HEADWAY®
Traffic & Transport

Traffic & Parking Impact Assessment

45 Orth Street, Kingswood

BELL

Traffic Engineering

Transport Planning

Data Analysis

Consulting Services

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Revision History

Issue	Date	Comments
A.01	26/10/2023	Issued for Submission
Prepared by:		Jacob Carreon
Approved by:		Michael Palamara (MIEAust NER)
Date and Time Printed: 25/10/2023 9:00AM		

Table 1: Revision History

Executive Summary

The development is located at 45 Orth Street, Kingswood for the demolition of the existing building and construction of a two-storey building with medical premises, café and outdoor parking for 18 vehicles.

The Traffic Impact Assessment (TIA) has found that:

- The proposed development will:
    - Result in an acceptable increase of 2.8 vehicle movements during peak hour periods,
    - Improve parking for visitors and staff, and
    - Improve access, parking and end of trip facilities within the development for active transport users.
- Access and parking have been assessed to comply with AS2890.1, AS2890.2, and AS2890.6.
- The parking provision and proximity to public transport has been assessed to satisfy Penrith City Councils Development Control Plan 2014 (Council DCP) and found:
    - The parking provision is sufficient with staff being able to be encouraged to utilise public transport options, and
    - The proposed bicycle parking facilities complies with the NSW Government Guidelines for Walking and Cycling.
- Provision of accessible parking provision satisfies the National Construction Code (NCC) requirements for Class 5 and Class 6 buildings, and
- Refuse collection can be sourced through a private operator for onsite collection outside of typical operating times.

Contents

Appendices

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References

Australian Standard 2890.1-2004 – Off Street Parking

Australian Standard 2890.2-2019 – Commercial Off-street parking demand

Australian Standard 2890.3-2015 – Bicycle facilities

Australian Standard 2890.6-2009 – Off Street parking for people with disabilities

NSW Government – Planning Guidelines for Walking and Cycling 2004

Penrith City Council – Penrith Development Control Plan 2014

Transport for NSW – Guide to Traffic Generation of Developments Version 2.2

Transport for NSW – Trip Generation Surveys Medical Centres August 2015

1 Introduction

1.1 Project Overview

Headway Traffic & Transport (HTT) has been engaged by Bell Architecture (Bell) on behalf of Grainger Ellis-Clark Medical Consulting Rooms Development to develop a TIA to determine the traffic and transport impacts associated with the development of 45 Orth Street, Kingswood and to verify that any parking and access satisfies the intent of Councils DCP and complies with the relevant standard.

This report forms part of the development application for 45 Orth Street, Kingswood and should be read in conjunction with all provided documentation.

The proposed development includes the demolition of the existing structure and construction of a two-storey commercial building that will include medical consulting rooms and a café. Covered and open-air parking will be provided on the ground level with the provision of 18 parking spaces (including one accessible parking space).

1.2 Report Structure

The report has been prepared to address all traffic and transport aspects associated with the project. The report structure is as follows:

Section 1	Introduction and overview of project.
Section 2	Location and description of the site.
Section 3	Provides an overview of the existing traffic and transport network.
Section 4	Assess vehicle parking demands, access arrangements and critical Australian Standard design requirements.
Section 5	Assess the traffic demand and impact to the area.
Section 6	Provides a summary of the Traffic Impact Assessment findings.

Table 2: Summary of Report Structure

2 Location and Site Description

The development is located within the Penrith City Council (PCC) Local Government Area (LGA). The site is located at the corner of Orth Street and Somerset Street, Kingswood opposite Nepean Hospital. While the area functions as a medical precinct within the immediate vicinity of the site, there are many undeveloped residential sites.

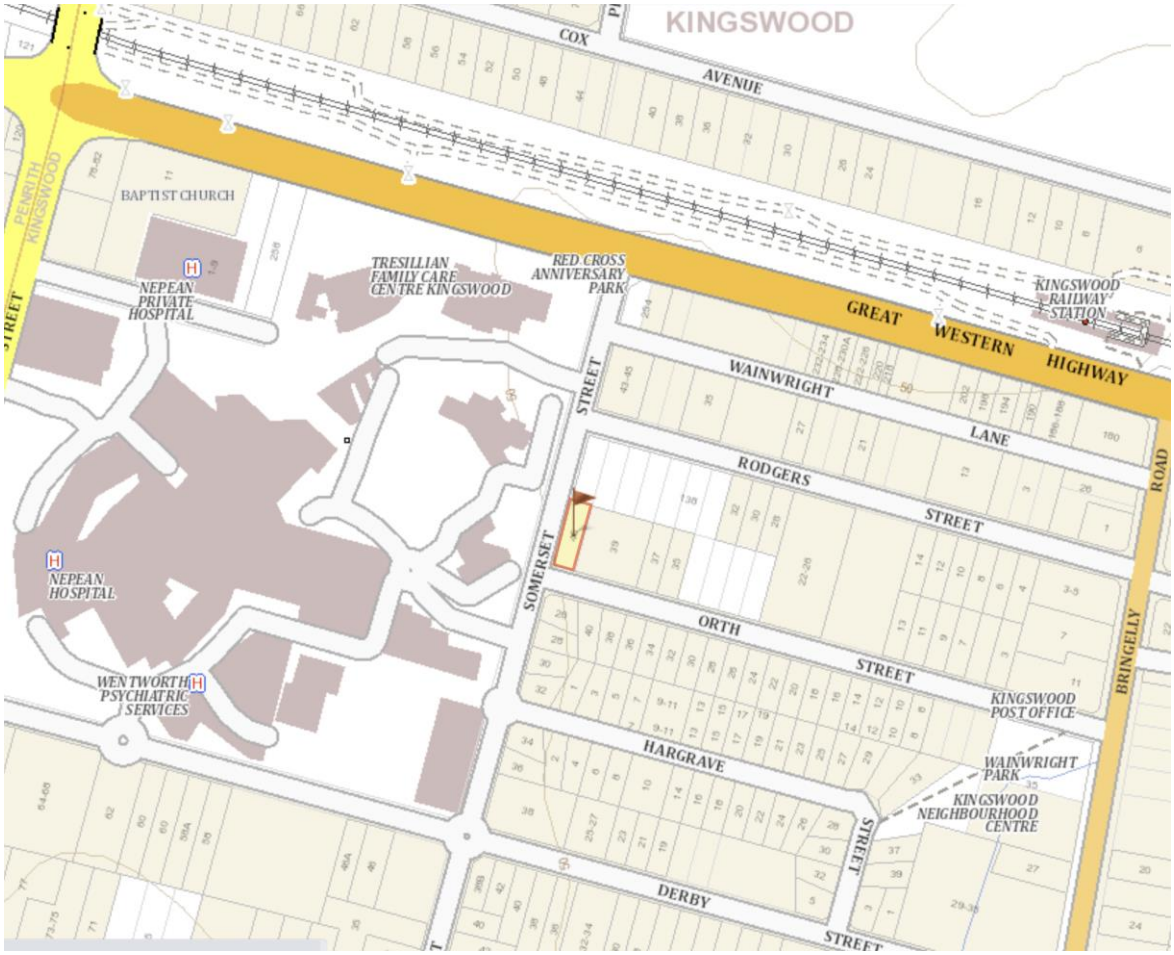


Figure 1: Site Locations - Source: Six Maps

3 Existing Conditions

3.1 Road Network

3.1.1 Orth Street

Road Classification	Local Road	**Carriageway Width**	9m
No. of Travel Lanes	1	**Speed Limit**	50km/h
Alignment	E – W	**School Zone**	No
Carriageway Type	Single	**On Street Parking**	Yes
Bicycle Infrastructure	No	**Parking Controls**	Unrestricted

Looking east on Orth Street from Somerset Street

3.1.2 Somerset Street

Road Classification	Local Road	**Carriageway Width**	12m
No. of Travel Lanes	2	**Speed Limit**	50km/h
Alignment	N – S	**School Zone**	No
Carriageway Type	Single	**On Street Parking**	Yes
Bicycle Infrastructure	No	**Parking Controls**	Unrestricted

Somerset Street looking north from Orth Street

3.1.3 Great Western Highway

Road Classification	State Road (No. 5)	**Carriageway Width**	23m
No. of Travel Lanes	4 (typical) 6 (during clearway)	**Speed Limit**	60km/h
Alignment	E – W	**School Zone**	No
Carriageway Type	Divided	**On Street Parking**	Yes
Bicycle Infrastructure	Yes – Shared Path	**Parking Controls**	Yes – Clearways

Great Western Highway looking West at Somerset Street

3.1.4 Bringelly Road

Road Classification	Local Road	**Carriageway Width**	9m
No. of Travel Lanes	1	**Speed Limit**	50km/h
Alignment	E – W	**School Zone**	No
Carriageway Type	Single	**On Street Parking**	Yes
Bicycle Infrastructure	No	**Parking Controls**	Unrestricted

Bringelly Road looking north from Derby Street

3.1.5 Parker Street

Road Classification	State Road (No. 154)	**Carriageway Width**	23m
No. of Travel Lanes	6	**Speed Limit**	70km/h
Alignment	N – S	**School Zone**	No
Carriageway Type	Divided	**On Street Parking**	Limited
Bicycle Infrastructure	No	**Parking Controls**	Yes – No Parking/Stopping

Parker Street looking north from Derby Street

3.2 Current Network Performance and Intersection Controls

The local road network, namely Orth Street and Derby Street provide direct links to Great Western Highway and Parker Street. The signalised intersections at the state road network have minimal impact within the local road system allowing smooth operations, efficient traffic flow and minimal congestion. The current road network is well-maintained with clear signage and lane markings.

The state and regional road networks are shown in Figure 2.

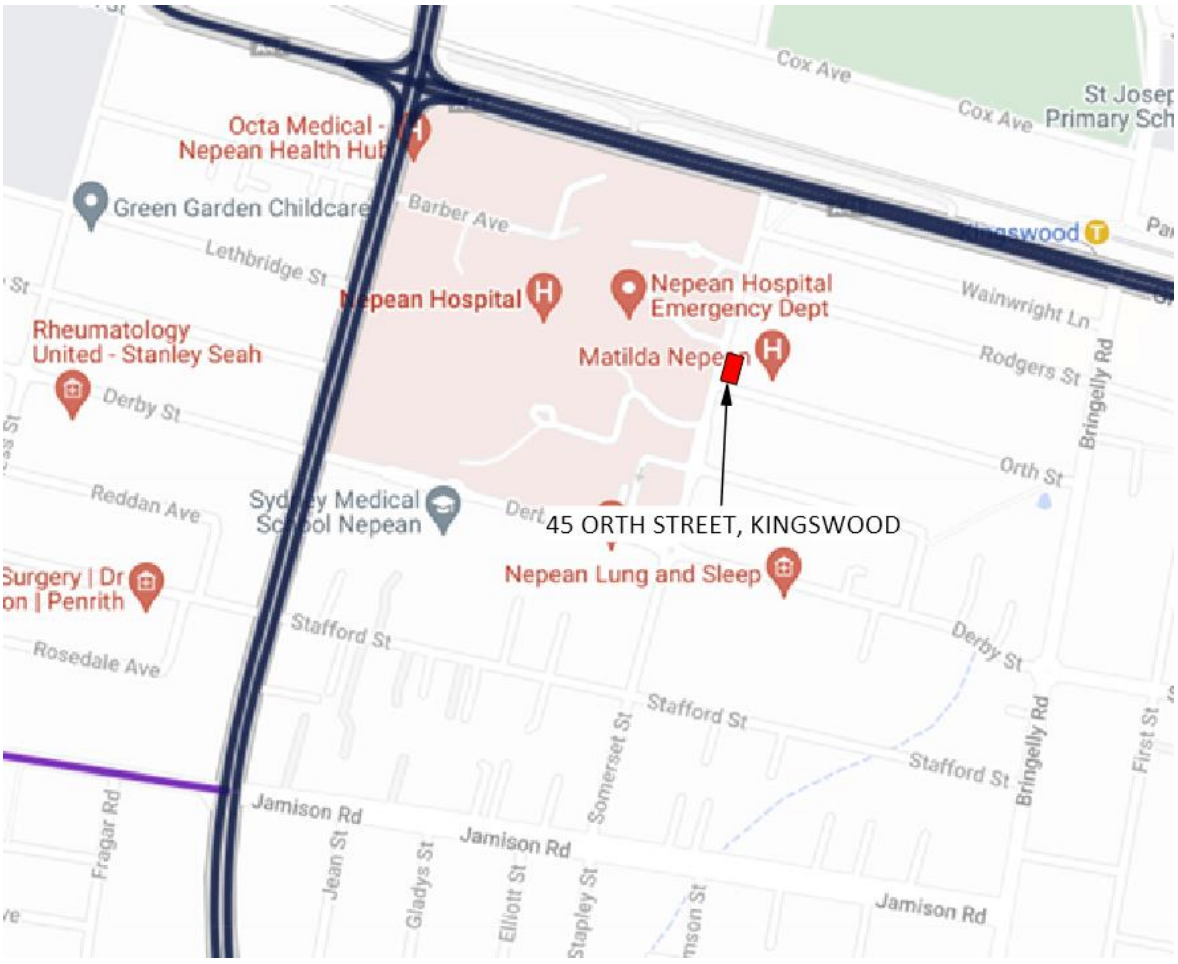


Figure 2: Road Hierarchy - Source: Adapted from https://roads-waterways.transport.nsw.gov.au/classification/map/

3.3 Public Transport

The development is located within proximity to both bus and train services, providing convenient and accessible transportation options for staff and visitors. With bus stops conveniently located within a short walk from the development, individuals can easily connect to various destinations within the local area and beyond.

The development benefits from its proximity to the Kingswood train station, allowing staff and visitors to enjoy the advantages of a well-connected rail network. This accessibility to train services provides opportunities for travel along the T1 line which connects the North Shore, Northern Sydney and Western Sydney to the Blue Mountains.

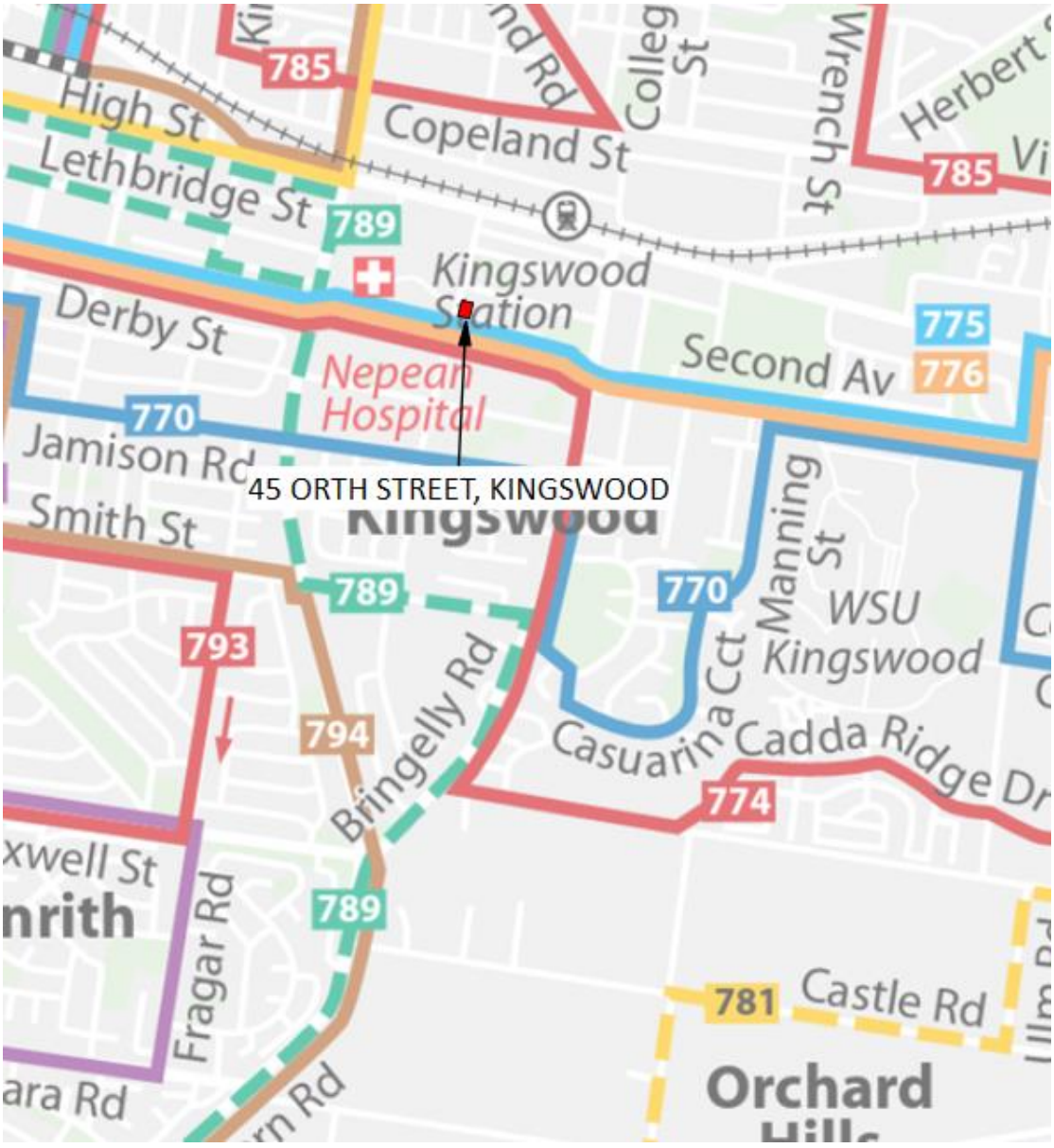


Figure 3: Public Transport - Source: Adapted from https://transportnsw.info

3.3.1 Bus Network

The most convenient bus stops are located on Derby Street approximately 280 metres from the development. Additional bus stops are provided at:

- Great Western Highway approximately 700 metres from the development, and
- Parker Street approximately 650 metres from the development.

Table 3 provides a list of bus routes and typical frequency during peak hours.

Bus Route	Bus Stop Location	From	To	Frequency (peak hour)
774	Derby Street	Mount Druitt	Penrith (via Nepean Hospital)	25 minutes
775	Derby Street	Mount Druitt	Penrith (via Erskine Park)	35 minutes
776	Derby Street	Mount Druitt	Penrith (via St Clair)	30 minutes
789	Parker Street	Luddenham	Penrith	Not regular
N70	Great Western Highway	Penrith	City/Town Hall/Parramatta	Night Rider

Table 3: Bus Routes

3.3.2 Train Network

Kingswood Station is located within walking distance from the development providing access to the North Shore, Northern Sydney, and Western Sydney with Blacktown Station providing convenient to other areas of Western Sydney.

Train Station	Walking	Bicycle
Kingswood (T1 Line)	750 metres (9 minutes)	750 metres (3 minutes)

Table 4: Vicinity of Train Stations

3.4 Pedestrian Network

Footpaths are provided throughout the local area providing excellent and safe connectivity to public transport options with signalised crossing on Parker Street and Great Western Highway and raised pedestrian crossing on Derby Street.

3.5 Bicycle Network

A map of the bicycle facilities is provided in Figure 4. A shared path on the northern side of the Great Western Highway provides access to the east and west. Signalised crossings provide connectivity between the shared path and the development. Derby Road and Bringelly Road provide on-road bicycle access with the final portion of the journey to be made on local roads.

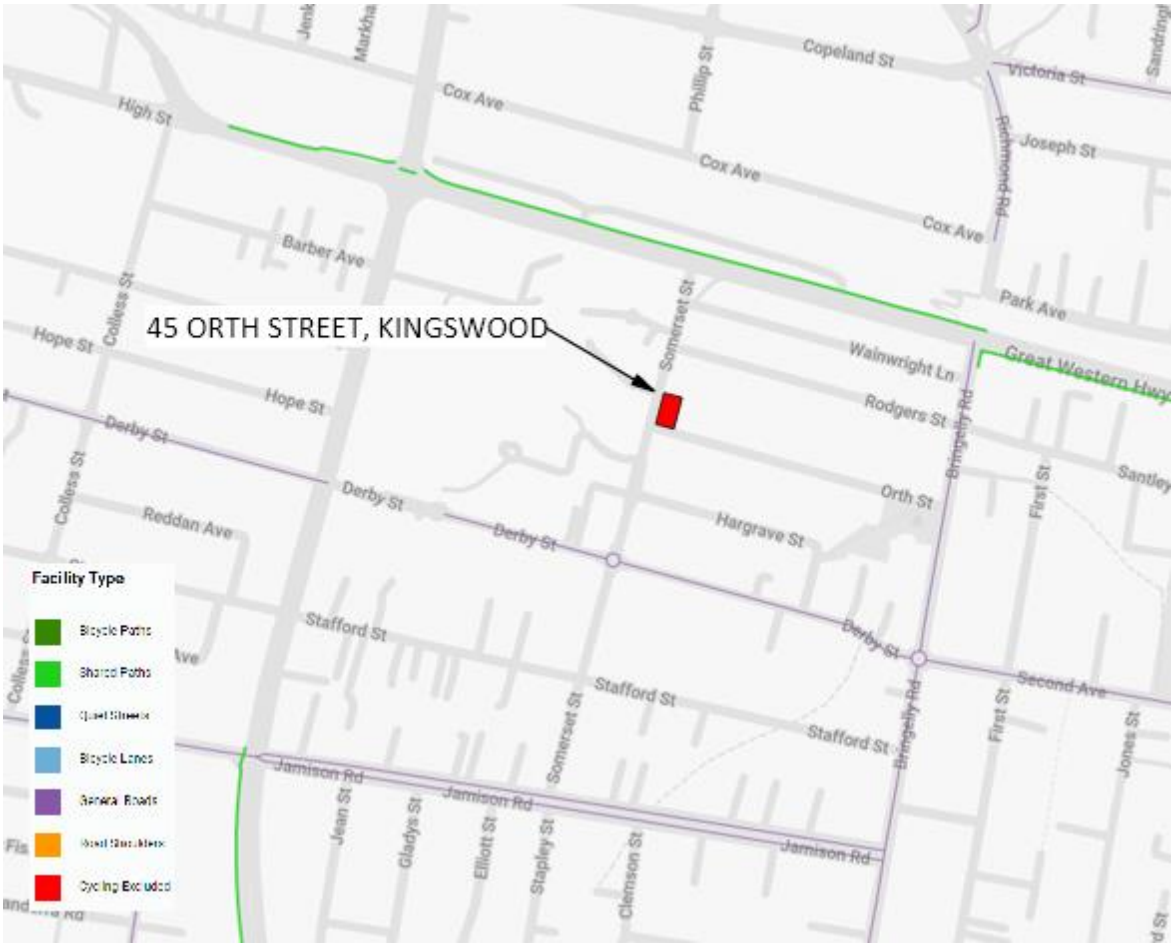


Figure 4: Bicycle Network – Adapted from Source: https://roads-waterways.transport.nsw.gov.au/maps/cycleway_finder/

4 Parking Demand and Vehicle Access

4.1 Parking Demand

The development is designed to operate with four consultants and three support staff. The parking calculations are based on Council DCP *C10 Transport, Access and Parking*.

Usage	Parking Provision	Required Spaces	Provided Spaces
Medical Centre	1 space per receptionist/support staff (3 support staff)	3	3
	3 spaces per health care professional (4 health care professionals)	12	12
Café/Retail	1 space per $6m^2$ of seating area ($6m^2$ of seating area)	1	1
	1 space per employee (2 employees)	2	2
	Total	**18**	**18**

Table 5: Parking Calculation

The parking provided satisfies Council DCP. The sites proximity to public transport can be used to encourage active transport to reduce the parking demand for the site.

As the development will also result in new/additional staff associated with the site, appropriate measures can be implemented during the hiring process to encourage and limit private vehicle usage.

4.1.1 Accessible Parking

In accordance with the National Construction Code (NCC) Class 5 buildings require 1 accessible space per 100 spaces and Class 6 buildings require 1 accessible space per 50 spaces. The parking space has been designed and assessed to be in accordance with AS2890.6

Parking Rate	No. Parking Spaces	No. Required Accessible Spaces	Provided Accessible Spaces
1 per 50 parking spaces	17	1	1

Table 6: Accessible Parking Provision

4.2 Bicycle Parking

Bicycle parking and ancillary facilities have been provided in accordance with the NSW Government Guidelines for Walking and Cycling 2004. The facilities have been designed to satisfy AS2890.3.

Parking Rate	No Staff/Visitors	Required Spaces	Provided Spaces
Retail: 3-5% Staff	2	0	
Retail: 5-10% Visitors	10	0.5	
Medical: 5-10% Staff	8	0.5	
Medical: 5-10% Visitors	10	0.5	
	Total	1.5	2

Table 7: Bicycle Parking Provisions

Ancillary facilities including 1 locker and 1 shower have been provided in accordance with the Guidelines for up to 12 staff.

4.3 Motorcycle Parking

While there is no requirement to provide motorcycle parking for the development, the modified on-street parking line marking will accommodate in addition to the existing number of vehicle spaces, four motorcycle spaces.

4.4 Vehicle Access

Vehicle access into the car park is provided through a one-way loop system removing the conflicts between entering and exiting vehicles. The implementation of the one-way loop has not resulted in any additional loss of on street parking if the access was from a single crossover in accordance with AS2890.5.

4.4.1 Impact to On-Street Parking

The on-street parking line marking will need to be adjusted to accommodate the modified vehicle crossovers. This will not result in any loss of parking but does provide the opportunity for Council to sign post additional motorcycle parking.

The potential on-street motorcycle parking will not impact sight lines for vehicles exiting and provides an opportunity for an alternative form of transportation for visitors to the area. The revised on-street parking is shown in Figure 5.

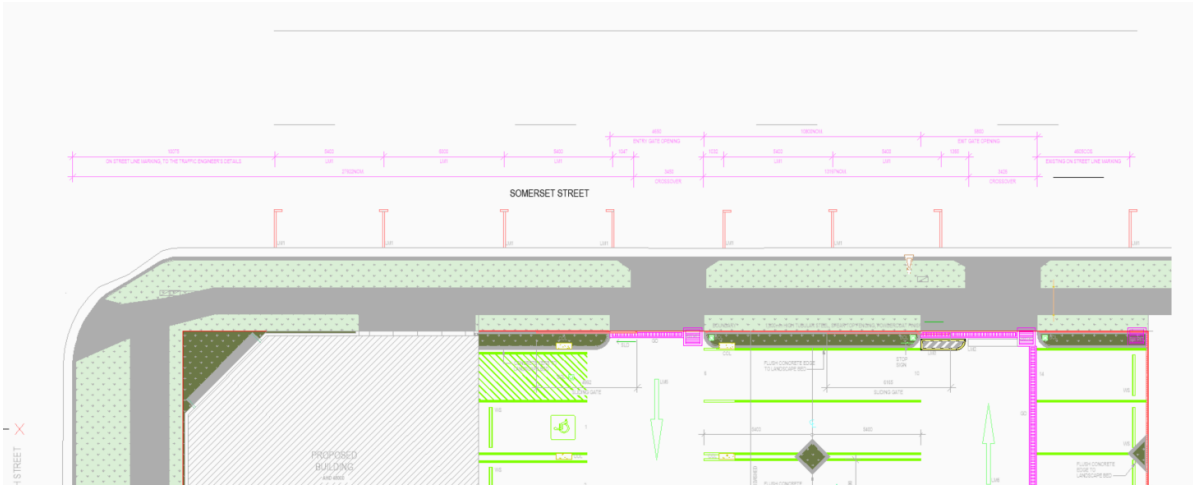


Figure 5: On-street Parking Changes

4.5 Refuse Vehicle Access and Deliveries

4.5.1 Refuse Collection

Refuse collection and deliveries will occur internally outside of typical business operating hours. The one-way loop system and carpark area will provide sufficient space for refuse vehicles to manoeuvre. It is not anticipated that there will be any medical waste generated from the development that may require special disposal.

A private waste collection service provider will be engaged to support the development with waste to be collected internally without impact to Somerset Street.

Wastefree Aus Pty Ltd has verified that they service the local area with an equivalent Small Rigid Vehicle (SRV) rear loader and provide services outside of the intended operations of the development. A service commitment letter to service the development is provided as part of the submissions *Waste Management Plan* (not within the TIA).

Turning diagrams have been provided in Appendix B: for an SRV. A 500mm clearance has been provided in accordance with Councils DCP. As collection will be outside of operating hours, the SRV will have the full car park for manoeuvring and not limited to the aisle widths.

4.5.2 Delivery & Service Vehicles

Deliveries to the site are expected to be minimal and limited to typical office supplies/personnel protective equipment or café supplies. These deliveries will be limited to B85/B99 equivalent vehicles.

With deliveries being typically less than 10 minutes, the existing parking supply can accommodate these movements. Additionally, deliveries can be coordinated with suppliers, for deliveries to occur outside of peak periods.

5 Traffic Demand and Impact

The vehicle trip generation is based on the Transport for NSW (TfNSW) Trip Generation Surveys Medical Centres August 2015. Reviewing the data collected, a comparative facility was selected to determine the estimated peak hour trip generation. Site 13 (Bankstown Medical Centre) was selected due to the proximity to public transport and similar size of the development.

The intended operation of the café is not to produce additional or trips specific to the café, rather it is to serve visitors and staff within the local area. Additionally, the parking requirements from Councils DCP for cafés, does not consider parking for visitors, as such traffic generation associated with the café has been excluded.

	Traffic Generation Rate	Multiplier (Doctor)	Vehicle Trips
Current Conditions – Daily Vehicle Generation			
Medical Consulting Rooms	2.8 trips per doctor	3	8.4
Proposed Conditions – Daily Vehicle Generation			
Medical Consulting Rooms	2.8 trips per doctor	4	11.2

Table 8: Proposed Vehicle Trip Generation

The impacts associated with vehicle trip generation is limited and consistent with the existing usage resulting in approximately an additional 2.8 trips per peak hour from the current rate. This minimal increase is considered acceptable.

6 Conclusion

In summary, the proposed development can be supported in its current form as it satisfies the relevant Australian standards, NCC and Councils DCP. The proposed development will also:

- Provide sufficient parking for staff and visitors in accordance with Councils DCP without impact to on-street parking provision,
- Provide opportunity for Council to line mark four additional on-street motorcycle parking bays,
- Improve on the current parking facilities for visitors and staff,
- Result in a modest and acceptable increase of 2.8 vehicle movements during peak hour periods,
- Improve access, parking, and end of trip facilities within the development for active transport users, and
- Be able to encourage the use of public transport for staff and visitors.

Appendix A: Proposed Development Plans

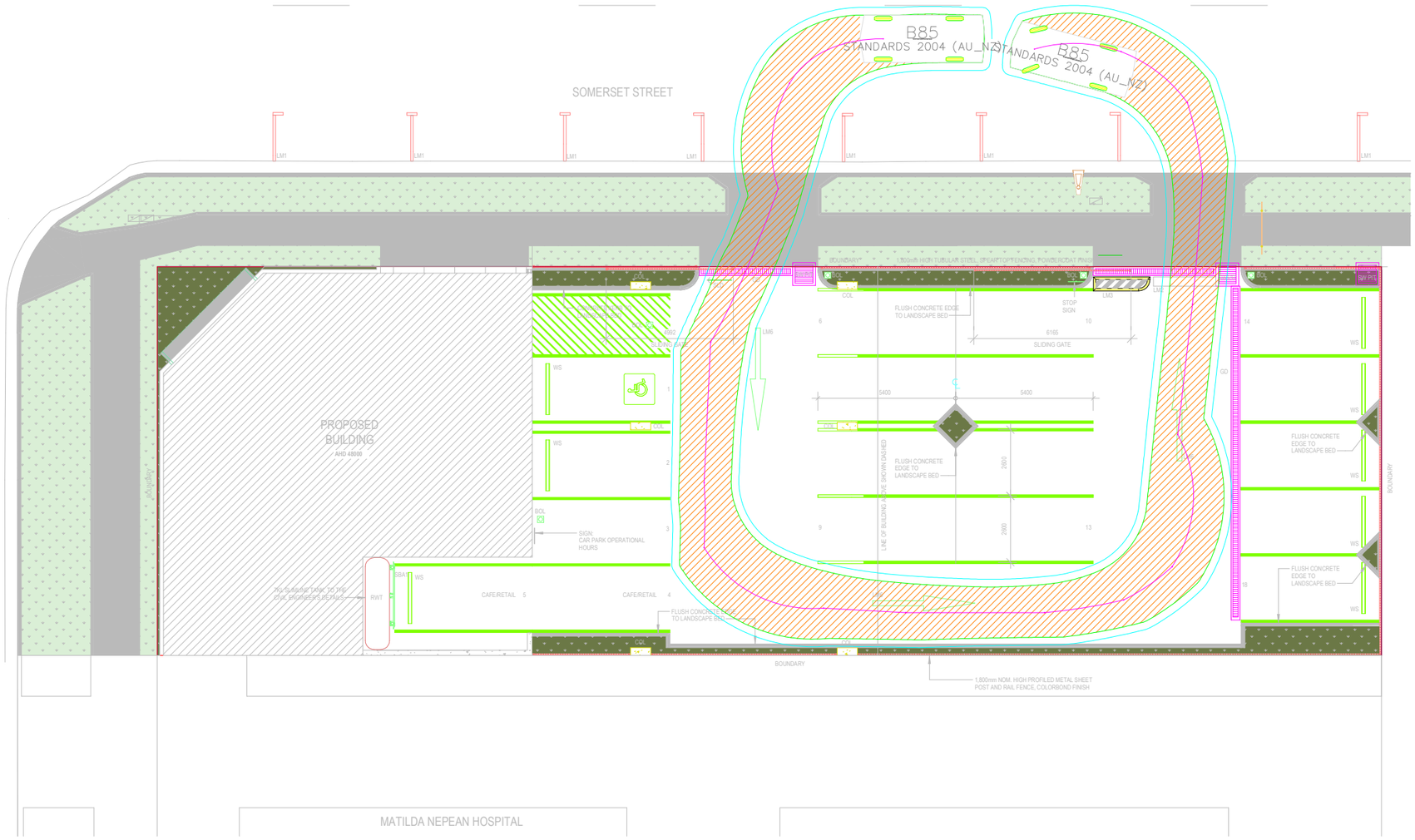
Refer to the Architectural Plans submitted to Council.

Appendix B: Turning Diagrams

All parking bays and aisle widths comply with AS2890.1.

Turning movements have been performed for the most restrictive and critical locations (i.e. SRV).

A B85 vehicle is used to show circulation in the carpark in accordance with AS2890.1 Clause B2.2 where the B99 may be substituted by the B85 vehicle where space is limited and there are relatively low traffic volumes.



LEGEND

- FORWARD MOVEMENT
- REVERSE MOVEMENT
- CLEARANCE (300mm)

REV	BY	DATE	DESCRIPTION	APPRV.
A.01	JC	25/10/2023	ISSUED FOR SUBMISSION	MP
DRAFT	MP	22/06/2023	ISSUED AS DRAFT	MP

CLIENT

BELL

DESIGNED

HEADWAY Traffic & Transport

DESIGNED:	JACOB CARREON	25/10/2023
CHECKED:	MICHAEL PALAMARA	25/10/2023
APPROVED:	MICHAEL PALAMARA	25/10/2023

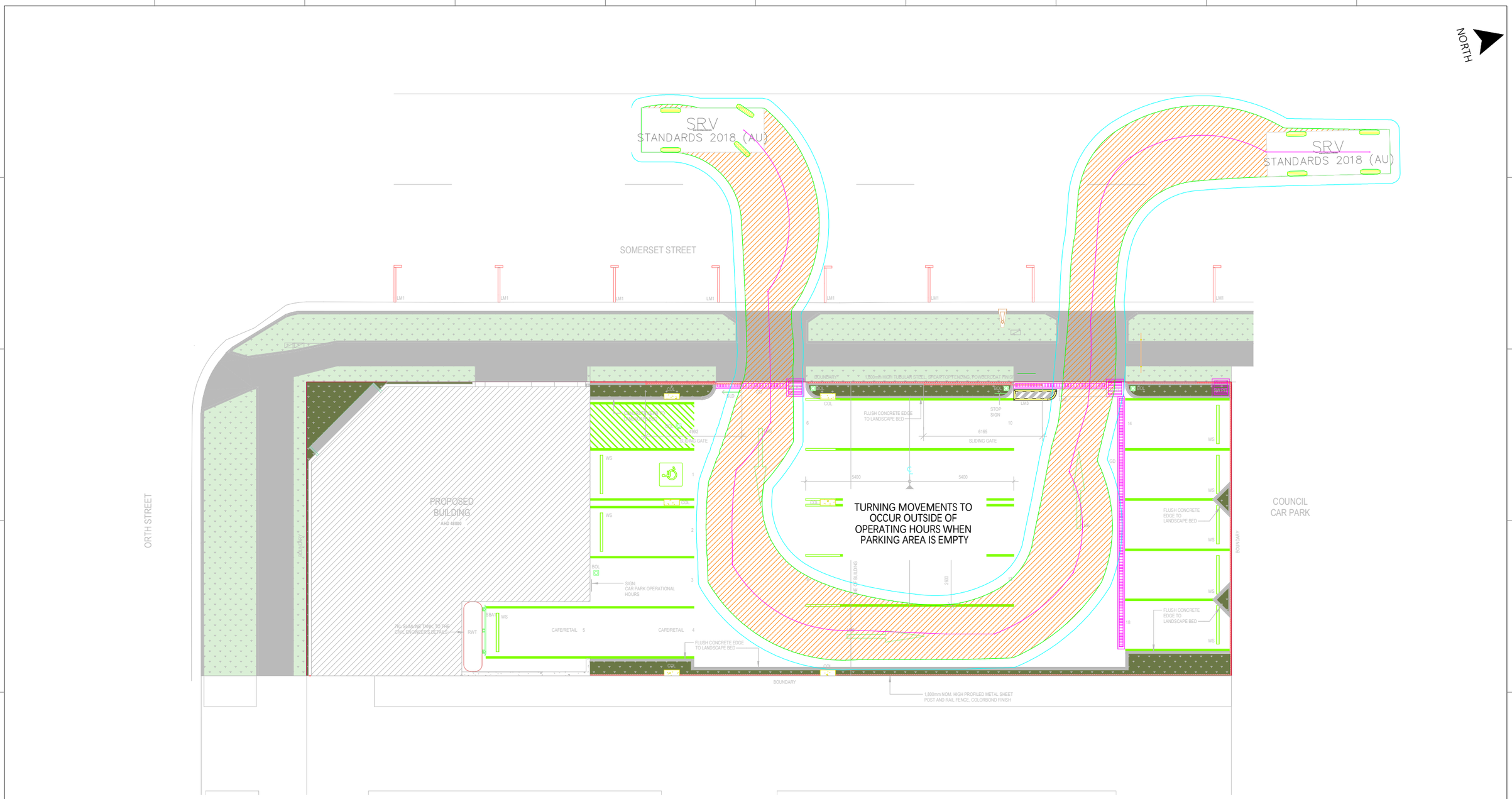
A3

45 ORTH STREET, KINGSWOOD

TURNING DIAGRAM

B85 VEHICLE

SHEET: 1 OF 1	SCALE: 1:200
PROJECT No: BEL-2301	DRAWING NAME: BEL-2301-TD-001



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CLIENT

BELL

DESIGNED

HEADWAY® Traffic & Transport

DESIGNED:	JACOB CARREON	25/10/2023
CHECKED:	MICHAEL PALAMARA	25/10/2023
APPROVED:	MICHAEL PALAMARA	25/10/2023

A3

45 ORTH STREET, KINGSWOOD

TURNING DIAGRAM

SRV

SHEET: 1 OF 1 | SCALE: 1:200

PROJECT No: BEL-2301 | DRAWING NAME: BEL-2301-TD-002