College Drive, Flagstone

Traffic Impact Assessment

BITZIOS consulting
traffic engineering transport planning

Lodge Management Platform Pty Limited

10 October 2024

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

Document Issue History

Report File Name	Version	Document Control			Date	Issued to
P6519.001R College Dr Flagstone TIA	001	Prepared: Reviewed: Issued	J. Kirkham R. Trotman R. Trotman		16/07/2024	John Bolton via email
P6519.002R College Dr Flagstone TIA	002	Prepared: Reviewed: Issued	J. Kirkham R. Trotman R. Trotman		25/07/2024	John Bolton via email
P6519.003R College Dr Flagstone TIA	003	Prepared: Reviewed: Issued	J. Kirkham R. Trotman R. Trotman		25/07/2024	John Bolton via email
P6519.004R College Dr Flagstone TIA	004	Prepared: Reviewed: Issued	J. Kirkham R. Trotman R. Trotman		02/10/2024	John Bolton via email
P6519.005R College Dr Flagstone TIA	005	Prepared: Reviewed: Issued	J. Kirkham R. Trotman R. Trotman		10/10/2024	Matt Fredrick via email

CONTENTS

Tables

Figures

Appendices

1. INTRODUCTION

1.1 Overview

Lodge Management Platform Pty Limited (the applicant) has commissioned Bitzios to provide traffic engineering services in relation to the proposed Other Residential (Land Lease Community) development at College Drive, Flagstone (subject site).

The subject site is formally described as Lot 50028 on SP342150 and is located within the Logan City Council (Council) Local Government Area (LGA). Importantly, the subject site is located within the Greater Flagstone Priority Development Area (Flagstone PDA).

The ultimate yield of the proposed development is yet to be determined, with the estimated yield range between 280 and 310 dwelling units, with ancillary community facilities. It is understood that the final yield will be determined based on the number of different lot types selected based on market demand at the time of development. Therefore, this Traffic Impact Assessment has considered the highest estimated yield of 310.

It is understood that the intended use for the subject site was low density residential. Noting that the Flagstone PDA has a dwelling density of 15 dwellings per hectare, it can be assumed that the subject site would have yielded approximately 180 low density dwelling. This figure has been used as a benchmark where applicable.

The traffic engineering aspects of the development have been assessed against the requirements of the Greater Flagstone PDA Development Scheme. Where the scheme is silent of certain areas of assessment, Logan City Council's Logan Planning Scheme has been used as the assessment benchmark.

1.2 Development Details

Key proposed development details are identified below:

- **Land Use and Yield:** Other Residential (Land Lease Community) with between 280 and 310 dwelling units
- **Access:**
  - Access A: via one (1) modified 11m wide Type C driveway crossover on College Drive
  - Access B: emergency access to future local road network (provided by others)
- **Car Parking:** minimum of one (1) space per dwelling unit, 59 visitor spaces, and 20 caravan spaces
- **Servicing:** via side-loading refuse collection vehicle (RCV).

A copy of the proposed development plan is included at **Appendix A**.

1.3 Scope of Works

The scope of this Traffic Impact Assessment (TIA) included completing the following key tasks:

- Reviewing and providing advice on the proposed access arrangements against relevant Council's "Servicing, Access and Parking Code' (SAP Code) and/or relevant Australian Standards (AS2890)
- Reviewing and providing advice in relation to car parking requirements against Council's SAP Code
- Reviewing and providing advice in relation to the internal site layout from a traffic perspective, including road widths, circulation patterns, servicing requirements and internal conflict points
- Reviewing active transport provisions and connections to the external network
- Reviewing and providing advice in relation to the servicing and refuse collection arrangements against Council's Planning Scheme requirements, including undertaking swept path analysis

- Estimating of proposed development traffic generation with consideration to traffic generation of planned / approved uses on-site.

1.4 Request for Information

It is understood that EDQ has requested additional information to assess this development application. Table 1.1 provides a summary of the issues raised and brief responses.

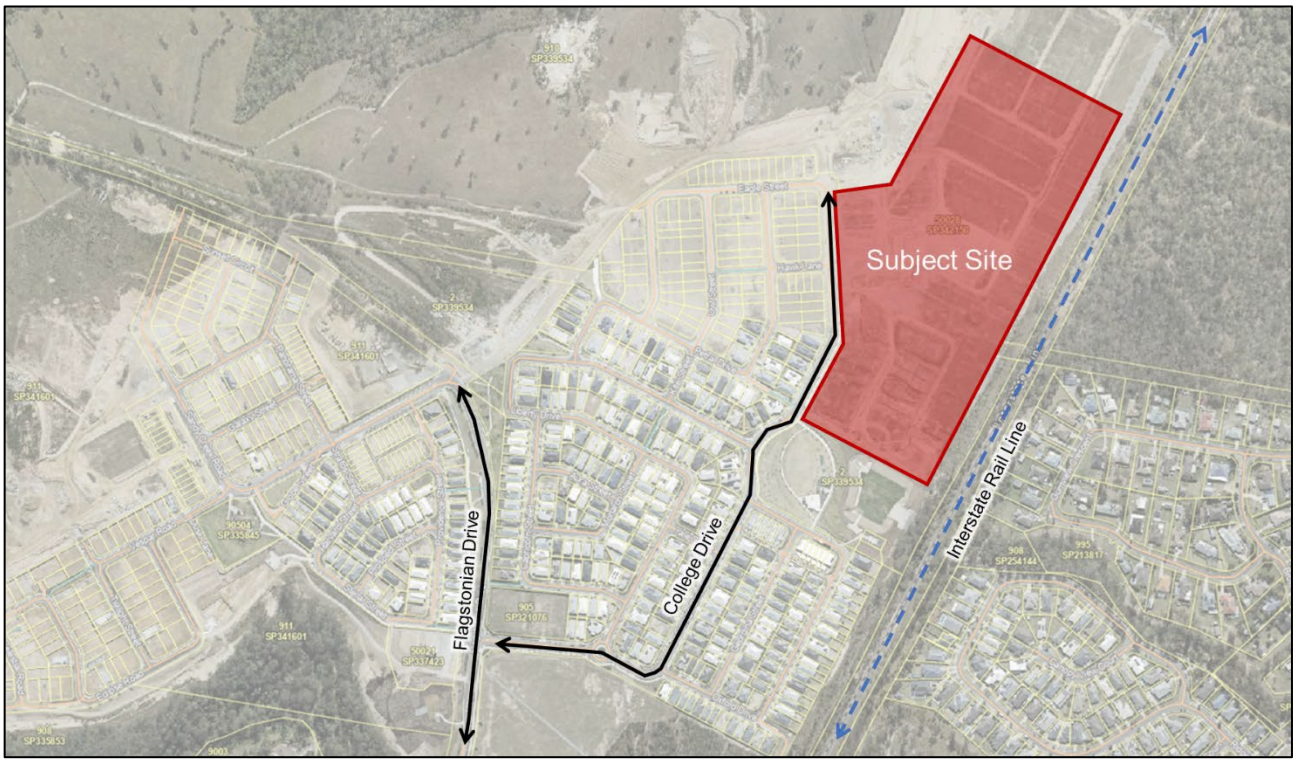
Table 1.1: RFI Issues Considered & Brief Responses / Report References

Issue	Brief Response
Provide additional swept path assessments demonstrating that a Car and Caravan can enter and exit the site in forward gear	Refer to **Section 3.3.4** and **Appendix B** Swept path assessments have been prepared and included which demonstrate that a car and caravan can enter and exit the site in forward gear.
Provide additional swept path assessments demonstrating that a Car and Caravan can circulate through relevant sections of the internal road network	Refer to **Section 3.3.4** and **Appendix B** Swept path assessments have been prepared and included which demonstrate that a car and caravan can circulate through the relevant sections of the internal road network.
Provide additional swept path assessments demonstrating that the nominated Refuse Collection Vehicle can undertake kerbside servicing of all residential lots within the development	Refer to **Section 3.4.3** and **Appendix B** Swept path assessments have been prepared and included which demonstrate that an RCV can undertake kerbside servicing for most lots. As noted in previous iterations of this report, bin pads are required for some lots. The locations of these bin pads have been nominated herein.

2. EXISTING CONDITIONS

2.1 Road Network

Figure 2.1 identifies the key roads surrounding the subject site.



Source: Google Maps

Figure 2.1: Road Network

Figure 2.1 summarises relevant characteristics of the surrounding road network.

Table 2.1: Key Roads

Road Name	Jurisdiction	Hierarchy	Number of Lanes	Speed Limit
College Drive	Council	Collector Street	2 lanes undivided	60km/h
Flagstonian Drive	Council	Collector Street	2 lanes undivided	60km/h

2.2 Public Transport Network

Currently there is no existing public transport infrastructure or services near the subject site. However, the subject site will be serviced by future, high quality public transport facilities and services.

Figure 2.2 presents an extract from the Endorsed Movement Network IMP prepared by Cardno. The figure shows the subject site in the context of the future public transport network and the respective coverage areas. The subject site is located within the 400m walking catchment of the proposed intra urban and local bus routes. The regional bus services are located approximately 1.0km to the west of the subject site. Additionally, the subject site is located approximately 1.7km by road from the nearest proposed railway station.

The future residents of the proposed development will have high quality access to both bus and rail services. Accordingly, no additional public transport infrastructure / services are required to support the development.

Figure 5-4 Public Transport Network

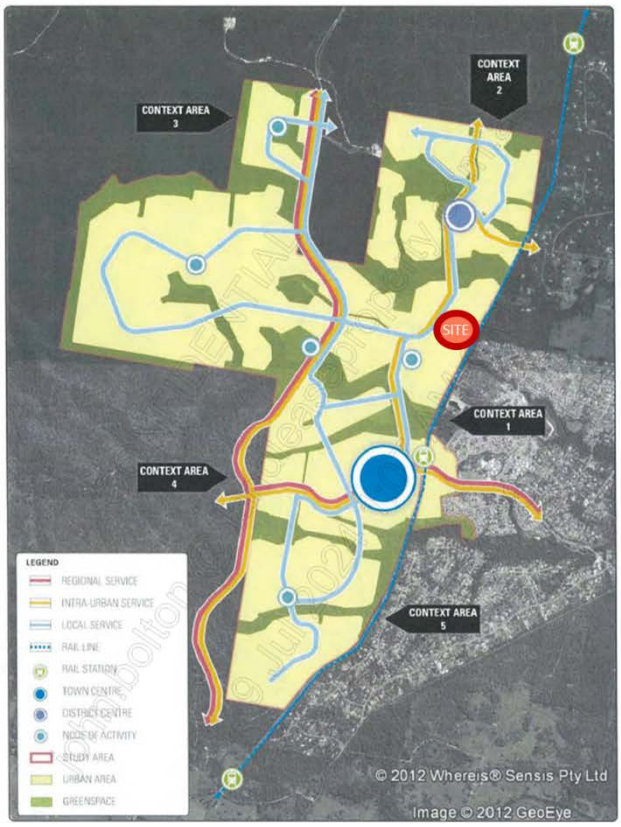
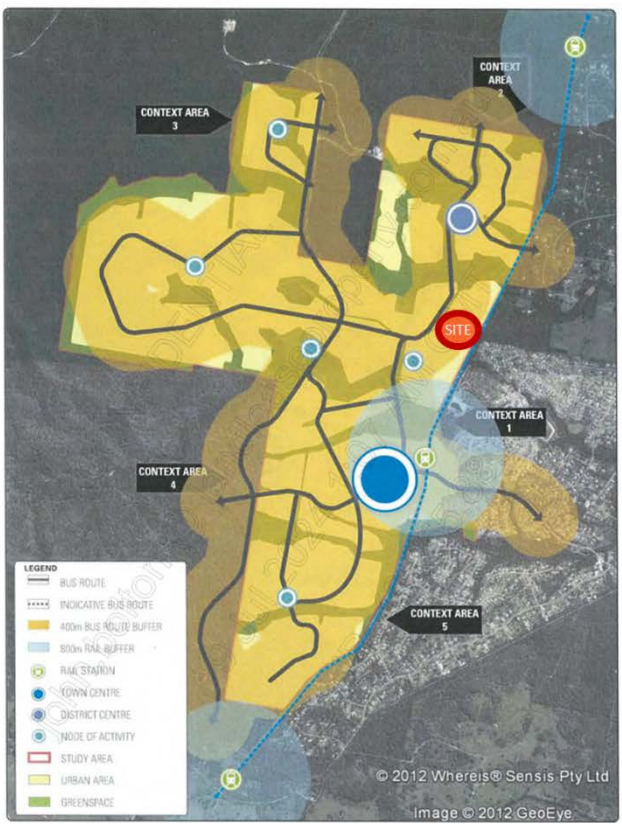


Figure 5-5 Public Transport Coverage



Source: Cardno – Endorsed Movement Network IMP

Figure 2.2: Future Public Transport Network

2.3 Transport Planning

The proposed development is located in the Flagstone PDA. It is understood that no additional transport infrastructure is required as part of the proposed development.

3. SITE LAYOUT REVIEW

3.1 Access

3.1.1 Overview

Vehicular access to the site is proposed via one (1) modified Type C driveway crossover located on College Drive (Access A) and an emergency access (Access B) as identified in Figure 3.1.

Source: RPS

Figure 3.1: Vehicular Access Arrangement

A review of the driveway configurations, locations, and sight distances has been undertaken as detailed herein. Bitzios has been involved throughout the master plan development process, with iterative advice and swept path assessments being used to derive the proposed access and site layout arrangements.

It is noted that Access B will connect to the future road network be provided by others. Access B joins a stub road / rear lot access road which provides access to a limited number of lots. As it has been assumed that the rear lot access road will be delivered by others generally in accordance with the relevant standards, a detailed traffic engineering assessment of Access B is not required.

3.1.2 Configuration

Table 3.1 summarises our review of the access driveway configurations against Institute of Public Works Engineering Australia (IPWEA), Standard Drawing RS-051, Vehicle Crossings – Heavy Duty.

Table 3.1: Access Driveway Configurations Review

Access ID	Design Vehicle	Required Configuration	Proposed Configuration
A	RCV	5.5m entry / 5.0m exit Type C2	11.0m wide Type C 4.4m wide entry / 4.4m wide exit 4m wide central median

The Access A driveway crossover configuration does not strictly comply with IPWEA requirements. Subsequently, swept path diagrams have been provided which demonstrate that the largest design vehicle (RCV) can enter and exit the site in a forward gear.

Swept path diagrams demonstrating the suitability of Access A are provided at **Appendix B**.

It is noted that Access B is proposed to be an emergency access to a road provided by others. Importantly, a 6.0m wide circulation aisle (private road) is provided at Access B which is expected to be suitable.

The internal road configuration has been designed such that service vehicles do not require access via Access B.

In summary the access configuration is suitable from a traffic engineering perspective.

3.1.3 Sight Distance

Table 3.2 summarises our review of sight distances at the access driveways against AS2890 requirements.

Table 3.2: Access Driveway Sight Distance Review

Access ID	Direction	Speed	Required Sight Distance	Available Sight Distance	Complies
A	East	60km/h	Desirbable:83m Minimum: 65m	>85m	Yes
	West			>85m	Yes

In summary, sight distances at the proposed access are expected to comply with AS2890 requirements.

3.1.4 Location

Table 3.3 summarises our review of the access driveway locations against AS2890 requirements.

Table 3.3: Access Driveway Location Review

Access ID	Road Type	Feature	Required Separation	Available Separation	Complies
A	Access Street	Priority controlled intersection	6m from intersection	>6m	Yes

In summary, the driveway locations comply with the relevant AS2890 requirements.

3.2 Car Parking Provision

Table 3.4 summarises the car parking requirements for the proposed development in accordance with Council's SAP Code.

Table 3.4: Parking Provisions

Site	Yield	Rate	Required	Proposed
Other Residential (Land Lease Community) (Industry Rate: Retirement facility)	280-310 dwellings	1 space per self-contained unit; plus 1 visitor space per 10 units; plus 1 space per fulltime employee 1 ambulance parking space	Up to 310 resident spaces	Expected to be minimum of 1 space per dwelling
			Up to 32 visitor spaces	59 visitor spaces 20 caravan spaces
			1 ambulance bay	1 service bay

The development plans indicate that there will be 59 visitor spaces provided and 20 caravan spaces. It is expected that one (1) resident space will be provided at each contained lot / unit.

Given the scale of the development, providing one (1) central ambulance bay is not considered suitable. It is recommended that in-aisle service is utilised by emergency vehicles. However, our assessment suggests that a central service bay can be provided adjacent to the community facilities. Refer to **Section 3.4** for further details.

In summary, the car parking provision is considered suitable from a traffic engineering perspective.

3.3 Site Layout

Table 3.5 summarises our review of the site layout against AS2890.

Table 3.5: Site Layout Review

Site Layout Element	Proposed	Required	Compliant
Visitor Car Parking Spaces	2.4m x 5.4m	2.4m x 5.4m	Yes
Visitor Parking Aisle	6.3m	5.8m	Yes
Parallel Parking Spaces (Obstructed end space)	6.0m x 2.5m	6.6m x 2.1m	Considered Suitable – See below
Parallel Parking Spaces (Typical spaces)	6.0m x 2.5m	6.3m x 2.1m	Considered Suitable – See below
Circulation Aisle (two-lane, two-way, undivided)	5.5m to 6m.	5.5m	Yes – See below
Circulation Aisle (two-lane, two-way median divided)	3.5m per lane	3.5m per lane	Yes – See below
Caravan Parking Spaces	3.5m x 10.0m	NA	Yes – See below

As indicated in Table 3.5, the proposed site layout is generally in accordance with AS2890. Further details regarding the proposed site layout elements are provided in the subsequent sections.

3.3.1 Parallel Parking

It is noted that the parallel parking spaces do not strictly comply with AS2890, however, given the additional width provided within the space (+0.4m), and the additional manoeuvring space provided at the front and end of the spaces, the configuration is considered suitable.

Swept path diagrams have been provided which demonstrated a B99 (i.e. a large car) can enter and exit the proposed parallel parking spaces.

Swept path diagrams demonstrating the suitability of the parallel parking spaces are provided at **Appendix B.**

3.3.2 Road Typologies

Figure 3.2 illustrates the circulation road typologies used throughout the proposed development.

Source: RPS

Figure 3.2: Road Typologies

Table 3.6 illustrates the proposed pavement widths for the internal circulation roadways. As seen below, all of the proposed pavement widths exceed the minimum widths noted in Table 3.5 and are considered suitable from a traffic engineering perspective.

Table 3.6: Circulation Road Hierarchy

Road Typology	Description	Proposed Road Reserve	Proposed Pavement Width	Proposed Verge Width
Entry Boulevard	Two-lane, two-way, median divided	16m to 18m	3.5m / 3.5m	4.8m / 2.2m
Community Boulevard	Two-lane, two-way, undivided	12m	6m	3m / 3m
Primary Street	Two-lane, two-way, undivided	8m	6m	1m / 1m
Secondary Street	Two-lane, two-way, undivided	7.5m	5.5m	1m / 1m
Laneway	Two-lane, two-way, undivided	7m	5.5m	1m / 0.5m

3.3.3 Queuing

Council's SAP Code recommends that access entry queues be provided in accordance with Table 3.3 of AS2890.1. However, AS2890.1 notes that the queue provision from Table 3.3 is suitable for a for a car park with boom gates and ticket issuing devices at entry points and can be used in the absence of more specific information.

We do not believe that the queue provisions from Table 3.3 are directly related to the proposed development. The proposed development's front gates will be access controlled via a keypad and fob system. Therefore, a first principles assessment has been undertaken.

The peak entry and exit flows for the development are approximately 30 vehicles in and 30 vehicles out during the road peak hour. This equates to a vehicle entering the site every two (2) minutes, on average. Based on our experience with similar developments, it is likely that a vehicle could open and pass the gate every 30 seconds or less. As the entry capacity exceeds the entry rate, it is unlikely that an entry queue would form at the Access A gate.

It should be noted that Access A provides and entry queue of approximately five (5) vehicles. This is considered sufficient to contain any queued entering vehicles without impacting traffic flow on College Drive. Therefore, the proposed entry queue is considered suitable from a traffic engineering perspective.

3.3.4 Caravan Parking and Circulation

The proposed development provides 20 caravan parking spaces located in the south-eastern corner of the site. These spaces are angled at approximately 45 degrees to the adjacent Primary Road to provide improved manoeuvring. Each caravan space consists of a 3.5m x 10m rectangular space offset approximately 1.5m from the adjacent carriageway.

Swept path assessments have been prepared demonstrating that a caravan can be manoeuvred into and out of the proposed caravan spaces. Swept path assessment have also been prepared illustrating that a car and caravan can circulate through the site via the route nominated in Figure 3.3, overleaf.

A copy of the swept path assessments is available in **Appendix B**.

Regarding operation, it is understood that each of the caravan parking spaces are licenced. An agreement is signed between the homeowner and Lodge Management to rent a space, within the agreement are rules that have to be followed regarding hours of operation (when the caravan parks can be accessed) and path of travel in accordance with the travel route included in the Bitzios traffic report. A masterplan is provided to the homeowner showing the path of travel to the homeowner. This also allows Lodge to control and size and type of vehicles being parked in the area.

Source: RPS

Figure 3.3: Caravan Circulation Route

3.3.5 Summary

As outlined above, the reviewed site layout elements comply with the relevant AS2890 requirements or are considered suitable from a traffic engineering perspective.

3.4 Servicing

3.4.1 Overview

Table 3.7 summarises our review of the servicing arrangements against Council's SAP Code requirements.

Table 3.7: Servicing Arrangements Review

Land Use	SAP Requirement	Servicing Type	Proposed Design Service Vehicles	Can Appropriately Service the Development
Other Residential (Land Lease Community)	HRV	General	Medium Rigid Vehicle (MRV)	Yes – See Below
		Refuse Collection	Side-loading RCV	Yes – See Below
(Industry Rate: Retirement facility)		Shared Resident Transport	SRV (mini-bus)	Yes – See Below

3.4.2 General Servicing

The proposed development includes provision for an indented general servicing bay. The general servicing bay is located on the south-western frontage of the primary community facilities, as illustrated in Figure 3.4. The loading bay measures 3.5m x 12.5m and is sufficient to accommodate a HRV or RCV.

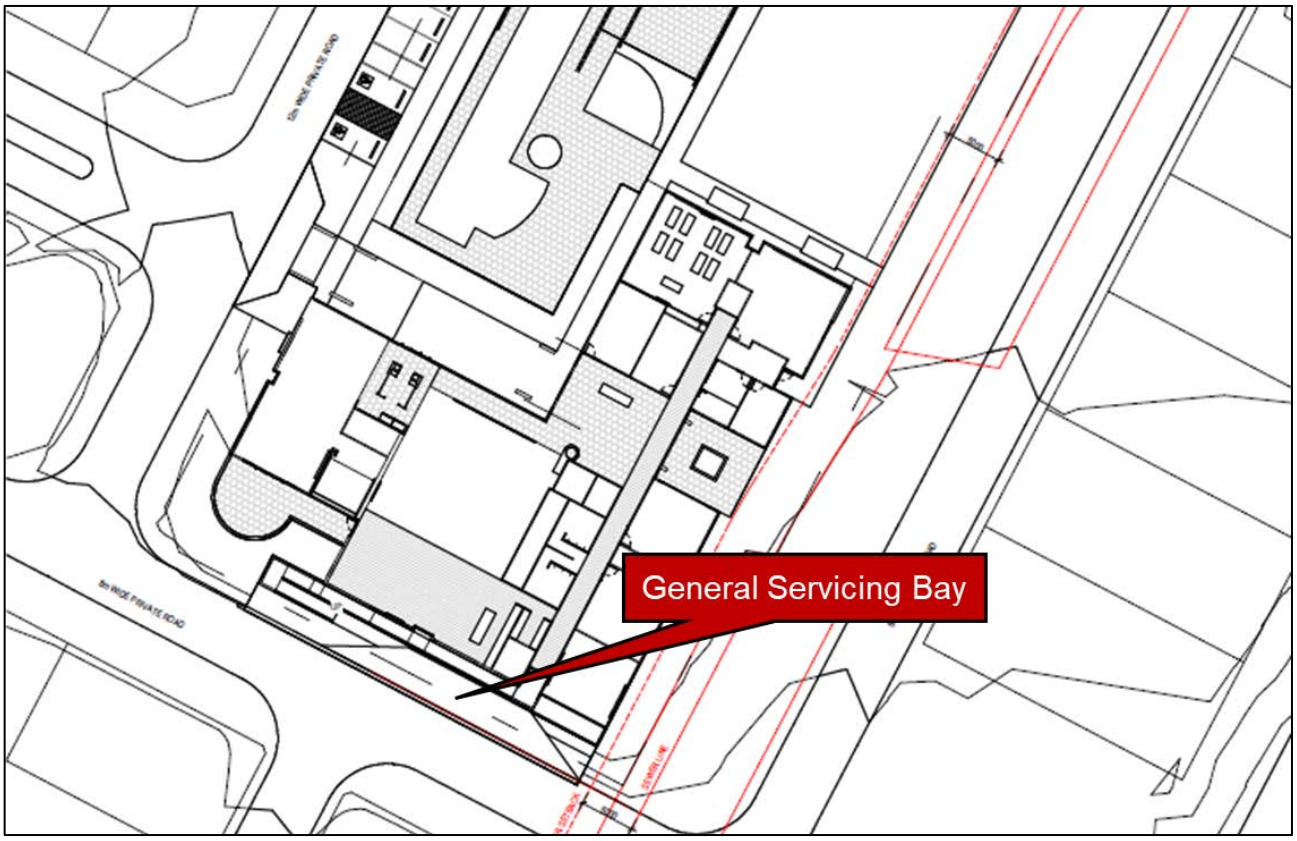


Figure 3.4: General Servicing Bay

Swept path diagrams have been prepared which indicate that RCVs can appropriately enter and exit the proposed general loading area.

A copy the swept path diagrams is included at **Appendix B.**

The proposed general servicing arrangements are acceptable from a traffic engineering perspective.

3.4.3 Refuse Collection

Refuse will be stored in wheelie bins which will be collected from the kerb by side-loading RCVs. All wheelie bins are expected to be collected in front of each lot, with the exception of a small number of lots accessed via stub roads in the north-eastern corner of the site. These lots, which are indicatively shown on Figure 3.5, will utilise bin pads located within a short distance of each lot. The use of bin pads eliminates the need for a RCV to reverse on-site.

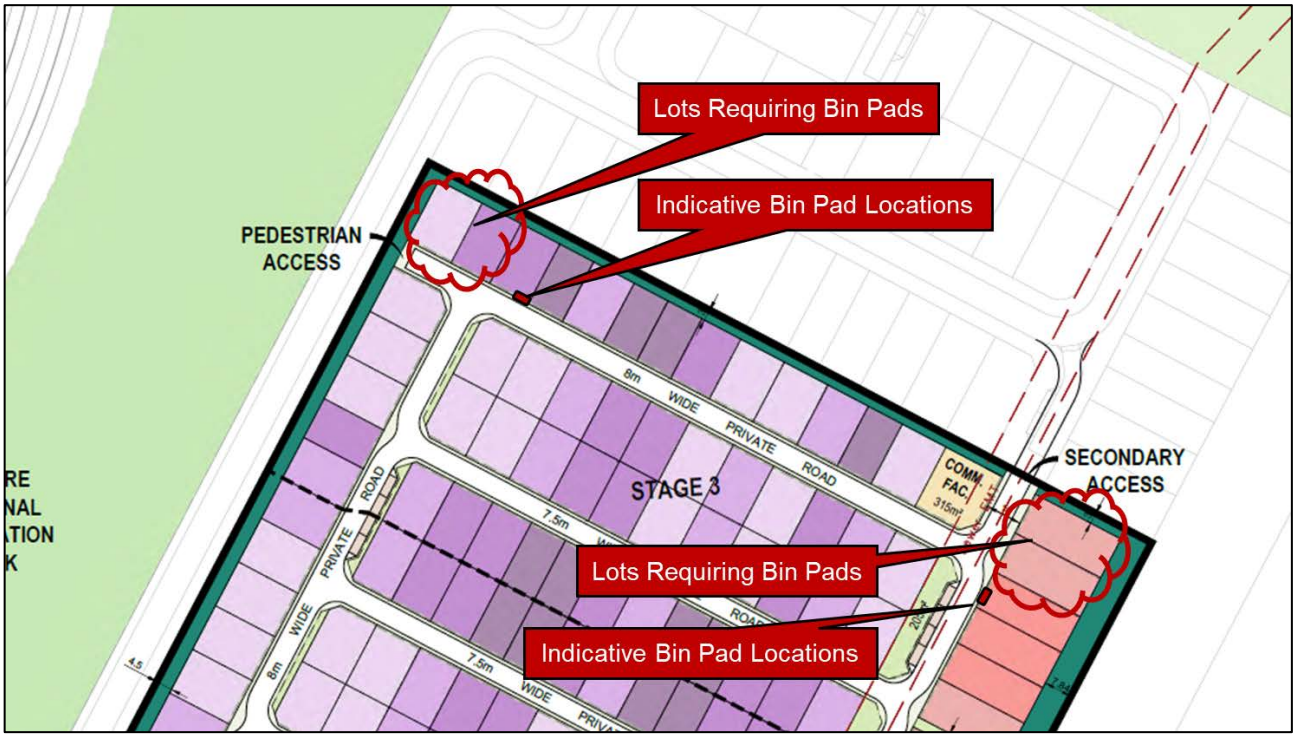


Figure 3.5: Indicative Lots Requiring Bin Pads and Potential Bin Pad Locations

Swept path diagrams have been prepared which demonstrate that front loading RCVs can appropriately:

- Enter the site in a forward gear
- Access all lot frontages not noted in Figure 3.5
- Exit the site in a forward gear.

A copy the swept path diagrams is included at **Appendix B.** The travel path for the RCV to service each lot is illustrated in Figure 3.6. The proposed route services all lots with minimal dead running.

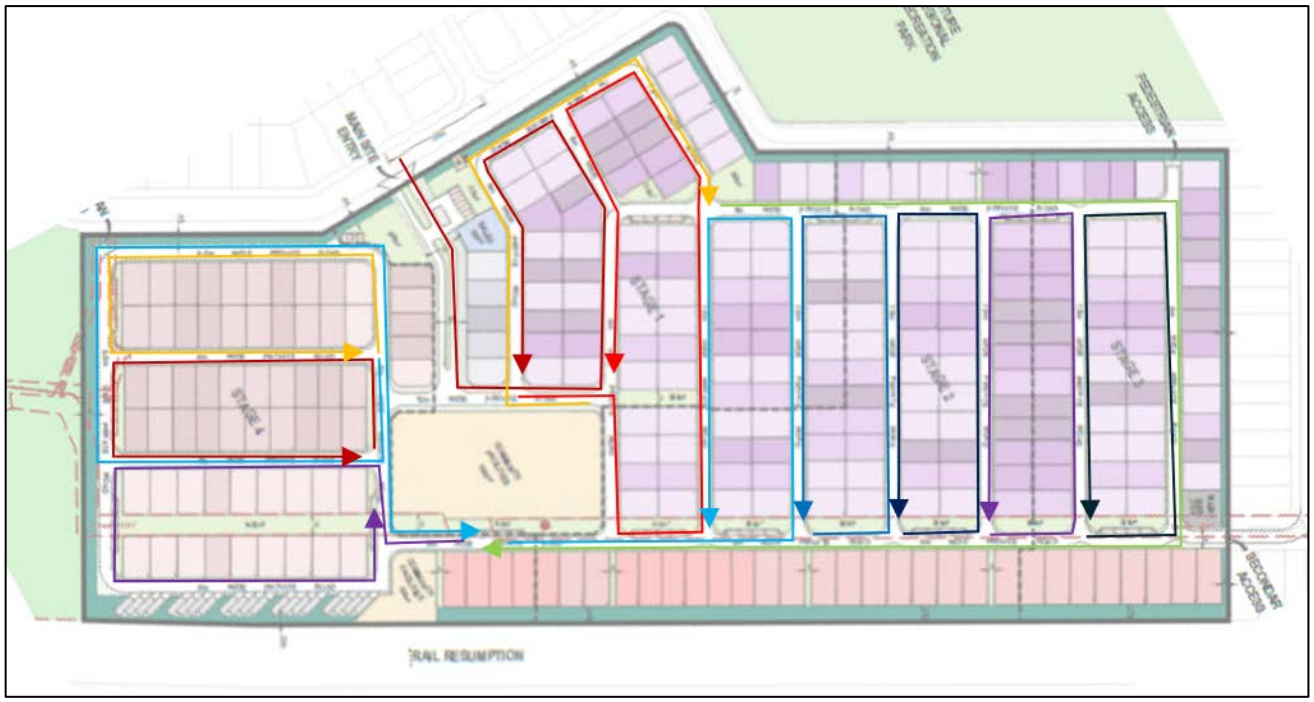


Figure 3.6: Indicative RCV Travel Path for Collection

Importantly, the proposed in-aisle refuse collection arrangement, generally in front of each lot, is considered acceptable in this instance as it is unlikely to significantly impact car park operations. Key reasons why impacts are expected to be limited include:

- Refuse collection is expected to occur outside of development peak periods
- Development traffic generation is expected to be very low (see **Section 4**).

Based on the above, the proposed refuse collection arrangements are considered acceptable from a traffic engineering perspective.

3.4.4 Shared Resident Transport

The proposed development includes provision for an indented minibus loading bay. The loading bay is located in the north-western frontage of the primary community facilities, as illustrated in Figure 3.7. The loading bay measures 3m x 9m and is sufficient to accommodate a Toyota Coaster or similar vehicle. The proposed minibus loading bay is considered suitable from a traffic engineering perspective.

Figure 3.7: Indented Minibus Loading Bay

4. TRAFFIC ASSESSMENT

4.1 Traffic Generation

Table 4.1 provides a summary of the adopted peak hour trip generation rates.

Table 4.1: Adopted Trip Generation Rates

Land Use	AM Peak	PM Peak	Unit	Source
Housing for Aged & Disabled Persons	0.20	0.20	Trips per dwelling	RTA GTGD

RTA GTGD = Roads and Maritime Services Guide to Traffic Generating Developments 2002

Table 4.2 identifies the traffic demands expected to be generated by the proposed development during peak periods.

Table 4.2: Estimated Peak Period Traffic Generation

Peak	Yield	Trips
AM	Yield range 280 to 310, Assume 310	62 trips per hour
PM		62 trips per hour

4.2 Qualitative Assessment

It is estimated that the site will generate in the order of 62 trips during peak periods. This quantum of trips is low and equates to approximately one (1) trip per minute on average.

As noted in **Section 1**, the It is understood that the intended use for the subject site was low density residential. Noting that the Flagstone PDA has a dwelling density of 15 dwellings per hectare, it can be assumed that the subject site would have yielded approximately 180 low density dwelling. Based on the trip rate of 0.85 trips per dwelling, the intended use for the site would generate approximately 153 trips during each peak hour. This is considerably more than the peak hour trips generated by the proposed development.

Based on the above, we are of the view that:

- The development will have negligible operational impacts on the surrounding road network
- The proposed development will generate fewer peak hour trips than the planned low density use for the subject site
- Detailed traffic analysis (SIDRA) is not warranted
- External road upgrades (i.e. beyond the site accesses) are not warranted to offset development traffic impacts.

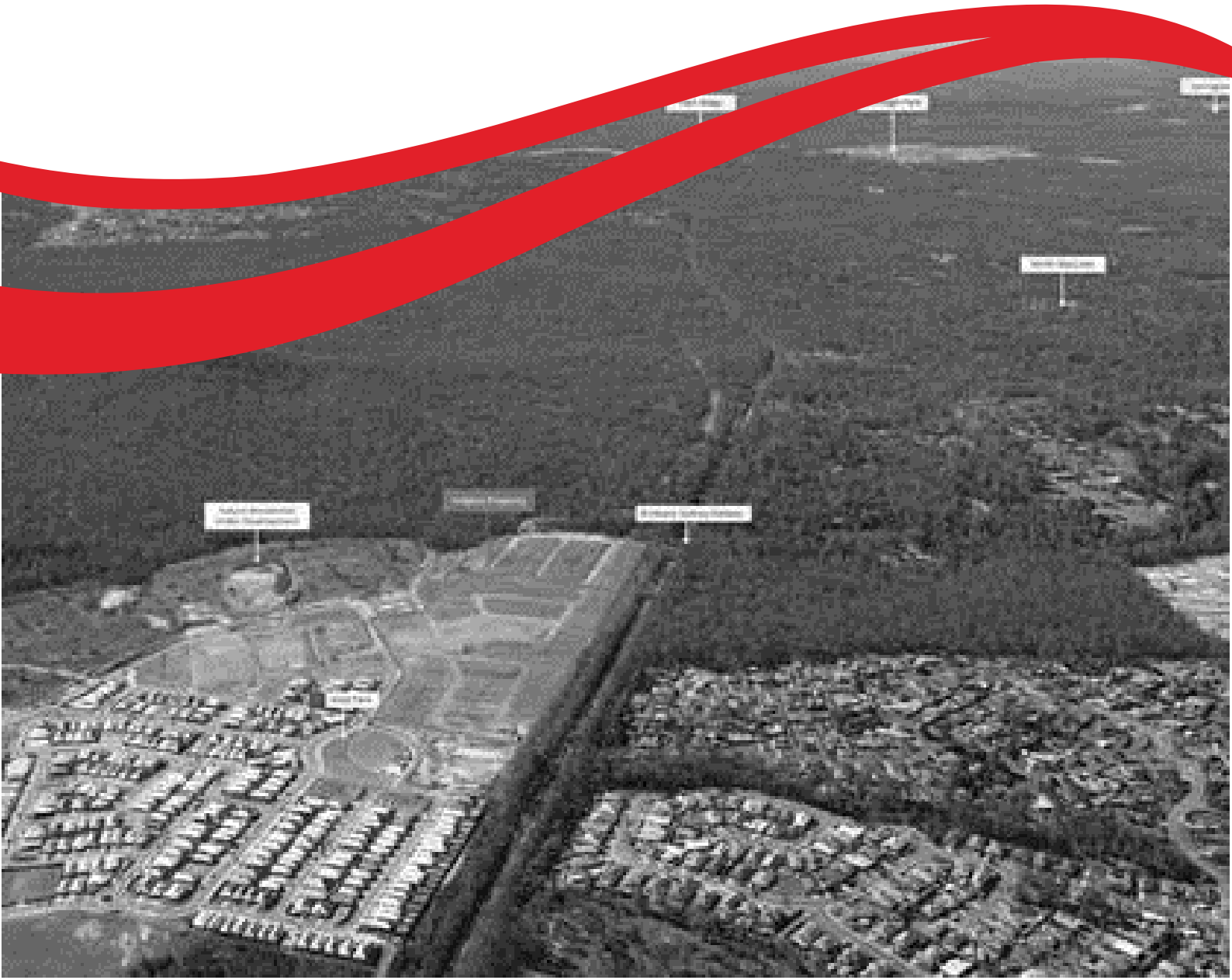
5. SUMMARY

Key findings are summarised below:

- No public transport infrastructure / services are required to support the development
- The driveway crossover configurations are generally in accordance with IPWEA requirements or are otherwise considered acceptable from a traffic engineering perspective
- Available sight distances at the proposed driveways are generally in accordance with AS2890
- The driveway locations are generally in accordance with relevant AS2890 requirements
- The car parking provision is expected to be generally in accordance Council's SAP Code requirements
- A review of the site layout found that the reviewed elements are generally in accordance with AS2890
- The proposed general servicing, refuse collection and shared resident transport arrangements are considered acceptable from a traffic engineering perspective
- The development will have negligible operational impacts on the surrounding road network. Accordingly, external road upgrades (i.e. beyond the site access) are not warranted to offset development traffic impacts.

Based on the findings of this report, we are of the view that there are no traffic engineering matters have been identified that would preclude approval of the proposed development subject to reasonable and relevant conditions.

Appendix A: Proposed Plans

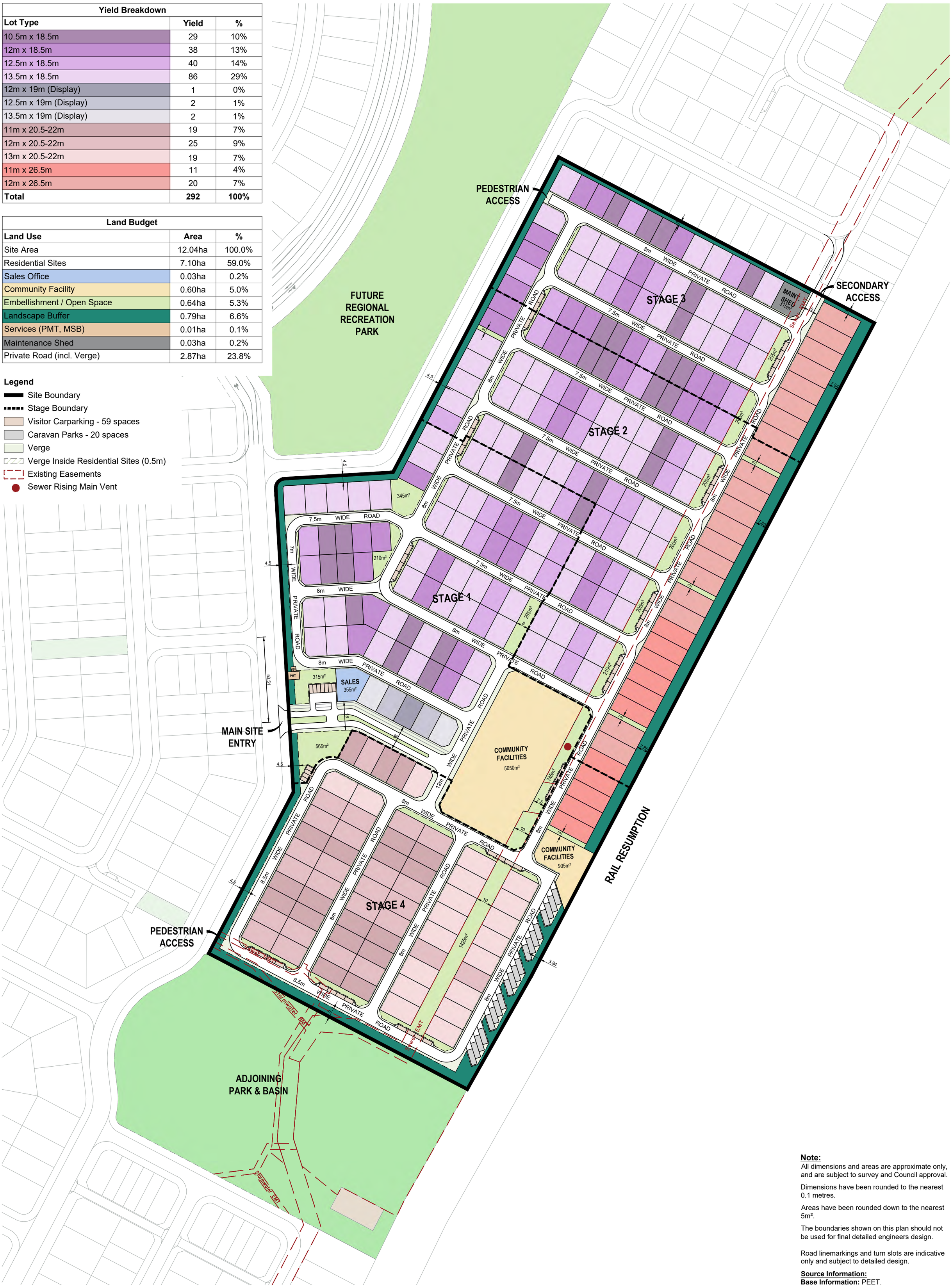


Yield Breakdown		
Lot Type	**Yield**	**%**
10.5m x 18.5m	29	10%
12m x 18.5m	38	13%
12.5m x 18.5m	40	14%
13.5m x 18.5m	86	29%
12m x 19m (Display)	1	0%
12.5m x 19m (Display)	2	1%
13.5m x 19m (Display)	2	1%
11m x 20.5-22m	19	7%
12m x 20.5-22m	25	9%
13m x 20.5-22m	19	7%
11m x 26.5m	11	4%
12m x 26.5m	20	7%
Total	**292**	**100%**

Land Budget		
Land Use	**Area**	**%**
Site Area	12.04ha	100.0%
Residential Sites	7.10ha	59.0%
Sales Office	0.03ha	0.2%
Community Facility	0.60ha	5.0%
Embellishment / Open Space	0.64ha	5.3%
Landscape Buffer	0.79ha	6.6%
Services (PMT, MSB)	0.01ha	0.1%
Maintenance Shed	0.03ha	0.2%
Private Road (incl. Verge)	2.87ha	23.8%

Legend

- Site Boundary
- Stage Boundary
- Visitor Carparking - 59 spaces
- Caravan Parks - 20 spaces
- Verge
- Verge Inside Residential Sites (0.5m)
- Existing Easements
- Sewer Rising Main Vent



Note:

All dimensions and areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers design.

Road linemarkings and turn slots are indicative only and subject to detailed design.

Source Information:
Base Information: PEET.

PLAN REF: AU14602-05H
DATE: 02 OCTOBER 2024
CLIENT: LAND LEASE PROPERTY
DRAWN BY: MD
CHECKED BY: MD

0 20 40 60 80 100 1 : 1,500 @ A2

FLAGSTONE
LAND LEASE COMMUNITY
CONCEPT MASTERPLAN

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com

Indicative Land Budget		
Land Use	**Area**	**%**
Site Area	12.04ha	100.0%
Residential Sites	7.10ha	59.0%
Sales Office	0.03ha	0.2%
Community Facility	0.60ha	5.0%
Embellishment / Open Space	0.64ha	5.3%
Landscape Buffer	0.79ha	6.6%
Services (PMT, MSB)	0.01ha	0.1%
Maintenance Shed	0.03ha	0.2%
Private Road	2.87ha	23.8%

Legend

- Site Boundary
- Stage Boundary
- Entry Boulevard
- Community Boulevard
- Primary Street
- Secondary Street
- Secondary Street - Esplanade
- Secondary Street - Caravan Parking
- Laneway
- Visitor Carparking - 59 spaces
- Caravan Parks - 20 spaces
- Existing Easements
- Sewer Rising Main Vent

Note:

All dimensions and areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

The boundaries shown on this plan should not be used for final detailed engineers design.

Road linemarkings and turn slots are indicative only and subject to detailed design.

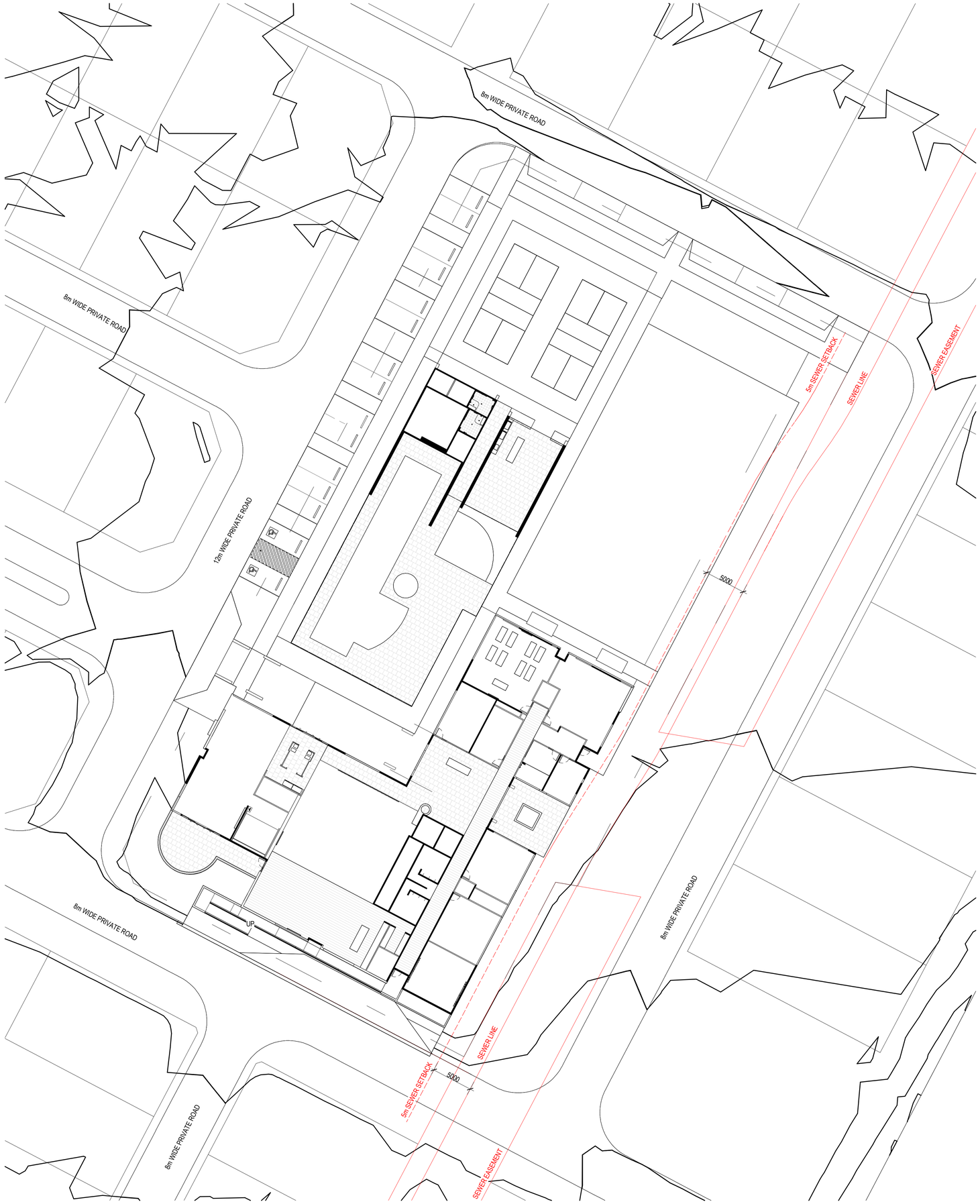
Source Information:
Base Information: PEET.

PLAN REF: AU14602-06D
DATE: 02 OCTOBER 2024
CLIENT: LAND LEASE PROPERTY
DRAWN BY: MD
CHECKED BY: MD

0 20 40 60 80 100 1 : 1,500 @ A2

FLAGSTONE
LAND LEASE COMMUNITY
INDICATIVE SITE PLAN

URBAN DESIGN
Level 8
31 Duncan Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3539 9500
W rpsgroup.com



Integrated perspective

Arqus Design Pty Ltd
ABN 68 135 616 303

Level 2 15 Malt Street
Fortitude Valley Qld 4006
PO Box 2455
New Farm Qld 4005

Registration:
Nominated Architect: Scott Peabody
QLD: 2644
NSW: 9038
VIC: 800111 (Arqus Design 600035)

mail@arqusdesign.com.au
www.arqusdesign.com.au

Phone 07 3358 0888
Fax 07 3358 0899

Arqus Design acknowledges the Traditional Owners of Country on which we live, work and design and pay our respects to their Elders, past and present.

NOTES

Contractors are to verify all dimensions on site before commencing any work or producing shop drawings.

Detail applicable to the scale of the drawing published.

DATE	REVISION	ISSUE
16.07.2024	FOR INFORMATION	A
16.07.2024	UPDATED FOR INFORMATION	B

CLIENT

PROJECT

FLAGSTONE RESIDENTIAL - CLUBHOUSE

COLLEGE DRIVE, FLAGSTONE, 4280

COUNTRY: BUNDJALUNG

DRAWING

SITE PLAN

JOB NUMBER	DESIGN	DRAWN	CHECKED
24-0005	SP	JS	SP

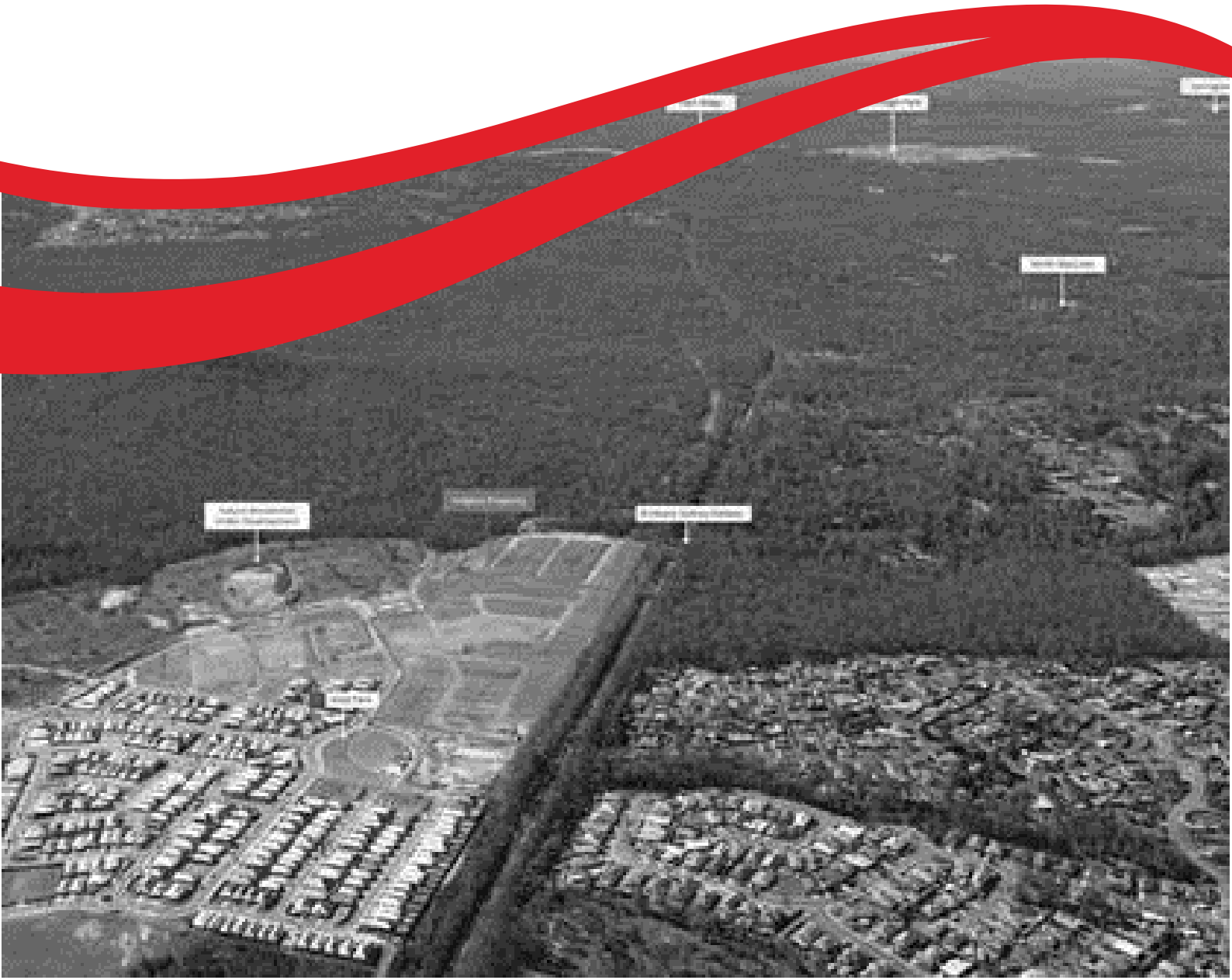
SCALE	DATE CREATED	NORTH
1 : 250 @A1 1 : 500 @A3	08.07.2024	

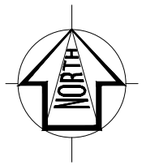
DRAWING NUMBER **DA-A1-0-01** ISSUE **B**

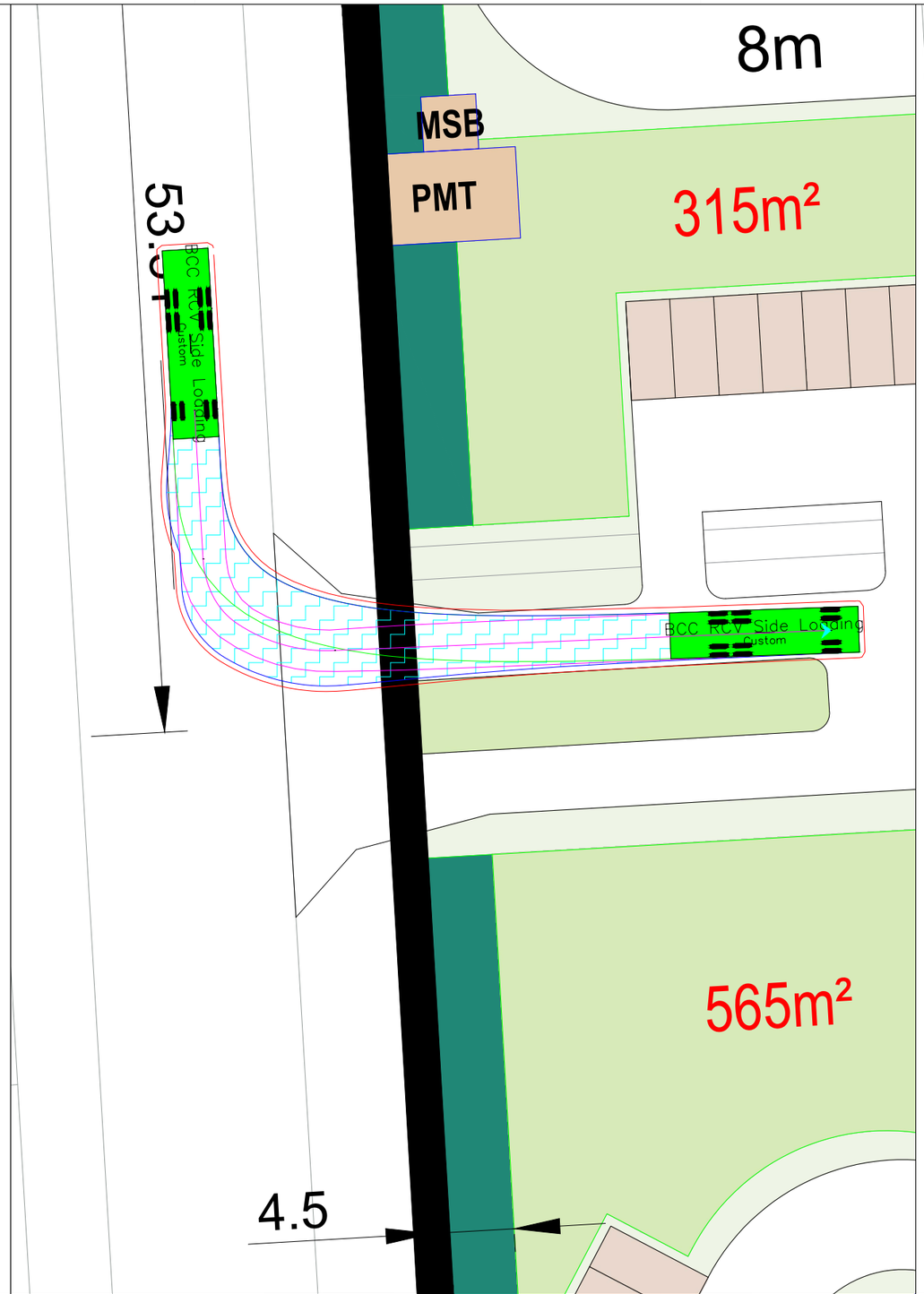
ISSUED FOR **PRELIMINARY**

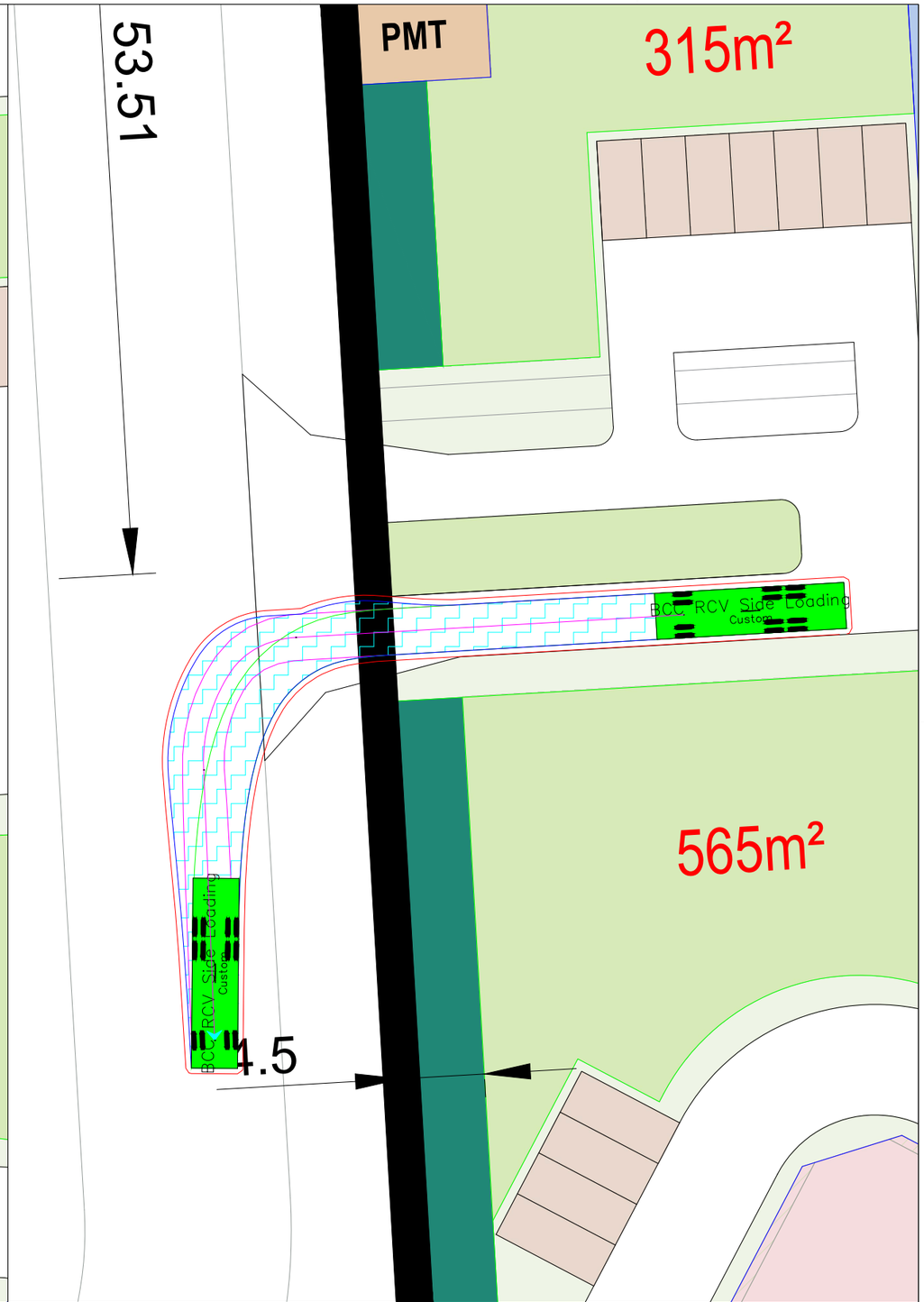
16/07/2024 6:21:24 PM

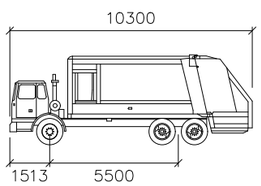
Appendix B: Swept Path Diagrams











BCC RCV Side Loading

mm

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 — 0 2 4 6 8 10 12 14 — 1:300

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

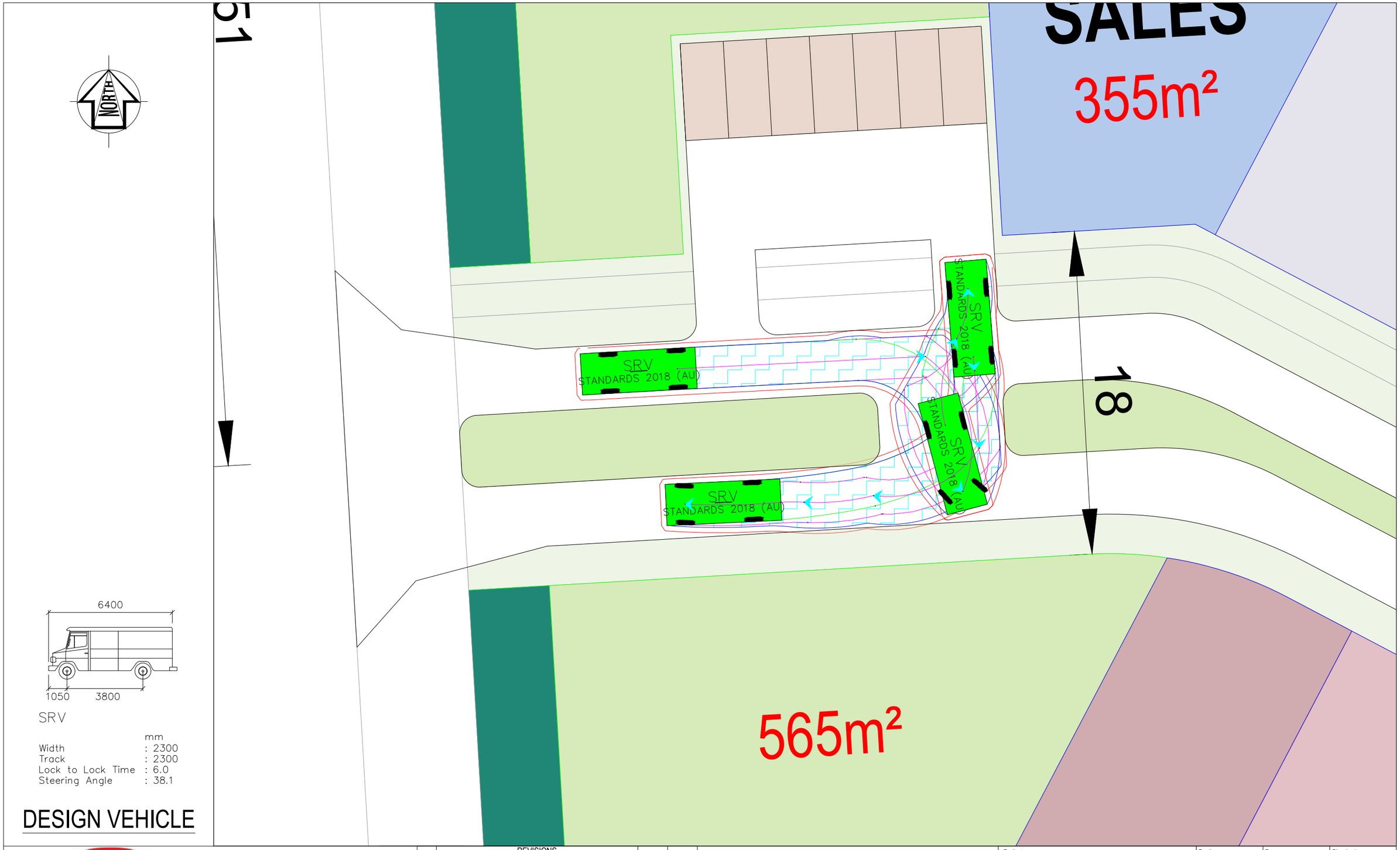
Title: Refuse Collection Vehicle (RCV) Access Swept Paths

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	1	001



SRV

	mm
Width	: 2300
Track	: 2300
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 0 2 4 6 8 10 1:200

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

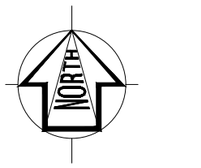
Title: Small Rigid Vehicle (SRV) Manoeuvre Swept Paths

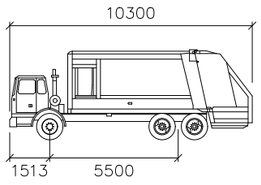
Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	2	001





BCC RCV Side Loading

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 — 0 4 8 12 16 20 — 1:400

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

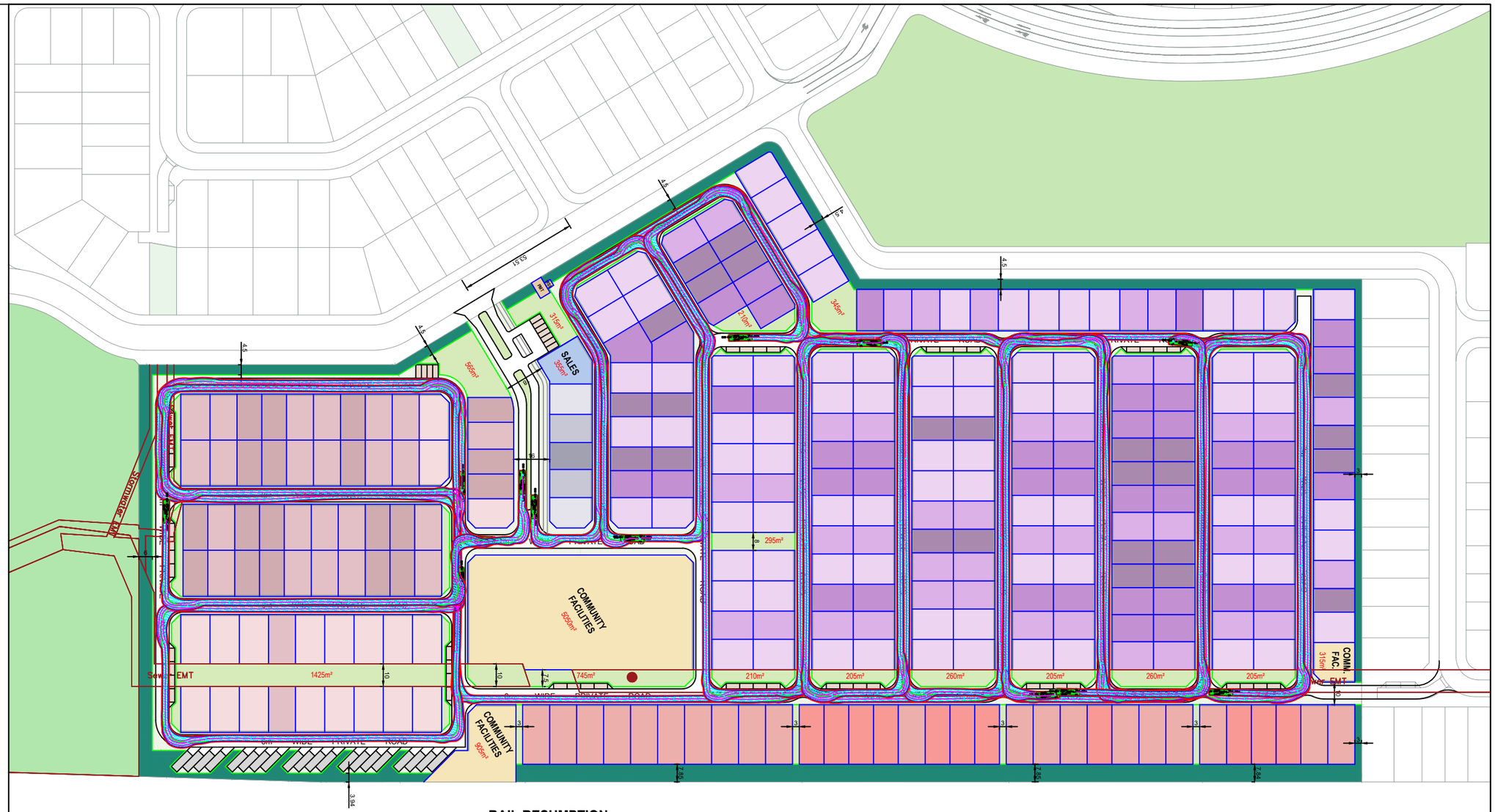
Title: Refuse Collection Vehicle (RCV) Internal Circulation Swept Paths

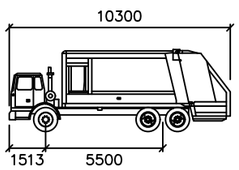
Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	3	001





BCC RCV Side Loading_BSD–3004

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 47.2

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	IR ISSUE	J.K	02.10.2024

Scale @ A3 0 20 40 60 80 100 1:2000

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

Title: RCV - All Manoeuvres

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 02.10.2024

Project Number	Sheet Number	Issue
P6519	4	001

BCC Car and Caravan

	mm
Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 0 4 8 12 16 20 1:400

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

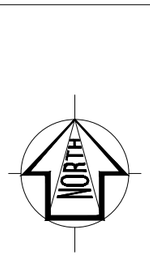
Title: Car and Caravan Parking Swept Paths

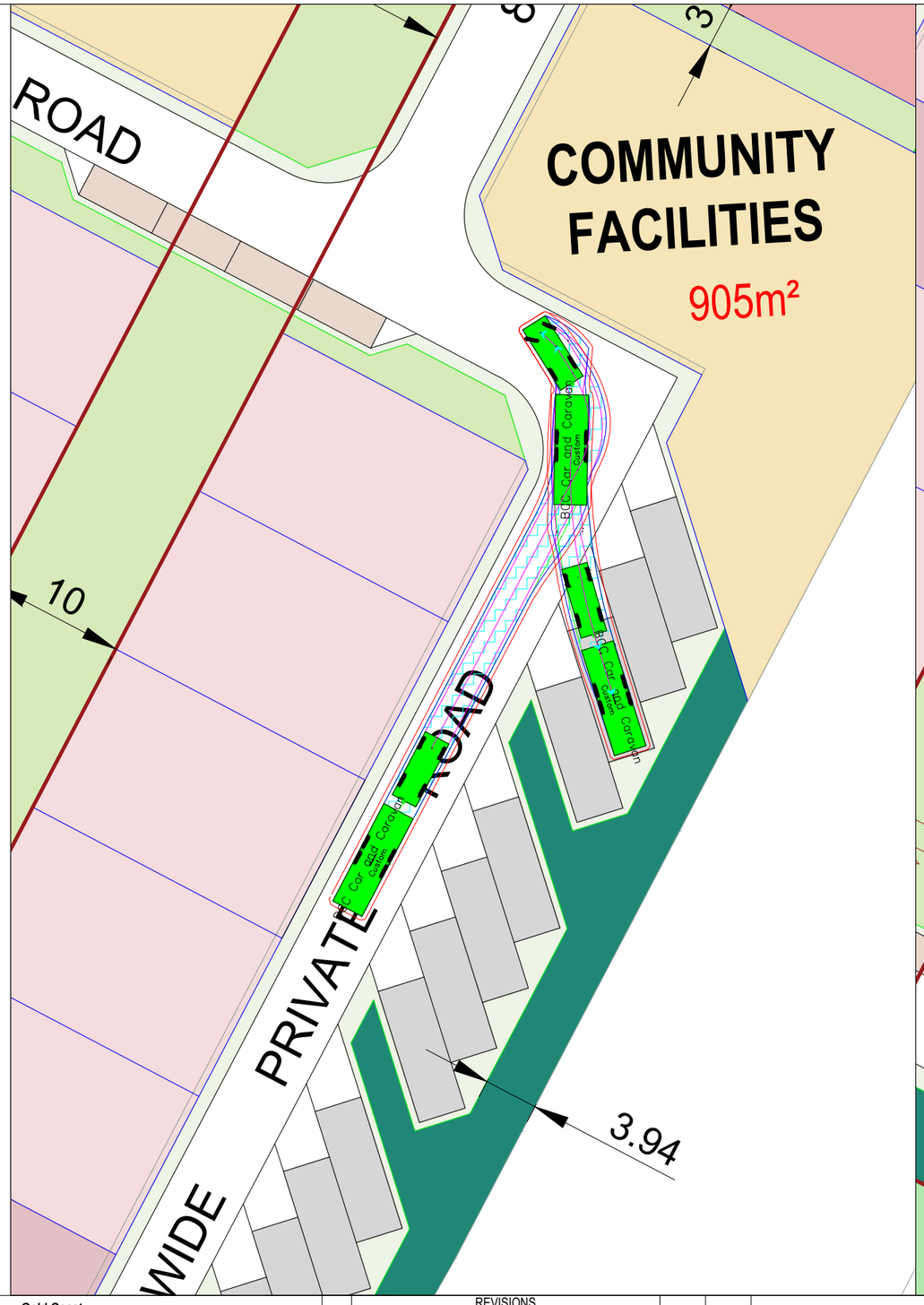
Design	Drawn	Checked
J.K	J.K	R.T

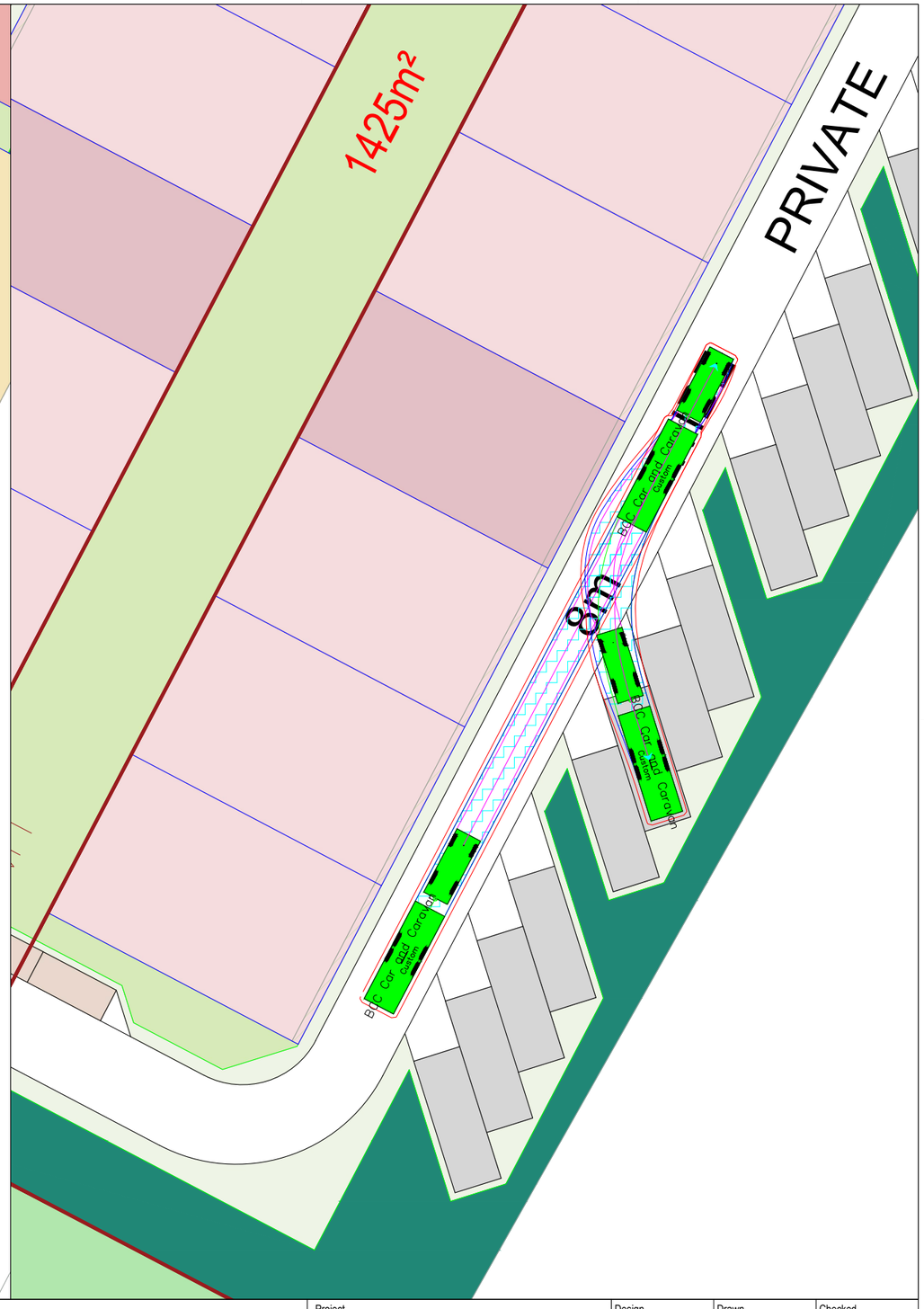
CONCEPT ONLY

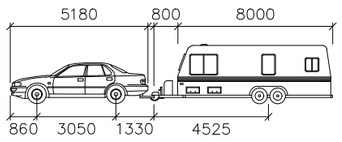
Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	8	001









BCC Car and Caravan

mm

Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 0 4 8 12 16 20 1:400

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

Title: Car and Caravan Parking Swept Paths

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	9	001

BCC Car and Caravan

mm

Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	IR ISSUE	J.K	16.09.2024
002	UPDATED ISSUE	R.T	02.10.2024

Scale @ A3 0 10 20 30 40 50 60 1:1250

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

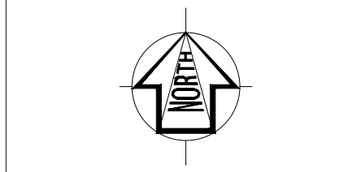
Title: Car and Caravan All Manoeuvres

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 02.10.2024

Project Number	Sheet Number	Issue
P6519	1	002



BCC Car and Caravan

	mm
Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	IR ISSUE	J.K	16.09.2024

Scale @ A3 0 4 8 12 16 20 24 28 1:600

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

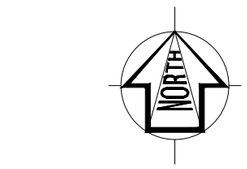
Title: Car and Caravan Entry and Exit Manoeuvres

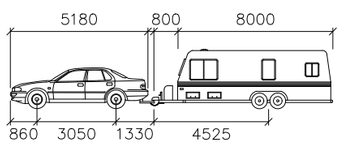
Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 16.09.2024

Project Number	Sheet Number	Issue
P6519	2	001

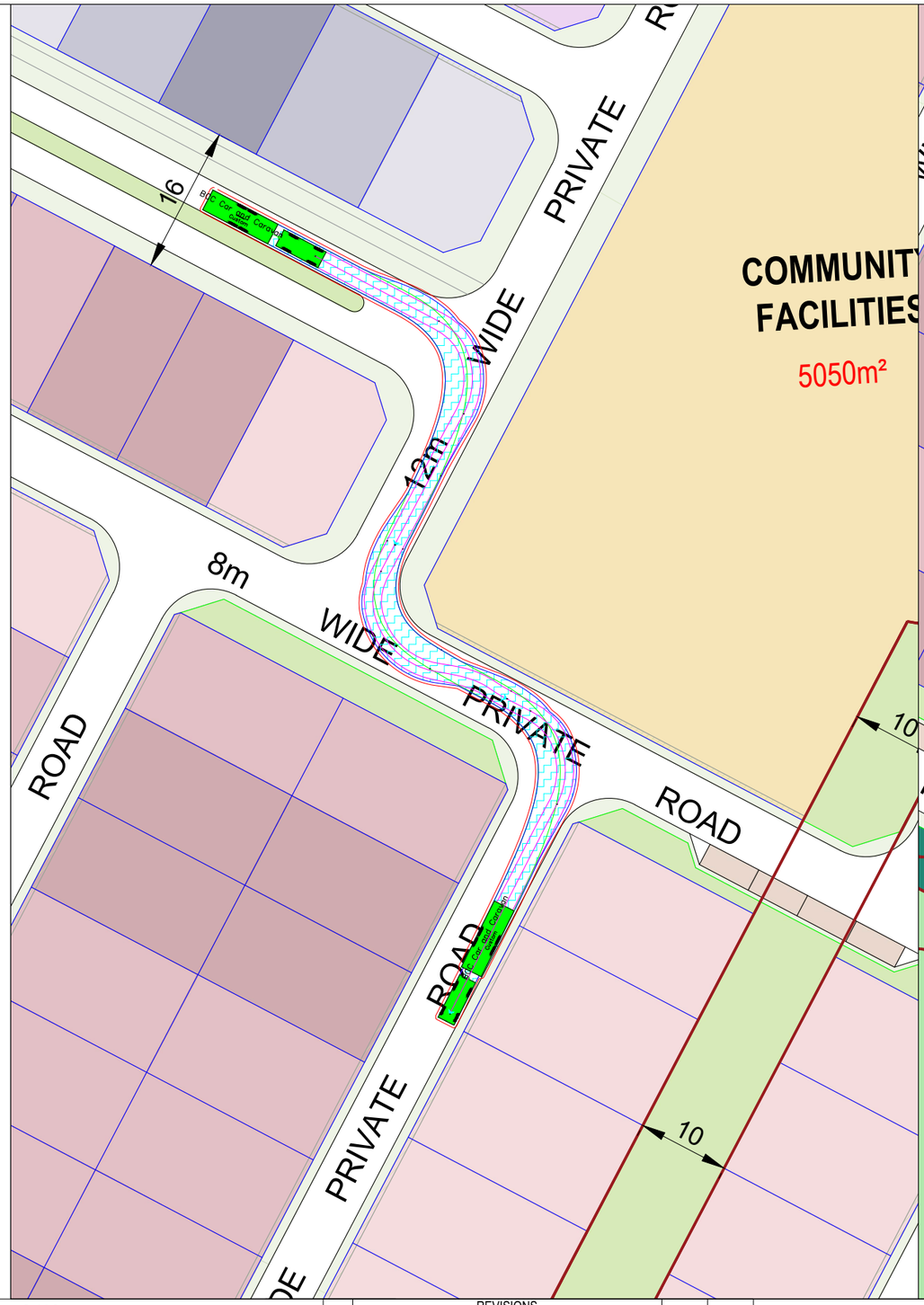


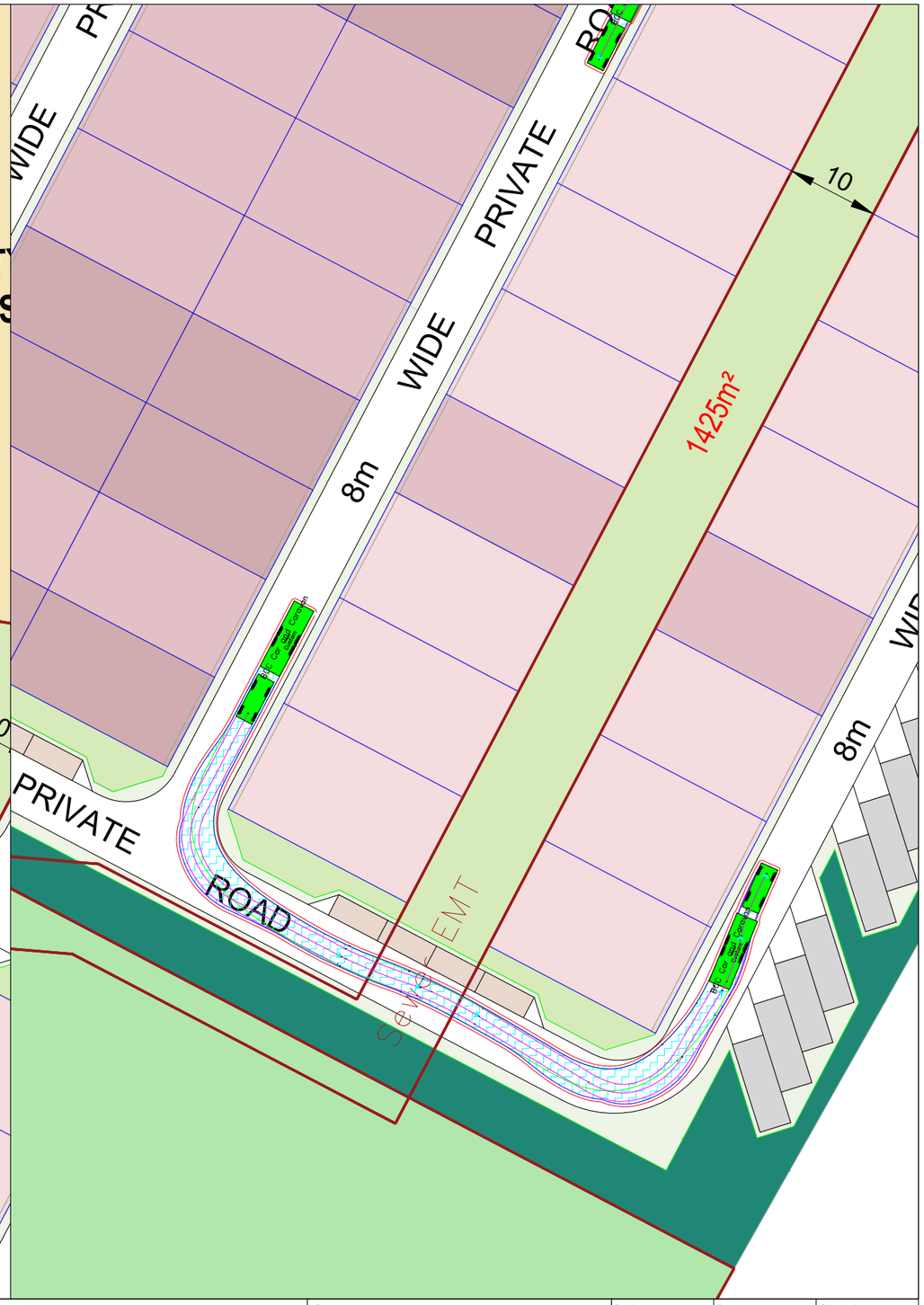


BCC Car and Caravan

	mm
Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE





Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	IR ISSUE	J.K	16.09.2024

Scale @ A3 0 4 8 12 16 20 24 28 1:600

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

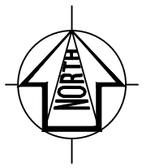
Title: Car and Caravan Internal Manoeuvres - Sheet 1

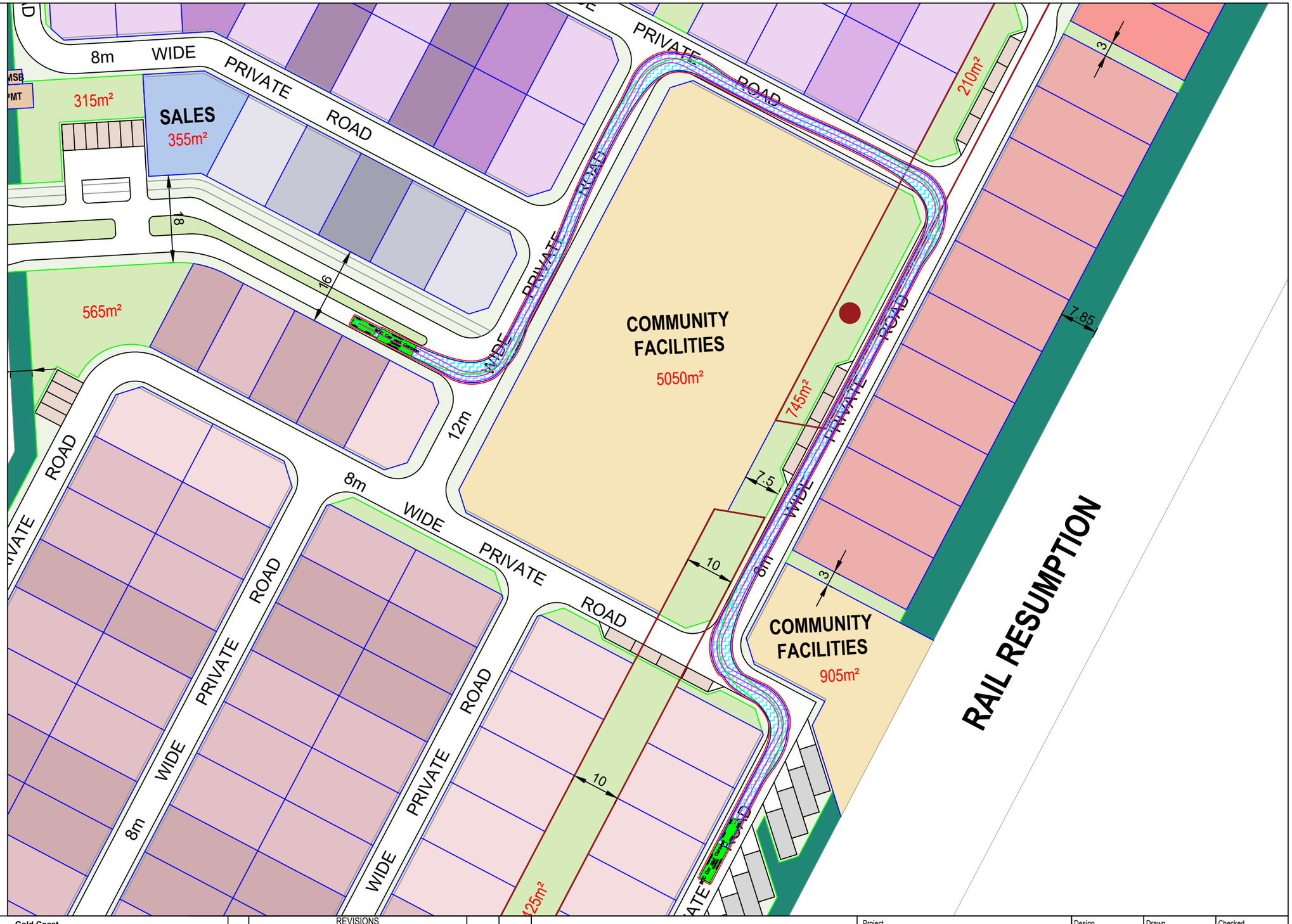
Design	Drawn	Checked
J.K	J.K	R.T

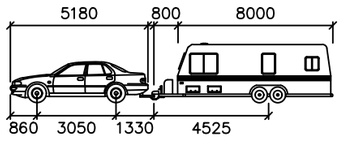
CONCEPT ONLY

Date: 16.09.2024

Project Number	Sheet Number	Issue
P6519	3	001







BCC Car and Caravan

	mm
Car Width	: 1930
Trailer Width	: 2400
Car Track	: 1930
Trailer Track	: 2400
Lock to Lock Time	: 6.0
Steering Angle	: 22.1
Articulating Angle	: 70.0

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	IR ISSUE	J.K	16.09.2024
002	UPDATED ISSUE	R.T	02.10.2024

Scale @ A3 0 8 16 24 32 40 1:800

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

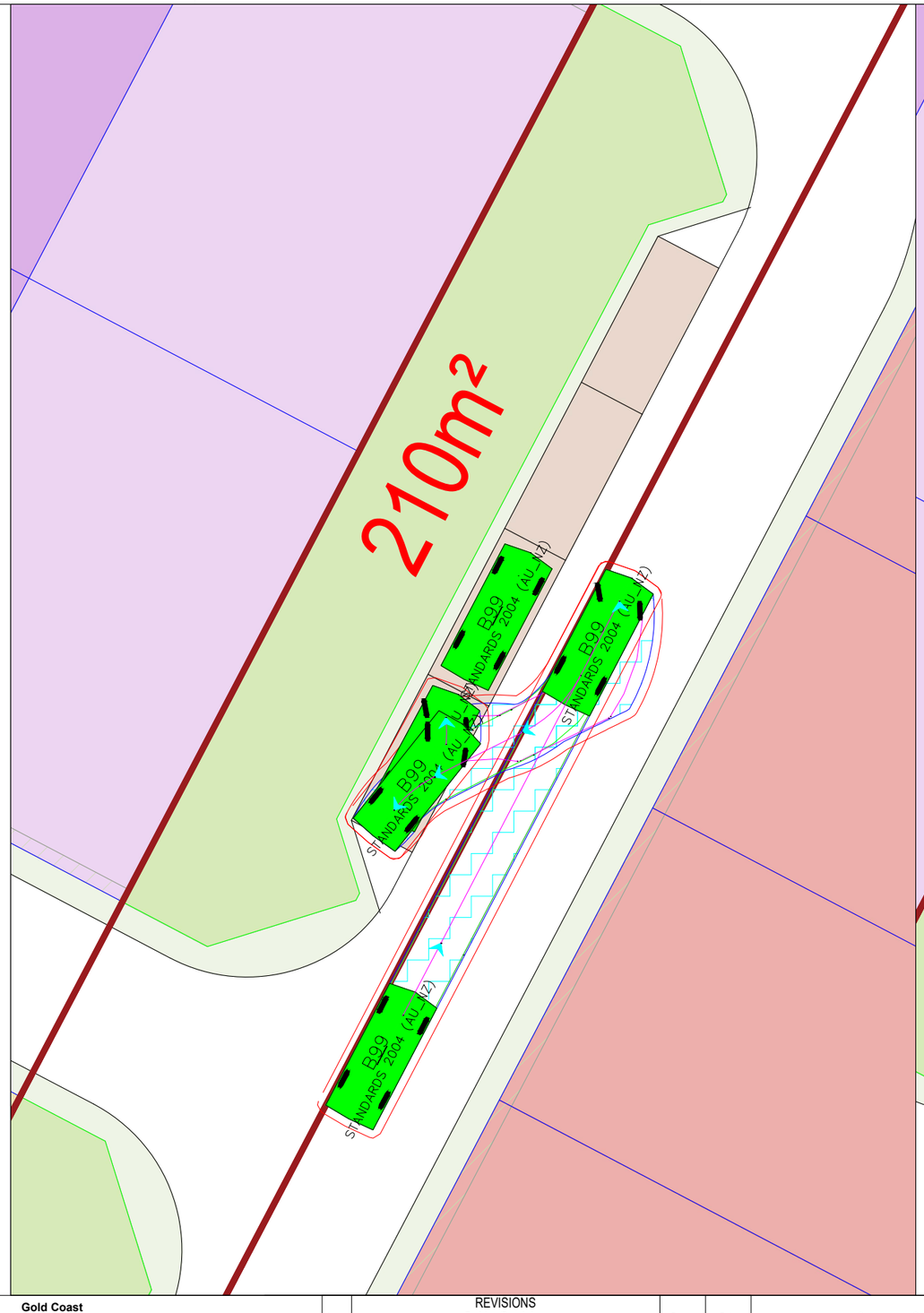
Title: Car and Caravan
Internal Manoeuvres - Sheet 2

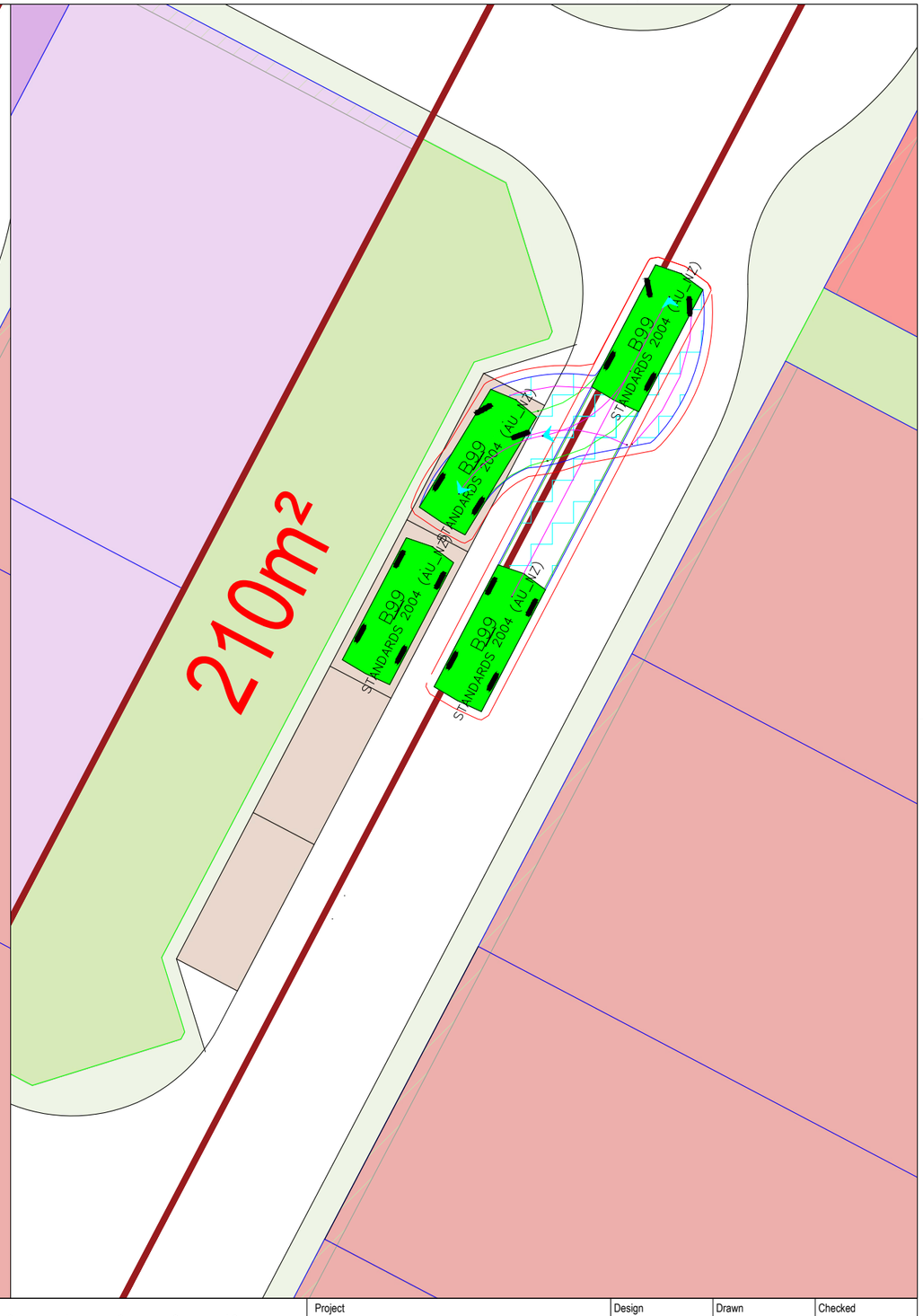
Design	Drawn	Checked
J.K	J.K	R.T

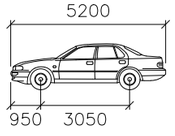
CONCEPT ONLY

Date: 02.10.2024

Project Number	Sheet Number	Issue
P6519	4	002







B99

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

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 0 2 4 6 8 10 1:200

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

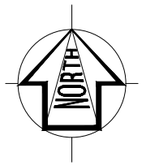
Title: Car (B99) Parallel Parking Swept Paths

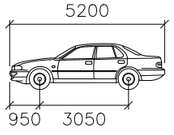
Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	10	001

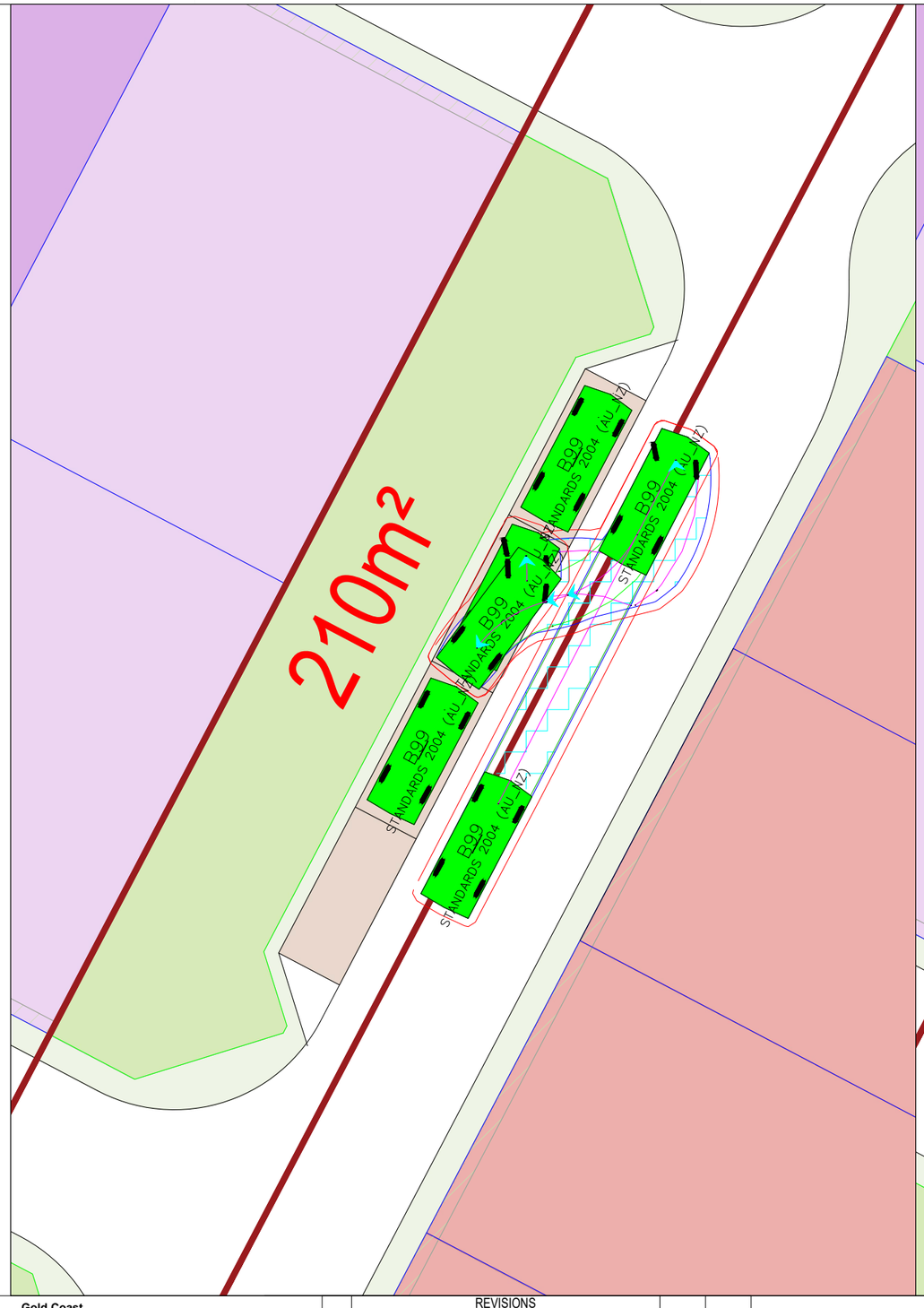


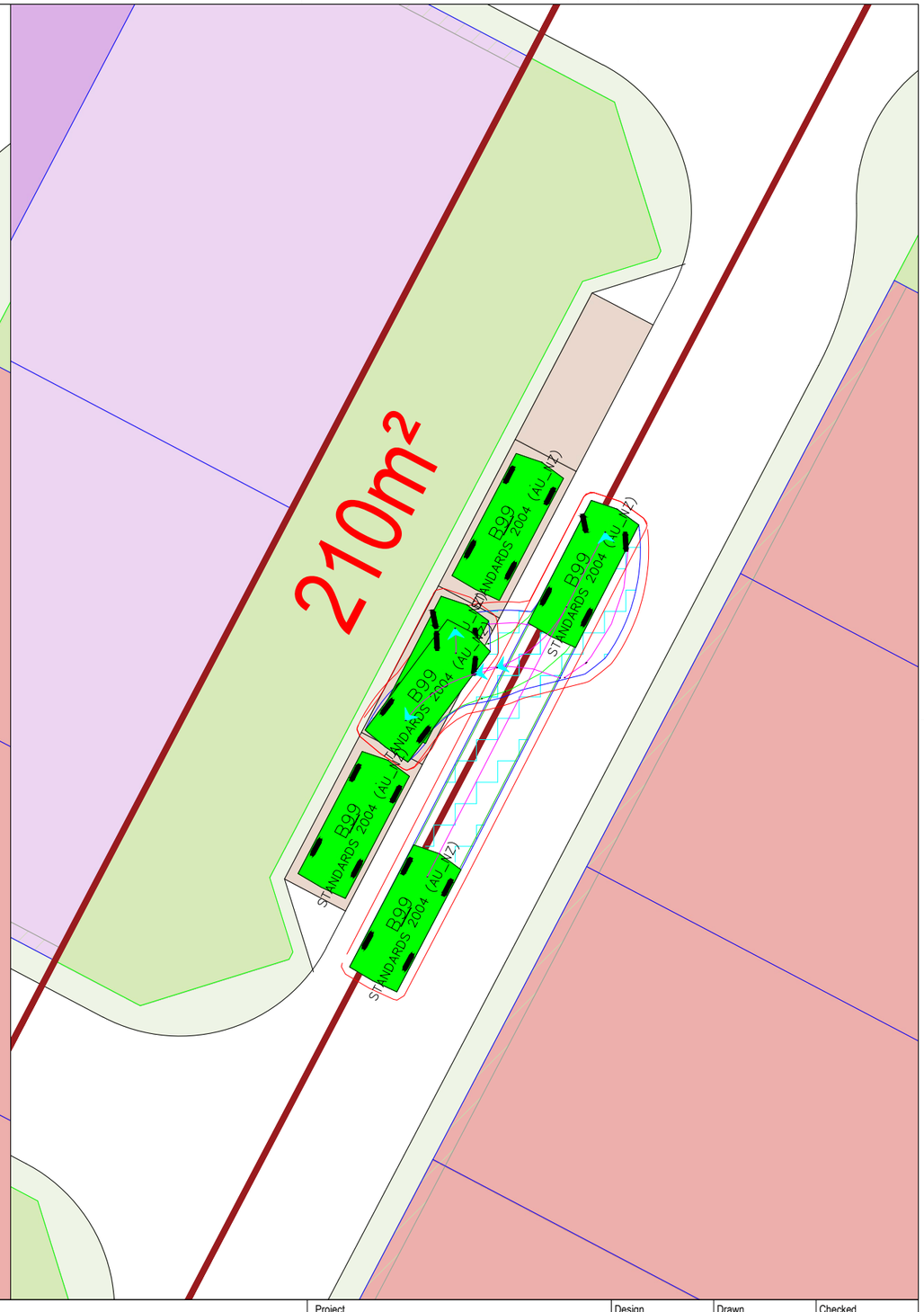


B99

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

DESIGN VEHICLE





Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024

Scale @ A3 0 2 4 6 8 10 1:200

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

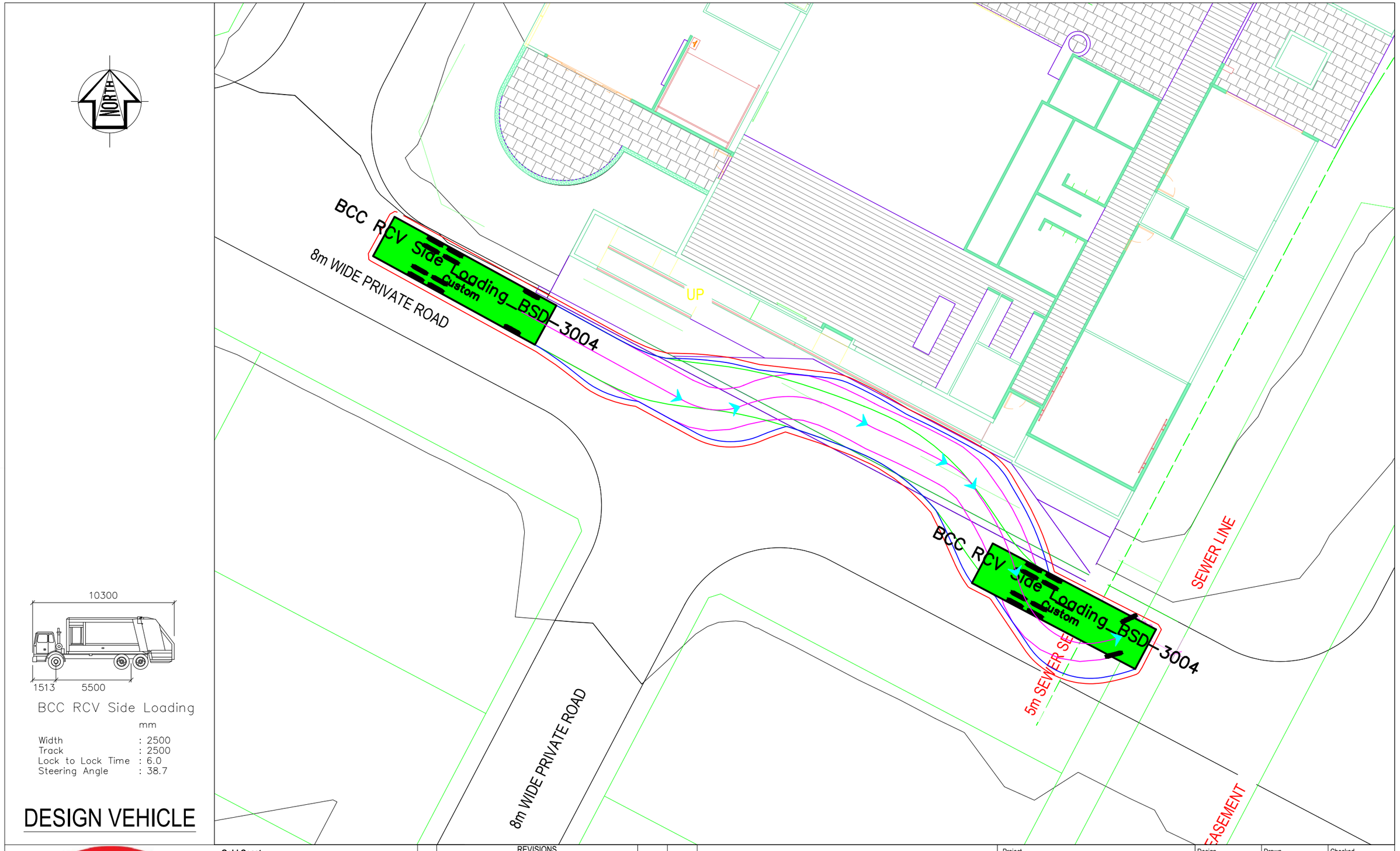
Title: Car (B99) Parallel Parking Swept Paths

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 03.07.2024

Project Number	Sheet Number	Issue
P6519	11	001



BCC RCV Side Loading

mm

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

REVISIONS

Issue	Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	03.07.2024
002	UPDATED ISSUE	J.K	25.07.2024

Scale @ A3 0 2 4 6 8 10 1:200

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

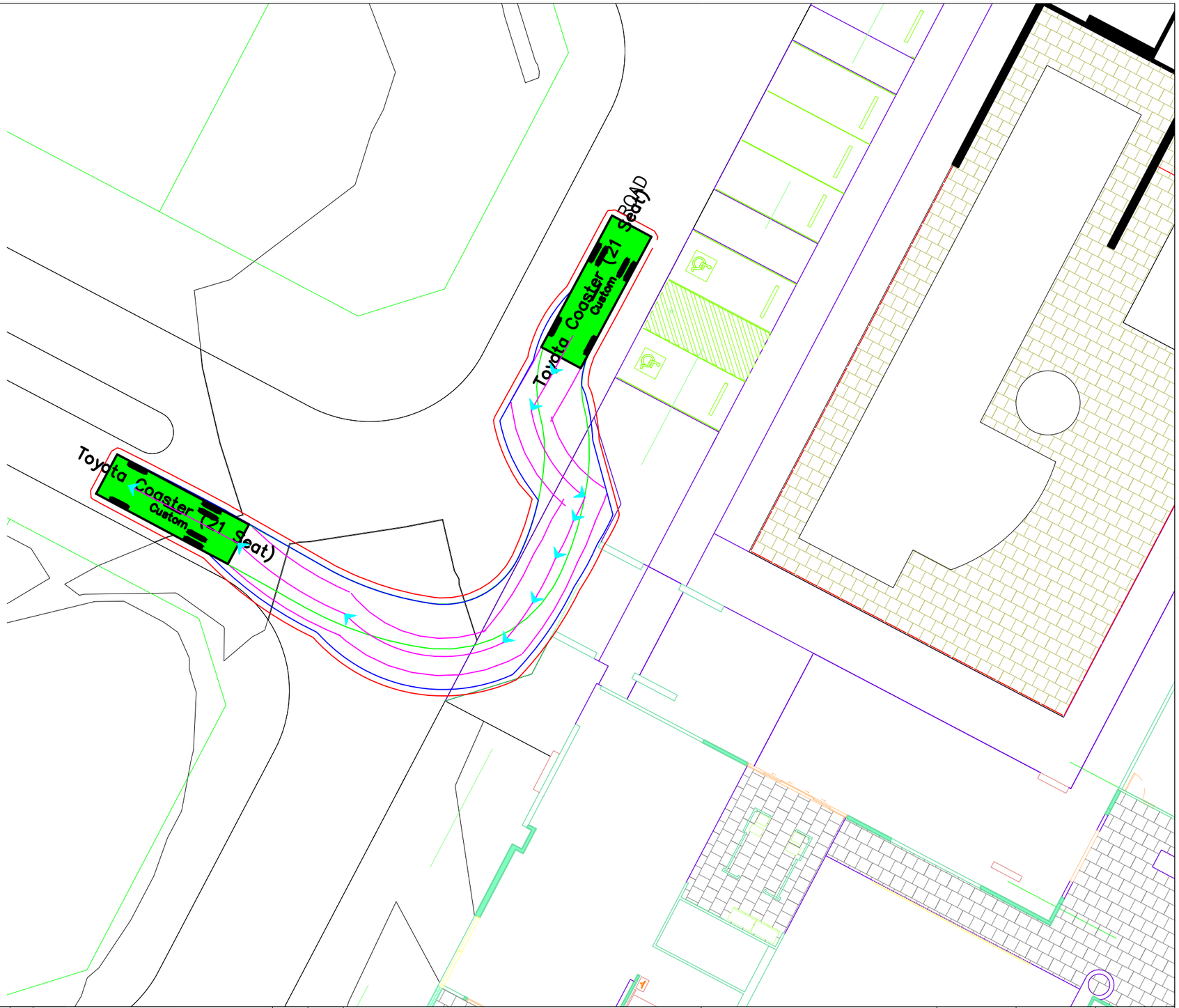
Title: Community Area Loading Zone

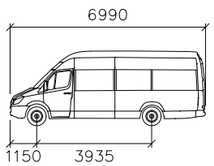
Design	Drawn	Checked
J.K	J.K	N.E

CONCEPT ONLY

Date: 25.07.2024

Project Number	Sheet Number	Issue
P6519	12	002





Toyota Coaster (21 Seat)

	mm
Width	: 2095
Track	: 2100
Lock to Lock Time	: 6.0
Steering Angle	: 38.5

DESIGN VEHICLE

Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226
P: (07) 5562-5377
W: www.bitziosconsulting.com.au
Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000
P: (07) 3831-4442
E: admin@bitziosconsulting.com.au
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042
P: (02) 9557 6202

Issue	REVISIONS Revisions/Descriptions	Drawn	Date
001	DA ISSUE	J.K	25.07.2024

Scale @ A3 0 2 4 6 8 10 1:200

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

Project: College Drive Flagstone Retirement Village TIA

Title: Minibus Loading Zone

Design	Drawn	Checked
J.K	J.K	R.T

CONCEPT ONLY

Date: 25.07.2024

Project Number	Sheet Number	Issue
P6519	15	001

Gold Coast
Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane
Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney
Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au
E: admin@bitziosconsulting.com.au