



St John of God Richmond Hospital

Proposed Redevelopment

Traffic and Parking Assessment

Ref: 19152

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Issue: F

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1.0 Introduction

This report has been prepared to accompany a State Significant Development Application (SSDA) to the Department of Planning and Environment for the proposed redevelopment of the existing St John of God (SJOG) Richmond Hospital at North Richmond (Figure 1).

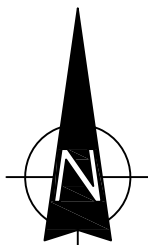
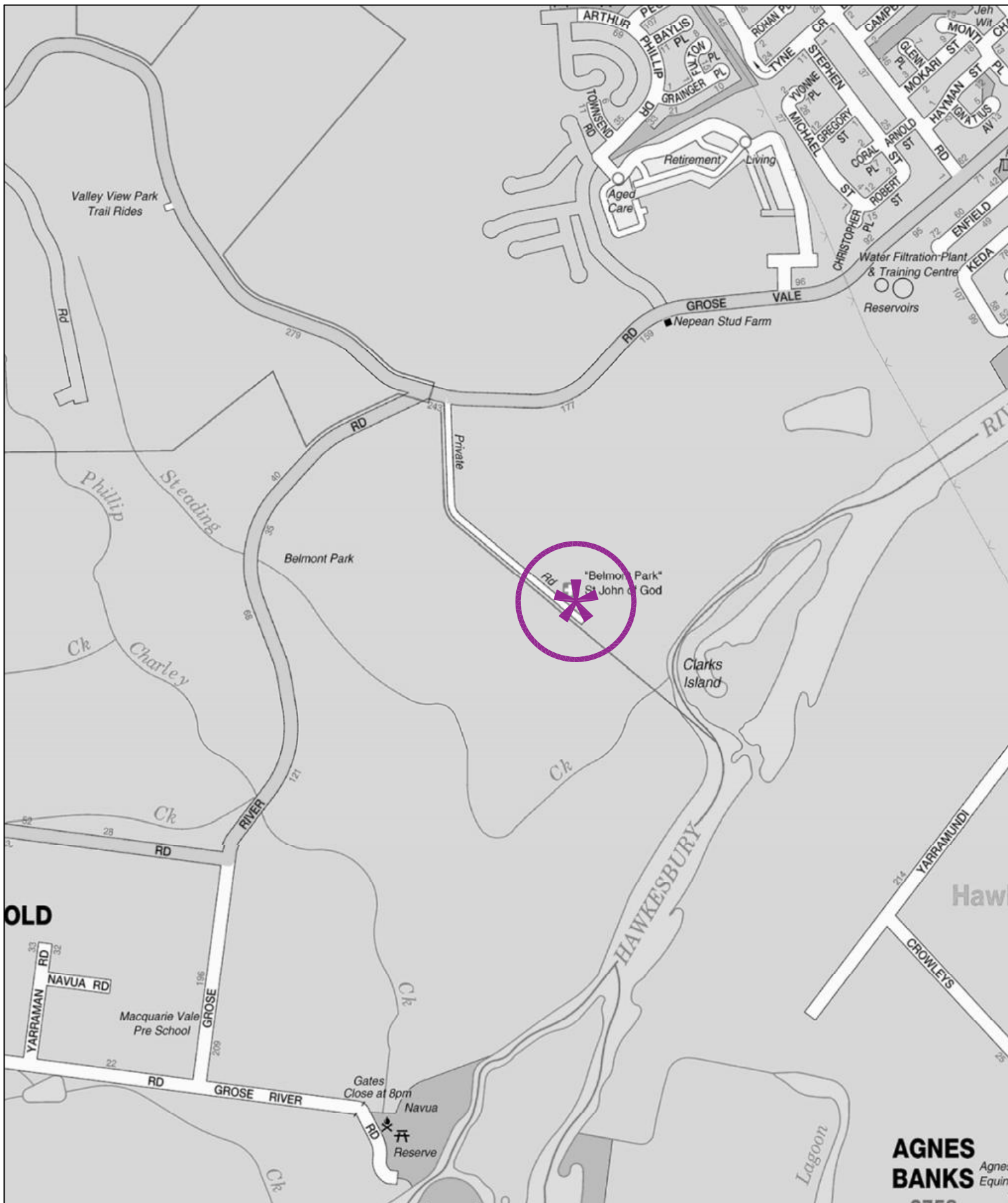
SJOG Richmond Hospital, a private psychiatric hospital which provides mental health care on an inpatient, day patient and outpatient basis, occupies a large site on the western bank of the Hawkesbury River to the west of the Richmond Centre in North Richmond.

The prevalence and impact of mental health problems remain significant issues, and, according to the *National Survey of Mental Health and Wellbeing*, only one-third of those with a mental illness receive mental health services each year. Major disparities continue between different states and territories in the mix and level of services. Demand for mental health care - particularly for acute and emergency care - continues to outstrip supply.

As such, there is an increasing demand for mental health facilities and immediate need to increase the existing bed capacity from 88 to 112 beds (an increase of 24 beds) in the existing SJOG Richmond Hospital. In addition, there is a need to replace/refurbish the existing beds as the standard of these facilities does not meet modern expectations.

In response to a request to provide the Secretary's Environmental Assessment Requirements (SEARs), the Department of Planning and Environment has issued a comprehensive list of the SEARs from RMS, TfNSW and Council.

Matters in relation to RMS requirements and the associated report sections are provided in the following table:



LOCATION

FIG 1

No.	RMS Requirements	Section
1	Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required).	Section 5
2	Details of the proposed accesses and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (i.e.; turn paths, sight distance requirements, aisle widths, etc.).	Section 6
3	Proposed number of car parking spaces and compliance with the appropriate parking codes.	Section 4
4	Details of service vehicle movements (including vehicle type and likely arrival and departure times).	Section 6.3
5	Roads and Maritime requires the Environmental assessment report to assess the implications of the proposed development for non-car travel modes (including public transport use, walking and cycling) and the provision of facilities to increase the non-car mode share for travel to and from the site. This will entail an assessment of the accessibility of the development site by public transport.	Section 7

In addition to the above, the assessment also has regard for the additional RMS comments and the TfNSW requirements outlined below.

No.	TfNSW Requirements	Section
1	<p>Policies</p> <p>Address the relevant planning provisions, goals and strategic objectives in the following:</p> <ul style="list-style-type: none"> • The Greater Sydney Regional Plan, A metropolis of three cities • Future Transport Strategy 2056 and supporting plans • Greater Sydney Commission's Western City District Plan • Crime Prevention Through Environmental Design (CPTED) Principles 	Sections 3.4, 4.8, 5.3, 5.4 and 6.4
2	<p>Transport and Accessibility</p> <p>Include a transport and accessibility impact assessment, which details, but not limited to the following:</p> <p>accurate details of the current daily and peak hour vehicle, existing and future public transport networks and pedestrian and cycle movement provided on the road network located adjacent to the proposed development</p>	Sections 3.4, 4.8 and 5.2
3	Details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public	Sections 3.4, 4.8 and 5.2

No.	TfNSW Requirements	Section
	transport, pedestrian and bicycle trips based on surveys within the local area	
4	the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development	Sections 3.4 and 4.8
5	measures to integrate the development with the existing/future public transport network	Section 7
6	the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years)	Section 5.4
7	the identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections	Section 5.4
8	details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non- car mode share for travel to and from the site	Section 7
9	the proposed walking and cycling access arrangements and connections to public transport services	Section 7
10	the proposed access arrangements, including car and bus pick-up/drop- off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones	Sections 6 and 7
11	proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	Section 4.8
12	proposed number of car parking spaces for staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided as part of the proposed development	Section 4
13	an assessment of the cumulative on-street parking impacts of cars, staff parking and any other parking demands associated with the development	Section 4
14	An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED	Section 6.1 and 6.4

No.	TfNSW Requirements	Section
15	emergency vehicle access, service vehicle access, service vehicle parking, delivery and loading arrangements and estimated service vehicle movements	Section 6.3
16	the preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic.	Section 8
17	<p>Relevant Policies and Guidelines:</p> <ul style="list-style-type: none"> • Guide to Traffic Generating Developments (Roads and Maritime Services) • EIS Guidelines – Road and Related Facilities (DoPI) • Cycling Aspects of Austroads Guides • NSW Planning Guidelines for Walking and Cycling • Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development • Standards Australia AS2890.3 (Bicycle Parking Facilities). 	Referenced as required.

The report has also been prepared to address Hawkesbury City Council's Request for Information. Council's RFI and the associated report sections are provided in the following table:

No.	Council's RFI	Section
1	<p>Infrastructure and services</p> <p>The application is to clearly detail infrastructure and services upgrades associated with the following matters:</p> <ul style="list-style-type: none"> - site access, - driveways, - car parking areas 	Appendix A

In general, the purpose of this report is to:

- ❖ describe the site, the existing Hospital and the proposed redevelopment scheme
- ❖ describe the existing road network and traffic conditions
- ❖ assess the existing parking arrangements
- ❖ assess the potential traffic implications due to the increased number of beds

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- ❖ assess the suitability of the proposed parking, vehicle access, internal circulation, and servicing arrangements
- ❖ assess the adequacy of potential construction traffic implications
- ❖ recommend, as necessary, appropriate traffic management measures to mitigate any potential traffic issues

2.0 Proposed Development Scheme

2.1 Site, Context and Existing Circumstances

The SJOG Richmond Hospital (Figure 2) is located just to the south of the Hawkesbury centre and to the east of the Railway Station on a site at 177 Grose Vale Road, North Richmond. The campus occupies an elongated irregular shaped area of some 10 ha with an extensive 100m frontage to Grose Vale Road.

The surrounding uses comprise:

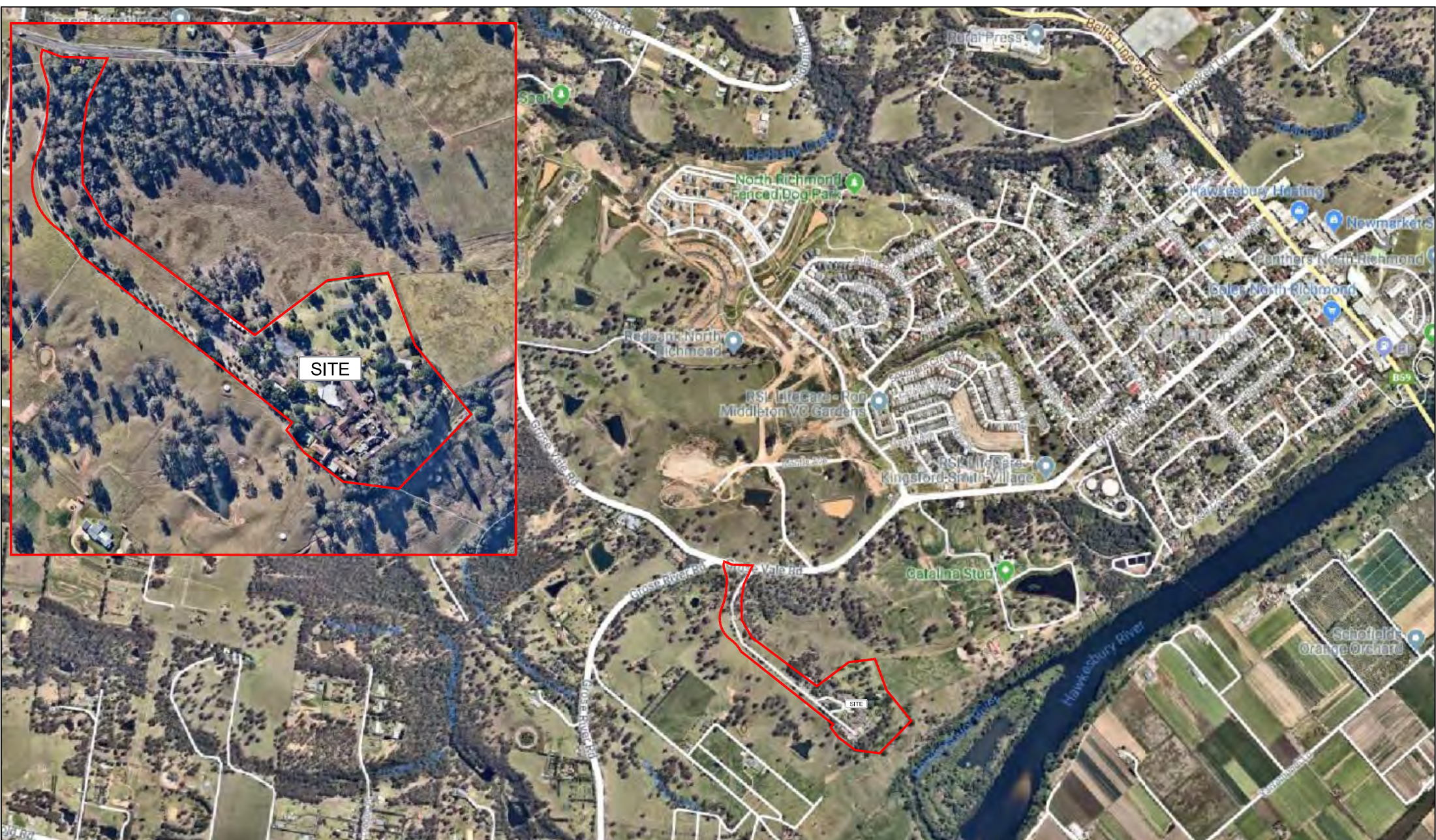
- ❖ the Catalina Stud which adjoins to the north and east
- ❖ the Darley Farm which adjoin to the west
- ❖ the Hawkesbury River to the south
- ❖ the Kingsford-Smith Village to the north

The existing hospital under the management of St John of God Health Care, provides the following principal services for people suffering from mental health issues, including:

- ❖ anxiety and depression
- ❖ drug and alcohol addiction
- ❖ obsessive-compulsive disorder (OCD)
- ❖ older adult mental health issues
- ❖ post-traumatic stress disorder (PTSD)

The existing principal hospital facilities comprise:

- ❖ 88 beds



SITE

FIG 2

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- ❖ Counselling and Therapy Centre (CTC)
- ❖ 16 medical consulting rooms
- ❖ Dining room
- ❖ Gibson's Café
- ❖ On-site gym, outdoor exercise track, pool, golf course and tennis court onsite
- ❖ Pharmacy

The existing workforce at the Hospital comprises:

- ❖ Weekday: 50 - 60 staff (nursing, Allied Health & CTC. VMO's, catering, housekeeping, maintenance, administration, pastoral care and executive teams)
- ❖ Weekend: 20 staff (Nursing, Catering, Housekeeping)

The existing Hospital operates seven days a week with the following hours for consulting and patient visitation:

- ❖ Consulting: Monday: 9am - 5pm
- ❖ Visitors (all units except for Drug and Alcohol Unit): Monday to Friday: 12.00 pm to 1.00 pm, 4.30 pm to 8.00 pm; Weekends: 9.30 am to 8.00 pm
- ❖ Visitors (Drug and Alcohol Unit): Tuesday: 1.00pm to 7.00pm; Sunday: 12.00pm to 6.00pm

There are 146 parking spaces (including 4 disabled spaces) located in various areas, including an informal area. A loading area is provided adjacent to the Food Service Unit. One minibus parking space is provided to the north of the Archives building.

Vehicle access is currently provided on the southern side of Grose Vale Road.

2.2 Proposed Redevelopment

The proposed development will result in additional:

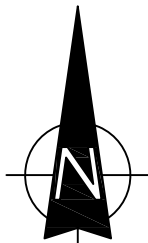
- ❖ 24 beds
- ❖ 6 consulting rooms with up to 12 patients at any one time
- ❖ CTC with a maximum visitation of 30 guests at any one time
- ❖ 12 staff to support the proposed development

When the proposed development when is fully operational in 2021, the Hospital will have up to 112 beds and a maximum of 72 staff at any one time.

With a loss of 17 spaces (including 1 minibus space) due to the siting of the new buildings, the proposed development will have a total of 129 car spaces. The lost parking area is illustrated in the figure overleaf.

The loading area will be relocated adjacent to the existing Xavier building while the minibus space will be relocated adjacent to the existing porte-cochere.

Details of the proposed development are provided on the plans prepared by Silver Thomas Hanley which accompany the Application and are reproduced in part in Appendix A.



**ON-SITE CAR
PARKING LOSS
(17 SPACES)**

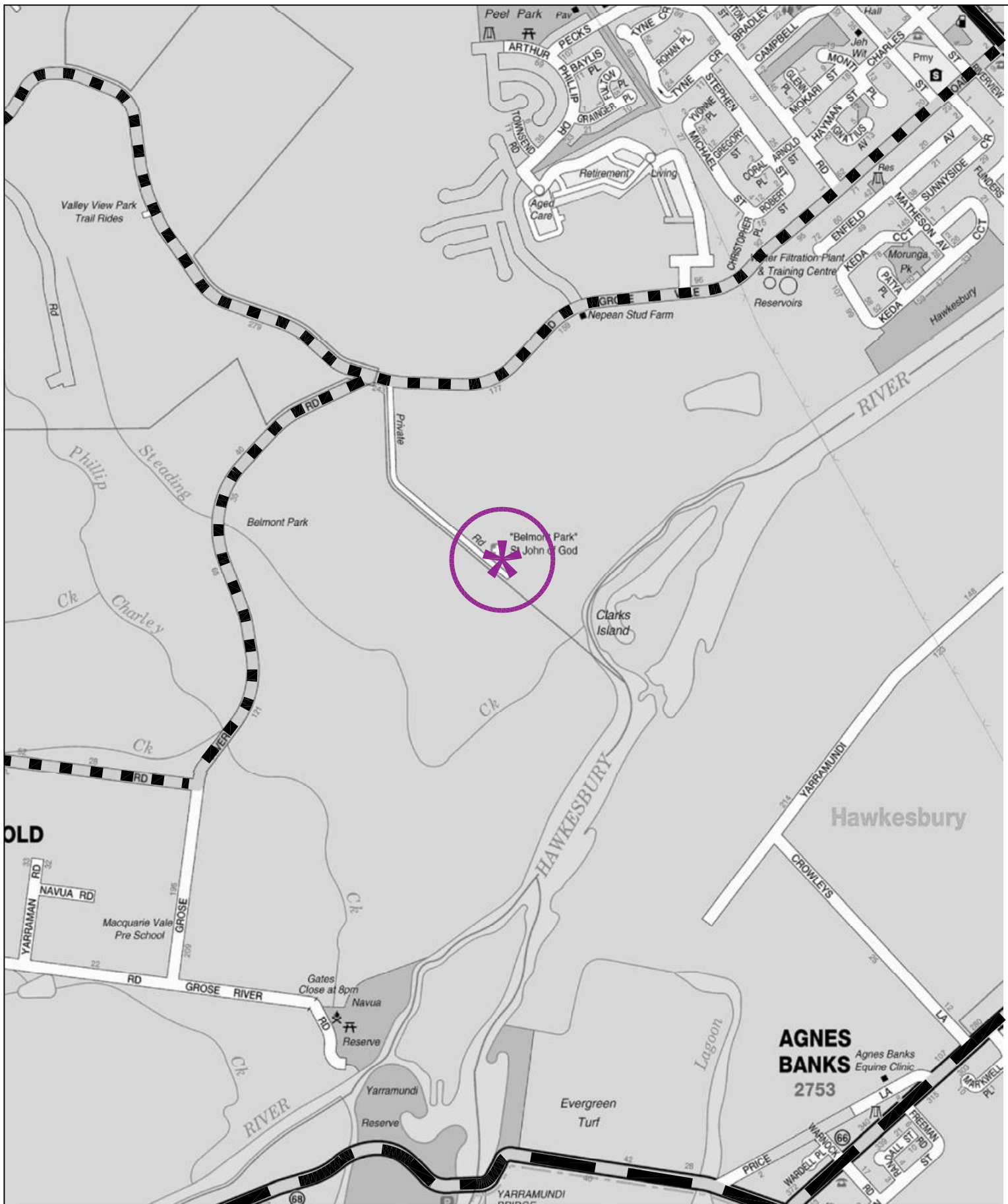
3.0 Road Network and Traffic Conditions

3.1 Road Network

The localised road network serving the site (Figure 3) comprises:

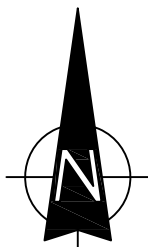
- ❖ *Grose Vale Road* – Grose Vale Road is an unclassified regional road which intersects with Bells of Line Road (at a signalised intersection) at North Richmond. It travels north-west and intersects with Bells Line of Road again at Kurrajong. The two-lane undivided road has a sign-posted speed limit ranging from 60km/h to 70km/h. Grose Vale Road acts as a collector road and provides access to the Hospital and shopping village in North Richmond. It also provides local access to the rural and residential properties at Kurrajong, Grose Vale and North Richmond. On-street parking is permitted along Grose Vale Road, however there are also several parking restrictions signs in place.
- ❖ *Bells Line of Road / Kurrajong Road* - Bells Line of Road and Kurrajong Road are classified as state roads. Kurrajong Road provides a connection between Richmond and North Richmond, continuing as Bells Line of Road heading northwards at Richmond Bridge crossing the Hawkesbury River. The road is generally a two-lane arterial road with a speed limit ranging from 60 to 80 km/h. Along the Bells Line of Road and Kurrajong Road corridor, there are two signalised intersections at Grose Vale Road and Bosworth Street that provide motorists access to other road corridors. On-street parking is permitted where it has residential frontages and outside the North Richmond shops.
- ❖ *Grose River Road / Grose Wold Road* – a minor collector route connecting to Grose Vale Road at North Richmond and at Grose Wold.
- ❖ *Private Access Road* – connecting the Hospital to Grose Vale Road.

Grose Vale Road in the vicinity of the Hospital has a slight curvature at the site access and a 7-meter-wide carriageway.



LEGEND

- SUB-ARTERIAL**
- COLLECTOR**



ROAD NETWORK

FIG 3

3.2 Traffic Controls

The traffic controls on the road network in the vicinity of the site (Figure 4) comprise:

- ❖ the 60 (southbound) and 70 (northbound) kmph speed restriction on Grose Vale Road
- ❖ the roundabout at the Grose Vale Road and Phillip Drive intersection
- ❖ the GIVE WAY sign control on Grose River Road at the Grose Vale Road intersection
- ❖ the traffic signals at the Grose Vale Road and Bells Line of Road intersection

3.3 Traffic Conditions

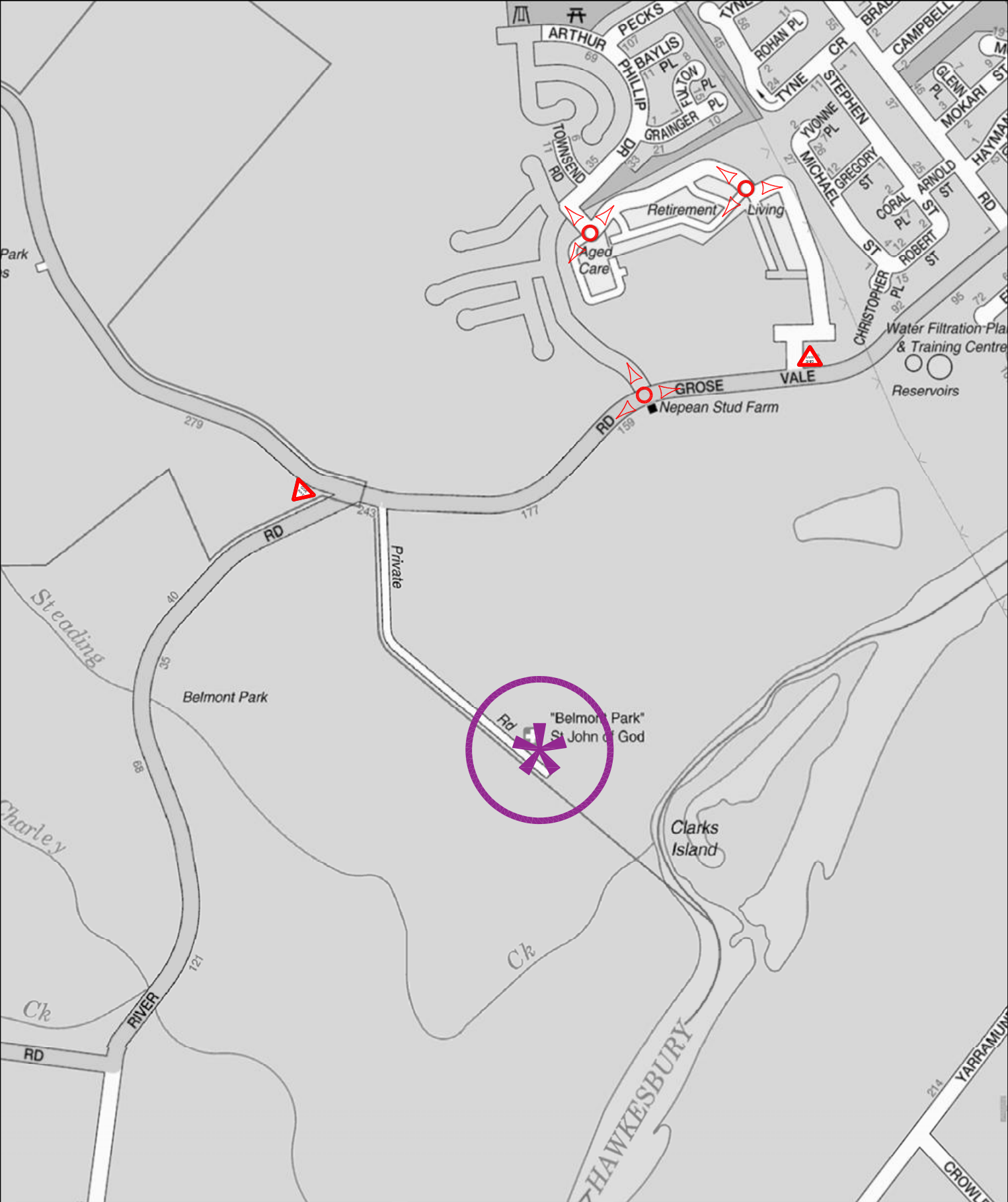
An indication of the prevailing traffic conditions on the road network serving the site is provided by the results of a recent survey undertaken on Grose Vale Road at the Hospital access on a regular weekday (Monday, 23 September 2019) morning and afternoon peak periods, as detailed below:

- ❖ AM Peak: 6am – 9am
- ❖ PM Peak: 4pm – 7pm

The results of those surveys are provided in Appendix B and the vehicle movements per hour are summarised in the following:

		AM	PM
Grose Vale Road	EB	435	171
	RT	48	0
	WB	160	368
	LT	8	2
Site Access	RT	8	33
	LT	1	4

The operational performance of this intersection has been assessed using SIDRA and



LEGEND

-  ROUNDABOUT
-  GIVE-WAY SIGN



**TRAFFIC
CONTROLS**

FIG 4

the results indicating satisfactory performances are provided in Appendix C and summarised in the following, while the criteria for interpreting the results are reproduced overleaf:

AM Peak		PM Peak	
LOS	AVD	LOS	AVD
B	16.5s	B	14.7s

The results of the SIDRA assessments indicate that this intersection operates satisfactorily and traffic conditions in the area are also generally quite satisfactory. In particular, regular lengthy gaps are available in the Grose Vale Road traffic flow.

Traffic movements in the area are controlled by the various priority-controlled and roundabout facilities.

3.4 Transport Services

Rail

The nearest train station to the development site is Richmond Station, approximately 4 km away. The site is outside the walking catchment for Richmond Station (typically 1km). Richmond Station is serviced by the Richmond Line, a branch of the Western Line which originates from the North Shore Line and terminates at Richmond Station, which provides connectivity to the CityRail network including services to Blacktown, Parramatta and the City. There are four trains departing from Richmond Station during the AM peak hours between 7 am and 9 am. with a frequency of 30 minutes.

Bus

Sydney Buses currently operate Route 680 in the vicinity of the site. The nearest bus stops on the Grose Vale Road are located 560m west and 700m east of the site access. See the following figure.

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

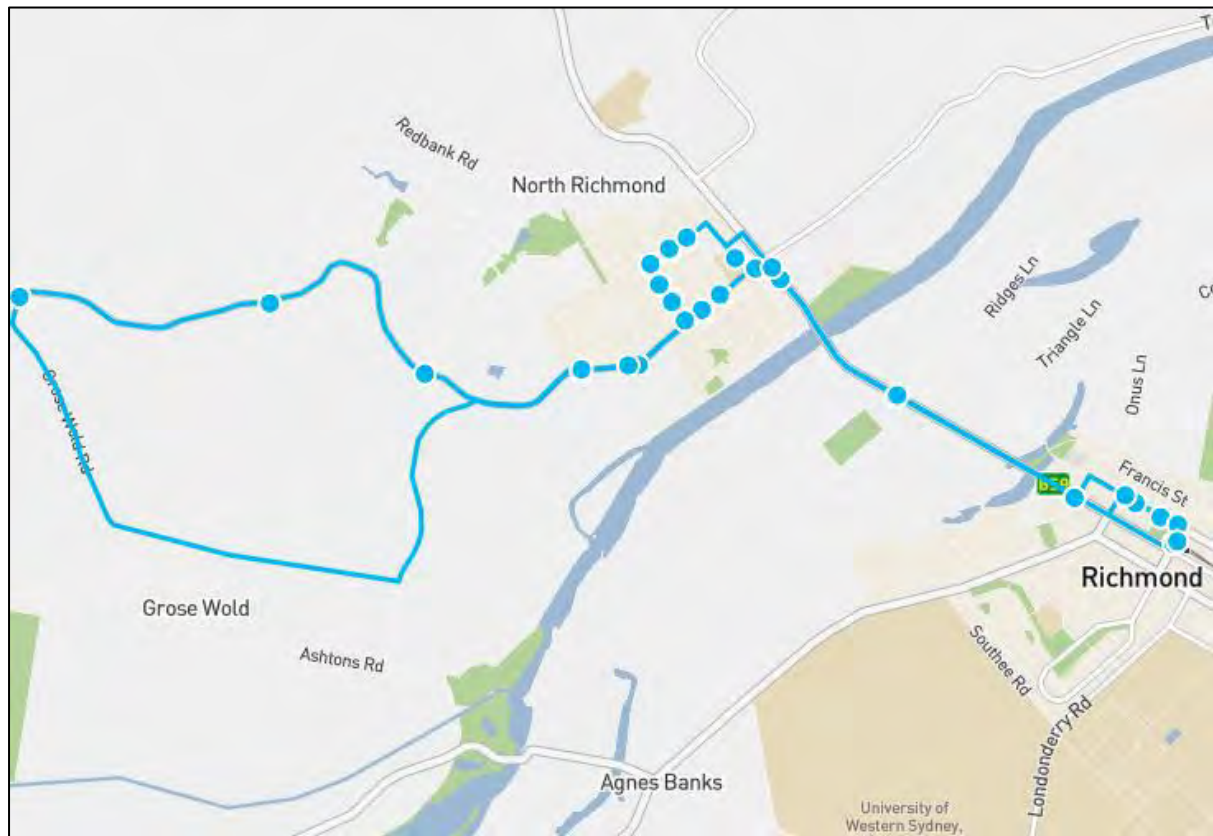
3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals**¹ both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

¹ the values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs



The bus service provides bus connection between Richmond to Bowen Mountain via Grose Vale and Grose Wold. The service also provides linkages to the townships north of the Hawkesbury River and Richmond Station, allowing further onward trips to major residential areas and retail centres. The bus service has a frequency of 30 minutes during the peak hours.

Details of the available public transport services are provided in Appendix D.

On-Demand Shuttle Service

The Hospital currently operates an as-required shuttle service where their driver picks up patients from selected areas, such as Richmond and Penrith Stations.

4.0 Parking

4.1 Parking Capacity

There is a total of 146 on-site car parking spaces available within the Hospital. The locations of the surveys are shown in the figure below:



Street Names		Zone
1	On-grade Carpark	
2	Grassed parking - VISITOR	
3	On-street parking - VISITOR	
4	On-street parking - STAFF	
5	Undercroft parking - STAFF	

Details of the existing car parking capacity are summarised as follows:

Area	Capacity
On-grade Carpark	95
Grass-surfaced parking - VISITOR	20
On-street parking - VISITOR	6
On-street parking - STAFF	17
Undercroft parking - STAFF	8
Total	146

4.2 DCP and RMS Requirement

Council's DCP specifies a parking provision for "Hospitals, Nursing Homes and Convalescent Homes" developments as follows:

1 space per 5 beds

1 space per 2 employees

Provision for ambulances

Application of this criteria to the proposed development would indicate the following additional:

112 beds	23 spaces
72 staff	36 spaces
Total:	59 spaces
	1 ambulance space

Council's DCP does not provide any car parking rates for consulting rooms. As such, reference has been made to the RMS rate which indicates a car parking requirement of 3 spaces per room. As such, the proposed development is required to provide 18 spaces (6 staff and 12 patient spaces) for the consulting room use.

Based on the above, the proposed development will be required to provide 77 car spaces and 1 ambulance space to be in accordance with RMS and Council's DCP requirements.

4.3 Car Parking Provision

As discussed, the development proposes a total of 129 car parking spaces with the following breakdown:

Area	Capacity
On-grade Carpark – STAFF, PATIENT, VISITOR	95
Grass-surfaced parking - VISITOR	20
On-street parking – STAFF, PATIENT, VISITOR	6
Undercroft parking - STAFF	8
Total	129

4.4 Adequacy of Car Parking Provision

The proposed provision of 129 car spaces is in accordance with RMS and Council's DCP requirements. As such, the proposed parking provision will be adequate and can accommodate the parking demand for the development.

4.5 Disabled Car Parking Space

A review of the Building Code of Australia (BCA) suggests a disabled car parking requirement of 1 space for every 100 spaces or part thereof. Based on up to 129 spaces, it is recommended that a minimum of 2 disabled spaces be provided. The remaining 2 disabled spaces are in accordance with the BCA requirement.

4.6 Loading and Ambulance Space

The development proposes 1 ambulance and 1 loading space adjacent to the existing Xavier building in accordance with the DCP requirement.

4.7 Minibus Space

It is proposed to convert an existing on-street parking space to the west of the existing port-cochere into a minibus space (See the following figure). The existing car space will be reline-marked to accommodate the existing 7m 22-seat minibus.



4.8 Bicycle Parking

The DCP does not state any requirements for bicycle parking provision. In addition, given the location of the hospital and the non-existing existing/future cycling infrastructure, no bicycle parking is recommended for the Hospital.

5.0 Traffic

5.1 Existing Hospital

The traffic survey indicates that the existing 88-bed hospital generate the following peak hour traffic:

- AM Peak: 65 vehicle trips per hour
- PM Peak: 39 vehicle trips per hour
- Daily: 208 vehicle trips per day

The above traffic generations equate:

- AM Peak: 0.74 vehicle trips per bed
- PM Peak: 0.45 vehicle trips per bed
- Daily: 2.37 vehicle trips per bed

5.2 Proposed Development Traffic

Based on a total of 112 beds, the future peak hour traffic generation based on the surveyed rates would be:

- AM Peak: 83 vehicle trips per hour
- PM Peak: 51 vehicle trips per hour
- Daily: 266 vehicle trips per day

Based on the existing directional split of traffic (i.e., The ratio between the inbound and outbound traffic movements) to be 85:15 during the AM peak hour and 5:95 during the PM peak hour, then the following traffic generation characteristics are projected.

Peak Hour Vehicle Movements			
AM		PM	
IN	OUT	IN	OUT
71	12	3	48

5.3 Background Traffic

To assess the impact of background traffic growth on the surrounding road network, the increase in traffic due to the surrounding developments in the region is obtained from the North Richmond 'Redbank' Transport Management and Accessibility Plan (TMAP) report dated 20 March 2013.

It is noted that a conservative assessment has been provided in this report considering that some of the increase of traffic on the road due to the partially completed Redbank development has already been captured in the traffic counts.

5.4 Future Traffic Condition

A SIDRA assessment of the site access intersection with the projected additional volumes reveals that satisfactory operations will continue as follows with SIDRA outputs provided in Appendix C:

AM Peak		PM Peak	
LOS	AVD	LOS	AVD
B	22.0s	B	16.4s

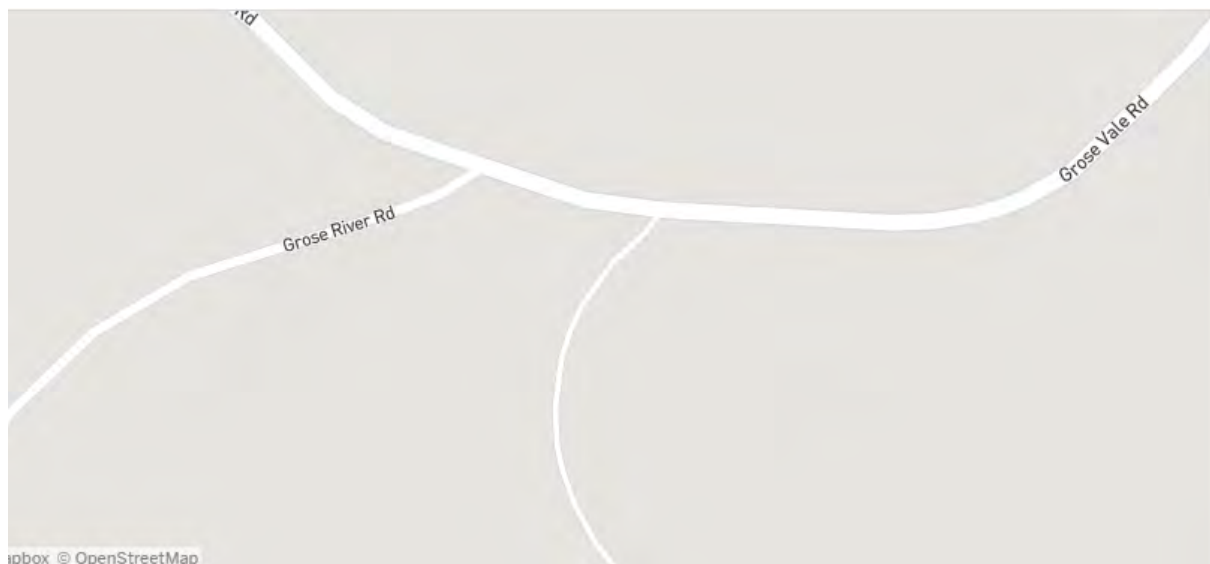
The traffic generation of this order of magnitude being equivalent to some 1 - 2 vehicles every minute during the peak hours is minor in the context of the local and arterial road system and will not act to create unacceptable traffic congestion or conflict either at the vehicle access point or at adjacent intersections.

6.0 Access, Internal Circulation, Servicing and CPTED

6.1 Access

The existing site access off Grose Vale Road will be retained.

Crash data for roads around the Hospital has been obtained from TfNSW Centre for Road Safety – Crash and Casualty statistics LGA view. The data relates to the five-year period to December 2018.



During this period, no crashes were recorded in the vicinity of the Hospital. The data indicates that there are no significant hazards/risks at Grose Vale Road.

While there is no safety concern at the site access, it is proposed to provide a convex mirror to the west of the existing driveway to extend sightline for exiting vehicles to westbound vehicles on Grose Vale Road. See the following figure.



6.2 Internal Circulation

The design of the existing internal circulation and parking arrangements generally accords with the requirements of AS2890.1.

It is proposed to retain the existing drop-off and pick-up area (porte-cochere) at the main entrance to the existing Hospital.

6.3 Servicing

The existing servicing arrangement is detailed below:

Company Name	Description	Height	Length	Width	Frequency	Type
Bidfood	Food	3.5m	8.2m	3.0m	Approx 2 x week	
PFD Foods	Food	3.9m	9m		Approx 2 x week	10plt tailgate truck
RJ Goon	Food	3.8m	7.5m		3 x week	
ELGAS	Gas		8m	3m	Maintenance on average 3 contractor's vehicle daily.	

Company Name	Description	Height	Length	Width	Frequency	Type
					Can climb to 5-6 vehicles at peak	
Stores trucks	Stores/Supply	3.9	9		6 trucks a week on average	
Expert Furniture	Stores/Supply				Monthly	
Jrrichards	Liquid Waste services				Bi monthly	
Waste Free	Organic waste & general waste 120L, 240L 3cubic metres	3.4	8 to 13 M	3m	Mon/Thur/Fri	
Dairy/ milk delivery	Food	tbc	tbc	tbc	Approx 3 x week	

SJOG Richmond Hospital will extend the existing servicing arrangement to cover the proposed development.

The current ambulance visitations occur no more than 2 time per week, with the ambulance arriving at the reception area, prior to travelling towards the unit where the patient will be picked-up.

The development proposes a loading area which can accommodate an ambulance and up to an 8.8m medium rigid vehicle (MRV). Other servicing of the centre related to deliveries, courier activity, maintenance, etc. will only involve occasional small delivery vehicles (van, utes, etc.) that can also be reliant on the loading space or available visitor spaces.

A loading management plan will be in place to ensure appropriate use and prevent overuse of the loading space. The objective is to always appropriately manage service/trade vehicle activity so that no more than 1 truck or 2 utes/vans/B99cars are using the loading space at any one time. The plan will also ensure that the ambulance and service vehicles will travel within the site at the existing posted speed limit of 5kmph (shared zone) and 25kmph speed limit (other internal roads).

Details of the turning path assessment for the largest vehicle (8.8m truck) accessing the

loading space are provided in Appendix E.

Refuse will be removed from proposed waste room area within the lower ground level of the Xavier Building by a private contractor's MRV, with the waste collection taking place outside the peak periods. The truck will travel in a forward direction along the existing road and use the proposed truck turning area to reverse onto the existing road. The truck will stop temporarily on the road with the waste collection personnel wheeling the bins out from the waste room area onto the road for collection. The occasional requirement for waste collection activities outside of the peak periods, will have minimal impact on the internal road network.

Details of the turning path assessment for this vehicle accessing the existing road adjacent to the Xavier Building, are provided in Appendix E.

Servicing for the proposed additional elements for the hospital will be absorbed into the existing service vehicle activity (e.g., normal and medical refuse removal, linen and kitchen supplies, etc.). Any increased movements of service/delivery vehicles during the peak hours will be minor.

6.4 Crime Prevention through Environmental Design (CPTED)

There are four main principles of CPTED – natural surveillance, access control, territorial reinforcement and space management. The principles of CPTED can help create a safe and secure environment and assist in minimising the incidence of crime and contribute to perceptions of increased safety internal and external to the Hospital site.

The existing Hospital has generally considered the CPTED principles, namely:

- ❖ Pedestrian crossings are clearly marked by signage, pavement treatment, and kerb treatment.
- ❖ Pedestrian pathways on the Hospital property are separated from vehicular routes by kerbing and landscaping.
- ❖ Pedestrian pathways on and in the vicinity of the Hospital property are easily

monitored and are in good condition.

- ❖ Signs direct approaching vehicles and pedestrians to appropriate entries to the Hospital property.
- ❖ CCTV are installed at the site access and within the Hospital's compound to maximise surveillance opportunities.

The site currently has a 5 km/h shared zone within the internal circulation roads and a 25km/h posted speed limit with speed humps along the service road. The low-speed limit safeguards pedestrians within the Hospital sit and minimise the risk and potential severity of a crash by reducing vehicle speed and increase motorist awareness via signs and pavement markings.

7.0 Green Travel Plan

7.1 Purpose of a Green Travel Plan

A facility such as a hospital generates a significant level of transport demand, primarily for private vehicle trips. Travel demand management (TDM) aims to modify travel decisions rather than providing costly infrastructure and additional transport services to support the current and future transport demands. TDM has the following key objectives:

- * Reduce the need to travel
- * Reduce the amount of travel
- * Reduce the impact of travel.

In this regard, a Green Travel Plan (GTP) is a tool that hospitals can use to manage the transport mode choices of their staff, patients and visitors. The plan aims to promote and encourage sustainable travel and reduce reliance on private vehicles. The GTP comprises a list of strategies aimed at encouraging walking, cycling, public transport and car-pooling for travel to and from work and aims at a shift away from the reliance on single-occupant vehicle travel.

7.2 Typical Challenges for Regional Hospitals

Most staff activity associated with regional hospitals in Greater Western Sydney occurs via vehicles due to the nature of staff shift times and the limited availability of convenient public transport. Walking and cycling often prove difficult due to the distance between the home and workplace as well as a lack of facilities. In this regard, the following factors are typically attributed to a high mode share for private vehicles at regional hospitals:

- * Residential locations and hospital locations can have limited access to public transport services

- * Driving presents attractive travel time advantages for many key staff origins
- * The limited number of locations have access to direct public transport connections that do not require interchanging. This typically results in longer travel times, as well as influencing the perception of a lack of convenience and reliability
- * Time of arrival/ departure, due to work shift, potentially limits the access to frequent public transport services. The staff that work in shifts with start/ end times outside of peak hours might also experience personal security issues
- * Time of arrival/ departure influences the perceived comfort of traveling via alternate modes of transport, in particular, outside peak hours
- * Unpredictable hospital activities may extend staff shift finish times. This can leave staff 'stranded' if public transport options are limited
- * Staff may need to drive to efficiently conduct other activities on their way to/ from the hospital such as Hospital set-down/ pick-up activities.

Strategies can be implemented to encourage staff/visitors/patients to reduce their reliance on private vehicles.

7.3 Travel Demand Strategies

While it is recognised that the site's location somewhat limits the practicality of using sustainable transport modes, there remains a potential for improved utilisation of public transport and associated provision of sustainable transport infrastructure.

Several opportunities exist to provide staff with incentives to consider alternative modes of travel to and from work. The following recommendations are high-level strategies that would need to be developed in greater detail and through consultation with relevant stakeholders closer to the opening of the new building:

- * Extension of Shuttle Service

Transport and Traffic Planning Associates

- Extend existing shuttle service for patients to staff between the hospital and key public transport interchanges, such as the Richmond Railway Station and bus stops, aligned with staff shifts. A regular, flexible service is likely to increase staff perception of convenience and reliability

* Public Transport

- Liaise with TfNSW and bus operators for a bus stop with shelter near the site access
- If a bus stop is provided, the Hospital could consider the provision of buggy service between the site access and the main entry.

* On-Demand Transport

- Liaise with TfNSW and other stakeholders to implement the Regional on Demand Transport project.

* Promote Car-Pooling

- Provide prioritised carpool parking spaces on-site, including consideration for incentives.

A detailed GTP will be prepared for the site following DA approval.

8.0 Construction Traffic Management Plan

Construction is due to commence in 2021 and will complete in 2022.

8.1 Construction Process

Construction traffic access provision for the main contract works will occur via the exiting service road off Grose Vale Road. The works will involve:

- ❖ up to 8.8m medium rigid trucks, i.e., mobile concrete pump, Hymix concrete mixer during the concrete pumping phases
- ❖ up to 12.5m heavy rigid trucks for the deliveries of construction materials and transport of construction waste materials. Given that the existing internal road width and kerb radii have been designed to accommodate an MRV, any requirements for an HRV access during the construction stage will be completed under the management of traffic controllers. Such arrangement will be provided in the Detailed Construction Traffic Management Plan at the Construction Certification (CC) stage.

It is anticipated that there will be a maximum of 50 workers on-site during the construction stage. There will be some on-site parking for construction workers on the existing grass-surfaced area. While there are some parking spaces within the Hospital site, all workers will be encouraged to use public transport or to carpool wherever possible.

For safety and amenity, all workers employed on the site by the appointed contractor (including sub-contractors) will be required to undergo a formal 'site induction' process. The workers will be inducted to not travel on Grose Vale Road between Bells Line of Road and Pecks Road as well as William Street and Elizabeth Street during school drop-off (8:00am to 9:30am) and pick up (2:30pm to 4:00pm) times on school days. The workers will be reminded to use Peck Road, Hayman Street, Monti Place and Charles Street as well as to adhere the road rules and drive at posted speed limit at all times.

A tool drop-off and storage facility will be provided within the site. This would allow tradespeople to drop-off and store their tools and machinery, allowing them to use public transport or carpool to travel to/ from the site on a daily basis. Workers will also be informed of appropriate tool/ equipment drop-off and storage arrangements made within site sheds and amenities provided on-site.

Train and bus schedules and maps will be provided to all workers during site induction to demonstrate alternative modes of transport available.

8.2 Spoil Management

It is proposed to minimise the need for removal of spoil from the site by endeavouring to balance cut and fill to create the ground platform. Truck shaker grids and wheel wash stations shall be positioned at all entry/exit points. Machine operated street sweepers will be utilised whenever spoil is tracked onto local or state roads, and at the direction of Council.

8.3 Construction Vehicle Route

Truck movements associated with the proposed works will approach and depart the site via the sub-arterial and arterial route via Bells Line of Road and Grose Vale Road. Details of the routes shall form part of the contract and distributed to all drivers.

8.4 Construction related Vehicle Movements

An average of 6 trucks per day is expected, with a maximum of 12 trucks per day during peak construction (24 movements per day). The heavy vehicle movements are likely to be spread throughout the day. However, in the worst-case assessment, it has been assumed that 25%, or 6 vehicles (12 two-way vehicle movements), would occur during the peak hour.

Queuing or marshalling of construction vehicles will not be permitted on the service road and call-up procedures must be put in place to manage arrivals.

Workers typically begin and end their workday outside of network peak periods (i.e., 6.30 am – 3.30 pm) and as such is unlikely to adversely impact the surrounding road network.

The use of Peck Road, Hayman Street, Monti Place and Charles Street during the school hours to ensure minimal conflicts with the school related traffic.

8.5 Pedestrian Movements

Pedestrian movements will remain and be separated from the site through the provision of Class A hoarding/fencing along the perimeter of the site.

To maintain the safety of pedestrians, RMS accredited traffic controllers will be present at the site access to manage pedestrian movements when construction vehicles are entering the site.

8.6 Works Zone/Service Road Closure

It is not anticipated that the proposed works would require the establishment of a Works Zone or service road closure.

8.7 Cranage and Materials Handling

Mobile cranes will be used to lift materials to/from trucks standing in the site compound while all delivered materials will be stored in designated secured facilities within the bounds of the site.

8.8 Site Induction

All workers and visitors employed on the site by the appointed contractor (including sub-contractors) will be required to undergo a formal 'site induction' process and all the inductions will be performed specific to each trade according to Workcover OH & S requirements.

The induction will include details of approved access routes to and from the construction site for site staff and delivery vehicles, parking arrangements, as well as

standard environmental, WHS, driver protocols and emergency procedures. The agreed work hours must be included as part of this induction.

8.9 Traffic Control Plans

Any required Traffic Control Plans will be prepared and submitted to the Council for approval as part of the detailed Construction Traffic Management Plan.

8.10 Road Serviceability

The contractor shall be responsible for ensuring that the service road and Grose Vale Road remain in a serviceable state during the course of the construction. Under the direction of the Hospital and Council, the contractor will make good any roadside facilities affected by the construction works, being footpaths, road pavement, etc. to the Hospital's and Council's satisfaction, at no cost to these stakeholders.

8.11 Emergency Vehicle Access

Emergency protocols on the site would include a requirement for an accredited traffic controller to assist with emergency access, and as such, access to the existing buildings within the Hospital site by emergency vehicles will not be affected.

Liaison will be maintained with the police and emergency services agencies throughout the construction period and a site contact will be made available for out-of-hours emergencies and access.

9.0 Consultation Process

Earlier consultations with the TfNSW, RMS and Hawkesbury City Council have been completed, resulting in the SEARs requirements and comments as provided in Appendix F.

Further consultation with the above stakeholders will be completed post-submission of this report.

10.0 Conclusion

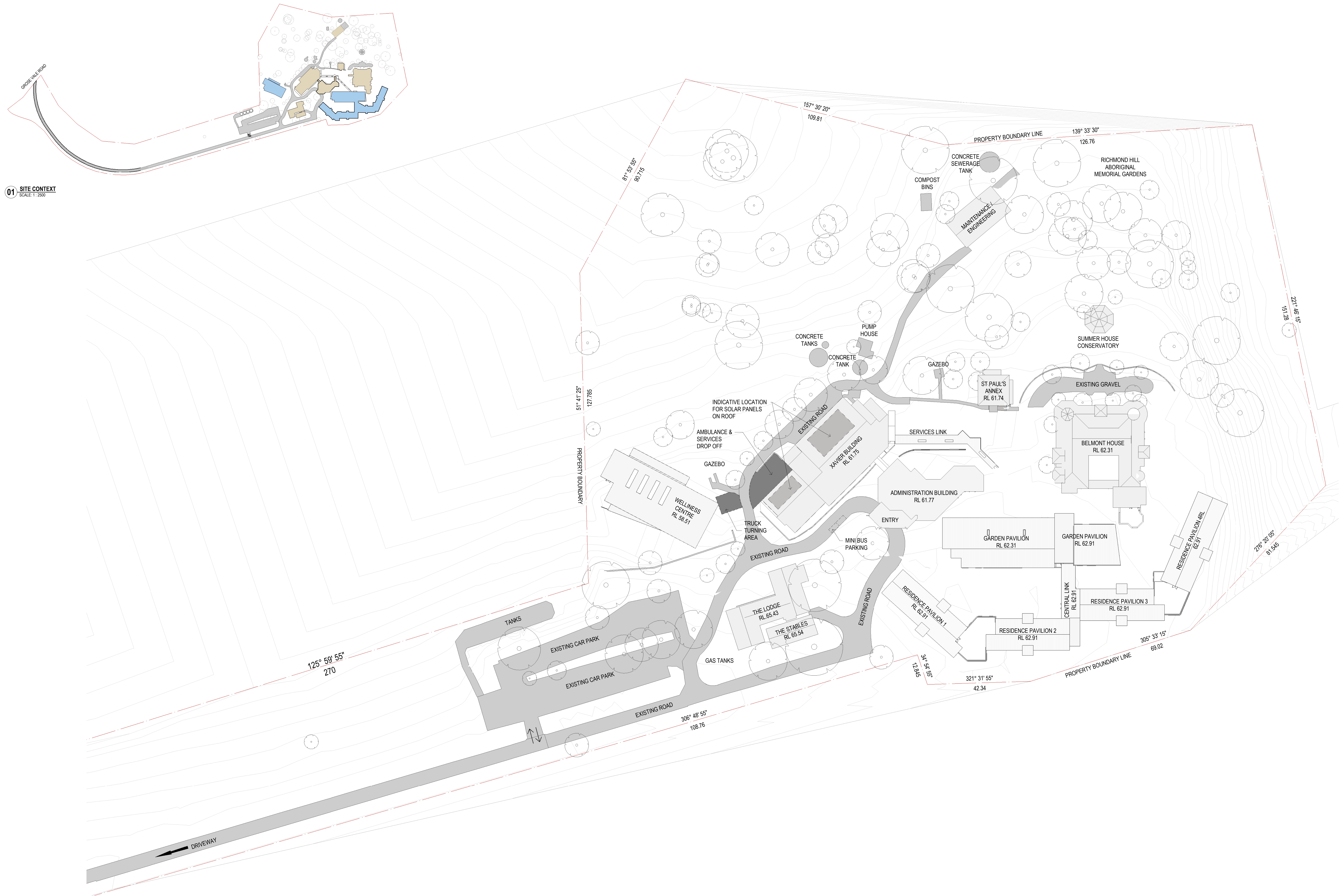
There is an increasing demand for mental health facilities and the existing SJOG Richmond Hospital presents an ideal opportunity for the expansion/upgrade of services to provide for these needs. The proposal involves an SSDA which seeks approval to redevelop the existing Hospital to increase the number of beds from 88 to 112 (an increase of 24 beds).

Assessment of the proposal has established that:

- ❖ the existing site access/Grose Vale Road intersection operates with a good level of service
- ❖ the projected traffic generation resulting from the expansion will have no adverse implications on the existing site access/Grose Vale Road intersection and adjacent road network (maintain the existing network levels of service)
- ❖ the provision of 129 car parking spaces remains adequate and appropriate for the proposed development
- ❖ the provisions made for vehicle access, internal circulation and servicing will be appropriate to the relevant AS2890.1 and AS2890.2 design requirements and the development needs
- ❖ the planning and management of construction vehicles will have regard for the anticipated peak traffic operations in the vicinity of the Hospital and accord with the Council requirements

Appendix A

Architectural Plans



01 SITE CONTEXT
SCALE: 1:2500

1 SITE CONTEXT
SCALE: 1:500



PROPOSED SITE PLAN

ST JOHN OF GOD RICHMOND HOSPITAL REDEVELOPMENT

Project Number: 10444

Scale @ A0 Sheet Size As indicated

Date 27.11.2020

Revision: P1

Drawing Number: SSK03

