

**ADVERTISED COPY**



# TRAFFIC IMPACT ASSESSMENT

**PROPOSED RESIDENTIAL AND CAFÉ DEVELOPMENT**

256-262 HUNTINGDALE ROAD, HUNTINGDALE

6 APRIL 2023

256-262 HUNTINGDALE ROAD, HUNTINGDALE

CLIENT: Eternal Huntingdale Pty Ltd

**OBT JOB NUMBER: 23170**



Suite 2.03, 789 Toorak Road  
Hawthorn East, Victoria 3123

**T:** 61 3 9804 3610  
**W:** [obrientraffic.com](http://obrientraffic.com)  
ABN 55 007 006 037

## **STUDY TEAM**

Matt Harridge  
Wil Norman

# CONTENTS

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>2</b>	<b>EXISTING CONDITIONS</b>	<b>1</b>
<b>3</b>	<b>THE PROPOSAL</b>	<b>10</b>
<b>4</b>	<b>CAR PARKING</b>	<b>11</b>
<b>5</b>	<b>CAR PARK ACCESS &amp; LAYOUT</b>	<b>14</b>
<b>6</b>	<b>BICYCLE FACILITIES</b>	<b>15</b>
<b>7</b>	<b>LOADING AND WASTE COLLECTION</b>	<b>16</b>
<b>8</b>	<b>TRAFFIC GENERATION &amp; IMPACT</b>	<b>16</b>
<b>9</b>	<b>CONCLUSION</b>	<b>17</b>
	<b>APPENDIX A</b>	
	<b>APPENDIX B</b>	
	<b>APPENDIX C</b>	

# 1 INTRODUCTION

O'Brien Traffic has been engaged by Eternal Huntingdale Pty Ltd to undertake a Traffic Impact Assessment of a proposed residential and café development at 256-262 Huntingdale Road, Huntingdale.

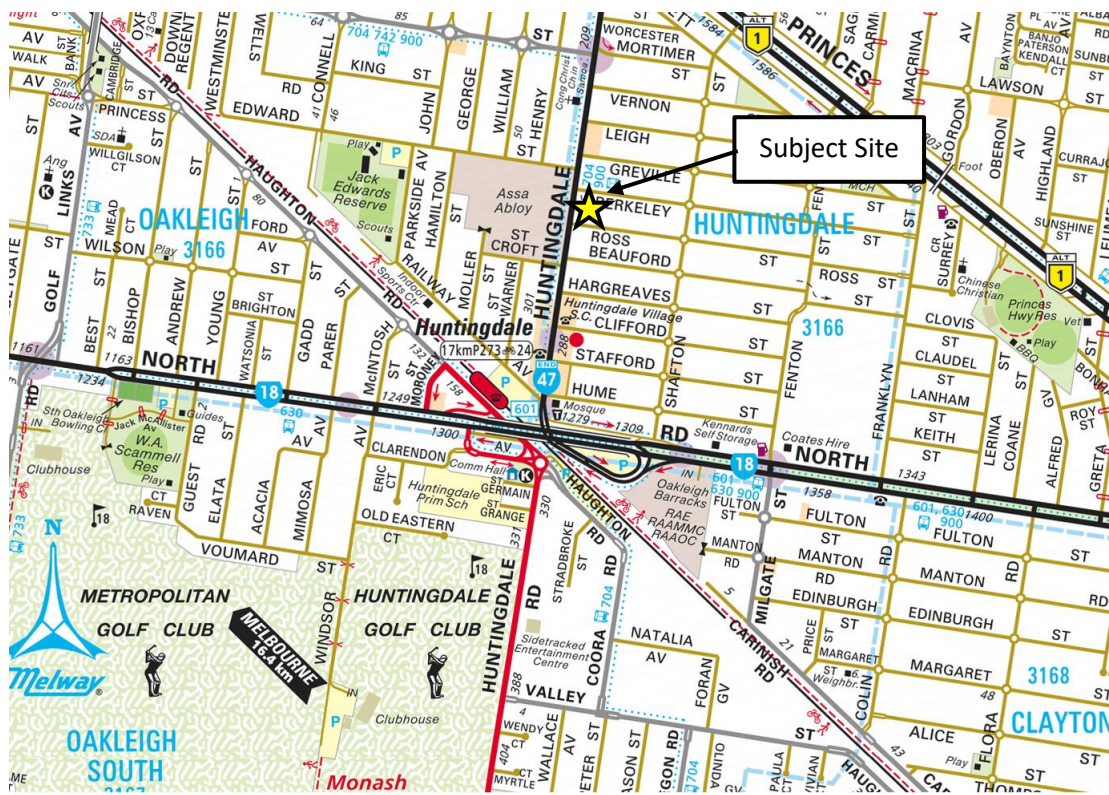
In the course of preparing this report:

- Plans prepared by Warren and Mahoney, Drawing (9790) dated 03 April 2023 and other relevant documentation have been examined;
- The subject site and the surrounding area have been inspected using recent aerial photography and Nearmap; and
- The traffic and parking implications of the proposal have been assessed.

## 2 EXISTING CONDITIONS

### 2.1 LOCATION AND LAND USE

The subject site is located on the eastern side of Huntingdale Road between Berkeley Street and Ross Street as shown in **Figure 1**. A recent aerial photograph of the subject site is shown in **Figure 2**.



COPYRIGHT MELWAY PUBLISHING PTY. LTD. REPRODUCED WITH PERMISSION

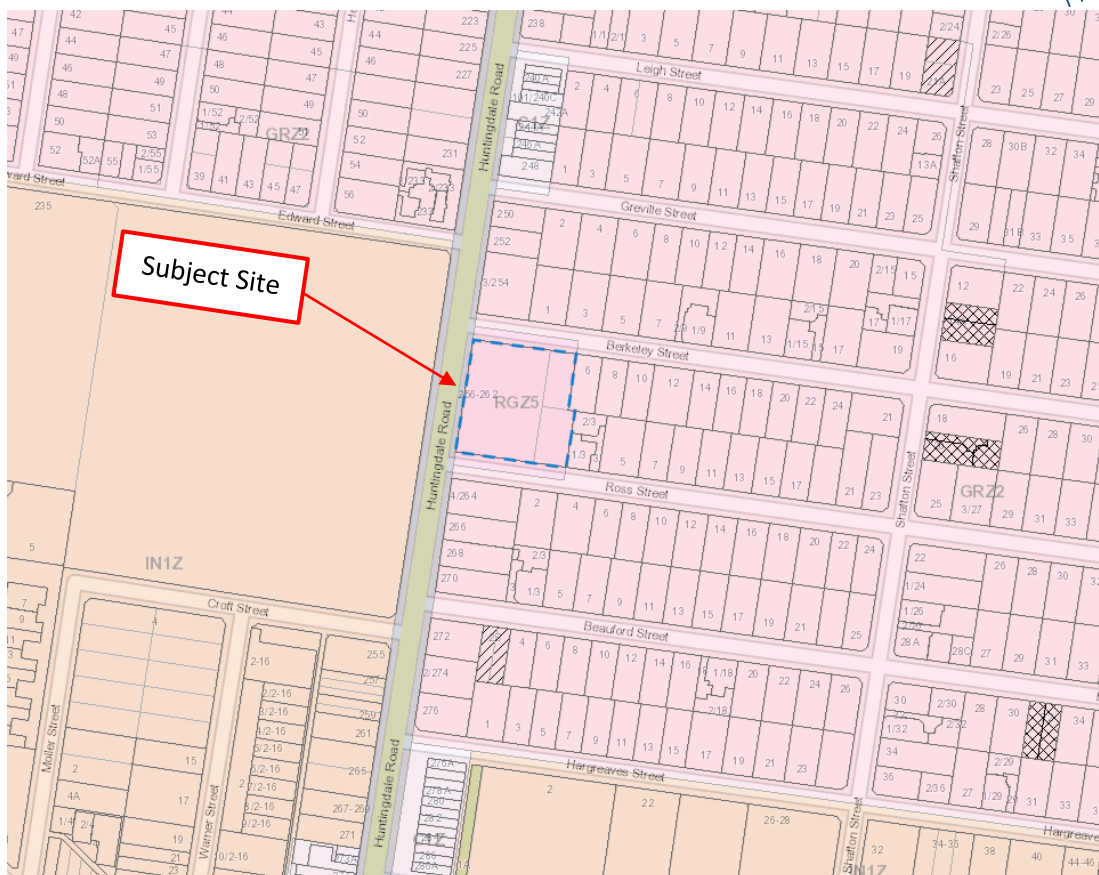
FIGURE 1: LOCATION OF SUBJECT SITE



COPYRIGHT NEARMAP.COM.AU REPRODUCED WITH PERMISSION

FIGURE 2: AERIAL PHOTO OF SUBJECT SITE AND SURROUNDING AREA

The site, which is zoned *Residential Growth Zone (RGZ5)* - see **Figure 3** - has a frontage of approximately 66 metres to Huntingdale Road, a frontage of approximately 60 metres to Berkeley Street and a frontage of approximately 65 metres to Ross Street. The total site area is approximately 4,129 square metres. The subject site is located within the Principal Public Transport Network (PPTN) Area.



SOURCE: VICPLAN

FIGURE 3: ZONING MAP SHOWING SUBJECT SITE AND SURROUNDING AREA

## 2.2 SURROUNDING LAND USE

Land to the east, north and south of the subject site is generally residential, while land to west is industrial in nature. Commercial properties are located to the south of the subject site, along Huntingdale Road.

## 2.3 ROAD NETWORK

**Huntingdale Road** is a state arterial road under the management of VicRoads. Adjacent to the subject site it provides a carriageway width of approximately 11.4m, comprising a single traffic lane in each direction. Restricted kerbside parking (2P 8am-6pm Mon-Fri, 8am-12pm Sat) is typically available on both sides of Huntingdale Road (except for a bus stop directly outside the subject site).

Huntingdale Road is subject to a speed limit of 60km/h in the vicinity of the site.

Views of Huntingdale Road are provided in **Figure 4** and **Figure 5**.



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

FIGURE 4: HUNTINGDALE ROAD, FACING NORTH



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

FIGURE 5: HUNTINGDALE ROAD, FACING SOUTH

**Berkeley Street** is an access road under the management of the City of Monash which provides a carriageway width of approximately 7.7m. Unrestricted kerbside parking is available on the south side of Berkeley Street along the site frontage and then 2P 8am-6pm Mon-Fri / 8am – 1pm Sat further east. Permit Zone 8am-6pm Mon-Fri/ 8am-1pm Sat is provided on the north side of Berkeley Street.

Berkeley Street is subject to the default urban speed limit of 50km/h in the vicinity of the site.

Views of Berkeley Street are provided in **Figure 6** and **Figure 7**.



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

**FIGURE 6: BERKELEY STREET, FACING WEST**



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

**FIGURE 7: BERKELEY STREET, FACING EAST**

**Ross Street** is an access road under the management of the City of Monash which provides a carriageway width of approximately 6.8m. Unrestricted kerbside parking is provided along the site frontage and then 2P 8am-6pm Mon-Fri / 8am – 1pm Sat further east. Permit Zone 8am-6pm Mon-Fri/ 8am-1pm Sat is provided on the south side of Ross Street.

Ross Street is subject to the default urban speed limit of 50km/h in the vicinity of the site.



Views of Ross Street are provided in **Figure 8** and **Figure 9**.



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

**FIGURE 8: ROSS STREET, FACING WEST**



COPYRIGHT GOOGLE STREETVIEW REPRODUCED WITH PERMISSION

**FIGURE 9: ROSS STREET, FACING EAST**

## 2.4 CASUALTY CRASH HISTORY

A review of the VicRoads crash database was undertaken to determine the casualty crash history in the vicinity of the subject site for the last 5 years of available data.

One crash was reported within 100m of the subject site. The crash occurred on Berkeley Street, which involved a head on collision between 2 vehicles and was classed as other injury severity.

However, there is nothing in the crash data that suggests there will be a safety issue with the proposed site access.

## 2.5 SUSTAINABLE TRANSPORT

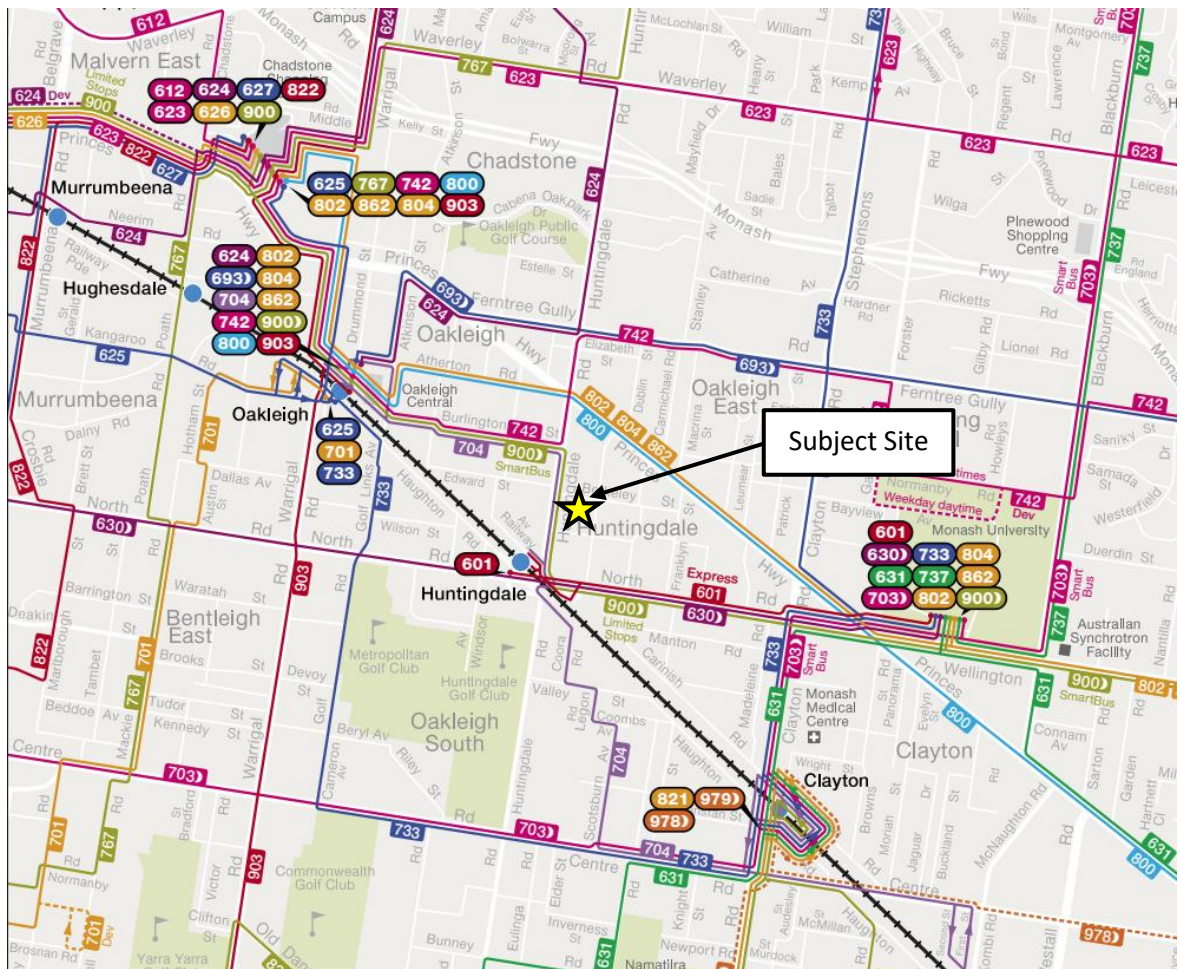
### 2.5.1 Public Transport

The subject site lies within the Principal Public Transport Network (PPTN) area and is well served by a number of bus routes.

A bus stop is located directly in front of the subject on Huntingdale Road, providing access to Route 704 (Oakleigh Station – Westall Station via Clayton). A bus stop for Bus Route 900 (SMARTBUS: Stud Park SC (Rowville) – Caulfield via Monash University and Chadstone) is located 250m north of the subject site on Huntingdale Road.

Additionally, Huntingdale Station which is serviced by the Cranbourne and Pakenham lines is approximately 550m walk to the south of the subject site.

The public transport network in the wider vicinity of the subject site is shown in **Figure 10**.



SOURCE: PTV.VIC.GOV.AU

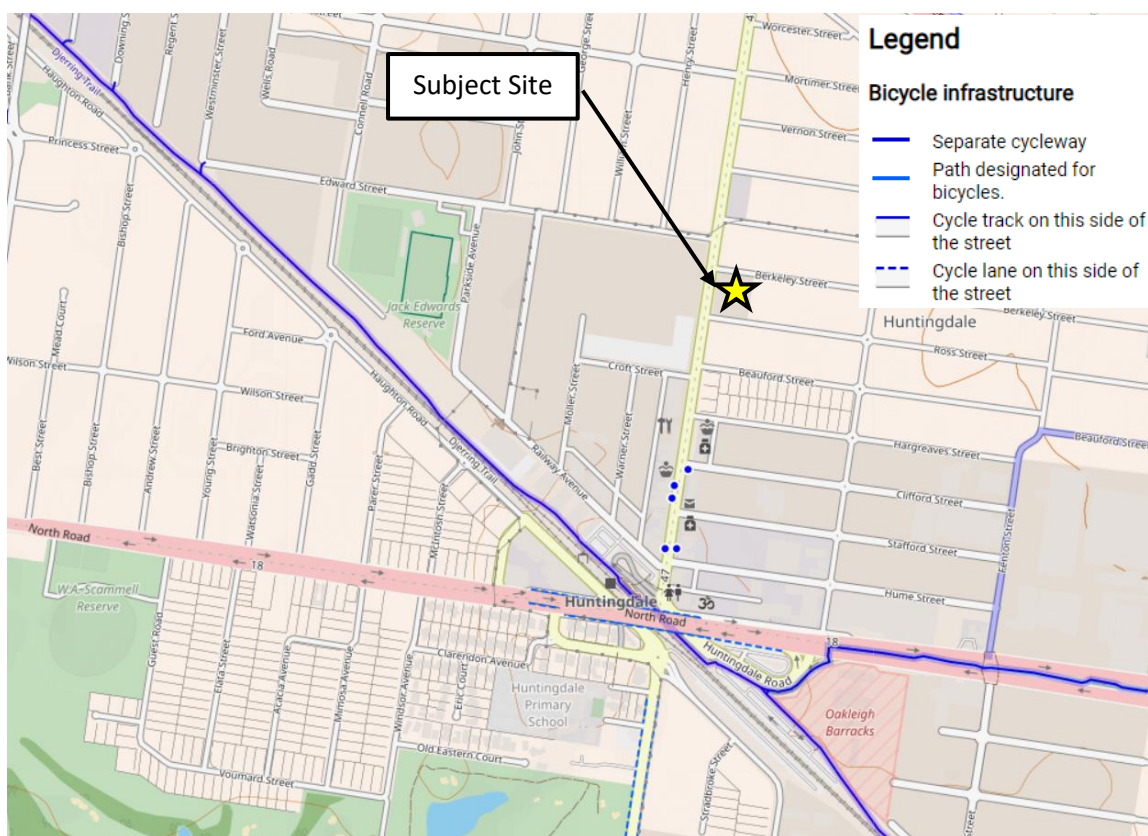
FIGURE 10: PUBLIC TRANSPORT NETWORK

## 2.5.2 Bicycle Network

The subject site is located within the Principal Bicycle Network (PBN).

Using Huntingdale Road and footpaths, off-road bicycle facilities can be accessed including the Djering Trail (approximately 550m south of the subject site) and the North Road Trail (approximately 550m south of the subject site), both trails provide connectivity to suburbs to the west and east.

The bicycle network in the vicinity of the site is shown in **Figure 11**.



SOURCE: CYCLOSM.ORG

FIGURE 11: BICYCLE NETWORK

### 2.5.3 Pedestrian Network

Footpaths are generally provided on both sides of all streets within the surrounding road network. The available footpaths provide convenient pedestrian access to the subject site.

In addition, the terrain of the surrounding road network is relatively flat and thus provides good accessibility for those with limited mobility.

The *Walk Score* of 256-262 Huntingdale Road, Huntingdale is in the high range. The site was awarded a Walk Score of 86 using [www.walkscore.com](http://www.walkscore.com). This is on a scale from zero to 100 and translates to a rating of 'Very Walkable' on the Walk Score scale.

A *Walk Score* map is provided in **Figure 12**, indicating the site lies in close proximity to a number of shops, food and drink premises, parks and other services.

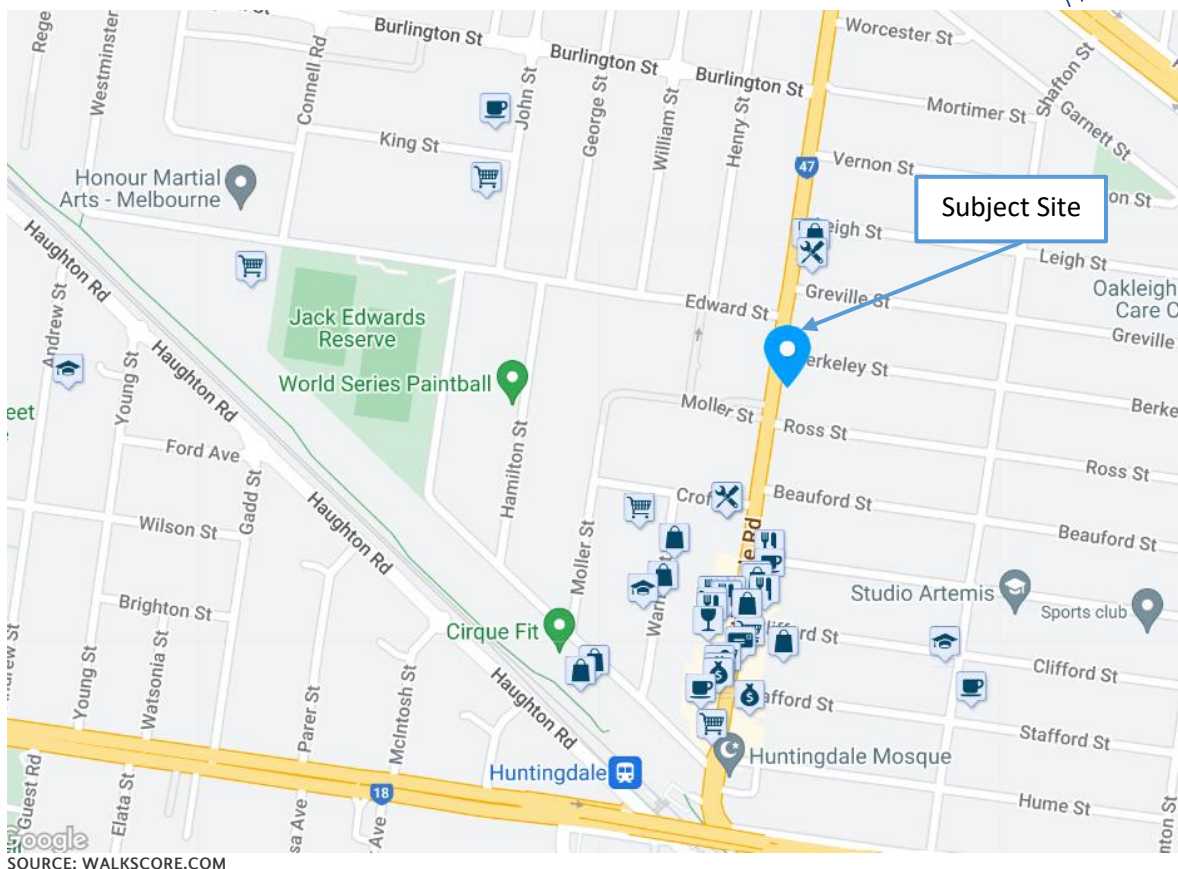


FIGURE 12: PEDESTRIAN NETWORK

### 3 THE PROPOSAL

It is proposed to construct a 4-story building containing 60 apartments, consisting of (13 x 1-bedroom and 47 x 2-bedroom) and a 40 m<sup>2</sup> ground floor café.

A basement car park accessed via a 6.6m wide ramp to Ross Street would provide 61 car spaces (including one space that provides accessible parking dimensions) and 1 share car space. A bicycle parking area for 16 bicycles would also be provided in the basement along with 6 bicycle spaces at the Huntingdale Road ground level pedestrian access.

It is also proposed to construct 10 townhouses (8 x 3-bedroom and 2 x 4-bedroom) along the eastern boundary of the site. It is proposed to provide the two 4-bedroom townhouses with a double garage. Four of the 3-bedroom townhouses have a single garage with a dependent car stacker (i.e. 2 spaces) and four of the 3-bedroom townhouses have a single space garage. The townhouses with only one car parking space will have exclusive access to a share car in the basement of the apartment building that will be managed by the future Owners Corporation.

Vehicle access to the townhouse garages is proposed via a shared 5.8m - 6.2m wide accessway with 3.5m wide cross overs to Ross Street and Berkeley Street.

## 4 CAR PARKING

### 4.1 PLANNING SCHEME CAR PARKING REQUIREMENT

Parking policy and requirements applicable to the proposed development are specified in Clause 52.06 of the Planning Scheme.

The purpose of Clause 52.06 is:

- To ensure that car parking is provided in accordance with the Municipal Planning Strategy and the 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.

As the site is within the PPTN area, the Column B rates of the Table at Clause 52.06-5 apply.

The Planning Scheme car parking requirement for the multi-use building (based on the Column B rates from the table at Clause 52.06-5) is shown in **Table 1**.

USE	SIZE	PLANNING SCHEME PARKING RATE	CAR PARKING REQUIREMENT
Dwelling	1-bed x 13 2-bed x 47	1 space to each 1 and 2-bed dwelling	60 spaces
Café	40 m <sup>2</sup>	3.5 spaces to each of 100 m <sup>2</sup> leasable floor area	1 space
<b>TOTAL</b>			<b>61 SPACES</b>

**TABLE 1: PLANNING SCHEME CAR PARKING REQUIREMENT – MULTI-USE BUILDING**

The provision of 61 basement car spaces meets the Planning Scheme parking requirement for multi-use apartment building.

The Planning Scheme car parking requirement for the townhouse component (based on the Column B rates from the table at Clause 52.06-5) is shown in **Table 2**.

USE	SIZE	PLANNING SCHEME PARKING RATE	CAR PARKING REQUIREMENT
Dwelling	3-bed x 8 4-bed x 2	2 spaces to each 3 or more-bedroom dwelling.	20 spaces
<b>TOTAL</b>			<b>20 SPACES</b>

TABLE 2: PLANNING SCHEME CAR PARKING REQUIREMENT – TOWNHOUSES

The provision of 16 parking spaces for the townhouse component results in a shortfall of 4 spaces.

The Planning Scheme allows for the reduction of on-site parking subject to appropriate justification.

## 4.2 CAR PARKING DEMAND ASSESSMENT

Before the requirement for car parking associated with townhouse component is reduced, Clause 52.06-7 of the Planning Scheme requires a Car Parking Demand Assessment, which must assess the parking demand *likely* to be generated.

The Car Parking Demand Assessment must address a number of specified matters to the satisfaction of the responsible authority. These are discussed as follows.

CRITERIA	RESPONSE
<i>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</i>	Given the proposed residential use, it is unlikely that multi-purpose trips within the locality would be a factor.
<i>The variation of car parking demand likely to be generated by the proposed use over time</i>	It is expected that resident car parking demand would peak during weekday evenings and on weekends.
<i>The short-stay and long-stay car parking demand likely to be generated by the proposed use</i>	Residential car parking demand would generally be long-stay.
<i>The availability of public transport in the locality of the land</i>	The site lies within the PPTN area and has excellent access to a number of public transport services in the locality, as discussed in <b>Section 2.5</b> .
<i>The convenience of pedestrian and cyclist access to the land</i>	As discussed in <b>Section 2.5</b> , pedestrian access to the site is excellent given the roads in the locality of the site provide footpaths on both sides.  Existing on-road and off-road bicycle infrastructure in the vicinity of the site provides convenient access to the land for cyclists.

CRITERIA	RESPONSE
<i>The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land</i>	There is no public end of trip facilities for cyclists in the locality of the land, however there may be opportunity to store bicycles within garages.
<i>The anticipated car ownership rates of likely or proposed visitors to or occupants of the land</i>	Car ownership data from the 2016 Census in Huntingdale indicates that 3-bedroom dwellings (semi-detached, townhouse style) have a parking rate of 1.55 spaces / dwelling. The data also notes that 50% of townhouses own 0-1 vehicle, therefore there is a clear market for townhouses with only 1 parking space.
<i>Any empirical assessment or case study</i>	Noting the above data, two of the four townhouses with one parking space each are expected to have 0 or 1 vehicle. The remaining two townhouses may generate 3-4 parking spaces.

TABLE 2: CAR PARKING DEMAND ASSESSMENT

Based on the Car Parking Demand Assessment, the four townhouses with one parking space are expected to generate between 3 - 6 parking spaces.

### 4.3 ADEQUACY OF PARKING SUPPLY

Clause 52.06-7 of the Planning Scheme states that before granting a permit to reduce the number of spaces, the responsible authority must consider a number of issues which include:

CRITERIA	RESPONSE
<i>The Car Parking Demand Assessment</i>	The Car Parking Demand indicates the four townhouses with one parking space each are likely to generate a peak parking demand of 3 - 6 resident spaces.  As 4 spaces are provided for these four townhouses, an overflow of up to 2 spaces may occur.
<i>The availability of alternative car parking in the locality of the land, including:</i> <ul style="list-style-type: none"> <li><i>Efficiencies gained from the consolidation of shared car parking spaces</i></li> <li><i>Public car parks intended to serve the land.</i></li> <li><i>On street parking in non-residential zones.</i></li> <li><i>Streets in residential zones specifically managed for non-residential parking</i></li> </ul>	Review of historical aerial photography indicates that vacant on-street parking spaces are typically available along the Ross Street and Berkeley Street frontages of the subject site during weekends. Between 1 – 6 unrestricted parking spaces were always available along the frontages.  It is considered that this trend would also apply to weekday evenings.
<i>Access to or provision of alternative transport modes to and from the land</i>	It is proposed that Owners Corporation will manage a share car that will be allocated to the 4



CRITERIA	RESPONSE
	<p>townhouses with only 1 car space. The share car will be stored in the allocated car space within the basement parking of the multi-use apartment building. The share car will provide an alternative transport mode to and from the site for the townhouses with 1 car space.</p> <p>As discussed in <b>Section 2.5</b>, the site lies within the PPTN area and has excellent access to a number of public transport services and existing on-road and off-road bicycle infrastructure.</p> <p>A Green Travel Plan has been prepared for the site to encourage reduced reliance on motor vehicles.</p>
<p><i>Other considerations</i></p>	<p>Reinstatement of a number of vehicle crossings on Huntingdale Road is expected to result in three new on-street spaces for the area.</p> <p>Reinstatement of vehicle crossings in Ross Street is expected to result in at least one new on-street parking space.</p>

TABLE 3: ADEQUACY OF CAR PARKING SUPPLY

Based on the above, a potential overflow of 2 parking spaces could be readily accommodated given the provision of a share car for the townhouses with 1 car space, and availability of on-street unrestricted parking along the Ross Street and Berkley Street frontages during peak resident parking periods (weekday evenings / weekends) and the addition of 4 new on-street parking spaces created by vehicle crossing reinstatements.

The preparation of a Green Travel Plan also aims to minimise the reliance on motor vehicles for this site.

## 5 CAR PARK ACCESS & LAYOUT

The following comments are made in relation to the proposed car park layout and vehicle access.

### 5.1 MULTI-USE BUILDING BASEMENT CAR PARK

- Vehicle access to the basement carpark is proposed on Ross Street via a 6.6m wide ramp. This width exceeds the requirements of AS2890.1-2004. **Appendix A** provides swept paths of two vehicles passing at the base of the ramp;
- The basement ramp grades comply with the requirements of the Planning Scheme and AS2890.1-2004;
- The parking spaces and aisles have been designed in accordance with AS2890.1-2004. It is noted that AS2890.1 is a Decision Guideline when assessing the appropriateness of a car park layout;

- Where spaces are adjacent to walls an additional 300mm clearance has been provided as required;
- All column locations comply with AS2890.1-2004;
- Swept path diagrams have been prepared for the critical car spaces within the basement which confirm appropriate access will be provided for residents (see **Appendix A**). It is noted that correctional movements are permitted under AS2890.1-2004 and reverse parking movements are not prohibited. Residents will be accustomed to accessing their own car spaces.

## 5.2 TOWNHOUSES

- Grades for the accessway comply with the requirements of the Planning Scheme and AS2890.1;
- The double garages provide minimum dimensions of 6m long x 5.5m wide in accordance with the Planning Scheme. The single garages provide minimum dimensions of 6m long x 3.5m wide in accordance with the Planning Scheme;
- A dependent stacker will be provided for four of the townhouses. The dimensions of the single garages will enable a suitable stacker to be provided. A minimum height clearance of 3.6m would be provided which would allow one stacker level to accommodate a 1.8m high vehicle which meets Design Standard 4 of Clause 52.06-9 of the Planning Scheme. An example dependent stacker is provided in **Appendix B**;
- The accessway provides a width of approximately 5.8m – 6.2m and swept path analysis confirms that this will provide appropriate access for residents (see **Appendix B**).

## 6 BICYCLE FACILITIES

Bicycle parking requirements applicable to the proposed development are specified in Clause 52.34 of the Planning Scheme.

### 6.1 MULTI-USE BUILDING

As the development is more than 4 storeys, the Planning Scheme requires 1 bicycle space to each 5 dwellings for residents, and 1 to each 10 dwellings for visitors. This equates to 12 resident bicycle spaces and 6 visitor bicycle spaces for the four-story residential development.

It is proposed to provide 16 bicycle parking spaces in basement level for residents which exceeds the bicycle parking requirement.

A further 6 visitor bicycle spaces (via three bicycle rails) will be provided at the Huntingdale Road pedestrian entrance which meets the Planning Scheme requirement

The small café area does not trigger a bicycle parking requirement, however the parking rails at the Huntingdale Road pedestrian entrance would provide a benefit for café patrons.

## 6.2 TOWNHOUSES

As the development is less than 4 storeys, the bicycle parking requirement is not triggered.

## 7 LOADING AND WASTE COLLECTION

Clause 65.01 of the Planning Scheme states that before deciding on an application, the responsible authority must consider the adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts.

Waste collection for the 4-storey building will occur within the basement car park by private collection using a 6.4 metre long waste collection vehicle. Swept path analysis for a waste collection vehicle accessing the waste storage room is provided in **Appendix C**.

On-street parking on Huntingdale Road will cater for private waste collection and deliveries associated the café.

Council waste collection will occur along Berkeley Street and Ross Street for the townhouse component.

## 8 TRAFFIC GENERATION & IMPACT

### 8.1 MULTI-USE BUILDING

#### 8.1.1 Apartments

Based on the location of the development and the size of the dwellings, it is estimated that each 1-bed dwelling will generate 3 trips per day and each 2-bed dwelling will generate 5 trips per day.

The 13 x 1-bedroom and 47 x 2-bedroom apartments therefore generate 274 trips per day with half of these trips (i.e. 137) being trips into the site, and the other half (i.e. 137) being trips out of the site. In the order of 10% of the total trips (i.e. 27 trips) would be expected each peak hour.

In the morning peak hour it is anticipated that 80% of the peak hour trips would be out of the site (i.e. 22 trips) and 20% (i.e. 5 trips) would be into the site.

In the evening peak hour it is anticipated that 60% of the peak hour trips would be into the site (i.e. 16 trips) and 40% (i.e. 9 trips) would be out of the site.

### 8.1.2 Café

For the café use, a conservative rate (similar to restaurants) of 5 trips per 100m<sup>2</sup> gross floor area during the AM peak hour has been adopted. The café is therefore anticipated to generate a total of 2 trips in the peak hours.

## 8.2 TOWNHOUSES

Based on the location of the development, it is estimated that each 3 and 4-bed dwelling will generate 7 trips per day.

The 10 townhouses would therefore generate 70 trips per day with half of these trips (i.e. 35) being trips into the site, and the other half (i.e. 35) being trips out of the site. In the order of 10% of the total trips (i.e. 7 trips) would be expected each peak hour.

In the morning peak hour it is anticipated that 80% of the peak hour trips would be out of the site (i.e. 6 trips) and 20% (i.e. 1 trips) would be into the site.

In the evening peak hour it is anticipated that 60% of the peak hour trips would be into the site (i.e. 4 trips) and 40% (i.e. 3 trips) would be out of the site.

## 8.3 TRAFFIC IMPACT

In total, the residential apartments and townhouses are expected to generate up to 344 trips per day.

Conservatively assuming that the peak hour traffic generation for each use aligns, the proposed development would generate up to 36 trips in the peak hours or an average of one trip every 1-2 minutes.

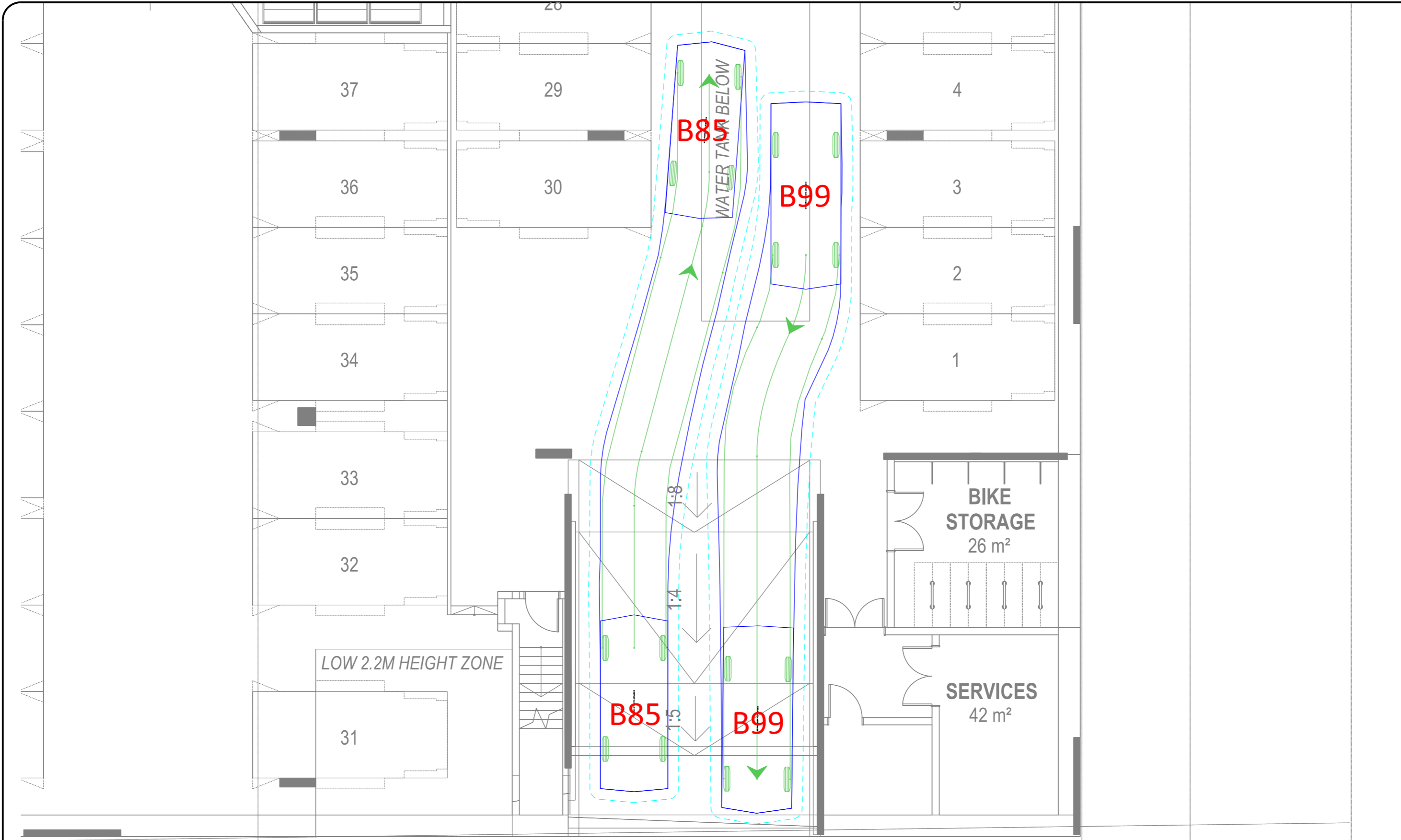
Given that the road network in the vicinity of the subject site comprises roads zoned Transport Zone 2 that carry significant volumes of traffic, this level of traffic is not expected to have a significant adverse impact on the operation and safety of Huntingdale Road or the surrounding road network.

## 9 CONCLUSION

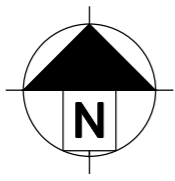
Based on the considerations outlined above, it is concluded that there are no parking or traffic related grounds to prevent the proposed residential development proceeding.

# APPENDIX A

## SWEPT PATH ANALYSIS – BASEMENT CAR PARK



**NOT FOR CONSTRUCTION**



B99		B85	
Width	: 5.20	Width	: 4.91
Track	: 0.95 3.05	Track	: 0.92 2.80
Lock to Lock Time	: 6.0	Lock to Lock Time	: 6.0
Steering Angle	: 33.9	Steering Angle	: 34.1

**B85  
PASSING B99**  
 256-262 Huntingdale Road Huntingdale  
 1:200 @ A3 05/04/23  
 DWG NO: 23170007

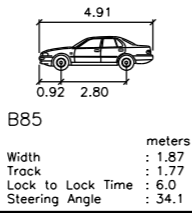
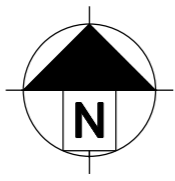
KEY	
	CENTRE LINE OF FRONT WHEELS
	WHEEL PATH
	VEHICLE BODY
	VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)

• Traffic Planning • Transport Planning  
 • Traffic Engineering • Road Safety

SUITE 2.03, 789 TOORAK ROAD  
 HAWTHORN EAST, VIC, 3123  
 P: +613 9804 3610  
 W: obrientraffic.com



**NOT FOR CONSTRUCTION**



**B85  
 ENTRY/EXIT**  
 256-262 Huntingdale Road Huntingdale  
 1:400 @ A3 05/04/23  
 DWG NO: 23170007

**KEY**

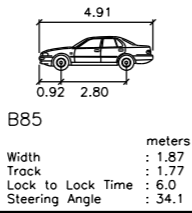
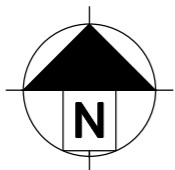
	CENTRE LINE OF FRONT WHEELS
	WHEEL PATH
	VEHICLE BODY
	VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)

• Traffic Planning • Transport Planning  
 • Traffic Engineering • Road Safety

SUITE 2.03, 789 TOORAK ROAD  
 HAWTHORN EAST, VIC, 3123  
 P: +613 9804 3610  
 W: obrientraffic.com



**NOT FOR CONSTRUCTION**



**B85**  
**ENTRY/EXIT**  
 256-262 Huntingdale Road Huntingdale  
 1:200 @ A3 05/04/23  
 DWG NO: 23170007

**KEY**

- CENTRE LINE OF FRONT WHEELS
- WHEEL PATH
- VEHICLE BODY
- VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)

• Traffic Planning • Transport Planning  
 • Traffic Engineering • Road Safety

SUITE 2.03, 789 TOORAK ROAD  
 HAWTHORN EAST, VIC, 3123  
 P: +613 9804 3610  
 W: obrientraffic.com



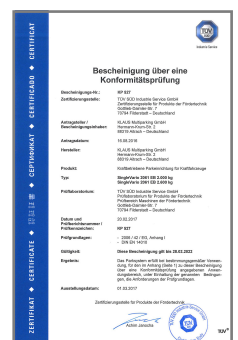
**EXAMPLE CAR STACKER AND SWEEP PATH ANALYSIS – TOWNHOUSES**

# Product data

Dimensions, technical information and performance specification



## singlevario 2061



## Table of contents

Explanation of symbols.....	2	Access incline.....	8
Parking positions.....	2	Clearance for installations.....	8
Dimensions and tolerances.....	2	Electrical installation.....	9
Overview of building configuration.....	3	CE conformity.....	10
Vehicle data.....	3	Technical information.....	11
Overview of system types and building heights.....	4	Performance specification.....	12
Width dimensions.....	5	Services to be provided by the customer.....	13
Width dimension with door.....	5	Subject to technical changes.....	13
Width dimension without door.....	6		
Loading schedule.....	7		

## Explanation of symbols



Platforms accessible horizontally.



max. load per parking space in kg.  
Upweighting over 2000 kg possible with surcharge (see "Vehicle data", page 3).



Height can be subsequently adjusted (see "Overview of system types and building heights", page 4).  
Parking space load can be subsequently upweighted (see "Vehicle data", page 3).



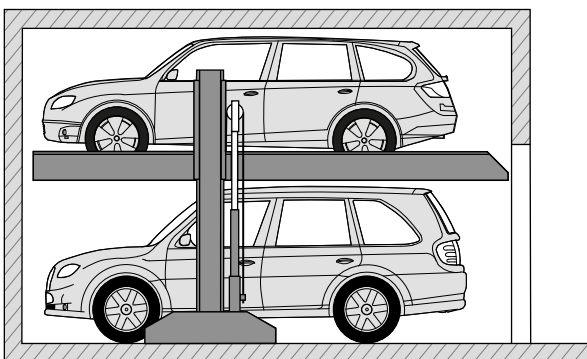
The systems provided are consistent with DIN EN 14010 and the EC Machinery Directive 2006/42/EC.



This system has also undergone a voluntary compliance test conducted by TÜV SÜD.

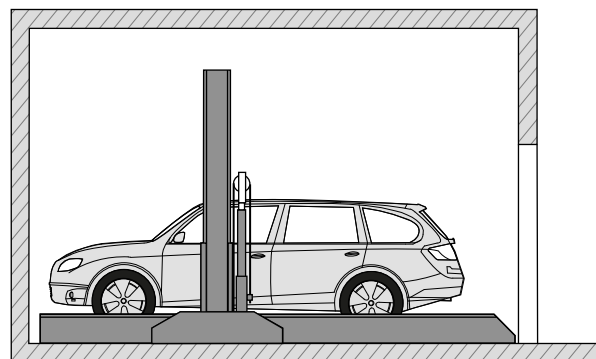
## Parking positions

### Lower parking space



The lower vehicle can park in or leave the parking space.

### Upper parking space



The upper vehicle can park in or leave the parking space.

## Dimensions and tolerances



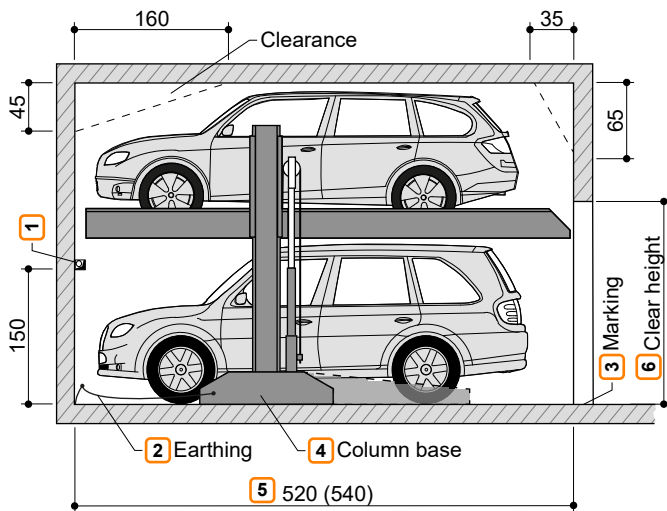
All dimensions and minimum final dimensions.

Tolerance for dimensions +3/-0. Dimensions in cm.

In order to adhere to the minimum final dimensions, the tolerances in accordance with the German Construction Tendering and Contract Regulations [VOB], Part C (DIN 18330 and 18331) and DIN 18202 must also be taken into account.

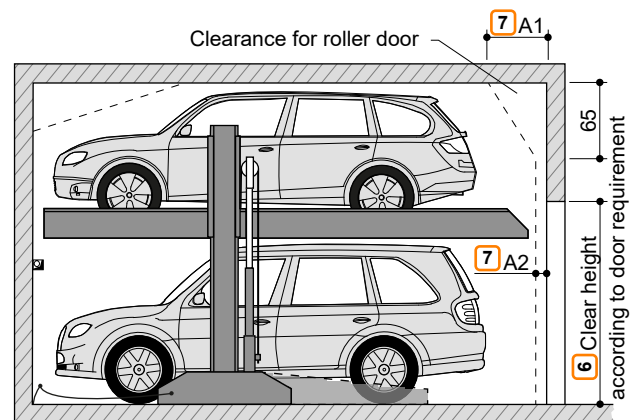
## Overview of building configuration

### Building configuration without door



- 1 With dividing walls: Wall opening 10 x 10 cm
- 2 Equipotential bonding from foundation earth connection to system (to be provided by the customer).
- 3 In accordance with DIN EN 14010, the customer must provide 10 cm wide, yellow/black marking in accordance with DIN ISO 3864 in the access area in front of the contact area of the upper platform edge to identify the hazard area. (see "Loading schedule", page 7).
- 4 Variable column in two sizes (see "Loading schedule", page 7).

### Building configuration with door



- 5 ■ 520 cm for vehicle length max. 5.0 m  
■ 540 cm for vehicle length max. 5.2 m  
Shorter versions are possible on request - observe local regulations on parking space lengths.  
We recommend a length of 540 cm for comfortable use of your parking space and increasingly longer vehicles.
- 6 Clear height in accordance with local regulations. Maximum vehicle height + 10 cm at a minimum.
- 7 Dimensions A1 and A2 must be coordinated between the door manufacturer and the customer.



The lower vehicle must exit before the platform is lowered.

## Vehicle data

### Version

SP (single platform) = 2 vehicles

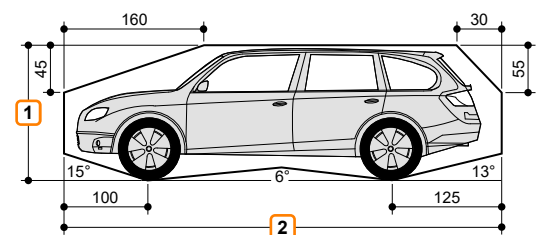
### Parking options

Series vehicles:  
saloon, estate, SUV, van in accordance with clearance gauge and maximum parking space load.

	SP	
<b>Weight</b> 3	2000 kg	2600 kg
<b>Wheel load</b>	500 kg	650 kg

- 1 Vehicle height (see "Overview of system types and building heights", page 4)
- 2 Vehicle length (see "Overview of building configuration", page 3)
- 3 Space load can be subsequently upweighted to 2600 kg.

### Clearance gauge

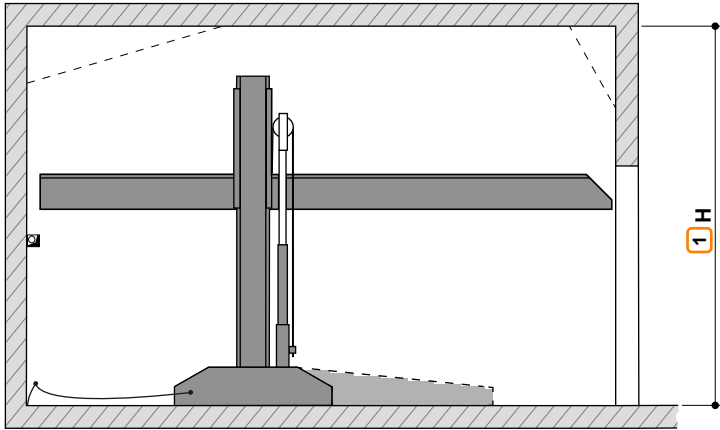


Vehicle width 190 cm with platform width 230 cm.  
Correspondingly wider vehicles can be parked with wider platforms.

## Overview of system types and building heights



Heights can be subsequently adjusted.



H: Building height

1 Where the ceiling height is greater, correspondingly higher vehicles may be parked at the top.

Type	Vehicle height, lower	Vehicle height, upper													H - Building height	
		150	155	160	165	170	175	180	185	190	195	200	205	210		215
2061-160	150	320	325	330	335	340	345	350	355	360	365	370	375	380	385	H
2061-170	160	330	335	340	345	350	355	360	365	370	375	380	385	390	395	
2061-180	170	340	345	350	355	360	365	370	375	380	385	390	395	400	405	
2061-190	180	350	355	360	365	370	375	380	385	390	395	400	405	410	415	
2061-200	190	360	365	370	375	380	385	390	395	400	405	410	415	420	425	
2061-210	200	370	375	380	385	390	395	400	405	410	415	420	425	430	435	

### Example configuration



Example: Vehicle height, lower 170 cm and vehicle height, upper 190 cm.

Type: 2061-180

Building height: 380 cm

Type	Vehicle height, lower	Vehicle height, upper													H	
		150	155	160	165	170	175	180	185	190	195	200	205	210		215
2061-160	150	320	325	330	335	340	345	350	355	360	365	370	375	380	385	H
2061-170	160	330	335	340	345	350	355	360	365	370	375	380	385	390	395	
2061-180	170	340	345	350	355	360	365	370	375	380	385	390	395	400	405	
2061-190	180	350	355	360	365	370	375	380	385	390	395	400	405	410	415	

## Width dimensions

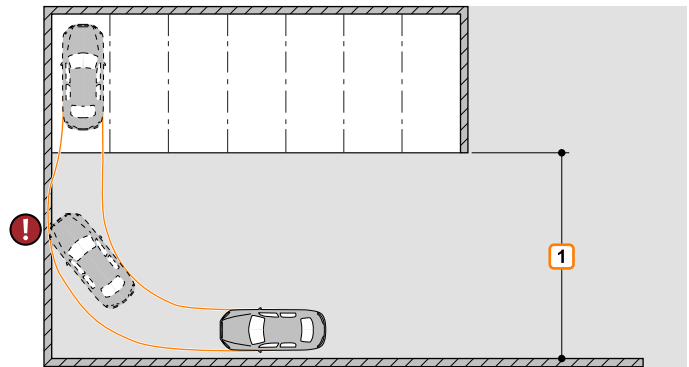


We recommend platform widths of minimum 250 cm and driving lane widths of 650 cm in order that vehicles can comfortably access the Multiparking system and enter and leave without difficulty.

Narrower platforms may impede parking according to the following criteria.

- Driving lane width
- Entrance conditions
- Vehicle dimensions

- 1 Observe minimum driving lane width in accordance with local regulations.



### Width dimension with door

	Single platform - SP		Double arrangement - 2x SP	
Support outside of the system area				
	<b>Clear platform width</b>	<b>Passage width B6</b>	<b>Clear platform width</b>	<b>Passage width B6</b>
SP	230	230	2x SP	490
	240	240		510
	250	250		530
	260	260		550
	270	270		570

- 1 The door section (dimension A3) must be coordinated between the door manufacturer and the customer. With lateral closing doors, coordination between the door manufacturer and KLAUS Multiparking is required.

Width dimension without door

	Single platform - SP	Double arrangement - 2x SP	Triple arrangement - 3x SP			
Dividing walls						
Support in the system area						
Support outside of the system area						
	Clear platform width	Dividing walls B1	Support in the system area B2   B3		Support outside of the system area B4   B5	
SP	230	260	255	245	250	240
	240	270	265	255	260	250
	250	280	275	265	270	260
	260	290	285	275	280	270
	270	300	295	285	290	280
2x SP	230	520	515	510	510	500
	240	540	535	530	530	520
	250	560	555	550	550	540
	260	580	575	570	570	560
	270	600	595	590	590	580
3x SP	230	780	775	770	770	760
	240	810	805	800	800	790
	250	840	835	830	830	820
	260	870	865	860	860	850
	270	900	895	890	890	880

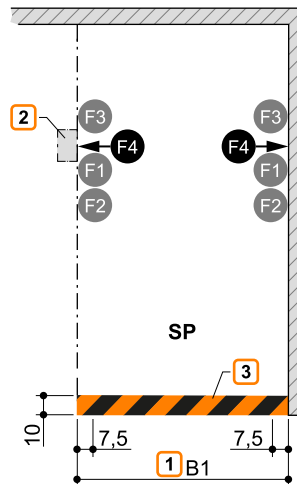
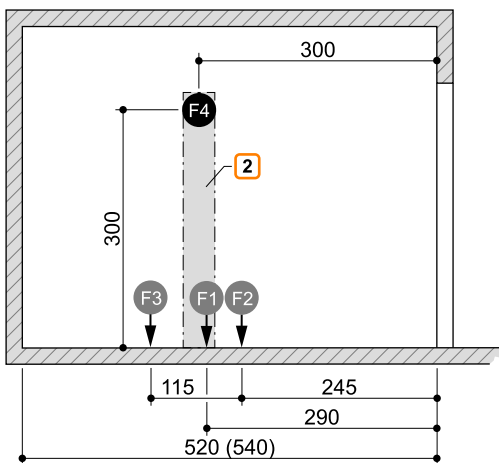
## Loading schedule



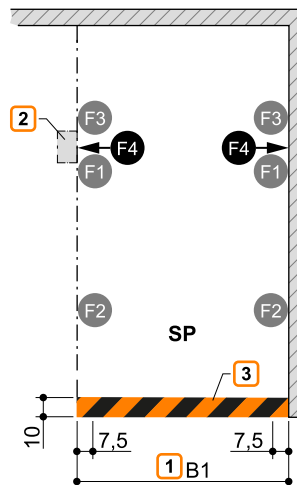
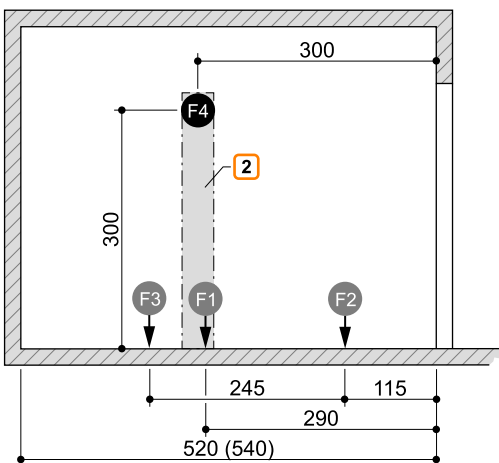
The systems are dowelled into the ground. The drill hole depth in the floor plate is approx. 15 cm, in the walls approx. 12 cm.  
The floor plate and walls must be from concrete (quality min. C20/25).  
The dimensions for the bearing points have been rounded. If the precise figures are required, please consult KLAUS Multiparking.

Column bases can be variably selected (short or long configuration). Always observe the corresponding forces.

### Variant 1 (V1): short column bases



### Variant 2 (V2): long column bases



Parking space load	F1	F2	F3	F4	
V1	2000 kg	+ 30.0 kN	+ 1.1 kN	- 7.4 kN	± 1.0 kN
	2600 kg	+ 36.0 kN	+ 1.4 kN	+ 9.3 kN	± 1.0 kN
V2	2000 kg	+ 30.0 kN	+ 0.5 kN	+ 7.7 kN	± 1.0 kN
	2600 kg	+ 36.0 kN	+ 0.7 kN	+ 9.8 kN	± 1.0 kN

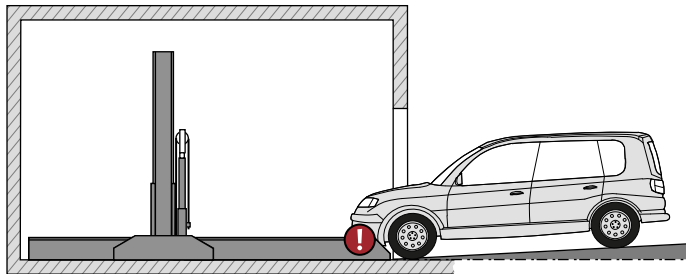
- 1 Width dimension B1 (see "Width dimension without door", page 6)
- 2 The system must be supported on both sides. An additional stand may be installed if there are no walls at the sides. A floor area of 50 x 30 cm is required for these standards (concrete quality min. C20/25, drill hole depth approx. 15 cm).
- 3 Marking in accordance with DIN ISO 3864 (illustration colour not consistent with DIN ISO 3864)



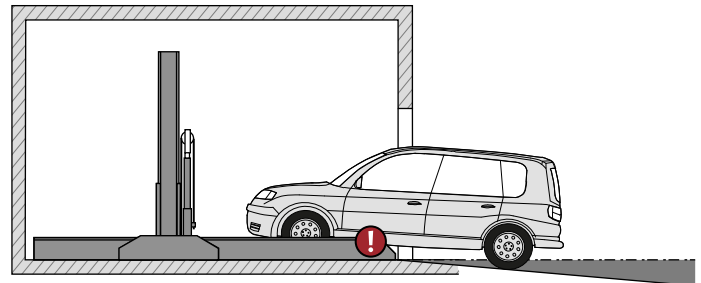
## Access incline



The maximum access inclines specified in the symbol sketch must not be exceeded. Improper configuration can lead to extreme difficulty accessing the system, for which KLAUS Multiparking cannot be held liable.



max. 4% slope

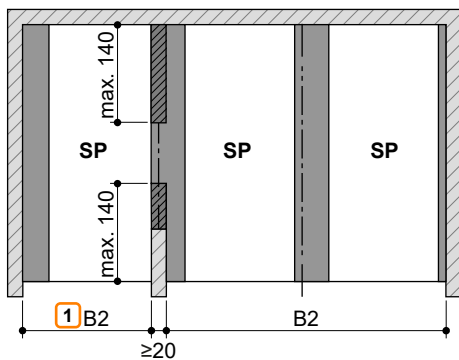
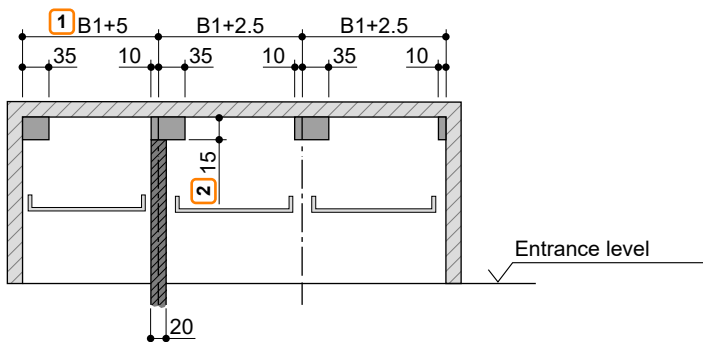


max. 14% gradient

## Clearance for installations



These clearances apply to vehicles parked forwards only, with exit on the left. The clearances must be adjusted for vehicles with exit on the right or parked in reverse.



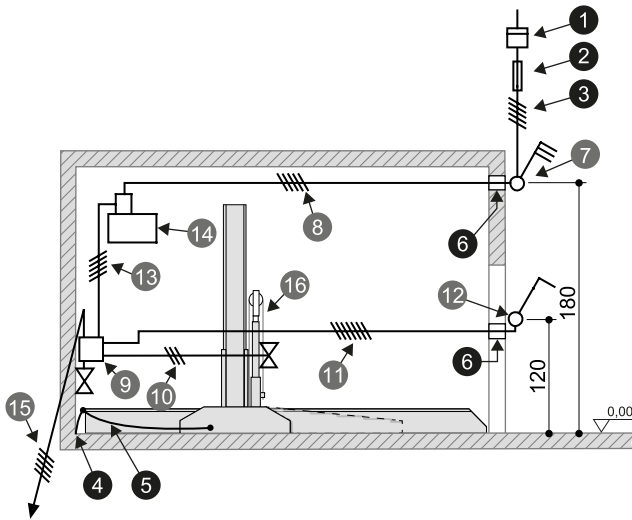
1 Dimensions B1 and B2 (see "Width dimension with door", page 5, "Width dimension without door", page 6)

2 Dimension 15 is reduced to 5 cm on type 2061-160.

- Clearance for lengthways cable routing
- Clearance for vertical pipes, air ducts, etc.

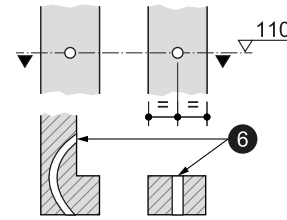
## Electrical installation

### Electrical installation diagram



### On-site facilities for operating element

#### Surface-mounted operating element



### Electrical specifications (services to be provided by the customer)

Nr.	Quantity	Designation	Position	Frequency
1	1	Power meter	in the supply cable	
2	1	Pre-fuse: 3x safety fuse 16 A (slow-blow) or Circuit breaker 3x 16 A (trip characteristic K or C)	in the supply cable	1x per unit
3	1	Supply cable 5 x 2.5 mm <sup>2</sup> (3 PH+N+PE) with marked wires and protective earth	to master switch	1x per unit
4	every 10 m	Foundation earth connection	Corner of the floor plate	
5	1	Equipotential bonding in accordance with DIN EN 60204 from foundation earth connection to system		1x per system
6	2	Empty pipe EN 25 (M25)		

### Electrical specifications (KLAUS Multiparking scope of supply)

Nr.	Designation
7	Lockable master switch
8	Supply cable 5 x 2.5 mm <sup>2</sup> (3 PH+N+PE) with marked wires and protective earth
9	Unit junction box
10	Control cable 3 x 0.75 mm <sup>2</sup> (PH+N+PE)
11	Control cable 7 x 1.5 mm <sup>2</sup> with marked wires and protective earth
12	Operating element
13	Control cable 5 x 1.5 mm <sup>2</sup> with marked wires and protective earth
14	Hydraulic unit 3.0 kW, three-phase current 230/400 V / 50 Hz
15	Control cable 5 x 1.5 mm <sup>2</sup> with marked wires and protective earth to next system
16	Chain monitoring

## CE conformity

The systems provided are consistent with DIN EN 14010 and the EC Machinery Directive 2006/42/EC. This system has also undergone a voluntary compliance test conducted by TÜV SÜD.

ZERTIFIKAT CERTIFICATE 認証証書 CERTIFICADO CERTIFICAT	
	<b>Certificate concerning the examination of conformity</b>
	<b>Certificate no:</b> KP 527
	<b>Certification body:</b> TÜV SÜD Industrie Service GmbH Zertifizierungsstelle für Produkte der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt - Germany
	<b>Applicant / Certification holder:</b> KLAUS Multiparking GmbH Hermann-Krum-Str. 2 88319 Aitrach - Germany
	<b>Date of application:</b> 2016-08-16
	<b>Manufacturer:</b> KLAUS Multiparking GmbH Hermann-Krum-Str. 2 88319 Aitrach - Germany
	<b>Product:</b> Equipment for power driven parking of motor vehicles
	<b>Type:</b> <b>SingleVario 2061 EB 2,000 kg</b> <b>SingleVario 2061 EB 2,600 kg</b>
	<b>Test laboratory:</b> TÜV SÜD Industrie Service GmbH Prüflaboratorium für Produkte der Fördertechnik Prüfbereich Maschinen der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt – Germany
	<b>Date and number of the test report / mark of conformity:</b> 2017-02-20 <b>KP 527</b>
	<b>Test specifications:</b> <ul style="list-style-type: none"> <li>- 2006 / 42 / EC, Annex I</li> <li>- DIN EN 14010</li> </ul>
	<b>Validity:</b> <b>This Certificate is valid until 2022-02-28</b>
	<b>Result:</b> The equipment fulfills the requirements of the test specifications for the respective scope of application stated in the annex (page 1) of this certificate, keeping the mentioned conditions.
<b>Date of issue:</b> 2017-03-01	
Certification body for lifts and cranes  Achim Janocha	
	

## Technical information

### Usage area

The system is suitable for a fixed group of users as standard. Where users change - in the upper parking spaces only - (e.g. short-term parking in office buildings or hotels), structural modifications to the Multiparking system are required. Please request a consultation if required.

### Units

Low-noise, bearing-mounted hydraulic units are installed on rubber-metal blocks. Consequently, we recommend separating the garage body from the residential building.

### Ambient conditions

Ambient conditions for the areas around Multiparking systems:  
 Temperature range -20 to +40 °C. Relative humidity 50% to a maximum external temperature of +40 °C.  
 If ascent/descent times are specified, these relate to an ambient temperature of +10 °C and with the system positioned immediately adjacent to the hydraulic unit. These times are increased at lower temperatures or with longer hydraulic lines.

### Building application documents

Multiparking systems generally require approval. Please observe local regulations and stipulations.

### Care

To prevent corrosion damage, please observe our special cleaning and care instructions and ensure that your garage is well ventilated.

### Corrosion protection

In accordance with the 'Corrosion protection' supplement.

### Railings

If there are roadways immediately adjacent to or behind the systems, the customer must provide barriers in accordance with DIN EN ISO 13857. This also applies during the construction stage.

### Noise protection

#### Standard noise protection:

In accordance with DIN 4109-1 Noise protection in high-rise - Section 9: Maximum sound pressure level in living and sleeping areas 30 dB (A). User noise is not subject to the requirements.

The following dimensions are required for adherence to this value:

- Noise protection package in accordance with quote/order (KLAUS Multiparking)
- Sound insulation dimension of the building structure of min. R'w = 57 dB (service to be provided by the customer)

#### Increased sound protection (special agreement):

In accordance with DIN 4109-5 Increased noise protection in high-rise - Section 8:

Maximum sound pressure level in living and sleeping areas 25 dB (A). User noise is not subject to the requirements.

The following dimensions are required for adherence to this value:

- Noise protection package in accordance with quote/order (KLAUS Multiparking)
- Sound insulation dimension of the building structure of min. R'w = 62 dB (service to be provided by the customer)

#### Note:

User noise is noise that can be influenced individually by the user of our Multiparking systems. This includes, e.g., accessing the platform, the slamming of vehicle doors, engine and brake noise.

## Performance specification

### Description

Multiparking system for dependent parking of 2 vehicles one on top of the other. The lower vehicle parks directly on the floor plate. The lower vehicle must exit before the platform is lowered.

The height of the platform can be flexibly adjusted (including subsequently). Upweighting to 2600 kg is subsequently possible.

Dimensions in accordance with the underlying building, width and height dimensions.

Access to the parking spaces horizontally (installation tolerance  $\pm 1\%$ ).

Vehicle positioning in the upper parking space by positioning aid mounted on one side (to be adjusted in accordance with the operating instructions).

Control via an operating element with automatic reset by means of simultaneous key.

Operating element usually installed in front of the support or on the outside of the door reveal.

Concise instructions at each operating point.

Special dimensions must be observed in buildings with door.

### Multiparking system comprising:

- 2 columns with column bases secured to the floor (short or long base configuration can be variably selected)
- 2 sliders (with sliding guides secured to the columns)
- 1 platform
- 1 mechanical synchronisation system (for synchronised operation of the hydraulic cylinders when lifting and lowering)
- 1 hydraulic cylinder
- Dowels, screws, connectors, bolts, etc.
- The platforms/parking spaces are continuously accessible.

### Platform comprising:

- Platform profiles
- Adjustable positioning aid
- Chamfered ramp
- Side beams
- Crossbeams
- Screws, nuts, washers, spacers, etc.

### Hydraulic system comprising:

- Hydraulic cylinders
- Magnetic valves
- Hydraulic lines
- Bolted connections
- High-pressure hoses
- Attachments

### Electrical system comprising:

- Operating element (emergency-stop, key, 1 simultaneous key per parking space)
- Junction box on wall valve
- Electrical locking
- Chain monitoring

### Hydraulic unit comprising:

- Hydraulic unit (low-noise, fitted to bracket and bearing mounted on rubber-metal block)
- Hydraulic oil tank
- Oil filling
- Internal gear pump
- Pump holder
- Coupling
- Three-phase motor
- Circuit protection (with thermal overload relay and control fuse)
- Test pressure gauge
- Pressure relief valve
- Hydraulic hoses (to attenuate noise transmission to the hydraulic pipes)

## Services to be provided by the customer

### Barriers

Barriers that may be required in accordance with DIN EN ISO 13857 where there are roadways immediately in front of, adjacent to or behind the systems. This also applies during the construction stage.

### Parking space numbering

Parking space numbering, if required.

### Building services systems

Any lighting, ventilation, fire-extinguishing and fire-alarm systems that may be required, plus clarification and compliance with corresponding official documentation.

### Lighting

The customer must observe local regulations pertaining to the illumination of parking spaces and roadways. In accordance with DIN EN 12464-1 'Light and lighting - Lighting of work places', an illumination level of min. 200 lx is recommended for the parking spaces and operating area of the system.

### Warning marking

In accordance with DIN EN 14010, the customer must provide 10 cm wide, yellow/black marking in accordance with DIN ISO 3864 in the access area in front of the contact area of the upper platform edge to identify the hazard area.

### Wall openings

Any wall openings that may be required should be in accordance with the sectional drawings (see "Overview of building configuration", page 3).

### Supply cable to master switch - foundation earth

The customer must lay the supply cable to the master switch during assembly. Functional capability can be checked by our engineers on site, in conjunction with the electronics engineer. If this is not possible during assembly for reasons attributable to the customer, the customer must commission an electronics engineer.

The customer must earth the steel structure with a foundation earth connection (earthing distance max. 10 m) and equipotential bonding in accordance with DIN EN 60204.

### Operating element

Empty conduits and recesses for the operating element (see "Electrical installation", page 9). Consultation with KLAUS Multiparking is required when using folding doors.

## Subject to technical changes

In the course of technical progress, KLAUS Multiparking shall be entitled to use newer or different technologies, systems, processes or standards to provide the services than initially offered, provided that this does not disadvantage the customer in any way.

Manufacturer:

**KLAUS Multiparking GmbH**

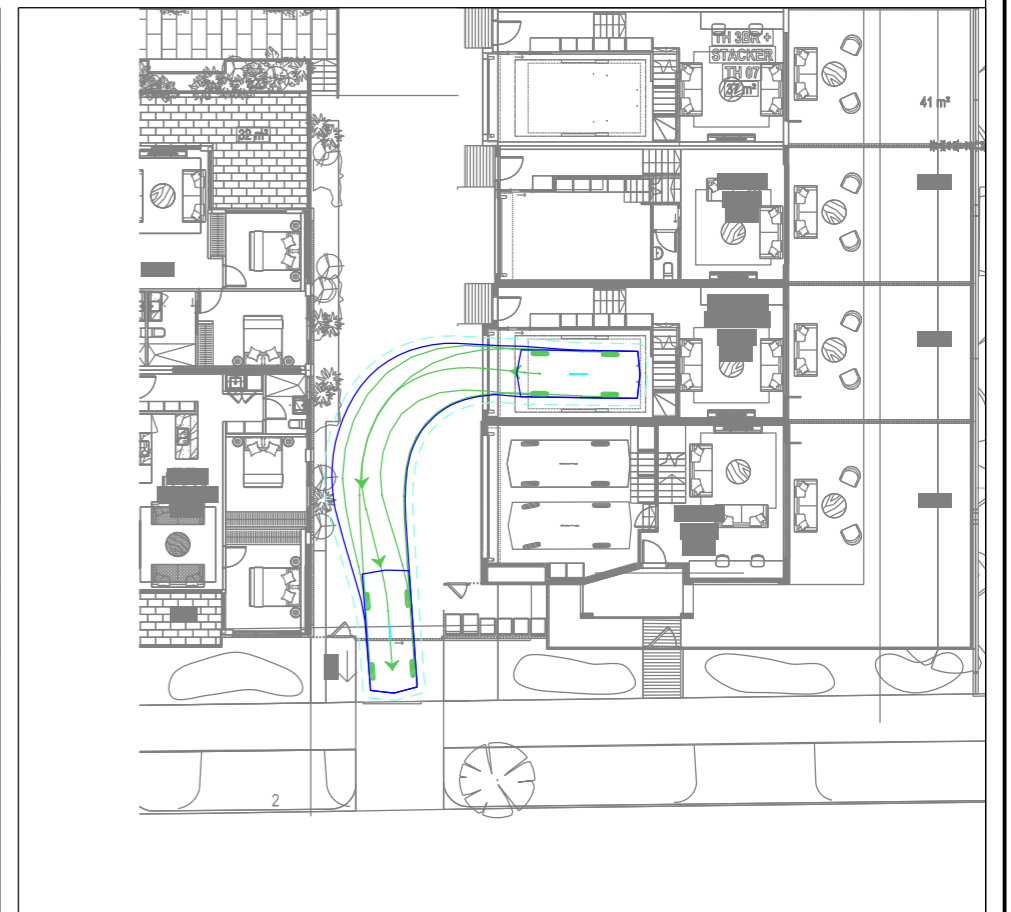
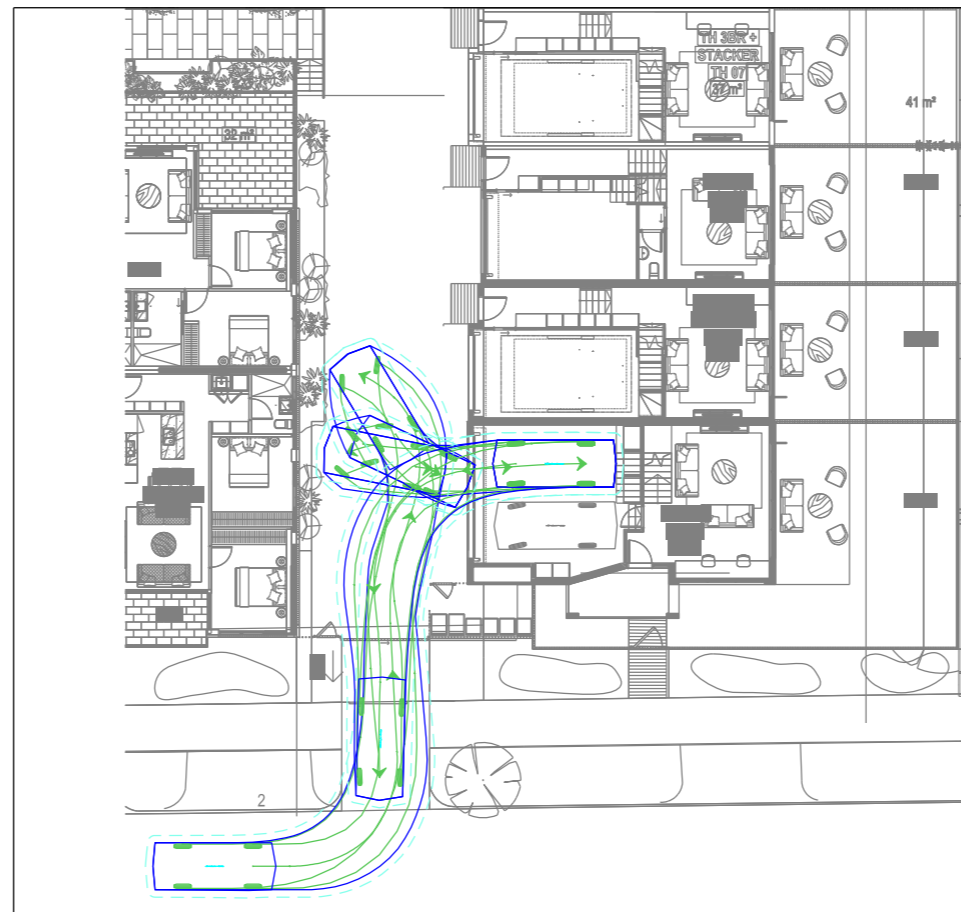
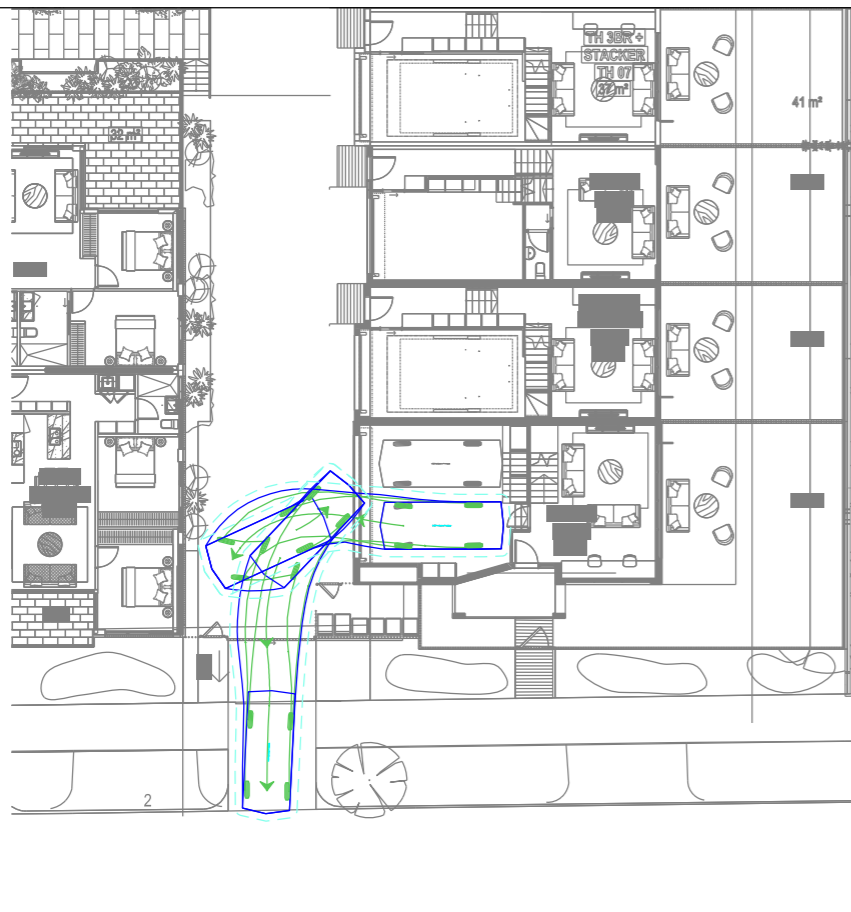
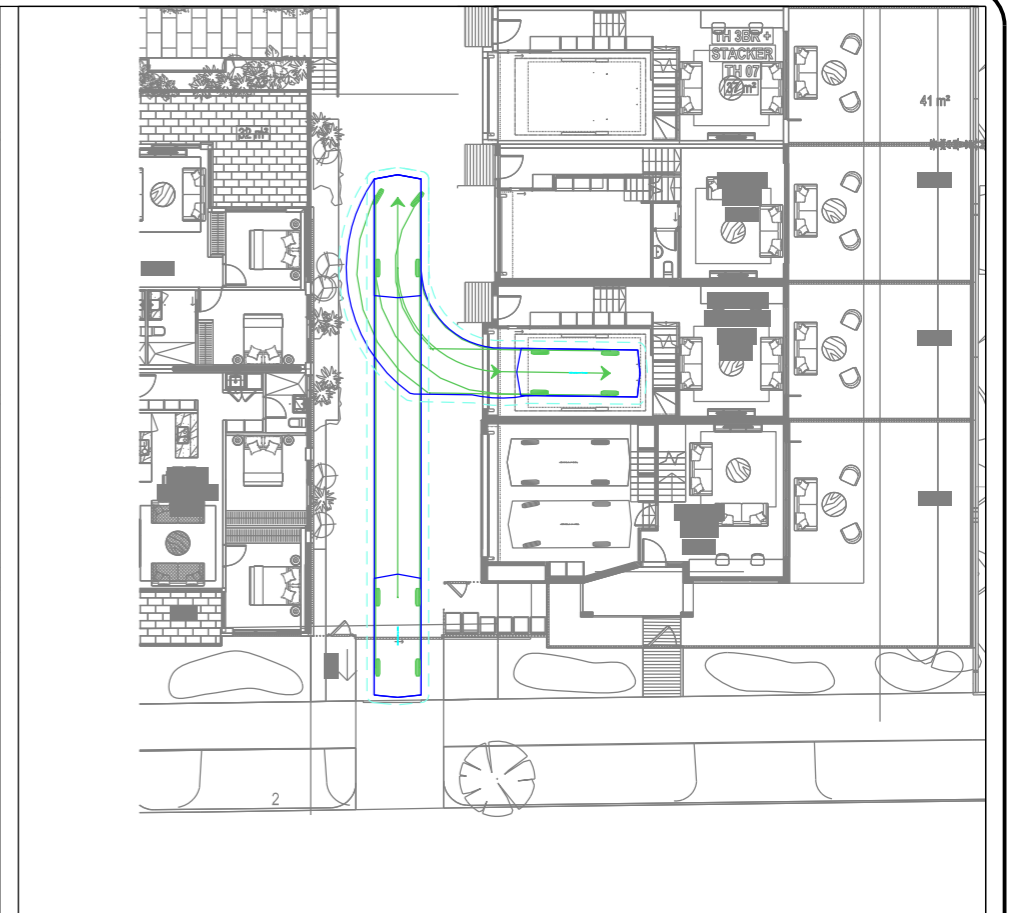
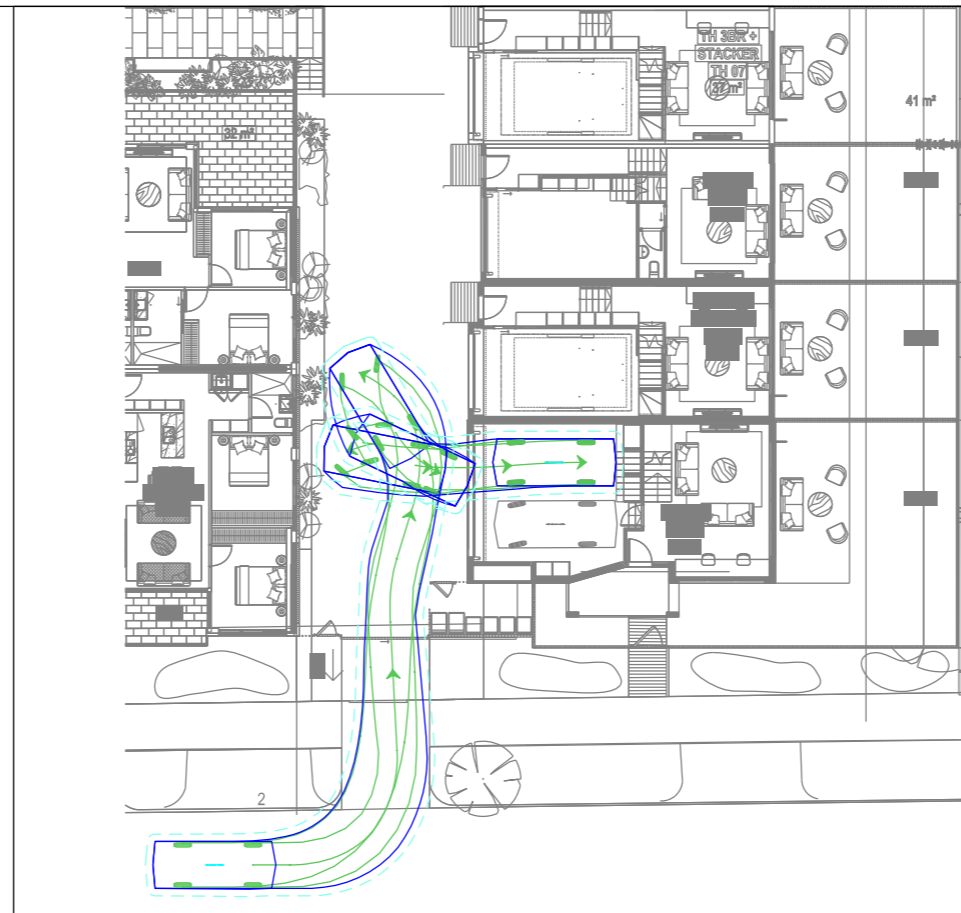
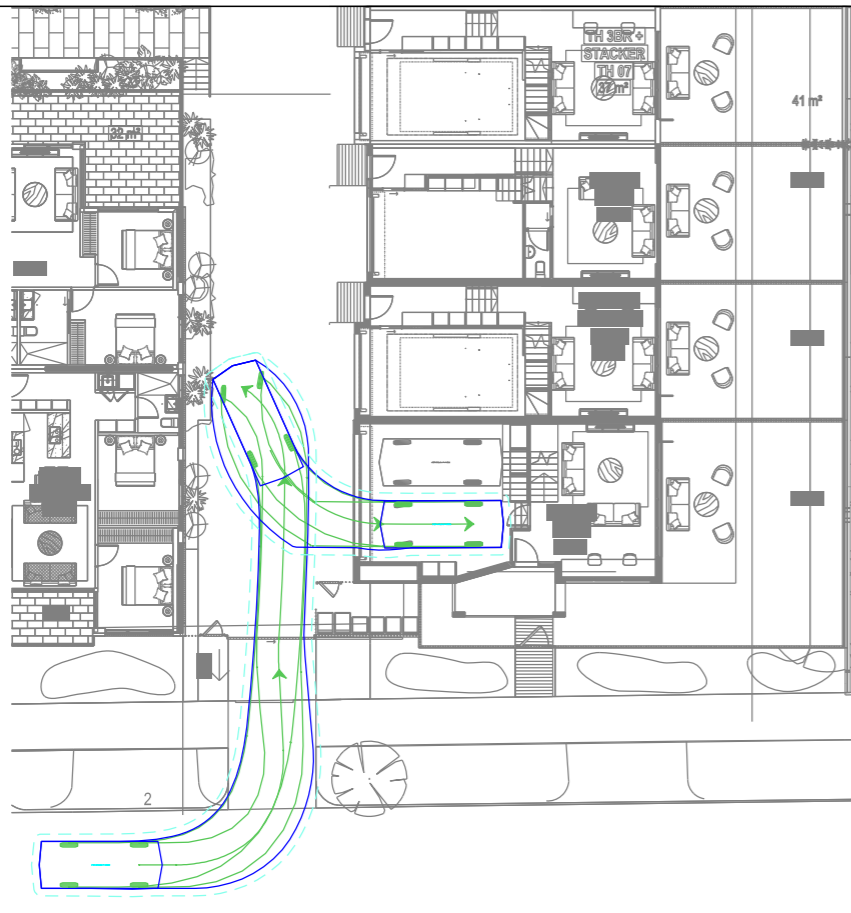
Hermann-Krum-Straße 2  
D-88319 Aitrach

Phone: +49 (0) 7565 508-0  
Fax: +49 (0) 7565 508-88  
info@multiparking.com

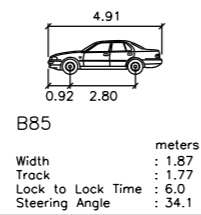
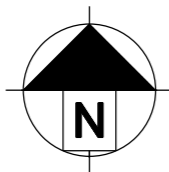
**www.multiparking.com**

Sales office:





**NOT FOR CONSTRUCTION**

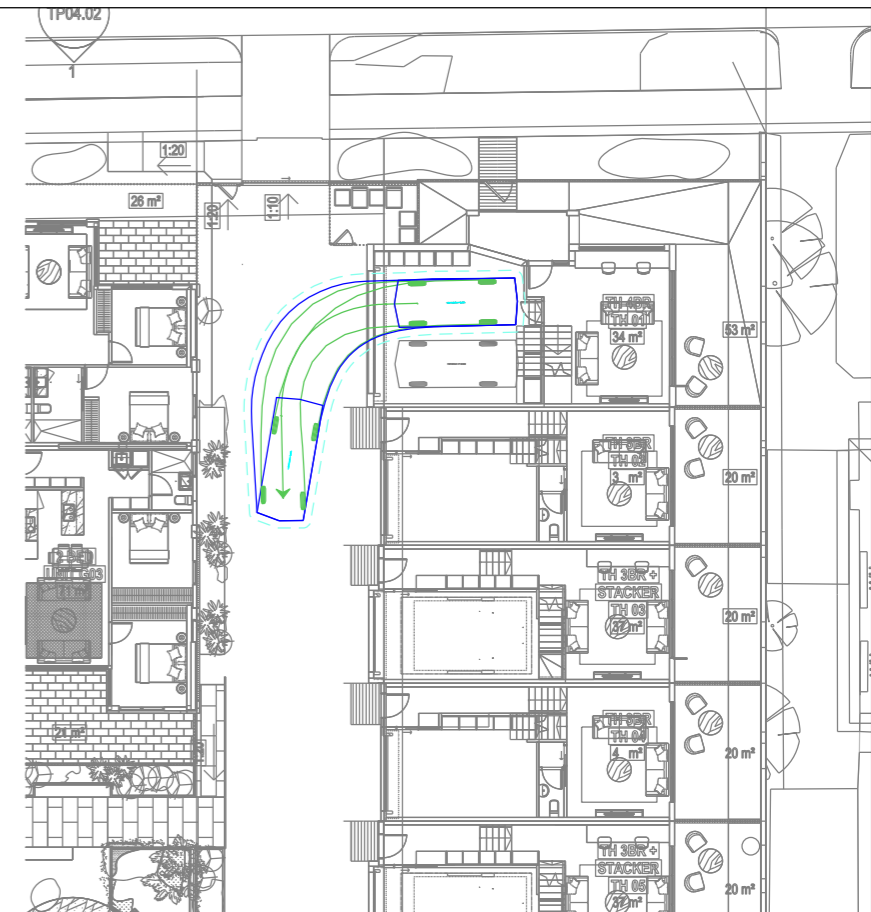
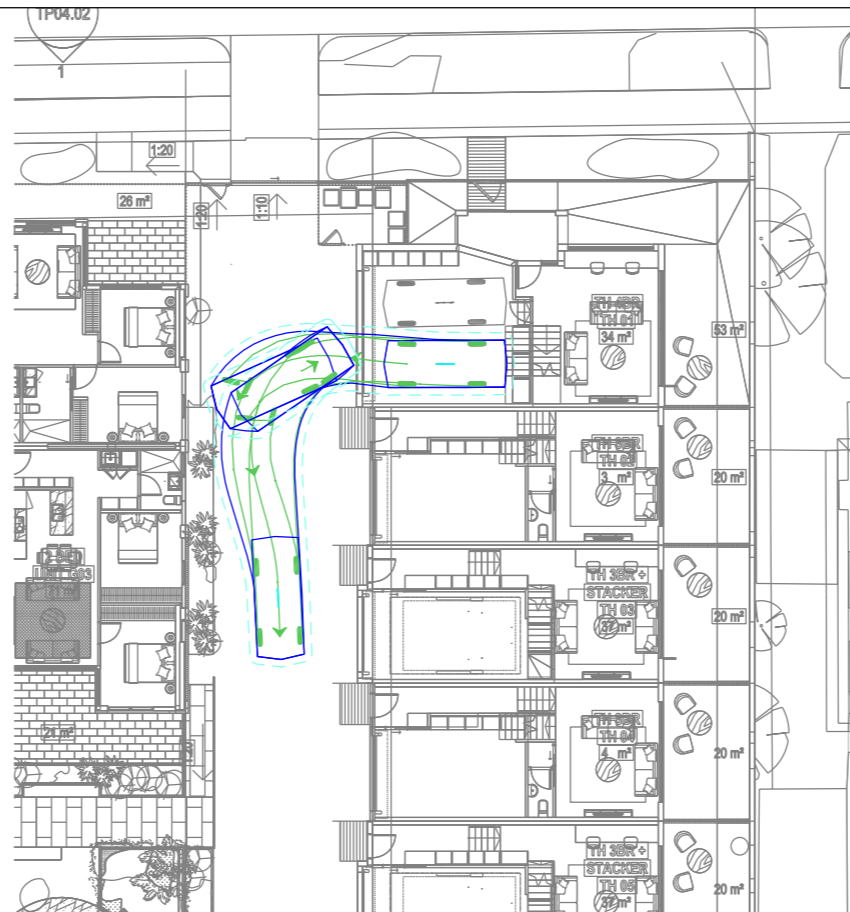
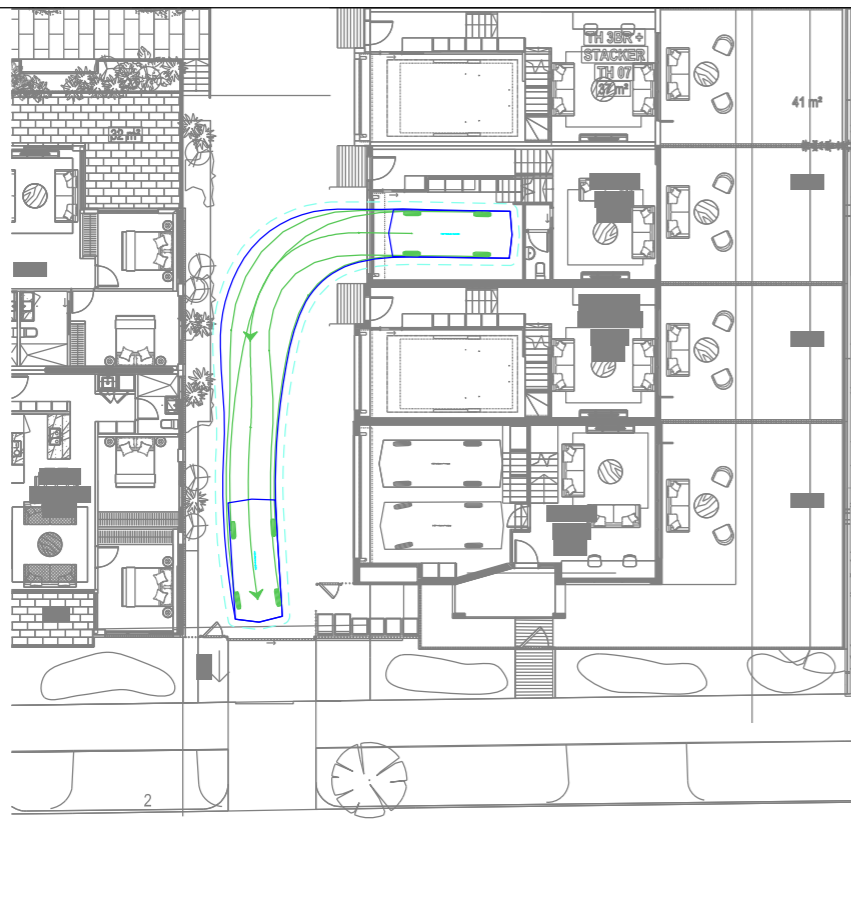
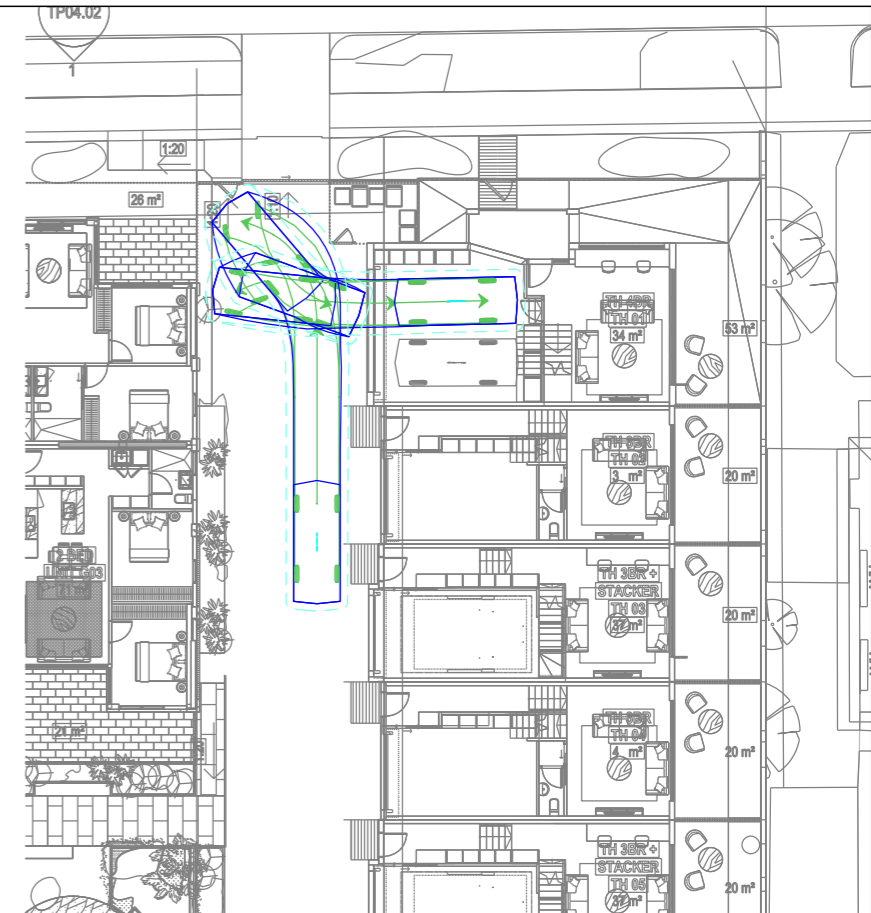
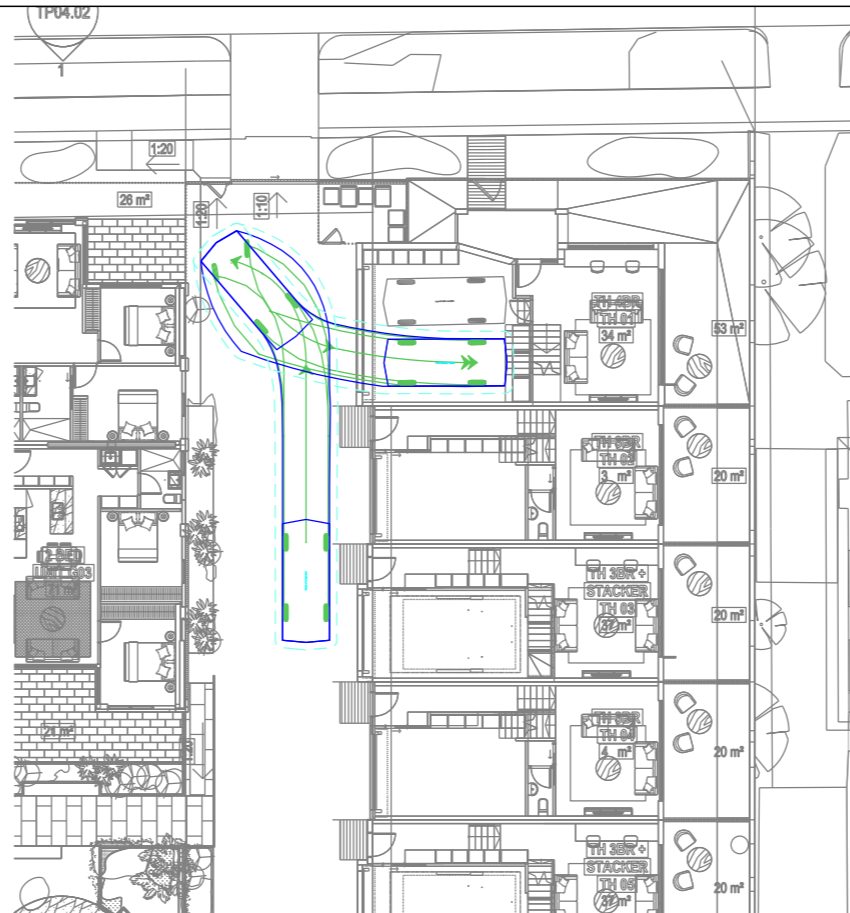
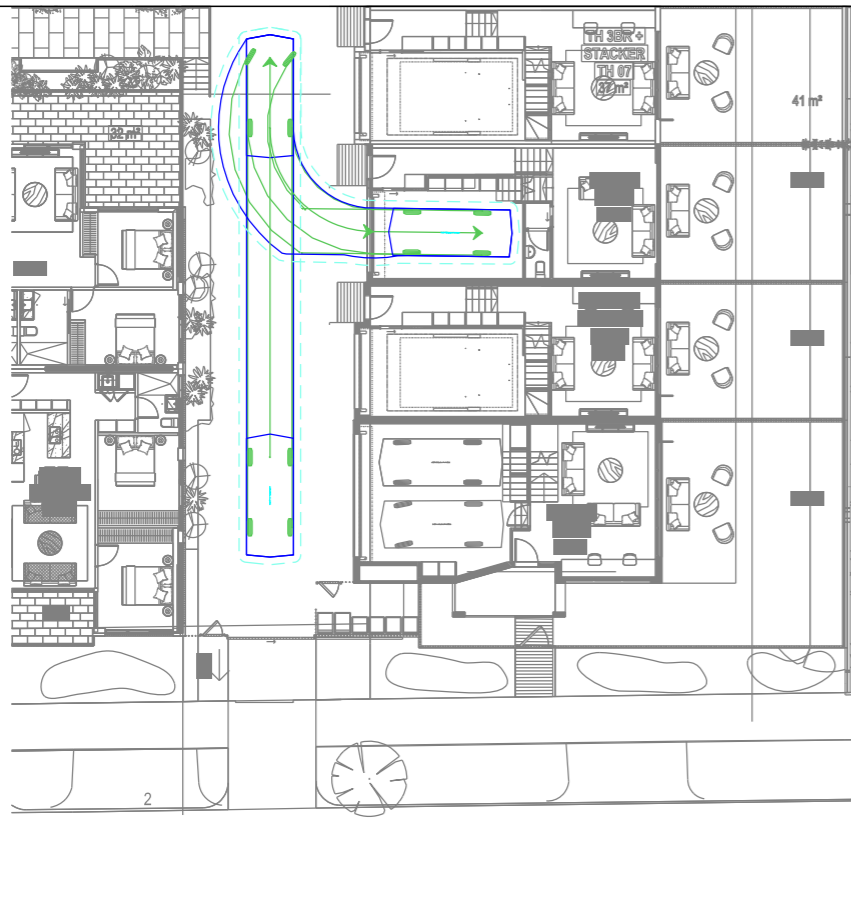


**B85**  
**ENTRY/EXIT**  
 256-262 Huntingdale Road Huntingdale  
 1:300 @ A3 31/03/23  
 DWG NO: 23170005

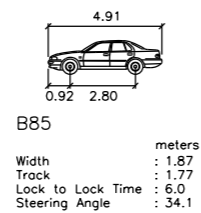
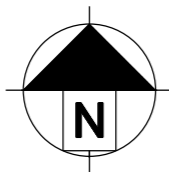
KEY	
	CENTRE LINE OF FRONT WHEELS
	WHEEL PATH
	VEHICLE BODY
	VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)



• Traffic Planning • Transport Planning  
 • Traffic Engineering • Road Safety  
 SUITE 2.03, 789 TOORAK ROAD  
 HAWTHORN EAST, VIC, 3123  
 P: +613 9804 3610  
 W: obrientraffic.com



**NOT FOR CONSTRUCTION**



**B85**  
**ENTRY/EXIT**  
256-262 Huntingdale Road Huntingdale  
1:300 @ A3 31/03/23  
DWG NO: 23170005

KEY	
	CENTRE LINE OF FRONT WHEELS
	WHEEL PATH
	VEHICLE BODY
	VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)



• Traffic Planning • Transport Planning  
• Traffic Engineering • Road Safety

SUITE 2.03, 789 TOORAK ROAD  
HAWTHORN EAST, VIC, 3123  
P: +613 9804 3610  
W: obrientraffic.com

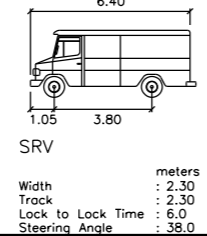
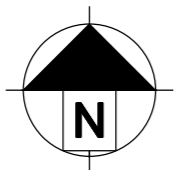


# APPENDIX C

## SWEPT PATH ANALYSIS – WASTE VEHICLE



**NOT FOR CONSTRUCTION**



**6.4m SRV  
ENTRY/EXIT**  
256-262 Huntingdale Road Huntingdale  
1:100 @ A3 05/04/23  
DWG NO: 23170007

KEY	
	CENTRE LINE OF FRONT WHEELS
	WHEEL PATH
	VEHICLE BODY
	VEHICLE CLEARANCE LINE (300mm FROM VEHICLE BODY)

• Traffic Planning • Transport Planning  
• Traffic Engineering • Road Safety

SUITE 2.03, 789 TOORAK ROAD  
HAWTHORN EAST, VIC, 3123  
P: +613 9804 3610  
W: obrientraffic.com