TTM Consulting (Vic) Pty Ltd

VCAT APPLICATION FOR REVIEW NO. P1053/2011
PROPOSED RESIDENTIAL DEVELOPMENT
18 BRAHE PLACE, EAST MELBOURNE
TRAFFIC AND PARKING IMPACT ASSESSMENT
STATEMENT OF EVIDENCE

Prepared By

J. D. Higgs BE (civil) CE
Director
TTM Consulting (Vic) Pty. Ltd.
Suite 9,
70-80 Wellington Street,
Collingwood Vic 3066

July, 2011

1. INTRODUCTION AND SCOPE

The Applicant has lodged a planning application to construct a residential development on land located at 18 Brahe Place, East Melbourne. A permit for the development was refused by Council however none of the grounds of refusal related to traffic and parking.

During advertising, several objections were received from residents, raising the following issues :-

- Impact on traffic conditions in the area,
- On-site parking provision,
- Proposed access arrangement.

I have been engaged by the Applicant to provide this statement of evidence in respect of the issues raised.

The following information has been provided to assist in preparation of this Statement of Evidence :-

- Development Plans prepared by Mattingley Courtney Architects Pty. Ltd. dated June 2011,
- Waste Management Plan prepared by Land Use Town Planning Service dated 3rd September, 2010,
- Council Officers Report dated 21st May, 2010,
- Statement of Grounds issued by City of Melbourne Council dated 15th March, 2011,
- VCAT Statement of grounds lodged by The East Melbourne Group Inc. dated 28th June, 2011.

2. WITNESS QUALIFICATIONS, EXPERIENCE AND RESEARCH

I have more than 30 years of professional experience that is relevant to the provision of an expert opinion on the subject matter. Attached to this statement is my curriculum vitae that provides a summary of key parts of that experience.

I have inspected the site of the proposed development and its surrounds, and I have made enquiries to the level of detail that I consider necessary to ensure that this statement of evidence is both accurate and complete.

3. EXISTING CONDITIONS

3.1 The Subject Site

The site has an area of approximately 303 square metres, is roughly triangular in shape, and is located at the end of Brahe Place. An easement of carriageway, 2.7 metres wide, forms part of the site along its south-eastern boundary. Figure 1 shows the site locality and Figure 2 shows the subject site.

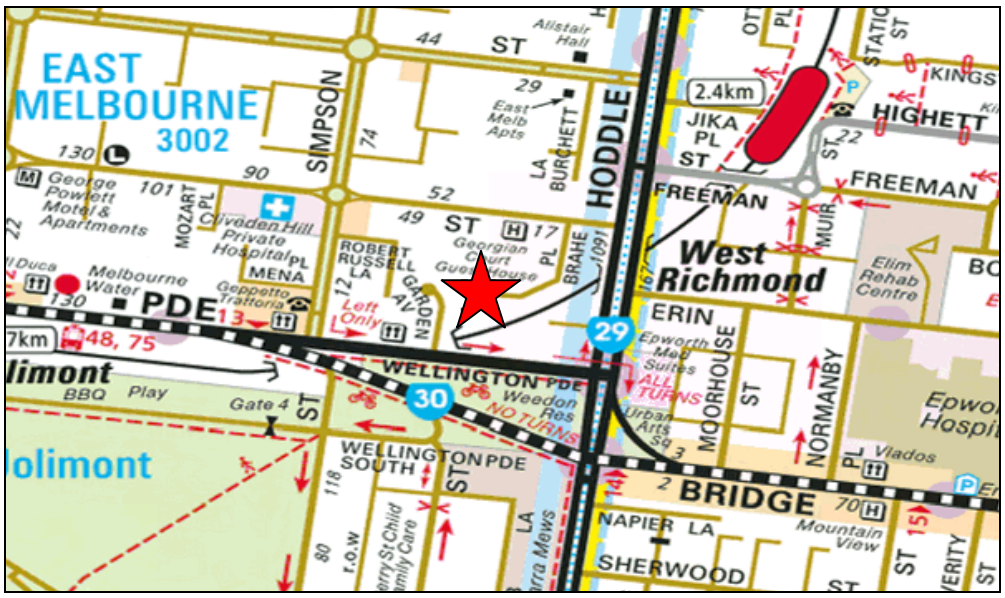


FIGURE 1 : SITE LOCALITY

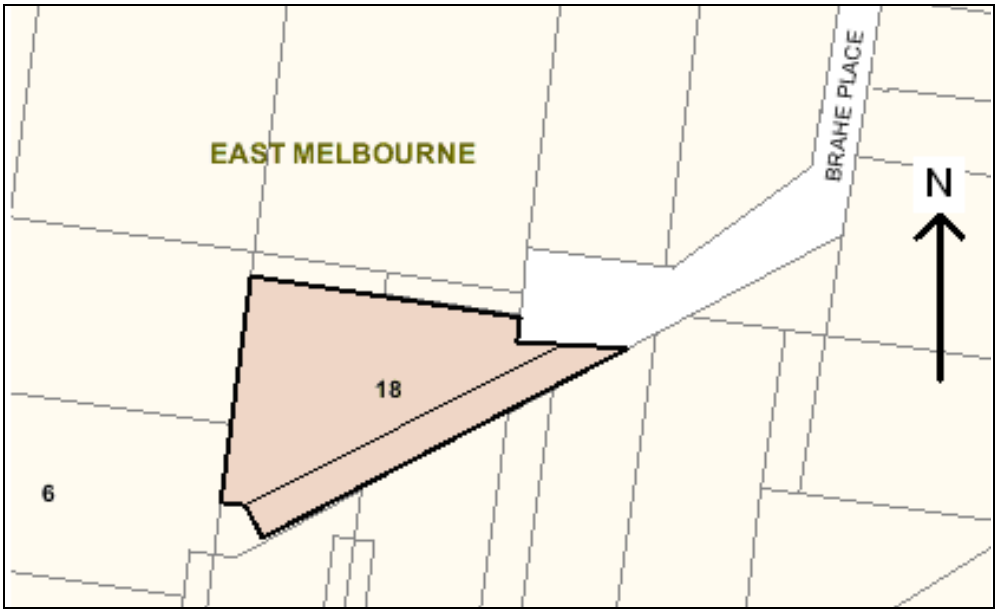


FIGURE 2 : LOCATION OF THE SUBJECT SITE

The subject site is currently used for car parking with capacity for approximately seven vehicles.

The site is surrounded by predominantly residential uses.

3.2 The Street Network and Site Access

Brahe Place is approximately 3 metres wide where it connects to George Street to the north. The photograph below shows Brahe Place looking from George Street.



BRAHE PLACE CONFIGURATION FROM GEORGE STREET

Brahe Place runs south from George Street then bends to the west and widens. The laneway ends at the subject site entrance where it is 6.6 metres wide. The following photograph shows the site access from Brahe Place.



SITE ACCESS FROM BRAHE PLACE (*boom gate on left*)

3.3 Historical Use of the Site

I have been copied information about the previous use of the site as a car parking area, which shows the following :-

- Prior to settlement of sale in May 2009 (to the Applicant), 18 Brahe Place was last sold in 1996 to the family trusts of Doctors who practiced at 1087 Hoddle Street, East Melbourne. Over this thirteen year period the site was primarily used as a patient car park.

- For approximately 5 to 10 years prior 1996, 18 Brahe Place was fully leased by some of the Doctors and used for the same purpose. During this time there was a row of 6 garages.

Whilst owned or fully leased by the Doctors, all vehicular access to the car park was via Brahe Place. One Doctor has estimated that approximately 15 patients would have parked on the site over the course of a day, which would have generated approximately 30 daily vehicle movements along Brahe Place.

The site had been used as a car parking area for several years prior to being fully leased by the Doctors. One Doctor has recalled entering a rental agreement for one of the garages circa 1979.

3.4 Existing Public Transport and Facilities within Close Proximity of the Site

The following table provides a summary of the approximate distances of public transport and facilities in regards to the site :-

Description	Distance from Site
Hoddle St Bus Route	200 metres
West Richmond Train Station	250 metres
Trams 48 and 75	300 metres
Bridge Road Shopping Precinct	300 metres
Jolimont Train Station	550 metres
Fitzroy Gardens	700 metres
Coles Supermarket	900 metres
Treasury Gardens	1,200 metres
Melbourne CBD	1,500 metres

3.5 Existing Parking Demand

TTM Consulting (Vic) Pty. Ltd. undertook an inspection of the parking supply and demand within close proximity of the site on Thursday 5th May, 2010. The results of the parking survey are summarised in the following table :-

Location	Control	Inventory	Cars Parked	
			Thurs 4:00pm	Thurs 7:00pm
George Street (Hoddle Street to Simpson Street)	1P (A)	60	50	52
Total		**60**	**50**	**52**
Parking spaces available			**10**	**8**

(A) Parking restrictions apply Mon – Sun : 7:30am to 10:00pm

The parking surveys indicate that there are adequate opportunities for visitors to park within close proximity of the site during the daytime and evening.

3.6 Existing Traffic Volume on Brahe Place

August 2010 Counts

TTM Consulting (Vic) Pty Ltd undertook peak period traffic counts in Brahe Place on Tuesday August 3rd and Wednesday August 4th, 2010. The morning counts were conducted over 2 hours from 9:00am and the evening period was 90 minutes from 4:00pm. The results are summarised as follows :-

- **AM Peak Period** Inbound 2 cars in peak hour
  Outbound 3 cars in peak hour
- **PM Peak Period** Inbound 4 cars in peak hour
  Outbound 3 cars in peak hour

No interactions were observed during the survey periods, and some of the vehicle movements observed originated at the subject site.

June 2011 Counts from Security Camera

I arranged for the security camera on the site to be turned towards the entry to the narrow part of Brahe Place. The camera is triggered by movement, and records times and dates of detected movements as well as filming the activity.

The film was studied by a TTM staff member, who extracted the data per the following table :-

Date	Vehicles Entering		Vehicles Leaving		No. of Peak Hour Vehicle Movements	
	To 18 Brahe Place	To Other Areas	From 18 Brahe Place	From Other Areas	Entry PM Peak	Exit AM Peak
Monday 6/6/11	10	6	9	8	6	2
Tuesday 7/6/11	11	5	11	8	2	4
Wednesday 8/6/11	14	15	12	9	2	3
Thursday 9/6/11	7	17	9	14	4	6
Friday 10/6/11	10	16	6	12	5	3
TOTAL	**52**	**59**	**47**	**51**		

TOTAL			**18 BRAHE PLACE**			**OTHER**		
INS	=	111	INS	=	52	INS	=	59
OUTS	=	98	OUTS	=	47	OUTS	=	51

Over the duration of the five-day survey there were 209 vehicle movements along Brahe Place, of which the subject site generated 99 movements. At no point was there any evidence of a vehicle having to give way to another vehicle.

On the basis of the above data, the present use of 18 Brahe Place typically generates in the order of 10 inbound and 10 outbound vehicle movements a day.

4. THE PROPOSED DEVELOPMENT

A development plan for the site has been prepared by Mattingley Courtney Architects, which indicate a four-storey structure accommodating eight 1-bedroom apartments.

Eight parking spaces are proposed via car stacking units within a ground floor car park.

5. PARKING DEMANDS, REQUIREMENTS AND LIKELY IMPACT

5.1 Planning Scheme Parking Requirement

Clause 52.06 of the Planning Scheme is applicable as the building is four storeys in height.

From Table 52.06-5 a dwelling has a parking requirement of 2 spaces per dwelling, thus the proposal generates a parking requirement of 16 spaces.

The Applicant proposes eight on-site parking spaces and therefore seeks a reduction of eight parking spaces against the requirements of the Planning Scheme.

The Planning Scheme allows the following matters to be taken into account when determining an appropriate car parking rate.

- Any relevant parking precinct plan.
- The availability of car parking in the locality.
- The availability of public transport in the locality.
- Any reduction in car parking demand due to the sharing of car spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces.
- Any car parking deficiency or surplus associated with the existing use of the land.
- Any credit, which should be allowed for a car parking demand, deemed to have been provided in association with a use which existed before the change of parking requirement.
- Local traffic management.
- Local amenity including pedestrian amenity.
- An empirical assessment of car parking demand.
- Any other relevant consideration.

5.2 Likely Resident Parking Demand

5.2.1 Clause 55 of the Planning Scheme

Whilst the parking provisions of Clause 55 of the Planning Scheme are not applicable because the building is four storeys in height, I believe the parking provisions of Clause 55 to be more appropriate than those of Clause 52.06 as the proposal is an apartment development for residential use.

Clause 55.03-11 of the Planning Scheme sets out parking requirements as follows :-

- One space for each one or two bedroom dwelling,
- Two spaces for each three or more bedroom dwelling, with one space undercover,
- Visitor car parking at the rate of one space for every five dwellings,
- Studies and studios that are separate rooms must be counted as bedrooms.

The parking requirement based upon Clause 55.03-11 is as follows :-

Apartments	**No.**	**Rate**	**Parking Spaces**
1 Bedroom	8	1.0 space per dwelling	8
Visitor		1.0 space per 5 dwellings	2
Total			**10**

The Applicant has proposed allocation of one parking space per dwelling, and based on the Clause 55 provisions would be seeking a waiver of the two resident visitor parking spaces.

5.2.2 An Empirical Assessment of Resident Car Parking Demand

Car Ownership data has been obtained from the Australian Bureau of Statistics for the East Melbourne postcode, 3002. The data is from the 2006 census and car ownership is as follows :-

Australian Bureau of Statistics
2006 Census of Population and Housing - Postal Area (POA) - 3002
Dwelling Structure (STRD) - Apartment

Number of Bedrooms in Private Dwelling (BEDD)	**Number of Motor Vehicles (VEHD)**							**Car Ownership**
	0	1	2	3	4	5	Total	
None	46	30	3	0	0	0	79	0.46
1 bedroom	179	312	35	0	0	0	526	0.73
2 bedrooms	109	440	162	19	0	0	730	1.12
3 bedrooms	12	69	56	9	3	3	152	1.55

Based on the car ownership census data for East Melbourne, this development could be expected to generate demand for 6 resident parking spaces.

5.3 Justification for a Reduction of On-Site Parking Spaces

I make the following responses to the salient decision guidelines at Clause 52.06 :-

<u>An Empirical Assessment of Car Parking Demand</u>

The ABS Census Data suggests a resident parking demand in the order of 0.73 vehicles per apartment.

Availability of Car Parking in the Locality

The parking demand surveys indicate that there are adequate public parking spaces available to satisfy the demand generated by visitors at the Clause 55 rates. I note that Clause 52.06 does not require any on-site visitor parking.

The Availability of Public Transport in the Locality

The site is well serviced by public transport with numerous facilities located within walking distance of the site.

6. TRAFFIC GENERATION AND IMPACTS

6.1 Traffic Generation

Parking with access via Brahe Place, other than on the subject land, totals approximately 16 spaces. These spaces generate about 20 daily vehicle movements on average, suggesting fewer than one turnover per space per day.

The RTA (NSW) suggest in their publication, "Guide to Traffic Generating Developments, October 2002", that residential apartments up to two bedrooms typically generate 4-5 vehicle trips per day with around 10% of those vehicle movements occurring during the peak period.

With parking in stacker units in the subject location, I consider it unlikely that any more than 3 vehicle trips per parking space per day would be generated.

Therefore, my conservative estimate of traffic generation at the proposed development is 24 daily vehicle trips.

6.2 Traffic Impacts

I consider the likely change of traffic generation at the site could be from about 20 daily vehicle movements at present to about 24 daily vehicle movements. That would increase total daily traffic along Brahe Place from about 40 vehicle movements a day to about 44 vehicle movements per day, with no perceptible impacts.

It is highly likely that total traffic generated at the site could be reduced subsequent to the development.

7. PARKING AND ACCESS AREA DESIGN

7.1 Parking Area Design

The eight on-site parking spaces are to be provided by one double platform stacker unit and two single platform stacker units.

Accessibility has been checked using AutoTrack v9.10 to confirm that adequate maneuvering space is available for entry and exit.

The swept path diagrams are attached in Appendix A confirming that adequate maneuvering space is available.

7.2 Proposed Site Access

Vehicle access to the car park is proposed via the 2.72 metres wide easement running the south-eastern boundary of the site from Brahe Place. This arrangement is adequate, as is demonstrated by the existing use of the land. The building has been designed to allow 3 metres clear accessway, the "should" provision at Clause 55. This 3 metre wide access incorporates the 2.72 metre wide easement.

If two cars should be required to pass one another along the laneway there is adequate space at the southern end of Brahe Place for one car to back off and prop, to allow the other to pass. The probability of that need is extremely low.

7.3 Stacker Design

Eight parking spaces are proposed.

Four spaces are to be provided via a double platform car stacker unit in the north-western corner of the development. The development plan indicates the unit will be 5.4 metres long by 5.2 metres wide. The four remaining spaces are to be provided via two single platform car stacker units which are a minimum 5.2 metres long by a minimum 2.6 metres wide. A minimum floor to ceiling height clearance of 3.25 metres will be provided above the stacker units.

These dimensions are sufficient to accommodate Klaus 'Stack Parker 2062' units. These are typical independent car stackers with pits, and are an appropriate model to be installed in this location.

The dimensions and specifications of this model is attached in Appendix B.

The installation of these stacker units will require the excavation of a 1.9 metres deep pit.

8. BICYCLE FACILITIES

Table 1 to Clause 52.34-3 outlines the bicycle space requirement for the proposal, which is summarized in the following table :-

Use	Planning Scheme Requirement	Inventory	Parking Spaces
Dwelling - Resident	In development of four or more storeys, 1 to each 5 dwellings	8 no.	2
Dwelling - Visitor	In development of four or more storeys, 1 to each 10 dwellings	8 no.	1

The Applicant proposes three (3) spaces within the 'bike shed' at the rear of 12 Garden Avenue, with access provided via a future carriageway easement across 6 and 12 Garden Avenue.

This provision satisfies the Clause 52.34 requirement.

9. SUMMARY AND CONCLUSIONS

The following points are made in summary :-

- The proposed reduction of eight on-site parking spaces against the parking requirements of Clause 52 is appropriate given :-
    - The Applicant satisfies the resident parking provision of Clause 55 of the Planning Scheme and exceeds the ABS census data for car ownership in the area,
    - There is adequate on-street parking in the vicinity of the site to accommodate the parking demands of resident visitors.
- Traffic generated by the site will have no perceptible impacts on Brahe Place, or the wider street network.
- Adequate bicycle facilities have been provided to satisfy the Clause 52.34 provisions of the Planning Scheme.

There are no traffic related grounds which should warrant refusal of the sought planning permit.

In preparing this statement I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Tribunal.

TTM Consulting (Vic) Pty. Ltd.



J. D. Higgs

James Higgs is a professional traffic and transport engineer specializing in urban systems and urban development.

He holds a Degree in civil engineering from the University of Melbourne (course completed 1971) and also a certificate of qualification as a Municipal Engineer in the State of Victoria.

His professional experience is summarised as follows :-

Period	**Position Held**
1972-1973	Shire of Mortlake, Professional Engineer
1973-1976	Town of Kyabram, Assistant Municipal Engineer
1976-1986	City of Knox, various engineering appointments
1986-1987	Managing Director, Higgs-TTM Pty. Ltd.
1987-2007	Joint Managing Director, TTM Consulting Pty. Ltd.
2007-Present	Principal Director, TTM Consulting (Vic) Pty. Ltd.

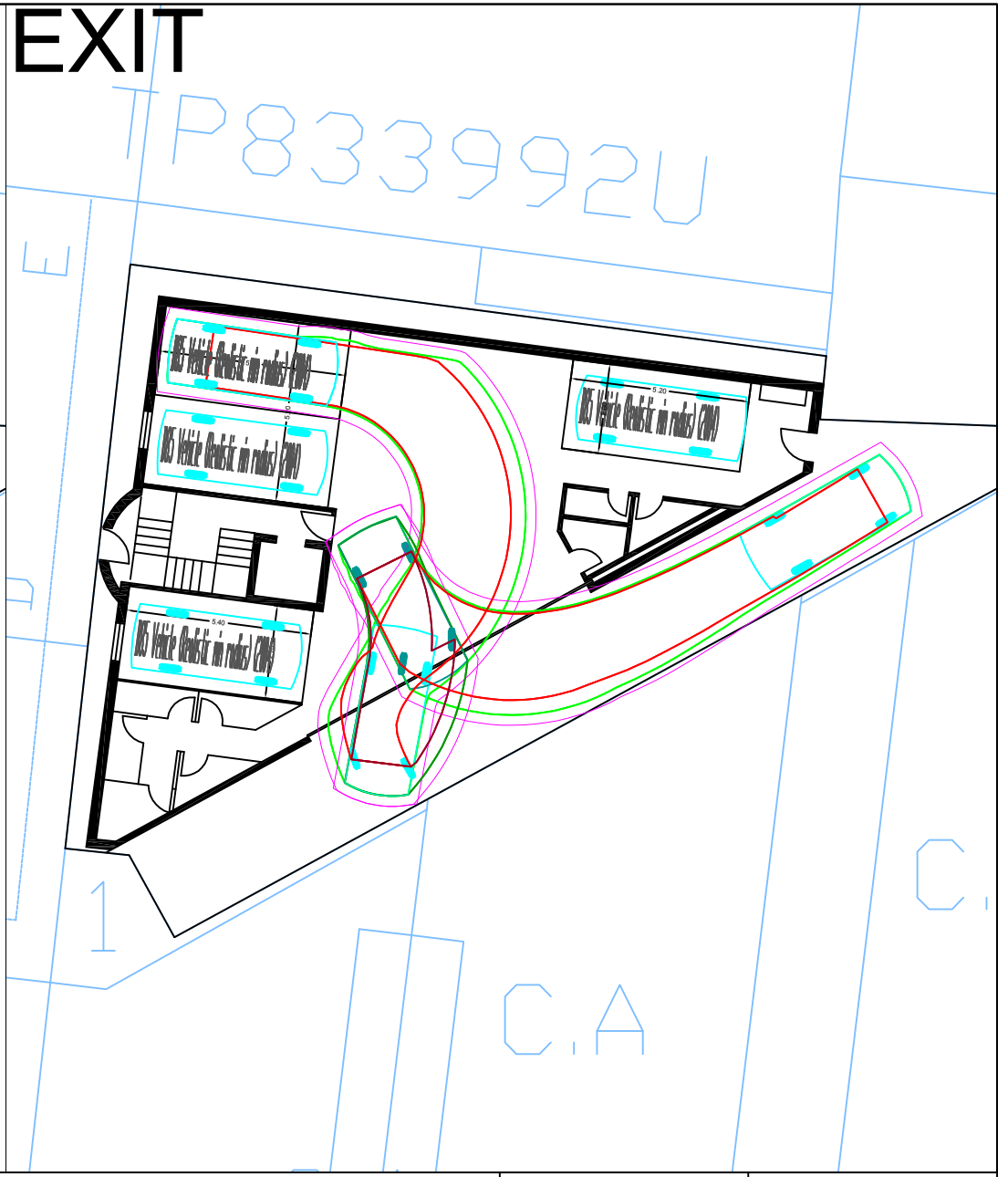
Jim Higgs and TTM Consulting (Vic) Pty. Ltd. provide design advice to many private and public sector clients on road and street design for urban development, including industrial, residential and commercial land uses, car parking, traffic impact assessments, amelioration of impacts and traffic management.

APPENDIX A

ENTRY



EXIT



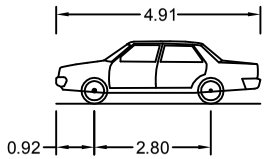
Wheel path

Vehicle Overhang

Vehicle Overhang + 300mm Clearance

Issue	Appd	Date	Comments
A	MD	05/07/11	Original Issue

Swept Path Diagram Prepared using AutoTrack v9.00



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.499m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	5.750m

N

TTM Consulting Pty Ltd
Transport and Traffic Engineers
Suite 9
70-80 Wellington Street
Collingwood VIC 3066
Ph : (03) 9419 0911 Fax : (03) 9415 9456
Email : email@ttmconsulting.com.au

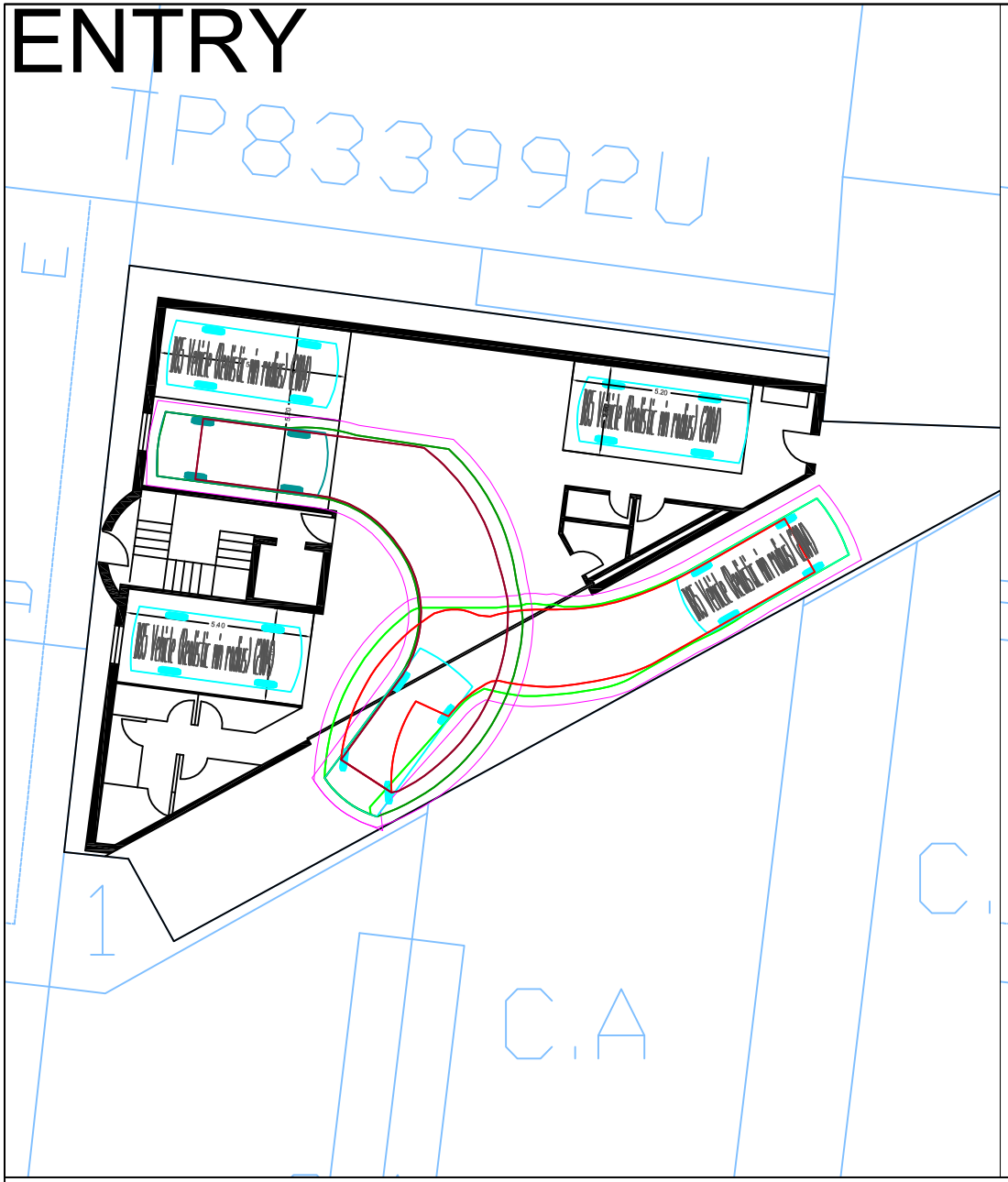
SWEPT PATH ANALYSIS
PROPOSED RESIDENTIAL DEVELOPMENT
18 BRAHE PLACE, EAST MELBOURNE

Scale 0 1 2 3 4 1:200 @ A4

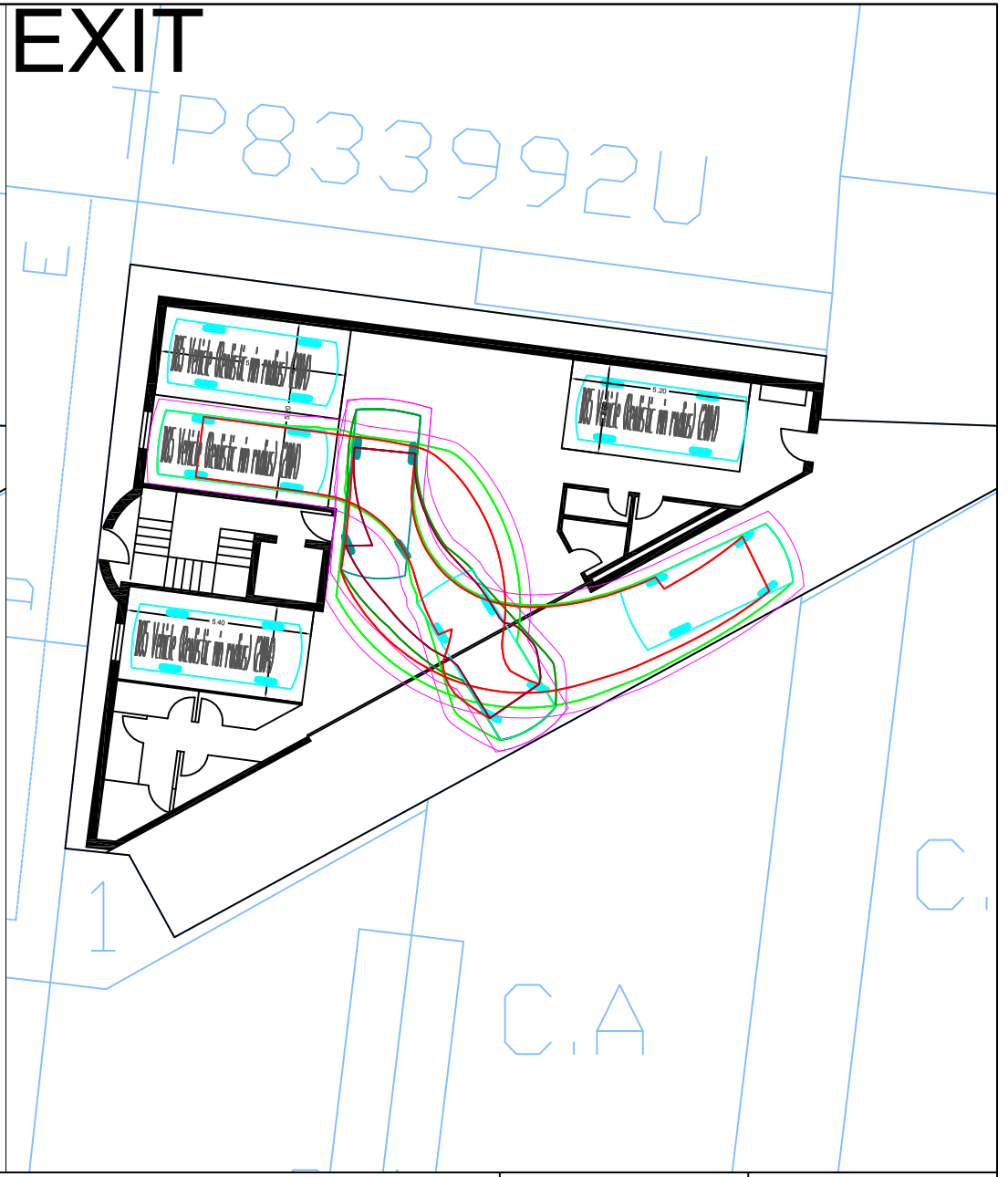
Drawing No : 659506

Sheet No : 1 Issue : A

ENTRY



EXIT



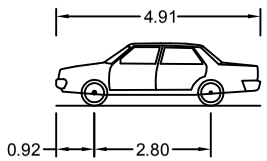
Wheel path

Vehicle Overhang

Vehicle Overhang + 300mm Clearance

Issue	Appd	Date	Comments
A	MD	05/07/11	Original Issue

Swept Path Diagram Prepared using AutoTrack v9.00



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.499m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	5.750m

N

TTM Consulting Pty Ltd
Transport and Traffic Engineers
Suite 9
70-80 Wellington Street
Collingwood VIC 3066
Ph : (03) 9419 0911 Fax : (03) 9415 9456
Email : email@ttmconsulting.com.au

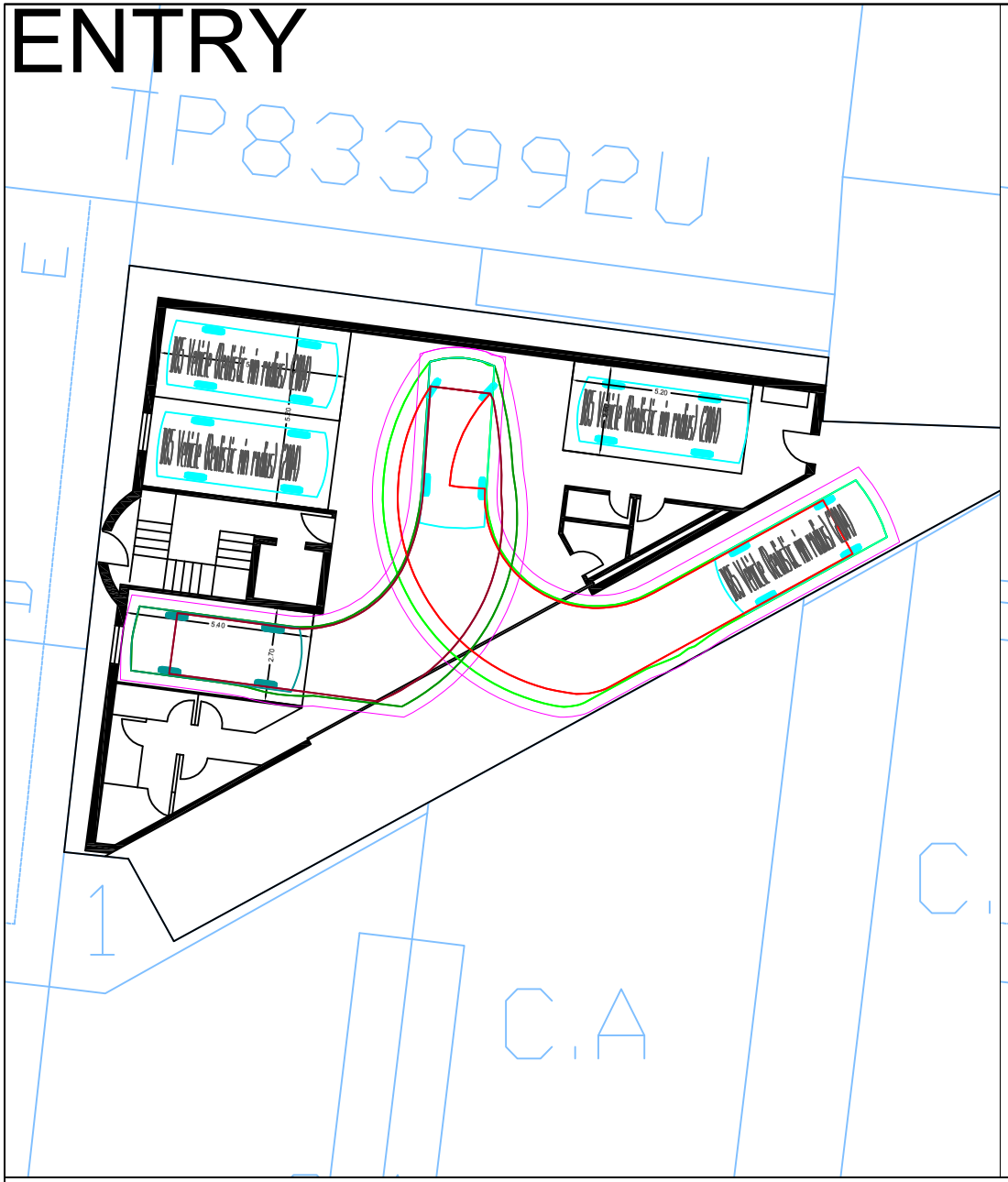
SWEPT PATH ANALYSIS
PROPOSED RESIDENTIAL DEVELOPMENT
18 BRAHE PLACE, EAST MELBOURNE

Scale 0 1 2 3 4
1:200 @ A4

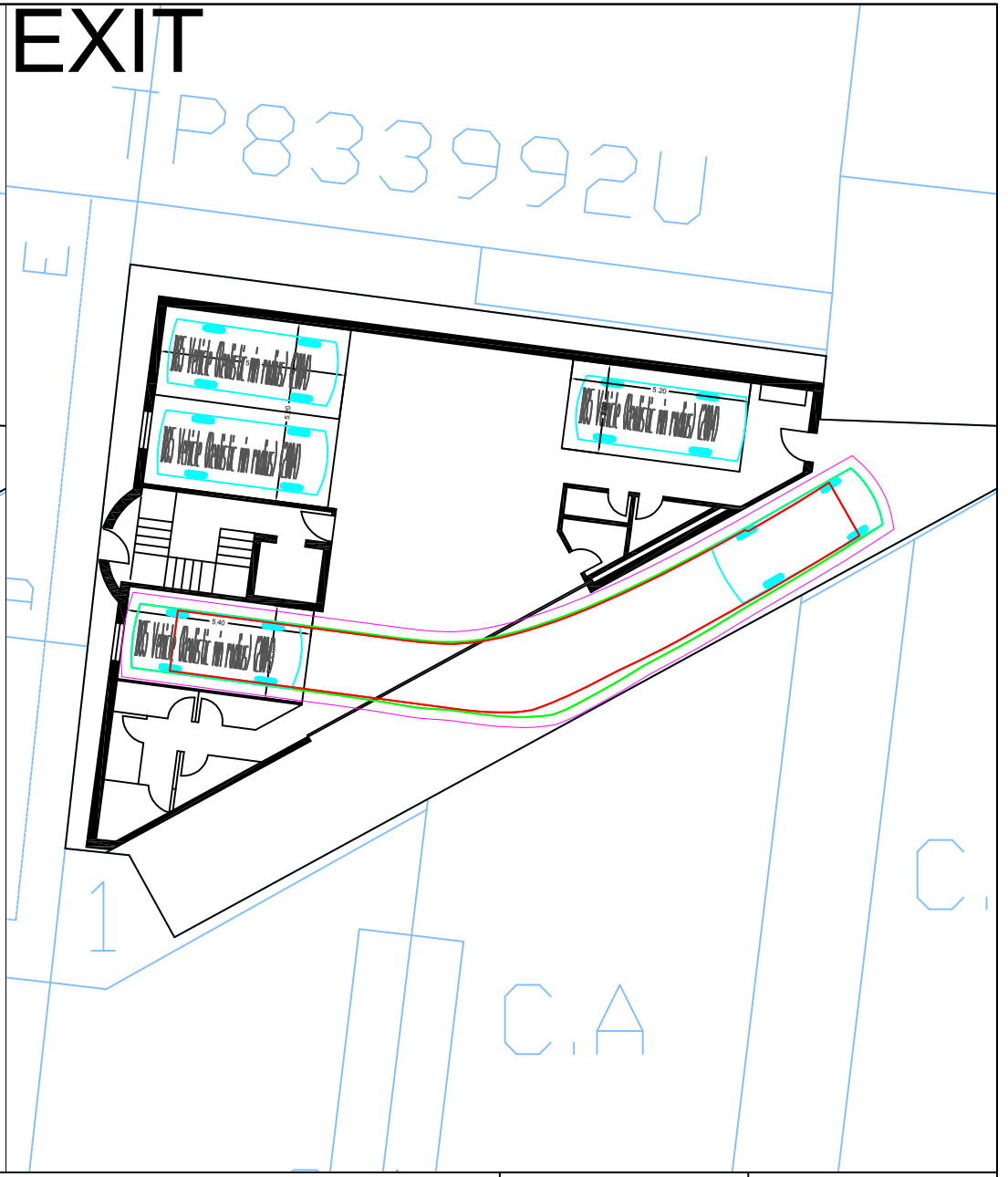
Drawing No : 659506

Sheet No : 2 | Issue : A

ENTRY



EXIT

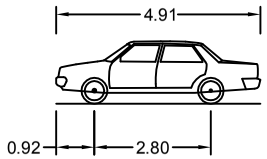


Wheel path

Vehicle Overhang

Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using AutoTrack v9.00



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.499m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	5.750m

N

Issue	Appd	Date	Comments
A	MD	05/07/11	Original Issue

TTM Consulting Pty Ltd
Transport and Traffic Engineers
Suite 9
70-80 Wellington Street
Collingwood VIC 3066
Ph : (03) 9419 0911 Fax : (03) 9415 9456
Email : email@ttmconsulting.com.au

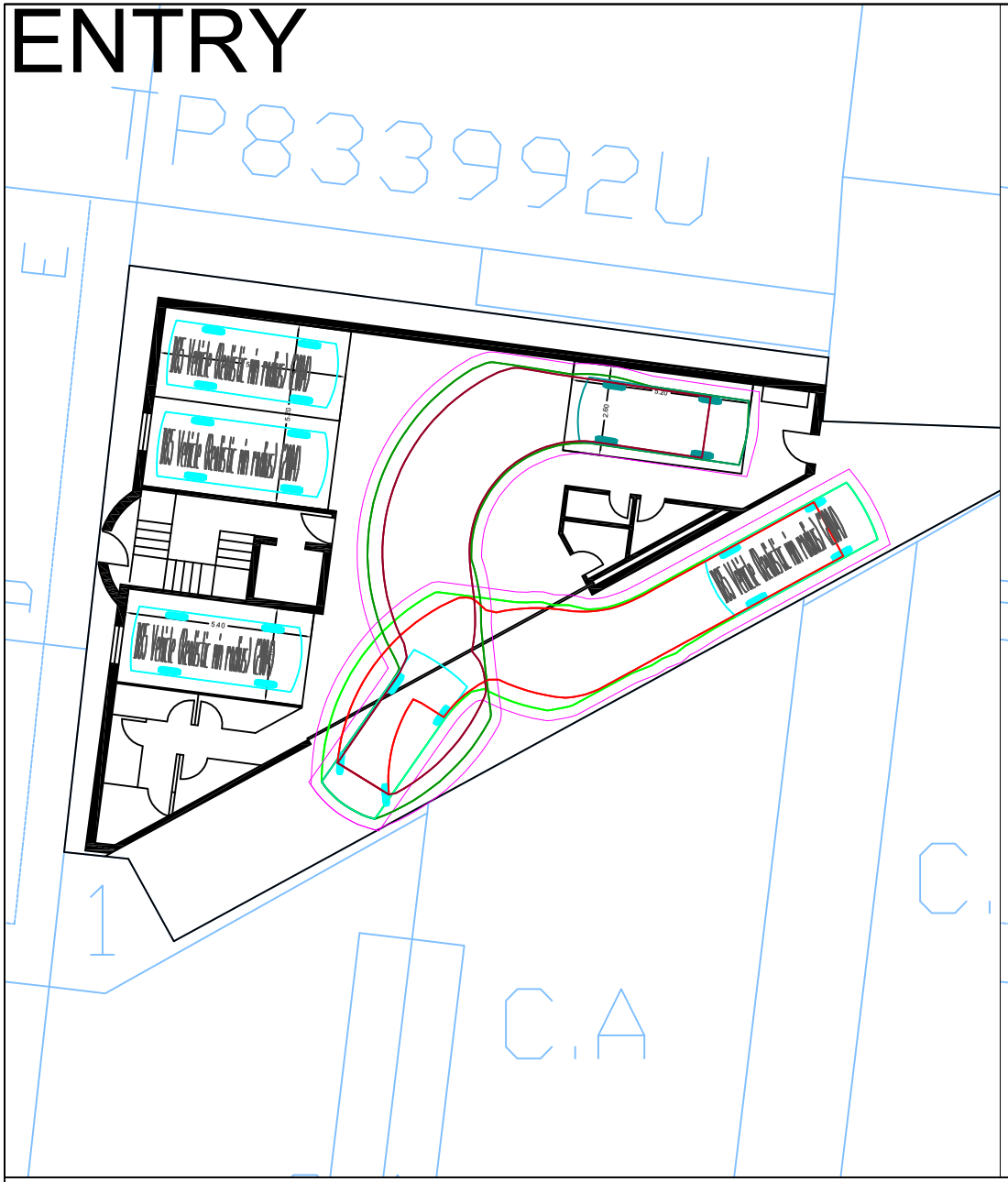
SWEPT PATH ANALYSIS
PROPOSED RESIDENTIAL DEVELOPMENT
18 BRAHE PLACE, EAST MELBOURNE

Scale 0 1 2 3 4 1:200 @ A4

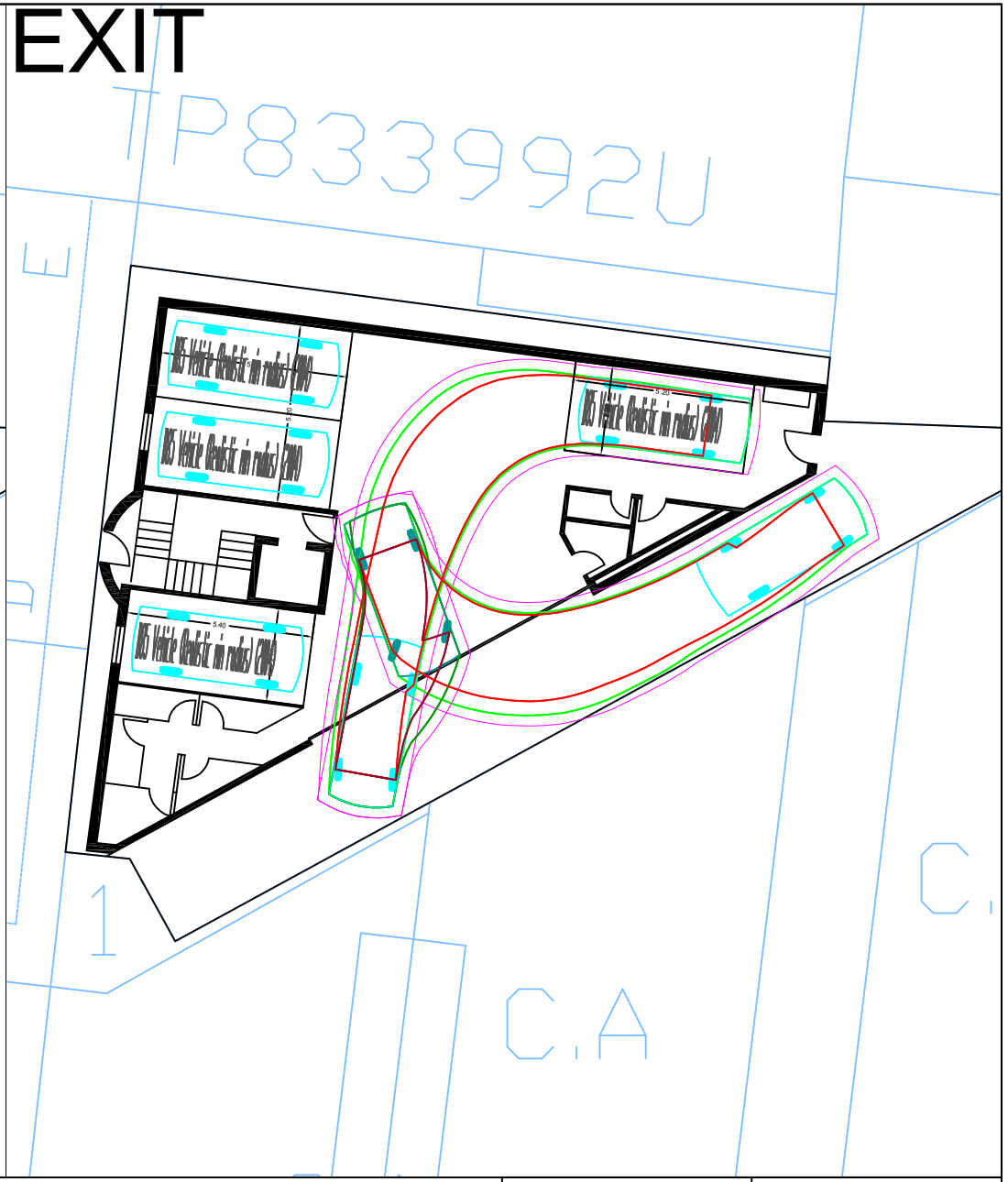
Drawing No : 659506

Sheet No : 3 Issue : A

ENTRY



EXIT

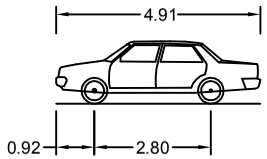


Wheel path

Vehicle Overhang

Vehicle Overhang + 300mm Clearance

Swept Path Diagram Prepared using AutoTrack v9.00



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.499m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00sec
Curb to Curb Turning Radius	5.750m

N

Issue	Appd	Date	Comments
A	MD	05/07/11	Original Issue

TTM Consulting Pty Ltd
Transport and Traffic Engineers
Suite 9
70-80 Wellington Street
Collingwood VIC 3066
Ph : (03) 9419 0911 Fax : (03) 9415 9456
Email : email@ttmconsulting.com.au

SWEPT PATH ANALYSIS
PROPOSED RESIDENTIAL DEVELOPMENT
18 BRAHE PLACE, EAST MELBOURNE

Scale 0 1 2 3 4 1:200 @ A4

Drawing No : 659506

Sheet No : 4 Issue : A

APPENDIX B

Page 1
Section
Dimensions
Car data

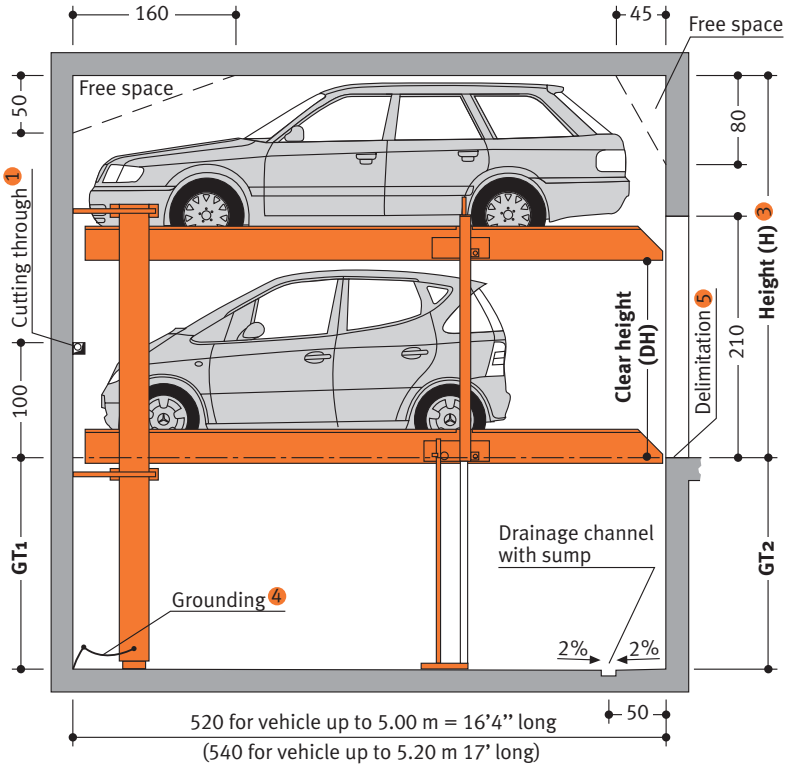
Page 2
Width dimesions

Page 3
Approach
Load plan
Installation

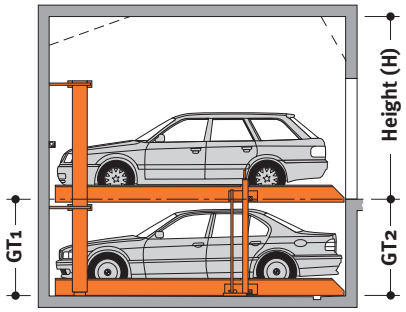
Page 4
Electrical installation
Technical data

Page 5
To be performed by the customer
Description

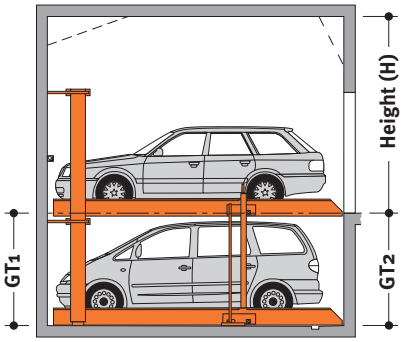
Standard Type 2062-185



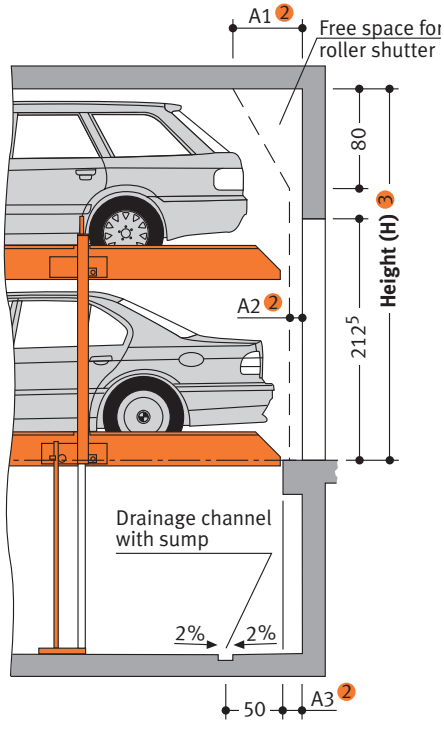
Compact Type 2062-170



Exklusive Type 2062-195/205/215



Garage with door in front of the car parking system



Notes

1. For dividing walls: cutting through 10 x 10 cm (for pipes).
2. Dimensions A1, A2 and A3 must be coordinated with the door supplier.
3. If the total height is greater, the max. vehicle height for the upper parking space increases accordingly.
4. Potential equalization from foundation grounding connection to system (provided by the customer).
5. In compliance with DIN EN 14 010, 10 cm wide yellow-black markings compliant to ISO 3864 must be applied by the customer to the edge of the pit in the entry area to mark the danger zone (see »load plan« page 3).
6. Load increase possible only for EB against surcharge.

Product Data
Stack Parker
2062

CE CONFORMITY

Dimensions:

All space requirements are minimum finished dimensions. Tolerances for space requirements $^{+3}_{0}$. Dimensions in cm.

EB (single platform) = 2 vehicles
DB (double platform) = 4 vehicles

Type	H	DH**	GT1	GT2
2062-170	325	156	170	175
2062-185*	340	171	185	190
2062-195	350	181	195	200
2062-205	360	191	205	210
2062-215	370	201	215	220

* = standard type ** = without car

Suitable for:

Standard passenger car and station wagon. Height and length according to contur.

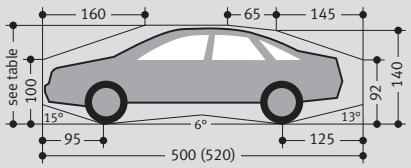
		car height	
Type	H	upper	lower
2062-170	325	150	150
2062-185*	340	150	165
2062-195	350	150	175
2062-205	360	150	185
2062-215	370	150	195

* = standard type

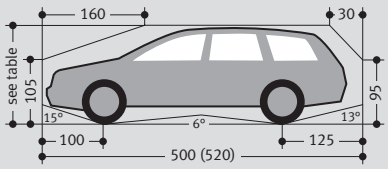
width	1,90 m
weight 6	max. 2000 kg ***
wheel load	max. 500 kg ***

*** = Special design: EB max. 2500 kg/wheel load max. 625 kg

Standard passenger car



Standard station wagon



Standard passenger cars are vehicles without any sports options such as spoilers, low-profile tyres etc.

KLAUS multiparking

Klaus Multiparking GmbH
Hermann-Krum-Straße 2
D-88319 Aitrach

Phone **+49-7565-508-0**
Fax **+49-7565-508-88**

E-Mail **info@multiparking.com**
Internet **www.multiparking.com**

Page 1
Section
Dimensions
Car data

Page 2
Width dimesions

Page 3
Approach
Load plan
Installation

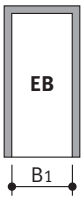
Page 4
Electrical installation
Technical data

Page 5
To be performed by the customer
Description

Width for basement garage

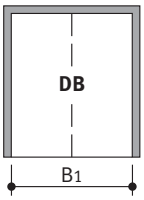
Dividing walls

Single Platform (EB)



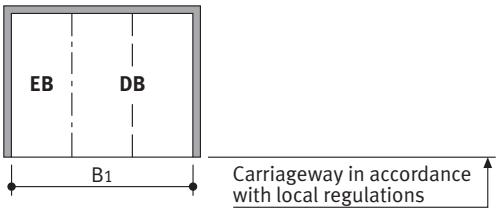
usable platform width	B1
230 *	**260**
240	270
250	280
260	290
270	300

Double Platform (DB)



usable platform width	B1
460 *	**490**
470	500
480	510
490	520
500	530

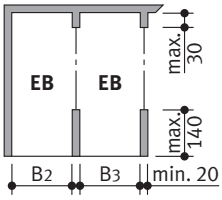
Single and Double Platform (EB + DB) – Example



usable platform width	B1
230 + 460*	**750**
240 + 470	770
250 + 480	790
250 + 500	810
270 + 500	830

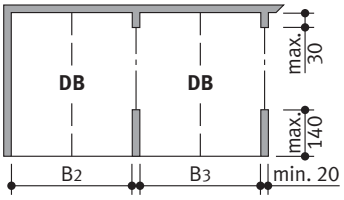
Columns in pit

Single Platform (EB)



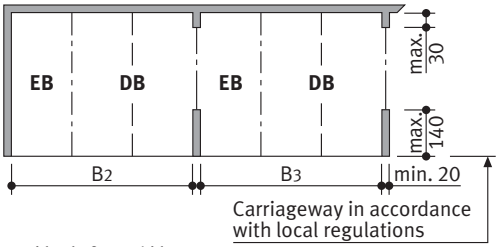
usable platform width	B2	B3
230 *	**255**	**250**
240	265	260
250	275	270
260	285	280
270	295	290

Double Platform (DB)



usable platform width	B2	B3
460 *	**485**	**475**
470	495	485
480	505	495
490	515	505
500	525	515

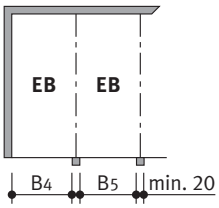
Single and Double Platform (EB + DB) – Example



usable platform width	B2	B3
230 + 460*	**745**	**735**
240 + 470	765	755
250 + 480	785	775
250 + 500	805	795
270 + 500	825	815

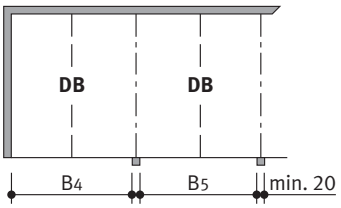
Columns outside pit

Single Platform (EB)



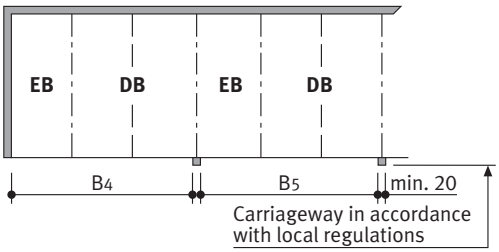
usable platform width	B4	B5
230 *	**250**	**240**
240	260	250
250	270	260
260	280	270
270	290	280

Double Platform (DB)



usable platform width	B4	B5
460 *	**480**	**470**
470	490	480
480	500	490
490	510	500
500	520	510

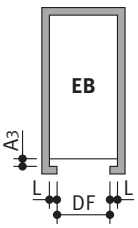
Single and Double Platform (EB + DB)

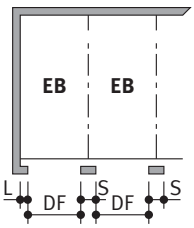


usable platform width	B4	B5
230 + 460*	**740**	**730**
240 + 470	760	750
250 + 480	780	770
250 + 500	800	790
270 + 500	820	810

Widths for garage with door in front of car parking system

Single platform (EB)





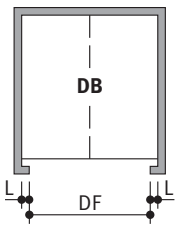
A3 = seat-engaging surface (dimensions require coordination with door supplier.)

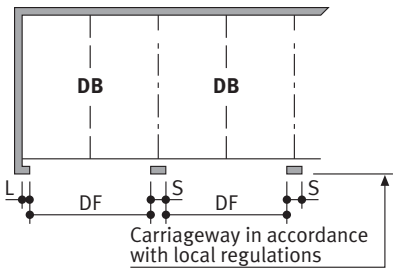
Allround door dimensions require coordination between door supplier and local agency of Klaus Multiparking.

usable platform width	door entrance width DF	L	S
230 *	**237[5]**	**12[5]**	**25**
240	250	12[5]	25
250	250	15	30
260	260	15	30
270	270	15	30

* = standard width (parking space width 2.30 m)

Double platform (DB)





usable platform width	door entrance width DF	L	S
460 *	**460 ❶**	**15**	**30**
470	475	12[5]	25
480	475	17[5]	35
490	500	12[5]	25
500	500	15	30

❶ = no standard width for doors!

Please note:

End parking spaces are generally more difficult to drive into. Therefore we recommended for end parking spaces our wider platforms.
For the greatest possible ease-of-use, we recommend platform widths of 250 to 270 (EB) or 500 (DB).
Parking on standard width platforms with larger vehicles may make getting into and out of the vehicle difficult. This depends on type of vehicle, approach and above all on the individual driver's skill.

Page 1
Section
Dimensions
Car data

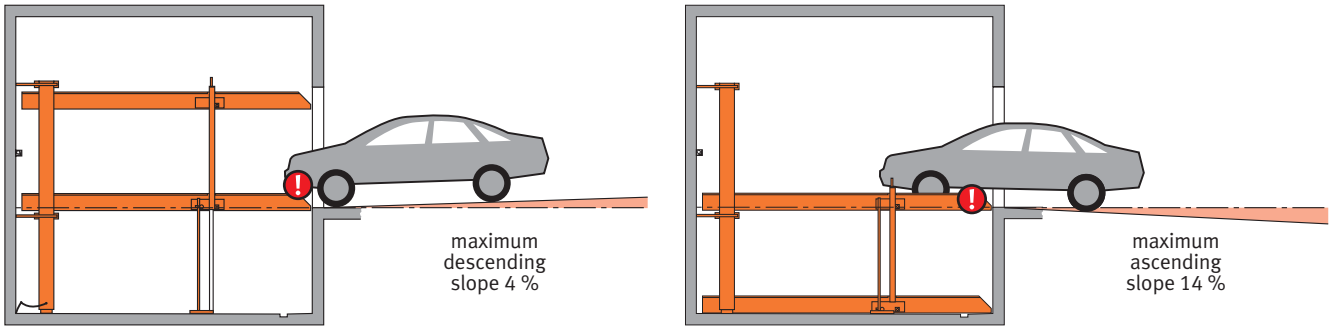
Page 2
Width dimesions

Page 3
Approach
Load plan
Installation

Page 4
Electrical installation
Technical data

Page 5
To be performed by the customer
Description

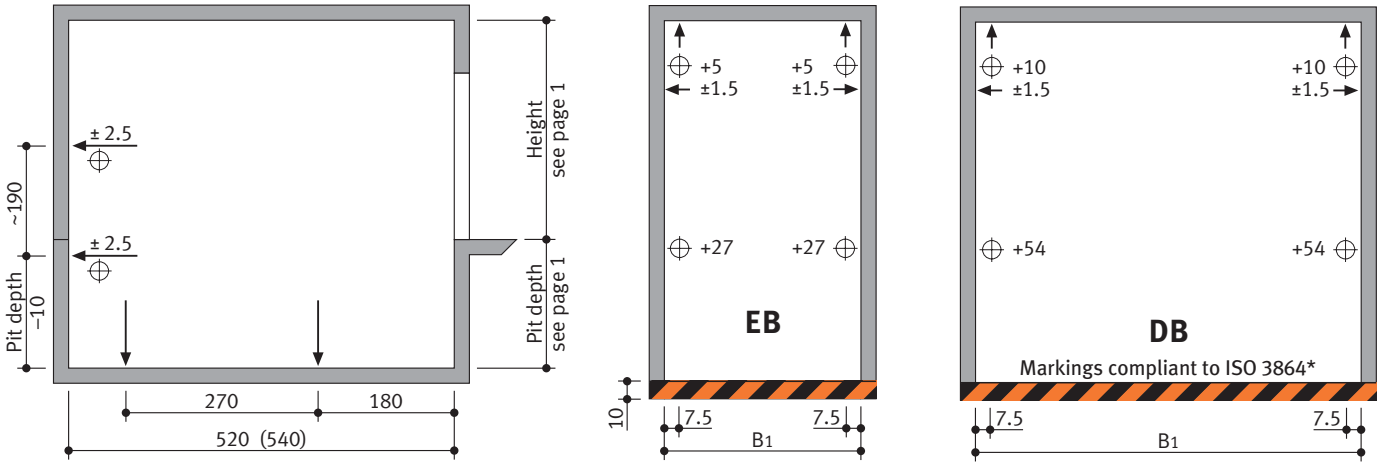
Approach



The illustrated maximum approach angles must not be exceeded. Incorrect approach angles will cause serious maneouvring & positioning problems on the parking system for which the local agency of Klaus accepts no responsibility.

Load plan

Forces in kN

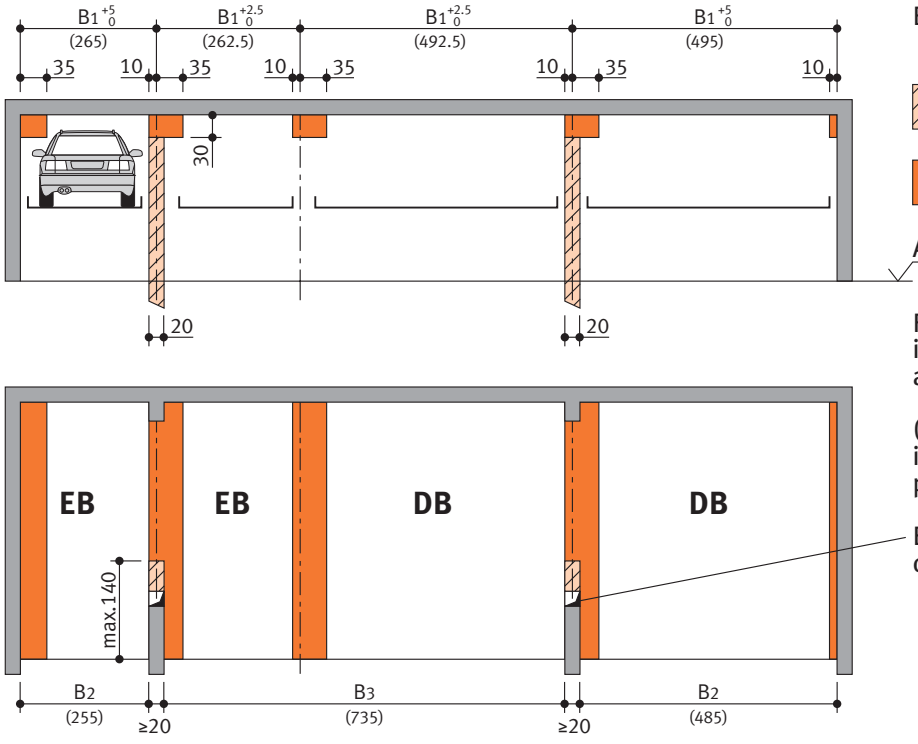


Units are dowelled to the floor. Drilling depth: approx. 15 cm.
Floor and walls below the drive-in level are to be made of concrete (quality minimum C20/25)!

* = Colors used in this illustration are not ISO 3864 compliant

Installation data

Free space for longitudinal and vertical ducts (e.g. ventilation)



B_1, B_2, B_3 = (see table on page 2)

Free space for vertical pipelines, ventilation branch canals

Free space for horizontal ducting

Approach level

Free space only applicable if vehicle is parked forwards = FRONT FIRST and driver's door on the left side.

( ) = Dimensions in brackets illustrate an example for usable platform width 230/460 cm.

Example for ventilation branch canal and/or vertical pipelines.

Page 1
Section
Dimensions
Car data

Page 2
Width
dimesions

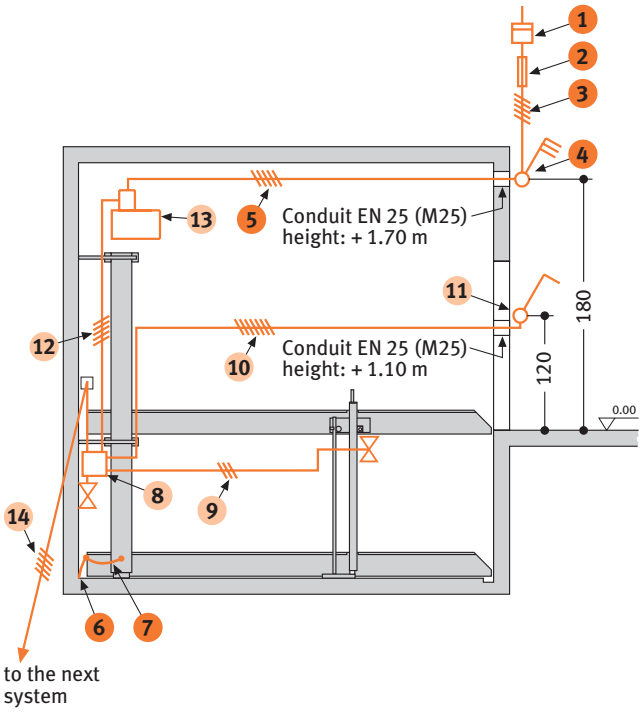
Page 3
Approach
Load plan
Installation

Page 4
Electrical installation
Technical data

Page 5
To be performed by the customer
Description

Electrical installation

Installation diagram



Electrical data (to be performed by the customer)

No.	Qunatity	Description	Position	Frequency
1	1	Electricity meter	in the supply line	
2	1	Main fuse: 3 x fuse 16 A (slow) or circuit breaker 3 x 16 A (trigger characteristic K or C)	in the supply line	1 per unit
3	1	Supply line 5 x 2.5 mm² (3 PH + N + PE) with marked wire and protective conductor	to main switch	1 per unit
4	1	Lockable main switch	defined at the plan evaluation	1 per unit
5	1	Supply line 5 x 2.5 mm² (3 PH + N + PE) with marked wire and protective conductor	from main switch to unit	1 per unit
6	every 10 m	Foundation earth connector	corner pit floor	
7	1	Equipotential bonding in accordance with DIN EN 60204 from foundation earth connector to the system		1 per system

Electrical data (included in delivery of Klaus Multiparking)

No.	Description
8	Terminal box
9	Control line 3 x 0.75 mm² (PH + N + PE)
10	Control line 7 x 1.5 mm² with marked wire and protective conductor
11	Operating device
12	Control line 5 x 1.5 mm² with marked wire and protective conductor
13	Hydraulic unit 3.0 kW, three-phase current, 400 V / 50 Hz
14	Control line 5 x 1.5 mm² with marked wire and protective conductor

Technical data

Range of application

Generally, this parking system is not suited for short-time parkers (temporary parkers). Please do not hesitate to contact your local KLAUS agency for further assistance.

Units

Low-noise power units mounted to rubber-bonded-to metal mountings are installed. Nevertheless we recommend that parking system's garage be built separately from the dwelling.

Available documents

– wall recess plans
– maintenance offer/contract
– declaration of conformity
– test sheet on airborne and slid-borne sound

Corrosion protection

See separate sheet regarding corrosion protection.

Railings

If the permissible drop opening is exceeded, railings are to be mounted on the systems. If there are traffic routes next to or behind the installations, railings compliant to DIN EN ISO 13857 must be installed by the customer. Railings must also be in place during construction.

Environmental conditions

Environmental conditions for the area of multiparking systems: Temperature range –10 to +40° C. Relative humidity 50 % at a maximum outside temperature of +40° C.
If lifting or lowering times are specified, they refer to an environmental temperature of +10° C and with the system set up directly next to the hydraulic unit. At lower temperatures or with longer hydraulic lines, these times increase.

Sound insulation

According to DIN 4109 (Sound insulation in buildings), para. 4, annotation 4, Klaus Multiparkers are part of the building services (garage systems).

Normal sound insulation:

DIN 4109, para. 4, Sound insulation against noises from building services.

Table 4 in para. 4.1 contains the permissible sound level values emitted from building services for personal living and working areas. According to line 2 the maximum sound level in personal living and working areas must not exceed 30 dB (A).
Noises created by users are not subject to the requirements (see table 4 , DIN 4109).

The following measures are to be taken to comply with this value:
– Sound protection package according to offer/order (Klaus Multiparking GmbH)
– Minimum sound insulation of building R'_w = 57 dB (to be provided by customer)

Increased sound insulation (special agreement):

DIN 4109, Amendment 2, Information on planning and execution, proposals for increased sound insulation.

Agreement: Maximum sound level in personal living and working areas 25 dB (A). *Noises created by users are not subject to the requirements (see table 4 , DIN 4109).*

The following measures are to be taken to comply with this value:
– Sound protection package according to offer/order (Klaus Multiparking GmbH)
– Minimum sound insulation of building R'_w = 62 dB (to be provided by customer)

Note: User noises are noises created by individual users in our Multiparking systems. These can be noises from accessing the platforms, slamming of vehicle doors, motor and brake noises.

Page 1
Section
Dimensions
Car data

Page 2
Width dimesions

Page 3
Approach
Load plan
Installation

Page 4
Electrical installation
Technical data

Page 5
To be performed by the customer
Description

To be performed by the customer

Safety fences

Any constraints that may be necessary according to DIN EN ISO 13857 in order to provide protection for the park pits for pathways directly in front, next to or behind the unit. This is also valid during construction. Railings for the system are included in the series delivery when necessary.

Numbering of parking spaces

Consecutive numbering of parking spaces.

Building services

Lighting, ventilation, fire extinguishing and fire alarm systems.

Drainage

For the front area of the pit we recommend a drainage channel, which you connect to a floor drain system or sump (50 x 50 x 20 cm). The drainage channel may be inclined to the side, however not the pit floor itself (longitudinal incline is available). For reasons of environmental protection we recommend to paint the pit floor, and to provide oil and petrol separators in the connections to the public sewage network.

Strip footings

If due to structural conditions strip footings must be effected, the customer shall provide an accessible platform reaching to the top of the said strip footings to enable and facilitate themounting work.

Marking

According to DIN EN 14 010, a warning that identifies this danger area must be placed in the entrance area that conforms to ISO 3864. This must be done according to EN 92/58/EWG for systems with a pit (platforms within the pit) 10 cm from the edge of the pit.

Wall cuttings

Any necessary wall cuttings according to page 1.

Electrical supply to the main switch / Foundation earth connector

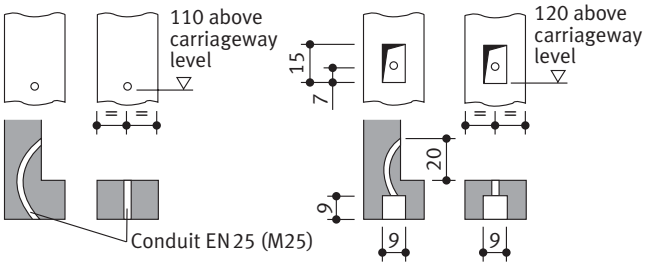
Suitable electrical supply to the main switch and the control wire line must be provided by the customer during installation. The functionality can be monitored on site by our fitters together with the electrician. If this cannot be done during installation for some reason for which the customer is responsible, the customer must commission an electrician at their own expense and risk.

In accordance with DIN EN 60204 (Safety of Machinery. Electrical Equipment), grounding of the steel structure is necessary, provided by the customer (distance between grounding max. 10 m).

Operating device

Cable conduits and recesses for operating device (for double wing doors: please contact the local agency of Klaus Multiparking).

Operating device exposed **Operating device concealed**



If the following are not included in the quotation, they will also have to be provided / paid for by the customer:

- Mounting of contactor and terminal box to the wall valve, complete wiring of all elements in accordance with the circuit diagram
- Costs for final technical approval by an authorized body
- Main switch
- Control line from main switch to hydraulic unit

Description Single platform (EB) and Double platform (DB)

General description

Multiparking system providing independent parking spaces for 2 cars (EB), 2 x 2 cars (DB), one on top of the other each.

Dimensions are in accordance with the underlying dimensions of parking pit, height and width

The parking bays are accessed horinzotally (installation deviation ± 1 %).

Due to the special lifting and bearing construction lifting of the doors is not restricted.

Vehicles are positioned on each parking space using wheel stops on the right side (adjust according to operating instructions).

Operation via operating device with hold-to-run-device using master keys.

The operating elements are usually mounted either in front of the column or on the outside of the door frame

Operating instructions are attached to each operator's stand.

For garages with doors at the front of the parking system the special dimensional requirements have to be taken into account.

Multiparking system consisting of:

- 2 steel pillars (mounted on the floor)
- 2 sliding platforms (mounted to the steel pillars with sliding bearings)
- 2 platforms
- 1 mechanic synchronization control system (to ensure synchronous operation of the hydraulic cylinders while lowering and lifting the platform)
- 2 hydraulic cylinders
- 2 rigid supports (connect the platforms)
- 2 chains and pocket wheels
- 1 automatic hydraulic safety valve (prevents accidental lowering of the platform while accessing the platform)
- Dowels, screws, connecting elements, bolts, etc.
- The platforms and parking spaces are end-to-end accessible for parking!

Platforms consisting of:

- Platform base sections
- Adjustable wheel stops
- Canted access plates
- Side members
- Central side member [only DB]
- Cross members [DB long and short cross members]
- Safety railings – along the upper and lower platform (if required)
- Screws, nuts, washers, distance tubes, etc.

Hydraulic system consisting of:

- Hydraulic cylinder
- Solenoid valve
- Safety valve
- Hydraulic conduits
- Screwed joints
- High-pressure hoses
- Installation material

Electric system consisting of:

- Operating device (Emergency Stop, lock, 1 master key per parking space)
- Terminal box at wall valve

Hydraulic unit consisting of:

- Hydraulic power unit (low-noise, installed onto a console with a rubber-bonded-to-metal mounting)
- Hydraulic oil reservoir
- Oil filling
- Internal geared wheel pump
- Pump holder
- Clutch
- 3-phase-AC-motor (3.0 kW, 230/400 V, 50 Hz)
- Contactor (with thermal overcurrent relay and control fuse)
- Test manometer
- Pressure relief valve
- Hydraulic hoses (which reduce noise transmission onto the hydraulic pipe

We reserve the right to change this specification without further notice

The Klaus company reserves the right in the course of technical progress to use newer or other technologies, systems, processes, procedures or standards in the fulfillment of their obligations other than those originally offered provided the customer derives no disadvantage from their so doing.