SECTION 13 PLANNING ACT – REQUEST FOR AMENDMENT OF PLANNING SCHEME

LOT 4806 TOWN OF DARWIN : (133 BAGOT ROAD, LUDMILLA)

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Rev 1 06 June 2025

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FORMAL MATTERS

This application is made by June D'Rozario & Associates Pty Ltd on behalf of the Administrator of Bagot Community Inc, which is the registered owner of Lot 4806 Town of Darwin.

The application is made under section 12A(1) of the Planning Act.

The application is to:

- Amend the Northern Territory Planning Scheme by designating a portion of approximately 5.0 ha of Lot 4806 as a secondary activity centre in the Darwin Mid Suburbs Area Plan; and

- Amend the Northern Territory Planning Scheme by rezoning the 5.0 ha portion of Lot 4806 from Zone CL (Community Living) to Zone C (Commercial).

The purpose of the proposed amendments is to facilitate Bagot Community to develop some of its land for commercial development and community purposes, including supermarket and small shops, fast food, service station, medical clinic, gymnasium, offices, child care centre, and car parking to support the intended.

Total gross floor area of all the tenancies will be approximately 10,650 m^2.

The development concept is depicted in the development concept drawing at Annexure 1.

THE APPLICATION SITE

Lot 4806 Town of Darwin is held by Bagot Community Inc under a Crown Lease in Perpetuity (CLP 840).

Bagot Community was established in 1938, and is home to approximately 400 Aboriginal people.

Lot 4806 is currently zoned CL (Community Living) under the Northern Territory Planning Scheme.

The land in respect of which this application is made is part Lot 4806, as shown in the locality plan in Figure 1. The total area of Lot 4806 is 23.11 ha, of which approximately 5.0 ha is the subject of this application.

The application site will have a boundary to Bagot Road of approximately 245 m.

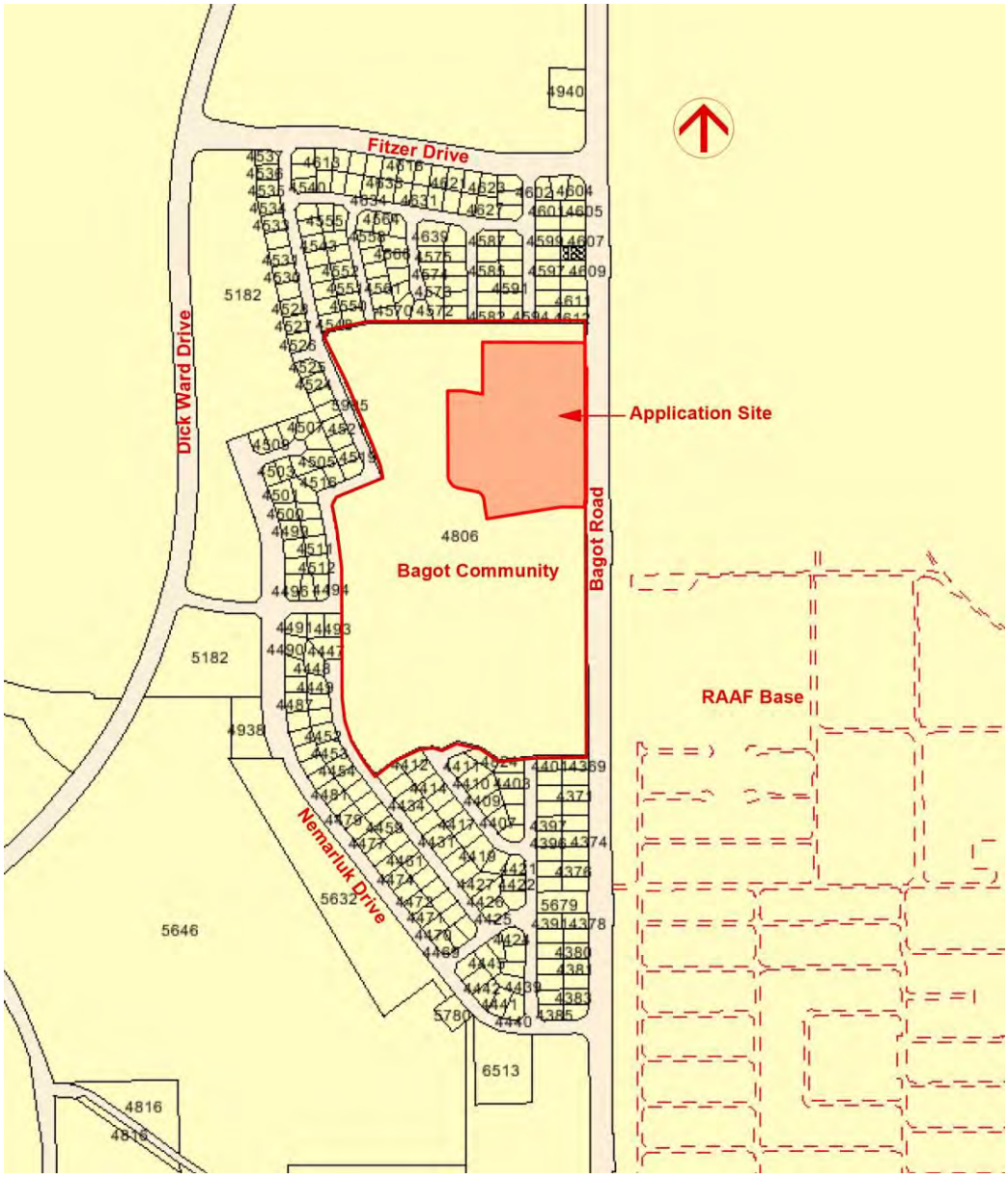


Figure 1: Locality Plan (Source: NTLIS)

There are drainage and sewerage easements in the northern portion of Lot 4806, and an electricity supply easement near the western portion of Lot 4806. The sewerage and electricity easements will not affect the application site, but part of the drainage easement will run through the centre of the application site.

An extract of the registered survey plan, showing the location of easements, is at Figure 2.

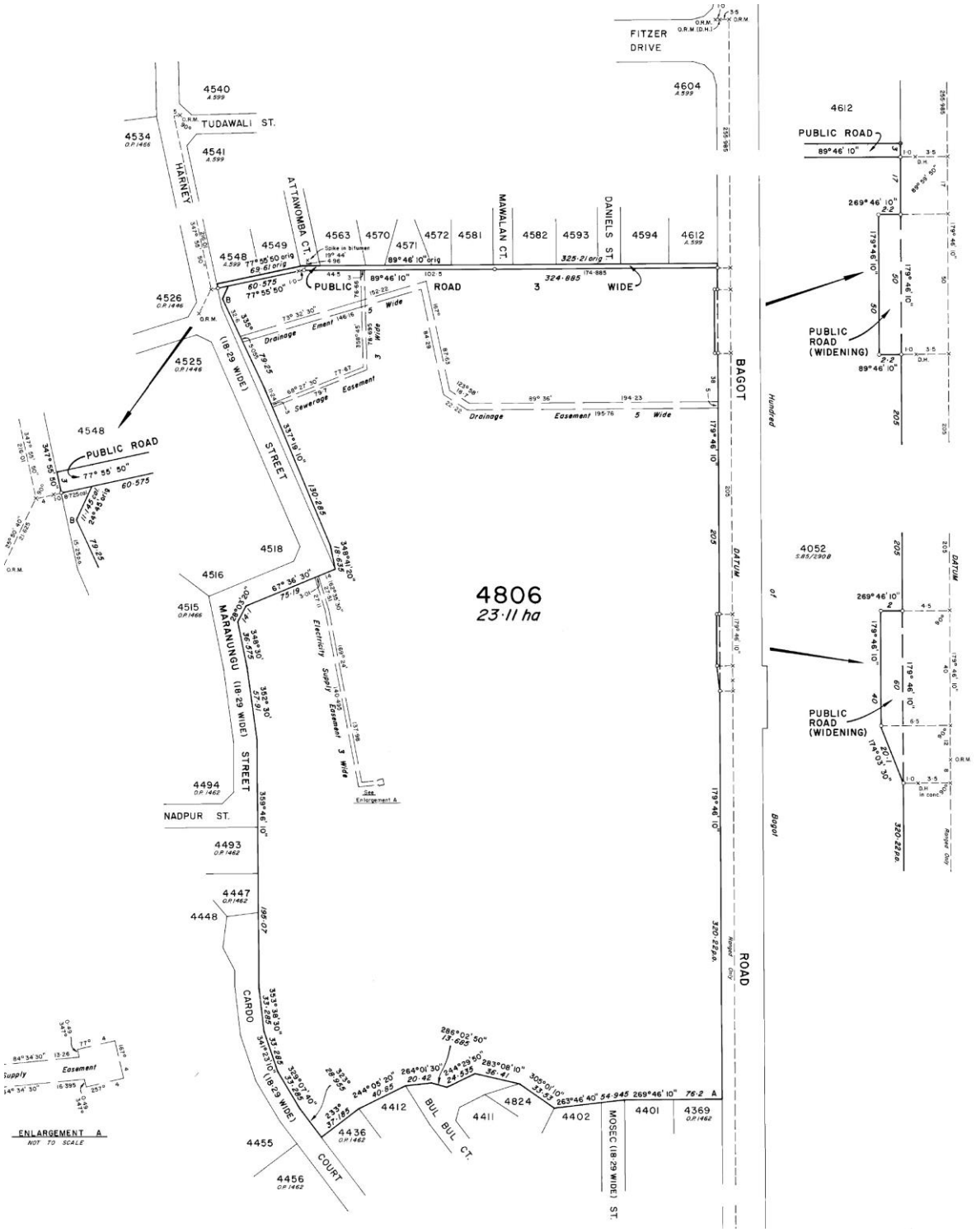


Figure 2: Extract of Survey diagram (S88/331)

The application site drains from east to west. Elevation varies between 12 AHD at the Bagot Road edge to 10 AHD at the western boundary of the application site, giving a gradient of about 1.3%.

Land units across the application site are shown in Figure _. The application site is in Land Unit 2b1.

Land Unit 2b1 is characterised by gentle sideslopes, with well drained soils[1]. It presents no constraints to urban development.

An extract of the Land Unit map is in Figure 3.

Figure 3: Extract of Land Units Map (Source: NR Maps)

The application site is not subject to flooding or storm surge.

[1] PJ Fogarty, B Lynch and B Wood **The Land Resources of the Elizabeth, Darwin and Blackmore Rivers** Land Conservation Unit Conservation Commission of the Northern Territory March 1984

Department of Defence has conducted soil sampling for the presence of PFAS on Lot 4806. The result of the sampling and analysis is that, except for one sample, the concentrations are below the limit of reporting, ie. below the level at which they can be measured. The remaining sample showed a detectable concentration, but the concentration is below the screening criteria for health-based guidance. A copy of the sampling analysis is at Annexure 3.

Aircraft noise exposure forecasts to the year 2043 show that most of the application site lies between ANEF 20 and ANEF 25. A small part of the site, in the north-eastern corner, is between ANEF 25 and ANEF 30. An extract of the ANEF map is in Figure 4.

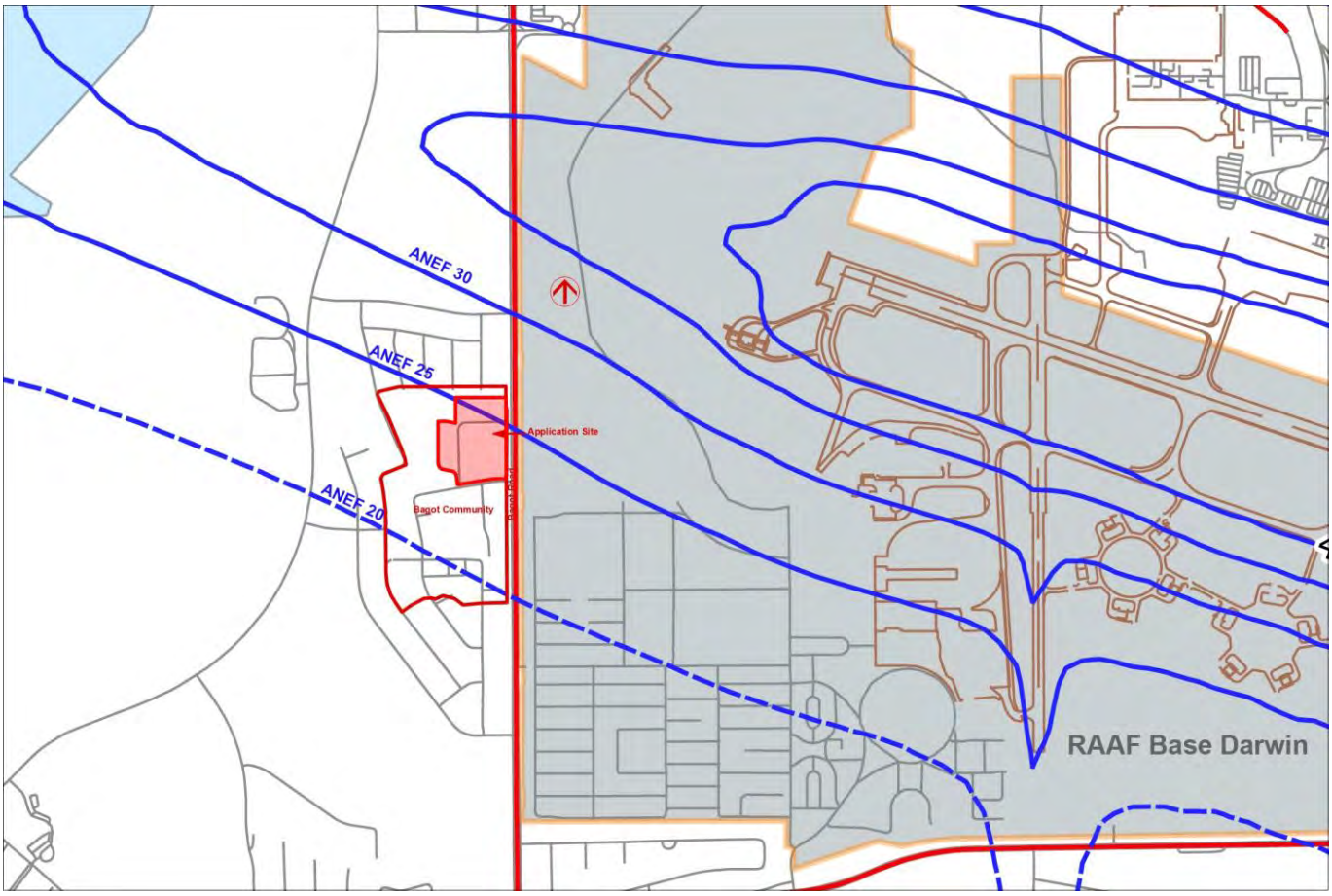


Figure 4: Extract of ANEF 2043 Map (Source: Department of Defence RAAF Base Darwin and Darwin International Airport Joint Military-Civil Australian Noise Exposure Forecast)

According to Australian Standard AS2021-2000 Acoustics - Aircraft noise intrusion - Building siting and construction Table 2.1, commercial buildings are acceptable developments in areas with aircraft noise exposure less than ANEF 25, and conditionally acceptable in areas less than ANEF 35.[2] The intended

[2] Australian Standard AS2021-2000 **Acoustics - Aircraft noise intrusion - Building siting and construction** Table 2.1. This is also the document referenced in clause 3.5 of the NT Planning Scheme 2020.

development will contain sizeable parking areas necessary to support the intended. These can be distributed and located across the application site such that all buildings can be located in areas less than ANEF 25, if necessary. Table 2.1 from AS 2021 – 2000 is reproduced in Figure 5.

TABLE 2.1

BUILDING SITE ACCEPTABILITY BASED ON ANEF ZONES
(To be used in conjunction with Table 3.3)

Building type	ANEF zone of site		
	Acceptable	Conditionally acceptable	Unacceptable
House, home unit, flat, caravan park	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hotel, motel, hostel	Less than 25 ANEF	25 to 30 ANEF	Greater than 30 ANEF
School, university	Less than 20 ANEF (Note 1)	20 to 25 ANEF (Note 2)	Greater than 25 ANEF
Hospital, nursing home	Less than 20 ANEF (Note 1)	20 to 25 ANEF	Greater than 25 ANEF
Public building	Less than 20 ANEF (Note 1)	20 to 30 ANEF	Greater than 30 ANEF
Commercial building	Less than 25 ANEF	25 to 35 ANEF	Greater than 35 ANEF
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

NOTES:

1 The actual location of the 20 ANEF contour is difficult to define accurately, mainly because of variation in aircraft flight paths. Because of this, the procedure of Clause 2.3.2 may be followed for building sites outside but near to the 20 ANEF contour.

2 Within 20 ANEF to 25 ANEF, some people may find that the land is not compatible with residential or educational uses. Land use authorities may consider that the incorporation of noise control features in the construction of residences or schools is appropriate (see also Figure A1 of Appendix A).

3 There will be cases where a building of a particular type will contain spaces used for activities which would generally be found in a different type of building (e.g. an office in an industrial building). In these cases Table 2.1 should be used to determine site acceptability, but internal design noise levels within the specific spaces should be determined by Table 3.3.

4 This Standard does not recommend development in unacceptable areas. However, where the relevant planning authority determines that any development may be necessary within existing built-up areas designated as unacceptable, it is recommended that such development should achieve the required ANR determined according to Clause 3.2. For residences, schools, etc., the effect of aircraft noise on outdoor areas associated with the buildings should be considered.

5 In no case should new development take place in greenfield sites deemed unacceptable because such development may impact airport operations.

Figure 5: Extract from Australian Standard AS2021-2000 **Acoustics - Aircraft noise intrusion - Building siting and construction**

Under Defence (RAAF Base Darwin Defence Aviation Area) Declaration, the application site is within an area in which structures taller than 15 m above ground level will require the consent of the Department of Defence.

Access to the application site will be from the road leading to Bagot Community. This is not a public road. The proponent has caused a traffic impact assessment (TIA) to be prepared. The TIA recommends signalisation of the intersection of Bagot Road and the access to Bagot Community. A copy of the TIA is at Annexure 2

The application site is served by Route 10, which runs on Bagot Road. The route runs between Darwin and Casuarina Interchanges. A bus stop for outbound bus travel is located in Bagot Road, adjacent to the application site. For inbound travel, the bus stop is located approximately 110 m north from the application site.

Although there is no pedestrian crossing to the inbound bus stop, there is a fenced refuge island in the median with a designated crossing point.

Both the inbound and outbound bus stops are equipped with a bus layby and a shelter.

The locations of bus stops in relation to the application site are shown in Figure 5.

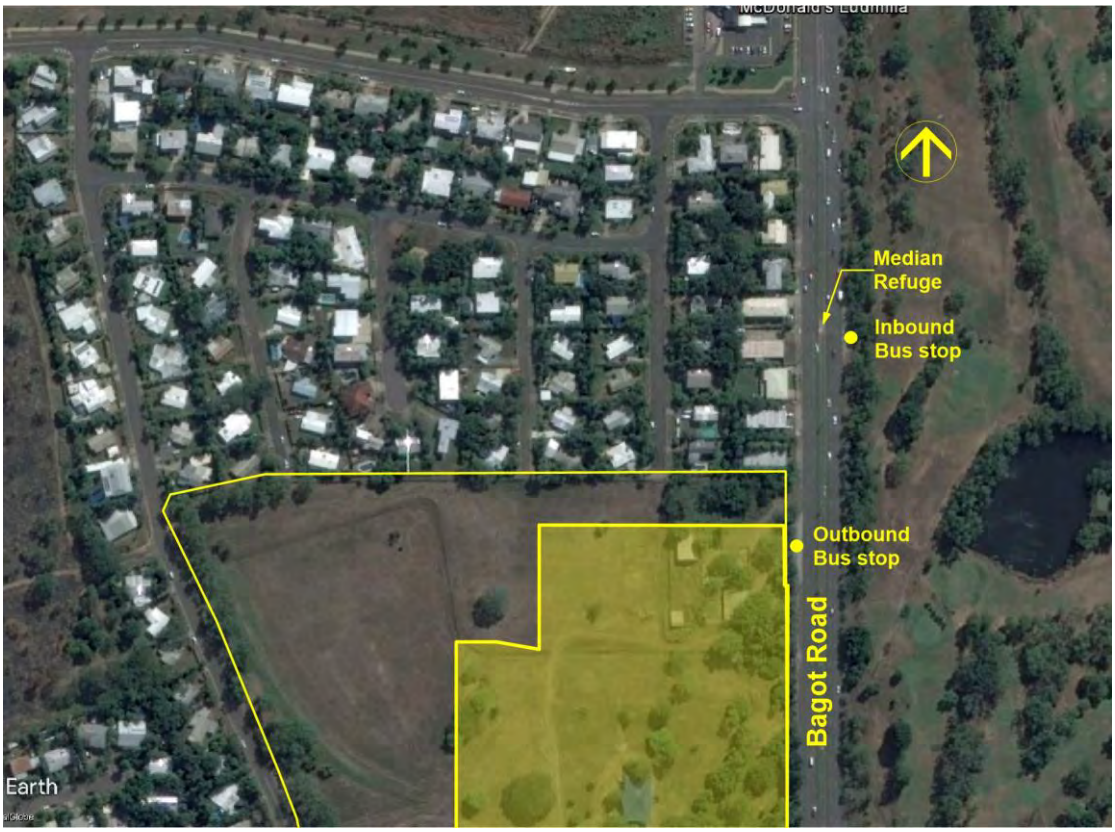


Figure 6: Locations of bus stops (Background image: Google Earth Pro)

The site is provided with all urban services. However, an assessment of infrastructure on Lot 4806 undertaken as part of the NT Town Camps Review in 2016 noted that the water and sewer networks did not comply with current standards and requirements, because the pipe sizes were too small.

Lot 4806 is occupied by Bagot Community Inc, and contains a sizeable residential precinct, as well as community buildings and social and recreational infrastructure, consistent with its CL zoning. The residential precinct and associated community infrastructure is largely contained in the southern portion of the lot.

The condition of Lot 4806 is shown in the aerial image at Figure 6.

Figure 7: Current site condition (Source: Google Earth Pro)

Ludmilla neighbourhood is not well served by retail facilities. The nearest retail facilities are the small node of shops at McDonalds on Bagot Road, consisting of McDonalds fast food restaurant, a pharmacy and service station. This facility is located about 390 m north of the application site, and 650 m from the Bagot Community residential precinct.

The application site will be offset from the northern boundary of Lot 4806. Consequently, the land abutting it on the northern, western and southern boundaries is zoned CL (Community Living). The Bagot Road corridor is zoned M (Main Road).

Aside from the community living areas, the residential zone in Ludmilla neighbourhood is predominantly LR (Low Density Residential). A small part of the residential area facing Bagot Road, between Bagot Community and Fitzer Drive, is zoned LMR (Low Medium Density Residential). An extract of the zoning map is in Figure 7.

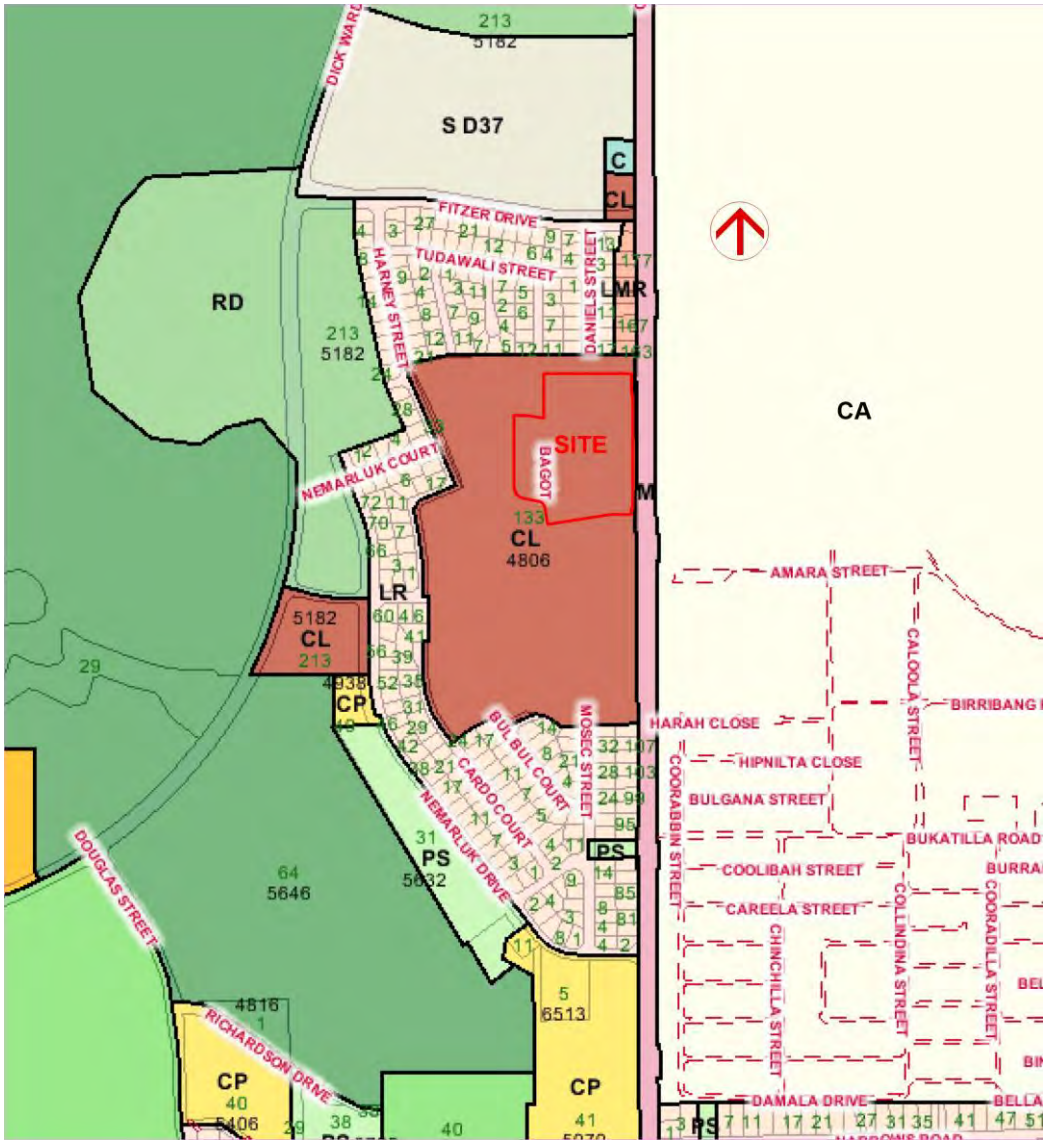


Figure 8: Extract of zoning map (Source: NT LIS)

DEVELOPMENT INTENT

The development intent is to develop a 5-ha portion of Lot 4806 for an activity centre, comprising a supermarket, shops, medical consulting rooms, gymnasium, child care centre, fast food restaurant, offices, service station and tyre fitter.

The centre will comprise approximately 10,650 m^2 of gross floor area for all uses.

The development concept is illustrated in Annexure 1. The illustration is not a settled proposal, but will form the basis of future applications for development consent if the planning scheme amendments applied for in this application proceed to finality. The planning scheme amendments will not by themselves authorise the illustrated development.

A landscape buffer, 30 m wide, will be established along the northern boundary of Lot 4806, to maintain the amenity of existing houses that back on to Bagot Community.

The principal access to the activity centre will be from the existing private road into Bagot Community. A traffic impact assessment recommends signalization of the intersection with Bagot Road.

A service road, permitting only left-in and left-out movements, will be constructed parallel to Bagot Road, within the boundary of Lot 4806. The service road will give limited access to the proposed fast -food restaurant and a child care centre.

There will be no access to the activity centre from any local road in Ludmilla.

As noted above, all development proposed for the site will be subject to obtaining development permits.

As the application site adjoins a main road corridor, construction of the access to and exit from the service road will require the consent of the Department of Logistics and Infrastructure.

The traffic impact assessment prepared for this planning scheme amendment application will be submitted, with necessary revisions, as part of the documentation for subsequent development applications.

The site is provided with all urban services. However, as noted earlier in this statement, water and sewer networks do not meet current standards due to undersized pipework. Services will be upgraded at no cost to service agencies to the level required to support the intended. These service upgrades will be carried out under the conditions imposed on development permits.

Bagot Community does not intend to sell any of its land. The development proposal will be carried out under a long- term lease to a development entity. A lease for a term more than 12 years will necessitate an application for subdivision and require development consent.

As noted, Lot 4806 is “prescribed property” under the Associations Act, and a lease for a term exceeding 10 years will require the consent of the Minister.

Ministerial consent is also required under the Crown Lands Act to lease part of Lot 4806.

Bagot Community Inc has been in voluntary administration since October 2015. The administration was caused by a debt of more than $700,000 to Power and Water Corporation (PWC) for water and sewer services. At the time of entering administration, PWC was the largest creditor.

Bagot Community has considered over a period of time how it could develop its land. There have been numerous pronouncements by others over the years about developing Lot 4806, but none of these were supported by the Community.

A meeting of creditors in February 2016 voted to support the Community's plans to repay its debts, thus avoiding liquidation. Liquidation would have resulted in winding up the Association, and potentially in the loss of the Community's assets and hand back of its lease to the NT Government.

Bagot Community and the creditors recognised that the Association's principal asset is the land, Lot 4806. However, Lot 4806 is "prescribed property" under the Associations Act, meaning that it would not be an asset that could be liquidated if the Association were to be wound up unless the Minister gave consent. If consent is refused, the land would vest in the Territory but would still be liable for any debts.

If the land were vested in the Territory, the Territory could be liable for compensation payable to the Community, or for improvements on the land.

In the event, the plan for debt repayment, which was supported by the Community and the creditors, was to lease part of Lot 4806 for commercial development.

In the intervening years, the Administrator has consulted widely with the Community and government, and tested options for commercial development and community purposes on part of Lot 4806. The Administrator is now in a position to put forward the proposal described in this application, with a view to securing the future for Bagot Community.

SECTION 12A(2) - MATTERS TO BE TAKEN INTO ACCOUNT

Explanation of the proposed amendment - s 12A(2)(a); and

The purpose of the proposed amendment and its desired effect - s 12A(2)(b)

The proposed amendment is to:

- Amend the Northern Territory Planning Scheme by designating a portion of approximately 5.0 ha of Lot 4806 as a secondary activity centre in the Darwin Mid Suburbs Area Plan; and
- Amend the Northern Territory Planning Scheme by rezoning the 5.0 ha portion of Lot 4806 from Zone CL (Community Living) to Zone C (Commercial).

The purpose and desired effect of the proposed amendment is to facilitate Bagot Community to develop a 5-ha portion of its land for commercial development and community purposes, as outlined in the preceding section.

Assessment of the proposed amendment with respect to the matters to be considered by the Minister under s 13(1) - s 12A(2)(c)

(a) whether the proposed amendment promotes the purpose and objectives of this Act

The purposes and objectives of the Planning Act are set out in s 2A. The proposed amendments promote the following applicable objectives of the Act –

- **Section 2A(a) - Ensure that strategic planning is applied to planning schemes and implemented in individual planning decisions**

  The strategic framework is set out in Part 2 of the Planning Scheme.

  Clause 2.3 identifies the Compact Urban Growth Policy as a Strategic Planning Policy. This document does not apply to the proposal, as the proposed zoning is not for high-density residential development.

  Clause 2.4 identifies the documents that comprise the strategic framework.

  Lot 4806 is in an area covered by the Darwin Mid Suburbs Area Plan.

  The application requests that the Area Plan is amended to designate the 5-ha portion of Lot 4806 as a secondary activity centre. The reasons supporting this request are set out later in this statement.

- **Section 2A(e) - Promote the sustainable development of land**

  The site analysis outlined earlier in this statement indicates that the application site is virtually free of constraints for commercial development. The site is relatively flat, and there is no occurrence of slow draining soils across the application site.

  There is no native vegetation on the application site, and it is not affected by flood or storm surge.

  The application site is in an aircraft noise zone in which commercial development is acceptable.

  There being no natural constraints to development, the use of the land for commercial development and community purposes will be a sustainable development.

- **Section 2A(g) - Maintain the health of the natural environment and ecological processes**

  As submitted above, the proposal will not diminish the health of the natural environment. Any development undertaken as a result of the land being developed will require engineered stormwater drainage and erosion control as conditions of development permits, which are aimed at maintaining ecological processes.

- **Section 2A(h) - Protect the quality of life for future generations**

  As outlined above, the purpose of the proposed amendments is to facilitate the development of some of Bagot Community's assets in order to secure the future of the Community. While the Community's debts remain unpaid, the Community lives with the threat of losing its land, and the houses and other community facilities that are on it.

  The history of the Community is one of being shunted from one location to another, and having its reserve eroded for suburban development. The establishment of the reserve in 1938 was the result of removal of residents from Kahlin Reserve, and during World War 2, the residents were removed to Berrimah to make way for a military hospital on their reserve.

  The original reserve of about 280 ha has been whittled down over the decades to 23 ha as a result of building Ludmilla, and various excisions for other community living areas and roads.

  The proposed amendments will facilitate development that will not only secure the future of the Community but enhance its quality of life.

The quality of life of those outside the Community will not be affected, because the location of the application site is such that its development in the manner intended will have minimal, if any, adverse effect on others. The facilities to be included will improve the quality of life for the local community.

(b) whether the proposed amendment, other than a proposed amendment to a strategic framework, is contrary to any strategic framework in the planning scheme

The proposed amendment is for an amendment to the strategic framework (Darwin Mid Suburbs Area Plan), as well as to rezone the 5-ha portion of Lot 4806 to Zone C (Commercial).

The proposed amendment to the Darwin Mid Suburbs Area Plan is excluded from consideration under this particular provision.

The only other component of the applicable strategic framework in the Darwin Regional Land Use Plan 2015. This Plan shows the site as "Urban/Peri-urban". It does not show commercial areas.

The proposed rezoning would not be contrary to any strategic framework if the requested amendment to the Area Plan is granted.

(c) whether the proposed amendment is within a declared class of amendments that do not require exhibition

It is not known whether the Minister has declared any classes of amendments that do not require exhibition. It is extremely unlikely that the proposal will be one that does not require exhibition, and the applicant requests that the proposal be exhibited.

(d) whether the proposed amendment is not significant enough to require exhibition

The applicant does not assert that the proposed amendment is not significant enough to require exhibition, and expects that the proposal will be exhibited.

(e) the merits of the proposed amendment and whether the amendment is in the public interest

The proposed amendments will enable a secondary activity centre to be developed in a neighbourhood that has no activity centre. Ludmilla is one of very few residential suburbs in the Darwin area that has no activity centre. Its residents are required to travel to Nightcliff or Parap for basic every-day needs.

Shop and medical clinic are permitted developments in Zone CL, but the area of shops is restricted to 200 m^2 of net floor area, to ensure that they service only the needs of Zone CL. In the case of Bagot Community, the Community is the largest single residential component of Ludmilla, and with a population of about 400 people resident on Bagot Community, the size restriction for shops is very limiting for the needs of the Community as well as for the Ludmilla suburb as a whole.

Although there is land zoned SD37 on Fitzer Drive, which would enable development, including shops, in accordance with the provisions of Zone SC (Service Commercial), no development has taken place on this land since the SD37 zoning was applied in 2011.

It is acknowledged that the Darwin Mid Suburbs Area Plan does not designate the application site as an activity centre. However, it is noted that no new activity centres were identified in the Area Plan, and that the Area Plan supports the enhancement of existing centres, principally focused on Progress Drive.

The concept for Progress Drive focuses on the evolution of mixed-use precincts, with the largest components being medium density residential development. The retail offering is not promoted significantly. Even with the integration of the traditional Nightcliff Shopping Centre with the Woolworths site through John Stokes Square, the long-term redevelopment of the Woolworths site envisions a medium density, mixed-use precinct with open space.

Construction of John Stokes Square was completed in December 2022. A similar concept for John Stokes Square, for retail, commercial, residential, and community uses was articulated in the Area Plan. However, at completion, the Square is predominantly a residential development of mid-rise buildings with minimal retail or commercial components.

The commercial development at Millner is characterised as a specialist centre in the Area Plan. It consists of large format stores with a homemaker theme.

Of the other centres identified in the Area Plan, the traditional Nightcliff Shopping Centre and Rapid Creek Business Village have virtually no capacity to expand, because they are hemmed in by residential development, and already suffer from overspill parking and congestion in surrounding local streets.

It is submitted that, notwithstanding the focus of the Area Plan, there remains the situation that the Ludmilla neighbourhood has no retail facilities beyond a fast-food restaurant, service station and pharmacy, and that the ability of any of the existing activity centres to accommodate a supermarket is severely limited, if not non-existent.

The Administrator has identified various parties who are interested in developing part of Lot 4806. The degree of interest in the potential for development of the application site was also documented in the NT Town Camps Review, commissioned by the NT Government in April 2016.[3]

The application site has attributes that lend itself to development of the type described in this application. These attributes include the site having no

[3] Deloitte Touche Tohmatsu **Living on the Edge: Northern Territory Town Camps Review** 2017, p 867

constraints; it having a sizeable residential catchment; it being located on a major road, with good public transport connections; it being capable of connection to all urban services; and the ability to develop it with minimal interface with established residential properties.

It is submitted that the application site should be designated as an activity centre, to facilitate the development concept.

The site is served by public transport, and is capable of being serviced by all required urban utilities.

The height the buildings is unlikely to exceed 15 m, and thus will not affect aviation operations.

The application site allows for a 30 m wide buffer to the residential properties on the northern side of Bagot Community. This buffer will be landscaped to provide a visual screen to the development.

The site arrangement shows a small office building and child care centre in the northern portion of the application site. These uses are relatively lower in their impact on adjoining lands than the other proposed uses. This will ameliorate even further the impact of the intended on adjoining properties.

The exposure of the application site to aircraft noise does not present an impediment to the intended.

Aircraft noise exposure forecasts to the year 2042 show that the application site lies between ANEF 20 and ANEF 25, as shown in Figure 4. Commercial buildings are acceptable developments in areas with aircraft noise exposure less than ANEF 25.[4]

The site has been tested for PFAS contamination, and has been found to be under the threshold of detection, and in the case of one sample where PFAS was detected, it was under the screening criteria.

It is submitted that the proposed amendment is in the public interest, because it will –

- Facilitate the development of the application site for a valid economic purpose;
- Provide an income for Bagot Community;
- Secure the land and homes of residents of Bagot Community;
- Provide employment opportunities for people in Bagot Community; and
- Improve the retail, leisure, and community services available to residents of Ludmilla and adjoining suburbs.

[4] Australian Standard AS2021-2000 **Acoustics - Aircraft noise intrusion - Building siting and construction** Table 2.1. This is also the document referenced in clause 3.5 of the NT Planning Scheme 2020.

Details of any community consultation conducted, or to be conducted, in addition to the consultation required under the Act - s 12A(2)(d)

The Administrator has discussed the prospects of developing the application site with government and stakeholders over an extended period of time. There has been no specific consultation with the general community, due to the time taken to obtain Bagot Community's views, restrictions during Covid, and commissioning market research on the financial viability of the intended.

There are no other plans to conduct consultation outside of the processes required under the Planning Act, as it is considered that the period of exhibition and the methods by which residents' concerns will be made known and responded to by the proponent are sufficient in this case.

REQUEST FOR PUBLIC EXHIBITION

The Minister is requested to place this proposed amendment to the NT Planning Scheme on public exhibition to enable the views of interested people to be considered and heard.

JUNE D'ROZARIO

List of Annexures

Annexure 1 – Development Concept

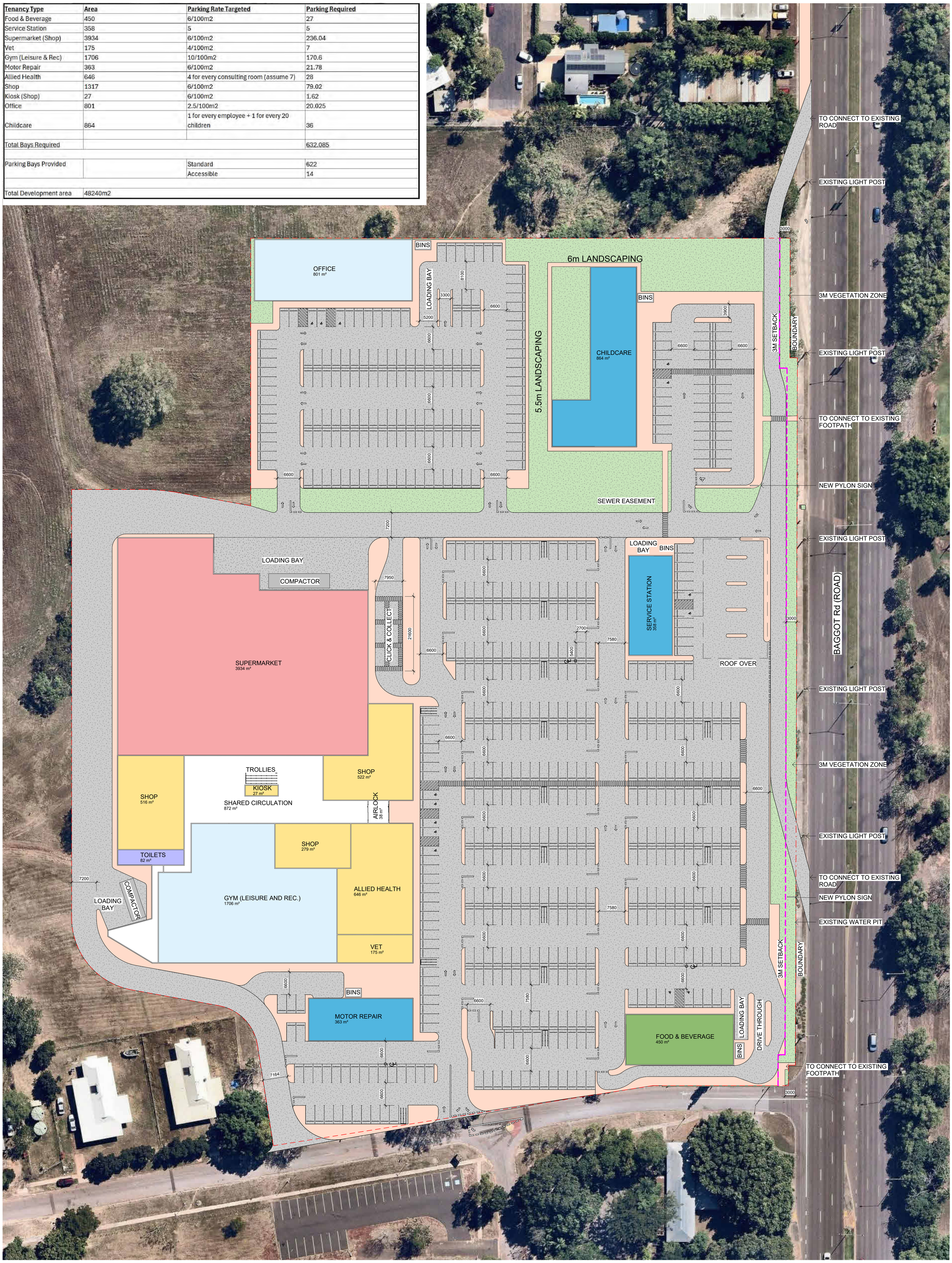
Annexure 2 – Traffic Impact Assessment

Annexure 3 - PFAS Sampling Results

Annexure 1

AIRLOCK
ALLIED HEALTH
CHILDCARE
FOOD & BEVERAGE
GYM (LEISURE AND REC.)
KIOSK
MOTOR REPAIR
OFFICE
SERVICE STATION
SHARED CIRCULATION
SHOP
SUPERMARKET
TOILETS
VET
DEVELOPMENT AREA

Tenancy Type	Area	Parking Rate Targeted	Parking Required
Food & Beverage	450	6/100m2	27
Service Station	358	5	5
Supermarket (Shop)	3934	6/100m2	236.04
Vet	175	4/100m2	7
Gym (Leisure & Rec)	1706	10/100m2	170.6
Motor Repair	363	6/100m2	21.78
Allied Health	646	4 for every consulting room (assume 7)	28
Shop	1317	6/100m2	79.02
Kiosk (Shop)	27	6/100m2	1.62
Office	801	2.5/100m2	20.025
Childcare	864	1 for every employee + 1 for every 20 children	36
Total Bays Required			632.085
Parking Bays Provided		Standard	622
		Accessible	14
Total Development area	48240m2		



SITE PLAN
BAGOT ROAD COMMUNITY

Status:FOR INFO

Scale: 1:500 @ A1
0 40

North:

Project Number: 70505
Drawing Number: SD105
Revision: E
Date: 12/12/2024

Hames Sharley

Annexure 2

A better approach
to traffic solutions

Bagot Development, Ludmilla NT,0820
Traffic Impact Assessment

Client // Bagot Community Incorporated

Reference // 24T421

Date //12/11/2024

Bagot Development -Traffic Impact Assessment

Document No:	24T421
Revision:	Final
Date:	12/11/24
Client Name:	Bagot Community Incorporated
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Document History

Revision	Date	Description	Prepared By
A	25/10/24	Traffic Impact Assessment– Bagot Development, Ludmilla NT 0820	Afshin Beigi
Final	12/11/24		

CONTENTS

1.0 INTRODUCTION

1.1 BACKGROUND

Bagot Community Incorporated engaged SJ Traffic Consulting to prepare a traffic impact assessment for the proposed sub-regional shopping centre located on a 48,240 m^2 portion of land within the Bagot Community. The shopping centre will include a supermarket, specialty stores, fast food outlets, childcare, a service station, and an office.

The site is currently zoned as Community Living (CL) and is proposed to be rezoned as Commercial.

1.2 PROJECT SCOPE

This traffic impact assessment report is intended to form part of a Rezoning Application to be submitted to the Department of Infrastructure, Planning and Logistics (DIPL) and addresses the following issues:

- Review of the road environment in the vicinity of the site and traffic conditions on the road network
- Assess the potential impact of the proposal on the surrounding road network
- The needs for all road users are accommodated in a safe and effective manner
- Review the proposed carpark layout and site access.

The report has been prepared in accordance with the Austroads document Guide to Traffic Management Part 12: Traffic Impacts of Developments (AGTM12) and reference to a number of policies and guidelines, including:

- Austroads, Guide to Traffic Management, Part 12: Traffic Impacts of Developments, 2009
- Austroads, Guide to Road Design, Part 4A: Unsignalised and Signalised
- Intersections, 2009
- Roads and Traffic Authority. Guide to Traffic Generating Developments, Sydney,2002 (RTA Guide)
- NT Planning Scheme, Land and Planning Services (Dept of Lands Planning and
- the Environment), July 2020
- Northern Territory Subdivision Development Guidelines, August 2020

1.3 SUBJECT SITE

The subject site is located within the Bagot Community, on the western side of Bagot Road.

The subject site and surrounding road network are illustrated in Figure 1 below.

Figure 1- Subject Site

2.0 EXISTING CONDITIONS

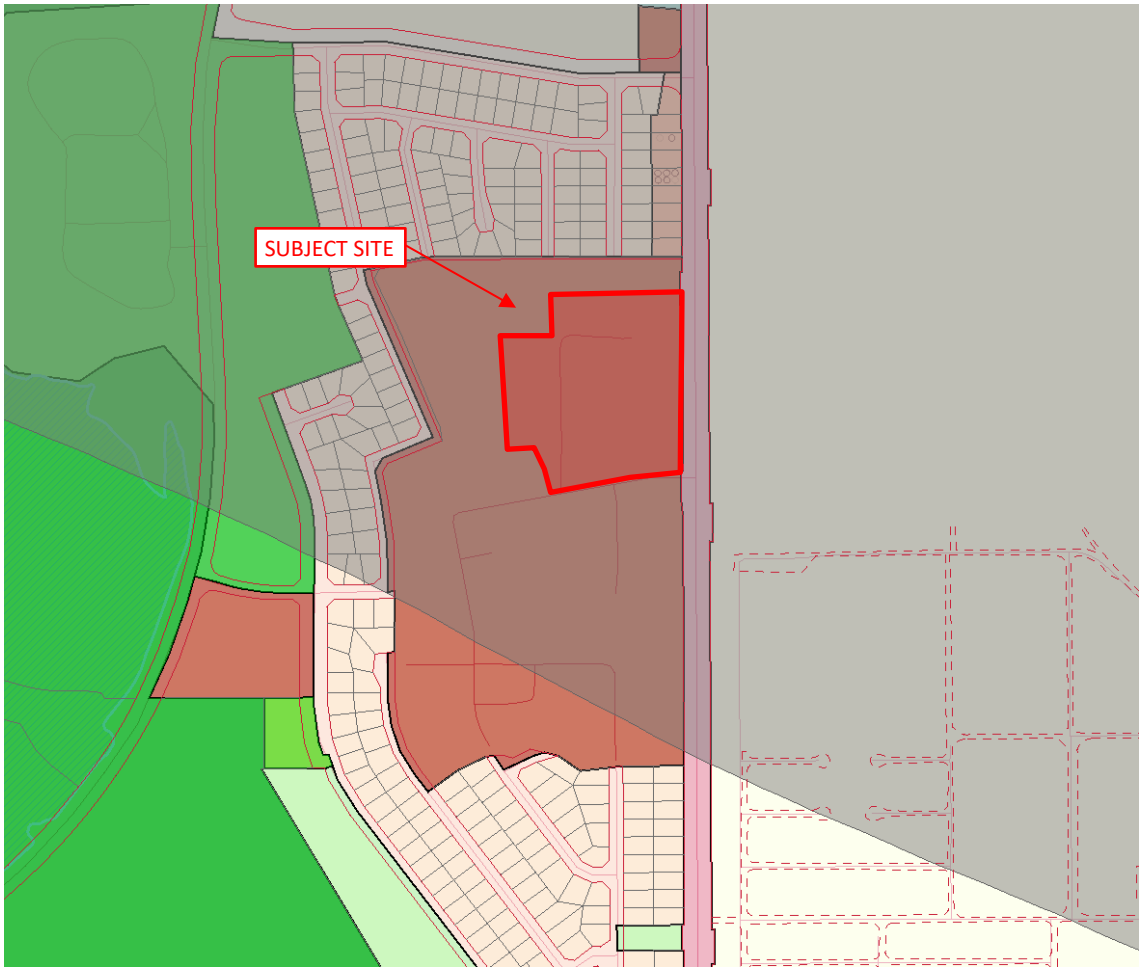
2.1 EXISTING ZONING

The site is currently zoned Community Living (CL) in the Northern Territory Planning Scheme (NTPS). It is proposed to change the zoning to Commercial.

The site is within a Land in Proximity to an Airport overlay (LPA).

The land zoning of the site and surrounding land is shown in Figure 2.

Figure 2- Land zoning

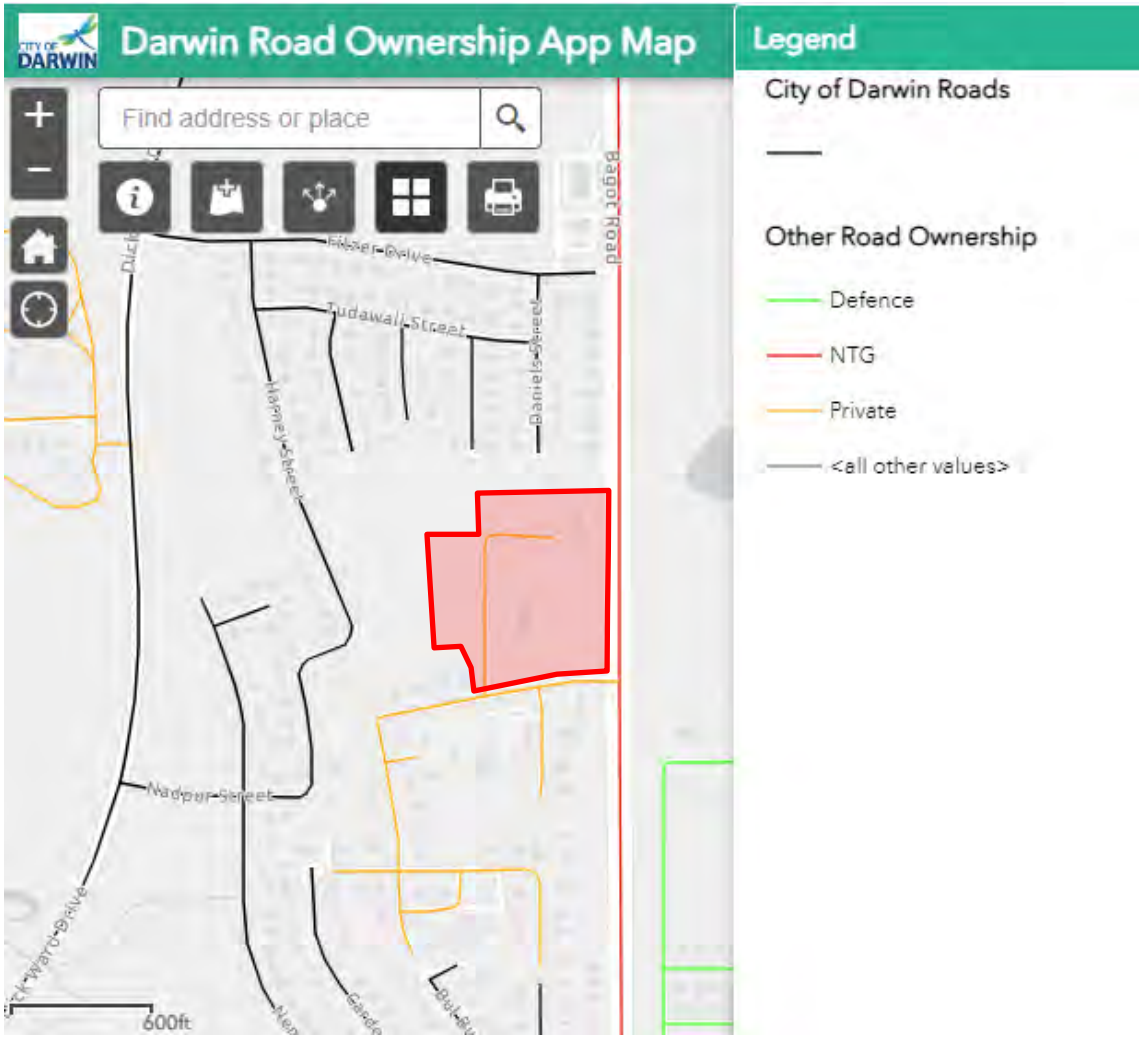


2.2 SURROUNDING ROAD NETWORK

Bagot Road is a 6-lane divided carriageway with a north – south alignment, managed by DIPL. The posted speed limit is 80 km/h.

Bagot is a 7.3 m wide undivided carriageway within the Bagot Community and is privately owned. The is a non-standard sign at the entrance to the community that indicates that the speed limit is 25 km/h.

Figure 3- Darwin road ownership map



2.3 PEDESTRIAN AND CYCLIST FACILITIES

There are footpaths on both sides of the Bagot Community internal roads.

There is an existing footpath along the west side of Bagot Road. The Darwin Region Cycling and Walking Map indicates that the path is a shared path, however it has not been signed as a shared path.

Figure 4- Darwin Road ownership map

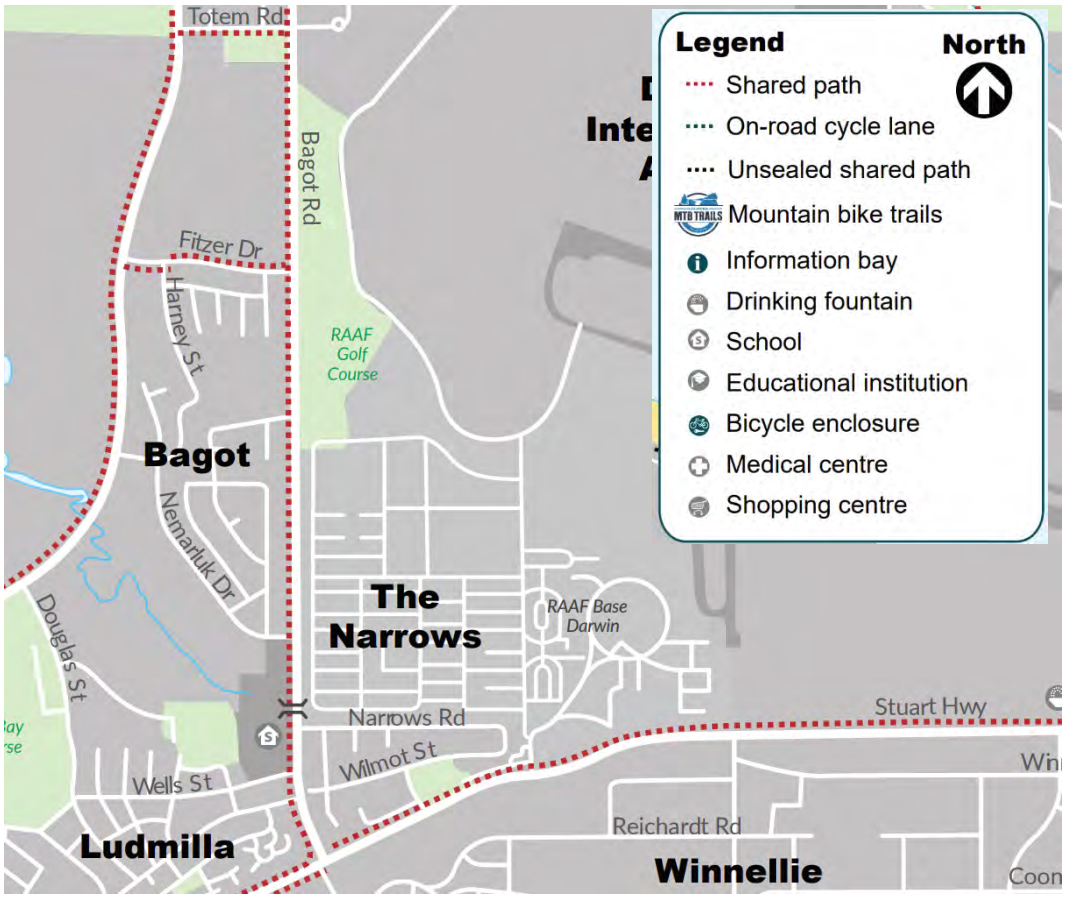


Figure 5 – Path on the west side of Bagot Road

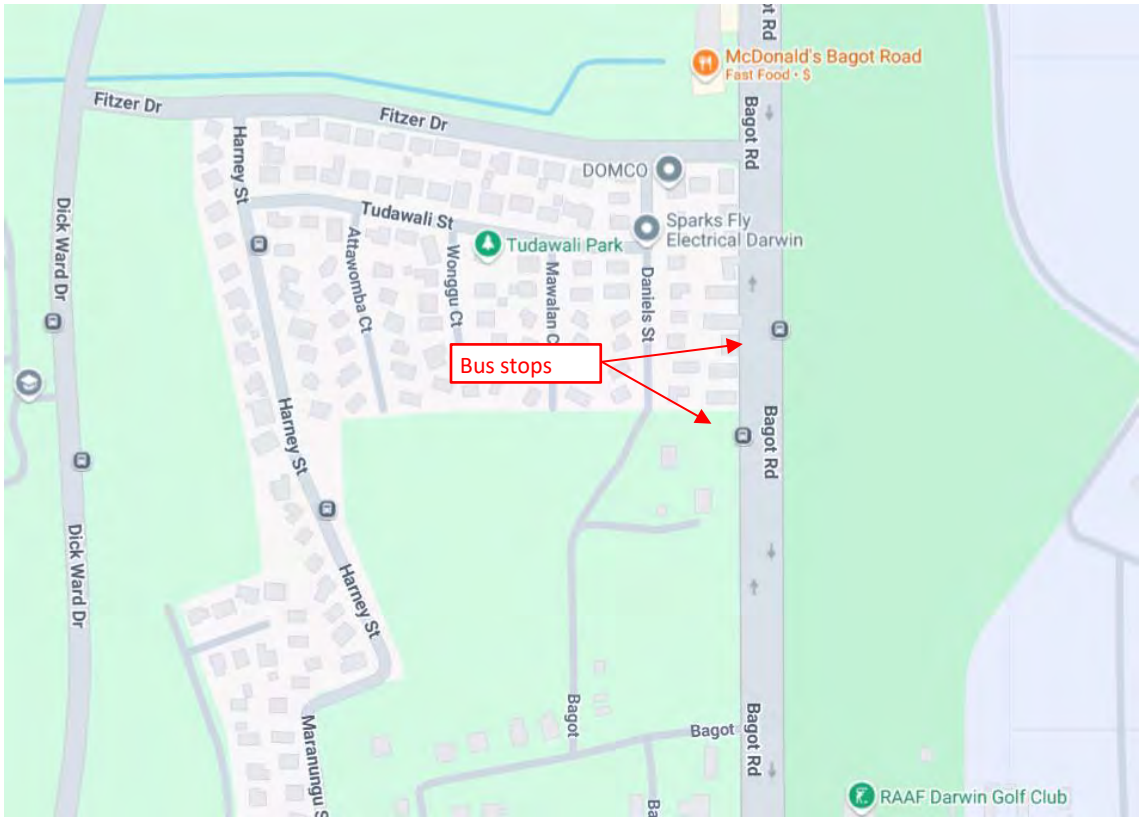
2.4 PUBLIC TRANSPORT

The following bus services operate near the site.

Table 1 – Nearby bus services

Bus Route	Service information	Frequency
10	Casuarina to Darwin - via Alawa, Rapid Creek, Ludmilla, Parap and Stuart Park	30 mins, Mon – Sun and public holidays

Figure 6- Nearby bus stops



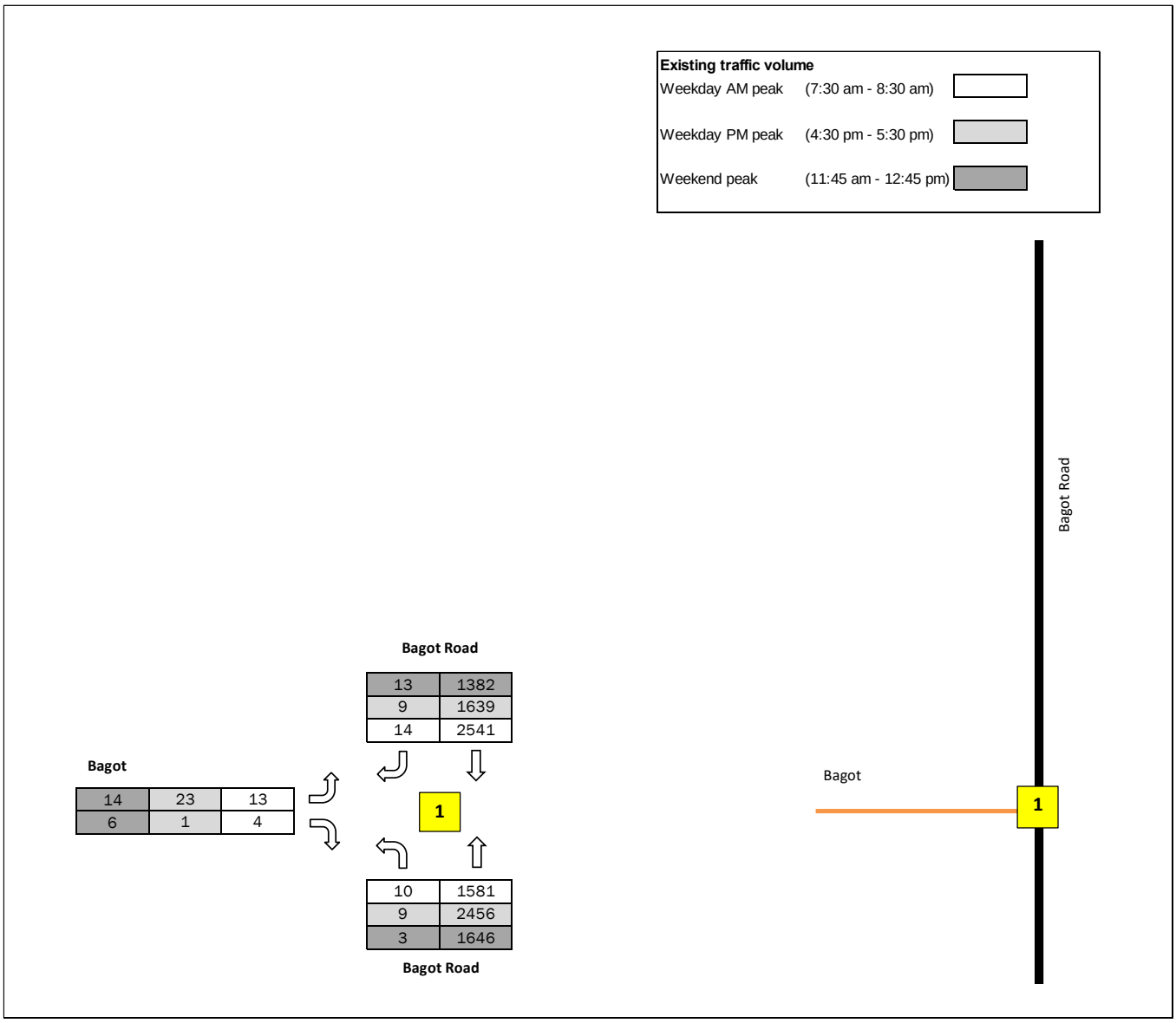
2.5 TRAFFIC VOLUME

The intersection of Bagot and Bagot Road was surveyed on Tuesday 9 October 2024 and Saturday 12 October 2024 between 7 am to 7 pm. The surveys identified the peak periods:

- Weekday AM peak 7:30 am – 8:30 am
- Weekday PM peak 4:30 pm – 5:30 pm
- Weekend peak 11:45 am – 12:45 pm

The peak hour traffic volumes are shown in Figure 7.

Figure 7 – surveyed peak hour traffic volumes



3.0 PROPOSED DEVELOPMENT

3.1 DEVELOPMENT PROPOSAL

The proposal is for the development of a shopping centre comprising a mix of uses, including:

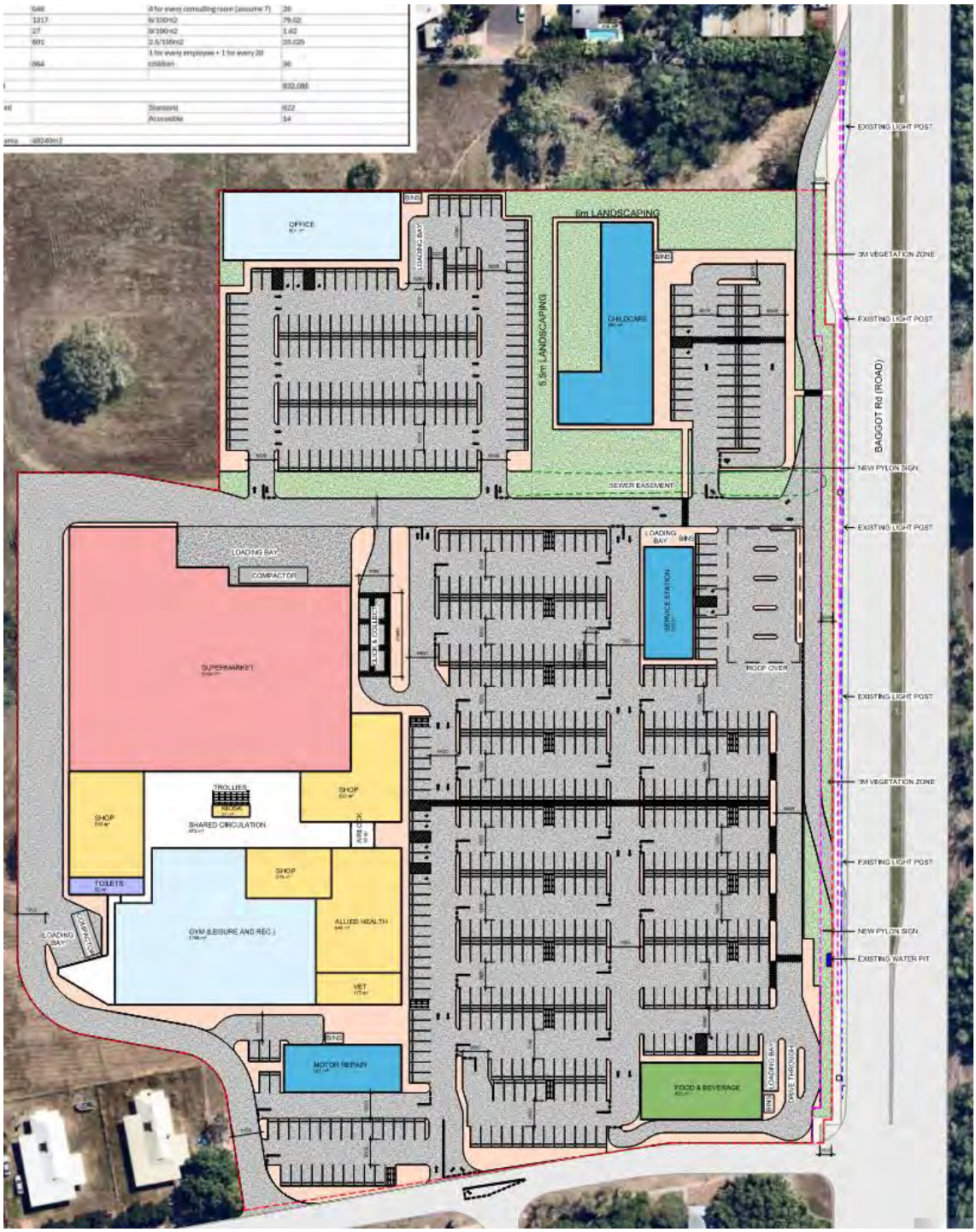
- Supermarket: 3,934 m²
- Gym: 1,706 m²
- Specialty shops 1,317 m^2
- Medical centre 646 m^2
- Veterinary clinic 175 m^2
- Motor repair 363 m^2
- Childcare centre 864 m^2
- Office 801 m^2
- Fuel station 358 m^2
- Food and beverage drive-through 450 m^2

An off-street car park with 636 parking spaces (including 14 accessible spaces) is proposed.

Loading bays will be provided for the shopping centre, food and beverage drive-through, and office.

An extract of the proposed development plans prepared by Hames Sharley is shown in Figure 8.

Figure 8- Site plan



4.0 PARKING ASSESSMENT

4.1 STATUTORY CAR PARKING REQUIREMENTS

The proposed development comprises of multiple components. Each component was assessed against Clause 5.2.4.1 of the Northen Territory Planning Scheme.

No tenants have been arranged for the proposed developments. The number of consulting rooms at the allied health building and the number of staff and children at the childcare were assumed.

The National Quality Framework (NQF) sets out the minimum educator to child ratio. For centre-based services, the maximum number of children permitted is as follows:

- 4 children from birth to 24 months, for every 1 educator
- 5 children from 24 months and less than 36 months, for every 1 educator
- 11 children from 35 months up to and including preschool age, for every 1 educator
- 15 children over preschool age, for every 1 educator.

It was assumed that there will be 25 educators and 5 children per educator at the childcare centre (125 children in total).

The statutory requirement of provision for car parking is summarised in Table 2 below.

Table 2 – Planning scheme parking requirements

Development	Car parking rate	Quantity	Car parking requirement
Food & beverage	6 per 100 m^2 net floor area	450 m^2	27
Service station	2 per 100 m^2 net floor area	358 m^2	7.2
Supermarket	6 per 100 m^2 net floor area	3,934 m^2	236
Shop	6 per 100 m^2 net floor area	1,317 m^2	79
Kiosk	6 per 100 m^2 net floor area	27 m^2	1.6
Vet	4 per 100 m^2 net floor area	175 m^2	7
Gym	5 per 100 m^2 net floor area	1,706 m^2	85.3
Motor repair	6 per 100 m^2 net floor area	363 m^2	21.8
Allied health	4 per consulting room	7 consulting rooms	28
Office	2.5 per 100 m^2 net floor area	801 m^2	20
Childcare	1 per employee	25 employees	25
	1 per 20 children	125 children	6.3
		Total	**544 spaces**

Application of the above rates to the proposed development results in a requirement for provision of 544 car parking spaces. The proposed development will provide 636 parking spaces. The car parking requirement is satisfied.

5.0 CARPARK LAYOUT

5.1 CAR PARK SPACE DESIGN

The proposed off-street car park includes

- 636 x 90-degree angled car parking spaces (including 14 accessible spaces)

All proposed car parking spaces are 2.7 m wide, 5.4 m long. Accessible car parking spaces have an adjacent shared area that is 2.7 m wide and 5.4 m long. Car parking aisles are a minimum of 6.6 m wide.

The proposed car parking dimensions satisfy the requirements set out in AS 2890.1 Off-street car parking. The accessible spaces have been provided in accordance with AS 2890.6 Off-street parking for people with disabilities

The National Construction Code (NCC) Volume 1 2022 requires that the development provides one (1) accessible car parking space for every 100 spaces provided. 14 accessible spaces will be provided within the on-site car park, which satisfies the NCC requirements.

Levels and kerb details are not shown on the concept plan. At the detailed design stage, ensure that people in wheelchairs can move between accessible parking spaces and the footpath (i.e. install at-grade parking spaces or install kerb ramps).

Recommendation 1: accommodate people in wheelchairs travelling between the buildings and accessible parking spaces with at-grade car parking spaces or kerb ramps.

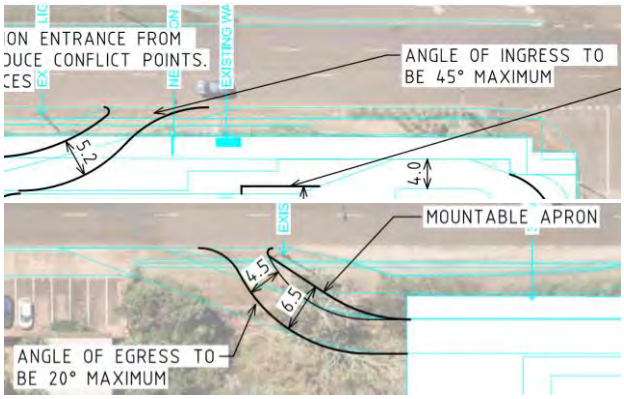
5.2 SITE ACCESS

The proposed vehicular access is summarised below:

- two accesses to the Bagot Community local street on the southern boundary
- a one-way service road on the west side of Bagot Road
- two left-in and left-out accesses from the shopping centre to the service road
- car park aisles with a minimum width of 6.6 m
- a one-way car park aisle for trucks only to access shopping centre loading areas on the western boundary.

Section 7.0 of the report identifies the recommendation to signalise the Bagot Road and Bagot community local street. The Austroads Guide to Road Design Part 4A (AGRD4A) recommends dimensions and angles for service road entry and exits near traffic signals. The service road also needs to accommodate 19.0 m semi-articulated trucks.

Figure 9 – service road design recommendations



Recommendation 2: construct the service road entry and exit in accordance with Austroads Guide to Road Design Part 4A

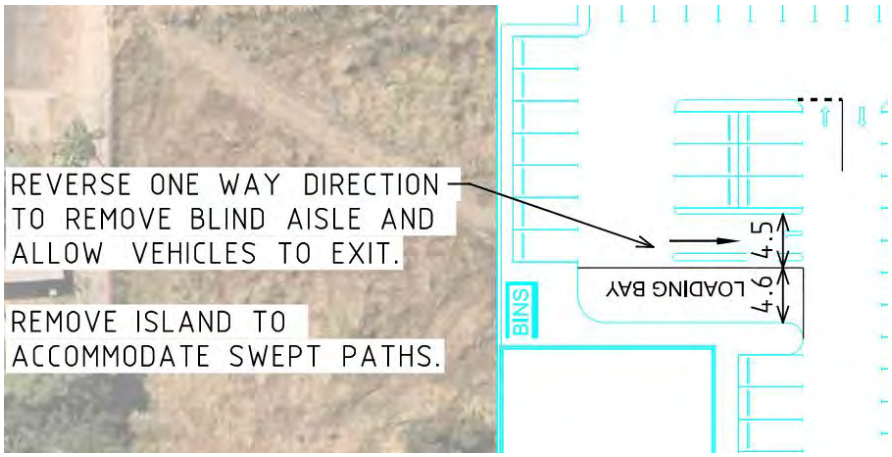
Refer to Appendix A for all design changes recommended in this report. Refer to Appendix B for swept path assessments.

5.3 INTERNAL CIRCULATION AND INTERSECTIONS

Swept path assessments with a B99 vehicle were undertaken. Swept path assessments for trucks is discussed in Section 6.0.

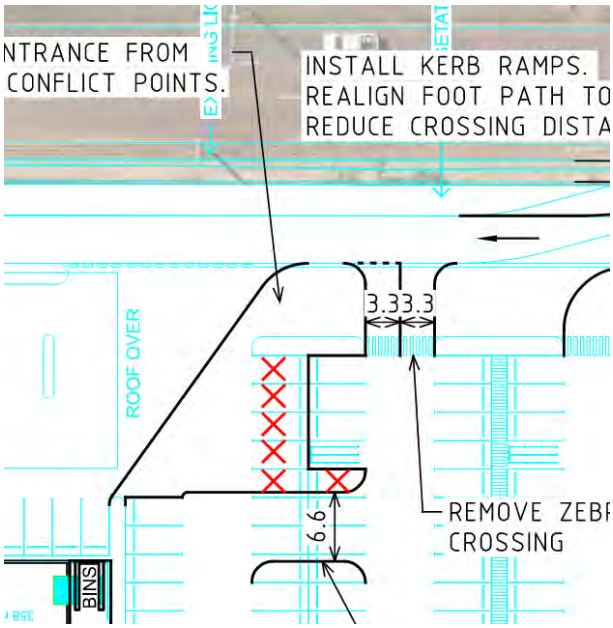
There is a proposed one-way aisle (northbound) near the office that forms a blind aisle. If motorists enter the blind aisle and can't find parking they will need to reverse. It is recommended to reverse the direction of the aisle.

Figure 10 – change direction of one-way aisle near the office



A north-south car park aisle is proposed adjacent to the service road. Motorists are likely to perform a sharp U-turn at the southern most car park entrance off the service road to access the food and beverage store. It is recommended to redesign the car park aisles, such that motorists perform safe manoeuvres. An option is shown in Figure 11.

Figure 11 – option to improve vehicle access



The food and beverage drive-through exit alignment needs to be amended to allow cars to negotiate it. As they exit, their sight lines to southbound traffic will be obstructed by the food and beverage building. It is recommended to realign the drive-through exit and for the aisle to be one-way to improve safety.

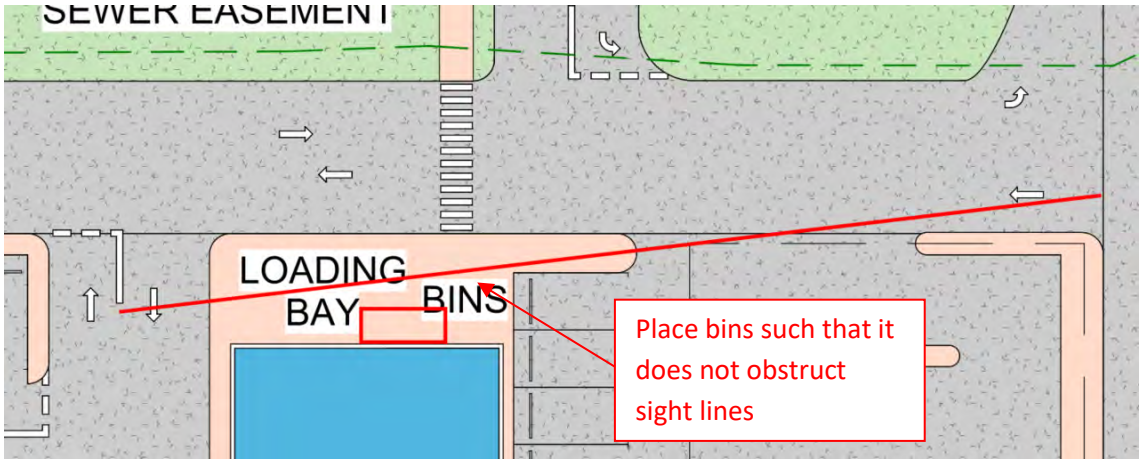
Figure 12 – food and beverage drive-through exit and nearby aisle

The car park will have some one-way aisles. Pavement arrows are not shown at entry and exit points for some one-way aisles. Turn pavement arrows are proposed at some internal intersections which legally requires vehicles to perform that movement. It is recommended to revise the pavement arrow design throughout the car park to allow motorists to circulate the car park safely and efficiently.

Recommendation 3: design the car park aisles and intersections to allow motorists to safely and efficiently circulate

Bins for the service station are proposed to be stored to the north of the building. It is recommended that the bins are positioned such that they do not obstruct sight lines at the internal intersection to the west of the service station.

Figure 13 – recommended bin position near the service station



Recommendation 4: position the bin near the service station such that it does not obstruct sight lines at the internal intersection to the west of the service station

5.4 END OF TRIP FACILITIES

It is proposed to rezone the site as Commercial. The Northern Territory Planning Scheme end of trip facility requirements for the development are summarised in Table 3.

Table 3 – Planning scheme end of trip facility requirements

Development	Bicycle parking	Showers	Requirements
Office (801 m^2 GFA)	1 space per 300 m^2 NFA	1 shower for up to 1,500 m^2 NFA, plus 1 additional shower for up to every 1,500 m^2 thereafter	30 bicycle parking spaces 1 shower
Shop (5278 m^2 GFA)	1 space per 300 m^2 NFA up to 5,000 m^2 NFA, plus 1 space per 600 m^2 NFA above every 5,000 m^2 NFA thereafter	1 shower for up to 5,000 m^2 NFA, plus 1 additional shower for up to every 5,000 m^2 NFA	17 bicycle parking spaces 1 shower
Non-residential buildings other than above (4,562 m^2 GFA)	1 space per 300 m^2 NFA	1 shower for up to 50 staff, plus 1 additional shower for up to every 50 staff thereafter	15 bicycle parking spaces 1 shower

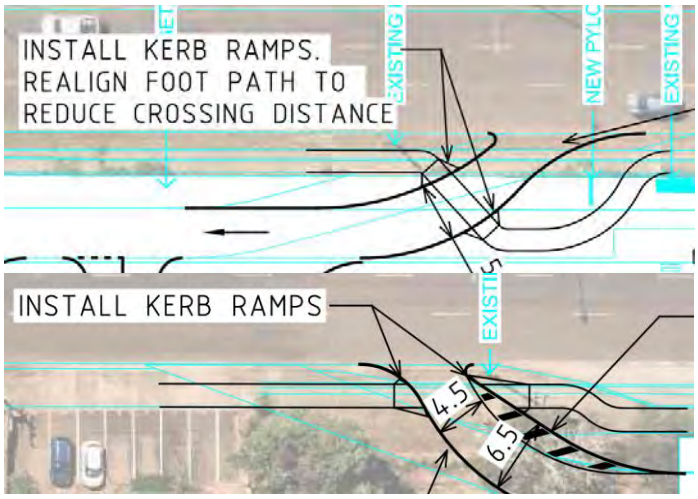
Application of the above rates to the proposed development results in a requirement of 62 bicycle parking spaces and 3 showers.

Recommendation 5: provide 62 bicycle parking spaces and 3 showers within the site.

5.5 PEDESTRIAN FACILITIES

There is an existing footpath on the west side of Bagot Road. It is proposed to reconstruct the path, parallel with Bagot Road. The proposed path will have approximately an 18 m crossing distance across the service road entry and exit. The large crossing distance results risk of pedestrians being struck by vehicles. It is recommended that the path be realigned with a reduced crossing distance across the service road.

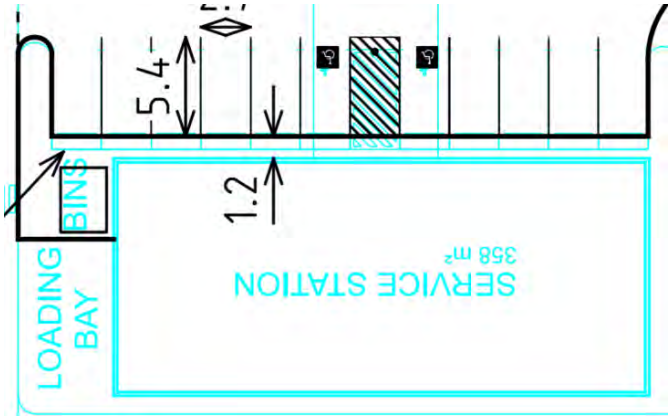
Figure 14- realignment of footpaths at service road crossing



Recommendation 6: construct pedestrian crossings with low crossing distances at the proposed service road entry and exit.

A 0.5 m wide path is proposed between the service station frontage and 90 degree angled car parking spaces. The path should be widened to a 1.2 m to allow pedestrians to walk along the path.

Figure 15 – widen service station path to 1.2 m wide



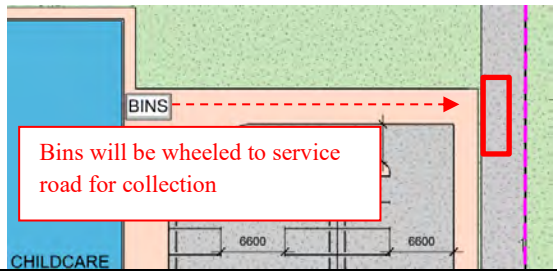
Recommendation 7: widen the path in front of the service station to 1.2 m.

6.0 LOADING AND WASTE COLLECTION ARRANGEMENTS

6.1 WASTE COLLECTION

Table 4 summarises the waste collection vehicle sizes and bin collection locations for the proposed developments.

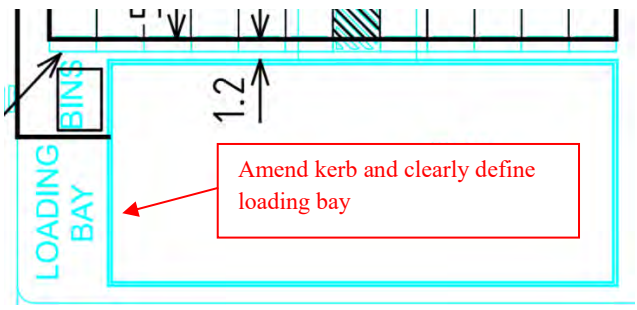
Table 4 – vehicle loading requirements for developments

Development	Accessible waste collection vehicle	Waste collection location
Food & beverage	12.5 m truck or smaller	Loading bay adjacent to the building
Service station	8.8 m truck	Loading bay, north of the building
Supermarket	10.7 m hook lift truck	Compactor in the loading bay to the north of the store
Shops, kiosk, vet, gym, and allied health	10.7 m hook lift truck	Compactor in the loading bay to the west of the gym
Motor repair	12.5 m truck or smaller	Parking aisle to the north of the building
Office	8.8 m truck	Loading bay adjacent to the building
Childcare	12.5 m truck or smaller	Bins will be wheeled from the childcare building to the service road for collection. 

Swept path assessments were undertaken to confirm waste collection vehicles can access the proposed developments.

The service station loading bay is in a concrete/pedestrian space. It is recommended that the loading bay be separated from the footpath.

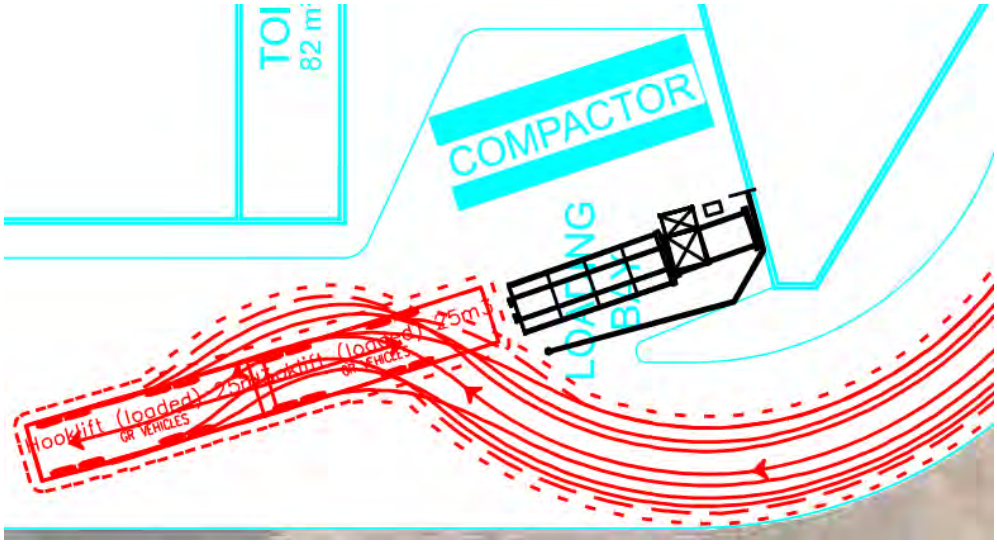
Figure 16 - Required position of the compactor, west of the gym



Recommendation 8: construct the service station loading bay separated from the footpath.

The 10.7 m hook lift truck loads the waste in compactors from the rear of the truck. To access the compactor, west of the gym, the compactor must be relocated to the western side of the loading bay.

Figure 17 - Required position of the compactor, west of the gym

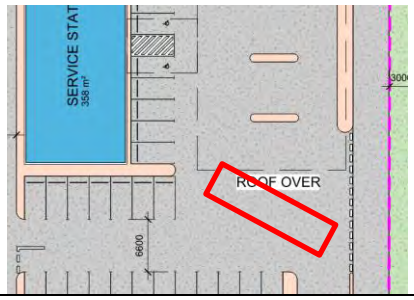


Recommendation 9: relocate the compactor to the west side of the loading bay, located west of the gym

6.2 LOADING

Table 5 summarises the loading vehicle sizes and practices for the proposed developments.

Table 5 – vehicle loading requirements for developments

Development	Largest vehicle required for loading	Location where loading and waste collection will occur
Food & beverage	12.5 m truck	Loading bay adjacent the building
Service station	19.0 m semi-articulated truck for delivering fuel	Within the car park aisle to the south of the fuel pumps 
	8.8 m truck for store deliveries	Loading bay to the north of the building
Supermarket	19.0 m semi-articulated truck	Loading bay to the north of the store
Shops, kiosk, vet, gym, and allied health	12.5 m truck	Loading bay to the west of the gym

Development	Largest vehicle required for loading	Location where loading and waste collection will occur
Motor repair	12.5 m truck	Parking aisle to the north of the building
Office	8.8 m truck	Loading bay adjacent to the building
Childcare	B99 car	Within a car parking space

Section 6.1 discussed relocating a compactor. If the compactor is relocated, a 12.5 m truck will still be able to access the loading bay, west of the gym.

The supermarket loading bay and the loading bay west of the gym will be accessible via a one-way aisle for trucks only between the motor repair car park and the office car park.

Recommendation 10: include additional linemarking and/or signage to clearly indicate that the aisle along the western boundary is for truck deliveries and waste collection only.

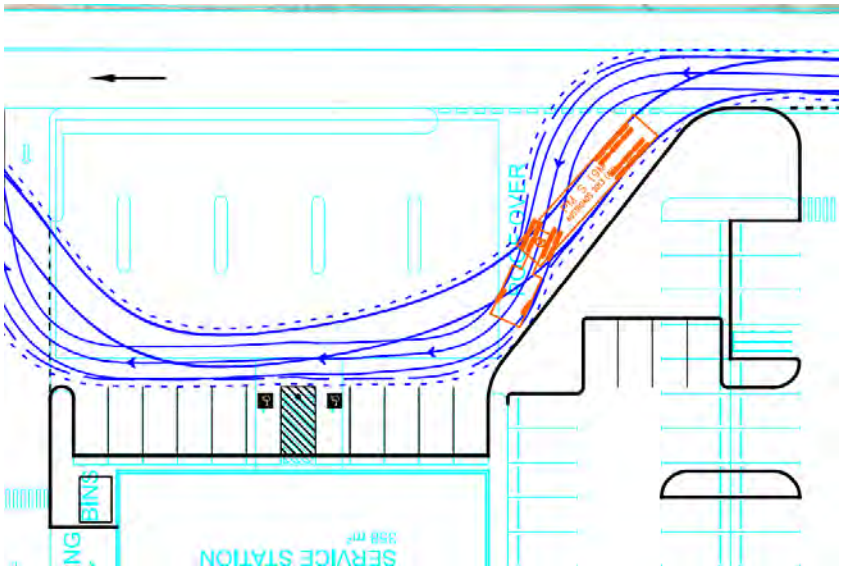
The supermarket loading bay and the loading bay west of the gym will be accessible via a one-way aisle for trucks only between the motor repair car park and the office car park.

A 19.0 m semi-articulated trucks will block car parking aisles while connected to the underground fuel storage. Some parked vehicles will be unable to leave parking spaces while a 19.0 m truck is delivering fuel.

Recommendation 11: provide a loading area for a 19.0 m semi-articulated truck to park at the service station without restricting access within the car park.

Figure 18 below provides an example of a service station loading bay and amended car park layout that could be adopted.

Figure 18 – example design of a loading space for the 19.0 m semi-articulated truck at the service station



7.0 TRAFFIC ASSESSMENT

7.1 TRAFFIC GENERATION

Transport for New South Wales (TfNSW) have undertaken surveys of development within Sydney and regional areas. TfNSW has published the Guide to Transport Impact Assessment (2024) which provides trip generation rates for developments. When available, the trip generation rates were used.

It is anticipated that the weekday commuter peak periods (7:30 am – 8:30 am and 4:30 pm – 5:30 pm) and weekday peak (11:45 am – 12:45 pm) are currently and will continue to be the most congested periods of a week.

Some of the site peak trip generation rates provided by the TfNSW Guide occur outside of the peak periods. In these situations, the traffic demand profiles for the proposed developments have been determined based on analysis of the 'popular times' feature of Google at nearby similar developments. The feature gives an indication of how many people are at a development throughout the day.

Some trips to the development will be a 'pass-by-trip' (also known as an undiverted trip). The TfNSW Guide describes a pass-by-trip as:

'trips from an origin to a destination that previously passed the development site. These trips are common for sites such as service stations…'

Table C8.2 in AGTM Part 12, provides typical proportions of trips that are undiverted drop in trips for new shopping centres and fast food outlets. The undiverted drop in percentages were assumed for the other proposed developments.

Table 6 – proportion of undiverted drop in trips for new shopping centres and fast food outlets

Table C8 2: Segmentation of traffic generation for shopping centres

Development	Trip segmentation		
	New (%)	Diverted drop In (%)	Undiverted drop in (%)
Shopping centres > 20 000 m2	63	18	19
Shopping centres 3 000 m2 – 20 000 m2	50	22	28
Shopping centres < 3 000 m2	50	32	18
Fast food outlets	40	25	35

Source: Queensland Department of Main Roads (2006).

The proposed development is likely to also result in some linked trips within the development (i.e. a parent my drive to the proposed childcare and then the nearby proposed office). To be conservative, it is assumed that there will be no linked trips within the development when calculating the traffic generation.

The anticipated traffic generated by the proposed development during the peak periods are summarised in Table 7.

Table 7 – traffic generation

Development	TfNSW trip generation rate or equation	Comments	Percentage of pass-by-trips	Estimated traffic generation (vehicles / hour)		
				AM	PM	Weekend
Food & beverage	Regional McDonalds Weekday network AM – 188 vehicles/hour Weekday network PM – 201 vehicles/hour Weekend peak – 225 vehicles/hour		35%	122	119	146
Service Station	(AM) = 0.2815 * $(N)^2$ + 14.047(N) + 16.715 (PM) = 0.0205(S) + 88.52 Site peak = 0.0819(D) + 46.302 Daily = 29.042$(N)^2$ + 222.58(N) + 1,668.3 (N) is the number of service channels (S) is the total site area in square metres (D) is daily traffic volume	• The number of service channels proposed is 8 • The total site area of the proposed service station is 358 m^2 • The traffic generation during the weekend peak will be 50% of the site peak traffic generation.	75%	37	24	60
Supermarket, shop, kiosk	Small supermarket (1,000 – 6,000 m^2) Wednesday/Thursday site AM peak = 0.066(A) + 126 Wednesday/Thursday site PM peak = 0.089(A) + 170 Weekend peak = 0.097(A) + 186 (A) is gross floor area in square metres	The supermarket morning peak period typically occurs late in the morning. The traffic generation during the weekday commuter AM peak is estimated to be 50% of the weekday site AM peak.	20%	52	140	153
Vet	No rates provided	The following assumptions were made: • there will be 3 consulting rooms • there will be on average 2 appointments per hour per consultation room • all vehicle trips will arrive and depart within the hour	10%	11	11	11
Gym	Weekday peak = 3.6 vehicle trips per 100 m^2 GFA Weekend peak = 2.9 vehicle trips per 100 m^2 GFA	Typically, a gym is busiest on a weekday afternoon, after people finish work. The traffic generation during the weekday AM peak is estimated to be 50% of the weekday site peak.	10%	28	55	45
Motor repair	No rates provided	The trip generation rates were assumed.	0%	10	4	10
Allied health	Site peak person trips = 0.0314$(R)^2$ + 6.1122(R) + 8.0607 In regional NSW, the mode share of trips by car to allied health developments is typically 90% (ranges from 74% to 96%)	Typically, an allied health is busiest on a weekday noon. The traffic generation during the peak periods is estimated to be: • 75% of the site peak during the weekday AM peak • 50% of the site peak during the weekday PM peak • 50% of the site peak during the weekend peak	0%	35	24	24
Office	Regional AM peak = 0.99 vehicle trips per 100 m^2 GFA PM peak = 0.96 vehicle trips per 100 m^2 GFA	The gross floor area of the office is 801 m^2.	0%	8	8	0
Childcare	Pre-school Network AM peak = 0.83 vehicle trips per licensed child places Network PM peak = 0.51 vehicle trips per licensed child places	The following assumptions were made: • there will be 25 qualified educators • there will be on average 5 children per educator (125 children in total)	10%	93	57	0
			Total trips	**386**	**441**	**448**

7.2 TRAFFIC DISTRIBUTION

The following assumptions were made:

- 100% of trips associated with the office arrive during the AM peak and depart during the PM peak
- For all other developments, it was assumed that 50% of trips will arrive and 50% of trips will exit the site in all peak periods
- 50% of northbound motorists entering and exiting the site will use the Bagot Road intersection and 50% will use the service road
- The proportion of traffic travelling to/from the north and south on Bagot Road to the development will be equal to the existing proportion of north and southbound traffic on Bagot Road. The traffic survey at the Bagot Road intersection recorded the following:
    - Approximately 40% are travelling north and 60% are travelling south in the AM peak
    - Approximately 60% are travelling north and 40% are travelling south in the PM peak
    - Approximately 55% are travelling north and 45% are travelling south on the weekend peak.

Figure 19- Distribution of development traffic

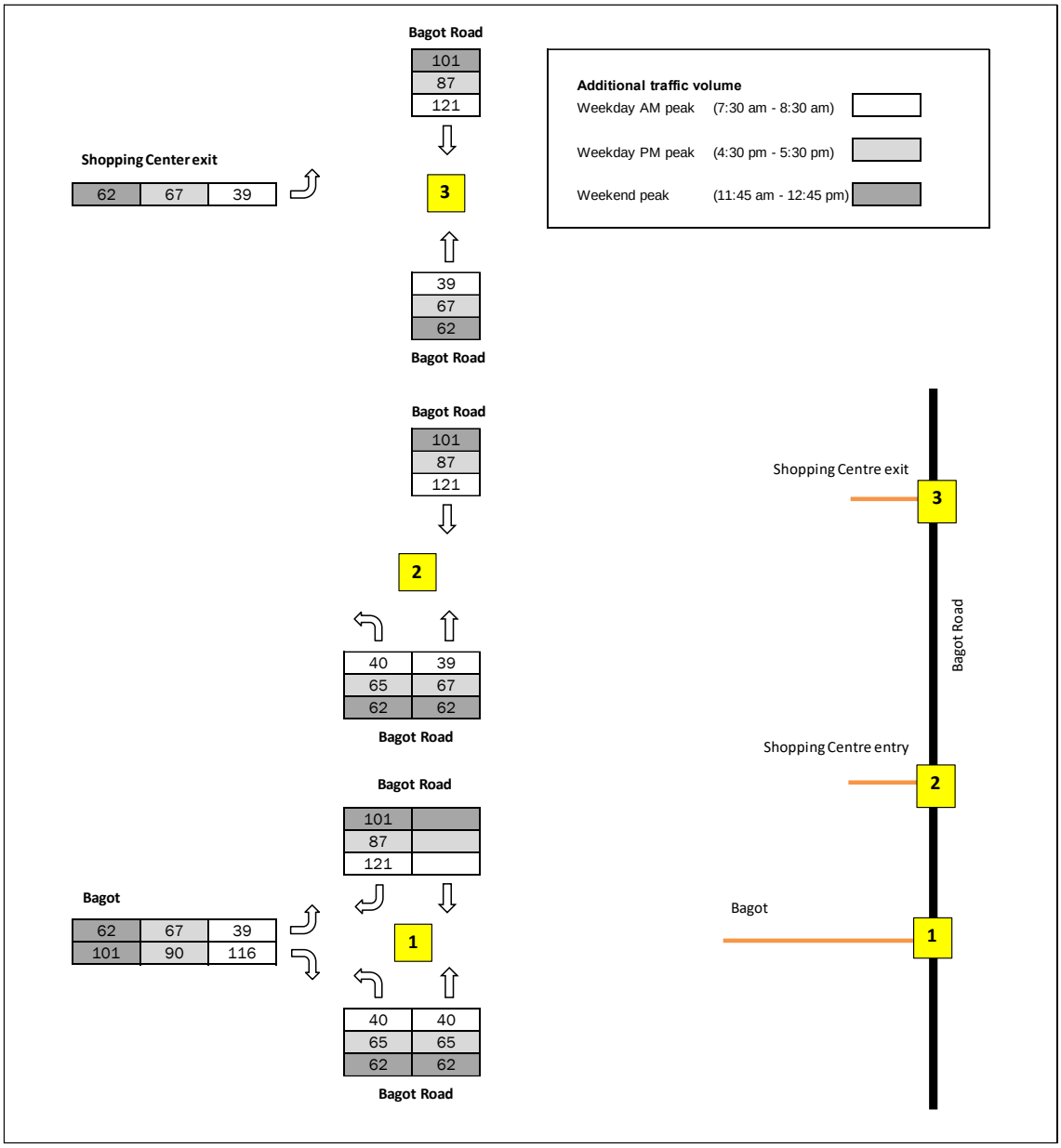
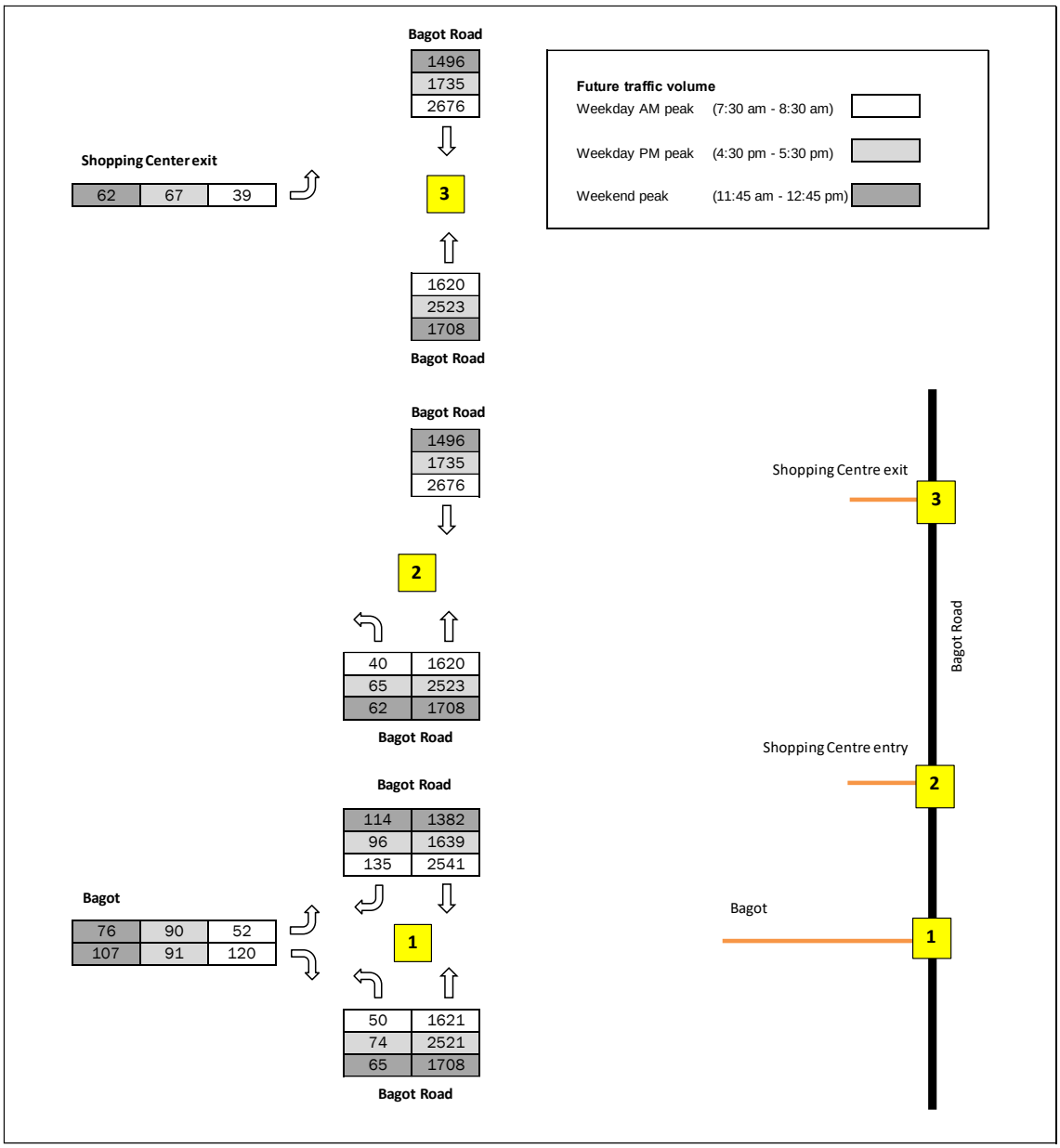


Figure 20- Future traffic volumes



7.3 TRAFFIC ANALYSIS

SIDRA software was used to assess the impacts of the proposal to the Bagot Road and Bagot community local street intersection. The intersection was modelled for the following peak periods:

- Weekday AM peak hour
- Weekday PM peak hour
- Weekend peak hour

The program produces statistics and information on the operation of an intersection but typically the main characteristics used to assess the operation of the intersection are the Degree of Saturation (DOS), the 95th percentile queue lengths and the average delay.

An explanation of the intersection operating characteristics is shown below.

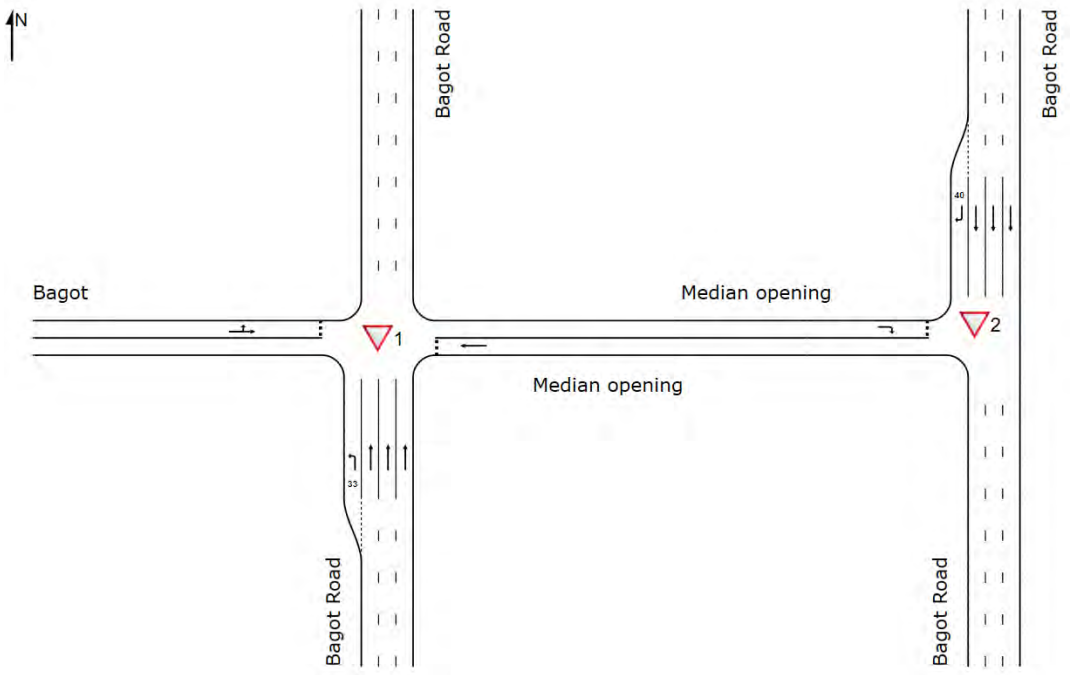
Table 8 - Definitions of intersection operation characteristics

Degree of Saturation (DOS)			Operation
Sign control	Roundabout	Traffic Signals	
< 0.6	< 0.6	< 0.6	Excellent operating conditions, minimal delays
0.6 - 0.699	0.6 - 0.699	0.6 - 0.699	Very good operating conditions, minimal delays
0.7 - 0.799	0.7 - 0.849	0.7 - 0.899	Good operating conditions, delays and queuing increasing
0.8 - 0.899	0.85 - 0.949	0.9 - 0.949	Fair operating conditions, delays and queues growing. Any interruption to flow such as minor incidents causes increasing delays
0.9 – 1.0	0.95 – 1.0	0.95 – 1.0	Poor operating conditions, flows starting to breakdown and queues and delays increase rapidly.
> 1.0	> 1.0	> 1.0	Very poor operating conditions with queues and delays increasing rapidly. Once queues develop it takes a significant time for queues to dissipate, resulting in long delays to traffic movements

7.3.1 MODEL RESULTS

The Bagot Road and Bagot community local street intersection was modelled as two intersections in a network, to replicate the staged right turn movement across the Bagot Road median opening. The network layout is shown in Figure 21.

Figure 21- Modelled network layout



The existing and future traffic conditions at the Bagot Road intersection are summarised in the tables below. For the detailed SIDRA report outputs, refer to Appendix C.

Table 9 – Existing conditions traffic analysis results

	Movements	Existing								
		DOS			95% Queue (m)			Average Delay (sec)		
		AM peak	PM peak	SAT	AM peak	PM peak	SAT	AM peak	PM peak	SAT
West	Bagot Road (south app.)	0.288	0.448	0.300	0.0	0.0	0.0	0.1	0.1	0.1
	Median opening (east app.)	0.211	0.944	0.184	4.4	20.4	3.7	46.5	579.0	51.3
	Bagot local street (west app.)	0.070	0.189	0.109	1.5	3.4	2.3	12.9	19.5	17.7
East	Bagot Road (north app.)	0.463	0.299	0.252	0.0	0.0	0.0	0.2	0.1	0.1
	Median opening (west app.)	0.459	0.013	0.045	8.1	0.2	0.9	361.5	41.3	25.2

Table 10 – Future conditions traffic analysis results

	Movements	Proposed								
		DOS			95% Queue (m)			Average Delay (sec)		
		AM peak	PM peak	SAT	AM peak	PM peak	SAT	AM peak	PM peak	SAT
West	Bagot Road (south app.)	0.295	0.460	0.311	0.0	0.0	0.0	0.3	0.3	0.3
	Median opening (east app.)	2.012	14.719	2.169	42.3	42.3	42.3	981.2	12571.4	1133.7
	Bagot local street (west app.)	4.084	16.202	2.616	617.2	807.9	548.2	2826.8	13804.4	1509.8
East	Bagot Road (north app.)	0.463	0.299	0.252	297.0	392.4	265.2	0.5	0.4	0.6
	Median opening (west app.)	4.650	0.067	0.373	24.9	1.3	8.5	3529.2	48.9	39.7

The key observations are summarised below:

Existing conditions:

- the intersection is operating with excellent conditions during the weekday AM peak and the weekend peak
- the intersection is operating with poor conditions during the weekday PM peak
- during the weekday PM peak, motorists turning right from Bagot Road into the Bagot community local street are experiencing significant delay and may be selecting tight gaps in northbound traffic.

Future conditions:

- the intersection will operate well over capacity with very poor conditions during all peak periods.
- there will be significant traffic queues and delays associated with turning into and out of the Bagot community local street
- Motorists attempting to turn left and right into the Bagot community local street will exceed the turn lane storage lengths and block through traffic lanes on Bagot Road.

Additionally, the existing intersection layout requires motorists to stage their right turn out onto Bagot Road, however there is insufficient median width to allow motorists to safely store. The significant increase in the right turning volume will lead to an increased risk of intersection crashes.

The Bagot Road intersection will require traffic signals to manage the additional traffic volume and safety at the intersection.

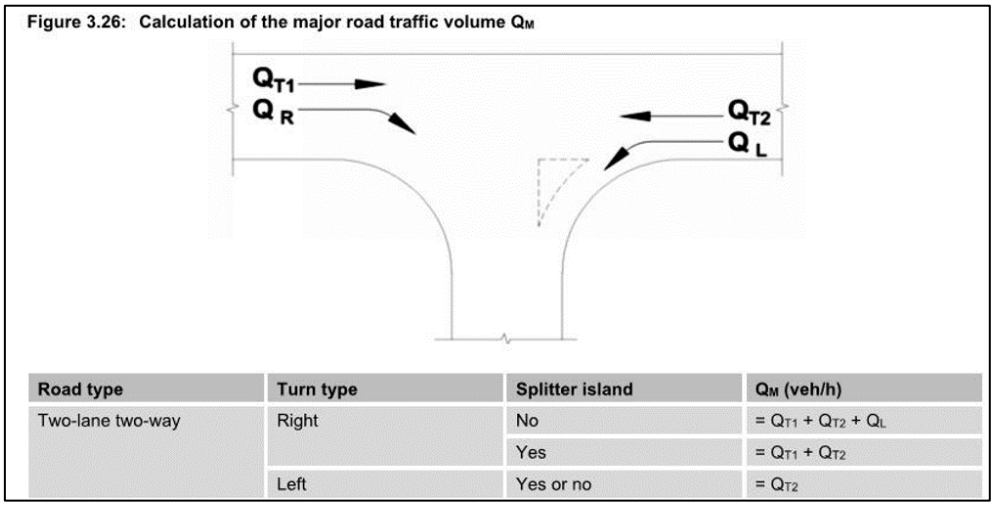
Recommendation 12: install traffic signals at the Bagot Road and Bagot community local street.

7.4 TURN LANE PROVISION

The traffic turning from major roads into minor roads should not delay through traffic. A turn lane assessment was undertaken at the proposed eastern car park access to the Bagot community local street.

To determine the appropriate turning treatments for the intersection, the anticipated traffic volumes were applied to Figure 3.26, Austroads Guide to Traffic Management Part 6 (AGTM6).

Figure 22 - major road traffic volume (extract of Figure 3.26 from AGTM Part 6)



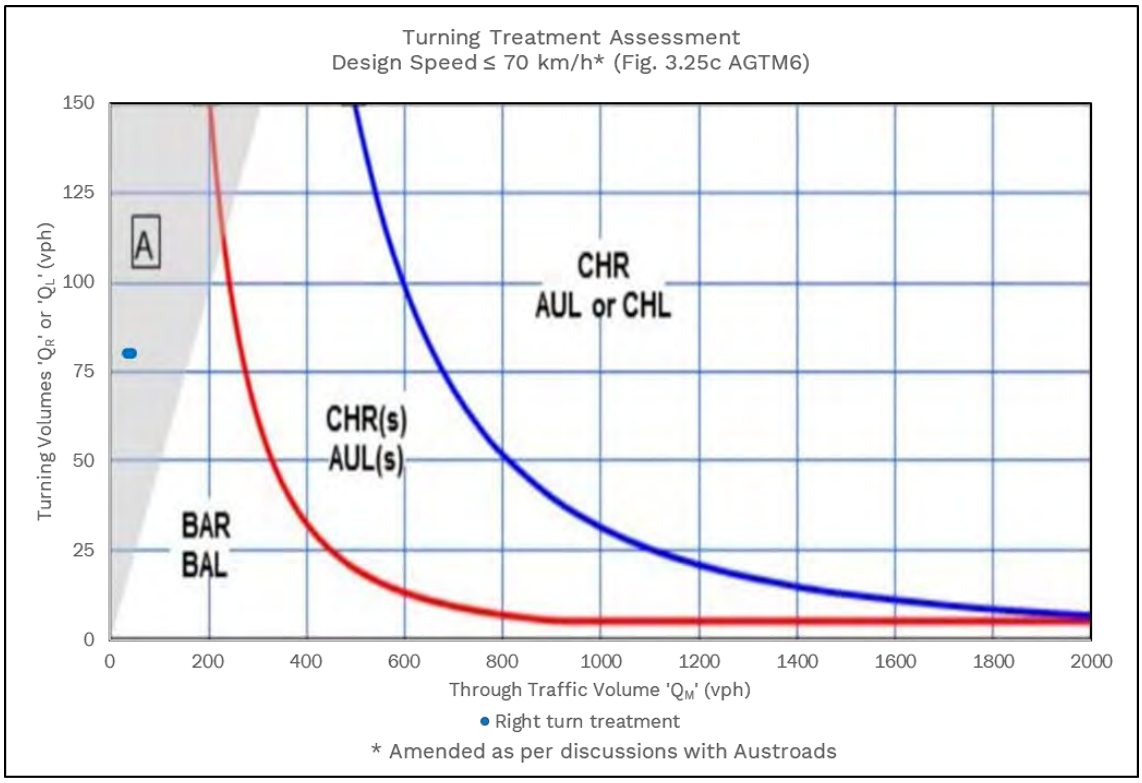
Road type	Turn type	Splitter island	Q_M (veh/h)
Two-lane two-way	Right	No	= $Q_{T1} + Q_{T2} + Q_L$
		Yes	= $Q_{T1} + Q_{T2}$
	Left	Yes or no	= Q_{T2}

The anticipated traffic volumes at the car park access and calculations are summarised in Table 11. The right turn lane warrant assessment is shown in Figure 23.

Table 11 – Traffic volumes and calculations for right turn treatment assessment

Peak period	**Right turn Q_R**	**Through Q_T**	**Q_M (right turn)**
AM	161	Q_{T1} 28	45
		Q_{T2} 17	
PM	152	Q_{T1} 19	43
		Q_{T2} 24	
SAT	162	Q_{T1} 16	36
		Q_{T2} 20	

Figure 23 – Right turn lane warrant assessment (source: Figure 3.25b AGTM Part 6)



The assessment shows that a right turn lane is not required at the proposed eastern car park entrance to the Bagot community local street. Less traffic will turn into the western car park entrance, therefore a right turn lane is not required at the western entrance as well

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis and discussions presented within this report, the following is concluded:

- the statutory car parking requirement is 544 car parking spaces. Provision for 636 carparking spaces is proposed
- the proposed car park space dimensions are in accordance with AS 2890.1 and AS 2890.6
- the proposed development is estimated to generate the following peak hour traffic volumes:
    - 386 vehicles per hour during the weekday AM peak (7:30 am – 8:30 am)
    - 441 vehicles per hour during the weekday PM peak (4:30 pm – 5:30 pm)
    - 448 vehicles per hour during the weekend peak (11:45 am – 12:45 pm)
- a right turn lane treatment is not required at the proposed site accesses to the Bagot community local street.

The following is recommended:

Recommendation 1: accommodate people in wheelchairs travelling between the buildings and accessible parking spaces with at-grade car parking spaces or kerb ramps.

Recommendation 2: construct the service road entry and exit in accordance with Austroads Guide to Road Design Part 4A

Recommendation 3: design the car park aisles and intersections to allow motorists to safely and efficiently circulate

Recommendation 4: position the bin near the service station such that it does not obstruct sight lines at the internal intersection to the west of the service station

Recommendation 5: provide 62 bicycle parking spaces and 3 showers within the site.

Recommendation 6: construct pedestrian crossings with low crossing distances at the proposed service road entry and exit.

Recommendation 7: widen the path in front of the service station to 1.2 m.

Recommendation 8: construct the service station loading bay separated from the footpath.

Recommendation 9: relocate the compactor to the west side of the loading bay, located west of the gym

Recommendation 10: include additional linemarking and/or signage to clearly indicate that the aisle along the western boundary is for truck deliveries and waste collection only.

Recommendation 11: provide a loading area for a 19.0 m semi-articulated truck to park at the service station without restricting access within the car park.

Recommendation 12: install traffic signals at the Bagot Road and Bagot community local street.

The incorporation of the above recommendations will lead to a loss of 13 spaces and a gain of 8 spaces, with a net loss of 5 spaces. This will change the total supply to 631 spaces.

A concept plan of the recommended design changes is shown in Appendix A.

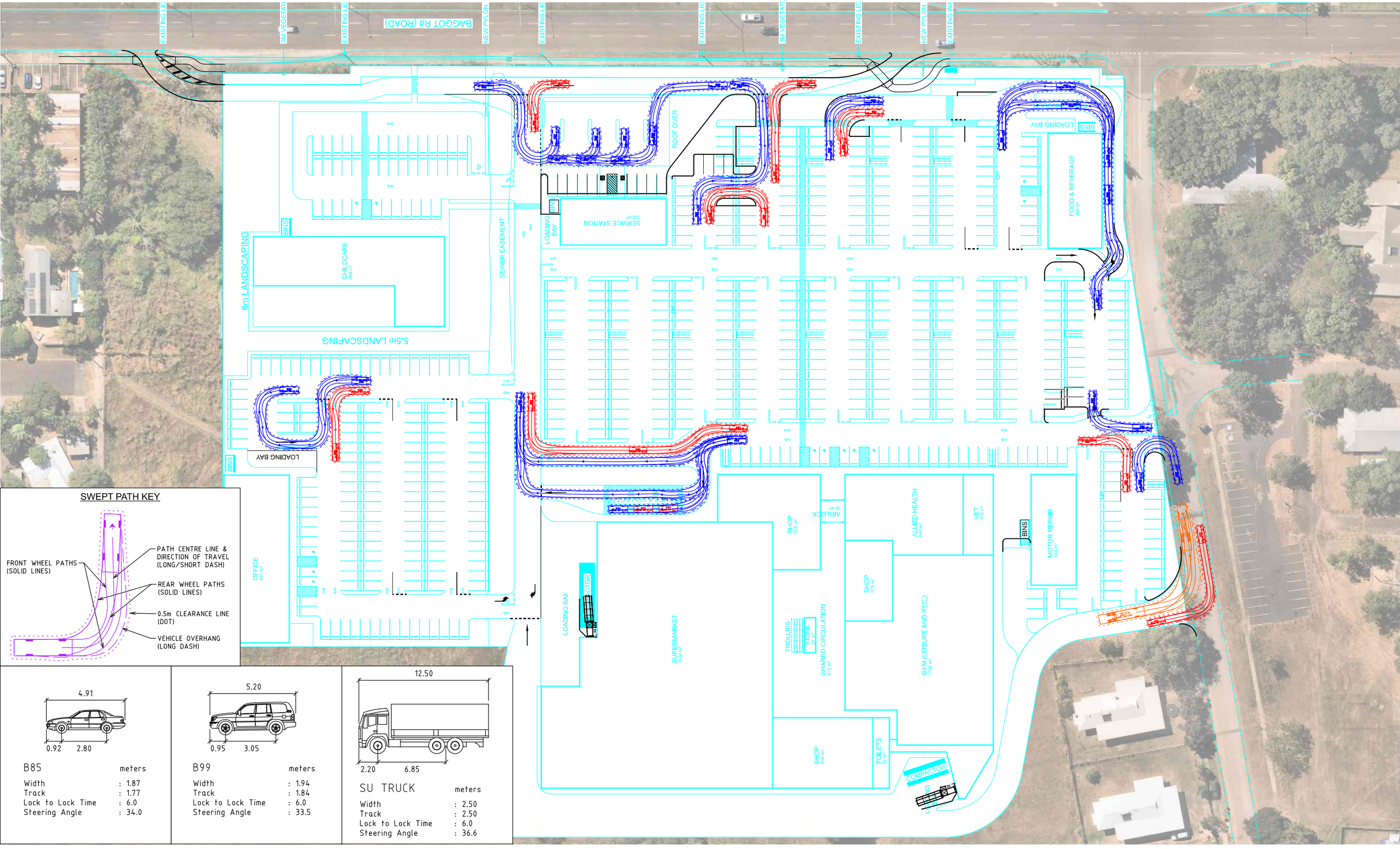
The swept path assessments are provided in Appendix B.

APPENDIX A

Design recommendations

APPENDIX B

Swept path assessments


BAGGOT Rd (ROAD)
EXISTING LIGHT POLE
3M VEGETATION
NEW PYLON SIGN
EXISTING WATER METER
ROOF OVER
SERVICE STATION
358 m²
LOADING BAY
BINS
6m LANDSCAPING
CHILDCARE
864 m²
SEWER EASEMENT
5.5m LANDSCAPING
FOOD & BEVERAGE
450 m²
OFFICE
801 m²
SUPERMARKET
3934 m²
SHOP
522 m²
AIRLOCK
ALLIED HEALTH
346 m²
VET
173 m²
SHOP
279 m²
TROLLIES
KIOSK
SHARED CIRCULATION
972 m²
GYM (LEISURE AND REC.)
1706 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR
MOTOR REPAIR
393 m²
SWEPT PATH KEY
FRONT WHEEL PATHS (SOLID LINES)
PATH CENTRE LINE & DIRECTION OF TRAVEL (LONG/SHORT DASH)
REAR WHEEL PATHS (SOLID LINES)
0.5m CLEARANCE LINE (DOT)
VEHICLE OVERHANG (LONG DASH)
4.91
0.92
2.80
B85 meters
Width : 1.87
Track : 1.77
Lock to Lock Time : 6.0
Steering Angle : 34.0
5.20
0.95
3.05
B99 meters
Width : 1.94
Track : 1.84
Lock to Lock Time : 6.0
Steering Angle : 33.5
12.50
2.20
6.85
SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE
450 m²

ROOF OVER
SERVICE STATION
338 m²
LOADING BAY
BINS
SEWER EASEMENT

BINS
CHILDCARE
864 m²
6m LANDSCAPING
5.5m LANDSCAPING

BINS
LOADING BAY

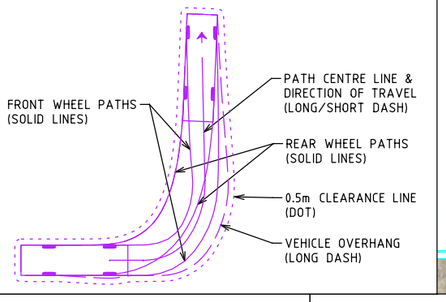
OFFICE
801 m²

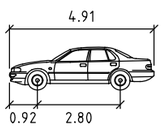
CLICK & COLLECT

SHOP
522 m²
AIRLOCK
68 m²
ALLIED HEALTH
346 m²
VET
173 m²
BINS
MOTOR REPAIR
393 m²

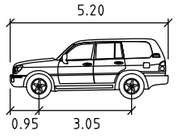
LOADING BAY
COMPACTOR
SUPERMARKET
3934 m²
TROLLIES
KIOSK
27 m²
SHARED CIRCULATION
972 m²
SHOP
279 m²
GYM (LEISURE AND REC.)
1706 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR

SWEPT PATH KEY





B85	meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



B99	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.5

BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

ROOF OVER

SERVICE STATION
338 m²

LOADING BAY
BINS

DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE
450 m²

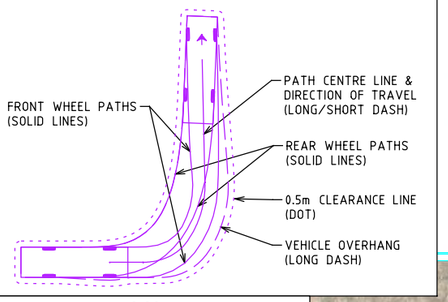
6m LANDSCAPING
BINS
CHILDCARE
864 m²
5.5m LANDSCAPING
SEWER EASEMENT

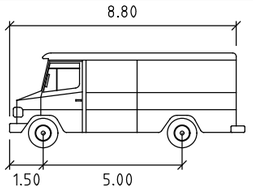
LOADING BAY
BINS
OFFICE
801 m²

CLICK & COLLECT
AIRLOCK
SHOP
522 m²
ALLIED HEALTH
646 m²
VET
175 m²
BINS
MOTOR REPAIR
393 m²

LOADING BAY
GATOR
SUPERMARKET
3934 m²
TROLLIES
KIOSK
SHARED CIRCULATION
672 m²
SHOP
279 m²
GYM (LEISURE AND REC.)
1706 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR

SWEPT PATH KEY





SERVICE VEHICLE meters

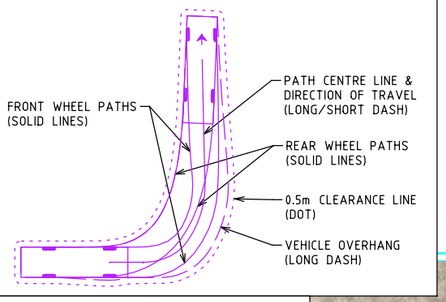
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

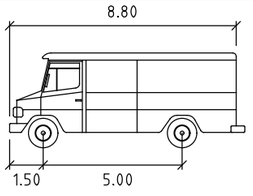
BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

ROOF OVER
SERVICE STATION
358 m²
BINS
SEWER EASEMENT
6m LANDSCAPING
CHILDCARE
864 m²
BINS
5.5m LANDSCAPING
LOADING BAY
BINS
OFFICE
801 m²
DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE
450 m²
CLICK & COLLECT
AIRLOCK
SHOP
522 m²
ALLIED HEALTH
940 m²
VET
175 m²
BINS
MOTOR REPAIR
393 m²
LOADING BAY
ESCALATOR
SUPERMARKET
3934 m²
TROLLIES
KIOSK
27 m²
SHARED CIRCULATION
672 m²
SHOP
279 m²
GYM (LEISURE AND REC.)
1706 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR
LOADING

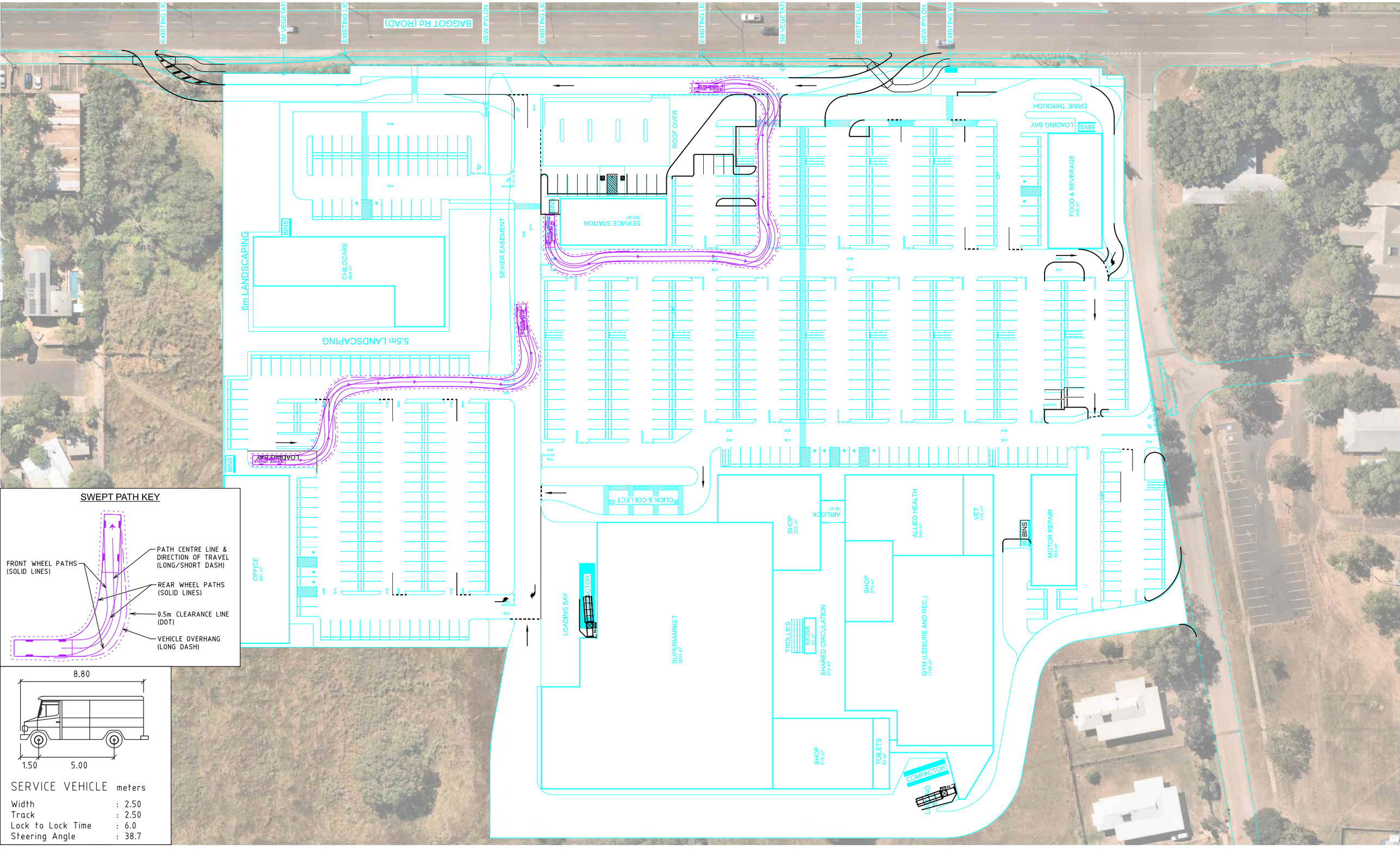
SWEPT PATH KEY





SERVICE VEHICLE meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7



SWEPT PATH KEY

SERVICE VEHICLE meters

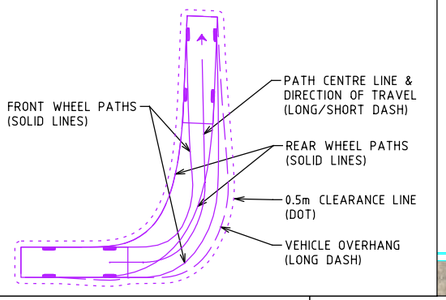
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7

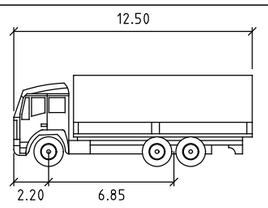
BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

ROOF OVER
SERVICE STATION 338 m²
LOADING BAY
BINS
DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE 450 m²
6m LANDSCAPING
CHILDCARE 864 m²
5.5m LANDSCAPING
SEWER EASEMENT
LOADING BAY
BINS
OFFICE 801 m²
CLICK & COLLECT
AIRLOCK 35 m²
SHOP 522 m²
ALLIED HEALTH 946 m²
VET 175 m²
BINS
MOTOR REPAIR 393 m²
LOADING BAY
SUPERMARKET 3934 m²
TROLLIES
KIOSK 27 m²
SHARED CIRCULATION 672 m²
SHOP 279 m²
GYM (LEISURE AND REC.) 1706 m²
SHOP 516 m²
TOILETS 82 m²
COMPACTOR
LOADING BAY

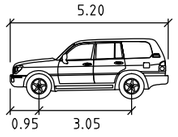
SWEPT PATH KEY





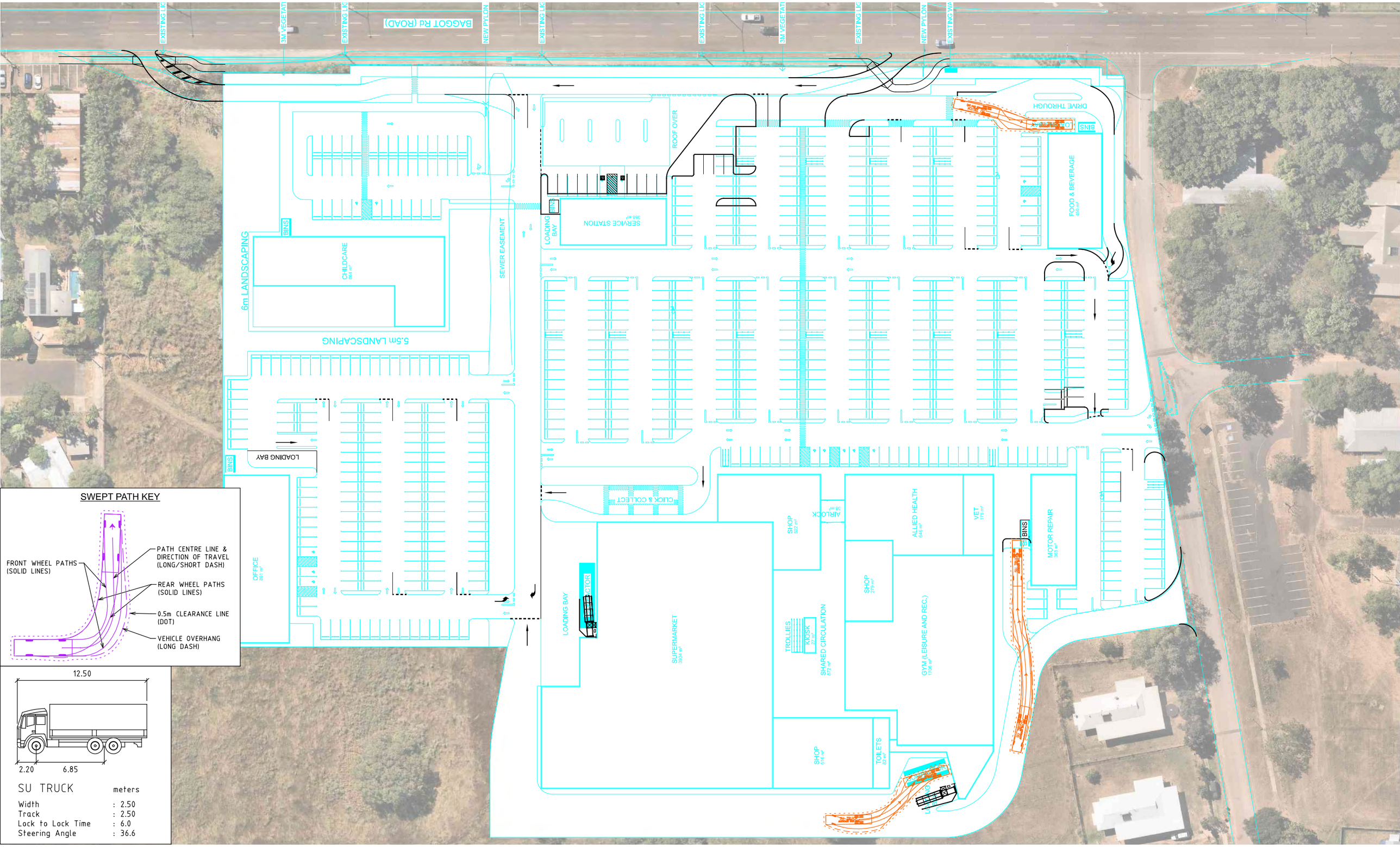
SU TRUCK meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6



B99 meters

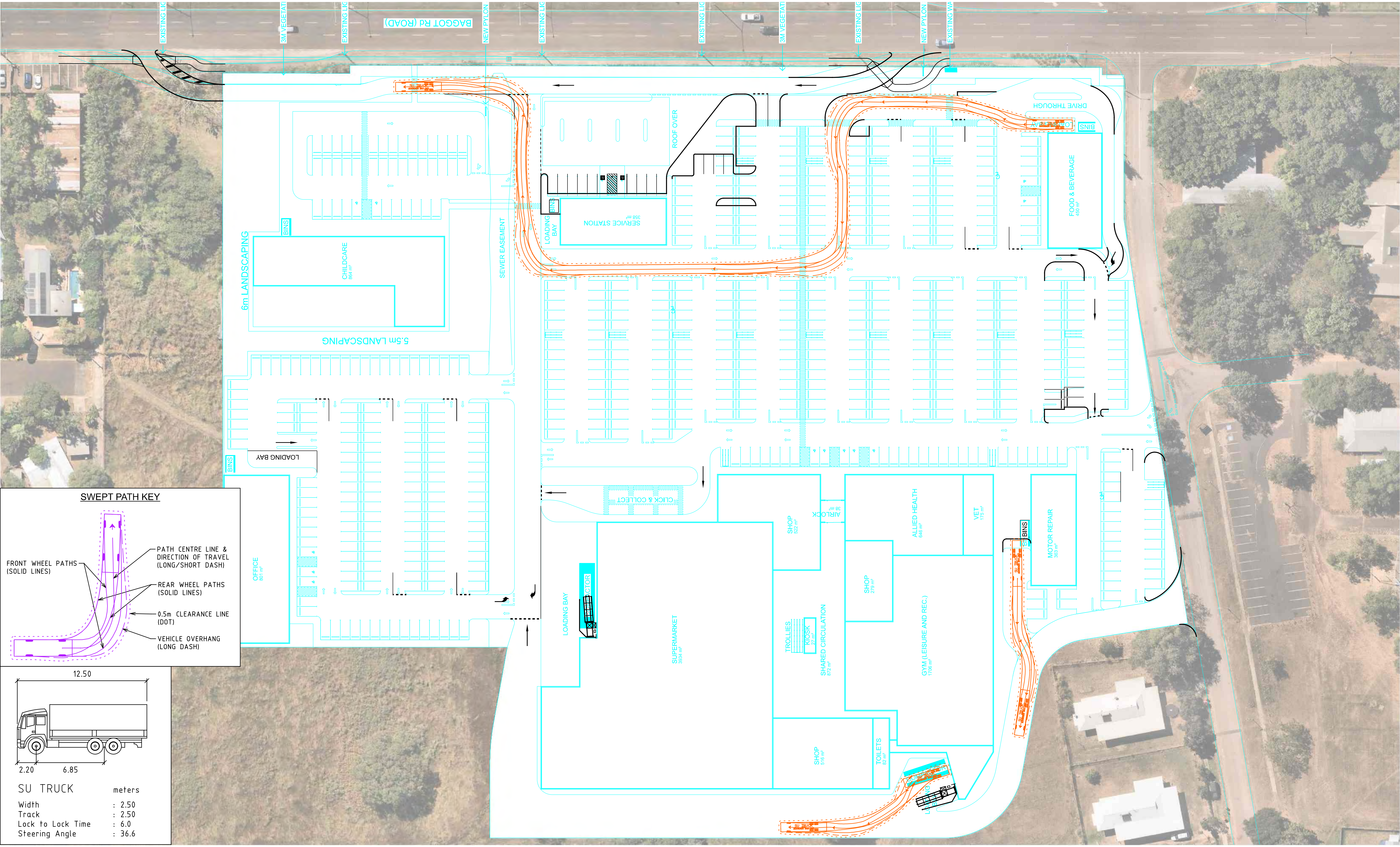
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.5

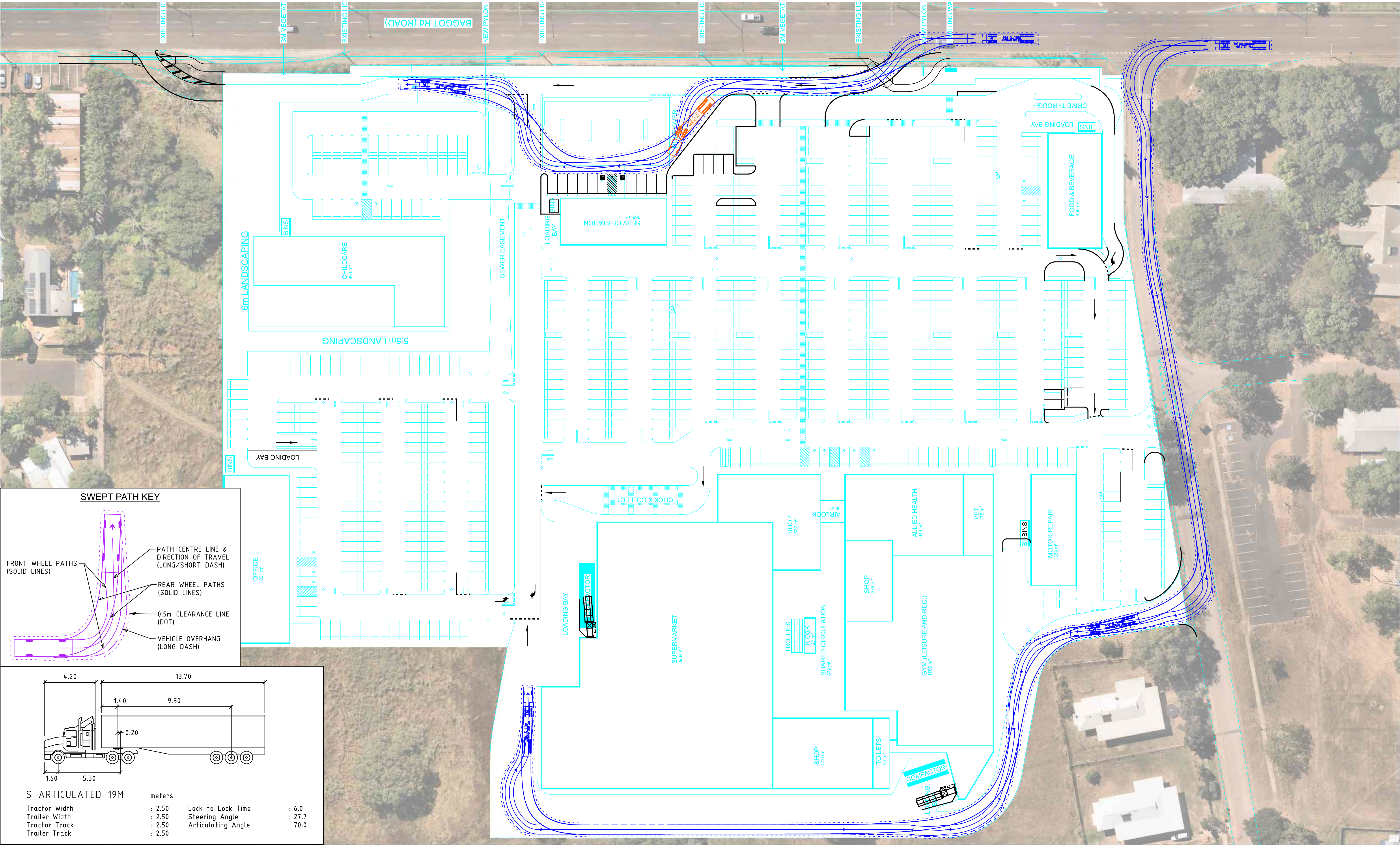


SWEPT PATH KEY

SU TRUCK meters

Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6


BAGGOT Rd (ROAD)
NEW PYLON
DRIVE THROUGH
BINS
FOOD & BEVERAGE
ROOF OVER
SERVICE STATION
LOADING BAY
SEWER EASEMENT
6m LANDSCAPING
CHILDCARE
5.5m LANDSCAPING
LOADING BAY
OFFICE
CLICK & COLLECT
AIRLOCK
SHOP
ALLIED HEALTH
VET
MOTOR REPAIR
SUPERMARKET
TROLLIES
KIOSK
SHARED CIRCULATION
GYM (LEISURE AND REC.)
TOILETS
SWEPT PATH KEY
FRONT WHEEL PATHS (SOLID LINES)
PATH CENTRE LINE & DIRECTION OF TRAVEL (LONG/SHORT DASH)
REAR WHEEL PATHS (SOLID LINES)
0.5m CLEARANCE LINE (DOT)
VEHICLE OVERHANG (LONG DASH)
12.50
2.20
6.85
SU TRUCK
meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6


BAGGOT Rd (ROAD)
EXISTING LIGHT
3M VEGETATION
NEW PYLON
6m LANDSCAPING
5.5m LANDSCAPING
CHILDCARE
SEWER EASEMENT
LOADING BAY
SERVICE STATION
BINS
DRIVE THROUGH
FOOD & BEVERAGE
OFFICE
CLICK & COLLECT
AIRLOCK
SHOP
ALLIED HEALTH
VET
MOTOR REPAIR
SUPERMARKET
TROLLIES
KIOSK
SHARED CIRCULATION
GYM (LEISURE AND REC.)
TOILETS
COMPACTOR
SWEPT PATH KEY
FRONT WHEEL PATHS (SOLID LINES)
PATH CENTRE LINE & DIRECTION OF TRAVEL (LONG/SHORT DASH)
REAR WHEEL PATHS (SOLID LINES)
0.5m CLEARANCE LINE (DOT)
VEHICLE OVERHANG (LONG DASH)
4.20
13.70
1.40
9.50
0.20
1.60
5.30
S ARTICULATED 19M
meters
Tractor Width : 2.50
Trailer Width : 2.50
Tractor Track : 2.50
Trailer Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 27.7
Articulating Angle : 70.0

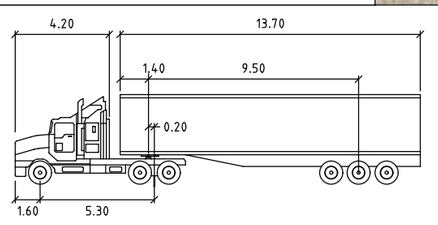
BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE
450 m²
ROOF OVER
SERVICE STATION
338 m²
LOADING BAY
BINS
SEWER EASEMENT
6m LANDSCAPING
BINS
CHILDCARE
864 m²
5.5m LANDSCAPING
BINS
LOADING BAY
OFFICE
801 m²
CLICK & COLLECT
AIRLOCK
SHOP
522 m²
ALLIED HEALTH
940 m²
VET
175 m²
BINS
MOTOR REPAIR
393 m²
LOADING BAY
SUPERMARKET
3934 m²
TROLLIES
KIOSK
SHARED CIRCULATION
672 m²
SHOP
279 m²
GYM (LEISURE AND REC.)
1706 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR

SWEPT PATH KEY

FRONT WHEEL PATHS (SOLID LINES)
PATH CENTRE LINE & DIRECTION OF TRAVEL (LONG/SHORT DASH)
REAR WHEEL PATHS (SOLID LINES)
0.5m CLEARANCE LINE (DOT)
VEHICLE OVERHANG (LONG DASH)



S ARTICULATED 19M — meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

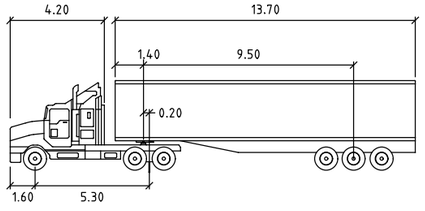
BAGGOT Rd (ROAD)

EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING LIG
EXISTING LIG
3M VEGETATI
EXISTING LIG
NEW PYLON
EXISTING WA

DRIVE THROUGH
LOADING BAY
BINS
FOOD & BEVERAGE
450 m²
ROOF OVER
SERVICE STATION
338 m²
LOADING BAY
BINS
SEWER EASEMENT
6m LANDSCAPING
BINS
CHILDCARE
864 m²
5.5m LANDSCAPING
BINS
LOADING BAY
OFFICE
801 m²
CLICK & COLLECT
AIRLOCK
SHOP
522 m²
ALLIED HEALTH
646 m²
VET
175 m²
BINS
MOTOR REPAIR
393 m²
SUPERMARKET
3934 m²
TROLLIES
KIOSK
SHARED CIRCULATION
672 m²
SHOP
279 m²
GYM (LEISURE AND REC.)
1709 m²
SHOP
516 m²
TOILETS
82 m²
COMPACTOR

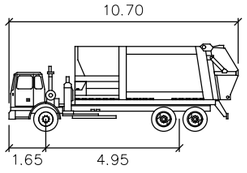
SWEPT PATH KEY

FRONT WHEEL PATHS (SOLID LINES)
PATH CENTRE LINE & DIRECTION OF TRAVEL (LONG/SHORT DASH)
REAR WHEEL PATHS (SOLID LINES)
0.5m CLEARANCE LINE (DOT)
VEHICLE OVERHANG (LONG DASH)



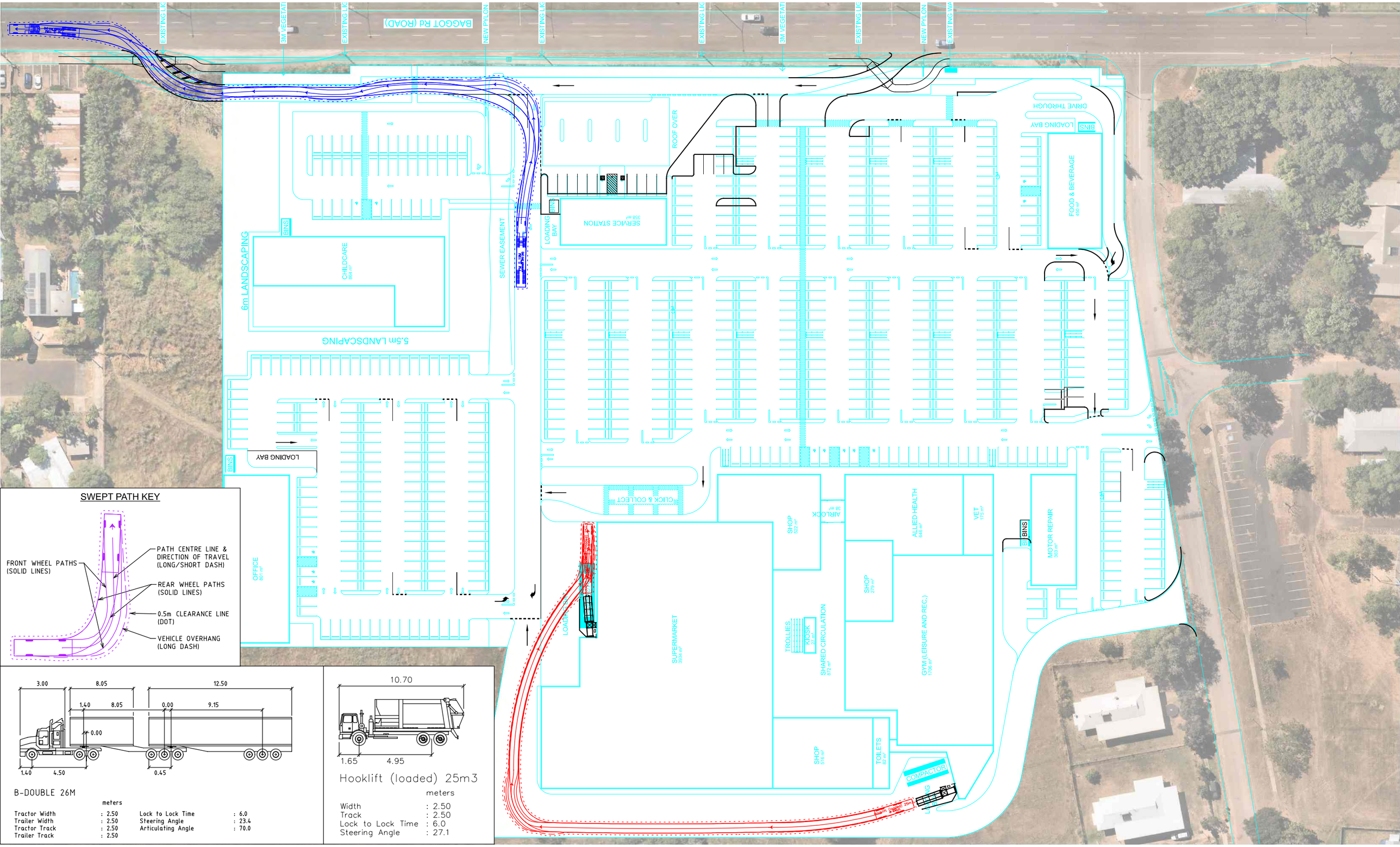
S ARTICULATED 19M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



Hooklift (loaded) 25m3

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 27.1



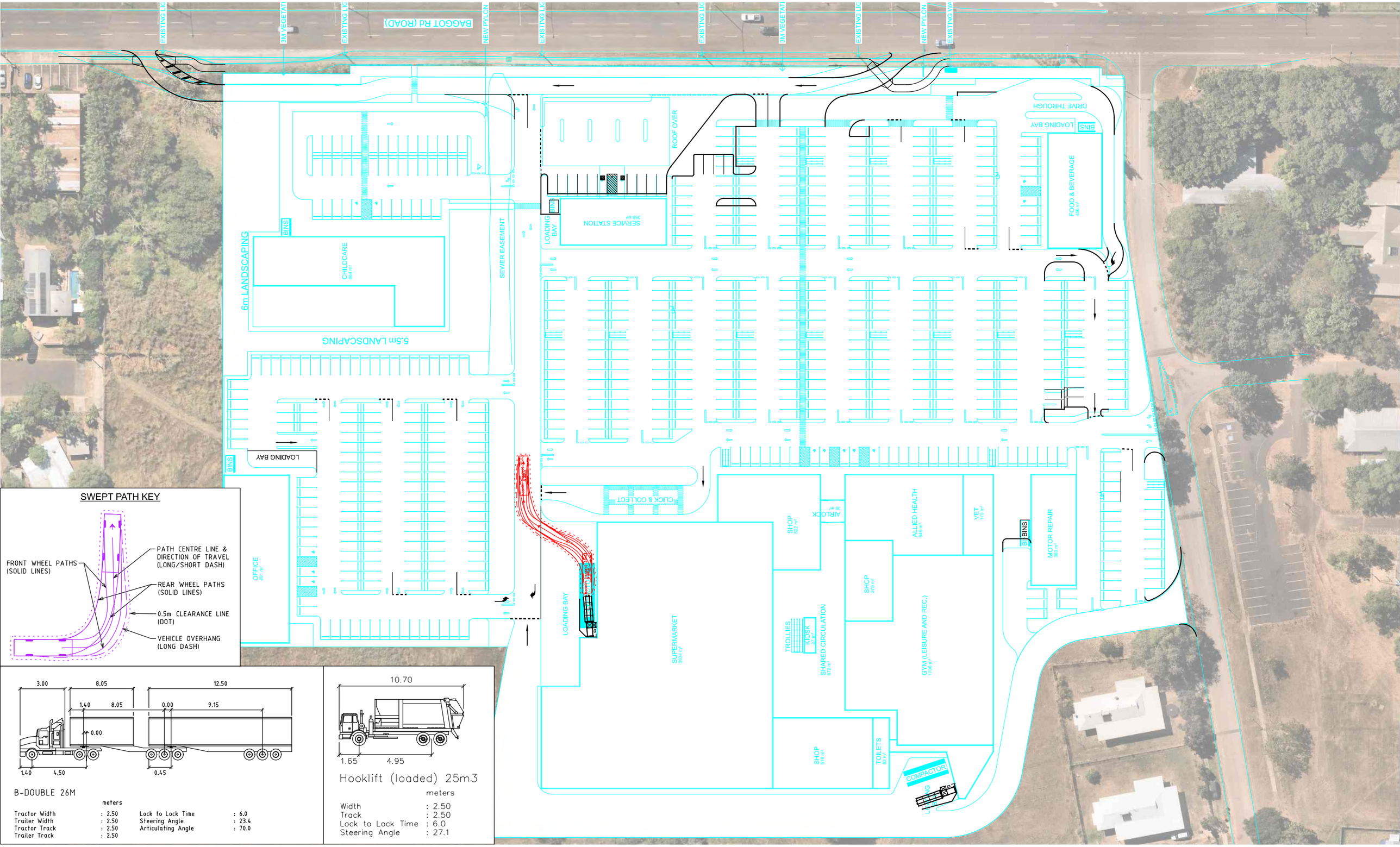
SWEPT PATH KEY

B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

Hooklift (loaded) 25m3

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 27.1



SWEPT PATH KEY

B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

Hooklift (loaded) 25m3

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 27.1

INSTALL KERB RAMPS

MOUNTABLE APRON

MOUNTABLE APRON

SEPARATE SERVICE STATION ENTRANCE FROM PARKING ENRANCE TO REDUCE CONFLICT POINTS. LOSS OF 6 PARKING SPACES

INSTALL KERB RAMPS. REALIGN FOOT PATH TO REDUCE CROSSING DISTANCE

ANGLE OF INGRESS TO BE 30-45° MAXIMUM TO REDUCE SPEED OF VEHICLES ENTERING SERVICE ROAD

PROPOSE SIGNALISED INTERSECTION

INCREASE WIDTH OF AISLE TO ACCOMMODATE 12.5m DELIVERY TRUCK

ANGLE OF EGRESS TO BE 20° MAXIMUM

RIGHT TURN ALSO ALLOWED

PROVIDE PEDESTRIAN PATH BETWEEN BUILDING AND PARKING SPACES

PROVIDE ADDITOINAL 4 PARKING SPACES

REMOVE ZEBRA CROSSING

LOSS OF 1 PARKING SPACE TO ACCOMMODATE 12.5m TRUCK SWEPT PATH

PROVIDE CIRCULATION ROADWAY, LOSS OF 6 PARKING SPACES

CHANGE EXIT LOCATION TO GAIN AN ADDITIONAL 4 PARKING SPACES

REVERSE ONE WAY DIRECTION TO REMOVE BLIND AISLE AND ALLOW VEHICLES TO EXIT.

REMOVE ISLAND TO ACCOMMODATE SWEPT PATHS.

EXTEND AISLE TO ENSURE TRUCKS DO NOT BLOCK CAR PARKING SPACE

INSTALL SIGNS AND LINEMARKING TO SHOW LOADING VEHICLES ACCESS ONLY BEYOND THIS POINT

INSTALL SIGNS AND LINEMARKING TO SHOW LOADING VEHICLES ACCESS ONLY BEYOND THIS POINT

SWITCH LOCATION OF COMPACTOR AND LOADING BAY

6m LANDSCAPING

5.5m LANDSCAPING

SEWER EASEMENT

ROOF OVER

SERVICE STATION 358 m²

LOADING BAY

BINS

CHILDCARE 864 m²

OFFICE 801 m²

LOADING BAY

CLICK & COLLECT

SUPERMARKET 3934 m²

LOADING BAY

TROLLIES

KIOSK 27 m²

SHARED CIRCULATION 672 m²

SHOP 522 m²

SHOP 279 m²

GYM (LEISURE AND REC.) 1706 m²

ALL 946 m²

VET 175 m²

SHOP 516 m²

TOILETS 82 m²

COMPACTOR

MOTOR REPAIR 393 m²

FOOD & BEVERAGE 450 m²

DRIVE THRU

LOADING BAY

BINS

7.7 (E)

7.6 (E)

Australian Government
Department of Defence

12 January 2018

Austin Taylor
Administrator
Bagot Community Inc
(Subject to a Deed of Association Arrangement)
c/- Meertens Chartered Accountants
GPO Box 829
Darwin NT 0801

Dear Austin

Re: RAAF Base Darwin Environmental Investigation – Soil sample test results

I am writing to you on behalf of the Department of Defence (Defence) to provide you with the test results from the samples collected on 5 December 2017 from your property (Bagot Community), Bagot Road, Bagot (Property).

The soil samples collected from your Property were analysed for per- and poly-fluoroalkyl substances (PFAS). The results for the samples collected from your Property are in the **enclosed** Certificates of Analysis.

Screening guidelines

On 3 April 2017, Department of Health via Food Standards Australia New Zealand (FSANZ) released final health-based guidance values (HBGV) for PFOS, PFHxS and PFOA for drinking water and water for recreational use. Further environmental guidelines for screening criteria are being developed by the Commonwealth Department of the Environment and Energy which includes soil and sediment. Defence will adopt these guidelines once finalised.

The HBGV inform Defence on the concentrations where action should be taken to reduce exposure to PFAS and/or if further assessment should be undertaken.

Additional information about the FSANZ health-based guidance values is provided in the **enclosed** Fact sheet – Health Based Guidance Values for PFAS.

Limit of reporting

The limit of reporting (LOR) is the threshold, or lowest concentration, that the laboratory is able to measure for a compound with a reasonable degree of certainty. The LOR varies according to the method of analysis, the type of compound, and other factors in the sample tested. If the results are below the LOR, the result will be listed as **<LOR**. The LORs for the samples tested are all below the adopted health based screening criteria. A result listed as <LOR means that whilst the compound may be present, the concentration is both so low that it cannot be accurately measured and is below the relevant screening criteria.

The limits of reporting for your samples are:

Type of PFAS	Soil/Sediment (LOR)
PFOS	5 µg/kg
PFHxS	5 µg/kg
PFOA	5 µg/kg

Test results

The test results of the soil samples collected from your Property are presented in Table 1 of this letter with comparison against the relevant screening guidelines where available. Please note: Table 1 only lists results for perfluorooctane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS) and perfluorooctanoic acid (PFOA), as they are the PFAS for which there are Australian health based guidance values. The enclosed Certificates of Analysis also present the test results for the other types of PFAS included in the analytical suite completed by the laboratory.

Table 1: Soil results from your Property

Sample description	PFOS + PFHxS	PFOA	Comparison against screening guidelines
1302_SS1_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS2_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS3_171205 Soil	7 µg/kg	<LOR	Detectable concentration above limit of reporting. Less than screening criteria (Residential and Recreational Soil)
1302_SS4_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS5_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS6_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria

Sample description	PFOS + PFHxS	PFOA	Comparison against screening guidelines
1302_SS7_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS8_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS9_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS10_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_SS11_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria
1302_QC1_171205 Soil	<LOR	<LOR	Less than the Limit of reporting / screening criteria

Management of information collected from your Property

Defence is working cooperatively with a range of government agencies, including relevant Commonwealth, State, Territory and local governments. As outlined in your Property access letter, details of the sampling location and results of testing may be shared with Defence's environmental experts, relevant government agencies and business entities directly involved in any action linked to the investigation.

Use of information in environmental investigation reports

The data collected from your Property will be managed in accordance with the option you selected on the 'Landowner Authority to Access Property and Acknowledgement Form'.

A copy of the complete signed form is **enclosed** for your records and shows the data management option you selected before this sampling was completed.

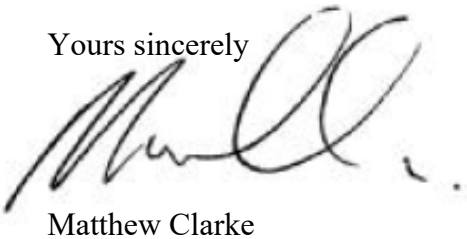
Investigation reports will be made publicly available and published on the project website (http://www.defence.gov.au/id/darwin).

Additional information

Information about the environmental investigation is provided in the **enclosed** fact sheet (RAAF Base Darwin – PFAS Investigation & Management Program) for RAAF Base Darwin. Additional information about the environmental investigation is available on the project website http://www.defence.gov.au/Environment/PFAS/Darwin/.

If you have any questions about your test results or the ongoing environmental investigation, please contact the project team on 1800 316 812 or by email to PFAS.RAAFBaseDarwin@coffey.com.

Yours sincerely



Matthew Clarke
Regional Representative
PFAS Investigation and Management Branch

Enclosures:

1. Certificate of Analysis – 576549-S – Bagot Rd, Bagot – 22 December 2017
2. Landowner Authority to Access Property and Acknowledgement Form – 5 December 2017
3. Fact sheet - (RAAF Base Darwin – PFAS Investigation & Management Program)

Additional information about the health based guidance values is described in the following documents:

- Department of Health (2017), Health based guidance values for PFAS for use in site investigations in Australia (http://www.health.gov.au/internet/main/publishing.nsf/content/2200FE086D480353CA2580C900817CDC/$File/fs-Health-Based-Guidance-Values.pdf)
- HEPA (2017) PFAS National Environmental Management Plan, Consultation draft, Heads of EPAs Australia and New Zealand, August 2017 (http://www.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria/pfas-national-environmental-management-plan)
- NEPM (2013) National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013, National Environment Protection Council (http://nepc.gov.au/nepms/assessment-site-contamination)