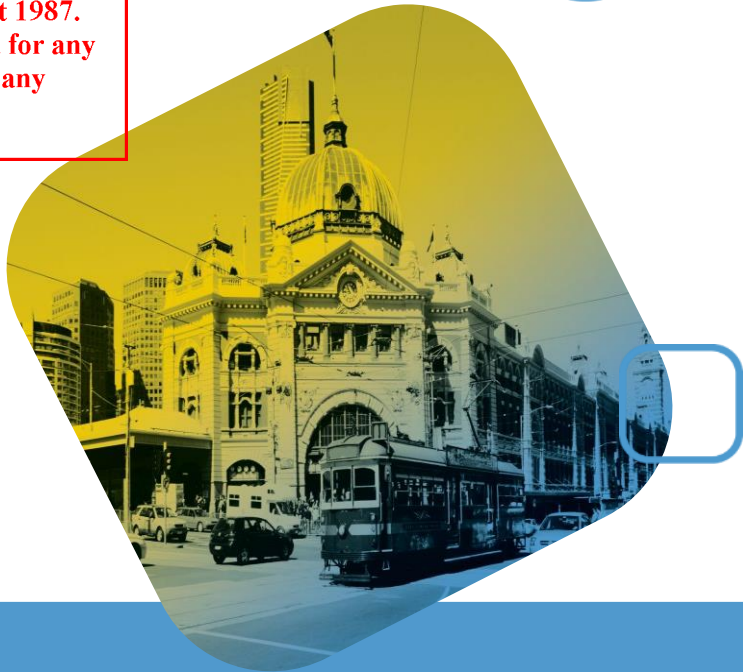


37° 45' 25" S  
144° 41' 34" E

# Proposed School: Sentinel Parade, Truganina

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PLAN**



## Traffic and Transport Assessment

16 May 2024  
Prepared for Melbourne Archdiocese Catholic Schools

IMP2401040TTA01F01

**Impact**

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## Document Information

Client Melbourne Archdiocese  
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Parade, Truganina

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## Document Control

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## Appendices

APPENDIX A	Swept Path Analysis
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# 1 IMPACT<sup>®</sup> Snap Shot

## Development Proposition

<b>Location</b>	<a href="#">37° 45' 25" S 144° 41' 34" E</a>	Sentinel Parade, Truganina	
<b>Use</b>	Primary School & Early Learning Centre		
<b>Yield</b>	<b>Stage 1</b>	Primary School ELC	225 students with 16 staff 99 3-5 year olds with 16 staff
	<b>Ultimate Stage</b>	Primary School ELC	525 students with 36 staff 99 3-5 year olds with 16 staff
<b>Car Parking</b>	<b>Stage 1</b>	Primary School ELC	16 spaces 22 spaces 38 total spaces
	<b>Ultimate Stage</b>	Primary School ELC	36 spaces 22 spaces 58 total spaces
<b>Bicycle Parking</b>	<b>Stage 1</b>	Three (3) employee and 26 student spaces	
	<b>Ultimate Stage</b>	Three (3) employee and 26 student spaces	

## Statutory Controls

### Particular Provisions

#### Clause 52.06 - Car Parking

<b>Requirement vs Provision</b>	<b>Stage 1</b> 38 spaces required. 38 spaces provided. <b>Ultimate Stage</b> 58 spaces required. 58 spaces provided
<b>Adequacy of Provision</b>	The parking provision meets the requirement and is therefore considered satisfactory.
<b>Design</b>	The proposed car park and accessways have been assessed and determined to have satisfied the relevant design guidelines.
<h4>Clause 52.34 - Bicycle Facilities</h4>	
<b>Requirement vs Provision</b>	<b>Stage 1 Requirement</b> One (1) employee and four (4) student spaces <b>Stage 1 Provision</b> One (1) employee and four (4) student spaces <b>Ultimate Stage Requirement</b> Three (3) employee and 26 student spaces <b>Ultimate Stage Provision</b> Three (3) employee and 26 student spaces
<b>Adequacy of Provision</b>	The bicycle parking provision meets the statutory requirements and is therefore considered satisfactory.
<b>Design</b>	The bicycle spaces are to be provided in the form of proprietary bicycle hoops designed to satisfy the relevant standards.

## Traffic Considerations

### Traffic Generation

RMS traffic generation rates for the primary school and ELC facility were utilised as part of this assessment. The following peak volumes are expected

#### Stage 1

AM Peak 283 movements

PM Peak 238 movements

#### Ultimate Stage

AM Peak 552 movements

PM Peak 454 movements

### Traffic Impact

Transport Modelling undertaken by Jacobs found that the road network will perform well after the school and ELC are developed, with volume-to-capacity ratios of below 0.80 by year 2046.

This presents an acceptable outcome in this instance, noting that the proposed school during its ultimate stage, has been accounted for in the Mt. Atkinson Precinct Structure Plan and is not expected to have detrimental impacts to the road network.

## Conclusion

- The proposed development satisfies relevant statutory requirements and where the statutory requirements are not explicitly met, the development is deemed to satisfy decision guidelines that allow for a reduction or waiver of the said requirement.
- There are no traffic and transport grounds that should prohibit the issue of a permit.

## 2 Introduction

### 2.1 Engagement

**IMPACT**<sup>®</sup> have been engaged by Melbourne Archdiocese Catholic Schools to undertake a Traffic and Transport Impact Assessment for the proposed primary school development and early learning centre located at Sentinel Road, Truganina.

### 2.2 Scope of Engagement

This Traffic and Transport Impact Assessment has been prepared to accompany a town planning submission.

In preparing this assessment we have referenced the following:

- Development plans prepared by LAW Architects;
- Victorian Planning Authority's 'Mt Atkinson & Tarneit Plains PSP' January 2020;
- PSP 1082 Mt Atkinson and PSP 1085 Tarneit Plains - Transport Modelling Assessment by Jacobs;
- Mt Atkinson & Tarneit Plains Transport Modelling Assessment by Jacobs dated 4 July 2016; and
- Wyndham City Council Planning Scheme, specifically:
  - Clause 52.06 - Car Parking, and
  - Clause 52.34 - Bicycle Facilities

## 3 Existing Conditions

### 3.1 Location

The subject site is located on the southern side of Wiltshire Boulevard as illustrated in Figure 1.



**Figure 1 Aerial View of Subject Site (Dated 10/03/2024)**

The site is irregular in shape with street frontages of approximately 185 metres to Sentinel Parade and Kangri Street to the north and south respectively. As well as frontages of approximately 165 metres to Carpathians Street to the west and 245 metres to Clara Avenue to the west.

## 3.2 Planning Zone

The subject site is located within the Urban Growth Zone (UGZ9) as illustrated in Figure 2.



**Figure 2** Land Use Planning Zone

The purpose of this zone is to, amongst other things, provide for a range of uses and the development of land generally in accordance with a precinct structure plan.

## 3.3 Road Network

### 3.3.1 Sentinel Parade

Classified as local road. Aligned in an east-west between McKinley Drive to the east and Annapurna Crescent to the west.

Along the site frontage, Sentinel Parade comprises an approximate three (3) metre road pavement that provides one (1) trafficable lane in each direction, as well as parallel parking and pedestrian footpaths on both sides of the road pavement. Its typical cross-section is illustrated in Figure 3.



**Figure 3** View of Sentinel Parade facing east adjacent the subject site



### 3.3.2 Clara Avenue

Classified as local road. Aligned in a northeast-southwest direction between Sentinel Parade to the northeast and Conondale Avenue to the southwest.

Along the site frontage, Clara Avenue comprises an approximate seven (7) metre road pavement that provides one (1) trafficable lane in each direction, as well as parallel parking and pedestrian footpaths on both sides of the road pavement. Additionally, there is a 3 metre wide bike path on the east of Clara Avenue. Its typical cross-section is illustrated in Figure 4



**Figure 4** View of Clara Avenue facing south adjacent the subject site

### 3.3.3 Carpathians Street

Classified as local road. Aligned in a northeast-southwest direction between Sentinel Parade to the northeast and Annapurna Crescent to the southwest.

Along the site frontage, Carpathians Street comprises an approximate 6.5 metre road pavement that provides one (1) trafficable lane in each direction, as well as parallel parking and pedestrian footpaths on both sides of the road pavement. Its typical cross-section is illustrated in Figure 3.



**Figure 5** View of Carpathians Street facing south adjacent the subject site

### 3.3.4 Kangri Street

Classified as local road. Aligned in a northwest-southeast direction between Carpathian Street to the northwest and Clara Avenue to the southeast.

Along the site frontage, Kangri Street comprises an approximate 6.5 metre road pavement that provides one (1) trafficable lane in each direction, as well as pedestrian footpaths on both sides of the road pavement. Its typical cross-section is illustrated in Figure 4



**Figure 6** View of Kangri facing southeast adjacent the subject site

# 4 Mount Atkinson Precinct Structure Plan

## 4.1 Mount Atkinson Precinct Structure Plan

The Mount Atkinson PSP has been prepared by the Victoria Planning Authority (VPA), with assistance from the City of Melton, VicRoads/DTP and other stakeholders. The Mount Atkinson PSP was approved by the Minister of Planning in February 2020 and subsequently incorporated into the City of Melton Planning Scheme.

The subject site is located within the Mount Atkinson PSP as shown in Figure 7.

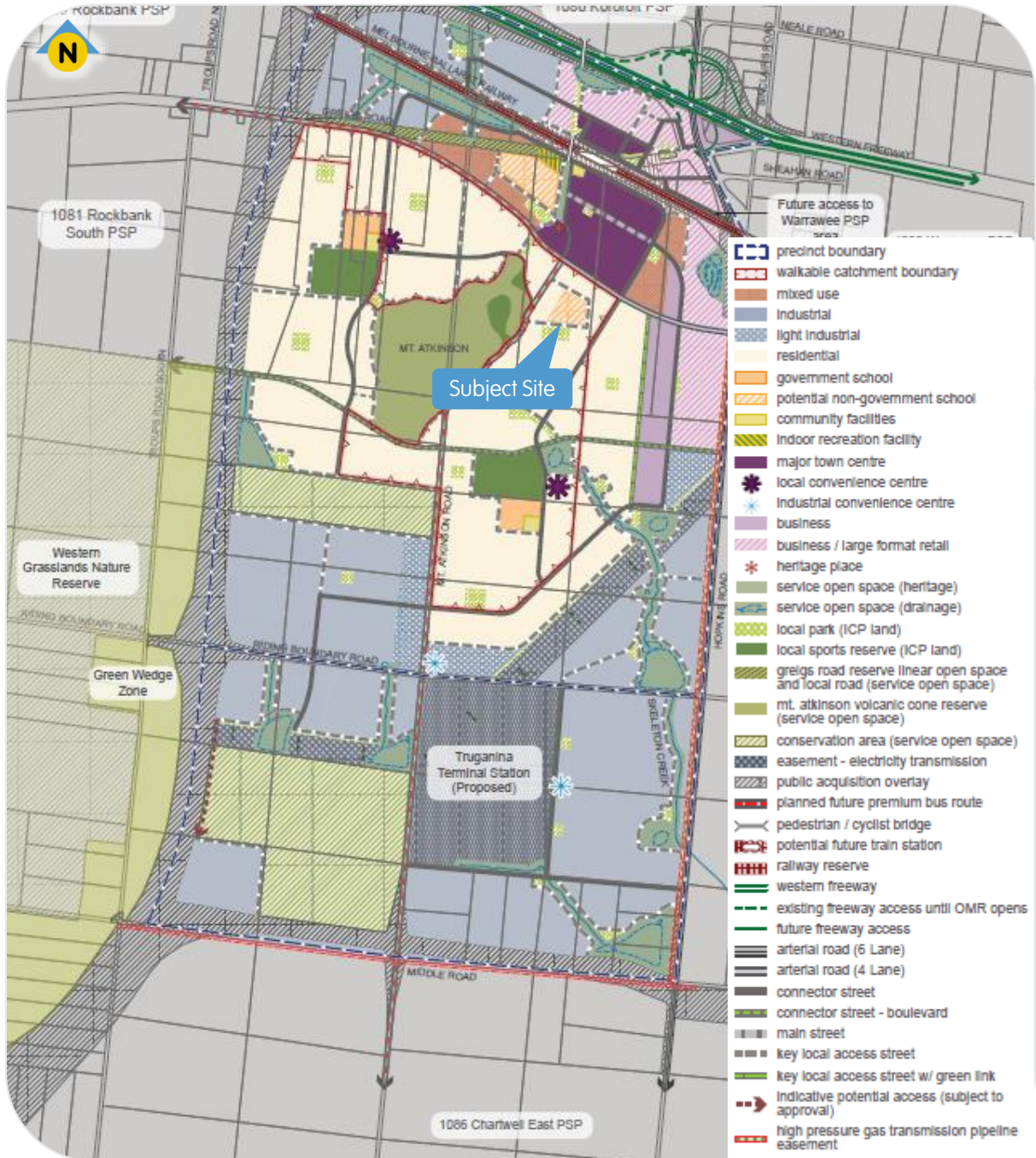
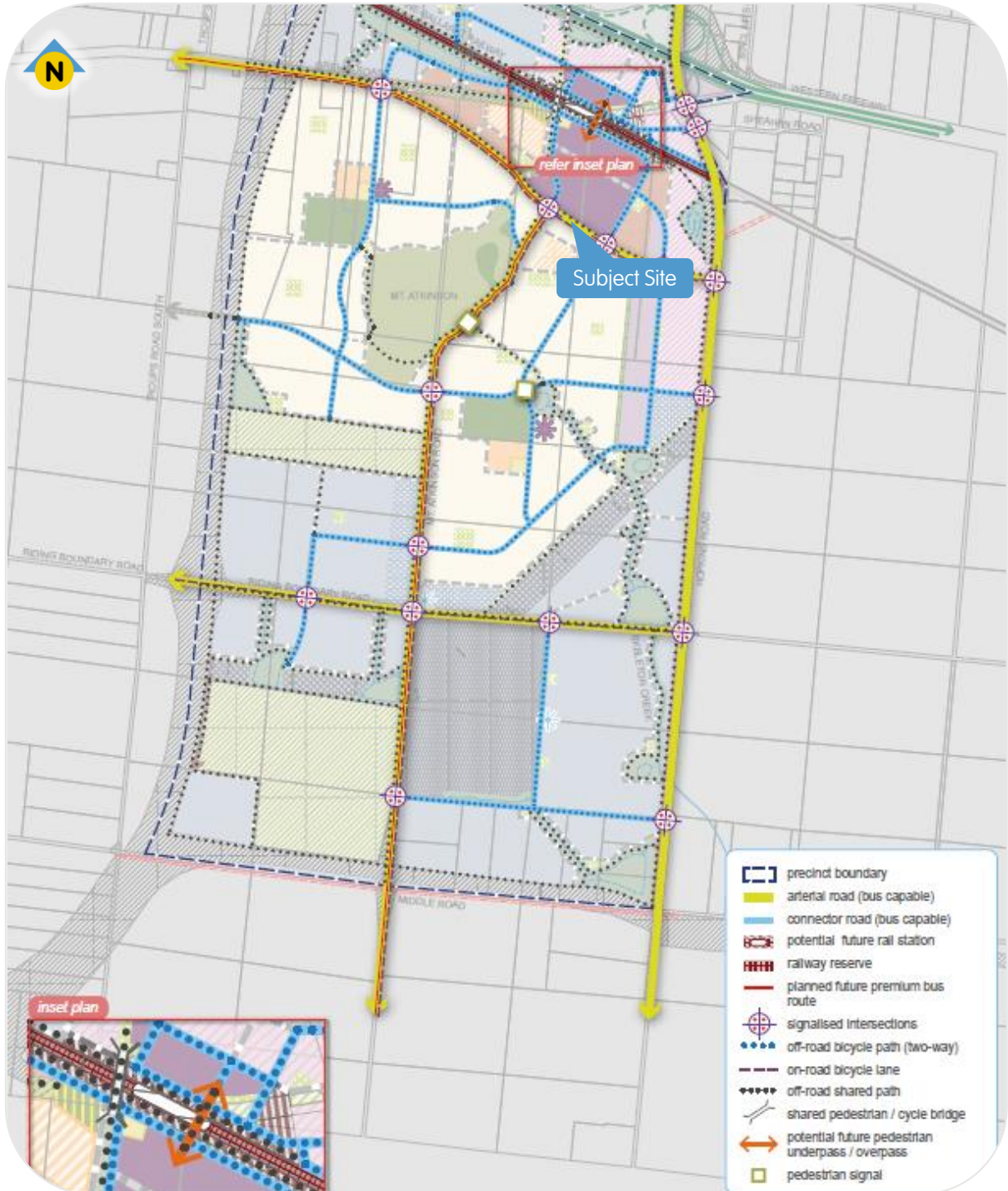


Figure 7 Future Urban Structure – Mount Atkinson (PSP)

### 4.1.1 Sustainable Transport

The Mount Atkinson PSP sets out the provisions of a sustainable transport network which has already been partially implemented within the locality. Most notably there are on and off-road bike paths throughout the area, highlighted by the off-road bike paths on Clara Avenue. Additionally, Clara Avenue is also capable of accommodating buses.

Plan 10 - Public Transport and Path Network from the Mount Atkinson PSP is shown at Figure 8 below.



**Figure 8 Public Transport and Path Network – Mount Atkinson (PSP)**

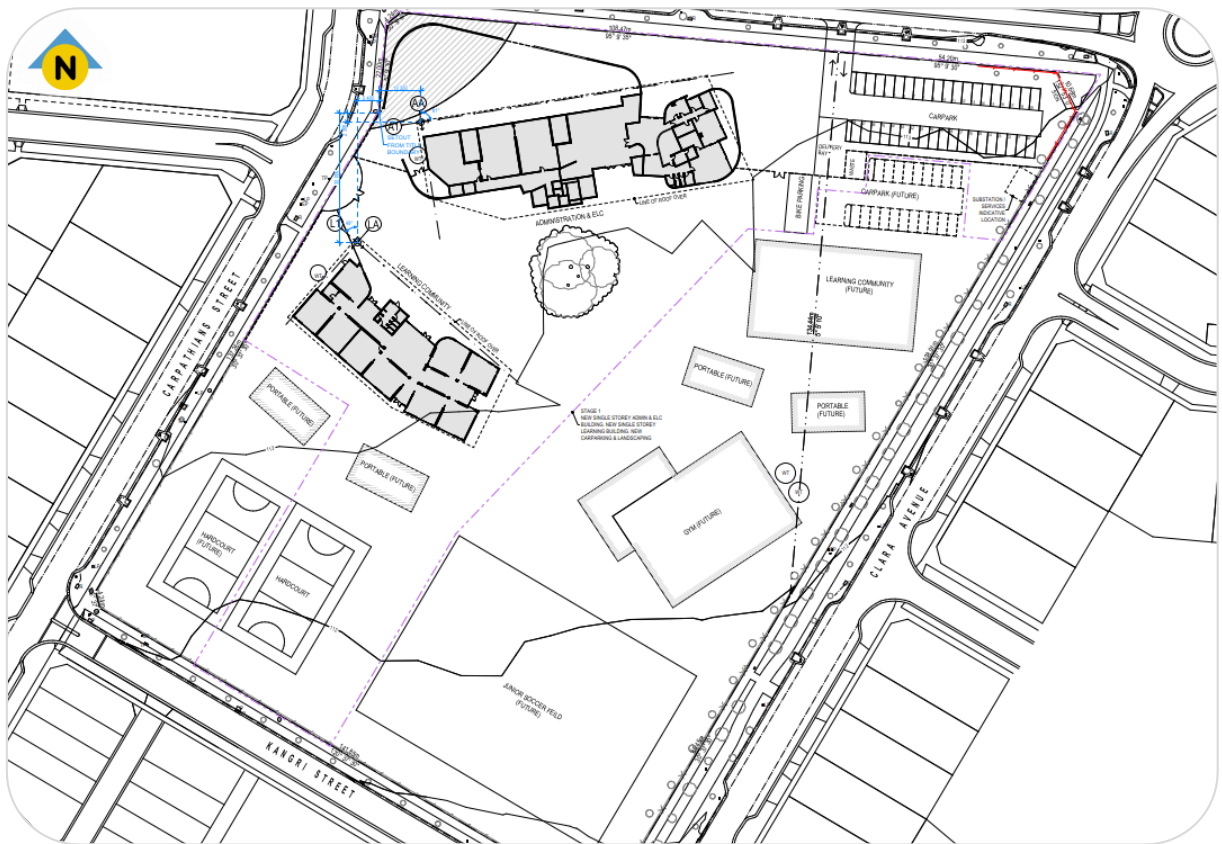
## 5 Development Proposition

### 5.1 Ultimate School Development

LAW Architects have prepared a masterplan for the subject site which contemplates a prep to grade 6 primary school with up to 525 students and up to 36 full-time equivalent (FTE) staff. Additionally, an early learning centre (ELC) is planned capable of accommodating 99 3-5 year olds and up to 16 staff at any one time.

The ultimate development will be delivered over four (4) stages and includes multiple building upgrades to learning and administrative facilities. It is noted that this application is only for Stage 1 of the masterplan.

The stages of the development for the completed masterplan are shown at Figure 9.



**Figure 9 Proposed Masterplan Staging Development Plan**

The ultimate development will be delivered over four (4) stages and includes multiple building upgrades to learning and administrative facilities. A breakdown of each stage of development is as follows:

#### **Stage 1 - Learning and Administration (Primary School) & ELC**

- A total of 2,215 sq.m of new building area;
- A primary school with a student population of 225 and a total of 16 Staff;
- An Early Learning centre capable of accommodating 99 3-5 year olds and a total of 16 staff; and
- A total of 16 car parking spaces for the primary school and 22 spaces for the ELC;

#### **Ultimate Stage**

The design of the Ultimate Stages of the masterplan are still in development. However, it is expected that when complete the school will be designed to cater for up to a total of 36 staff and 525 students.

## 5.2 Car Parking and Access

### Stage 1

It is proposed that access will be afforded via a double width crossover to Sentinel Parade.

The car park is to be constructed over two stages, with a total of 38 spaces provided.

Stage 1, the focus of this planning application, contemplates providing 16 parking spaces for the Primary School and 22 spaces for the ELC.

### Ultimate Stage

Access will remain unchanged for the ultimate stage.

The car park has been designed to future-proof for the expansion of the school, with the ability to increase the total car parking provision to 58 spaces (20 additional spaces for the primary school).

## 5.3 Bicycle Parking

### Stage 1

A secured bicycle storage area is planned near the car park with a total of 3 staff and 26 student spaces provided as a part of Stage 1.

### Ultimate Stage

The bicycle parking storage area has been designed to be 'future-proof'. The provided spaces for Stage 1 meet the requirements of the ultimate stage.

## 5.4 Waste Collection

A dedicated waste storage area has been proposed adjacent the loading bay, at the western side of the car park.

The waste collection vehicle is expected to enter and exit the site in a forward motion.

Accordingly, waste collection will be scheduled during the off-peak times. In addition, it is expected that the waste vehicles will give-way to opposing traffic if required and thus is not expected to be detrimental to access or safety.

Swept path assessment for both an 8.8m Service Vehicle and a 6.4m mini rear loader waste vehicle are illustrated in Appendix A.

## 6 Statutory Controls

The relevant traffic and transportation Statutory Controls are:

### Particular Provisions

- Clause 52.06 - Car Parking
- Clause 52.34 - Bicycle Facilities

### General Provisions

- Clause 65.01 - Approval of an Application or Plan

## 6.1 Clause 52.06 - Car Parking

### 6.1.1 Purpose

The purpose of Clause 52.06 is:

- To ensure that car parking is provided in accordance with the Municipal Planning Strategy and Planning Policy Framework.
- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
- To support sustainable transport alternatives to the motor car.
- To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
- To ensure that car parking does not adversely affect the amenity of the locality.
- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

### 6.1.2 Provision and Design Requirements

To satisfy the above purpose, Clause 52.06 of the Wyndham City Council Planning Scheme specifies requirements relating to the provision and design of car parking as follows:

### 6.1.3 Car Parking Provision Requirements - Clause 52.06-5

Table 1 to Clause 52.06-05 of the Wyndham City Council Planning Scheme provides rates for various land uses. The following rates apply to the Primary School and ELC contemplated on the site:

<b>Primary School</b>	1 space to each employee that is part of the maximum number of employees on the site at any time.
<b>Childcare Centre</b>	0.22 spaces to each child

#### Stage 1

Application of the above rates reveals a requirement to provide a total of 16 parking spaces for the Primary School and 22 spaces for the ELC for Stage 1. A total provision of 38 parking spaces is required.

#### Ultimate Stage

When the masterplan is completed, the development will require a total provision of 36 parking spaces for the Primary School and 22 Spaces for the ELC. A total provision of 58 parking spaces is required.

## 6.1.4 Proposed Provision

### Stage 1

The proposal contemplates a total of 16 parking spaces for the Primary School and 22 parking spaces for the ELC, for a total of 38 spaces, for Stage 1 of the overall development.

### Ultimate Stage

The car park has been designed to future-proof for the expansion of the school, with the ability to increase the total car parking provision to 58 spaces (20 additional spaces for the primary school).

The provision for both Stage 1 and the Ultimate Stage satisfies the statutory requirement and is therefore considered appropriate.

## 6.1.5 Conclusion - Car Parking Provision

We can conclude that an adequate number of spaces are provided to cater for the projected demand.

Accordingly, the development proposition satisfies the purpose of Clause 52.06, specifically:

- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.



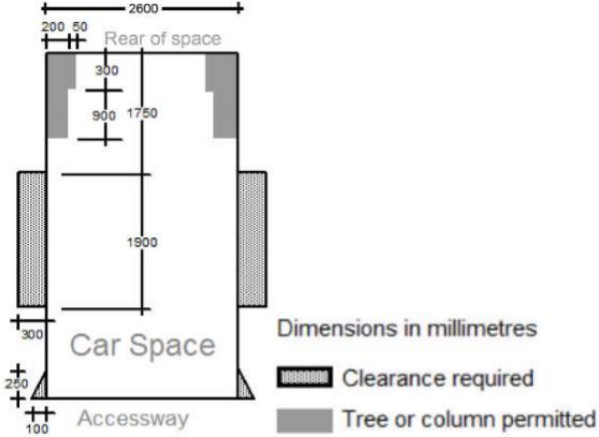
## 6.1.6 Design Standard for Car Parking - Clause 52.06 - 9

We have assessed the proposed car parking design and access arrangements against the requirements of Clause 52.06-9 of the Wyndham City Council Planning Scheme. Our findings are as follows:

### 6.1.6.1 Design Standard 1 - Accessways

Requirements	Design Response	Status
<b>Accessways Must:</b>		
<b>1</b> Be at least 3 metres wide.	Accessways are at least 6.4m wide.	<b>Comply</b>
<b>2</b> Have an internal radius of at least 4 metres at changes of direction or intersection or be at least 4.2 metres wide	Intersections are at least 6.4m wide at changes of direction.	<b>Comply</b>
<b>3</b> Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	Car park is not a public car park.	<b>N/A</b>
<b>4</b> Provide at least 2.1 metres headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8 metres.	No overhead obstructions proposed.	<b>N/A</b>
<b>5</b> If the accessway serves four or more car spaces or connects to a road in a Transport Zone 2 or Transport Zone 3, the accessway must be designed so that cars can exit the site in a forward direction.	Accessway is designed so that cars can exit the site in a forward direction.	<b>Comply</b>
<b>6</b> Provide a passing area at the entrance at least 6.1 metres wide and 7 metres long if the accessway serves ten or more car parking spaces and is either more than 50 metres long or connects to a road in a Transport Zone 2 or Transport Zone 3.	A suitable passing area is provided.	<b>Comply</b>
<b>7</b> Have a corner splay or area at least 50 percent clear of visual obstructions extending at least 2 metres along the frontage road from the edge of an exit lane and 2.5 metres along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	Corner splay shall be provided adjacent the exit lane of each accessway at the site boundary.	<b>Comply</b>
<b>8</b> If an accessway to four or more car parking spaces is from land in a Transport Zone 2 or Transport Zone 3, the access to the car spaces must be at least 6 metres from the road carriageway.	Accessway is not connected to a Road in a Road Zone.	<b>N/A</b>

## 6.1.6.2 Design Standard 2 - Car Parking Spaces

Requirements	Design Response	Status																													
<p><b>1</b> Car parking spaces and accessways must have the minimum dimensions in Table 2 of Clause 52.06-9.</p> <table border="1" data-bbox="288 450 938 712"> <thead> <tr> <th>Angle of car parking spaces to access way</th> <th>Accessway width</th> <th>Car space width</th> <th>Car space length</th> </tr> </thead> <tbody> <tr> <td>Parallel</td> <td>3.6 m</td> <td>2.3 m</td> <td>6.7 m</td> </tr> <tr> <td>45°</td> <td>3.5 m</td> <td>2.6 m</td> <td>4.9 m</td> </tr> <tr> <td>60°</td> <td>4.9 m</td> <td>2.6 m</td> <td>4.9 m</td> </tr> <tr> <td rowspan="4">90°</td> <td>6.4 m</td> <td>2.6 m</td> <td>4.9 m</td> </tr> <tr> <td>5.8 m</td> <td>2.8 m</td> <td>4.9 m</td> </tr> <tr> <td>5.2 m</td> <td>3.0 m</td> <td>4.9 m</td> </tr> <tr> <td>4.8 m</td> <td>3.2 m</td> <td>4.9 m</td> </tr> </tbody> </table>	Angle of car parking spaces to access way	Accessway width	Car space width	Car space length	Parallel	3.6 m	2.3 m	6.7 m	45°	3.5 m	2.6 m	4.9 m	60°	4.9 m	2.6 m	4.9 m	90°	6.4 m	2.6 m	4.9 m	5.8 m	2.8 m	4.9 m	5.2 m	3.0 m	4.9 m	4.8 m	3.2 m	4.9 m	<p>Car parking spaces are designed as per Australian Standards, at the following dimensions:</p> <ul style="list-style-type: none"> <li>5.4m long, 2.4m wide, and accessed from an aisle 6.4m wide.</li> </ul>	<b>Comply</b>
Angle of car parking spaces to access way	Accessway width	Car space width	Car space length																												
Parallel	3.6 m	2.3 m	6.7 m																												
45°	3.5 m	2.6 m	4.9 m																												
60°	4.9 m	2.6 m	4.9 m																												
90°	6.4 m	2.6 m	4.9 m																												
	5.8 m	2.8 m	4.9 m																												
	5.2 m	3.0 m	4.9 m																												
	4.8 m	3.2 m	4.9 m																												
<p><b>2</b> A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 other than:</p> <p>A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1 of the design standard</p> <p>A structure, which may project into the space if it is at least 2.1 metres above the space.</p> 	<p>Appropriate clearance has been provided for car spaces in accordance with Diagram 1.</p>	<b>Comply</b>																													
<p><b>3</b> Car spaces in garages or carports must be at least 6 metres long and 3.5 metres wide for a single space and 5.5 metres wide for a double space measured inside the garage or carport.</p>	No garages proposed.	<b>N/A</b>																													
<p><b>4</b> Where parking spaces are provided in tandem (one space behind another) an additional 500mm in length must be provided between each space.</p>	No tandem spaces proposed.	<b>N/A</b>																													
<p><b>5</b> Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.</p>	No dwellings proposed.	<b>N/A</b>																													
<p><b>6</b> Disabled car parking spaces must be designed in accordance with AS 2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 by 500mm.</p>	No Disabled parking bays are proposed	<b>N/A</b>																													

## 6.1.7 Conclusion - Car Park Design

The proposed car park and accessways have been assessed and determined to have satisfied the relevant design guidelines.

Accordingly, the proposal satisfies the purpose of Clause 52.06, specifically:

- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

## 6.2 Clause 52.34 - Bicycle Facilities

### 6.2.1 Purpose

The purpose of Clause 52.34 is to encourage cycling as a mode of transport, and provide secure, accessible and convenient bicycle parking spaces and associated shower and change facilities.

### 6.2.2 Provision Requirements - Clause 52.34.3

To satisfy the above purpose, Clause 52.34-3 of the Wyndham City Council Planning Scheme specifies the bicycle parking provision requirements for a variety of different uses within Table 1.

<b>Primary School:</b>	Employees:	1 space to each 20 employees
	Students:	1 space to each 5 pupils over year 4

It is noted that there is no statutory requirement to provide bicycle parking for the ELC facility.

As mentioned previously, the proposal contemplates the following:

- Stage 1            16 staff on site and 225 students for the primary school.
- Ultimate Stage   36 staff and 225 Year 5-6 students

Based on the above, the primary school development has a requirement for:

- Stage 1            **one (1) employee spaces** and **four (4) student spaces required.**
- Ultimate Stage   **three (3) employee spaces** and **26 student spaces required.**

### 6.2.3 Design Requirements

Bicycle spaces should:

- Provide a space for a bicycle of minimum dimensions of 1.7 metres in length, 1.2 metres in height and 0.7 metres in width at the handlebars.
- Be located to allow a bicycle to be ridden to within 30 metres of the bicycle parking space.
- Be located to provide convenient access from surrounding bicycle routes and main building entrances.
- Not interfere with reasonable access to doorways, loading areas, access covers, furniture, services and infrastructure.
- Not cause a hazard.
- Be adequately lit during periods of use.

## 6.2.4 Decision Guidelines

Before deciding on an application, in addition to the decision guidelines in Clause 65, the responsible authority must consider, as appropriate:

- Whether the proposed number, location and design of bicycle facilities meets the purpose of this clause.
- The location of the proposed land use and the distance a cyclist would need to travel to reach the land.
- The users of the land and their opportunities for bicycle travel.
- Whether showers and change rooms provided on the land for users other than cyclists are available to cyclists.
- The opportunities for sharing of bicycle facilities by multiple uses, either because of variation of bicycle parking demand over time or because of efficiencies gained from the consolidation of shared bicycle facilities.
- Australian Standard AS 2890.3 2015 Parking facilities Part 3: Bicycle parking facilities.
- Any relevant bicycle parking strategy or equivalent.

## 6.2.5 Proposed Provision

### Stage 1

The development plans show **three (3) spaces for employees**, and **26 spaces for students**.

### Ultimate Stage

The bicycle storage area for Stage 1 has been designed to accommodate the statutory requirement for the ultimate stage.

The provision exceeds the statutory requirements and is therefore considered adequate.

### 6.2.5.1 Design

The bicycle spaces are to be provided in the form of proprietary bicycle hoops and racks designed to satisfy the relevant standards.

## 6.2.6 Conclusion - Bicycle Parking

We can conclude that bicycle parking provided as part of this development satisfies the purpose of Clause 52.34, specifically:

- To encourage cycling as a mode of transport, and provide secure, accessible and convenient bicycle parking spaces.

# 7 Traffic Considerations

## 7.1 Traffic Generation

### 7.1.1 Primary School Traffic Generation

To understand the traffic generation of the proposed school (as it increases in population numbers and services for students such as bus services, pick-up, drop-off facilities), reference is made to the Roads and Maritime Services of New South Wales (RMS) publication 'Guide to Traffic Generating Development' and subsequent associated studies.

This document is informed by comprehensive case studies for a variety of different land uses, including several detailed studies which provide guidance on traffic generation rates for primary and secondary schools within metropolitan and regional areas.

In summary, the RMS publications suggest the following traffic generation rates (based on the school's anticipated population):

#### **Primary School - Stage 1 (225 Students)**

- AM Peak 0.87 movements per student.
- PM Peak 0.72 movements per student.

#### **Primary School - Ultimate Stage (525 Students):**

- AM Peak 0.89 movements per student.
- PM Peak 0.72 movements per student.

### 7.1.2 Primary School Traffic Movements

Based on the anticipated primary school traffic generation, the following vehicle movements are expected:

#### **Stage 1** AM Peak - 197 total movements

- 98 inbound movements
- 98 outbound movements

#### PM Peak - 162 total movements

- 81 inbound movements
- 81 outbound movements

#### **Ultimate Stage** AM Peak - 466 total movements

- 233 inbound movements
- 233 outbound movements

#### PM Peak - 378 total movements

- 189 inbound movements
- 189 outbound movements

### 7.1.3 Early Learning Centre Traffic Generation

To understand the traffic generation of the proposed kindergarten, reference is made to The Roads and Maritime Services of New South Wales' (RMS) publication 'Validation Trip Generation Surveys, Child Care Centres - Analysis Report' (September 2015).

This document is informed by comprehensive case studies for a variety of different childcare centres, providing guidance on traffic generation rates within metropolitan and regional areas. In summary, the RMS publication suggests the following traffic generation rates for Pre-Schools, which is considered applicable for the proposed kindergarten:

AM Peak	0.86 movements per student / child
PM Peak	0.76 movements per student / child

Furthermore, the following directional splits are suggested for the AM and PM peak:

AM Peak	— 0.43 movements per child inbound; and — 0.43 movements per child outbound
PM Peak	— 0.38 movements per child inbound; and — 0.38 movements per child outbound.

### 7.1.4 Early Learning Centre (ELC) Facility Movements

Based on the ELC's anticipated traffic generation, the following vehicle movements are expected:

#### Stage 1 & Ultimate Stage

AM Peak - 86 total movements

- 43 movements inbound; and
- 43 movements outbound.

PM Peak - 76 movements

- 38 movements inbound; and
- 38 movements outbound.

### 7.1.5 Total Movements

The combined anticipated traffic generation for the Primary School and Early Learning Centre for each stage is as follows:

**Stage 1** AM Peak - 283 total movements

- 141 inbound movements
- 142 outbound movements

PM Peak - 238 total movements

- 119 inbound movements; and
- 119 outbound movements

**Ultimate Stage** AM Peak - 552 total movements

- 276 inbound movements
- 276 outbound movements

PM Peak - 454 total movements

- 227 inbound movements
- 227 outbound movements

## 7.1.6 Traffic Impact

The location and development of the proposed primary school is in line with the plans laid out in the Mt Atkinson & Tarneit Plains PSP. A Transport Modelling Assessment prepared by Jacobs found that the road network generally performs well post development. The report illustrated that roads surrounding the proposed school & ELC operate well post development, having volume to capacity ratios generally less than 0.80 during the year 2046 when the school is expected to be fully built.

Noting the above, Sentinel Parade and the surrounding road network has been designed to accommodate the anticipated traffic movements from the proposed primary school and ELC. As such, we do not expect that the proposed school & ELC will impact or be detrimental to the surrounding road network.

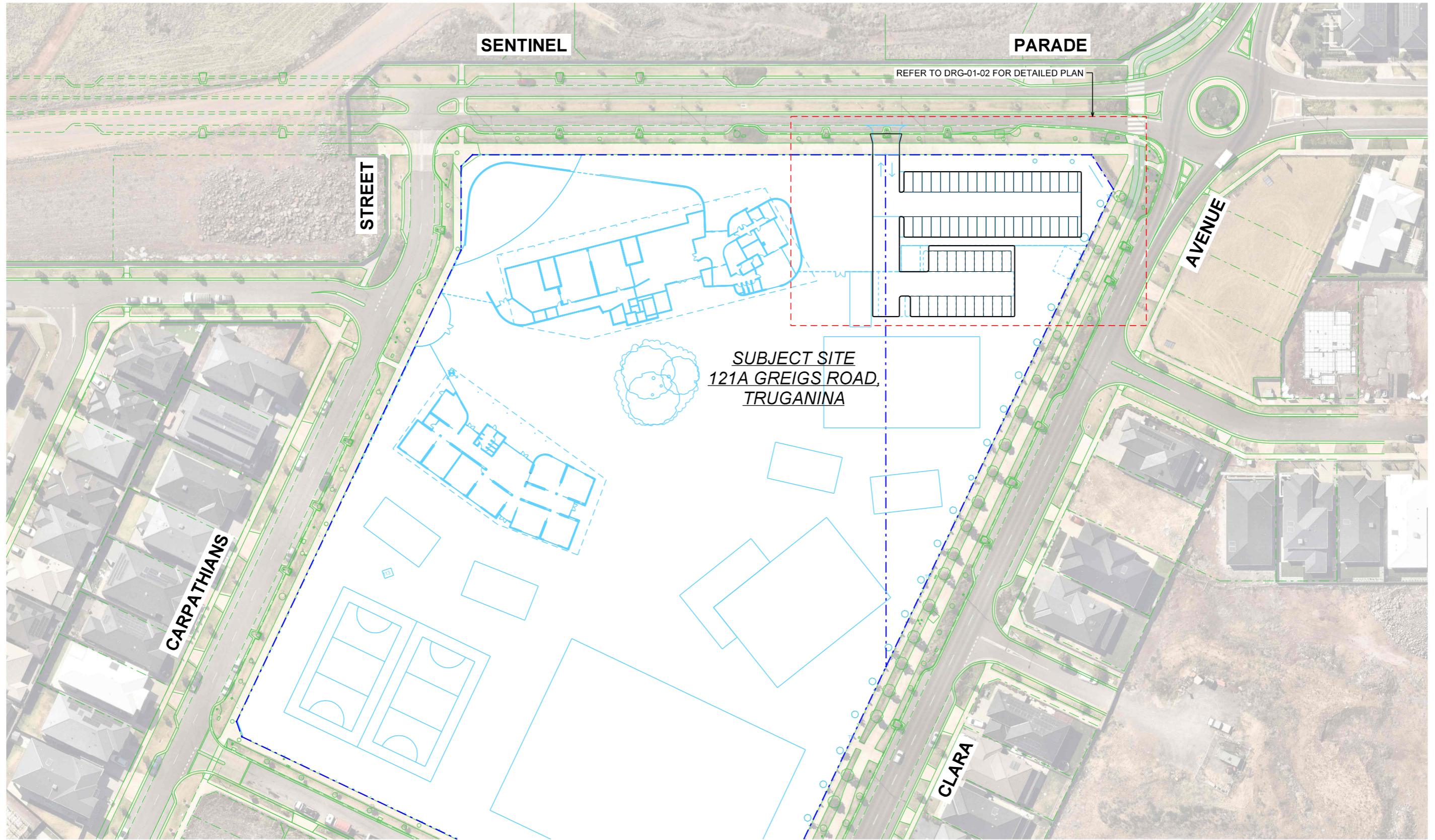
# APPENDIX A

## Swept Path Analysis

### Design Vehicles:

- B85 Car
- B99 Car
- 8.8m Medium Rigid Vehicle





**SUBJECT SITE**  
**121A GREIGS ROAD,**  
**TRUGANINA**

- GENERAL NOTES:**
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
  2. LOCAL ROADS - SENTINEL PARADE (SPEED ZONE 50KM/H).  
 - CLARA AVENUE (SPEED ZONE 50KM/H).  
 - CARPATHIANS STREET (SPEED ZONE 50KM/H).
  3. BASE INFORMATION FROM NEARMAP AERIAL PHOTOGRAPHY DATED 17.03.2024 AND LAW ARCHITECT DRAWING NO. CAD\_A100 [ ] PROPOSED SITE PLAN.dwg DATED 30.04.2024

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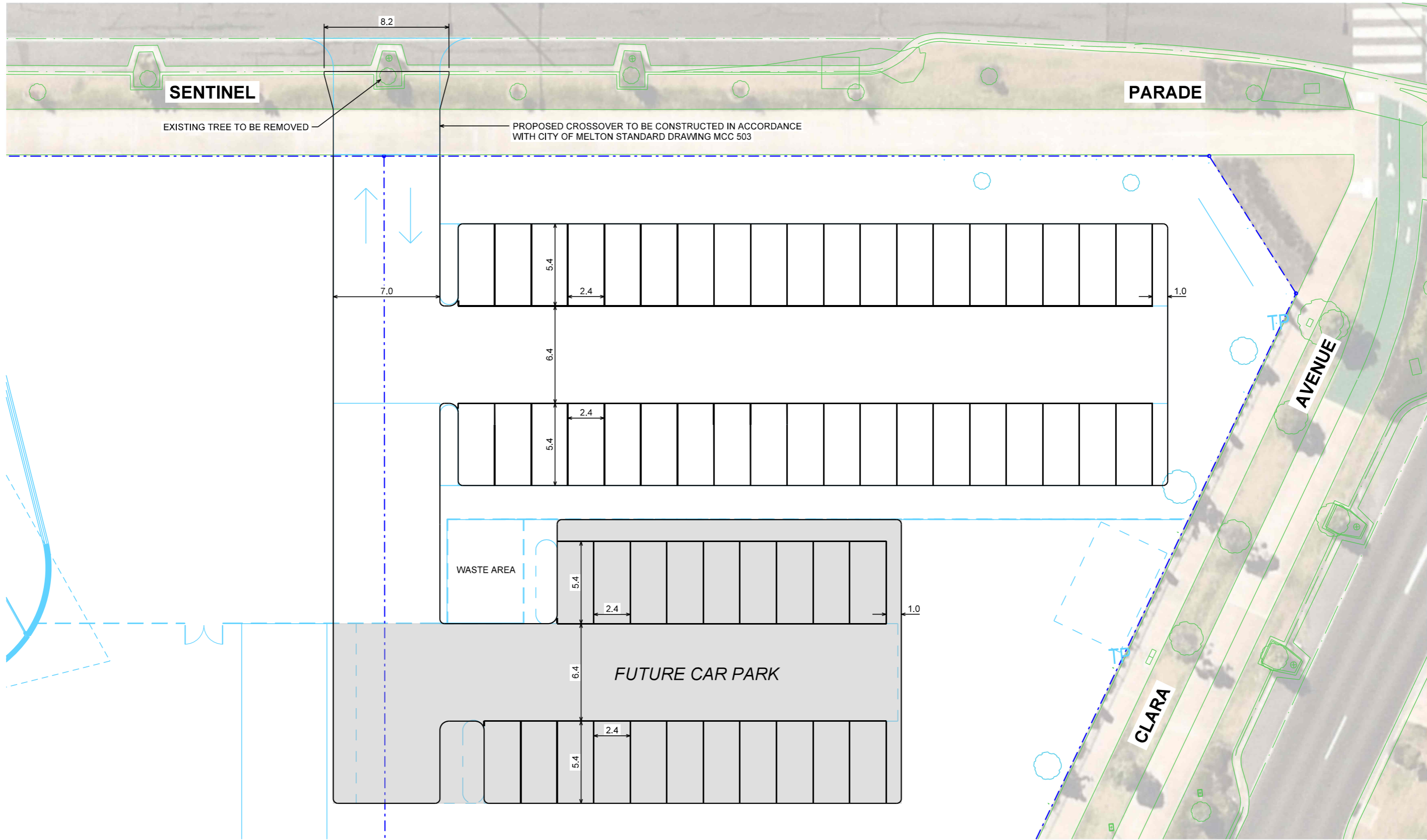
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Status <b>PRELIMINARY</b>	Revision <b>B</b>
Drawing Number <b>IMP2401040 - DRG-01-01</b>	Title <b>TRAFFIC AND TRANSPORT ASSESSMENT OVERALL SITE LAYOUT PLAN</b>



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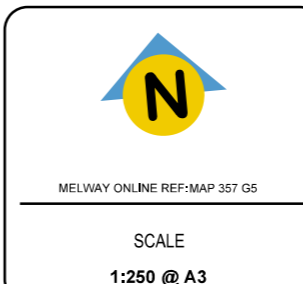
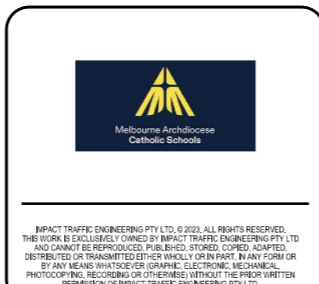
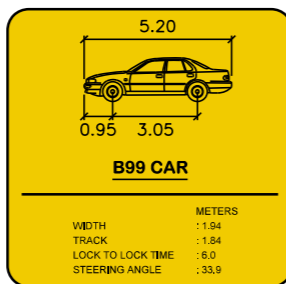
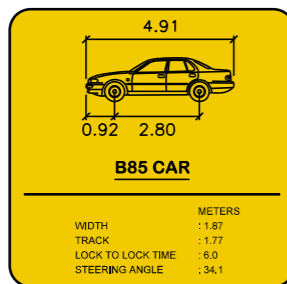
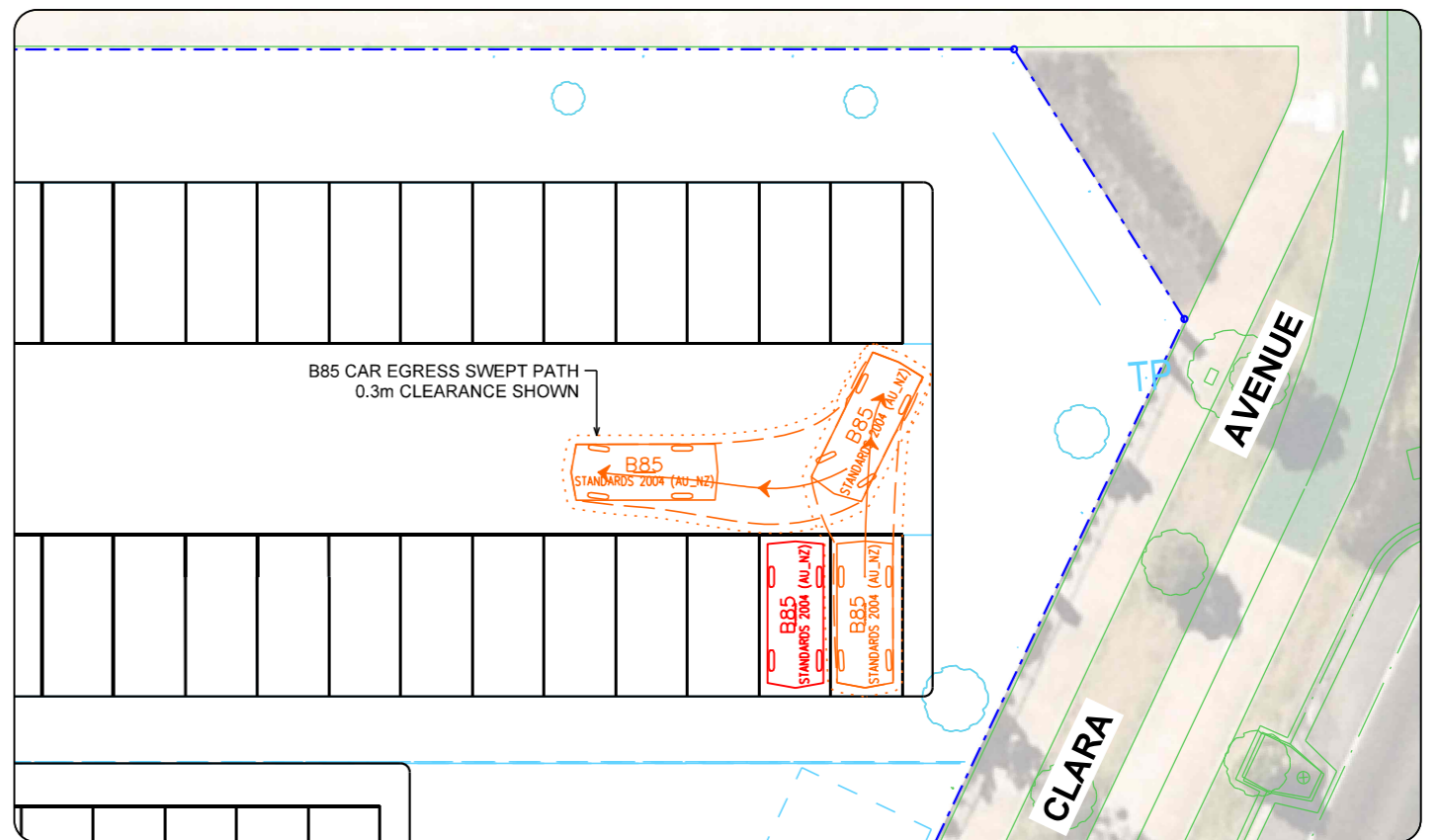
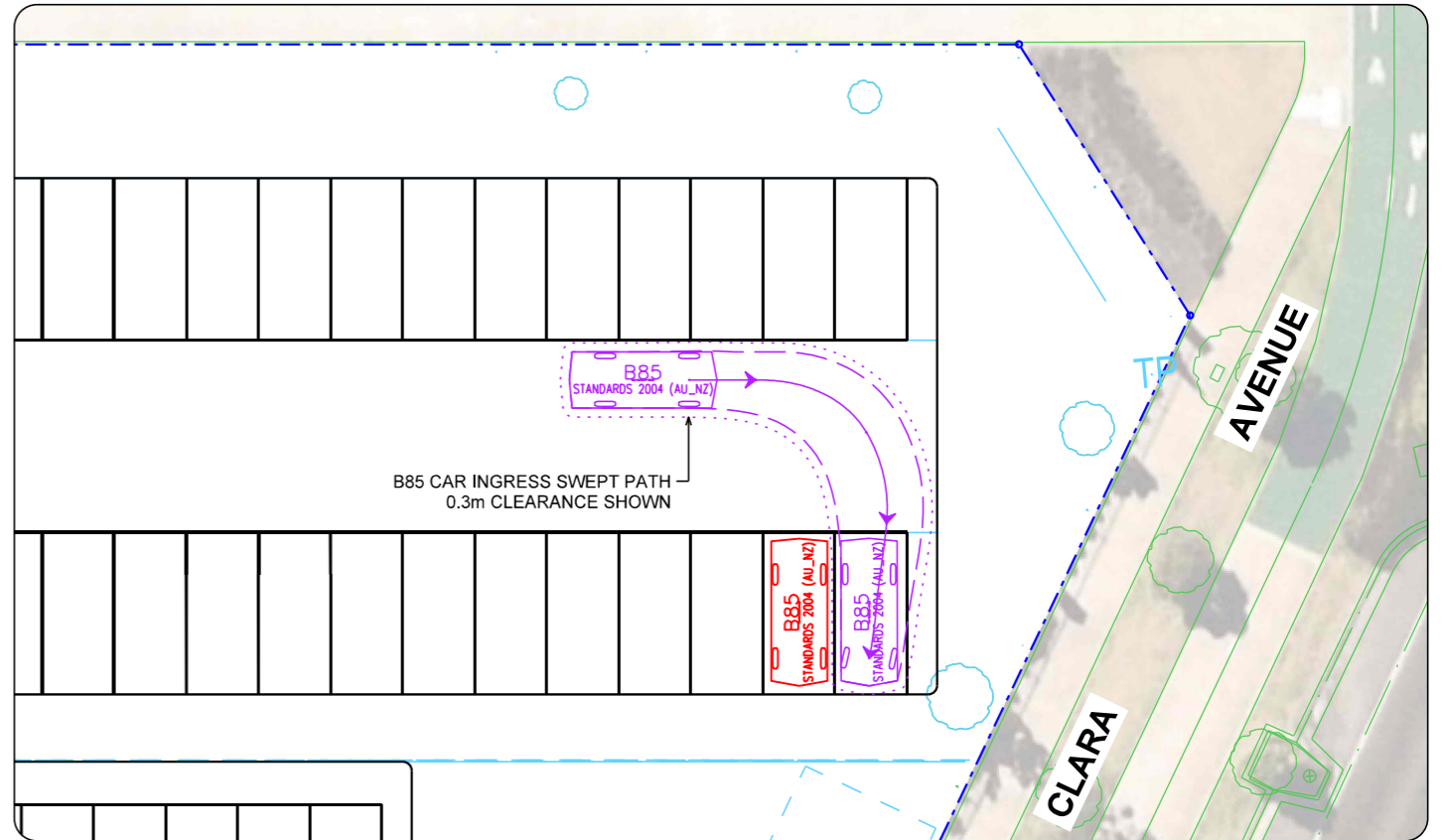
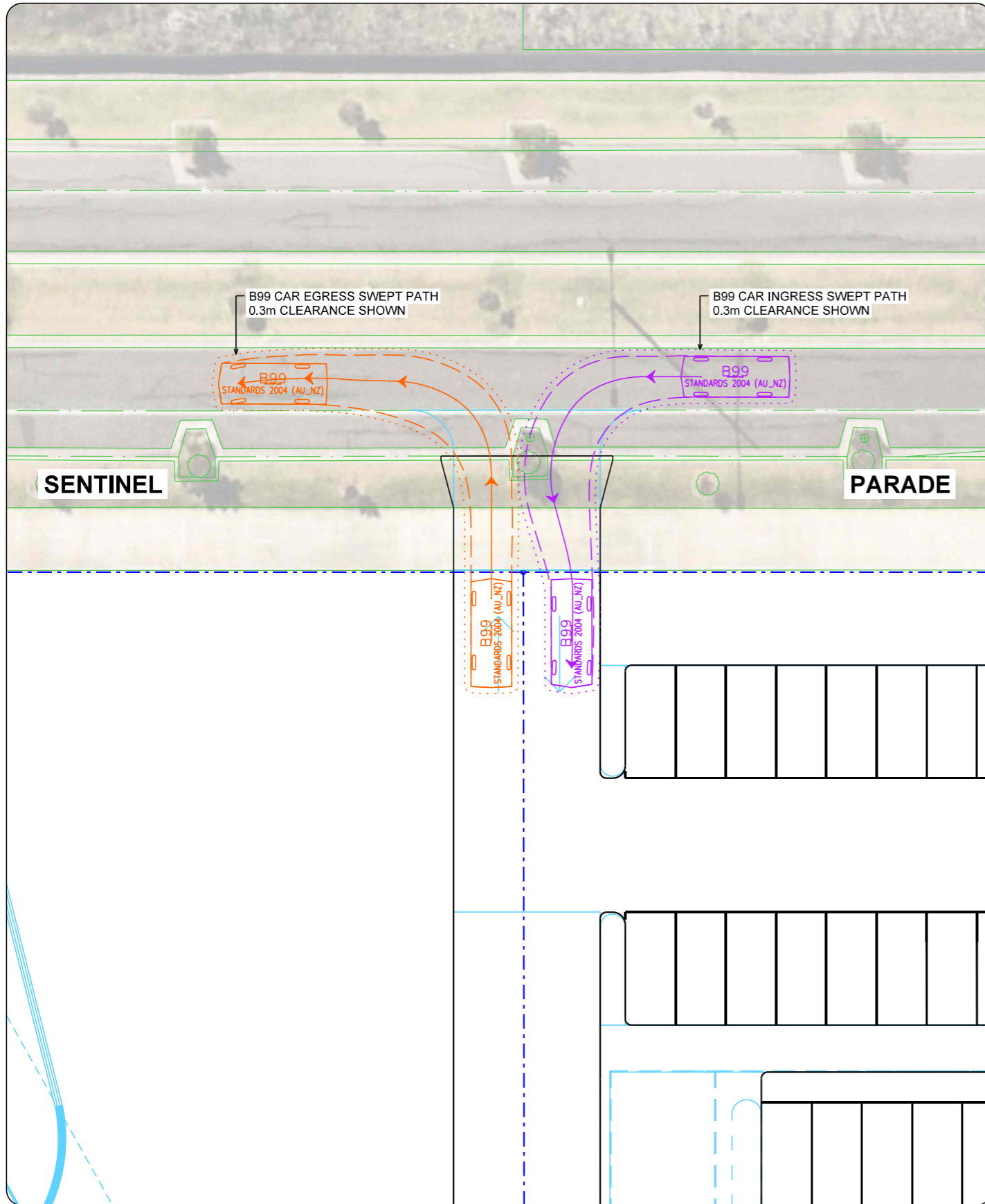
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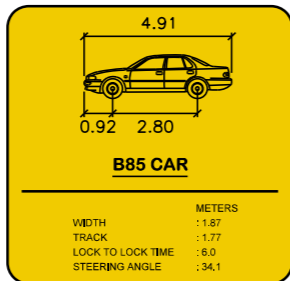
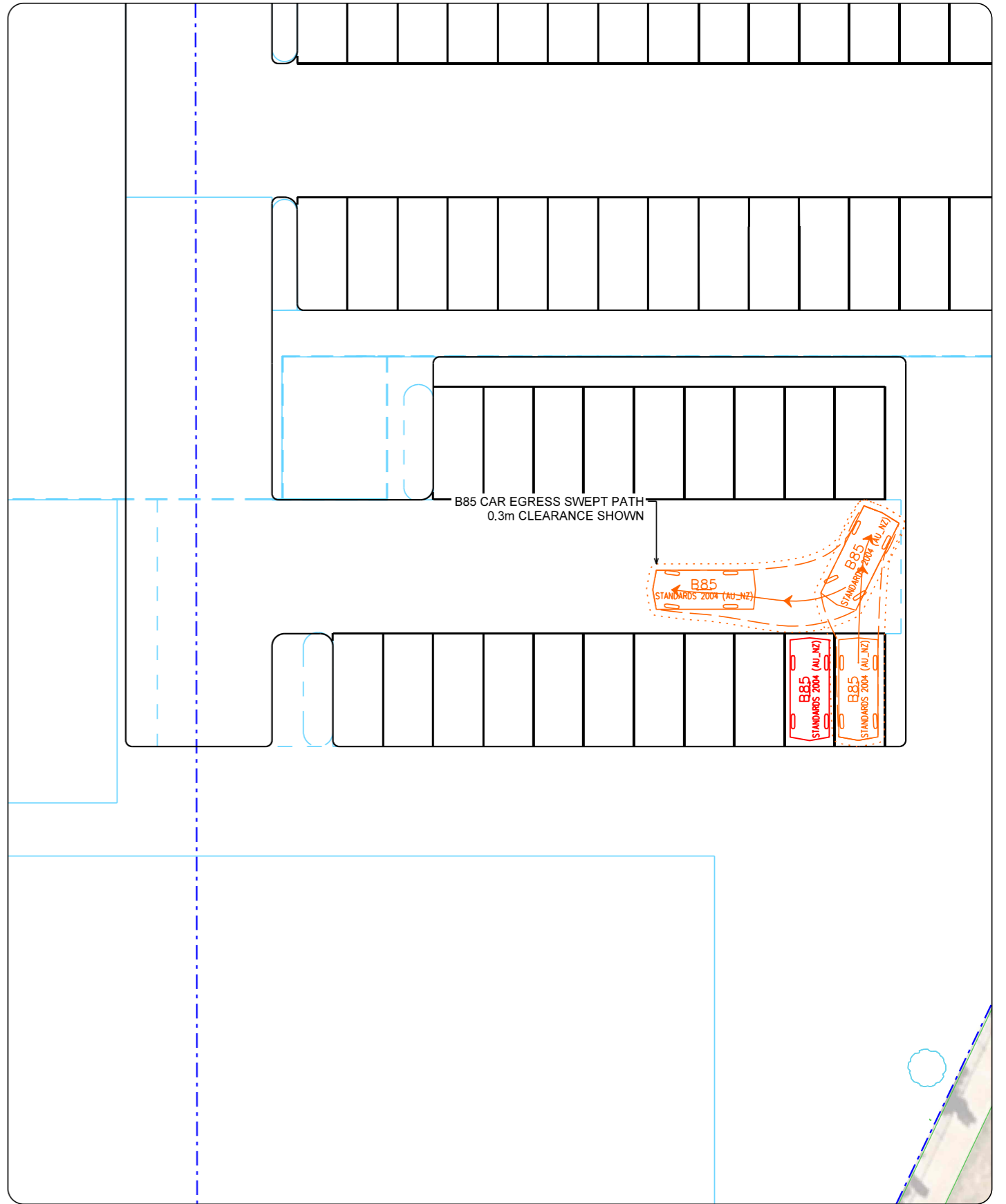
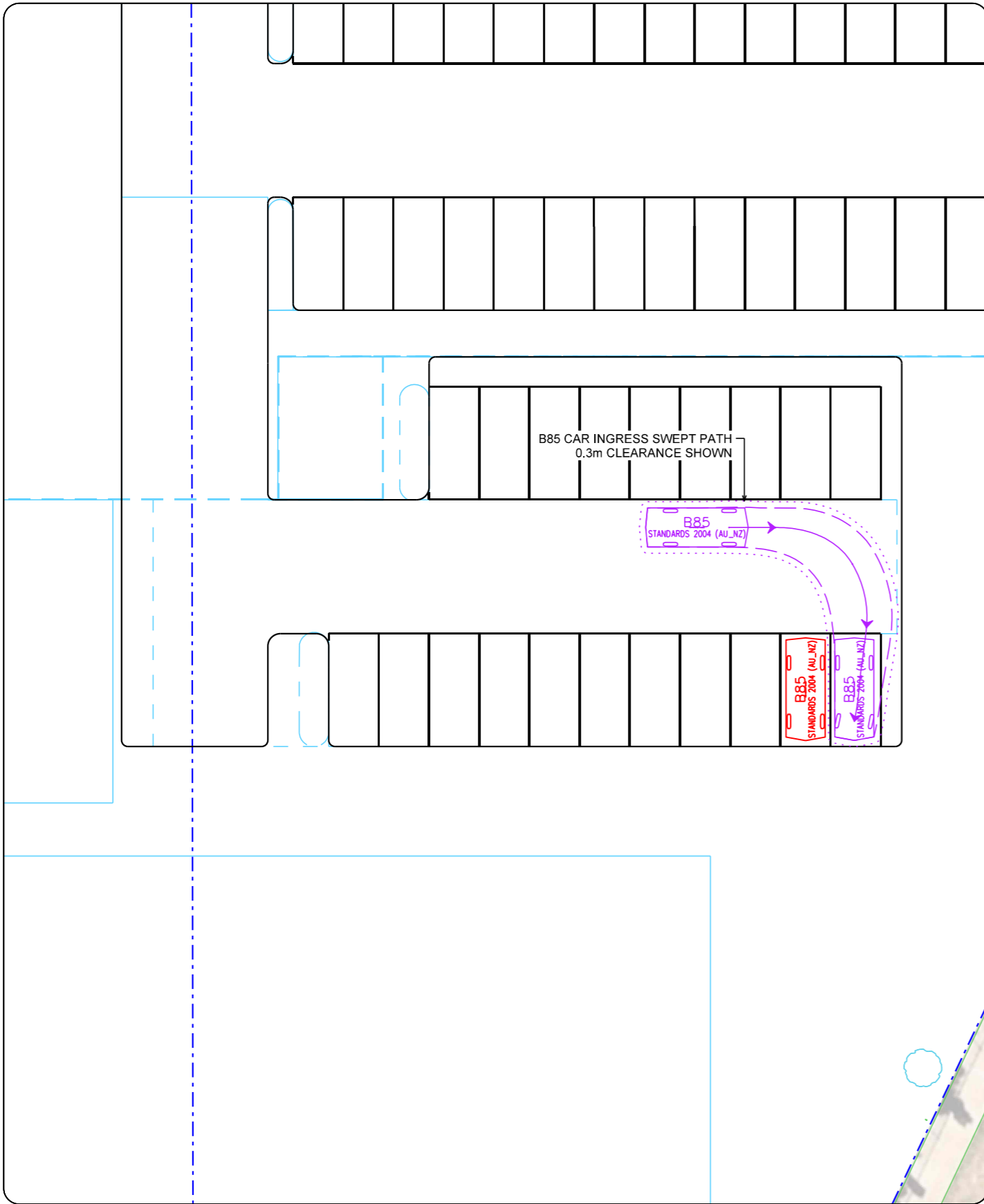
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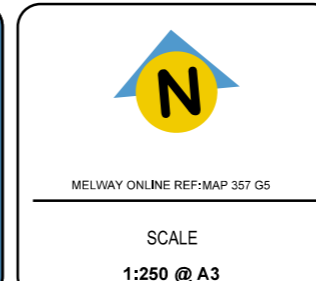
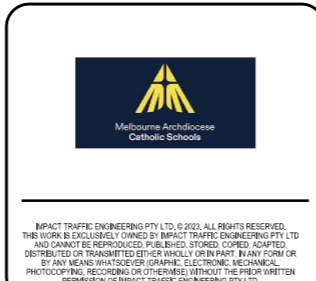
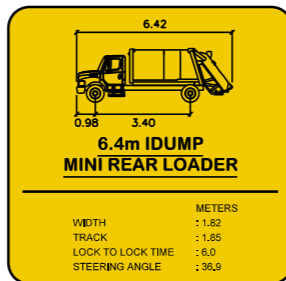
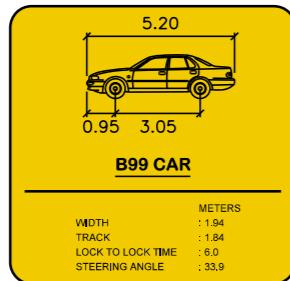
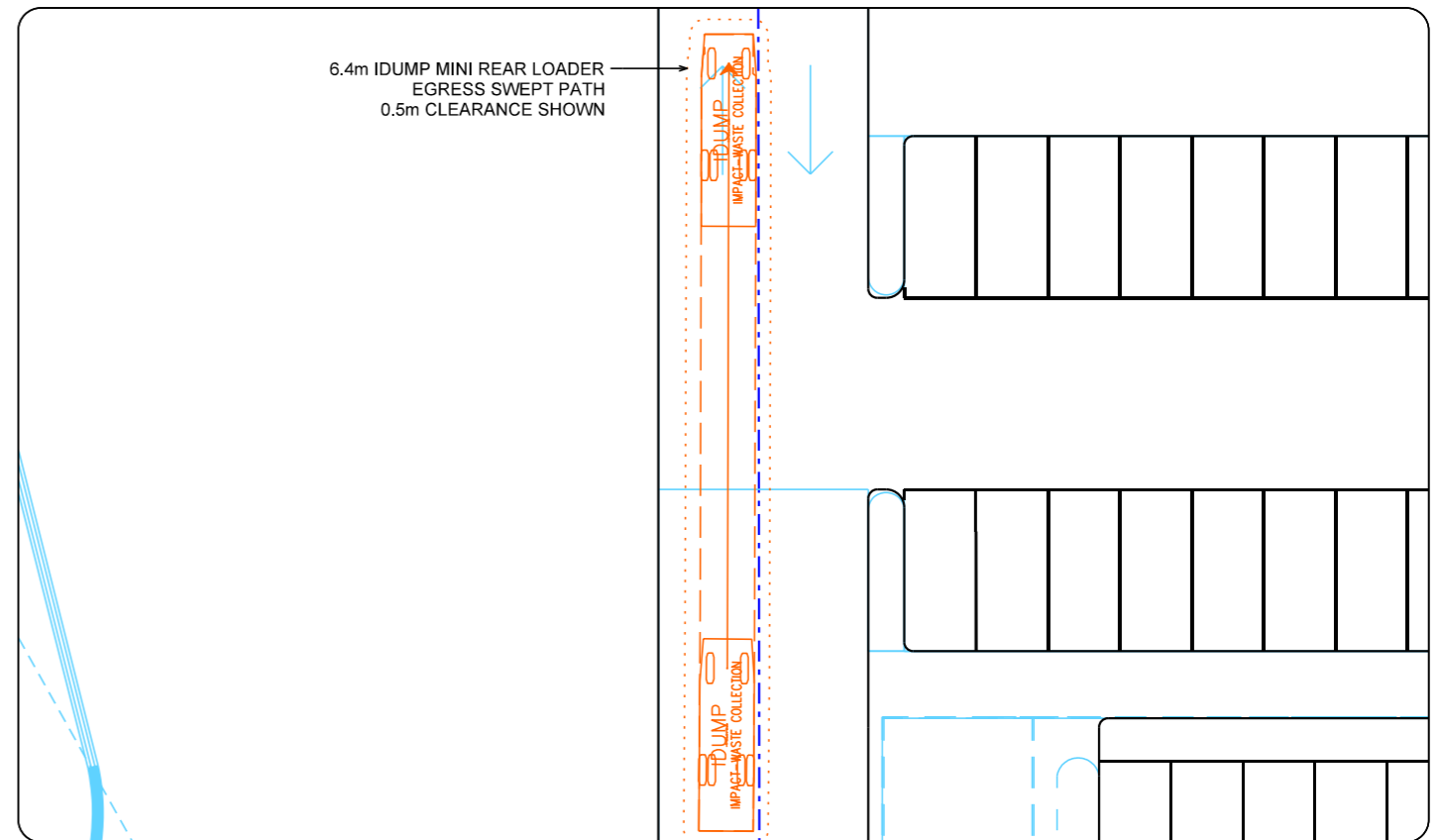
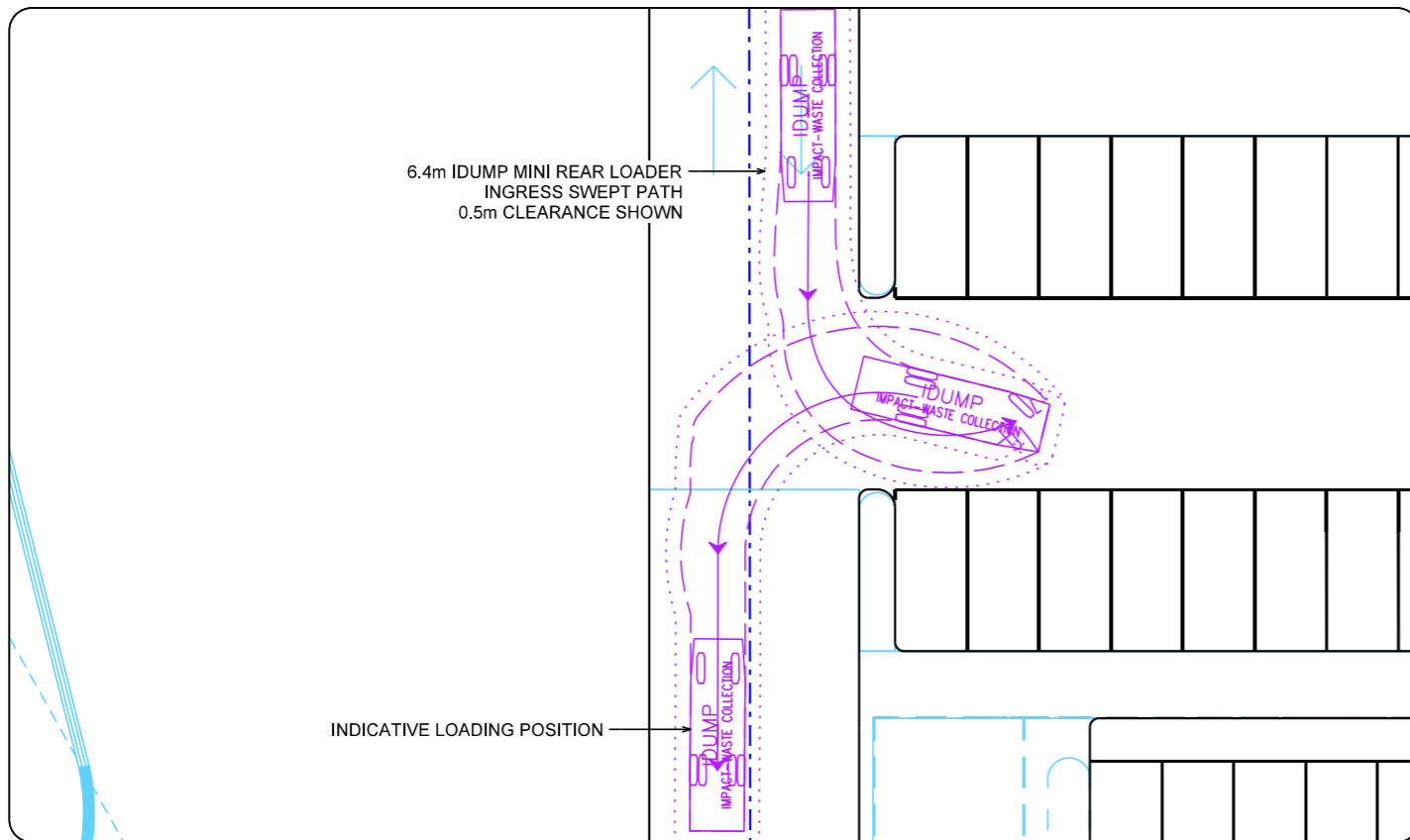
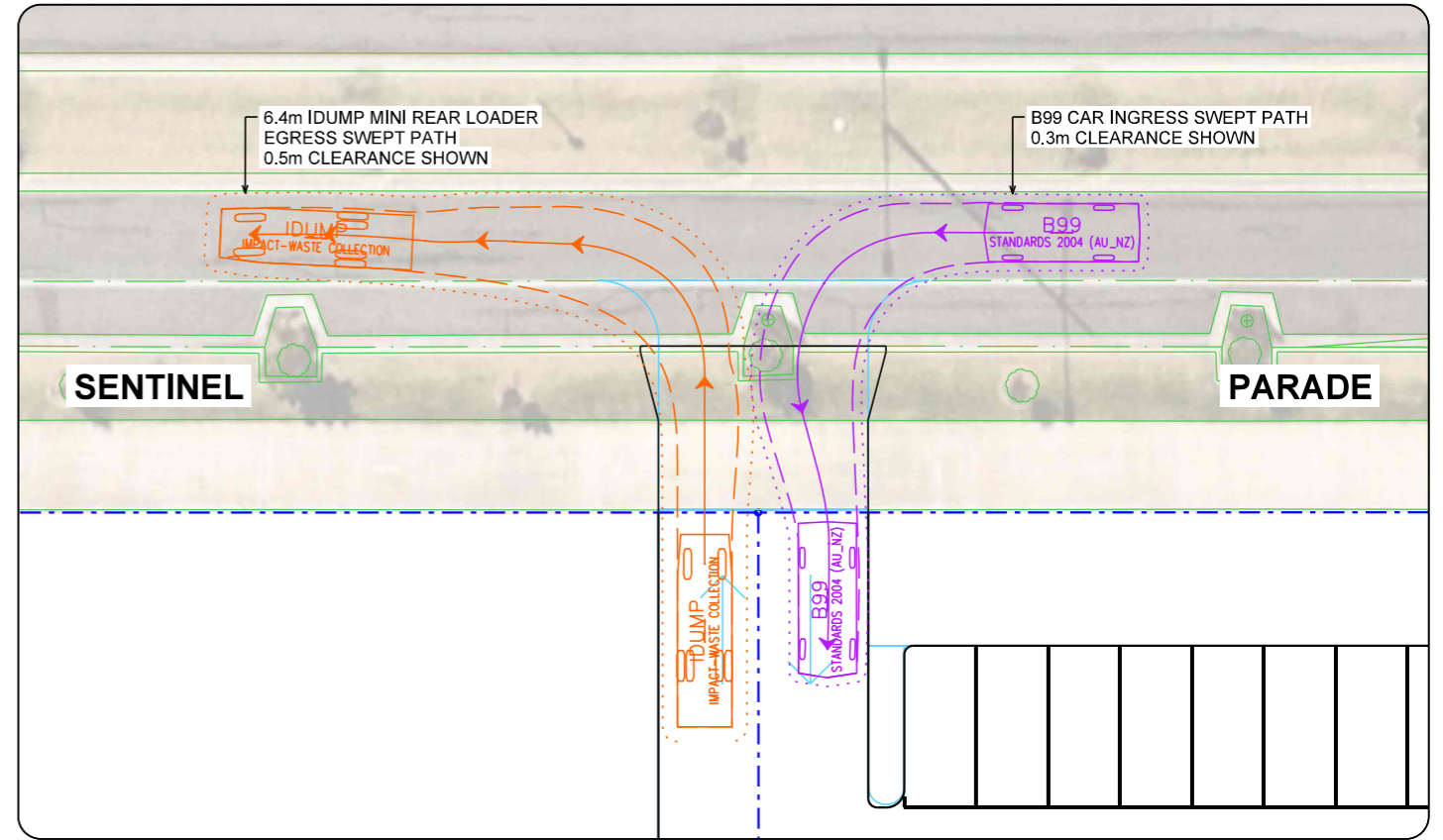
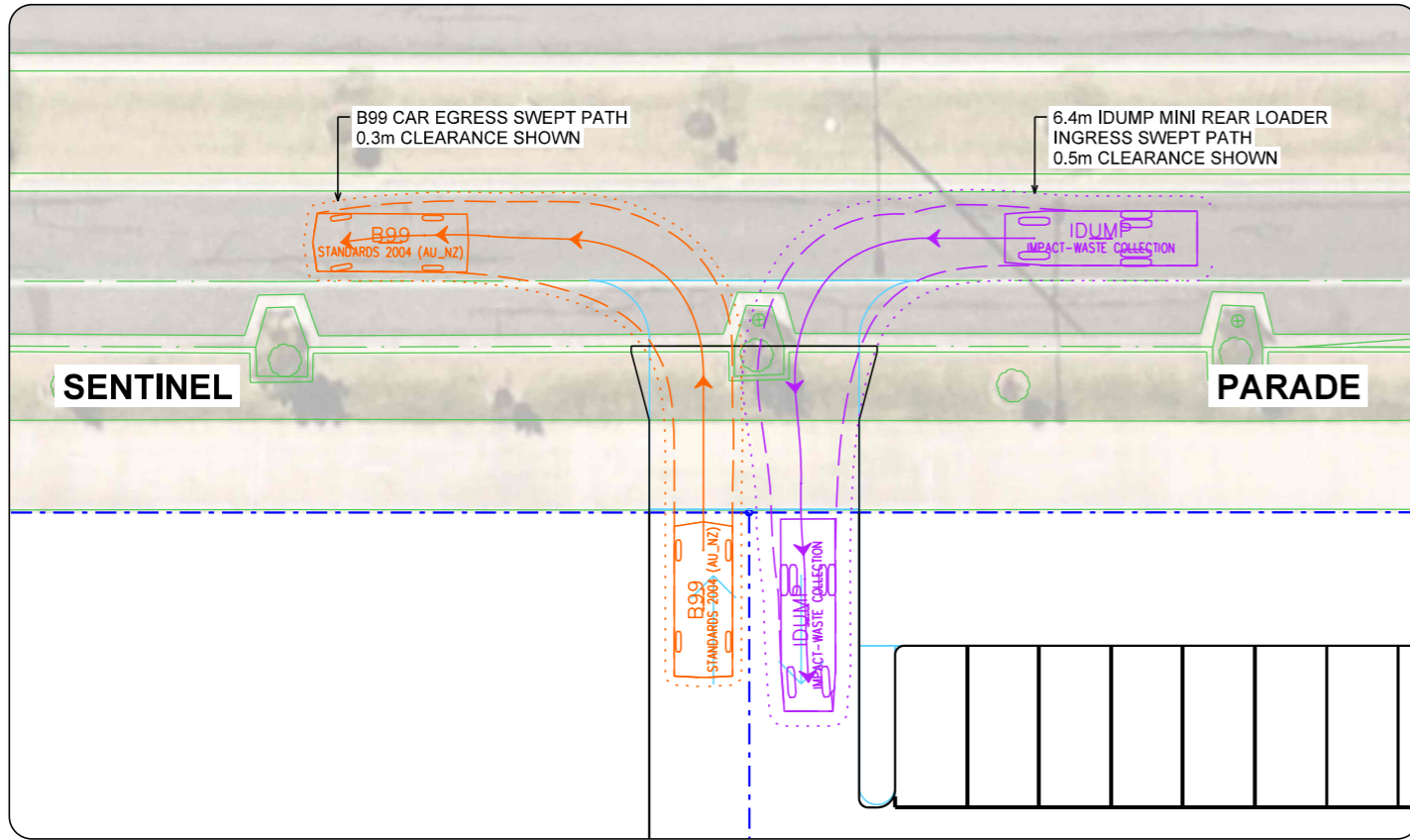
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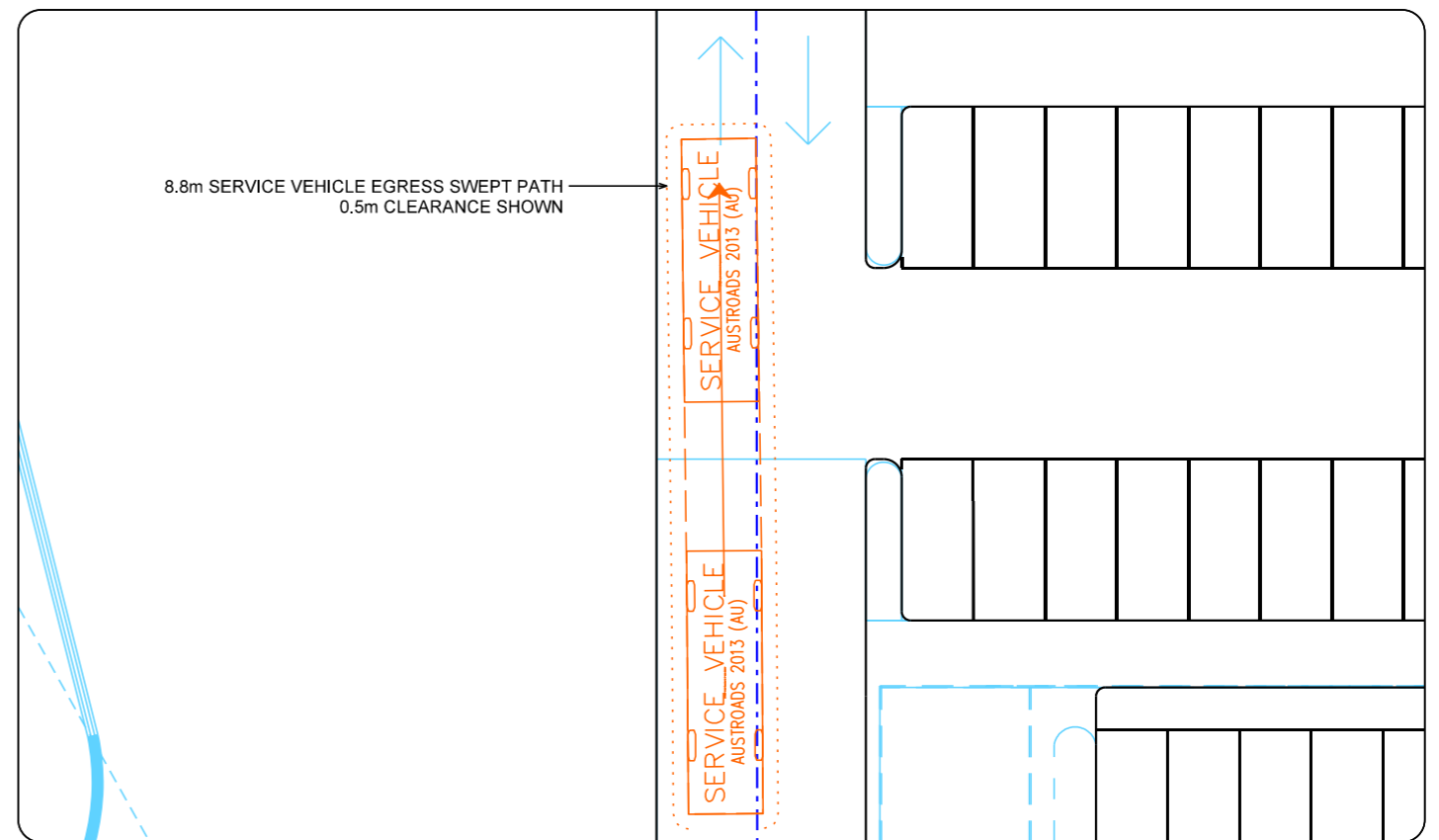
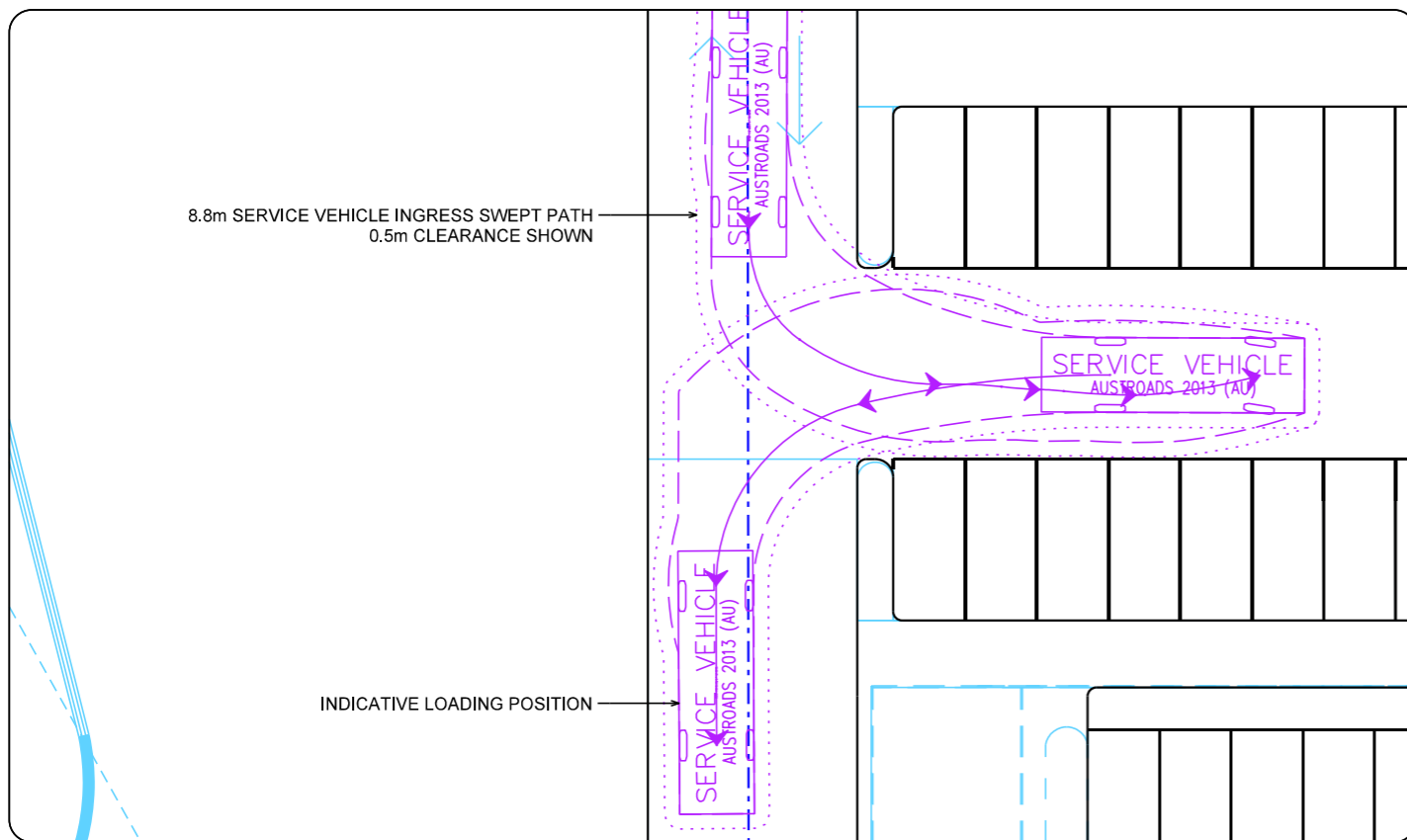
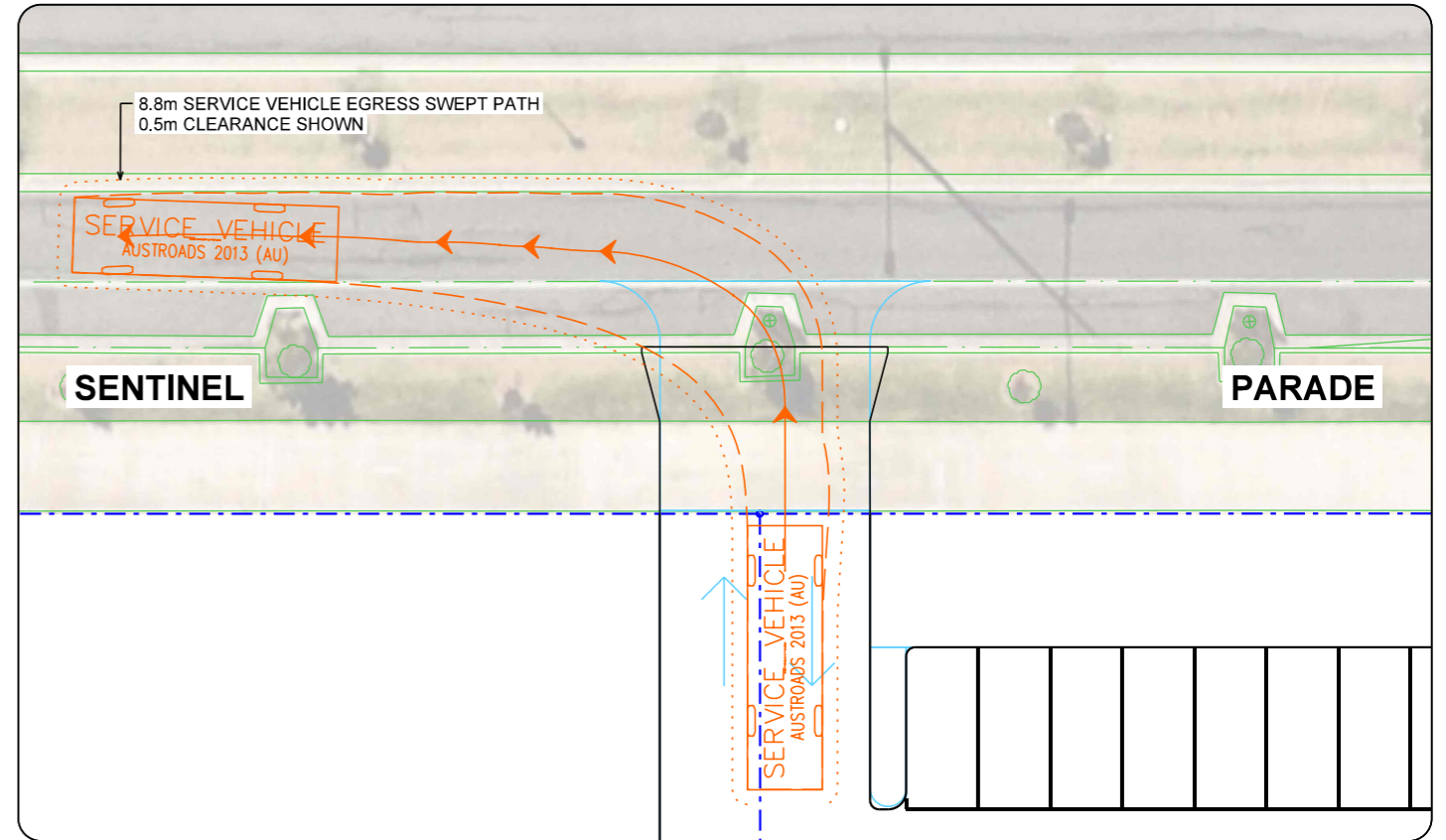
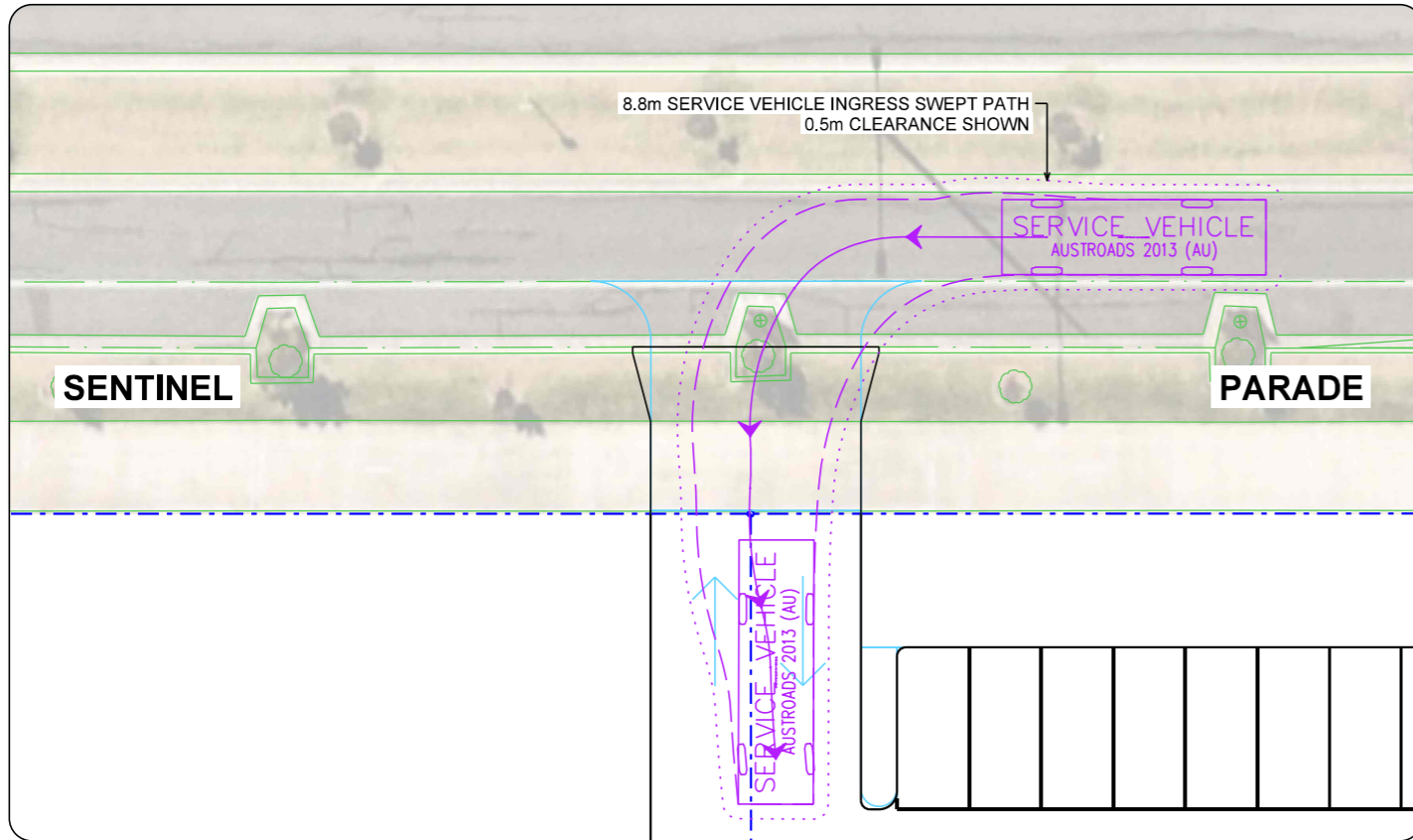
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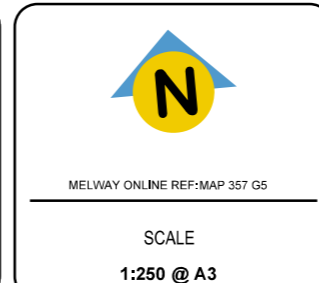
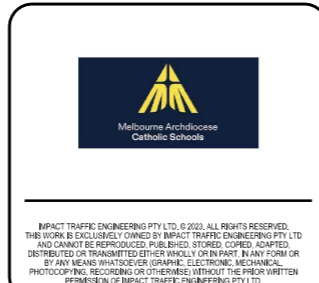
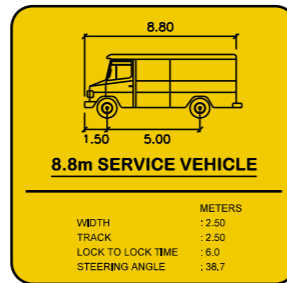
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● *Complexity*

37° 45' 25" S  
144° 41' 34" E

# Proposed School: Sentinel Parade, Truganina



## Waste Management Plan

15 May 2024  
Prepared for Melbourne Archdiocese Catholic Schools

IMP2401040WMP01F01

Impact



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Client Melbourne Archdiocese  
Catholic Schools

Report Title Proposed School: Sentinel  
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Approved By Henry Ma

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## Document Control

Version	Date	Author
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DRAFT 01	10 May 2024	Will Kelso

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APPENDIX A	Swept Path Analysis
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# 1 Introduction

## 1.1 Engagement

**IMPACT**<sup>®</sup> have been engaged by Melbourne Archdiocese Catholic Schools to prepare a Waste Management Plan (WMP) for the proposed Primary school development located at Sentinel Road, Truganina.

## 1.2 Scope of Engagement

This Waste Management Plan has been prepared to accompany a town planning submission.

In preparing this assessment we have referenced the following:

- Development plans prepared by LAW Architects; and
- Sustainability Victoria's 'Guide to Best Practice for Waste Management in Multi-Unit Developments'.

# 2 Existing Conditions

## 2.1 Location

The subject site is located on the southern side of Wiltshire Boulevard as illustrated in Figure 1.



**Figure 1 Aerial View of Subject Site (Dated 10/03/2024)**

The site is irregular in shape with street frontages of approximately 185 metres to Sentinel Parade and Kangri Street to the north and south respectively. As well as frontages of approximately 165 metres to Carpathians Street to the west and 245 metres to Clara Avenue to the west.

## 2.2 Planning Zone

The subject site is located within the Urban Growth Zone (UGZ9) as illustrated in Figure 2.



**Figure 2** Land Use Planning Zone

The purpose of this zone is to, amongst other things, provide for a range of uses and the development of land generally in accordance with a precinct structure plan.

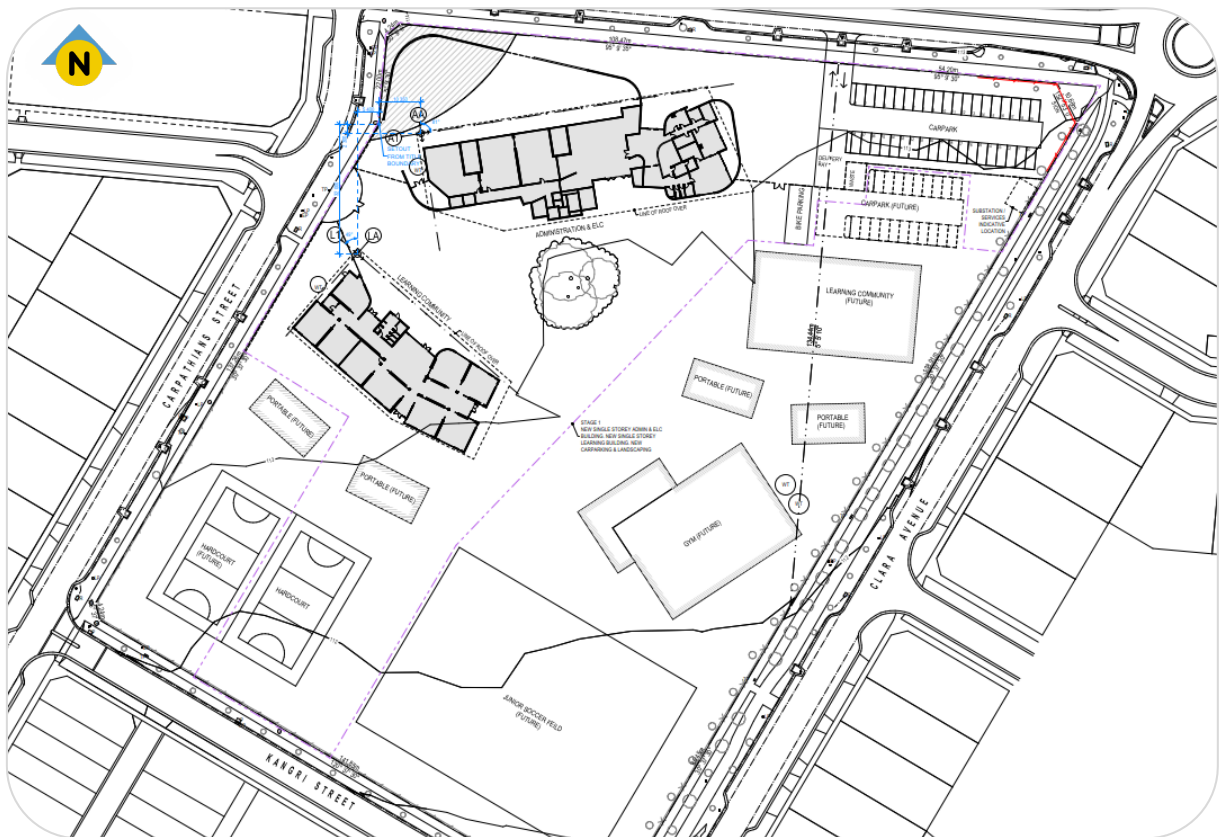
## 3 Development Proposition

### 3.1 Ultimate School Development

LAW Architects have prepared a masterplan for the subject site which contemplates a prep to grade 6 primary school with up to 525 students and up to 36 full-time equivalent (FTE) staff. Additionally, an early learning centre (ELC) is planned capable of accommodating 99 3-5 year olds and up to 16 staff at any one time. The ultimate development will be delivered over four (4) stages and includes multiple building upgrades to learning and administrative facilities.

This application is only for Stage 1 of the masterplan.

The stages of the development for the completed masterplan are shown at Figure 3.



**Figure 3 Proposed Masterplan Staging Development Plan**

The ultimate development will be delivered over four (4) stages and includes multiple building upgrades to learning and administrative facilities. A breakdown of each stage of development is as follows:

#### **Stage 1 - Learning and Administration (Primary School) & ELC**

- A total of 2,215 sq.m of new building area;
- A primary school with a student population of 225 and a total of 16 Staff;
- An Early Learning centre capable of accommodating 99 3-5 year olds and a total of 16 staff;
- A total of 16 car parking spaces for the primary school and 22 spaces for the ELC; and

#### **Stage 2, 3 & 4**

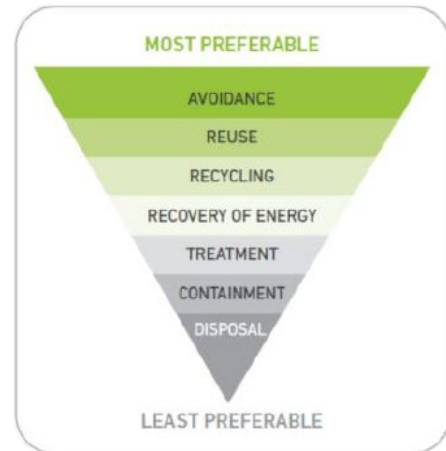
The design of the later stages of the masterplan are still in development. However, it is expected that when complete the school will be designed to cater for up to 36 staff and 525 students.

## 4 Objectives

The primary objective of this WMP is to:

- Identify all potential waste streams likely to be generated on site; and
- Provide a description of how waste is likely to be stored, handled, processed and disposed of, or reused and recycled.

This WMP seeks to establish principles by which the design, provision and maintenance of services and infrastructure that enable garbage, recycling, organics and bulky waste services to be operated at the development site in the best possible way in order to improve resource recovery and align with the principles of waste hierarchy.



## 5 Waste Generation

### 5.1 Primary School - Stage 1

In the absence of site-specific waste data for the proposed 225 place school, reference is made to data provided from a school of similar size.

This School has a student population of 400, and is serviced with:

- Garbage: 4,500 Litre Skip Collected Weekly
- Recycling: 4,500 Litre Skip Collected Fortnightly

This equates to a rate of:

- Garbage: 12 Litres per student
- Recycling: 6 Litres per student

It is estimated by the operator that organic waste accounts for between 40 - 60 % of the garbage stream. For the purposes of this assessment, a rate of 50% will be adopted.

The proposal contemplates a school with a total population of 225 students for Stage 1. Application of the above rates to the proposed development yields the following weekly waste generation:

### 5.2 Primary School Waste Generation - Ultimate Stage

To inform the size and design of the waste storage area the waste generation has been calculated for the ultimate stage of the Primary School and ELC. With up to 525 students expected to be catered for once all stages are complete the following weekly waste is expected.

- Garbage 3,150 Litres per week;
- Organic 3,150 Litres per week; and
- Recycling: 3,150 Litres per week.

## 5.3 Early Learning Centre

To estimate the likely waste generation for garbage and recycling waste streams associated with the proposed Kindergarten, reference is made to the Sustainability Victoria's 'Guide to Best Practice for Waste Management in Multi-Unit Developments'.

Rates within the guide are provided for childcare centres, which suggests the following waste generation rates:

- Garbage: 50 L / 100m<sup>2</sup> per day; and
- Recycling: 50 L / 100m<sup>2</sup> per day.

In addition to the above, we note that the 'National Waste Report 2010' prepared by the department of Environment, Water, Heritage, and the Arts estimated that approximately 21.5% of commercial landfill waste is comprised of food wastes.

Accordingly, adopting the above, the site is expected to generate the following daily waste generation rates:

- Landfill 39 L / 100m<sup>2</sup> per day;
- Food Organics 11 L / 100m<sup>2</sup> per day; and
- Recycling 50 L / 100m<sup>2</sup> per day.

**Note:** It has been assumed that the kindergarten will operate 5-days a week.

Application of these rates to the proposed 710 square metre child care centre results in the following weekly waste generation:

- Landfill 1,420 Litres per week;
- Food Organics 355 Litres per week; and
- Recycling: 1,775 Litres per week.

## 5.4 Total Waste Generation - Stage 1

Noting the above calculations for the Primary School and Kindergarten the development as a whole is expected to have the following waste generation for Stage 1:

- Landfill 2,770 Litres per week;
- Food Organics 1,705 Litres per week; and
- Recycling 3,125 Litres per week.

## 5.5 Total Waste Generation - Ultimate Stage

Noting the above calculations for the Primary School and Kindergarten the development as a whole is expected to have the following waste generation for Stage 1:

- Landfill 4,570 Litres per week;
- Food Organics 3,505 Litres per week; and
- Recycling 4,925 Litres per week.



## 6 Equipment and Systems

### 6.1 General

The school operator shall engage a Private Contractor to manage the collection, storage and disposal of garbage and recycling which has been generated by the development.

The approximate dimensions for proposed bins are provided in Table 1 and are derived from Sustainability Victoria. It is noted that these details should be used as a guide only as variations will occur between bin manufacturers.

**Table 1 Bin Dimensions**

Bin Size	Height (mm)	Depth (mm)	Width (mm)
240 L MGB	1,065	540	500
660 L MGB	1,200	780	1,260
1,700 L MGB	1,470	1,250	1,770
2,000 L MGB	865	1,400	1,830

The dimensions provided above are from Sustainability Victoria's 'Guide to Best Practice for Waste Management in Multi-Unit Developments' and are subject to vary between different manufacturers.

It is recommended that bin colours be adopted from options provided in AS4123.7 (or Council guidelines) and labelled accordingly to identify the waste generator and site address.

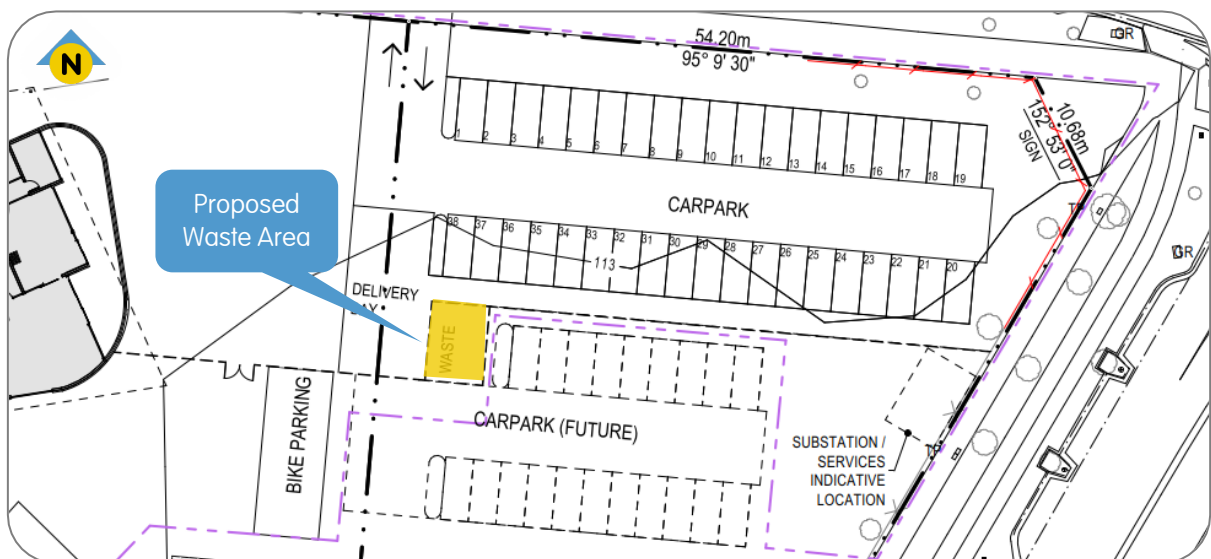
As private collection is proposed, Council's minimum waste service charge will apply.

### 6.2 Waste Bin and Equipment Storage & Locations

A waste storage area is proposed at the southern end of the carpark.

The location of the bin storage area is illustrated at Figure 4.

Waste vehicle collection swept paths and indicative bin layouts drawn to scale are provided in Appendix A for reference.

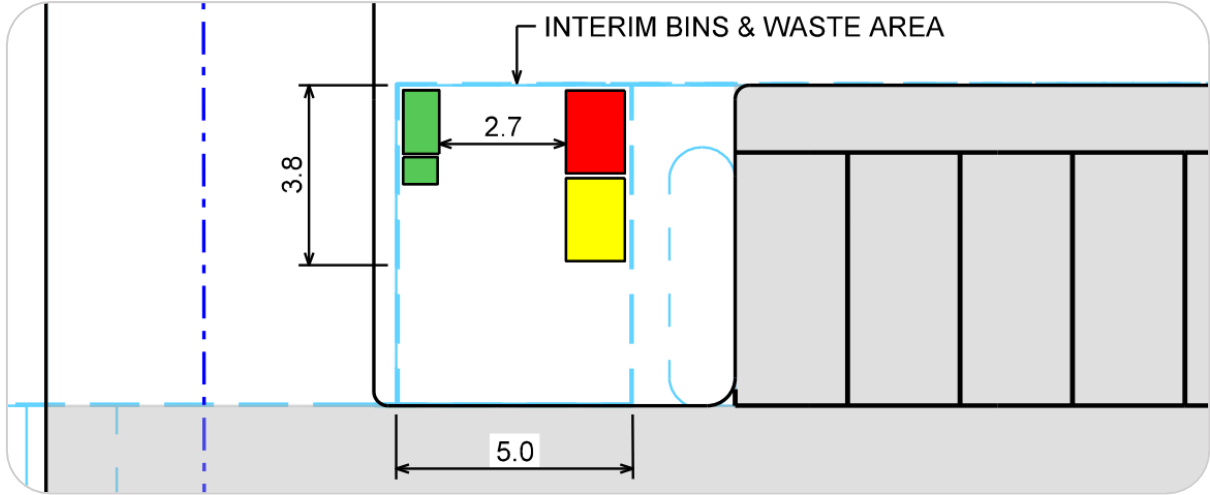


**Figure 4 Proposed Bin Storage Area**

In summary, it is proposed to provide the following bins within the waste storage area for Stage 1:

- Landfill** 1x 1,700L bin
- Food Organics** 1x 660L & 1x 240L bins
- Recycling** 1x 1,700L bin

The indicative waste area layout is shown at Figure 6.



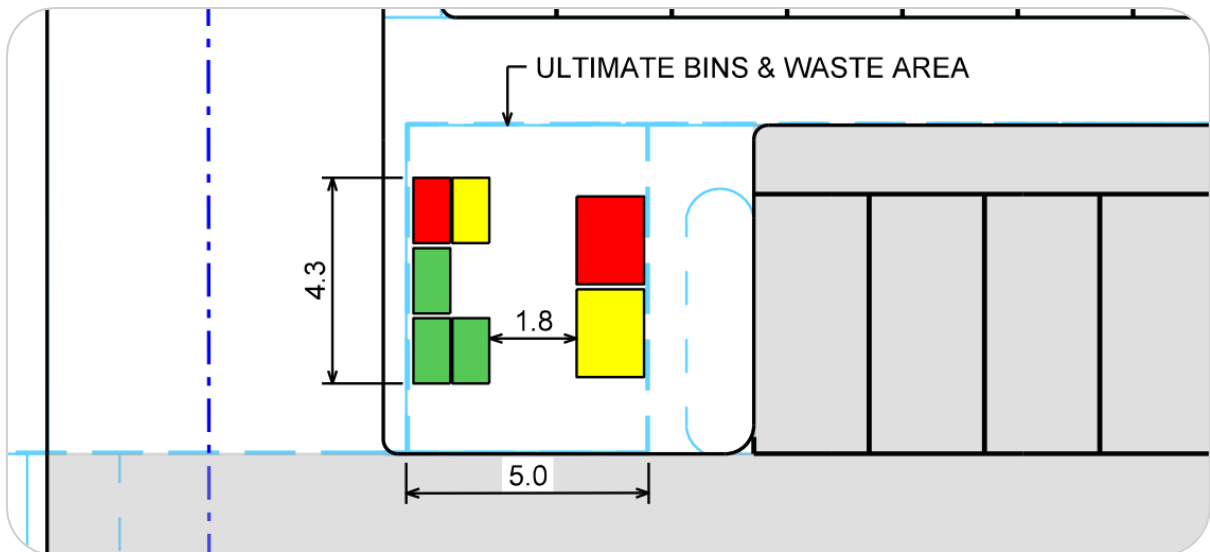
**Figure 5** Waste Storage Area Layout - Stage 1

### 6.3 Bins - Ultimate Stage

To cater for the expect waste for the ultimate stage the following will be provided:

- Landfill** 1x 2,000L & 1x 660L bins
- Food Organics** 3x 660L bins
- Recycling** 1x 2,000L 1x 660L bins

The indicative waste area layout is shown at Figure 6.



**Figure 6** Waste Storage Area Layout - Ultimate Stage

## 6.4 Collection Frequency

The bin details and collection frequency for each waste type and stream are summarised in Table 2 for Stage 1 and Table 3 for the ultimate stage.

**Table 2 Waste Collection Frequency - Stage 1**

Component	Weekly Waste Generation (Site Total)	Bin Capacity	Collection Frequency
<b>Landfill</b>	2,770 L	1,700 L	Twice a Week
<b>Organic</b>	1,705 L	900 L	Twice a Week
<b>Recycling</b>	3,125 L	1,700 L	Twice a Week

**Table 3 Waste Collection Frequency - Ultimate Stage**

Component	Weekly Waste Generation (Site Total)	Bin Capacity	Collection Frequency
<b>Landfill</b>	4,570 L	2,660 L	Twice a Week
<b>Organic</b>	3,505 L	1,980 L	Twice a Week
<b>Recycling</b>	4,925 L	2,660 L	Twice a Week

Waste generation and disposal should be monitored as the school develops and the bin strategy (i.e. allocation / distribution of bins) adjusted accordingly.

## 6.5 Waste Disposal

### Staff & Students

Each classroom, staffroom and ancillary areas (which generate waste) shall have a minimum provision for a standard bin station arrangement, comprised of landfill, organic and recycling waste bins.

These stations should have at the very minimum sufficient cumulative capacity for the temporary holding of waste expected to be generated on a daily basis.

Cleaners will be responsible for transferring the waste collected at these bin stations to the bin storage area at the end of each day.

An example of a bin station arrangement that could be adopted is shown in Figure 7.



**Figure 7 Example Bin Station Arrangement**

Teachers will be responsible for educating and monitoring students to ensure that waste is deposited into the correct bin (and to prevent contamination) wherever possible.

### School Operator

The school (in conjunction with the contractor) will be responsible for transferring waste from the waste storage area to the truck at the time of collection.

After bins have been collected the school (in conjunction with the contractor) will be responsible for ensuring that bins are transferred back to the waste storage area.

## 6.6 Collection Arrangements

Waste shall be collected within the development, by the private waste collection contractor engaged.

Waste bins shall be collected by a 6.4m Waste Collection Vehicle and be undertaken outside of school peak periods.

A swept path analysis, provided as Appendix A confirms that the development plans make adequate provision for the safe and convenient manoeuvring of this design vehicle.

## 6.7 Responsibility

The school will be responsible for implementing the Waste Management Plan and providing staff with correct and current information and operating practices as required.

It will be the responsibility of staff / teachers to educate and assist students with the disposal of waste into the correct bins to try and limit / prevent cross contamination.

The school will be responsible for engaging and managing the waste collection contractor, including frequency of garbage and commingled recycling collections, and monitoring the transfer of bins between the bin area and collection vehicle.

## 6.8 Amenity Management

### 6.8.1 Washing, Ventilation and Vermin-Prevention Measures

The school shall maintain, wash, sanitise/deodorise and arrange vermin prevention measures for their bin area as required. The bin wash down areas should be appropriately graded, and connected into a suitable grease trap (or similar) device, in accordance with the relevant authority requirements.

A private cleaning contractor can be engaged by the school to wash and sanitise as required - the contractor would be responsible for containing and disposing of any contaminated water.

### 6.8.2 Noise Reduction Measures

The hours of waste collections shall be as specified in Council's local laws and / or in accordance with the Victorian EPA Noise Control Guideline, which sets out the following requirements:

- Collection occurring once a week should be restricted to the hours: 6am to 6pm Monday to Saturday.
- Collections occurring more than once a week should be restricted to the hours: 7am to 6pm Monday to Saturday.
- Compaction should only be carried out while on the move.
- Bottles should not be broken up at the point of collection.
- Routes which service entirely residential areas should be altered regularly to reduce early morning disturbance.
- Noisy verbal communication between operators should be avoided where possible

### 6.8.3 Stormwater Pollution Prevention

To prevent stormwater pollution, the school will be required to:

- Ensure all waste is disposed into bins;
- Ensure rubbish and recycling items are secured so they can't blow away;
- Keep bins closed to prevent animals from searching through waste; and
- Make sure any bin spillage is cleaned up using dry absorbent materials (such as sand, sawdust or paper towel, as required).

### 6.8.4 Other Waste Streams

#### 6.8.4.1 Hard Waste / E-Waste

It is expected that hard waste services will be provided by a private contractor, under the supervision of the school.

No dedicated hard waste / e-waste bin is currently shown on-site.

We note however, that there is ample space to provide for hard/e-waste within the subject site.

We recommend that as the school develops, hard waste / e-waste generation be monitored / recorded and dedicated bins provided to cater to these waste streams where necessary.

#### 6.8.4.2 Green Waste

In addition to the above organic waste generated through the garbage waste stream, it is also expected that the site will generate a portion of green / garden waste.

We expect that upkeep, maintenance and gardening undertaken on-site will be managed by a private contractor who is appointed by the school.

The contractor will be responsible for the collection and disposal of green waste generated during their gardening / maintenance.

## 6.9 Communication Strategy

The Building Manager will be responsible for the education of staff (and cleaners) in the practices of waste reduction / minimisation to divert waste from landfill. This will be achieved by the following:

- Document and distribute details of the waste management system that is in place on-site to staff;
- Encourage waste separation from staff, including education posters above each bin station as indicatively shown in Figure 8;
- Any future change to regulatory requirements or the development's waste generation rates will require the operator to conduct a waste audit and revise the waste management system that is in place; and
- Waste bins will be clearly marked and signed with the appropriate signage.

Staff and parents will be instructed by the Building Management to adhere to these requirements.

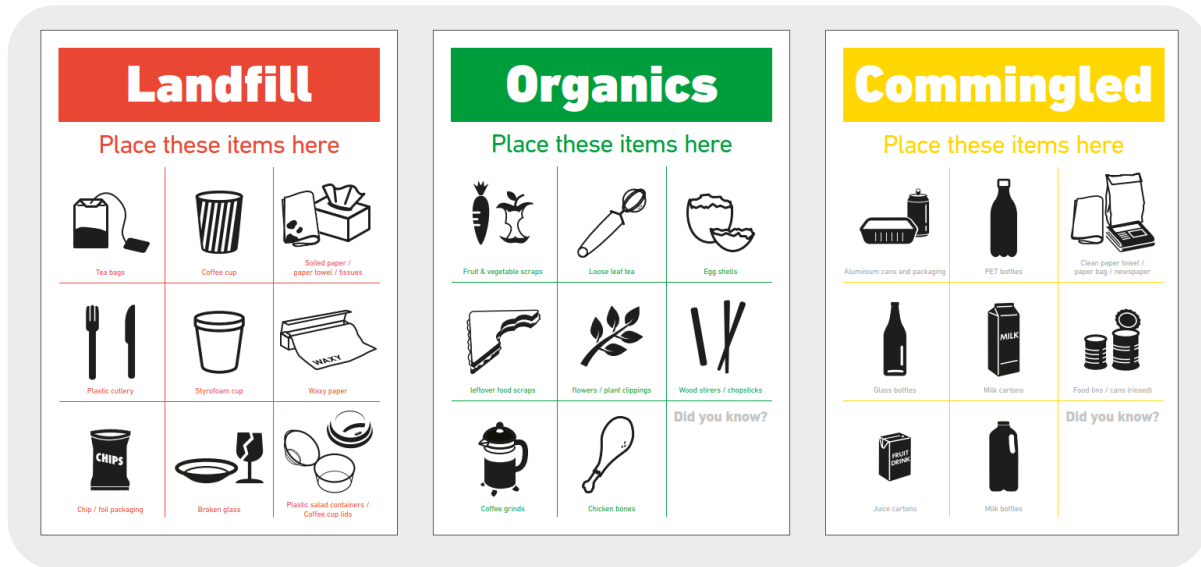


Figure 8 Example Waste Signage

## 6.10 Information for Occupants

The School shall publish / distribute education materials to staff (and students / parents where applicable) to:

- Staff, parents and students about the waste management system and the use / location of the associated equipment;
- Detail on how to dispose of other (less common) waste streams;
- Improve facility management results (lessen equipment damage, reduce littering, and achieve cleanliness etc); and
- Advise users to sort and recycle waste with care to reduce cross contamination.

## 6.11 Contact Information

### 6.11.1 Council

City of Melton	Local Council	ph 03 9747 7200
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### 6.11.2 Suppliers / Contractors

Suez Environmental:	Private Waste Contractor	ph 13 13 35
Veolia	Private Waste Contractor	ph 13 29 55
Cleanaway	Private Waste Contractor	ph 13 13 39
Sulo MGB Australia	Bin supplier	ph 1300 364 388
The Bin Butlers	Bin Washing Service	ph 1300 788 123
Carlcorp Services	Bin Washing Service	Ph: 1800 225 267

### 6.11.3 Other Useful Contacts

Safety Australia	OH & S Consultant	ph 1300 585 128
FJP Safety Advisors Pty Ltd	OH & S Consultant	ph 03 9255 3660
Sustainability Victoria		ph 1300 363 744 Online <a href="http://www.sustainability.vic.gov.au">www.sustainability.vic.gov.au</a>

## 7 Limitations

This Waste Management Plan is intended to inform and accompany a town planning application.

The waste generation data presented in this report are estimates only. Actual waste generation characteristics can vary for each development.

Accordingly, it is our expectation and recommendation that the school monitor and adjust the recommended strategy to respond to actual operational conditions based on operating experience. These adjustments could include, but are not limited to increasing the number of bins and or increasing the collection frequency - Subject to Council Approval.

To this end, Subject to Council request, changes in legal requirements, changes in the development's needs and / or waste patterns (waste composition, volume or distribution), or to address unforeseen operational issues, the school shall be responsible for coordinating the necessary Waste Management Plan revisions, including (if required);

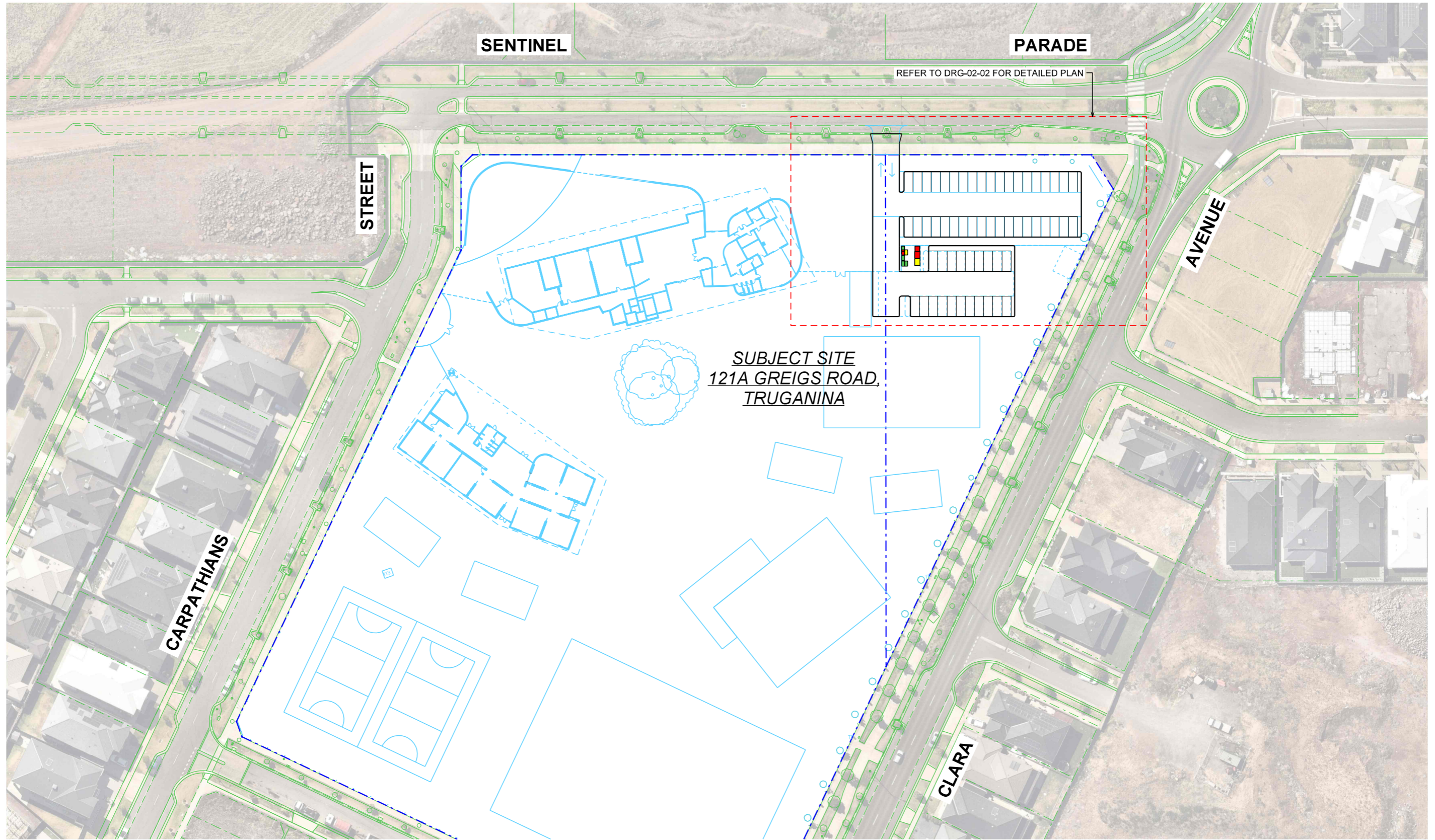
- A waste audit and new waste strategy;
- Revision of the waste system (bin sizes / quantity / collection frequency etc.);
- Re-education of users as required;
- Revision of the services provided by the waste collector(s); and
- Any necessary statutory approval(s).



# APPENDIX A

## Swept Path Analysis

Design Vehicle: 6.4m iDump Mini Waste Vehicle



- GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
  2. LOCAL ROADS - SENTINEL PARADE (SPEED ZONE 50KM/H).  
- CLARA AVENUE (SPEED ZONE 50KM/H).  
- CARPATHIANS STREET (SPEED ZONE 50KM/H).
  3. BASE INFORMATION FROM NEARMAP AERIAL PHOTOGRAPHY DATED 17.03.2024 AND LAW ARCHITECT DRAWING NO. CAD\_A100 [ ] PROPOSED SITE PLAN.dwg DATED 30.04.2024

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Catholic Schools

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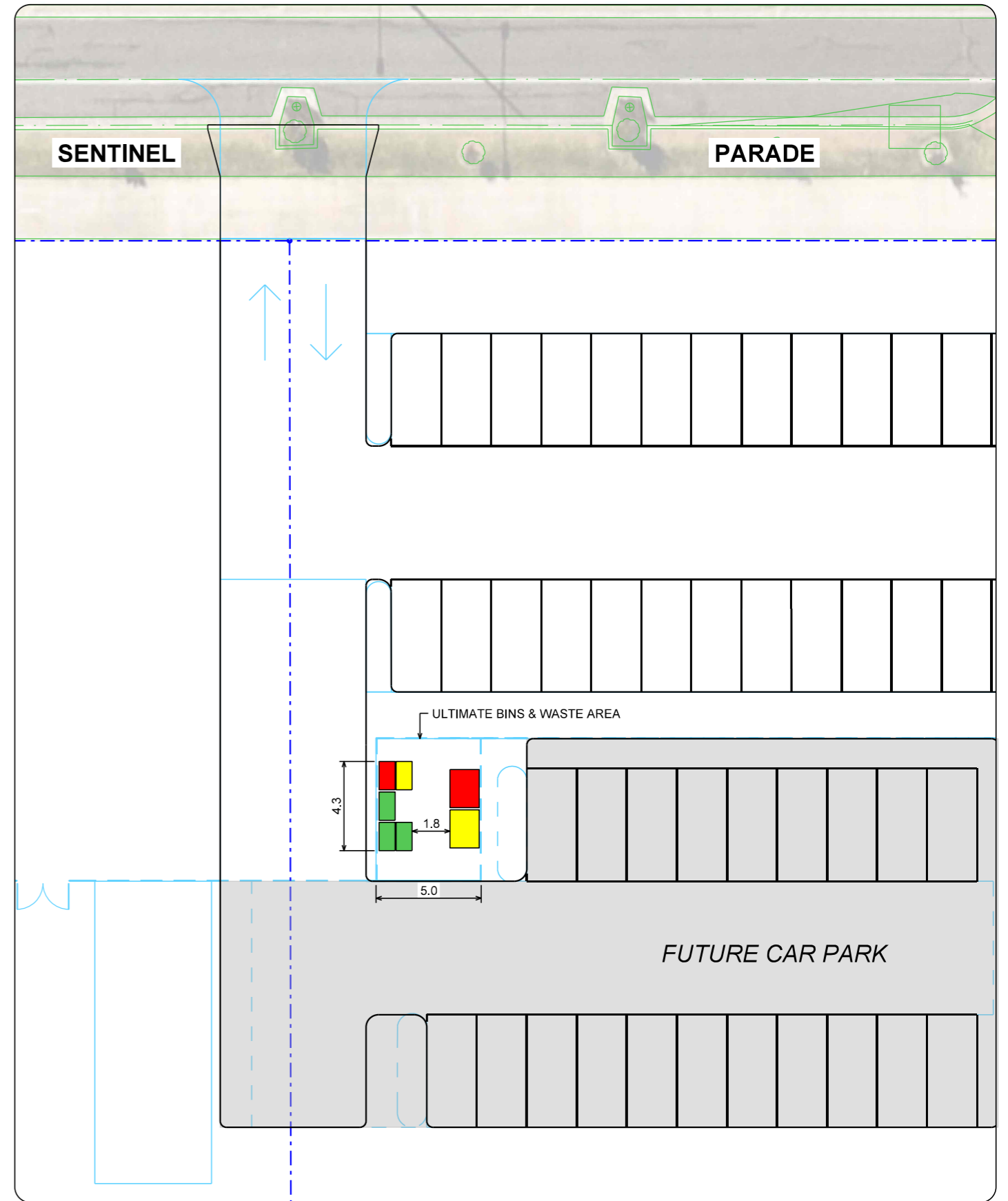
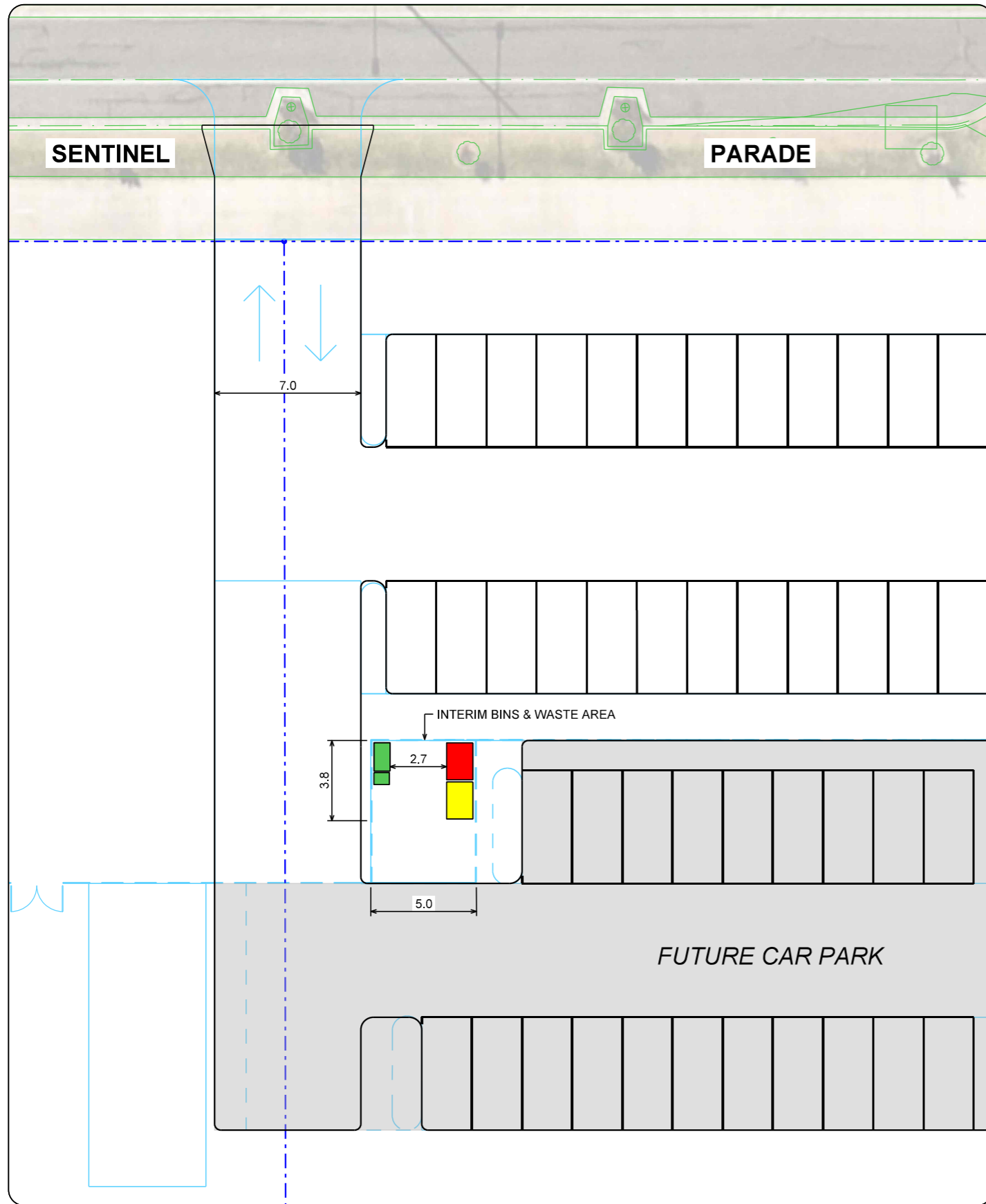
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Client <b>MACS</b>	Date <b>2024-05-06</b>
Project <b>PROPOSED ELC FACILITY 121A GREIGS ROAD, TRUGANINA CITY OF MELTON</b>	Drawn / Approved <b>WH / HM</b>
Status <b>PRELIMINARY</b>	Revision <b>A</b>
Title <b>WASTE MANAGEMENT PLAN OVERALL SITE LAYOUT PLAN</b>	
Drawing Number <b>IMP2401040 - DRG-02-01</b>	



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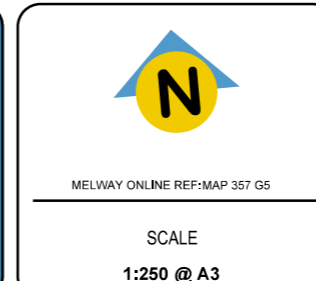
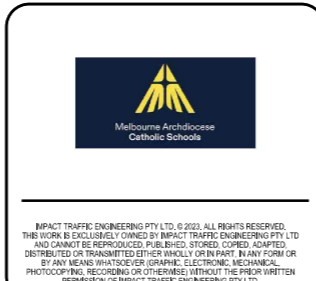
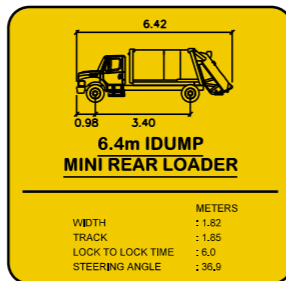
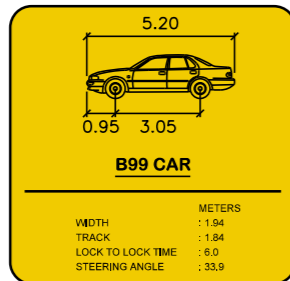
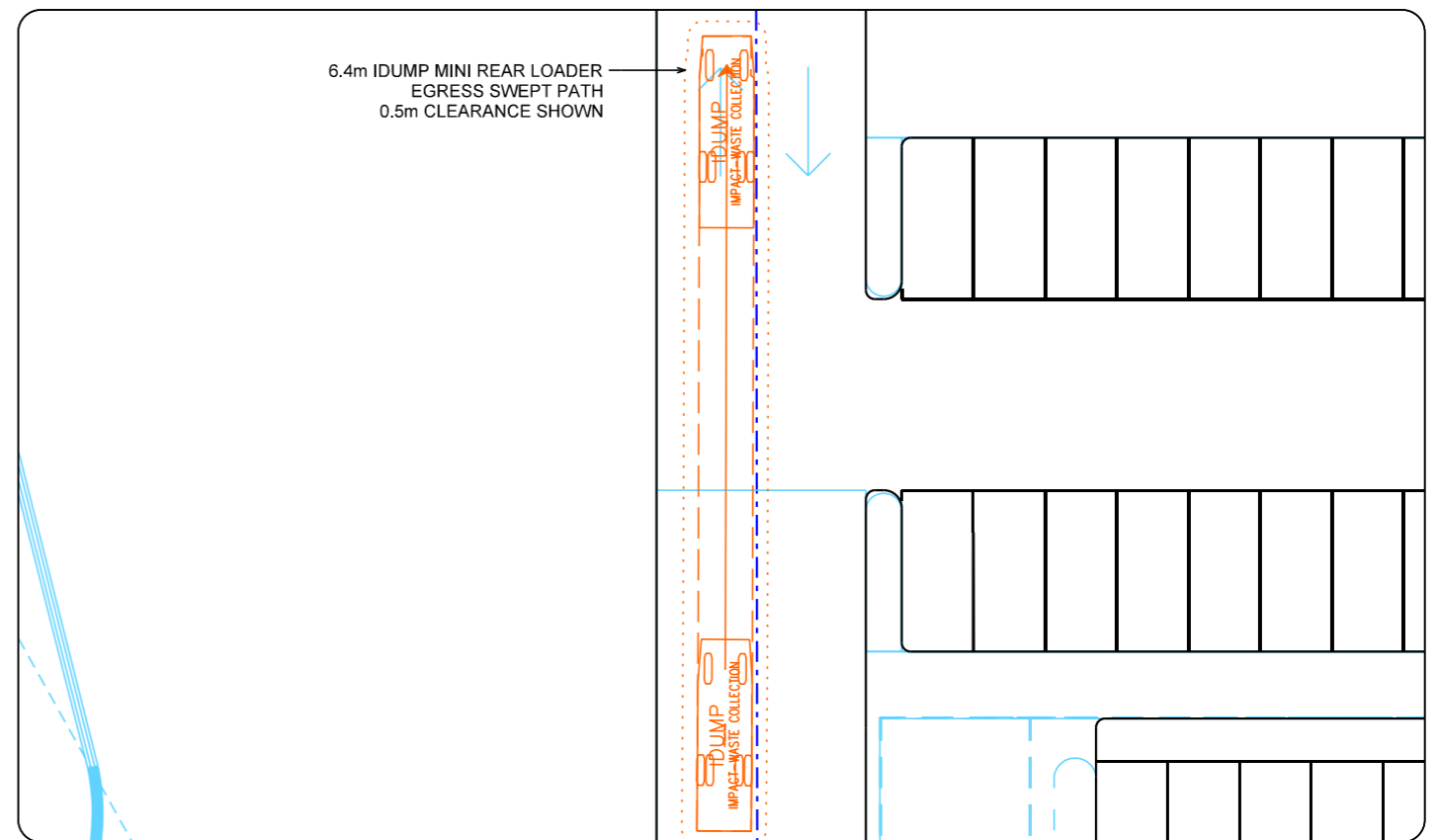
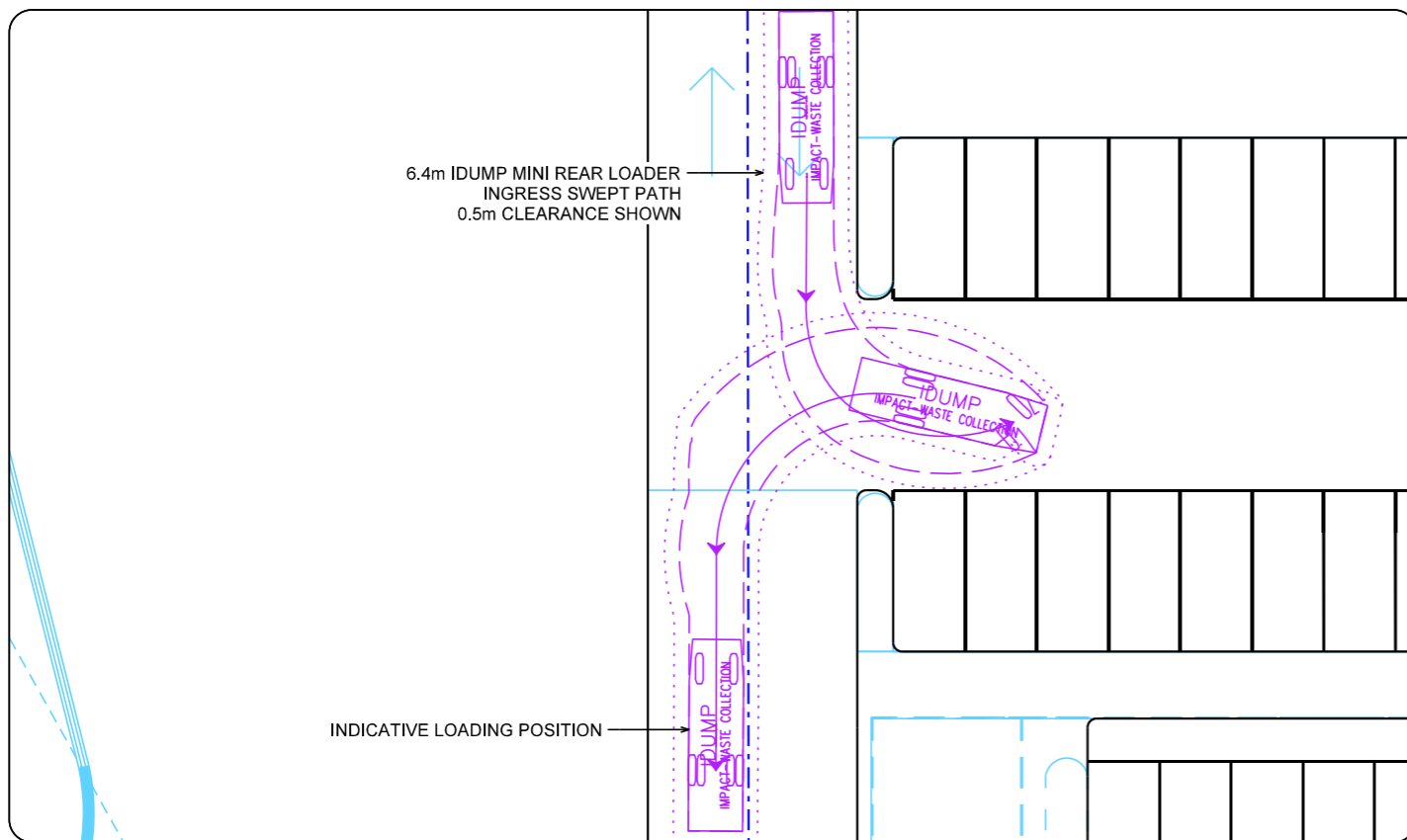
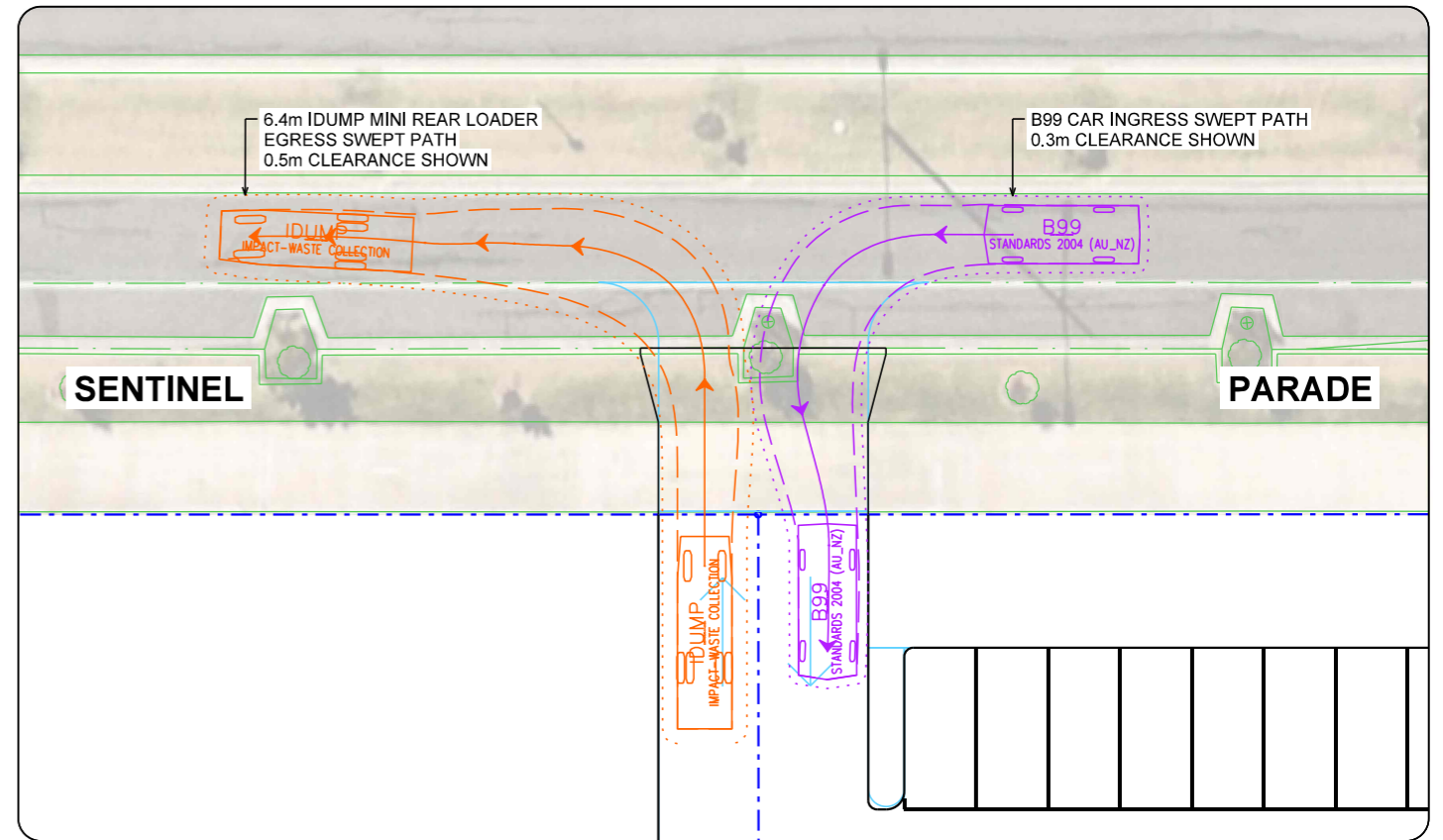
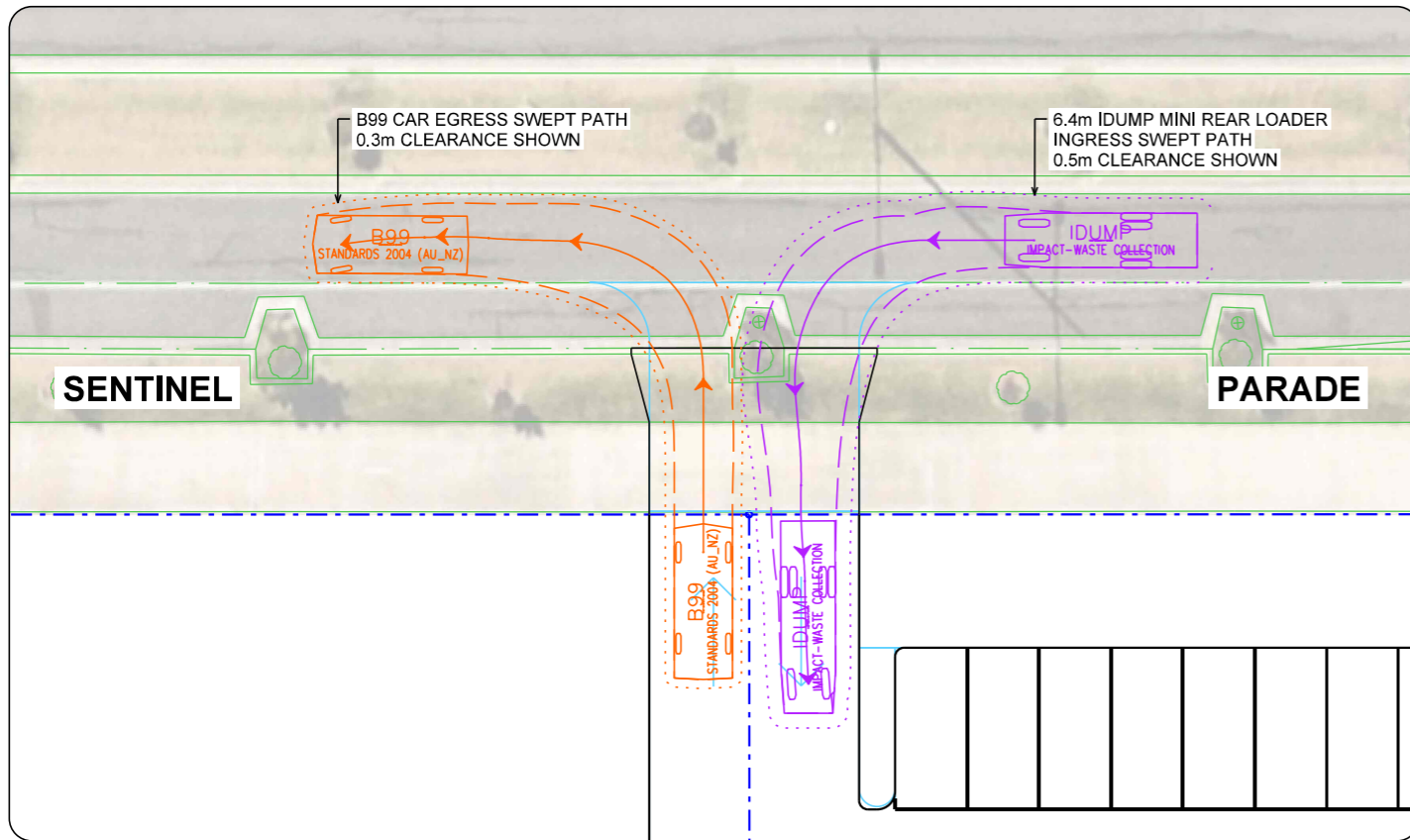
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Client <b>MACS</b>	Date <b>2024-05-06</b>
Project <b>PROPOSED ELC FACILITY 121A GREIGS ROAD, TRUGANINA CITY OF MELTON</b>	Drawn / Approved <b>WH / HM</b>
Status <b>PRELIMINARY</b>	Revision <b>A</b>
Title <b>WASTE MANAGEMENT PLAN INTERIM AND ULTIMATE WASTE BIN PROVISION NORTHERN STAFF CAR PARK</b>	
Drawing Number <b>IMP2401040 - DRG-02-02</b>	



Client <b>MACS</b>	Date <b>2024-05-06</b> Drawn / Approved <b>WH / HM</b>
Project <b>PROPOSED ELC FACILITY 121A GREIGS ROAD, TRUGANINA CITY OF MELTON</b>	Title <b>WASTE MANAGEMENT PLAN SWEEP PATH ANALYSIS B99 CAR AND 6.4m IDUMP - DESIGN VEHICLES</b>
Status <b>PRELIMINARY</b>	Drawing Number <b>IMP2401040 - DRG-02-03</b>
Revision <b>A</b>	

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Complexity

