Proposed Industrial Estate, Lockwood Road, Erskine Park

Traffic Report

Revision 1
19 August 2021

Prepared by:

Anne Coutts
Director, InRoads Group
BECivil | CPEng | MIEAust | NER | MAITPM

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Contents

Appendices

1.0 Introduction

InRoads Group was engaged to undertake a Traffic Impact Assessment of a proposed industrial development to be located within the Erskine Park Employment Lands as defined in the State Environmental Planning Policy (Western Sydney Employment Area) 2009. The subject site is located within the Penrith Local Government Area, and has therefore been assessed considering the controls as outlined in the Penrith Development Control Plan (DCP) 2014.

The site is located on Lockwood Road, on the southern side of the road immediately to the east and south of the ACCO Brands Australia Warehouse at 68 – 84 Lockwood Road, at the south-western corner of the Compass Drive / Lockwood Road intersection.

This proposal is for an industrial estate comprising two (2) warehouse buildings accessed via a common private driveway / road onto Lockwood Road, which will form the primary vehicular access to/from the warehouses. The western building will be located on the western side of the private road, to the rear (south) of the existing ACCO Brands Australia Warehouse at 68 – 84 Lockwood Road, and will accommodate two (2) warehouses (i.e. Lot 1A warehouse and Lot 1B warehouse). The eastern building will be located on the eastern side of the private road, and will accommodate four (4) warehouses (i.e. Lots 2 – 5 warehouses).

A secondary access driveway is proposed onto Lockwood Road for light vehicle access to/from the warehouse on the eastern side of the private road.

The development will comprise a total of 65,813m^2 GFA across the six (6) warehouses. On-site parking for up to 374 cars is proposed, with substantial area for service vehicle manoeuvring, circulation and parking to support the operation of the warehouses.

The following sections of this report document the findings of our traffic investigations, addressing the following key traffic design elements and issues:

- Vehicular site access arrangements;
- On-site car parking provision;
- Car park layout and design, with reference to the relevant Australian Standards;
- Vehicle servicing provisions; and
- The traffic impacts anticipated as a result of the proposed development.

2.0 Context

2.1 Subject Site

The development site is located within the Erskine Park Employment Lands, which are defined as Precinct 7 within the Western Sydney Employment Area. It is approximately 11km south-east of Penrith, 18km west of Parramatta, and 38km west of Sydney CBD, and is conveniently accessible to the M4 and the M7.

The site is located on Lockwood Road, on the southern side of the road immediately to the east and south of the ACCO Brands Australia Warehouse at 68 – 84 Lockwood Road, at the south-western corner of the Compass Drive / Lockwood Road intersection, as shown in **Figure 2.1** below.

The development site is generally bounded by Lockwood Road to the north, Compass Drive to the east, the SP2 Water Supply Line to the south, and industrial development / environmental conservation land to the west.

The development site is currently vacant.

Figure 2.1b: Subject Site

2.2 Local Road Network

The subject site will have road frontage to Lockwood Road to the north, and the recently constructed Compass Drive (previously referred to as the Western North South Link (WNSL) Road), which connects with Lenore Drive, to the east. Each of these roads is discussed in the following sections.

2.2.1 Lockwood Road

Lockwood Road is a two-lane, two-way undivided road, as shown in **Figure 2.2.1** below.

Lockwood Road travels in a generally east-west direction, connecting from Templar Road at its western end to Compass Drive at its eastern end.

Along the frontage of the site, Lockwood Road has a pavement width of approximately 13m, with kerbside parking permitted clear of intersections and property access driveways in accordance with NSW Road Rules.

Figure 2.2.1: Lockwood Road looking East

2.2.2 Compass Drive

The recently constructed Compass Drive (previously referred to as the Western North South Link (WNSL) Road), travels in a generally north-south direction, connecting from Lenore Drive (opposite Grady Crescent) at its northern end, over the Sydney Water Supply Pipeline, to Oakdale West Industrial Estate.

Along the frontage of the subject site, Compass Drive has a four-lane median divided carriageway.

2.2.3 Lenore Drive

Lenore Drive is a key east-west link connecting from Erskine Park Road at its western end to Old Wallgrove Road at its eastern end. Lenore Drive has a four-lane, two-way median divided carriageway, and is posted at 80km/hr in the vicinity of the site.

Lenore Drive connects to the M7 Motorway (to the east) via Old Wallgrove Road. A significant upgrade of Old Wallgrove Road was recently completed on the east-west section between Roberts Road and the M7 Motorway. These works provide improved access to the M4 and M7 Motorways from the Erskine Park Employment Lands and broader WSEA, increased road network capacity, and improved safety and access for vehicular traffic, pedestrians and cyclists.

2.2.4 Compass Drive / Lockwood Road Intersection

The Compass Drive / Lockwood Road Intersection was recently constructed as part of the delivery of Compass Drive, and is a dual-circulating lane roundabout.

The Compass Drive / Lockwood Road Intersection has two (2) approach lanes and two (2) departure lanes on the northern and southern (Compass Drive) approaches, and one (1) approach land and one (1) departure lane on the eastern and western (Lockwood Road approaches).

2.2.5 Lenore Drive / Compass Drive / Grady Crescent Intersection

The Lenore Drive / Compass Drive / Grady Crescent Intersection is a high-capacity four-way signalised intersection, with auxiliary right turn lanes and high-angle left turn treatments on all four approaches.

This intersection was recently upgraded as part of the delivery of Compass Drive.

2.3 Public Transport Services

The 835 bus service (operated by Transit Systems) travels along Lenore Drive, with bus stops located downstream of the Lenore Drive / Compass Drive / Grady Crescent Intersection (i.e. eastbound and westbound stops).

As shown in **Figure 2.3** below, this route travels between UWS Penrith and the Prairiewood T-way Station, with services at 15 – 30 minute headways during the morning and afternoon peak hours.

The subject site is therefore in relatively convenient proximity to existing public transport (bus) services, with the likelihood of additional bus services being introduced as development continues in the Erskine Park Employment Lands and the WSEA area more broadly.

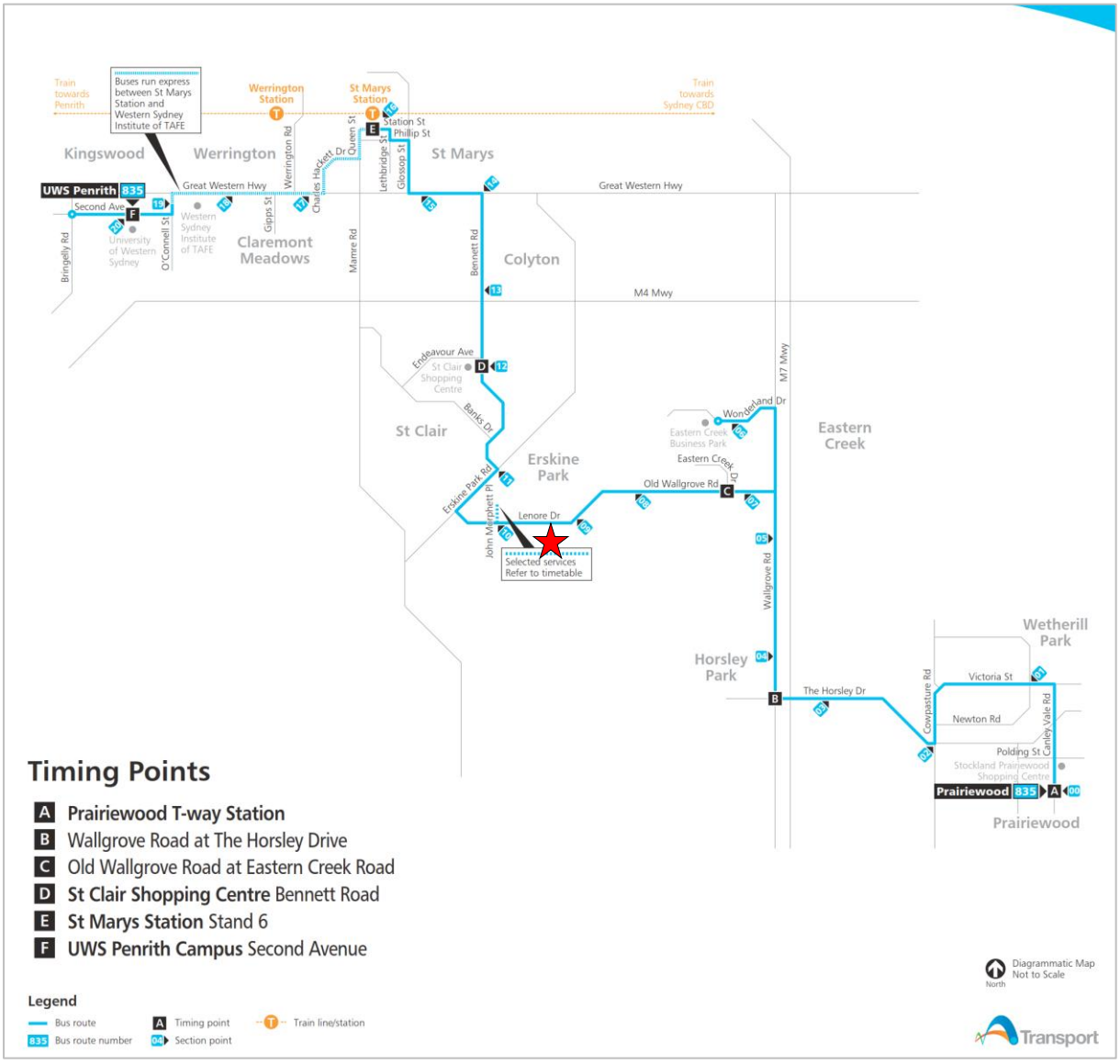

Figure 2.3: 835 Bus Route (Source: Transit Systems)

3.0 Proposal

This application is for an industrial development comprising two (2) warehouse buildings. The development will comprise a total of 65,813m^2 GFA across six (6) separate warehouses, as shown in the plans of the proposed development which are included for reference as **Appendix A** and the extract from the site plan which is included as **Figure 3** below.

The western building will be located to the rear (south) of the existing ACCO Brands Australia Warehouse at 68 – 84 Lockwood Road, and will accommodate two (2) warehouses (i.e. Lot 1A warehouse and Lot 1B warehouse). The eastern building will accommodate four (4) warehouses (i.e. Lots 2 – 5 warehouses).

The proposed development will be accessed via a common private driveway onto Lockwood Road, with a secondary access (for light vehicle traffic only) proposed onto Lockwood Road between Compass Drive and the proposed primary access driveway.

On-site parking for up to 374 cars is proposed, with substantial area for service vehicle manoeuvring, circulation and parking to support the operation of the warehouses.

The following sections of this report describe the traffic elements of the proposal in further detail, with reference to the requirements of the relevant standards and planning controls.

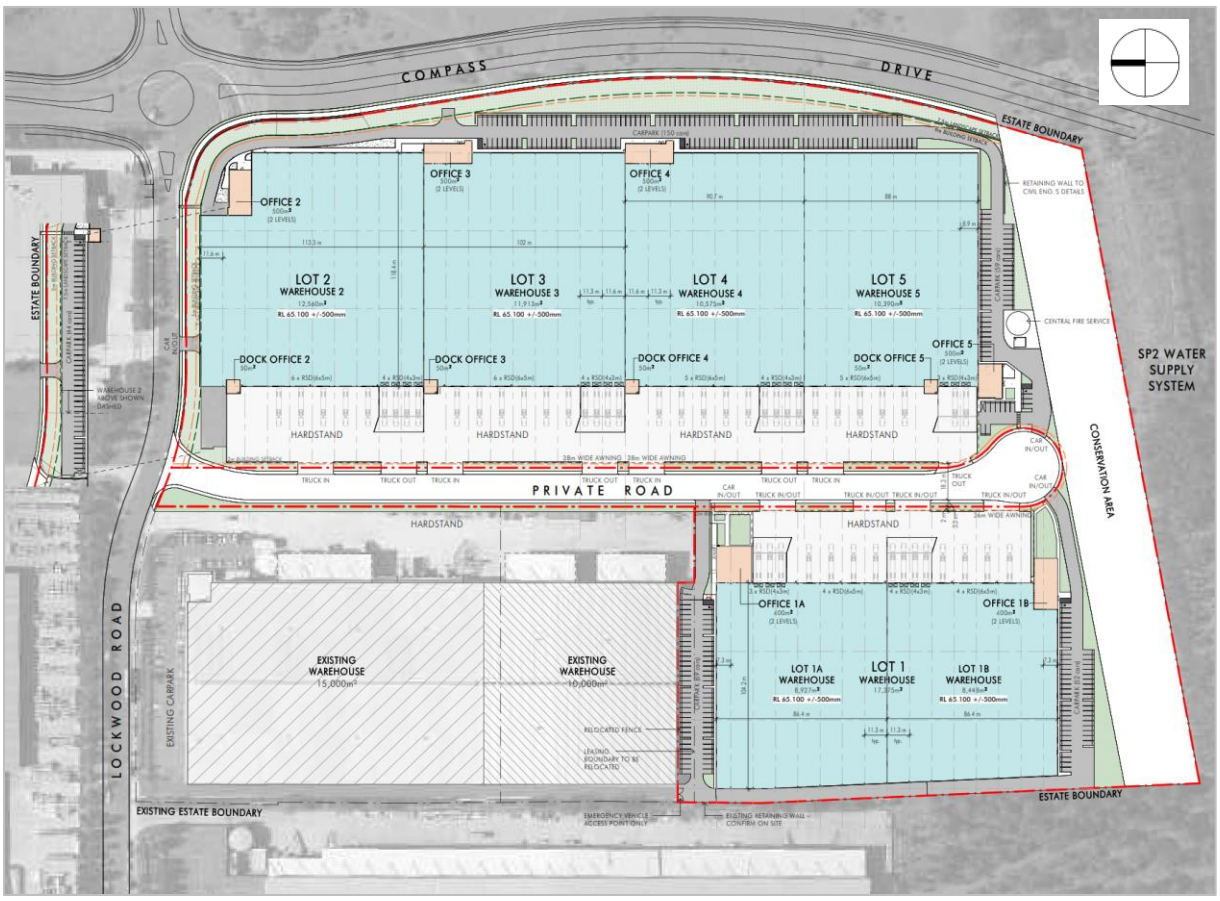

Figure 3: Extract from Site Plan

3.1 Vehicle Access and Circulation

As shown in the plans included as **Appendix A** and **Figure 3.1** below, the proposed development will be accessed via a common private driveway onto Lockwood Road, with a secondary access (for light vehicle traffic only) proposed onto Lockwood Road between Compass Drive and the proposed primary access driveway.

The intention of the site access arrangements is to separate heavy and light vehicle movements as much as practicable.

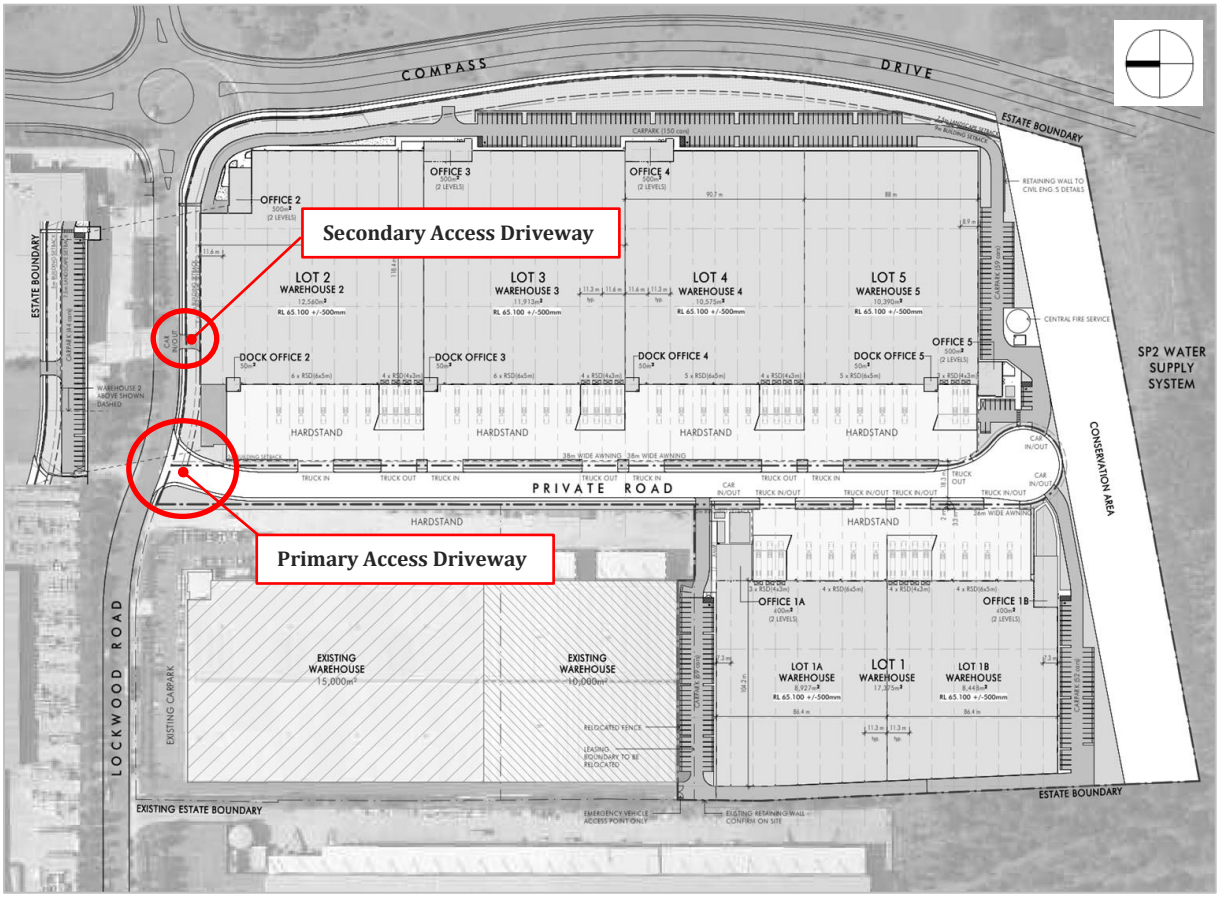

Figure 3.1: Site Access Driveways onto Public Road Network

The primary access driveway will provide for heavy vehicle access to all warehouses via the private road, and will also provide access to the car parking areas to the north of Lot 1A warehouse and to the south of Lot 1B warehouse. An additional access is proposed from the private road to the car parking area to the south of Lot 5 warehouse, however this area would also be accessible via the secondary (light vehicle) access driveway onto Lockwood Road, via the perimeter circulation road of the eastern building.

The primary access driveway is positioned approximately 150m to the west of the Compass Drive / Lockwood Road roundabout. It is approximately 22m wide at the Lockwood Road property boundary, and has been designed to accommodate the entry and exit movements of the largest vehicle expected to require access to the site (i.e. a 35.4m long B-triple combination vehicle), as shown in the vehicle tracking diagram included as **Appendix B**.

The gradient of this driveway does not exceed 1:20 for a minimum distance of 10m inside the Lockwood Road property boundary, in accordance with AS2890.2 requirements.

The proposed private roadway is 13m wide in order to comfortably cater for two-way heavy vehicle traffic flow. A cul de sac head of approximately 36m diameter is proposed at the termination of the private roadway in order to accommodate the u-turn manoeuvre of the largest vehicle expected to access the site (i.e. a 35.4m long B-triple combination vehicle), as shown in the vehicle tracking diagram included as **Appendix C**.

The secondary access driveway onto Lockwood Road is positioned approximately 95m to the west of the Compass Drive / Lockwood Road roundabout, and approximately 45m to the east of the primary access driveway. This driveway is for light vehicles only under typical operation, but would also accommodate emergency vehicle (i.e. fire truck) access if required, as shown in the vehicle tracking diagram included as **Appendix D**, which shows a 12.5m rigid vehicle turning to/from this driveway.

This secondary access driveway is approximately 7m wide at the property boundary, in accordance with the Driveway Category 2 requirements in AS2890.1 (i.e. 6.0m – 9.0m). As shown in the vehicle tracking diagram included as **Appendix E**, the proposed access driveway would comfortably accommodate two-way flow of light vehicle traffic.

In accordance with Penrith City Council's Standard Drawing SD1004 (Typical Vehicular Crossover), the gradient of this driveway does not exceed 1:8 within the road reserve, and 1:5 inside the property boundary. Furthermore, in accordance with AS2890.1 requirements, the gradient of the driveway does not exceed 1:40 where the driveway crosses the Lockwood Road footpath over a lateral distance of at least 1m.

The detail of the primary and secondary access driveways onto Lockwood Road would necessarily be in accordance with Penrith City Council's Standard Drawing SD1004 (Typical Vehicular Crossover). It is anticipated that this requirement could reasonably be addressed as a condition of the consent, at detailed design stage.

In accordance with the requirements of AS2890.1, it is recommended that the area adjacent to the exit side of both driveways (for a distance of 2m from the edge of the driveways and 2.5m inside the front boundary) be kept clear of any obstructions over 600mm in height, to ensure adequate visibility between pedestrians approaching the driveways on the Lockwood Road footpath, and vehicles exiting the site. It is anticipated that this requirement could reasonably be addressed as a condition of the consent, at detailed design stage.

Subject to the above, the proposed vehicular site access arrangements are considered to be acceptable from a traffic engineering perspective, and in accordance with the requirements of the relevant Australian Standards and/or Council's standard drawings.

3.2 Individual Lot Access

A series of internal driveways are proposed on the private road to provide heavy vehicle access to the hardstand areas fronting each warehouse. These driveways are approximately 18m wide in order to accommodate the entry and exit movements of the largest vehicle expected to access these hardstand areas (i.e. a 35.4m long B-triple combination vehicle), as shown in the vehicle tracking diagrams included as **Appendix F**.

Given pedestrian footpaths are proposed along each side of the private road, it is recommended that the areas adjacent to the exit driveways (for a distance of 2m from the edge of the driveways) be kept clear of any obstructions over 600mm in height, to ensure adequate visibility between pedestrians approaching the driveways on the footpath, and vehicles exiting the hardstand areas. It is anticipated that this requirement could reasonably be addressed as a condition of the consent, at detailed design stage.

3.3 Pedestrian Connectivity

Pedestrian footpaths are proposed to be provided within the road verges along the full public road frontages (i.e. along the Compass Drive frontage, and the Lockwood Road frontage), as shown in **Figure 3.3** below.

Footpaths are also proposed on each side of the private road and around the perimeter of the cul de sac.

A direct pedestrian connection is proposed from the Lockwood Road footpath to the northern end of the eastern building, with a pedestrian footpath extending along the eastern and southern sides of this building to provide access to the office components of the Lots 2 – 5 warehouses.

Direct pedestrian connections are also proposed from the private road to the parking areas and office components of the Lot 1A and Lot 1B warehouses.

In summary, the proposed pedestrian pathways (both external and internal to the site) would cater for pedestrian movements to/around the proposed development, and would separate pedestrian and vehicle movements to the greatest extent practicable.

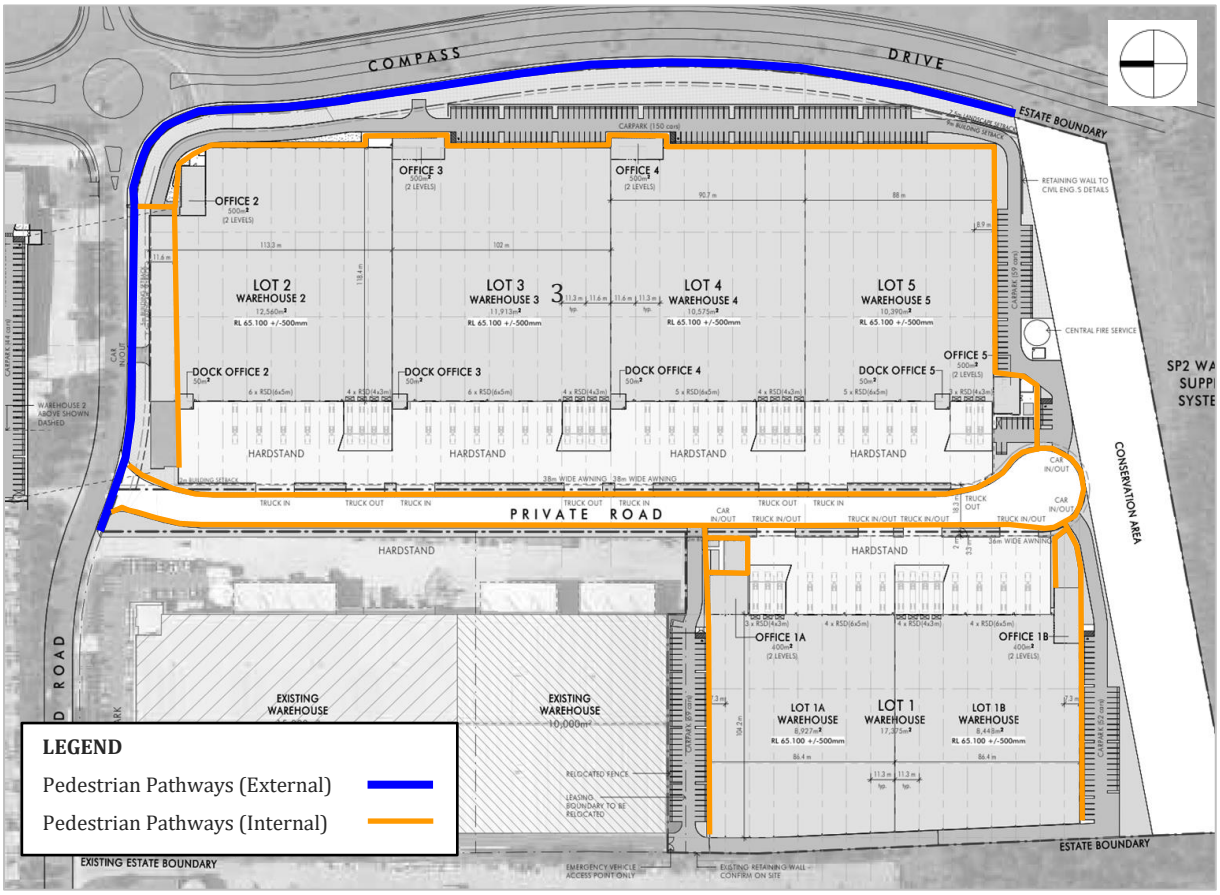

Figure 3.3: Pedestrian Connectivity

3.4 Car Parking Provision

The Penrith Development Control Plan (DCP) 2014 recommends a parking rate of 1 space per 100m^2 of gross floor area for warehouses or distribution centres, including ancillary office. The application of this parking rate to the proposed development (with a total building area of 65,813m^2) suggests a requirement of 659 parking spaces. However this level of on-site parking provision is considered to be extremely excessive given the nature of the proposed development, and the approved level of on-site parking provision at other similar recently approved development in proximity to the subject site, within the Erskine Park Employment Lands.

The parking rate provided in RTA Guide to Traffic Generating Developments for a warehouse development is 1 parking space per 300m^2 GFA. This parking rate takes into consideration the limited staffing requirements at warehouse developments (as opposed to other industrial developments such as factories), and is considered to be a more suitable parking rate for the development proposed, noting that technological advances in recent years have further reduced employee densities within warehouse developments. As a direct result of this, many of the existing industrial developments within the broader area provide a level of on-site car parking supply which significantly exceeds the demand generated by the tenants/ end users.

The application of this parking rate of 1 parking space per 300m^2 GFA to the proposed development suggests that a total of 220 parking spaces would be adequate to cater for the demand generated by the development.

However as shown in the plans included as **Appendix A**, a total of 374 parking spaces are proposed to be provided within at-grade car parking areas around the perimeter of the buildings. This level of on-site parking provision of approximately 1 space per 176m^2 substantially exceeds the minimum requirement for a warehouse development stipulated in the RTA Guide to Traffic Generating Developments (i.e. 1 space per 300m^2). Furthermore, the proposed parking provision exceeds the level of provision at other similar recently approved development within proximity to the subject site, within the Erskine Park Employment Lands.

Notwithstanding the above, in the unlikely event that the car parking demand exceeds the capacity of 374 vehicles, there is considerable hardstand area on the site within which additional cars could be accommodated, if necessary.

On the basis of the above, the proposed level of on-site parking is expected to be more than adequate based upon the nature and scale of the proposed development, its intended operation, and the precedent set by other similar recently approved development within proximity to the subject site, within the Erskine Park Employment Lands.

3.5 Accessible Car Parking

Council's DCP stipulates that accessible car spaces should be in accordance with the Access to Premises Standards, Building Code of Australia (BCA) and AS2890. The number of accessible parking spaces required is stipulated in the BCA, and is based upon the classifications of the buildings proposed. Based upon the principles of classification outlined in the BCA, the proposed buildings will be Class 7 buildings.

Table D3.5 of the BCA stipulates that for Class 7 buildings, the number of car parking spaces required for people with disabilities is 1 space for every 100 car parking spaces or part thereof.

Given 374 parking spaces are proposed to be provided, four (4) accessible parking spaces are required under the provisions of the BCA.

As shown in the plans included in **Appendix A**, one (1) accessible parking space is proposed in convenient proximity to the office of each warehouse, i.e. six (6) accessible parking spaces total. The proposal therefore meets the DCP and BCA requirements in this regard.

3.6 Parking Layout and Geometric Design

The key elements of the car parking area configurations as shown in the plans included as **Appendix A** and/or the relevant design requirements can be summarised as follows:

- Standard car parking spaces are 2.5m in width and 5.4m in length, exceeding the minimum dimensional requirements stipulated in AS2890.1 for User Class 1 (low turnover) parking bays at 90° (i.e. 2.4m x 5.4m minimum);
- Parking aisles are typically 6.2m in width (minimum), exceeding the dimensional requirement stipulated in AS2890.1 for User Class 1 (low turnover) parking areas (i.e. 5.8m minimum);
- The accessible parking spaces are 2.4m wide and 5.4m long with 2.4m wide adjacent shared areas, meeting the minimum dimensional requirements stipulated in AS2890.6. The gradient across these parking spaces and shared areas is not to exceed 1:33 – 1:40 (depending upon whether a bituminous or surface is used);
- The gradient across the width of standard parking spaces is not to exceed 1:16, and along the length of standard parking spaces is not to exceed 1:20, in accordance with AS2890.1 requirements; and
- Terminated aisle extensions exceed 1m in length as required under the provisions of AS2890.1, for satisfactory manoeuvring to/from the parking spaces at the end of the terminated aisles.

In the car parking module to the north of the eastern building, the positions of the columns supporting the building above will need to be adjusted slightly (to the north) to ensure they are clear of the door opening zone (as defined in Figure 5.2 of AS2890.1) for vehicles parked in adjacent parking spaces. This requirement could reasonably be addressed as a condition of the consent, at detailed design stage.

In summary, the design of the parking areas is efficient and legible, and generally in accordance with the requirements of the relevant Australian Standards subject to refinement at detailed design stage.

3.7 Servicing Arrangements

As previously noted, a series of internal driveways are proposed on the private road to provide heavy vehicle access to the hardstand areas fronting each warehouse. These driveways are approximately 18m wide in order to accommodate the entry and exit movements of the largest vehicle expected to access these hardstand areas (i.e. a 35.4m long B-triple combination vehicle), as shown in the vehicle tracking diagrams included as **Appendix F**.

It is understood that once these combination vehicles are positioned within the hardstand areas, trailers will be unhitched and repositioned, to facilitate reverse manoeuvres to loading areas if required. The largest vehicle which will be reversed into a loading dock position is a 20m long articulated vehicle.

The vehicle tracking diagrams included as **Appendix G** show manoeuvring of a vehicle of this size to/from critical loading bay positions on the site.

The gradient of the hardstand areas and the ramps down to the recessed loading docks meet the requirements of AS2890.2, as does the gradient within the loading bays (i.e. maximum 4% required).

Overall, the servicing arrangements are considered to be appropriate given the scale and nature of the proposed development. Importantly, the proposed access and servicing arrangements allow for considerable separation of light and heavy vehicle traffic within the site, which is a highly desirable design outcome.

4.0 Traffic Impact Assessment

An assessment of the traffic impact of the proposal has been undertaken considering the data outlined in the RMS Technical Direction TDT 2013/04a (Guide to Traffic Generating Developments - Updated traffic surveys). This document provides recorded peak hour trip generation rates for various business parks and industrial estates, with the recorded trip generation rate for the site within the Erskine Park being 0.163 trips / 100m^2 in the peak hour.

The application of this trip generation rate to the proposed development (65,813m^2 building area) suggests that it may generate a total of 108 vehicle trips in the peak hour.

This forecast level of traffic generation is equivalent to fewer than two (2) additional vehicle trips per minute, on average, during the peak hour. This level of traffic generation is low, and once distributed onto the surrounding road network, would be unlikely to have a notable impact upon the performance of the intersections in proximity to the development (many of which have recently been constructed or upgraded, and are therefore operating well within acceptable capacity limits).

Furthermore, the following points should be noted:

- The additional vehicle trips would be distributed onto the arterial road network via at least two signalised intersections, including the existing intersection of Lenore Drive / Templar Road (to the west of the site), and the new Grady Crescent / Compass Drive intersection with Lenore Drive (to the east of the site). Given this distribution of site-generated traffic, the impact of the additional trips upon the operation of these intersections is not expected to be significant; and
- Importantly, as part of the design development for the Erskine Park Link Road (now known as Lenore Drive), a peak hour traffic generation rate of 15 trips per hectare was assumed for development in the area. Based upon the overall site area of 13.2117 hectares, this equates to an assumed trip generation of 200 vehicle trips in the peak hours. The predicted trip generation based upon the scale and nature of the specific development proposed is notably lower than this (i.e. 108 vehicle trips in the peak hours), therefore it is assumed that the traffic impact of the development has been accounted for as part the road network planning for the area.

In light of the above, no unacceptable impact upon the performance of the surrounding road network is anticipated as a result of the development, and no external roadworks are considered to be required to support the development from a capacity perspective.

5.0 Recommendation

In light of the information contained within this report, it is considered that the proposal is satisfactory from a traffic operations perspective, and it is recommended that the development application be approved from a traffic engineering perspective.

5.1 Qualifications

This report has been prepared and/or approved by:

Anne Coutts
Director, InRoads Group
BECivil | CPEng | MIEAust | NER | MAITPM

APPENDIX A

Plans of Proposed Development

Key Plan

0 20000 50000

Issue	Description	Date
8	Issue for DA	14.07.2021
7	Issue for DA	07.07.2021
6	Preliminary Issue	21.05.2021
5	Preliminary Issue	27.04.2021
4	Preliminary Issue	16.04.2021
3	Preliminary Issue	30.03.2021
2	Preliminary Issue	29.03.2021
1	Preliminary Issue	19.03.2021

AREA SCHEDULE

SITE AREA	132,117m²
CONSERVATION AREA	12,867m²
ROAD RESERVE	9,537m²
DEVELOPABLE AREA	109,713m²

LOT 1	18,175m²
WAREHOUSE	17,375m²
OFFICE	800m²
LOT 2	13,110m²
WAREHOUSE	12,560m²
OFFICE	550m²
LOT 3	12,463m²
WAREHOUSE	11,913m²
OFFICE	550m²
LOT 4	11,125m²
WAREHOUSE	10,575m²
OFFICE	550m²
LOT 5	10,940m²
WAREHOUSE	10,390m²
OFFICE	550m²
TOTAL GROSS LEASING AREA	65,813m²

PARKING SCHEDULE

PROPOSED (incl. 6 accessible carparkings)	374

1 Estate Plan
1 : 1000

Client
Fitzpatrick Investments

Builder

Project Name
FITZPATRICK INDUSTRIAL ESTATE

Project Address
Lockwood Road, Erskine Park

Drawing Title
Estate Plan

Author:	Checker:	Sheet Size:	Scale:
JJ	NG	A1	1:1000

Drawing Number: **11901_DA002** Issue: **8**

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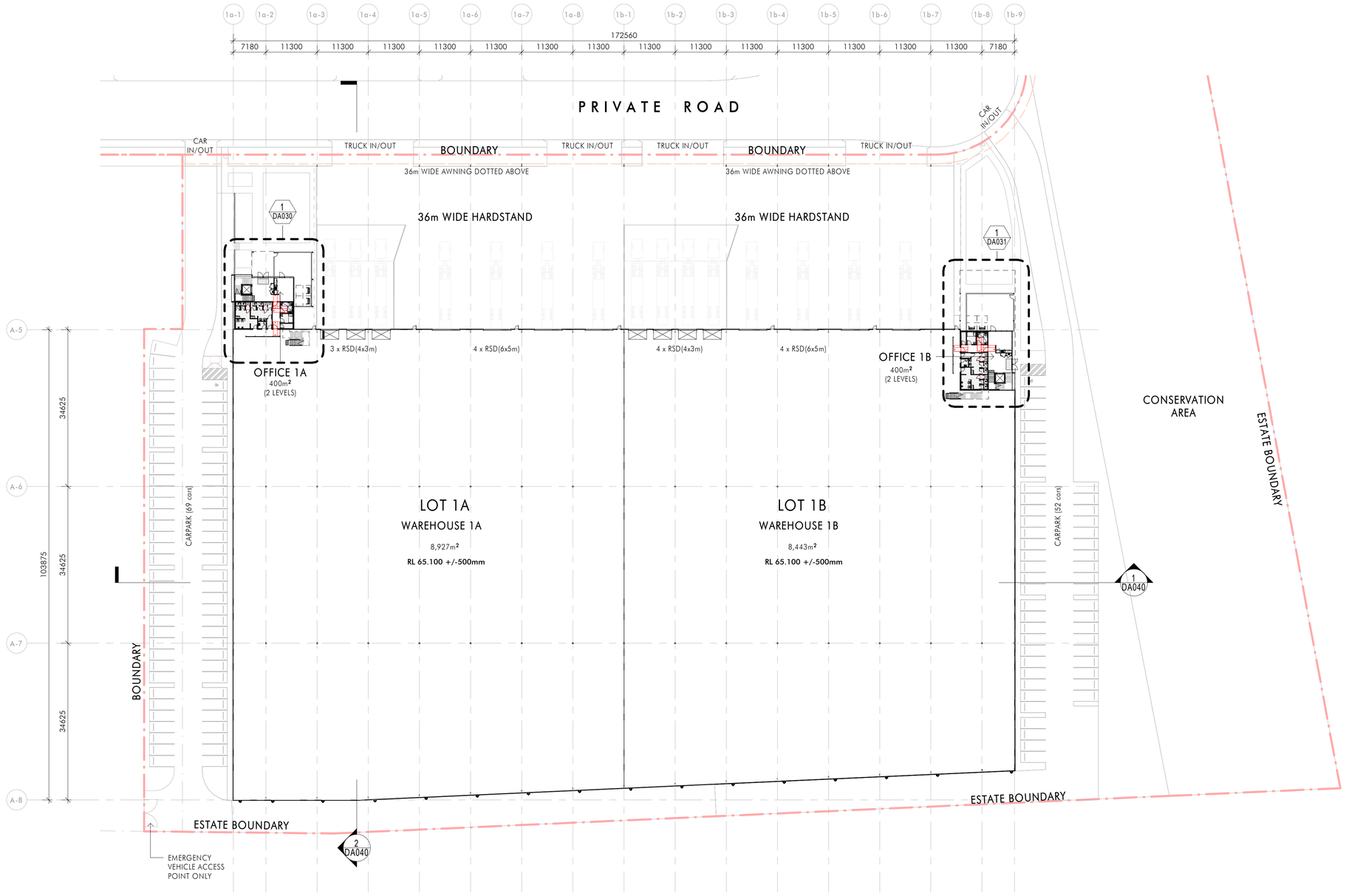
Key Plan

0 10000 25000

Issue	Description	Date
2	Issue for DA	14.07.2021
1	Issue for DA	07.07.2021



1 Ground Floor Plan - LOTS 1A & 1B
1 : 500

Client

Fitzpatrick Investments

Builder

Project Name
FITZPATRICK INDUSTRIAL ESTATE

Project Address
Lockwood Road, Erskine Park

Drawing Title
Ground Floor Plan - LOTS 1A & 1B

Author:	Checker:	Sheet Size:	Scale:
JJ	NG	A1	1:500

Drawing Number: **11901_DA011**

Issue: **2**

nettleton tribe

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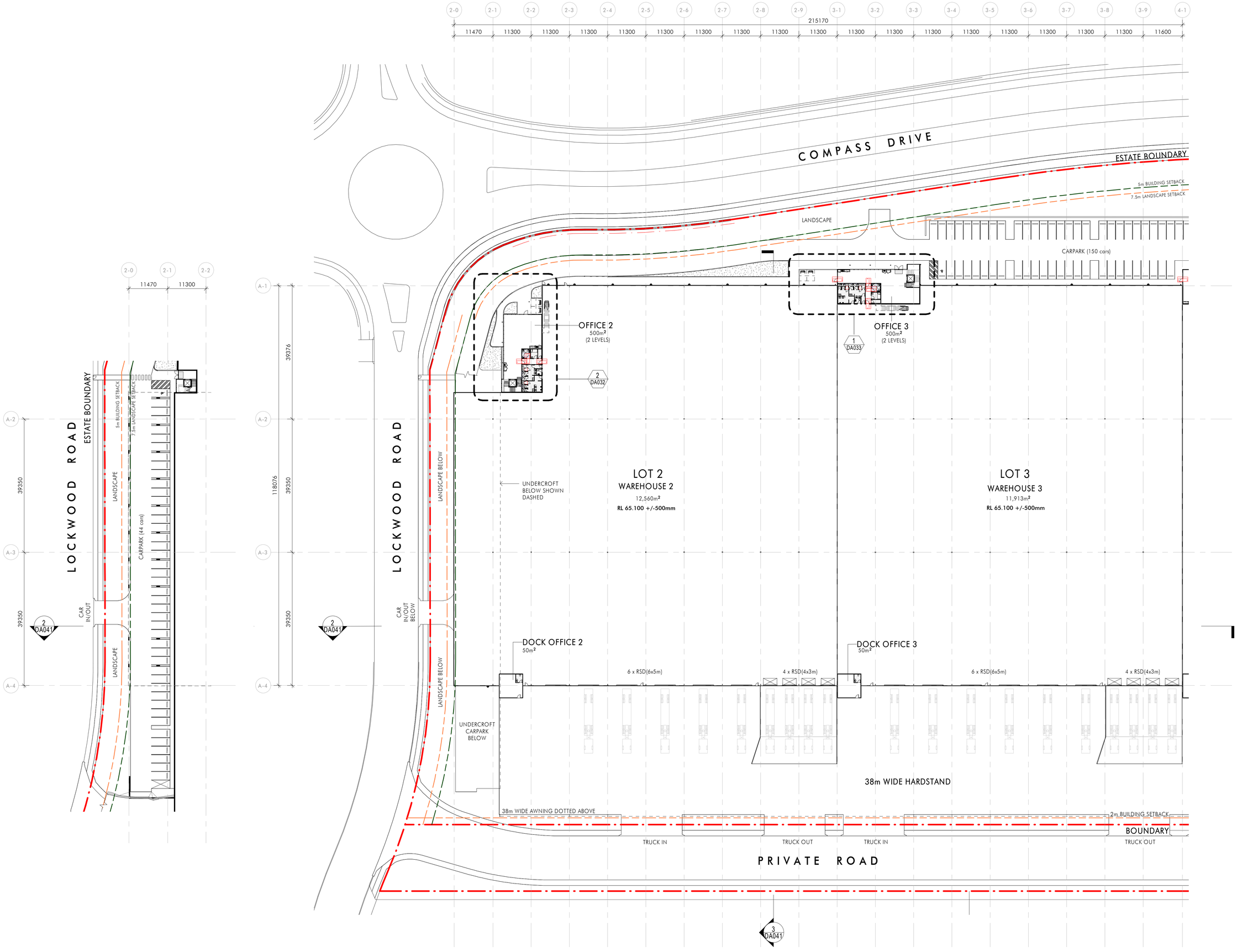
Key Plan

0 10000 25000

Issue	Description	Date
3	Issue for DA	14.07.2021
2	Issue for DA	07.07.2021
1	Preliminary Issue	19.03.2021



1 Undercroft Floor Plan - LOT 2
1 : 500

2 Ground Floor Plan - LOTS 2 & 3
1 : 500

Client
Fitzpatrick Investments

Builder

Project Name
FITZPATRICK INDUSTRIAL ESTATE

Project Address
Lockwood Road, Erskine Park

Drawing Title
Ground Floor Plan - LOTS 2 & 3

Author:	Checker:	Sheet Size:	Scale:
JJ	NG	A1	1:500

Drawing Number: **11901_DA012** Issue: **3**

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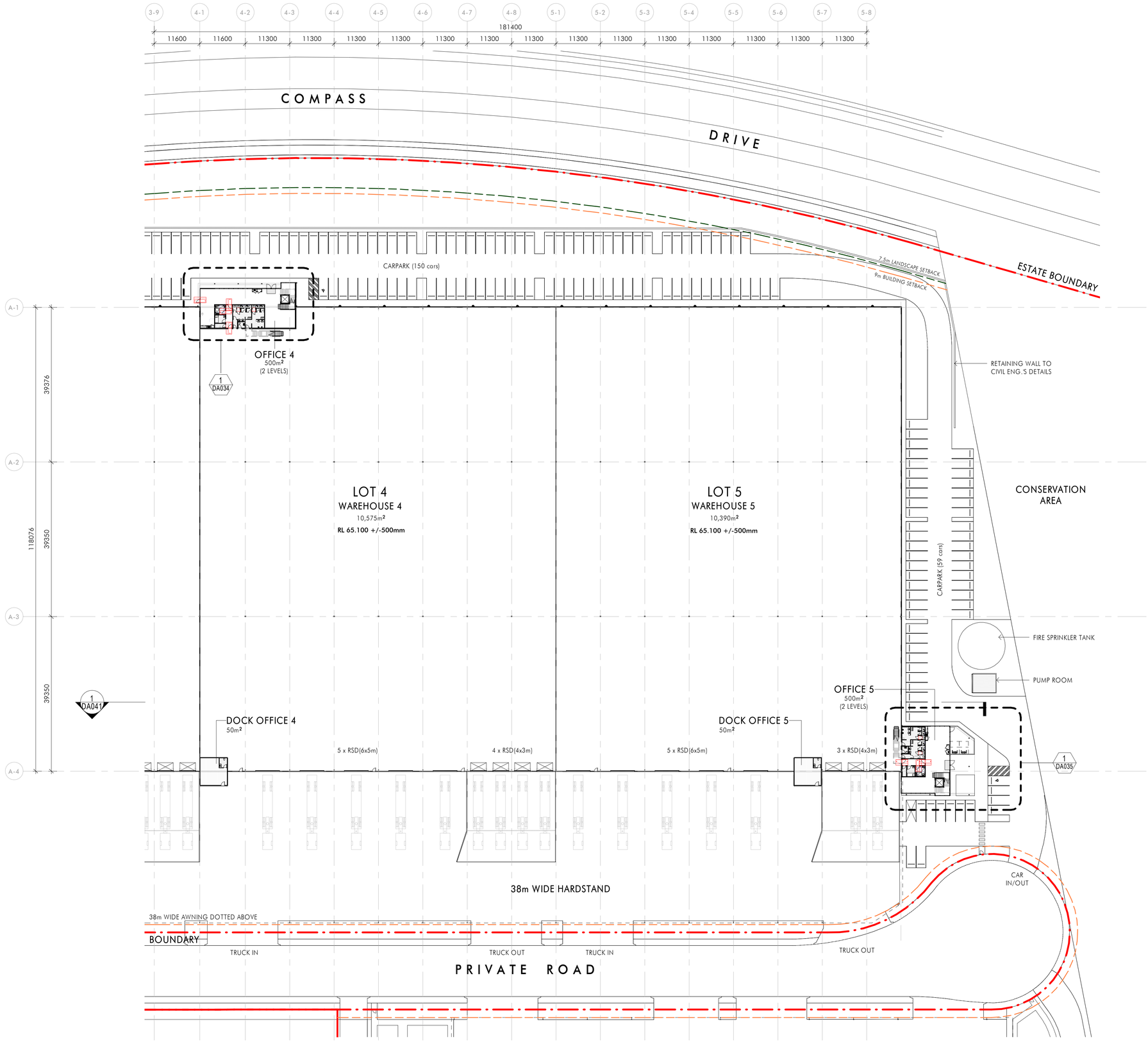
Key Plan

0 10000 25000

Issue	Description	Date
2	Issue for DA	14.07.2021
1	Issue for DA	07.07.2021



1 Ground Floor Plan - LOTS 4 & 5
1 : 500

Client

Fitzpatrick Investments

Builder

Project Name
FITZPATRICK INDUSTRIAL ESTATE

Project Address
Lockwood Road, Erskine Park

Drawing Title
Ground Floor Plan - LOTS 4 & 5

Author:	Checker:	Sheet Size:	Scale:
JJ	NG	A1	1:500

Drawing Number: **11901_DA013** Issue: **2**

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LEGEND

- SITE BOUNDARY
- 63.30 — CONTOUR
- BATTER
- RW — BLOCKWORK RETAINING WALL
- RW — CONTIGUOUS PILE RETAINING WALL
- K&G — KERB AND GUTTER
- DD — DISH DRAIN
- LBK — LAYBACK
- FFL 98.00 — FINISHED FLOOR LEVEL
- ● F — FINISHED LEVEL
- SWALE DRAIN
- 375 — PIPE SIZE STORMWATER DRAINAGE LINE FLOW DIRECTION
- A01/01 — STORMWATER LINE/PIT NUMBER
- KERB INLET PIT
- SURFACE INLET PIT/JUNCTION PIT
- GTD — GRATED TRENCH DRAIN

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF	APPD.
3	16/07/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
2	29/06/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
1	19/04/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH

Client: Fitzpatrick Investments

Scale: 0 10 20 30 40 50m — SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd
205/275 Alfred Street N, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project: ERSKINE PARK INDUSTRIAL ESTATE
LOCKWOOD ROAD, ERSKINE PARK
DEVELOPMENT APPLICATION

Title: SITEWORKS AND STORMWATER MANAGEMENT PLAN
SHEET 01

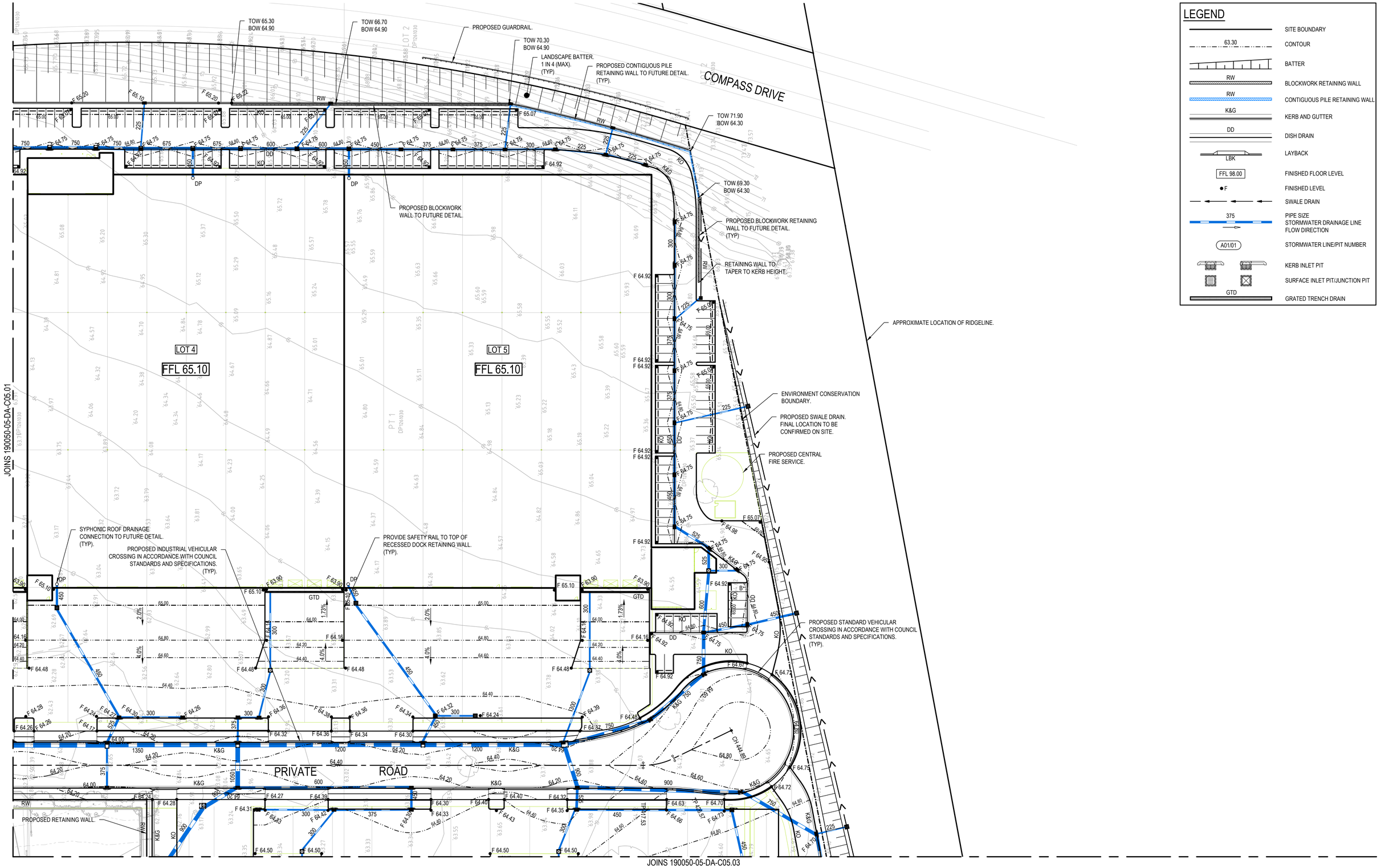
Scale: 1:500
Date: 19/04/2021
Size: A1
Datum: MGA2020

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 190050-05-DA-C05.01
Revision: 3

DATE PLOTTED: 16 July 2021 2:08 PM BY : CAITLIN BEHETS

CAD File: P:\190050 ErskinePark\D-Civil\05-Grady Crescent\Drawings\6-DACC\190050-05-DA-C05.01-C05.03 SITEWORKS AND STORMWATER MANAGEMENT.dwg



LEGEND

- SITE BOUNDARY
- 63.30 — CONTOUR
- BATTER
- RW — BLOCKWORK RETAINING WALL
- RW — CONTIGUOUS PILE RETAINING WALL
- K&G — KERB AND GUTTER
- DD — DISH DRAIN
- LBK — LAYBACK
- FFL 98.00 — FINISHED FLOOR LEVEL
- ●F — FINISHED LEVEL
- SWALE DRAIN
- 375 — PIPE SIZE STORMWATER DRAINAGE LINE FLOW DIRECTION
- A01/01 — STORMWATER LINE/PIT NUMBER
- KERB INLET PIT
- SURFACE INLET PIT/JUNCTION PIT
- GTD — GRATED TRENCH DRAIN

REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
3	16/07/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
2	29/06/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
1	19/04/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH

Client: Fitzpatrick Investments

Scale: 0 10 20 30 40 50m — SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd
205/275 Alfred Street N, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project: ERSKINE PARK INDUSTRIAL ESTATE
LOCKWOOD ROAD, ERSKINE PARK
DEVELOPMENT APPLICATION

Scale: 1:500

Date: 19/04/2021

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

Title: SITEWORKS AND STORMWATER MANAGEMENT PLAN
SHEET 02

Size: A1

Datum: MGA2020

Project Number/Drawing Number: 190050-05-DA-C05.02

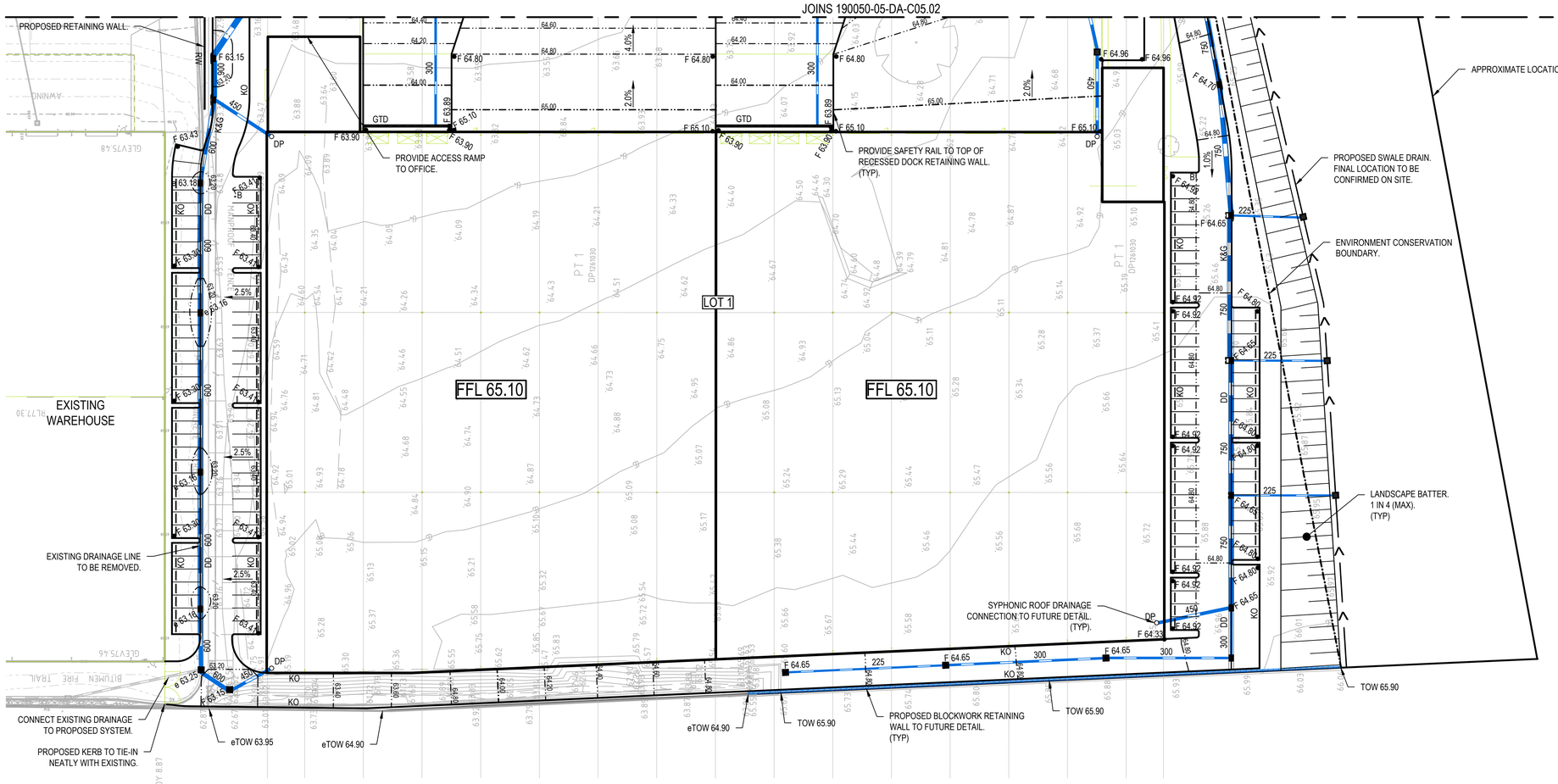
Revision: 3

DATE PLOTTED: 16 July 2021 2:08 PM BY : CAITLIN BEHETS

CAD File: P:\190050 ErskinePark\D-Civil\05-Grady Crescent\Drawings\6-DACC\190050-05-DA-C05.01-C05.03 SITEWORKS AND STORMWATER MANAGEMENT.dwg

Document Set ID: 9789128
Version: 1, Version Date: 01/11/2021

JOINS 190050-05-DA-C05.02



LEGEND

- SITE BOUNDARY
- 63.30 — CONTOUR
- BATTER
- RW — BLOCKWORK RETAINING WALL
- RW — CONTIGUOUS PILE RETAINING WALL
- K&G — KERB AND GUTTER
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- SURFACE INLET PIT/JUNCTION PIT
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REV.	DATE	DESCRIPTION	DRN.	DES.	VERIF.	APPD.
3	16/07/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
2	29/06/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH
1	19/04/2021	ISSUED FOR DEVELOPMENT APPLICATION	CB	DL		MKH

Client: Fitzpatrick Investments

Scale: 0 10 20 30 40 50m — SCALE 1:500 @A1

North

Enspire Solutions Pty Ltd
205/275 Alfred Street N, North Sydney NSW 2060
ABN: 71 624 801 690
Phone: 02 9922 6135

Project: ERSKINE PARK INDUSTRIAL ESTATE
LOCKWOOD ROAD, ERSKINE PARK
DEVELOPMENT APPLICATION

Title: SITEWORKS AND STORMWATER MANAGEMENT PLAN
SHEET 03

Scale: 1:500
Date: 19/04/2021
Size: A1
Datum: MGA2020

Status: FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

Project Number/Drawing Number: 190050-05-DA-C05.03

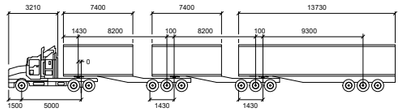
Revision: 3

DATE PLOTTED: 16 July 2021 2:08 PM BY : CAITLIN BEHETS

CAD File: P:\190050 ErskinePark\D-Civil\05-Grady Crescent\Drawings\6-DACC\190050-05-DA-C05.01-C05.03 SITEWORKS AND STORMWATER MANAGEMENT.dwg

APPENDIX B

Vehicle Tracking Diagram – Primary Access Driveway



B-TRIPLE

mm

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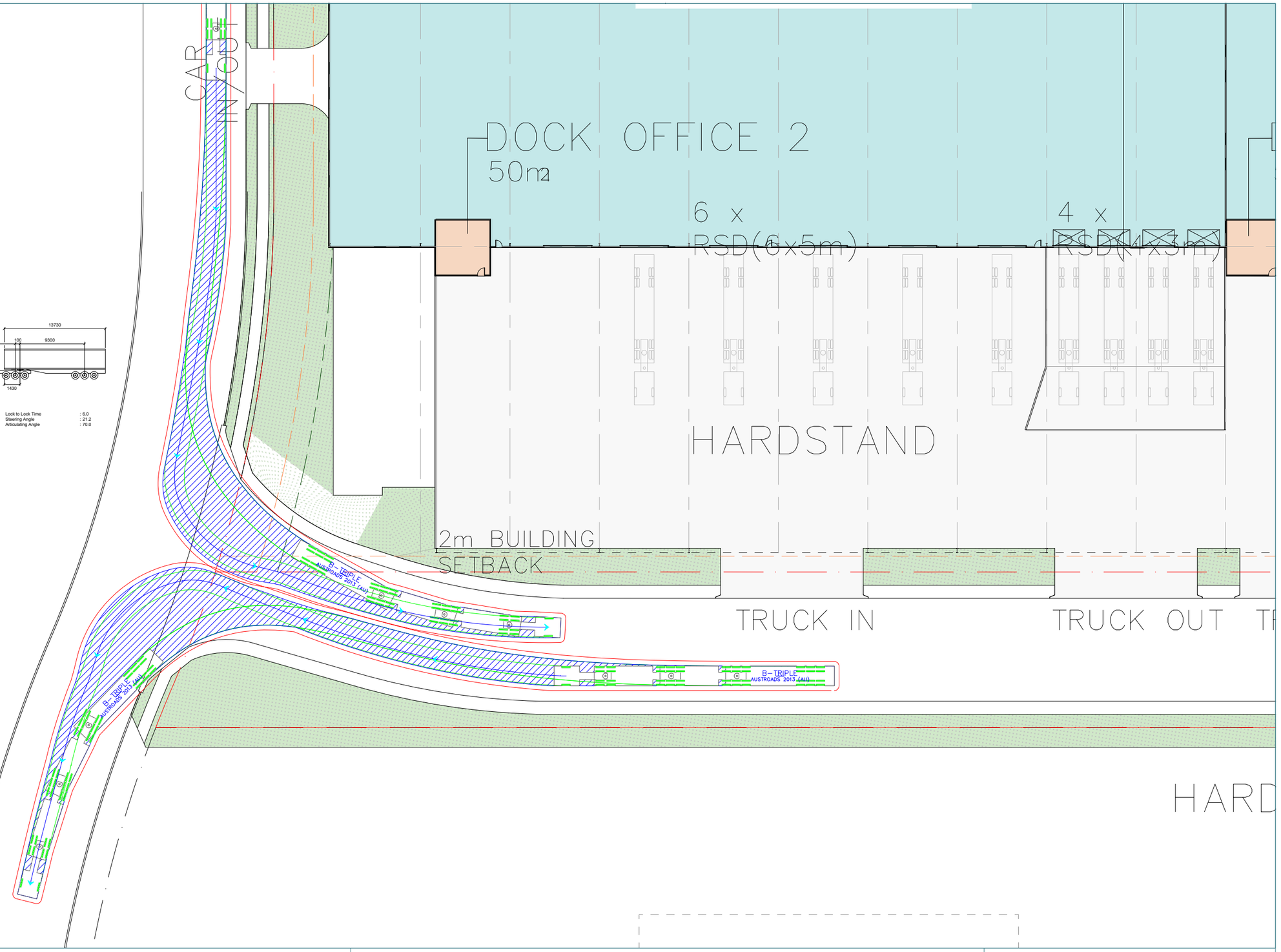
Trailer Width	: 2500	Steering Angle	: 21.2
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		



INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project Fitzpatrick Industrial Estate

drawing title Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG01	D	19/08/2021	1:500 @ A3

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APPENDIX C

Vehicle Tracking Diagram – Cul de Sac

DOCK OFFICE 5
50m2
(2 LEVELS)

4 x RSD(4x3m)

5 x RSD(6x5m)

3 x RSD(4x3m)

HARDSTAND

TRUCK OUT

TRUCK IN

B-TRIPLE
AUSTROADS 2013 (AU)

B-TRIPLE
AUSTROADS 2013 (AU)

TRUCK IN/OUT

TRUCK IN/OUT

TRUCK IN/OUT

TRUCK IN/OUT

TRUCK IN/OUT

CAR IN/OUT

CAR IN/OUT

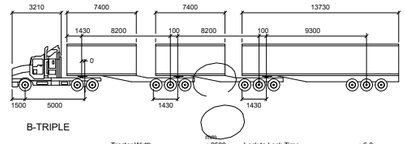
CONSERVATION AREA

HARDSTAND

36m WIDE AWNING

2 EA

3.5 EA



B-TRIPLE

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 21.2
Tractor Track	: 2500	Articulating Angle	: 70.0
Trailer Track	: 2500		

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project: Fitzpatrick Industrial Estate

drawing title: Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG02	D	19/08/2021	1:500 @ A3

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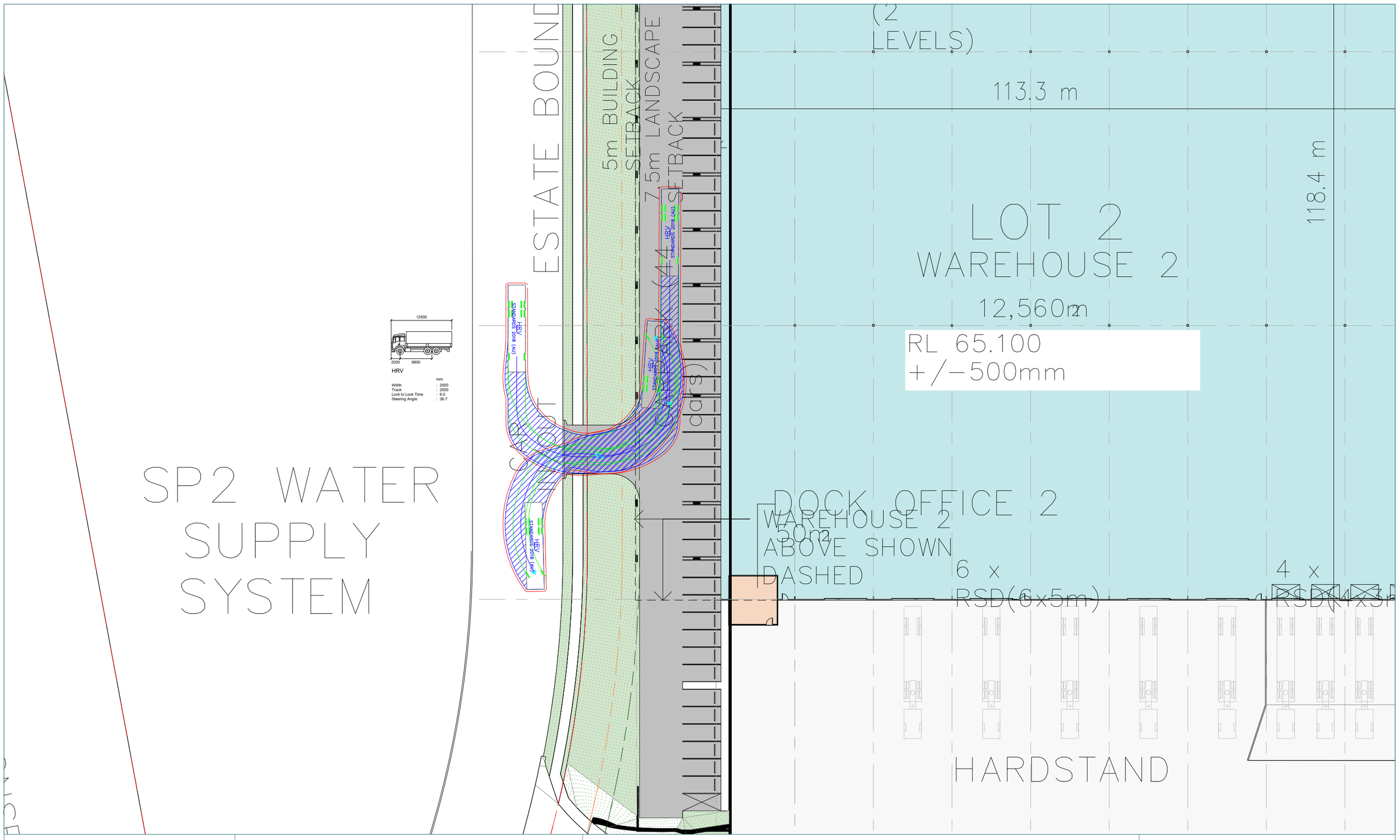
APPENDIX D

Vehicle Tracking Diagram – Secondary Access Driveway (Emergency Vehicle)



INROADS:GROUP

drawing prepared by

InRoads Group

PO Box 596
Potts Point NSW 1335

ABN: 25 608 559 897

project	Fitzpatrick Industrial Estate
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG03	D	19/08/2021	1:500 @ A3

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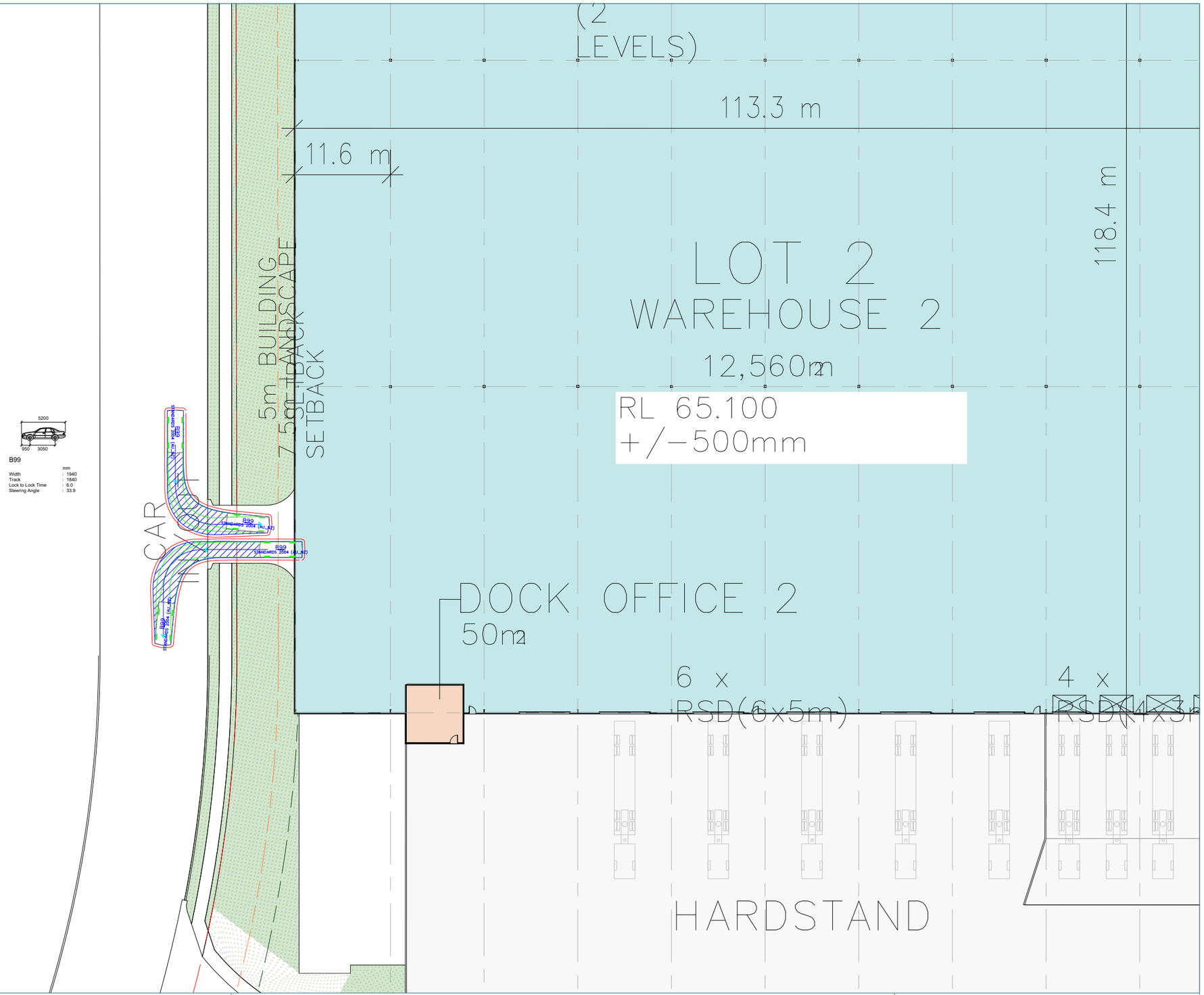
APPENDIX E

Vehicle Tracking Diagram – Secondary Access Driveway (Light Vehicles)



B99

	mm
Width	: 1940
Track	: 1840
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

INROADS:GROUP

drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project	Fitzpatrick Industrial Estate
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG04	D	19/08/2021	1:500 @ A3

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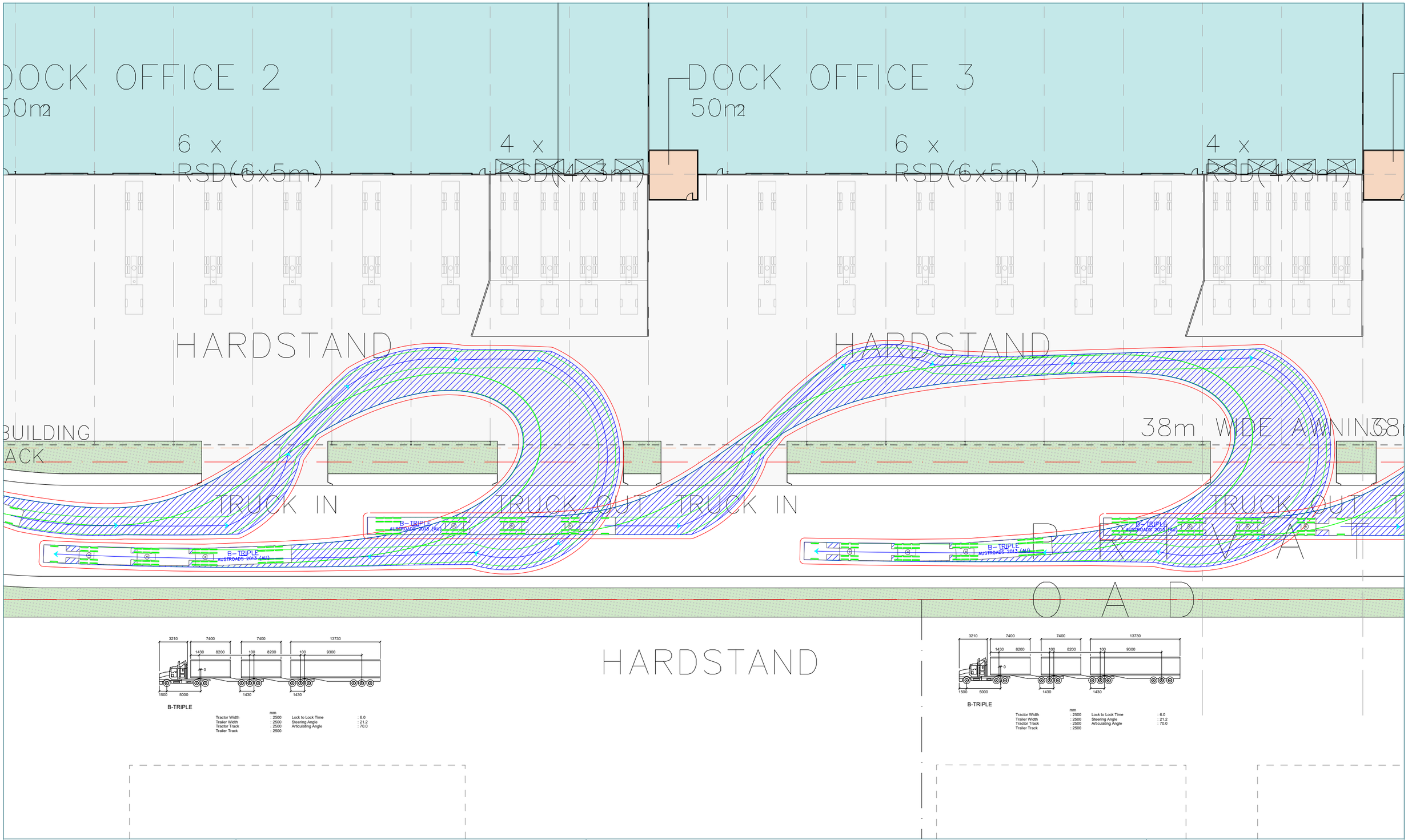
APPENDIX F

Vehicle Tracking Diagrams – Individual Lot Access (Heavy Vehicles)



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drawing prepared by

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PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project	Fitzpatrick Industrial Estate
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG05a	D	19/08/2021	1:500 @ A3

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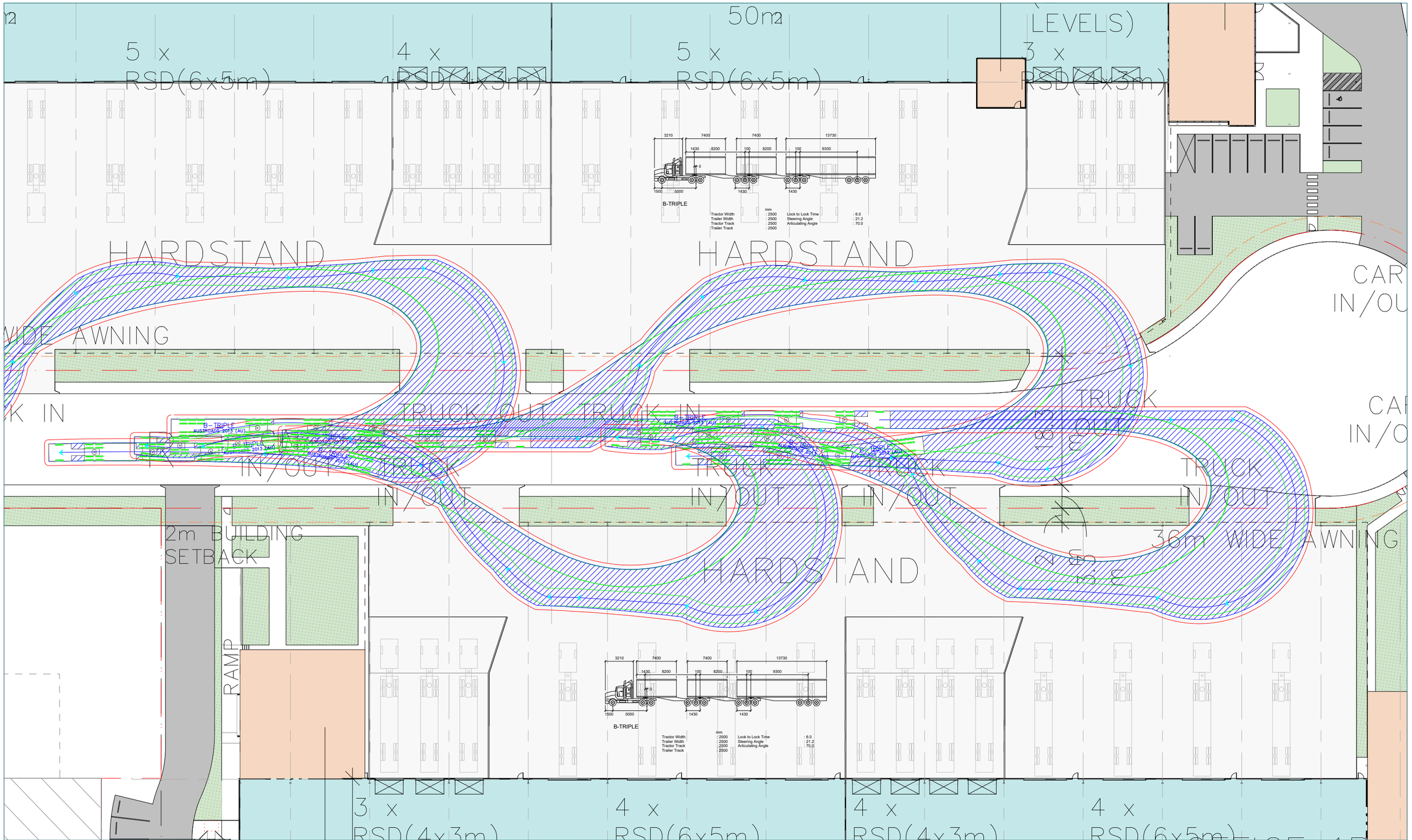

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drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project	Fitzpatrick Industrial Estate
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG05b	D	19/08/2021	1:500 @ A3

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APPENDIX G

Vehicle Tracking Diagrams – Loading Bay/Dock Manoeuvring

DOCK OFFICE 2
50m2

6 x
RSD(6x5m)

4 x
RSD(4x3m)

DOCK OFFICE 3
50m2

6 x
RSD(6x5m)

4 x
RSD(4x3m)

HARDSTAND

HARDSTAND

BUILDING
ACK

38m WIDE AWNING

TRUCK IN

TRUCK OUT

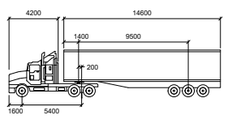
TRUCK IN

TRUCK OUT

P R I V A T E

O A D

HARDSTAND



AV

mm

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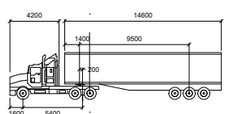
Tractor Track	: 2500	Articulating Angle	: 72.0
Trailer Track	: 2500		



AV

mm

Tractor Width	: 2500	Lock to Lock Time	: 6.0
Trailer Width	: 2500	Steering Angle	: 28.3
Tractor Track	: 2500	Articulating Angle	: 72.0
Trailer Track	: 2500		

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drawing prepared by

InRoads Group
PO Box 596
Potts Point NSW 1335
ABN: 25 608 559 897

project	Fitzpatrick Industrial Estate
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
20-014	DWG06a	D	19/08/2021	1:500 @ A3

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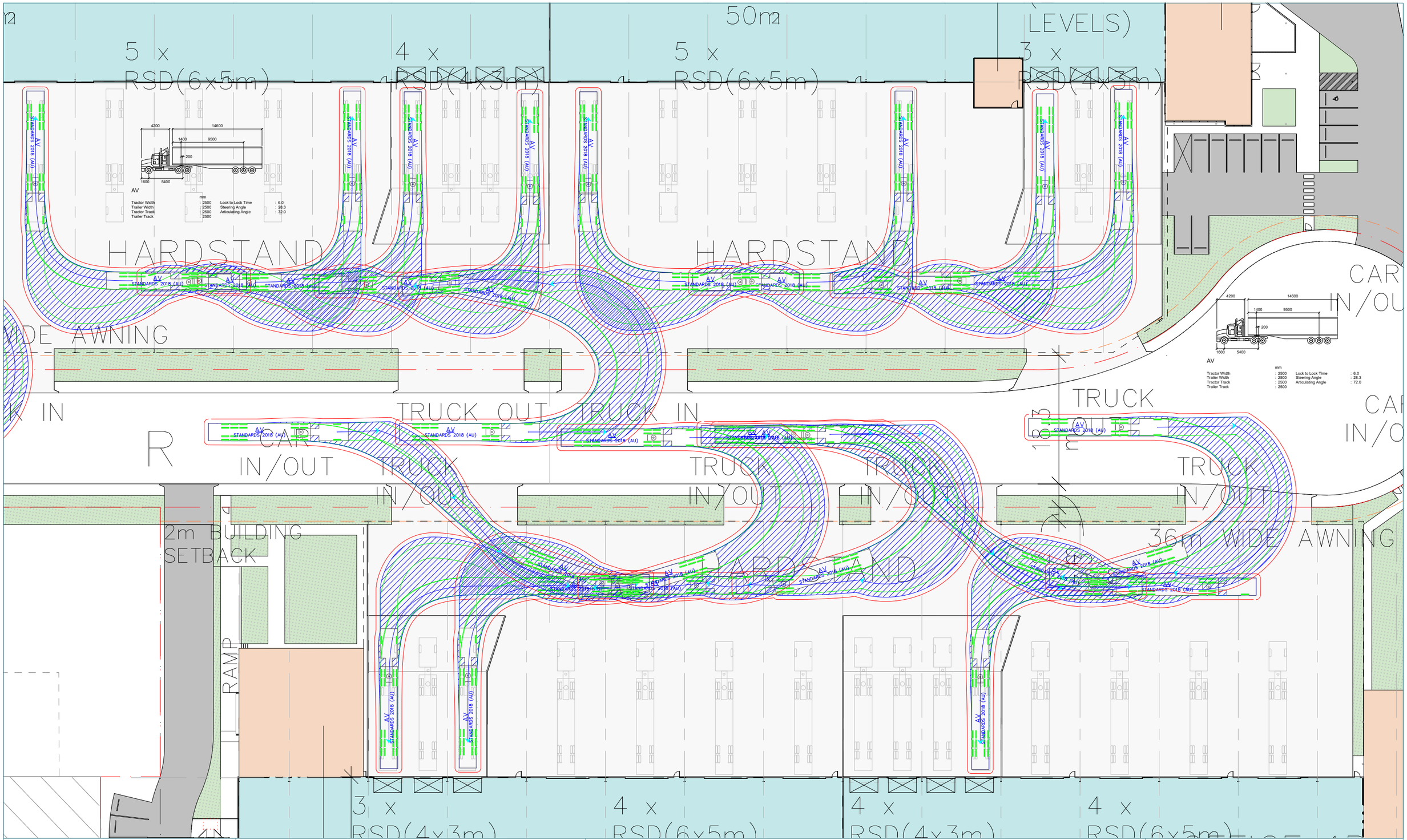

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drawing prepared by

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Potts Point NSW 1335
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project	Fitzpatrick Industrial Estate
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project no.	drawing no.	revision	date	scale
20-014	DWG06b	D	19/08/2021	1:500 @ A3

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