



**PROPOSED TORRENS TITLE LAND SUBDIVISION
- 1 LOT INTO 3 LOTS**

337 LOWER PLATEAU ROAD, BILGOLA PLATEAU

**TRAFFIC AND VEHICULAR ACCESS
ASSESSMENT REPORT**

20TH MARCH 2025

REF 22070

Prepared by

Terraflow Pty Ltd

Traffic and Parking Consultants

*Terraflow Pty Ltd ABN 83 078 415 871
PO Box 563 Sylvania Southgate, NSW 2224
Tel : 0411 129 346*

Email: logan@terraflow.com.au Web: www.terraflow.com.au



EXECUTIVE SUMMARY

This updated assessment has been prepared to address the concerns raised by Northern Beaches Council's Traffic Engineer dated 5th September 2024. The updated assessment contains information that has not previously been addressed including:

- A longitudinal section of the accessway and ground clearance assessment for the Australian Standard B85 Vehicle (Ford Falcon)
- A pedestrian sight line assessment at the property boundary
- An assessment of the ramp grades at the top of the accessway
- An assessment on visitor parking and loading activities associated with delivery vehicles



TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	TRAFFIC IMPLICATIONS	6
3.	VEHICULAR ACCESS DESIGN.....	8

APPENDICES

APPENDIX A	DRIVEWAY AND PARKING PLAN
APPENDIX B	GROUND CLEARANCE ASSESSMENT
APPENDIX C	SWEPT PATH ANALYSIS

LIST OF ILLUSTRATIONS

FIGURE 1	LOCATION
FIGURE 2	SITE

Copyright and Disclaimer

This report has been prepared for the sole purposes of the client and for the specific purpose for which it was prepared and may not be used for any other application or purpose. The purpose for which this report may be used and relied upon is limited for that which it was commissioned.

Apart from fair dealing for the purposes of private study, research, criticism or review as permitted under the Copyright Act, no part of this report, its attachments or appendices may be reproduced by any process without the written consent of Terraflow Pty Ltd. Copyright in the whole and every part of this document belongs to Terraflow Pty Ltd and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of Terraflow Pty Ltd.



1. INTRODUCTION

This report has been prepared to accompany a Development Application to Northern Beaches Council for a proposed Torrens Title land subdivision at 337 Lower Plateau Road, Bilgola Plateau (Figures 1 and 2).

The development site is located on the western side of Lower Plateau Road between Yarrabee Place and Bilwara Avenue. It has a total site area of 3,410m² with a frontage of 4.57m to Lower Plateau Road.

The existing site development comprises a single residential dwelling that gains vehicular access to Lower Plateau Road via a 3.0m wide driveway and 38m long single lane accessway. The accessway pavement ranges in grade from 20% (1 in 5) towards Lower Plateau Road to a 13m long section towards the base with a grade of 33% (1 in 3).

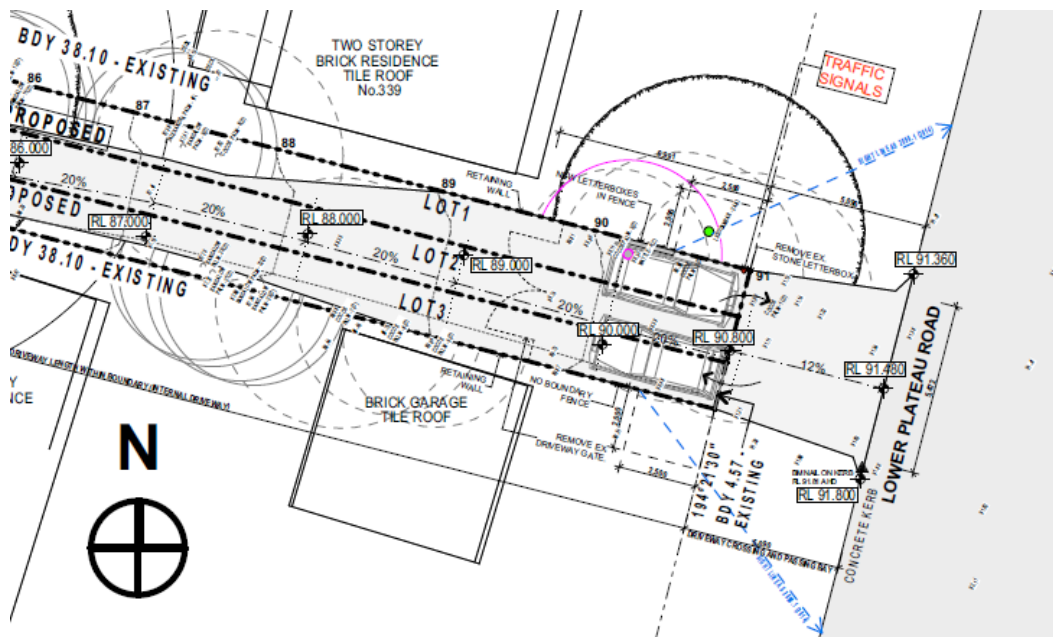
An extract from the site survey is reproduced in the following pages.

Development Proposal

The proposed development comprises the following:

- Demolition of the existing dwelling and outbuildings
- The creation of three (3) new residential lots:
 - Lot 1 – 1,225m²
 - Lot 2 – 1,073m²
 - Lot 3 – 1,052m²
- The 33% (1 in 3) gradient of the accessway is to be replaced with a suspended slab with a maximum gradient of 25% (1 in 4).

The existing 3.0m wide driveway at Lower Plateau Road is to be widened to facilitate passing traffic. The driveway will utilise the entire 4.57m width for a distance of 10.0m from the boundary to facilitate passing within the site. The accessway pavement will taper down over 7m to match into the existing pavement. The driveway will taper from the boundary to a width of 5.47m at the kerb line (excludes wings).



Extract showing the proposed driveway widening

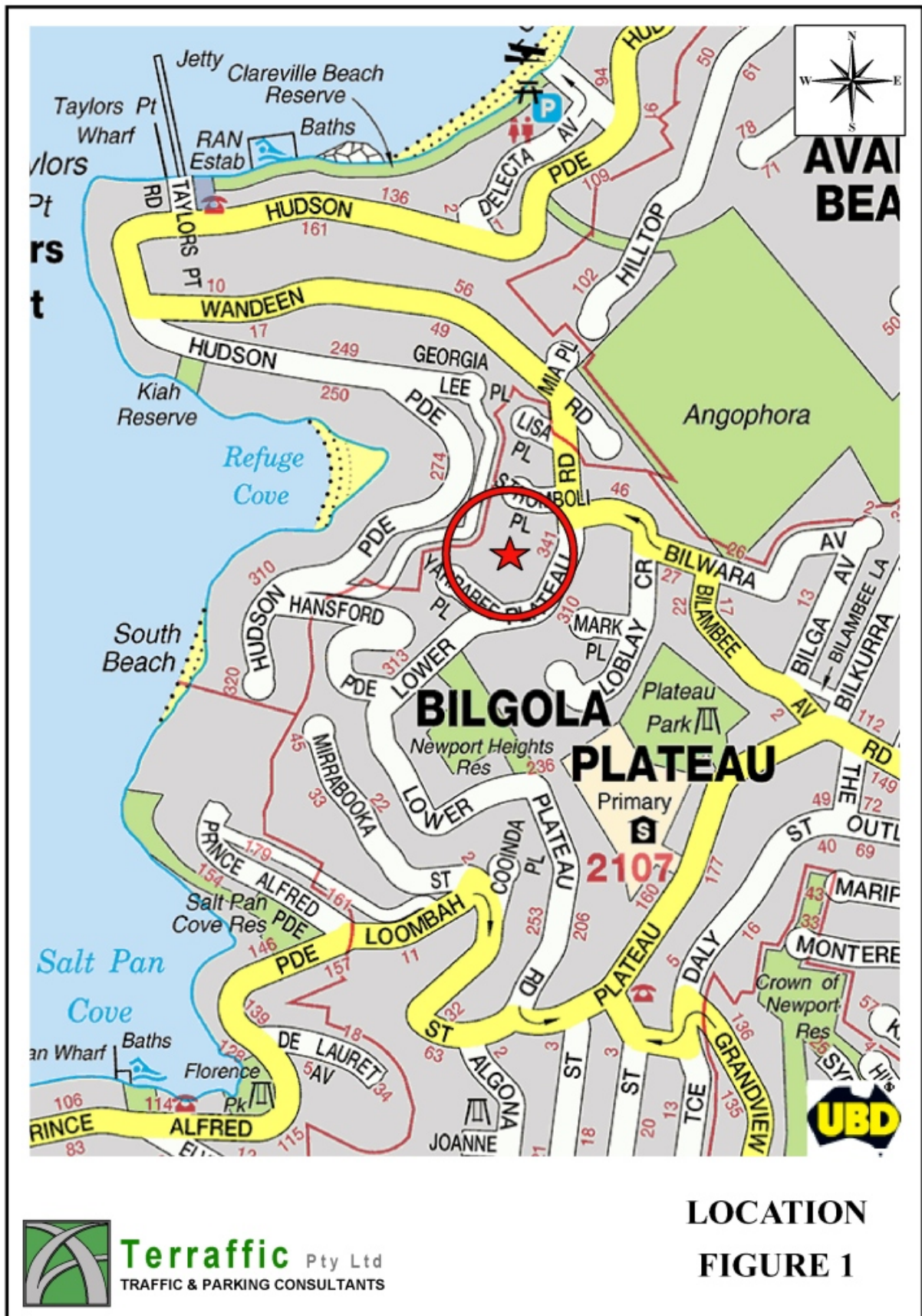
In addition to the passing area, it is also proposed to install traffic signals to control the movement of traffic along the accessway. As is common practice, the traffic signal will be constant green at the top of the accessway to ensure entering traffic does not queue back onto Lower Plateau Road. The light will signal red when a resident is departing a residence at the lower level. Induction loops or movement sensors will be installed within linemarked waiting bays at the base of the accessway. These loops or sensors will trigger the red signal at the top of the accessway.

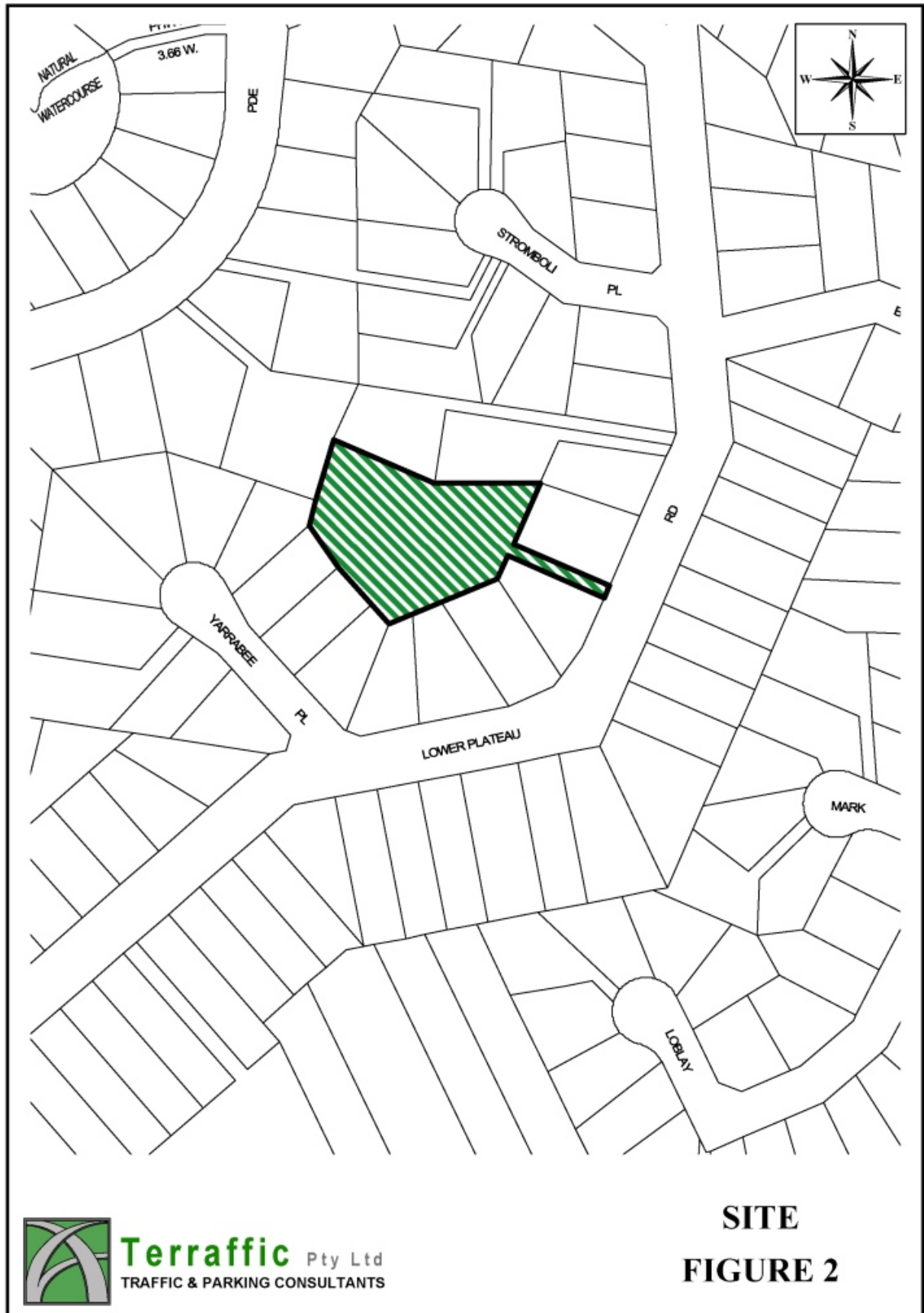
The Driveway and Parking Plan prepared by Gartner Trovato Architects is reproduced in Appendix A. The plan shows single dwellings on each lot that are served by at least 2 off-street parking spaces per dwelling.

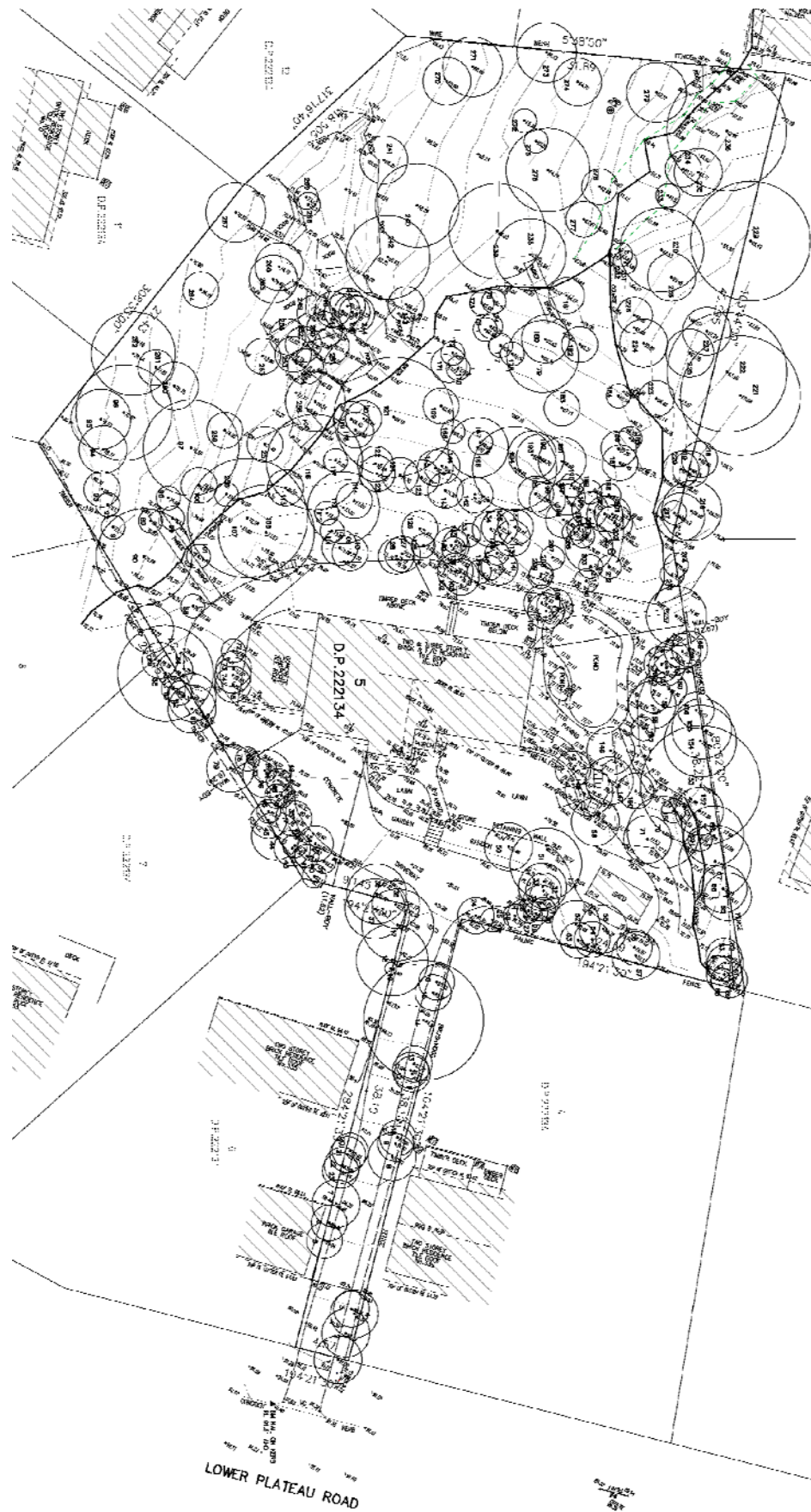
Public Transport Connectivity

The development site is located in close proximity to bus stops serving Route 191 which is a “loop service” operating between Avalon Beach and Taylors Point via Bilgola and Clareville. The nearest bus stop is a 150m walk to the north of the site on Lower Plateau Road.

The purpose of this report is to assess the traffic and vehicular access implications of the proposed development.







Extract of the Site Survey



2. TRAFFIC IMPLICATIONS

Road Hierarchy

Lower Plateau Road is an unclassified local road performing a collector road function through Bilgola Plateau. It forms part of the collector road system that includes Plateau Road – Lower Plateau Road – Wandeen Road – Hudson Parade – Central Road. Both Plateau Road and Central Road connect onto Barrenjoey Road.

The section of Lower Plateau Road in the vicinity of the site has a pavement width of approximately 8.0m and is restricted to a speed limit of 50km/h. The relatively narrow width of the roadway and double white linemarking precludes kerbside parking along this section of Lower Plateau Road.

Projected Traffic Generation and Impact

An indication of the traffic generation potential of the proposed development is provided by reference to the Roads and Maritime Services (RMS) Guide to Traffic Generating Developments – Technical Direction TDT 2013-04a (August 2013). The traffic generation rates specified in the updated Guidelines are based on extensive surveys of a wide range of land uses throughout Sydney and regional NSW and nominate the following traffic generation rates for low density residential dwellings:

AM Peak (1 hour) vehicle trips per dwelling	0.95
PM Peak (1 hour) vehicle trips per dwelling	0.99

Application of this traffic generation rate to the proposed subdivision yields a traffic generation potential of 3 vehicle trips per hour (vtp) during the peak periods as follows:

AM Peak Period

3 x dwellings @ 0.95vtp per dwelling	3vtp (0 in / 3 out)
--------------------------------------	---------------------

PM Peak Period

3 x dwellings @ 0.99vtp per dwelling	3vtp (3 in / 0 out)
--------------------------------------	---------------------



The traffic generation of the proposed development should be discounted by the traffic generation of the existing dwelling on the site. Based on the RMS's traffic generation rate of 1 vehicle trip per dwelling, the existing site development would generate in the order of 1vtph during the peak periods. To that end, the proposed subdivision will only generate 2 additional vehicle trips during the peak periods as follows:

Proposed development	3vtph
Existing development	1vtph
Additional traffic	2vtph

It will be readily appreciated that the additional traffic generated by the proposed development is relatively minor (2vtph) which will not have any noticeable or unacceptable effect on the road network serving the site in terms of road network capacity or traffic-related environmental effect.



3. VEHICULAR ACCESS DESIGN

As noted above, vehicular access to the site is off Lower Plateau Road via a 3.0m wide driveway. The accessway will utilise the entire 4.57m width for a distance of 10.0m from the boundary to facilitate passing within the site. The accessway pavement will then taper down over 7m to match into the existing pavement. The driveway will also taper from the boundary to a width of 5.48m at the kerb line (excludes wings).



Photograph of the existing accessway and driveway

Compliance with Design Standards – Access Driveway

The width of the driveway complies with the following criteria for a “*Category 1*” driveway as described Tables 3.1 and 3.2 of AS/NZS2890.1:2004 – “*Off-street car parking*”:

1. The parking facilities are classified “Class 1A” for resident parking (refer to Table 1.1)
2. The development has less than 25 spaces
3. The development site is located on a Local Road

As can be seen, reference to Table 3.2 reveals that “*Category 1*” access driveways can have a combined entry and exit width of between 3.0m and 5.5m. With a driveway width ranging from 4.57m to 5.48m, the proposed access driveway satisfies the requirements of the Standard.



TABLE 3.1
SELECTION OF ACCESS FACILITY CATEGORY

Class of parking facility (see Table 1.1)	Frontage road type	Access facility category				
		Number of parking spaces (Note 1)				
		<25	25 to 100	101 to 300	301 to 600	>600
1,1A	Arterial	1	2	3	4	5
	Local	1	1	2	3	4
2	Arterial	2	2	3	4	5
	Local	1	2	3	4	4
3,3A	Arterial	2	3	4	4	5
	Local	1	2	3	4	4

NOTES:

- 1 When a car park has multiple access points, each access should be designed for the number of parking spaces effectively served by that access.
- 2 This Table does not imply that certain types of development are necessarily suitable for location on any particular frontage road type. In particular, access to arterial roads should be limited as far as practicable, and in some circumstances it may be preferable to allow left-turn-only movements into and out of the access driveway.

TABLE 3.2
ACCESS DRIVEWAY WIDTHS

Category	Entry width	Exit width	metres
			Separation of driveways
1	3.0 to 5.5	(Combined) (see Note)	N/A
2	6.0 to 9.0	(Combined) (see Note)	N/A
3	6.0	4.0 to 6.0	1 to 3
4	6.0 to 8.0	6.0 to 8.0	1 to 3
5	To be provided as an intersection, not an access driveway, see Clause 3.1.1.		

NOTE: Driveways are normally combined, but if separate, both entry and exit widths should be 3.0 m min.

Compliance with Design Standards – Accessway

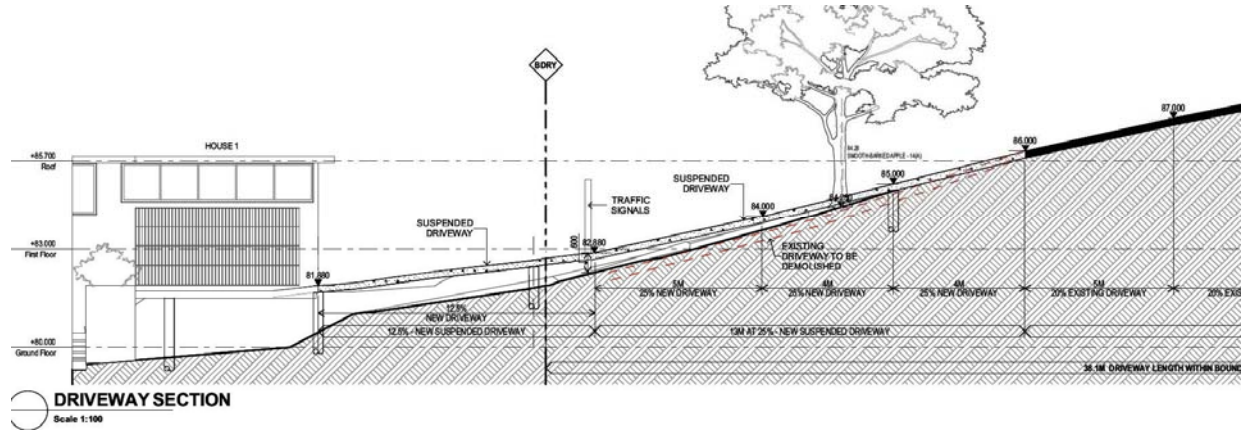
Clause 1.3.13 of the Australian Standard AS/NZS2890.1:2004 defines “domestic properties” as a property containing three or less dwellings. The subject subdivision therefore satisfies this definition.

Clause 2.6.1 specifies a minimum width of 3.0m for driveways and accessway serving domestic properties. Clause 2.6.2 of the Standard also nominates a maximum grade of 25% (1 in 4) for domestic driveways and accessways.

As noted above, vehicular access to the site is off Lower Plateau Road via a 38m long x 4.57m wide ROW. The accessway pavement has a width of 3.0m satisfying the Standards.

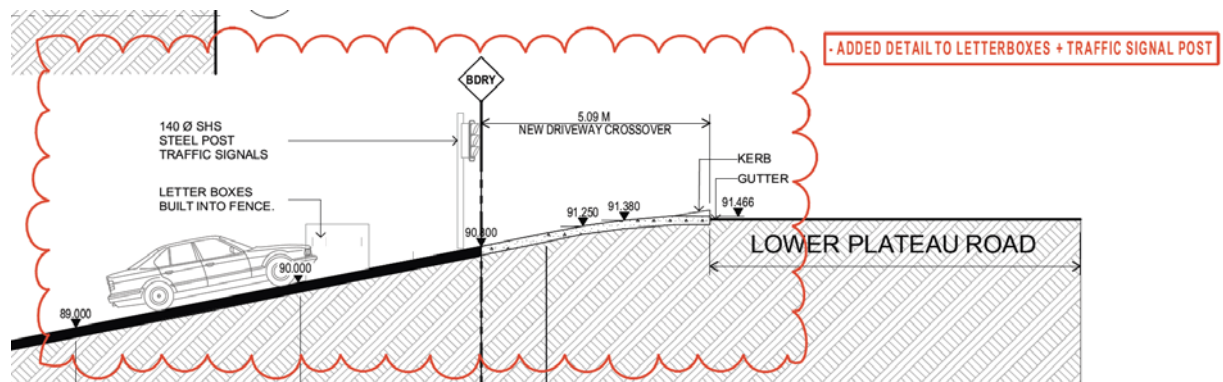


Furthermore, the existing 13m long section of 33% (1 in 3) grade at the base of the accessway is to be replaced with a suspended slab with a maximum gradient of 25% (1 in 4).



Extract of Driveway Section showing the suspended driveway with a 25% gradient

A ground clearance assessment of the B85 vehicle (Ford Falcon) ascending and descending the accessway is reproduced in Appendix B. Modifications to the existing driveway were required to reduce scraping at the top of the accessway and across the driveway.



Clause B6.2 of the Pittwater DCP 2021 outlines the following requirements for internal driveways:

Driveway width for dual occupancies, dwellings, secondary dwellings, exhibition homes, rural works dwellings and tourist and visitor accommodation.

The Internal Driveway shall be contained within the driveway corridor. The minimum width of the driveway corridor (i.e. impervious pavements together with grassed shoulder area) shall be as follows:



- *Single Dwelling: 3.0 metres minimum.*
- *Dual Occupancy: 3.0 metres minimum.*
- *Combined driveway for more than 2 dwellings: 3.0 metres minimum except where the driveway length exceeds 40 metres, a passing bay to an overall minimum width of 5.0 metres for a length of 10 metres with suitable transitions to the adjacent narrow driveway.*

While the accessway is only 38m in length, provision has been made at the top and bottom of the accessway for vehicles to pass if required. The proposed traffic signals will provide additional control of vehicle movements. Linemarked WAITING BAYS at the top and bottom of the accessway will also contribute to the control of traffic.

The proposed accessway therefore satisfies the width and grade requirements of Council's DCP and the Australian Standard.

Pedestrian Safety

As can be seen in the photograph above, sight lines to pedestrians on the naturestrip can be provided in accordance with Figure 3.3 of AS/NZS2890.1:2004. The pedestrian sight line triangles are also indicated on the DRIVEWAY AND PARKING PLAN.

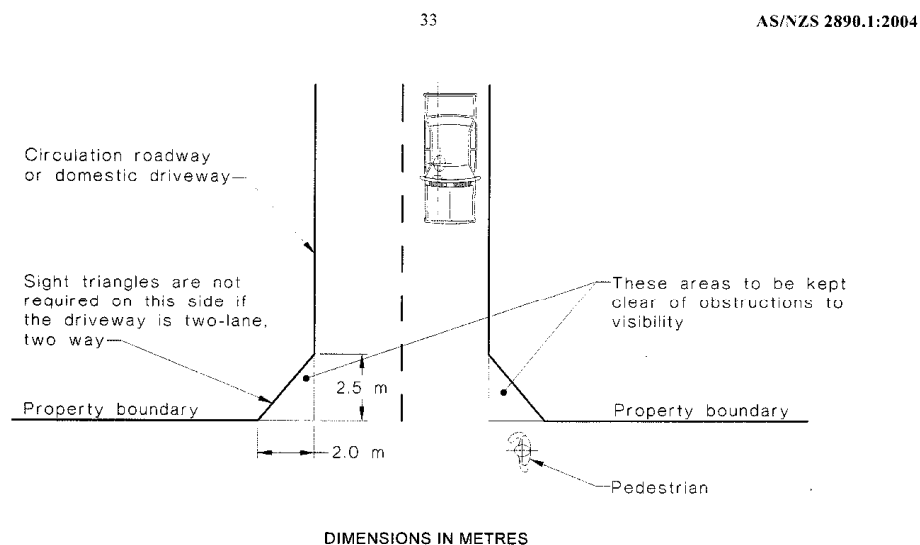


FIGURE 3.3 MINIMUM SIGHT LINES FOR PEDESTRIAN SAFETY



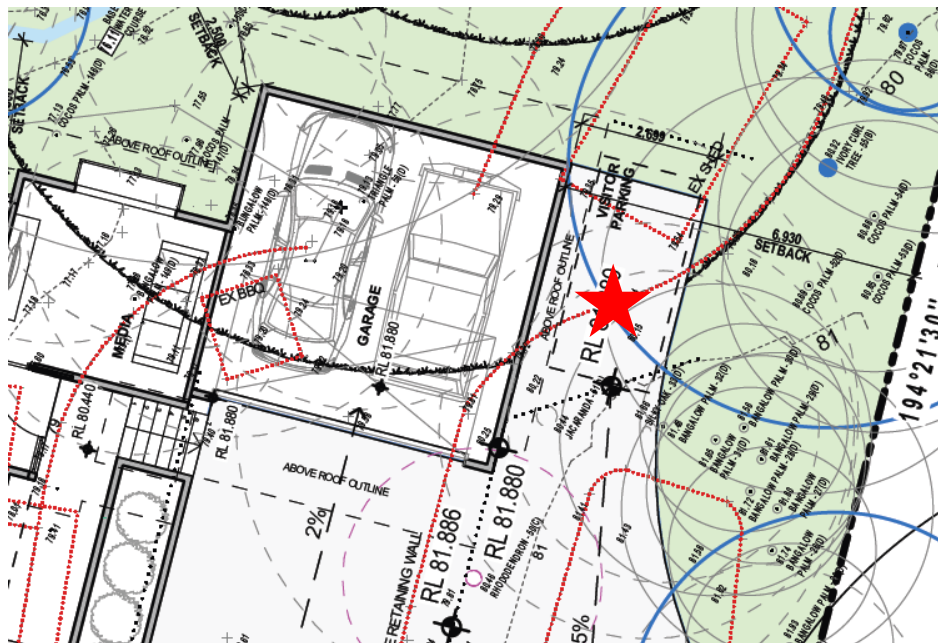
Swept Path Analysis

The swept path of the Australian Standard B99 Vehicle (Ford Transitvan) departing the site and passing a waiting B85 Vehicle (Ford Falcon) is reproduced in Appendix C. As can be seen, the larger B99 vehicle can adequately manoeuvre past the waiting. In addition, the ability of these vehicles to pass at the base of the accessway was tested using the Autodesk Vehicle Tracking Software.

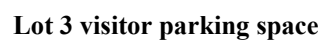
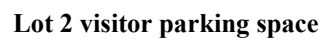
The software was also used to ensure that the B85 Vehicle can adequately access the off-street parking spaces serving the indicative dwellings on each Lot. These swept paths are also reproduced in Appendix C confirming that parking and passing can be adequately achieved.

Visitor Parking and Loading Arrangements

As Lower Plateau Road has a pavement width of approximately 8.0m with double white lines along the centreline, it is currently illegal to park kerbside. To that end, each dwelling has the potential to provide a dedicated visitor parking space as indicated below. It should be noted that the spaces can also be utilised by delivery drivers if necessary.



Lot 1 visitor parking space

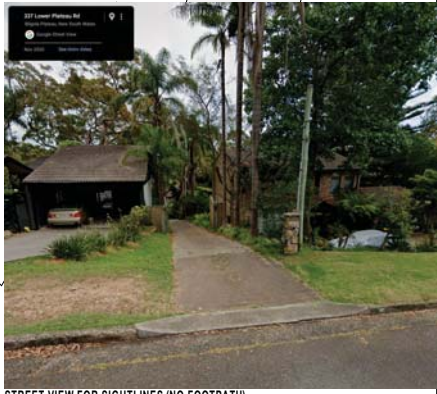


13



APPENDIX A

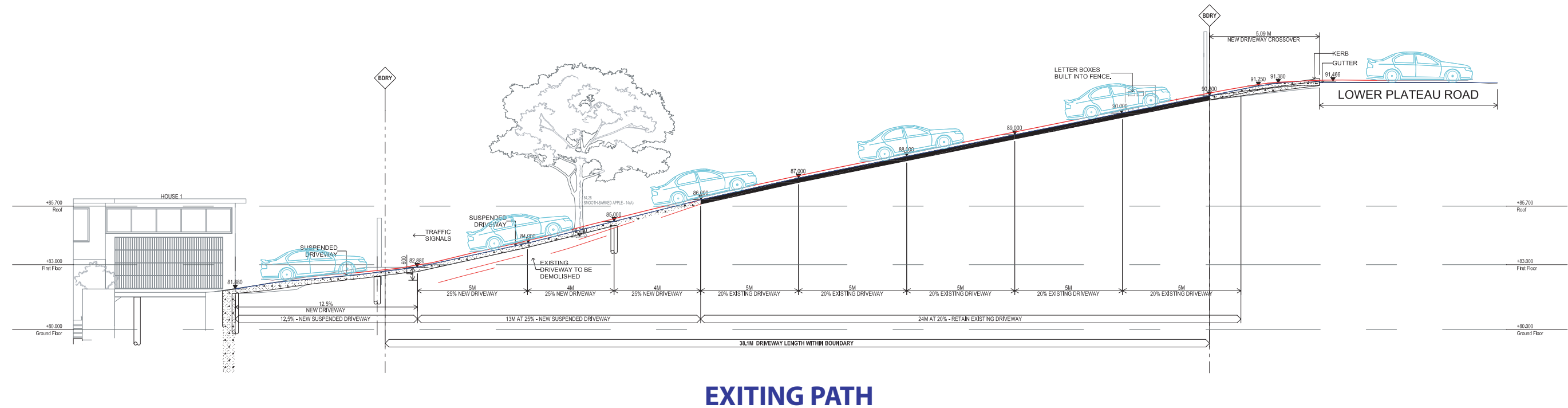
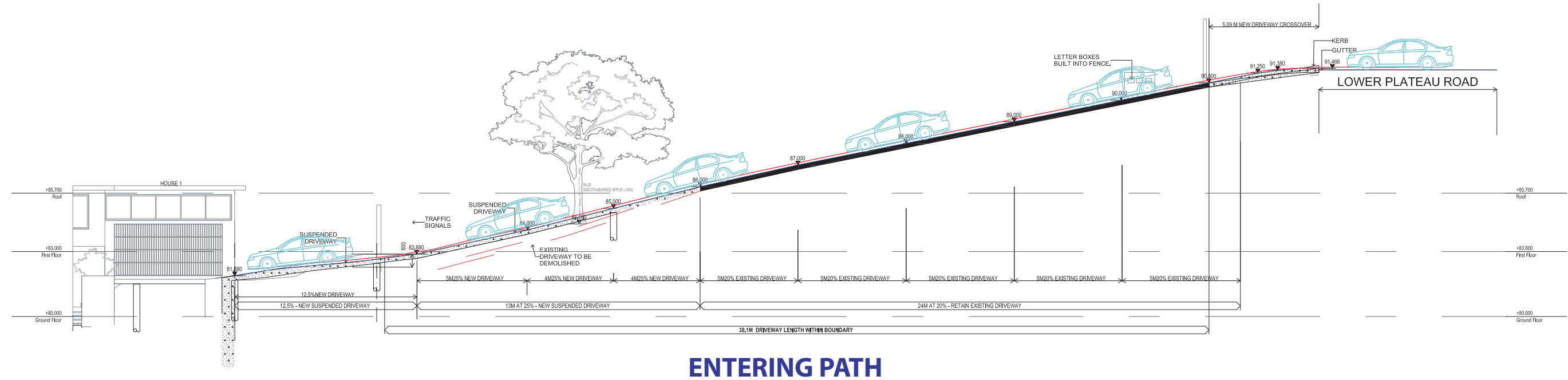
DRIVEWAY AND PARKING PLAN

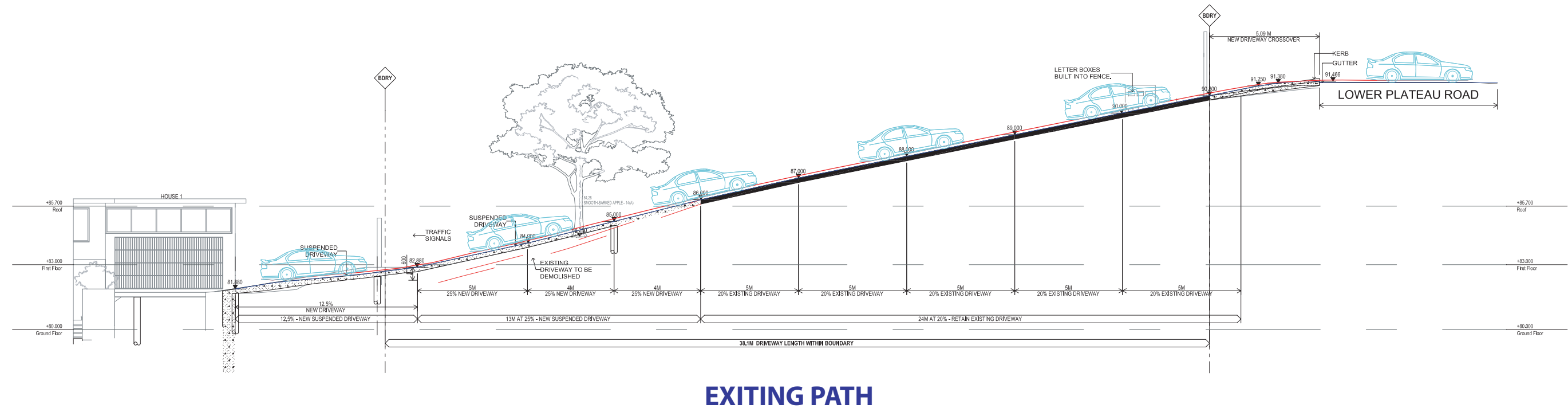
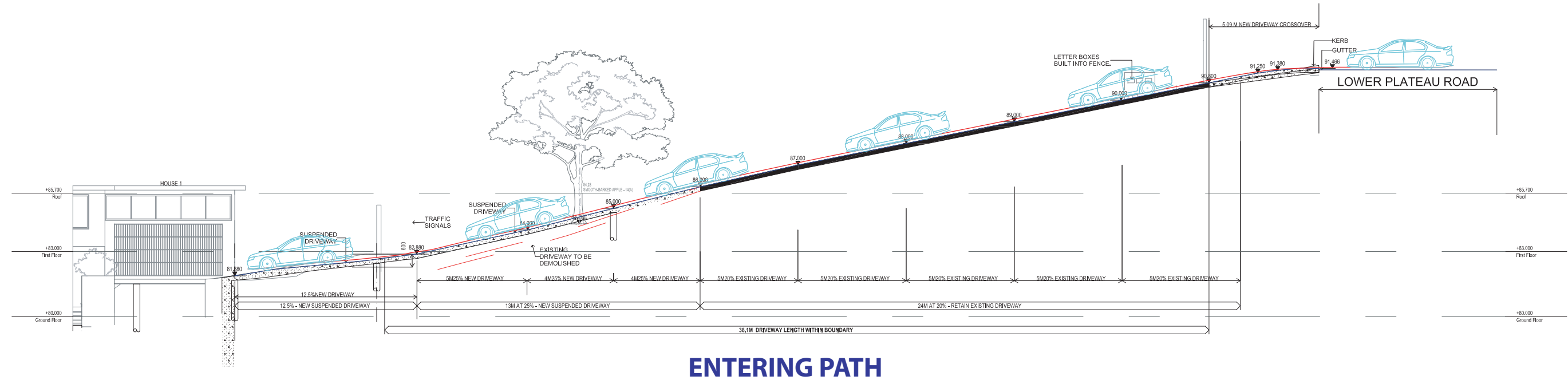




APPENDIX B

GROUND CLEARANCE ASSESSMENT



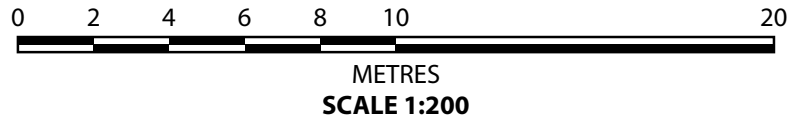




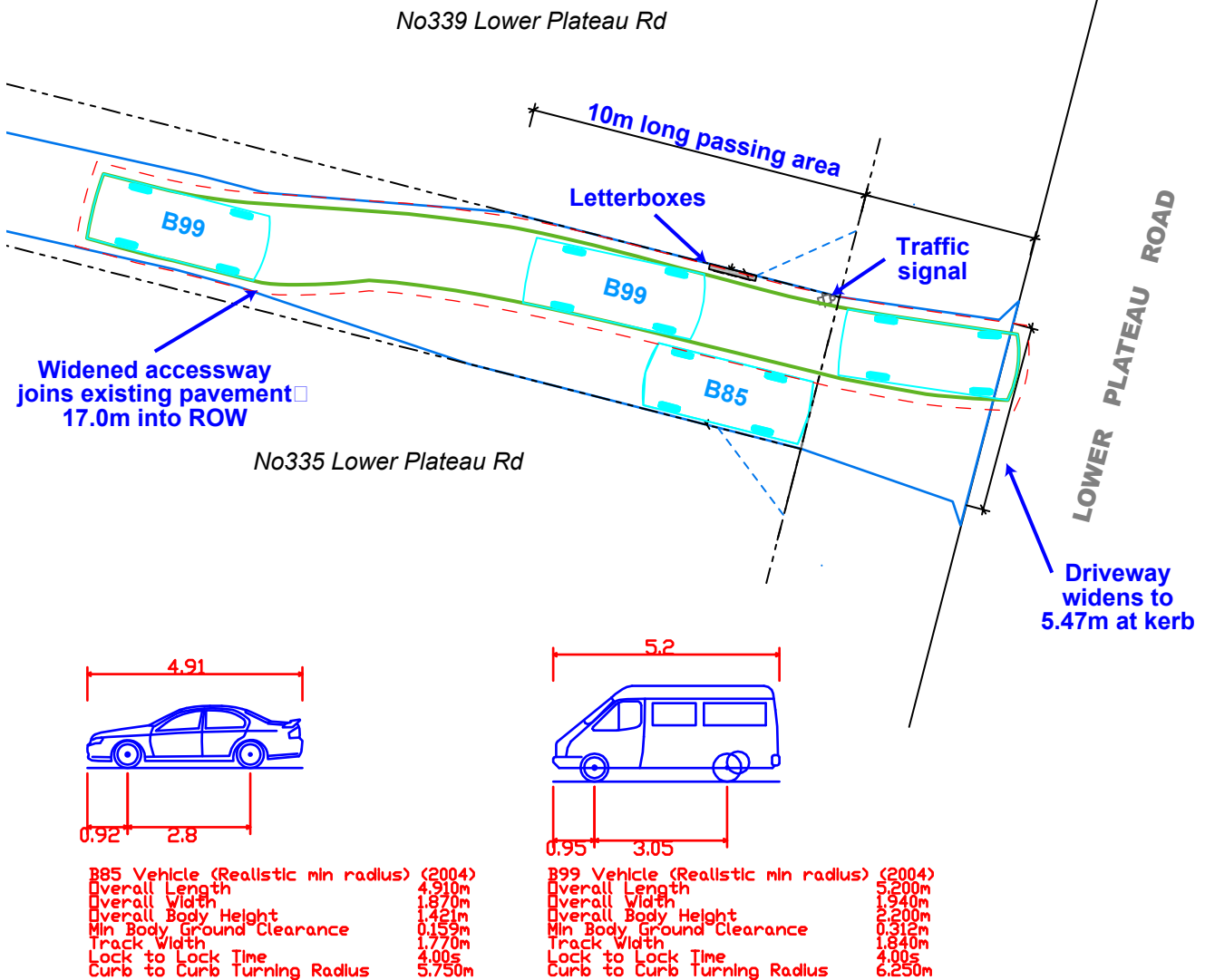
APPENDIX C

SWEPT PATH ANALYSIS

**Path prepared using
Autodesk Vehicle Tracking**



- Note:**
1. Traffic signal at the boundary is always green to give priority to entering traffic
 2. Traffic signal at boundary turns red when a departing drives over induction loop in pavement at base of accessway
 3. Traffic signal at base of accesway turns green for departing vehicle
 4. Entering vehicle proceeds down accessway once departing vehicle passes



**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B99 Vehicle Exiting ROW and
Passing a Waiting B85 Vehicle**

Drawing prepared 22nd March 2025



Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

METRES
SCALE 1:200

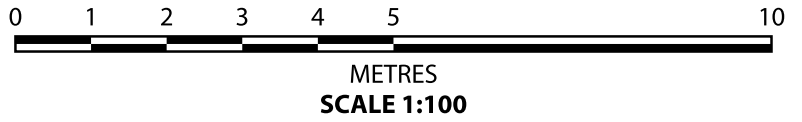


Manoeuvring Path of Australian Standard AS/NZS2890.1:2004 B99 Vehicle Entering Site and Passing Waiting B85 Vehicles

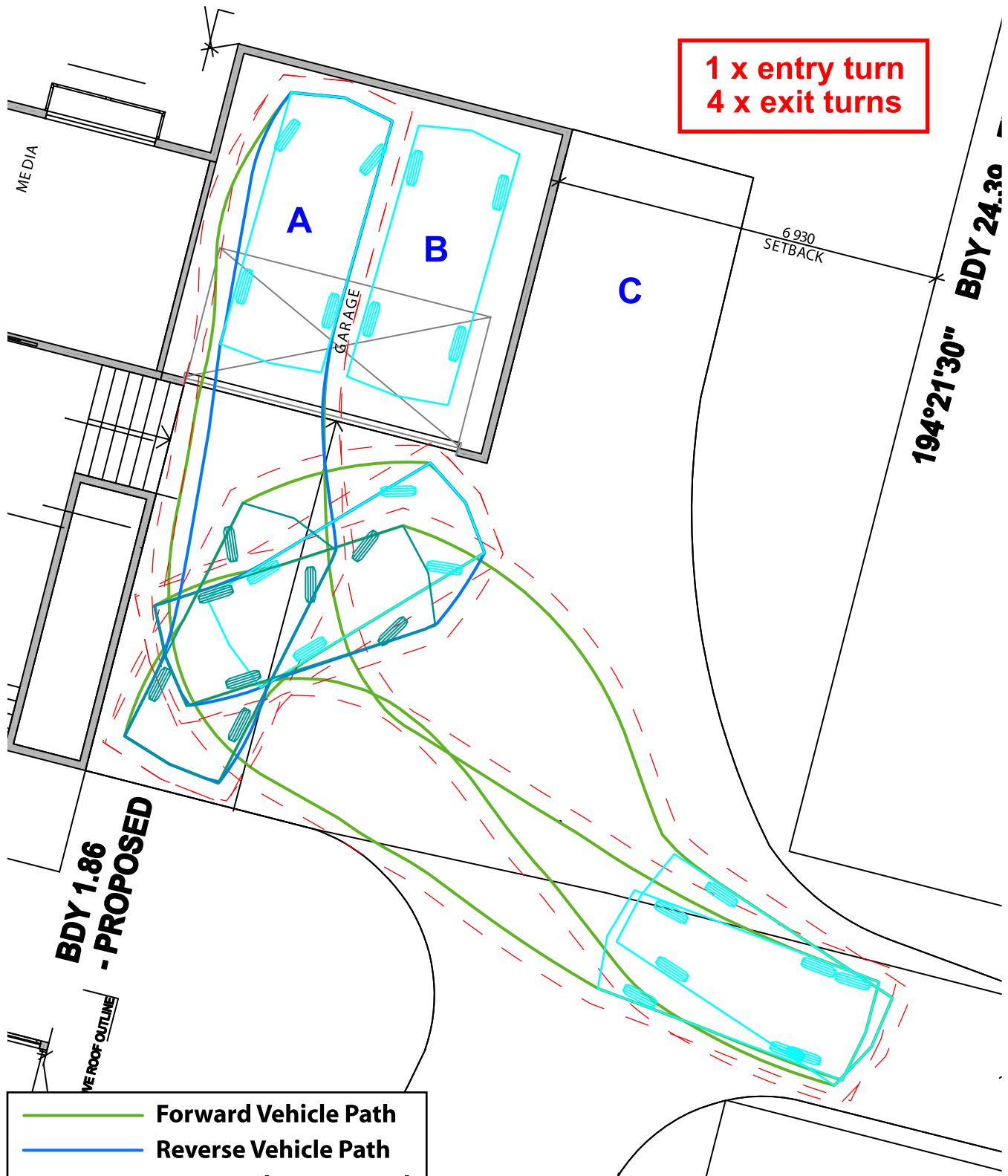


Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
4 x exit turns



BDY 1.86
- PROPOSED

BDY 24.30
194°21'30"

6.930
SETBACK

A

B

C

GARAGE

VE ROOF OUTLINE

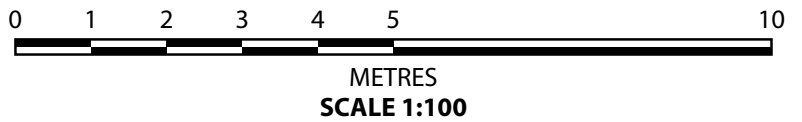
- Forward Vehicle Path
- Reverse Vehicle Path
- 300mm Clearance Path

Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 1 - Space A

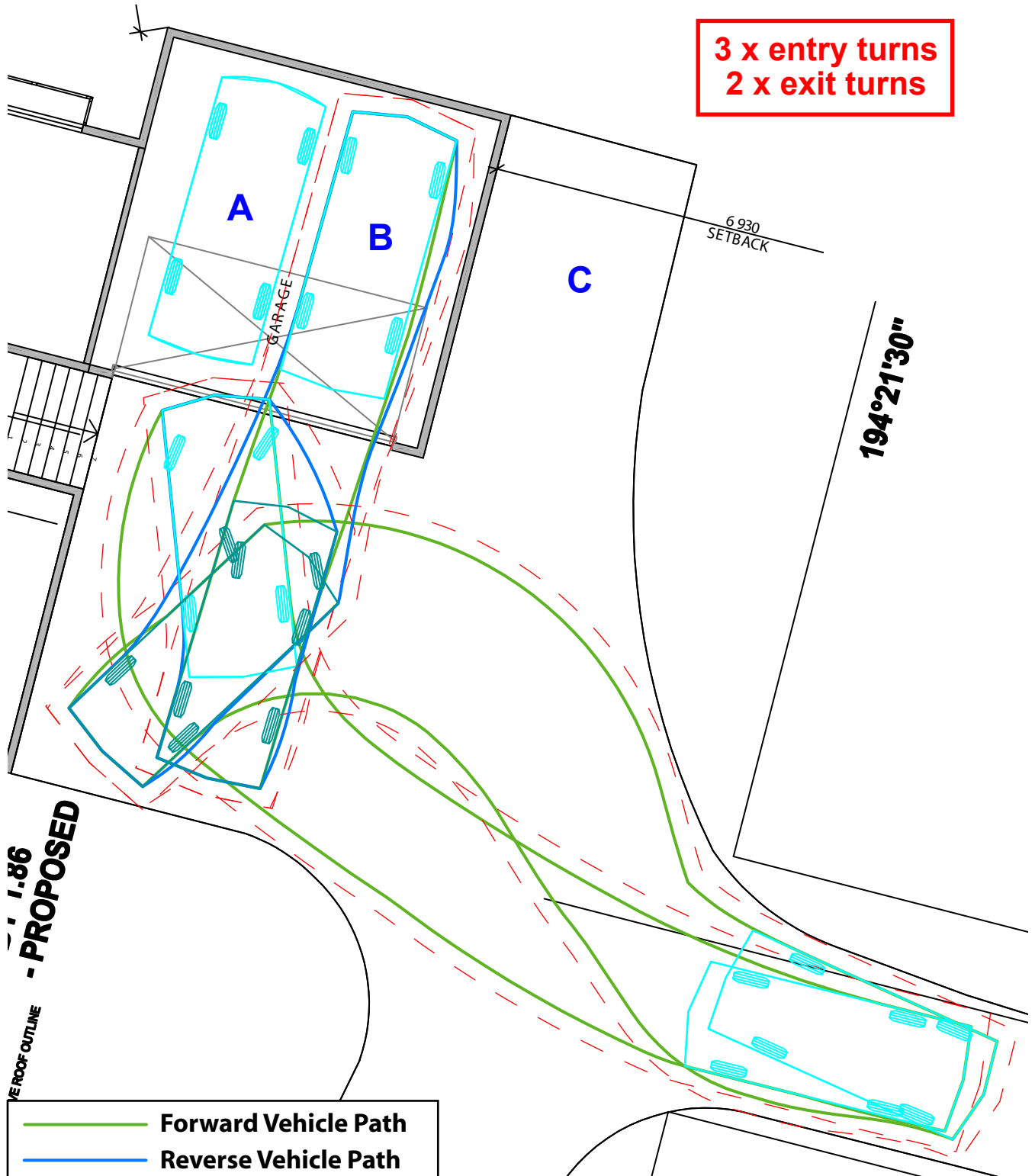


Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Path prepared using
Autodesk Vehicle Tracking



3 x entry turns
2 x exit turns



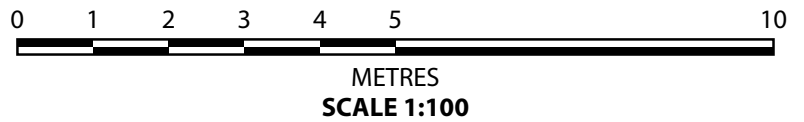
- Forward Vehicle Path
- Reverse Vehicle Path
- 300mm Clearance Path

Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 1 - Space B

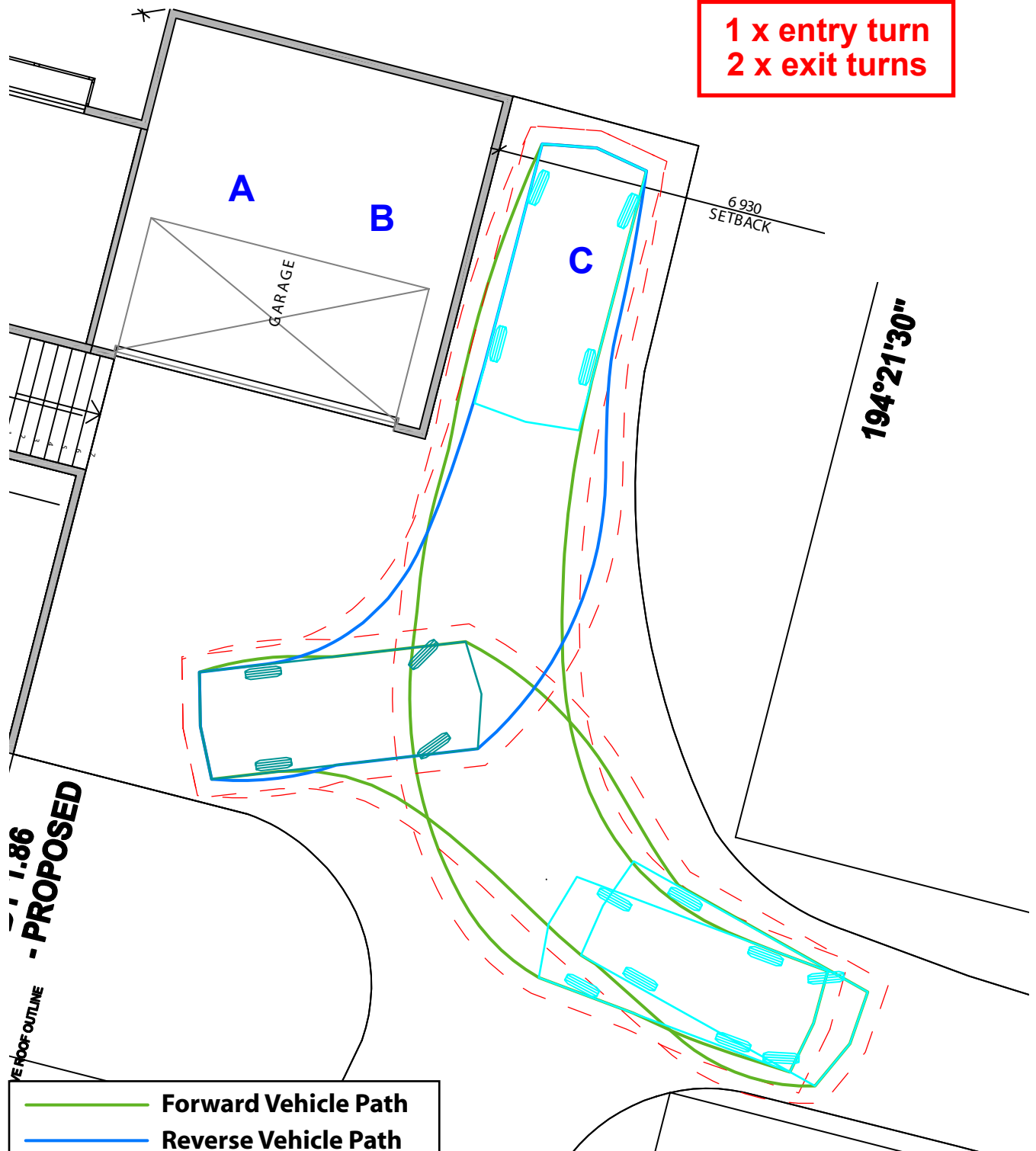


Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
2 x exit turns



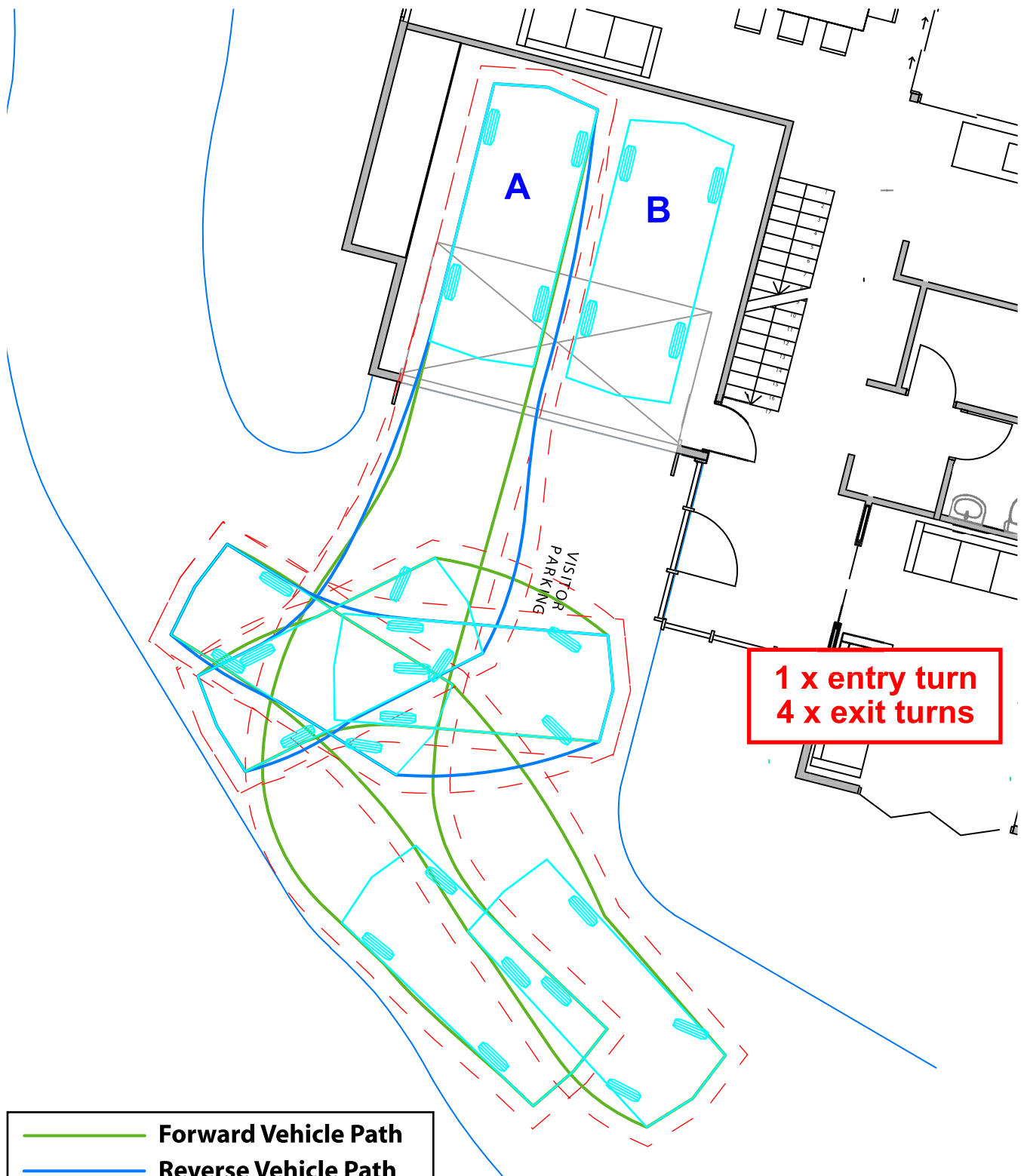
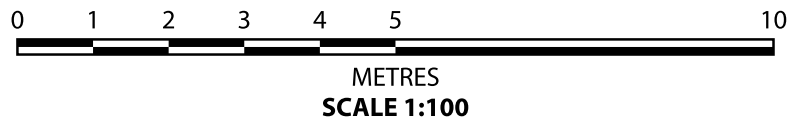
- Forward Vehicle Path
- Reverse Vehicle Path
- 300mm Clearance Path



Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 1 - Space C (visitor)**

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
4 x exit turns

— Forward Vehicle Path
— Reverse Vehicle Path
- - - 300mm Clearance Path

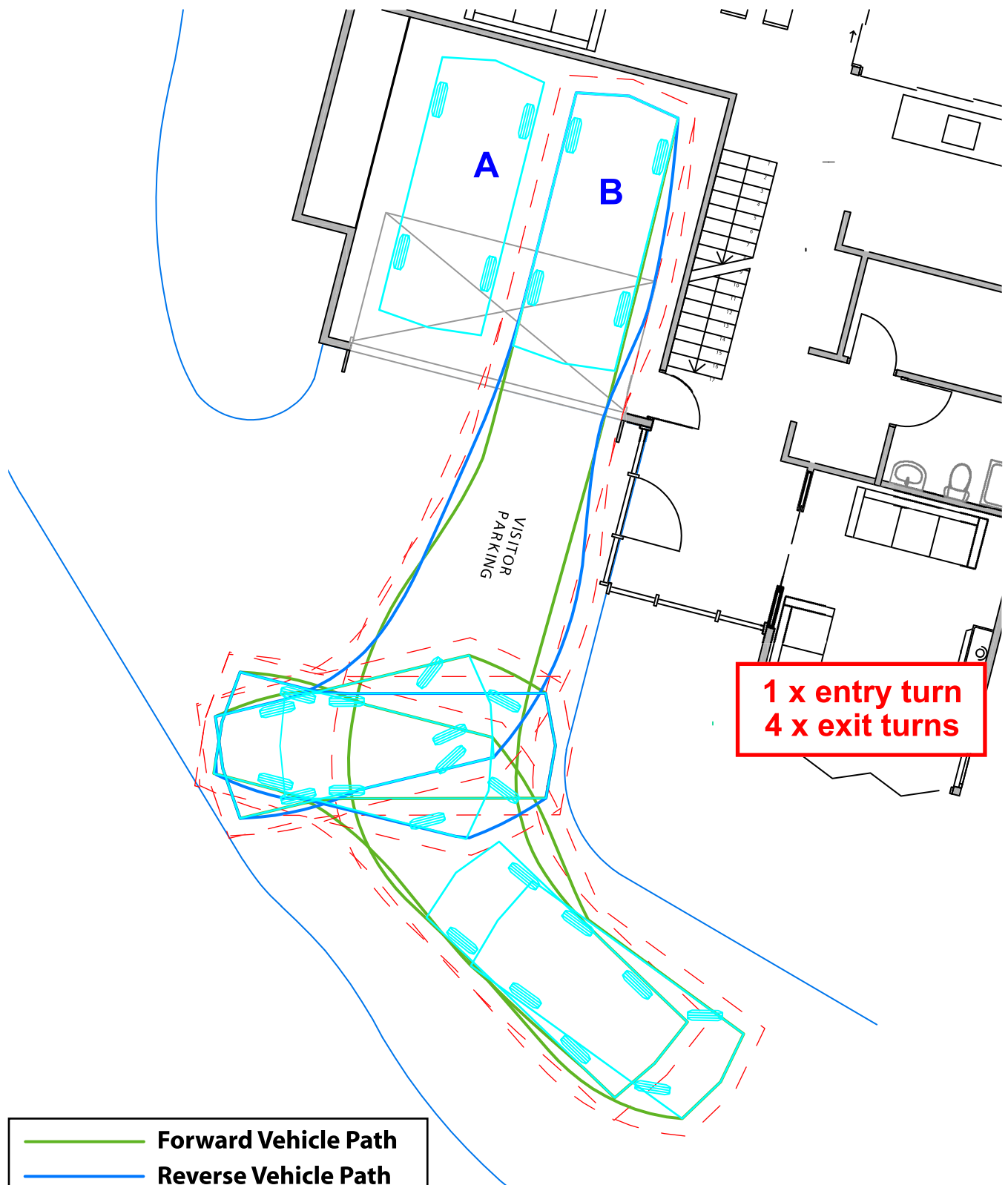


Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 2 - Space A**

Path prepared using
Autodesk Vehicle Tracking

0 1 2 3 4 5 10
METRES
SCALE 1:100



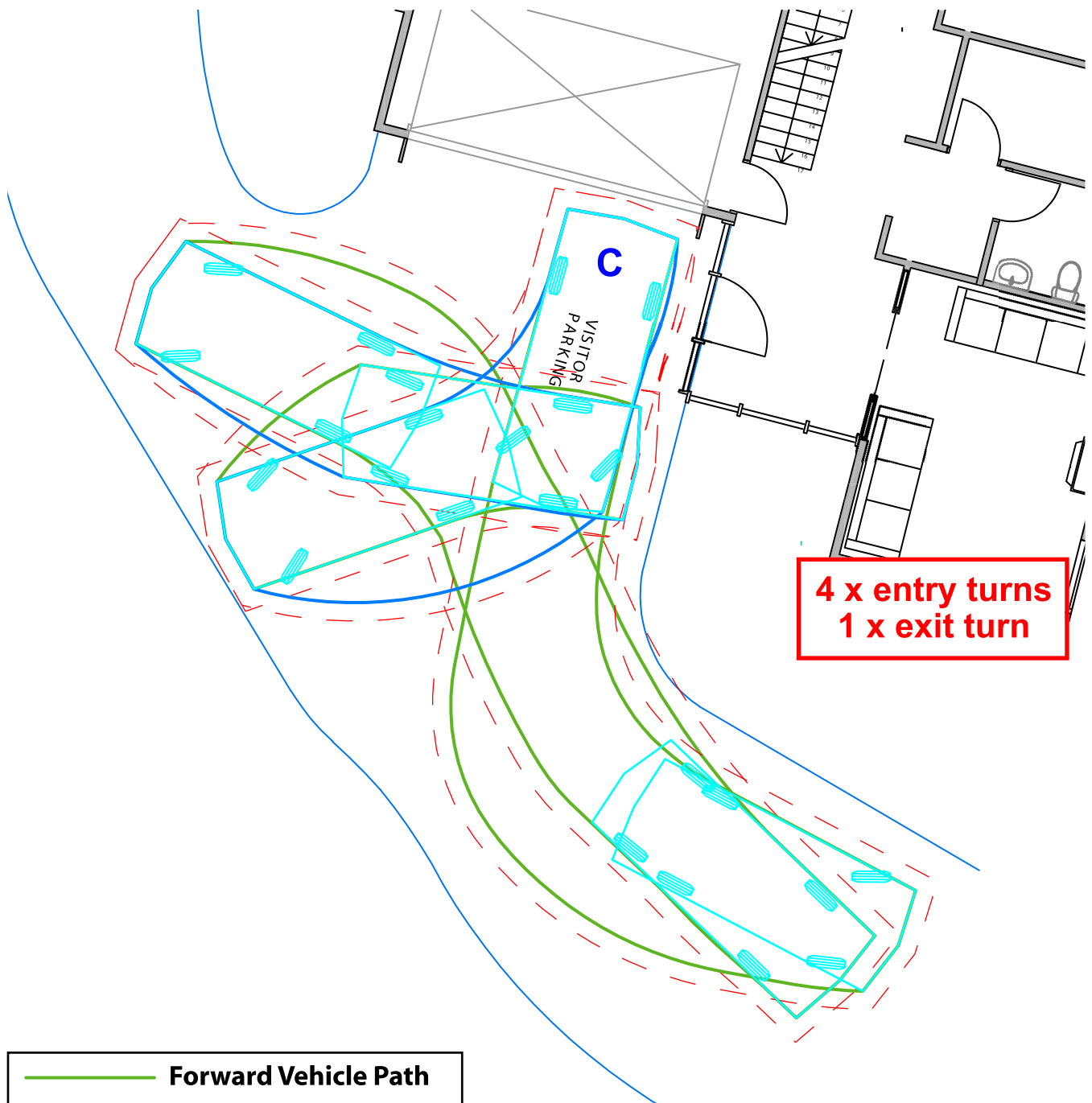
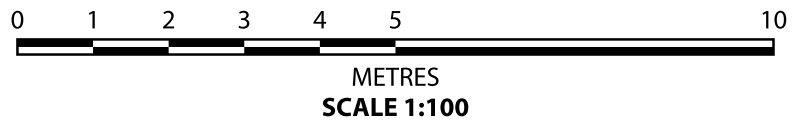
— Forward Vehicle Path
— Reverse Vehicle Path
- - - 300mm Clearance Path

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 2 - Space B**



Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

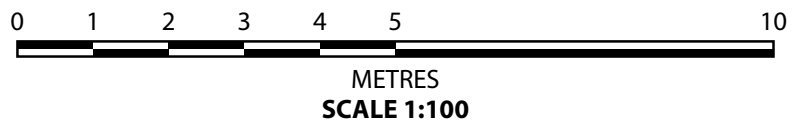
Path prepared using
Autodesk Vehicle Tracking



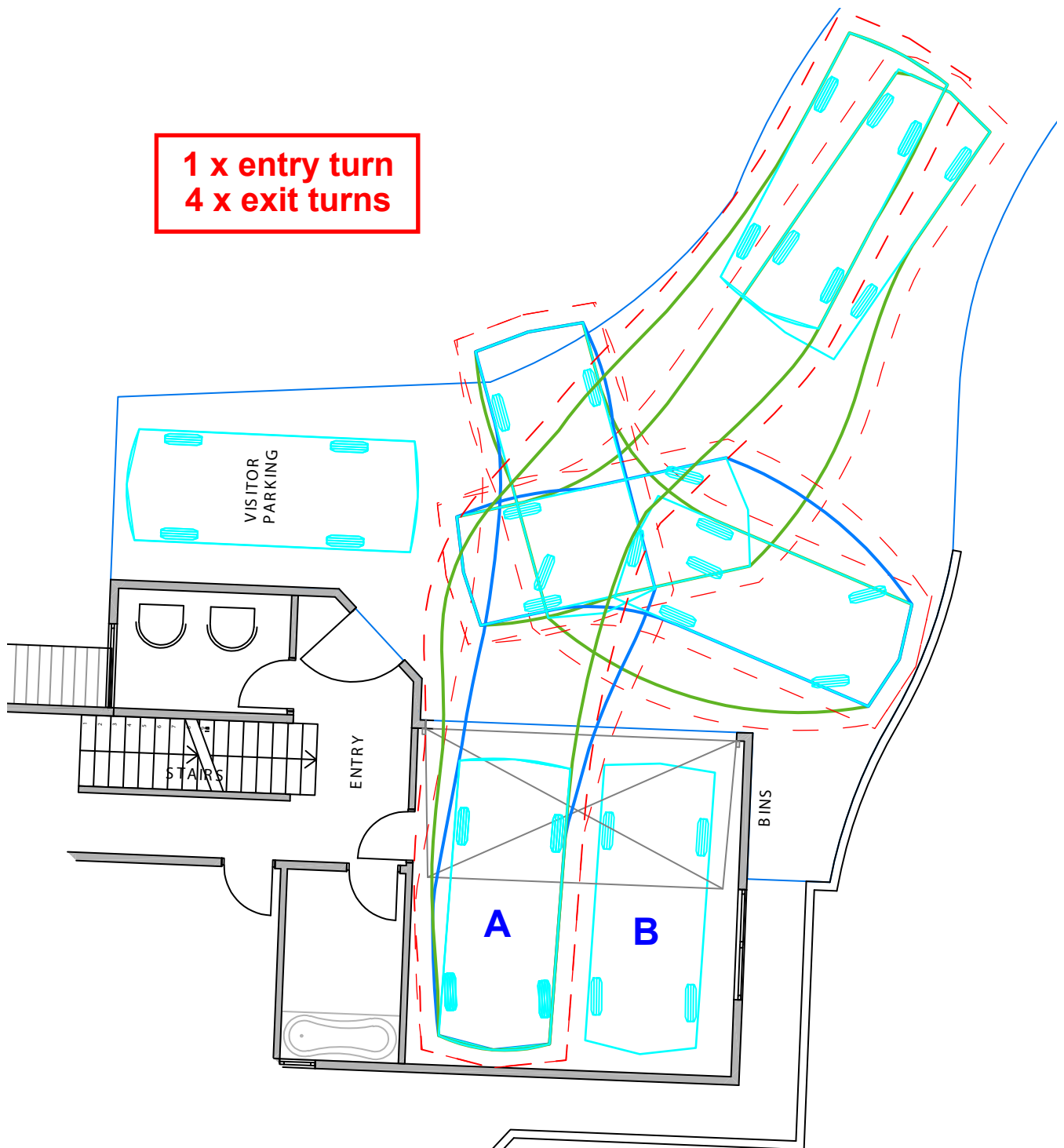
Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 2 - Space C (Visitor)**

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
4 x exit turns



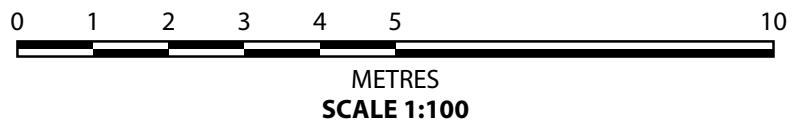
— Forward Vehicle Path
— Reverse Vehicle Path
- - - 300mm Clearance Path

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 3 - Space A**

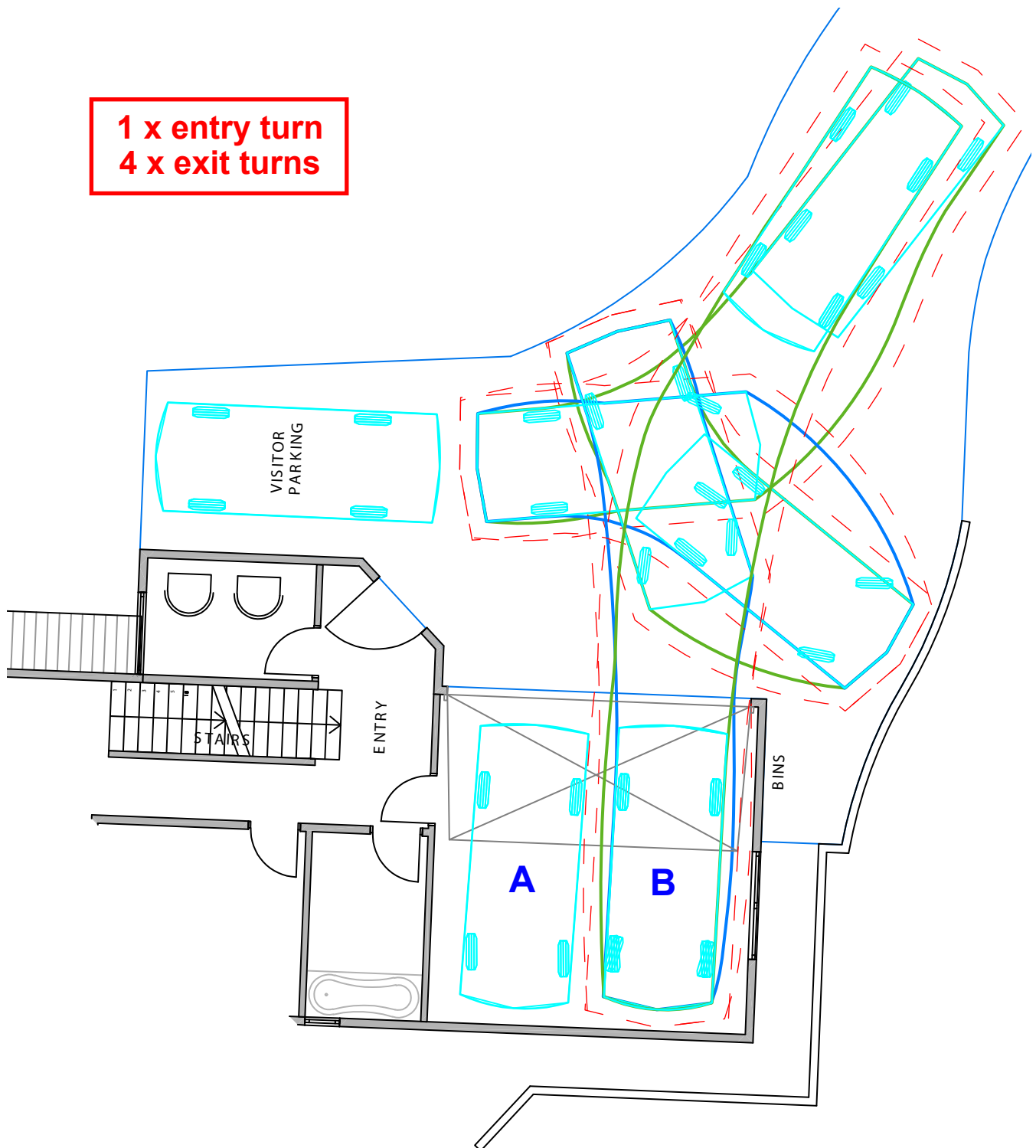


Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
4 x exit turns



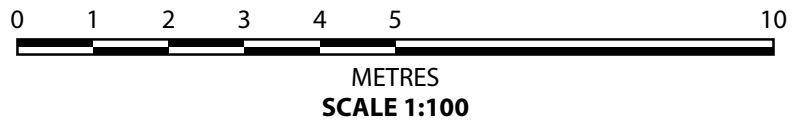
— Forward Vehicle Path
— Reverse Vehicle Path
- - - 300mm Clearance Path



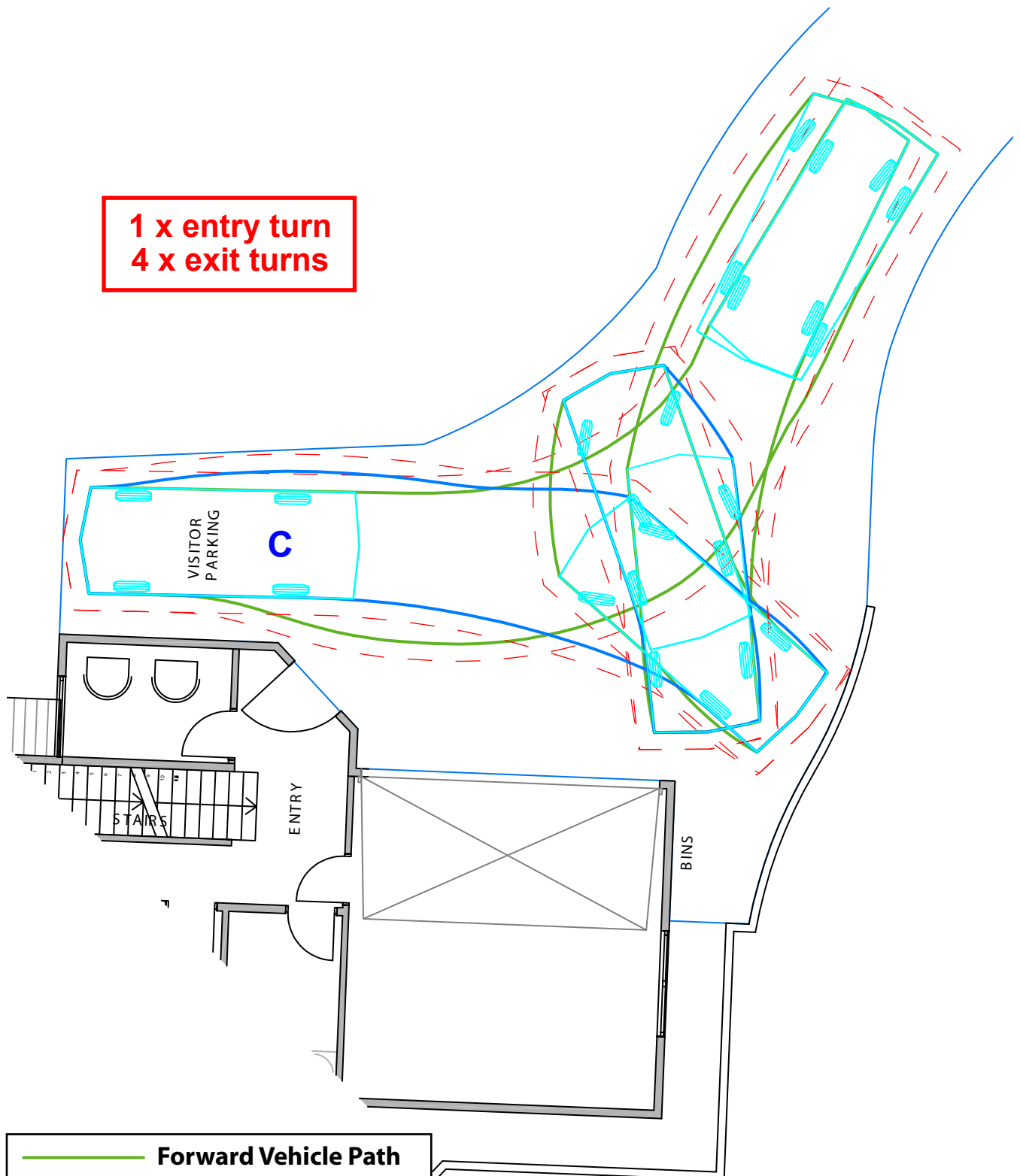
Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 3 - Space B**

Path prepared using
Autodesk Vehicle Tracking



1 x entry turn
4 x exit turns



— Forward Vehicle Path
— Reverse Vehicle Path
- - - 300mm Clearance Path

**Manoeuvring Path of Australian
Standard AS/NZS2890.1:2004
B85 Vehicle Accessing
Lot 3 - Space C (visitor)**



Terraflow Pty Ltd
TRAFFIC & PARKING CONSULTANTS