE and OFFICE FACILITY

DRAWING REGISTER:

DA01	PROPOSED SITE ANALYSIS PLAN
DA02	PROPOSED SITE PLAN
DA03	PROPOSED ROOF PLAN
DA04	PROPOSED BASEMENT and GROUND FLOOR PLAN
DA05	PROPOSED ELEVATIONS
DA06	PROPOSED SECTIONS

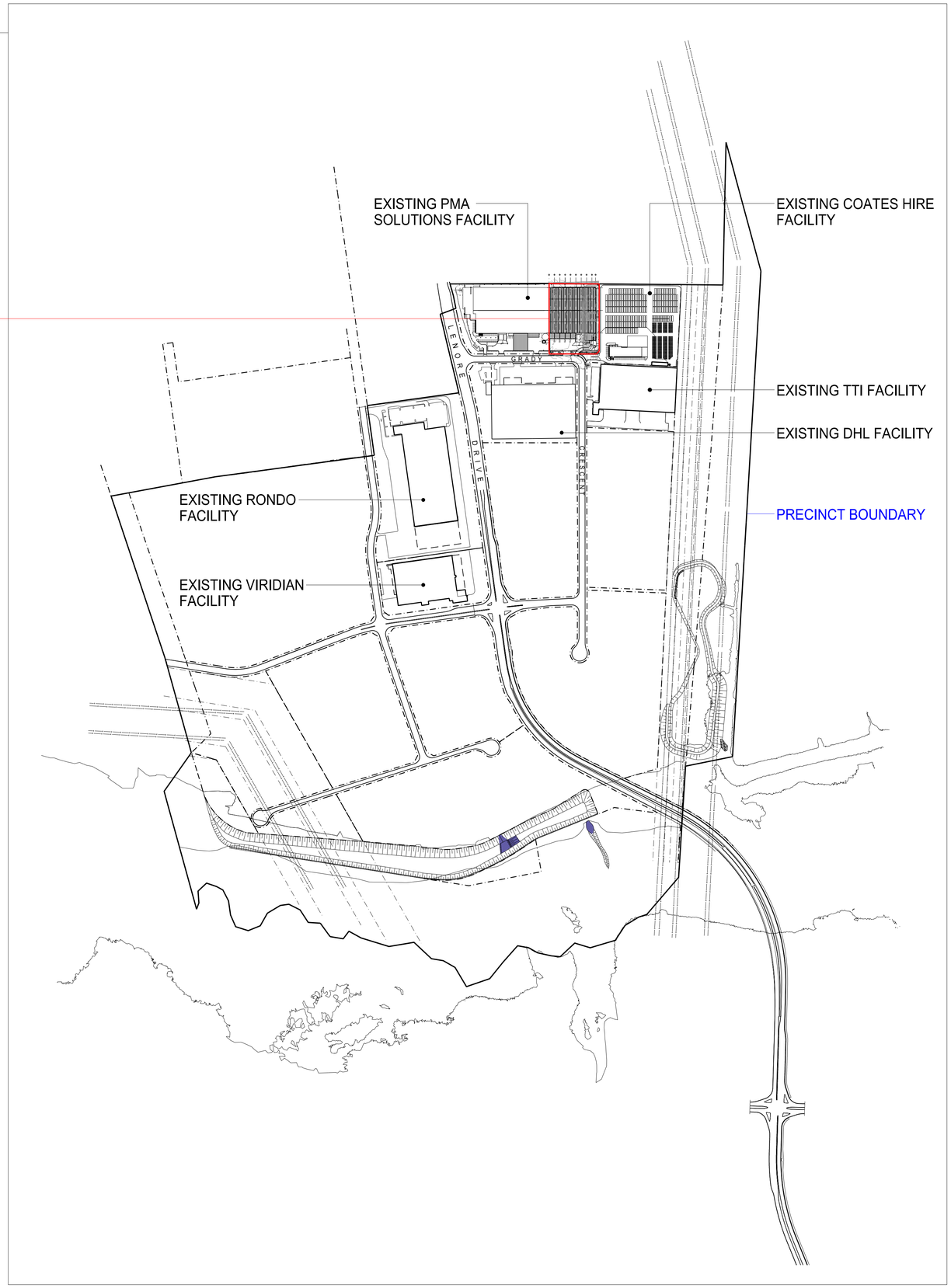


SITE LOCATION, ADJACENT TO EXISTING PMA SOLUTIONS FACILITY.

SITE LOCATED ON PREVIOUS **DA 08/1039** APPROVED STAGED DEVELOPMENT, EXTENSION TO EXISTING PMA SOLUTIONS FACILITY.

SITE FOR PROPOSED NEW WAREHOUSE and OFFICE FACILITY.

01 - ARIEL PHOTOGRAPH 1:5000



02 - LOCATION PLAN 1:5000

NORTH

FIGURED DIMENSIONS TO BE USED IN PREFERENCE TO SCALING. ALL DIMENSIONS TO BE CHECKED ON SITE.

THIS DOCUMENT NOT TO BE USED FOR CONSTRUCTION UNLESS SIGNED AND ISSUED FOR CONSTRUCTION.

ISSUE	REV.	DESCRIPTION	DATE
G		SJM APPLICATION	15.10.2013
F		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

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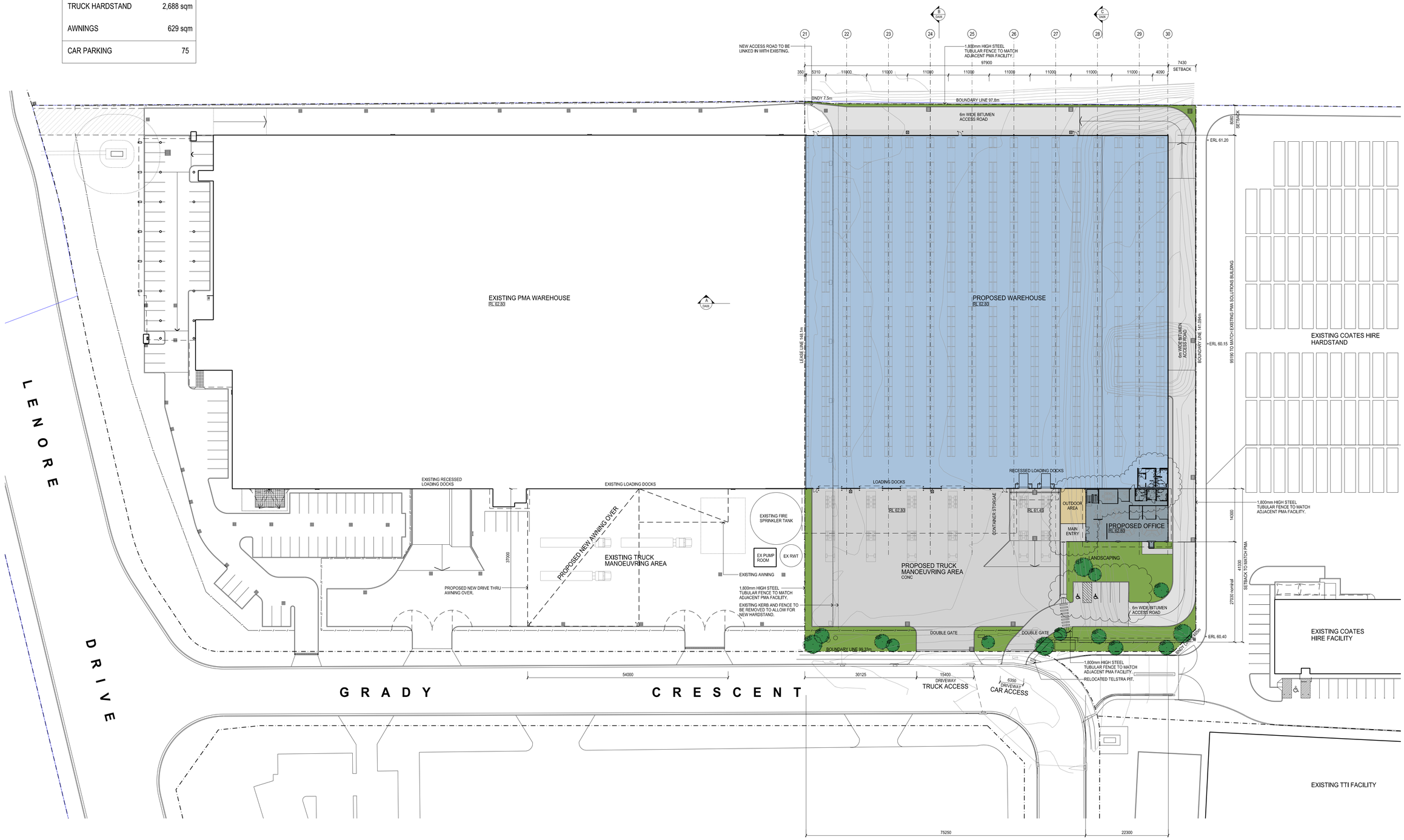
CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SITE ANALYSIS PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:5000 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 01	/ G
APPROVED			

DEVELOPMENT AREA SCHEDULE	
SITE AREA	15,503 sqm
WAREHOUSE	9,300 sqm
OFFICE	320 sqm
OUTDOOR AREA & LUNCH ROOM	163 sqm
BASEMENT CAR PARK	1,893 sqm
TOTAL BUILDING AREA	**11,676 sqm**
TRUCK HARDSTAND	2,688 sqm
AWNINGS	629 sqm
CAR PARKING	75



01 - SITE PLAN 1:500

ISSUE	REV.	DESCRIPTION	DATE
N		SL96 APPLICATION	15.10.2013
	2	OFFICE LAYOUT REVISED	
	1	VISITOR AND ACCESSIBLE PARKING ADDED	
M		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
K		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	1	PMA Awning redlined as per council recommendation	
J		ISSUE FOR DEVELOPMENT APPLICATION	24.05.2013
H		ISSUE FOR DEVELOPMENT APPLICATION	21.03.2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
F		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	29.01.2013
E		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	17.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

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CLIENT
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SITE PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:500 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 02	/ N
APPROVED			

01 ROOF PLAN 1:250

NORTH

ISSUE	REV.	DESCRIPTION	DATE
J		SJB APPLICATION	15.10.2013
H		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31.05.2013
	1	PMA flashing notified as per council recommendation	
F		ISSUE FOR DEVELOPMENT APPLICATION	31.03.2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	31.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
A		ISSUE FOR CLIENT REVIEW	19.12.2012

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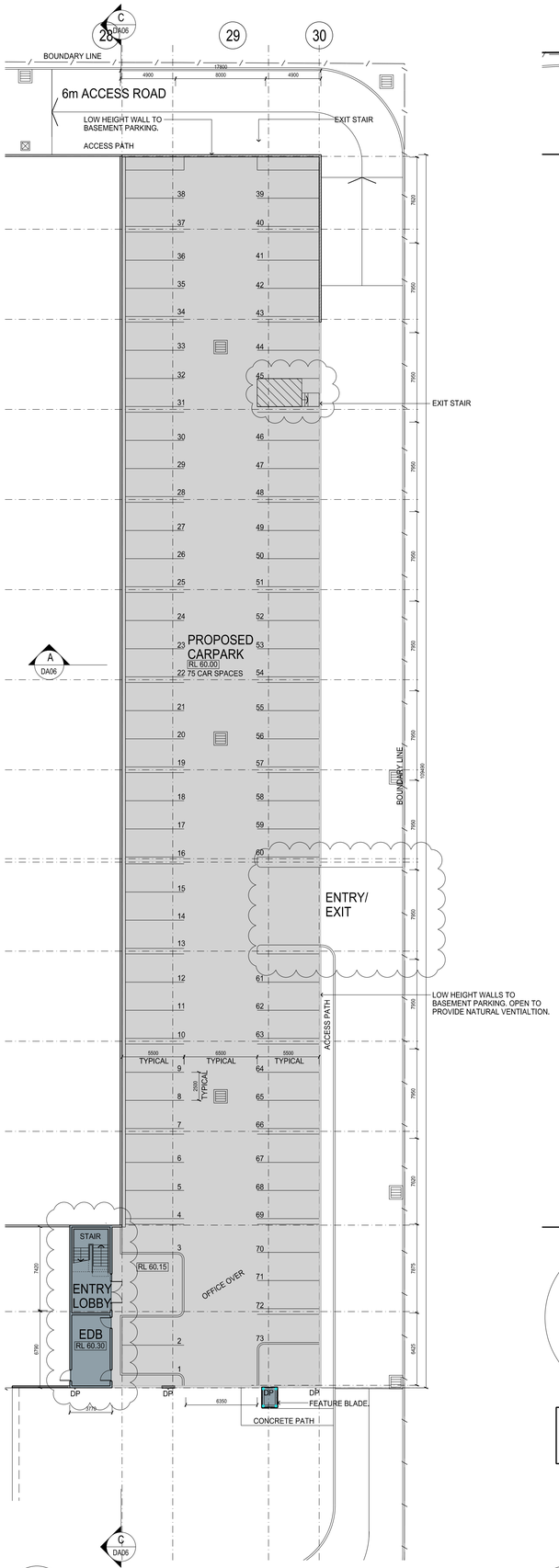
Fitzpatrick Investments

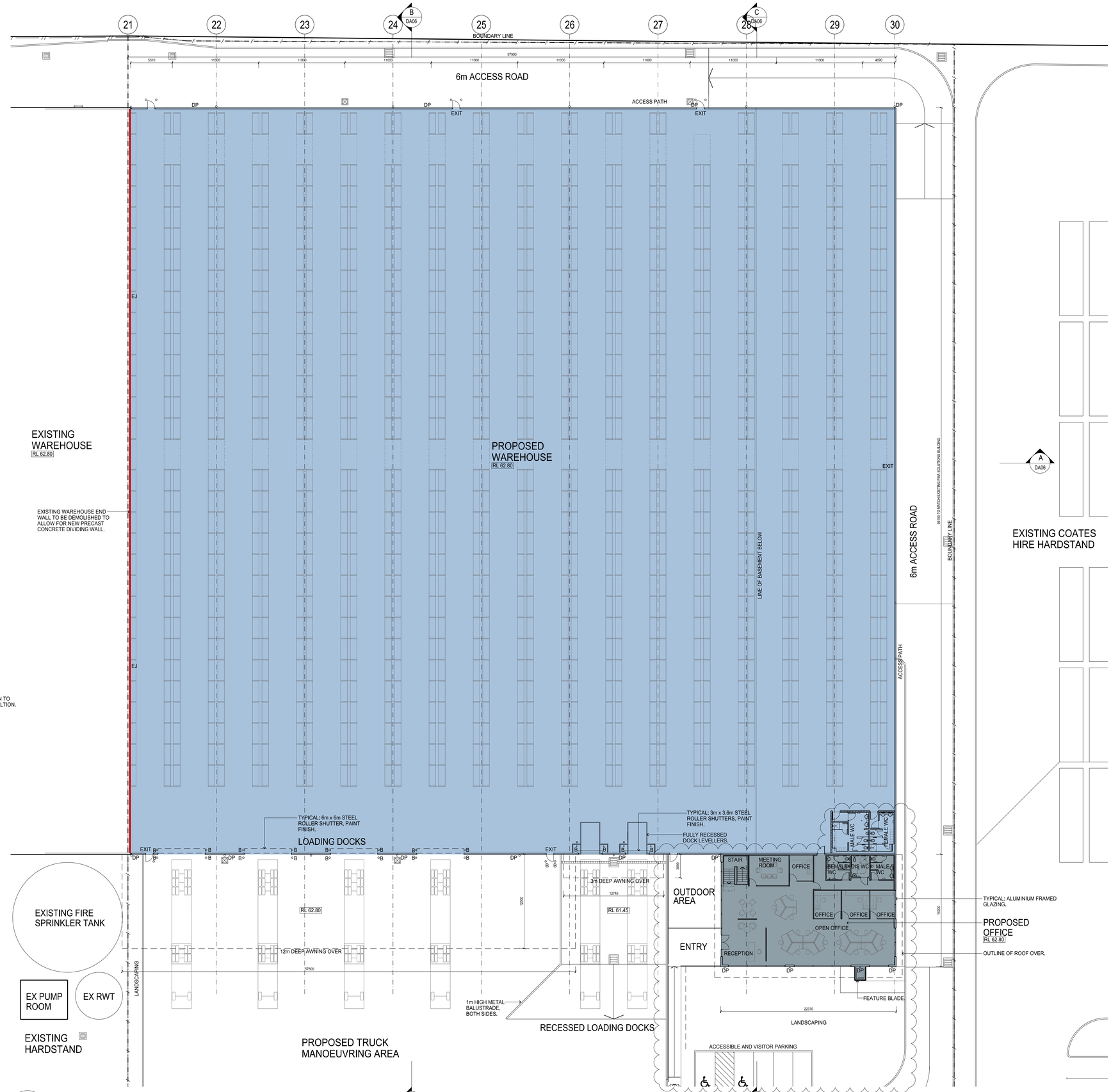
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ROOF PLAN

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 03	/ J
APPROVED			



02 BASEMENT PLAN 1:250



01 GROUND PLAN 1:250

NORTH

ISSUE	REV.	DESCRIPTION	DATE
	G	SJ46 APPLICATION VISITOR PARKING AND ACCESSIBLE PARKING ADDED OFFICE ENTRY REPOSITIONED, OFFICE TOILETS REPLANNED, BASEMENT RAMP DELETED	15.10.2013
	F	ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
	E	ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
	D	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
	C	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
	B	ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013
	A	ISSUE FOR CLIENT REVIEW	19.12.2012

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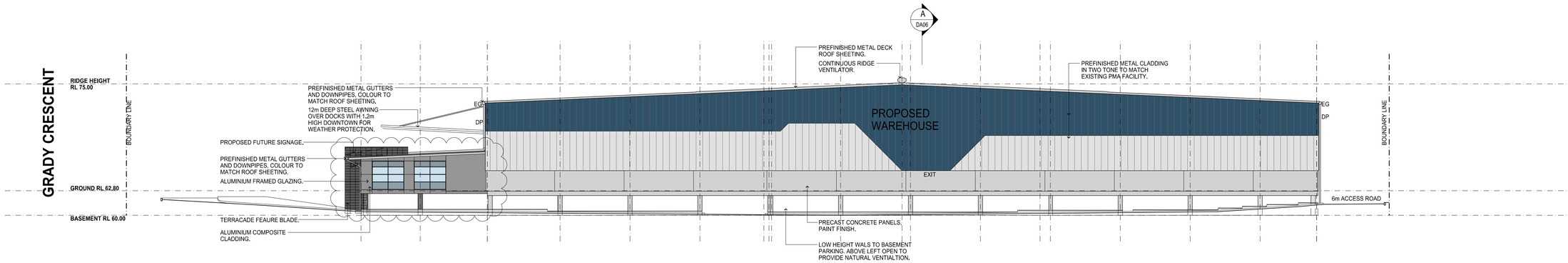
CLIENT
Fitzpatrick Investments

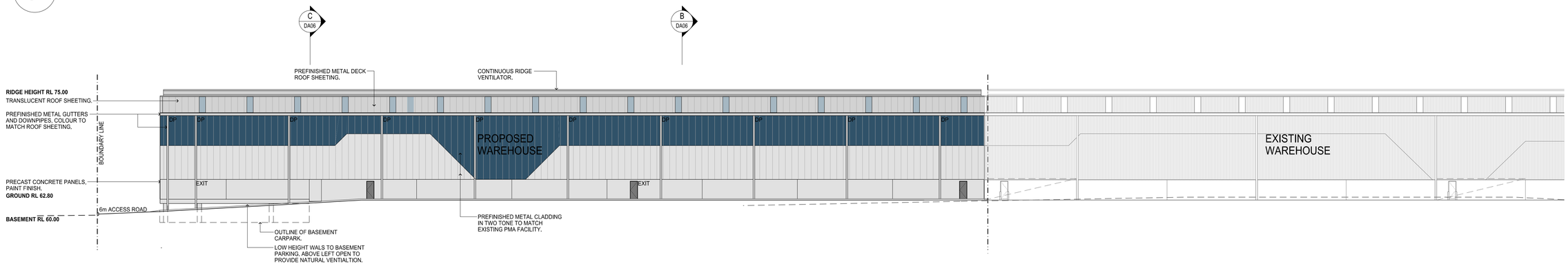
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED BASEMENT and GROUND FLOOR PLANS

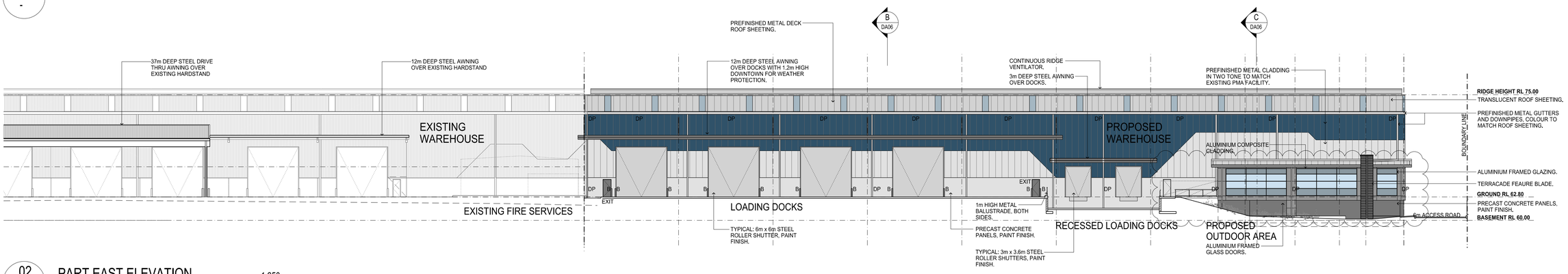
DATE	25.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 04	/ G
APPROVED			



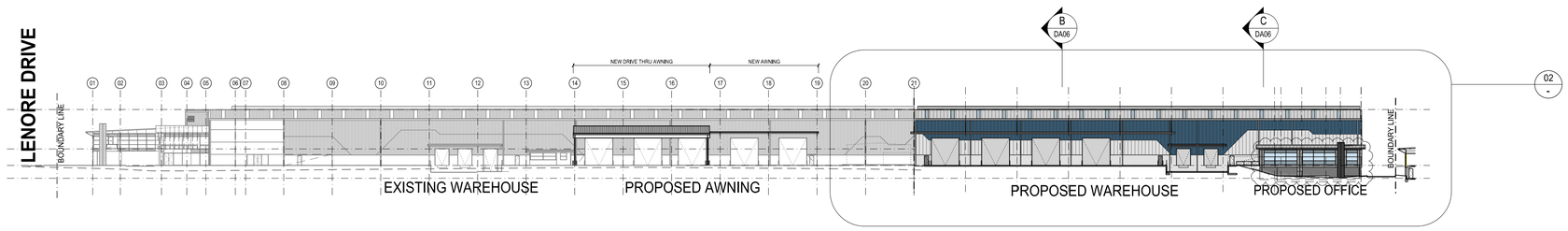
04 - NORTH ELEVATION 1:250



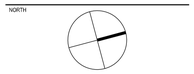
03 - PART WEST ELEVATION 1:250



02 - PART EAST ELEVATION 1:250



01 - OVERALL EAST ELEVATION 1:500



ISSUE	REV.	DESCRIPTION	DATE
J		SJM APPLICATION	15,10,2013
H		ISSUE FOR PRELIMINARY COORDINATION	25,07,2013
G		ISSUE FOR DEVELOPMENT APPLICATION	31,05,2013
F	1	PMA Awning reduced as per council recommendation.	31,05,2013
F		ISSUE FOR DEVELOPMENT APPLICATION	31,05,2013
E		ISSUE FOR DEVELOPMENT APPLICATION	31,01,2013
D		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21,01,2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16,01,2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09,01,2013
A		ISSUE FOR CLIENT REVIEW	19,12,2012

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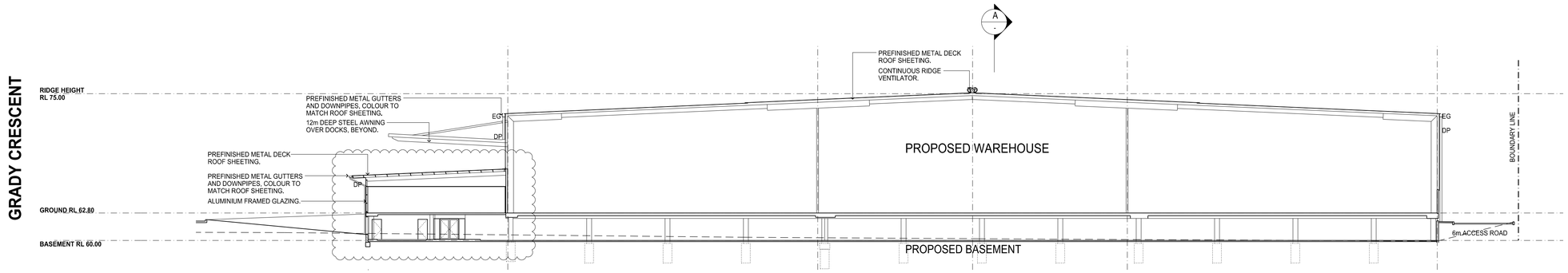
CLIENT
Fitzpatrick Investments

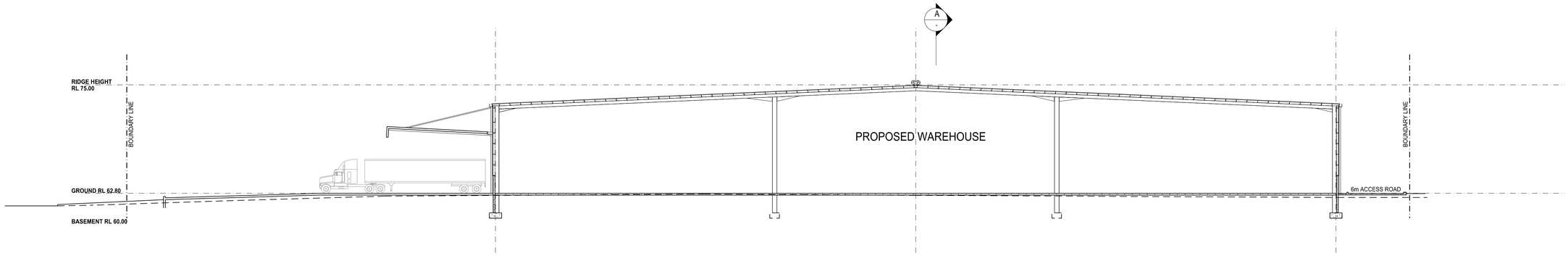
PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED ELEVATIONS

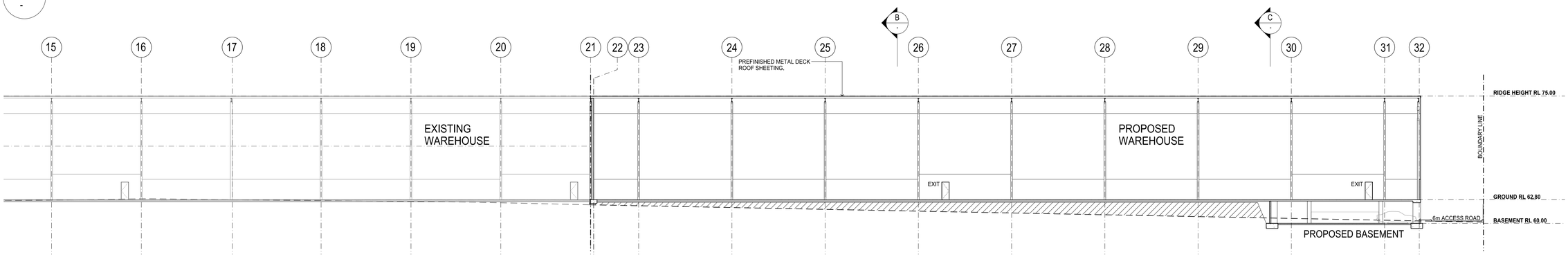
DATE	23,11,2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 05	/ J
APPROVED			



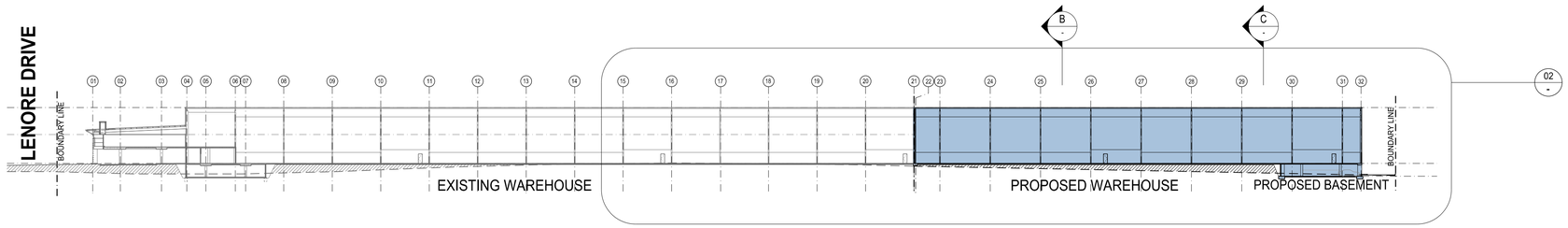
04 - SECTION C:C 1:250



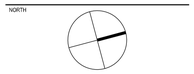
03 - SECTION B:B 1:250



02 - PART SECTION A:A 1:250



01 - OVERALL SECTION A:A 1:500



ISSUE	REV.	DESCRIPTION	DATE
F		SJ46 APPLICATION	15.10.2013
E		ISSUE FOR PRELIMINARY COORDINATION	25.07.2013
D		ISSUE FOR DEVELOPMENT APPLICATION	31.01.2013
C		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	21.01.2013
B		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	16.01.2013
A		ISSUE FOR CLIENT REVIEW & CO-ORDINATION	09.01.2013

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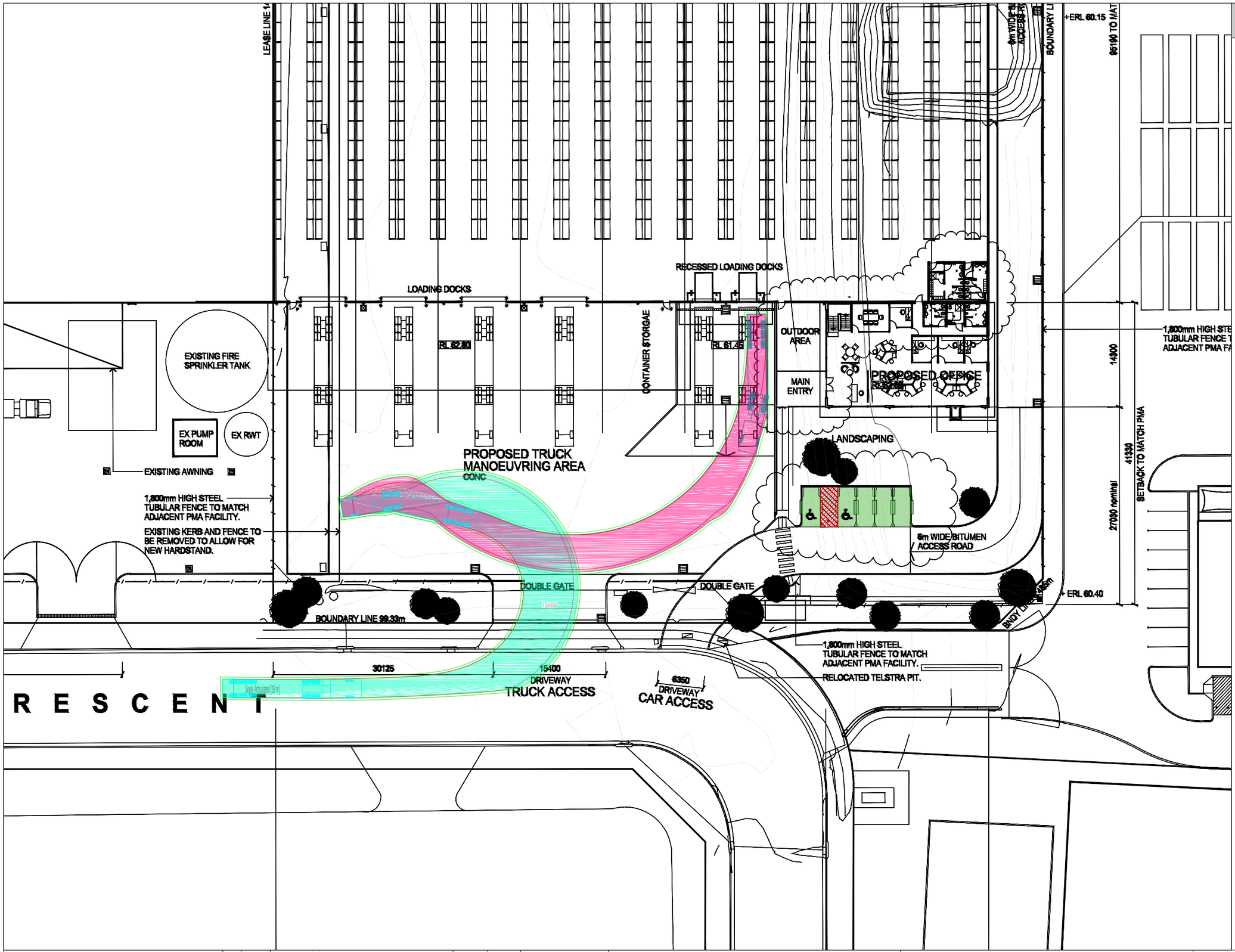
Fitzpatrick Investments

PROJECT
PROPOSED WAREHOUSE FACILITY
GRADY CRESCENT, ERSKINE PARK

TITLE
PROPOSED SECTIONS

DATE	23.11.2012	PROJECT No.	12203
SCALE	1:250 @ A1		
DRAWN	RH	DWG No.	ISSUE
CHECKED	GB	DA - 06	/ F
APPROVED			

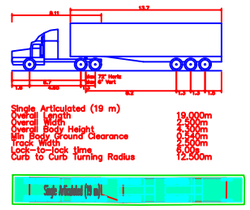
Attachment 2 Parking Assessment



comments

A3

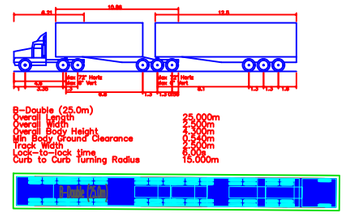
19m Articulated Vehicle



Single Articulated (19 m)

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.240m
Track Width	2.500m
Lock-to-lock time	8.000
Curb to Curb Turning Radius	12.500m

25m B-Double



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.240m
Track Width	2.500m
Lock-to-lock time	8.000
Curb to Curb Turning Radius	15.000m

B99 Vehicle

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.840m
Overall Body Height	2.400m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

B85 Vehicle

B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.880m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.158m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

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ptcconsultants.co

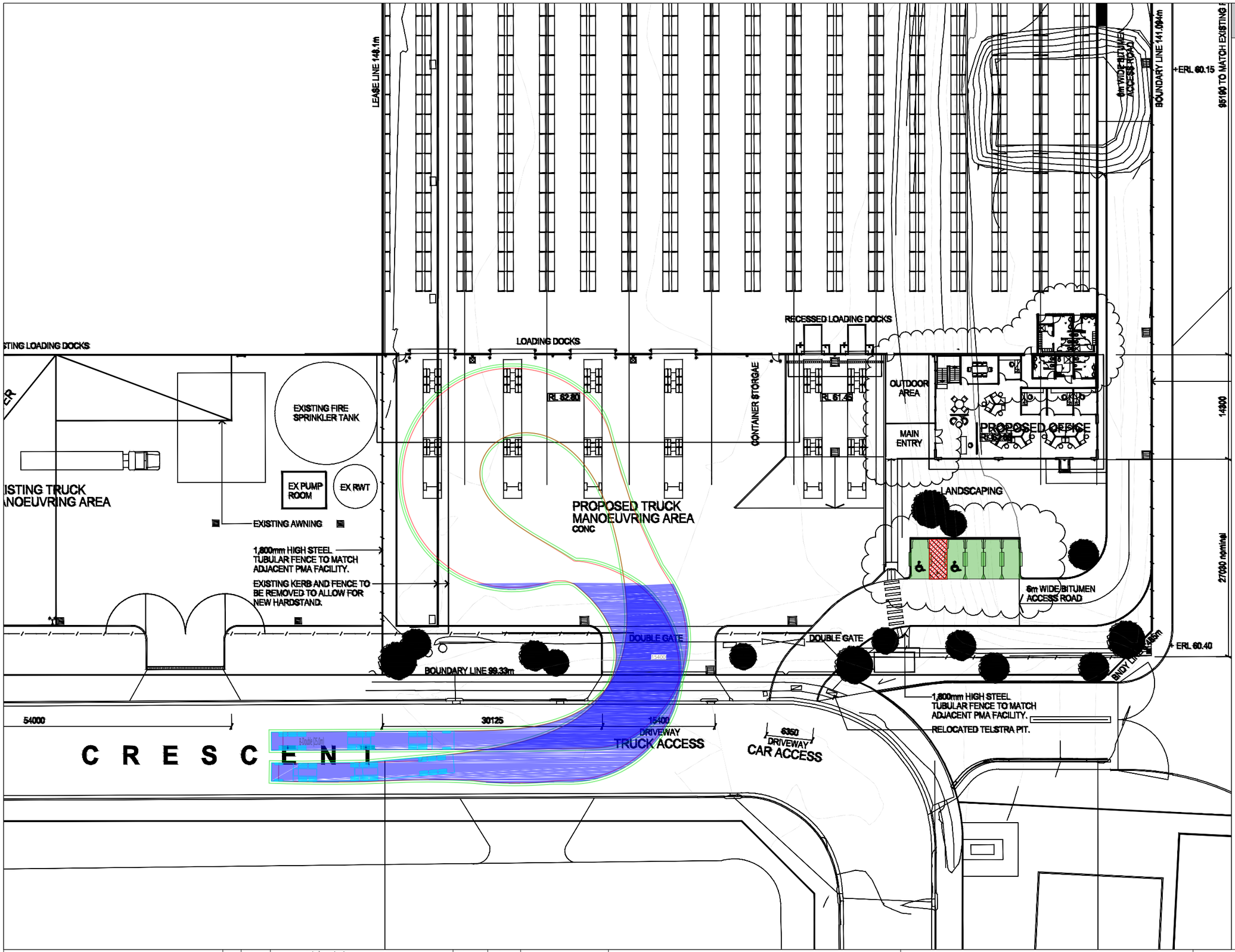
rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project
1-21 Grady Crescent, Erskine Park

drawing title
Swept Path Analysis - 19m Articulated Vehicle

client	Element Environment Pty Ltd
drawing #	ptc-001
project #	2869
scale	1 : 500

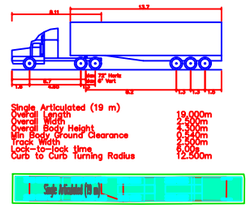
rev 1



comments

A3

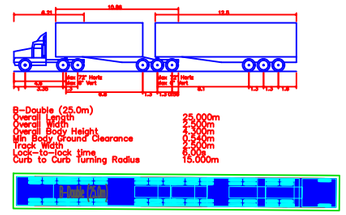
19m Articulated Vehicle



Single Articulated (19 m)

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

25m B-Double



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

B99 Vehicle

B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.840m
Overall Body Height	2.400m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

B85 Vehicle

B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.741m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

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ptcconsultants.co

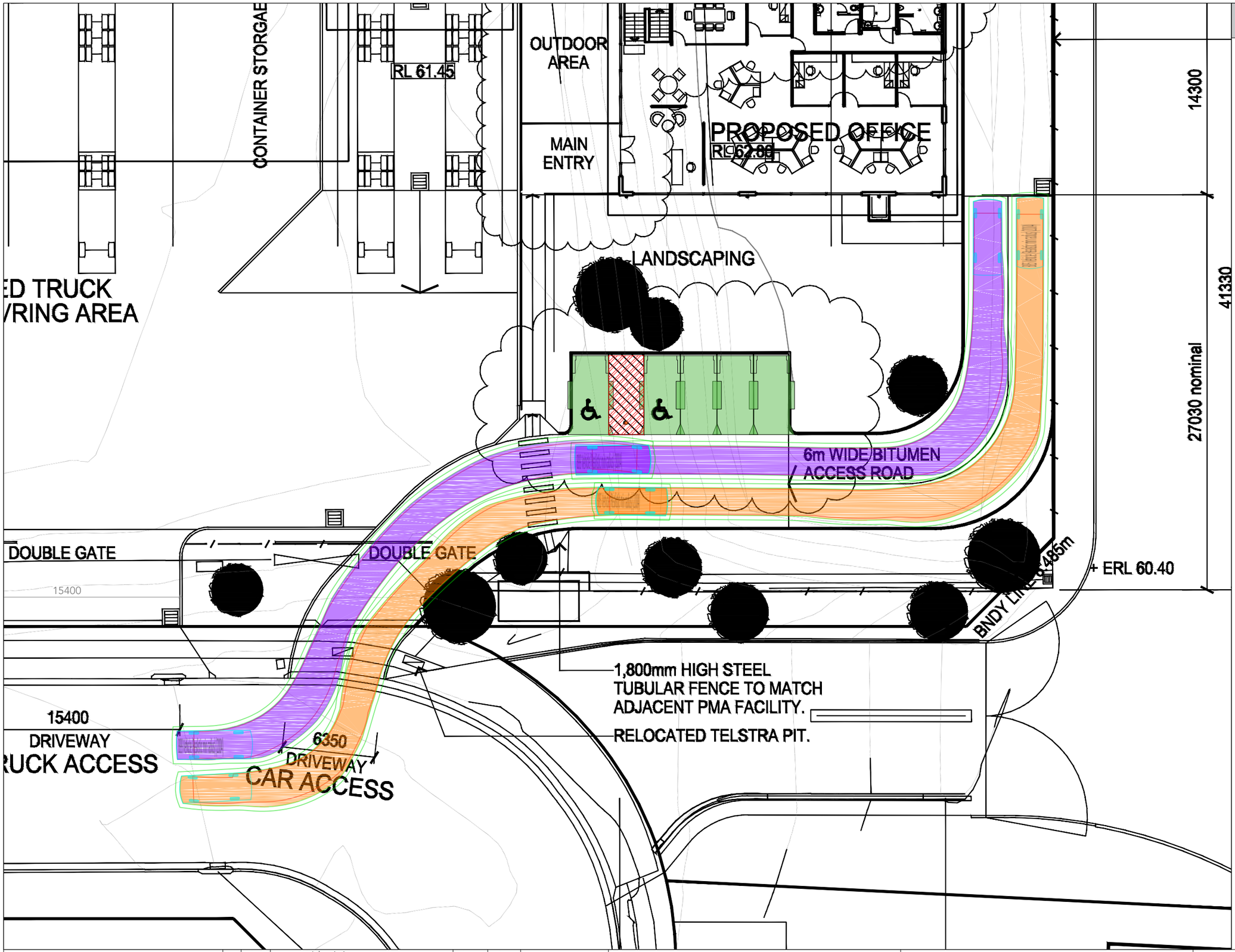
rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project
1-21 Grady Crescent, Erskine Park

drawing title
Swept Path Analysis - 25m B-Double

client	Element Environment Pty Ltd
drawing #	ptc-002
project #	2869
scale	1 : 500

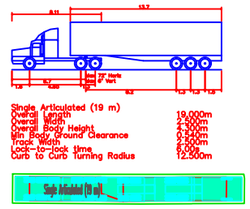
rev 1



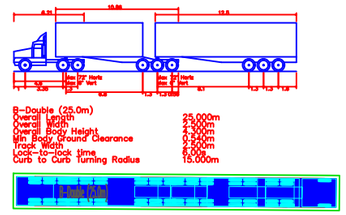
comments

A3

19m Articulated Vehicle



25m B-Double



B99 Vehicle

B85 Vehicle

2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

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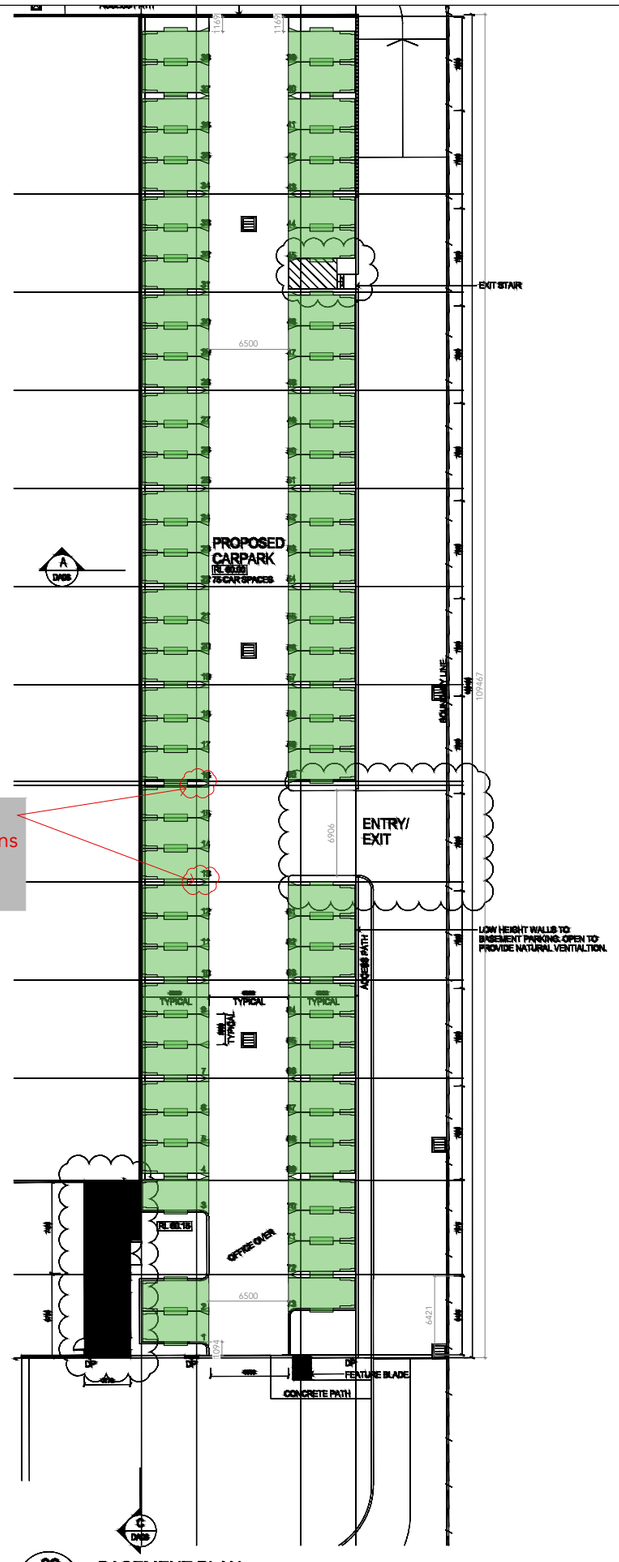
rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project
1-21 Grady Crescent, Erskine Park

drawing title
Design Review and Swept Path Analaysis - Ground Level Car Park

client	Element Environment Pty Ltd
drawing #	ptc-003
project #	2869
scale	1 : 200

rev 1



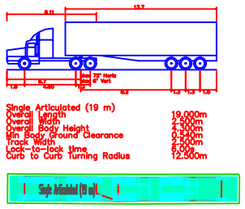
Convex Safety Mirrors are advised at the marked locations to avoid conflict between the entering and exiting vehicles

02 BASEMENT PLAN 1:250

comments

A3

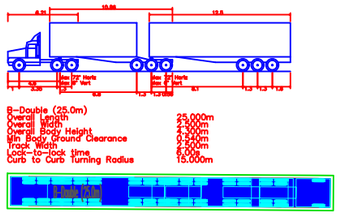
19m Articulated Vehicle



Single Articulated (19 m)

Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.240m
Track Width	2.500m
Lock-to-lock time	8.00s
Curb to Curb Turning Radius	12.500m

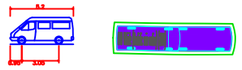
25m B-Double



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.240m
Track Width	2.500m
Lock-to-lock time	8.00s
Curb to Curb Turning Radius	15.000m

B99 Vehicle



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.840m
Overall Body Height	2.300m
Min Body Ground Clearance	0.310m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

B85 Vehicle

B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.820m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.158m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

2.5m x 5.4m Parking Envelope

2.4m x 5.4m Shared Bay

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ptcconsultants.co

rev	date	comment / description	drawn	reviewed
1	18.08.20	For Review	PS	AP

project: 1-21 Grady Crescent, Erskine Park

drawing title: Design Review - Basement Car Park

client	Element Environment Pty Ltd
drawing #	ptc-004
project #	2869
scale	1 : 200

rev 1