

# PROPOSED RESIDENTIAL DEVELOPMENT

## 3 PIGEON MOUNTAIN ROAD HALF MOON BAY

### TRAFFIC IMPACT ASSESSMENT

*Prepared By:*  
Thomas Kear

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Auckland Office:  
P O Box 60-255, Titirangi, Auckland 0642  
Level 1, 400 Titirangi Road, Titirangi Village  
Tel: (09) 817 2500  
Fax: (09) 817 2504  
[www.trafficplanning.co.nz](http://www.trafficplanning.co.nz)

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<b>Prepared By</b>	Thomas Kear
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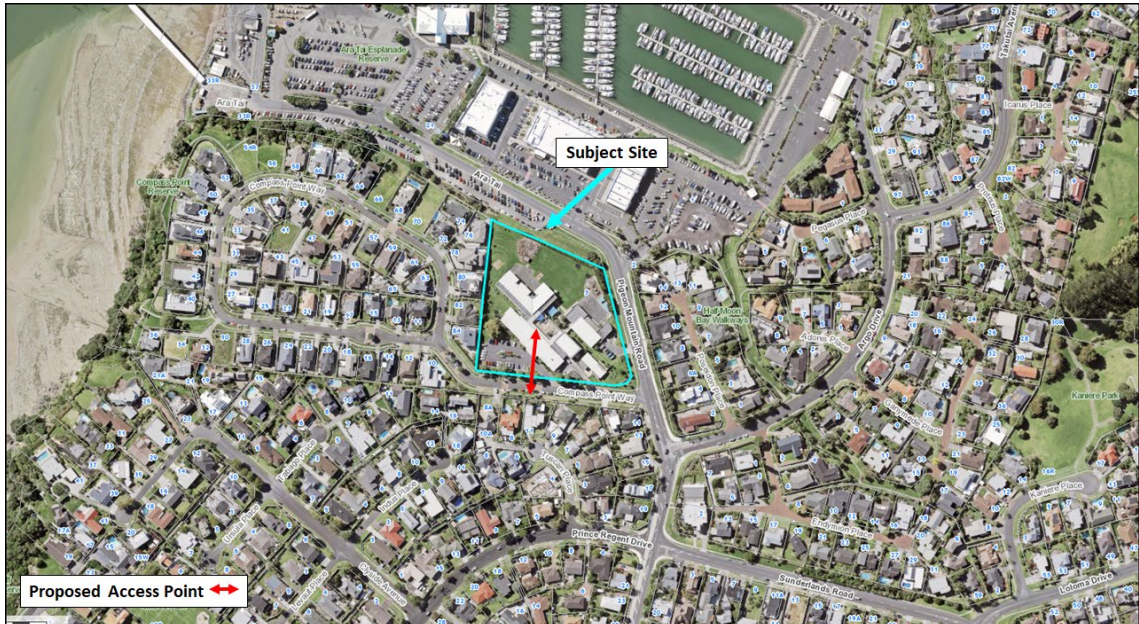
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## 1.0 INTRODUCTION

This report examines and describes the traffic and parking effects of a residential development at 3 Pigeon Mountain Road, Half Moon Bay. The site is located within the Residential – Mixed Housing Suburban Zone under the Auckland Unitary Plan (AUP) and is shown in **Figure 1**.



**Figure 1: Site Location**

*Source: Geomaps, Auckland Council*

The proposal consists of removing the existing buildings on the site and constructing 87 residential dwellings. A total of 117 parking spaces will be provided on-site, accessed via one vehicle crossing onto Compass Point Road. The proposals are described in more detail within the resource consent application.

This report describes the nature of the local transport environment around the site; sets out the transport characteristics of the proposal and assesses its likely impacts on the surrounding transport environment. It also reviews any mitigation measures that are necessary to minimise those impacts and considers the application in terms of the relevant AUP standards. This report provides an updated assessment of a revised design following discussions with Auckland Council.

## 2.0 EXISTING TRANSPORT ENVIRONMENT

### 2.1 The Surrounding Road Network

The site is bounded by Ara Tai to the north, Pigeon Mountain Road to the east and Compass Point Way to the west and the south.

#### 2.1.1 Pigeon Mountain Road

Pigeon Mountain Road is a collector road that runs along the eastern boundary of the site, generally with commercial and residential activities present along its extent. It continues as Ara Tai to the north and terminates at an intersection with Pakuranga Road at its southern extent within Highland Park.

Near the subject site Pigeon Mountain Road generally has one continuous lane in each direction with a width of some 10.0 metres, with a short section of a second lane provided in a southbound direction serving Argo Road. Traffic signals are provided for southbound traffic only directly adjacent to the site where it is understood they are activated by queues onto Sunderland Road.

Within the site vicinity, on-street parking is prohibited along the western side of the carriageway and permitted intermittently along the eastern side where broken yellow lines are not marked. Footpaths measuring approximately 1.4 – 2.0 metres in width are provided along both sides of Pigeon Mountain Road.

The most recent traffic counts on Pigeon Mountain Road between Ara Tai and Compass Point Way were carried out by Auckland Transport in December 2012. Details of the traffic count are summarised in **Table 1**.

**Table 1: Traffic Counts on Pigeon Mountain Road**

Direction	Weekday	Saturday	Sunday	Weekday		
				AM Peak	Midday Peak	PM Peak
Both	7,657	6,160	6,162	604	599	869

It should be noted that more recent traffic counts are available on Pigeon Mountain Road (5-day ADT of the order of 6,800 vpd), however, they were recorded further away from the site along Pigeon Mountain Road where they were not considered to provide a realistic review of traffic in the vicinity of the site. Mobileroad was reviewed which shows an ADT of 7,247 vehicles per day in June 2020 which is consistent with the AT counts from 2012.

#### 2.1.2 Compass Point Way

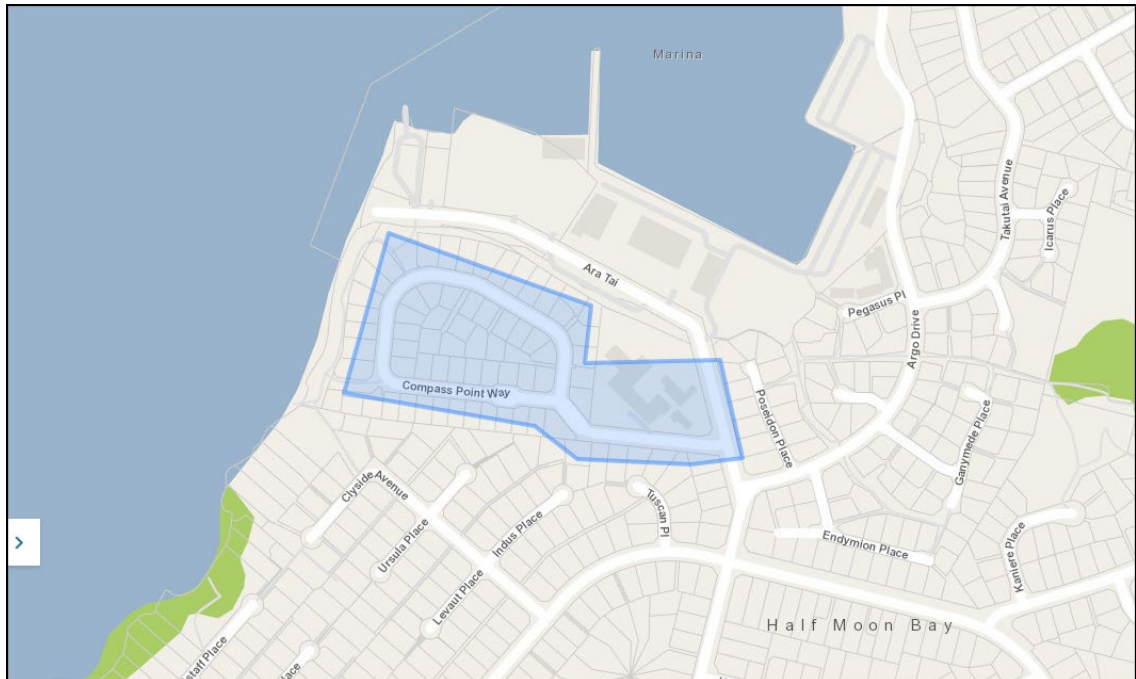
Compass Point Way is a local road which runs in a general east west direction past the site. It forms an intersection with Pigeon Mountain Road at its eastern end and forms a loop arrangement at its southern end.

Near the subject site Compass Point Way has a carriageway width of some 7.4 metres providing one traffic lane in each direction. On-street parking is prohibited along the northern side and permitted along the southern side of the carriageway. Footpaths measuring approximately 1.4 metres in width are provided along both sides of the carriageway.

There is no traffic counts data available for Compass Point Way within Auckland Transport Database. Information from Mobileroad indicates an ADT of some 684 vehicle per day in June 2020 along Compass Point Way.

## 2.2 Traffic Safety

Information from the New Zealand Transport Agency's Crash Analysis System for the most recent available ten-year+ period from January 2013 to present (2024 data subject to reporting delays), indicates that no crashes were reported. The crash study area is shown in **Figure 2**.



**Figure 2: Site Vicinity Crash Study Area**

Source: NZTA CAS

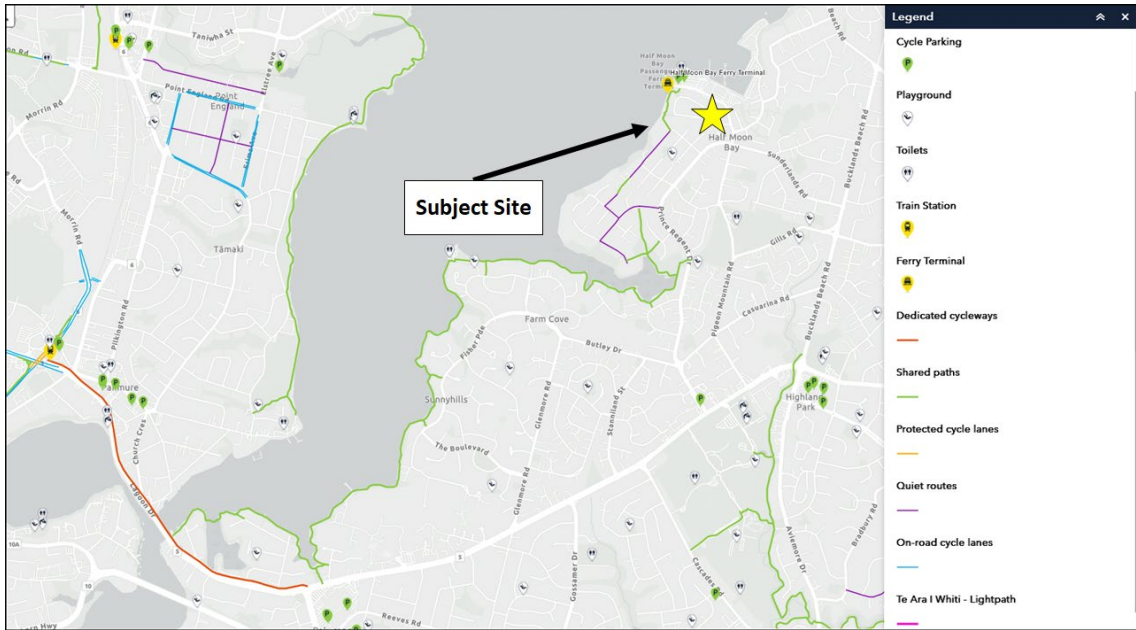
Therefore, there is no information which would suggest an inherent safety issue related to the unsafe operation of vehicle accesses within the vicinity of the site.

## 2.3 Pedestrian Facilities

Footpaths are currently available on all existing streets surrounding the site linking the streets to the wider road network. The main pedestrian activities occur towards the north of site relating to the commercial/retail activities and the Half Moon Bay transportation hub located north of the site on Ara Tai.

## 2.4 Cyclist Facilities

The Auckland Transport Cycleway Map shown in **Figure 4** indicates that a shared path is located towards the east of the site connecting the Half Moon Bay Bus and Ferry Terminal which further joins the dedicated cycleways in Panmure.



**Figure 4: Site Vicinity Cycling Provisions**  
Source: Auckland Cycleway Map, Auckland Transport

## 2.5 Public Transport Accessibility

The nearest bus stops are provided immediately to the north of the site on Ara Tai for Routes 734 and 735 (Botany – Half Moon Bay), operating generally on a 30-minute frequency. Half Moon Bay Ferry Terminal is located some 300 metres west of the site and provides access to wider transport network of Auckland City. The Half Moon Bay public transport network is shown in **Figure 3**. Overall, the site has suitable access to public transport.



**Figure 3: Local Public Transport Routes**  
Source: [at.govt.nz/projects-roadworks/new-public-transport-network/new-network-for-east-auckland](http://at.govt.nz/projects-roadworks/new-public-transport-network/new-network-for-east-auckland)

### 3.0 THE PROPOSAL

#### 3.1 General Description / Site Layout

The proposal involves the removal of existing childcare facility/NGO activity on-site and the construction of 87 residential dwellings on-site, with 117 parking spaces. Access to the site will be provided via one vehicle crossing onto Compass Point Way with a series of JOAL's within the site.

A pedestrian route will be provided through the site providing a link to Ara Tai, with direct pedestrian access proposed to individual Lots to the public footpath network where fronting Pigeon Mountain Road/Compass Point Road. A network of footpaths will also be provided internal to the site connecting Lot's entrances, parking areas and frontage roads. The layout used for the basis of this assessment is shown in **Figure 5**.

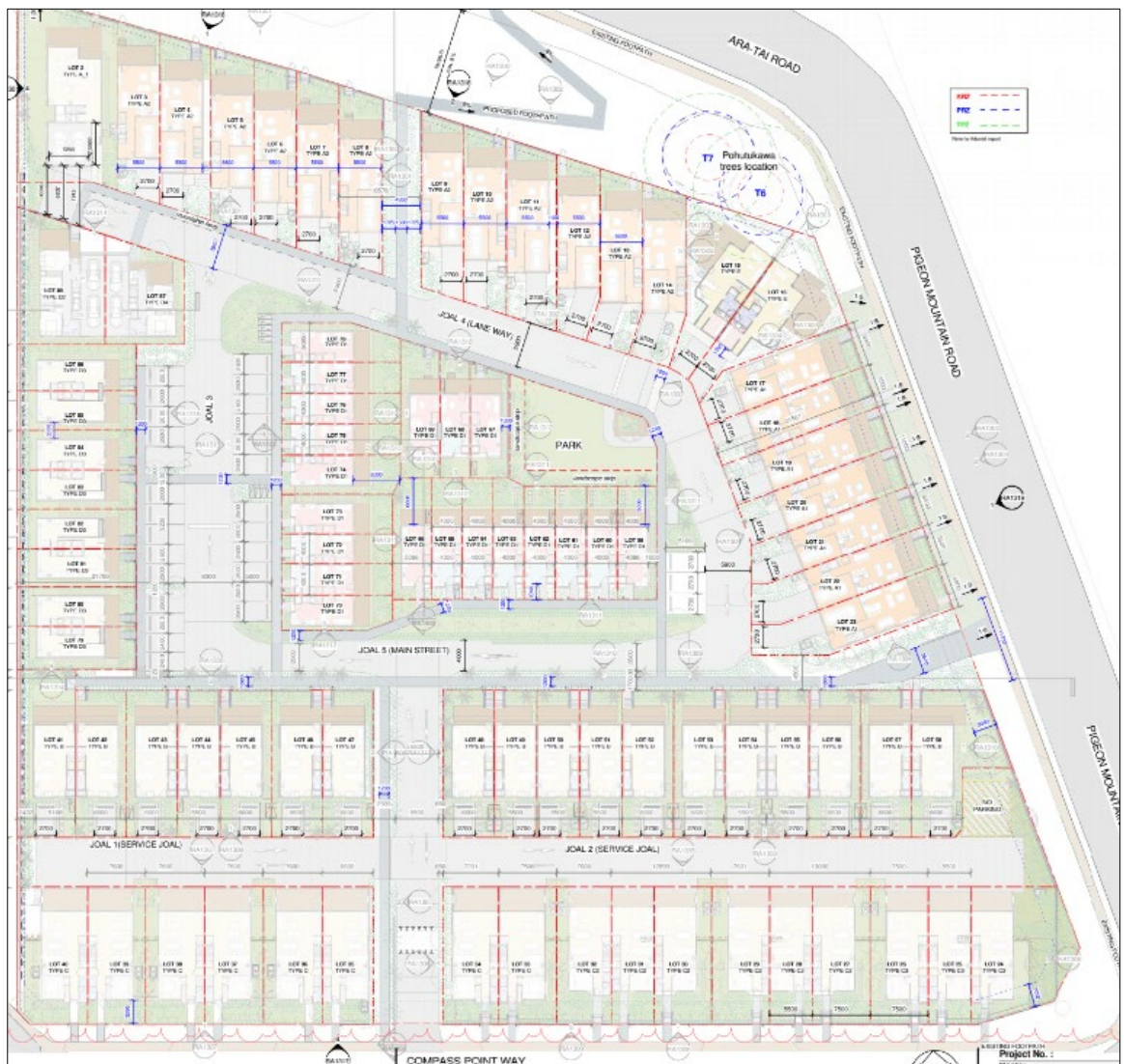


Figure 5: Proposed Layout  
Source: ASC Architects



### 3.2 Vehicle Access

Vehicle access to the site will be provided via a single 5.5-metre-wide vehicle crossing onto Compass Point Way to serve the 117 parking spaces associated with the site. Under the AUP, vehicle crossings serving ten or more parking spaces should be 5.5 – 6.0 metres wide and as such the proposal complies with this standard.

The vehicle crossing will have a separation of more than 10.0 metres from the adjacent property's vehicle crossing where a minimum separation of 2.0 metres is required under the AUP. Therefore, the proposal is compliant with this standard.

The vehicle crossing will be located more than 50.0 metres from the Pigeon Mountain Road/Compass Point Way intersection where a minimum separation of 10.0 metres is required under the AUP. Hence, the proposal is compliant with this standard.

JOAL's 1, 2 and 5 will all have a width of at least 5.5 metres sufficient for two-way vehicle movement and is compliant with the E27 standards.

JOAL 3 will operate in a one-way arrangement generally have a width of 6.3 metres which narrows to 3.5 metres where it meets JOAL 5 and JOAL 4 respectively, and is considered compliant with the E27 standards.

JOAL 4 will generally have a width of 5.9 metres where serving a one-way arrangement (with exception of the section of the JOAL serving dwellings 1-4), which narrows down a width of 3.0 metres where providing for traffic calming measures and on approach to JOAL 5.

Regarding both JOAL's 3 and 4, under the AUP widths can be reduced to 2.75 metres where good sightlines and passing opportunities are available at 50 metre intervals. For both JOAL's, where the access width reduces sightlines are considered good and both JOAL's are one-way such that passing opportunities are not required. As such the proposed JOAL designs are considered compliant and acceptable.

#### Accessway Gradients

At the site boundary, a vehicle platform will be provided for 4.0 metres in length with a maximum gradient of 1 in 20 (5.0%), which is compliant with the AUP standards. The rest of the JOAL's will have gradients no steeper than 1 in 8 (12.5%) where providing for vehicle manoeuvring. Therefore, the proposal complies with this standard.

#### Pedestrian Access

A 1.2 metre separate pedestrian footpath will be provided directly through the site (widening to at least 1.5 metres where connecting to Pigeon Mountain Road and Ara Tai) providing a connection from Compass Point Way to Ara Tai.

For those dwellings fronting Compass Point Way and Pigeon Mountain Road directly pedestrian access will be provided the public footpath network. Within the site, an interconnected pedestrian network will be provided connecting the dwelling's entrances, parking area and other communal spaces.

Overall, the site will provide good pedestrian connectivity between building entrances, parking areas and the public footpath network.

### Sight Distances

In respect of sight distance for the proposed access point, the appropriate standard to use is the Land Transport Safety Authority publication 'Guidelines for Visibility at Driveways' (RTS 06). There are two components to the sight distance measurement the first being the sight distance requirement and the second being the lines of clear sight. The sight distance/lines of clear sight required is dependent upon the traffic generation of the proposal, the 85<sup>th</sup> percentile speed of the vehicles on the frontage road and also, the classification of the frontage road.

In this instance, the frontage road is a local road and the forecasted number of vehicle movements at the vehicle crossing will be more than the rating threshold of 200 vehicle trips per day, such that the access is defined as 'high volume' according to RTS 06. The 85<sup>th</sup> percentile speeds are expected to be no more than 50 km/hr due to urban residential environment, presence of speed tables and on-street parking along Compass Point Way. For this speed a minimum sight distance of 40 meters is required.

Sight distances were confirmed to be more than 40.0 metres in both directions from the vehicle crossing onto Compass Point Way, providing acceptable sight distances. **Figure 6** illustrates the indicative sight distances for Compass Point Way.

Overall, the proposed vehicle access arrangement is considered acceptable within the current traffic environment.



**Figure 6: Compass Point Way Indicative Sight Distances**  
Source: Traffic Planning Consultants Ltd.

### 3.3 Vehicle Parking

A total of 117 parking will be provided on-site for the 87 dwellings. Under the AUP, there is no parking minimum or maximum requirement for this site.

Each dwelling will be associated with at least one parking space each, and 59 dwellings will be provided with one additional car parking space each.

All the parking spaces will be set out as 90° angled parking spaces. The number of parking spaces associated with each lot, their key dimensions and compliance is tabulated in **Table 2** below.

Table 2: Parking Configuration

Lot Type (Number of Lots)	No. of Parking Spaces per Lot (Number of lots)	Parking Typology	Dimensions				Remarks
			Min. Width (m)	Internal Width of Garages	Depth (m)	Min. Manoeuvring Space (m)	
A_1 (1)	2	2 x garage	5.2*	5.5	5.4	6.4	Complying
A1 & A2 (19)	2 (38)	1 x garage	2.7*	3.0	5.4	6.0	Complying
		1 x secondary	2.7		5.0	6.0	Complying
B1 (18)	1	1 x Open	2.7	–	5.0	6.0	Complying
C1 (8)	2 (16)	2 x garage	5.5*	5.8	5.7	6.0	Complying
C2 & C3 (9)	1 (9)	1 x garage	2.7	3.0	5.4	6.0	Complying
D1 (20)	1 (29)	1 Open	2.4 – 2.6	–	5.0	6.3 – >6.7	Complying
D2 (12)	1 (12)	1 Open	2.4 – 2.6	–	5.0	6.3 – >7.1	Complying
E (2)	2 (4)	1 Garage	2.7*	3.1	5.4	6.0	Complying
		1 Secondary	2.7		5.0	6.0	Complying
<b>Total</b>	<b>117</b>	–	–	–	–	–	–

\*Width specified for garage door's width.

### Parking Gradients

Table 3 below sets out non-compliances associated with gradients of parking spaces across the site. Further assessment is provided later in this reporting.

JOAL Number	Number of Parking Spaces	Maximum Gradient	Size of Non-compliance
JOAL 1	5	5.1-5.9%	0.1-0.9%
	7	6.0-7.6%	1.0-2.6%
JOAL 2	2	7.7-8.0%	2.7-3.0%
JOAL 3	11	5.1-5.8%	0.3-0.8%
	10	7.8%	2.8%
JOAL 4	2	5.4-6.6%	0.4-2.6%

All other parking spaces will be formed on an almost flat area with gradients no steeper than 1 in 20 (5.0%). The gradients of the manoeuvring areas will be no steeper than 1 in 8 (12.5%). Parking has also been configured so that all vehicle movements to and from the JOAL's can be undertaken in a forward gear. Vehicle tracking curves illustrating vehicles manoeuvring on-site has been included in **Attachment 1**.

### 3.4 Bicycle Parking

The site has a total of 87 dwellings proposed, 39 of which are proposed with garages. Under the AUP, one visitor bicycle parking shall be provided per 20 dwellings and one secure bicycle parking shall be provided for dwellings without a garage. Therefore, four visitor bicycle parking space and 48 secure bicycle parking spaces are required for the site. It is anticipated that for those dwellings without garages secure and sheltered bicycle parking spaces will be provided within the rear yard of the lots.

Five visitor bicycle parking spaces are proposed adjacent to lot 78, and four adjacent to lot 74. Therefore, the bicycle parking proposal is considered to comply with the standard.

### 3.5 Refuse Collection & Deliveries

The proposal is expected to be serviced predominantly on-site by private refuse collection on a regular basis and to a lesser extent by larger trucks shifting furniture to and from the residential dwellings or performing deliveries.

Custom design refuse bin areas have been incorporated into the site for private collection. Vehicle tracking at **Attachment 1** demonstrates that a medium rigid truck can enter, turn on-site, and exit in a forward direction.

The proposed gradient design of the accessways (JOAL's) will generally be no steeper than 1 in 8 (12.5%) which is suitable for truck manoeuvring, with the exception of a short section along JOAL 5 where a gradient of 1 in 7 (14.28%) for some 12 metres 5.0 metres from the site boundary. Further assessment of this non-compliance is provided later in the reporting.

Vehicle tracking in **Attachment 1** demonstrates a truck circulating around the site and two-way vehicular flow within the site where the access permits two-way vehicular movements.

### 3.6 Trip Generation

Under section E27 of the Auckland Unitary Plan Standards, any residential developments with less than 100 dwellings within Residential – Mixed Housing Suburban zone are not subject to a trip generation assessment. Nevertheless, it is important to understand the potential trip generation to understand its effect and ensure an appropriate access strategy is provided.

An indication of the trip generation for the proposal can be derived from survey data set out in the Roads and Traffic Authority (RTA), New South Wales – 'Guide to Traffic Generating Developments' publication. The trip generation rates of residential dwellings can vary depending on the type of dwelling and location of the development. The RTA publication provides trip generation rates for medium-density residential developments:

- For medium-density dwellings with up to two bedrooms, it indicates a daily traffic generation rates of 4 to 5 vehicle movements per day (vpd) per dwelling and a peak hour rate of 0.4 to 0.5 vehicle movements per hour (vph) per dwelling;
- For medium-density three-bedroom+ dwellings, it indicates a daily traffic generation rate of 5.0 to 6.5 vehicle movements per day (vpd) per dwelling and a peak hour rate of 0.5 to 0.65 vehicle movements per hour (vph) per dwelling; and

- For larger standalone four-bedroom+ residential dwellings, it indicates a daily traffic rate of 9 vehicle movements per day (vpd) per dwelling and a peak hour rate of 0.85 vehicle movements per hour (vph) per dwelling.

**Table 4** summarises the results of the daily and peak hour trips generated by the proposed 92 dwellings.

**Table 4: Site Estimated Trip Generation**

Dwelling Size	Number of Dwellings	Daily Generation Rate	Estimated Daily Trip Generation	Peak Hour Generation Rate	Estimated Peak Hour Trips Generation
2-bed	28	5.0	140	0.5	14
3-bed	47	5.5	258.5 (259)	0.55	28.95 (29)
4-bed	12	6.5	78	0.65	7.8 (8)
<b>Total</b>	<b>87</b>	–	<b>477</b>	–	<b>51</b>

The result shows that the proposed 87 dwellings will generate some 477 vehicle movements per day and 51 vehicle movements per hour during the AM and PM peak commuter periods which equates to less than one additional vehicle movement per minute. It is anticipated that this level of trip generation can be accommodated on the existing wider transport network and minimal impact on the performance of the Pigeon Mountain Road/Compass Point Way intersection and the surrounding local road environment.

## 4.0 TRANSPORTATION EFFECTS OF THE PROPOSAL

### 4.1 Walking and Cycling Effects

The establishment of high-quality JOAL's and traffic calming measures within the site will ensure that a high standard of pedestrian safety and amenity is provided, and cycling can be accommodated.

Pedestrian connections to both Ara Tai, Pigeon Mountain Road and Compass Point Way will link the site to the existing public footpath network in the surrounding area.

The implementation of such measures will ensure that pedestrian and cycling activity in the area will not be adversely affected and will promote an increase in active travel. Furthermore, the proposal does not require any infrastructure changes to the road network and are likely to have a minimal detrimental effect on the operation and safety on existing and future walking and cycling activity past the site.

### 4.2 Effects on Public Transport

No changes to the current bus stop locations or services are proposed or considered necessary as a direct result of the proposed development.

Connections and crossing points to and from bus stops are available on Ara Tai and Pigeon Mountain Road. Accessibility to public transport infrastructure is therefore well catered for and no additional infrastructure is required. Bus stops near the site will have a mixture of shelters, road markings and signages.

The site is within a suburban area which is currently designed to cater for public transport, and whilst the introduction of additional people living within the area will increase the public transport demand, it is expected the demands can be catered for.

### 4.3 Safety Impacts

Development of the site, completion of the internal JOAL's and the creation of the new vehicle crossing should have no detrimental impact on general road safety. The following key points are noted about the proposal:

- The adoption of a high-quality designed JOAL and traffic calming measures will promote the safe use of the new roads and intersections;
- The historical crash statistics of the roads adjacent to the site do not indicate a pattern of crashes that will be exacerbated by the introduction of additional vehicle movements relating to the proposal;
- A sight distance analysis indicates that at new vehicle crossing will provide lines of clear sight, compliant with RTS-6; and
- The introduction of pedestrian facilities to assist people movement will promote greater awareness and safer environment for pedestrians.

### 4.4 Construction Related Traffic Impacts

The need to introduce truck and other vehicle movements during the construction phases of any development always has a potential to impact on the surrounding area and road network, but a

certain degree of impact for what is normally a relatively short period of time (at least in the context of the life of the proposed development) is inevitable and should not normally be a reason for restricting development.

What is important however, is that measures must be put in place to minimise the potential impacts of construction traffic, and this is generally achieved through the requirement for a traffic management plan to be prepared and approved prior to work commencing. Where necessary, this seeks to control the times of operation (e.g., avoiding peak periods), routes used, and other matters to minimise potential impact.

In terms of capacity, the adjacent road network can accommodate the traffic volumes associated with the construction phases, and the application of a traffic management plan will ensure that any potential impact on the surrounding area is minimised.



## 5.0 AUCKLAND UNITARY PLAN REQUIREMENTS

Section E27 of the Auckland Unitary Plan sets out the development standards relating to transport. **Table 5** lists the relevant standards that apply to this development and comments on compliance. Where there is non-compliance, further assessment has been undertaken against the criteria set out in Section E27.8.2 of the AUP.

**Table 5: Transport Development Controls**

Standard	Requirement/Details	Comment
E27.6.1 Traffic Generation	Sets the threshold for when resource consent as a restricted discretionary activity is required.	The proposal is to construct 87 residential dwellings – <b>does not apply</b>
E27.6.2 (1) Number of Parking Spaces	Defines the minimum and maximum number of parking spaces for new developments.	There is no minimum or maximum parking requirement for this site – <b>does not apply</b>
E27.6.2 (6) Bicycle Parking	Defines the number of bicycle parking spaces required for new residential and commercial developments.  One visitor bicycle space is required per 20 dwellings plus one secure bicycle space per dwelling without a dedicated garage.	For dwellings without garages, they will have access to rear yards where a bicycle can be securely stored – <b>complies</b>  There are sufficient spaces available within the communal area of the site to provide eight visitor bicycle spaces – <b>complies</b>
E27.6.2 (7) End-of-Trip Facilities	End-of-trip facilities to be provided for any office, education or hospital facilities.	The proposal is for residential buildings – <b>does not apply</b>
E27.6.2 (8) Number of Loading Spaces	Outlines the minimum loading space requirements for new developments.  One loading space is required for residential activities having 5000m <sup>2</sup> – 20,000m <sup>2</sup> GFA.	Overall GFA for the proposal is over 5,000m <sup>2</sup> , and no dedicated loading zone is provided – <b>does not comply</b>
E27.6.3.1 (1) Size and Location of Parking Spaces	Defines the size, use and location of parking spaces.  Every parking spaces must: <ul style="list-style-type: none"> <li>• be located on the same site as the activity to which it relates;</li> <li>• not be used for any other purpose; and</li> <li>• be kept clear and available at all times the activity is in operation.</li> </ul>	All spaces will be located within the same site, will not be used for any other purposes, and will be available at all times – <b>complies</b>  As tabulated in <b>Table 2</b> , all the parking spaces will meet the minimum dimensional requirements as set out in Table E27.6.3.1.1 of the AUP – <b>complies</b>
E27.6.3.2 Size and Location of Loading Spaces	Defines the size, use and location of loading spaces.	No loading space is provided – <b>does not apply</b>

Standard	Requirement/Details	Comment
E27.6.3.3 Access and Manoeuvring for Parking	Defines the requirements for design vehicles, driveways, manoeuvring area, and stacked parking allowances.	All parking spaces will have dedicated access aisles to accommodate 85 <sup>th</sup> percentile car tracking as illustrated in <b>Attachment 1 – complies</b>
E27.6.3.4 Reverse Manoeuvring	Defines the conditions in which reversing manoeuvring is acceptable to and from a site.  Sufficient space must be provided on the site, so vehicles do not need to reverse off the site or onto or off the road from any site if: <ul style="list-style-type: none"> <li>• four or more parking spaces are served by a single access,</li> <li>• there is more than 30 metres between the parking space and the road boundary of the site, or</li> <li>• access would be formed on an arterial road or otherwise within a Vehicle Access Restriction covered in Standard E27.6.4.1.</li> </ul>	Parking is configured such that no reverse manoeuvring is required from the vehicle crossing – <b>complies</b>
E27.6.3.5 Vertical Clearance	Defines the minimum overhead clearance for vehicles can pass safely under overhead structures.  A minimum of 2.1 metres vertical clearance should be provided for car circulation, and 3.8 metres provided where loading is required.	A minimum vertical clearance of 2.1 metres will be provided for the garage doors – <b>complies</b>  No overhead structures are proposed within the vehicle circulating areas – <b>complies</b>
E27.6.3.6 Formations and Gradients	Defines the formation and gradients for all parking spaces and manoeuvring areas.  All parking and manoeuvring areas must be formed, drained, with all-weather surfaces.  All parking spaces must have gradients no steeper than 1 in 20 (5%).  Gradients within manoeuvring areas must not exceed 1 in 8 (12.5%).	All parking areas will be formed, drained, with all-weather surfaces – <b>complies</b>  XX spaces along JOAL 3 will be provided with a maximum gradient of 1 in 12.8 (7.8%) – <b>does not comply</b>  All other parking spaces will have gradients no steeper than 1 in 20 (5.0%) – <b>complies</b>  Gradients within manoeuvring areas will not exceed 1 in 8 (12.5%) – <b>complies</b>
E27.6.3.7 Lighting	Lighting is required where there are 10 or more parking spaces and associated pedestrian routes used in the hours of darkness.	Suitable lighting will be provided – <b>complies</b>
E27.6.4.1 Vehicle Access Restrictions	Defines the acceptable locations of access points in relation to strategic roads and intersections.  Vehicle Access Restrictions apply, and vehicle crossings must not be	Compass Point Way is not classified as an arterial road – <b>does not apply</b>

Standard	Requirement/Details	Comment
	<p>constructed or used to provide vehicle access across that part of a site boundary which:</p> <ul style="list-style-type: none"> <li>• is located within 10 metres of any intersection as measured from the property boundary,</li> <li>• is subject to the following types of Vehicle Access Restriction as identified on the planning maps, and</li> <li>• has frontage to an arterial road as identified in the planning maps.</li> </ul>	<p>The proposed vehicle crossing will be located more than 50.0 metres from any nearby intersection – <b>does not apply</b></p>
<p>E27.6.4.2 Width and Number of Vehicle Crossings</p>	<p>Defines the maximum number of vehicle crossings, proximity to others and permitted widths.</p> <p>Vehicles crossings must be separated by at least 6.0 metres from crossings serving the site, and by at least 2.0 metres from crossing serving a different site.</p> <p>Within residential zone, vehicle crossings serving ten or more parking spaces must be at least 5.5 metres wide and no more than 6.0 metres wide at the site boundary.</p>	<p>One vehicle crossing is proposed for the site – <b>complies</b></p> <p>The vehicle crossing will be provided with a width of 5.5 metres where serving 117 parking spaces – <b>complies</b></p> <p>The vehicle crossing will be located more than 10.0 meters away from the adjacent property's vehicle crossing – <b>complies</b></p>
<p>E27.6.4.3 Width of Vehicle Access and Queuing</p>	<p>Defines the standards for vehicle access widths for on-site parking and queuing at entrance control mechanisms.</p> <p>Within residential zone, vehicle accesses serving two or less parking spaces must be at least 2.5 metres wide.</p> <p>Within residential zone, vehicle accesses serving ten or more parking spaces must be at least 5.5 metres wide and a 1.0m wide pedestrian access for rear sites.</p>	<p>All JOAL's generally have a width of at least 5.5 metres serving more than 10 parking spaces, which narrow down to some 3.0 metres serving a one-way arrangement with good sightlines – <b>complies</b></p>
<p>E27.6.4.4 Gradient of Vehicle Access</p>	<p>Defines the gradients of circulating aisles for vehicle movements.</p> <p>Vehicle access serving residential must have a maximum gradient not exceeding 1 in 5 (20%).</p> <p>Vehicle access used by heavy vehicles should have a maximum gradient not exceeding 1 in 8 (12.5%).</p> <p>All vehicle access must be designed so that where the access adjoins the road there is sufficient space onsite for a</p>	<p>A section of the accessway is designed with a gradient of 1 in 7 (14.28%) where a maximum gradient of 1 in 8 (12.5%) is permitted for heavy vehicles – <b>does not comply.</b></p> <p>The vehicle access will have gradients no steeper than 1 in 20 (5.0%) over 4.0 metres adjoining the road boundary – <b>complies</b></p>

Standard	Requirement/Details	Comment
	platform so that vehicles can stop safely and check for pedestrians and other vehicles prior to exiting. The platform must have a maximum gradient no steeper than 1 in 20 (5.0%) and a minimum length of 4m for residential activities and 6m for all other activities.	
E27.6.5 Design & location of pedestrian and cycling facilities	Defines the requirements for off-road and pedestrian and cycle facilities.	The pedestrian facilities on-site are considered to meet the requirements of this standard – <b>complies</b>

## 6.0 AUCKLAND UNITARY PLAN ASSESSMENT CRITERIA

Section E27.8.2 of the Auckland Unitary Plan sets out the assessment criteria when there is non-compliance from the development controls for a proposed development. For this proposal, the following items require consent:

- E27.6.2 (8) – Number of Loading Spaces (Criteria 7);
- E27.6.3.6 – Formations and Gradients (Criteria 8); and
- E27.6.4.4 – Gradient of the Vehicle Access (Criteria 8).

The following lists the relevant assessment criteria for these infringements and comments as applied to this development.

7. *Any activity or development which provides fewer than the minimum number of loading spaces under Standard E27.6.2(8):*
- (a) *effects of the loading arrangements proposed for the site on the safe and efficient operation of the adjacent transport network;*
  - (b) *the specific business practice, operation or type of customer associated with the proposed activities;*
  - (c) *the extent to which an accessible and adequate on-street loading space is available nearby or can be created while having regard to other demands for kerbside use of the road;*
  - (d) *the extent to which loading can be provided informally on site or on another site in the immediate vicinity; or*
  - (e) *the extent to which the reduction in loading spaces will contribute to the efficient use of land and the growth and intensification provided for in this Plan.*

**Comment (E27.6.2(8)) – Number of Loading Spaces [Criteria 7]**

The reason for consent under this standard relates to the number of loading spaces. The Gross Floor Area (GFA) of the development will be more than the threshold of 5,000 m<sup>2</sup> and below 20,000 m<sup>2</sup> and as such there is a requirement to provide one on-site loading space. As there is no loading space proposed the proposal is subject to resource consent.

Considering the development is a subdivision and the residential dwellings are independent and spread out, deliveries and other truck activities are anticipated to utilise JOALs to temporary stop and make delivery or loading.

It is considered that temporary parking within the JOAL's for any delivery vehicle can be managed without causing significant delay for residents accessing the site. As the JOAL's are generally 5.5 metres wide or more, delivery vehicles will be able to park temporarily, while still permitting vehicle movements to and from the site.

Notwithstanding, most deliveries will occur outside of peak hours, and the occurrence of delivery trucks is not expected to be frequent and therefore, delivery vehicles are not anticipated to regularly conflict with resident's vehicle movements.

As discussed above, a medium rigid truck will also be able to circulate through the site along the JOAL's and with minimal effect. The effect of the loading space provision non-compliance is considered less than minor and therefore is acceptable.

***8. Any activity or development which infringes the standards for the design of parking and loading areas or access under Standard E27.6.3, E27.6.4.2, E27.6.4.3, and E27.6.4.4:***

- (a) effects on the safe and efficient operation of the adjacent transport network having regard to:
  - (i) the effect of the modification on visibility and safe sight distances;*
  - (ii) existing and future traffic conditions including speed, volume, type, current accident rate and the need for safe manoeuvring;*
  - (iii) existing pedestrian numbers, and estimated future pedestrian numbers having regard to the level of development provided for in this Plan; or*
  - (iv) existing community or public infrastructure located in the adjoining road, such as bus stops, bus lanes, footpaths, and cycleways.**
- (b) effects on pedestrian amenity or the amenity of the streetscape, having regard to:
  - (i) the effect of additional crossings or crossings which exceed the maximum width; or*
  - (ii) effects on pedestrian amenity and the continuity of activities and pedestrian movement at street level in the Business – City Centre Zone, Business – Metropolitan Centre Zone, Business – Town Centre Zone and Business – Local Centre Zone.**
- (c) the practicality and adequacy of parking, loading and access arrangements having regard to:
  - (i) site limitations, configuration of buildings and activities, user requirements and operational requirements;*
  - (ii) the ability of the access to accommodate the nature and volume of traffic and vehicle types expected to use the access. This may include considering whether a wider vehicle crossing is required to:
    - comply with the tracking curve applicable to the largest vehicle anticipated to use the site regularly;***

- *accommodate the traffic volumes anticipated to use the crossing, especially where it is desirable to separate left and right turn exit lanes;*
  - *the desirability of separating truck movements accessing a site from customer vehicle movements;*
  - *the extent to which reduced manoeuvring and parking space dimensions can be accommodated because the parking will be used by regular users familiar with the layout, rather than by casual users;*
- (iv) *any use of mechanical parking installation such as car stackers or turntables does not result in queuing beyond the site boundary; or*
- (v) *any stacked parking is allocated and managed in such a way that it does not compromise the operation and use of the parking area.*

#### **Comments (E27.6.3.6) – Formations and Gradients [Criteria 8]**

The reason for consent under this standard relates to the gradient associated with XXX parking spaces along JOAL 3 where a maximum gradient of 1 in 12.8 (7.8%) is proposed, where a maximum gradient of 1 in 20 (5.0%) is permitted. The followings points are made in support of this non-compliance:

- For two spaces located in JOAL 1 and 2, the gradient of 7.8-8% is only at the front of the spaces and there is a complying gradient of 5% is provided at the opposite end of the space. Therefore, the non-compliance reduces as it progresses along the bay and the difference in compliance becomes minimal at the point of which people will be stepping from the cars and there will be no noticeable effect.
- The remaining non-complying space in JOAL 1 will have a flat gradient at the rear of the space and as such users will likely open their doors onto a compliant grade of 5% at its midpoint and therefore will be no noticeable effect on the users.
- Along JOAL 3, 11spaces have a non-compliant grade by no more than 0.8% resulting in a difference in height at the edge of the parking bay of 16.5mm to a complying space which is minimal and unlikely to be noticed by users.
- For those spaces with a gradient of up to 7.8% along JOAL 3 the level difference of 82.5mm at the edge of the space is still considered minimal and unlikely to be noticed by users. As the difference is measured from the edge of the space so the actual level where users will be opening their doors will be lower further reducing any potential impact.
- Wheel stops are provided within the spaces, assisting users whilst parking and preventing any overrun of the spaces;
- Gradients of up to 1 in 8 (12.5%) are permitted on public roads under the subdivision code and as such the proposed grades are considered acceptable.
- Any impact will be retained within the site and not effect the local road network; and
- The parking spaces will be used by residents and as such regular users who are familiar with the gradients and will find the optimal methods to use the spaces with minimal effect..

Considering the above, the parking spaces are expected to operate safely, with less than a minor effect on the operations of the surrounding road network and within the site, and therefore is considered acceptable.

**Comments (E27.6.4.4) – Gradient of the Vehicle Access [Criteria 8]**

The reason for consent under this standard relates to the gradient provided for a section of the accessway where a gradient of 1 in 7 (14.28%) is proposed for some 12 metres from approximately 5.0 metres into the site, where a maximum gradient of 1 in 8 (12.5%) is permitted for an accessway which is used by heavy vehicles under the AUP. The followings points are made in support of this non-compliance:

- The non-complying grade is provided only for a short section of the accessway (12.0 metres), and rest of the site is designed with complying grades;
- The non-compliant grade is where a truck will be traversing in a general straight alignment, with no manoeuvring required;
- To provide a complying gradient the accessway will need excessive retaining wall that would negatively impact on other amenities provided on-site;
- The site is anticipated to have a low frequency of truck movements to/from the site (approximately two to three refuse collections per week);
- Refuse collection will be facilitated by a reputable provider with professional drivers and the drivers will be regular users and familiar with the site layout and will exercise caution;
- It has been confirmed with the refuse collection providers that the custom design truck will be able to traverse along a gradient of 1 in 7 (14.28%) for a short section, and
- Refuse collection will occur outside of peak hours for the site, minimising the potential for conflict with other vehicles and pedestrians along the access or on Compass Point Way;

Therefore, the proposed gradient of vehicle access will have less than a minor effect on the surrounding road environment and is considered acceptable.

## 7.0 CONCLUSIONS

Based on the analyses described in this report, the following conclusions can be made in respect of the proposal to establish a residential subdivision consisting of 87 dwellings at 3 Pigeon Mountain Road in Half Moon Bay:

- The estimated traffic generation of the proposal is likely to be about 477 traffic movements per day with peak hour traffic generation of about 51 traffic movements per hour;
- The traffic generated by the proposal is expected to be accommodated on the wider road network with little or no effect;
- Vehicle access to the site is designed to a suitable standard;
- A review of the transport standards has identified three items requiring consent under the E27 standards of the Auckland Unitary Plan;
- Vehicle and pedestrian access to the site is designed to a suitable standard such that the infringement will not have an adverse effect on the surrounding road network or to the safety of pedestrians and vehicles using the site.

Overall, it is considered that the traffic engineering effects of the proposal can be accommodated on the road network without compromising its function, capacity, or safety. Therefore, from a traffic engineering perspective it is considered that the proposal will have an acceptable impact.

Prepared by



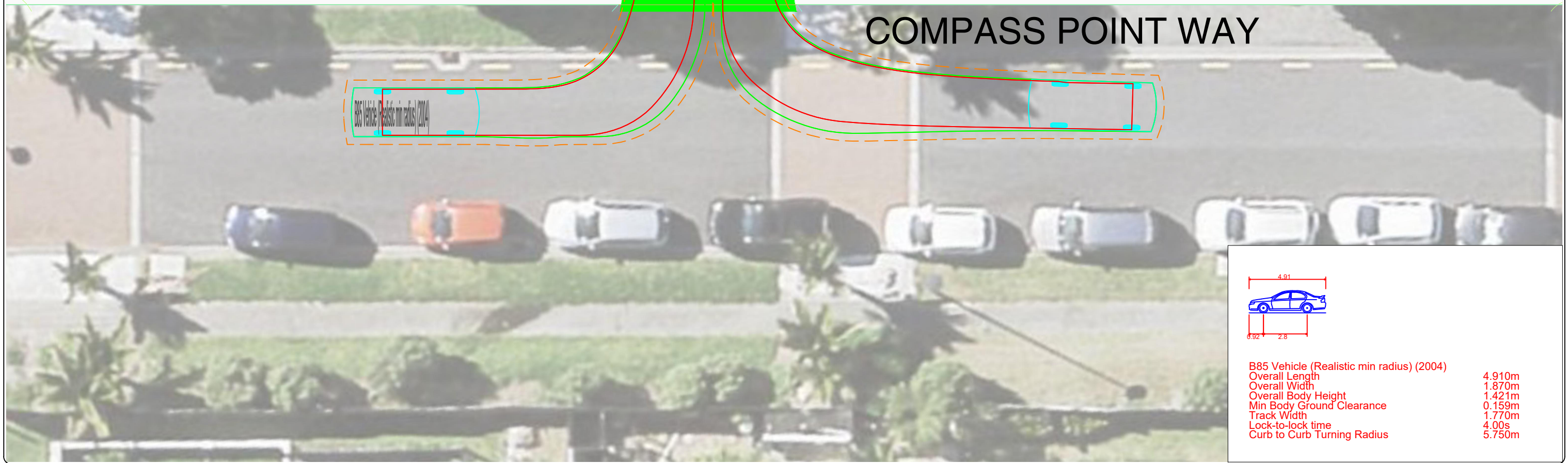
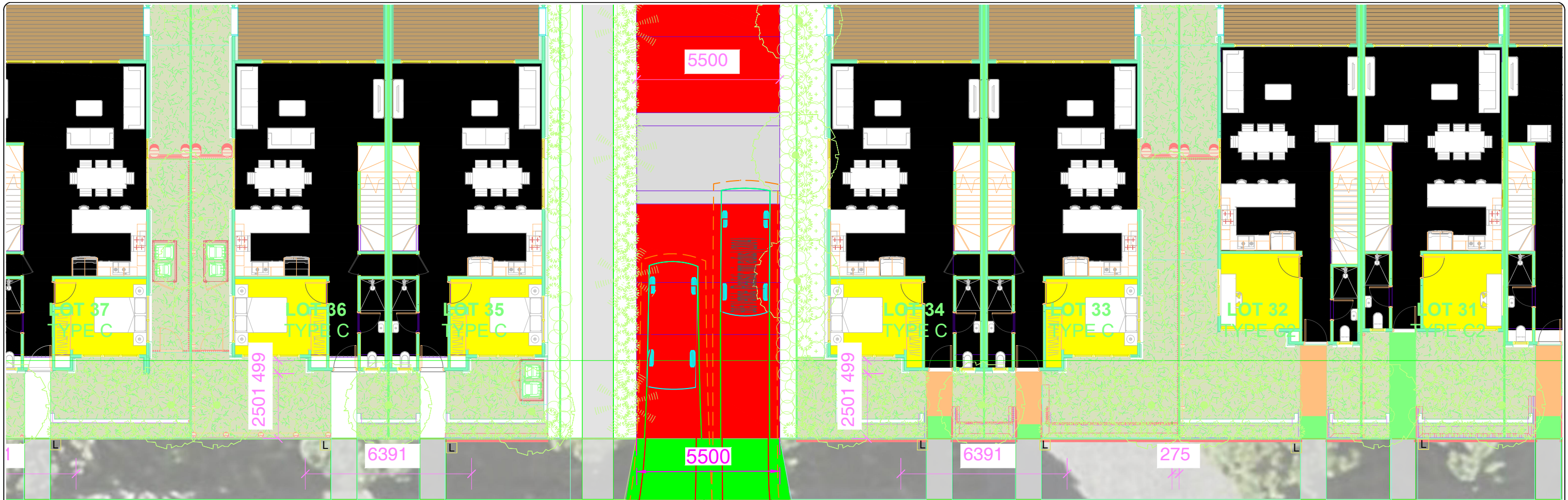
Thomas Kear  
Associate



# ATTACHMENT – 1

## VEHICLE TRACKING DIAGRAMS

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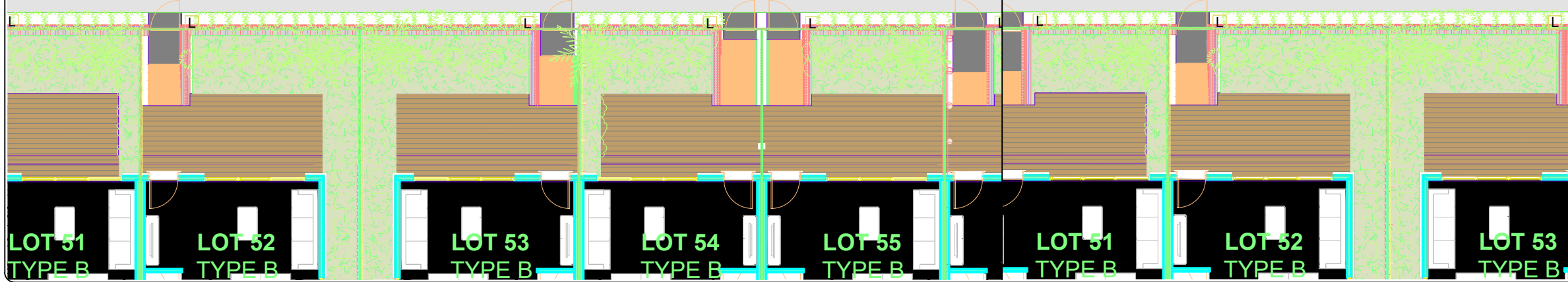
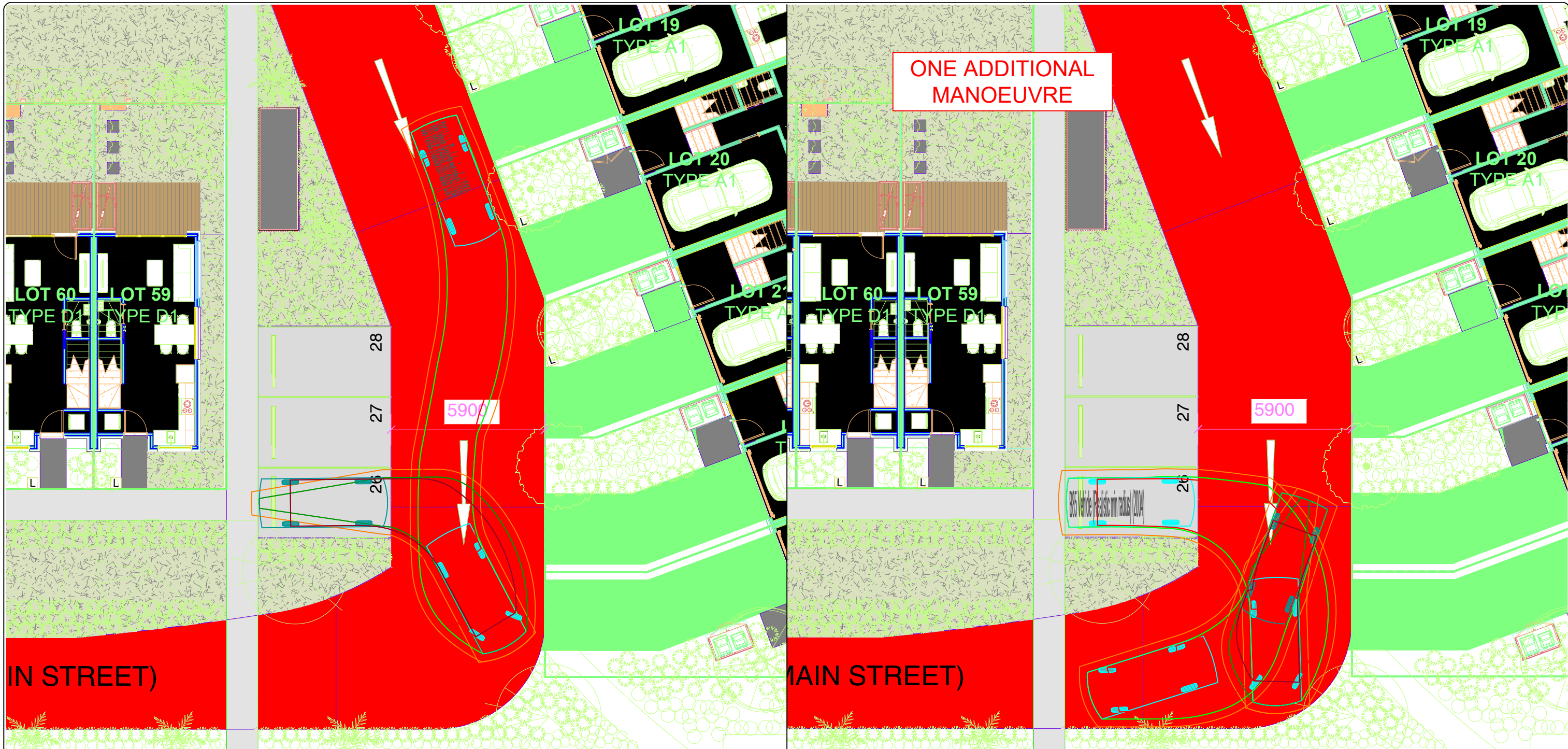
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Sheet Title  
 Vehicle Tracking - B85 Design Vehicle

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**B85 Vehicle (Realistic min radius) (2004)**

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	4.00s
Curb to Curb Turning Radius	5.750m

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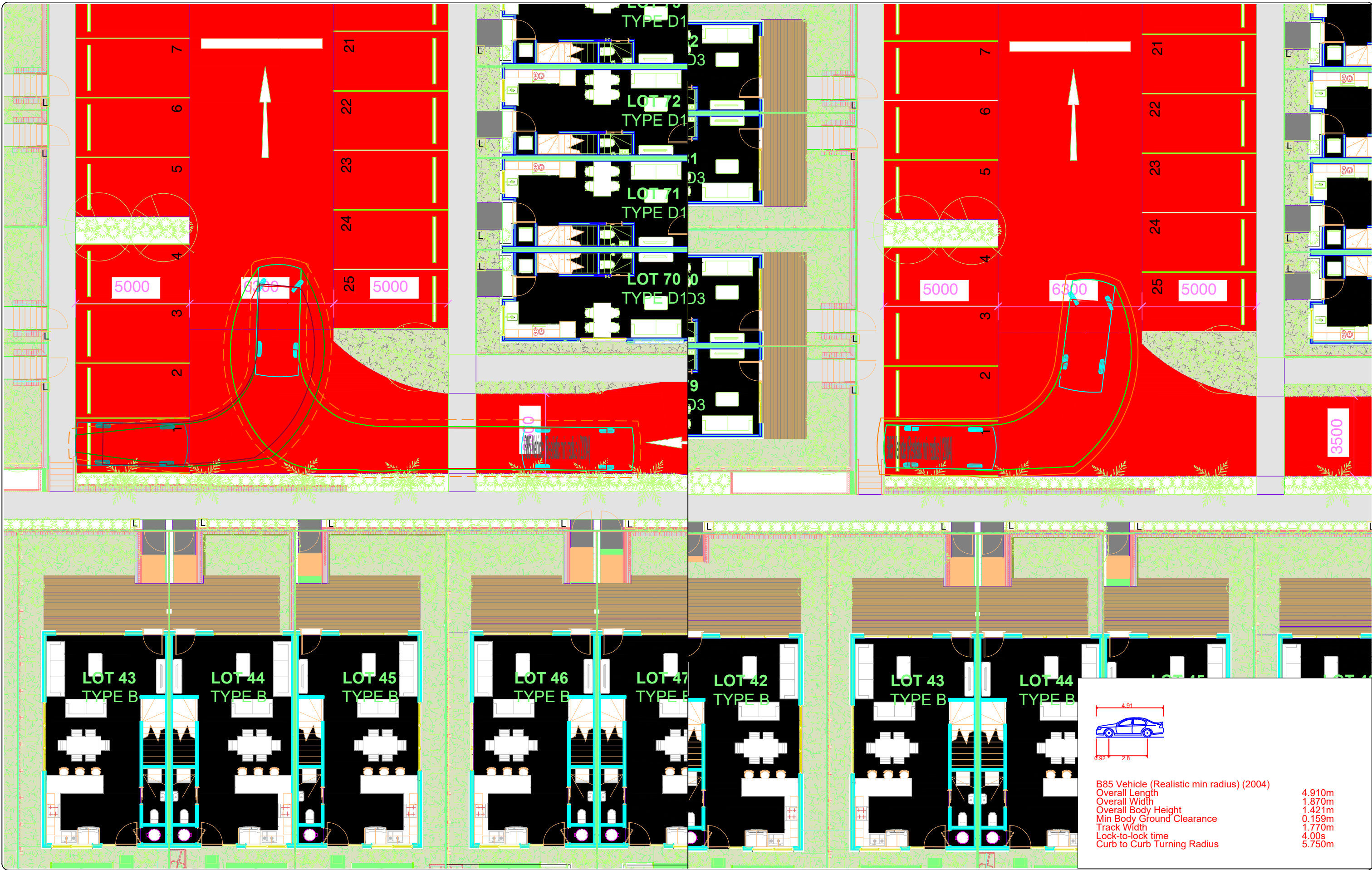
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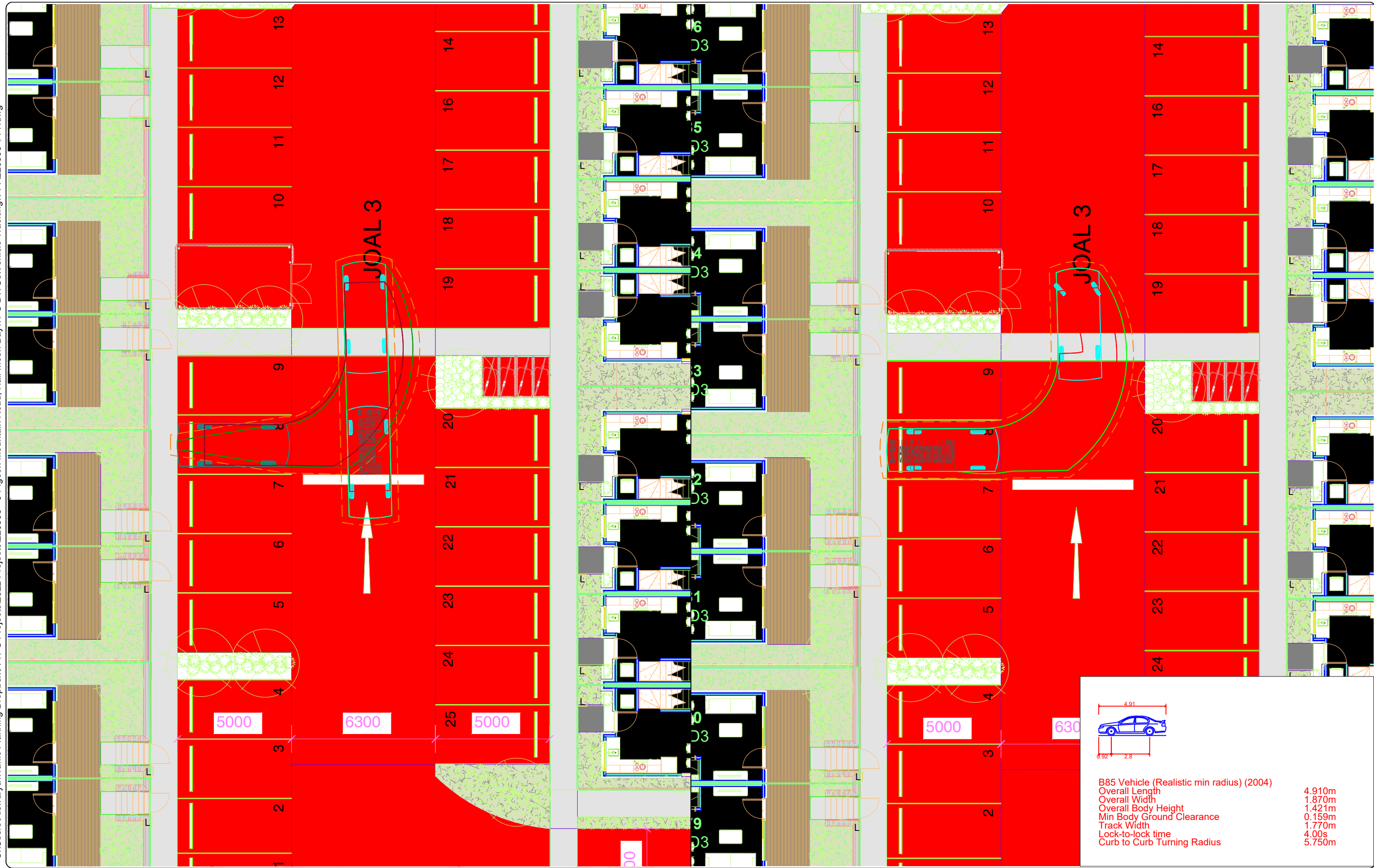
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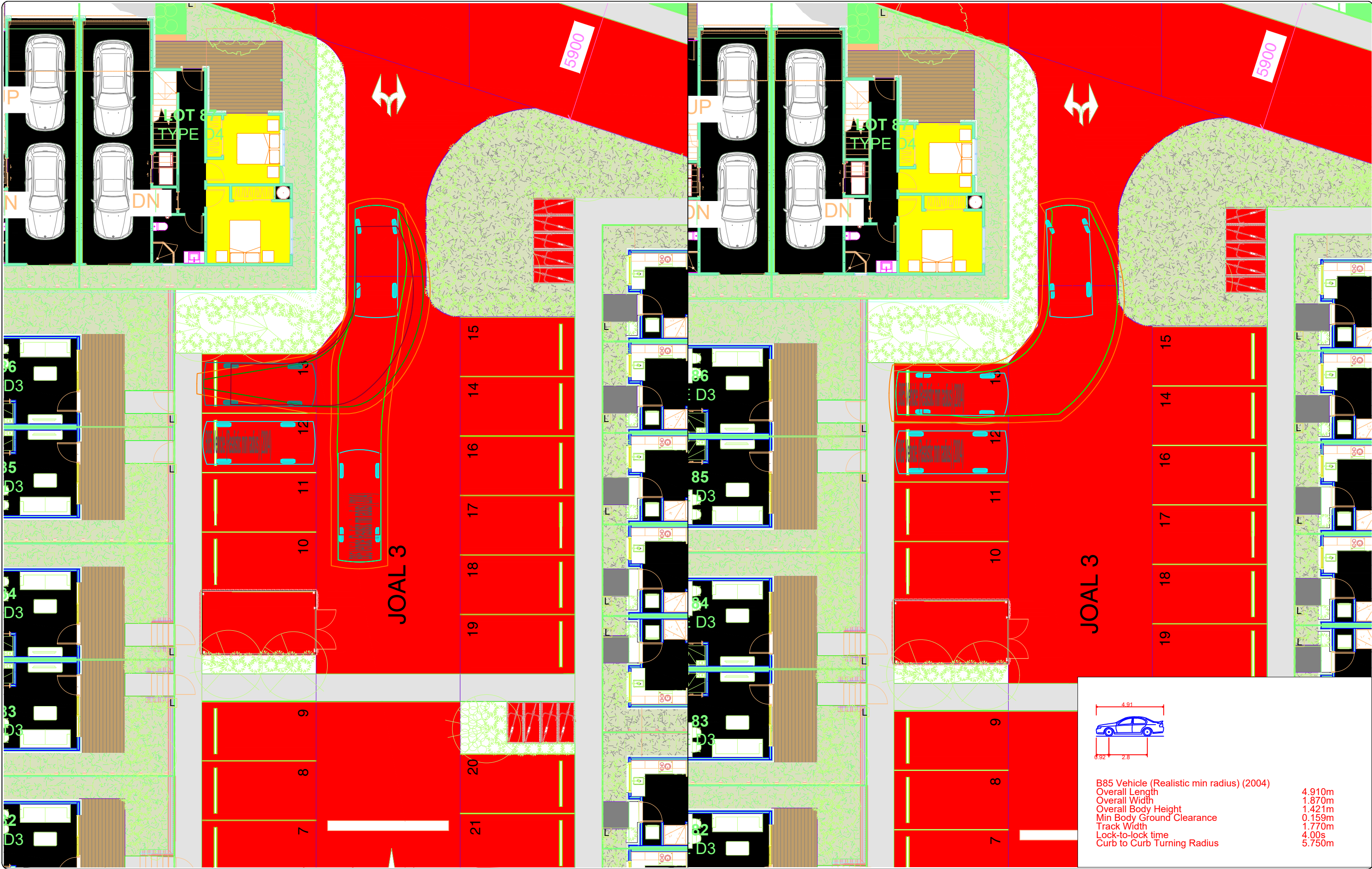
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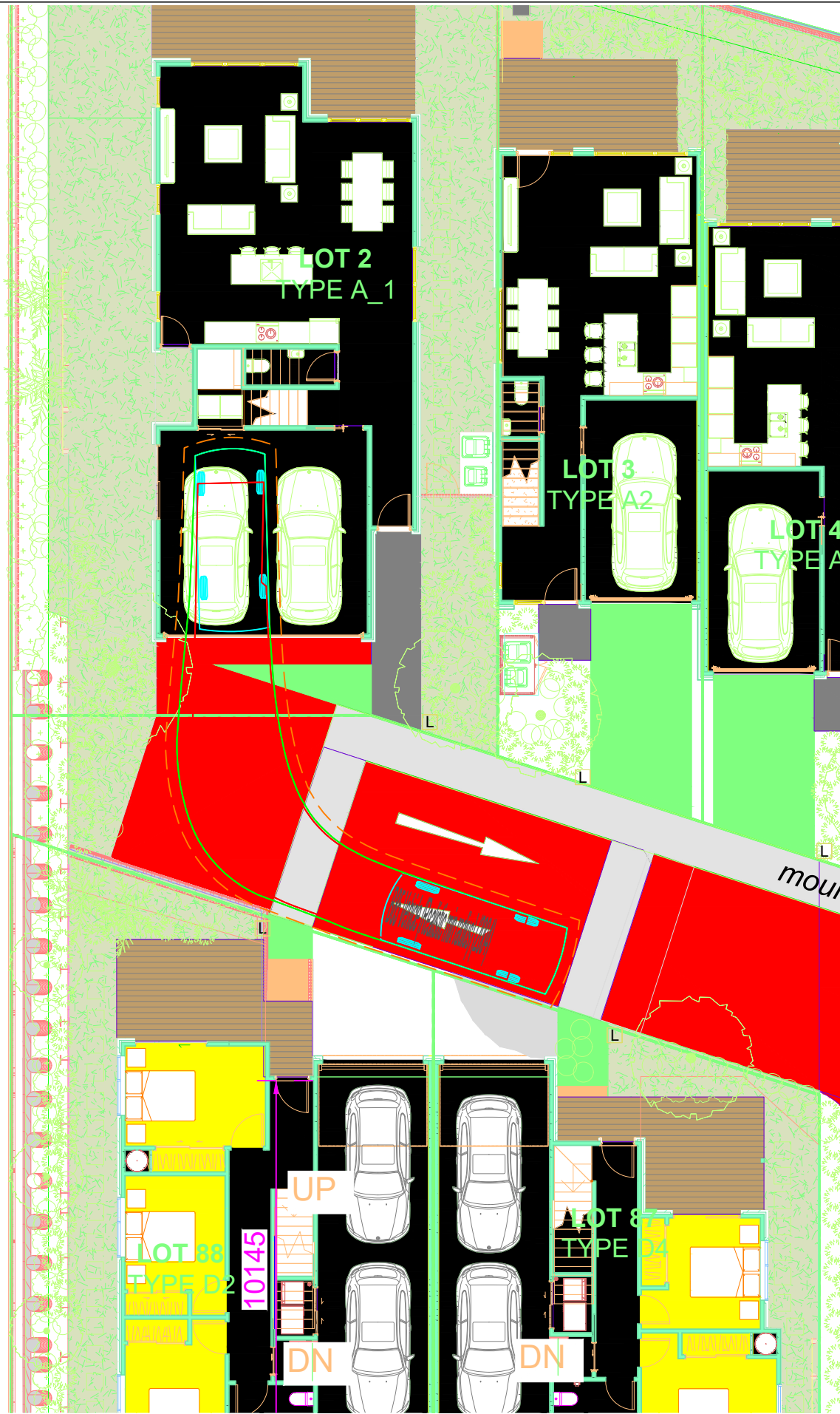
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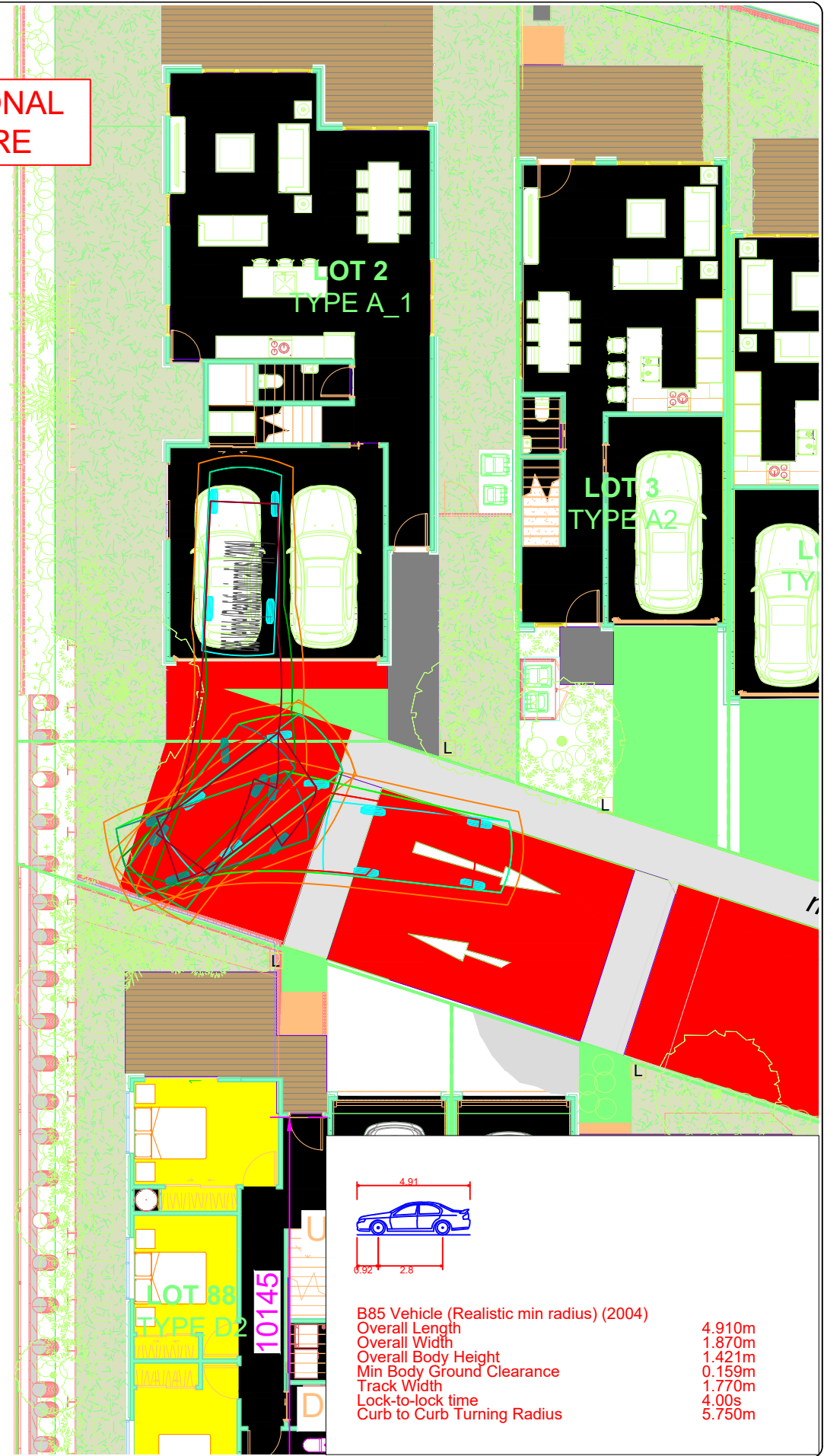
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ONE ADDITIONAL MANOEUVRE



B85 Vehicle (Realistic min radius) (2004)	
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	4.00s
Curb to Curb Turning Radius	5.750m

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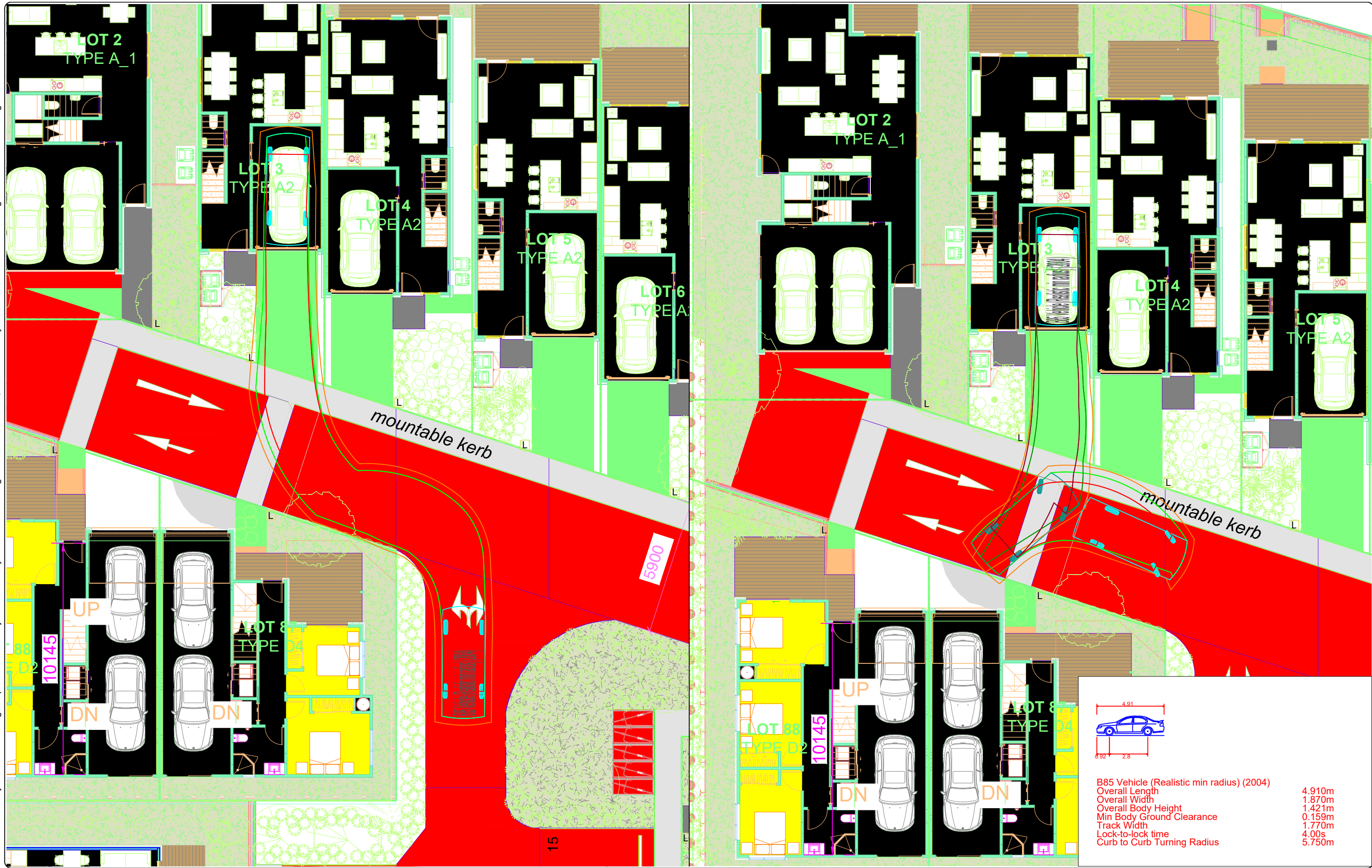
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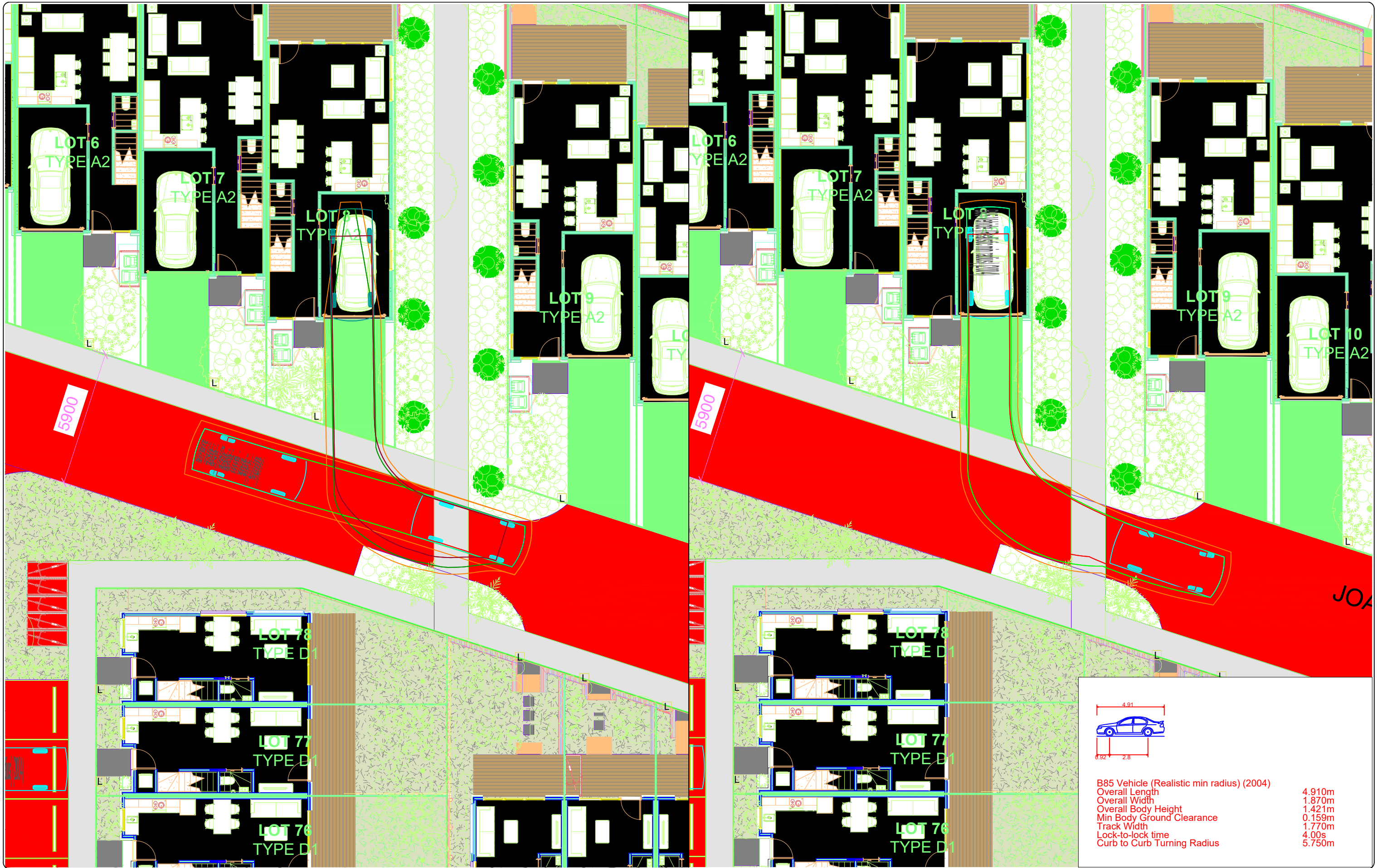
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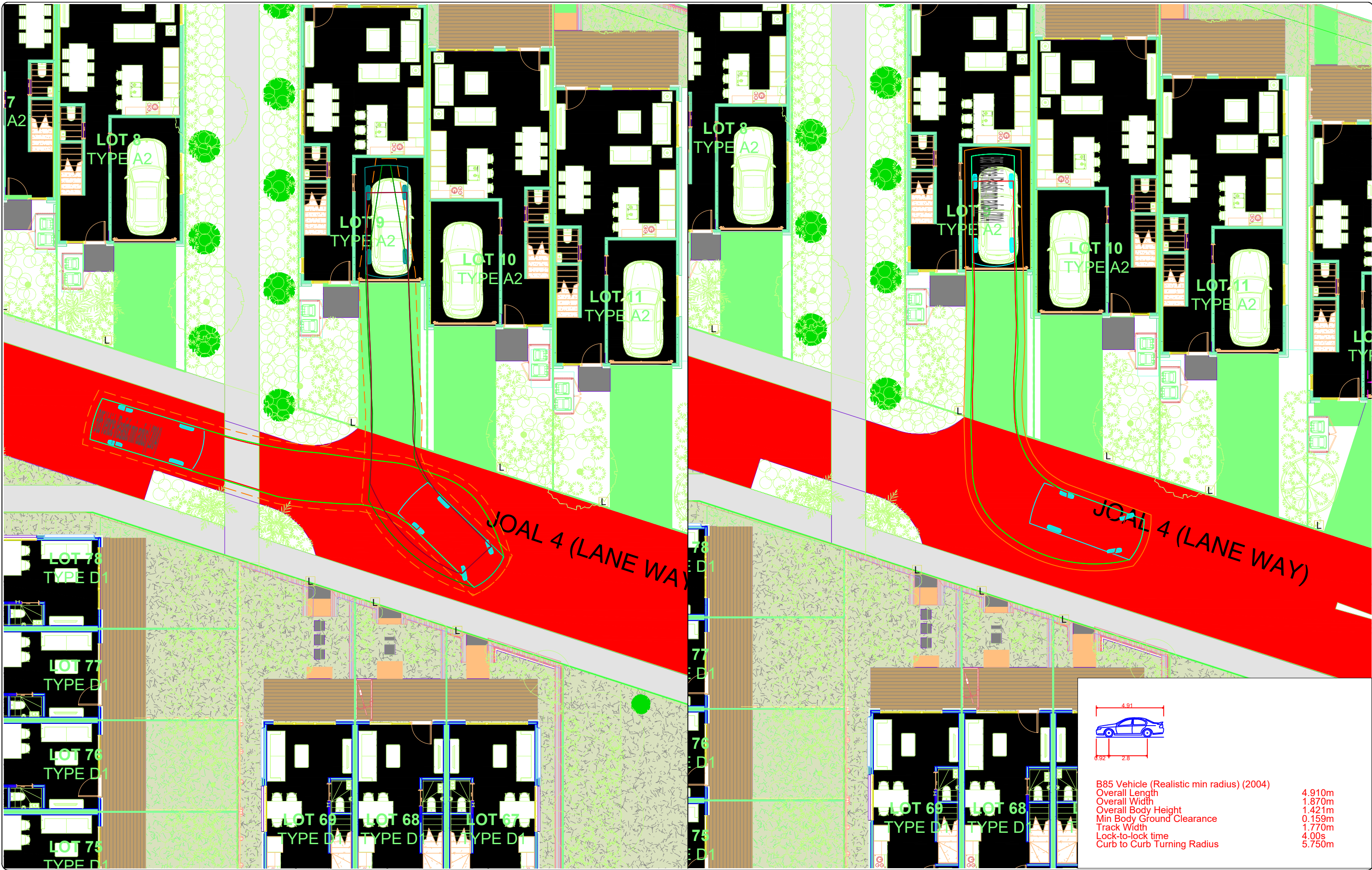
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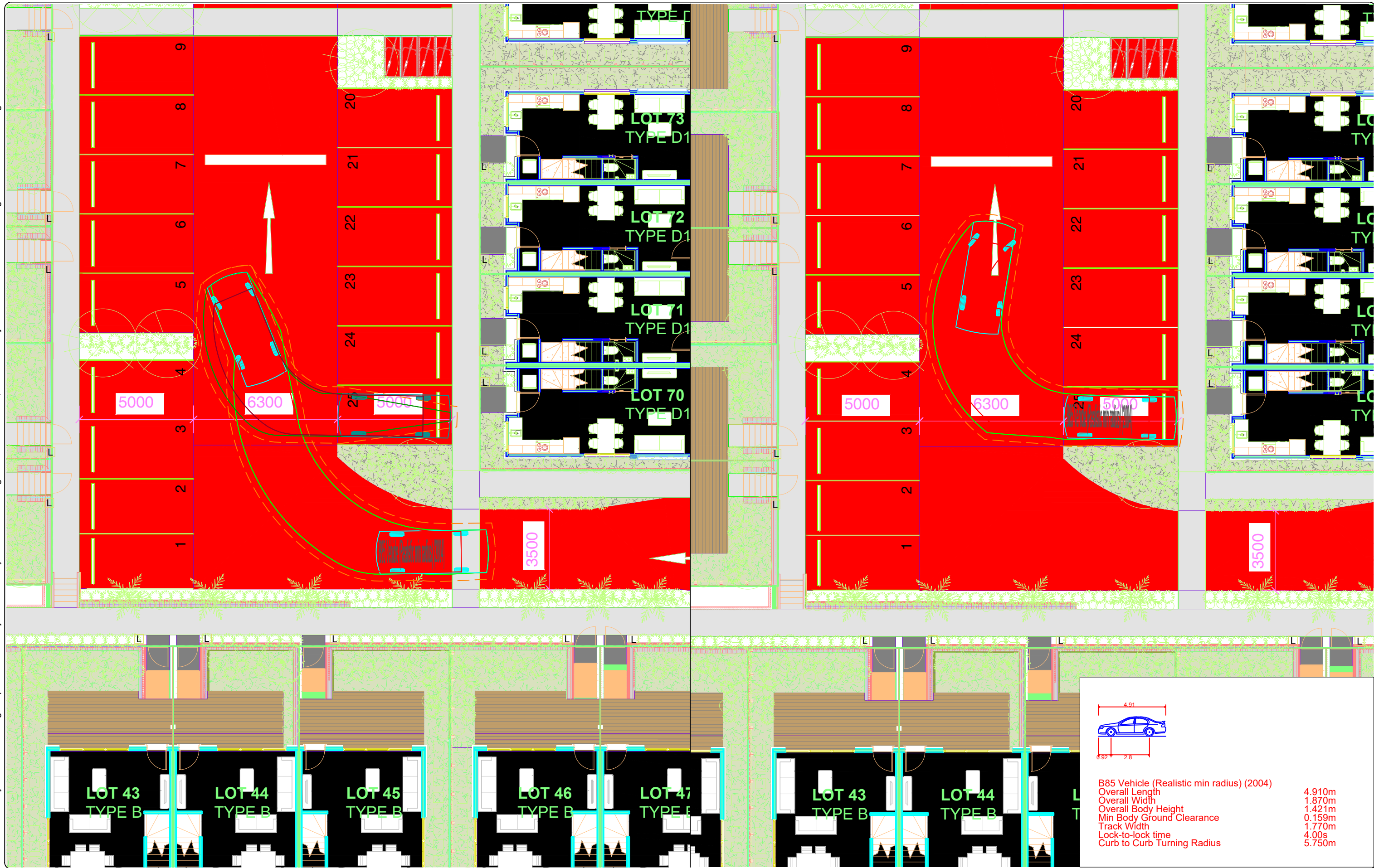
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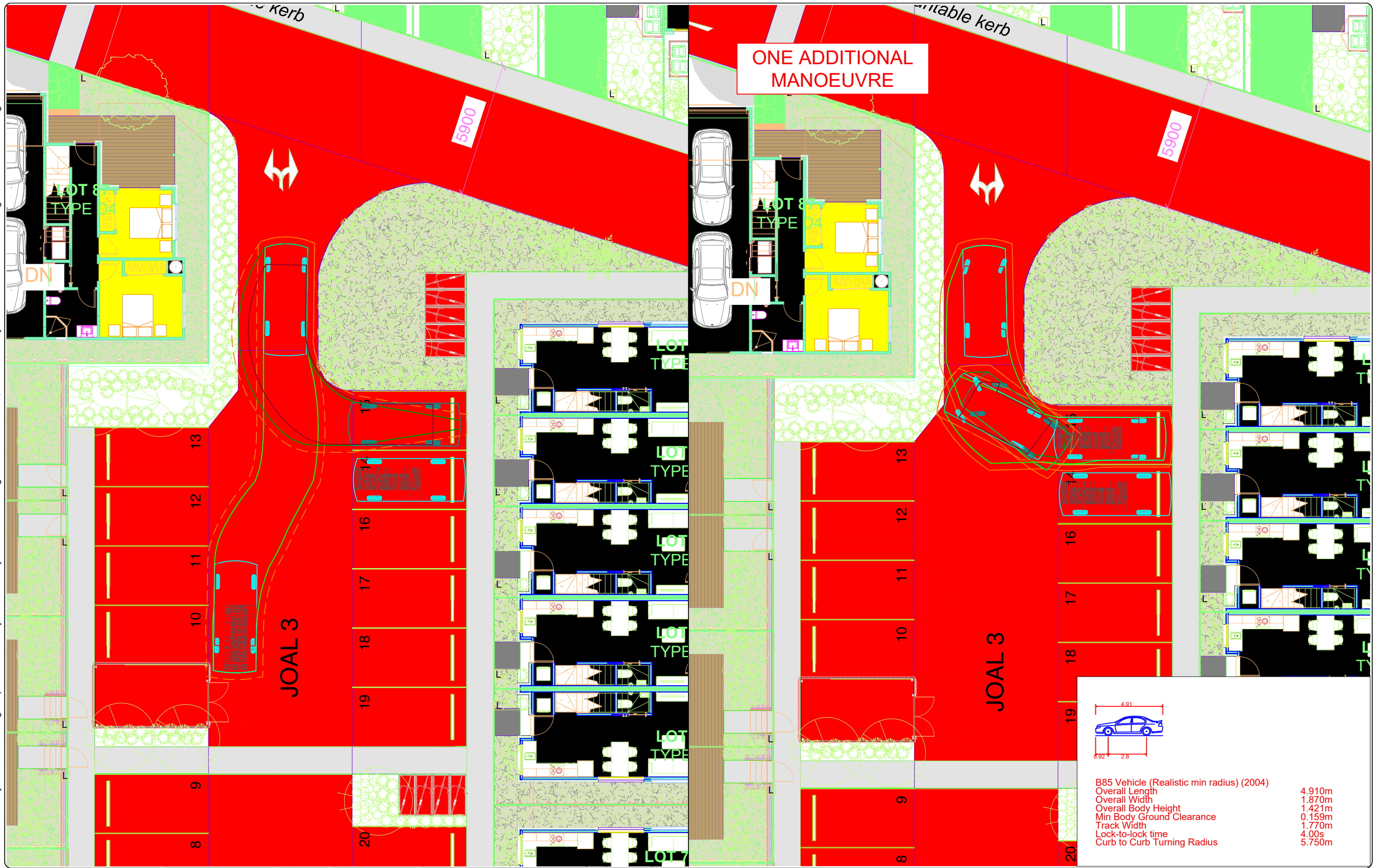
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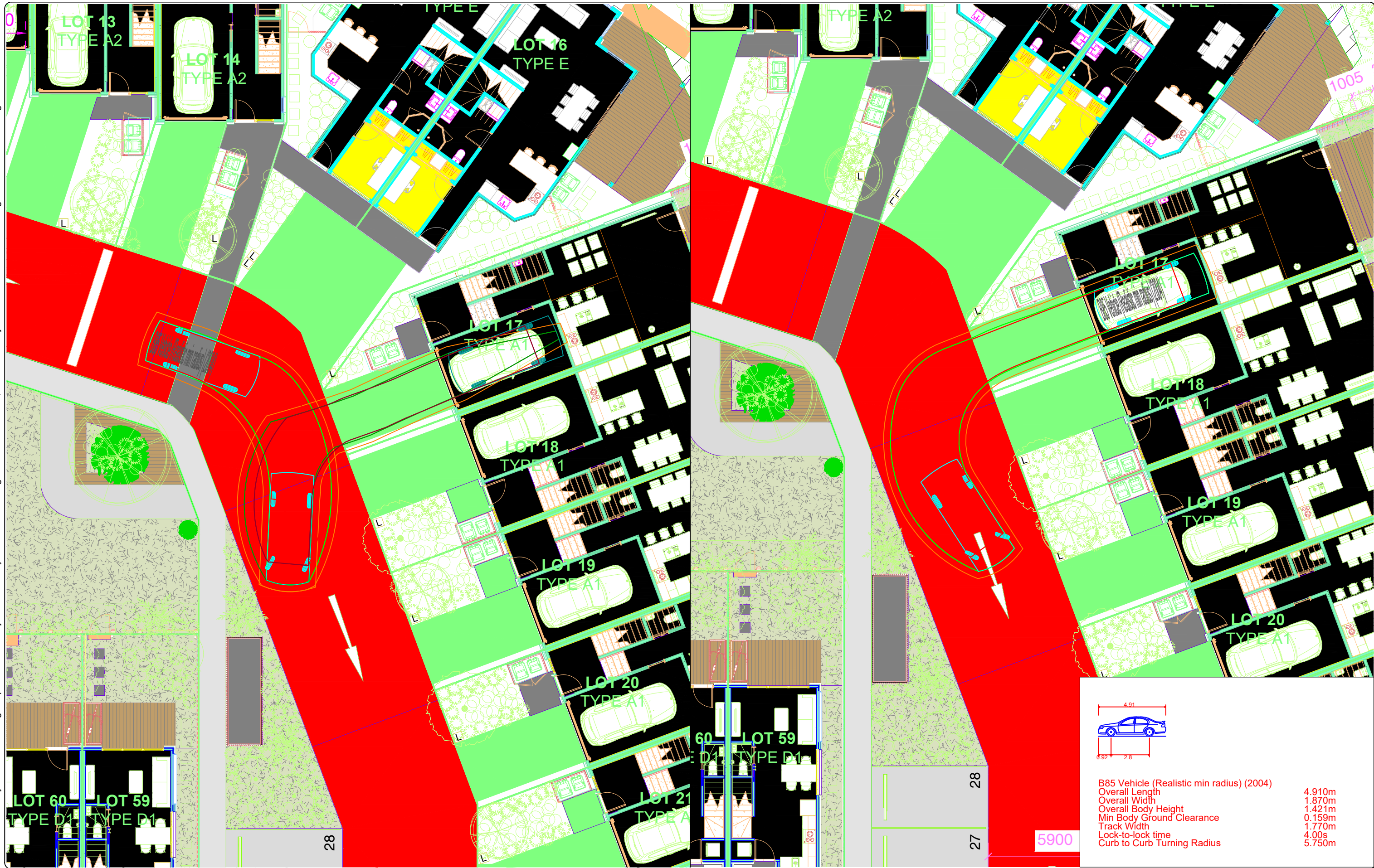
Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - B85 Design Vehicle

Designed IY	Drawn AE	Project No - (Sheet No)	Scales 1:150 (A3)
Checked TK	Approved TL	220803 VTT - (13)	Date 26.09.24

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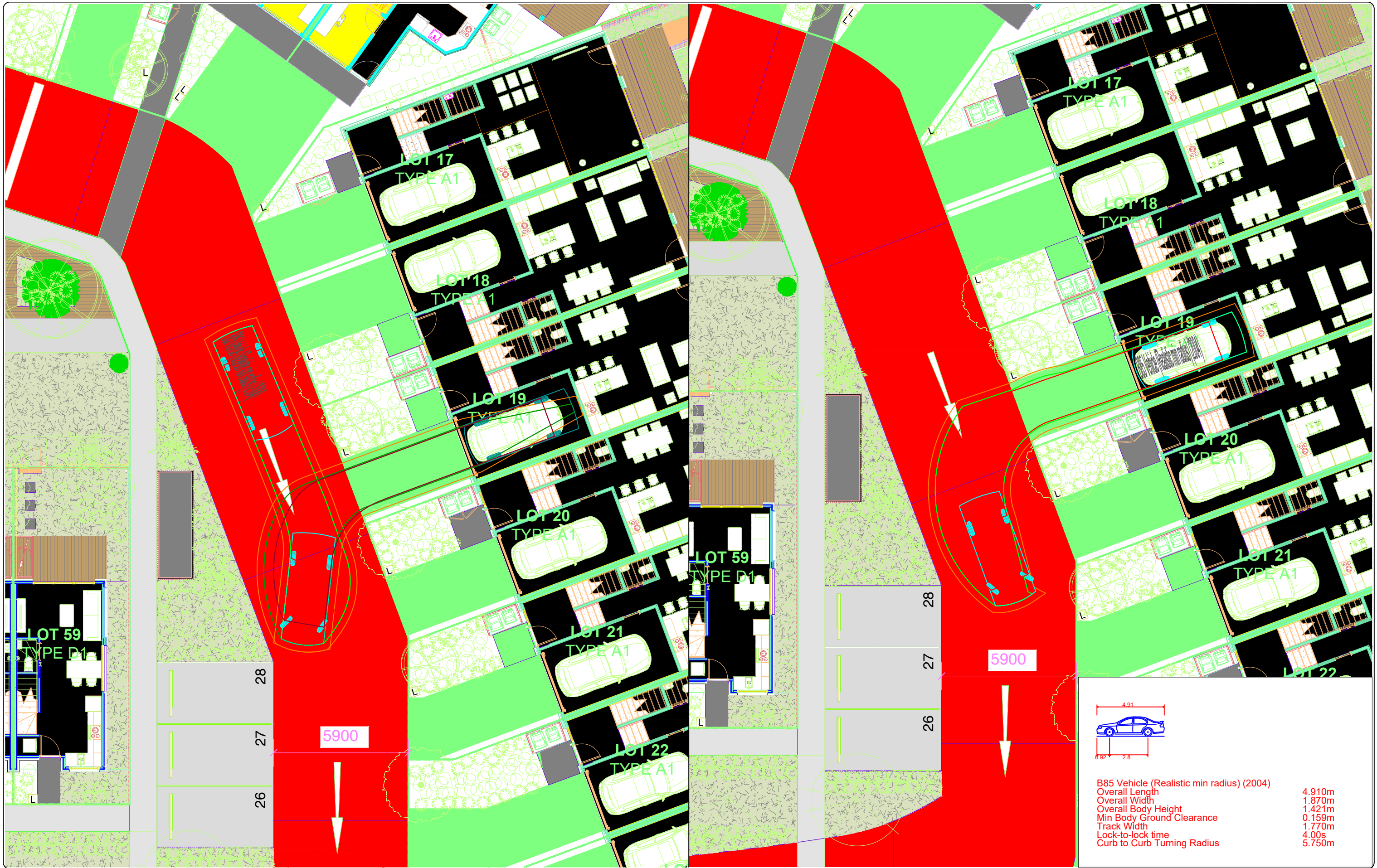
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Project Title: Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title: Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:150 (A3)
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Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:150 (A3)
Checked	TK	Approved	TL	220803 VTT - (15)	Date	26.09.24

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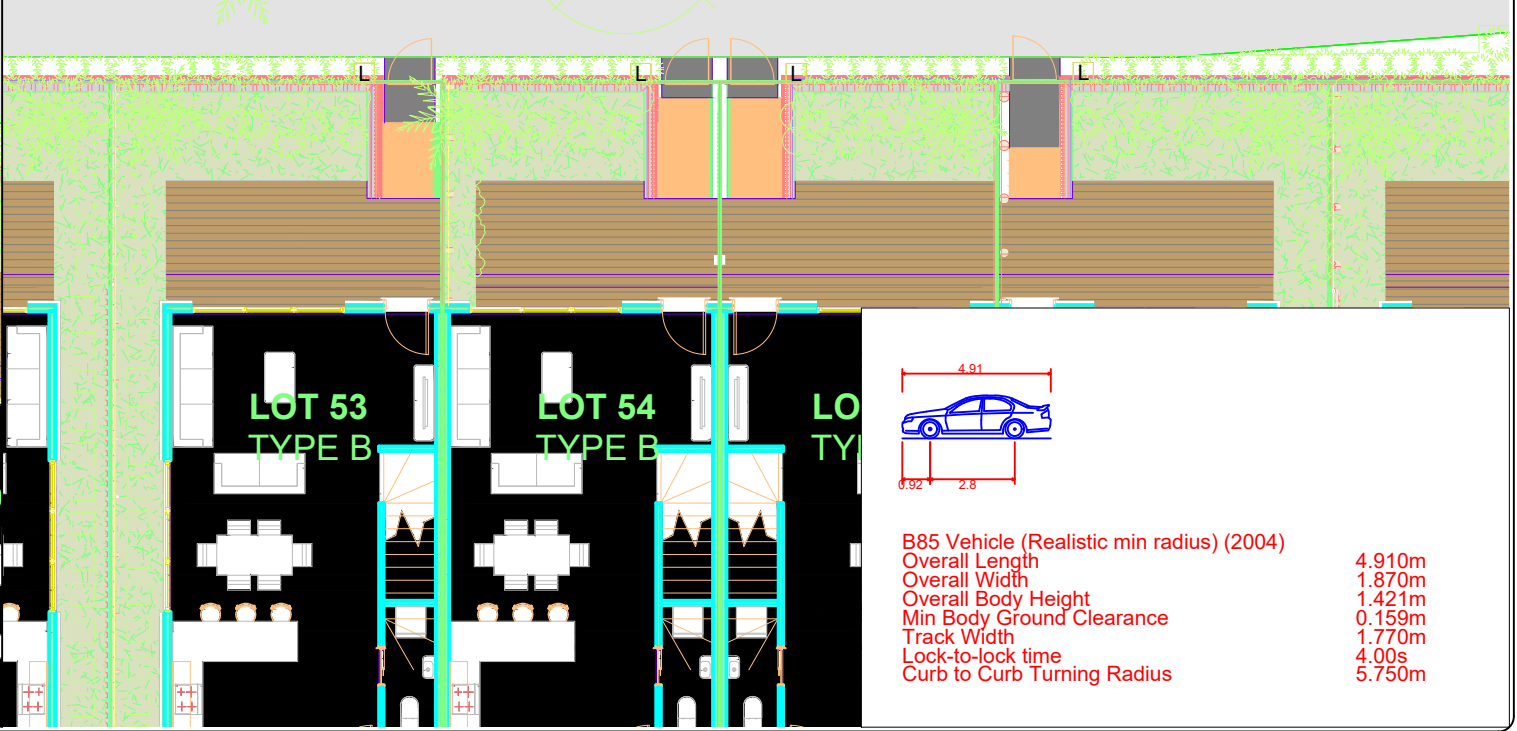
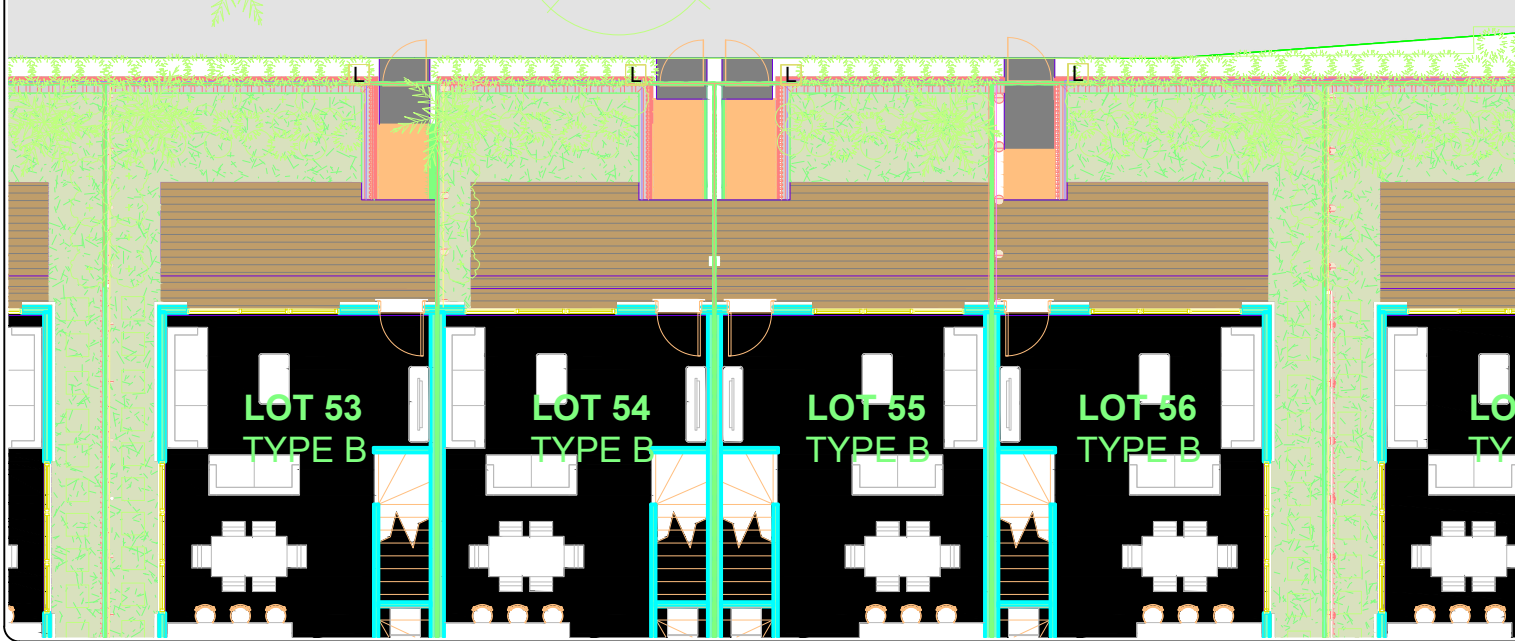
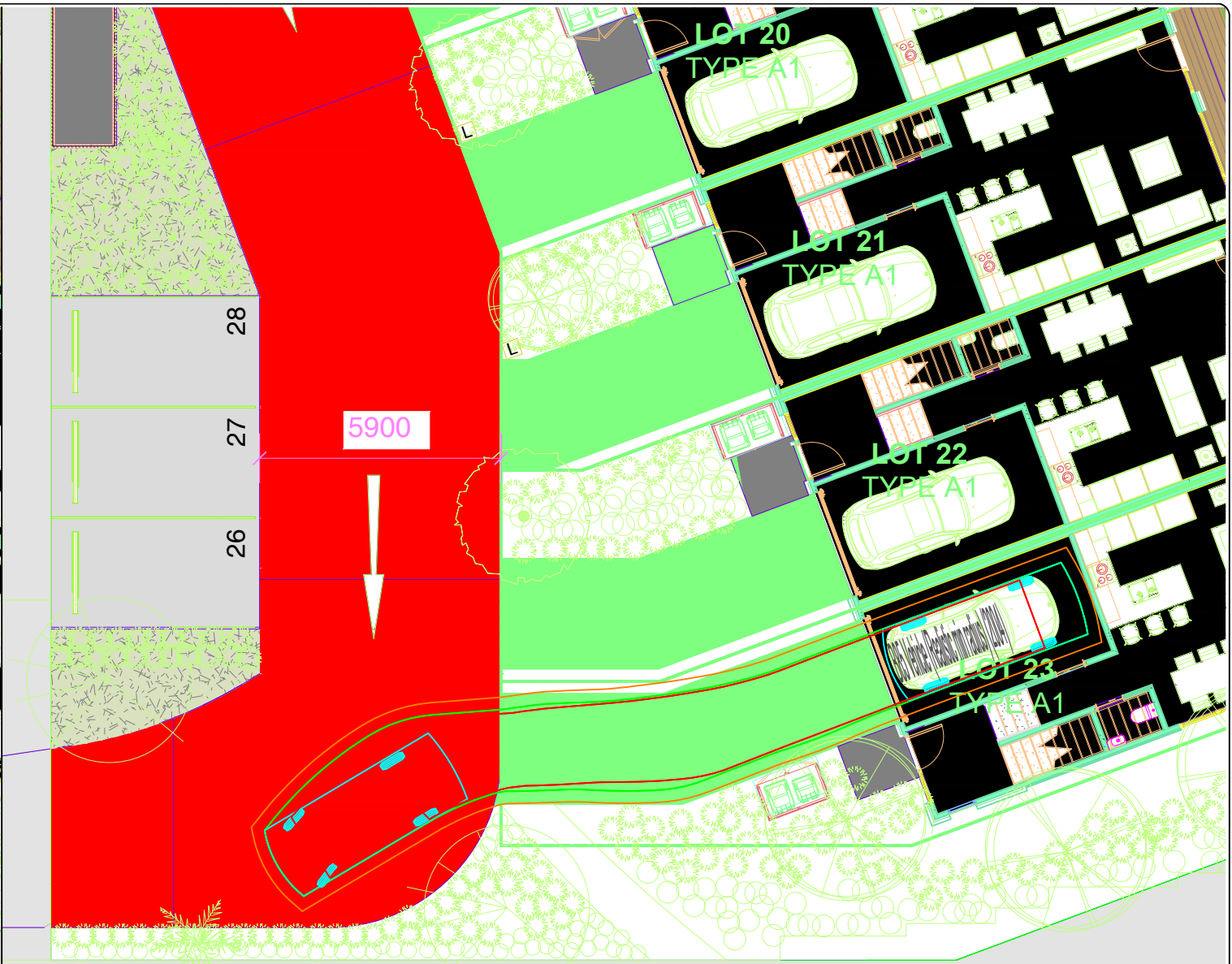
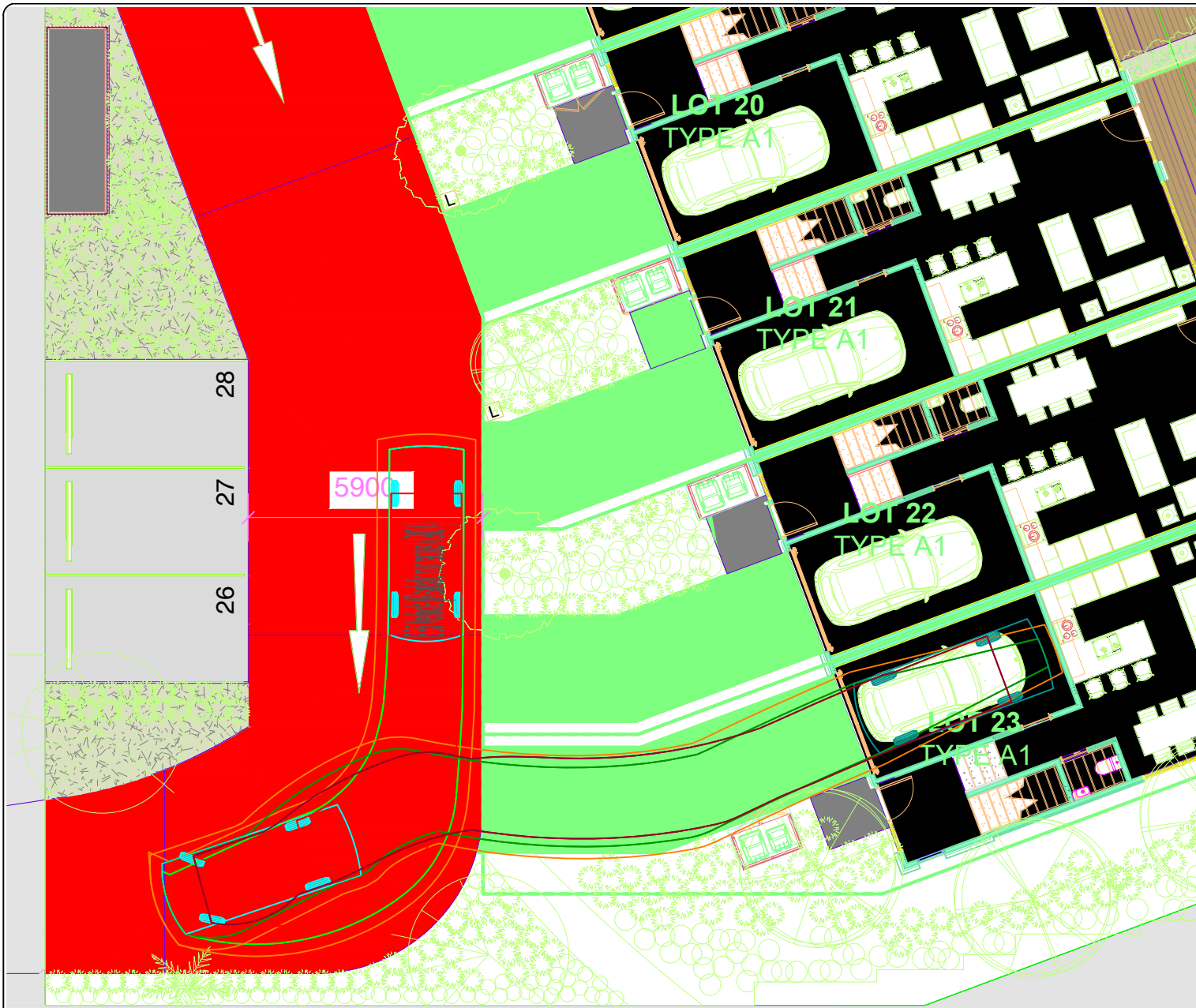
Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	220803 VTT - (16)	Scales	1:150 (A3)
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<b>B85 Vehicle (Realistic min radius) (2004)</b>	
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	4.00s
Curb to Curb Turning Radius	5.750m

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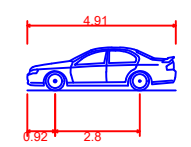
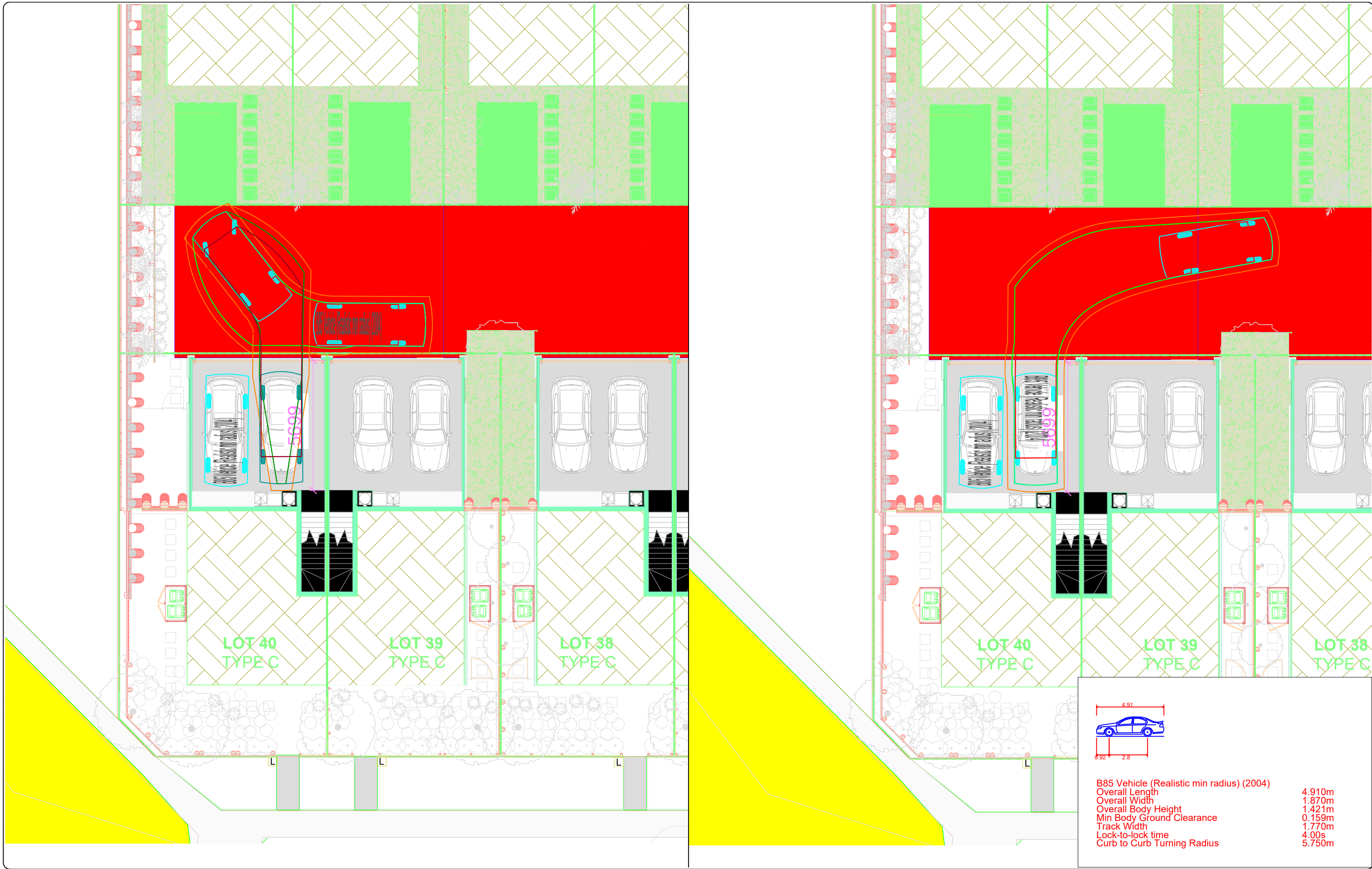
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Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - B85 Design Vehicle

Designed IY	Drawn AE	Project No - (Sheet No)	Scales 1:150 (A3)
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<b>B85 Vehicle (Realistic min radius) (2004)</b>	
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	4.00s
Curb to Curb Turning Radius	5.750m

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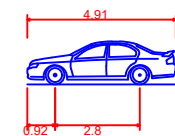
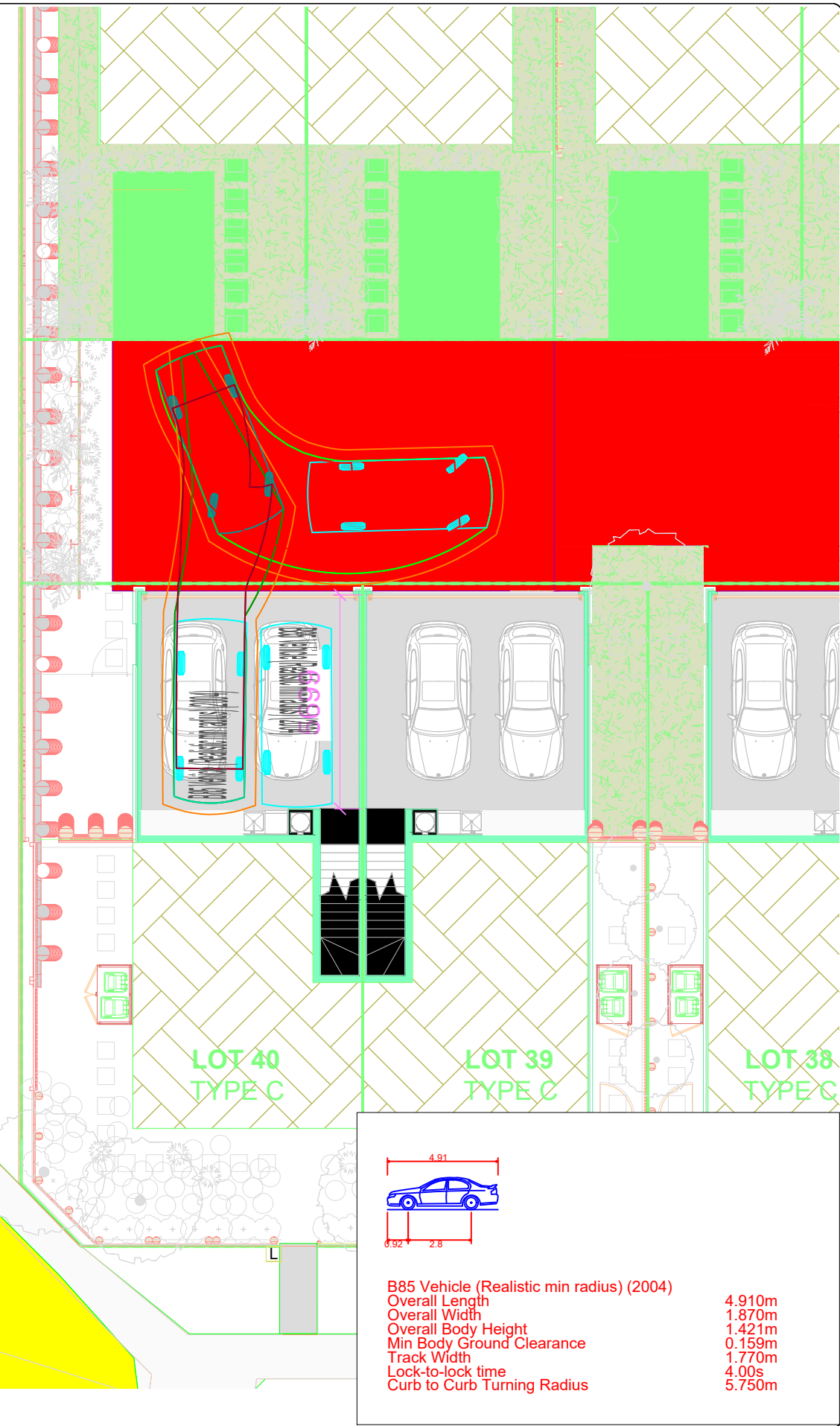
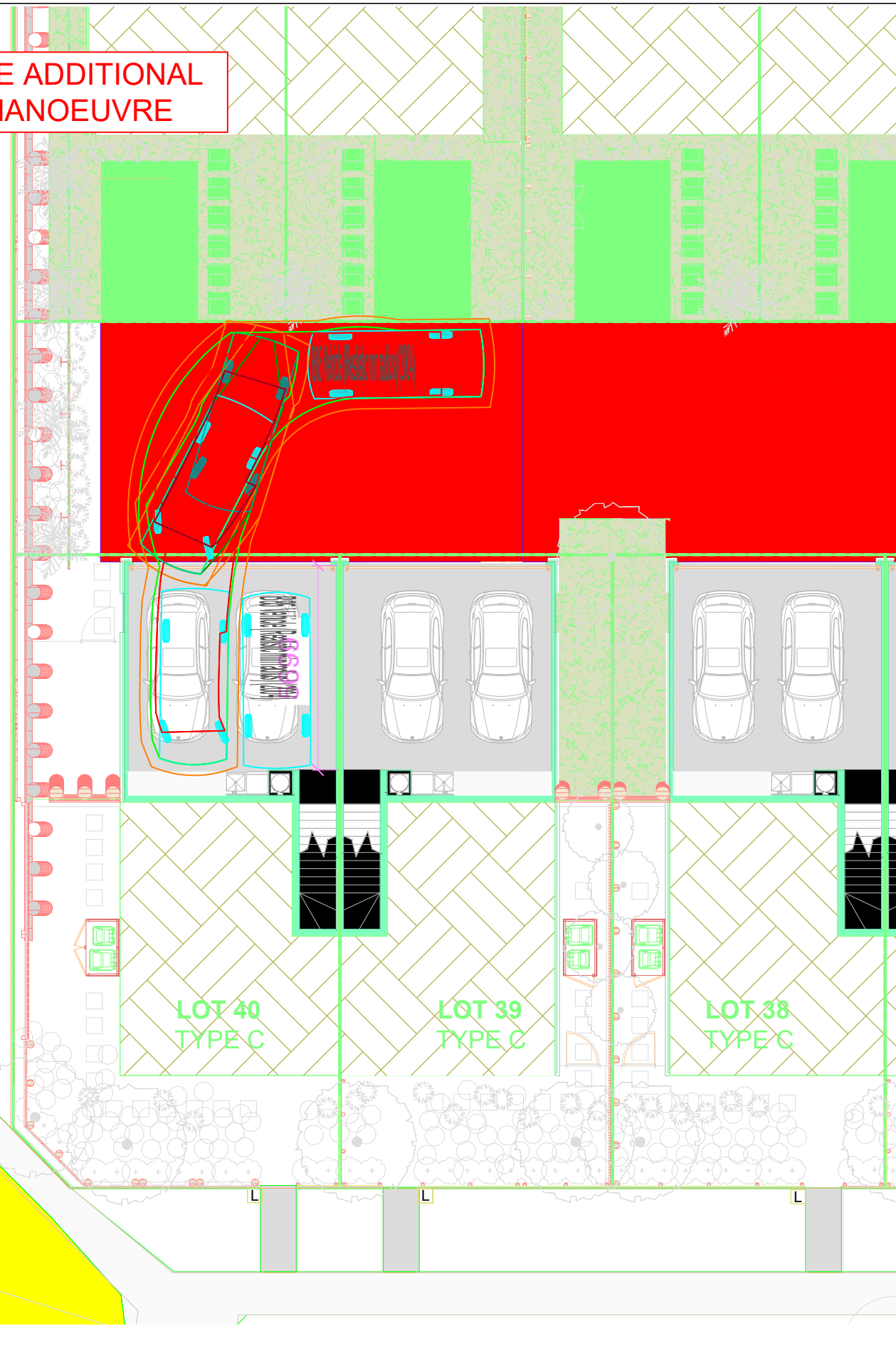
**Project Title**  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

**Sheet Title**  
 Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:150 (A3)
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ONE ADDITIONAL  
MANOEUVRE



**B85 Vehicle (Realistic min radius) (2004)**  
 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 4.00s  
 Curb to Curb Turning Radius 5.750m

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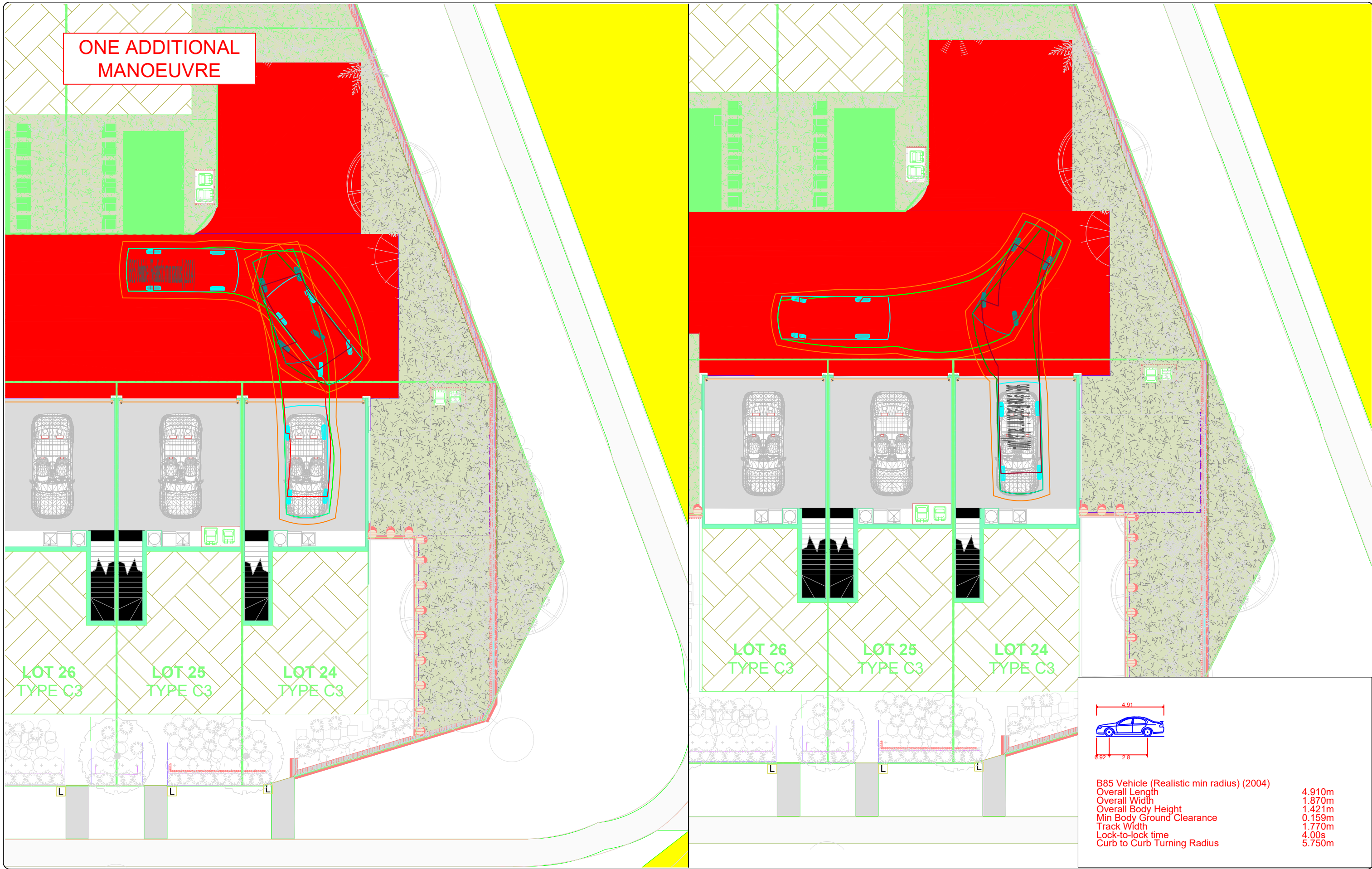
**Project Title**  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

**Sheet Title**  
 Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:150 (A3)
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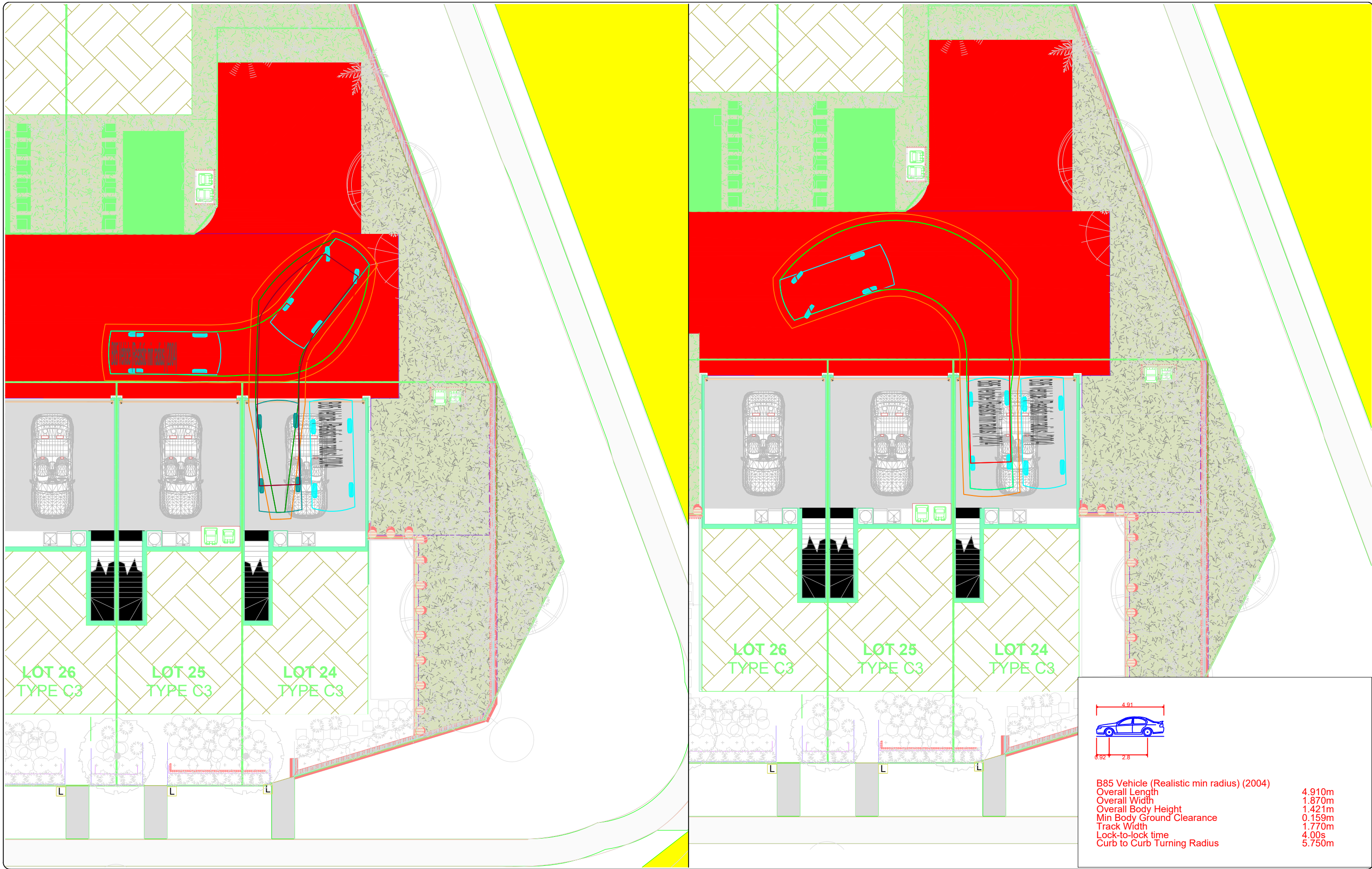
**Project Title**  
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 3 Pigeon Mountain Road, Half Moon Bay

**Sheet Title**  
 Vehicle Tracking - B85 Design Vehicle

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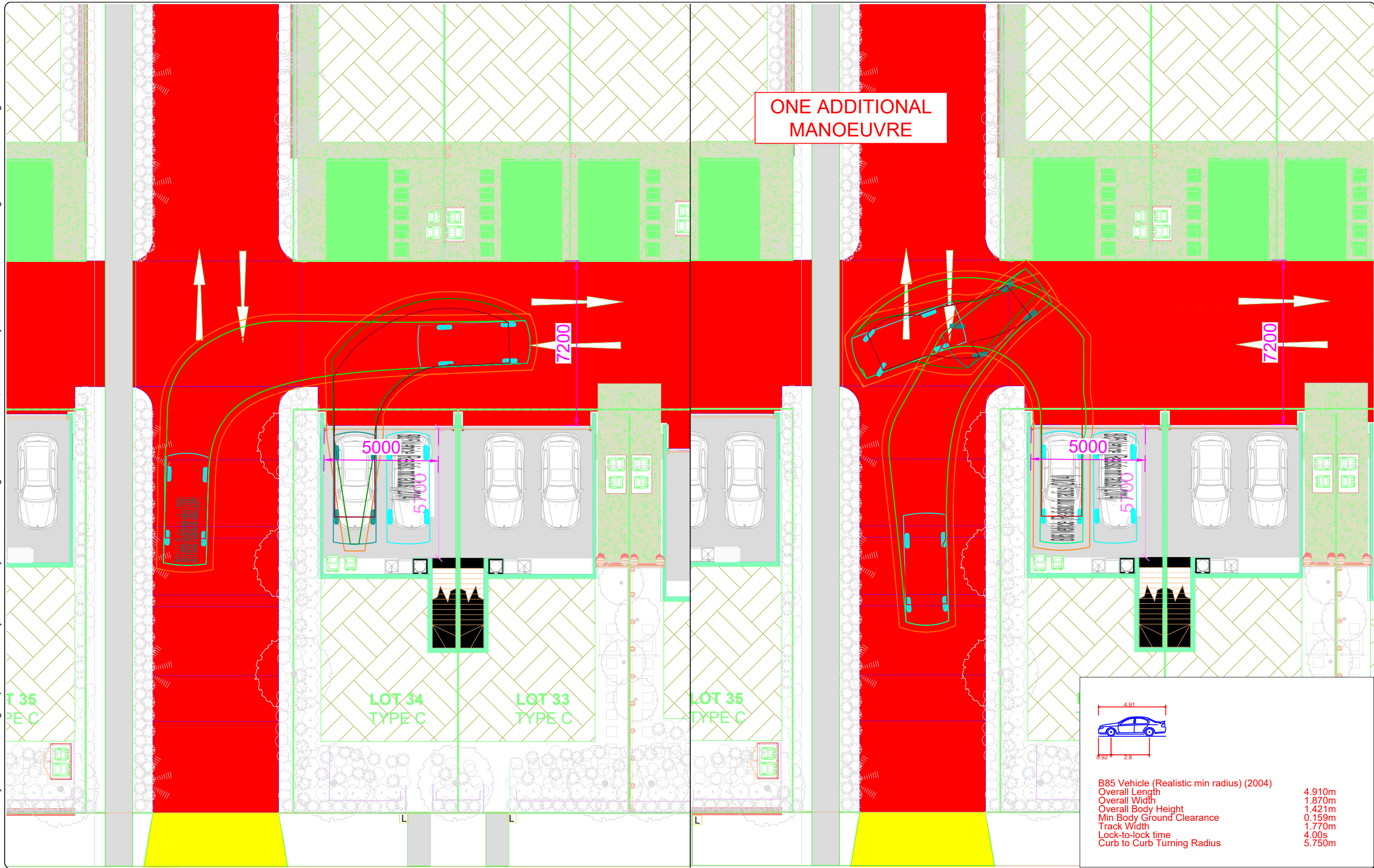
**Project Title**  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

**Sheet Title**  
 Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:150 (A3)
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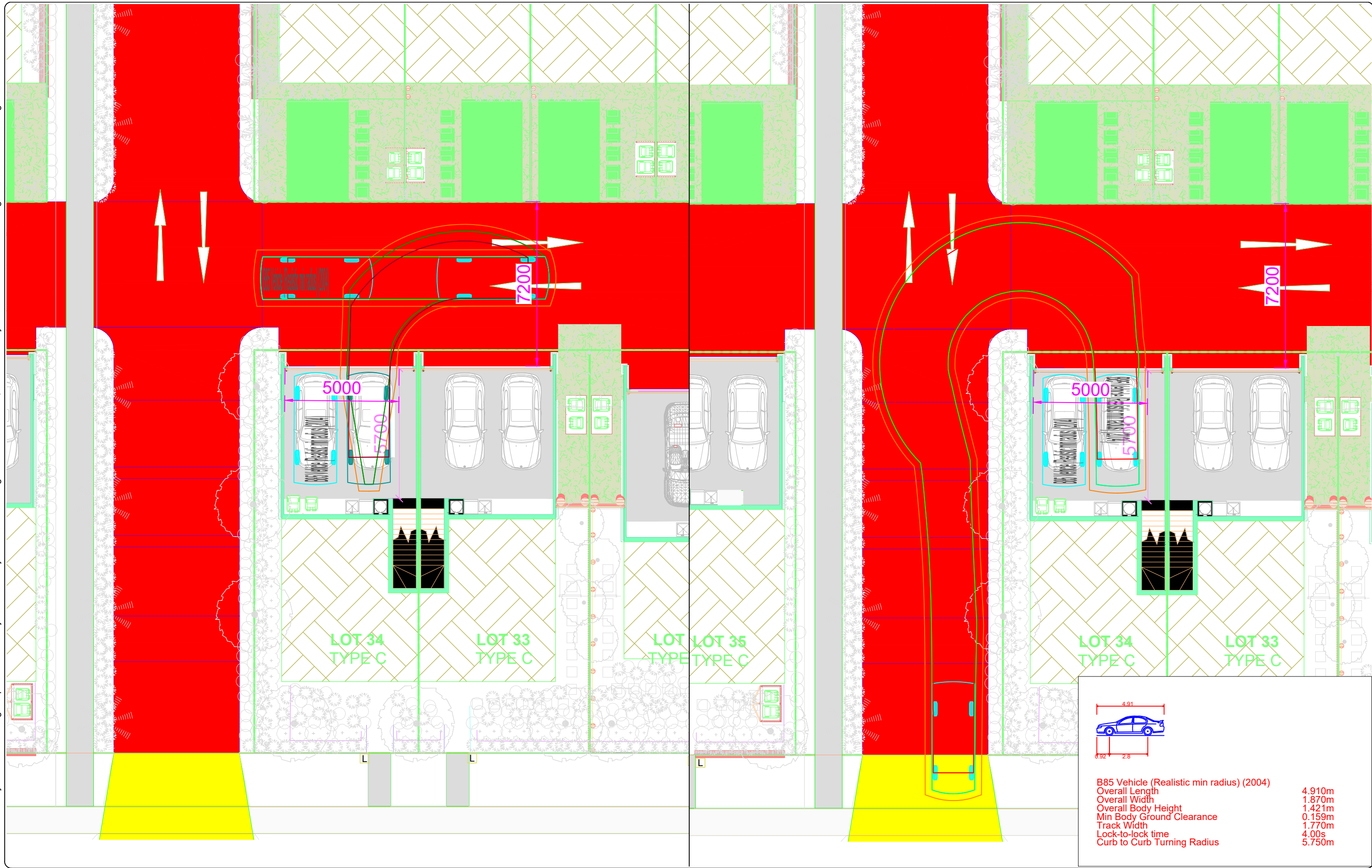
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**Project Title**  
Proposed Development  
3 Pigeon Mountain Road, Half Moon Bay

**Sheet Title**  
Vehicle Tracking - B85 Design Vehicle

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales
Checked	TK	Approved	TL	220803 VTT - (22)	1:150 (A3)
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**Project Title**  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

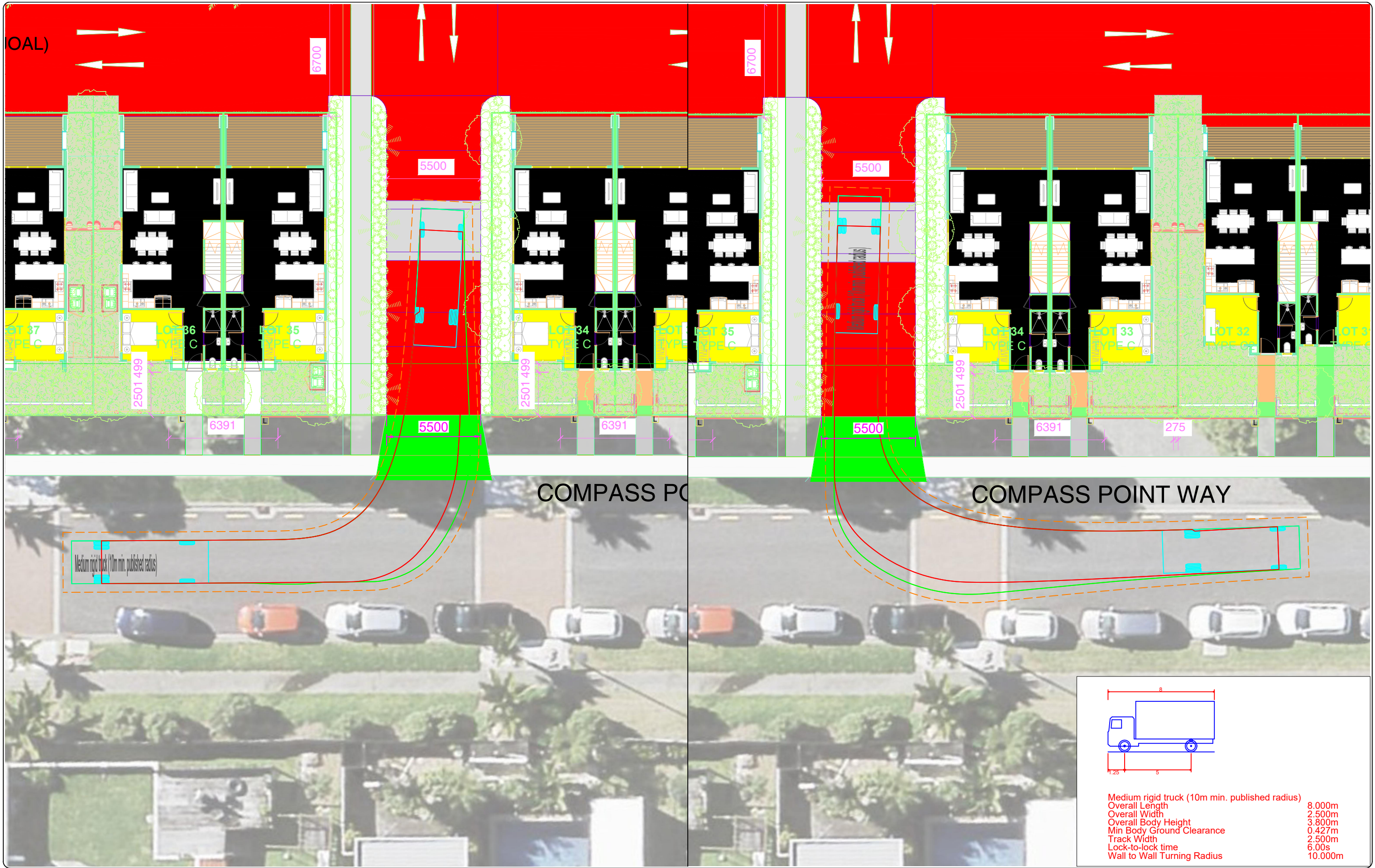
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 Vehicle Tracking - B85 Design Vehicle

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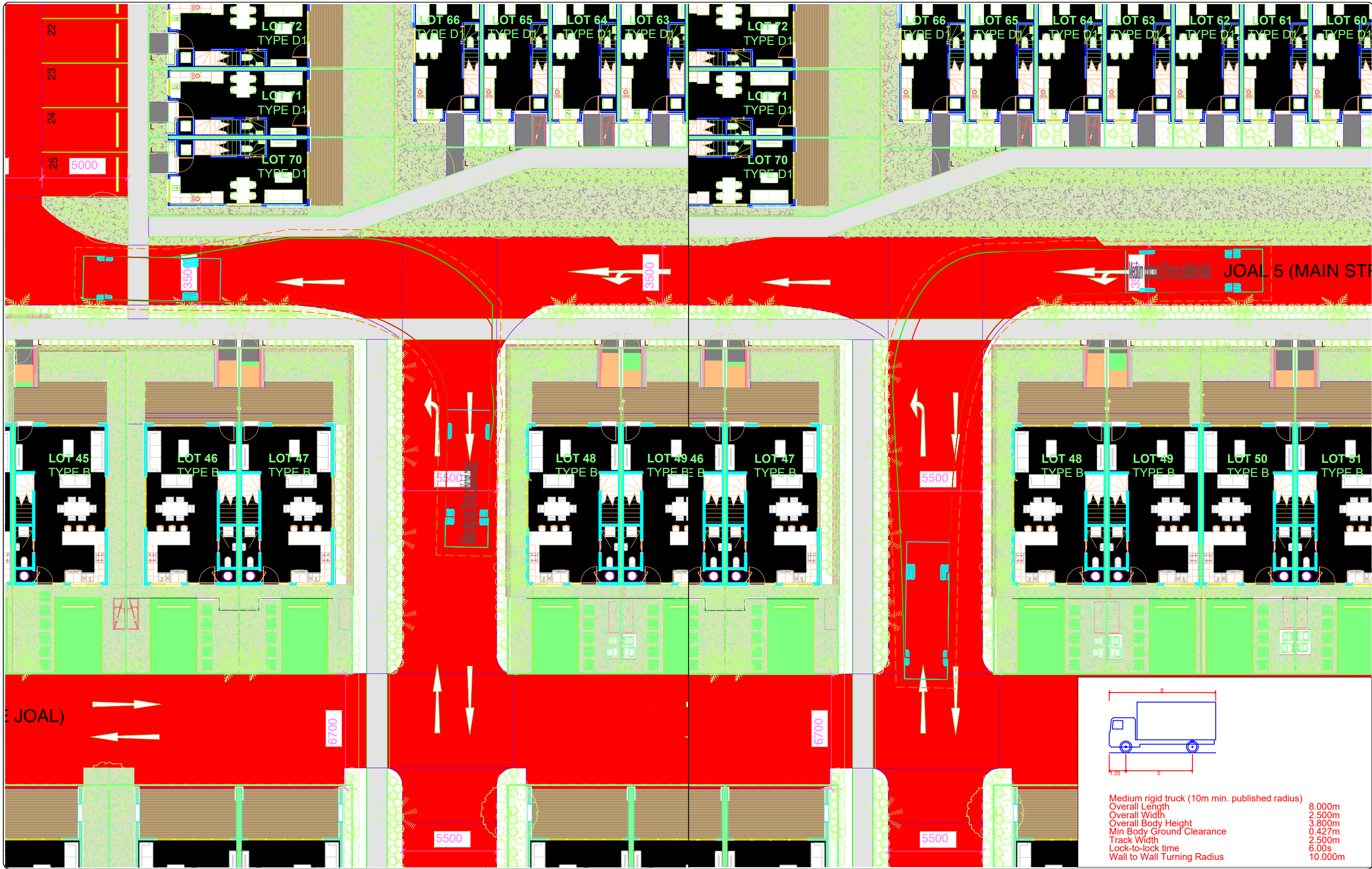
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Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - Medium Rigid Truck

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:200 (A3)
Checked	TK	Approved	TL	220803 VTT - (24)	Date	26.09.24

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Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - Medium Rigid Truck

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:200 (A3)
Checked	TK	Approved	TL	220803 VTT - (25)	Date	26.09.24

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	<p>Medium rigid truck (10m min. published radius)</p> <p>Overall Length 8.000m</p> <p>Overall Width 2.500m</p> <p>Overall Body Height 3.800m</p> <p>Min Body Ground Clearance 0.427m</p> <p>Track Width 2.500m</p> <p>Lock-to-lock time 6.00s</p> <p>Wall to Wall Turning Radius 10.000m</p>
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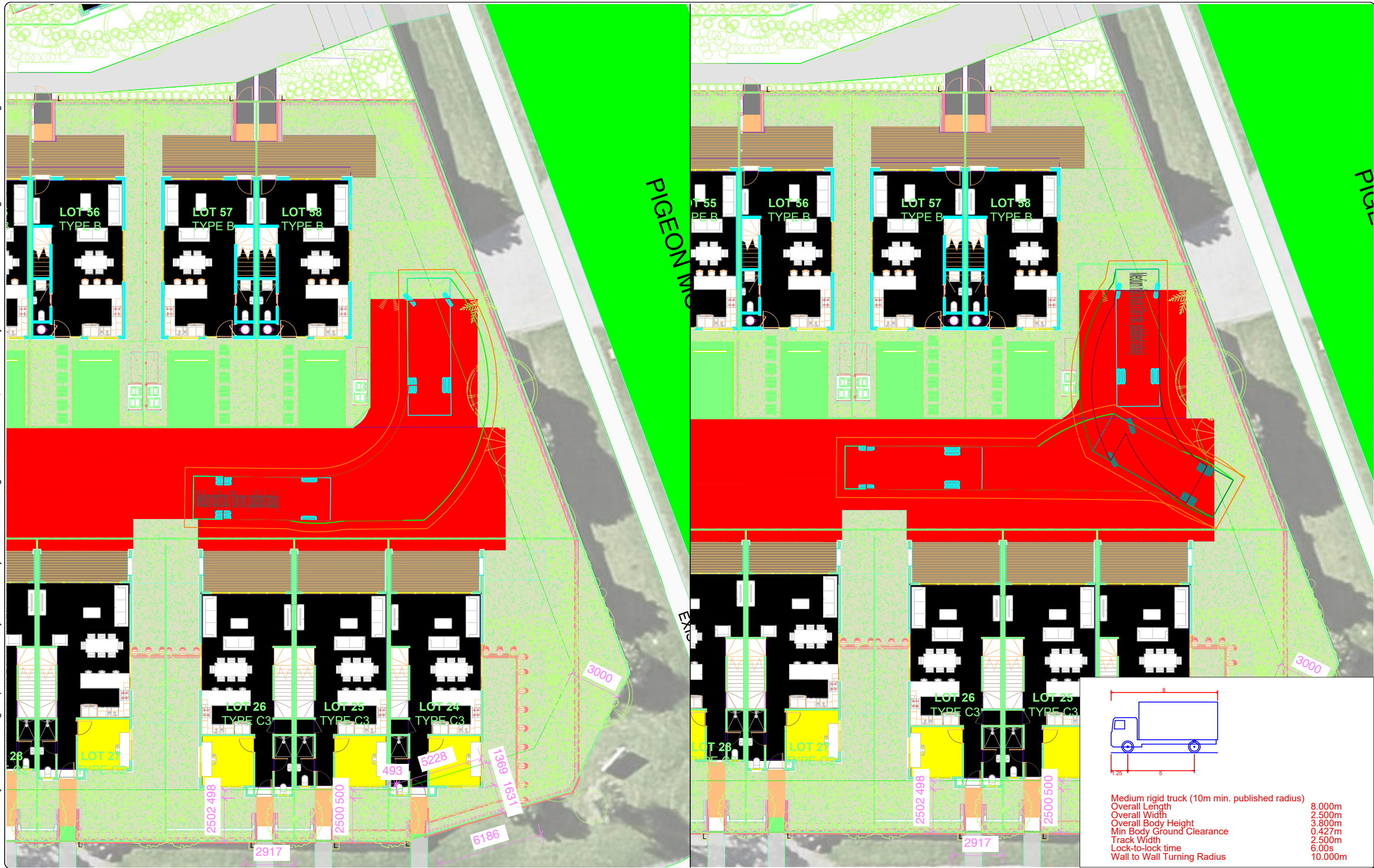
Project Title Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title Vehicle Tracking - Medium Rigid Truck

Designed IY	Drawn AE	Project No - (Sheet No)	Scales 1:300 (A3)
Checked TK	Approved TL	220803 VTT - (26)	Date 26.09.24

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Project Title  
 Proposed Development  
 3 Pigeon Mountain Road, Half Moon Bay

Sheet Title  
 Vehicle Tracking - Medium Rigid Truck

Designed	IY	Drawn	AE	Project No - (Sheet No)	Scales	1:200 (A3)
Checked	TK	Approved	TL	220803 VTT - (27)	Date	26.09.24

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