

37°40'30"S  
144°52'12"E

# Warehouse Development: Lot 2&3, 140-204 Western Avenue, Westmeadows



## Traffic and Transport Assessment

19 August 2022  
Prepared for MAB Corporation

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**Impact**  


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## Document Information

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## Document Control

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# 1 IMPACT® Snap Shot

## Development Proposition

<b>Location</b>	<a href="#">37° 40' 30" S 144° 52' 12" E</a>	Lot 2 & Lot 3, 140-204 Western Avenue, Westmeadows
<b>Use</b>	Warehouse Development (incl. ancillary office)	
<b>Yield</b>	Three (3) warehouse tenancies. Total of 14,346 sqm NLA	
<b>Car Parking</b>	137 car spaces	
<b>Access Arrangements</b>	Nine (9) crossovers proposed, with separation of Commercial & Commuter Vehicles.	

## Statutory Controls

### Particular Provisions

#### Clause 52.06 - Car Parking

#### Requirement vs Provision

149 spaces required. 137 spaces provided.

Warehouse / Industrial operations are evolving with a growing reliance on automation and robotics to improve supply chain and production efficiency. The growing reliance on automation and robotics is being driven in part by factors that include:

- Reduced labour requirements / lower labour costs
- Reduced workplace accident risks; and
- Maximum use of warehouse space

#### Adequacy of Provision

These operational trends are informing design outcomes which recognise the reduced demand for labour and with it a reduced demand for staff car parking.

This reduced parking demand is observed at numerous warehouse developments in metropolitan Melbourne, where parking demand rates in the order of 0.55 spaces per 100 sqm are commonly recorded.

The proposed provision of parking at rates of between 0.65 - 1.14 spaces per 100 sq.m comfortably exceeds the forecast demands and is considered adequate.

#### Design Considerations

The proposed car parking and access arrangements have been assessed and determined to have satisfied the relevant design guidelines / principles contained within Clause 52.06 and AS2890.6:2009.

#### Clause 52.34 - Bicycle Parking

#### Requirement vs Provision

No requirements. 12 spaces provided.

#### Adequacy of Provision

The proposed provision will encourage bicycle trips by staff to the site.

#### Design Considerations

The proposed bicycle parking spaces have been assessed and determined to have satisfied the relevant design guidelines contained within Clause 52.34 and AS2890.3:2015.

### Clause 65.01 - Approval of an Application or Plan

#### Design Considerations

The proposed loading arrangements have been assessed and determined to satisfy the relevant design guidelines / principles contained with Clause 65.01 and AS 2890.2:2018.

## Traffic Considerations

#### Traffic Impact

The proposal warehouse will generate 56 vehicle trips during the network peak periods.

Assessment undertaken as part of the master planning of the industrial subdivision revealed that the mitigating road improvements works that will be delivered as part of the industrial subdivision will provide sufficient capacity in the road network to maintain within practical limitations, the level of safety and operational efficiency that would have existed without the development.

Having regard to these mitigation works; the proposed warehouse development will have no adverse road network impacts in the locality.

## Conclusion

- The proposed development satisfies relevant statutory requirements as they relate to car parking provision for Warehouse A and Warehouse B, design of car parking and loading areas.
- Where the statutory requirements are not explicitly met, regarding car parking provision for Warehouse C, the development satisfies decision guidelines that allow for a reduction of the car parking 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 MAB Corporation to undertake a Traffic and Transport Impact Assessment for the proposed data centre at land identified as Lot 2 & Lot 3, 140-204 Western Avenue, Westmeadows.

### 2.2 Scope of Engagement

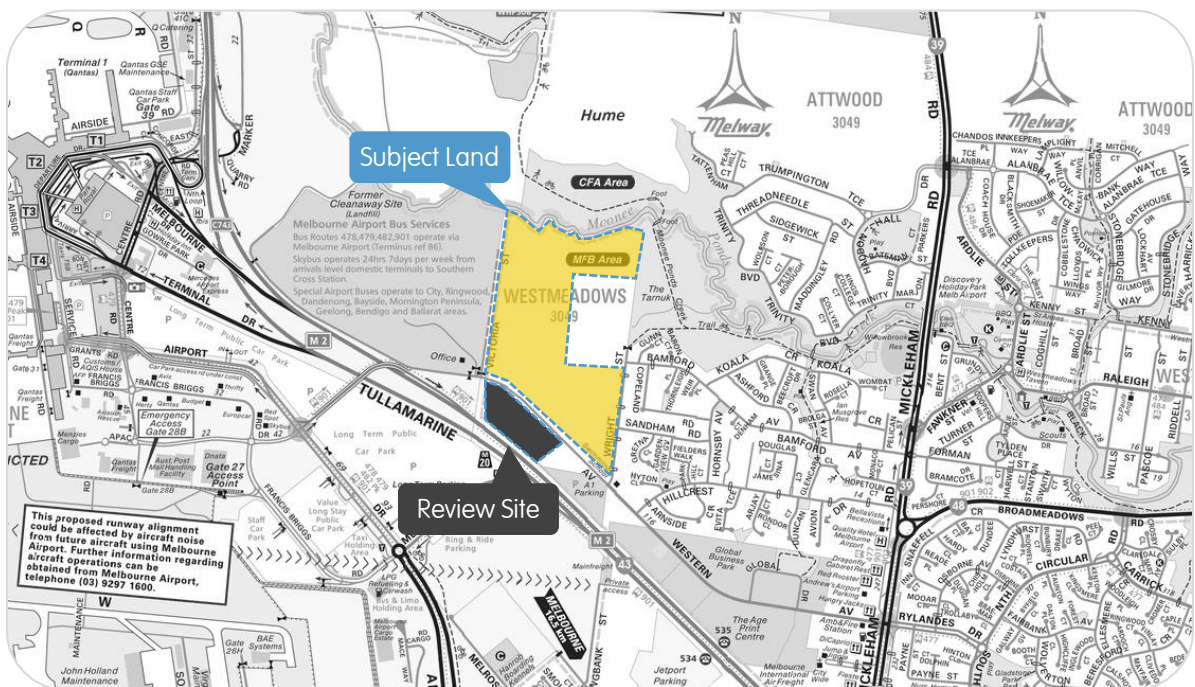
This Traffic and Transport Assessment has been prepared to accompany a town planning submission. In preparing this assessment we have referenced the following:

- City of Hume Planning Scheme;
- Plans for the proposed development, prepared by Watson Young Architects
- Other technical data and documentation as noted within the body of this report.

## 3 Existing Conditions

### 3.1 Location

The subject land, Lot 2 and Lot 3 is contained within the broader 140-204 Western Avenue, Westmeadows site. The location of the review site in the context of the larger land parcel is illustrated in Figure 1.



**Figure 1** Location of Subject Site

Land uses in the immediate area primarily comprise industrial uses (located either side of Western Avenue to the east of the subject site) and residential uses (north of Western Avenue between the subject site and Mickleham Road).

## 3.2 Road Network

### 3.2.1 Western Avenue

Classified as a local connector street, Western Avenue extends in a general westward direction from Mickleham Road for approximately 3 kilometres until it terminates at a private property boundary.

Between Mickleham Road and Wright Street, Western Avenue provides direct access to a number of commercial / industrial uses, as well as alternative access to Mickleham Road for the residential to the north.

To the west of Wright Street, Western Avenue functions akin to a local road, providing access to the subject land and other undeveloped vacant land parcels. Western Avenue (until Wright Street) is generally contained within an approximate 24 metre road reservation and provides for a single lane of traffic in each direction and kerbside parking lanes (clear of traffic).

A footpath is provided along the northern side of Western Avenue but does not extend all the way through to Wright Street. To the west of Wright Street, Western Avenue has a central sealed pavement in the order of 6.5 metres wide, with sealed shoulders that appear to be irregularly maintained.

Its typical cross-section to the east and west of Wright Street is illustrated at Figure 2 and Figure 3.



**Figure 2** Western Avenue carriageway, facing east past Wright Street



**Figure 3** Western Avenue carriageway, facing west of Wright Street

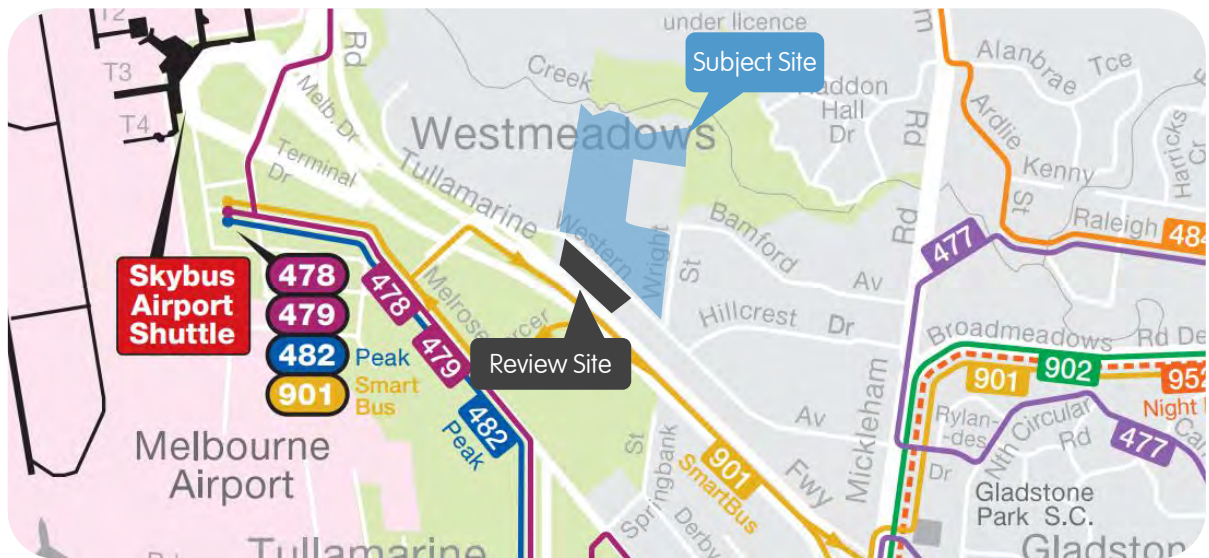
### 3.2.2 Victoria Street

Currently unconstructed, Victoria Street is a local access road which is planned to extend north from Western Avenue, along the subject site's western boundary. This ultimate purpose for this road is to provide a local connection for the parcels of land extending along the east and west sides of Victoria Street.

The planned Victoria Street road reservation is approximately 20 metres in width and would allow the street to be developed with similar characteristics as those outlined for Wright Street (see above).

### 3.3 Public Transport

The subject site has limited direct access to public transport with the most accessible bus stop located at Mickleham Road / Western Avenue intersection, approximately 1,200 metres east of the subject site. Figure 4 shows the subject site in the context of existing public transport routes.



**Figure 4 Public Transport Map**

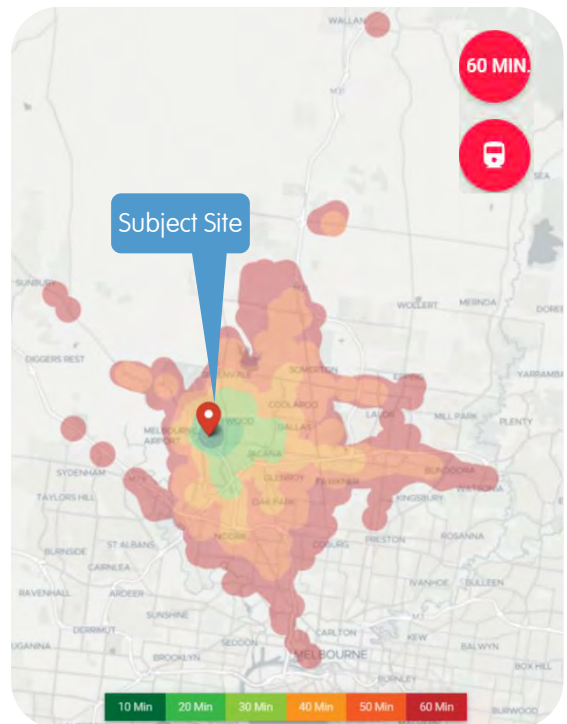
These options are described in Table 1

**Table 1 Public Transport Summary**

Service	Route	Description
<b>Bus</b>	901	Frankston - Melbourne Airport
	902	Airport West - Chelsea
	959	Broadmeadows Station - City

These services as depicted in the catchment heat map can be leveraged for transport to / from the subject within 60 minutes to the following locations

- North Wallan
- South Melbourne CBD
- West Sunbury
- East Bundoora / Watsonia



### 3.3.1 Active Transport

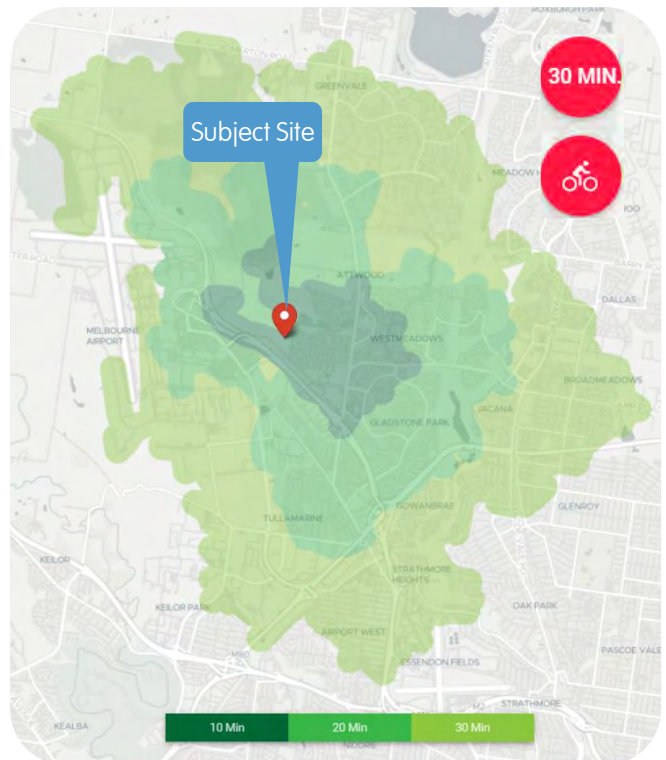
The subject site is well connected to the City of Hume's walking and cycling network. This network comprises on road and off road pathways. The location of the site relative to this active transport network is shown at Figure 5.



**Figure 5 City of Hume Active Transport Network**

This network as depicted in the catchment heat maps can be leveraged for transport via bicycle to / from the subject within 30 minutes to the following locations

- North                      Greenvale
- South                     Airport West
- West                      Bulla
- East                      Broadmeadows



## 4 Development Proposition

### 4.1 Proposed Development

Three (3) warehouses with ancillary offices are planned on the review site. Details of the warehouses are summarised at Table 2.

**Table 2 Development Summary**

		Size (sq.m)
<b>Lot 2</b>	<b>Warehouse A</b>	4,712
	<b>Warehouse B</b>	5,020
<b>Lot 3</b>	<b>Warehouse C</b>	4,614
<b>Total</b>		<b>14,346</b>

### 4.2 Parking

#### 4.2.1 Car Parking

A total of 137 car parking spaces are contemplated, with these spaces distributed as summarised at Table 3.

**Table 3 Parking Provision Rates**

		Size (sq.m)	Car Parking	Rate / 100 sq.m
<b>Lot 2</b>	<b>Warehouse A</b>	4,712	50	1.06
	<b>Warehouse B</b>	5,020	57	1.14
<b>Lot 3</b>	<b>Warehouse C</b>	4,614	30	0.65
<b>Total</b>		<b>14,346</b>	<b>137</b>	<b>0.95</b>

#### 4.2.2 Bicycle Parking

Each warehouse tenancy is to be provided with four (4) bicycle spaces, and 1 shower / change room contained within the DDA Amenity.

**Table 4 Bicycle Parking Provision**

		Size (sq.m)	Bicycle Parking	Shower / Change Room
<b>Lot 2</b>	<b>Warehouse A</b>	4,712	4	1
	<b>Warehouse B</b>	5,020	4	1
<b>Lot 3</b>	<b>Warehouse C</b>	4,614	4	1
<b>Total</b>		<b>14,346</b>	<b>12</b>	<b>3</b>

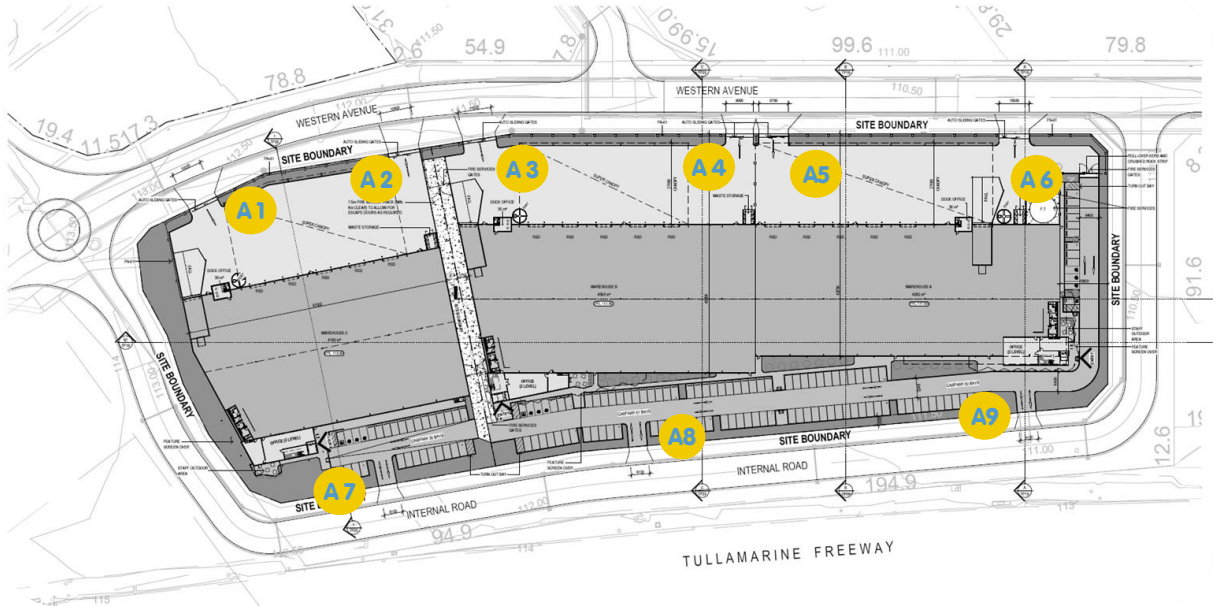
Bicycle spaces are to be provided in the form of horizontal bicycle hoops, similar to Bicycle Network Arc de Triomphe.

### 4.3 Access Arrangements

Access to the warehouse tenancies is planned from Western Avenue and the planned industrial road.

Access points to Western Avenue are planned for Commercial vehicles (Semi Trailers & B Doubles), whilst access to the planned industrial road will be provided for commuter vehicles (staff & visitors).

A total of 9 crossovers are planned, with the location of the proposed access points shown at Figure 6.



**Figure 6 Crossover Locations**

These access point will operate as follows:

		Commercial Vehicles		Commuter Vehicles
		Inbound	Outbound	Inbound & Outbound
<b>Lot 2</b>	<b>Warehouse A</b>	A5	A6	A9
	<b>Warehouse B</b>	A3	A4	A8
<b>Lot 3</b>	<b>Warehouse C</b>	A1	A2	A3

### 4.4 Loading Arrangements

Each warehouse is proposed with a dedicated hardstand area providing access to at grade and recessed loading docks.

Each hardstand area is capable of accommodating 26m B-double circulation, with recessed docks capable of accommodating 19m semi-trailer reverse manoeuvres.

Swept paths provided at Appendix A show the movement of commercial vehicles within the hardstand, and into and out of loading docks.

## 5 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

### 5.1 Clause 52.06 - Car Parking

#### 5.1.1 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.

#### 5.1.2 Provision and Design Requirements

To satisfy the above purpose, Clause 52.06 of the Hume Planning Scheme specifies requirements relating to the provision and design of car parking as follows.

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

Table 1 to Clause 52.06-05 of the Hume Planning Scheme provides rates for various land uses. The subject site is located within the PPTN area. Accordingly, rates in Column B apply. These rates are:

**Warehouse: 2 spaces to each premise, plus 1 space to each 100 sqm of net floor area.**

Application of the above rates reveals a requirement for a total of 149 spaces.

**Table 5 Statutory Parking Requirement**

		Size (sq.m)	Rate	Required	Provided
<b>Lot 2</b>	<b>Warehouse A</b>	4,712	2 Spaces + 1 space / 100 sq.m	49	50
	<b>Warehouse B</b>	5,020		52	57
<b>Lot 3</b>	<b>Warehouse C</b>	4,614		48	30
<b>Total</b>				<b>149</b>	<b>137</b>

### 5.1.4 Proposed Provision

A total of **137 spaces** are planned on site with Warehouse A and Warehouse B providing parking at rates higher than the statutory requirement. Warehouse C has parking provided below the statutory requirement.

This proposal therefore seeks approval to reduce the number of parking spaces required under Clause 52.06-5.

### 5.1.5 Application Requirements and Decision Guidelines to Reduce Car Parking Requirement

An application to reduce (including reduce to zero) the number of car parking spaces required under Clause 52.06-5 must be accompanied by a Car Parking Demand Assessment.

The Car Parking Demand Assessment must assess the car parking demand likely to be generated by the proposal and must also address the following matters, to the satisfaction of the responsible authority.

- The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.
- The variation of car parking demand likely to be generated by the proposed use over time.
- The short-stay and long-stay car parking demand likely to be generated by the proposed use.
- The availability of public transport in the locality of the land.
- The convenience of pedestrian and cyclist access to the land.
- The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.
- The anticipated car ownership rates of likely or proposed visitors to or occupants (residents or employees) of the land.
- Any empirical assessment or case study.

Before granting a permit to reduce the number of spaces, the responsible authority must consider as appropriate:

- The Car Parking Demand Assessment.
- Any relevant local planning policy or incorporated plans.
- The availability of alternative car parking in the locality of the land, including:
  - Efficiencies gained from the consolidation of shared car parking spaces.
  - Public car parks intended to serve the land.
  - On-street parking in non-residential zones.
  - Streets in residential zones specifically managed for non-residential parking.
- On-street parking in residential zones in the locality of the land that is intended to be for residential use.
- The practicality of providing car parking on the site, particularly for lots of less than 300 square metres.
- Any adverse economic impact a shortfall of parking may have on the economic viability of any nearby activity centre.
- The future growth and development of any nearby activity centre
- Any car parking deficiency associated with the existing use of the land.
- Any credit that should be allowed for car parking spaces provided on common land or by a Special Charge Scheme or cash-in-lieu payment.
- Local traffic management in the locality of the land.
- The impact of fewer car parking spaces on local amenity, including pedestrian amenity and the amenity of nearby residential areas.
- The need to create safe, functional and attractive parking areas.
- Access to or provision of alternative transport modes to and from the land.
- The equity of reducing the car parking requirement having regard to any historic contributions by existing businesses.

- The character of the surrounding area and whether reducing the car parking provision would result in a quality/positive urban design outcome.
- Any other matter specified in a schedule to the Parking Overlay.
- Any other relevant consideration.

Considering the foregoing, we have undertaken the following car parking demand assessment which outlines our expectations of likely parking demand.

### 5.1.6 Car Park Demand Assessment

Warehouse / Industrial operations are evolving with a growing reliance on automation and robotics to improve supply chain and production efficiency.

The growing reliance on automation and robotics is being driven in part by factors that include:

- Reduced labour requirements / lower labour costs
- Reduced workplace accident risks; and
- Maximum use of warehouse space

These operational trends are informing design outcomes which recognise the reduced demand for labour and with it a reduced demand for staff car parking.

This reduced parking demand is observed at numerous warehouse developments in metropolitan Melbourne as demonstrated in the case studies below.

#### 144-168 National Blvd, Campbellfield

IMPACT® commissioned parking accumulation studies at the warehouse at 144-168 National Drive, Campbellfield. The site has a circa 16,700 sq.m warehouse including a showroom / shop with products sold to customers direct.

The studies were undertaken on Thursday 13<sup>th</sup> May 2021 between 5:00am to 7:00pm. The methodology leveraged the use of cameras installed at the site access points as illustrated in Figure 9 below.



The data collected allowed a profile to be developed that represents the accumulation of vehicles within the site over time.

The accumulation profile reveals a peak demand of **75 spaces**, with this peak occurring at 11:30am.

It is understood that at the time of the studies, the showroom / shop was closed to the public, with products sold from this warehouse via online channels.

At the time of the survey, it is noted that the community in Victoria was returning to 'business as usual' following State Government mandated restrictions in response to the COVID-19 pandemic.

**Figure 7 National Blvd, Campbellfield Case Study Site**

To ensure that the data collected on Thursday 13<sup>th</sup> May 2021 provides a suitable representation of demand, we have reviewed historical Nearmap aerial images in the period between 2018 - 2020 against the case study data available to IMPACT®. The findings are as follows:

**Table 6 Aerial Imagery Parking Survey**

Day & Date	Wed 17/01/2018	Fri 09/03/2018	Fri 19/10/2018	Wed 11/11/2019	Thur 30/01/2020
<b>Peak Demand</b>	50	54	43	73	69
<b>Rate / 100 sq.m</b>	0.30	0.32	0.26	0.44	0.41

The Nearmap review reveals that there is variance in the demand with demand ranging between 43 - 73 spaces, this equates to a parking demand rate of between 0.26 - 0.44 spaces per 100 sq.m.

We observe that demand 'Pre Covid' was lower than recorded in May 2021. This difference is understood to be because the tenancy has closed permanently its showroom / shop, with products now sold from this warehouse via online channels - with the existing showroom / shop converted to a pick and pack area.

This change has warranted higher staffing requirements at the site.

For the existing warehouse building with a floor area of circa 16,700 sq.m, the data reveals that typical peak demand, with the online shop use in operation would be **0.45 spaces per 100 sq.m.**

**655 Somerville Road, Sunshine West**

**IMPACT**® commissioned parking accumulation studies at the subject site. The studies were undertaken on Thursday 13<sup>th</sup> May 2021 between 5:00am to 7:00pm. The methodology leveraged the use of pneumatic tube counters installed at the site access points as illustrated in Figure 8 below.



The data collected allowed a profile to be developed that represents the accumulation of vehicles within the site over time.

The accumulation profile reveals a peak demand of **50 spaces**, with this peak occurring at 10:30am.

At the time of the survey, it is noted that the community in Victoria was returning to 'business as usual' following State Government mandated restrictions in response to the COVID-19 pandemic.

**Figure 8 Somerville Road, Sunshine West Case Study Site**

To ensure that the data collected on Thursday 13<sup>th</sup> May 2021 provides a suitable representation of demand, we have reviewed historical Nearmap aerial images in the period between 2018 - 2020 against the case study data available to **IMPACT**®. The findings are as follows:

**Table 7 Aerial Imagery Parking Survey**

Day & Date	Wed 04/04/2018	Fri 24/08/2018	Fri 19/10/2018	Mon 25/11/2019	Mon 17/02/2021
<b>Peak Demand</b>	49	55	51	62	56
<b>Rate / 100 sq.m</b>	0.35	0.39	0.36	0.44	0.40

The Nearmap review reveals that there is variance in the demand with demand ranging between 49 - 62 spaces, this equates to a parking demand rate of between 0.35 - 0.44 spaces per 100 sq.m.

We observe that demand 'Pre Covid' was higher than that recorded in May 2021. This difference can be explained, in that the subject site includes a showroom / shop with products sold to customers direct. This component of the operation would not have been operating 'business as usual', thus customer demand would have been nil.

For the existing warehouse building with a floor area of circa 14,095qm, the data reveals that typical peak demand, with the shop use in operation would have been generated at a rate of **0.44 spaces per 100 sq.m**, or when the shop use is discounted, a demand for parking at a rate of **0.36 spaces per 100 sq.m**

**448 Boundary Road, Derrimut**

IMPACT® commissioned parking accumulation studies at the subject site. The studies were undertaken in the period between Tuesday 6<sup>th</sup> February 2018 - Friday 9<sup>th</sup> February 2018.

The methodology leveraged the use of pneumatic tube counters installed at the site access points as illustrated in Figure 9 below.



The data collected allowed a profile to be developed that represents the accumulation of vehicles within the site over time.

The accumulation profile reveals that there were up to 34 vehicles within the site at any one time.

**Figure 9 Boundary Road Case Study Site**

We were instructed that from time to time, casual staff are required at the site. Table 8 provides a summary of the casual staff numbers during the survey period.

**Table 8 Casual Staff Numbers: Tuesday 6<sup>th</sup> Feb - Friday 9<sup>th</sup> Feb 2018**

Date	Tuesday 6 <sup>th</sup> Feb	Wednesday 7 <sup>th</sup> Feb	Thursday 8 <sup>th</sup> Feb	Friday 9 <sup>th</sup> Feb
Casual Staff	21	24	26	22

We were instructed that casual staff typically park on street and thus would not have been captured by the parking accumulation study.

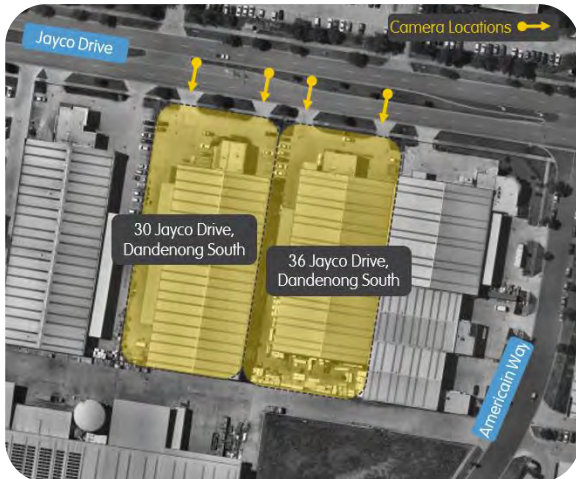
Conservatively assuming that all casual staff drive, and that all were present at the recorded peak time, there would have been a demand for up to **60 parking spaces**.

For the existing warehouse building with a floor area of circa 20,506sqm, the data reveals that typical peak demand is being generated at a rate of **0.29 spaces per 100sqm**.

### 30 & 36 Jayco Drive, Dandenong South

IMPACT® commissioned parking accumulation surveys using cameras to record all inbound and outbound movements at each access point of two (2) comparable developments located at 30 and 36 Jayco Drive, Dandenong South.

Each of the sites, comprising approximately 3,300sqm of warehousing floor area, operate as stand-alone tenancies.



The car parking occupancies surveys were undertaken over two (2) days on Tuesday 5<sup>th</sup> February and Thursday 7<sup>th</sup> February 2019. The methodology leveraged the use of cameras installed at each of the site access points to simultaneously record movements into and out of each site.

The case study sites are illustrated at Figure 10.

**Figure 10** Jayco Drive, Dandenong South Case Study Site

#### Results

Peak parking demand for 30 Jayco Drive was observed to occur between 10:00am to 12:30pm where a total of **7 spaces** were occupied, equating to a peak parking demand for **0.21 spaces per 100sqm** of total development floor area.

Peak parking demand for 36 Jayco Drive was observed to occur at 10:15am where a total of **18 spaces** were occupied, equating to a peak parking demand for **0.55 spaces per 100sqm** of total floor area.

#### 5.1.7 Suitability of the Case Study Data

The case studies presented in this report have been drawn from various locations in Metropolitan Melbourne.

To confirm that these studies provide a representative reference to inform decision making at a Westmeadows locality, we have sourced from the Australian Bureau of Statistics Journey to Work Data - Statistical Area Level 2 (SA2).

This data provides insights on transport modes for workers in the respective statistical area. A comparison of these statistics provides a basis by which a reasonable comparison can be made between various statistical areas.

The Journey to work data reveals that workers at all the surveys statistical areas, rely heavily on car as a mode of transport to work, with an uptake of this mode of transport in the range of 85% - 90%, with the highest rate observed at Campbellfield Statistical Area.

Summary of persons commuting to the Deer Park - Derrimut SA2			Summary of persons commuting to the Sunshine West SA2			Summary of persons commuting to the Campbellfield - Coolaroo SA2		
Travel Mode	Counts	%	Travel Mode	Counts	%	Travel Mode	Counts	%
Public Transport	315	2.44	Public Transport	298	2.97	Public Transport	671	2.91
Vehicle	11,308	87.43	Vehicle	8,856	88.16	Vehicle	20,757	90.04
Active Transport	107	0.83	Active Transport	101	1.01	Active Transport	154	0.67
Other Mode	63	0.49	Other Mode	32	0.32	Other Mode	71	0.31
Worked at home*	997	7.71	Worked at home*	622	6.19	Worked at home*	1,122	4.87
Mode not stated	140	1.08	Mode not stated	134	1.33	Mode not stated	275	1.19
<b>Total</b>	<b>12,934</b>		<b>Total</b>	<b>10,045</b>		<b>Total</b>	<b>23,053</b>	

Summary of persons commuting to the Dandenong SA2			Summary of persons commuting to the Gladstone Park - Westmeadows SA2		
Travel Mode	Counts	%	Travel Mode	Counts	%
Public Transport	2,195	3.34	Public Transport	106	2.93
Vehicle	58,044	88.36	Vehicle	2,893	79.96
Active Transport	495	0.75	Active Transport	49	1.35
Other Mode	199	0.30	Other Mode	31	0.86
Worked at home*	4,129	6.29	Worked at home*	502	13.88
Mode not stated	627	0.95	Mode not stated	31	0.86
<b>Total</b>	<b>65,689</b>		<b>Total</b>	<b>3,618</b>	

In comparison, whilst a similar heavy reliance on the car as a mode of transport to work is observed at Westmeadows, the uptake of this mode of transport is recorded at 80%. This rate is below the rates observed in the case study localities where the range is 85% - 90%.

### 5.1.8 Forecast Demand Assessment

The case studies have revealed that the proposed warehouses will generate peak demand at a rate, in the order of 0.55 spaces per 100 sq.m.

A comparison of the proposed parking provision per tenancy against the forecast demand is shown below.

	Size (sq.m)	Parking	Rate / 100 sq.m	Case Study Rate / 100 sq.m
<b>Warehouse A</b>	4,712	50	1.06	
<b>Warehouse B</b>	5,020	57	1.14	0.55
<b>Warehouse C</b>	4,614	30	0.65	

The proposed provision for each tenancy exceeds the forecast demand.

### 5.1.9 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.

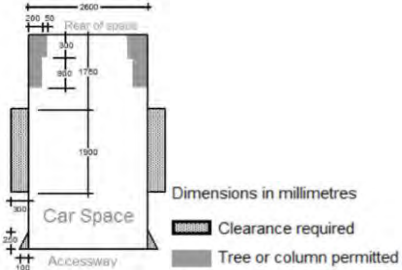
## 5.1.10 Design Standard for Car Parking - Clause 52.06 - 9

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

### 5.1.10.1 Design Standard 1 - Accessways

Requirements	Design Response	Status
<b>Accessways Must:</b>		
<b>1</b> Be at least 3 metres wide.	Accessways exceed 3 metres in width.	<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	At changes of direction, intersections are at least 4.2m wide.	<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.	Vehicles can exit the site in a forward direction with one manoeuvre.	<b>Comply</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.	2.1m headroom is provided below overhead obstructions.	<b>Comply</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.	Accessways do not connect to a road in a Transport Zone	<b>N/A</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.	Two-way accessways are proposed where required.	<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.	An area of at least 50% 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 will be kept clear of landscaping higher than 900mm in height.	<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.	Accessways do not connect to a road in a Transport Zone	<b>N/A</b>
<b>9</b> If entry to the car spaces is from a road, the width of the road accessway may include the road.	N/A	<b>N/A</b>

### 5.1.10.2 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="288 443 871 678"> <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>Parking spaces are designed in accordance with the requirements of Table 2.</p>	<p><b>Comply</b></p>
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																												
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	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: 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 A structure, which may project into the space if it is at least 2.1 metres above the space.</p> 	<p>Adequate clearance is provided to obstructions.</p>	<p><b>Comply</b></p>																													
<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>	<p>No garages or carports are proposed.</p>	<p><b>N/A</b></p>																													
<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>	<p>No tandem spaces proposed.</p>	<p><b>N/A</b></p>																													
<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>	<p>No dwellings proposed.</p>	<p><b>N/A</b></p>																													
<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>	<p>Disabled car parking has been designed in accordance with AS2890.6-2009 and located proximate to pedestrian entry points.</p>	<p><b>Comply</b></p>																													

### 5.1.10.3 Design Standard 3 - Gradients

Requirements	Design Response	Status													
<p><b>1</b> Accessway grades must not be steeper than 1:10 (10 per cent) within 5 metres of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.</p>	Grades at accessways do not exceed 1:10.	<b>Comply</b>													
<p><b>2</b> Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 and be designed for vehicles travelling in a forward direction.</p> <table border="1"> <thead> <tr> <th>Type of car park</th> <th>Length of ramp</th> <th>Maximum grade</th> </tr> </thead> <tbody> <tr> <td rowspan="2"><b>Public car parks</b></td> <td>20 metres or less</td> <td>1:5 (20%)</td> </tr> <tr> <td>longer than 20 metres</td> <td>1:6 (16.7%)</td> </tr> <tr> <td rowspan="2"><b>Private or residential car parks</b></td> <td>20 metres or less</td> <td>1:4 (25%)</td> </tr> <tr> <td>longer than 20 metres</td> <td>1:5 (20%)</td> </tr> </tbody> </table>	Type of car park	Length of ramp	Maximum grade	<b>Public car parks</b>	20 metres or less	1:5 (20%)	longer than 20 metres	1:6 (16.7%)	<b>Private or residential car parks</b>	20 metres or less	1:4 (25%)	longer than 20 metres	1:5 (20%)	Minimal grading is proposed throughout the site.	<b>Comply</b>
Type of car park	Length of ramp	Maximum grade													
<b>Public car parks</b>	20 metres or less	1:5 (20%)													
	longer than 20 metres	1:6 (16.7%)													
<b>Private or residential car parks</b>	20 metres or less	1:4 (25%)													
	longer than 20 metres	1:5 (20%)													
<p><b>3</b> Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5 per cent) for a summit grade change, or greater than 1:6.7 (15 per cent) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming</p>	Minimal grading is proposed throughout the site.	<b>Comply</b>													
<p><b>4</b> Plans must include an assessment of grade changes of greater than 1:5.6 (18 per cent) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.</p>	No grade changes in excess of 1:5.6 (18 per cent) or less than 3 metres apart.	<b>N/A</b>													

### 5.1.10.4 Design Standards 4-7

Design standards 4-7 do not apply to the development.

### 5.1.11 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.

## 5.2 Clause 52.34 - Bicycle Facilities

### 5.2.1 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.

### 5.2.2 Provision Requirements - Clause 52.34.3

To satisfy the above purpose, Clause 52.34-3 of the Hume Planning Scheme specifies the bicycle parking provision requirements for a variety of different uses within Table 1. There is no rate listed for a warehouse use however.

On the basis of the above, bicycle parking is to be provided to the satisfaction of the responsible authority.

### 5.2.3 Proposed Provision

The development plans outline 12 bicycle spaces throughout the development. Specifically, each warehouse is to be provided with four (4) bicycle spaces each.

This provision of bicycle parking spaces will contribute to encouraging active transport modes of travel to / from the subject site.

### 5.2.4 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.

### 5.2.5 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.

## 5.2.6 Design Response

Bicycle spaces are to be provided in the form of horizontal bicycle racks, designed to satisfy the relevant requirements.

A specification sheet for the nominated bike rack is provided as Appendix B.

## 5.2.7 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.

## 5.3 Clause 65.01 - Approval of An Application or Plan

### 5.3.1 Loading Requirements and Objectives

To address the adequacy of loading for new developments, the Hume Planning Scheme specifies the following:

- Clause 65.01 - The responsible authority must consider, as appropriate, the adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.

### 5.3.2 Adequacy of Proposed Loading Facilities

In response to the above, each tenancy provides sufficient hardstand area capable of accommodating 26m B-double circulation, with 19m semi-trailers able to reverse into recessed docks.

Swept paths prepared (and attached as Appendix A) illustrate the above vehicle movements.

### 5.3.3 Conclusion - Loading Arrangements

The proposed loading arrangements have been assessed and determined to have satisfied the relevant design guidelines / principles contained within Clause 65.01 and AS2890.2:2018.

Accordingly, it is considered that the proposal:

- Provides adequate vehicle loading and unloading facilities, which will not result in associated amenity, traffic flow and road safety impacts.

## 6 Traffic Considerations

### 6.1 Traffic Generation

Warehouse / industrial uses generate their peak traffic during the early periods of the AM and PM commuter peak periods, i.e. between 6:00am and 8:00am and between 3:00pm and 5:00pm.

The masterplan report prepared in support of the Industrial Subdivision of the land at 140 - 204 Western Avenue adopted a rate of 0.38 trips per 100 sq.m.

The proposed development will generate a total of 56 trips during the AM and PM network peak periods as summarised at Table 9.

**Table 9 Peak Hour Trip Generation**

		Size (sq.m)	Rate / 100 sq.m	Peak Hour Volumes
<b>Lot 2</b>	<b>Warehouse A</b>	4,712	0.38 trips / 100 sq.m	18
	<b>Warehouse B</b>	5,020		20
<b>Lot 3</b>	<b>Warehouse C</b>	4,614		18
<b>Total</b>		<b>14,346</b>		<b>56</b>

### 6.2 Traffic Impacts

Assessment undertaken as part of the master planning of the industrial subdivision revealed that the mitigating road improvements works that will be delivered as part of the industrial subdivision will provide sufficient capacity in the road network to maintain within practical limitations, the level of safety and operational efficiency that would have existed without the development.

### 6.3 Conclusion - Traffic Impacts

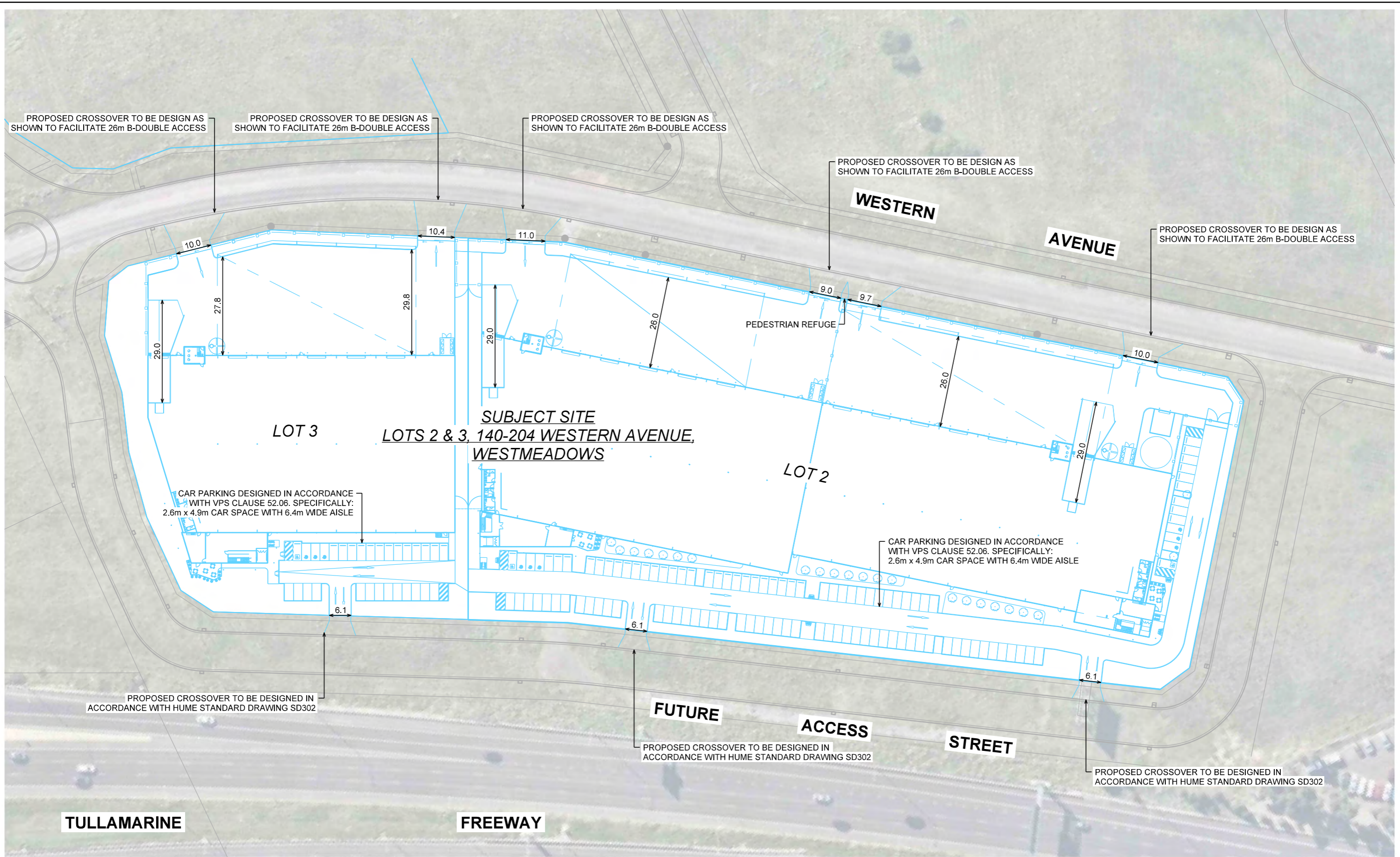
The proposed warehouse development will have no adverse road network impacts in the locality.

# APPENDIX A

## Swept Path Analysis

### Design Vehicles:

- 19 metre Semi Trailer
- 26 metre B Double



- GENERAL NOTES:
1. ALL DIMENSIONS ARE TO FACE OF KERB AND CHANNEL UNLESS NOTED OTHERWISE.
  2. LOCAL ROADS - WESTERN AVENUE (SPEED ZONE 50KM/H)  
- FUTURE ACCESS STREET (SPEED ZONE 50KM/H)
  3. BASE INFORMATION FROM NEARMAP AERIAL PHOTOGRAPHY DATED 23.05.2022 AND WATSON YOUNG 22203\_TP03\_LOT 2-3 + 4 PROPOSED SITE PLAN\_DWG (P4).dwg DATED 03.08.2022

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MELWAY ONLINE REF: MAP 5 F7

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Client  
**MAB**

Project  
WAREHOUSE DEVELOPMENT  
LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
CITY OF HUME

Title  
TRAFFIC & TRANSPORT ASSESSMENT  
OVERALL SITE LAYOUT PLAN

Date  
2022-08-19

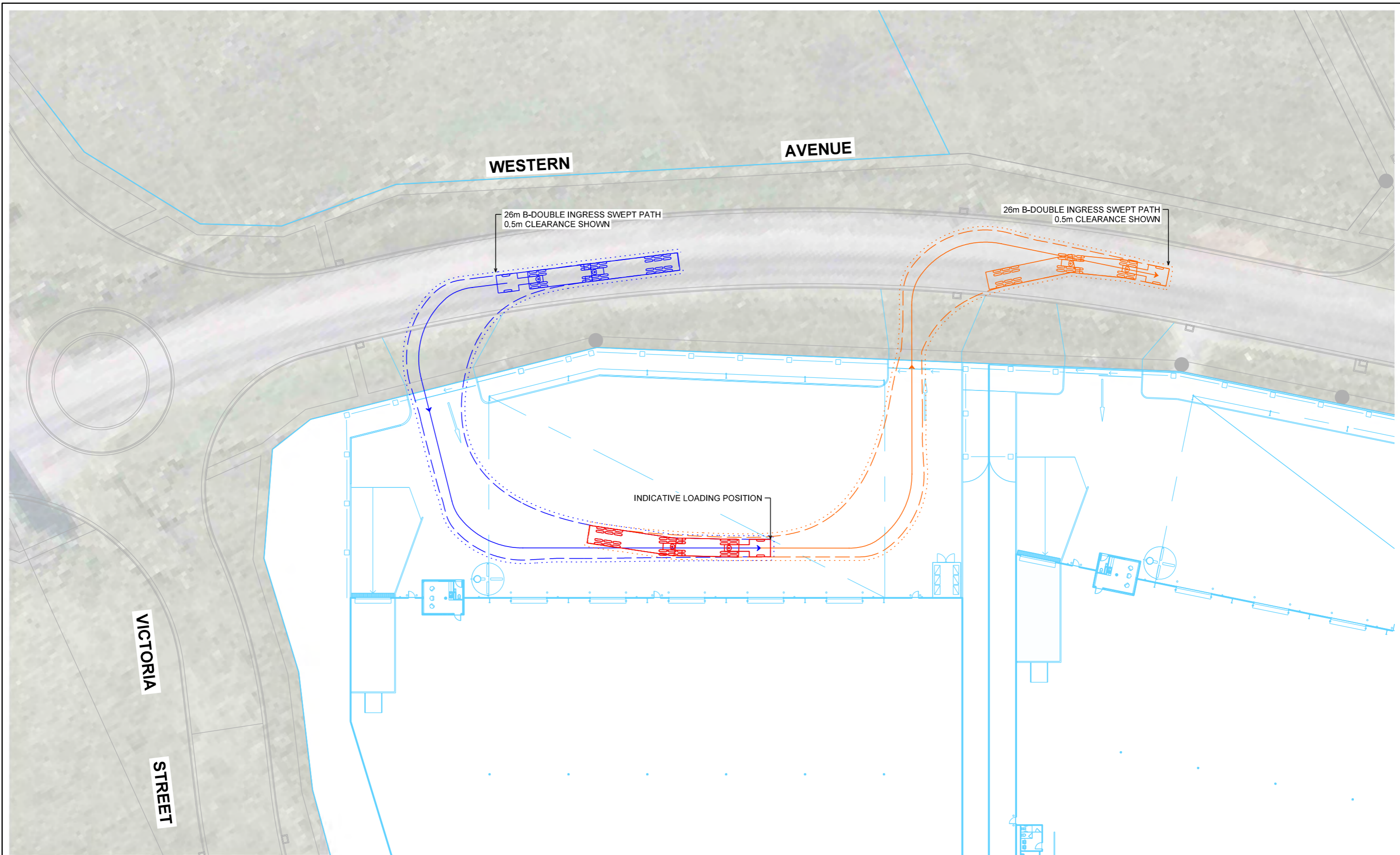
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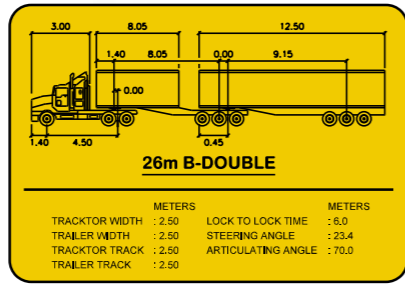
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MELWAY ONLINE REF: MAP 5 F7

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Client  
**MAB**

Project  
**WAREHOUSE DEVELOPMENT  
 LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
 CITY OF HUME**

Date  
 2022-08-19

Drawn / Approved  
 JT / JPM

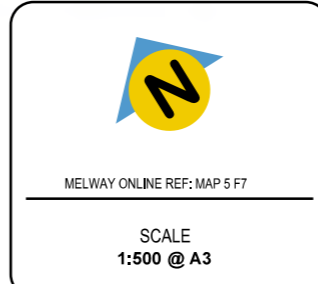
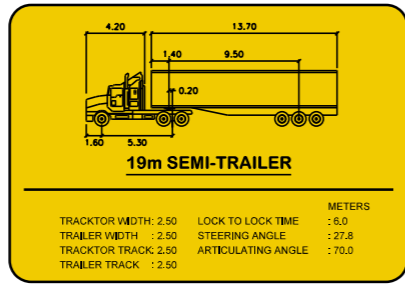
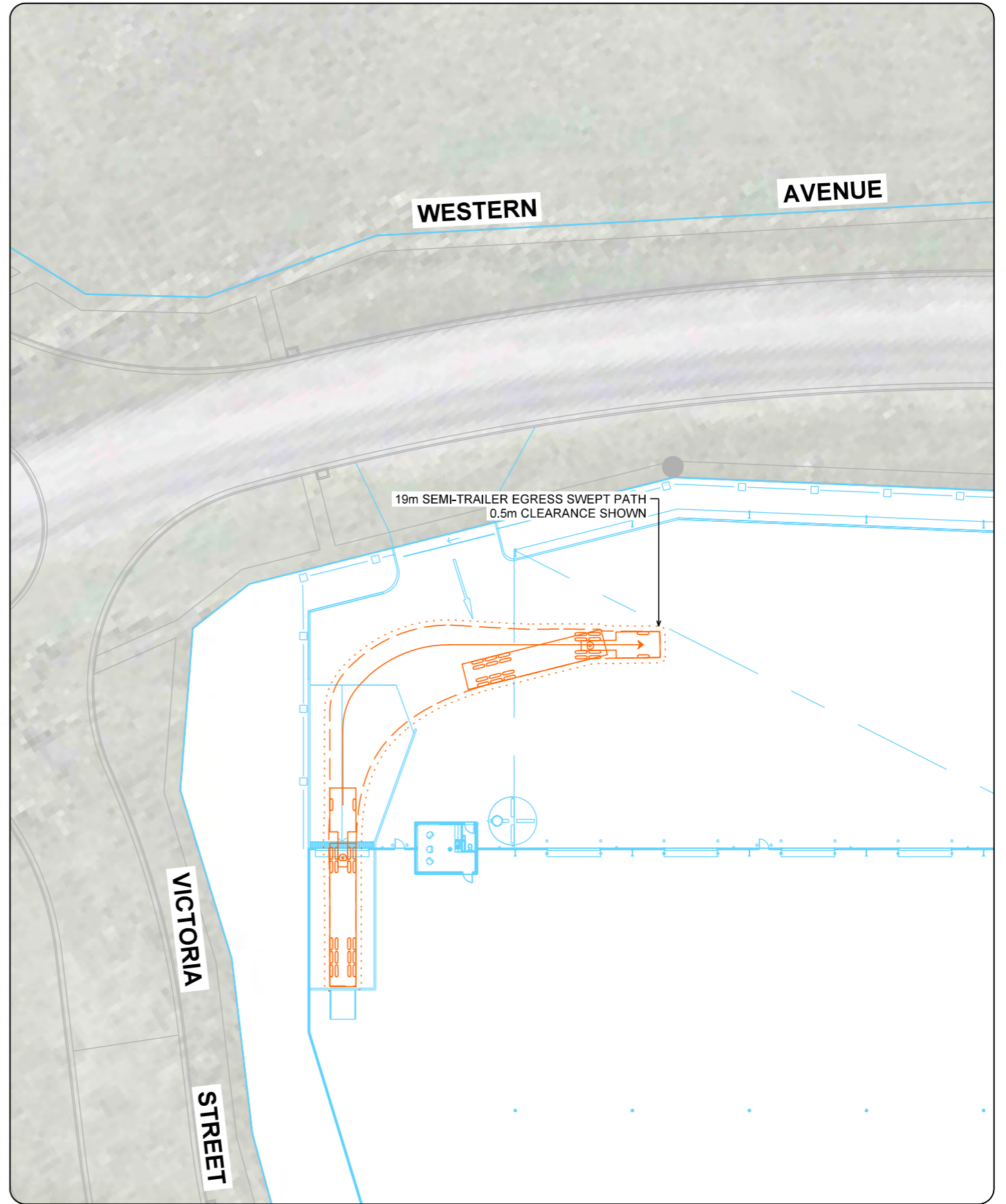
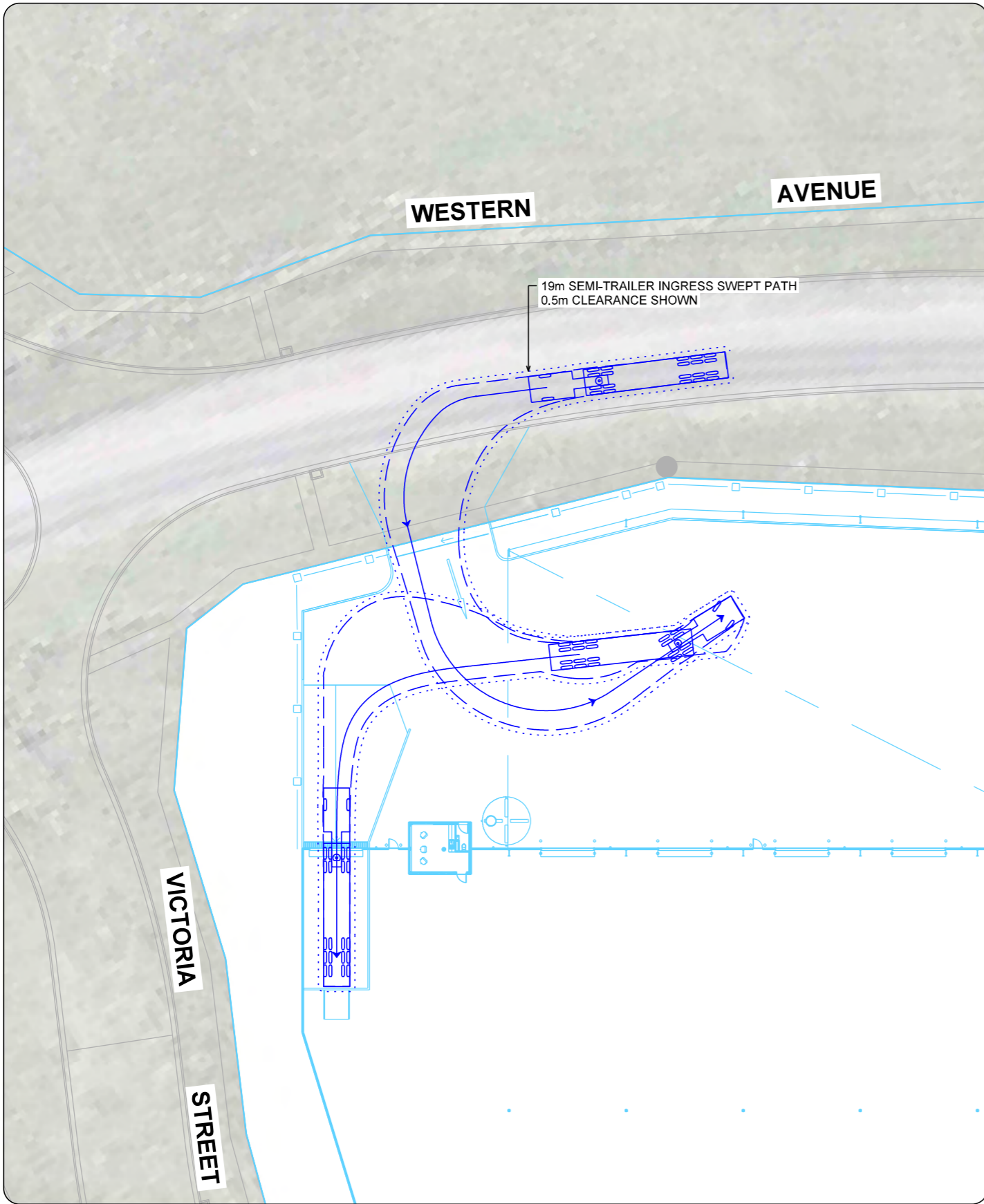
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 LOT 3 - SWEEP PATH ANALYSIS  
 26m B-DOUBLE DESIGN VEHICLE**

Status  
**PRELIMINARY**

Revision Description  
**ISSUED FOR INFORMATION**

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CITY OF HUME

Title  
**TRAFFIC & TRANSPORT ASSESSMENT  
LOT 3 - SWEEP PATH ANALYSIS  
19m SEMI-TRAILER DESIGN VEHICLE**

Date  
2022-08-19

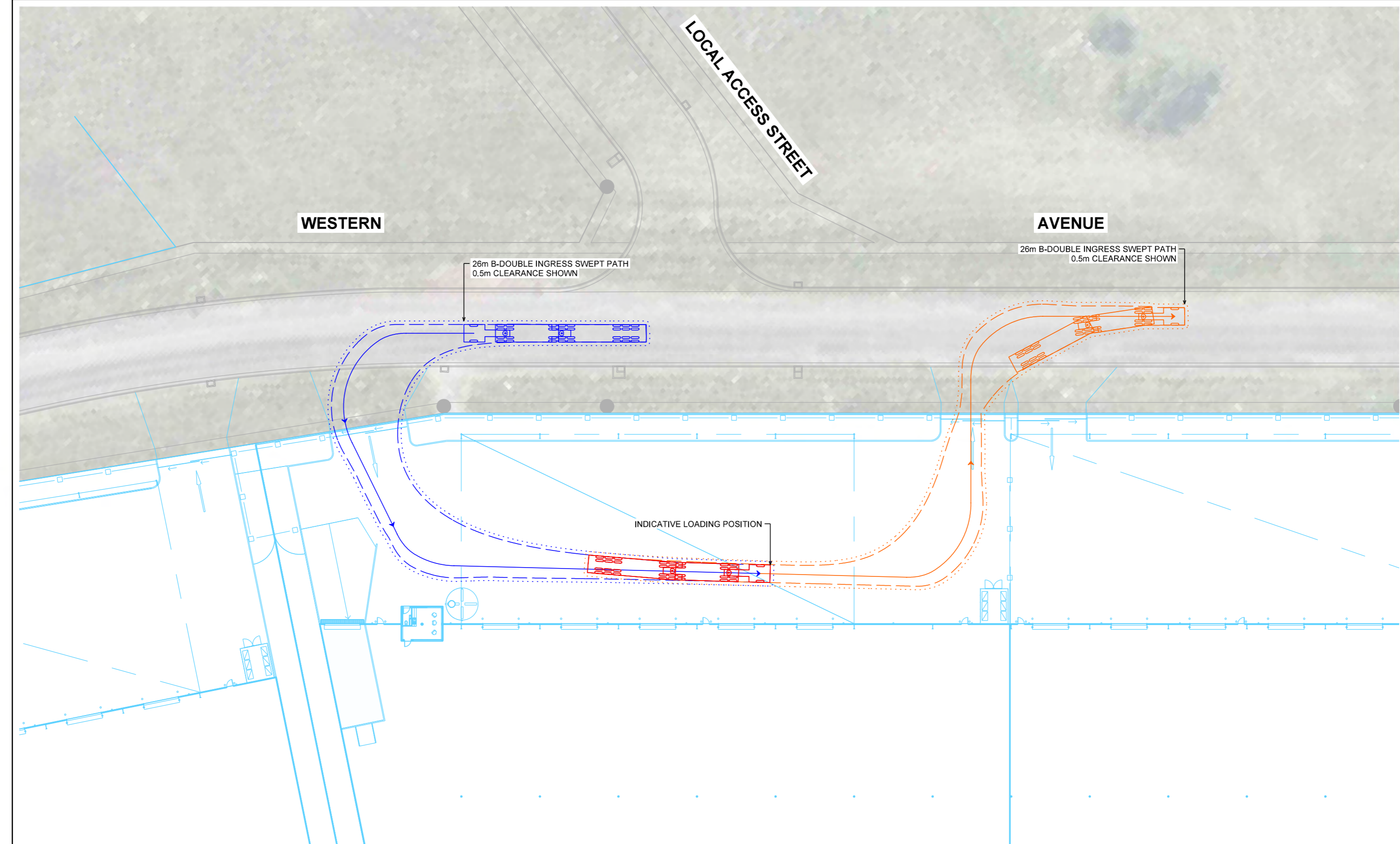
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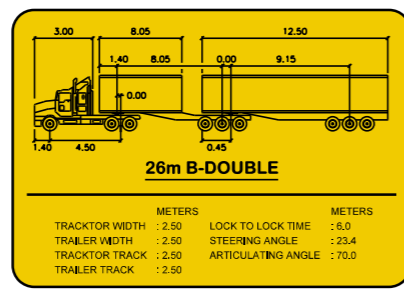
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LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
CITY OF HUME

Date  
2022-08-19  
Drawn / Approved  
JT / JPM

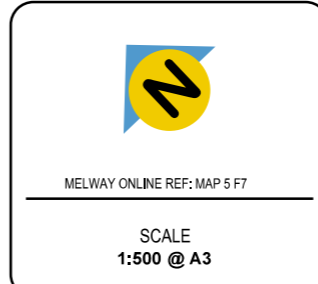
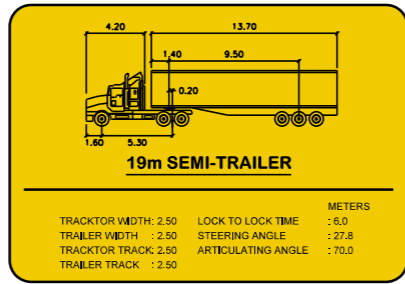
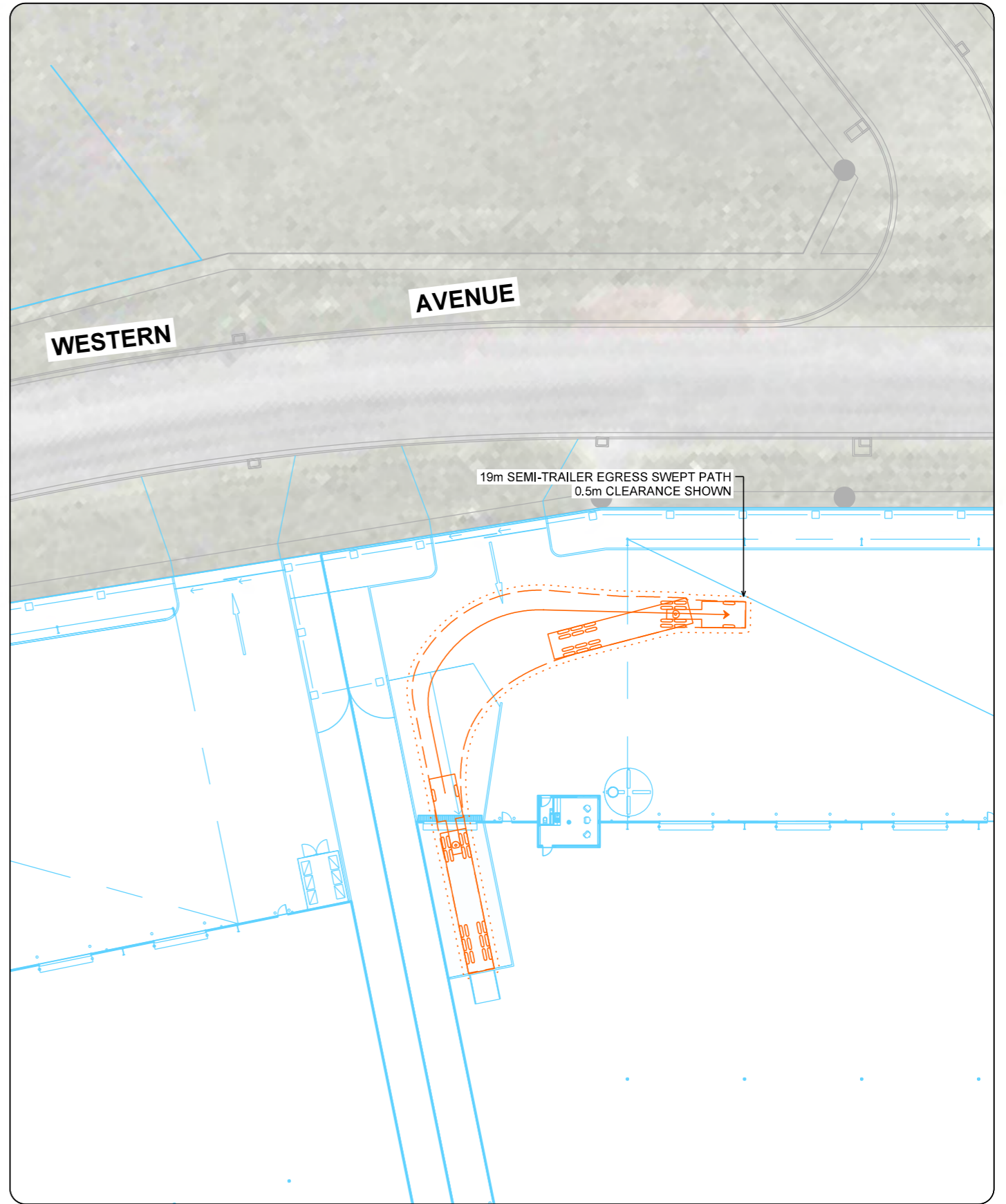
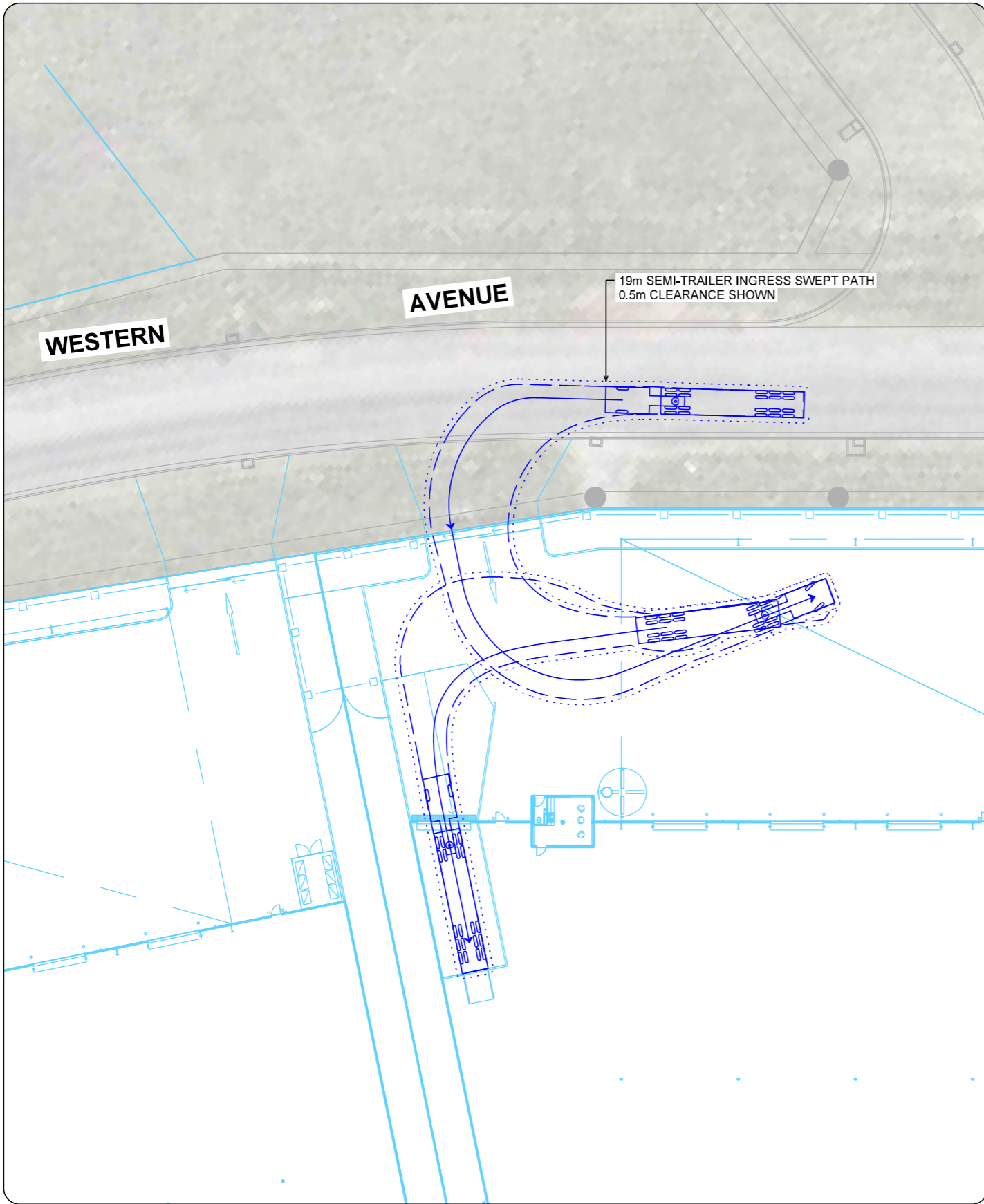
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LOT 2 SWEEP PATH ANALYSIS  
26m B-DOUBLE DESIGN VEHICLE

Status  
**PRELIMINARY**

Revision Description  
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Project  
 WAREHOUSE DEVELOPMENT  
 LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
 CITY OF HUME

Date  
 2022-08-19

Drawn / Approved  
 JT / JPM

Drawing Number  
**IMP2207044 - DRG-01-05**

Status  
**PRELIMINARY**

Revision Description  
 ISSUED FOR INFORMATION

Revision  
**C**

WESTERN

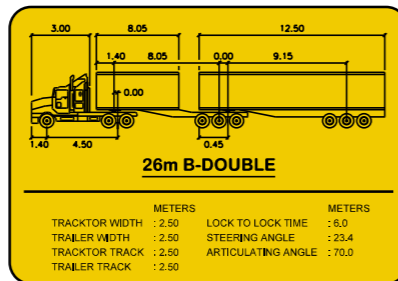
AVENUE

26m B-DOUBLE INGRESS SWEEP PATH  
0.5m CLEARANCE SHOWN

26m B-DOUBLE INGRESS SWEEP PATH  
0.5m CLEARANCE SHOWN

INDICATIVE LOADING POSITION

LOCAL ACCESS STREET



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MELWAY ONLINE REF: MAP 5 F7  
SCALE  
1:500 @ A3

Client  
**MAB**

Project  
WAREHOUSE DEVELOPMENT  
LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
CITY OF HUME

Title  
TRAFFIC & TRANSPORT ASSESSMENT  
LOT 2 SWEEP PATH ANALYSIS  
26m B-DOUBLE DESIGN VEHICLE

Date  
2022-08-19  
Drawn / Approved  
JT / JPM

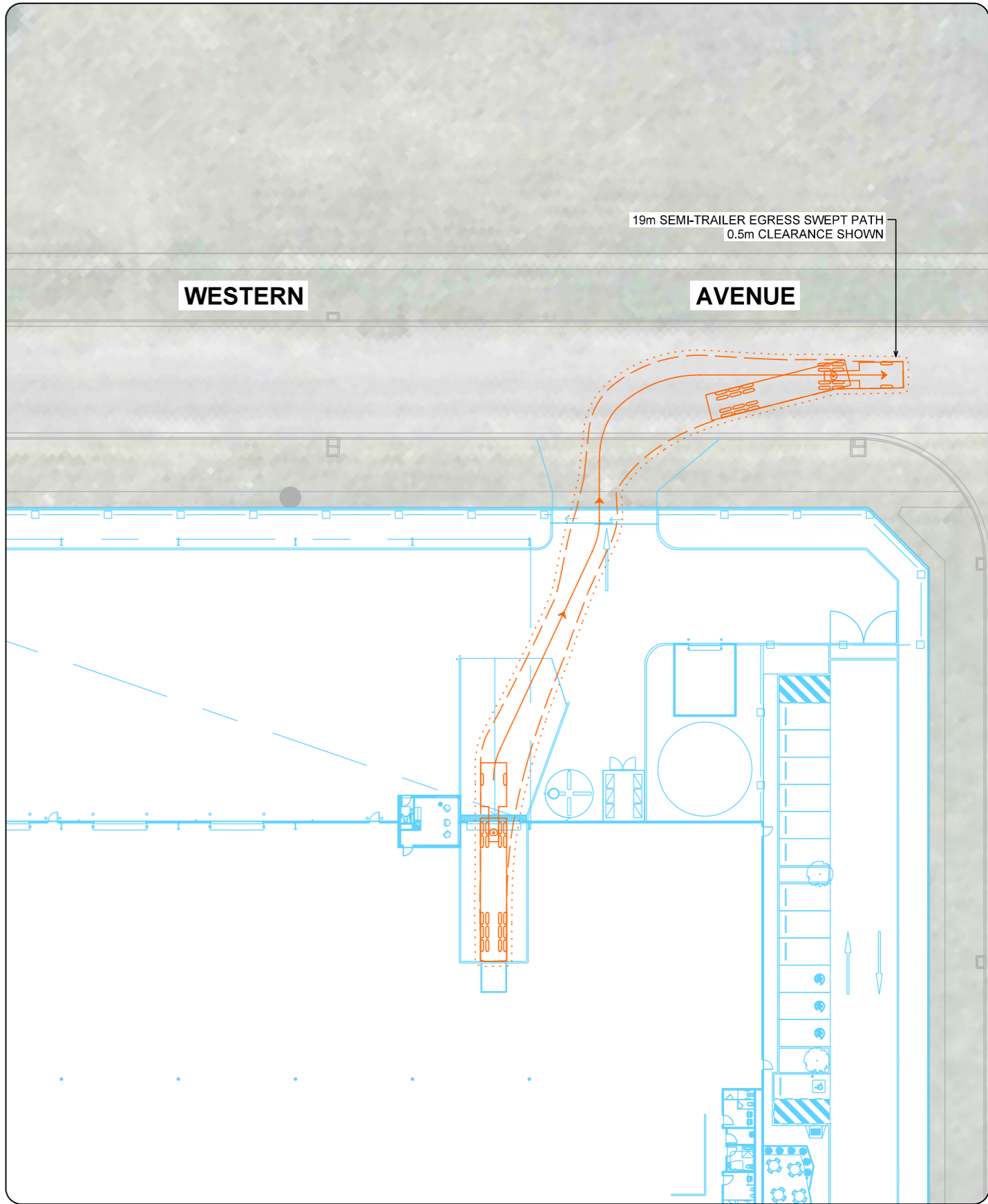
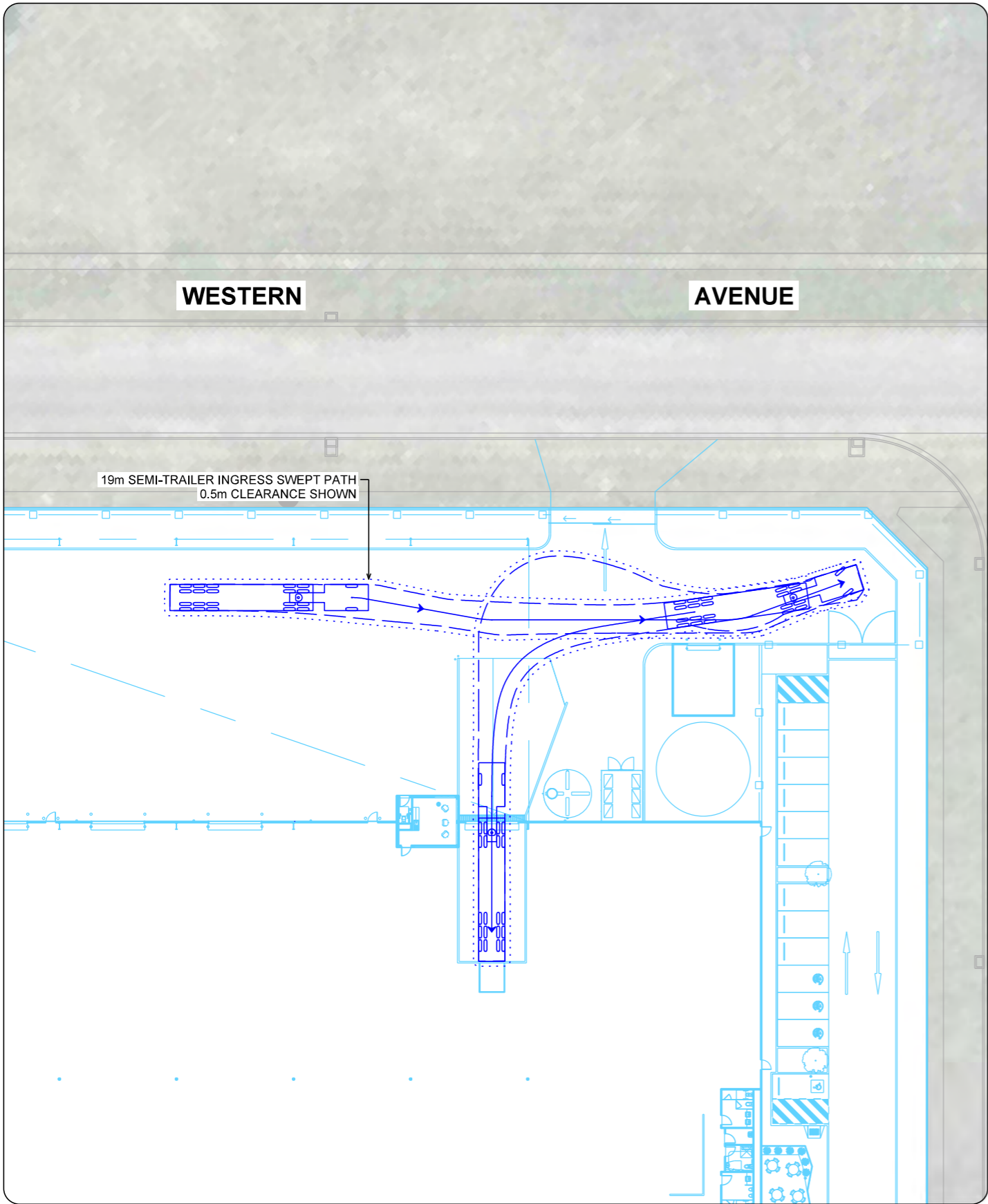
Status  
**PRELIMINARY**

Revision Description  
ISSUED FOR INFORMATION

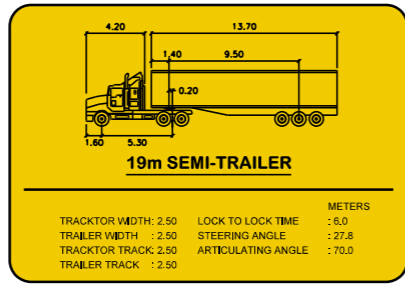
Drawing Number  
**IMP2207044 - DRG-01-06**

Revision  
**C**

19/08/2022 2:22:04 PM



19/08/2022 2:22:06 PM



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**N**

MELWAY ONLINE REF: MAP 5 F7

SCALE  
 1:500 @ A3

Client  
**MAB**

Project  
**WAREHOUSE DEVELOPMENT  
 LOTS 2 & 3, 140-204 WESTERN AVENUE, WESTMEADOWS  
 CITY OF HUME**

Title  
**TRAFFIC & TRANSPORT ASSESSMENT  
 LOT 2 SWEEP PATH ANALYSIS  
 19m SEMI-TRAILER DESIGN VEHICLE**

Date  
 2022-08-19

Drawn / Approved  
 JT / JPM

Drawing Number  
**IMP2207044 - DRG-01-07**

Status  
**PRELIMINARY**

Revision Description  
**ISSUED FOR INFORMATION**

Revision  
**C**

# APPENDIX B

## Bike Rack Specification Sheet

Bicycle Network - Arc de Triomphe

# Arc de Triomphe™



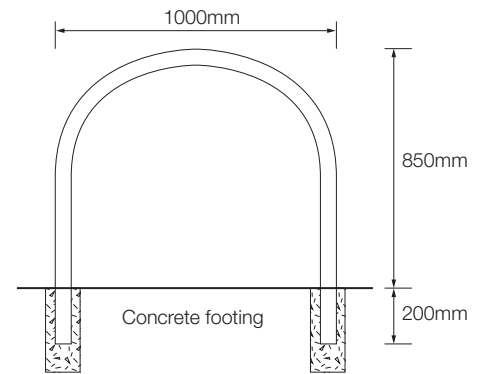
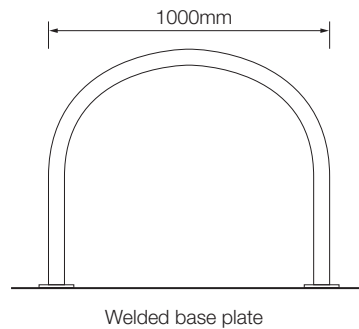
Galvanised finish / Stainless Steel finish

## Features



- Each rail supports two adult bikes in an upright position
- Can be either bolted to a concrete slab or concreted in situ
- Available in stainless steel or galvanised steel
- Provides the ability to lock both wheels and frame
- Suitable for foyers and entry areas

## Dimensions



## Specifications

### Material options

- Galvanised (Duragal)
- 316 Marine grade stainless steel

### Fixing options

- Welded flange - Bolt on
- In situ

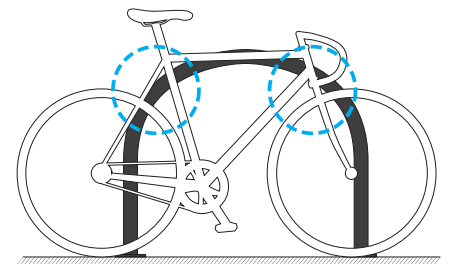
### Recommended fasteners

- Galvanised Dynabolts (M10 x 65mm)
- Stainless Dynabolts (M10 x 65mm)
- Shear Nut security fasteners

### Dimensions

1000mm [w] x 850mm [h]

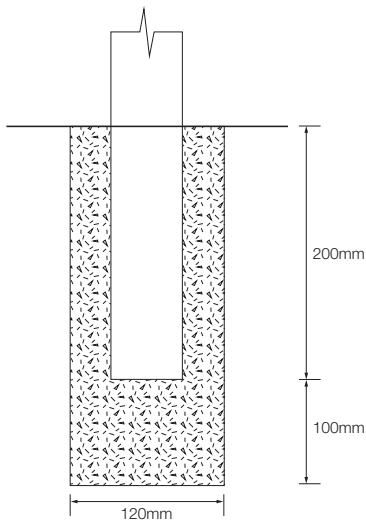
## Locking Points



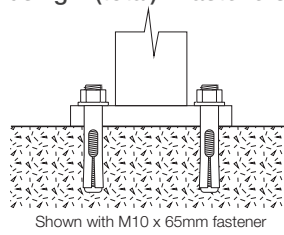
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## Fixing options

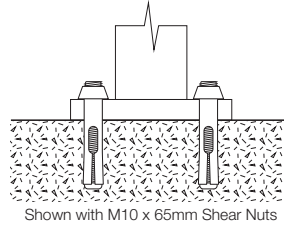
In situ (Concrete footing)



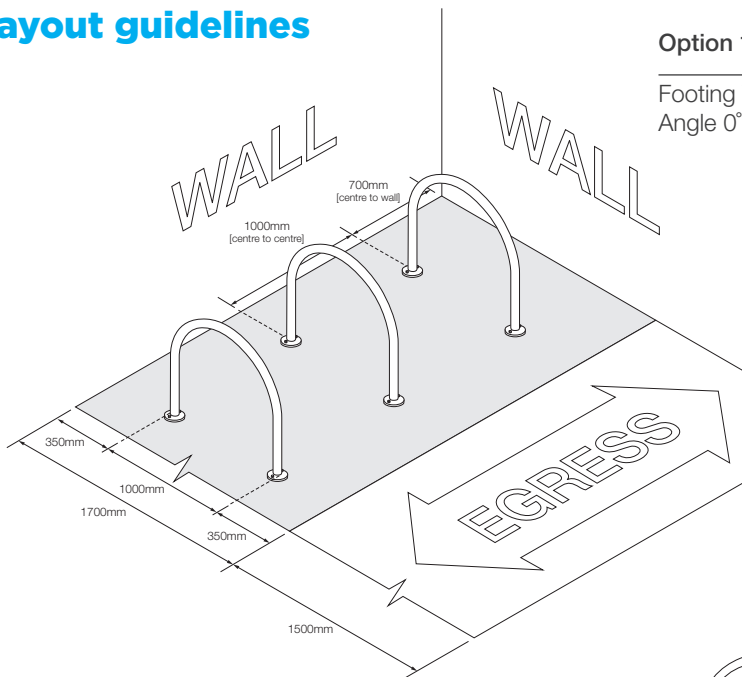
Welded flange (Bolt on)  
using 4 (total) x fasteners



Welded flange (Security heads)  
using 4 (total) x fasteners



## Layout guidelines

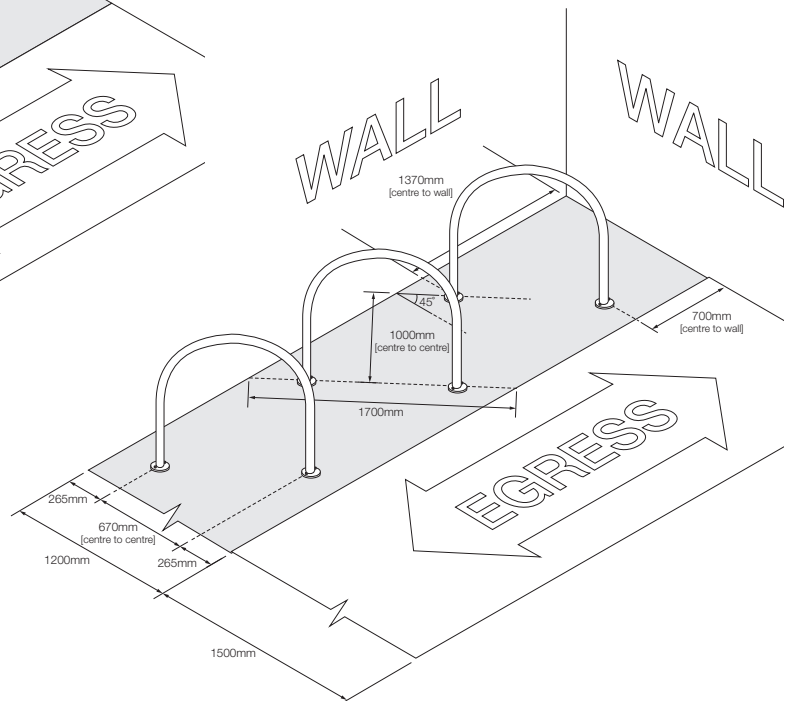


Option 1:

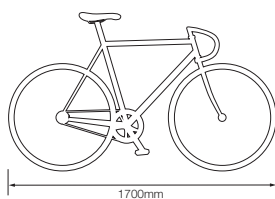
Footing Width 1700mm  
Angle 0°

Option 2:

Footing Width 1200mm  
Angle 45°



Typical Bicycle Length



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Simplexity

