

Dear Michael,

20 December 2021

Michael Thompson
Director
Unique Development Group
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**Traffic Impact Assessment Letter
Proposed Residential Development
718-724 High Street Road, Glen Waverley**

As requested, Ratio Consultants has assessed the vehicular access arrangements and car parking layout of the proposed residential development at 718-724 High Street Road, Glen Waverley.

Accordingly, we report as follows:

1 The Proposal

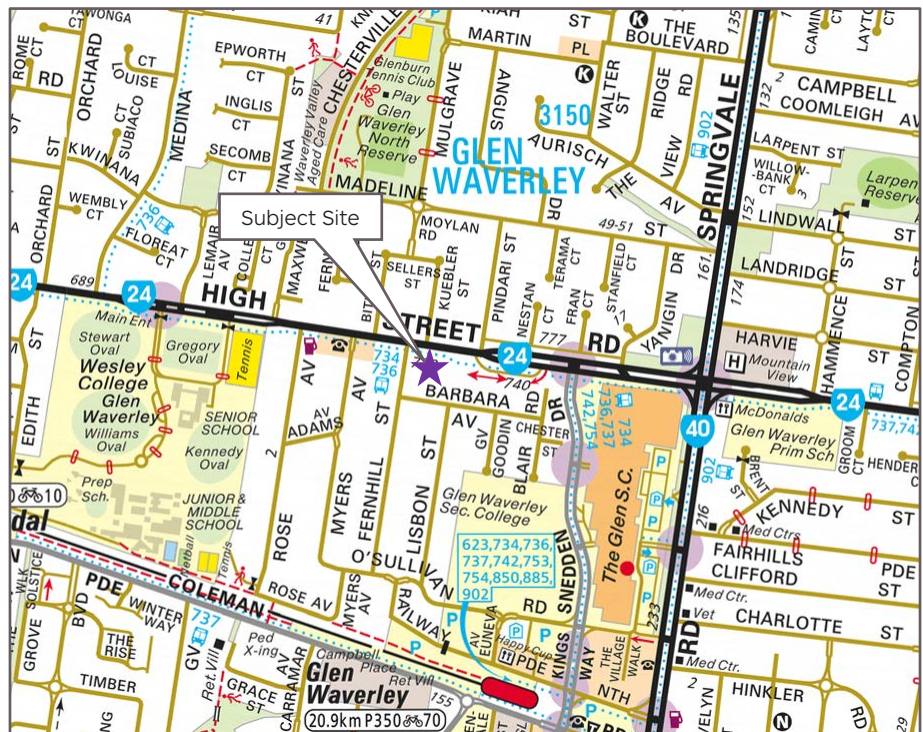
The proposal seeks to demolish the existing dwellings on-site and construct a five-storey residential development with associated basement car parking on the subject site at 718-724 High Street Road, Glen Waverley. More specifically, the development will comprise the following:

- A total of 69 apartments as follows:
 - 5 x one-bedroom apartments.
 - 47 x two-bedroom apartments.
 - 15 x three-bedroom apartments.
 - 2 x four-bedroom apartments.
- 109 x car parking spaces within two levels of basement car parking.
- 32 x bicycle parking spaces.
- Vehicular access to the site is provided via a new double-width vehicle crossover located to the northeast of the subject site. All redundant vehicle crossovers will be removed with kerb, channel and nature-strip reinstated to the satisfaction of the Responsible Authority.
- Primary pedestrian access to the development will be provided via an entrance located centrally along the site's High Street Road frontage.

2 Existing Conditions

The subject site is located on the southern side of High Street Road between Fernhill Street and Pindari Street, in Glen Waverley. Figure 2.1 illustrates the location of the site relative to the surrounding road network.

Figure 2.1: Location of the Subject Site



Source: www.online.melway.com.au/melway

High Street Road is a Primary State Arterial Road under the care and management of the Department of Transport (DoT) that runs in an east-west alignment between its continuation of High Street in Ashburton and Burwood Highway in Knoxfield. High Street Road is also classified as a Road Zone Category 1 (RDZ1) as per the Monash Planning Scheme.

In the vicinity of the subject site, High Street Road has an approximate carriageway width of 13.0 metres, accommodating two lanes of traffic in each direction. Kerbside parallel parking is permitted on both sides of High Street Road outside of Clearway times. Footpaths are provided on both sides of the road and a posted speed limited of 60km/hr applies in the vicinity of the site.

Figure 2.2 provides an aerial photograph of the site and its surrounds.

Figure 2.2: Aerial View of the Site



Source: www.maps.au.nearmap.com

3 Car Parking Assessment

Car parking requirements for Dwelling use are set out under Clause 52.06 of the Monash Planning Scheme.

The subject site is located just outside of the Principal Public Transport Network Area (State Government of Victoria, 2018) and is not subject to a Parking Overlay. In this regard, the Column A rates outlined in Table 1 of Clause 52.06-5 apply to the proposed development.

Accordingly, the statutory car parking requirements for the proposed development have been assessed against these rates and are summarised at Table 3.1.

Table 3.1: Statutory Car Parking Requirement

Land Use	User Group	Type	Number	Column B Rates	Requirement
Dwelling	Resident	Two-bedroom dwellings	52	1 space per dwelling	52 spaces
		Three or more-bedroom dwellings	17	2 spaces per dwelling	34 spaces
	Visitor	n/a	69	For visitors to every 5 dwellings for developments of 5 or more dwellings	13 spaces
Total					99 spaces

On the basis of the above, the proposal has a statutory requirement to provide a total of 99 car parking spaces, with 86 spaces required for residents and 13 spaces required for visitors. A total of 109 on-site resident spaces are proposed (with 96 resident spaces and 13 visitor spaces) and accordingly the proposal satisfies the Monash Planning Scheme requirements for car parking and is therefore considered to be acceptable.

4 Access and Car Parking Layout

The proposed vehicular access arrangements and car parking layout have 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.

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

Design Standard 1 – Accessways

Vehicular access to the site is provided via a new double-width vehicle crossover located to the northeast of the subject site. The vehicular crossover will permit left and right-turn movements out of the site and left-turn movements into the site. The right-turn movement into the site will be banned through the provision of signage at the site access point as shown in Appendix A. These access arrangements respond to the previous request from the Department of Transport (DoT).

All redundant vehicle crossovers will be removed with kerb, channel and nature-strip reinstated to the satisfaction of the Responsible Authority.

The new crossover will be constructed in accordance with the Engineering Standard Drawings of the Department of Transport.

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 4.1 below:

Table 4.1: Design Standard 1 Assessment – Accessways

Requirement	Comments
Must be at least 3m wide.	Satisfied – The on-site accessways have been designed with a minimum width of 4.1 metres (inclusive 300mm wide kerbs on both sides) ensuring that this standard is met.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	Satisfied – The on-site accessways widen to in excess of 4.2 metres at all changes in direction. The swept path assessment undertaken demonstrates that vehicles can access and circulate the site in a suitable manner.
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.	N/A - The proposed car park is not a public car park.

Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	Satisfied – A headroom clearance in excess of 2.2 metres has been provided along the ramps and within the basement levels exceeding this standard and complying with the requirements of AS/NZS2890.1:2004.
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 vehicles 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 6.1 metres for in excess of 7.0 metres ensuring compliance with this standard.
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 landscaping in those areas is less than 900mm in height.	Satisfied – A pedestrian sight triangle with the required dimensions is provided adjacent to the egress lane of the accessway at the site entrance (western side). Any landscaping/fences within this splay will be below 900mm in height or 50% clear of visual obstruction. Given that the accessway is double-width at the entrance to the site a pedestrian sight triangle is not required adjacent to the ingress lane (eastern side).
If an accessway to four or more car parking spaces is from land in a Road Zone, the access to the car spaces must be at least 6m from the road carriageway.	Satisfied – Access to the car spaces is at least 6.0 metres from the road carriageway.
If entry to the car space is from a road, the width of the accessway may include the road.	N/A - Entry to the car spaces is not accessed directly from a road.

Design Standard 2 – Car Parking Spaces

A total of 109 x car parking spaces are proposed within two levels of basement car parking, as follows:

- 55 car parking spaces on Basement 1 including nine tandem parking pairs; and
- 54 car parking spaces on Basement 2 including seven tandem parking pairs.

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 4.2:

Table 4.2: 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.	<p>Satisfied – Car parking spaces comprise the following typical dimensions:</p> <ul style="list-style-type: none"> - 2.6 metres wide by 4.9 metres long with an accessway width of at least 6.4 metres; or - 2.8 metres wide by 4.9 metres long accessed by an accessway width of at least 5.8 metres. <p>These dimensions comply with Table 2 to Design Standard 2.</p>
<p>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:</p> <ul style="list-style-type: none"> - 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. 	<p>Satisfied – All car parking spaces are provided with clearance as per Diagram 1 of Design Standard 2.</p>
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.	<p>N/A – no garages are proposed.</p>
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	<p>Satisfied – An additional 500mm in length is provided between the tandem parking spaces.</p>
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	<p>Satisfied – All car parking spaces are provided within the basement car park.</p>

Design Standard 3 – Gradients

The entrance ramp (from GF to B1) comprises the following gradients and transitions:

- Initial gradient of 1:10 for 5.0 metres;
- Mid-block gradient of 1:4.5 for 7.08 metres; and
- Final gradient of 1:10 for 2.0 metres.

The internal ramp (from B1 to B2) comprises the following gradients and transitions:

- Initial gradient of 1:8 for 2.5 metres;
- Mid-block gradient of 1:4.5 for 9.8 metres; and
- Final gradient of 1:8 for 2.5 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 4.3:

Table 4.3: 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.	Satisfied – The entrance ramp comprises an initial grade of 1:10 for the first 5 metres from the frontage.
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.	Satisfied – The proposed grades are in accordance with Table 3 of Design Standard 3, with grades no steeper than 1:4.5.
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.	Satisfied - Appropriate transition sections have been provided to prevent scraping or bottoming.

Swept Path Assessment

An assessment (refer to Appendix A) of the accessibility to/from the site using the 'Autodesk Vehicle Tracking' software has been conducted. The B99 vehicle (99.8th percentile vehicle as defined by AS/NZS2890.1:2004) was used in the assessment and it was found that this vehicle could access the site in a suitable manner.

An assessment of the accessibility to/from all parking spaces was also undertaken using B85 vehicle (85th percentile vehicles as defined by AS/NZS2890.1:2004) and it was found that all critical car spaces could be

accessed (ingress and egress) in a satisfactory manner. Further, all vehicles will be able to enter / exit the site in a forward's directions.

Some corrective manoeuvres may be required, which is in accordance with AS/NZS2890.1:2004 (Table 1.1), which specifies that three-point turn movements to enter and exit 90-degree parking spaces are permitted for regular users (such as residents).

Reverse-in entry manoeuvres are shown for some spaces, which is in accordance with Clause B4.3 of AS/NZS 2890.1:2004, which states that reverse manoeuvres associated with residential parking spaces are acceptable in instances where the site geometry requires, as is the case with some of the parking spaces proposed.

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

Vertical Clearance and Ground Clearance Assessment

An assessment (refer to Appendix B) of the vertical clearance and ground clearance along the basement ramp has been undertaken using the 'Autodesk Vehicle Tracking' software. The B99 'Vertical Clearance Model' (vehicle with a height of 2.2 metres and a wheel base of 3.05 metres as detailed in AS/NZS 2890.1:2004) was used in the vertical clearance assessment and it was found that the vehicle could gain access (ingress and egress) in a satisfactory manner without scraping any overhead obstructions.

The B99 'Ground Clearance Model' (vehicle with a wheel base of 3.05 metres and minimum ground clearance of 120mm as detailed in AS/NZS 2890.1:2004) was used in the ground clearance assessment and it was found that the vehicle could gain access (ingress and egress) in a satisfactory manner without scraping or bottoming out.

The assessment indicates that the access ramp has been designed appropriately and in accordance with the requirements of the Monash Planning Scheme, and/or AS/NZS 2890.1:2004.

5 Bicycle Parking

Clause 52.34 – Bicycle Parking Requirements

The provisions set out under Clause 52.34-3 of the Monash Planning Scheme establish the requirement for bicycle parking spaces. The relevant rates are applied to the development in Table 5.1.

Table 5.1: Bicycle Parking Provision

Use	Numbers	User	Statutory Parking Rate	Statutory Requirement
Dwellings	69 dwellings	Residents	1 space to each 5 dwellings.	14 spaces
		Visitors	1 space to each 10 dwellings.	7 spaces
TOTAL				21 spaces

On the basis of the above, the proposal has a requirement to provide 21 bicycle spaces. A total of 32 bicycle parking spaces are proposed as follows:

- 6 dedicated visitor spaces in a publicly accessible location fronting High Street Road; and
- 26 resident bicycle parking spaces within a secure room on Basement 1. Any overflow visitor bikes could be stored within Basement 1 with the assistance of a resident for access.

Accordingly, the bicycle parking provision exceeds the requirements of Clause 52.34-3 of the Monash Planning Scheme and is therefore considered acceptable.

Bicycle Parking Layout

Bicycle parking spaces have been designed in accordance with the dimensional requirements of AS2890.3:2015. More specifically, the following standards have been met:

- AS 2890.3:2015 requires that 20% of the bicycle parking be provided within ground level (horizontal) rails. The proposed bicycle provision comprises only ground level (horizontal) rails, which exceeds the requirement outlined in the Australian Standard.
- Horizontal bicycle rails are provided with an envelope of 1.8 metres in length by 1.0 metres in width and are accessed via a 1.5 metre wide aisle.

Accordingly, the bicycle parking has been designed appropriately and in accordance with the relevant sections of AS2890.3:2015.

The bicycle parking specifications are provided within Appendix C.

6 Waste Collection Arrangements

A Waste Management Plan (WMP) has been prepared by Leigh Design.

A bin room is proposed to be provided on Basement 2. Waste is proposed to be collected on-site by a private waste contractor using the mini-rear loader waste collection vehicle which is 6.4 metres long and 2.08 metres

high. The swept path assessment included at Appendix A of this letter shows the nominated waste collection vehicle can access the site, collect waste, and exit the site in a suitable manner.

This is considered to be an acceptable arrangement from a transport engineering perspective. Refer to the WMP report for further details.

7 Loading and Unloading Activities

“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.”*

Given the residential nature of the proposal, it is not anticipated that service and delivery vehicles will regularly seek to access the site for loading. Some vans / small trucks may occasionally seek to access the site for the loading / unloading of furniture and goods into and out of the dwellings. This will largely occur when residents initially move into a dwelling, and relatively infrequently thereafter.

Loading of vans and smaller trucks with a height clearance of 2.2 metres or less can load informally within the basement car park, with larger trucks with a greater height clearance using the surrounding on-street parking.

On the basis of the above, it is considered that sufficient provision has been made to accommodate the loading / unloading activities of the proposed development.

8 Traffic Assessment

Traffic Generation

In consideration of the locality of the site and level of accessibility to public transport, it is conservatively estimated that dwellings allocated one car space will generate traffic at a rate of four vehicle movements per day and dwellings allocated two car spaces will generate traffic at a rate of six vehicle movements per day.

Application of these rates to the proposed dwellings (69 dwellings) results in a daily traffic volume of 330 vehicle movements per day, including approximately 33 vehicle movements (10%) per hour during periods of peak activity.

The majority of the traffic generated by the residential component of the development during the AM peak period will be residents departing the site (80 percent out and 20 percent in) and the majority of the traffic during the PM peak period will be residents returning to the site (40 percent out and 60 percent in).

Accordingly, the expected residential trip generation for a typical weekday AM and PM peak hours, is estimated as shown in Table 8.1.

Table 8.1: Residential Traffic Generation

Direction	AM Peak	PM Peak
Arriving Trips	7 vph	20 vph
Departing Trips	26 vph	13 vph
Total Trips	33 vph	33 vph

On the basis of the above, it is estimated that the development will generate up to 33 vehicle movements during peak hour periods (equating to one vehicle movement every two minutes).

Traffic Impact

The additional traffic generated by the proposed residential development will flow directly onto High Street Road. As discussed in Section 4, the access will restrict the right-turn movement into the site from High Street Road. Vehicles seeking to access the site from the west can conveniently undertake a U-turn movement at the intersection of Snedden Drive approximately 250 metres to the east of the site access point. This arrangement will ensure that the site generated traffic has minimal impact to through traffic on High Street Road.

The surrounding road network has the ability to accommodate the expected increase in traffic volume (in the order of 33 vehicle movements in AM and PM peak hours) associated with the proposed development. This level of traffic is equivalent to a single movement being generated during the peak hours, on average, every two minutes.

Given that all vehicles will be able to exit the site in a forward direction onto High Street Road, it is anticipated that the level of traffic generated by the proposed development is unlikely to have a material impact on the operation and performance of the surrounding road network.

9 Conclusion

The proposal seeks to demolish the existing dwellings on-site and construct a five-storey residential development with associated basement car parking on the subject site at 718-724 High Street Road, Glen Waverley.

Based on the preceding assessment, the development is appropriate for the following reasons:

- The proposed parking provision exceeds the statutory car parking requirements of Clause 52.06 of the Monash Planning Scheme and is therefore considered acceptable.
- The proposed car parking layout and vehicular access arrangements have been designed in accordance with the dimensional requirements of Clause 52.06 of the Monash Planning Scheme and the relevant sections of AS/NZS 2890.1:2004.
- The swept path assessment demonstrates that access to/from the site and car spaces is satisfactory.
- Waste is proposed to be collected on-site by a private contractor. The swept path assessment undertaken demonstrates the ability for this vehicle to enter and exit the site in a suitable manner. Accordingly, this arrangement is considered acceptable from a transport engineering perspective.
- The development is estimated to generate in the order of 33 vehicle movements to/from High Street Road during the AM and PM peak hour periods (one vehicle every two minutes on average). This level of traffic will not create any discernible impacts on the operation of High Street Road or the wider road network.

Overall, the proposed development is not expected to create any adverse traffic or parking impacts in the precinct and is therefore considered acceptable.

If you have any queries, please feel free to contact the undersigned on 9429 3111.

Yours sincerely,

A handwritten signature in black ink that reads "James McKenzie". The signature is written in a cursive style with a large initial 'J' and 'M'.

James McKenzie
Associate Traffic Engineer
Ratio Consultants

Appendix A Swept Path Assessment



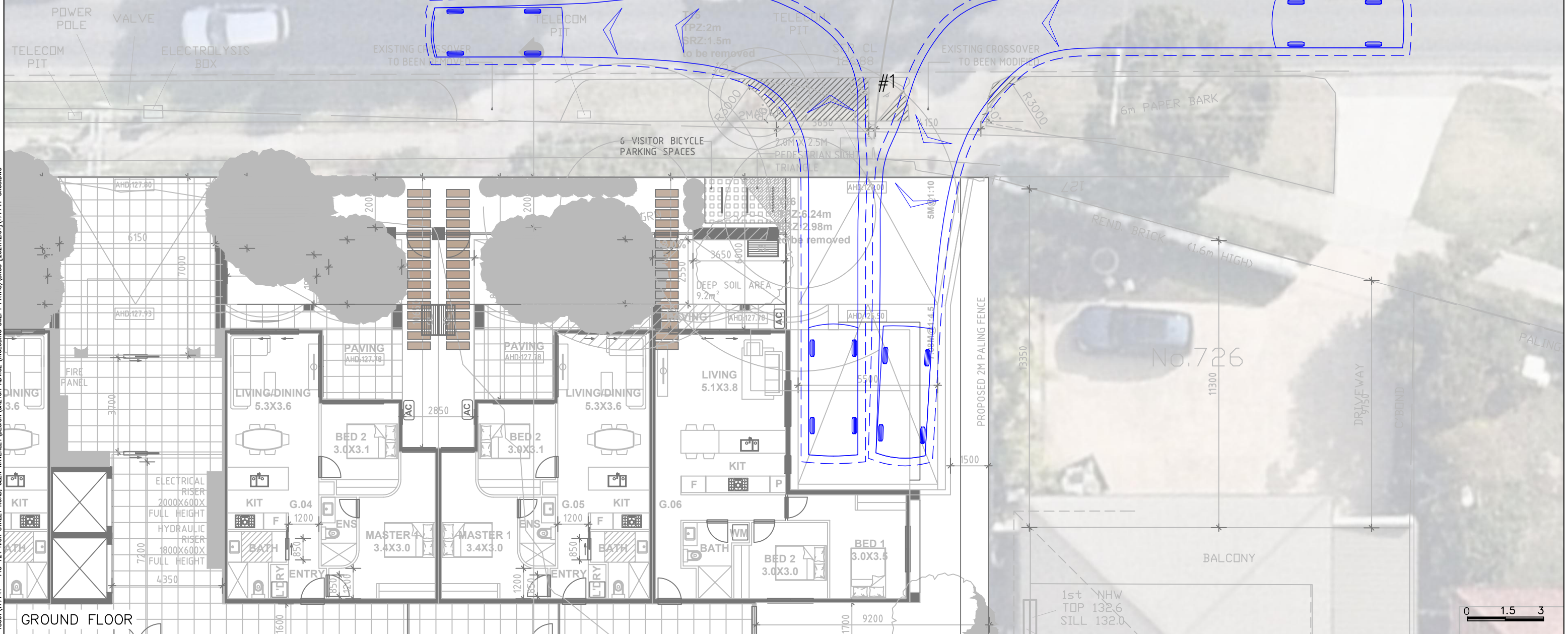
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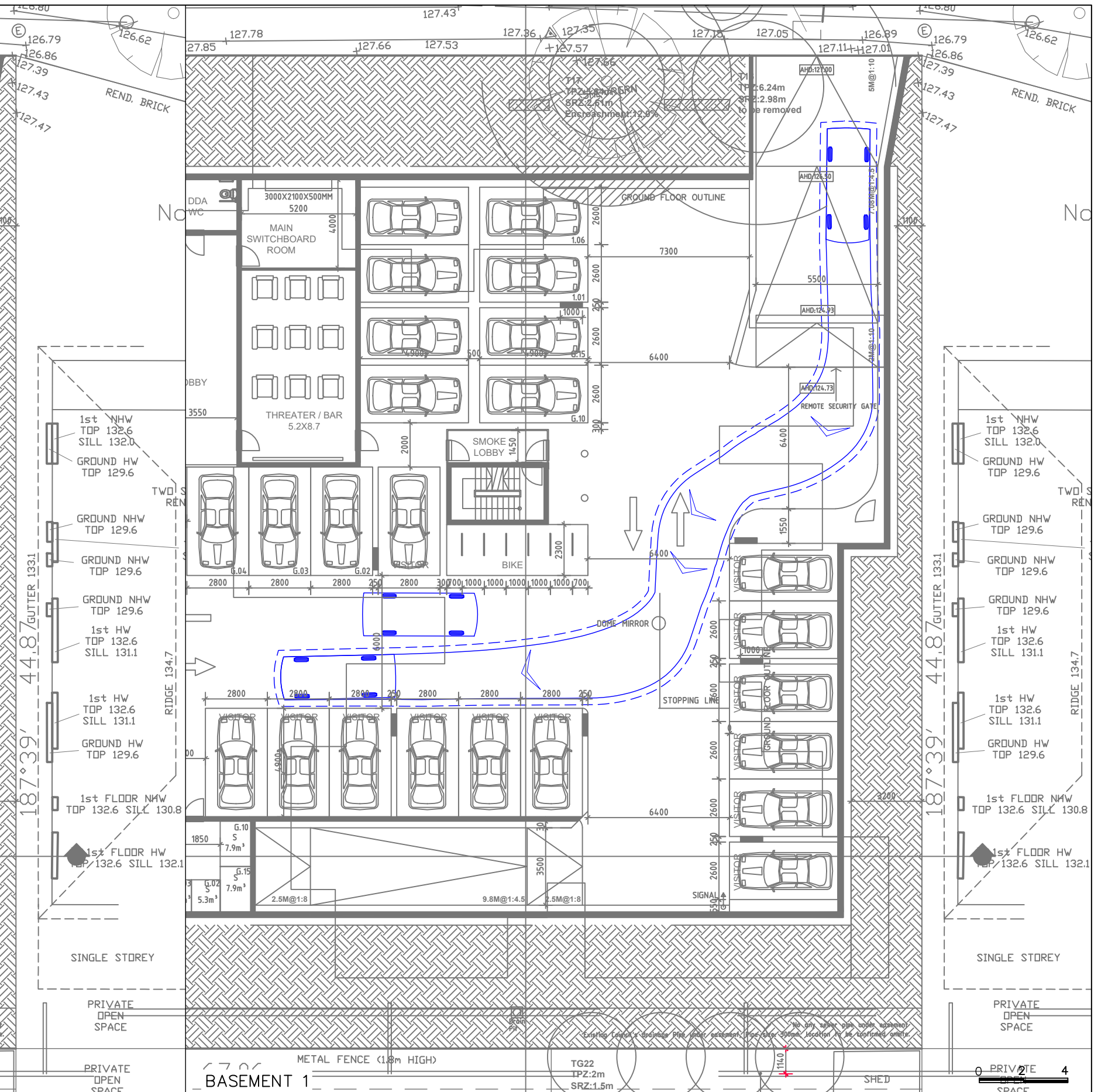
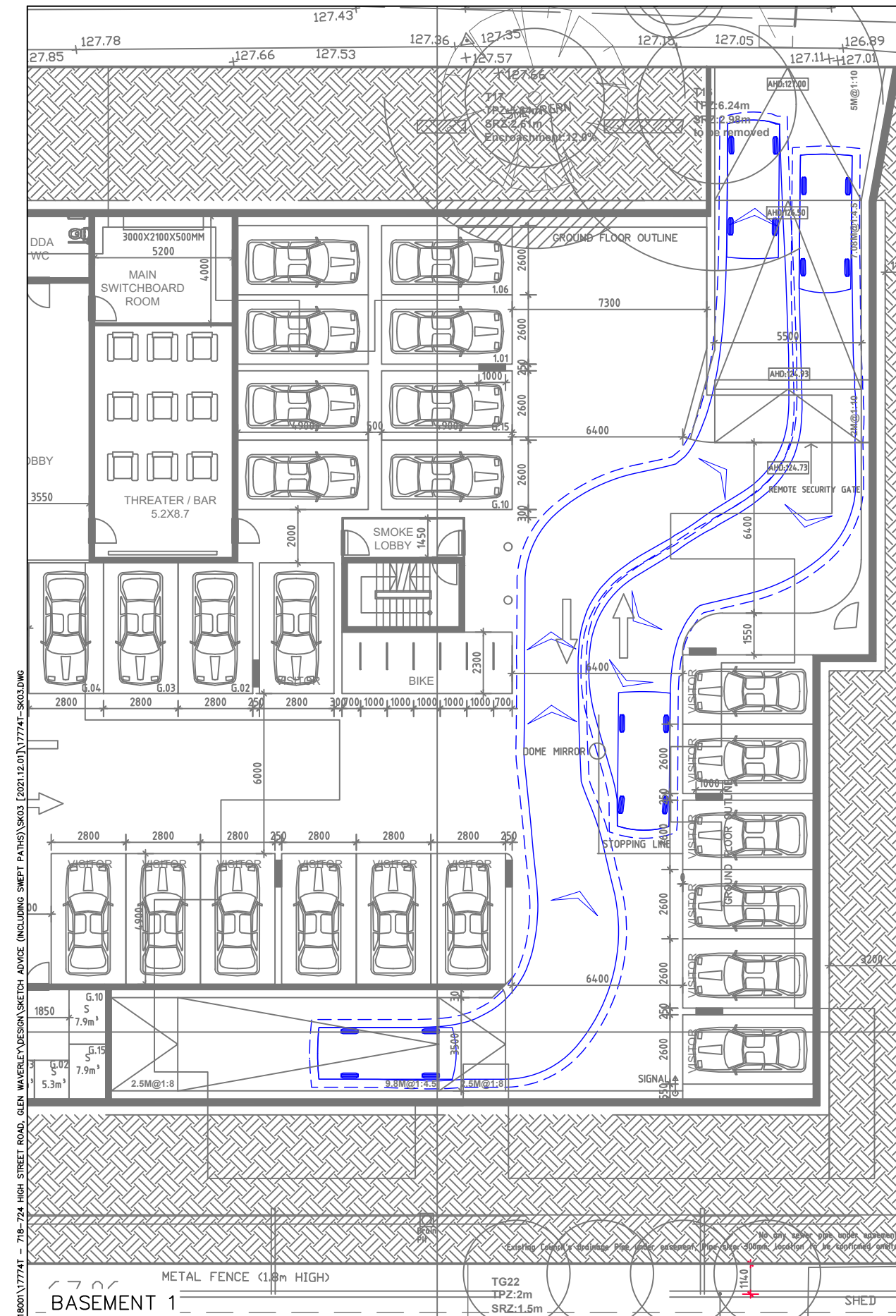
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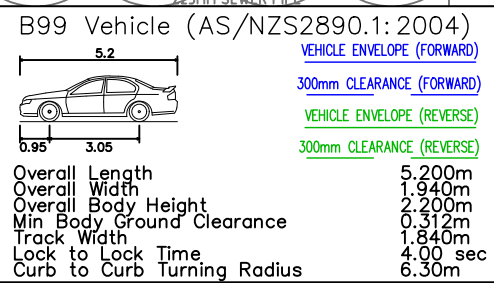


<p>RATIO CONSULTANTS PTY LTD ABN 005 422 104 8 GWYNNE STREET CREMORNE, VICTORIA 3121 TELEPHONE (03)9429 3111 FACSIMILE (03)9429 3011</p>	<p>B99 Vehicle (AS/NZS2890.1:2004)</p> <p>Overall Length 5.200m Overall Width 1.940m Overall Body Height 2.200m Min Body Ground Clearance 0.312m Track Width 1.840m Lock to Lock Time 4.00 sec Curb to Curb Turning Radius 6.30m</p>	<p>Proposed Residential Development 718-724 High Street Road, Glen Waverley Swept Path Assessment</p>		<p>NOTE: 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20 2) Maximum Design Speed 10km/h</p>	<p>RATIO REFERENCE 17774T-SK03/JM</p>	<p>SHEET No. 1 of 13</p>	<p>SCALE 1:150@A3</p>	<p>DATE 20/12/2021</p>



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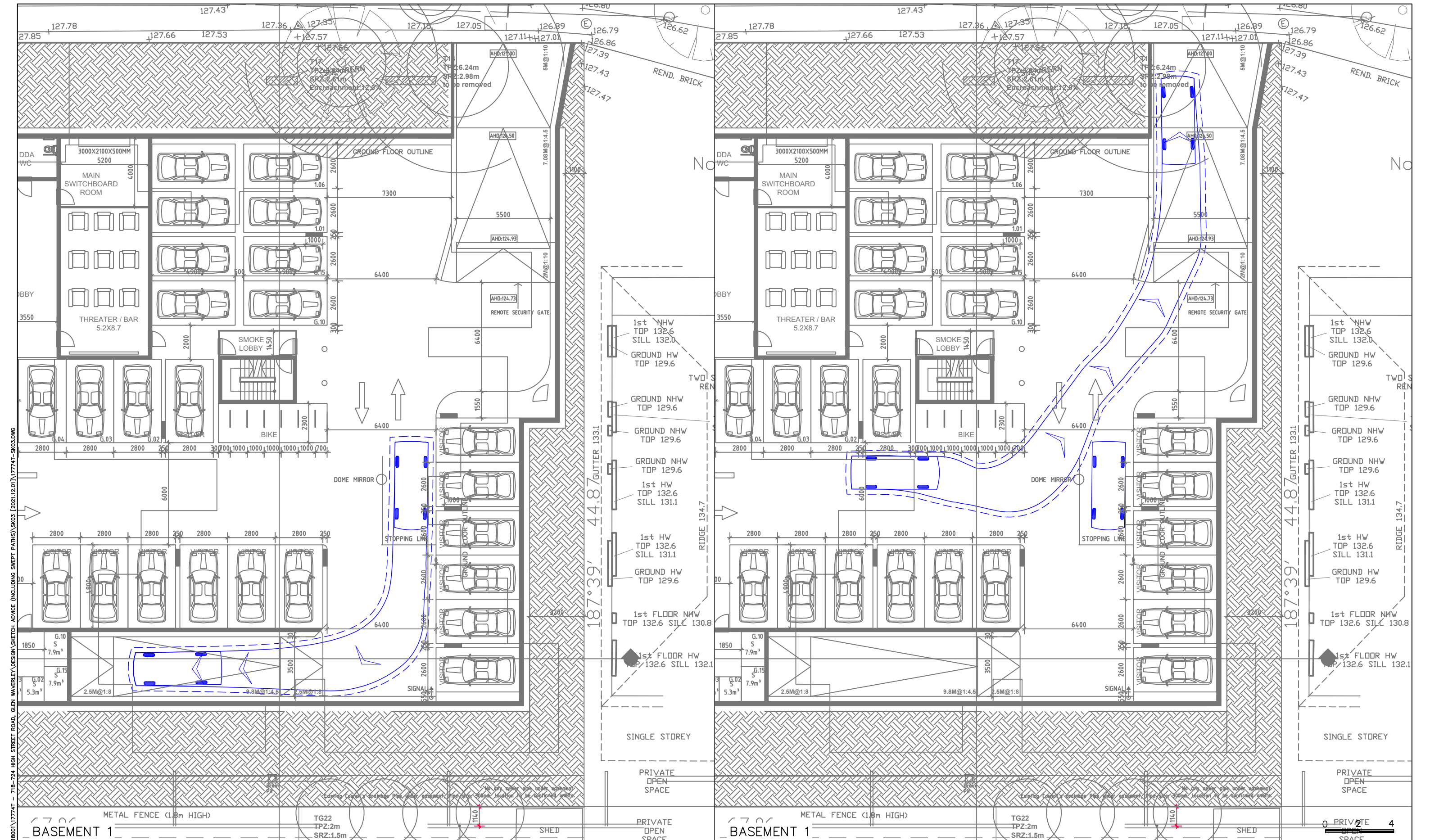
**Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment**

NOTE:
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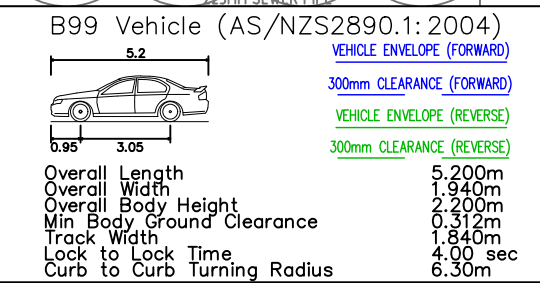
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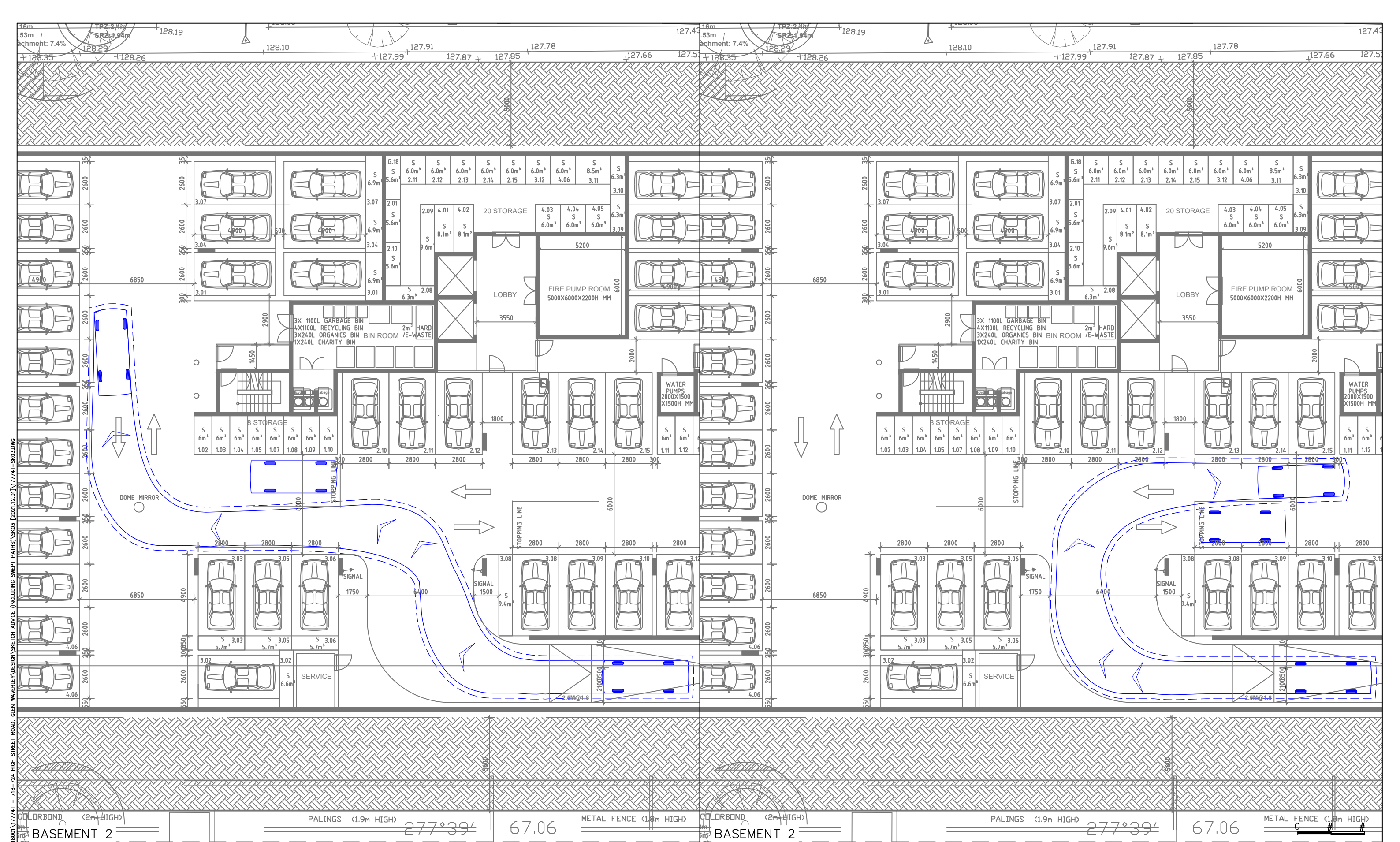
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B99 Vehicle (AS/NZS2890.1:2004)

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 Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

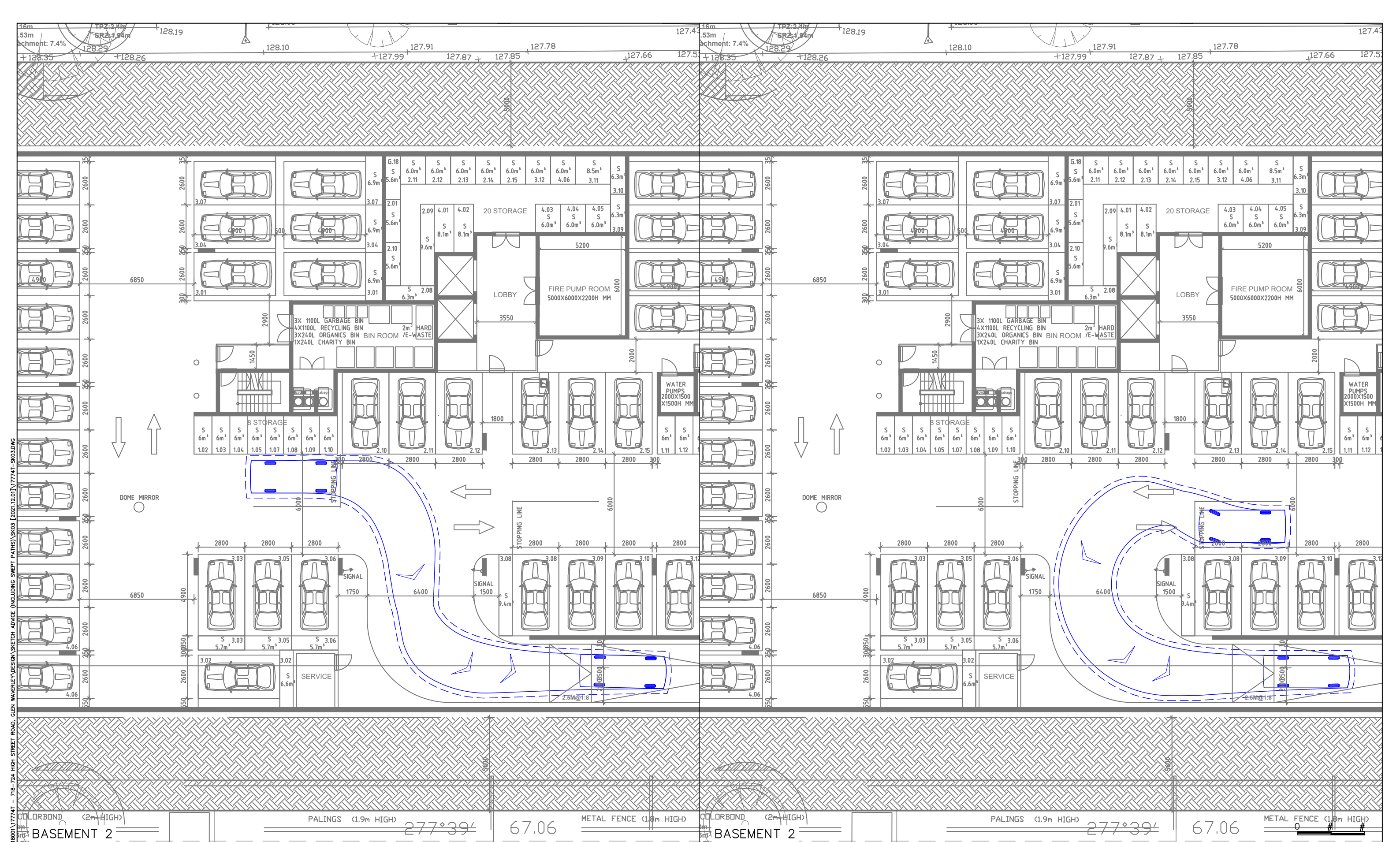
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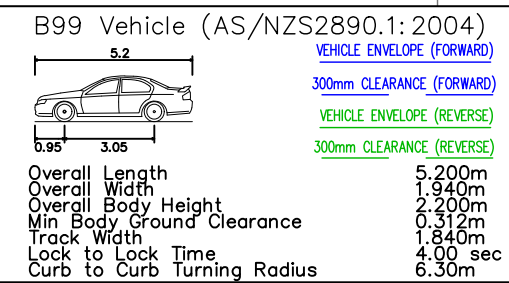
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COLORBOND (2m HIGH) PALINGS (1.9m HIGH) 277°39' 67.06 METAL FENCE (1.8m HIGH) COLORBOND (2m HIGH) BASEMENT 2 PALINGS (1.9m HIGH) 277°39' 67.06 METAL FENCE (1.8m HIGH)

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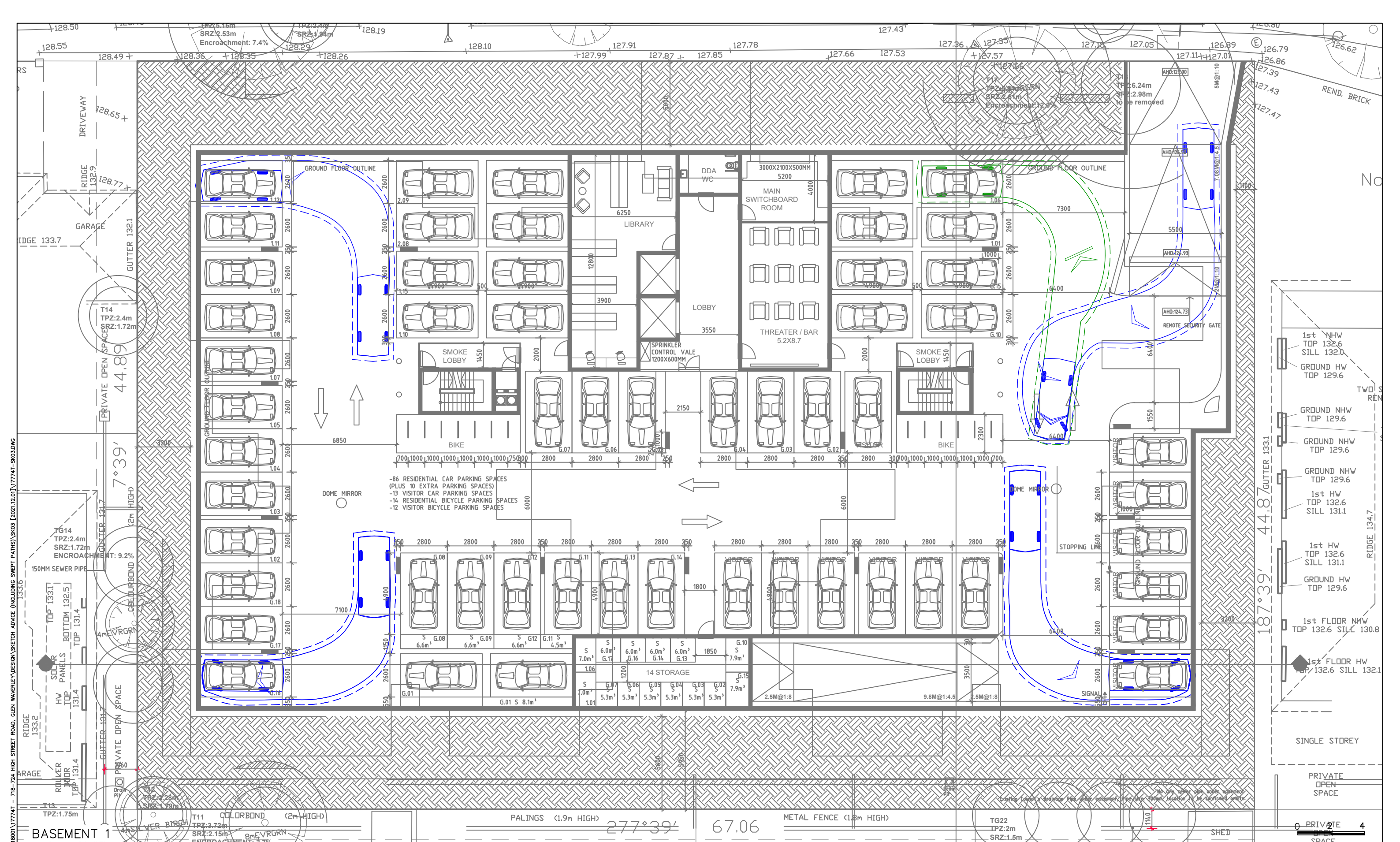


Proposed Residential Development
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 Swept Path Assessment

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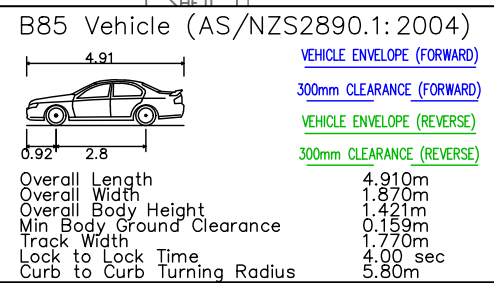


- 86 RESIDENTIAL CAR PARKING SPACES (PLUS 10 EXTRA PARKING SPACES)
- 13 VISITOR CAR PARKING SPACES
- 14 RESIDENTIAL BICYCLE PARKING SPACES
- 12 VISITOR BICYCLE PARKING SPACES

S	6.0m ²	6.0m ²	6.0m ²	6.0m ²	6.0m ²	1850	G.10
S	7.0m ²	6.1m ²	6.0m ²	6.0m ²	6.1m ²		7.9m ²
S	1.06						
S	1200						
S	6.0m ²	6.0m ²	6.0m ²	6.0m ²	6.0m ²		
S	5.3m ²	5.3m ²	5.3m ²	5.3m ²	5.3m ²		
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ratio:

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

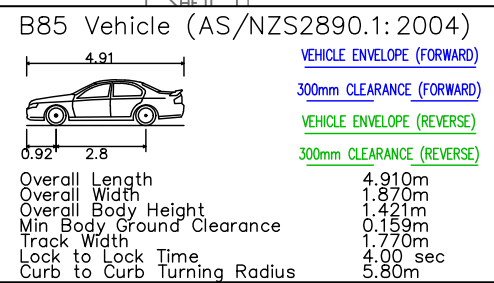
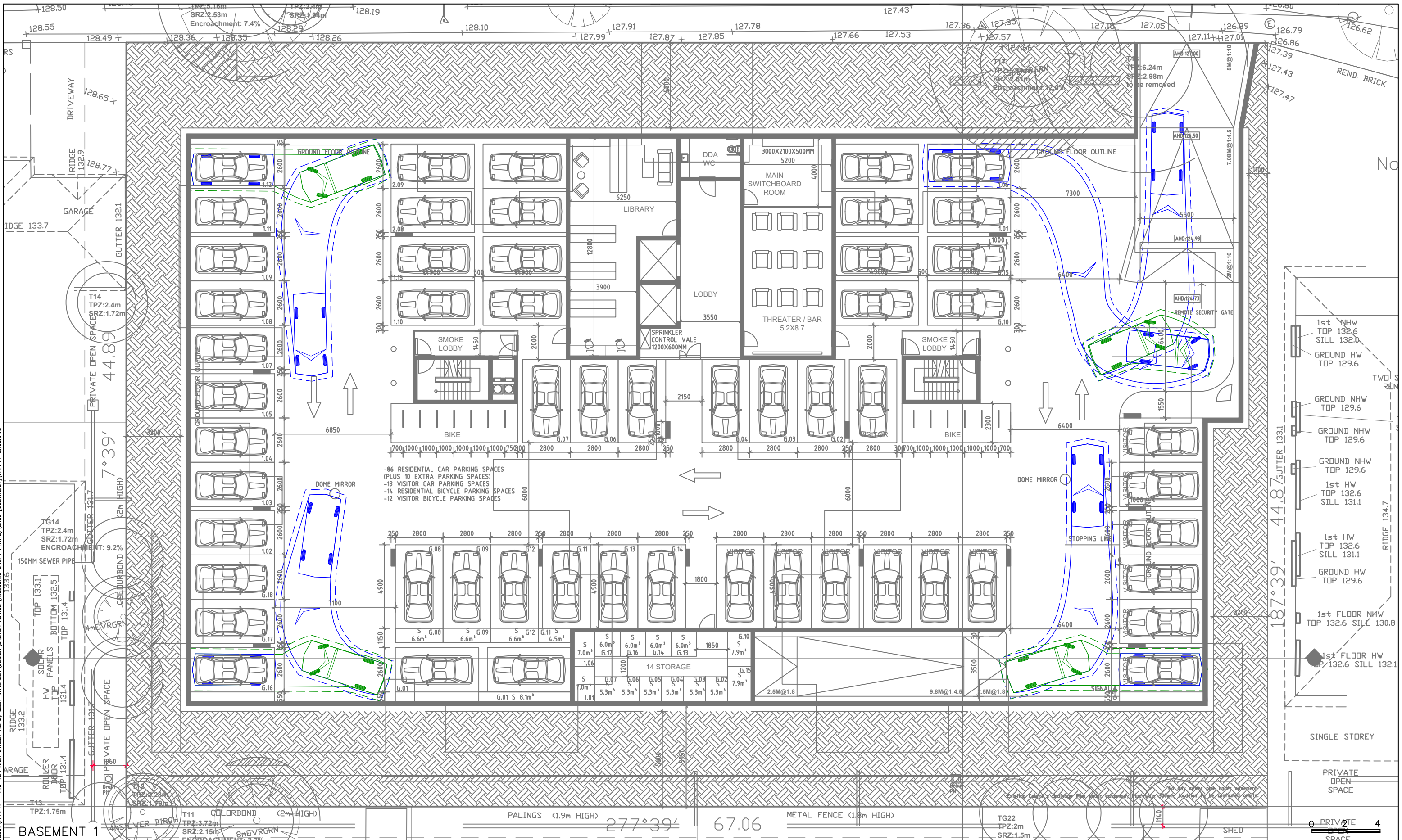


Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 6 of 13	SCALE 1:200@A3	DATE 20/12/2021
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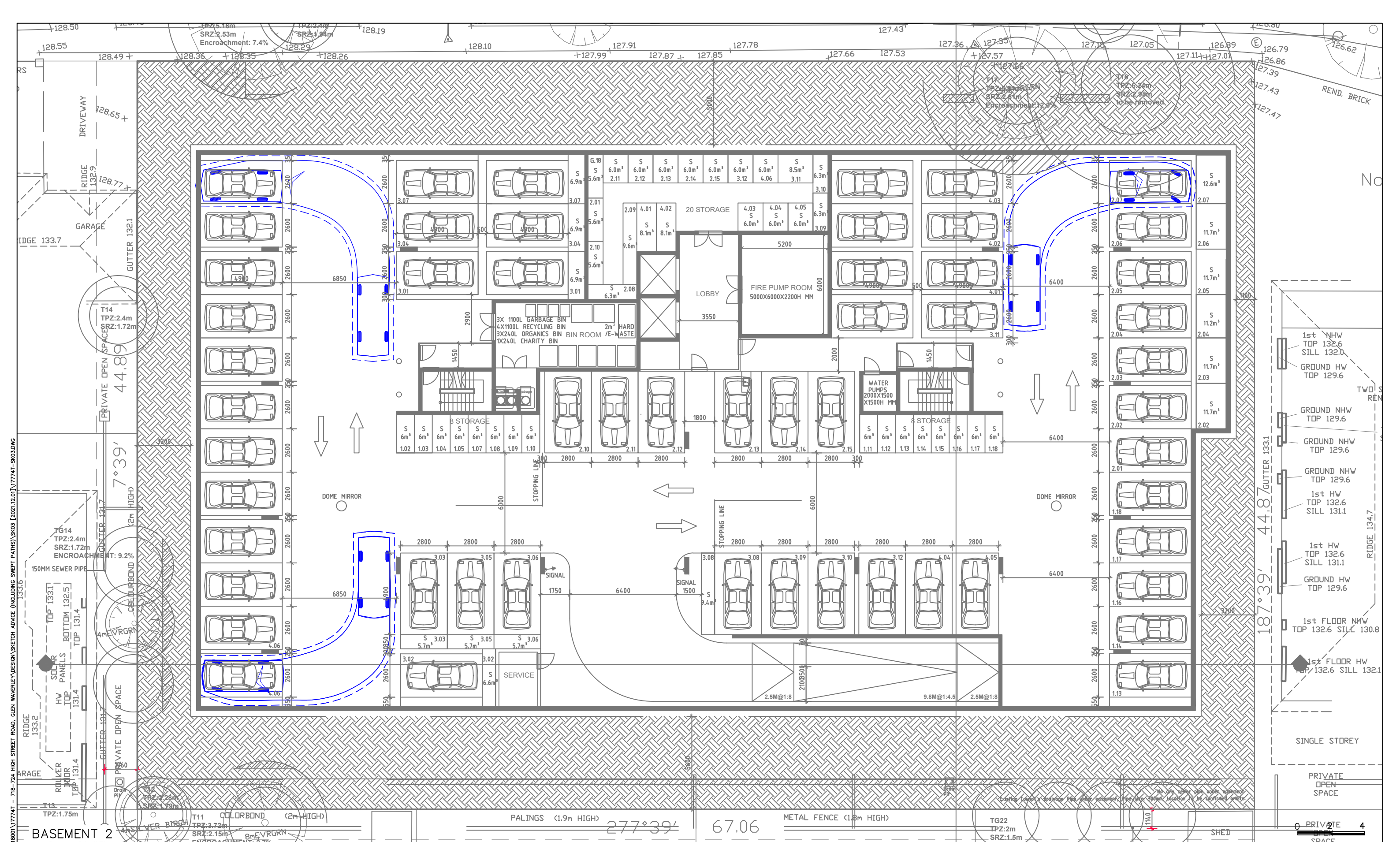


Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

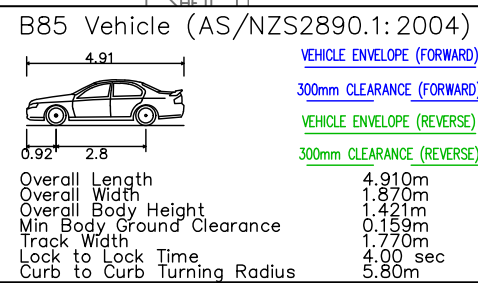
NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 7 of 13	SCALE 1:200@A3	DATE 20/12/2021
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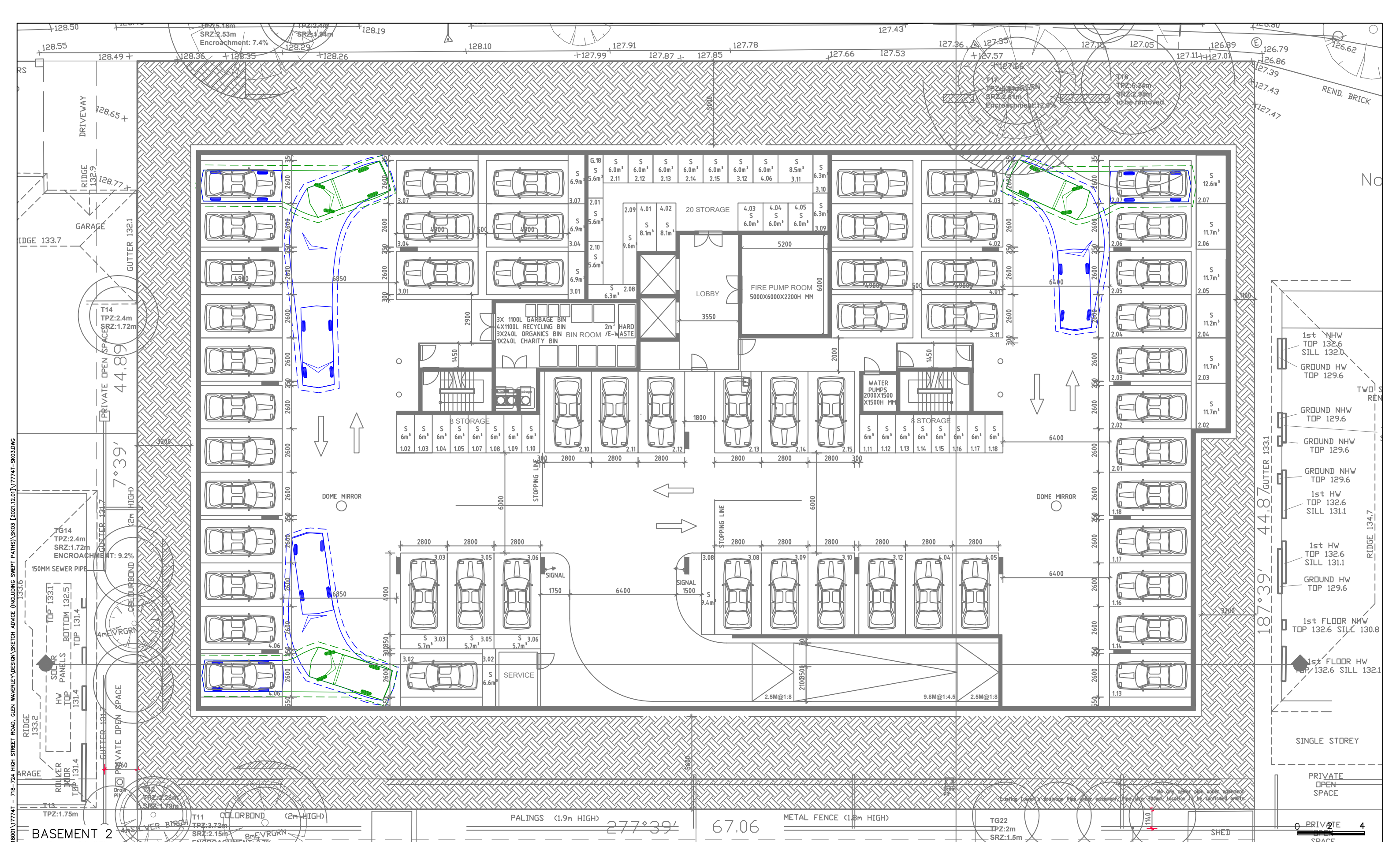


Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 8 of 13	SCALE 1:200@A3	DATE 20/12/2021
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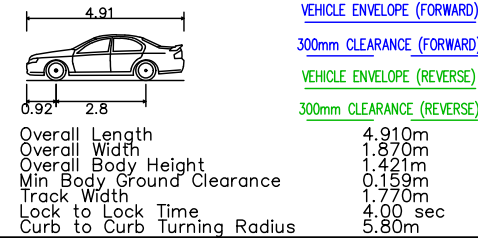




ratio:

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 FACSIMILE (03)9429 3011

B85 Vehicle (AS/NZS2890.1:2004)

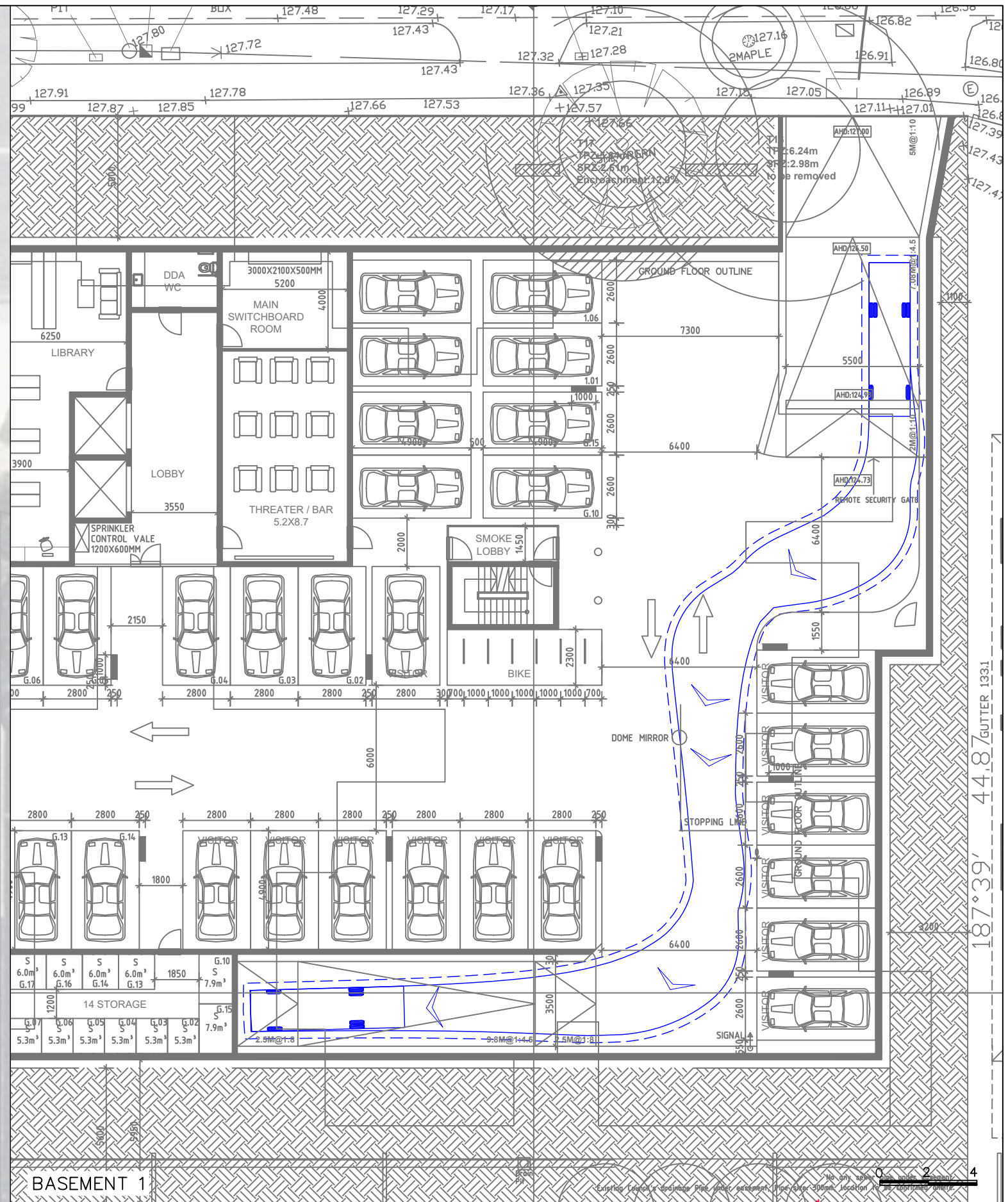
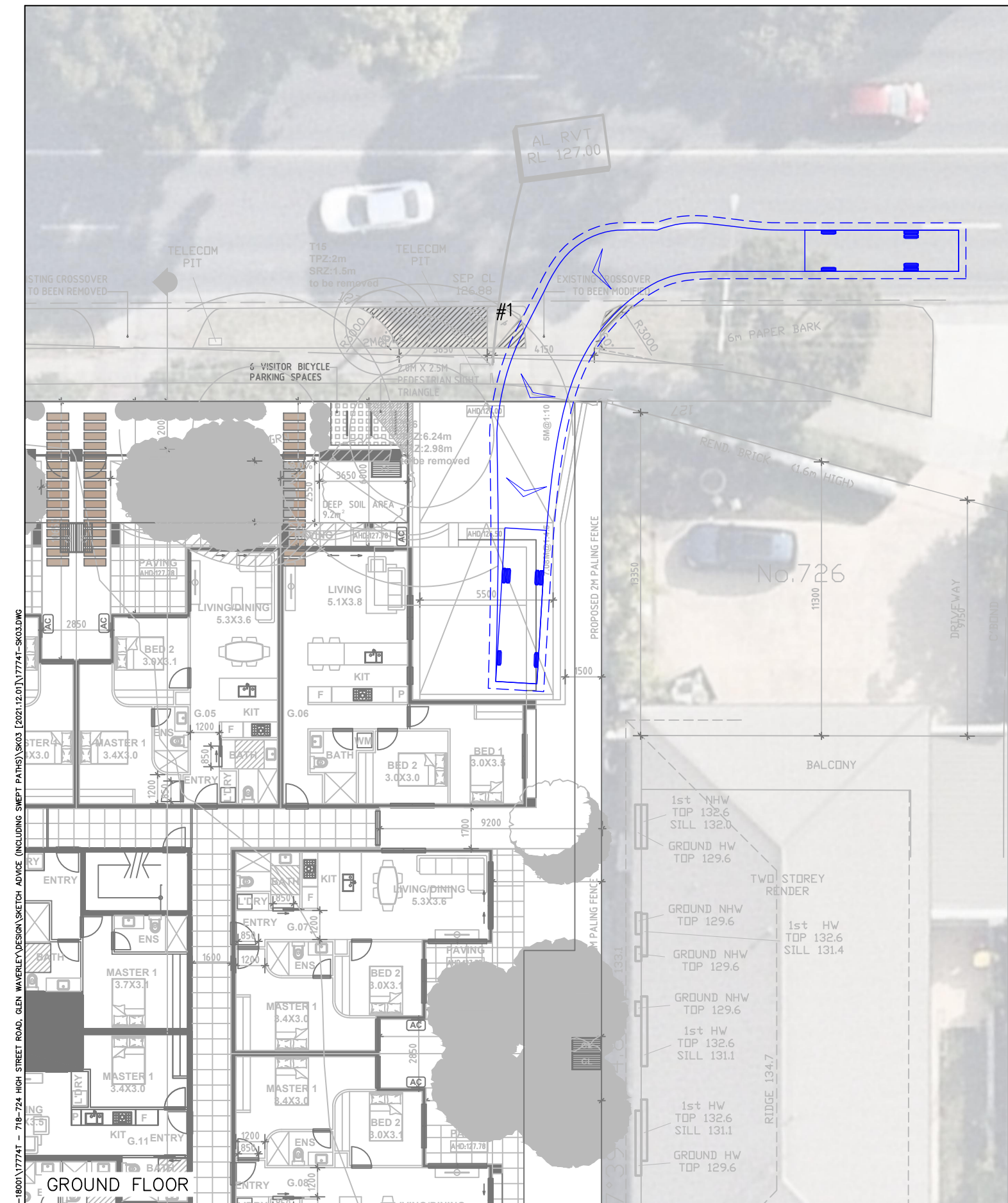


Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 9 of 13	SCALE 1:200@A3	DATE 20/12/2021
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CREMORNE, VICTORIA 3121
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Mini-Rear Loader Waste Collection Vehicle

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 Residential Development

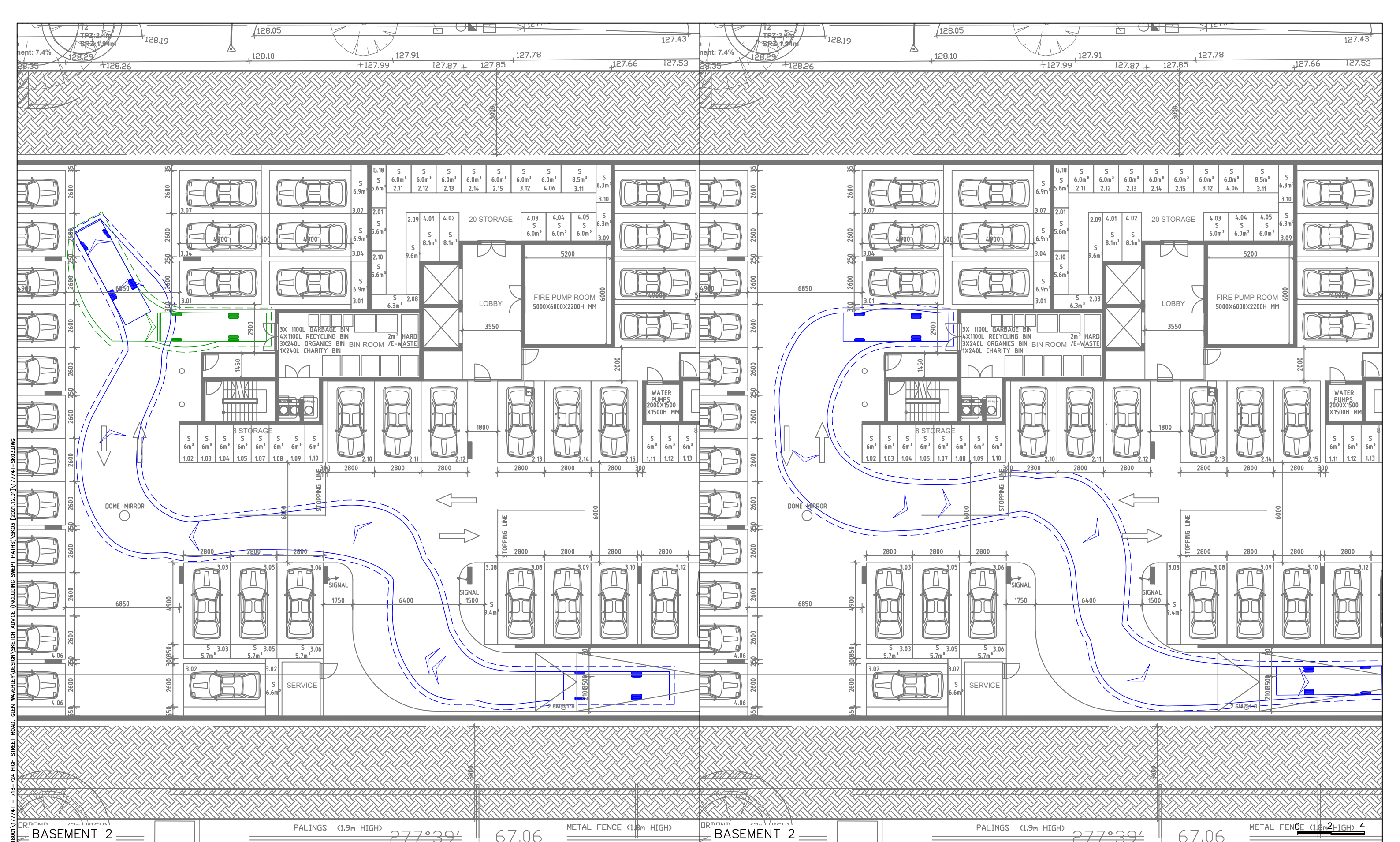
718-724 High Street Road, Glen Waverley

Swept Path Assessment

NOTE:
1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
2) Maximum Design Speed 10km/h


RATIO REFERENCE 17774T-SK03/JM	SHEET No. 10 of 13	SCALE 1:200@A3	DATE 20/12/2021
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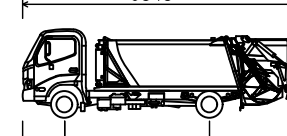


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BASEMENT 2 PALINGS (1.9m HIGH) 277°39' 67.06 METAL FENCE (1.8m HIGH) BASEMENT 2 PALINGS (1.9m HIGH) 277°39' 67.06 METAL FENCE (1.8m HIGH)



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



Mini-Rear Loader Waste Collection Vehicle
 6345
 980 3400

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 Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment


NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

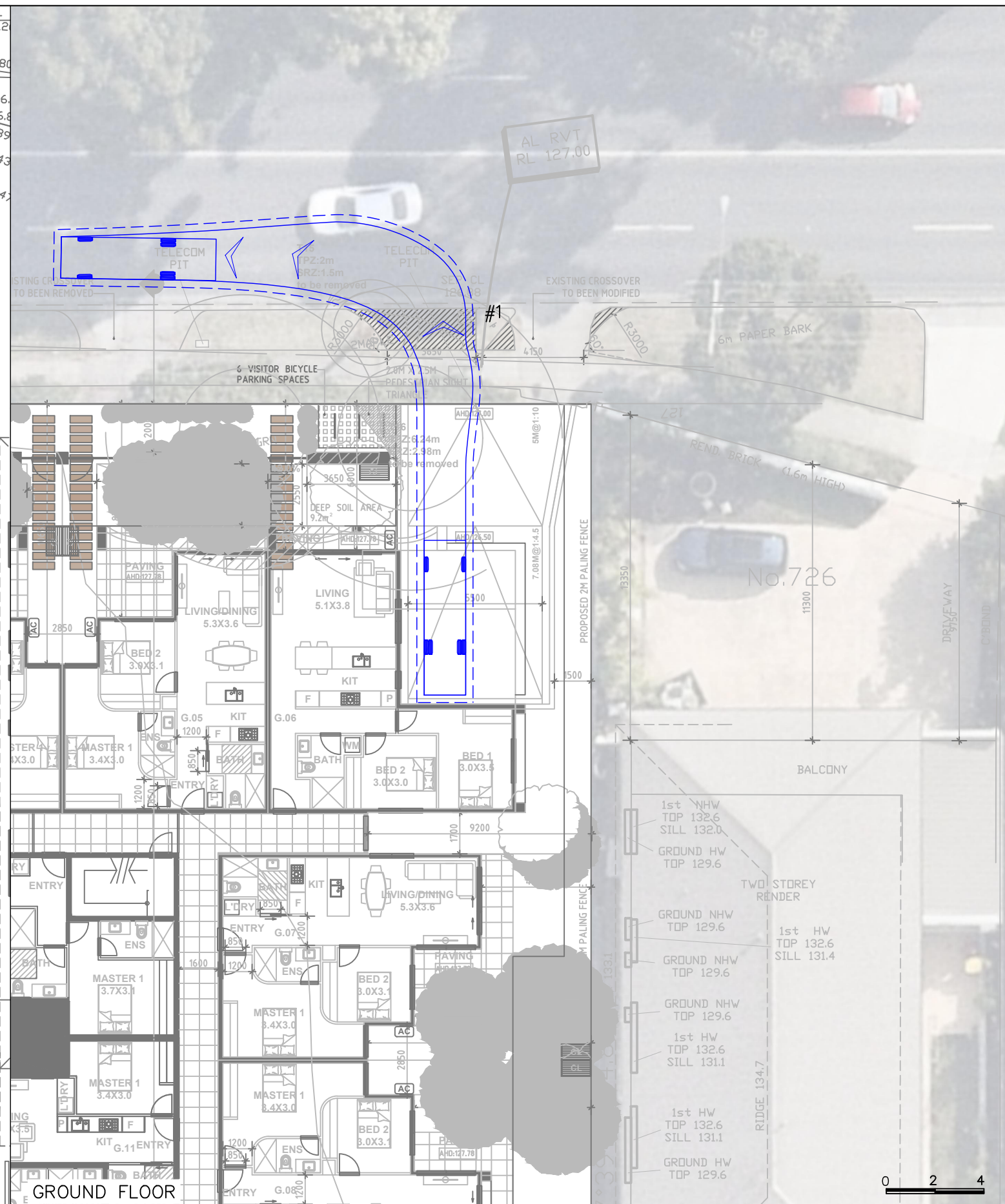
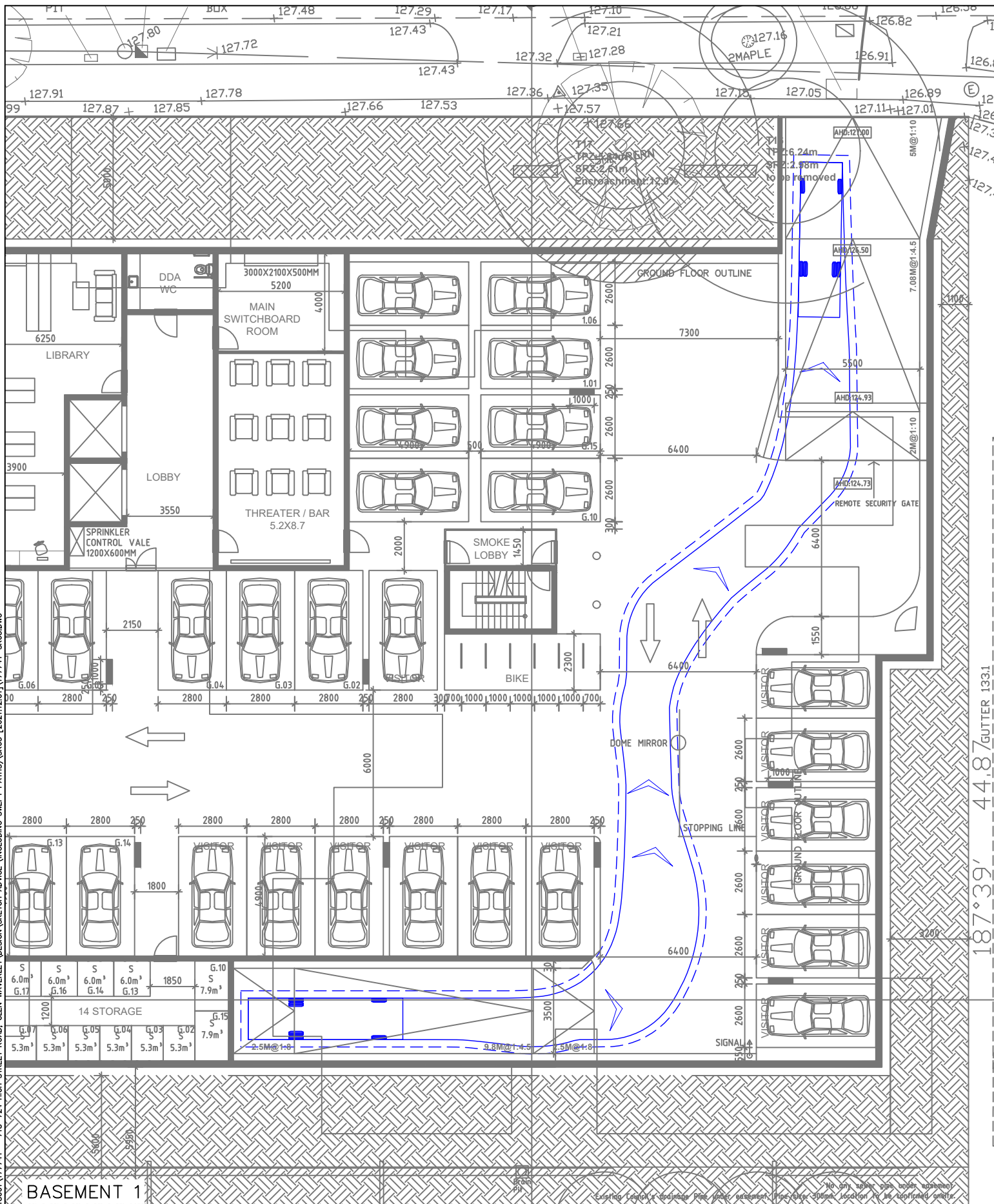
RATIO REFERENCE
 17774T-SK03/JM

SHEET No.
 11 of 13

SCALE
 1:200@A3

DATE
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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 4.0 sec
 Curb to Curb Turning Radius 6.450m

Proposed Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 12 of 13	SCALE 1:200@A3	DATE 20/12/2021
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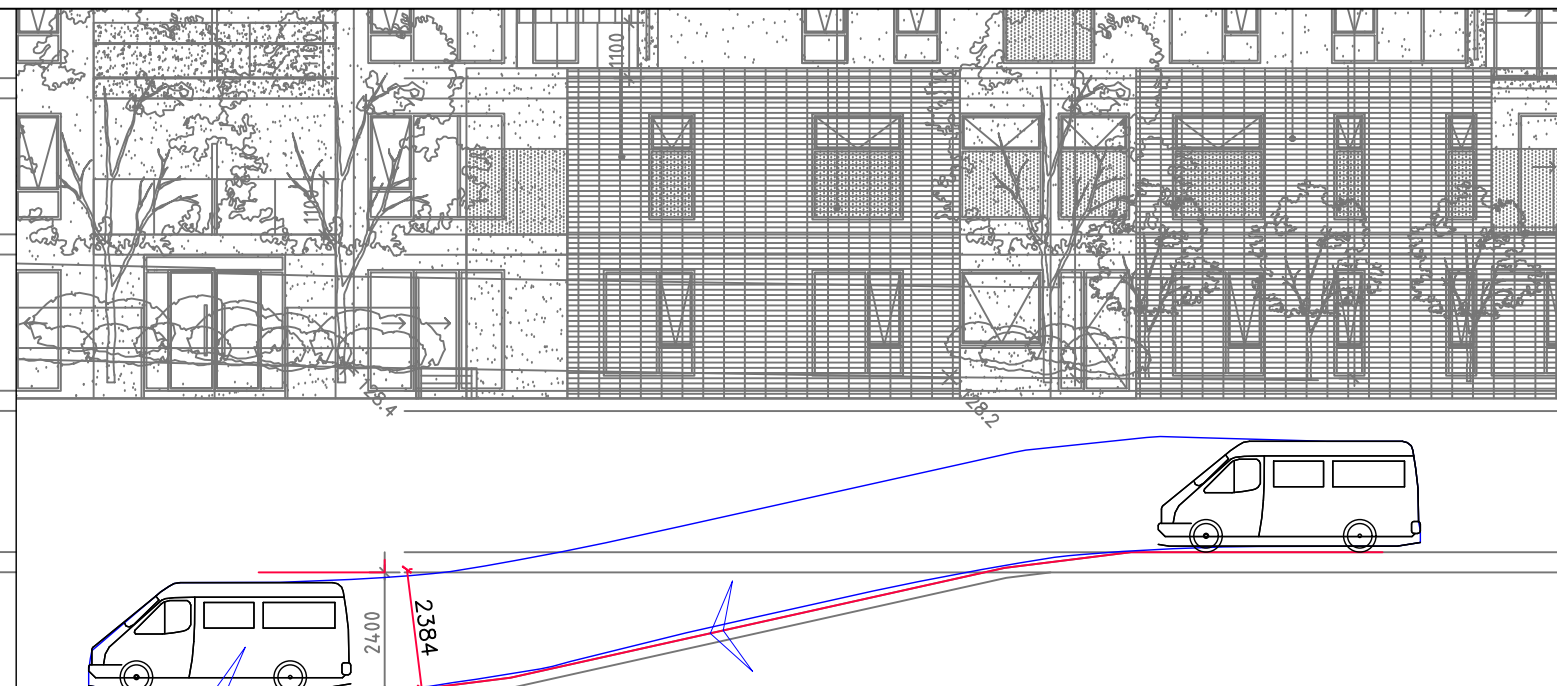
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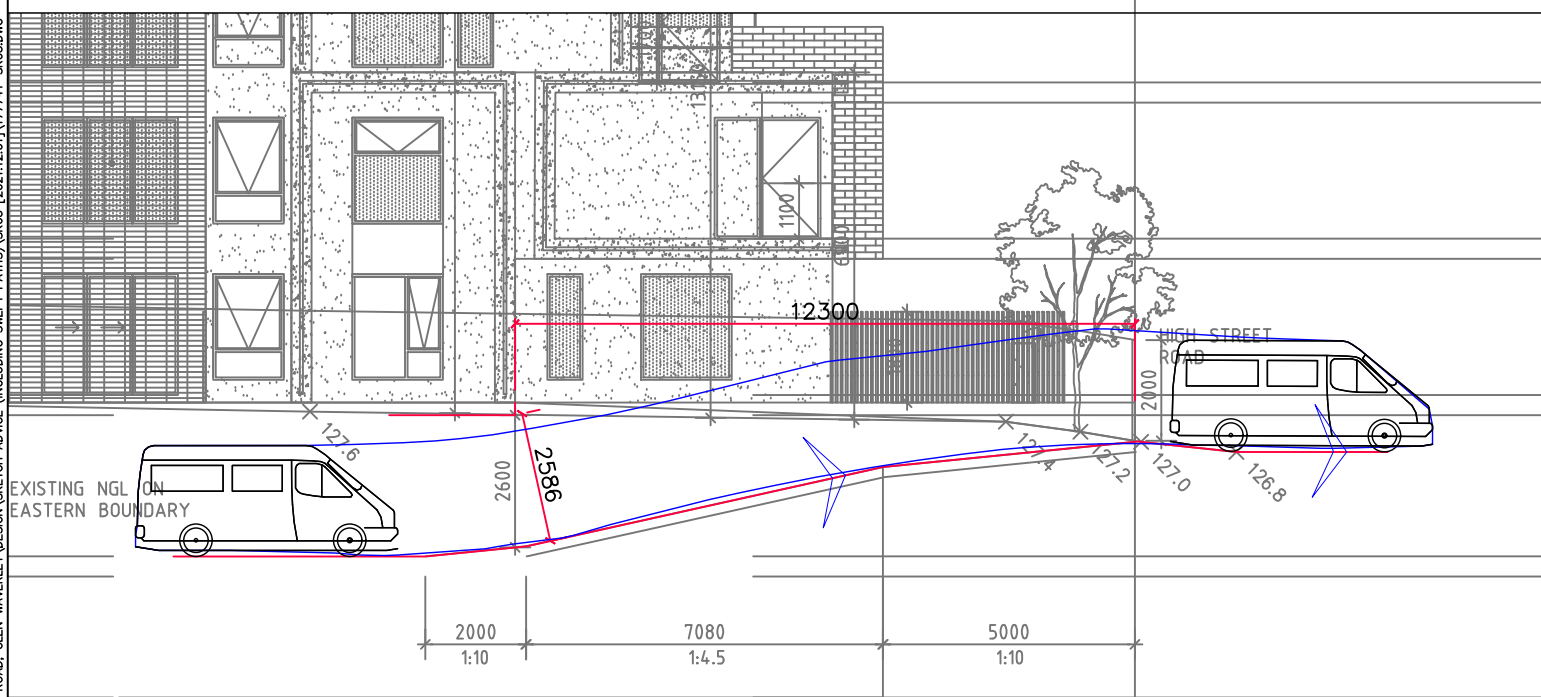
Appendix B Vertical & Ground Clearance Assessment



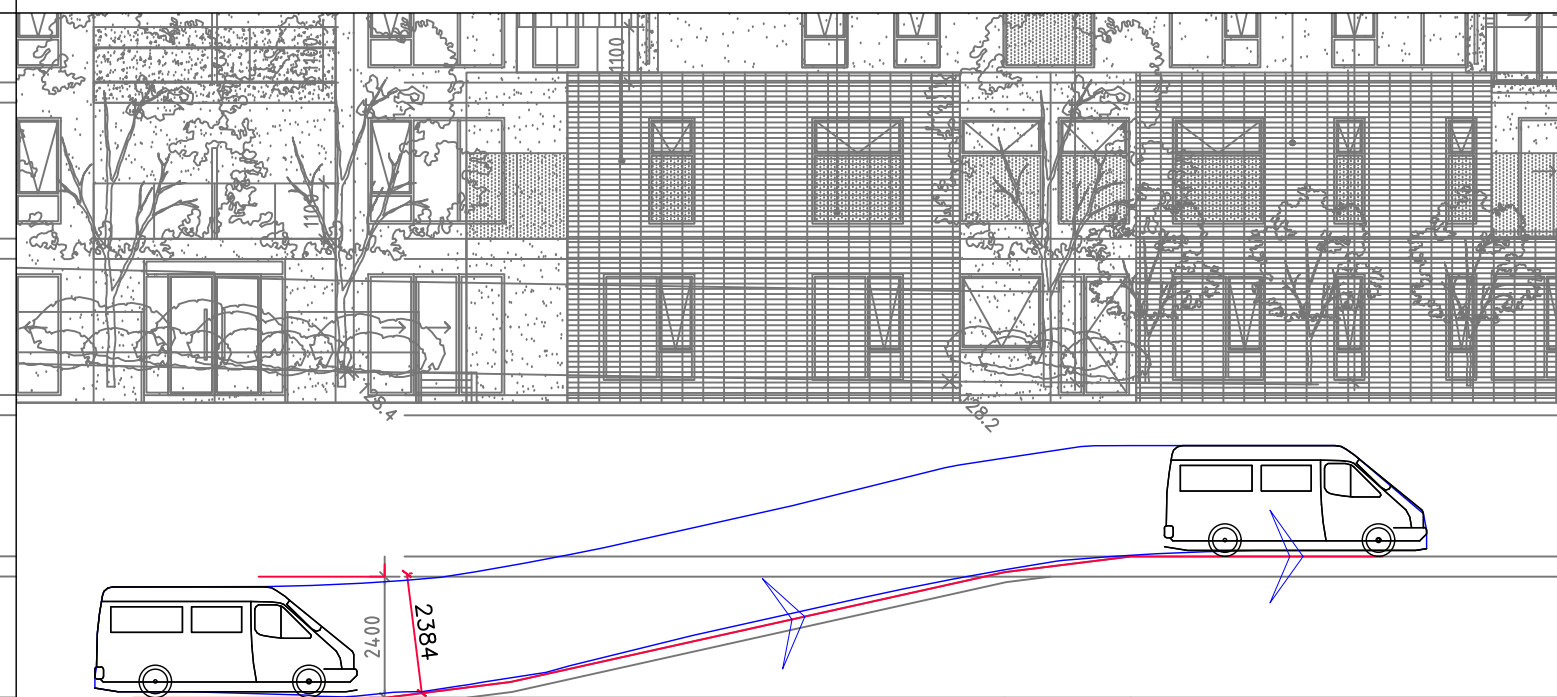
GROUND FLOOR TO BASEMENT 1



BASEMENT 1 to BASEMENT 2



GROUND FLOOR TO BASEMENT 1



BASEMENT 1 to BASEMENT 2



ratio:

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 TELEPHONE (03)9429 3111
 FACSIMILE (03)9429 3011

B99 Vertical Model (AS/NZS2890.1:2004)

Overall Length 5.200m
 Overall Width 1.940m
 Overall Body Height 2.200m
 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 Residential Development
 718-724 High Street Road, Glen Waverley
 Swept Path Assessment

NOTE:
 1) Base Plan Supplied by Jesse Ant Architects on 2021.12.20
 2) Maximum Design Speed 10km/h

RATIO REFERENCE 17774T-SK03/JM	SHEET No. 13 of 13	SCALE ####@A3	DATE 20/12/2021
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Appendix C Bicycle Parking Specifications

Arc de Triomphe™



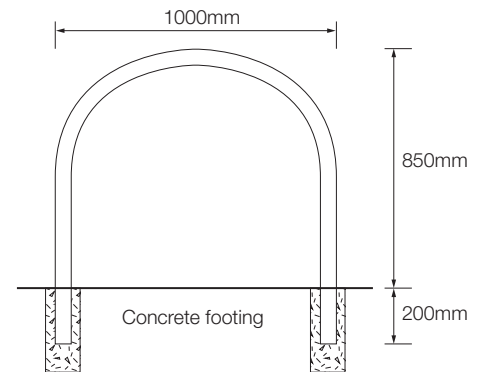
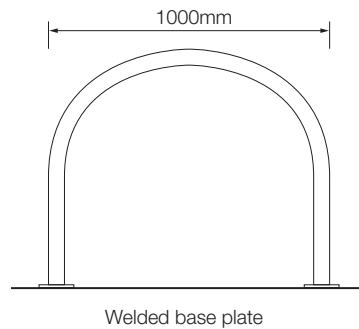
Galvanised finish / Stainless Steel finish

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

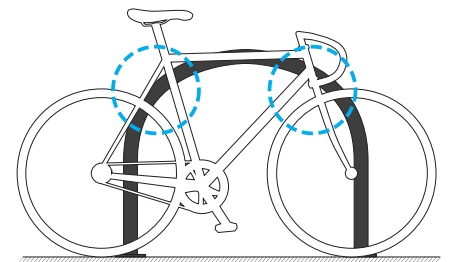
Recommended fasteners

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

Dimensions

1000mm [w] x 850mm [h]

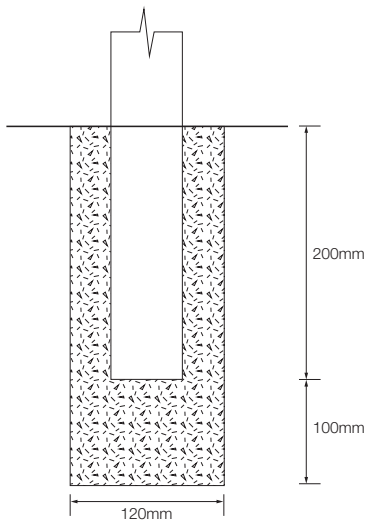
Locking Points



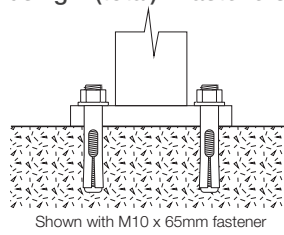
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Fixing options

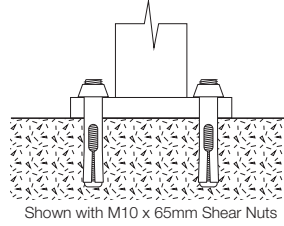
In situ (Concrete footing)



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



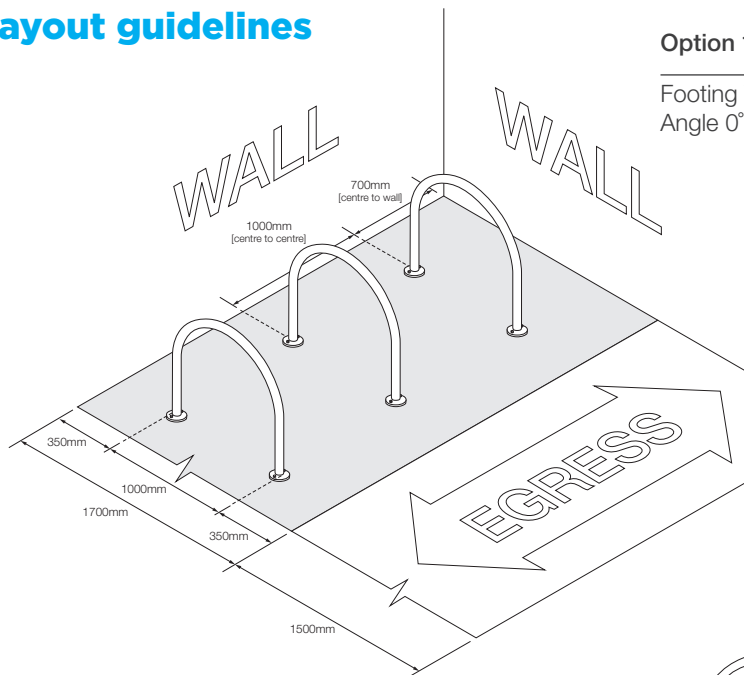
Welded flange (Security heads) using 4 (total) x fasteners



Layout guidelines

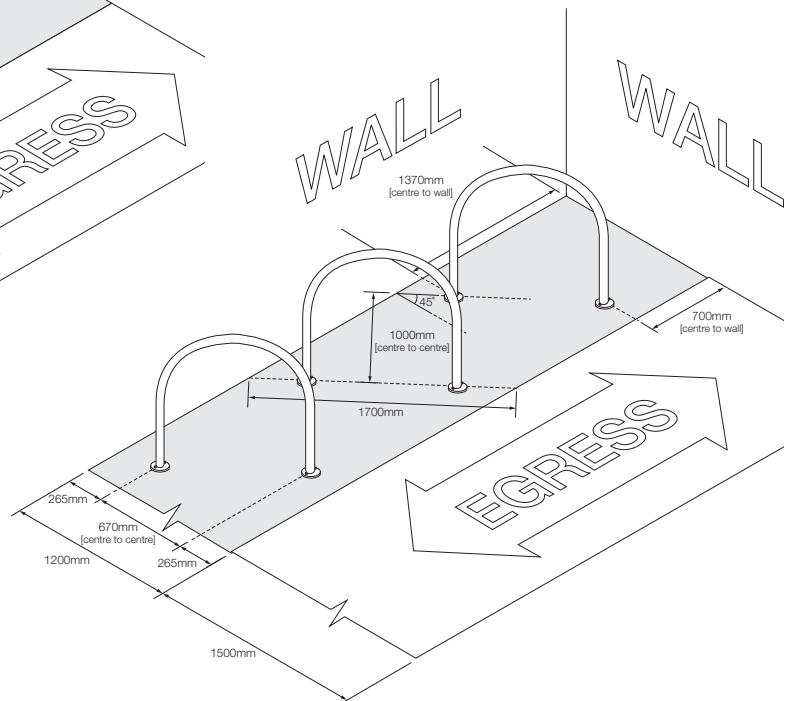
Option 1:

Footing Width 1700mm
Angle 0°

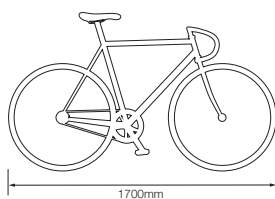


Option 2:

Footing Width 1200mm
Angle 45°



Typical Bicycle Length



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