



**PROPOSED MIXED-USE DEVELOPMENT
1-9 WALKERVILLE TERRACE, GILBERTON**

TRAFFIC AND PARKING REPORT



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DOCUMENT CONTROL

Report title: Proposed Mixed-Use Development - 1-9 Walkerville Terrace, Gilberton
Traffic and Parking Report

Project number: 22486

Client: Citify Pty Ltd

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Version	Date	Details/status	Prepared by	Approved by
V1	30 May 23	For submission	ABH/TAW	TAW
V1.1	31 May 23	Updated yield	ABH/TAW	TAW
V1.2	03 Aug 23	Updated drawing set	ABH/TAW	TAW
V2.0	05 Aug 24	Revised proposal (draft)	ABH/TAW	TAW
V2.1	05 Aug 24	Minor update (draft)	ABH/TAW	TAW
V2.2	06 Sep 24	For submission	ABH/TAW	TAW
V2.3	11 Sep 24	Minor update	ABH/TAW	TAW
V2.4	24 Sep 24	Minor update	ABH/TAW	TAW

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1. INTRODUCTION

CIRQA has been engaged to provide design and assessment advice for a proposed new mixed-use development at 1-9 Walkerville Terrace, Gilberton. Specifically, CIRQA has been engaged to provide advice in respect to traffic and parking aspects of the proposal.

This report provides a review of the subject site, the proposed development, its access and parking provisions and the associated traffic impact on the adjacent road network. The traffic and parking assessments have been based upon plans prepared by SMFA (dated 11 September 2024) attached in Appendix A).

2. BACKGROUND

2.1 SUBJECT SITE

The subject site is located on the northeastern corner of the Walkerville Terrace, Northcote Terrace, Robe Terrace, Mann Road and Park Road intersection, in the suburb of Gilberton. The site is bound by residential development to the north (with the exception of a consulting room directly north of the site at 14 Northcote Terrace) and north-east, Walkerville Terrace to the south-east and Northcote Terrace to the west. Commercial properties are also located on the western side of Northcote Terrace (in the direction of Robe Terrace).

The Planning and Design Code identifies that the site is located within a 'Urban Corridor (Living)' Zone, with the following Overlays applicable:

- Aircraft Noise Exposure (ANEF 20);
- Airport Building Heights (Regulated) (All structures over 110 metres);
- Advertising Near Signalised Intersections;
- Affordable Housing;
- Design;
- Future Road Widening;
- Heritage Adjacency;
- Hazards (Flooding - Evidence Required);
- Local Heritage Place (8438);
- Major Urban Transport Routes;
- Noise and Air Emissions;
- Prescribed Wells Area;

- Regulated and Significant Tree; and
- Traffic Generating Development.

The subject site is currently occupied by the former Buckingham Arms Hotel and its associated parking area. Vehicle access to the site is currently provided via the following access points:

- a two-way (all-movement) access on Walkerville Terrace;
- side-by-side egress only (both left-out and right-out) on Walkerville Terrace (associated with a parking area egress and a drive-through bottle shop egress); and
- a two-way (all turning movement) access on Northcote Terrace.

Figure 1 illustrates the location of the subject site with respect to the adjacent road network, whilst Figure 2 illustrates the existing access arrangements associated with the existing site.



Figure 1 – Location of the subject site with respect to the adjacent road network



Figure 2 – Existing access arrangements associated with the subject site

2.2 ADJACENT TRANSPORT NETWORKS

2.2.1 ROAD NETWORK

Northcote Terrace is an arterial road under the care and control of the Department for Infrastructure and Transport (DIT). Adjacent the site, Northcote Terrace comprises two traffic lanes in each direction. On-street parking is generally permitted outside of the active clearway times. Clearway times are defined as 7:00 am to 10:00 am Monday to Friday in the southbound direction (towards the Adelaide CBD) and 3:00 pm to 7:00 pm Monday to Friday in the northbound direction (leaving the Adelaide CBD). Traffic data obtained from DIT indicates that this section of Northcote Terrace has an Annual Average Daily Traffic (AADT) volume in the order of 27,500 vehicles per day (vpd), of which

approximately 2.5% are commercial vehicles during 2020. A 60 km/h speed limit applies on Northcote Terrace.

Walkerville Terrace is identified as a 'collector' road by the South Australian Government's Location SA Map Viewer. Walkerville Terrace is under the care and control of the Corporation of the Town of Walkerville (Council) and comprises a 14.4 m wide carriageway (approximate) with a single traffic and bicycle lane in each direction. Designated on-street parking lanes are provided on each side of Walkerville Terrace within the vicinity of the site. Data obtained from by DIT indicates that Walkerville Terrace has an AADT volume in the order of 9,400 vpd. The default urban speed limit of 50 km/h applies on Walkerville Terrace.

The intersection of Northcote Terrace, Robe Terrace, Mann Road, Walkerville Terrace and Park Road (located directly south of the subject site) forms a five-way signalised intersection and is located on the Adelaide Ring Route. Mann Road is a one-way approach south of the intersection, while Park Road forms a one-way exit from the intersection. All approaches have multiple designated turn lanes. Data has been obtained from DIT (in the form of a turning movement survey) for the intersection, capturing peak hour turning movement volumes. The data was recorded on 1 December 2022 and is illustrated in Figure 2.

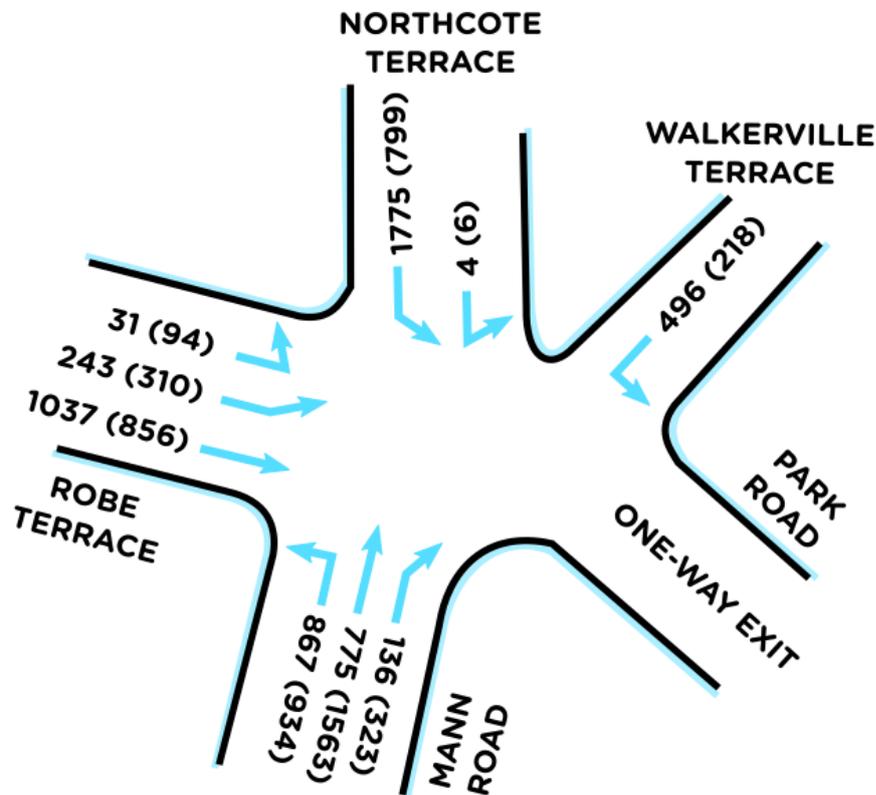


Figure 3 - Volumes at the Northcote Terrace, Walkerville Terrace, Park Road, Mann Road and Robe Terrace intersection during the am (pm) peak hours

It should be highlighted that the traffic volumes identified above were recorded by DIT during a year which was affected by COVID-19. However, based upon a comparative review of AADT volumes recorded since 1992, DIT has advised that it does not “... consider that any of these [traffic] surveys would have been affected by COVID-19 short term consequences”. Accordingly, it is considered that the data provided by DIT is representative of a typical weekday, suitable for traffic analyses.

2.2.2 MARWP

A Metropolitan Adelaide Road Widening Requirement (MARWP) applies to the site’s Northcote Terrace. Specifically, a 4.5 m wide ‘C-Type’ requirements plus an additional 6.0 m ‘consent area’ applies to the length of the frontage.

However, the heritage-listed former Buckingham Arms Hotel is located on the southern portion of the site (directly adjacent the Northcote Terrace, Walkerville Terrace intersection), within both the ‘C-Type’ requirement and 6.0 ‘consent area’ of the MARWP. The MARWP area applicable to the balance of the site (i.e. north of the former hotel) can therefore not be taken without demolition of the heritage building.

Initial liaison with DIT has been undertaken, with DIT understood to concur with the above. DIT has therefore advised that the MARWP requirement applicable to this site is therefore unlikely to be claimed.

2.2.3 ACTIVE TRANSPORT

The subject site has a high-level of connectivity to the adjacent pedestrian (footpath) network. Footpaths are provided immediately adjacent the site’s frontages on Northcote Terrace and Walkerville Terrace (on both sides of each road). Pedestrian crossing movements are facilitated at the Northcote Terrace, Walkerville Terrace, Park Road and Robe Terrace intersection via kerb ramps with tactile markings.

Bicycle movements are accommodated on Walkerville Terrace within designated bicycle lanes. Designated (full time) bicycle lanes are also provided on Robe Terrace, Park Road and Mann Road.

2.2.4 PUBLIC TRANSPORT

High-frequency public transport (bus) services operate along Walkerville Terrace and Northcote Terrace, with ‘Go Zone’ bus stops located directly adjacent the subject site. Key bus routes operating at these stops include:

- Route 202 – Ingle Farm to City;
- Route 203, 271 – Tea Tree Plaza Interchange to City;

- Route 206 – Northgate to City;
- Route 208, 273, 281 – Paradise Interchange to City;
- Route A029 – Ingle Farm to Adelaide Oval; and
- Route N202 – After Midnight service – Ingle Farm to City.

Figure 4 illustrates the location of key bus stops within close proximity to the subject site.

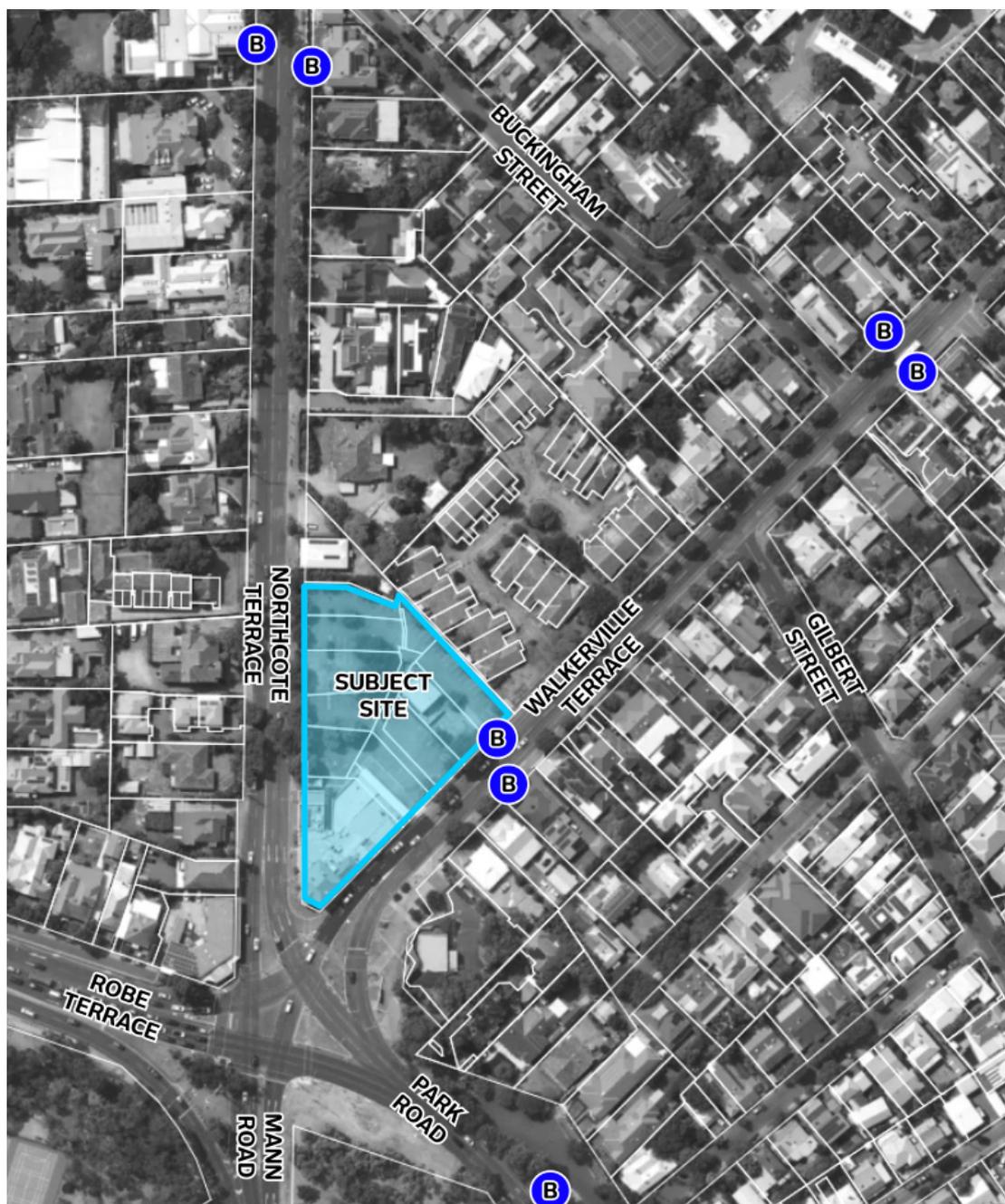


Figure 4 – Bus stop locations within the vicinity of the subject site.

3. PROPOSED DEVELOPMENT

3.1 LAND USE & YIELD

The proposal comprises the partial demolition of the existing buildings on the subject site (retaining the heritage aspects of the former Buckingham Arms Hotel) and the construction of a mixed-use development. The mixed-use development will comprise three key components, namely:

- **130 residential dwellings**, comprising:
 - 1x one-bedroom terrace;
 - 12x two-bedroom terraces;
 - 1x three-bedroom terraces;
 - 34x one-bedroom apartments;
 - 31x two-bedroom apartments (13 of which will be 'Supported Accommodation' apartments, designed in accordance with the Specialist Disability Accommodation (SDA) Design Standard as part of the National Disability Insurance Scheme (NDIS);
 - 42x three-bedroom apartments;
 - 9x three+ bedroom penthouses;
- **57 serviced apartments** (*tourist accommodation*);
- **1,460 m² of shop floor area** (*restaurant*), comprising:
 - 357 m² within the former Buckingham arms Hotel;
 - 1,103 m² within the three ground floor tenancies.

It should be noted that a previous mixed-use development was recently proposed on the subject site. The development also comprised residential dwellings, service apartments and retail/'food and beverage' offerings, however also included a commercial/office component. In comparison to the previous proposal, the subject development represents a general reduction in yield (particularly with regard to parking and traffic aspects, as noted below).

In order to demonstrate the difference in yield between the former development and subject proposal, development yields have been tabulated and are illustrated in Table 1.

Table 1 – Development yield comparison

Use	Former Yield	Current Yield	Yield Difference
Terrace Apartments	11	14	+3
Apartments	168	116	-52
Serviced Apartments	14	57	+43
Non-Residential	3,522 m ²	1,460 m ²	-2,062 m ²

As illustrated in Table 1, the site’s subject development yield has dropped notably with both its non-residential and standard apartment yields. Whilst the terrace apartment yield remains comparable to that of the previous townhouse yield, when considering the product type (i.e. previously all 11 townhouses were three bedroom, whereas the subject development comprises only one three-bedroom terrace apartment), it is considered that there is negligible difference.

Furthermore, whilst the quantity of serviced apartments has increased, this component of the development represents a small portion of the overall parking requirements (see Section 4.1) and traffic generation (see Section 5.1). On balance, the subject development represents a reduction in the intensity of the site’s development in both traffic and parking aspects.

3.2 PARKING AREA & DESIGN

The proposed development will be serviced by a total of 246 parking spaces, provided across two (2) basement parking levels and at-grade. Specifically, parking will be provided as follows:

- **Ground Level** - 3 short-term parking spaces for use for set-down/pick-up movements (i.e. passenger loading/unloading) and trades (requiring additional clearance for vans etc.);
- **Basement Level 1** – 116 spaces for use by retail/‘food and beverage’ tenancies (both staff and customers), service apartment guests and visitors associated the residential terraces and apartments); and
- **Basement Level 2** – 127 spaces for use by residents.

Further detail with regard to the minimum requirement for each use within the site is specified in Section 4.1.

A vehicular control point will be installed within Basement Level 1 (in the form of a roller door), with activation possible via remote control, RFID sensor, number plate recognition or similar. The roller door will be coupled with a fence to further prevent unrestricted pedestrian access between the residential and

non-residential areas. This will enable the residential parking area to be secured at all times (i.e. the door will remain closed) with a portion also available for visitor/public parking.

A second vehicular control point will be installed on the vehicle ramp between Ground Level and Basement Level 1 (also anticipated to be in the form of a roller door). This door will be open between the hours of 6:30 am and 12:00 midnight, enabling unrestricted access for site users. Outside of these periods (i.e. between 12:00 midnight and 6:30 am), the door will remain closed in line with typical Crime Prevention Through Environmental Design (CPTED) measures. Should residents wish to access the parking area during these times, the same security control mechanism will activate the door. In the event that visitors wish to access the site, residents will be able to open the roller door via intercom control from their apartment. Egress movements will simply activate the door via an in-ground induction loop within the egress travel path.

The parking areas shall comply with the requirements of the Australian/New Zealand Standards for *"Parking Facilities – Part 1: Off-street car parking"* (AS/NZS 2890.1:2004) and *"Parking Facilities – Part 6: Off-street Parking for People with Disabilities"* (AS/NZS 2890.6:2009) in that:

- regular parking spaces shall be 2.5 m wide and 5.4 m long;
- disabled parking spaces shall be 2.4 m wide and 5.4 m long (with an adjacent shared space of the same dimension);
- parking aisles shall be at least 5.8 m wide (in excess of 6.2 m wide adjacent customer parking spaces);
- 1.0 m end-of-aisle extensions shall be provided beyond the last parking space in a parking aisle;
- columns shall be located outside of the car clearance envelope;
- 0.3 m clearance shall be provided (where applicable) to all objects greater than 0.15 m in height;
- a head-height of at least 2.2 m shall be provided; and
- ramps shall have a maximum gradient of no steeper than 1 in 5, with transitions of at least 2 m at a gradient of 1 in 8.

The basement access ramps have been designed to facilitate simultaneous B99 design vehicle movements along their length. Similarly, simultaneous B99 design vehicle movements will also be facilitated at the site's internal intersection.

With regard to bicycle parking, a total of 190 bicycle spaces will be provided throughout the proposed development. Specifically, 132 spaces will be provided

within a secure bicycle room located within Basement Level 2 (for residents), and 10 bicycle spaces provided within a secure bicycle room at-grade (for use by staff). These spaces will be allocated to residents and staff within the proposed development. A further 24 bicycle rails (inclusive of 2 dedicated for cargo bicycle rail) will be located at-grade throughout the site, with each rail able to facilitate bicycle storage on both sides (i.e. 48 at-grade bicycle parking spaces). The bicycle parking shall be installed in line with the requirements of the Australian Standard for "Parking facilities – Part 3: Bicycle parking" (AS 2890.3:2015).

3.3 SITE ACCESS

Vehicle access to the site is proposed via the following access points:

- **a left-in/left-out access on Northcote Terrace.** The access will be restricted via a raised concrete splitter island, with ingress and egress approaches angled at 70-degrees to the adjacent Northcote Terrace roadway. The concrete splitter island will also comprise a pedestrian refuge (cut-out) to provide a storage area for pedestrians utilising the adjacent footpath (when crossing over the access point). Associated signage and linemarking will also be installed to further reinforce the access restrictions; and
- **a left-in/right-in/left-out access on Walkerville Terrace.** The access will also be restricted via a raised concrete splitter island, with the egress angled at 70-degrees to the adjacent Walkerville Terrace roadway. The splitter island will also comprise a pedestrian refuge (cut-out). Associated signage and linemarking will be installed to reinforce the left-out only movement.

It should be highlighted that both access points have been located such as to maximise separation from the adjacent Robe Terrace/Northcote Terrace/Walkerville Terrace/Park Road intersection (whilst maintaining a functional site design). Of note, the former Buckingham Arms Hotel was serviced by three access points on Walkerville Terrace, and one access point on Northcote Terrace, all located within closer proximity to the adjacent intersection than that of the proposed development's access points. The increased separation will therefore minimise traffic impacts to the signalised intersection in comparison to that of the existing site's operation.

Whilst the Walkerville Terrace access is located adjacent a merge treatment on the departure side of the intersection, it is not considered that this will create undue safety implications. This is due to the Australian Road Rules requiring a driver exiting from a private property to Give Way to all vehicles on the adjacent public road network. The Road Rules therefore regulate these movements to ensure that the safe operation of the road network is maintained at all times.

All existing crossovers will be closed and reinstated as Council-standard upright kerb. The new access points have been designed to facilitate simultaneous B99 vehicle turning movements as well as commercial vehicles associated with site servicing (see Section 3.4). Pedestrian sightline provisions have been accommodated at the proposed access points in accordance with Figure 3.3 of AS/NZS 2890.1:2004.

Plans illustrating the various B99 design vehicle turn paths to, from and throughout the site are attached in Appendix B.

Pedestrian and cyclist access to the site will be provided via the site's frontages to Northcote Terrace and Walkerville Terrace. Bicycle storage/parking areas are provided at-grade throughout the site, as well as within the basement levels (for residents and staff), which will be able to be accessed via service lifts. All bicycle parking shall comply with the requirements of the Australian Standard for "Parking Facilities – Part 3: Bicycle Parking" (AS 2890.3:2015).

3.4 SERVICE VEHICLE MOVEMENT

Refuse collection and site servicing is proposed to occur on-site in a designated loading bay, accessed from the common roadway. The site has been designed to accommodate commercial vehicles up to 10 m in length. Such vehicles will be able to enter and exit the site in a forward direction from both the site's Northcote Terrace and Walkerville Terrace intersections.

A head height of at least 3.8 m shall be provided above all areas where commercial vehicle movements will occur. A plan illustrating commercial vehicle movements to, from and within the site is attached in Appendix C.

4. PARKING ASSESSMENT

4.1 CAR PARKING

The Planning and Design Code identifies the following parking requirements relevant to the proposed development, noting the site's location within a designated area:

- **Non-residential development**
 - 3 parking spaces per 100 m² gross leasable floor area;
- **Tourist accommodation** (*applicable to serviced apartments*)
 - 1 space for every 4 bedrooms;
- **Residential Flat Building**
 - 1 bedroom dwelling – 0.75 spaces per dwelling;
 - 2 bedroom dwelling – 1 space per dwelling;

- 3 (or more) bedrooms – 1.25 spaces per dwelling; and
- Visitor spaces – 0.25 spaces per dwelling; and
- **Supported Accommodation** (*applicable to the NDIS Apartments*)
 - 0.3 spaces per bed.

It should be noted that, as depicted on plans prepared by SMFA, each serviced apartment will comprise one (1) bedroom only.

Based upon the above parking rates, Table 2 illustrates a breakdown of the theoretical parking requirement of each component of the proposed development.

Table 2 – Breakdown of the theoretical parking requirement associated with each use based upon regular parking rates.

Use	Planning and Design Code Parking Requirement
Terrace Apartments	14.0
Apartments	107.25
NDIS Apartments	7.8
Residential Visitor	29.25
Serviced Apartments	14.25
Retail/F&B	43.8
Total	217 spaces

The proposal comprises the provision of 246 parking spaces throughout the subject site. Given that a minimum of 217 parking spaces are required, the proposed development will have a parking surplus of 29 parking spaces (equivalent to 13.3% additional spaces above that of the site’s minimum requirement). On this basis, the parking requirements of the Planning and Design Code are satisfied.

As outlined above, a security ‘control’ line will be installed within the Basement Level 1 parking area (in the form of a fence, or similar, with a roller door vehicular control point controlled via remote/RIFD etc.). The security line will enable all residential parking spaces to be located within a secure (non-publicly accessibly) portion of the parking area, whilst leaving a portion (in excess of 74 spaces) available for access by the general public (associated with the retail/‘food and beverage’ tenancies, and/or visitors associated with the residential apartments).

Whilst it is acknowledged that on-street parking is limited in the vicinity of the site, it is considered that the additional parking provided on-site will provide adequate buffer to accommodate fluctuations in demand (above that of the minimum requirement), should additional demands be realised. Importantly, the provision of additional on-site parking is considered to significantly reduce the likelihood of site-related parking demands occurring on-street within the vicinity of the site.

Accordingly, based upon the above, taking into consideration the segregation of the site's parking provisions, ample on-site parking will be provided, accommodating demands above that of the minimum requirements of the Planning and Design Code.

4.2 BICYCLE PARKING

The Planning and Design Code identifies the following bicycle parking rates applicable to sites located within an 'Urban Corridor (Living)' Zone:

- **shop** (*'food and beverage'*)
 - Staff - 1 space for every 300 m²;
 - Customers – 1 space for every 600 m²;
- **residential** (*outside of City of Adelaide*)
 - Residents – 1 space per 4 dwellings;
 - Visitors – 1 space per 10 dwellings;
- **tourist accommodation** (*applicable to serviced apartments*)
 - 1 space for every 20 employees; and
 - 2 spaces for the first 40 apartments; 1 for every additional 40 rooms.

For the purpose of this assessment, it has been assumed that no more than 40 employees will be associated with the serviced apartments. This is, in reality, considered to be an extremely conservative assessment but has nonetheless been adopted.

Based upon the above rates and assumptions, the proposed development would have a theoretical requirement for 59 bicycle parking spaces (33 resident, 19 visitor and 7 employee). Given that a total of 190 bicycle parking spaces will be provided throughout the site (132 located within a secure bicycle room within Basement Level 2, 10 located within a secure at-grade bicycle room, and 48 located at-grade throughout the site), the bicycle parking requirements of the Planning and Design Code are readily satisfied.

It is also considered that residents may choose to store their bicycles within their respective apartments, as is commonplace with high-end bicycles. Should

residents choose to do so, this will further reduce bicycle parking demands within the site's secure basement bicycle parking enclosure.

5. TRAFFIC ASSESSMENT

5.1 TRAFFIC GENERATION

The NSW RTA's "Guide to Traffic Generating Developments" (the RTA Guide), and its subsequent updates and data analyses reports, identifies the following traffic generation rates relevant to the proposed development:

- **retail** (*'food and beverage'*)
 - 12.3 to 16.3 peak hour trips per 100 m² of gross floor area;
- **high density residential** (*terrace apartments, tower apartments, and NDIS apartments*)
 - 0.53 am peak hour trips per dwelling;
 - 0.32 pm peak hour trips per dwelling;
- **hotel** (*service apartments*)
 - 0.4 peak hour trips per unit.

With regard to the 'food and beverage' tenancies, retail (shop) traffic generation rates have been adopted for the purpose of this assessment. Whilst restaurant traffic generation rates would be more akin to 'food and beverage' uses, given that tenants of the proposed development are unknown, adoption of a 'shop' traffic generation rate will provide conservatism in the traffic impact assessment.

However, the traffic generation range identified above is applicable to 'shopping centres' with a floor area of up to 10,000 m² (i.e. where a large variety of offerings are available, such as a Westfield Shopping Centre). In reality, such a rate is not considered to be appropriate for application to the subject proposal. This is due to the large-scale nature and variety of offerings of a shopping centre compared to that of the proposed development. In reality, it would be expected that the retail component would generate in the order of 7.5 to 9.0 peak hour trips per 100 m² of floor area. Such rates have recently been adopted (and accepted) for small retail shops throughout metropolitan Adelaide.

It should also be noted that during the am peak hour generation of 'shops' is typically 50% of that associated with the pm peak hour. As such, rates of 4.5 am and 9.0 pm trips per 100 m² have conservatively been adopted for this assessment.

Based upon the above traffic generation rates, it is forecast that the proposed development will generate in the order of 158 am and 196 pm peak hour trips.

However, these forecasts do not take into account factors likely to result in lower levels of traffic generation than that identified above. Such factors include, but are not limited to:

- the peak hour traffic generation associated with each component has been assumed to occur simultaneously. In reality, the various peak hours will not overlap directly, resulting in a less pronounced peak than that identified above;
- the site's high-level of connectivity to high frequency, as well as active transport provisions will provide alternate (non-private vehicle) travel modes for residents, employees and visitors. This will likely result in a portion of residents, employees within and visitors to the site utilising public transport as their travel mode of choice; and
- the mix of development uses proposed within the site. This is likely to result in a number of 'self-contained' trips within the proposed development (i.e. a resident accessing a restaurant within the site will not generate a vehicle trip) as well as shared trips (i.e. an employee visiting a resident after their shift).

It is also reiterated that the above traffic forecasts are traffic volumes anticipated to be associated with the proposed development, and do not take into account traffic volumes associated with the previous Buckingham Arms Hotel. Should consideration be given to the site's previous use, the 'additional' traffic volumes would be substantially less than those identified above.

Nonetheless, for the purposes of this assessment, the peak hour traffic volumes identified above have been adopted without reduced traffic generation discounts applied.

5.2 TRAFFIC DISTRIBUTION

In order to determine the proposal's potential traffic impact on the adjacent road network, a high-level traffic distribution has been undertaken. For the purposes of this assessment, the following assumptions have been adopted:

- **retail** (*food and beverage*) – 50% will enter and 50% will exit the site during each of the am and pm peak hours;
- **hotel** (*tourist accommodation*) - 40% will enter and 60% will exit the site during the am peak hour (and vice versa during the pm peak hour);
- **residential** - 30% will enter the site and 70% will exit the site during the am peak hour (and vice versa during the pm peak hour);

- 30% of traffic will enter via Northcote Terrace, while 70% will enter via Walkerville Terrace. Ingress movements at Walkerville Terrace would be evenly distributed between left-in and right-in; and
- 70% of traffic will exit via Northcote Terrace, while 30% will exit via Walkerville Terrace.

It is noted that the restriction of the right-out turning movement on to Walkerville Terrace will result in drivers instead turning left on to Northcote Terrace (given that the same southbound vehicle access can be achieved).

Figure 5 illustrates the forecast traffic volumes at the site access during the am and (pm) peak hours.

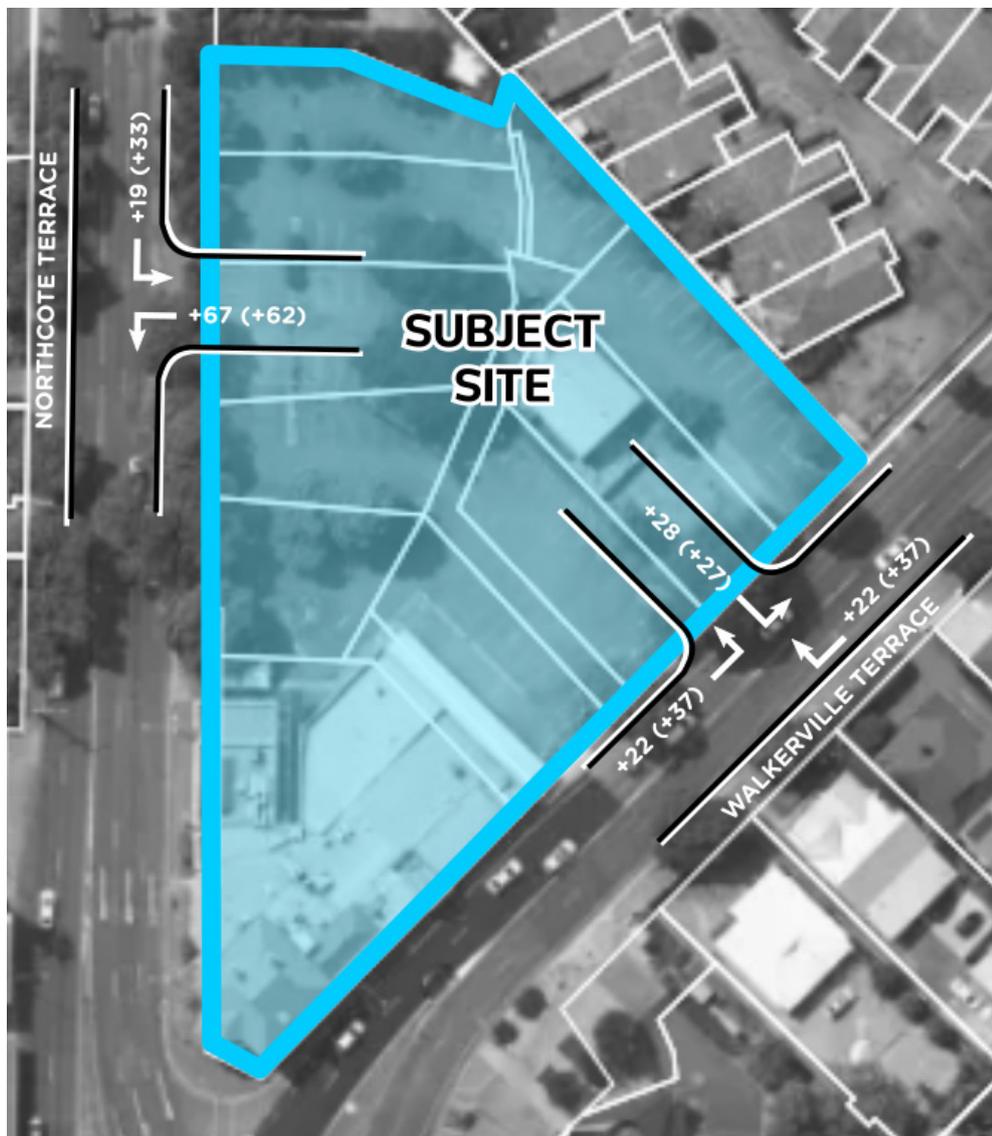


Figure 5 - Forecast traffic volumes at the site access points during the am (pm) peak hours

5.3 TRAFFIC IMPACT

Traffic volumes forecast at the site's access points are well within the capacity of the proposed access point design, particularly noting the prohibition of right turns at the Northcote Terrace access (to and from the site) as well the right out (from the site) at the Walkerville Terrace access.

The facilitation of left-turn egress movements only will result in negligible disruption to traffic flows on both Northcote Terrace and Walkerville Terrace, as well as improve delays for vehicles exiting the site (given drivers will not be delayed by other drivers seeking to turn right across multiple lanes of traffic).

With regard to the right turn entry movement on Walkerville Terrace, it is considered that these movements would not cause undue impact to the operation of Walkerville Terrace (south-west bound traffic) above that experienced whilst the Buckingham Arms Hotel was operational. This is due to adequate width being provided on the Walkerville Terrace carriageway to allow a driver to manoeuvre around a vehicle stored whilst waiting to turn right into the subject site (should such a scenario occur).

Furthermore, the location of the adjacent signalised intersection will create platooning in the northeast-bound traffic flows (i.e. concentrated movements with large gaps between, created by the controlled 'release' of vehicles from the intersection), thereby presenting pronounced gaps in the opposing traffic flow to facilitate right-turn ingress movements.

The facilitation of right turn movement from Walkerville Terrace into the subject site are not dissimilar to that of the Buckingham Arms Hotel's existing access arrangements in that right-turn movements are currently permitted into the site (the site's access is located in a similar location to that of the proposed site access on Walkerville Terrace). It is acknowledged that on infrequent occasions, a driver would be required to store on the carriageway behind a driver waiting to turn right (in the very unlikely event that the right turn demand occurred simultaneously with a bus stored at the bus stop). However, the likelihood of such a scenario occurring is considered very low, with any resultant delays considered to be negligible due to platooning created in the north-east bound traffic flow by the adjacent signalised intersection.

In order to demonstrate the negligible impacts associated with the right turn movements, an analysis has been undertaken using SIDRA Intersection modelling software. Using traffic data obtained from DIT (illustrated in Figure 3), the analysis identifies that a 95th percentile queue of less than one (1) vehicle will be associated with the right turn movement from Walkerville Terrace into the subject site, along with minimal delays for throughbound movements. The facilitation of

this turning movement is therefore considered acceptable with regard to the proposed development and traffic volumes identified.

Furthermore, it should also be noted that the alternative option, to ban the right turn movement, would result in additional vehicle movements being undertaken via Buckingham Street, James Street and/or Edwin Terrace. The additional movements would result in additional demand for the right turn movements at the associated intersections with Walkerville Terrace, thereby (essentially) relocating the same scenario elsewhere along Walkerville Terrace. However, given a parallel parking lane is located adjacent both of these intersections (where southwest-bound drivers would likely be unable to pass a stored vehicle), it is considered that the likelihood of delay would be exacerbated in comparison to the proposed access arrangements. On the basis of the above (and considering alternate solutions), the proposed access arrangement is considered appropriate and satisfactory to maintain and balance access to/from the site without untoward traffic impacts.

Beyond the site's access points, in the order of 89 and 99 vehicles are forecast to be distributed via the Robe Terrace/Northcote Terrace/Walkerville Terrace/Park Road intersection during the am and pm peak hours respectively.

Data obtained from DIT indicates that the intersection of Northcote Terrace, Walkerville Terrace, Park Road, Mann Road and Robe Terrace accommodates volumes in the order of 5,400 vehicles and 5,350 vehicles during the am and pm peak hours respectively.

The am and pm peak hour traffic volumes forecast to be associated with the proposed development (using the adjacent intersection) would therefore equate to less than 1.9% of the total traffic. Accordingly, it is not considered that existing conditions at the intersection would be notably impacted upon (nor exacerbated) by the proposed development.

It is also highlighted the Robe Terrace/Northcote Terrace/Walkerville Terrace/Park Road intersection is under the care and control of DIT. Of particular note, DIT raised no issues in respect to traffic impacts at the intersection as part of the previous scheme's mandatory referral process. Given that the subject proposal is forecast to generate less traffic than that of the previous scheme, it is considered that DIT will (again) have no concern relating to the project's traffic impact upon the signalised intersection's operation (in concurrence with CIRQA's traffic impact assessment of the previous scheme).

With regard to the broader road network, the site's proposed access arrangements and location offer a high level of connectivity. For example, vehicles are able to travel from the site to the north via Walkerville Terrace (left

out) and Stephen Terrace, to the east via Walkerville Terrace (left out), south via Northcote Terrace (left out), and west via Robe Terrace (left out onto Northcote Terrace, south onto Park Road, right-turn/U-turn to continue north on Park Road, and west on Robe Terrace). Similarly, vehicle access to the site is available from the north via Northcote Terrace (left in), east via Walkerville Terrace (right in), south via Walkerville Terrace (left in), and west via Walkerville Terrace (left in).

It is however acknowledged that a number of these routes utilise the adjacent signalised intersection for connectivity. It is also understood that during the road network peak hours (particularly the am peak), queues can extend from the intersection causing delay. Whilst the proposed development is not anticipated to detrimentally exacerbate existing delays, some drivers may choose alternate routes which do not travel through this intersection.

Accordingly, in order to ensure any unintended traffic impacts arise from the proposed development, traffic data has been recorded on a number of local streets within the vicinity of the subject site. Specifically, Austraffic (a third-part independent data collection specialist) has been engaged to collect data on Buckingham Street, Edwin Terrace, James Street and Gilbert Street. The traffic data collected is illustrated in Table 3.

Table 3 – Recorded traffic data on key local streets within the vicinity of the subject site.

Street	Road Classification	Theoretical Amenity Limit	Recorded Average Daily Traffic Volume
Buckingham Street	Local Road	1,500 vpd	258 vpd
Edwin Terrace	Local Road	1,500 vpd	953 vpd
James Street	Local Road	1,500 vpd	510 vpd
Gilbert Street	Local Road	1,500 vpd	817 vpd

The data (illustrated in Table 3) indicates that the key local streets within the vicinity of the site are well within the theoretical amenity limits envisaged for their respective road classifications (1,500 vehicles per day). Accordingly, even if a small portion of development-related traffic volumes were to utilise the local road network, the additional volumes would not impact upon the nature or function of these street.

It is also understood from CIRQA’s involvement in the previous proposal, that a number of these local streets are currently utilised by motorists to bypass the signalised intersection during peak periods. It is however highlighted that the data recorded captures these existing movements, and that despite the

additional 'non local' traffic volumes, the streets are operating with traffic volumes well below their theoretical 'limit.

It should also be highlighted that the above recorded traffic volumes also include consideration of non-development related traffic generating developments within the vicinity of the site (i.e. such as cut-through volumes associated with Wilderness School). Again, the streets identified above remain well within the theoretical amenity limits identified by the relevant "*Infrastructure Guidelines SA*" document, with the ability for additional volumes to be accommodated before detrimental impacts to amenity and/or safety may be realised.

On the basis of the above, the site's access arrangements are considered appropriate to accommodate the forecast traffic volumes with negligible impact on the operation of the adjacent signalised intersection and road network. Furthermore, should any additional volumes spill into the surrounding local road network, it is considered that these volumes will be small, and that the amenity or safety of the adjacent local streets will not be detrimentally impacted upon.

5.4 TRAFFIC COMPARISON (FORMER BUCKINGHAM ARMS)

As noted above, the traffic impact assessment has not taken into consideration or relied upon traffic volumes forecast to be associated with the former Buckingham Arms Hotel. Of particular note, as part of the former Development Plan Amendment (DPA, now known as a Code Amendment) prepared by Stantec, traffic surveys at the subject site were undertaken. The surveys identified peak hour traffic volumes of 18 and 86 vehicles during the am and pm peak hours respectively. Should consideration be given to these volumes being included within existing total traffic volumes, the resultant 'traffic impact' arising from the proposed development would be even less than that identified above.

It is however reiterated that the above assessment has not considered these volumes being generated by the subject site, nor has it given dispensation to site-related volumes already being included within existing total traffic volumes. The above traffic impact assessment does not rely upon an 'existing traffic generation' dispensation being provided, with the assessment identifying that the traffic volumes forecast to be generated by the proposed development will be readily accommodated at the site's proposed access points and on the surrounding road network.

The NSW RTA's "*Guide to Traffic Generating Developments*" (the RTA Guide), and its subsequent updates and data analyses reports, does not identify traffic generation rates applicable to traditional hotels (pubs).

6. SUMMARY

The proposed development comprises the retention of the heritage aspects of the Buckingham Arms Hotel and the construction of a new mixed-use development (comprising retail/'food and beverage', tourist accommodation and residential dwellings).

The site will be serviced by basement parking levels as well as at-grade set-down/pick-up spaces. In total, 246 parking spaces will be provided across the site.

Vehicle access to the site is proposed via two-way crossovers on Walkerville Terrace and Northcote Terrace. Access via Northcote Terrace will be restricted to left-in/left-out, while the Walkerville Terrace access point will be restricted to left-in, left-out and right-in. All existing crossovers will be closed and reinstated as kerb.

Based upon the Planning and Design Code, the proposal has a theoretical requirement for 217 parking spaces to be provided on-site. As 246 spaces are proposed, the vehicle parking requirements of the Planning and Design Code are satisfied.

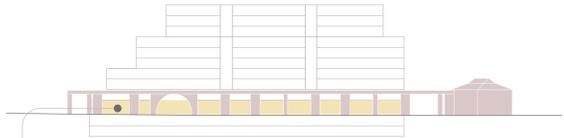
The Planning and Design Code also identifies a bicycle parking requirement for 58 spaces. Given that 190 spaces will be provided throughout the site, the bicycle parking requirements of the Planning and Design Code are satisfied. Additionally, residents may also store bicycles (particularly high-end bicycles) within their apartment, further increasing availability for other users.

With regard to traffic impact, the proposed development is forecast to generate 158 am and 196 pm peak hour trips. Given that such volumes do not consider reduced traffic generation factors (such as shared trips, public and active transport modes etc.), lesser volumes will likely be generated by the proposed development.

Furthermore, impact analyses undertaken have not considered traffic volumes generated by the previous operation the Buckingham Arms Hotel (i.e. such volumes are incorporated into existing traffic volumes received). It is therefore considered that the site's traffic impact will be negligible, and readily accommodate on the adjacent road network.

APPENDIX A

PLANS PREPARED BY SMFA



AREA SCHEDULE - GROUND

NAME	AREA	NO.
APARTMENT		
LIVING	920	14
920 m²	14	
CIRCULATION		
LOBBY	266	2
266 m²	2	
CORE		
BIKE STORE	68	1
END OF TRIP	14	1
LIFT	36	2
STAIR	125	5
WASTE ROOM	18	1
261 m²	10	
LOCAL HERITAGE PLACE - BAR		
BAR	201	1
201 m²	1	
PRIVATE OUTDOOR SPACE		
P.O.S.	553	13
553 m²	13	
RETAIL/HOSPITALITY		
CAFE	147	1
RESTAURANT	355	2
RESTAURANT / BAR	398	1
900 m²	4	
SERVICES		
BATHROOMS	110	3
BMO	16	1
CONTROL	36	1
KITCHEN	153	4
LIFT	13	3
LOADING BAY	66	1
SERVICES	21	2
STAFF BIKES	11	1
STAFF EOT	21	1
TRANSFORMER	22	1
WASTE ROOM	123	1
592 m²	19	
3,693 m²	63	

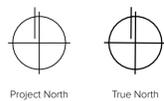
B-2-O APARTMENT SCHEDULE - GROUND

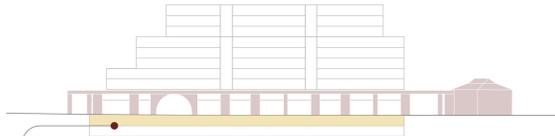
APT. NUMBER	LEVEL	DESCRIPTION	AREA
001, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	88
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	44
	LEVEL 1	APARTMENT	98
002, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	68
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	34
	LEVEL 1	APARTMENT	83
	LEVEL 1	BALCONY	5
003, 3 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	93
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	50
	LEVEL 1	APARTMENT	95
004, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	42
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
005, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	46
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
006, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	45
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
007, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	68
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	60
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
008, 1 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	11
	LEVEL 1	APARTMENT	64
	LEVEL 1	BALCONY	9
009, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	52
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
010, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	39
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
011, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	37
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
012, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	36
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
013, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	67
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	34
	LEVEL 1	APARTMENT	78
	LEVEL 1	BALCONY	4
014, 2 BED - 2 STOREY			
	GROUND FLOOR	APARTMENT	56
	GROUND FLOOR	PRIVATE OUTDOOR SPACE	34
	LEVEL 1	APARTMENT	81
	LEVEL 1	BALCONY	4



LEGEND

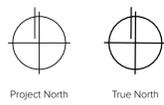
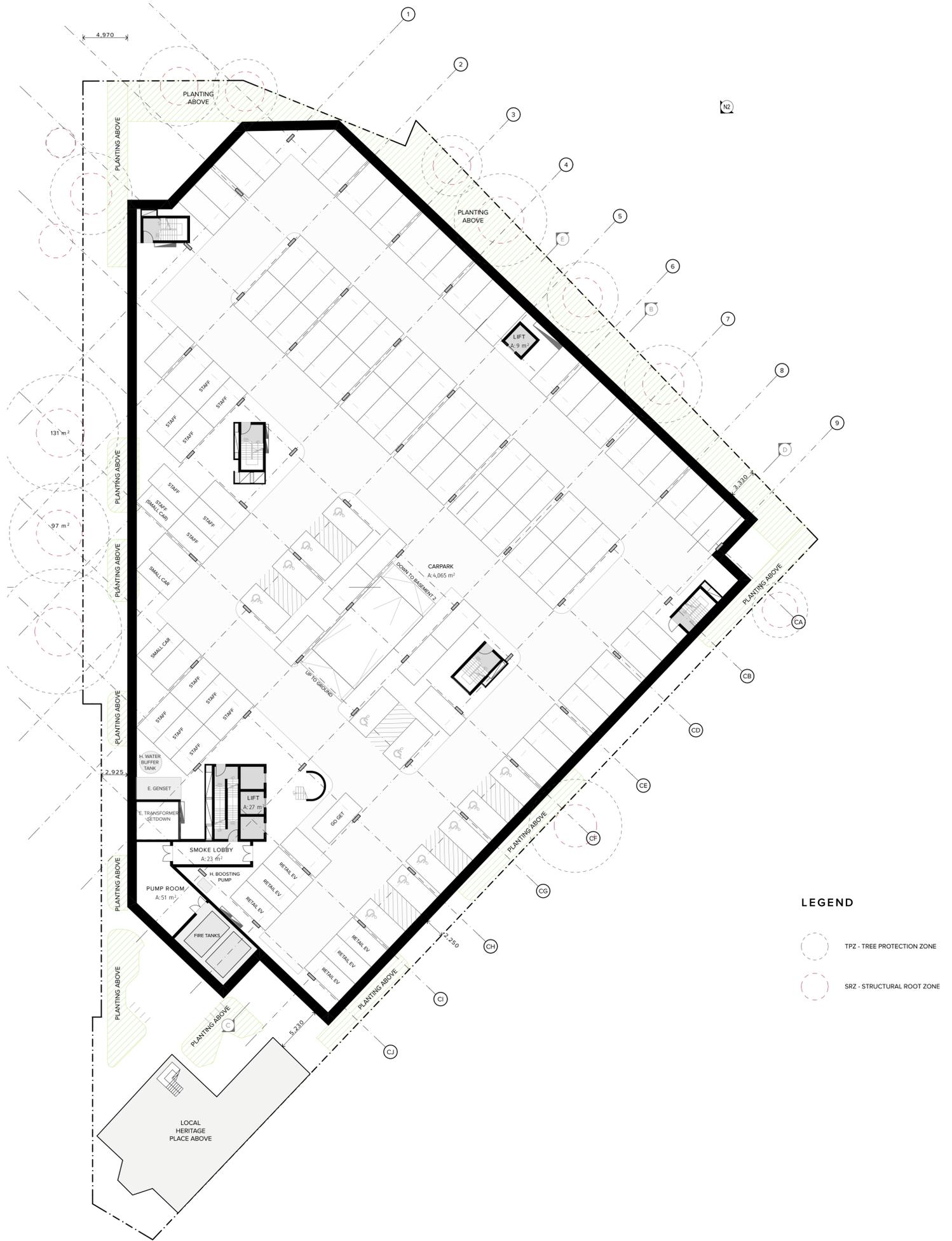
- NEW PAVED ROADWAY
- NEW SITE PAVING
- COUNCIL PAVING
- TPZ - TREE PROTECTION ZONE
- SRZ - STRUCTURAL ROOT ZONE

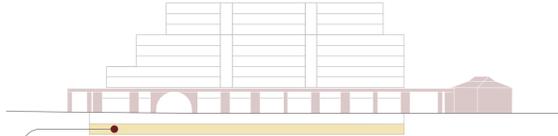




AREA SCHEDULE - BASEMENT 1

NAME	AREA	NO.
BASEMENT CARPARK		
CARPARK	4,065	1
	4,065 m²	1
CORE		
LIFT	36	2
STAIR	88	5
	124 m²	7
SERVICES		
SERVICES	67	7
	67 m²	7
B-11 CARPARK SCHEDULE - BASEMENT 1		
	4,256 m²	15
CARPARK	116	
	116	



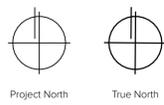
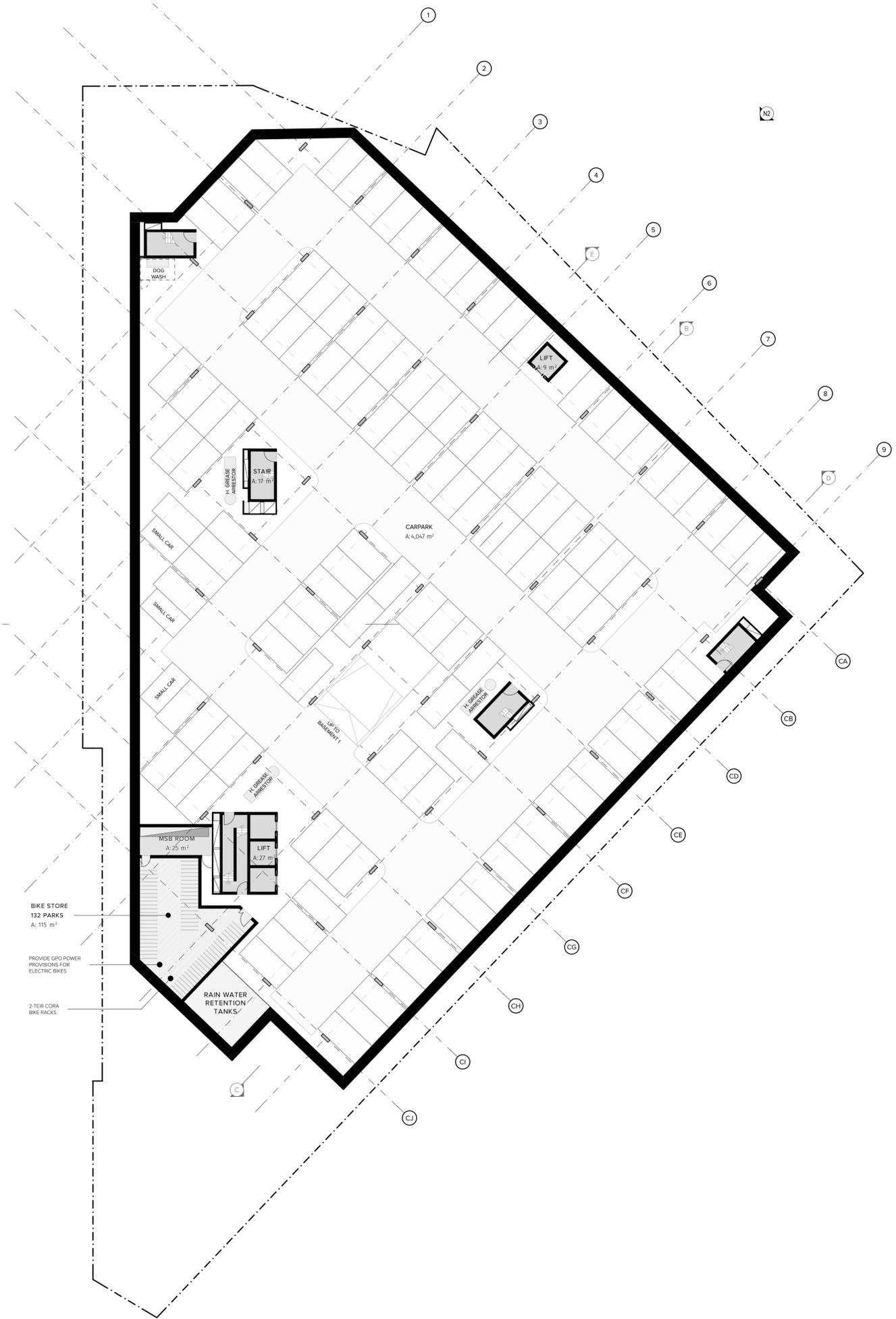


A-1-2 AREA SCHEDULE - BASEMENT 2

NAME	AREA	NO.
BASEMENT CARPARK		
CARPARK	4,047	1
	4,047 m²	1
CORE		
LIFT	36	2
STAIR	88	5
	124 m²	7
SERVICES		
BIKE STORE	115	1
MSB ROOM	25	1
SERVICES	21	6
	161 m²	8
	4,332 m²	16

B-1.2 CARPARK SCHEDULE - BASEMENT

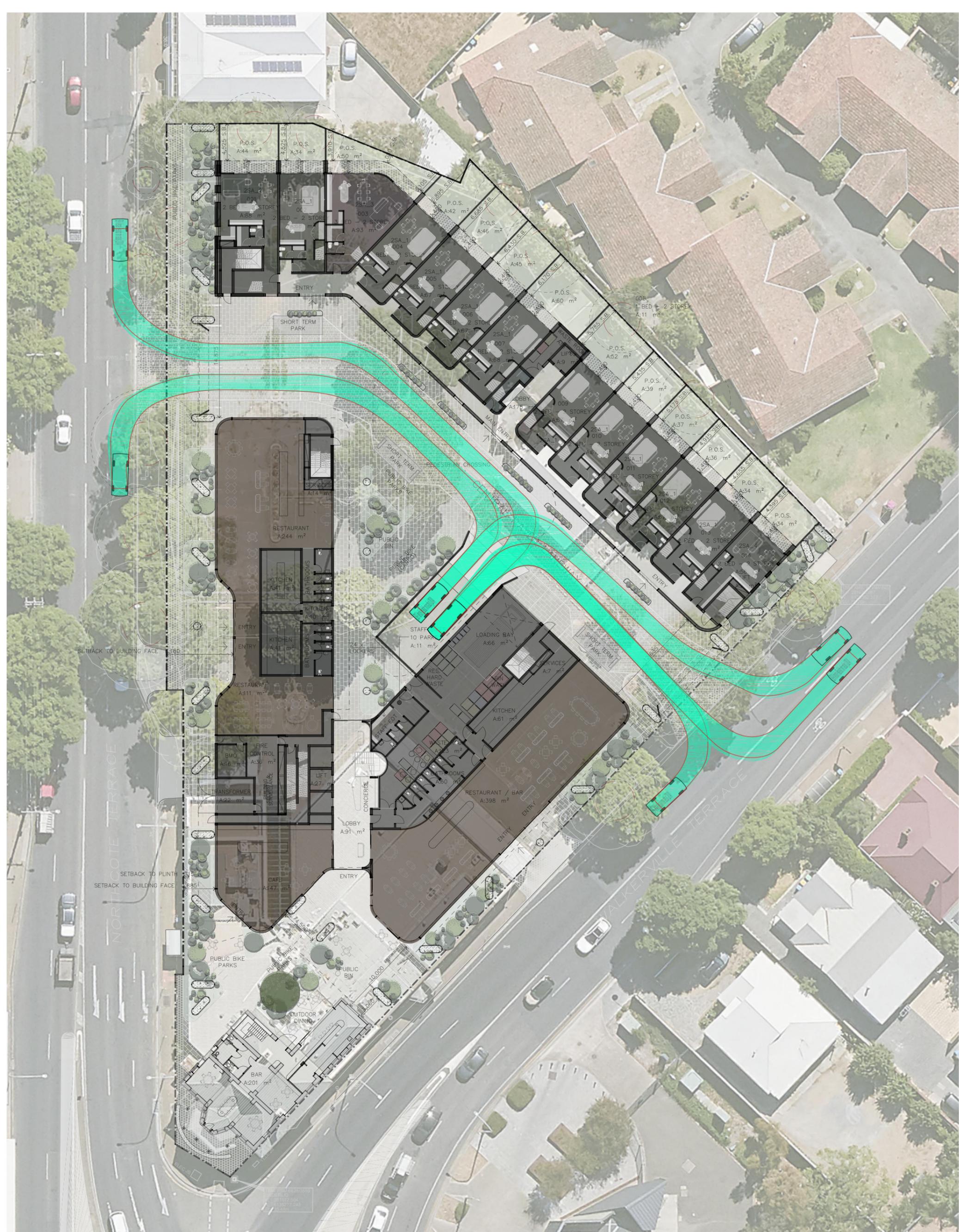
CARPARK	127
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APPENDIX B

PLANS PREPARED BY CIRQA

B99 DESIGN VEHICLE TURN PATHS



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DRAWING AMENDMENTS

REV	DATE	DESCRIPTION	DWN	CHK
A	27/06/2024	FOR DISCUSSION	TAW	TAW
B	4/07/2024	FOR DISCUSSION	TAW	TAW
C	6/09/2024	FOR SUBMISSION	TAW	TAW

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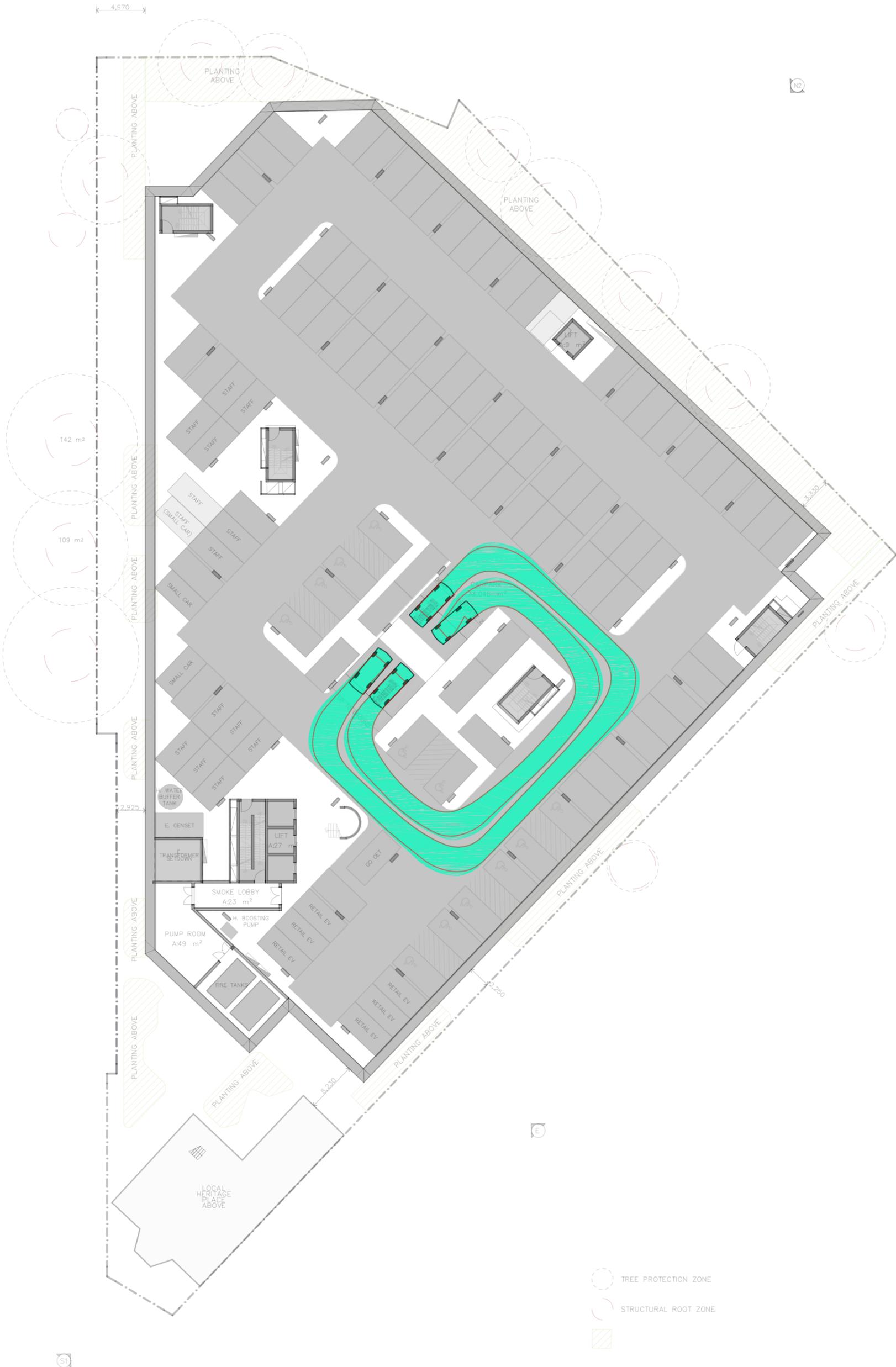
BUCKINGHAM ARMS REDEVELOPMENT

1 WALEKRVILLE TERRACE, GILBERTON
LIGHT VEHICLE MOVEMENTS - GF

PROJECT # 22486

SHEET # 03_SH01

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- TREE PROTECTION ZONE
- STRUCTURAL ROOT ZONE
- PLANTING ABOVE



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DRAWING AMENDMENTS					
REV	DATE	DESCRIPTION	DWN	CHK	
A	27/06/2024	FOR DISCUSSION	TAW	TAW	
B	4/07/2024	FOR DISCUSSION	TAW	TAW	
C	6/09/2024	FOR SUBMISSION	TAW	TAW	

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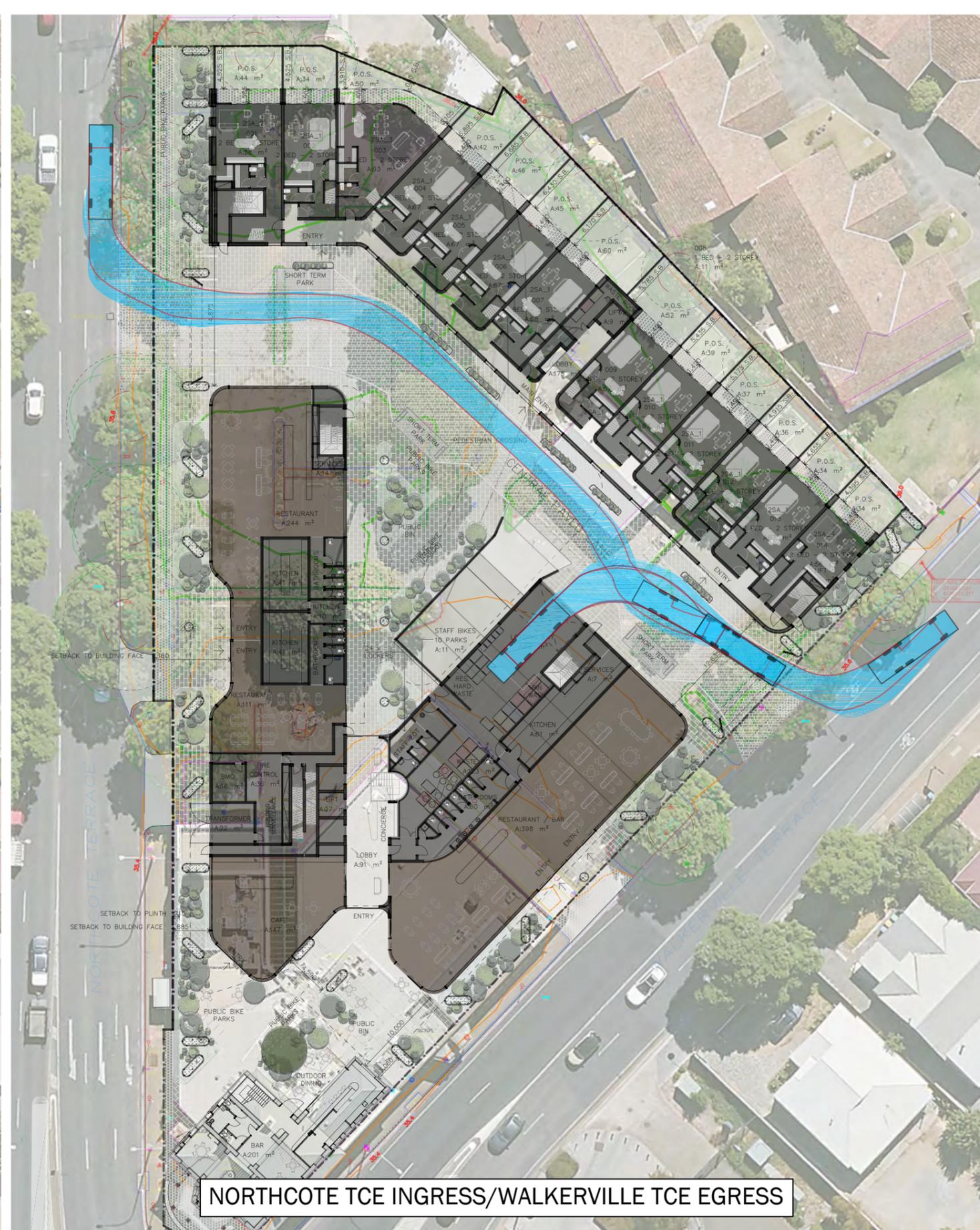
BUCKINGHAM ARMS REDEVELOPMENT
1 WALEKRVILLE TERRACE, GILBERTON
LIGHT (B99) VEHICLE MOVEMENTS - B1
 PROJECT # 22486 SHEET # 03_SH02

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APPENDIX C

PLANS PREPARED BY CIRQA

10 m SERVICE VEHICLE TURN PATHS



DRAWING AMENDMENTS

REV	DATE	DESCRIPTION	DWN	CHK
C	06/09/2024	FOR SUBMISSION	TAW	TAW



BUCKINGHAM ARMS REDEVELOPMENT

1-9 WALKERVILLE TERRACE, GILBERTON
10 m SERVICE VEHICLE ACCESS