



Traffic Engineering Assessment

For The Old Byron Bay Hospital

On Behalf of Byron Shire Council and
BKA Architecture Pty Ltd



About TTM

For 30 years, we've been at the centre of the Australian development and infrastructure industry. Our unique combination of acoustics, data, traffic and waste services is fundamental to the success of any architectural or development project.

We have over 50 staff, with an unrivalled depth of experience. Our industry knowledge, technical expertise and commercial insight allow us to deliver an exceptional and reliable service.

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Acoustics



Data



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Waste

Revision Record

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1 Introduction

1.1 Background

TTM Consulting has been engaged by BKA Architecture Pty Ltd to prepare a traffic engineering report. This report investigates the traffic impacts associated with the repurposing of the old Byron Bay Hospital.

The site has historically operated as the Byron Bay Hospital until 2015-2016, with a hospital land use. The site has since been unoccupied.

The proposal seeks to repurpose the existing building/s, to include office and educational establishment uses. A Development Application will be lodged with Byron Shire Council (BSC).

1.2 Scope

This report investigates the transport aspects associated with the proposed development. The scope of the transport aspects investigated includes:

- Parking supply required to cater for development demand.
- Parking impact of the proposed change of uses.
- Parking layout to provide efficient and safe internal manoeuvring.
- Identification of likely traffic volumes and traffic distribution from the future development.
- Identification of likely traffic impact of development on the public road network.
- Access configuration to provide efficient and safe manoeuvring between the site and the public road.
- Suitability of access and internal facilities to provide for pedestrian and cyclist operation.
- Access to suitable level of public transport.

To assess the proposed transport arrangements, the development plans have been assessed against the following guidelines and planning documents:

- Byron Shire Council's Development Control Plan, specifically:
 - Chapter B4 Traffic Planning, Vehicle Parking, Circulation and Access
- Australian Standard 2890
- Austroads Guidelines
- Institute of Public Works Engineering Australasia (IPWEA) Standard Drawings
- Taylor Thomson Whitting – State Significant Development Application for Byron Shire Central Hospital (dated: 13 August 2014).

1.3 Site Location

The site is located at 10-12 Shirley Street, Byron Bay, as shown in Figure 1.1. The property description is Lot 1 on RP847910. The site has road frontages to Shirley Street, Wordsworth Street and Shirley Lane.

Access is currently from Shirley Street via a 6m wide driveway crossover and from Shirley Lane via a road extension. Currently parking and service vehicle provision for the site is available from the Shirley Street access. An internal driveway connects the two access locations.

The old Byron Bay Hospital building currently occupies the site and is not operational.

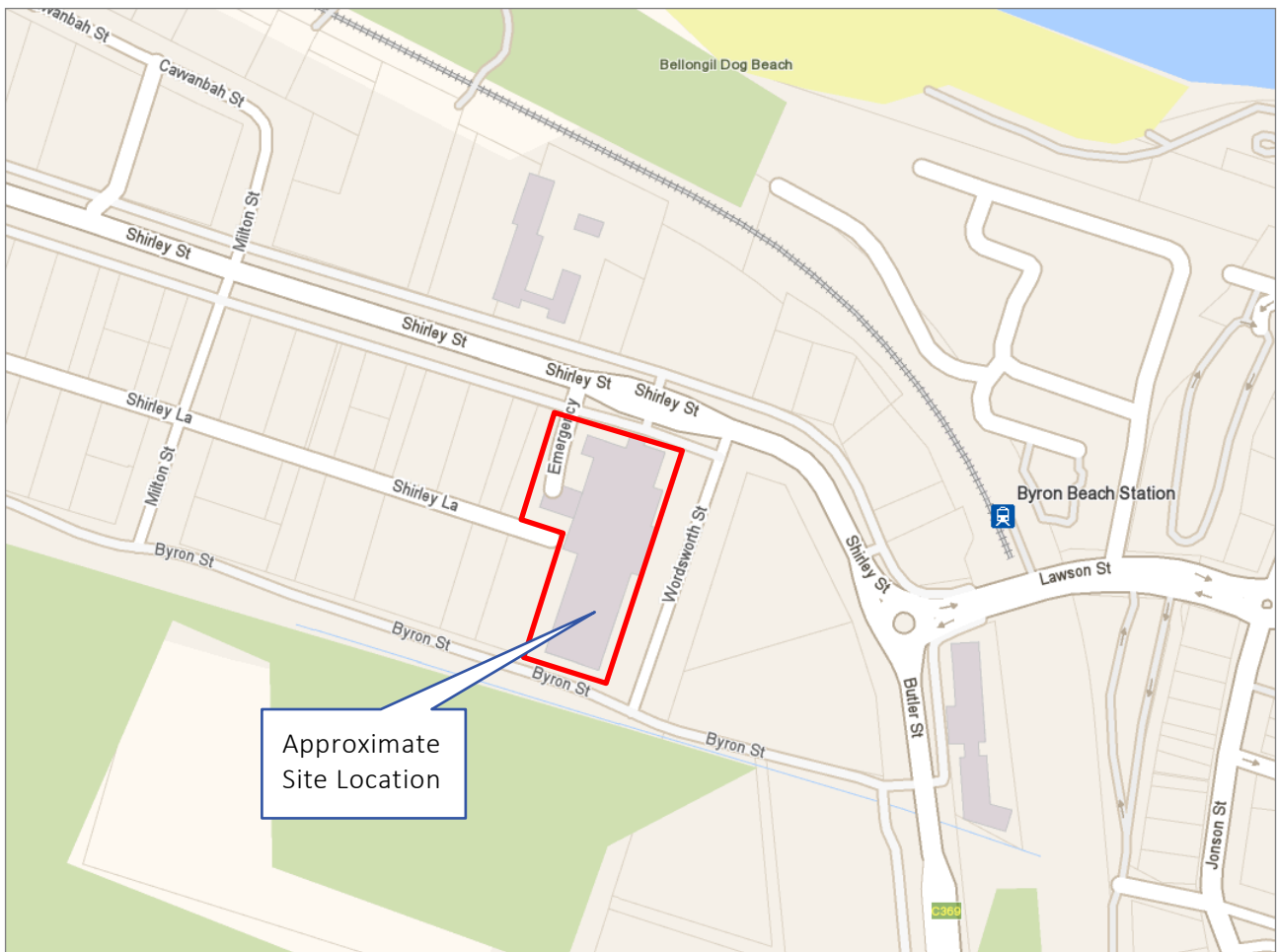


Figure 1.1: Site location



Figure 1.2: Site area

1.4 Development Profile

The proposed land uses for this development are summarised in Table 1.1.

Table 1.1: Existing and Proposed Land uses

Use	Area/Qty
Existing Use <ul style="list-style-type: none"> Hospital 	3,000m ² GFA (approx.)
Proposed Use <ul style="list-style-type: none"> Educational Establishment Office Tenancies (17 tenancies) 	2936.8m ² GFA

1.5 Access

The development plan includes the following access arrangements:

- Shirley Street Access located at the northern side of the subject site. The characteristics of this access include:
 - Type B2 driveway access (per IPWEA Standard Drawing RS-051)
 - 7m wide at the property boundary
 - Priority control
 - Left-in/left-out turns permitted.
- Shirley Lane located at the western side of the subject site. The characteristics of this access include:
 - Extension of existing roadway
 - 10m wide at the property boundary
 - Priority control
 - Outbound turns permitted.

1.6 Parking

The development proposal includes the following parking supply:

- 3 general spaces, which are located on ground level
- 1 PWD space with associate shared area, located on ground level
- 5 motorcycle spaces, located on ground level

2 Existing Transport Infrastructure

2.1 The Road Network

The majority of roads in the immediate vicinity of the site are administered by BSC. The hierarchy and characteristics of roads in the immediate vicinity of the site are shown below in Table 2.1.

Table 2.1: Local Road Hierarchy

Road	Speed Limit	Lanes	Classification	Road Authority
Shirley Street	50kph	2 (undivided, plus parking)	Regional Arterial	TfNSW / BSC
Wordsworth Street	50kph	2 (undivided, plus parking)	Local Road	BSC
Shirley Lane	50kph	1	Laneway	BSC

Shirley Street has a 14m wide carriageway at the site frontage, including two through lanes and two parking lanes. The intersection of Shirley Street / Wordsworth Street is a priority controlled intersection and includes both left and right turning lanes.

2.2 Road Planning

Byron Shire Council and NSW Government have recently completed the Byron Bay Bypass project. The works included major road upgrades along Shirley Street near the site. TTM understand that no additional infrastructure works are proposed.

The construction/repair and reinstatement of pedestrian footpaths across the frontage would be a standard condition of approval.

2.3 Public Transport and Pedestrian Facilities

Train

Byron Bay Station is located approximately 170m to the east of the site. Services to North Beach operate every half hour in peak periods and hourly off-peak.

Buses

Byron Bay Interchange busway station is located approximately 400m to the south of the site.

The interchange services the 610, 637S, 637N, 640, 640X, 641, 641X and 645 routes. These bus services provide connection to Ballina, Suffolk Park, Lismore, Mullumbimby and Billinudgel. The interchange also services the intercity buses along the North West NSW route, providing connection to Casino, Tweed Heads, Grafton and Brisbane.

Pedestrians

Formal pedestrian footpaths are located on both sides of Shirley Street, as shown in Figure 2.1. A pedestrian refuge crossing is located on the site frontage to Shirley Street.

Cyclists

Dedicated onstreet / offstreet cycle facilities are described as:

- Cycle paths along Shirley Street
- A dedicated shared cycle footpath along the southern site boundary.

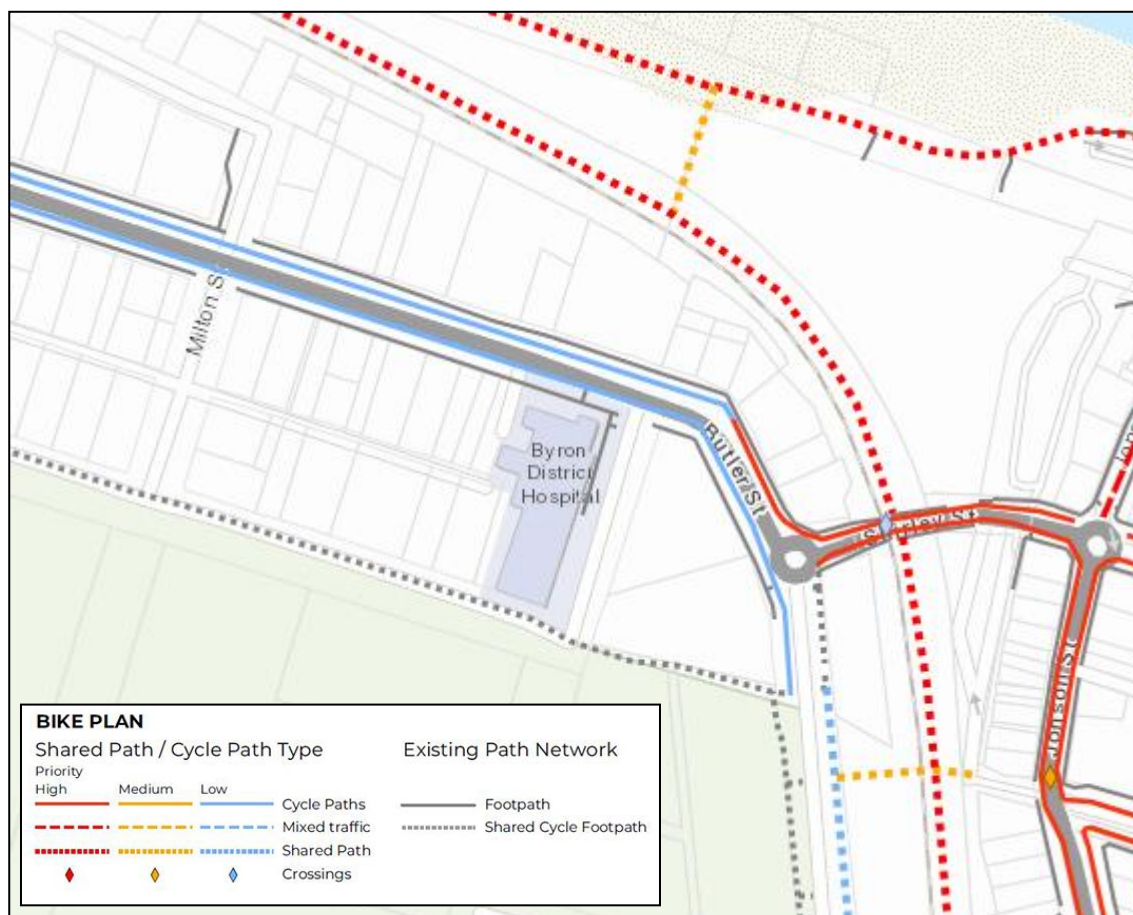


Figure 2.1: Cycle and Pedestrian Facilities

3 Car Parking Arrangements

3.1 Approved Operations

The site has historically operated as the Byron Bay Hospital (old Byron Bay Hospital) until 2015-2016, with a hospital land use.

3.1.1 Old Byron Hospital Car Parking Demand (Site's Previous Approval)

TTM have estimated the car parking demand of the old Byron Hospital by:

- Information provided by Council.
- Taylor Thomson Whitting (TTW) planning report of the new Byron Bay Hospital.

Council advised via email (dated: 19 March 2021) that the old Byron Bay Hospital operated with 60% of the capacity of the new Byron Bay hospital.

Taylor Thomson Whitting (TTW) planning report outlines the FTE staff, outpatients, beds, consulting rooms, fleet cars and mental health capacity of the new Byron Bay Hospital. These figures are outlined in Table 3.1.

Table 3.1: New Byron Bay Hospital Operations (TTW Planning Report)

Land Use	Extent (New Hospital)	Extent (Old Hospital – 60% of new)
Total FTE Staff	184 Total FTE	111 FTE
Outpatient (Daily)	120 Daily	72 Daily
Beds	65 beds	39 beds
Consulting Rooms	10 rooms operating	6 rooms
Mental Health	20 beds	-
Fleet Cars	27	13

TTM have adopted the same rates as the TTW planning report to estimate the car parking demand of site's previous approval (old Byron Hospital). This includes compliance with Byron Shire DCP 2010 and 2014, as well as deriving a suitable demand from anticipated staff, visitor and patient numbers.

The outpatient parking demand has been based on an average 1.5 hour length of stay during the day and assuming 95% car use – in accordance with the TTW planning report.

TTM have estimated the parking demand for the old Byron Bay Hospital, as shown in Table 3.2.

Table 3.2: Old Byron Bay Hospital Parking Demand

Land Use	Parking Rates	Source	Extent (60% of new)	Requirement
Total FTE Staff	Minimum 1 space per 2 employees	Council DCP 2010	111 FTE	55.5
Outpatient (Daily)	1 space per 6 daily patients	Derived	72 Daily	12
Beds	Minimum 1 space per 10 beds	Council DCP 2010	39 beds	3.9
Consulting Rooms	2 spaces per consulting room plus 1 space per 2 employee	Council DCP 2014	6 rooms	12
Fleet Cars	1 space per vehicle	n/a	13	13
Total				97

97 car parking spaces are the estimated demand for the old Byron Bay Hospital.

3.1.2 Existing Car Parking Supply

The existing site provides no car parking spaces.

3.1.3 Car Parking Credits

Section B4.2.7 from Chapter B4 of Council's DCP outlines that Council may acknowledge car parking credits for a site based on current approved uses. Parking credits

Car parking credit is equivalent to the parking requirement for current approved use/s, less the number of parking spaces specified by current approvals.

Table 3.2 outlines that 97 spaces are required as part of the current approval and that no spaces have been provided. Therefore, the site should be credited 97 spaces.

3.2 Council Parking Supply Requirement

Council parking requirements for the proposed development are identified in TTM's assumption estimates over double the student and staff population for the proposal, for a facility with 61% of the GFA. Therefore, TTM's assumption is considered to be very conservative.

Table 3.3.

TTM understand that Tenancy 1 is to operate as a tertiary educational establishment. It is understood that the specific operations are not yet known. However, TTM have estimated the student and staff numbers – based on previous experience of similar scaled developments. These types of uses include:

- Class / training rooms
- Reception / offices
- Lunchroom / kitchen / amenities / storage / corridors
- Workshop / laboratories

TTM have conservatively estimated that 100 students and 20 staff would be on-site – which is reasonable for 923m² GFA.

TTM has estimated these numbers based on previous experience for TAFE uses in Coomera, with the following:

- 1,514m² GFA
- 45 students
- 9 staff

TTM's assumption estimates over double the student and staff population for the proposal, for a facility with 61% of the GFA. Therefore, TTM's assumption is considered to be very conservative.

Table 3.3: Parking Supply Requirement

Land Use	Council DCP Requirement	Extent	Requirement
Tenancy 1 (Educational Establishment)	1 space per 5 students plus 1 space per 2 staff members	100 Students 20 staff	20 10
Café (Tenancy 2)	1 per 20m ² of GFA in Business and Industrial Zones	98m ² GFA	5
Commercial Kitchen (Tenancy 9)		78m ² GFA	4
Office Uses (Tenancies 3-8, 10, 10A-10H, 10J, 11)	1 space per 20m ² GFA	1,009m ² GFA	51
Total			90

The estimated car parking demand for the proposed development is 90 spaces.

3.3 Car Parking Provision

The proposal includes a car parking supply, including:

- 3 general spaces
- 1 PWD space with associate shared area
- 5 motorcycle spaces
- 1 drop-off facility

3.4 Car Parking Suitability

TTM have reviewed the suitability of the proposed car parking supply. The following information has been used:

- 97 spaces to be credited from the existing approved use.
- 90 spaces estimated demand for proposed development.
- 4 car parking spaces and 5 motorcycle parking spaces are provided.

The proposal sees an 86 space shortfall from the expected car parking demand – the motorcycle spaces have not been included within the car parking supply.

The site is to be credited 97 spaces – the site sees an excess of 11 spaces when this is accounted. Therefore, the proposed development is not expected to significantly impact the car parking operations of the local area. Rather, it is expected that parking would be an improvement of previous hospital operations.

Of note, it is expected that much of the site patronage would be local residents, who would be able to use active and public transport when accessing the site.

3.4.1 Tenancy 1 – Educational Establishment Capacity

The exact student and staff numbers for Tenancy 1 is not yet known. 100 students and 20 staff, corresponding to a parking demand of 30 spaces, has conservatively been assumed – as discussed in Section 3.2.

Section 3.4 indicates that the site has an overall excess of 11 spaces. The excess 11 spaces could provide parking for an additional 55 students – based on a rate of 1 space per 5 students.

Based on the above, Tenancy 1 would be able to accommodate 155 students and 20 staff onsite with a parking demand of 41 spaces.

TTM recommends that an upper limit of 155 students and 20 staff – or student/staff numbers with an equivalent parking demand of 41 spaces – should be conditioned during business hours.

Of note, the above provision accounts for general day-to-day parking demand. During periods when the office is not operational, i.e. evenings or weekends, there is potential to accommodate more students and staff onsite.

3.5 PWD Parking Provision

The Building Code of Australia (BCA) outlines the requirements for parking for people with a disability (PWD). The BCA specifies the PWD requirements of a use based on the development building type. The parking rates and total spaces required are outlined in Table 3.4 below.

Table 3.4: BCA – PWD Requirements

Building Class	Amount	Parking Demand Rate	Parking Demand
5	4	1 PWD space per 100 spaces	0.04 spaces
Total			1 space

The minimum required PWD parking spaces as required under the Building Code of Australia for the proposed development is 1 space. The development is proposing to provide 1 on-site PWD parking space. Therefore, complies with the requirements of the BCA.

Of note, two on-street PWD bays are located on Wordsworth Street by the pedestrian access.

3.6 Car Park Layout

Table 3.5 identifies the characteristics of the proposed parking area with respect to the AS2890.1 requirements. The last column identifies the compliance of each design aspect. Where compliance with AS2890.1 is not achieved, further information is provided.

Table 3.5: Parking Design Requirements

Design Aspect	Minimum AS2890.1 Standard	Proposed Provision	Compliance
Parking space length: – Standard bay – PWD bay – Motorcycle bay	5.4m 5.4m 2.5m	5.4m 5.4m 2.5m	Compliant
Parking space width: – Standard bay – PWD bay – Motorcycle bay	2.5m 2.4m 1.2m	2.5m 2.5m 1.2m	Compliant
Aisle Width: – Parking aisle – One-way aisle	5.8m 3.6m wall-to-wall	7.0m 3.4m	Compliant Performance Solution
Parking envelope clearance – space adjacent to wall	Space 0.3m clear of wall	Space 0.3m clear of wall	Compliant
Maximum Gradient: – PWD parking – Parking bay – Parking aisle – Ramp	1:40 (2.5%) 1:20 (5.0%) 1:16 (6.25%) 1:5 (20%)	< 1:40 (2.5%) < 1:20 (5.0%) < 1:16 (6.25%) < 1:5 (20%)	Compliant
Maximum Change in Grade	1:8 (12.5%) summit 1:6.67 (15.0%) sag	< 1:8 (12.5%) summit < 1:6.67 (15.0%) sag	Compliant
Height Clearance – General Min. – Over PWD bay	2.2m (2.3m PWD) 2.5m	3.5m over drop-off area None	Compliant

3.6.1 One-way Drop-off Aisle

The one-way drop-off aisle is 3.5m wide measured from wall to edge of barrier. The aisle is currently constructed and has been operational as an ambulance bay. A 4.2m wide clearance is available at the drop-off location – which is compliant.

TTM consider the proposed one-way aisle is suitable due to the straight alignment, current approved operations and low traffic generation through the drop-off area.

TTM have prepared a swept path assessment which demonstrates that a vehicle can access, drop-off and egress the one-way section via Shirley Lane, as shown in Figure 3.1.

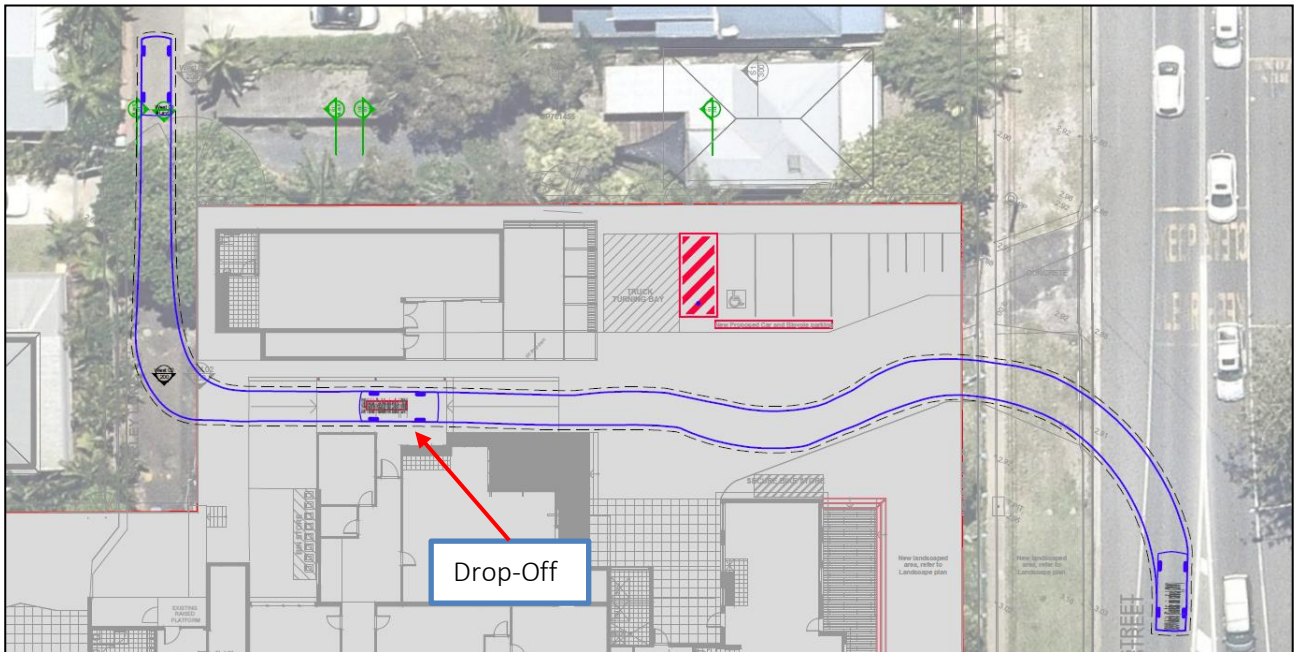


Figure 3.1: B99 Drop-off Facility Swept Path

4 Site Access Arrangements

The development plan includes the following access arrangements:

- Shirley Street Access located at the northern side of the subject site. The characteristics of this access include:
 - Type B2 drive way access (per IPWEA Standard Drawing RS-051)
 - 7m wide at the property boundary
 - Priority control
 - Left-in/left-out turns permitted.
- Shirley Lane located at the western side of the subject site. The characteristics of this access include:
 - Extension of existing roadway
 - 10m wide at the property boundary
 - Priority control
 - Outbound turns permitted.

4.1 Shirley Street Access Suitability

The proposed 7.0m wide Shirley Street access is to widen the existing access by 1.2m. This is to accommodate the swept path of the largest design vehicle – refuse collection vehicle (RCV).

The proposed Shirley Street access is to allow for left-in and left-out traffic movements – consistent with the existing access.

AS2890.1 outlines that on a 50kph road (Shirley Street) a 69m desirable sight distance and 45m minimum sight distance is required. TTM estimate that approximately 100m of sight distance is available. Therefore, the available sight distance exceeds the desirable sight distance and is considered suitable.

The first car park is located 6m from the property boundary, which provides a 1 vehicle queue. The drop-off area is located approximately 40m from the property boundary – or 6 vehicles. TTM consider the queuing provision to be suitable, given the low expected trip generation and low car parking provision.

Based on the above, TTM consider that the proposed Shirley Street access is suitable.

4.2 Shirley Lane Access Suitability

The Shirley Lane access is to remain as the existing access. The access is to allow for exit movements only – removing entry movements.

The existing access is located at the end of Shirley Lane and provides an access via extension of Shirley Lane.

Vehicles dropping-off and vehicles whose destination is east would utilise this access.

This access arrangement is considered to be appropriate and acceptable.

4.3 Wordsworth Street

The existing building extends along the sites frontage to Wordsworth Street. There is no possibility, without removing the building, to gain access via Wordsworth Street.

4.4 Drop-off Arrangement

Vehicles accessing the drop-off facility would use the route shown in Figure 4.1. This is described as:

- Butler Street / Shirley roundabout – u-turn if coming from north or through/right turn from elsewhere.
- Left turn into the site.
- Drop-off guest / visitor.
- Egress to Shirley Lane.
- Turn left or right at the Shirley Street / Shirley Lane intersection.



Figure 4.1: Drop-off Movements

4.5 Eastbound Egress

The Shirley Street egress permits left-out movements only. This is suitable for westbound traffic, however, there are no nearby turnaround facilities.

Vehicles wishing to continue eastbound from the site would be able to use the Shirley Lane access route, described in Section 4.4. This is considered to be suitable as the site provides 4 car parking spaces, which would likely be dedicated to a specific staff member – who would know the route.

It is expected that the use of this route would not significantly impact the operations of the local road network.

4.6 Access from the West

The Shirley Street egress permits left-in movements only. Vehicles would be able to u-turn at the Butler Street / Shirley roundabout 170m to the east of the site, in order to access the site. This is considered to be suitable as the detour is minor.

5 Service Vehicle Arrangements

To assess the required number of service bays for the development, TTM has referred to Council's DCP. Other service vehicle provisions are generally in accordance with AS2890.2.

5.1 Council Requirements

The Traffic Planning, Vehicle Parking, Circulation and Access Plan outlines service vehicle requirements, as shown in Table 5.1.

Table 5.1: Minimum Service Vehicle Requirements

Use	GFA	Requirement
Business Premises / Office Premises	Between 2,500 – 7,999m ² GFA	1 Medium Rigid Vehicle (MRV) bay 1 Small Rigid Vehicle (SRV) bay

5.2 Estimated Practical Demand

5.2.1 SRV and MRV

TTM expects that the largest regular service vehicle for the site would be a medium rigid vehicle (MRV).

TTM expects that the site is to operate with small rigid vehicles SRV and MRV. The loading area is suitably designed for an SRV and MRV bay.

TTM have prepared a swept path assessment demonstrating that a SRV and MRV can service the site, manoeuvre and egress the site in a forward gear, shown in Appendix B.

Service vehicles would need to access and egress the site via Shirley Street – as an existing 3.5m height restriction is located along the internal route to Shirley Lane.

5.2.2 Refuse Collection

TTM understand that refuse is to be collected via on-street wheelie bin collection, as shown in the development plans in Appendix A.

TTM have prepared a swept path assessment demonstrating that Council's side lift refuse collection vehicle (RCV) can service the site, manoeuvre and egress the site in a forward gear, shown in Appendix B. TTM understands that this is not the intended refuse options, however, consider that it is a prudent design outcome.

The RCV swept path would require use of the MRV bay to perform the required manoeuvres. TTM expects that this is an appropriate outcome, as it allows for the most efficient use of space. Refuse collection is likely to take place outside of the peak operational hours.

5.3 Proposed Service Vehicle Arrangements and Their Adequacy

The site provides one SRV and one MRV service bay. The site could provide appropriate on-site servicing for an RCV.

Therefore, the proposed development has been designed to accommodate the largest design vehicle accessing and egressing the site. It is expected that the site would operate functionally.

A service vehicle accessing the site may not be able to pass an egressing vehicle. However, TTM expects that the site would see a relatively low service vehicle trip generation / tidal traffic flows and that there would be a low likelihood of this event occurring. It is expected that the proposed servicing arrangements are suitable for the proposed development and would not significantly impact the local road network.

6 Public and Active Transport

6.1 Public Transport

Access to public transport from the site is considered appropriate. The Byron Bay Interchange busway station is located approximately 400m to the south of the site, with services to the 610, 637S, 637N, 640, 640X, 641, 641X and 645 routes.

These bus services provide connection to Ballina, Suffolk Park, Lismore, Mullumbimby and Billinudgel. Hourly services are provided and align with the operational timeframes of the subject site.

6.2 Active Transport

6.2.1 Pedestrian Access

Pedestrian access to the site is available via a 1.2m wide pedestrian footpath from Shirley Street, a 1.9m wide path from Wordsworth Street and a 1.2m wide path from Byron Street.

The proposed pedestrian connectivity is considered to be suitable.

6.2.2 Council's Cyclist Requirements

Council's DCP requires the site to have the following on-site cyclist parking facilities, as shown in Table 6.1.

Table 6.1: Off-Street Bicycle Parking

Land Use	Council DCP Requirement	Extent	Requirement
Tenancy 1 (Educational Establishment)	1 space per 5 students	100 Students 20 staff	20
Café (Tenancy 2)	1 per 25m ² of GFA	98m ² GFA	7.04
Commercial Kitchen (Tenancy 9)		78m ² GFA	
Office Uses (Tenancies 3-8, 10, 10A-10H, 10J, 11)	2 per 100m ² up to a floor area of 200m ² and 1 per 200m ² thereafter	1,009m ² GFA	8.05
Total			36

36 bicycle parking spaces are required per Council's DCP.

6.2.3 Practical Bicycle Parking Demand

Cycling Aspects of Austroads Guidelines outlines that:

'It is sometimes appropriate to make available 50% of the level of provision recommended in the table at the initial installation stage, however, space should be set aside to allow 100% provision in the event that the full demand for bicycle parking is installed.'

The proposal includes 2 bicycle parking areas, as shown in Figure 6.1. TTM estimates that these two bicycle parking areas would provide 22 bicycle parking spaces.

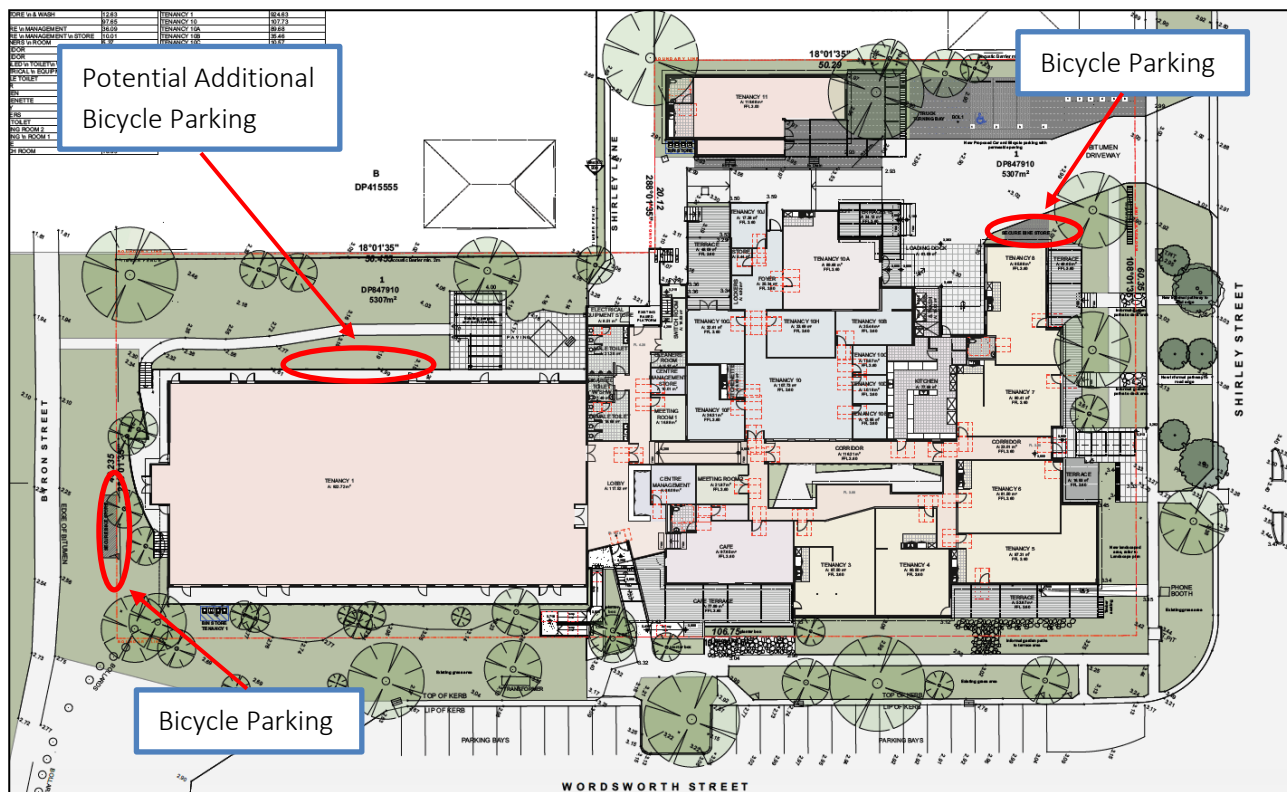


Figure 6.1: Bicycle Parking

The proposed bicycle parking provision accounts for over 50% of the expected bicycle parking demand. Austroads outlines that this is appropriate, if additional bicycle parking may be provided later if required.

There is plenty of available space on-site to accommodate additional bicycle parking if required, as shown in Figure 6.1.

Bicycle parking by Tenancy 1 is located within public land. TTM understands that this arrangement has been discussed with Council and is acceptable in principle.

TTM recommends that secure bicycle parking be provided for staff i.e. Class 2 within a lockable enclosure, as shown in Figure 6.1.

TTM consider that the proposed bicycle parking provision is appropriate. The building management should periodically review whether additional bicycle parking is required and provide more spaces if required.

7 Road Network Performance

7.1 Existing Site Traffic

The site has historically operated as the Byron Bay Hospital (old Byron Bay Hospital) until 2015-2016, with a hospital land use.

7.2 Traffic Nature of the Area

Both the existing and proposed development have limited potential for direct traffic generation, due to:

- Limited on-site and on-street car parking availability.
- Longer-term nature of staff / visitor parking i.e. for hospital visits, classes or work.
- Lower turnover of Wordsworth Street car parking spaces (from the above).

It is expected that a majority of people would use alternate modes of transport to access the site.



Figure 7.1: Traffic Nature of Area

7.3 Estimated Traffic Impact

7.3.1 Old Byron Hospital Trip Generation (Site's Previous Approval)

TTM have estimated the car parking demand of the old Byron Hospital by:

- Information provided by Council.
- Taylor Thomson Whitting (TTW) planning report of the new Byron Bay Hospital.

Council advised via email (dated: 19 March 2021) that the old Byron Bay Hospital operated with 60% of the capacity of the new Byron Bay hospital.

Taylor Thomson Whitting (TTW) planning report outlines the traffic generation of the new Byron Hospital would be 120 vehicles during the peak hour.

72 peak hour trips has been estimated existing demand of the old Byron Hospital (60% of 120 peak hour trips).

7.3.2 Proposed Development Trip Generation

TTM has adopted trip generation rates outlined within the following documents to estimate the expected trip generation:

- NSW Roads and Maritime Services (RMS) 'Guide to Traffic Generating Developments' updated traffic surveys 2013
- RTA's Guide to Traffic Generating Developments 2002
- ITE Trip Generation Rates – 8th Edition

Application of these rates to the proposed development, results in the estimate of development site traffic generation, as shown in Table 7.1. Of note, TTM has assumed the maximum number of students for the trip generation estimate – which is likely to be significantly lower.

Table 7.1: Peak Hour Trip Generation

Land Use	Source	Rate	Extent	Trip Generation
Tenancy 1 (Educational Establishment)	ITE	0.12 trips per student 1.62 trips per staff	155 Students (maximum) 20 staff	18.6 32.4
Café (Tenancy 2)	RTA	5 trips per 100m ² GFA	98m ² GFA	4.9
Commercial Kitchen (Tenancy 9)	RMS	0.78 trips per 100m ² GFA	78m ² GFA	0.6
Office Uses (Tenancies 3-8, 10, 10A-10H, 10J, 11)	RMS	1.6 trips per 100m ² GFA	1,009m ² GFA	16.2
Total				73

The trip generation of the existing and proposed development is expected to be similar. The existing site generating 72 peak hour trips and 73 peak hour trips for the proposal. The actual trip generation to the proposal is likely to be less, as TTM has assumed the worst case scenario for site operations.

This is considered to be reasonable, as the:

- On-site car parking and surrounding on-street car parking is comparable.
- The car parking turnover is generally consistent between the two uses.

A potential increase of 1 vehicle trip during the peak hour is not expected to significantly impact the operations of the local road network – as this would generally be encapsulated within daily traffic fluctuations.

It is expected that the expected traffic generation would be comparable with the existing traffic generation. Therefore, TTM expect that the proposed development would not have a significant impact on the local traffic operations.

7.4 Wordsworth Street

Wordsworth Street is a no through road and currently provides paid on-street parking. On-street parking areas include both sealed and non-sealed (grassed areas). The road surface is damaged – with potholes and degradation.

TTM recommends that the Wordsworth Street be resealed and parking spaces be linemarked accordingly. This would maximise the on-street parking availability and provide a safer outcome for the community.

TTM also recommends that a suitable turning area be provided, suitable for Council's RCV – however, this is not pertinent to this application.

TTM have provided a functional layout plan for the Wordsworth Street parking layout, as shown in Appendix C.

7.4.1 Shirley Street / Wordsworth Street Intersection

The Shirley Street / Wordsworth Street intersection currently includes CHR(S) and AUL(S) turning treatments. The pavement has been recently been resurfaced.

The proposed development is not expected to generate significantly more turning traffic through this intersection. Therefore, the existing turning lane arrangement is considered to be suitable.

8 Summary and Conclusions

8.1 Development Summary

The site has historically operated as the Byron Bay Hospital until 2015-2016. The site has since been unoccupied. The development seeks to repurpose the existing building/s, to include office and educational establishment uses.

Access is provided from Shirley Street and Shirley Lane. The Shirley Street access is to widen the existing access and the Shirley Lane is to remain as existing. The development access will provide a 1 car queue provision.

8.2 Car Parking Arrangements

The proposed parking supply includes 4 parking spaces and 5 motorcycle parking spaces – designed in accordance with AS2890.1.

The existing use provides the site with 97 car parking credits. It is recommended that Tenancy 1 be conditioned with a maximum on-site staff and student population equivalent. This should correspond to a 41 car parking demand – based on Council's parking rates.

The parking is considered acceptable given the target market of the site and location of the site in proximity to significant public transport infrastructure. Overall, TTM considers the proposed car parking arrangements for this development are adequate.

8.3 Service Vehicle Arrangements

Servicing for this development will be facilitated in the designated loading area, accessed off Shirley Street. Service vehicles demands site will be managed in a way to share the loading area.

The largest design vehicles, SRV and MRC can service the site. Council's RCV can manoeuvre on site in order to enter and exit in a forward gear. Overall, the proposed service vehicle arrangements are considered adequate to meet the needs of the proposed development.

8.4 Public and Active Transport Facilities

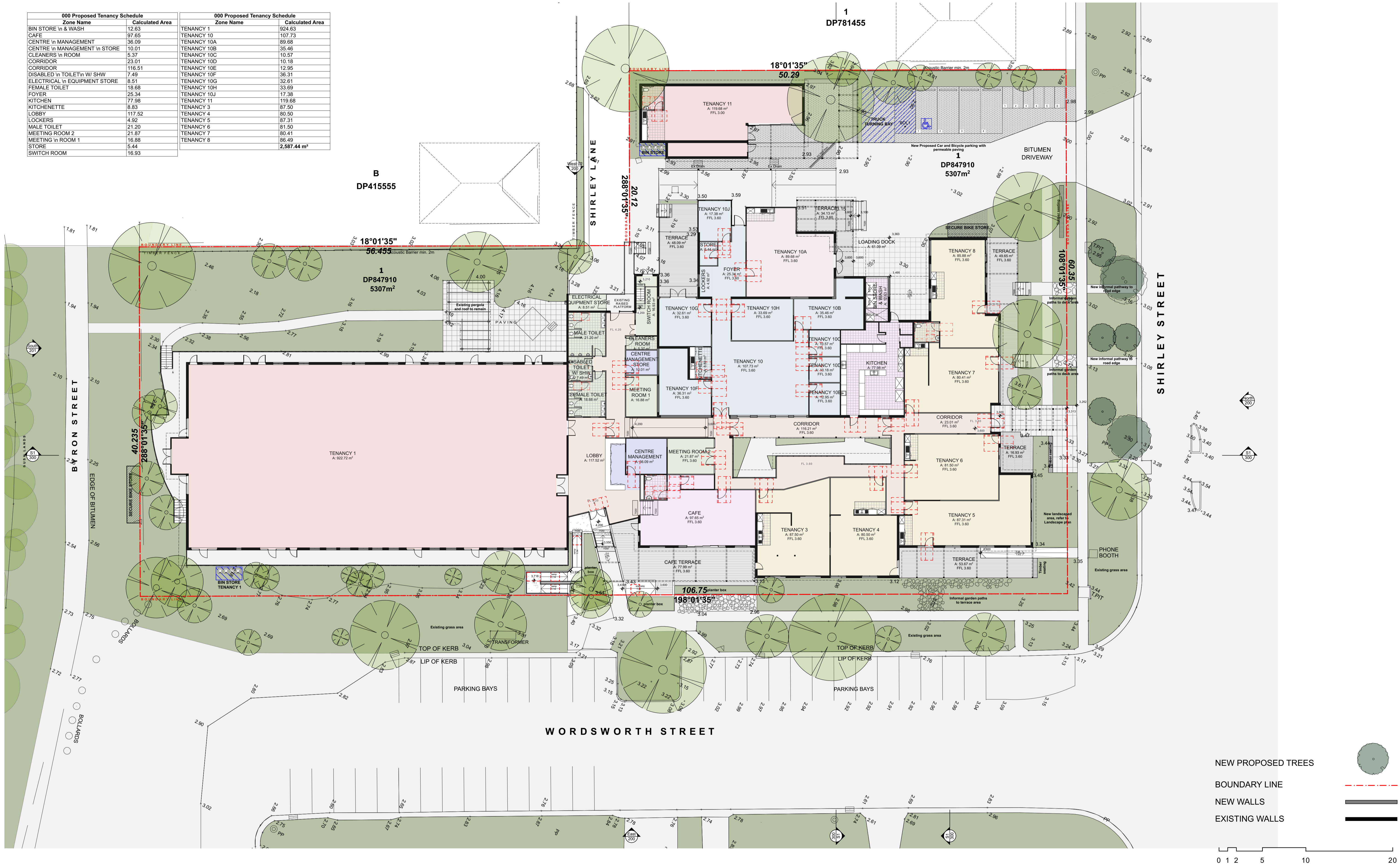
The current public transport infrastructure and proposed site provisions for pedestrian/bicycle facilities is considered adequate for the development.

8.5 Impact on Surrounding Road Network

Assessment of the proposed development indicates that the development will not have a significant impact on the local road network. As such, no further mitigating road works are required.

Appendix A Proposed Site Plan

000 Proposed Tenancy Schedule		000 Proposed Tenancy Schedule	
Zone Name	Calculated Area	Zone Name	Calculated Area
BIN STORE ln & WASH	12.63	TENANCY 1	924.63
CAFE	97.65	TENANCY 10	107.73
CENTRE ln MANAGEMENT	38.09	TENANCY 10A	89.69
CENTRE ln MANAGEMENT ln STORE	10.01	TENANCY 10B	35.46
CLEANERS ln ROOM	5.37	TENANCY 10C	10.57
CORRIDOR	23.01	TENANCY 10D	10.18
DISABLED ln TOILET ln W/ SHW	116.51	TENANCY 10E	12.95
ELECTRICAL ln EQUIPMENT STORE	7.49	TENANCY 10F	36.31
FEMALE TOILET	8.51	TENANCY 10G	32.61
FOYER	25.34	TENANCY 10H	33.69
KITCHEN	77.98	TENANCY 10J	17.38
KITCHENETTE	8.83	TENANCY 11	119.68
LOBBY	117.52	TENANCY 3	87.50
LOCKERS	4.92	TENANCY 4	80.50
MALE TOILET	21.20	TENANCY 5	87.31
MEETING ROOM 2	21.87	TENANCY 6	81.50
MEETING ln ROOM 1	16.88	TENANCY 7	80.41
STORE	5.44	TENANCY 8	86.49
SWITCH ROOM	16.93		2,587.44 m²



General Notes
DO NOT SCALE FROM DRAWING. USE FIGURED DIMENSIONS ONLY. CHECK ALL DIMENSIONS ON SITE BEFORE ANY MANUFACTURE OR CONSTRUCTION.
All dimensions are in millimetres unless stated otherwise.
All architectural drawings are to be read in conjunction with the relevant consultant documents. All dimensions and levels are to be checked and verified on site prior to the commencement of work, shop drawings or fabrication of any components. Refer all discrepancies to the Architect for determination. Drawings are not to be scaled, use only figured dimensions. This drawing is copyright and must not be retained, copied or used without the permission of BKA Architecture. This document has been prepared for and on behalf of the clients noted on the drawing. BKA Architecture's responsibility is to these clients only and not to any third party who may rely on these documents.
Nominated Architects (NSW) - John Baker 3552, John Kavanagh 5999

ISSUE FOR DA

Rev	Date	Issue
A	16/4/21	Concept plan for Client review
B	18/6/21	Concept plan for Client review
DA-Rev_A	28/6/21	Issue for DA

Client
Byron Shire Council
Byron Community Hub
Old Byron Hospital Precinct

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Scale at A1
1:200
Date
28/6/21

North

Drawn
DC

Project Address
Cnr Wordsworth and Shirley St
Checked
SM
Status
Not for Construction
WIP

Drawing
Proposed DA 1:200
Project No.
21010
Revision
DA-
Rev_A
Drawing No.
100

TOTAL BINS FOR KERB SIDE COLLECTION
TOTAL BINS FOR KERB SIDE COLLECTION (ONCE PER WEEK, COLLECTION OFF SHIRLEY STREET)
8 WHEELIE BINS (4 WASTE, 4 RECYCLE)
BINS 240L (1080H x 735D x 580W)
TOTAL BINS FOR PICK UP BY PRIVATE CONTRACTOR (PICK UP TWICE WEEKLY)
2 x 3 CUBIC METRE BINS (2000H x 1400D x 1200W)
1 x 1 CUBIC METRE BIN (1080H x 900D x 900W)

Legend:
Kerb side bin collection area
BIN-1: Wheelie bin with 240L capacity (1080H x 735D x 580W)
BIN-2: 3 m³ Metal Bin for Waste only, Locatable with metal castors (2000H x 1400D x 1200W)
BIN-3: 1 m³ Metal Bin for Recyclables only, Locatable with Metal castors (1080H x 900D x 900W)



General Notes
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Nominated Architects (NSW) - John Baker 3552, John Kavanagh 5999

ISSUE FOR DA

Rev	Date	Issue
B	18/6/21	Concept plan for Client review
DA-Rev_A	28/6/21	Issue for DA

Client
Byron Shire Council

Byron Community Hub
Old Byron Hospital Precinct

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Scale at A1
1:200

Date
28/6/21

North

Drawn
DC

Project Address
Cnr Wordsworth and Shirley St

Checked
SM

Status
Not for Construction
WIP

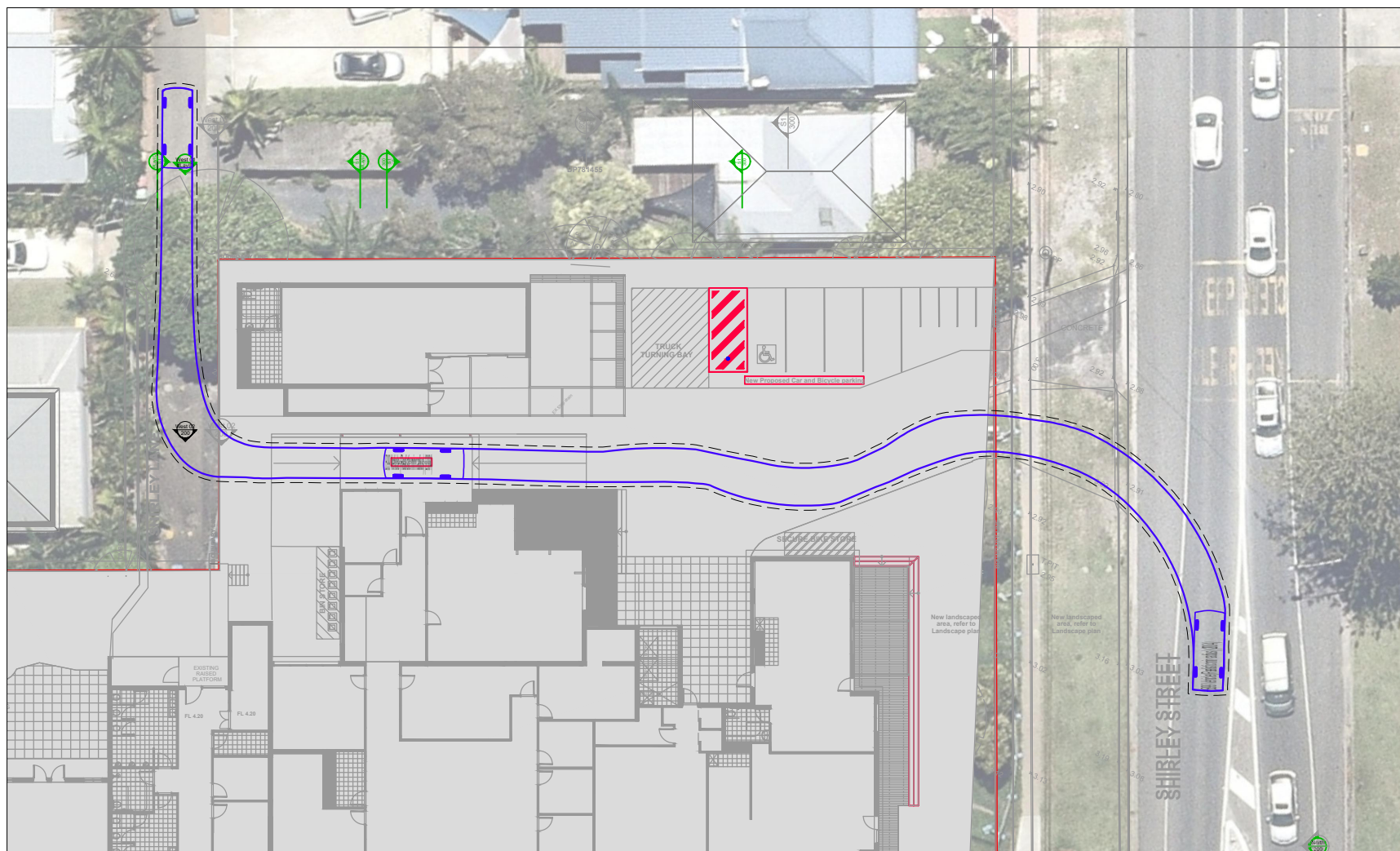
Drawing
Waste management plan

Project No.
21010

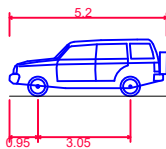
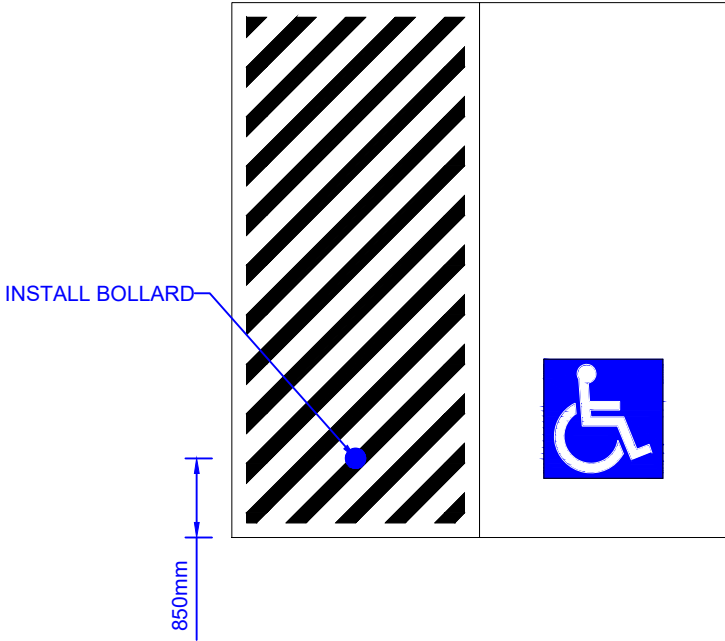
Revision
DA-
Rev_A

Drawing No.
510

Appendix B Service Vehicle Swept Paths



B99 DROP-OFF



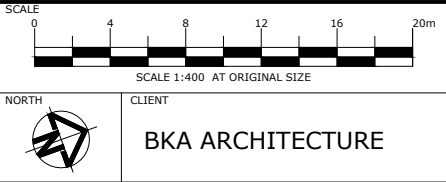
B99 Vehicle (Realistic min radius) (2004)
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.878m
Min Body Ground Clearance 0.272m
Track Width 1.840m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6.250m

VEHICLE CLEARANCE
300mm (DASHED LINE)



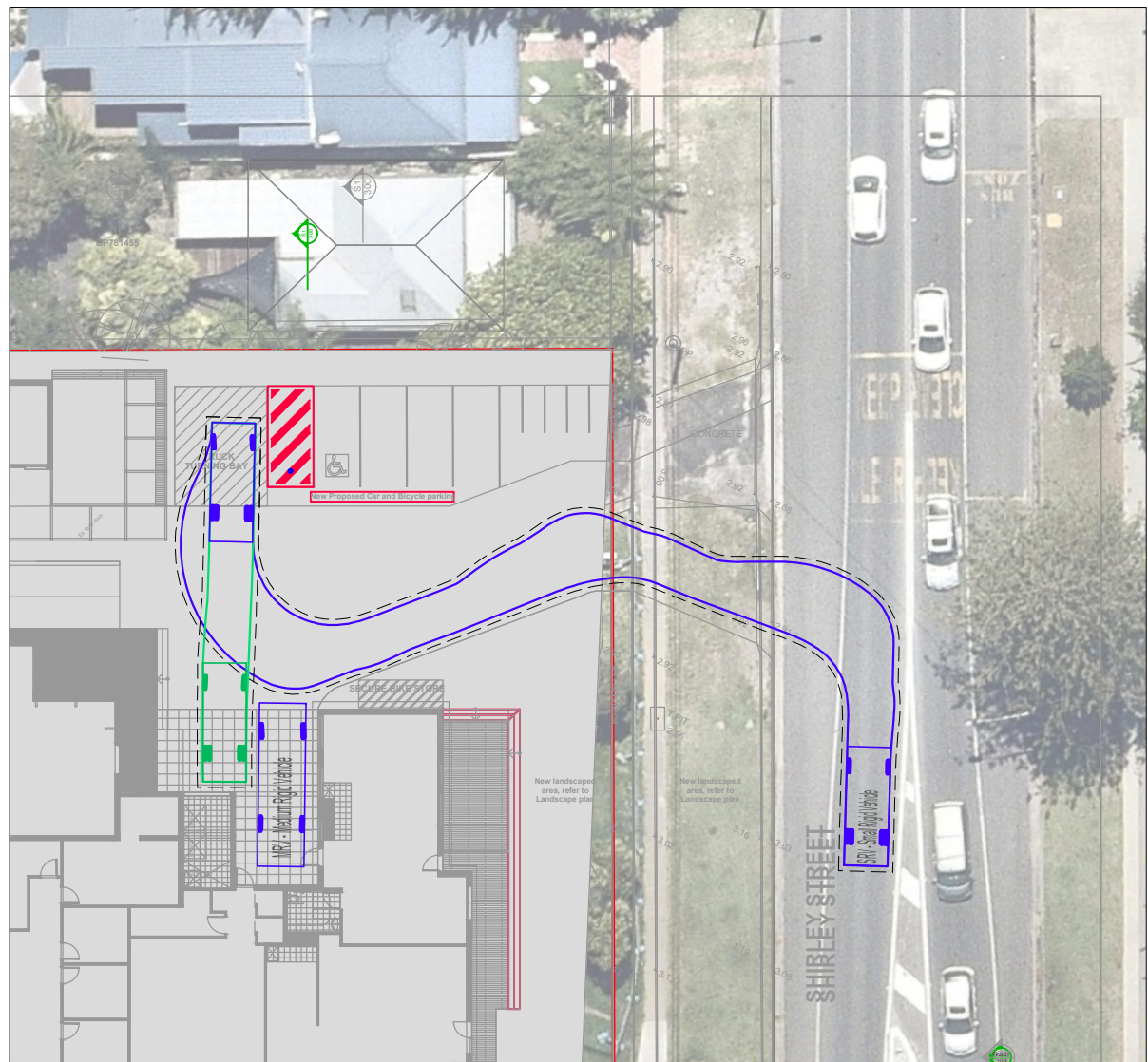
BLUE - VEHICLE BODY

REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	01-07-21	ORIGINAL ISSUE	SM	BB	BB

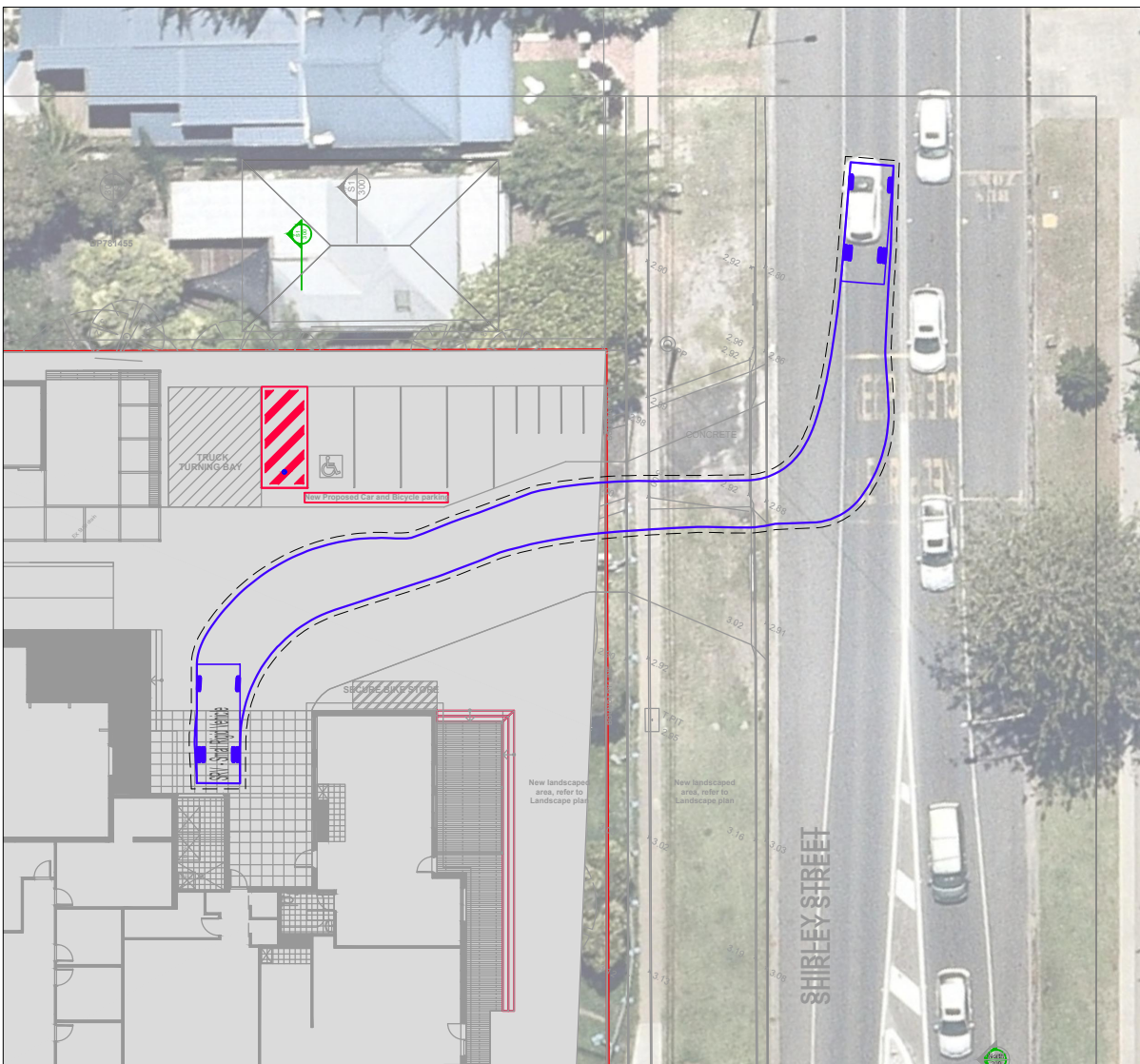


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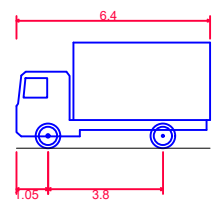
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DRAWING TITLE	SWEPT PATH ANALYSIS B99 - DESIGN VEHICLE	DRAWING NUMBER	21GCT0010-01	REVISION	A
		DATE	1 Jul 2021	SHEET	1 OF 1



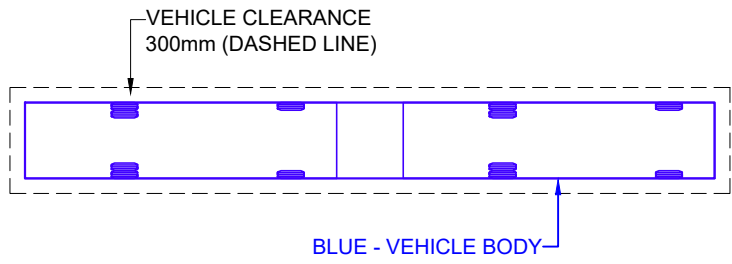
SRV LOADING BAY ACCESS



SRV LOADING BAY EGRESS



SRV - Small Rigid Vehicle
Overall Length 6.400m
Overall Width 2.330m
Overall Body Height 3.500m
Min Body Ground Clearance 0.398m
Track Width 2.330m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 7.100m



REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	01-07-21	ORIGINAL ISSUE	SM	BB	BB

SCALE
0 4 8 12 16 20m
SCALE 1:400 AT ORIGINAL SIZE

NORTH

CLIENT
BKA ARCHITECTURE

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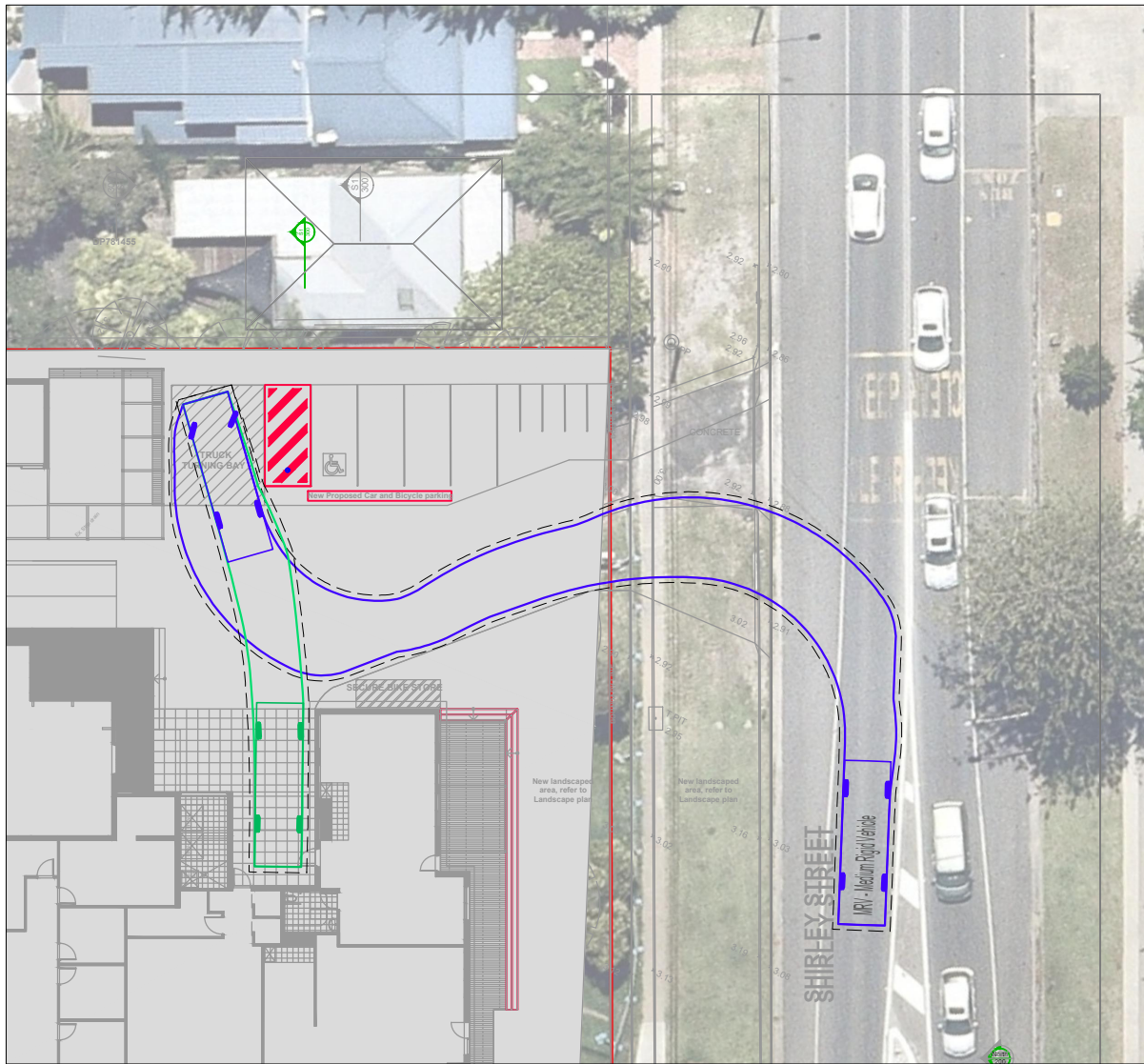
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PROJECT
OLD BYRON BAY HOSPITAL REPURPOSE

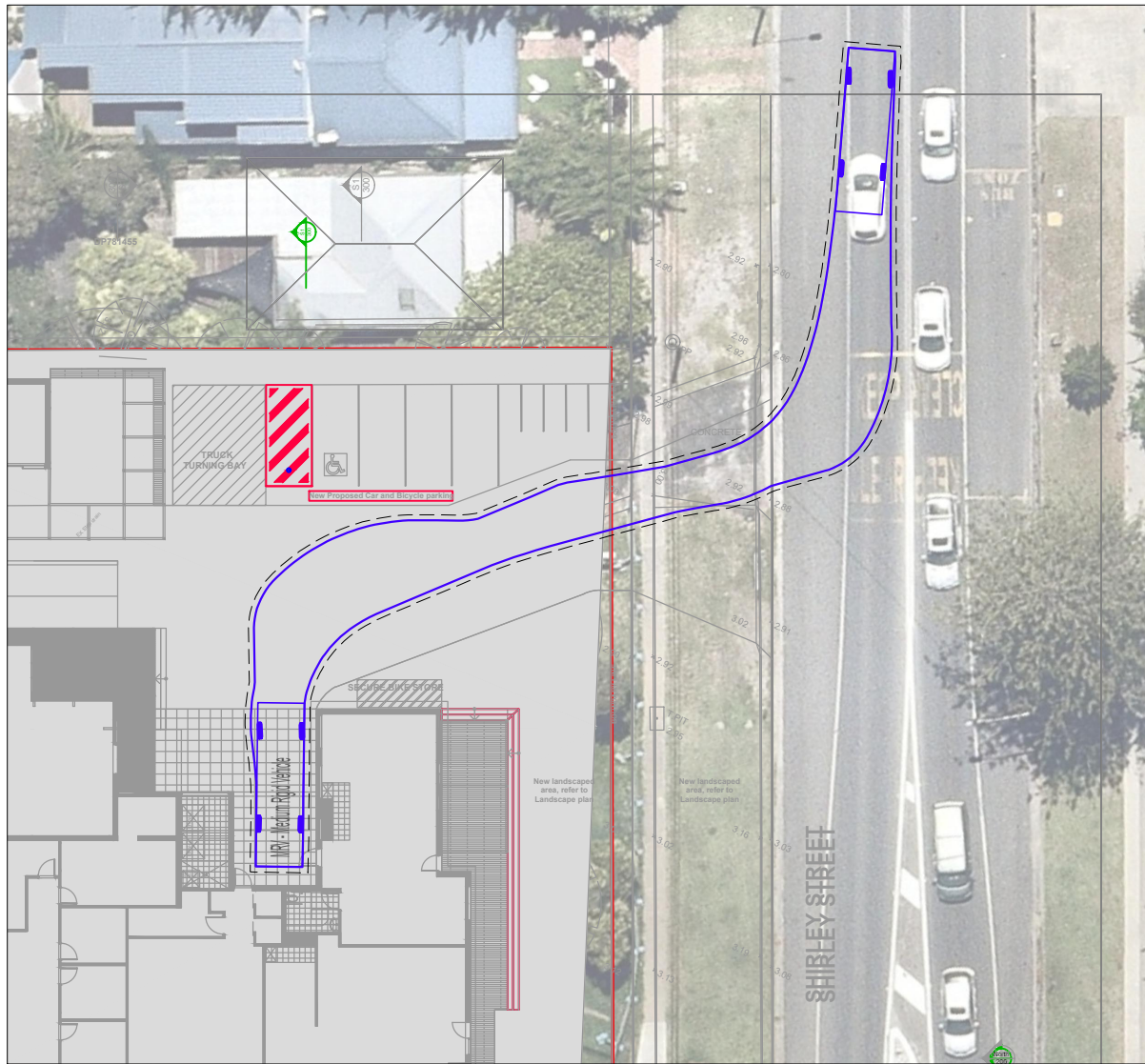
DRAWING TITLE
SWEPT PATH ANALYSIS
SRV 6.4m - DESIGN VEHICLE

PROJECT NUMBER 21GCT0010	ORIGINAL SIZE A3
DRAWING NUMBER 21GCT0010-03	REVISION A
DATE 1 Jul 2021	SHEET 1 OF 1

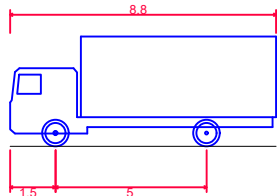
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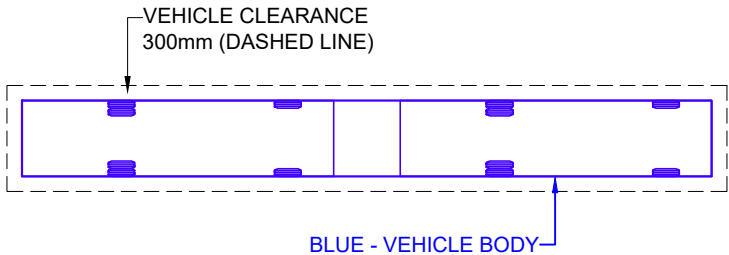
MRV LOADING BAY ACCESS



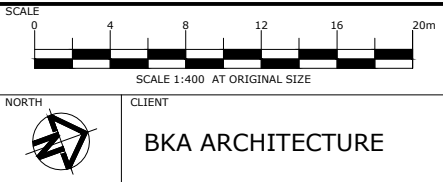
MRV LOADING BAY EGRESS



MRV - Medium Rigid Vehicle
Overall Length 8.800m
Overall Width 2.500m
Overall Body Height 3.633m
Min Body Ground Clearance 0.428m
Track Width 2.500m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 10.000m



REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVED
A	01-07-21	ORIGINAL ISSUE	SM	BB	BB



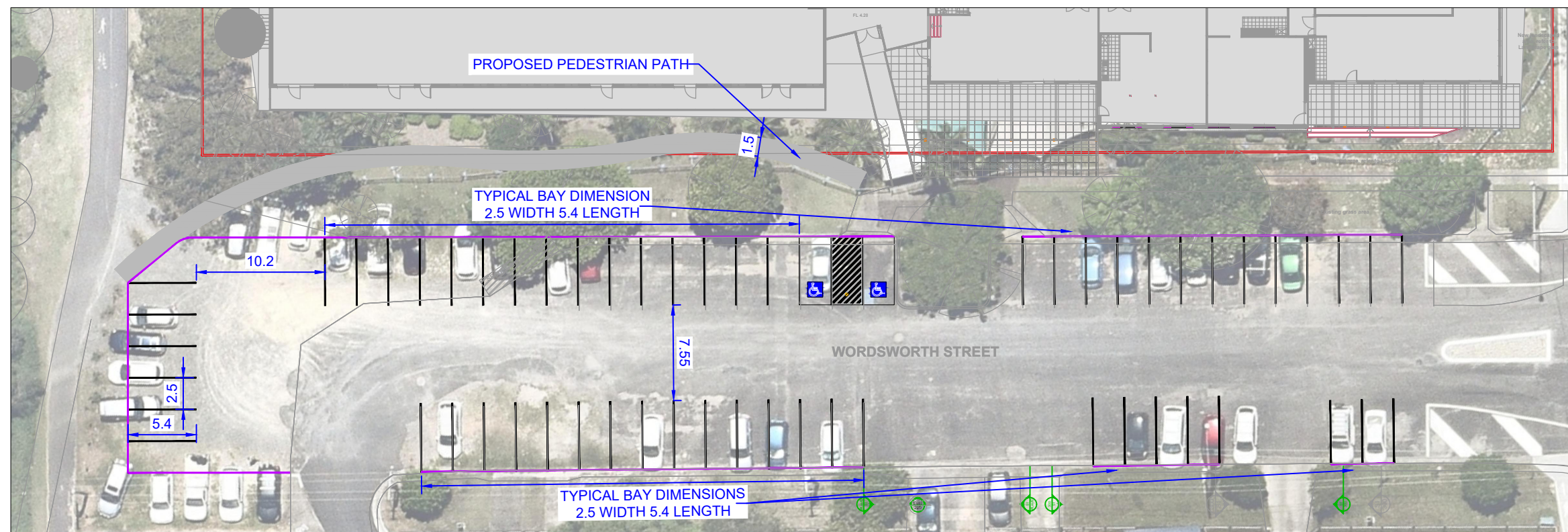
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PROJECT	OLD BYRON BAY HOSPITAL REPURPOSE
DRAWING TITLE	SWEPT PATH ANALYSIS MRV 8.8m - DESIGN VEHICLE

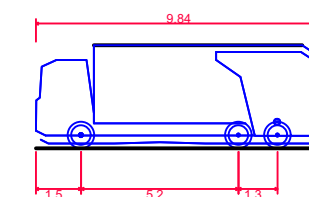
PROJECT NUMBER	21GCT0010	ORIGINAL SIZE	A3
DRAWING NUMBER	21GCT0010-04	REVISION	A
DATE	1 Jul 2021	SHEET	1 OF 1

Appendix C Wordsworth Street Functional Layout Plan



NOTES:

- NOTES:
1. MAPPING UNDERLAY PROVIDED BY NEARMAP. MAY BE SUBJECT TO DETAILED DESIGN & SITE SURVEY.
 2. ALL UNITS SHOWN ARE IN METERS (m) UNLESS OTHERWISE NOTED

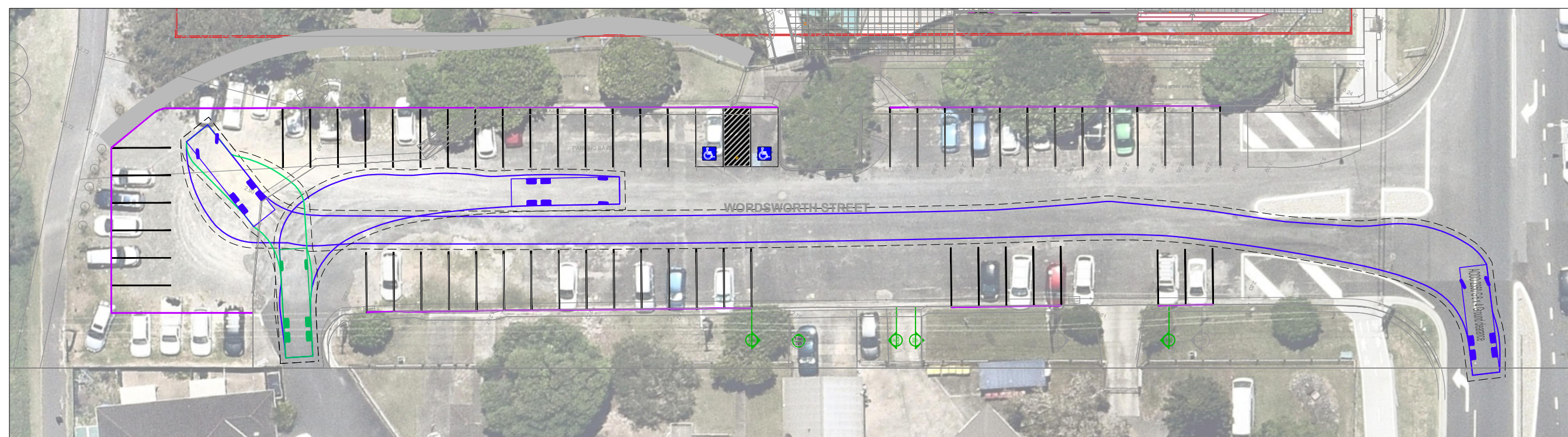


ACCO 2350 G 6 x 4 Ground clearance

Overall Length	9.840m
Overall Width	2.480m
Overall Body Height	3.400m
Min Body Ground Clearance	0.150m
Track Width	2.480m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	11.500m

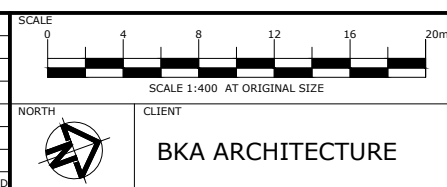
PRELIMINARY

ISSUED FOR COMMENT ONLY



RCV TURNAROUND

A	01-07-21	ORIGINAL ISSUE	SM	BB	BB
REV.	DATE	AMENDMENT DESCRIPTION	DRAWN	CHECKED	APPROVE



ttm

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PROJECT

OLD BYRON BAY HOSPITAL REPURPOSE

DRAWING TITLE

FUNCTIONAL LAYOUT PLAN CONCEPT & SWEPT PATH ANALYSIS
WORDSWORTH STREET CAR PARK
 RCV (SIDE LIFT) - DESIGN VEHICLE

PROJECT NUMBER	21GCT0010	ORIGINAL SIZE	A3
DRAWING NUMBER	21GCT0010-05	REVISION	A
DATE	1 Jul 2021	SHEET	1 OF 1