Report Prepared for
Pace Development Group

ratio:

22 October 2021

traffic:impact

Proposed Retirement Village Development

554-558 High Street Road, Mount Waverley

r:

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Prepared for:

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Our reference 17545T-REP02-F01

Version	Date	Reason for Issue	Prepared By	Checked By
REP02-D01	22/10/21	DRAFT	J McKENZIE	R FAIRLIE
REP02-F01	22/10/21	FINAL	J McKENZIE	R FAIRLIE

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1 Introduction:

Ratio Consultants was commissioned by Pace Development Group Pty Ltd to assess the traffic and parking implications of the proposed retirement village development at 554-558 High Street Road, Mount Waverley. It is understood that the development will be run by an affordable housing provider (National Affordable Housing Consortium) and will provide accommodation for retirement living (over 55 year olds).

The proposed development involves the construction of a five-storey building, and incorporates the following land uses:

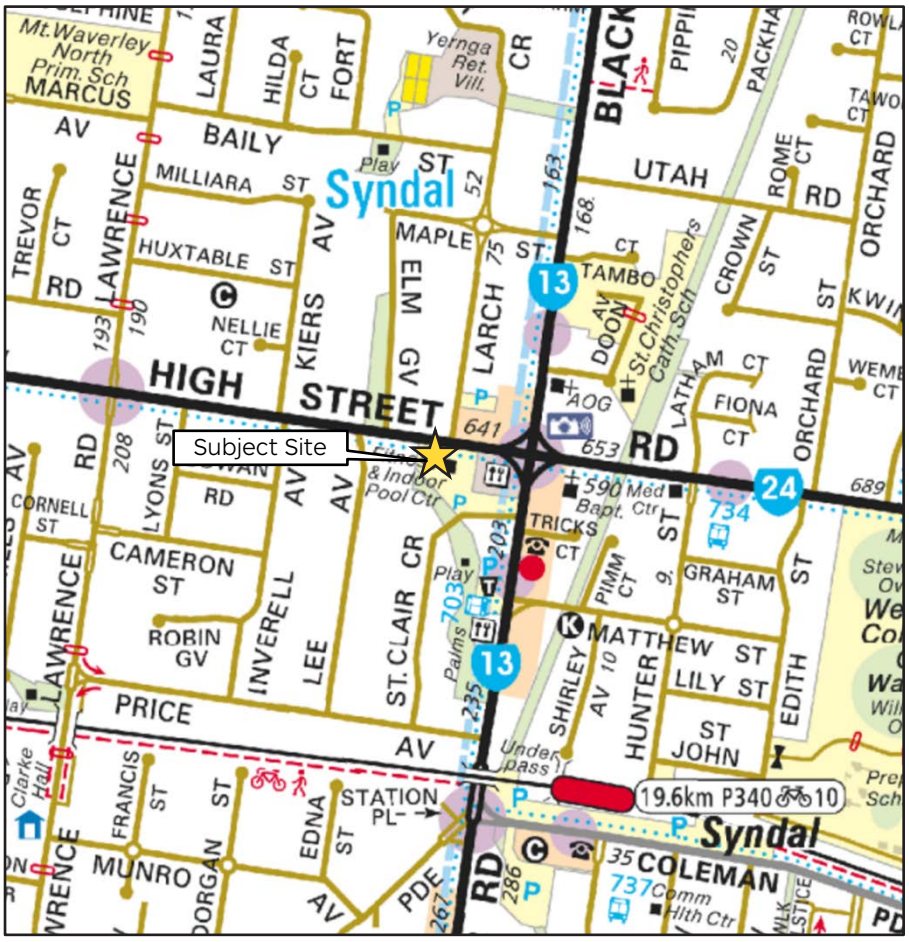
— 97 retirement village units and communal amenities;
— 75 parking spaces within a two-level basement car park, accessed via High Street Road; and
— A total of 46 bicycle parking spaces within a secure bicycle parking room on ground floor.

This report has been prepared to address the traffic and parking needs of the proposed development and is based on surveys and observations in the vicinity of the site and on previous studies of similar developments elsewhere in Melbourne.

2.1 Location and Environment

The site of the proposed development is located on the southern side of High Street Road, approximately 70 metres west of Blackburn Road, in Mount Waverley. The site's location relative to the surrounding road network is shown in Figure 2.1 below.

Figure 2.1: Site Location



Source: Melways Edition 39

The subject site is irregular in shape with a frontage to High Street Road of 61.55 metres, a maximum depth of 52.23 metres, and an overall site area of approximately 2,620 square metres.

The site is currently vacant, however was previously occupied by a number of different uses, including: a yoga studio, swimming school, car sales yard, and a fitness centre. Vehicular access to/from the site is currently provided via four single-width crossovers to/from High Street Road. Additional access is also provided via the Council public car park, which borders the eastern and southern boundaries of the site. The Council car park gains access to the road network via High Street Road to the north and St Clair Crescent to the east.

The site is located within a General Residential Zone – Schedule 2 (GRZ2). The surrounding land uses are predominantly residential in nature, with the Syndal Neighbourhood Activity Centre located along Blackburn Road east of the site.

Figure 2.2 below shows an aerial view of the site and its surrounds.

Figure 2.2: Aerial View of the Site and Surrounds

Source: www.nearmap.com

2.2 Road Network

High Street Road is a Department of Transport (DoT) managed road, and functions as an undivided Primary State Arterial Road. It runs in an east-west direction between Warrigal Road and Burwood Highway. In the vicinity of the subject site, High Street Road has an approximate carriageway width of 13.0 metres, accommodating two traffic lanes in each direction. Kerbside parallel parking is permitted on both sides of the road, outside of Clearway (directional) peak times. It has a posted speed limit of 60km/hr.

St Clair Crescent is classified as a municipal Local Road. It extends west from Blackburn Road and south to Prince Avenue. It has an approximate carriageway width of 7.2 metres, accommodating two-way vehicle movements. Kerbside parallel parking is provided on both sides of the road.

The High Street Road / Blackburn Road intersection is signal controlled, with pedestrian crossing facilities provided on all legs of the intersection.

The St Clair Crescent / Blackburn Road intersection is priority controlled, with 'Give Way' signage and line marking provided for vehicles exiting St Clair Crescent.

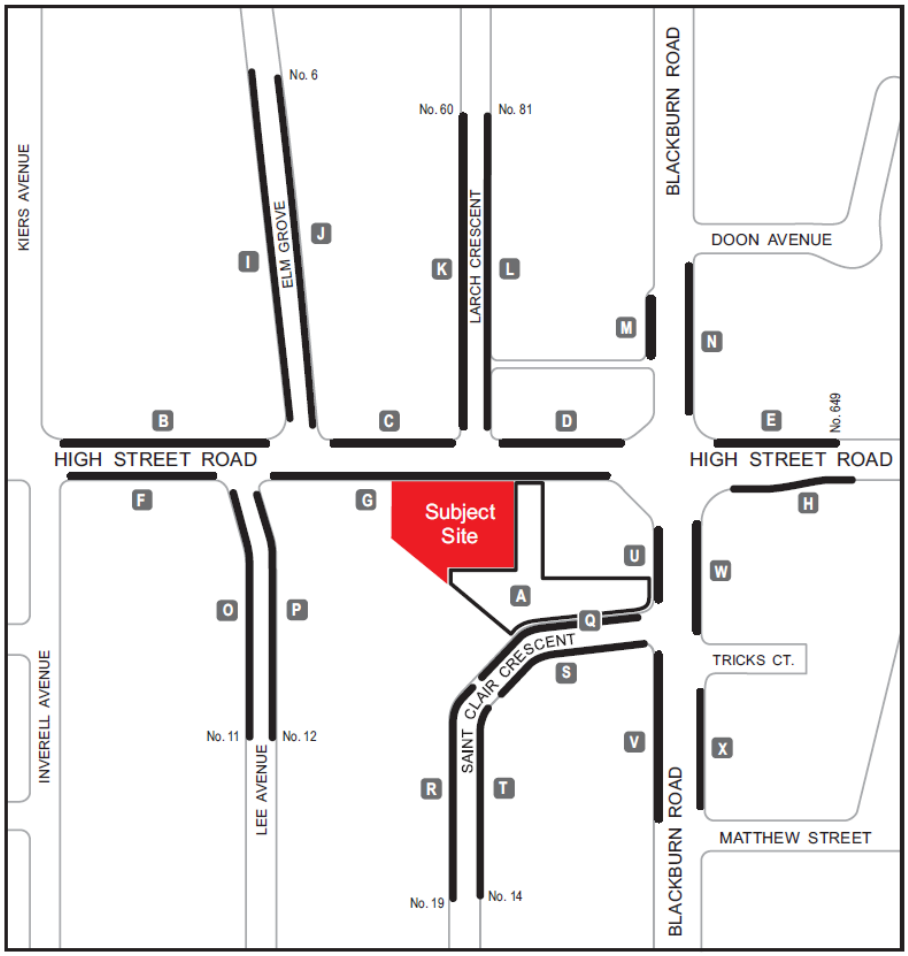
Footpaths are provided on both sides of all roads in the vicinity of the site.

2.3 Parking Conditions

Parking occupancy surveys were not able to be commissioned as part of the planning application due to the ongoing restrictions in response to the Covid-19 pandemic. Conducting surveys at this time would not be reflective of the 'typical' parking demand.

Notwithstanding, Ratio Consultants previously commissioned surveys of parking supply and demand on Friday 7 October 2016 between 11:00am to 8:00pm and on Saturday 8 October 2016 between 11:00am and 4:00pm. The extent of the survey area is presented in Figure 2.3 and detailed survey results are presented in Appendix A.

Figure 2.3: Parking Survey Area



The parking inventory reveals the supply of parking in the precinct is a mixture of restricted and unrestricted parking. Clearway parking restrictions apply along High Street Road, and 'No Stopping' restrictions apply on some local roads during business hours. The Council public car park located adjacent to the site accommodates 88 unrestricted parking spaces.

In summary, the survey results showed:

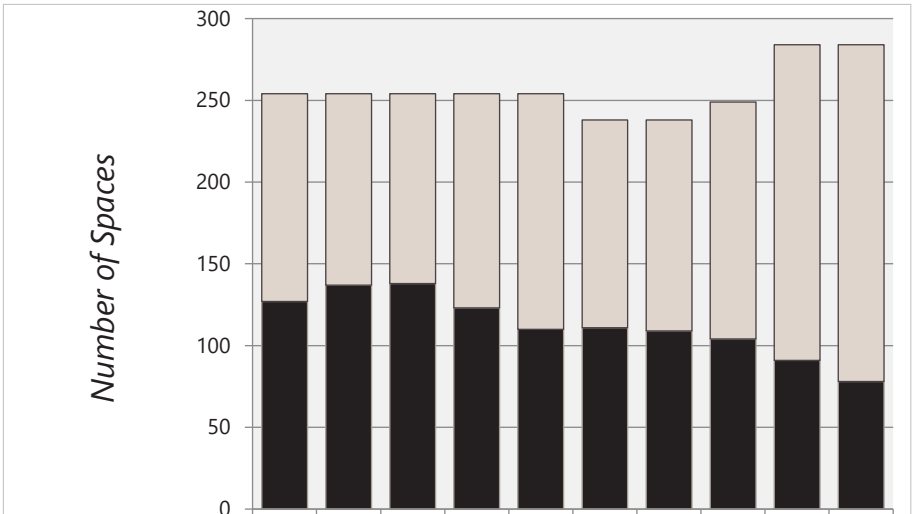
Friday 7 October 2016

— There was observed to be a minimum of 238 and a maximum of 284 parking spaces within the survey area (depending on the time of day). This includes 88 parking spaces associated with the Council car park, and between 150 and 196 on-street parking spaces.
— The demand for on-street parking was low to moderate during the survey period, with parking occupancies ranging between 24% and 40%.

— The on-street parking peak hour occurred at 12:00noon, when a total of 67 publicly available car parking spaces were recorded occupied out of an available supply of 166 spaces, representing a parking occupancy of 40%. There was a minimum of 99 on-street available spaces at this time.
— The Council car park experienced a moderate to high parking demand. The peak hour occurred at 1:00pm, when a total of 74 parking spaces were recorded occupied, representing a parking occupancy of 84%. There were a minimum of 14 parking spaces available within the Council car park during the survey period.

Graph 2.1 provides a graphical representation of the Friday parking demands.

Graph 2.1: Parking demand survey results – Friday 7 October 2016



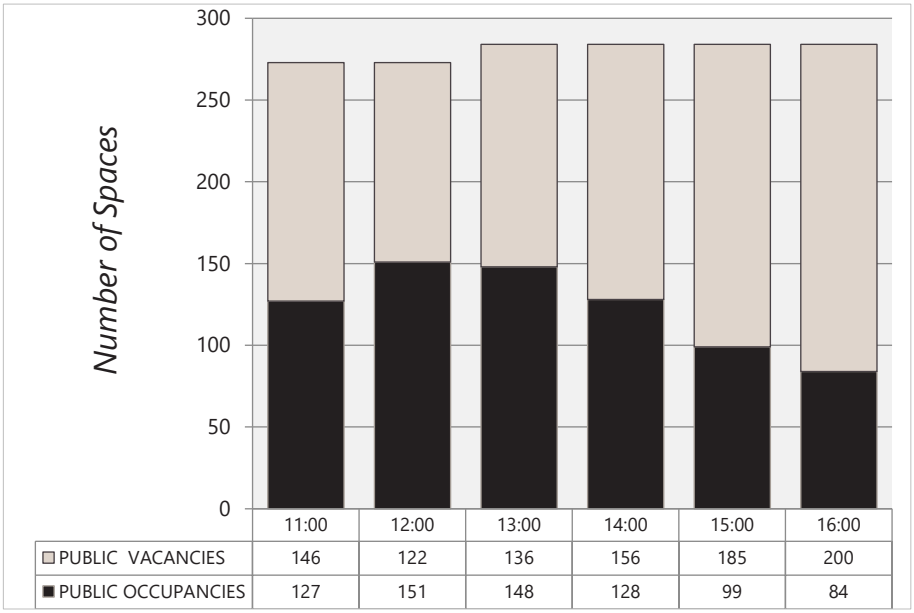
	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
PUBLIC VACANCIES	127	117	116	131	144	127	129	145	193	206
PUBLIC OCCUPANCIES	127	137	138	123	110	111	109	104	91	78

Saturday 4 June 2016

— There was observed to be a minimum of 273 and a maximum of 284 parking spaces within the survey area (depending on the time of day). This includes 88 parking spaces associated with the Council car park, and between 185 and 196 on-street parking spaces.
— The demand for on-street parking was low to moderate during the survey period, with parking occupancies ranging between 23% and 39%.
— The on-street parking peak hour occurred at 12:00noon, when a total of 73 publicly available car parking spaces were recorded occupied out of an available supply of 175 spaces, representing a parking occupancy of 39%. There was a minimum of 112 on-street available spaces at this time.
— The Council car park experienced a moderate to high parking demand. The peak hour occurred at 12:00noon, when a total of 78 parking spaces were recorded occupied, representing a parking occupancy of 89%. There were a minimum of 10 parking spaces available within the Council car park during the survey period.

Graph 2.2 provides a graphical representation of the Saturday parking demands.

Graph 2.2: Parking demand survey results - Saturday 8 October 2016



The survey results indicated that the overall parking demand is moderate throughout the survey period. The Council car park often experienced a high parking demand during business hours, which is not surprising given the parking is unrestricted. The on-street parking recorded a low to moderate parking demand during the weekday and weekend surveys. Overall, it is considered that there is spare parking capacity within the vicinity of the site to accommodate an increase in car parking.

Recent observations and a review of aerial photographs indicate that similar parking conditions still generally apply.

2.4 Sustainable Transport

Public Transport

The site has very good access to the public transport network, principally via Syndal Railway Station. The following public transport services are provided within close proximity to the site:

Table 2.1: Public Transport Services - Train

Nearest Station	Railway Lines	Walking Distance
Syndal Railway Station	Glen Waverley	600 metres

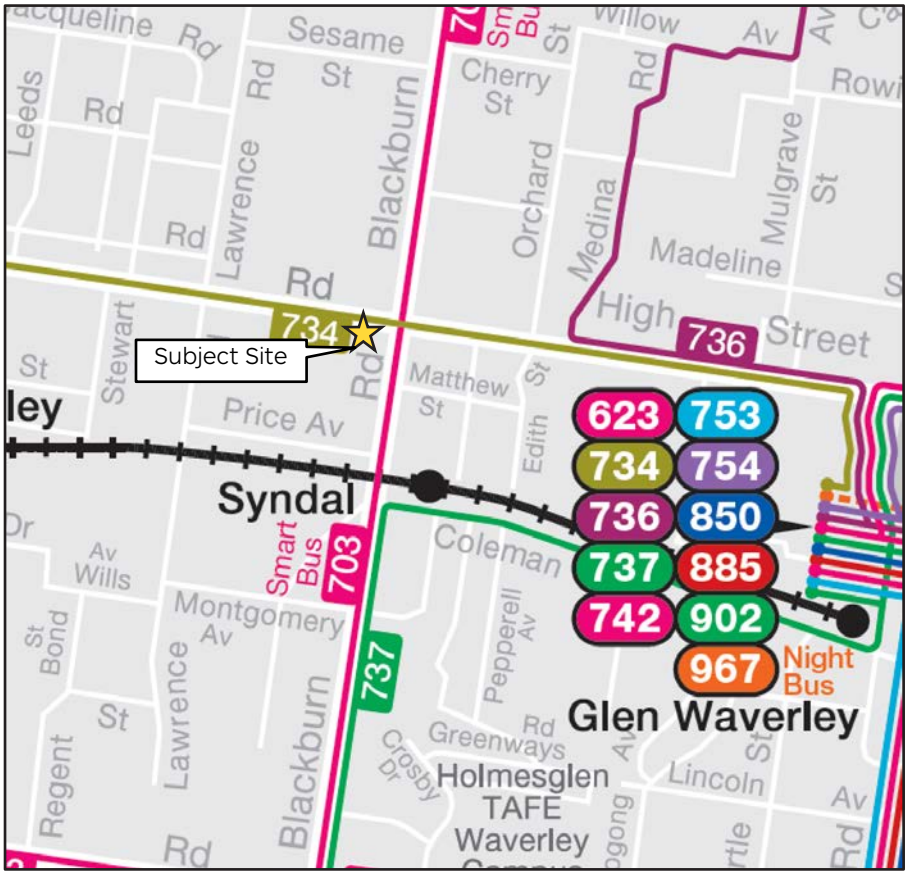
Source: ptv.vic.gov.au

Table 2.2: Public Transport Services - Bus

Route Number	Route Description	Nearest Stop	Walking Distance
734	Glen Iris to Mount Waverley	High Street Road / Blackburn Road	70 metres
703	Middle Brighton to Blackburn via Bentleigh, Clayton, Monash University (SMARTBUS Service)	High Street Road / Blackburn Road	70 metres

Figure 2.4 presents the public transport services operating within convenient proximity of the site:

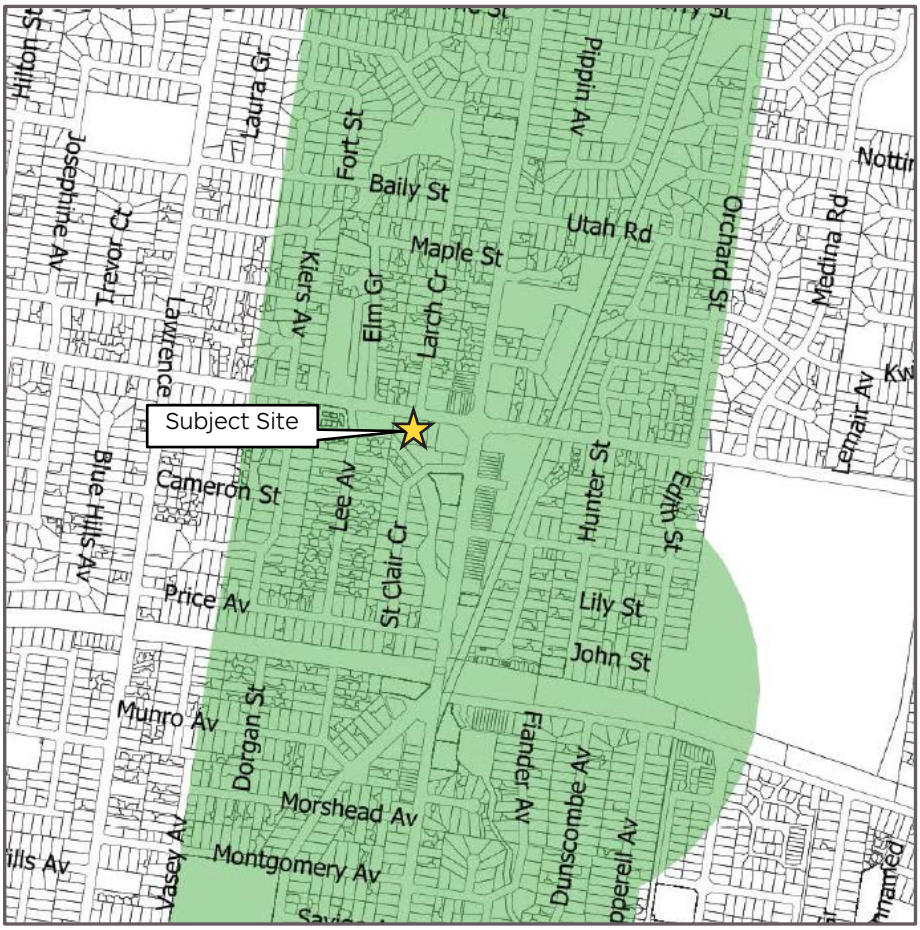
Figure 2.4: Monash Public Transport Map



Source: Public Transport Victoria

The subject site is also a part of the land identified as being within the Principal Public Transport Network Area (State Government of Victoria, 2018) as shown graphically in Figure 2.5. This is reflective of the site's good access to public transport services.

Figure 2.5: Monash Principal Public Transport Area



Source: https://transport.vic.gov.au/about/planning/principal-public-transport-network

Pedestrian Connectivity

Pedestrian movements are also well facilitated with footpaths provided on both sides of High Street Road and the majority of the roads within the vicinity of the site. These pedestrian facilities provide access between the subject site, nearby public transport services and local shops and services.

The site achieves a 'Walk Score' of 79 points (out of a possible 100) and is described as a 'Very Walkable' on Walkscore.com, indicating that most errands can be accomplished on foot. A site's walk score is calculated based on the walking distance to local amenities, such as supermarkets, schools, parks, public transport, etc. Walkscore.com utilises data sources such as Google and road network data to calculate a 'Walk Score'.

Car Share

Car share offers a viable mode of travel for those that require the use of a private motor vehicle from time to time.

Of particular relevance to the subject site, 'CarNextDoor' is a private car sharing service where individuals can make their private car available for hire. A review of the CarNextDoor website indicates that there are several of these vehicles within close proximity of the subject site.

Bicycle Network

The subject site has access to Melbourne's bicycle network, with on and off-road paths located in proximity of the site, including:

— An off-road shared path along the railway line to the south of the site (Waverley Rail Trail);
— On-street bicycle lanes along Lawrence Road; and
— Informal bike routes along local roads throughout the surrounding residential areas.

Taxi and Uber

Taxis and Uber both provide another alternative to the private vehicle.

Taxis can be booked online or by phone. Ubers can be booked through the Uber app. Short term parking is available in proximity of the site to cater for pick up and drop off.

2.5 Relevant Planning Policies and Strategies

There is support within the Monash Planning Scheme and various Council strategies for new developments which encourage the use of sustainable transport alternatives from the private motor vehicle, including those listed and discussed below.

Clause 15.02-1S – Energy and Resource Efficiency

Clause 15 of the Monash Planning Scheme is the State Planning Policy on Built Environment and Heritage. Clause 15.02 is in relation to sustainable development, with Clause 15.02-1 in relation to Energy and resource efficiency.

Of particular relevance to this report, Clause 15.02-1 states the following strategy:

"Support low energy forms of transport such as walking and cycling."

Clause 18.02-1 – Sustainable Personal Transport

Clause 18 of the Monash Planning Scheme is the State Planning Policy on Transport. Clause 18.02 is in relation to movement networks, with Clause 18.02-1 in relation to Sustainable personal transport.

Of particular relevance to this report, Clause 18.02-1 states the following strategy:

"Ensure development…. provides opportunities to promote walking and cycling."

Clause 18.02-4S – Car Parking

Clause 18.02-4S is in relation to car parking.

Of particular relevance to this report, Clause 18.02-4-2 states the following strategy:

"Allocate or require land to be set aside for car parking subject to the existing and potential modes of access including public transport, the demand for off-street car parking, road capacity and the potential for demand management of car parking."

Clause 21.08 – Transport and Traffic

Clause 21.08: Transport and Traffic of the Monash Planning Scheme outlines the relevant Local Planning Policies that relate to transport and traffic.

Clause 21.08 lists a series of objectives and strategies, with the following most relevant to this proposal:

— *To provide a more environmentally responsible transport system.*
— *To promote and facilitate an efficient public transport system that is accessible to the majority of the population.*
— *To improve local area traffic management, safety and amenity and promote appropriate traffic speeds in local residential areas.*
— *Encourage bicycle parking facilities adjacent to change and shower facilities on new developments near bicycle paths.*

3 The Proposal:

3.1 Development Overview

It is proposed to construct a five-storey retirement village development on the site located at 554-558 High Street Road, Mount Waverley. It is understood that the development will be run by an affordable housing provider (National Affordable Housing Consortium) and will provide accommodation for retirement living (over 55 year olds). More specifically, the development comprises the following:

— 97 retirement village units, comprising:
  - 56 x one-bedroom units;
  - 40 x two-bedroom units;
  - 1 x three-bedroom units; and
  - Associated communal amenities (communal lounge, activity rooms, meeting rooms, rooftop communal area).

— 75 car parking spaces within a two-level basement car park, accessed via High Street Road.
— A total of 46 bicycle parking spaces within a secure bicycle parking room on ground floor.
— Vehicular access to the site will be provided via a new double-width crossover connecting to/from High Street Road, located centrally along the site frontage. All other existing crossovers to High Street Road will be reinstated with kerb, channel and nature strip to the satisfaction of the Responsible Authority.
— Primary pedestrian access to the proposed units will be via an entrance located on the ground floor connecting to/from High Street Road.
— Refuse storage areas are provided within the basement car park.

4.1 Clause 52.06 – Parking Assessment

Car parking requirements for new developments are set out under in Clause 52.06 of the Monash Planning Scheme. The purpose of Clause 52.06 is defined in the Scheme as follows:

- To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local 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 per Amendment VC148, Column B rates of Table 1 from Clause 52.06 of the Monash Planning Scheme apply if:

- Any part of the land is identified as being within the Principal Public Transport Network Area as shown in the Principal Public Transport Network Area Maps (State Government of Victoria, 2018); or
- A Schedule to the Parking Overlay or another provision of the planning scheme specifies that Column B applies.

As the subject site falls within the Principle Public Transport Network Area (as discussed in Section 2.4), Column B rates of Table 1 in Clause 52.06 are applicable for the number of car spaces to be provided.

The development is best defined as 'retirement village' land use as defined by the Monash Planning Scheme and listed under Table 1 to clause 52.06 of the Monash Planning Scheme. Application of these rates is shown in Table 4.1.

Table 4.1: Statutory Car Parking Requirement

Use	Number / Size	Column B Rates	Requirement
Retirement Village	56 x one-bedroom units	1 space per unit	56 spaces
	40 x two-bedroom units		40 spaces
	1 x three-bedroom units	2 spaces per unit	2 spaces
Retirement Village Visitors	88 units	No Requirement	0 spaces
Total Statutory Car Parking Requirement			**98 spaces**

Accordingly, the proposed development has a statutory car parking requirement of 98 car parking spaces. It is proposed to provide 75 on-site spaces and allocate car parking as shown in Table 4.2.

Table 4.2: Statutory Car Parking Requirement & Provision

Use	Size	Parking Requirement	Parking Supply	Statutory Reduction
One-bedroom units	56 units	56 spaces	33 spaces	23 spaces
Two-bedroom units	40 units	40 spaces	40 spaces	0 spaces
Three-bedroom units	1 unit	2 spaces	2 spaces	0 spaces
Total		**98 spaces**	**75 spaces**	**23 spaces**

On the basis of the above, the proposal seeks a 23 space reduction against the statutory requirements of Clause 52.06 of the Monash Planning Scheme (associated with the one-bedroom units).

An application to reduce the number of car parking spaces required under Clause 52.06-5 must be accompanied by a Car Parking Demand Assessment. A Car Parking Demand Assessment and the appropriateness of allowing a reduction of on-site parking for the proposed development are discussed below:

4.2 Car Parking Demand Assessment

Clause 52.06-6 sets out the factors to be considered when preparing a Car Parking Demand Assessment. These factors are listed below:

— The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.

— The variation of car parking demand likely to be generated by the proposed use.

— The short-stay and long-stay car parking demand likely to be generated by the proposed use over time.

— The availability of public transport in the locality of the land.

— The convenience of pedestrian and cyclist access to the land.

— An empirical assessment or case study.

Those factors relevant to this assessment are discussed in more detail below:

The Likelihood of Multi-Purpose Trips Within the Locality

It is expected that the car parking demand generated by residents will be a primary demand, in which case each trip to the development will be unique.

Variation in Car Parking Demand Over Time

Residential parking demand is anticipated to peak during weekday evenings and on weekends. During weekday business hours and on weekends, resident vehicles are anticipated to more frequently be off-site at places of employment or recreation.

Short Stay & Long Stay Parking Demand

The resident car parking demand will primarily be long stay parking.

Access to Provision of Alternative Transport Modes

The site has very good access to public transport services, principally via the Syndal Railway Station. In addition, a number of bus services are provided within close proximity to the site. These facilities are detailed within Section 2.4.

Given the very good access to sustainable transport options, users of the site are able to travel to and from the site without relying on the use of a private motor vehicle.

Convenience of Pedestrian and Cyclist Access

As discussed in Section 2.4, the site also has good access to nearby pedestrian and bicycle facilities. As a result, this will encourage active modes of transport to and from the site and reduce the demand for car parking.

Car Share Facilities

As discussed in 2.4, there are several privately operated 'CarNextDoor' car share pods. Car share can be used by residents of the one-bedroom apartments not allocated an on-site car parking space, who may require the use of a private motor vehicle from time to time.

Proximity to Local Services

Apart from travelling to and from work, shopping for goods and services is a key purpose for travel. As discussed in Section 2.1, the site is located in close proximity to the Syndal Neighbourhood Activity Centre located along Blackburn Road east of the site (within approximately 200 metres).

Residents will be able to walk to the activity centre for their daily trip needs without relying on the use of a private motor vehicle.

Residential Car Parking Demand

To inform the existing level of non-car ownership in the area and therefore a sense of the ability to live in this area without a car, reference is made to the 2016 Census undertaken by the Australian Bureau of Statistics (ABS).

The following table sets out a summary of existing car ownership levels of one-bedroom apartments for the municipality of Monash. The area surveyed is shown in Figure 4.1, with results shown in Table 4.3.

Figure 4.1: City of Monash Boundary and Mount Waverley Suburban Boundary

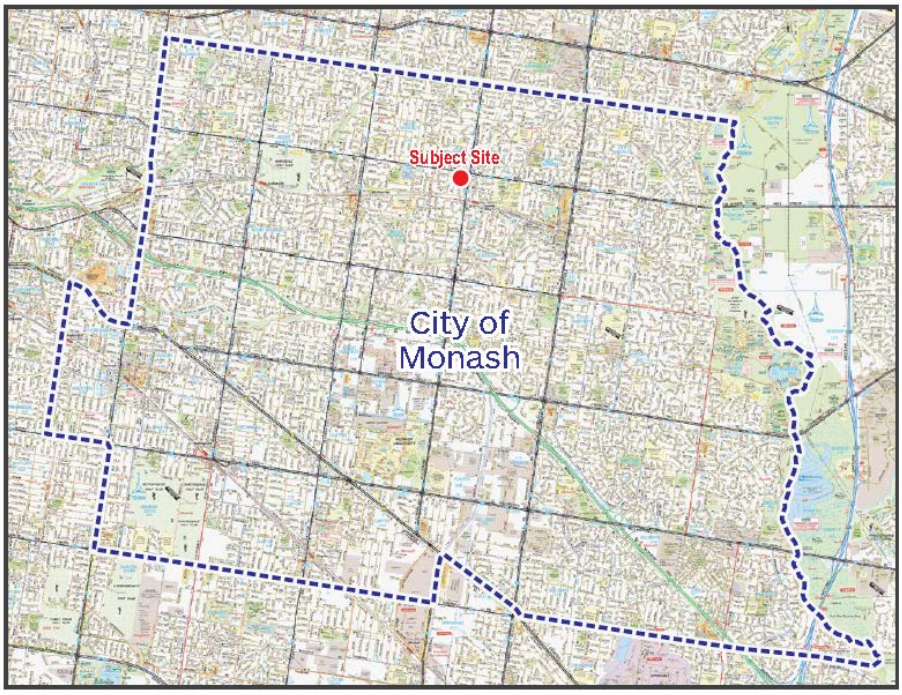


Table 4.3: Mount Waverley Suburb and Boroondara LGA ABS data

Geographic Area	Average Car Ownership	Percentage of Households with Zero Cars
	One Bedroom	One Bedroom
Monash LGA	0.736	38%

The above results indicate that one-bedroom dwellings in the municipality of Monash have lower than average car ownership rates and are comfortably below the statutory car parking rates set out under Table 1 of Clause 52.06 of the Monash Planning Scheme. Amongst other factors, this is indicative of the municipalities good access to alternative modes of transport.

Furthermore, the results indicate that there is a significant demand for residents of one-bedroom apartments with zero car ownership, demonstrating that residents living in these areas are currently able to do so without relying on the use of a private motor vehicle.

The ABS data indicated that 38% of residents of one-bedroom apartments did not own a private vehicle. This car ownership level generally aligns with the provision of car parking for the proposed one-bedroom apartments (33 spaces for 56 units, equating to 41% of residents of the one-bedroom apartments without a car).

On the basis of the above, it is estimated that sufficient car parking is provided to accommodate the vast majority of residents of the development.

Residential Visitor Parking Demand

It is noted that there is no statutory requirement to provide any residential visitor parking, however it is acknowledged that residential visitors will still generate a demand for parking.

Car parking surveys were undertaken by Cardno at 127 and 147 Beach Street, Beacon Cove to determine the visitor car parking demands generated by apartment developments. These surveys, conducted over a 36-hour period from 6:00am Friday 19 November 2010 to Midnight Saturday 20 November 2010 indicate that visitor parking demand varies throughout the day with peak parking demands occurring during the evening and on weekends.

The recorded peak weekday visitor parking demand was 0.07 spaces per apartment after 6:30pm while the peak visitor parking demand during normal business office hours was 0.06 spaces per apartment at 11:30am. The overall peak visitor parking demand occurred at 6:30pm on Saturday with a demand of 0.09 spaces per apartment.

On the basis of the above surveys, it is considered that a rate of 0.06 spaces per dwelling provides an appropriate estimate of the peak visitor parking demand likely to be generated by the development during weekday daytime periods (noting that the subject site has similar access to alternate transport modes and local services as the surveyed site). Application of this rate to the 97 dwellings proposed results in an estimated peak visitor parking demand for the development of six visitor spaces during the day on weekdays.

This could be estimated to increase to nine visitor spaces (0.09 spaces per dwelling) during weekday evenings and weekends when visitor demand is at its peak.

Noting that no on-site car parking is proposed, the visitor car parking demand will need to be accommodated by the surrounding on and off-street car parking supply.

4.3 Allowing Fewer Spaces to be provided

Clause 52.06-6 sets out the factors to be considered when determining the appropriateness of allowing fewer car parking spaces to be provided. Some of the relevant factors for this case are listed below:

— The Car Parking Demand Assessment;
— Any relevant local planning policy or incorporated plan;
— The availability of alternative car parking in the locality of the land, including:
  - Public car parks intended to serve the land;
  - On street parking in non-residential zones; and
  - Streets in residential zones specifically managed for non-residential parking.
— On-street parking in residential zones in the locality of the land that is intended to be for residential use;
— The impact of fewer car parking spaces on local amenity, including pedestrian amenity and the amenity of nearby residential areas;
— Local traffic management in the locality of the land; and
— Access to or provision of alternative transport modes.

Those factors relevant to this assessment are discussed in more detail below:

Relevant Local Policy

The relevant local and state planning policies are discussed in detail in Section 2.5, including Clause 15.02-1S, Clause 16.01-2S, Clause 18.02-1 and Clause 21.08 of the Monash Planning Scheme.

These policies identify an intention to increase the utilisation of sustainable transport alternatives in the area, improve local traffic management and encourage cycling.

With a reduced provision of on-site car parking, very good access to public transport, bicycle infrastructure and a generous provision of bicycle parking, it is expected that the proposal will encourage sustainable transport alternatives and cycling, in line with the relevant policies.

Availability of Car Parking

The car parking survey results, outlined in Section 2.3, indicate that the overall parking demand is moderate throughout the survey periods. Due to the unrestricted nature of the Council car park adjacent to the subject site, it experiences a higher parking demand during business hours. The on-street parking recorded a low to moderate parking demand during the weekday and weekend surveys.

During weekday business hours there were a minimum of 99 on-street parking spaces available within the vicinity of the site. In addition, there were a minimum of 14 unrestricted car parking spaces available within the Council car park located adjacent to the site. Accordingly, there is considered to be able ample on and off-street parking to accommodate the visitor car parking demand generated during weekday business hours (up to six spaces).

The parking demand in the vicinity of the site during weekends was similar to weekday business hours. There was a minimum of 112 on-street parking spaces available and 10 parking spaces available within the Council car park. Therefore, there is sufficient parking to accommodate the visitor car parking demand of visitors during weekend periods (up to 10 spaces).

It is also again noted that there is no statutory requirement to provide visitor parking, with the expectation that visitor parking demands for sites within the PPTN would be reduced and any parking demand that does occur can be accommodated by the surrounding off-site car parking.

On this basis, visitor parking demands can be accommodated in suitable off-site parking locations within convenient proximity of the site without adversely impacting on current parking conditions in the precinct.

As discussed within the Car Parking Demand Assessment, it is estimated that sufficient car parking is provided to accommodate the vast majority of residents of the development and therefore residents are not expected to have any significant reliance on off-site car parking.

Alternative Transport Modes

As discussed throughout the report, the subject site is readily accessible by alternative transport options, including public transport, bicycle infrastructure and car share. The site is also located within walking distance of shops and services within the Syndal Neighbourhood Activity Centre.

Local Traffic Management

The reduced provision of on-site parking will reduce motor vehicle travel to and from the site, resulting in a lessened impact to traffic congestion and pedestrian amenity in the vicinity of the site than what would otherwise be incurred were more on-site parking proposed.

Other Considerations

Clause 52.20 of the Monash Planning Scheme is in relation to Victoria's Big Housing Build. The purpose of the Clause is to:

— *Facilitate the use and development of land for housing projects funded by Victoria's Big Housing Build program; and*
— *To ensure that development does not unreasonably impact on the amenity of adjoining dwellings.*

The Clause is applicable to the use and development of the land that is funded wholly or partly under Victoria's Big Housing Build program.

Whilst it is understood that the development will be funded under Victoria's Big Housing Build by Home Victoria, this planning application is not using the exemptions under Clause 52.20 of the Monash Planning Scheme. Accordingly, the standards under this Clause are not mandatory in this situation and only provide a useful guide.

Specific to this assessment, Clause 52.20-6.7 outlines the requirement for car parking for developments under Victoria's Big Housing Build. The Clause specifies a minimum car parking rate of 0.6 car parking spaces per dwelling. Application of this rate to the 97 dwellings proposed would result in a car parking requirement of 58 spaces. The provision of 75 car parking spaces comfortably exceeds the requirement that would apply if the application was using the exemptions of Clause 52.20 of the Monash Planning Scheme.

4.4 Appropriateness of Proposed Car Parking Supply

It is proposed to provide 75 parking spaces within a two-level basement park for the proposed development. It is considered that the proposed level of on-site parking is appropriate for the following reasons:

— The site is well located to take advantage of access to alternate transport modes, such as nearby public transport services, on and off-road bicycle lanes, the pedestrian footpath network and car share vehicles;
— The proposal comprises a generous provision of bicycle parking which will encourage the use of alternative transport modes and reduce the reliance on private vehicle use;
— The allocation of car parking complies with the statutory requirements of the Monash Planning Scheme for the two and three-bedroom dwellings.
— ABS Census data indicates that one-bedroom apartments in the vicinity of the site have car parking ownership below the statutory requirements. Furthermore, the ABS data indicated that 38% of residents of one-bedroom apartments did not own a private vehicle. This car ownership level generally aligns with the provision of car parking for the proposed one-bedroom apartments.
— There is no requirement to provide residential visitor parking and none is proposed. Notwithstanding, the parking surveys indicate that this demand could be accommodated within off-site car parking areas.
— The local and state policy supports the provision of fewer parking spaces as a means of reducing private motor vehicle dependence;
— The suppressed provision of on-site car parking will reduce motor vehicle travel to and from the site, resulting in a lessened impact to traffic congestion and pedestrian amenity; and

— There are sufficient local shops and services within walking distance of the site to enable residents of the development to undertake their daily needs without relying on the use of a private motor vehicle.
— The provision of car parking comfortably exceeds the requirements set out under Clause 52.20-6.7 of the Monash Planning Scheme (which are relevant noting that the development will be funded under Victoria's Big Housing Build by Home Victoria).

On the basis of the reasons discussed above, it is considered that the proposed level of car parking is suitable for the nature and scale of the proposed development.

5.1 Clause 52.06 Design Standard Assessment

The proposed basement car park has been designed in accordance with the objectives and design requirements of Clause 52.06-9 of the Monash Planning Scheme, and in accordance with the relevant sections of AS/NZS 2890.1:2004 and AS/NZS2890.6:2009.

An assessment against the relevant design standards of Clause 52.06-9 of the Planning Scheme is provided below:

Design Standard 1 – Accessways

Vehicular access to the site will be provided via a new double-width crossover connecting to/from High Street Road, located centrally along the site frontage. The new crossover will be designed in accordance with the Responsible Authority.

All other existing crossovers to High Street Road will be reinstated with kerb, channel and nature strip to the satisfaction of the Responsible Authority.

Design Standard 1 of Clause 52.06-9 relates to the design of accessways. The requirements of Design Standard 1 are assessed against the proposal in Table 5.1 below:

Table 5.1: Design Standard 1 Assessment - Accessways

Requirement	Comments
Must be at least 3m wide.	**Satisfied**: The accessway has been designed with a minimum width of 5.8 metres, which exceeds this requirement and Clause 2.5.2 of AS/NZS2890.1:2004 for the width of a two-way roadway.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	**Satisfied**: All vehicles can depart the car park in a forward direction with one manoeuvre.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	**Generally Satisfied**: A minimum headroom clearance of 2.1 metres is provided throughout the basement car park area.
If the accessway serves four or more car spaces or connects to a road in a Road Zone, the accessway must be designed so that cars can exit the site in a forward direction.	**Satisfied**: All cars can enter and exit the site in a forward direction.
Provide a passing area at the entrance at least 6.1m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Road Zone.	**Satisfied**: The accessway has a width of 6.4 metres (inclusive of 300mm kerbs on both sides) for the first 7.0 metres, complying with this requirement.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the	**Satisfied**: A pedestrian sight triangle is provided adjacent to the exit lane of the accessway (western side), measuring 2.0 metres along the site frontage and extending 2.50 metres into the site in accordance with the requirements of Design Standard 1. The pedestrian sight triangle is at least 50% of visual obstructions (noting that the only obstruction is a single column).

landscaping in those areas is less than 900mm in height.	Given that the ramp is double width where it meets the property boundary, a sight triangle is not required on the eastern side of the ramp.

Design Standard 2 - Car Parking Spaces

It is proposed to provide a total of 75 car parking spaces within a two-level basement parking, accessed via High Street Road.

The provision of 75 car parking spaces includes 15 'oversized' car parking spaces that have specifically be requested by Homes Victoria. These wider car parking spaces are suitable for users with physical or mobility impairments.

Design Standard 2 of Clause 52.06-9 relates to the design of car parking spaces. The requirements of Design Standard 2 are assessed against the proposal in Table 5.2:

Table 5.2: Design Standard 2 Assessment - Car Parking Spaces

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	**Satisfied**: Car parking spaces are typically dimensioned as follows: - 2.7 metres wide by 4.9 metres long, accessed via a minimum 6.1-metre-wide aisle; or - 3.2 metres wide by 5.4 metres long accessed via a minimum 5.8-metre-wide aisle. These dimensions comply with the requirements of Table 2 of Design Standard 2 of Clause 52.06 of the Monash Planning Scheme and/or AS/NZS2890.1:2004.
A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than: - A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1. - A structure, which may project into the space if it is at least 2.1m above the space.	**Considered Satisfactory**: Columns have either been located in accordance with Diagram 1 of Design Standard 2 to Clause 52.06 of the Planning Scheme or car parking spaces have been widened to 2.7 metres if located adjacent to obstructions (which complies with AS/NZS2890.1 for regular users). Accordingly, it is considered that this design standard has been met.
Car spaces in garages or carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage or carport.	**Not Applicable**: No garages or carports are proposed.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	**Not Applicable**: No car parking spaces are proposed in a tandem arrangement.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	**Satisfied**: All car parking spaces are located within the basement.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building	**Satisfied**: The development comprises the provision of 15 'oversized' car parking spaces that are suitable for

Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	users with physical and mobility impairments.

Design Standard 3 - Gradients

The basement ramps incorporate the following gradients:

Entry Ramp

- A flat section for 1.60 metres from the property boundary into the site at a RL of 102.95 metres;
- An initial 1:10 gradient for 5.0 metres from a RL of 102.95 metres;
- A transitional gradient of 1:4.5 for 2.0 metres;
- A midblock gradient of 1:4 for 7.77 metres, and
- A final 1:8 gradient for 2.5 metres to a RL of 99.77 metres.

Internal Ramp

- An initial 1:8 gradient for 2.0 metres from a RL of 99.77 metres,
- A midblock gradient of 1:4 for 8.83 metres, and
- A final 1:8 gradient for 2.5 metres to a RL of 97.00 metres.

Design Standard 3 of Clause 52.06-9 relates to the design of gradients. The requirements of Design Standard 3 are assessed against the proposal in Table 5.3 below:

Table 5.3: Design Standard 3 Assessment - Gradients

Requirement	Comments
Accessway grades must not be steeper than 1:10 (10%) within 5m of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	Complies: The first 1.60 metres into the site are flat which is followed by a gradient of 1:10 for 5.0 metres. Therefore, the average gradient for the first five metres into the site is approximately 1:14 gradient which is in accordance with this standard.
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 of Design Standard 3 and be designed for vehicles travelling in a forward direction.	Complies: The proposed grades are in accordance with Table 3 of Design Standard 3, with grades no steeper than 1:4.
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5%) for a summit grade change, or greater than 1:6.7 (15%) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming. Plans must include an assessment of grade changes of greater than 1:5.6 (18%) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.	Complies: Appropriate transition sections have been provided to prevent scraping or bottoming.

Other Items: Safety

A security gate is proposed to control access and provide security to the basement car park. Resident and staff vehicles will have convenient access via remote control units or utilise the intercom system that is positioned centrally within the accessway. The intercom system will be

located 6.6 metres from the site boundary, which will allow a vehicle to prop within the site, on the moderate 1:10 grade, whilst using the intercom system.

Other Items: Drop-Off / Pick-Up Bay

A dedicated drop-off / pick-up bay (measuring at least 3.5 metres in width and 7.2 metres in length) has been provided for the development within Basement 1 which is a shared space proposed to operate as follows:

— Used for short-term drop-off and pick-ups (by Taxis, Ubers, private vehicles etc);
— Service and waste collection vehicles that need to access the site; and
— Emergency vehicles, such as ambulance vehicles.

5.2 Swept Path Assessment

Site Access

An assessment of the accessibility to/from the site using the 'Autodesk Vehicle Tracking' software has been conducted. The B99 (99.8th percentile car) was used in the assessment and it was found that two opposing vehicles could pass at the site access in a suitable manner. Further, all vehicles will be able to enter/exit the site in a forwards direction.

Car Parking Spaces

An assessment of the accessibility to/from the critical parking bays was also undertaken using the B85 (85th percentile car) and it was found that each of the critical car parking space could be accessed (ingress and egress) in a satisfactory manner. Some corrective manoeuvres may be required, which is in accordance with AS/NZS2890.1:2004 (Table 1.1), which specifies that corrective manoeuvres to enter and exit 90 degree parking spaces are permitted for regular users.

Ground Clearance Assessment

An assessment of the ground clearance along the entrance ramp has been conducted using the 'Autodesk Vehicle Tracking' software. The B99 was used in the assessment and it was found that the B99 (having a ground clearance of 120mm and a wheelbase of 3.05 metres) vehicle could gain access (ingress and egress) in a suitable manner without scraping.

Vertical Clearance Assessment

An assessment of the vertical clearance along the entrance ramp has been conducted using the 'Autodesk Vehicle Tracking' software. The B85 was used in the assessment and it was found that the B85 (having a clearance height of 2.1 metres and a wheelbase of 2.8 metres) vehicle could gain access (ingress and egress) in a suitable manner without striking overhead obstructions.

Summary

The assessment indicates that the access arrangements and car parking layout have been designed appropriately and in accordance with the requirements of the Monash Planning Scheme, AS/NZS2890.6:2009 and/or AS/NZS 2890.1:2004.

6.1 Clause 52.34 – Bicycle Parking Assessment

Clause 52.34-3 of the Monash Planning Scheme outlines the requirements for bicycle parking for various uses. It is noted that 'Retirement Village' is not a listed land use under Clause 52.34-3 of the Monash Planning Scheme.

To ensure that an appropriate provision of bicycle parking is provided for residents and visitors of the retirement village units, the rates specified for Dwelling use under Clause 52.34-3 of the Monash Planning Scheme have been adopted. It is considered that the dwelling rates are conservative given the anticipated travel patterns of residents and visitors of a retirement village.

On this basis the bicycle parking quota for the proposed development are outlined in Table 6.1 below:

Table 6.1: Bicycle Parking Requirement

Use	Type	Number / Size	Rate	Requirement
Retirement Village *(assessed as Dwelling under Table 1 to Clause 52.34)*	Resident	97 dwellings	1 space per five units	19 spaces
	Visitor		1 space per ten units	10 spaces
Total				**29 spaces**

On the basis of the above assessment, the proposed development has a quota for 29 bicycle parking spaces.

The development proposes a total of 46 parking spaces, within a secure bicycle parking room on ground floor.

Accordingly, the proposed development comfortably exceeds the bicycle parking quota and is considered acceptable.

AS 2890.3:2015 requires that 20% of bicycle parking be provided via ground level rails. The proposed bicycle parking provides all of the bicycle spaces at ground level which is considered to be appropriate for the intended user group.

The bicycle parking specifications are provided within Appendix C.

7 Service Vehicle Arrangements:

7.1 Loading & Emergency Vehicle Arrangements

Clause 65.01 'Decision Guidelines' of the Monash Planning Scheme outlines the provision of loading requirements, and states the following:

"Before deciding on an application or approval of a plan, the responsible authority must consider, as appropriate:

— *The adequacy of loading and unloading facilities and any associated amenity, traffic flow and road safety impacts."*

Some vans / small trucks may occasionally seek to access the site for the loading / unloading of furniture and goods into and out of the units. This will largely occur when residents initially move into the units.

As discussed in Section 5.1, it is proposed to provide a dedicated drop-off / pick-up zone within Basement 1, which comprises dimensions of at least 3.5 metres in width and 7.2 metres in length. This zone can be utilised by vans and small trucks that comprise a height clearance of less than 2.8 metres.

Larger trucks that seek to access the site will need to undertake loading on-street. It is considered that loading and unloading associated with these large vehicles can appropriately be on-street, on the basis of the following:

— The site's location adjacent to High Street Road and available kerbside parallel parking fronting the site (noting that loading associated with larger vehicles will need to occur outside of peak Clearway times).
— Smaller trucks and vans will be able to utilise the dedicated drop-off / pick-up zone located on Basement 1.

A swept path assessment has been undertaken with a typical ambulance vehicle to assess the accessibility of the drop-off / pick-up bay. The assessment demonstrates that this vehicle can enter the site via High Street Road, traverse the entrance ramp to access the drop-off / pick-up zone located within Basement 1 and exit the site in a suitable manner.

A vertical clearance assessment has also been undertaken via a typical ambulance vehicle (vehicle height = 2.8 metres). The vertical clearance assessment demonstrates that sufficient headroom clearance is provided above the entrance ramp to enable access for this vehicle into Basement 1 in a suitable manner.

7.2 Waste Collection Arrangement

Dedicated refuse and recyclables rooms are provided within Basement 1.

It is understood that waste will be collected by a private contractor from within the on-site loading bay using a Mini Rear Loader Truck, which is 2.08 metres high, 6.35 metres long and 1.7 metres wide. The swept path assessment demonstrates the ability for a Mini Rear Loader Truck to enter the site, via High Street Road, traverse the entrance ramp to access the drop-off / pick-up zone located within Basement 1 and exit the site in a suitable manner.

This is considered to be an acceptable arrangement from a traffic engineering perspective.

8.1 Traffic Generation

Retirement Village Generation

The Transport Road and Maritime Services (previously RTA) Guide to Traffic Generating Developments (Update August 2013) indicates a daily traffic generation of 2.1 vehicle movements per day per dwelling for housing for seniors. The Transport Road and Maritime Services rates outline a weekday peak hour rate of 0.4 vehicle movements per dwelling. Peak activity for independent living units typically occurs outside of commuter peak hours.

Reference is also made to traffic generation surveys undertaken by traffic engineering consultancy One Mile Grid at Hunters Green Retirement Village in Cranbourne. The results of the surveys showed an AM peak hour rate of 0.34 trips per dwelling and a PM peak hourly rate of 0.21 trips per dwelling.

To provide a conservative assessment of the traffic generation of the retirement village component of the proposal, a peak rate of 0.4 vehicle movements per dwelling allocated a car space has been adopted in the morning and afternoon peak hour periods, consistent with the rate outlined by the Transport Road and Maritime Services.

It is anticipated that there will be a higher proportion of departing trips than arriving trips in the morning peak hour period. Conversely, there will be a slightly higher proportion of arriving trips than departing trips in the afternoon peak hour period.

The retirement village traffic generation for the AM and PM peak hours are conservatively estimated as follows:

Table 8.1 – Retirement Village Traffic Generation

Trips	AM Peak	PM Peak
Arriving trips:	9 vph	18 vph
Departing trips:	21 vph	12 vph
Total trips:	**30 vph**	**30 vph**

8.2 Traffic Distribution and Impact

The traffic generation for the overall development is anticipated to be up to 30 vehicle movements per hour during the commuter peak hour periods (one movement every two minutes on average).

The additional traffic generated by the proposed development will flow directly onto High Street Road and the surrounding road network.

The traffic signals at the nearby High Street Road / Blackburn Road intersection create regular gaps in westbound traffic along High Street Road which will facilitate the ability for vehicles to enter and exit the site even during peak times.

The surrounding road network has the ability to accommodate the expected increase in traffic volume associated with the proposed development.

9 Conclusion:

The proposed five-storey retirement village development at 554-558 High Street Road, Mount Waverley, comprises 97 retirement living units, 75 car parking spaces and 46 bicycle parking spaces. It is understood that the development will be run by an affordable housing provider (National Affordable Housing Consortium) and will provide accommodation for retirement living (over 55 year olds).

Based on the above assessment, it is considered that:

Car Parking Provision

— The provision of 75 car parking spaces for the proposed development (and consequential reduction of 23 spaces) is considered to be satisfactory for the following reasons:
  - The site is well located to take advantage of access to alternate transport modes, such as nearby public transport services, on and off-road bicycle lanes, the pedestrian footpath network and car share vehicles;
  - The proposal comprises a generous provision of bicycle parking which will encourage the use of alternative transport modes and reduce the reliance on private vehicle use;
  - The allocation of car parking complies with the statutory requirements of the Monash Planning Scheme for the two and three-bedroom dwellings.
  - ABS Census data indicates that one-bedroom apartments in the vicinity of the site have car parking ownership below the statutory requirements. Furthermore, the ABS data indicated that 38% of residents of one-bedroom apartments did not own a private vehicle. This car ownership level generally aligns with the provision of car parking for the proposed one-bedroom apartments.
  - There is no requirement to provide residential visitor parking and none is proposed. Notwithstanding, the parking surveys indicate that this demand could be accommodated within off-site car parking areas.
  - The local and state policy supports the provision of fewer parking spaces as a means of reducing private motor vehicle dependence;
  - The suppressed provision of on-site car parking will reduce motor vehicle travel to and from the site, resulting in a lessened impact to traffic congestion and pedestrian amenity; and
  - There are sufficient local shops and services within walking distance of the site to enable residents of the development to undertake their daily needs without relying on the use of a private motor vehicle.
  - The provision of car parking comfortably exceeds the requirements set out under Clause 52.20-6.7 of the Monash Planning Scheme (which are relevant noting that the development will be funded under Victoria's Big Housing Build by Home Victoria).

Vehicular Access and Car Parking Layout

— Vehicular access is to/from the site is proposed via a double width crossover located centrally along the site's frontage of High Street Road. All other existing crossovers to High Street Road will be reinstated with kerb, channel and nature strip to the satisfaction of the Responsible Authority.

— The proposed 75 car parking spaces within two level of basement parking have been designed in accordance with the requirements of the Monash Planning Scheme and/or relevant sections of AS 2890.1:2004.

— Swept path assessments demonstrates that all critical car parking spaces can be accessed in a satisfactory manner.

Bicycle Parking Provision and Layout

— The development provides a total of 46 bicycle parking spaces on-site to cater for the needs of all the users of the proposed development. This provision of bicycle parking spaces greatly exceeds the statutory requirements of Clause 52.34 of the Monash Planning Scheme and is considered to be appropriate.

— The bicycle parking layout has been designed in accordance with the Australian Standard AS2890.3:2015 and is considered satisfactory.

Service Vehicle Arrangements

— A dedicated drop-off/pick-up bay has been provided within Basement 1 of the development which is a shared space proposed to operate in the following manner:
  - Used for short-term drop-off and pick-ups (by Taxis, Ubers, private vehicles etc);
  - Loading and waste collection vehicles that need to access the site; and
  - Emergency vehicles such as an Ambulance Vehicle.

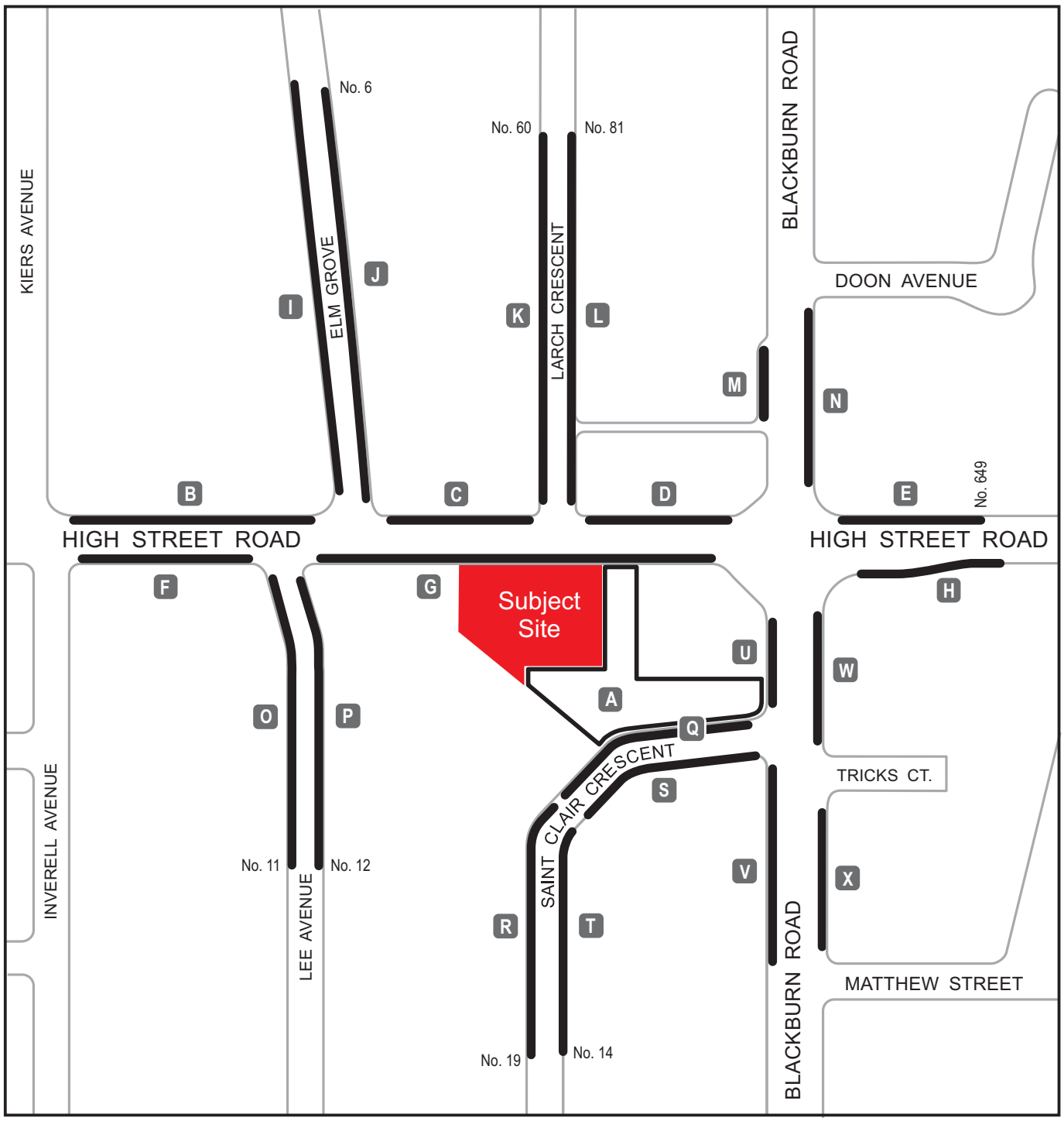
— Refuse and recycling areas are provided within the Basement 1 car park. Waste will be collected on-site by a private waste contractor.

Traffic Generation and Impact

— The volume of peak hour traffic generated by the development is predicted to be up to 30 vehicle movements in the commuter peak hour periods (one movement every two minutes on average). This level of traffic can be accommodated by the surrounding road network.

Overall, the proposed development is not expected to create adverse traffic or parking impacts in the precinct.

Appendix A **Survey Results**



Project : 15674T October 2018

FIGURE 2.1
PARKING SURVEY AREAS

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

Parking Occupancy Survey

Date:	Friday, 7 October 2016
Location:	554 High Street Road and Blackburn Rd, Mount Waverley
Weather:	Fine
Customer:	Ratio

Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy									
							11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00
A	High St Rd	Off Street Carpark	S	Unrestricted		88	65	70	74	70	65	62	60	50	39	31
B		From Inverell Ave To Lee Ave	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	9	1	0	1	0	0	0	0	0	0	0
				Bus Zone		1	0	0	0	0	0	0	0	0	0	0
		From Lee Ave To Elm Grv		No Standing		0	0	0	0	0	0	0	0	0	0	0
C		From Elm Grv To Larch Cres	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	7	0	0	0	0	0	0	0	0	0	0
D		From Larch Cres To Blackburn Rd	N	1P 8:00am-6:00pm Mon-Fri; 8:00am-12:30pm Sat		4	3	4	4	3	2	4	2	3	3	3
E		From Blackburn Rd To No.650	N	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
F		From Inverell Ave To Lee Ave	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	9	0	1	1	0	0	0	0	0	0	0
G		From Lee Ave To Elm Grv	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	1	0	0	0	0	0	0	0	0	0	0
		From Elm Grv To Larch Cres		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	8	0	0	0	0	0	0	0	0	0	0
		From Larch Cres To Blackburn Rd		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	4	0	0	0	0	0	0	0	0	0	0
H		From Blackburn Rd To No.649	S	No Standing		0	0	0	0	0	0	0	0	0	0	0
I	Elm Grv	From No.10/No.12 To High St Rd	W	Unrestricted		20	3	3	3	2	2	2	1	1	1	1
J			E	Unrestricted		11	4	4	3	3	2	2	3	5	5	5
K	Larch Cres	From High St Rd To No.62/No.60	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0	0	0	0	0
				Unrestricted		10	6	6	6	5	4	3	4	5	4	3
L			E	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0	0	0	0	0
				Unrestricted	No Parking 8:30am-5:30pm Mon-Fri; 8:30am-12:30pm Sat	11	0	0	0	0	0	0	0	0	0	0
M	Blackburn Rd	From High St Rd To Doon Ave	W	2P 8:00am-6:00pm Mon-Fri; 8:00am-1:00pm Sat		6	4	3	4	3	4	3	4	3	3	3
				Unrestricted		3	0	0	0	0	0	0	0	0	0	0
N			E	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
O	Lee Ave	From High St Rd To No.12	W	Unrestricted		12	4	5	5	3	3	4	4	5	5	4
P			E	Unrestricted		12	5	5	4	6	4	3	3	5	5	4
Q	St Clair Cres	From Blackburn Rd To No.7	N	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	9	0	0	0	0	0	0	0	0	0	0
R		From No.7 To No.19	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	2	0	0	0	0	0	0	0	0	0	0
				Unrestricted		7	3	3	2	2	1	1	2	2	2	2
S		From Blackburn Rd To No.7	S	Unrestricted		3	3	3	3	3	3	2	2	1	1	1
T		From No.7 To No.19	E	Unrestricted		10	4	5	5	4	4	3	2	3	3	3
U	Blackburn Rd	From High St Rd To Trick Ct	W	Bus Zone		1	0	0	0	0	0	0	0	0	0	0
V		From Trick Ct To Matthew St	W	No Standing		0	0	0	0	0	0	0	0	0	0	0
W		From High St Rd To Trick Ct	E	1P 8:00am-6:00pm		6	3	4	5	3	4	5	3	4	3	3
				1P 8:00am-6:00pm; 1/2P 6:00pm-10:00pm		7	6	6	4	4	3	4	6	5	5	5
X		From Trick Ct To Matthew St	E	1P 8:00am-6:00pm		9	7	8	8	7	5	7	8	7	7	5
				Mail Zone 12:30pm-1:30pm; 4:30pm-5:30pm Mon-Fri		1	1	1	0	1	1	0	0	1	1	1
				1P 8:00am-6:00pm		7	5	6	6	4	3	6	5	4	4	4
PUBLIC CAPACITY							**254**	**254**	**254**	**254**	**254**	**238**	**238**	**249**	**284**	**284**
PUBLIC OCCUPANCIES							**127**	**137**	**138**	**123**	**110**	**111**	**109**	**104**	**91**	**78**
PUBLIC VACANCIES							**127**	**117**	**116**	**131**	**144**	**127**	**129**	**145**	**193**	**206**
PUBLIC % OCCUPANCIES							**50%**	**54%**	**54%**	**48%**	**43%**	**47%**	**46%**	**42%**	**32%**	**27%**

not available for public parking

TRANS TRAFFIC SURVEY
trafficsurvey.com.au

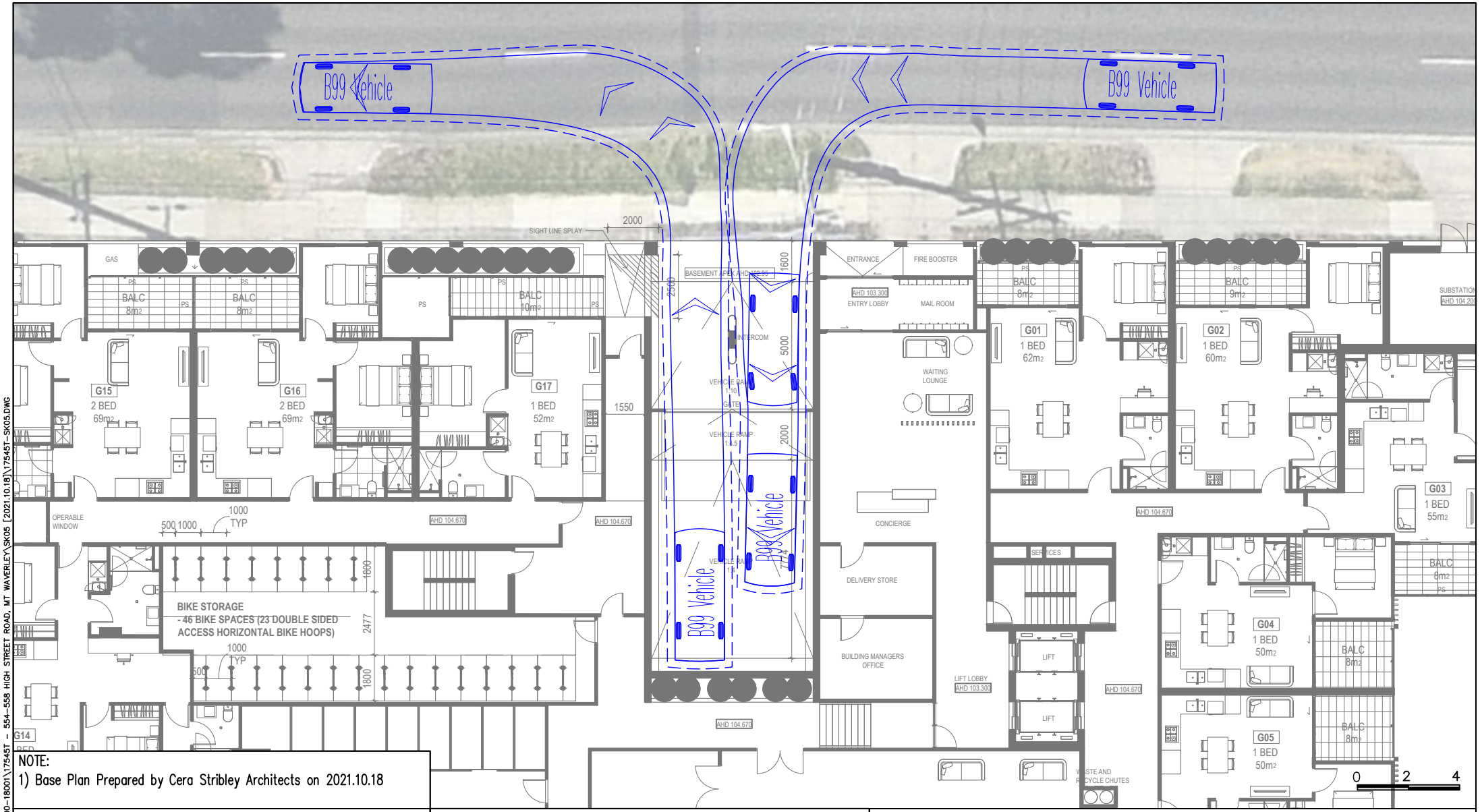
Parking Occupancy Survey

Date:	Saturday, 8 October 2016
Location:	554 High Street Road and Blackburn Rd, Mount Waverley
Weather:	Fine
Customer:	Ratio

Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy					
							11:00	12:00	13:00	14:00	15:00	16:00
A	High St Rd	Off Street Carpark	S	Unrestricted		88	60	78	75	62	50	38
B		From Inverell Ave To Lee Ave	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	9	0	0	0	0	0	0
				Bus Zone		1	0	0	0	0	0	0
		From Lee Ave To Elm Grv		No Standing		0	0	0	0	0	0	0
C		From Elm Grv To Larch Cres	N	Unrestricted	Clearway 4:00pm-6:30pm Mon-Fri	7	0	0	0	0	0	0
D		From Larch Cres To Blackburn Rd	N	1P 8:00am-6:00pm Mon-Fri; 8:00am-12:30pm Sat		4	3	3	2	3	2	2
E		From Blackburn Rd To No.650	N	Bus Zone		1	0	0	0	0	0	0
F		From Inverell Ave To Lee Ave	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	9	0	0	0	0	0	0
G		From Lee Ave To Elm Grv	S	Unrestricted	Clearway 7:00am-9:00am Mon-Fri	1	0	0	0	0	0	0
		From Elm Grv To Larch Cres		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	8	0	0	0	0	0	0
		From Larch Cres To Blackburn Rd		Unrestricted	Clearway 7:00am-9:00am Mon-Fri	4	0	0	0	0	0	0
H		From Blackburn Rd To No.649	S	No Standing		0	0	0	0	0	0	0
I	Elm Grv	From No.10/No.12 To High St Rd	W	Unrestricted		20	2	2	3	3	1	1
J			E	Unrestricted		11	3	3	4	4	2	2
K	Larch Cres	From High St Rd To No.62/No.60	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0
				Unrestricted		10	6	7	6	6	5	5
L			E	Unrestricted	No Standing 8:00am-6:00pm Mon-Sat	4	0	0	0	0	0	0
				Unrestricted	No Parking 8:30am-5:30pm Mon-Fri; 8:30am-12:30pm Sat	11	0	0	0	0	0	0
M	Blackburn Rd	From High St Rd To Doon Ave	W	2P 8:00am-6:00pm Mon-Fri; 8:00am-1:00pm Sat		6	4	5	5	4	3	3
				Unrestricted		3	0	0	0	0	0	0
N			E	Bus Zone		1	0	0	0	0	0	0
O	Lee Ave	From High St Rd To No.12	W	Unrestricted		12	4	4	5	5	4	4
P			E	Unrestricted		12	6	7	7	6	6	5
Q	St Clair Cres	From Blackburn Rd To No.7	N	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	9	5	5	5	3	2	2
R		From No.7 To No.19	W	Unrestricted	No Standing 8:00am-6:00pm Mon-Fri	2	0	0	0	0	0	0
				Unrestricted		7	3	3	3	2	1	1
S		From Blackburn Rd To No.7	S	Unrestricted		3	2	2	2	2	1	1
T		From No.7 To No.19	E	Unrestricted		10	4	4	3	3	2	2
U	Blackburn Rd	From High St Rd To Trick Ct	W	Bus Zone		1	0	0	0	0	0	0
V		From Trick Ct To Matthew St	W	No Standing		0	0	0	0	0	0	0
W		From High St Rd To Trick Ct	E	1P 8:00am-6:00pm		6	5	5	5	4	3	3
				1P 8:00am-6:00pm; 1/2P 6:00pm-10:00pm		7	6	6	7	6	5	4
X		From Trick Ct To Matthew St	E	1P 8:00am-6:00pm		9	7	9	8	8	7	7
				Mail Zone 12:30pm-1:30pm; 4:30pm-5:30pm Mon-Fri		1	1	1	1	1	0	0
				1P 8:00am-6:00pm		7	6	7	7	6	5	4
PUBLIC CAPACITY							**273**	**273**	**284**	**284**	**284**	**284**
PUBLIC OCCUPANCIES							**127**	**151**	**148**	**128**	**99**	**84**
PUBLIC VACANCIES							**146**	**122**	**136**	**156**	**185**	**200**
PUBLIC % OCCUPANCIES							**47%**	**55%**	**52%**	**45%**	**35%**	**30%**

not available for public parking

Appendix B **Swept Path Assessment**

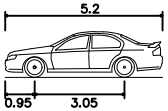


NOTE:
1) Base Plan Prepared by Cera Stribley Architects on 2021.10.18

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

B99 Vehicle (AS/NZS2890.1:2004)

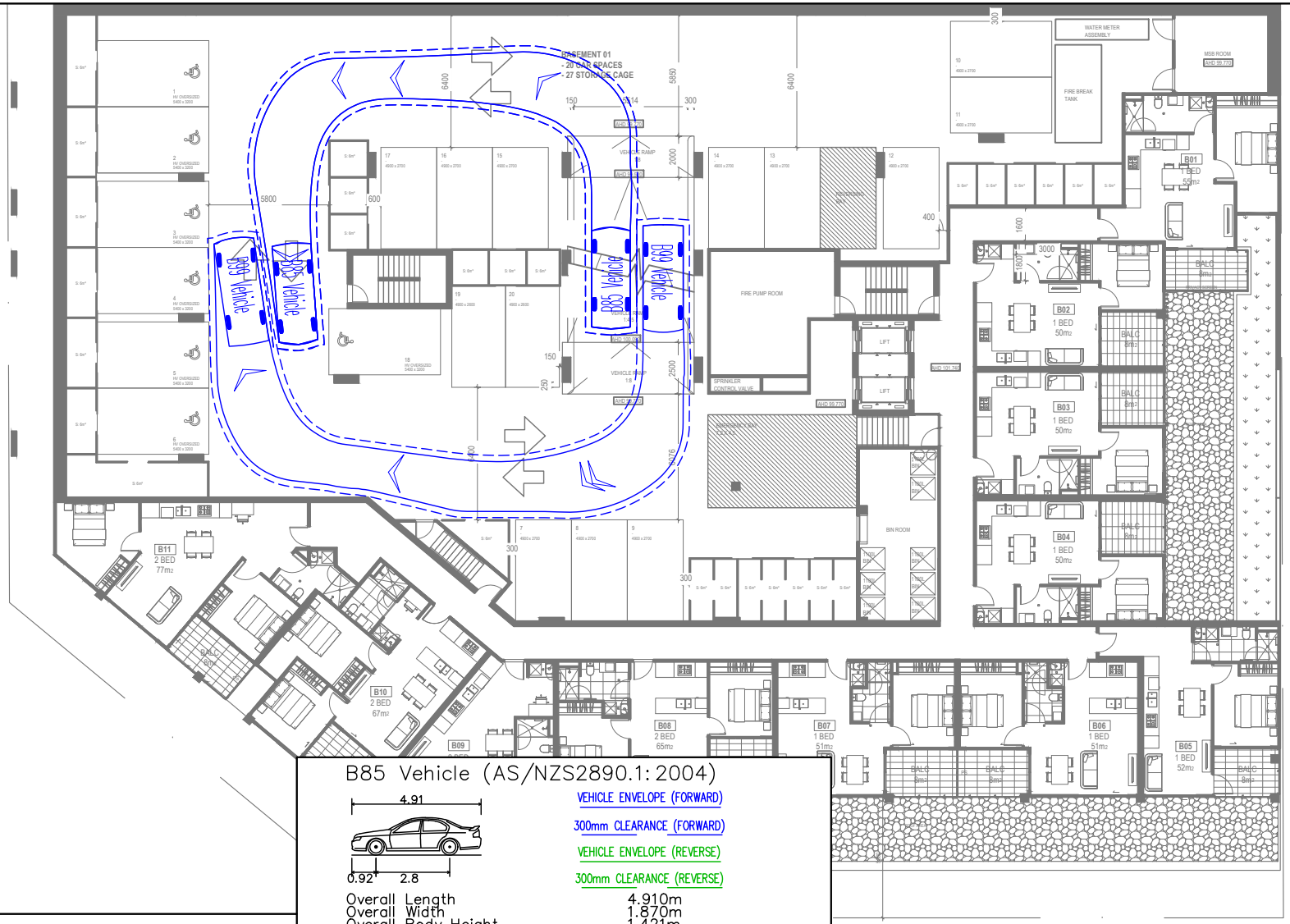


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Ground Floor

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	1	1:200@A4	22/10/2021

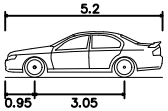


B85 Vehicle (AS/NZS2890.1:2004)

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

B99 Vehicle (AS/NZS2890.1:2004)



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.30m

NOTE:
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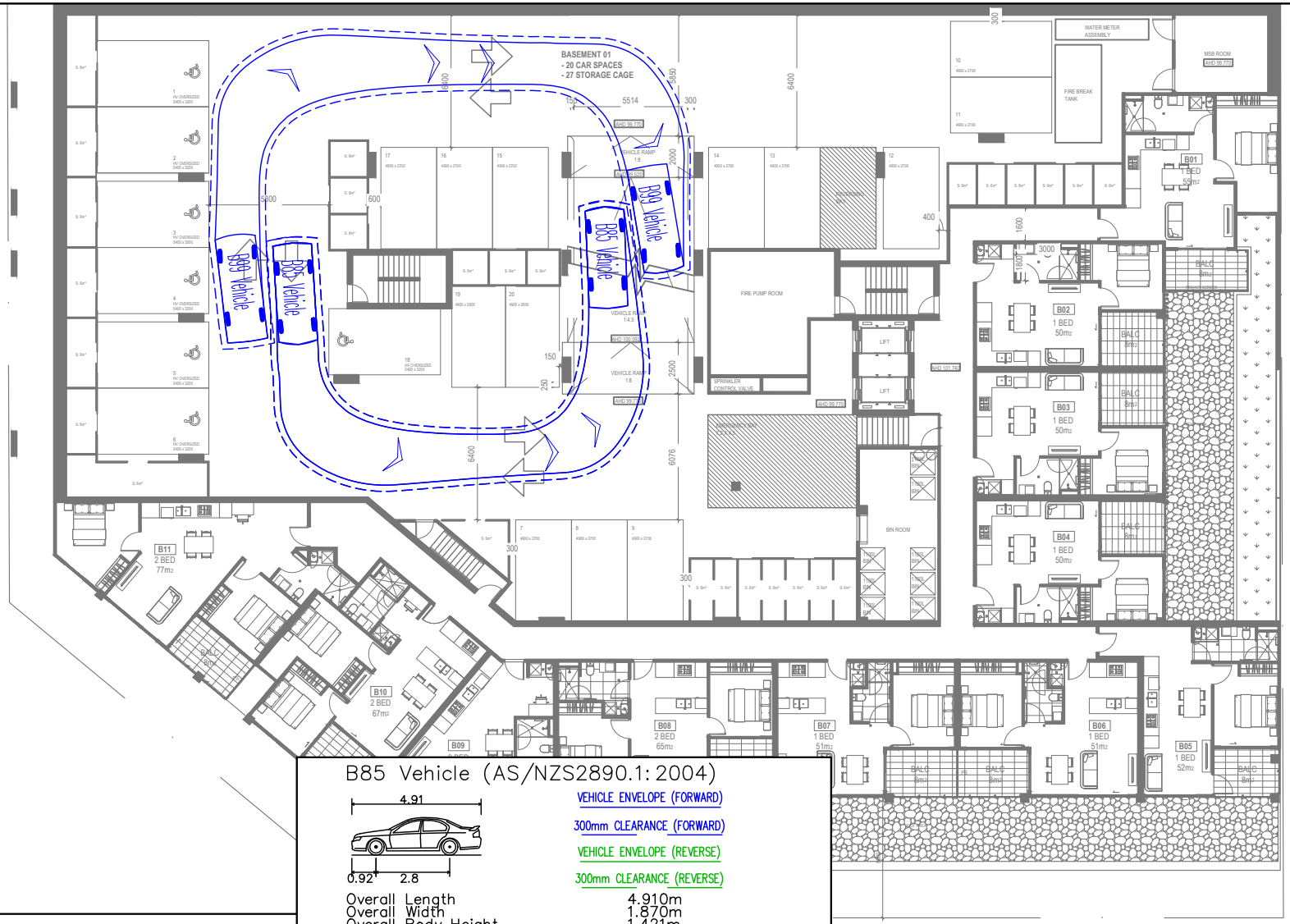
0 3 6

ratio:
RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	2	1:300@A4	22/10/2021



B85 Vehicle (AS/NZS2890.1:2004)

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300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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Track Width	1.770m
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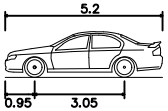
B99 Vehicle (AS/NZS2890.1:2004)



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Track Width	1.840m
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NOTE:
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Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

ratio:
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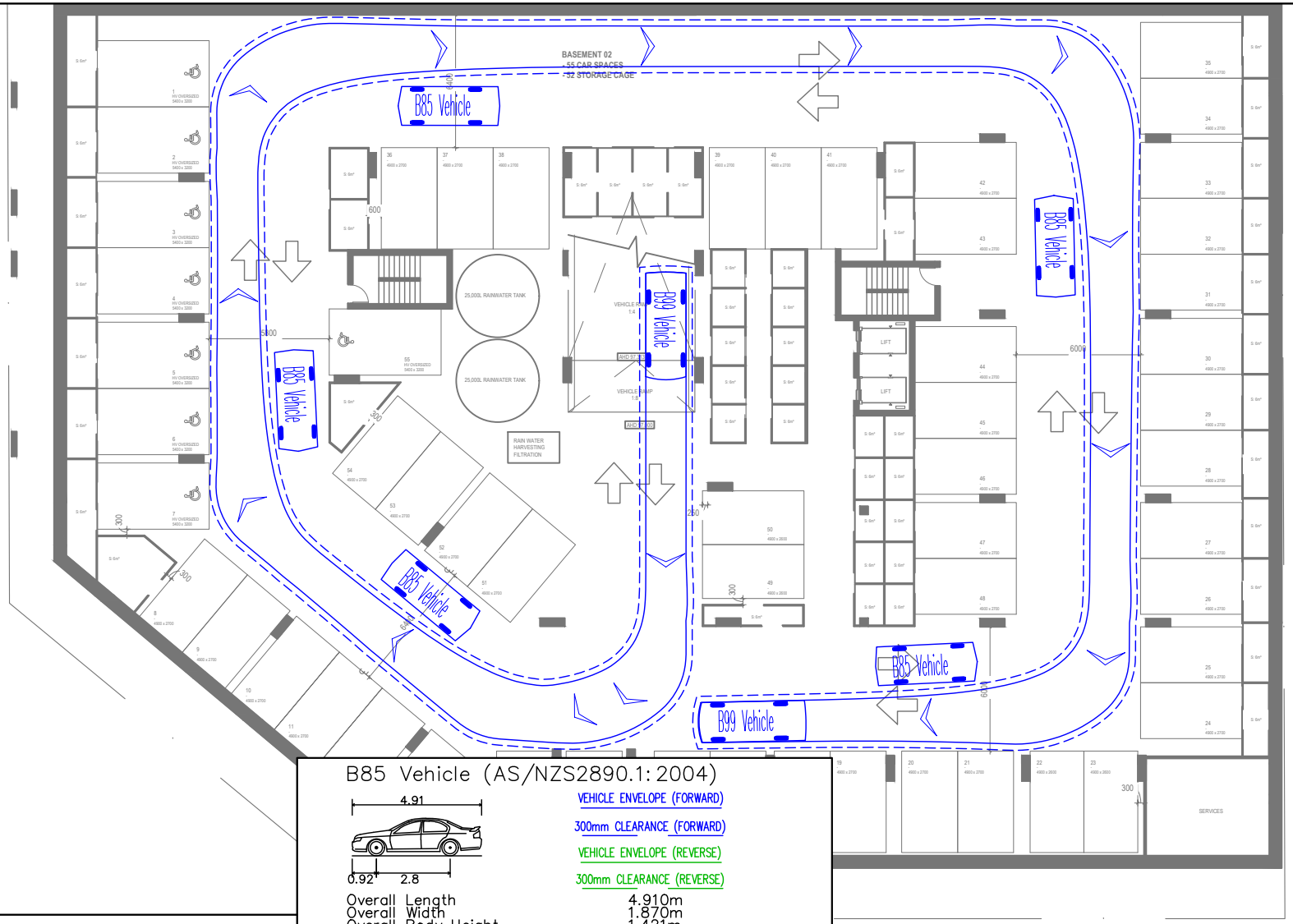
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	3	1:300@A4	22/10/2021



B85 Vehicle (AS/NZS2890.1:2004)

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300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

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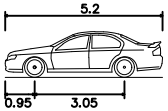

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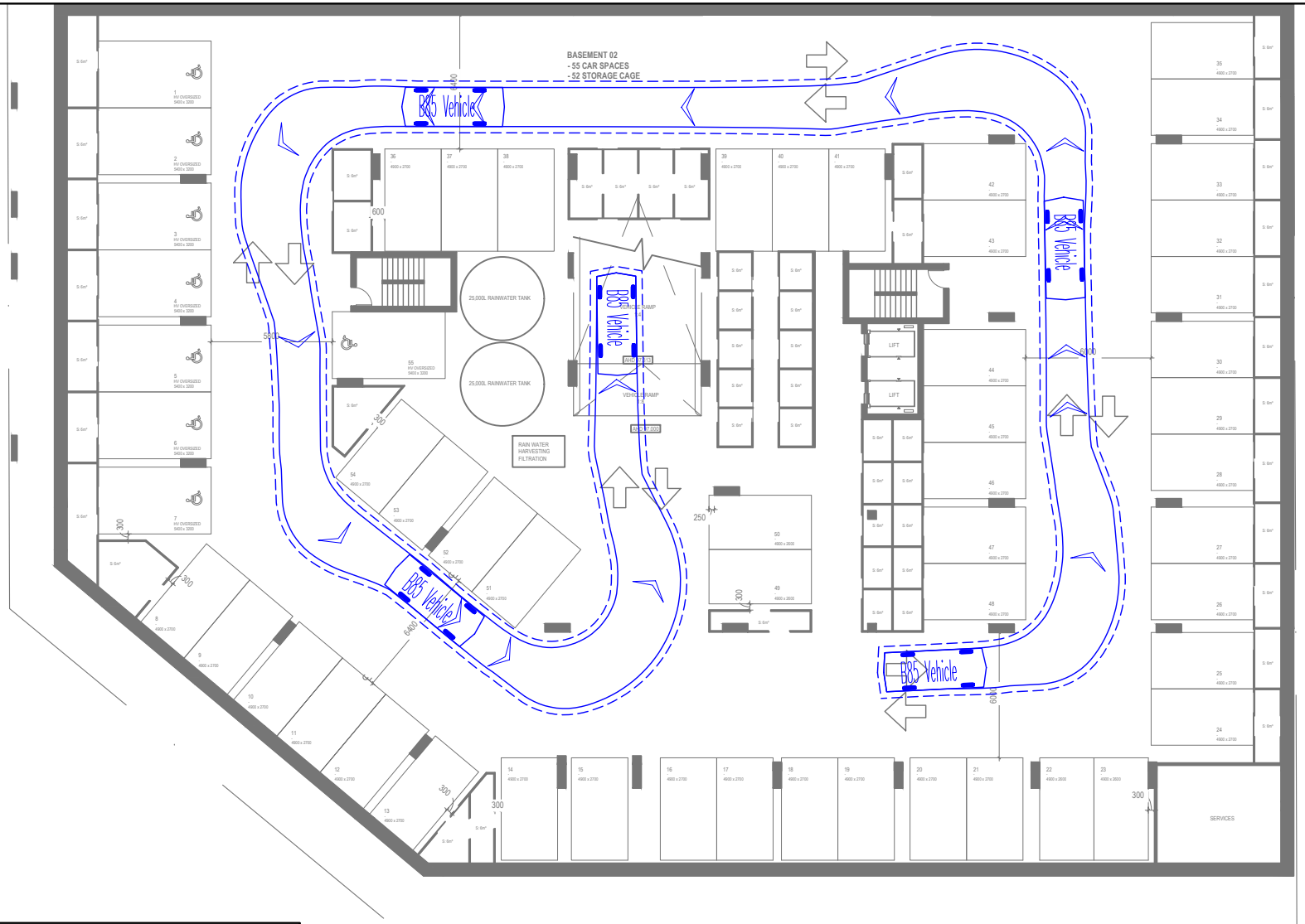
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	4	1:300@A4	22/10/2021



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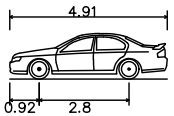
B85 Vehicle (AS/NZS2890.1:2004)

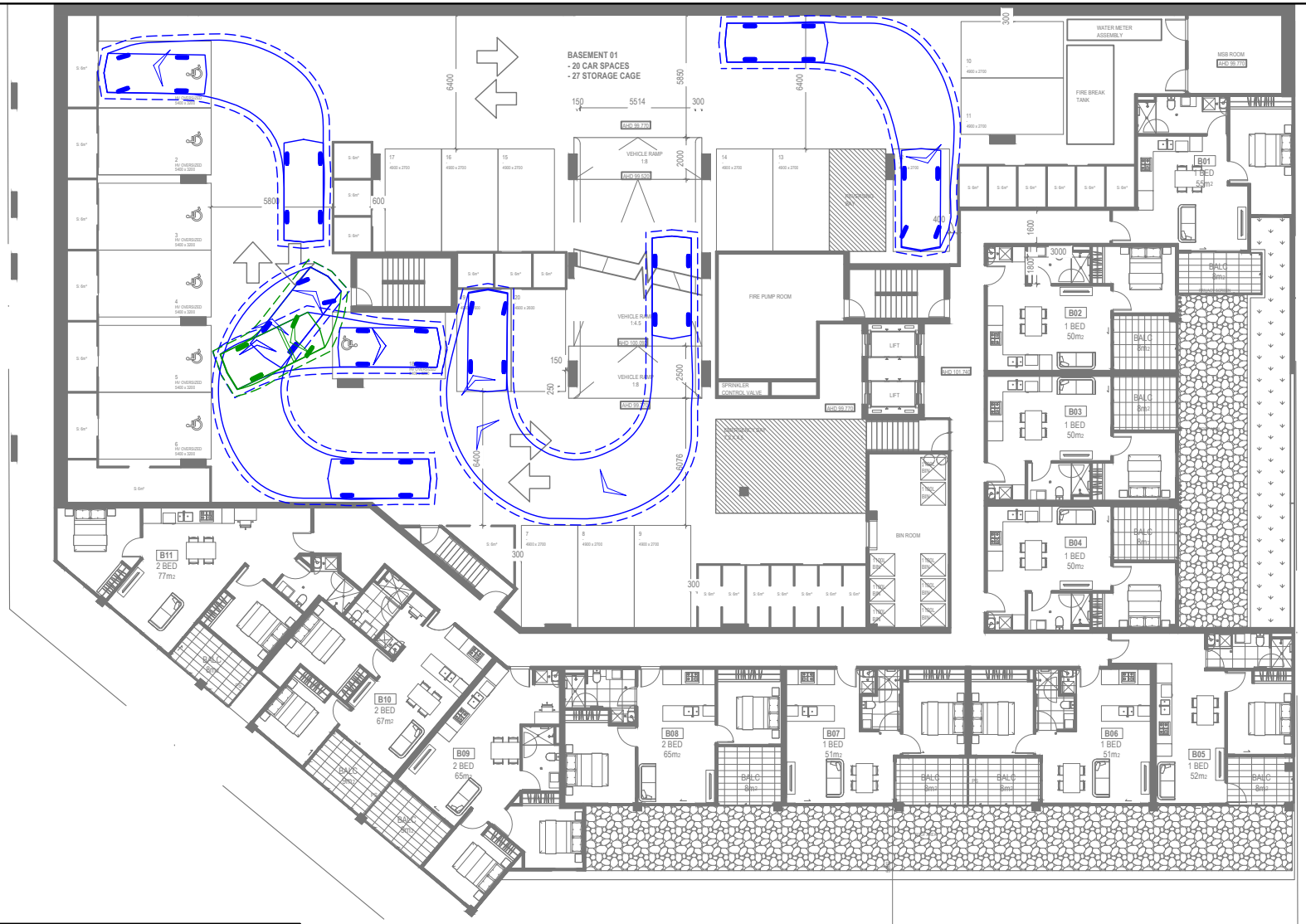


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	5	1:300@A4	22/10/2021



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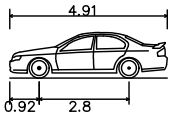

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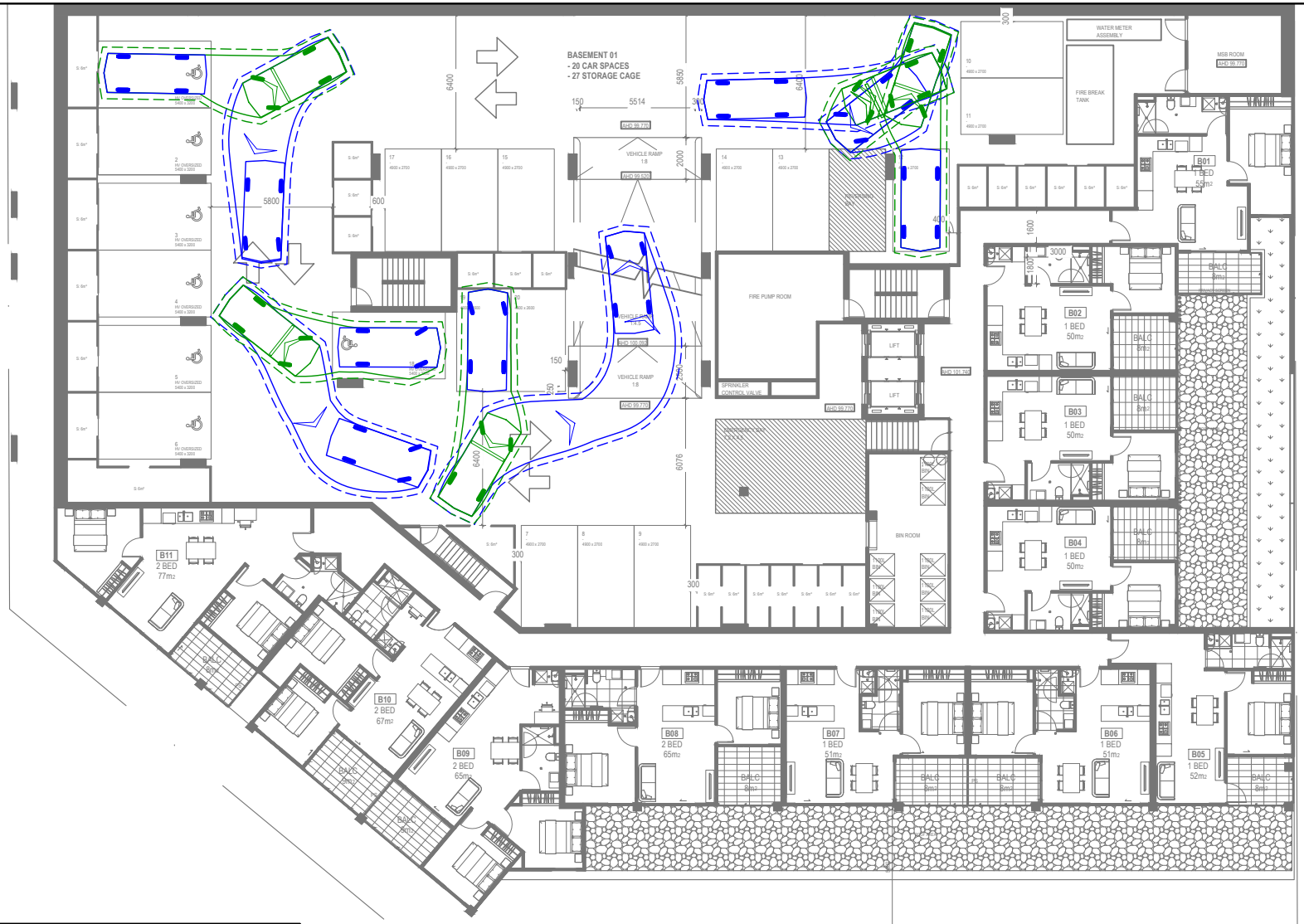
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	6	1:300@A4	22/10/2021



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ratio:

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8 GWYNNE STREET
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TELEPHONE (03)9429 3111
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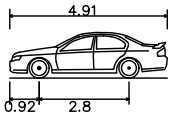
B85 Vehicle (AS/NZS2890.1:2004)



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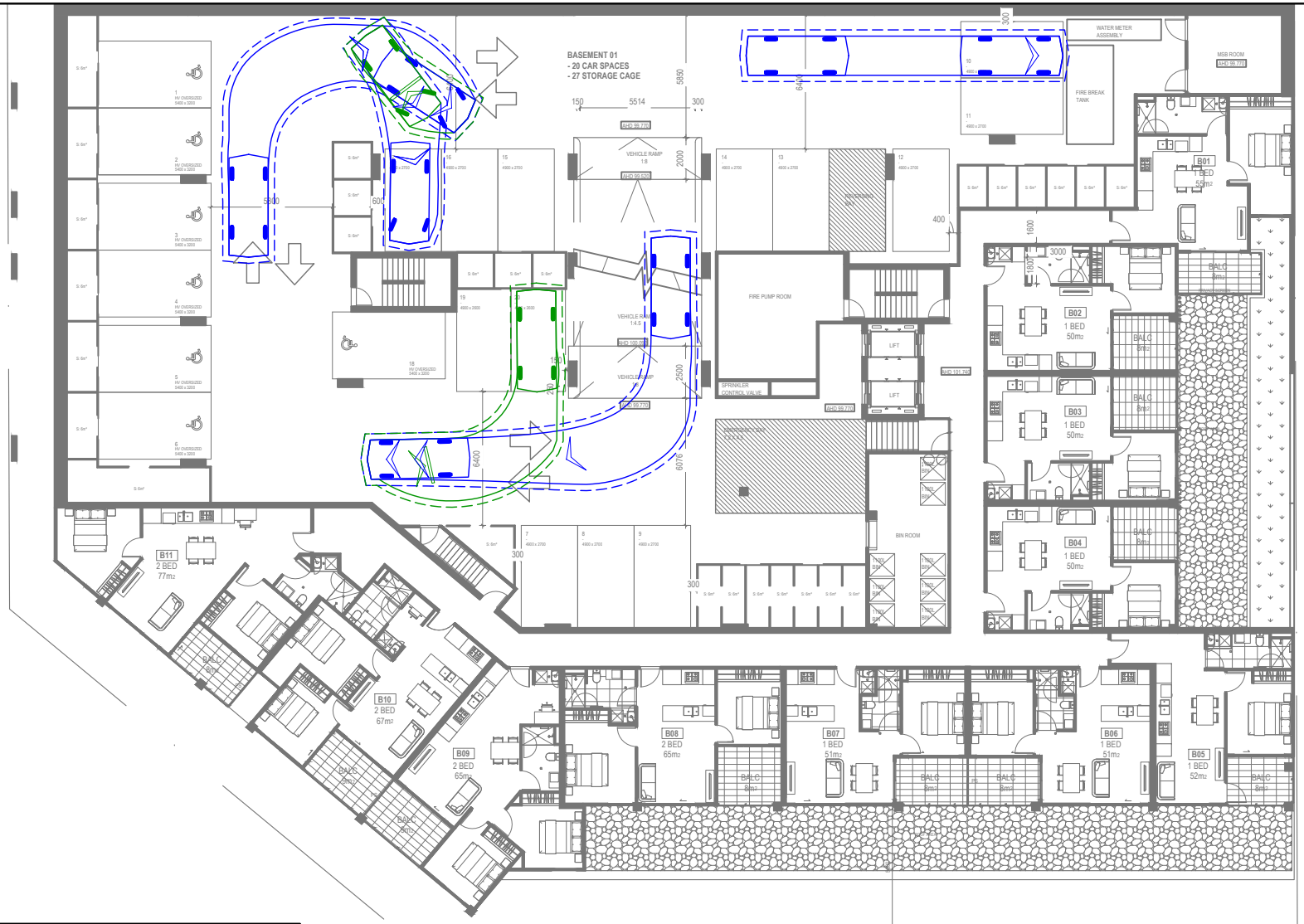
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	7	1:300@A4	22/10/2021



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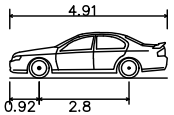

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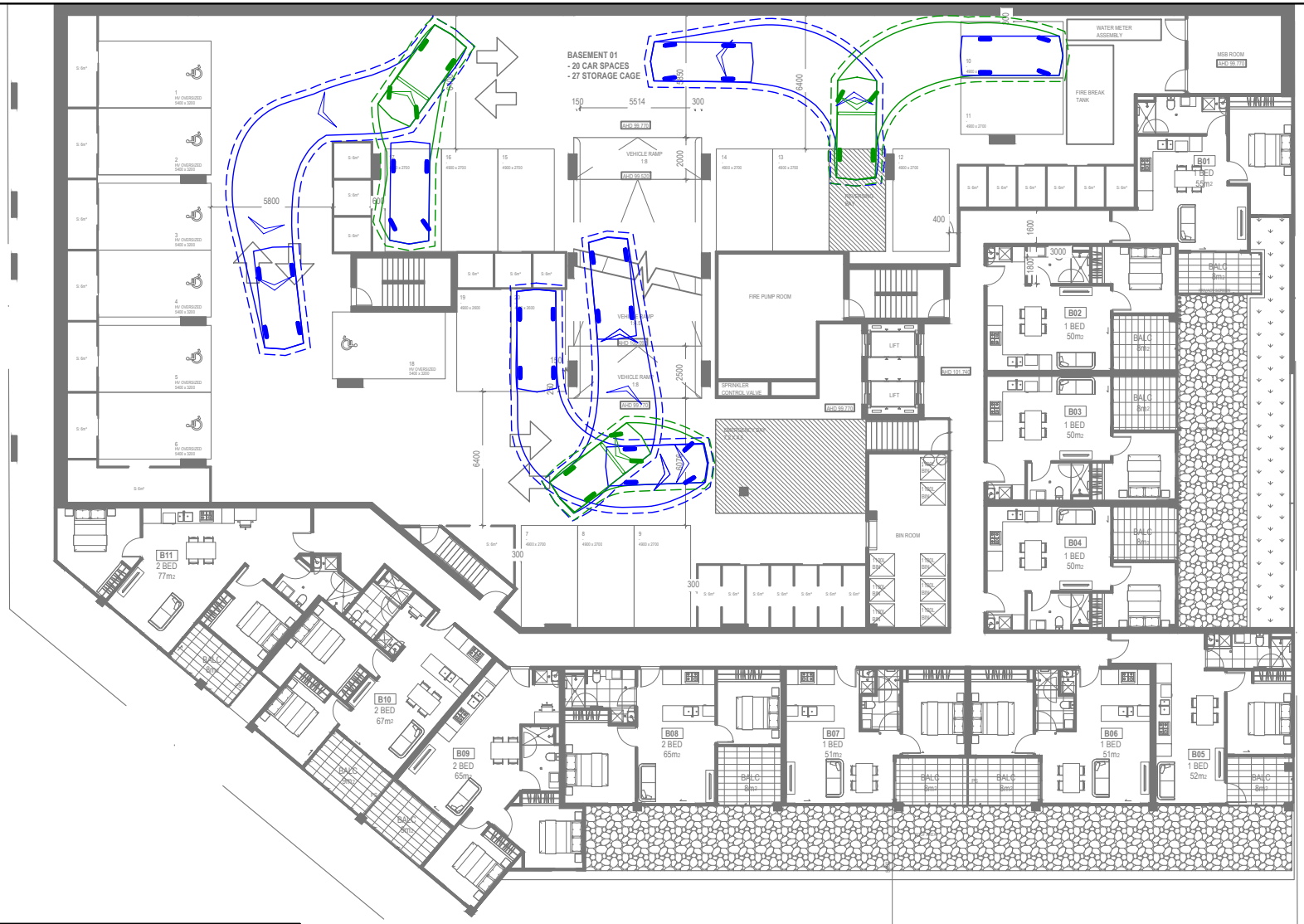
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	8	1:300@A4	22/10/2021



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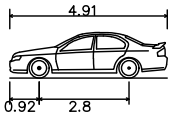

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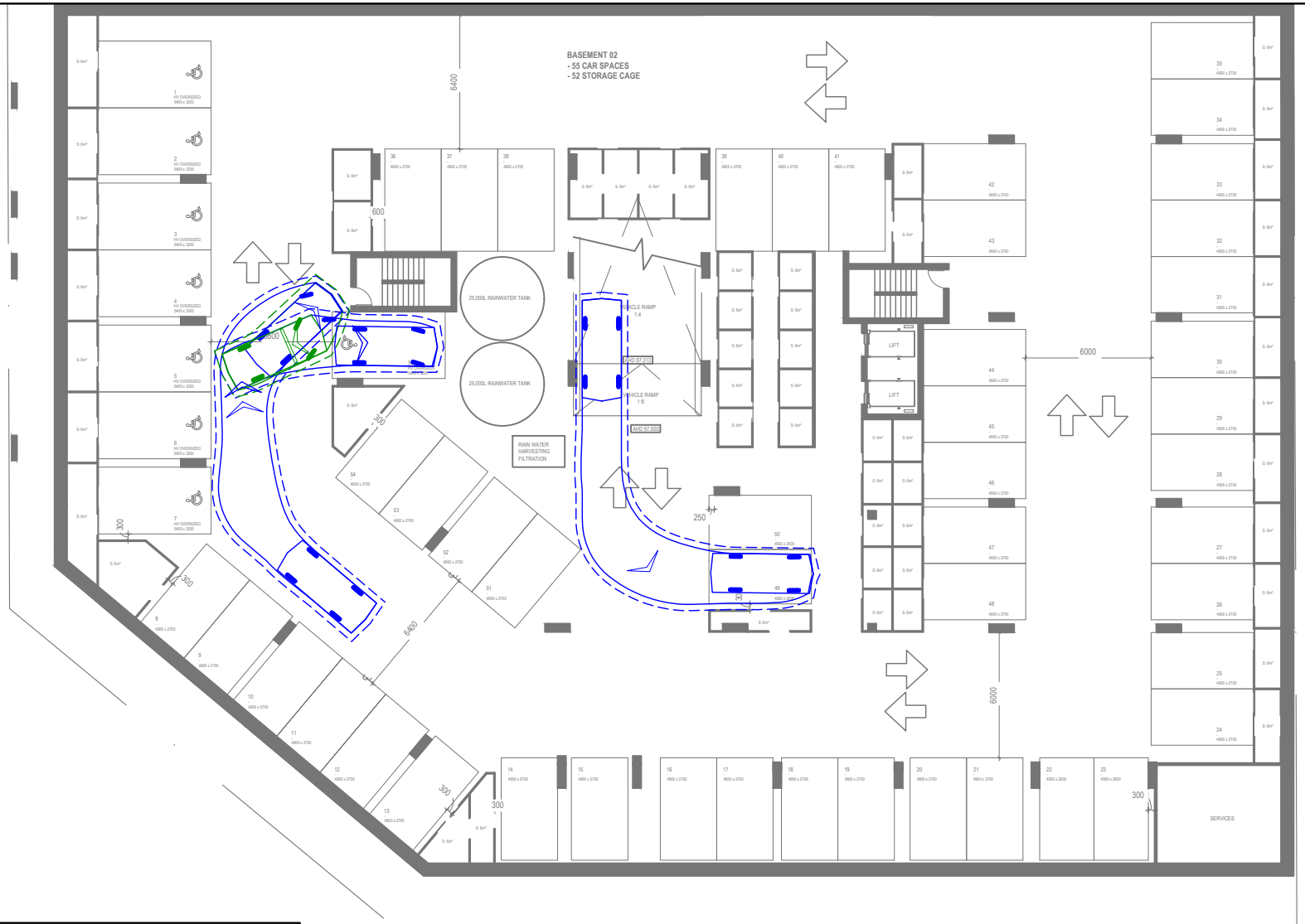
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	9	1:300@A4	22/10/2021



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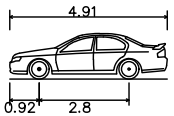

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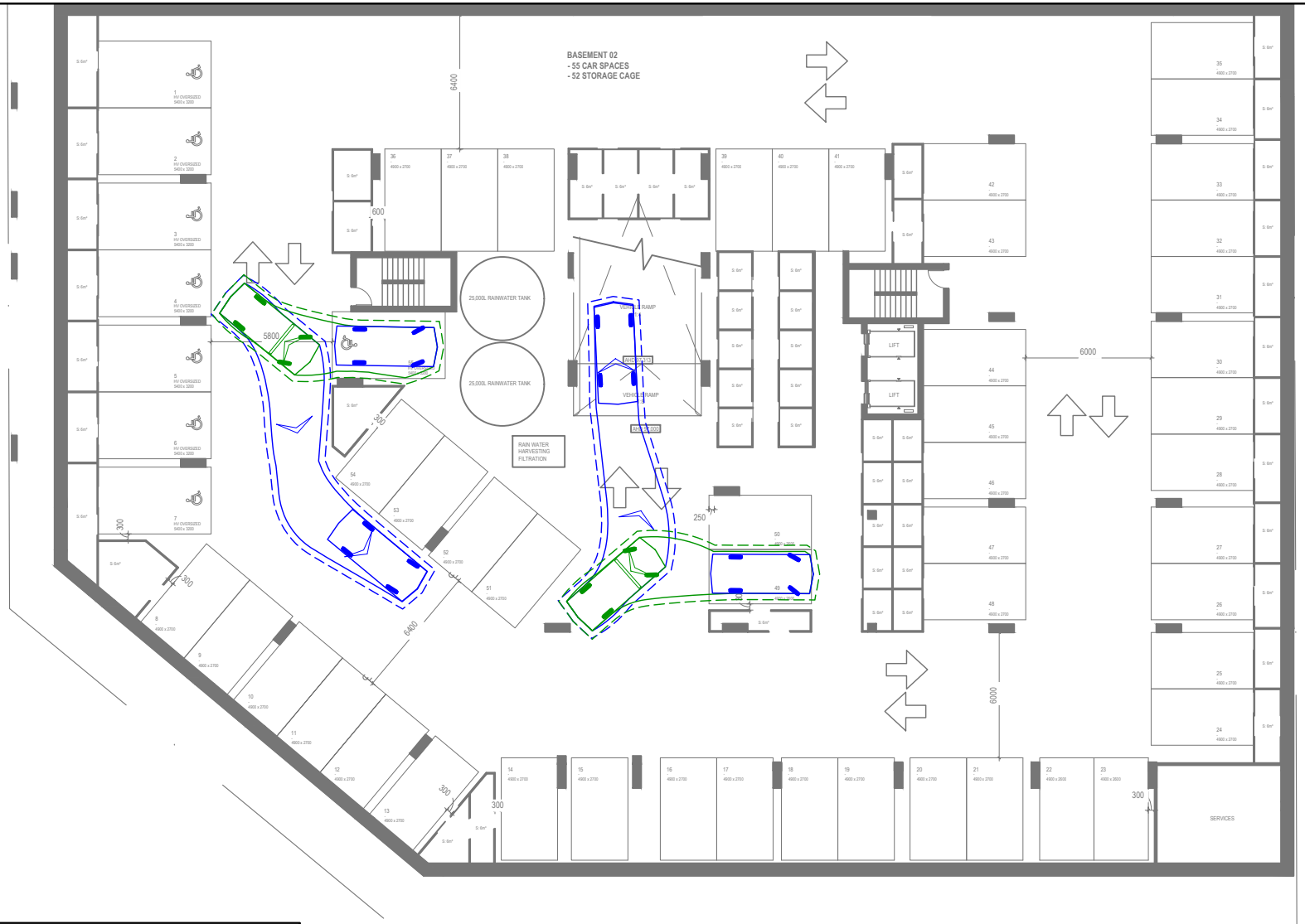
Curb to Curb Turning Radius	5.80m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	10	1:300@A4	22/10/2021



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ratio:

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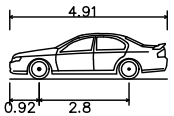
FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)



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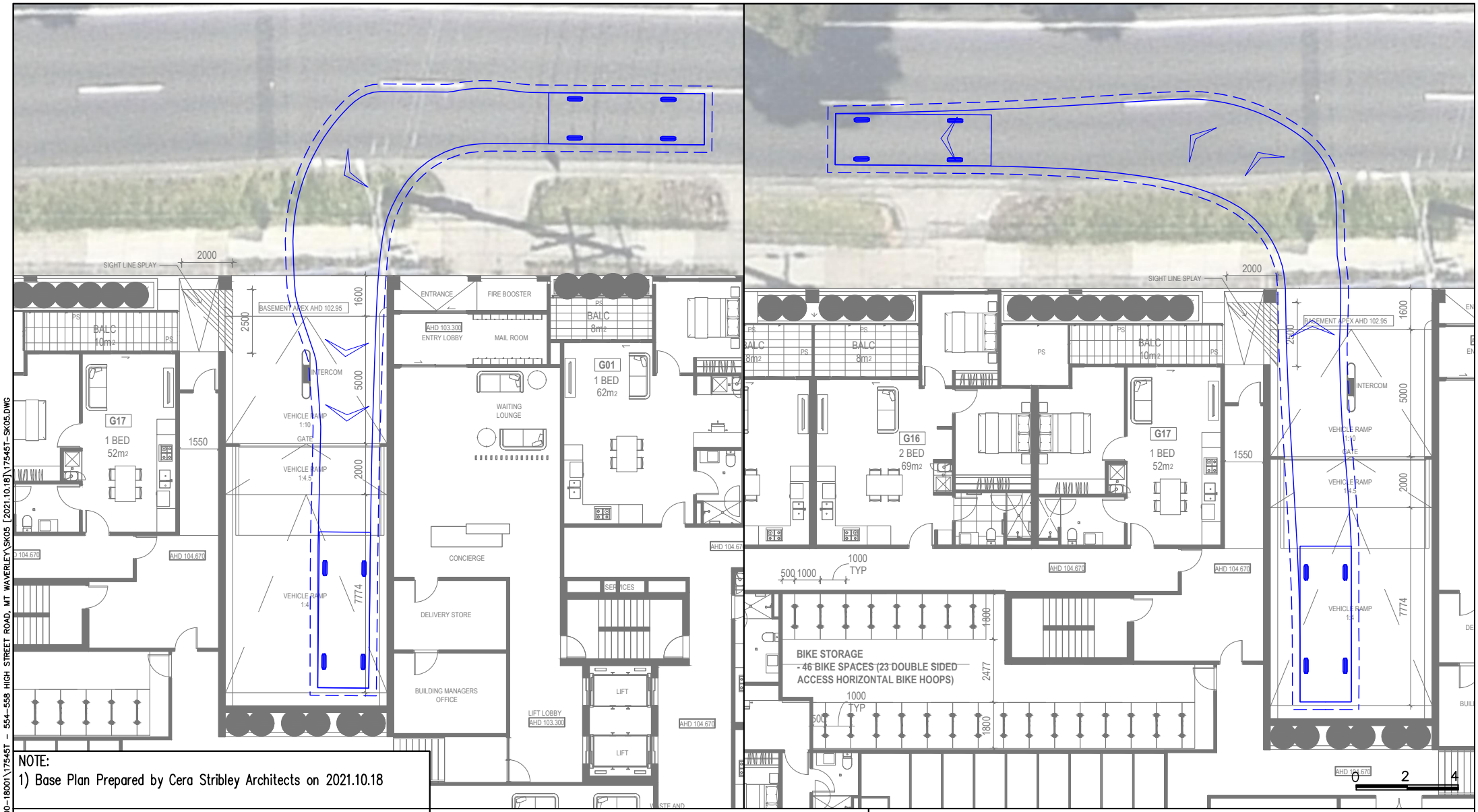
Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 2

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	11	1:300@A4	22/10/2021



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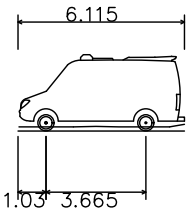

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Ground Floor

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	14	1:200@A4	22/10/2021

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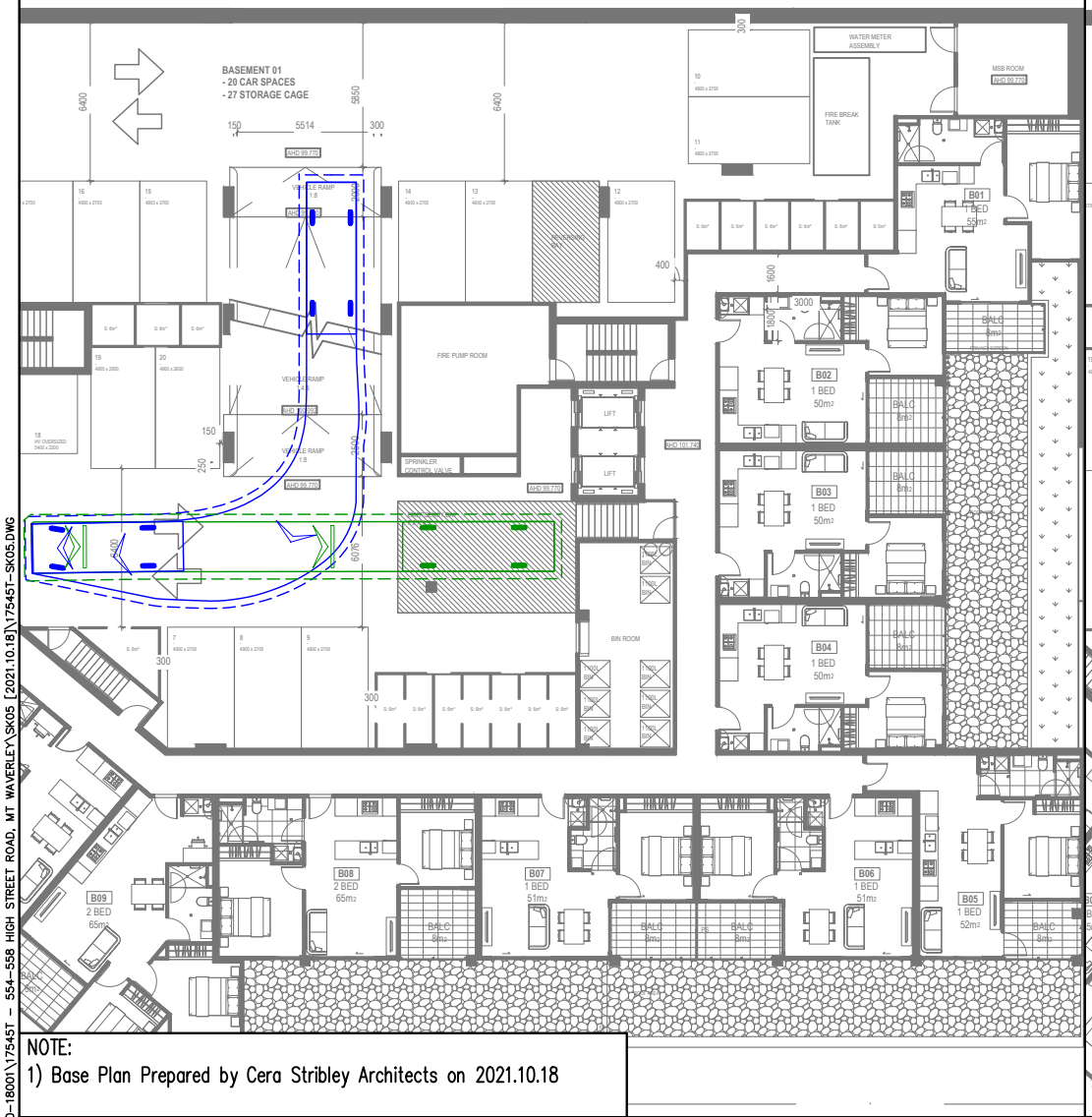

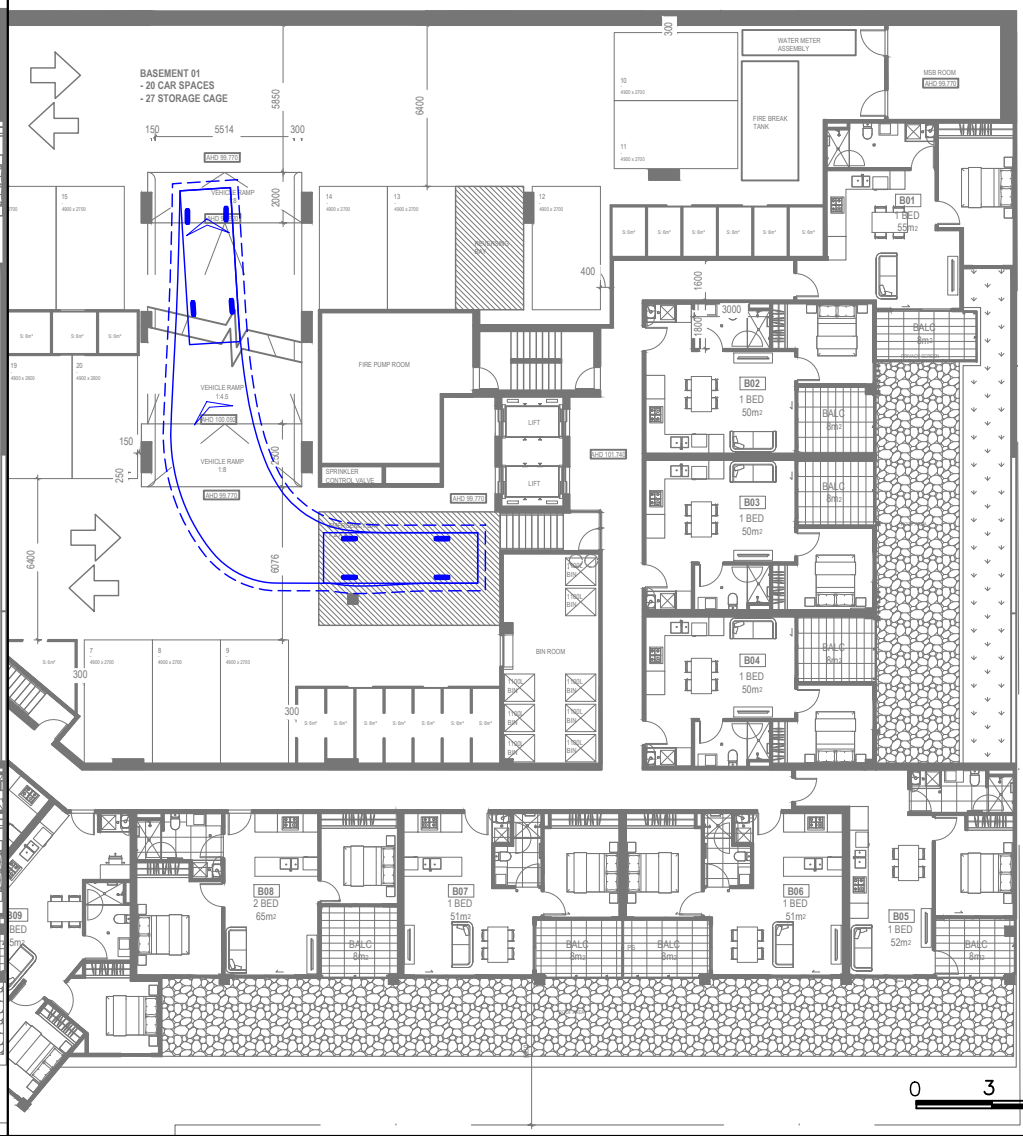

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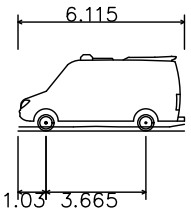
NOTE:
1) Base Plan Prepared by Cera Stribley Architects on 2021.10.18

ratio:

RATIO CONSULTANTS PTY LTD
ABN 005 422 104
8 GWYNNE STREET
CREMORNE, VICTORIA 3121
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011



VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment – Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	15	1:300@A4	22/10/2021

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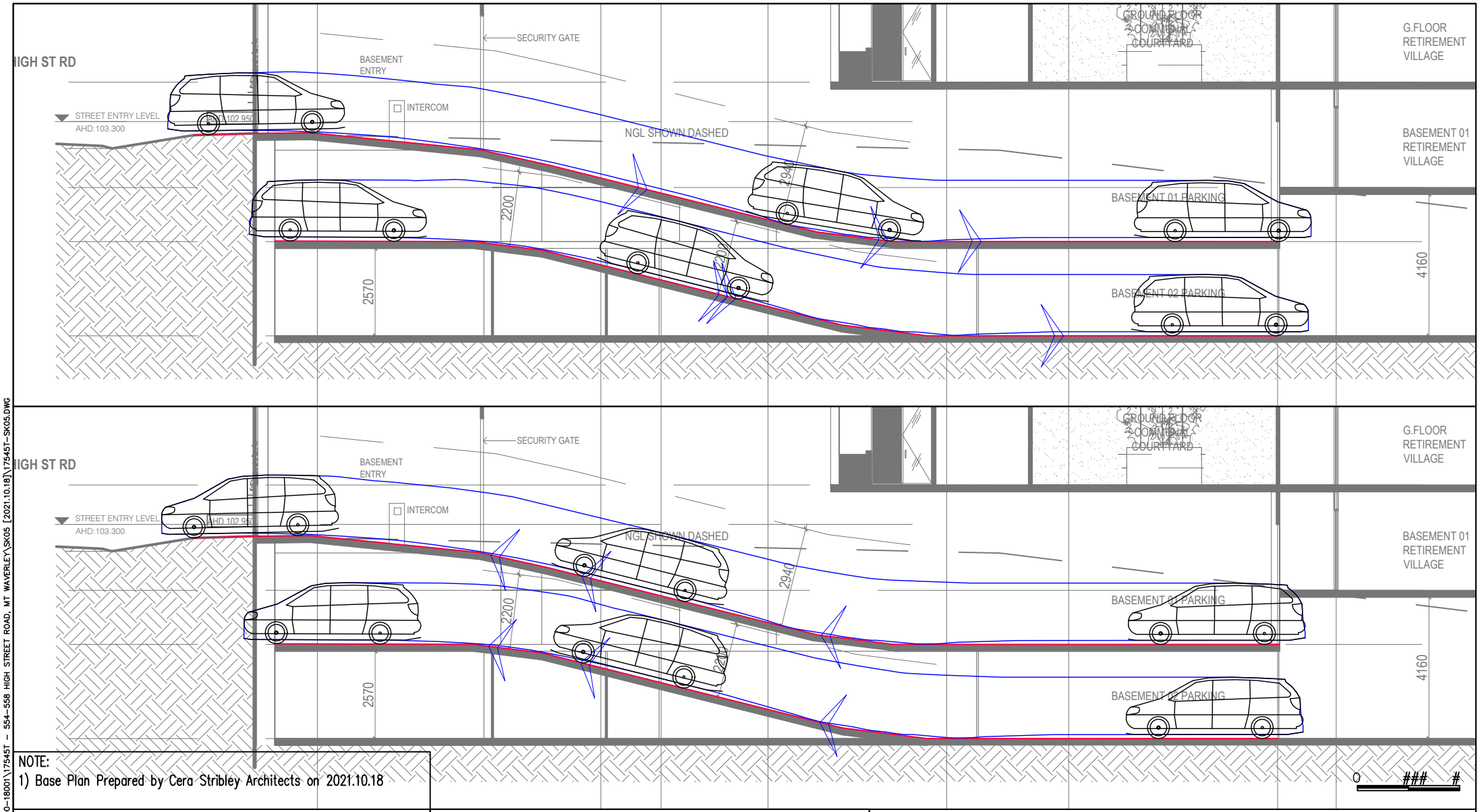

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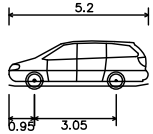
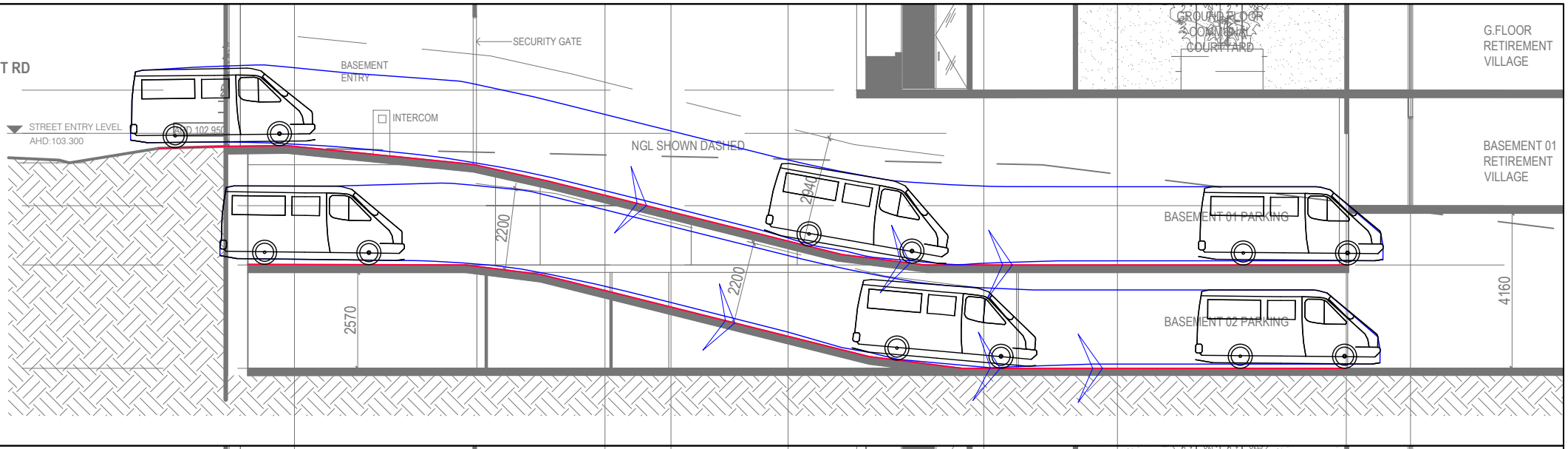
B99 Ground Clearance Model (AS/NZS2890.1:2004)

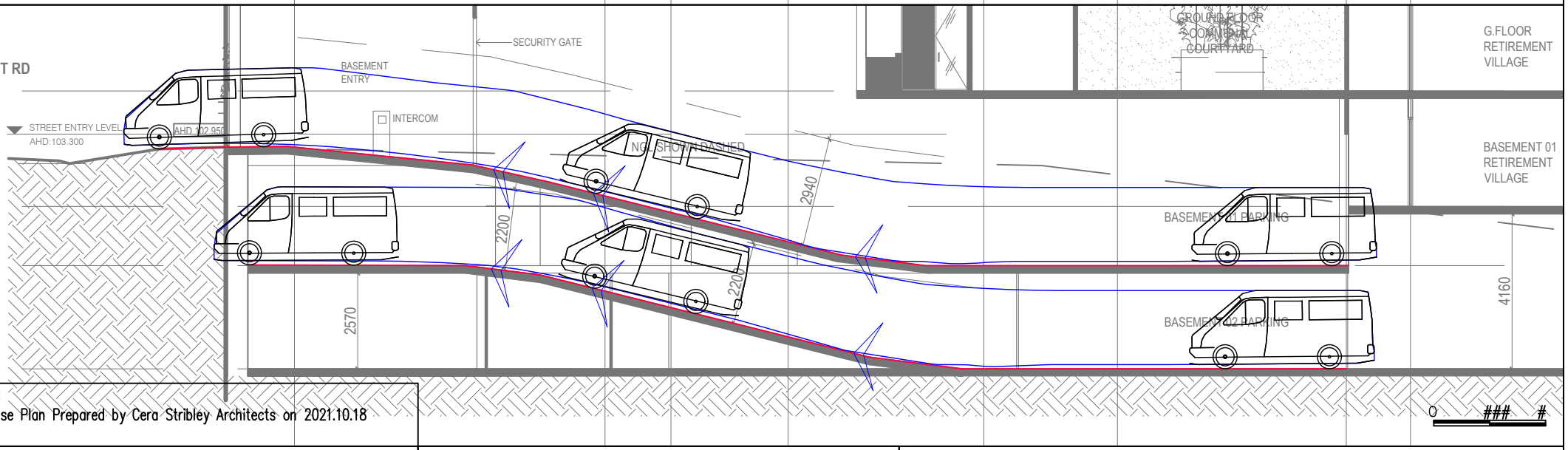


Overall Length	5.200m
Overall Width	1.940m
Min Body Ground Clearance	0.120m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	8.000m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Ground Clearance Assessment

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	16	#####@A4	22/10/2021





NOTE:
1) Base Plan Prepared by Cera Stribley Architects on 2021.10.18

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ratio:

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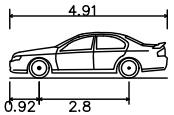
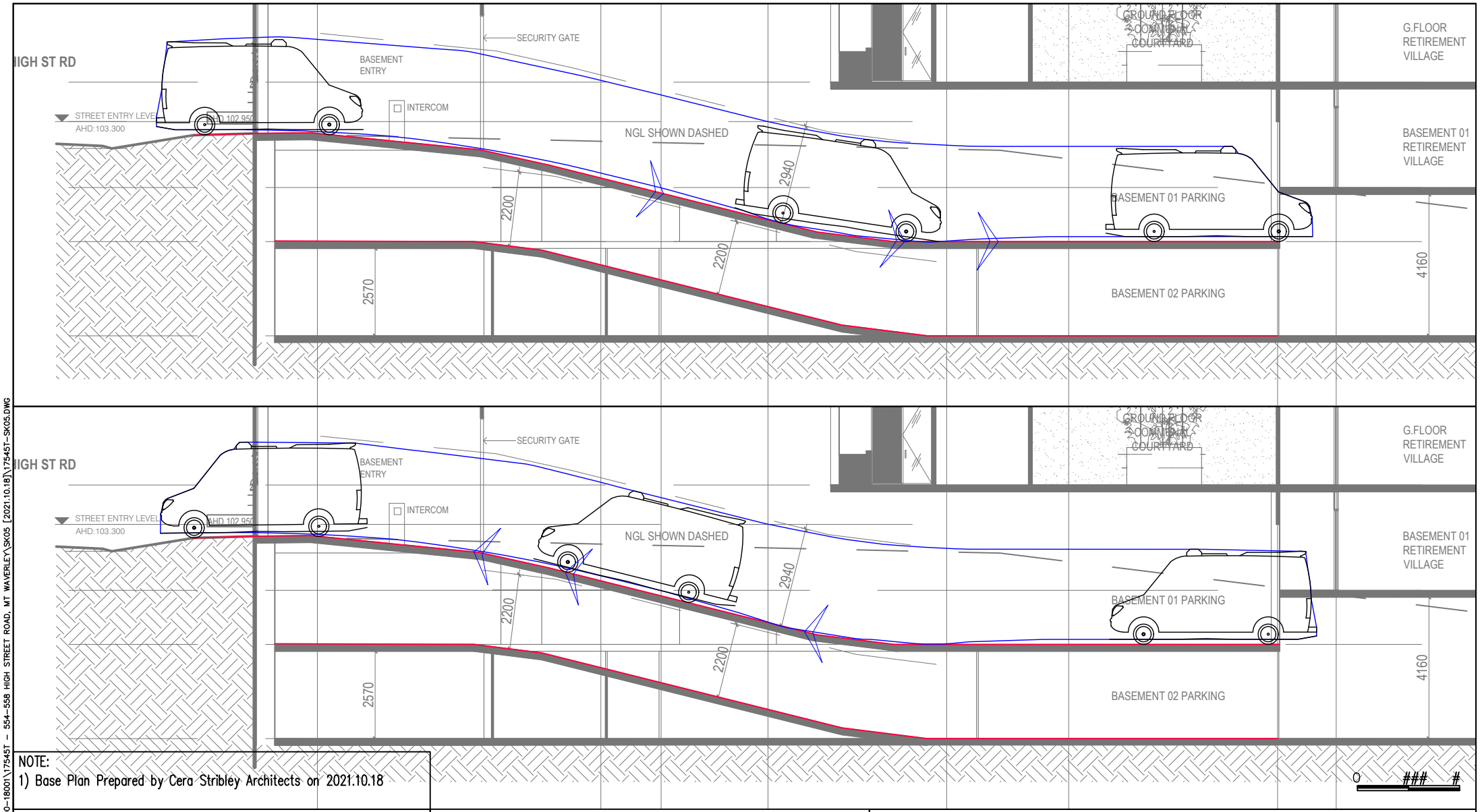
B85 Vertical Model (AS/NZS2890.1:2004)



Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	8.000m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Vertical Clearance Assessment

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	17	#####@A4	22/10/2021



NOTE:
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ratio:

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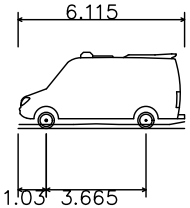


VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Ambulance Victoria – Typical	
Overall Length	6.115m
Overall Width	2.005m
Overall Body Height	2.800m
Min Body Ground Clearance	0.150m
Track Width	1.705m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.800m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Vertical Clearance Assessment

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	18	#####@A4	22/10/2021

Appendix C **Bicycle Parking Specifications**

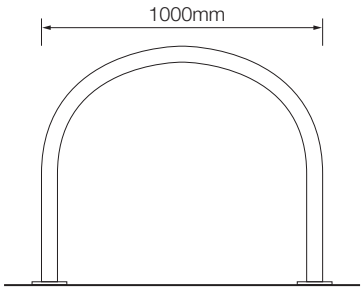
Arc de Triomphe™

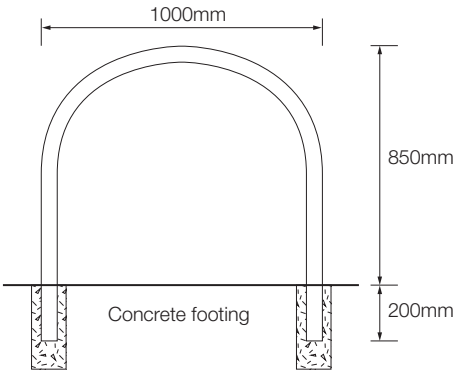
Galvanised finish / Stainless Steel finish

Features

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

Dimensions





Specifications

Material options

- Galvanised (Duragal)
- 316 Marine grade stainless steel

Fixing options

- Welded flange - Bolt on
- In situ

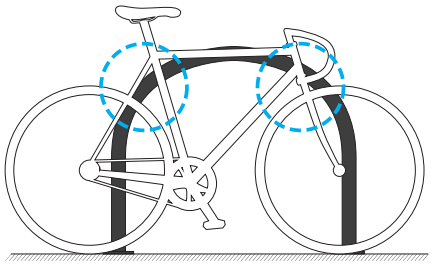
Recommended fasteners

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

Dimensions

1000mm [w] x 850mm [h]

Locking Points



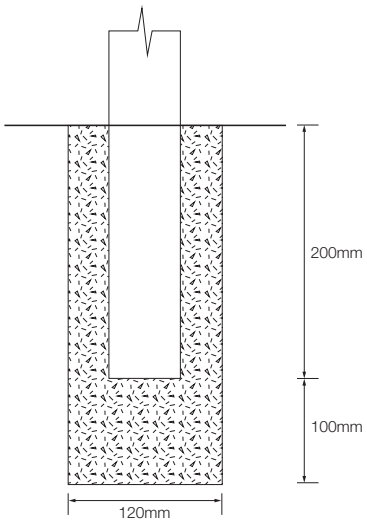
V4.1 - 1/05/2017 | Specification may be subject to change without notice. ©Bicycle Network

BICYCLE NETWORK BIKE PARKING

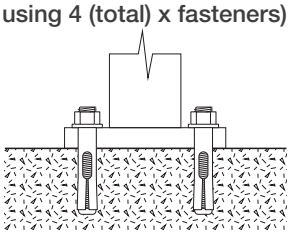
DESIGN. SUPPLY. INSTALL.
Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Fixing options

In situ (Concrete footing)

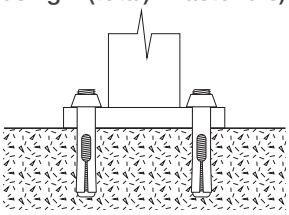


Welded flange (Bolt on)
using 4 (total) x fasteners)



Shown with M10 x 65mm fastener

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

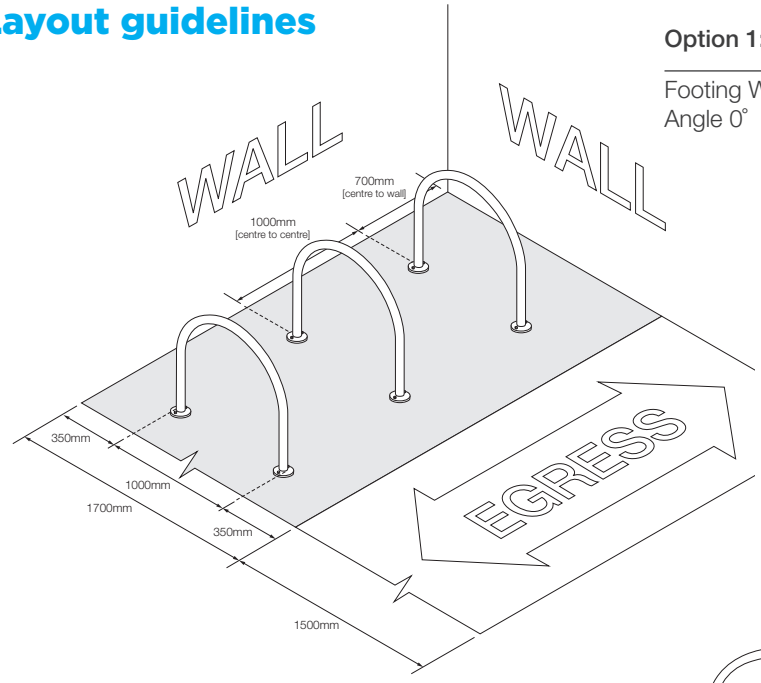


Shown with M10 x 65mm Shear Nuts

Layout guidelines

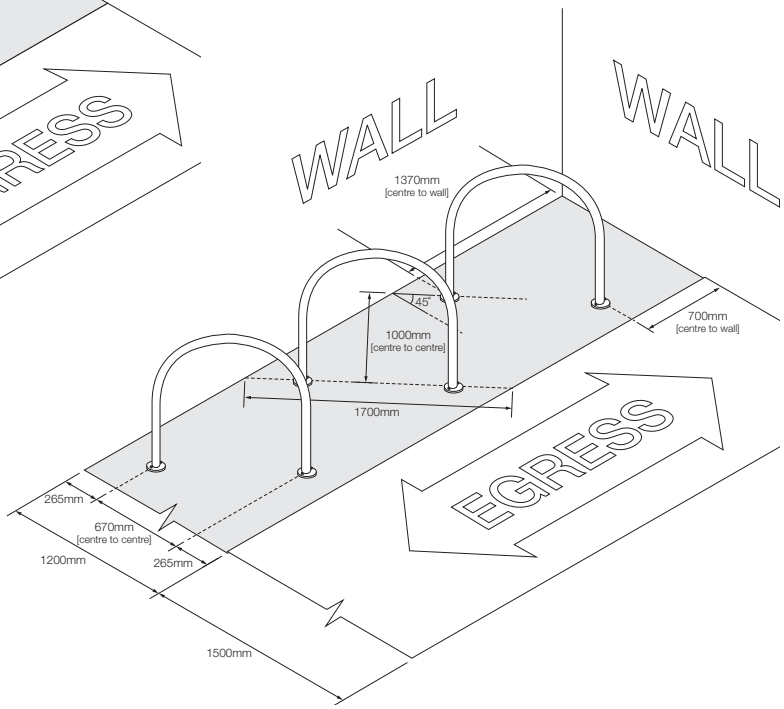
Option 1:

Footing Width 1700mm
Angle 0˚

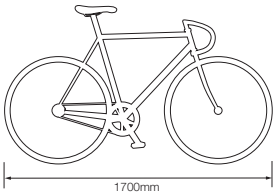


Option 2:

Footing Width 1200mm
Angle 45˚



Typical Bicycle Length

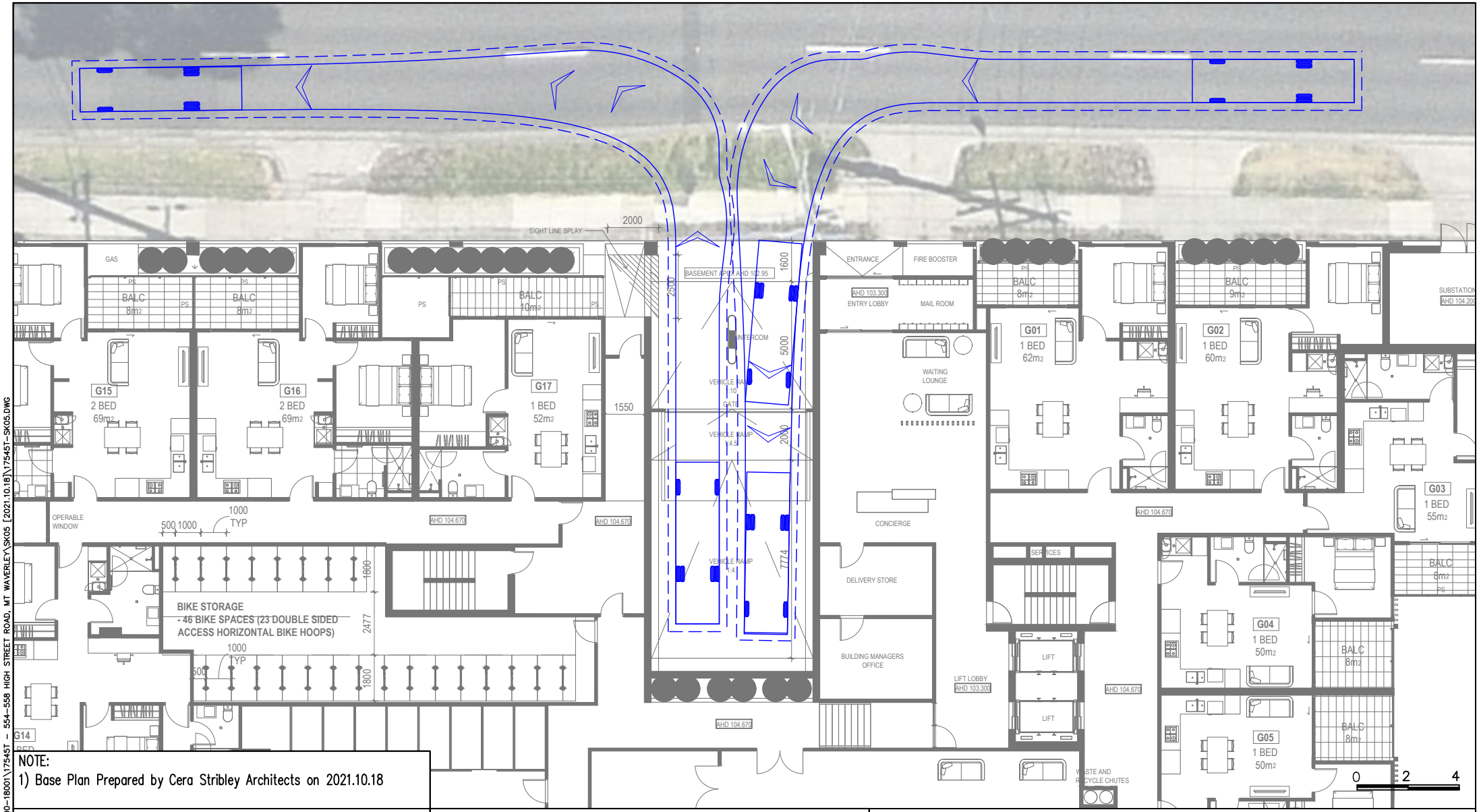


BICYCLE NETWORK BIKE PARKING

DESIGN. SUPPLY. INSTALL.

Bicycle Network ABN 41 026 835 903
p. 1300 727 563 e. parking@bicyclenetwork.com.au bikeparking.com.au
VIC Level 4, 246 Bourke Street, Melbourne VIC 3000 NSW 234 Crown Street, Darlinghurst NSW 2010
TAS 210 Collins Street, Hobart TAS 7000 NT Suite 5, 18-20 Cavenagh Street, Darwin 0800

Appendix D **Waste Collection Swept Path**



NOTE:
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ratio:

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ABN 005 422 104
8 GWYNNE STREET
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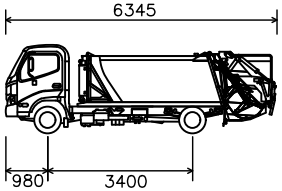
TELEPHONE (03)9429 3111
FACSIMILE (03)9429 3011

Mini-Rear Loader Waste Collection Vehicle

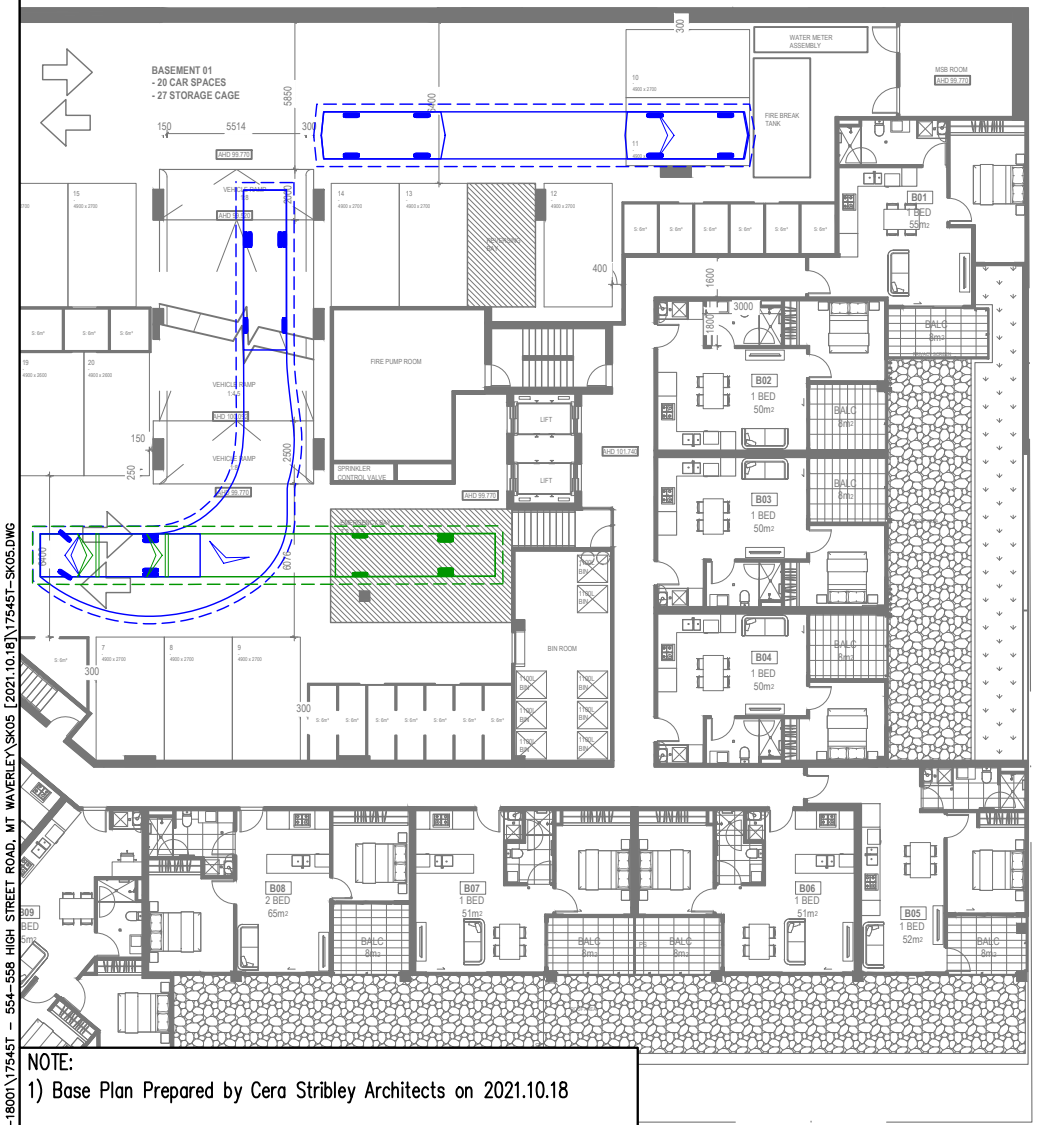


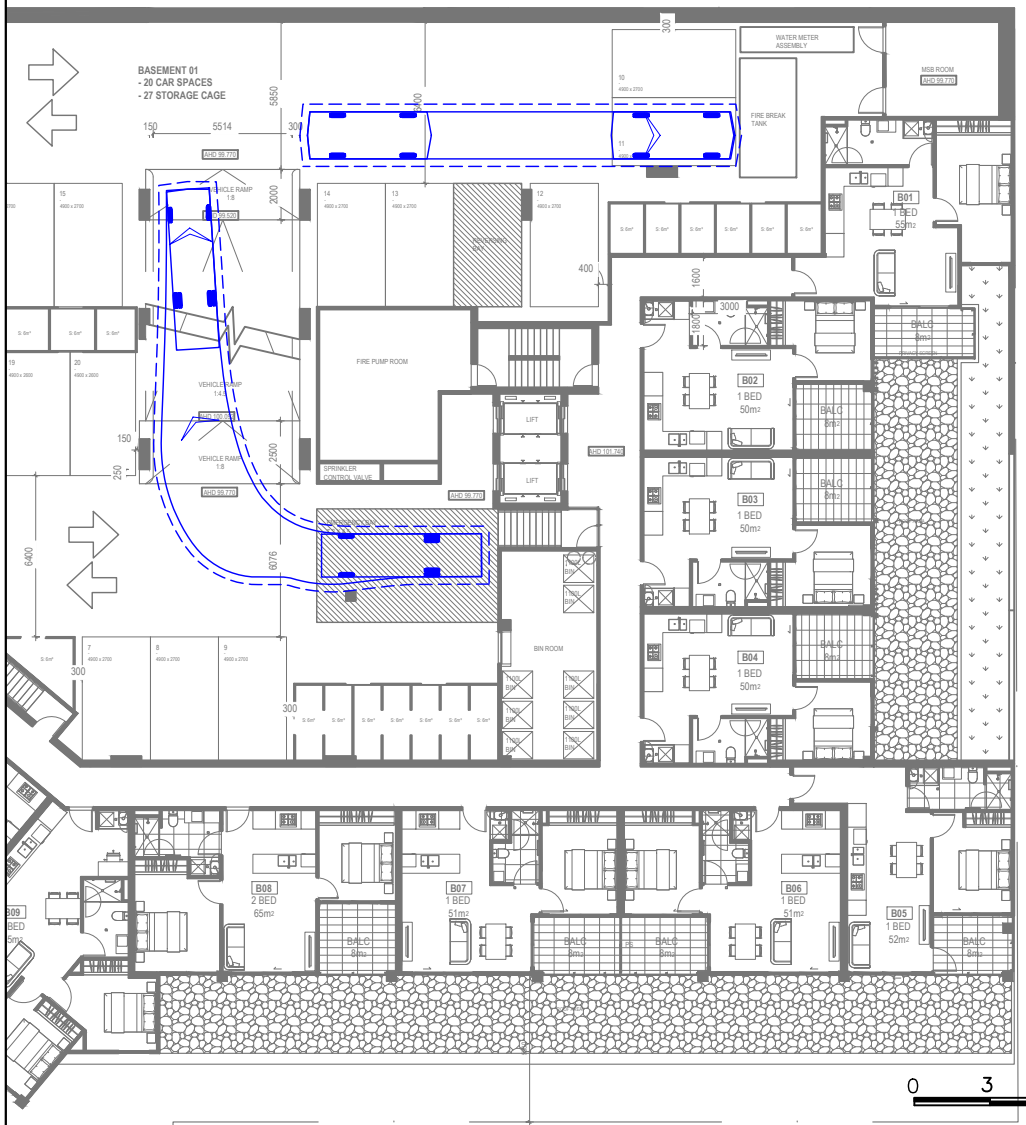
VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	6.345m
Body Width	1.700m
Overall Body Height	2.080m
Min Body Ground Clearance	0.205m
Track Width	1.670m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.450m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment - Ground Floor

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	12	1:200@A4	22/10/2021





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NOTE:
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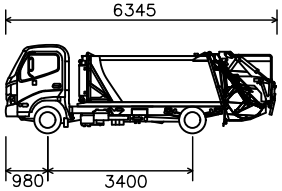

VEHICLE ENVELOPE (FORWARD)
300mm CLEARANCE (FORWARD)
VEHICLE ENVELOPE (REVERSE)
300mm CLEARANCE (REVERSE)

Overall Length	6.345m
Body Width	1.700m
Overall Body Height	2.080m
Min Body Ground Clearance	0.205m
Track Width	1.670m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.450m

Proposed Mixed-Use Development
554 High Street Road, Mount Waverley
Swept Path Assessment - Basement 1

RATIO REFERENCE	SHEET No.	SCALE	DATE
17545T-SK05/SN	13	1:300@A4	22/10/2021

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