INROADS:GROUP

Residential Development, 140 Ocean Street, Narrabeen

Traffic Report

Revision 1
25 October 2019

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Contents

Appendices

1.0 Introduction

InRoads Group was engaged to undertake a Traffic Impact Assessment of a proposed residential development to be located on the subject site at 140 Ocean Street, Narrabeen. The proposal involves the demolition of the existing residential dwelling on the site and the construction of two (2) x two-bedroom apartments in a two-storey building at the front of the site, and a two-storey single unit dwelling (with four bedrooms) at the rear of the site.

The site is located in the Northern Beaches Local Government Area, within the former Warringah Local Government Area (prior to the 2016 merger with Pittwater and Manly to form the Northern Beaches Council). The proposal has therefore been assessed considering the relevant Council controls, including the Warringah Development Control Plan (DCP) 2011.

This report provides relevant site context, describes the proposal, and documents the results and findings of our investigations addressing the following key traffic design issues:

- Vehicular site access arrangements;
- On-site car parking provision;
- Bicycle parking provision;
- Parking layout and design;
- Vehicle servicing and refuse collection arrangements; and
- The traffic impacts anticipated as a result of the proposal.

2.0 Context

2.1 Subject Site

The subject site is located at 140 Ocean Street, Narrabeen, on the western side of the road between Loftus Street and Albemarle Street as shown in **Figure 2.1a** and **Figure 2.1b** below.

Described at Lot 13 on DP606591, the subject site is approximately 958m^2 in area, and currently accommodates a dwelling house which is accessed via a driveway onto Ocean Street adjacent to the southern site boundary.

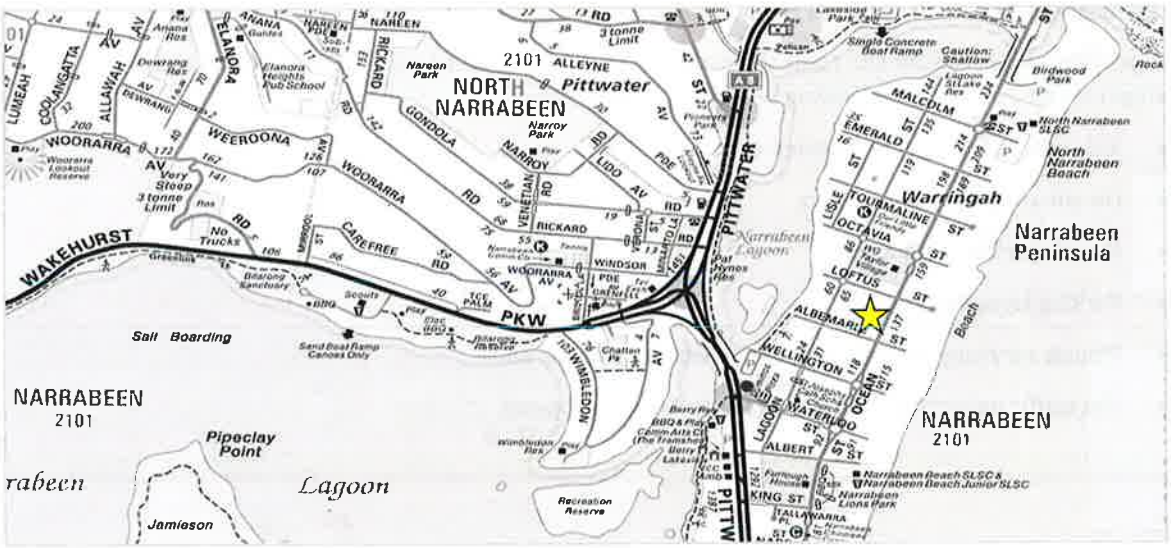


Figure 2.1a: Site Location

Figure 2.1b: Subject Site **Source: SixMaps**

2.2 Adjacent Road Network

The subject site has frontage to Ocean Street to the east, which is a collector street which runs in a generally north-south direction parallel and to the east of Pittwater Road, along the Narrabeen Peninsula. Ocean Street connects to Pittwater Road at its southern end at a signalised T-intersection, and continues to just north of the Narrabeen Lagoon (over the Ocean Street Bridge over South Creek) where it continues north as Narrabeen Park Parade.

Ocean Street has a two-lane, two-way undivided cross-section in proximity to the site (see **Figure 2a** and **Figure 2b** below), with kerbside parking and bicycles lanes in both directions, and an overall pavement width of approximately 12.5m. Pedestrian footpaths are provided along both sides of the street, including along the frontage of the subject site.

Ocean Street is posted at 50km/hr.

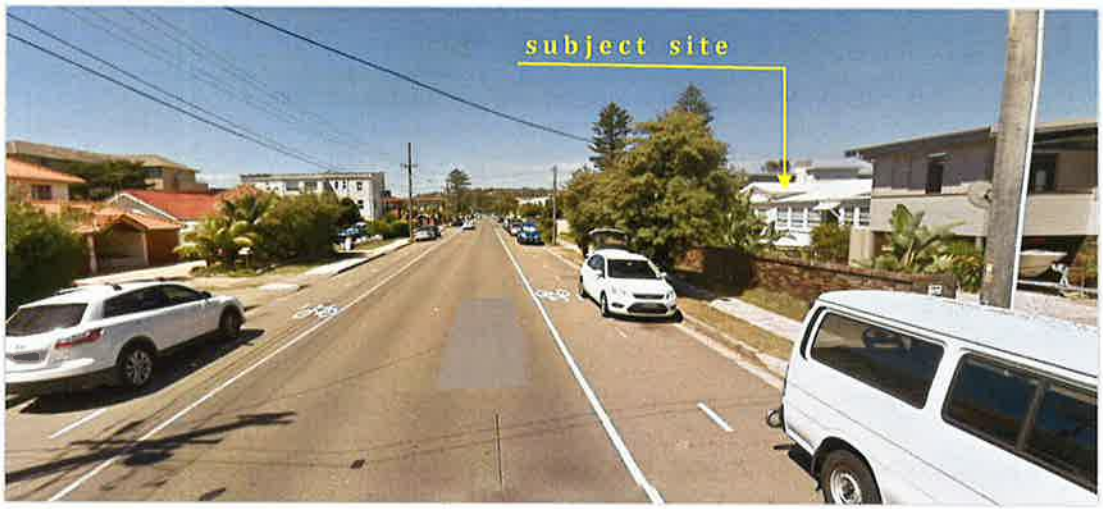


Figure 2.2a: Ocean Street, looking south Source: Google Street View

Figure 2.2b: Ocean Street, looking north Source: Google Street View

3.0 Proposal

This development application seeks approval for the demolition of the existing residential dwelling on the site and the construction of two (2) x two-bedroom apartments in a two-storey building at the front of the site, and a two-storey single unit dwelling (with four bedrooms) at the rear of the site.

Architectural plans of the proposed development are included as **Appendix A**, with an extract of the ground floor plan provided for reference as **Figure 3** below.

Parking for five (5) cars is proposed on the ground level, and these parking spaces will be accessed via a driveway on Ocean Street adjacent to the southern site boundary, consistent with the existing site access arrangements.

The key traffic elements as shown in the architectural plans have been developed based upon the requirements and recommendations outlined in the relevant standards and guidelines, including:

- Australian Standard AS2890.1:2004 - Parking facilities Part 1: Off-street car parking; and
- The Warringah Council Development Control Plan (DCP) 2011.

The relevant provisions of the above documents are discussed in the following sections.

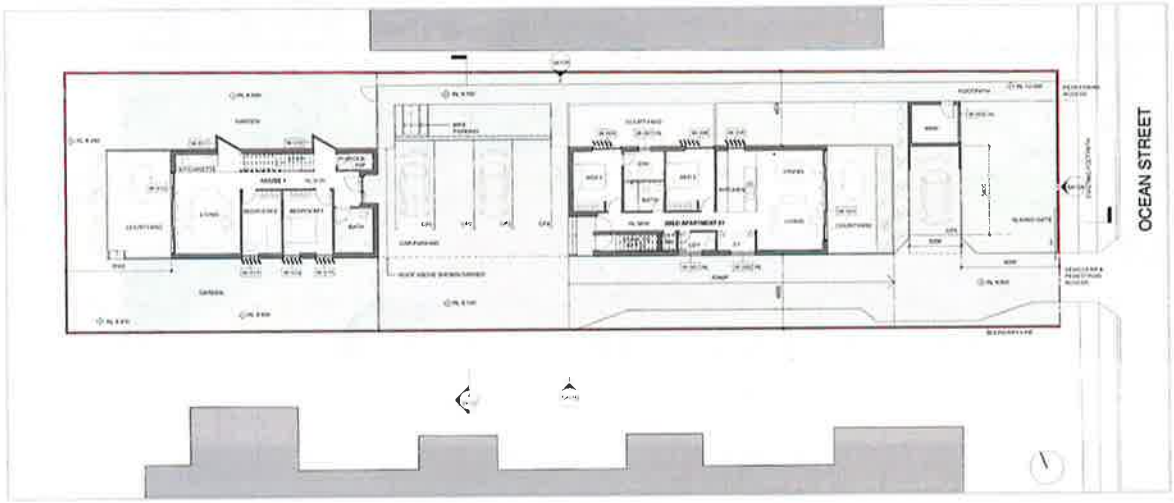


Figure 3: Extract from Ground Floor Plan

3.1 Vehicular Site Access

As shown in the plans included as **Appendix A**, vehicular access to the development is proposed via a driveway onto Ocean Street adjacent to the southern site boundary.

The proposed entry / exit driveway is 3.0m wide at the property boundary, which meets the AS2890.1 requirement for a Category 1 driveway as stipulated in Table 3.1 and Table 3.2 of AS2890.1 (i.e. 3.0m – 5.5m wide). The proposed driveway is generally consistent with the existing access driveway in terms of both width and position, in order to minimise any impact upon on-street parking (in accordance with one of the key objectives in Part C2 of Council's DCP).

At 3.0m width, the proposed access driveway will operate as a two-way, single lane driveway. This is supportable given the nature and scale of the proposed development, and the fact that the traffic generation will be very low

and hence the probability of a vehicle arriving to enter the site when another vehicle is exiting is extremely low. This is supported by Section 3.2.2 of Australian Standard AS2890.1, which states that:

> *"Where the circulation roadway leading from a Category 1 access driveway is 30 m or longer, or sight distance from one end to the other is restricted, and the frontage road is an arterial or sub-arterial road, both the access driveway and the circulation roadway for at least the first 6 m from the property boundary shall be a minimum of 5.5 m wide. In other cases subject to consideration of traffic volumes on a case-by-case basis, lesser widths, down to a minimum of 3.0 m at a domestic property, may be provided. As a guide, 30 or more movements in a peak hour (in and out combined) would usually require provision for two vehicles to pass on the driveway, i.e. a minimum width of 5.5 m..."*

The above provision recognises that in certain circumstances where volumes are low, provision for two-way traffic flow is not required. Importantly, and as discussed in Section 4.0 of this report, the proposed development is expected to generate only two (2) vehicle movements in the peak hour (in and out combined), which is well below the threshold provided as a guide in AS2890.1 for two-way traffic flow (i.e. 30 or more movements in the peak hour). As such, the 3.0m wide driveway proposed meets the requirements of AS2890.1 in this regard.

The design of the crossover is to be in accordance with Council's relevant Standard Drawings (Drawing A4 2276/B and Drawing 3330/1 N), and it is anticipated that this requirement could reasonably be addressed in response to a suitable condition of the consent, at detailed design stage.

In order to ensure visibility between an exiting vehicle and a pedestrian approaching the driveway on the Ocean Street footpath, in accordance with Figure 3.3 in AS2890.1, 2.5m (deep) and 2.0m (wide) pedestrian sight splays are required on both sides of the driveway, inside the front property boundary. Any obstructions in this area (including landscaping) should not exceed 600mm above the pavement level. It is anticipated that this requirement could reasonably be addressed as a condition of the consent.

Overall, the site access arrangements are considered to be supportable and generally in accordance with the requirements of AS2890.1 and Council's standards and guidelines.

3.2 Car Parking Provision

As previously noted, the proposed development comprises a single unit dwelling and two (2) x two-bedroom apartments.

The relevant car parking requirements in Appendix 1 of Council's DCP are as follows:

- Dwelling house and dual occupancy: 2 spaces per dwelling
- Multi-dwelling housing / Residential flat buildings: 1.2 spaces per 2 bedroom dwelling + 1 visitor space per 5 units or part of dwellings

The application of the above parking rates provides the following requirements:

- 2 parking spaces for the dwelling house
- 2 resident parking spaces (rounded down from 2.4 resident parking spaces) for the two (2) x two-bedroom apartments
- 1 visitor parking space for the two (2) x two-bedroom apartments
- **5 parking spaces total**

As shown in the ground floor plan included in **Appendix A**, the proposed development provides a total of five (5) car parking spaces, including one (1) at the front of the site (which it is anticipated would be used for visitor parking) and four (4) towards the rear of the site, between the apartments and the dwelling house (which it is

anticipated would be used for resident parking). The proposal therefore meets Council's DCP requirements in this regard.

3.3 Bicycle Parking

The relevant bicycle parking requirements in Part C3(A) of Council's DCP are as follows:

- Residential Accommodation containing 3 or more dwellings:
    - 1 per dwelling (residents)
    - 1 per 12 dwellings (visitors)

The application of the above bicycle parking rates requires that a total of four (4) bicycle parking spaces be provided for the three (3) dwellings, including three (3) for residents and one (1) for visitors.

As shown in the ground floor plan included in **Appendix A**, four (4) bicycle parking spaces are proposed to the north of car park 1 via two (2) double-sided bicycle parking rails. Provision has been made for a 1800mm x 500mm envelope for each bicycle parking space, as required under the provisions of AS2890.3. The proposal therefore meets Council's DCP requirements in this regard.

3.4 Parking Layout and Geometric Design

The site layout as shown in the site plans included in **Appendix A** has been designed generally in accordance with the requirements of the relevant Australian Standards (AS2890.1), as summarised following:

- As previously discussed, the proposed entry / exit driveway is 3.0m wide at the property boundary, which meets the requirement for a Category 1 driveway under the provisions of AS2890.1.
- Parking spaces 1 – 4 towards the rear of the site are 2.4m wide and 5.4m long with a 6.1m wide parking aisle (i.e. 5.8m plus 300mm clearance to the southern boundary fence), as required under the provisions of AS2890.1 for User Class 1 (low turnover) car parking. As shown in the vehicle tracking diagrams included as **Appendix B**, these parking spaces would accommodate the entry and exit manoeuvres of a B85 passenger vehicle.
- A 1m terminated aisle extension is provided past parking space 1 as required under the provisions of AS2890.1 for manoeuvring to/from this parking space.
- Parking space 5 at the front of the site is 3.2m wide and 5.4m long with a 5.2m wide parking aisle. As shown in the vehicle tracking diagram included as **Appendix C**, the proposed parking space and aisle width would be adequate to accommodate the entry and exit manoeuvres of a B85 passenger vehicle (subject to the landscaping on each side of the parking space being low ground cover only which is less than 150mm above the pavement level, allowing the body of the vehicle to overhang). This arrangement is consistent with the principle outlined in Section B4.4 of AS2890.1, which describes the inverse relationship between parking space width and parking aisle width.
- The circulation aisle (providing access to/from the rear parking spaces) has a minimum width of 3.3m (measured to the wall of the building), which meets the requirement stipulated in AS2890.1 for a single lane circulation aisle (i.e. 3.0m + 300mm clearance).
- The gradient of the ramp providing access to the parking spaces at the rear of the site is approximately 1:28, which is a gentle gradient well within the maximum grade and grade change requirements stipulated in AS2890.1, which permits a maximum grade of up to 1:4 with 1:8 transitions required.

Overall, the car parking layout is efficient and legible, and designed generally in accordance with the requirements of the relevant Australian Standards.

3.5 Servicing and Refuse Collection

Given the nature of the proposed development, the demand for service vehicles would be limited. With the exception of the occasional delivery vehicle or tradesperson (who could park on-street, consistent with the arrangements at the vast majority of smaller residential developments), the only servicing requirement would be regular refuse collection.

Kerbside bin collection is proposed, with bins being transferred to Ocean Street from the proposed bin store area on the ground floor prior to scheduled collection time, consistent with common arrangements at smaller residential developments.

Overall, the proposed servicing / refuse collection arrangements are considered to be appropriate given the nature and scale of the development, and supportable from a traffic engineering perspective.

4.0 Traffic Impact Assessment

The RMS Guide to Traffic Generating Developments and the subsequent RMS Technical Direction TDT 2013/04a (Guide to Traffic Generating Developments, Updated traffic surveys) provide traffic generation rates for various land uses, including residential developments. The peak hour trip generation rates suggested are as follows:

- Low density residential dwellings:
    - AM peak hour: 0.95 vehicle trips dwelling
    - PM peak hour: 0.99 vehicle trips dwelling
- Smaller units and flats (up to two bedrooms):
    - AM peak hour: 0.4 – 0.5 vehicle trips dwelling
    - PM peak hour: 0.4 – 0.5 vehicle trips dwelling

Applying the above trip generation rates to the proposed development (comprising a single unit dwelling and two (2) x two-bedroom apartments) reveals a site traffic generation of two (2) vehicle trips in the peak hours, or one (1) vehicle trip per 30 minutes on average during the critical peak hours. This level of traffic generation is clearly very low, and would be well within the range of typical fluctuations in traffic volumes on the surrounding road network.

Furthermore, considering the existing dwelling on the subject site (which is estimated to generate one (1) vehicle trip in the peak hours, but would be removed in order to facilitate the delivery of the proposed development), the net impact of the proposal would be negligible.

In light of the above, the proposed development will be more than adequately catered for on the surrounding road network from a capacity perspective, with no impact upon traffic operations in the area, therefore no external roadworks are required to support the proposed development from a capacity perspective.

5.0 Recommendation

In light of the information contained within this report, it is considered that the proposal is satisfactory from a traffic operations perspective, and it is recommended that the development application be approved from a traffic engineering perspective.

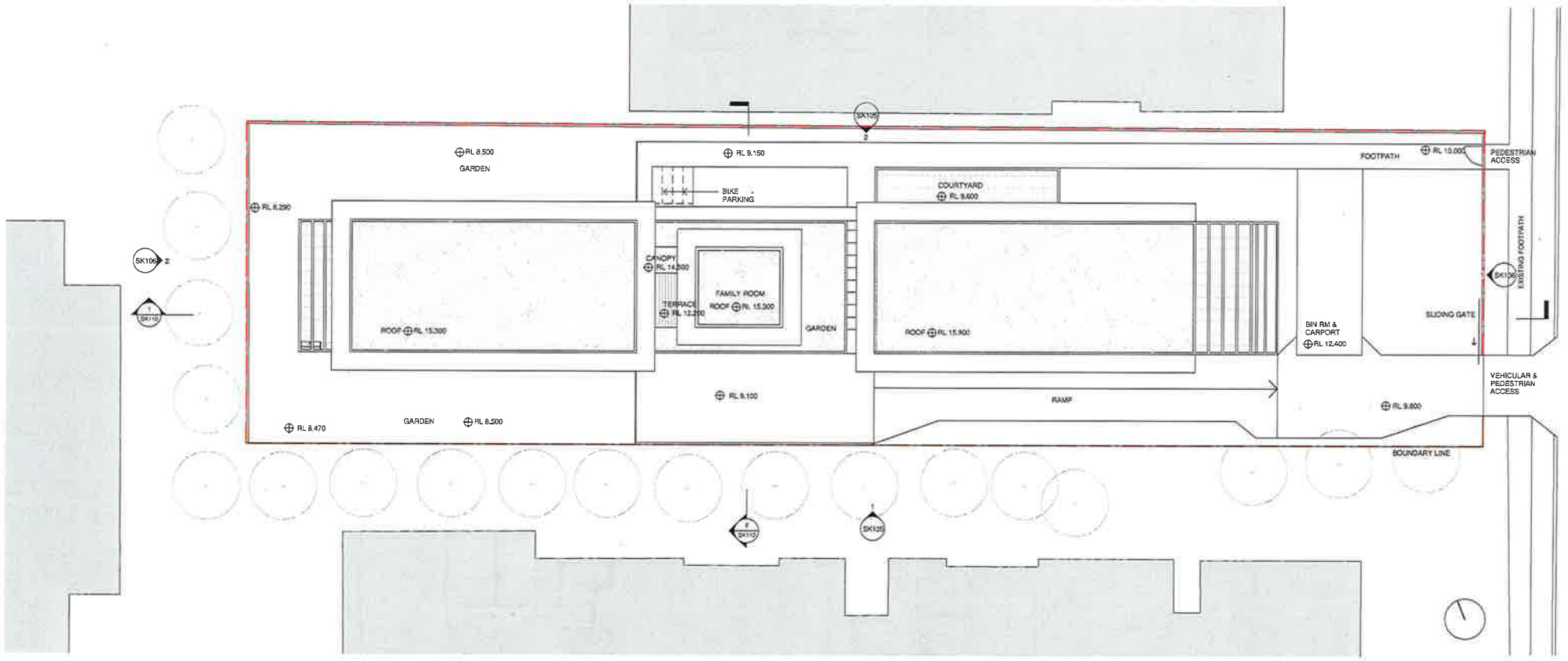
5.1 Qualifications

This report has been prepared by:

Anne Coutts
Director, InRoads Group
BE Civil, MIEAust, MAITPM

APPENDIX A

Architectural Plans



1 SITE LAYOUT PLAN
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Rev	Description	Date
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B	ISSUE FOR INFORMATION	30/08/19
C	ISSUE FOR INFORMATION	09/09/19
D	ISSUE FOR INFORMATION	11/09/19
E	ISSUE FOR INFORMATION	05/10/19

PROJECT
140 OCEAN STREET, NARRABEEN

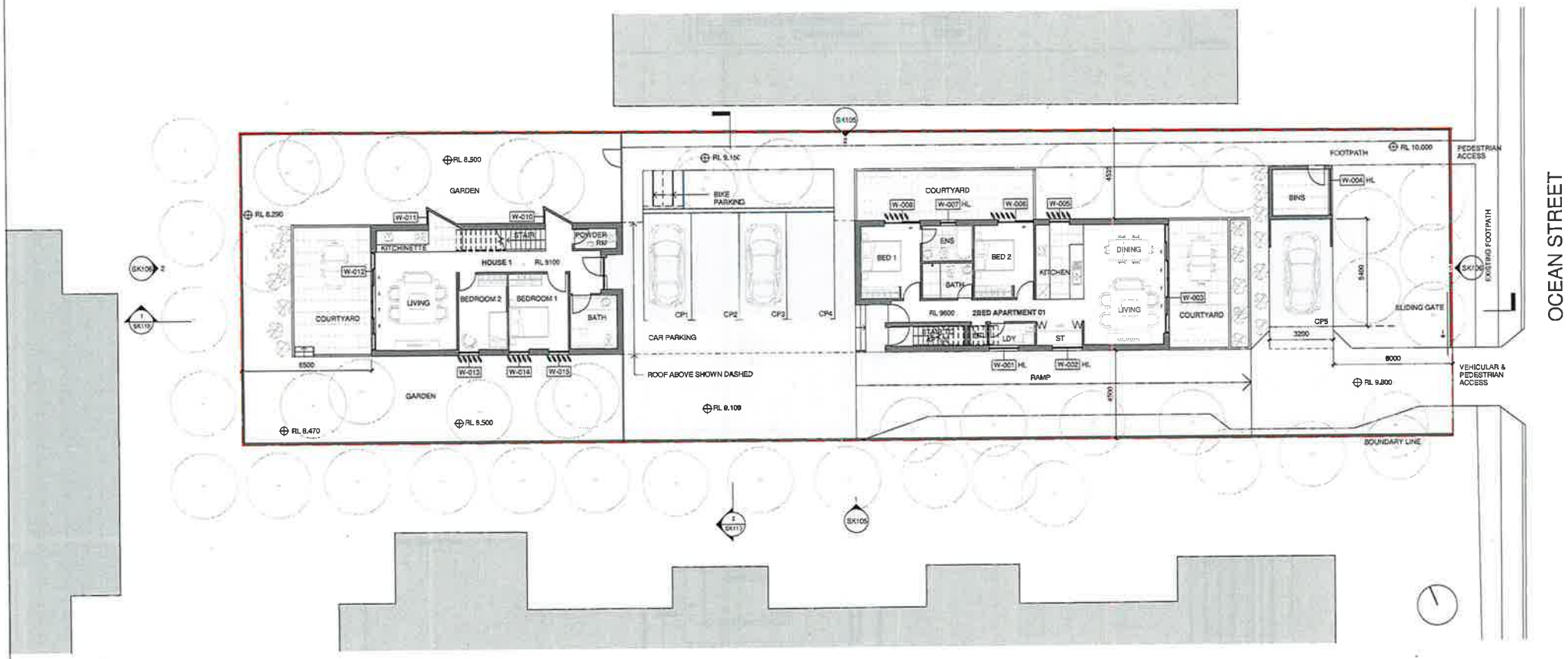
CLIENT
MISSIONARY SISTERS OF BLESSED VIRGIN MARY

TITLE
SITE LAYOUT PLAN

DRAWN BY	CHECKED BY	DATE
JB	JB	08/09/19

SCALE (@ A1)	PROJECT NUMBER
1 : 100	2019_002

DRAWING NUMBER	REV
SK010	E



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C	ISSUE FOR INFORMATION	06/07/19
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F	ISSUE FOR INFORMATION	09/09/19
G	ISSUE FOR INFORMATION	11/09/19
H	ISSUE FOR INFORMATION	04/10/19
I	ISSUE FOR INFORMATION	05/10/19
J	ISSUE FOR INFORMATION	14/10/19

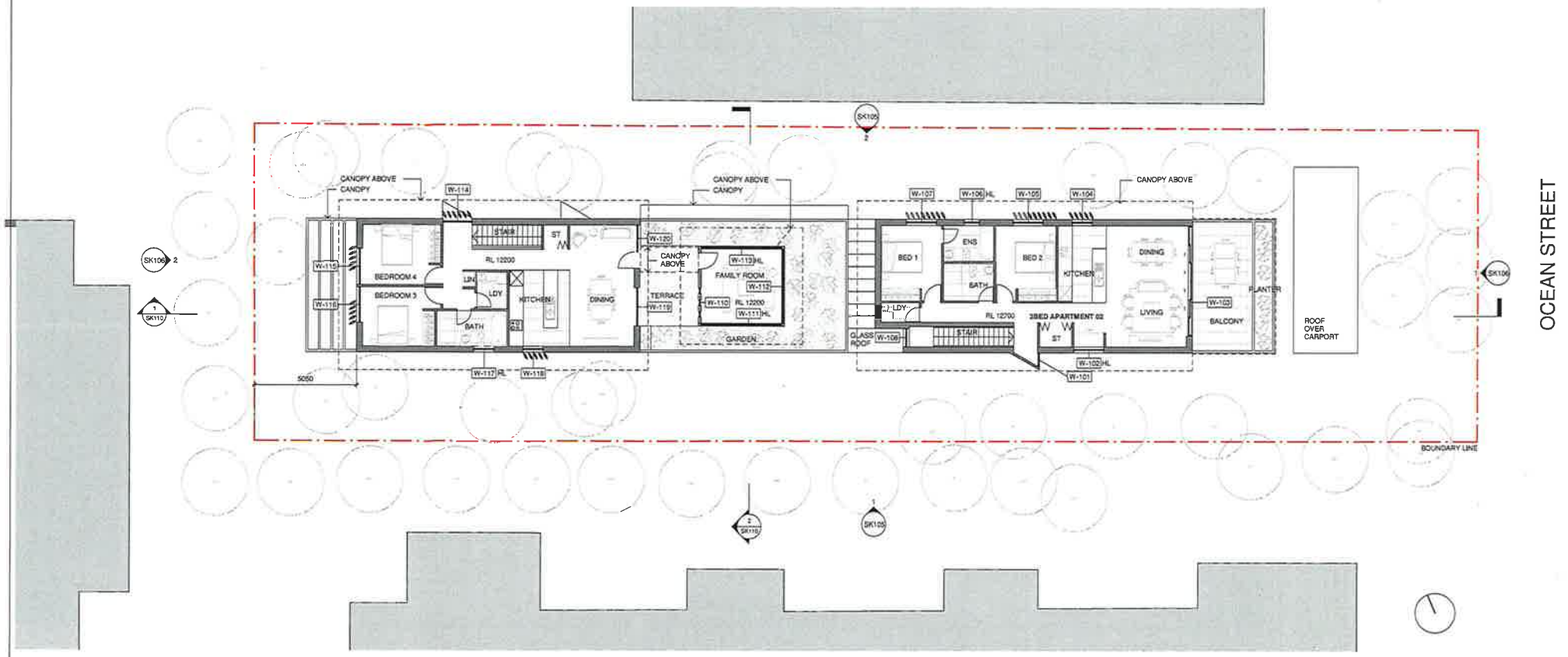
PROJECT
140 OCEAN STREET, NARRABEEN

TITLE
GROUND FLOOR PLAN

CLIENT
MISSIONARY SISTERS OF BLESSED VIRGIN MARY

DRAWN BY	CHECKED BY	DATE
JB	JB	08/04/19

SCALE (@ A1): 1 : 100
PROJECT NUMBER: 2019_002
DRAWING NUMBER: SK101
REV: J



1 Level 1 FLOOR PLAN
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Rev	Description	Date
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C	ISSUE FOR INFORMATION	06/07/19
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H	ISSUE FOR INFORMATION	04/10/19
I	ISSUE FOR INFORMATION	05/10/19

PROJECT
140 OCEAN STREET, NARRABEEN

TITLE
L01 PLAN

CLIENT
MISSIONARY SISTERS OF BLESSED VIRGIN MARY

DRAWN BY	CHECKED BY	DATE
JB	JB	08/04/19

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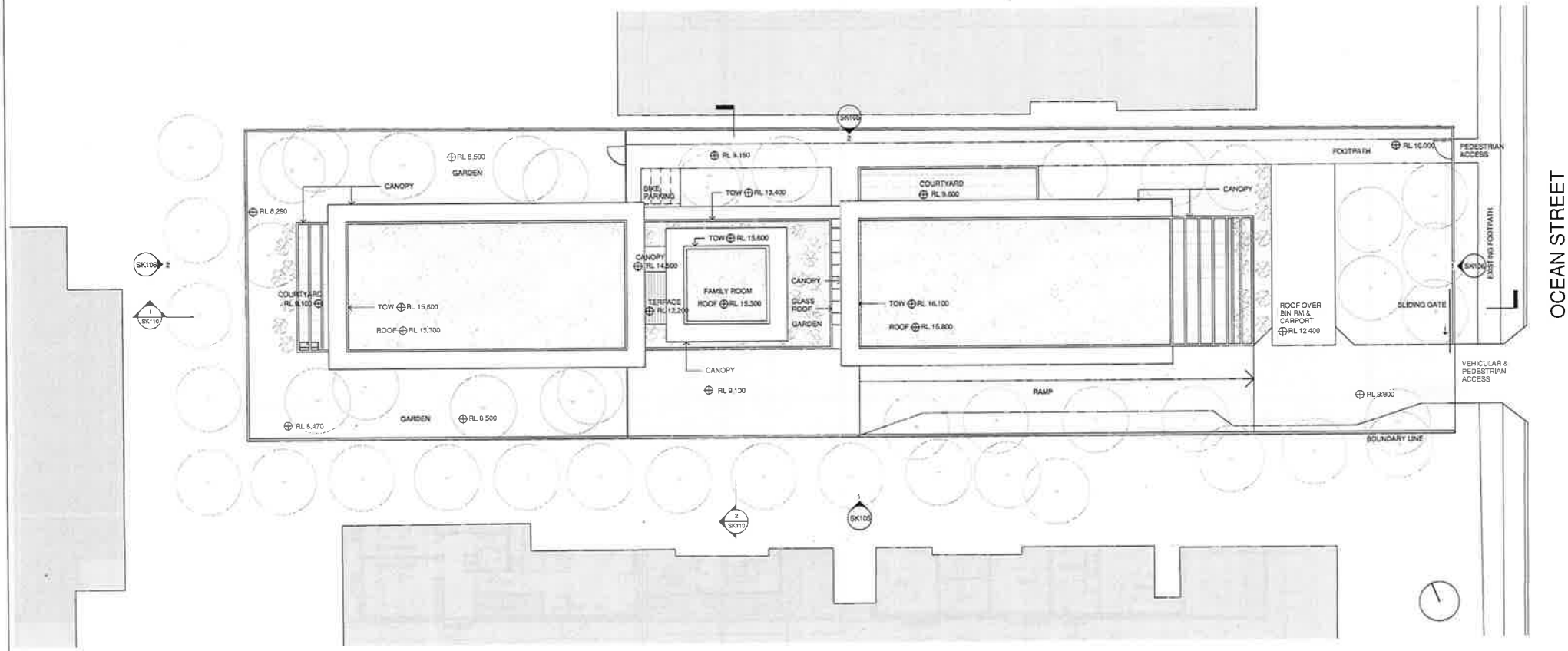
DRAWING NUMBER: SK102
REV: I



1 ROOF PLAN
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Rev	Description	Date
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B	ISSUE FOR INFORMATION	05/10/19

PROJECT
140 OCEAN STREET, NARRABEEN

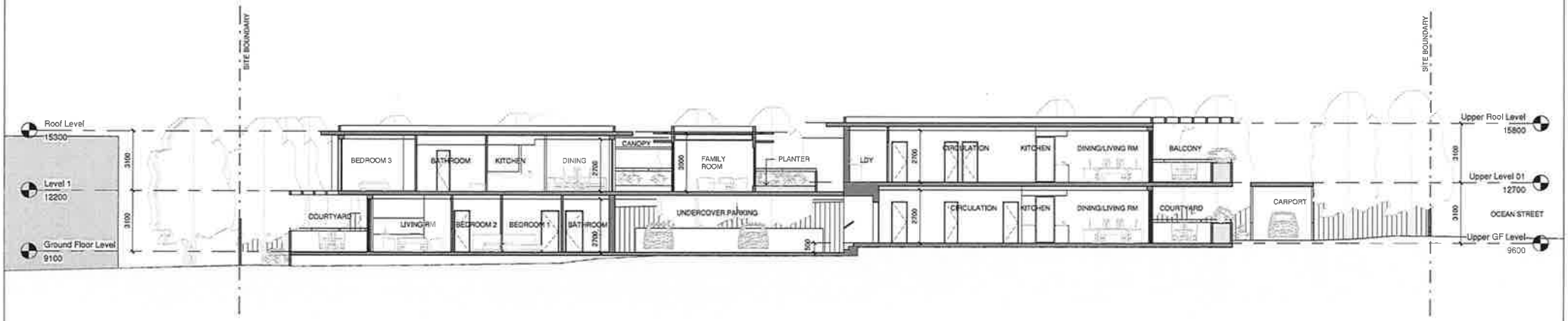
TITLE
ROOF PLAN

CLIENT
MISSIONARY SISTERS OF BLESSED VIRGIN MARY

DRAWN BY	CHECKED BY	DATE
JB	JB	08/04/19

SCALE (@ A1)	PROJECT NUMBER
1 : 100	2019_002

DRAWING NUMBER	REV
SK103	B



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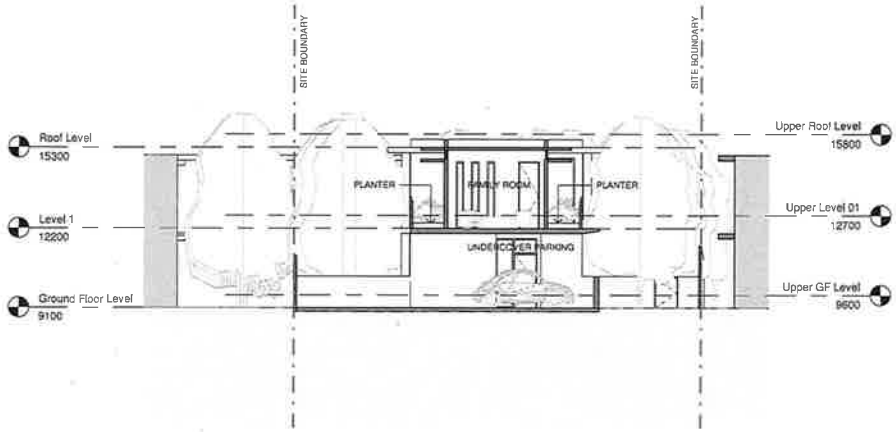

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C	ISSUE FOR INFORMATION	06/07/19
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E	ISSUE FOR INFORMATION	30/08/19
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G	ISSUE FOR INFORMATION	11/09/19
H	ISSUE FOR INFORMATION	05/10/19
I	ISSUE FOR INFORMATION	14/10/19

PROJECT
140 OCEAN STREET, NARRABEEN

TITLE
SECTION AA & BB

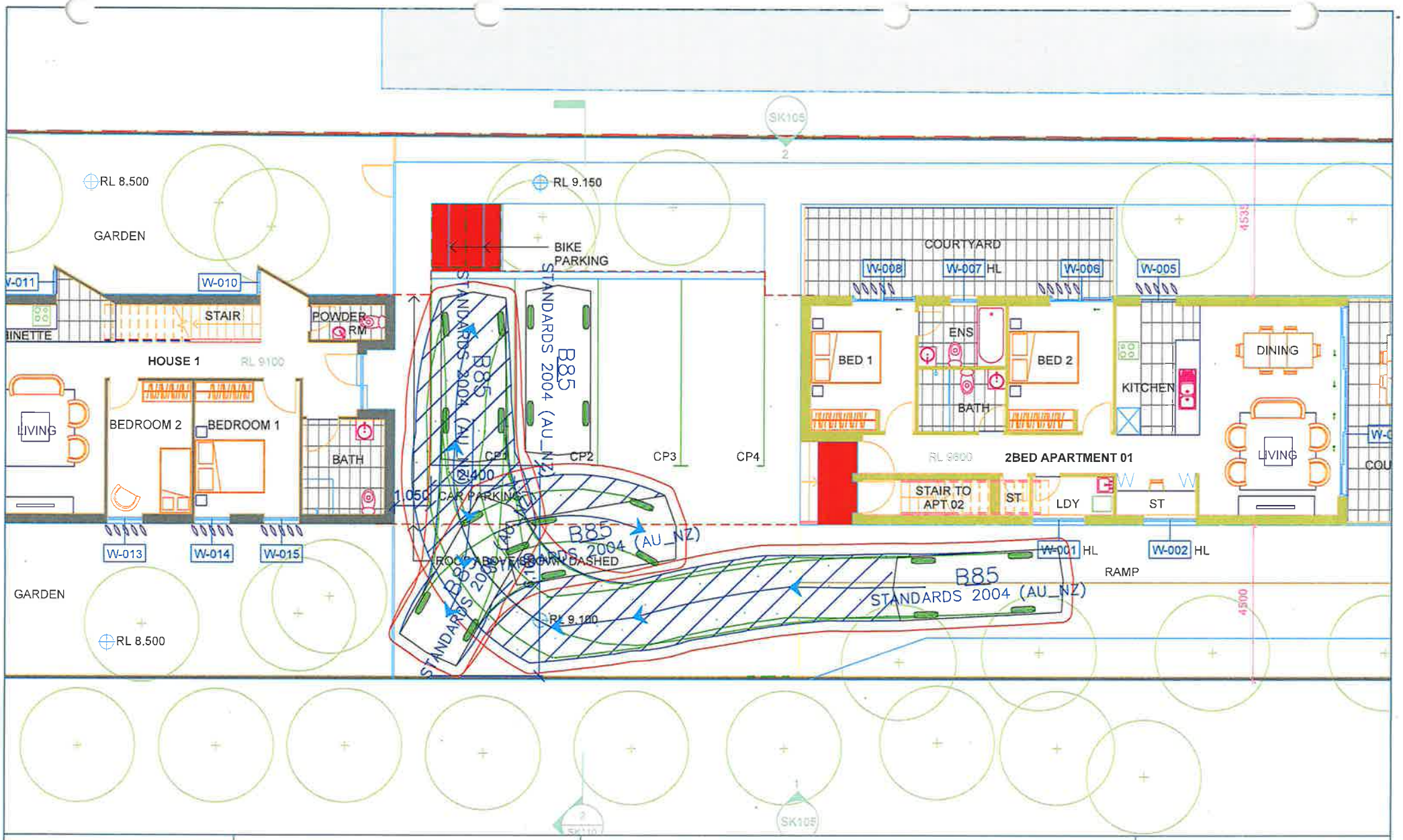
CLIENT
MISSIONARY SISTERS OF BLESSED VIRGIN MARY

DRAWN BY	CHECKED BY	DATE
JB	JB	08/04/19

SCALE (@ A1): 1 : 100
PROJECT NUMBER: 2019_002
DRAWING NUMBER: SK110
REV: I

APPENDIX B

Vehicle Tracking Diagrams
B85 Passenger Vehicle



INROADS:GROUP

drawing prepared by

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project	140 Ocean Street, Narrabeen			
drawing title	Vehicle Tracking Analyses			
project no.	drawing no.	revision	date	scale
19-025	DWG03	C	25/10/2019	1:100 @ A3

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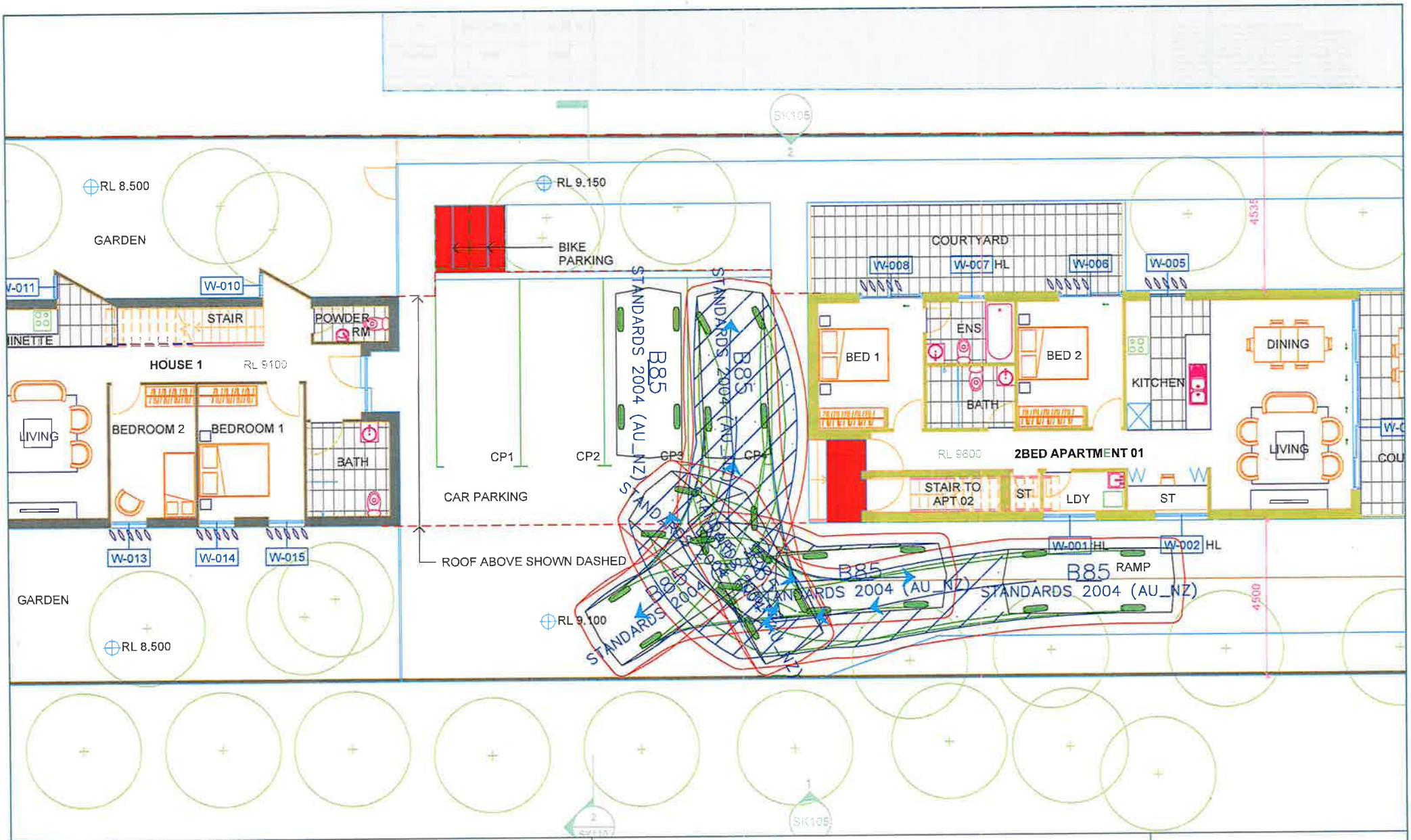
InRoads Group is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1-2004 Parking facilities - Off-street car parking*, and/or *AS 2890.2-2002 Parking facilities - Off-street commercial vehicle facilities*). These standards make allowance for a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.



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project	140 Ocean Street, Narrabeen
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
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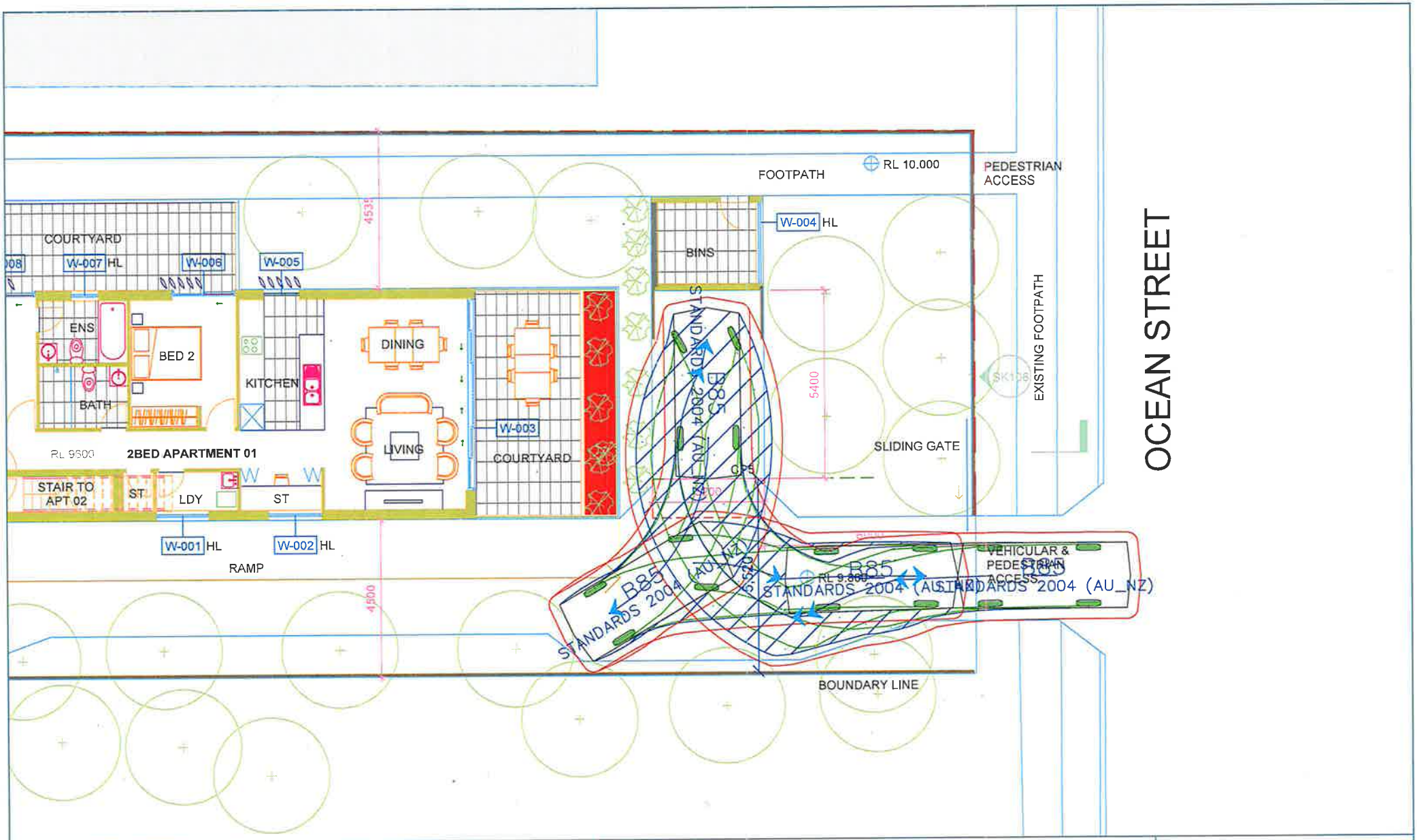
APPENDIX C

Vehicle Tracking Diagram
B85 Passenger Vehicle



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drawing prepared by

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project	140 Ocean Street, Narrabeen
drawing title	Vehicle Tracking Analyses

project no.	drawing no.	revision	date	scale
19-025	DWG01	C	25/10/2019	1:100 @ A3

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