

19 March 2025

Swift Storage
C/- Reel Planning
Unit 1, 9 Camford Street
Milton QLD 4064

Attention: Tim O'Leary

Dear Tim,

**RE: 69-77 OLD PUB LANE, GREENBANK
TRAFFIC ENGINEERING ASSESSMENT**

INTRODUCTION

This report was prepared by Pekol Traffic and Transport, dated 5 December 2024, as requested by Reel Planning, to assess the traffic engineering aspects a proposed self-storage facility at 69-77 Old Pub Lane, Greenbank.

This report has been amended by PTT, in response to a Further Issues Letter from Economic Development Queensland (EDQ), dated 13 February 2025. The updated report responds to Items 7-14 of the Further Issues Letter (reference: DEV2024/1576), which relate to parking design and on-site manoeuvring.

The aim of this assessment is to review the proposed development in terms of its site access arrangements, car parking provision and design, servicing arrangements, pedestrian facilities and likely traffic impact, with respect to the approved masterplan over the subject site (Reference: DEV2019/1035), the Greater Flagstone Priority Development Area Scheme and Australian Standards AS2890.1 Parking Facilities Part 1: Off-Street Car Parking.

EXISTING CONDITIONS

SUBJECT SITE

The subject site is formally described as Lot 3 on SP328307. According to the Logan Planning Scheme, the site is located within the Greater Flagstone Priority Development Area (PDA). The site is currently vacant, as shown in Figure 1.

The site is bounded by:

- Pub Lane to the north
- vacant land (Lot 2 on SP328307) to the east
- Old Pub Lane to the south
- a railway corridor to the west

**PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL**

Approval no: DEV2024/1576

Date: 17 April 2025



AMENDED IN RED

By: Demi Ebrahimi

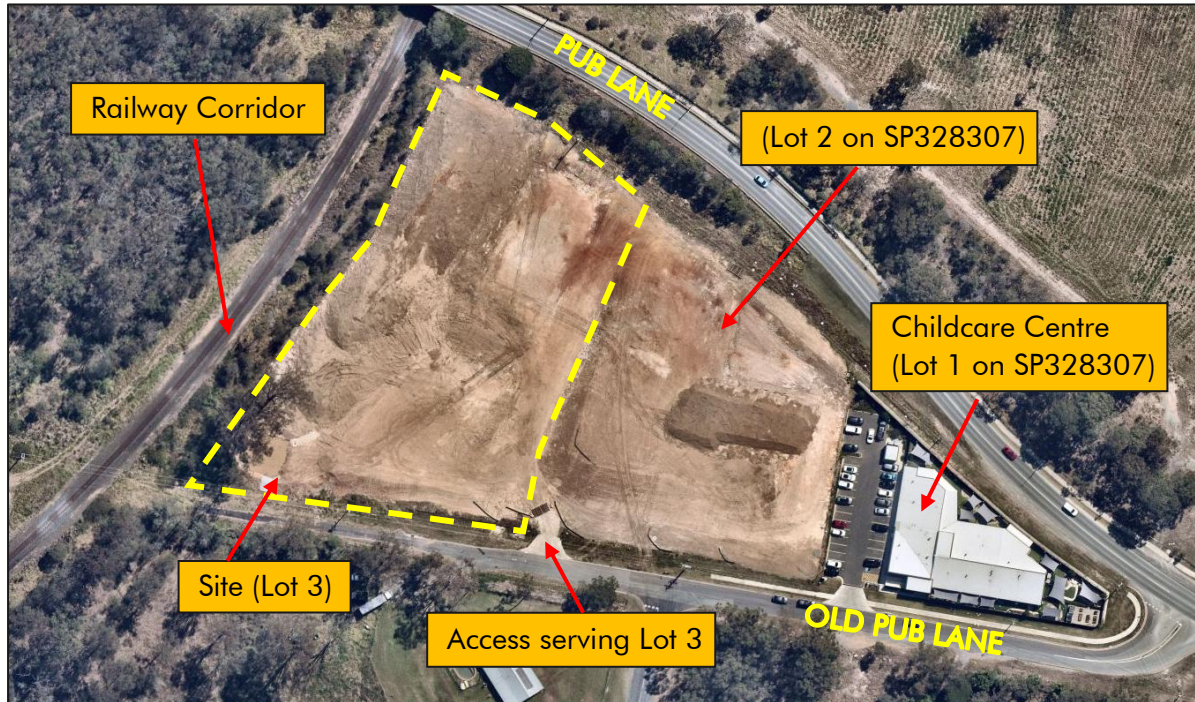
Date: 10 April 2025



Queensland
Government

The surrounding area consists primarily of rural residential uses. However, a 120-place childcare centre is located approximately 90m east of the subject site (on Lot 1 on SP328307), as indicated in Figure 1.

Figure 1: SUBJECT SITE



ACCESS

A 6.2m wide all-movements crossover on Old Pub Lane is located within the Lot 2 site frontage (ie adjacent to the eastern site boundary), as indicated in Figure 1. It is understood that this crossover facilitates access to the subject site via an access easement.

ROAD NETWORK

Old Pub Lane is an undivided road with one lane of traffic in each direction and has an unposted speed of 50km/h. According to the Logan Planning Scheme, it is classified as an Urban Collector – Single Carriageway (ie major road).

Pub Lane is also an undivided road with one lane of traffic in each direction. Adjacent to the site, it has a posted speed of 60km/h and is classified as an Urban Arterial – Dual Carriageway (ie major road).

ACTIVE & PUBLIC TRANSPORT

There are no pedestrian facilities immediately adjacent to the site. However, a pedestrian footpath is located on the northern side of Old Pub Lane, to the east of the site, adjacent to the nearby childcare centre.

A bus stop (ID: 320027) is located approximately 480m east of the site on Pub Lane. This bus stop is served by TransLink bus route 535, which provides frequent connections to Browns Plains (to the north) and Flagstone (to the south). Thus, the site is accessible via public transport.

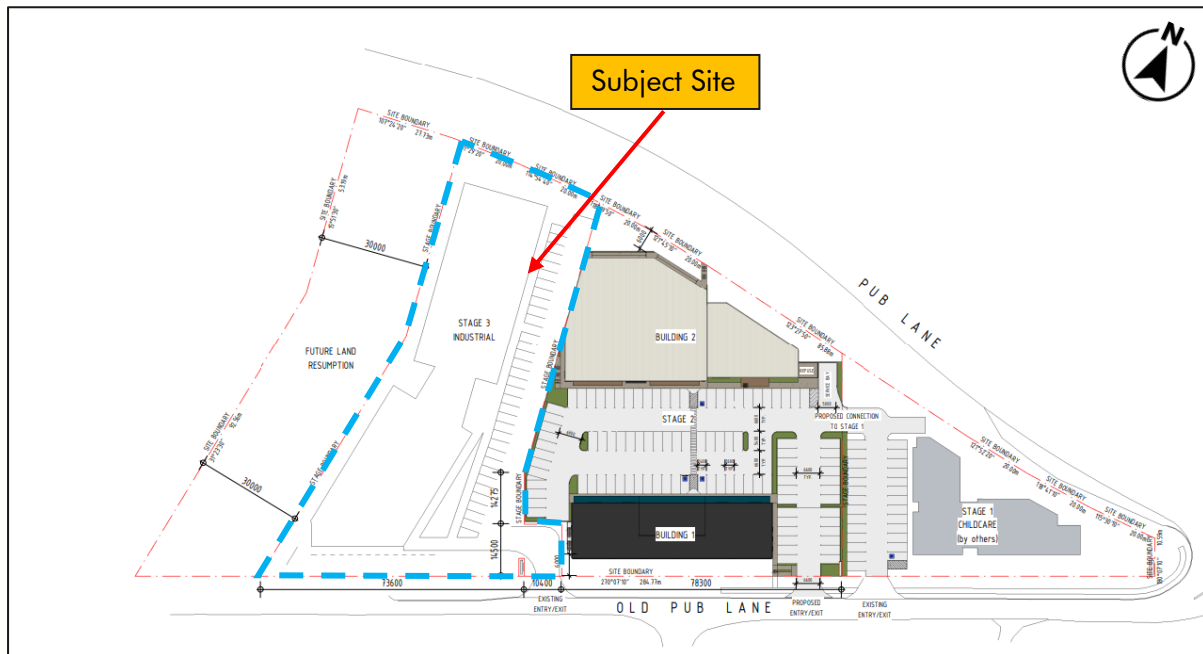
APPROVED MASTERPLAN

A preliminary masterplan was approved by Economic Development Queensland (EDQ) in 2023 (Reference: DEV2019/1035) over Lots 1 – 3 on SP328307. The approved masterplan comprised three stages, as follows:

- Stage 1: 120-place childcare centre, supported by 33 parking spaces (already constructed)
- Stage 2: 980m² of healthcare / office uses and 2,020m² of indoor sports and recreational uses, supported by 99 parking spaces
- Stage 3: 4,600m² of industrial use, supported by 27 parking spaces

The approved masterplan site layout is shown in Figure 2. Access to the subject site (ie Lot 3 on SP328307) is to be provided via the all-movements crossover on Old Pub Lane currently on the Lot 2 on SP328307 frontage, as indicated in Figure 1. A new crossover would be installed on the eastern side of Lot 2 on SP328307 to serve Stage 2 of the masterplan, as shown in Figure 2.

Figure 2: APPROVED MASTERPLAN LAYOUT

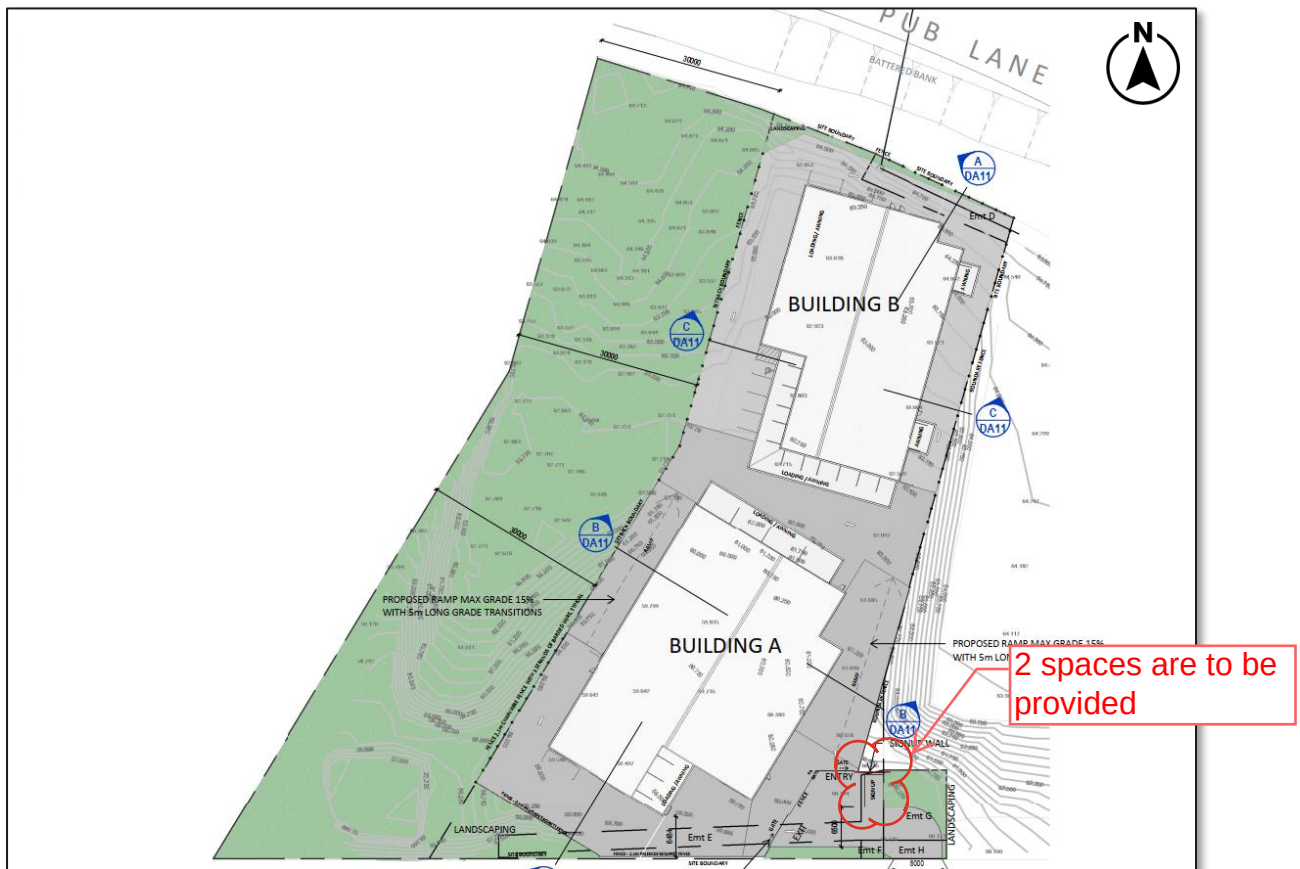


A total of 159 parking spaces are included in the masterplan to support all three stages. Stages 1 and 2 would be supported by 33 and 99 parking spaces, respectively. It is understood that EDQ recently approved commercial use over Lot 2 (Reference: DEV2021/1229).

PROPOSED DEVELOPMENT

The development application seeks approval for a self-storage facility over the subject site. The proposal comprises approximately 4,610m² GFA and would be supported by eight parking spaces. The proposed GFA generally accords with the preliminary masterplan approval over the site. The site layout is shown in Figure 3, with dimensioned plans attached.

Figure 3: PROPOSED SITE LAYOUT



ACCESS

LOCATION

Consistent with the endorsed masterplan, access to the development is proposed via the existing all-movements access located on Old Pub Lane (currently within the Lot 2 frontage). No changes to this endorsed access location are considered necessary to support the proposal. This access location is considered appropriate given the following:

- located and designed as per the existing crossover
- maximises on-site queueing

AMENDED IN RED

By: Demi Ebrahimi

Date: 10 April 2025



DESIGN

It is proposed to widen the existing access crossover to 8.0m to better cater for service vehicles accessing the site. The revised crossover would retain the existing taper design. No additional changes to the access design are considered necessary to support the proposal.

QUEUING

The proposal is expected to generate four entry movements per hour during peak times. Following the methodology outlined in the attached Queuing Practice Note, the expected 99th percentile queue is expected to be negligible (ie less than one car length), given this very low traffic generation.

Approximately, 15.0m of queue storage is available on-site at the proposed access, measured between the Old Pub Lane property boundary and the entry gate. This would adequately cater for two cars or a Heavy Rigid Vehicle (ie the design vehicle) to stand wholly on-site. The proposed queueing arrangements are therefore considered sufficient.

PARKING

EDQ REQUIREMENT

Section 3.3.11 of the Greater Flagstone PDA Development Scheme requires car parking be provided in accordance with Division 5 Parking and Servicing Code of the Beaudesert Shire Planning Scheme 2007. The Beaudesert Parking and Servicing Code requires parking for a warehouse / self-storage facility be provided at a minimum rate of one space per 100m² leasable area. Conservatively assuming the entire proposed GFA would be leasable (ie 4,610m²), a minimum of 46 spaces would be required.

We note that the 4,600m² warehouse / industrial use included in the EDQ endorsed masterplan, as shown in Figure 2, is supported by 27 parking spaces. This equates to an approved parking provision rate of approximately one space per 170m² GFA. Accordingly, a parking relaxation, compared to EDQ's minimum parking requirement, was approved over the site.

STANTEC STUDY

To determine an appropriate minimum parking requirement for the proposed self-storage facility, reference is made to the 2022 Stantec Parking and Traffic Study, undertaken on behalf of the Self-Storage Associates of Australasia (SSAA). The study involved surveying 61 existing self-storage facilities to determine the peak parking demand and traffic generation associated with these types of sites. This represents a statistically significant number of sites / facilities. A copy of the full study is attached.

The 2022 study found that self-storage facilities comprising between 3,000 and 6,000m² leasable area, generated a 95th peak parking demand of seven spaces and six spaces on a typical weekday and weekend day, respectively. Accordingly, the study recommends a minimum parking provision of seven spaces to support self-storage facilities comprising between 3,000 and 6,000m² leasable area.

PROVISION

The proposed development would be supported by eight parking spaces, including one person with disability (PWD) bay (located adjacent to the main entry of Building B). This provision exceeds the

minimum parking provision recommended in the Stantec Study and is therefore considered sufficient. All car parking spaces are clear of roller doors.

OVERFLOW PARKING

The proposed self-storage facility would operate separately to the uses over Stages 1 and 2 of the approved masterplan. There would be no ability for the site to cater for overflow parking associated with Stages 1 and 2. Pre-lodgement advice prepared for the proposed development application stated that:

'car parking provision for development on Lot 3 is required to be provided in accordance with the parking requirements approved through DEV/2019/1035, as it was decided through the preliminary approval that the car parking provision of all uses over Lots 1, 2 and 3 would be delivered across the site, being a balance of 19 car parks required to be provided on Lot 3.'

A report was prepared by Bitzios Consulting in response to further issues, dated 9 September 2021, for the preliminary approval. This report quantified the expected temporal parking demands of each stage, when considering the non-coincidence of peaks across the multiple uses proposed in the masterplan. As shown in Attachment 4 of the report (which is attached), parking associated with Stages 1, 2 and 3 is expected to peak at 4:00pm on a typical weekday, with a peak demand of 159.8 spaces (rounded up to 160 spaces).

We have also undertaken an assessment of the expected weekday temporal parking demands for Stage 1 and 2 of the development. The peak car parking rate and demand profile for each of the Stage 1 and 2 land uses have been determined based on the sources outlined in Table 1.

Table 1: CAR PARKING DEMAND

LAND USE	PEAK PARKING RATE		TEMPORAL DEMAND PROFILE
	ADOPTED RATE	SOURCE	
Health Care	6.4 per 100m ² GFA	Roads and Maritime Services' Trip Generation Surveys: Medical Centres – Analysis Report (2015)	PTT Survey Data
Office	As per approved development		
Pool	As per approved development		
Gym	1 per 22.8m ² GFA	PTT Survey Data	PTT Survey Data
Dance Studio	As per approved development		
Child Care (Staff)	1 per staff	Council's Servicing, Access and Parking Code	PTT Survey Data
Child Care (Children)	0.1 per child		

The peak parking demand for each of the Stage 1 and 2 land uses is shown in Figure 4. As demonstrated the critical peaks for the proposed / existing uses over Stages 1 and 2 are not expected to coincide.

By combining the temporal pattern of parking demand with the adopted peak parking rates, we estimate the peak parking requirement (taking into account the non-coincidence of peak demands) of the Stage 1 and 2 land uses to be 124.9 spaces (rounded up to 125 spaces), as shown in Figure 5. This is expected to occur during the weekday afternoon at 4:00pm.

Figure 4: PARKING DEMAND PROFILE WEEKDAY

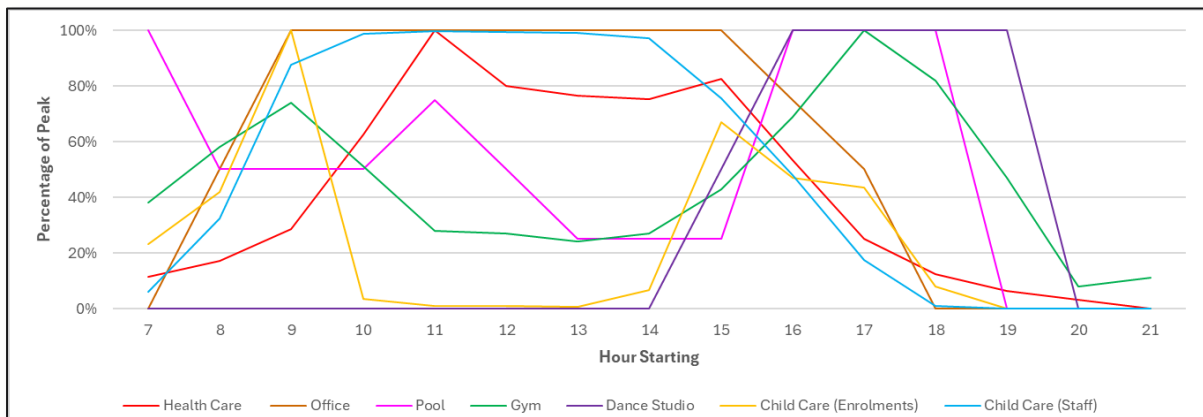
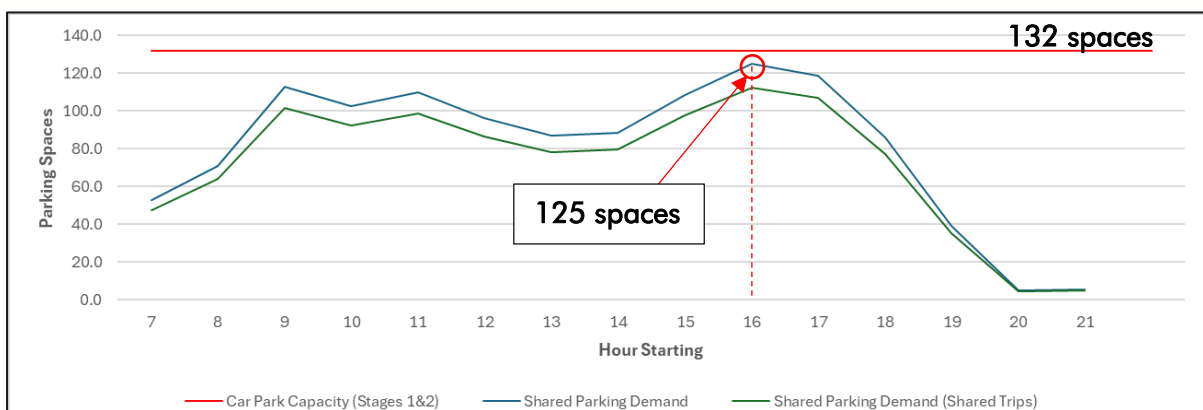


Figure 5: SHARED PARKING DEMAND PROFILE WEEKDAY



Furthermore, it is expected that shared trips would occur within the site (ie some users of the office may also use the gym). As per the approval, a high-level assessment indicates that a possible parking rate reduction of 5 – 10% would be applicable. Accordingly, it is expected that the Stages 1 and 2 would experience a peak parking demand of 113 – 119 spaces. Based on the above, the total parking provision of 132 parking spaces over Stages 1 and 2 is expected to adequately cater for expected parking demand.

DESIGN

The layout of on-site parking is generally consistent with the requirements of the Greater Flagstone PDA Scheme and AS2890.1 in terms of bay dimensions, aisle widths, vehicle circulation and manoeuvring. This is typified by:

- parallel parking bays – dimensioned minimum 2.1m wide by 6.0m long
- perpendicular parking bay – dimensioned minimum 2.6m wide by 5.4m long
- PWD parking bay – dimensioned 2.4m wide by 5.4m long, with an adjacent shared area also dimensioned 2.4m wide by 5.4m long
- one-way circulation / parking aisles – dimensioned 4.2m wide or greater

SERVICING

It is understood that each building proposed on-site would comprise an array of small-scale storage units, ranging from 4.5m² to 18.0m². The proposed scale of each storage unit is not expected to generate a service demand for larger service vehicles, such as an Articulated Vehicle (AV) and Heavy Rigid Vehicle (HRV). The proposed self-storage facility is therefore expected to be serviced by a Medium Rigid Vehicle (MRV). A swept path of an MRV circulating through the site is shown in attached drawing 25-069-001. The attached swept path drawing indicates that a MRV can adequately manoeuvre through the site without encroaching into any on-site parking spaces.

It is expected that a car towing a trailer would follow a similar path to the MRV.

ACTIVE TRANSPORT

The proposed self-storage facility is expected to generate negligible pedestrian and cyclist movements. Accordingly, no dedicated pedestrian access (ie separate to the vehicular access) or cyclist parking is proposed. It is expected that the vehicular access driveway and internal circulation aisles would operate similar to a shared zone. Given the very low traffic volumes generated by the proposal (ie in the order of nine two-way trips during a typical weekday peak hour), this arrangement is considered appropriate.

TRAFFIC IMPACT

According to the 2022 Stantec Parking and Traffic Study, the proposed self-storage facility (ie with approximately 4,600m² GFA) is expected to generate in the order of nine two-way vehicle movements during a typical weekday peak hour. Based on the very low predicted traffic generation, the proposed self-storage development is not expected to have a significant adverse impact on the safety or efficiency of the surrounding road network.

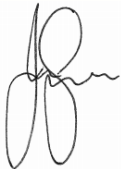
CONCLUSIONS AND RECOMMENDATIONS

The proposed development has been evaluated in terms of its site access arrangements, parking provision and design, servicing arrangements, pedestrian facilities and traffic impact. The main points to note are:

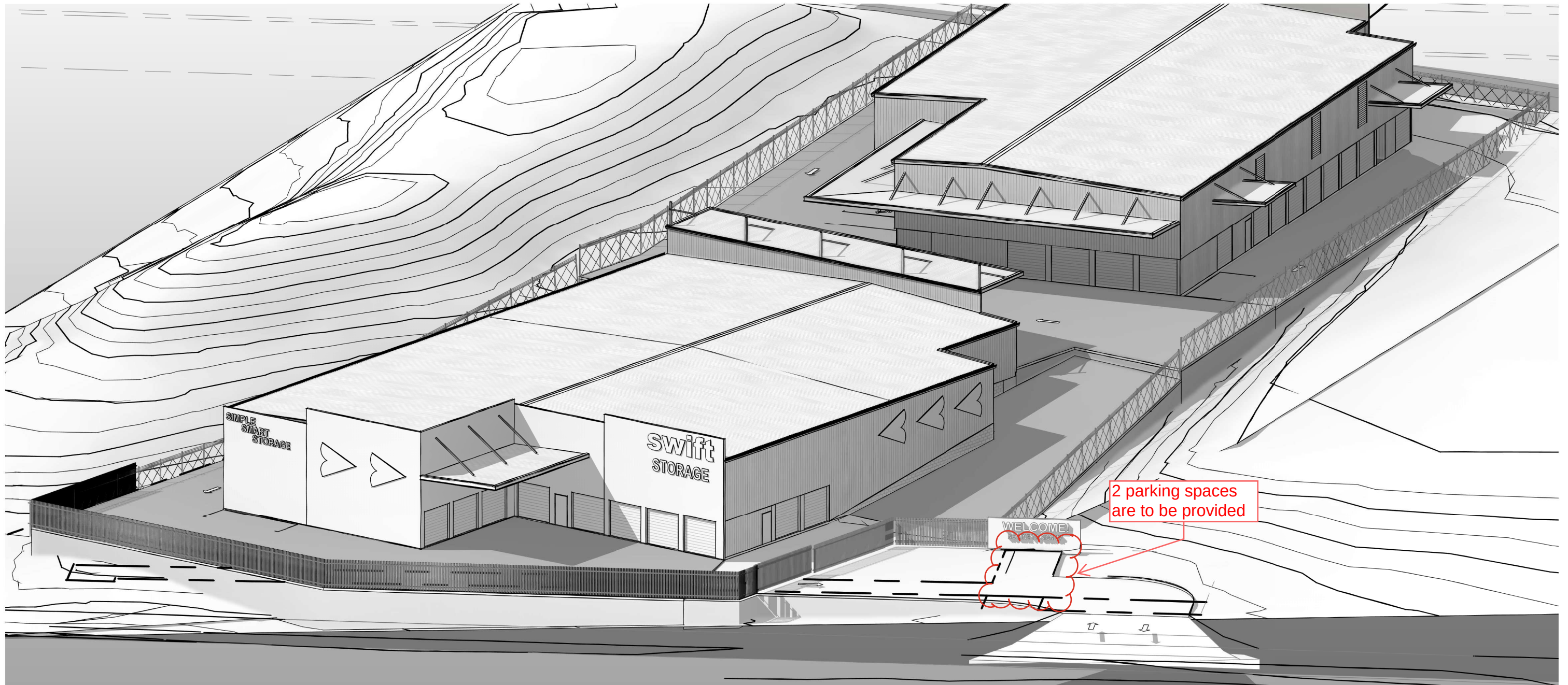
- the development application seeks approval for a self-storage facility comprising 4,610m² GFA
- the proposal seeks to utilise the existing access crossover on Old Pub Lane which is expected cater for the proposed development
- sufficient on-site queuing would be provided on-site
- the proposed parking provision of eight spaces is sufficient for the proposed use
- additional parking over the subject site is not considered necessary to support other uses provided over the balance of the masterplan site (ie Stages 1 and 2)
- given the scale of development the largest vehicle expected onsite is an MRV and the proposed layout accommodates MRV access and egress in a forward gear
- the proposed development is expected to generate in the order of nine two-way trips in the weekday peak hours
- the addition of development generated traffic is not expected to have a significant adverse impact on the operation and amenity of the surrounding road network and adjacent developments

If you have any questions regarding the issues discussed above, please do not hesitate to contact us.

Yours sincerely,



James Gannon
Director (RPEQ 22233)



PROPOSED NEW SELF STORAGE FACILITY AT OLD PUB LANE, GREENBANK, QLD

AMENDED IN RED

By: Demi Ebrahimi

Date: 10 April 2025



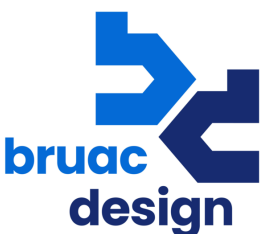
SWIFT STORAGE

OLD PUB LANE, GREENBANK, QLD

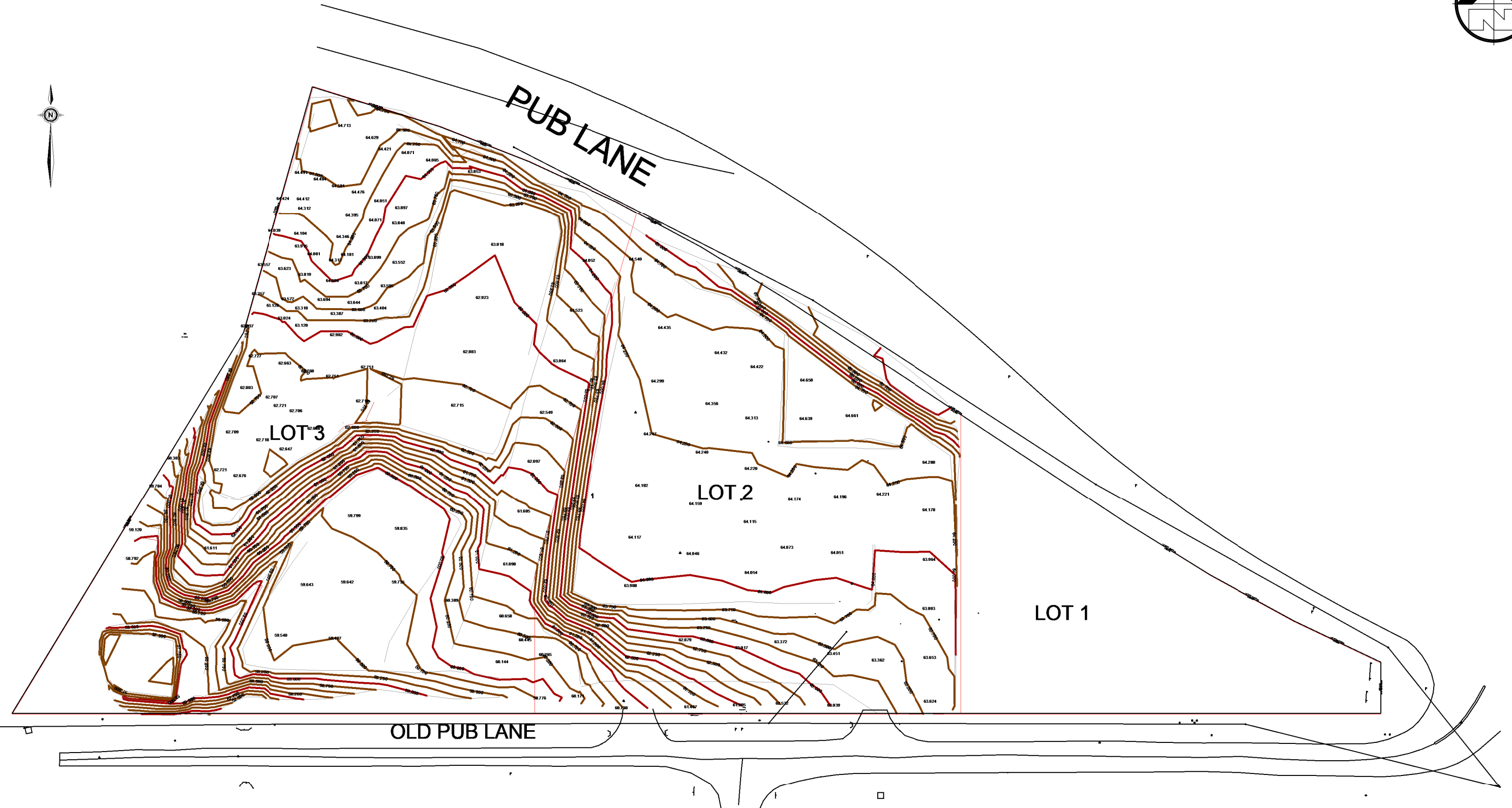
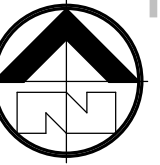
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BUILDING DESIGN
0416 352 057



SITE PLAN - EXISTING

1:800

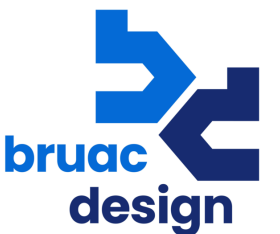
SWIFT STORAGE

OLD PUB LANE, GREENBANK, QLD

EXISTING CONDITIONS

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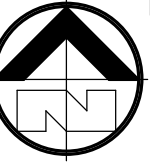


BUILDING DESIGN
0416 352 057

AMENDED IN RED

By: Demi Ebrahimi

Date: 10 April 2025



Minimum 6m setback to Pub Lane to be provided.



SUBJECT SITE

SITE LOCATION ARIEL

NOT TO SCALE

2 parking spaces are to be provided

Minimum 6m setback to Old Pub Lane to be provided.

SWIFT STORAGE

OLD PUB LANE, GREENBANK, QLD

SITE LOCATION PLAN

1: 600

SITE LOCATION PLAN

DWG N° BD025-DA02-I by MB

2025.03.18



BUILDING DESIGN
0416 352 057

AREA SCHEDULE

SITE DATA
LOT 3
LOCAL GOVERNMENT - LOGAN CITY COUNCIL

SITE AREA 9 997m²
PROPOSED SITE COVER 2 324m² (23.25%)

PROPOSED SELF-STORAGE

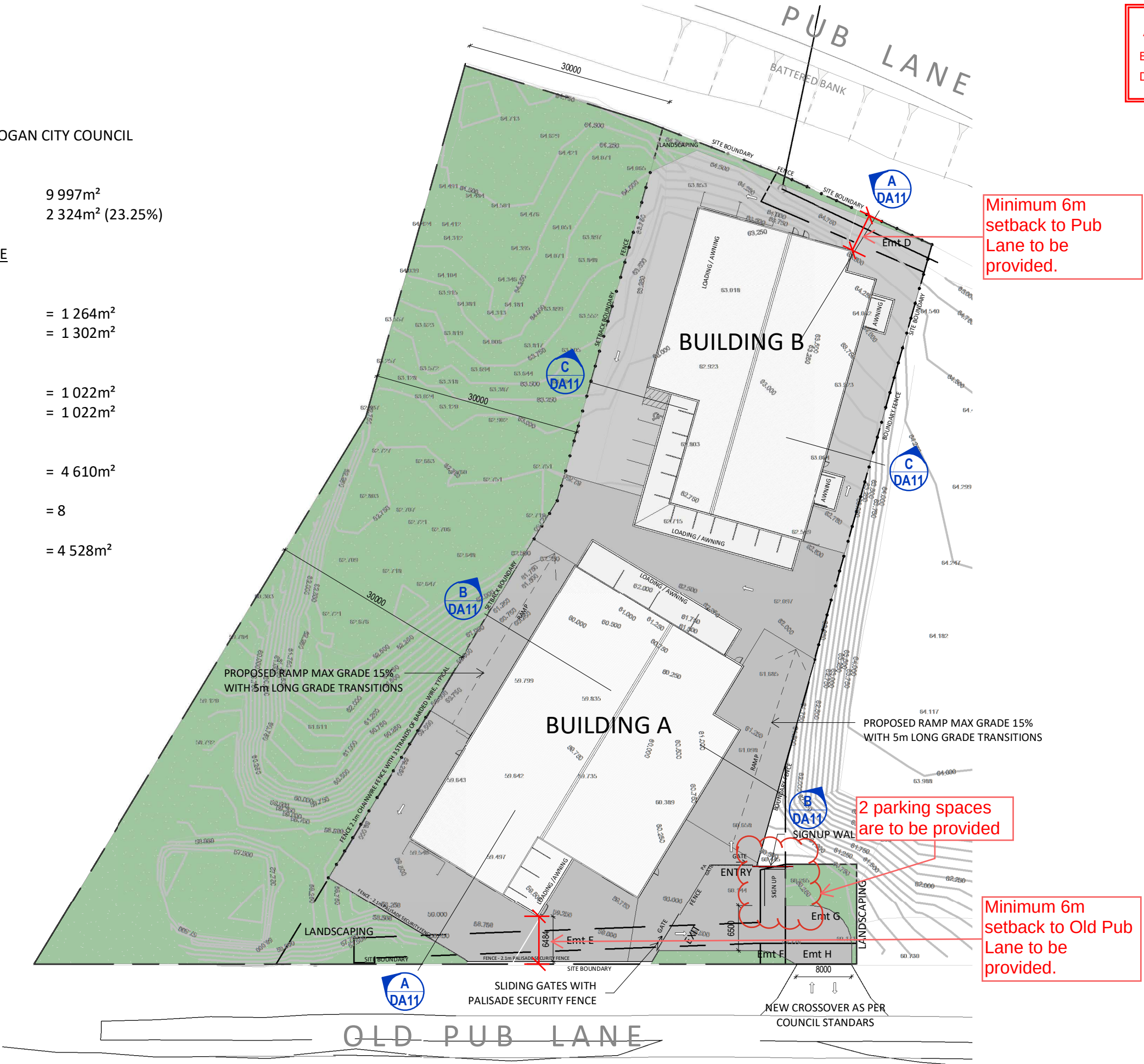
BUILDING A
GF SELF-STORAGE = 1 264m²
L1 = 1 302m²

BUILDING B
GF SELF-STORAGE = 1 022m²
L1 = 1 022m²

TOTAL GFA = 4 610m²

PARKING = 8

LANDSCAPING = 4 528m²



AMENDED IN RED

By: Demi Ebrahimi
Date: 10 April 2025



Minimum 6m
setback to Pub
Lane to be
provided.

2 parking spaces
are to be provided

Minimum 6m
setback to Old Pub
Lane to be
provided.

SWIFT STORAGE

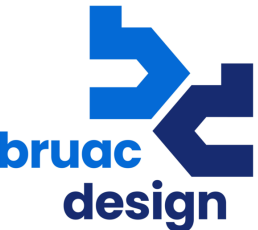
OLD PUB LANE, GREENBANK, QLD

SITE PLAN

1: 600

PROPOSED SITE PLAN

DWG N° BD025-DA03-I by MB
2025.03.18



BUILDING DESIGN
0416 352 057



SWIFT STORAGE
OLD PUB LANE, GREENBANK, QLD

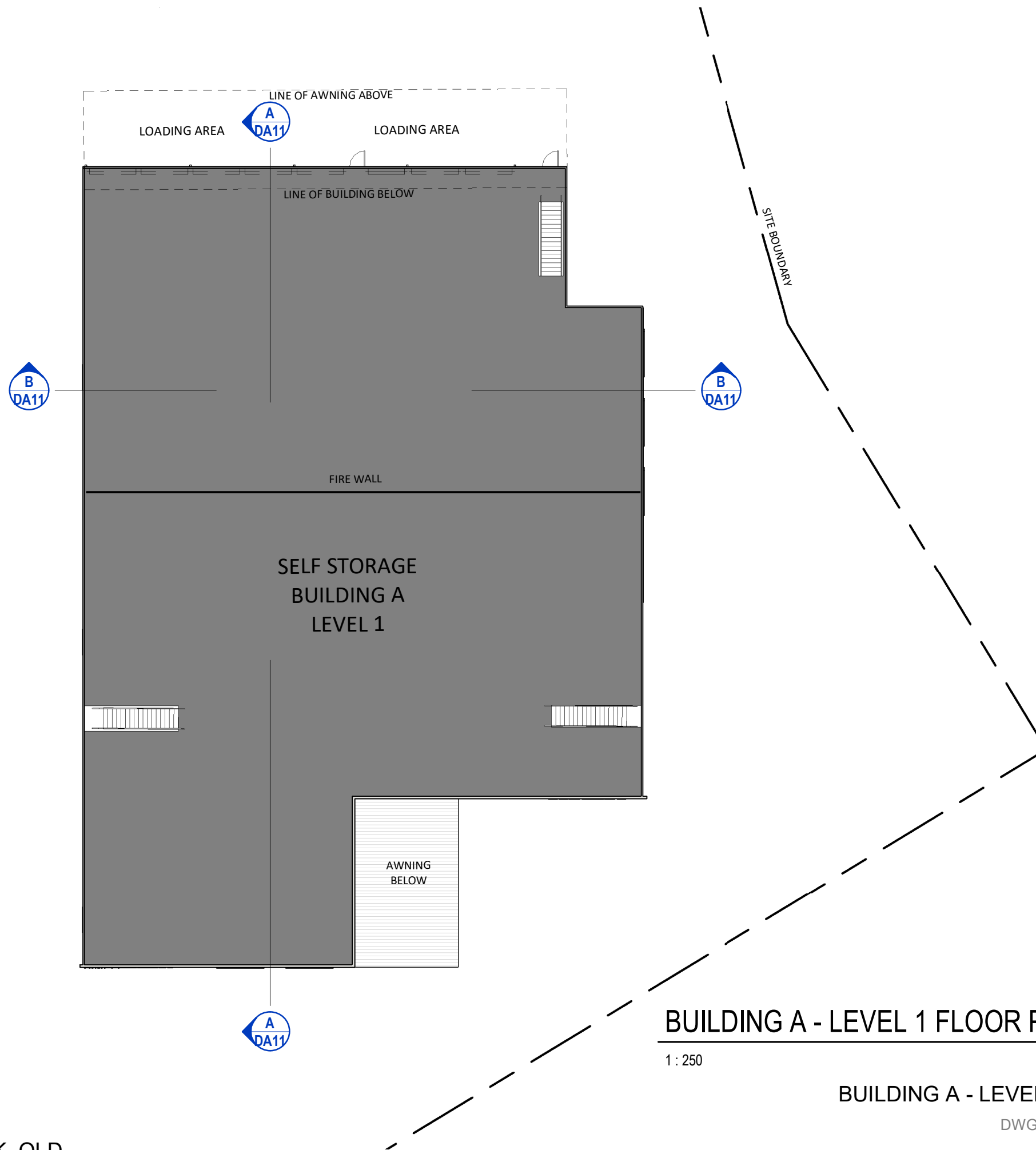
BUILDING A -GROUND FLOOR PLAN
1 : 250

BUILDING A - GROUND FLOOR PLAN
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2025.03.18



SWIFT STORAGE

OLD PUB LANE, GREENBANK, QLD

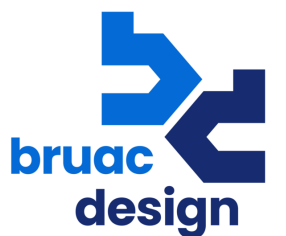


BUILDING A - LEVEL 1 FLOOR PLAN

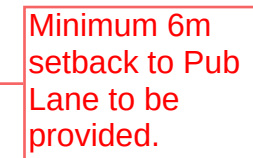
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BUILDING A - LEVEL 1 FLOOR PLAN

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2025.03.18



BUILDING DESIGN
0416 352 057



BUILDING B - GROUND FLOOR PLAN

2025.03.18

SWIFT STORAGE

OLD PUB LANE, GREENBANK, QLD

BUILDING B - LEVEL 1 PLAN

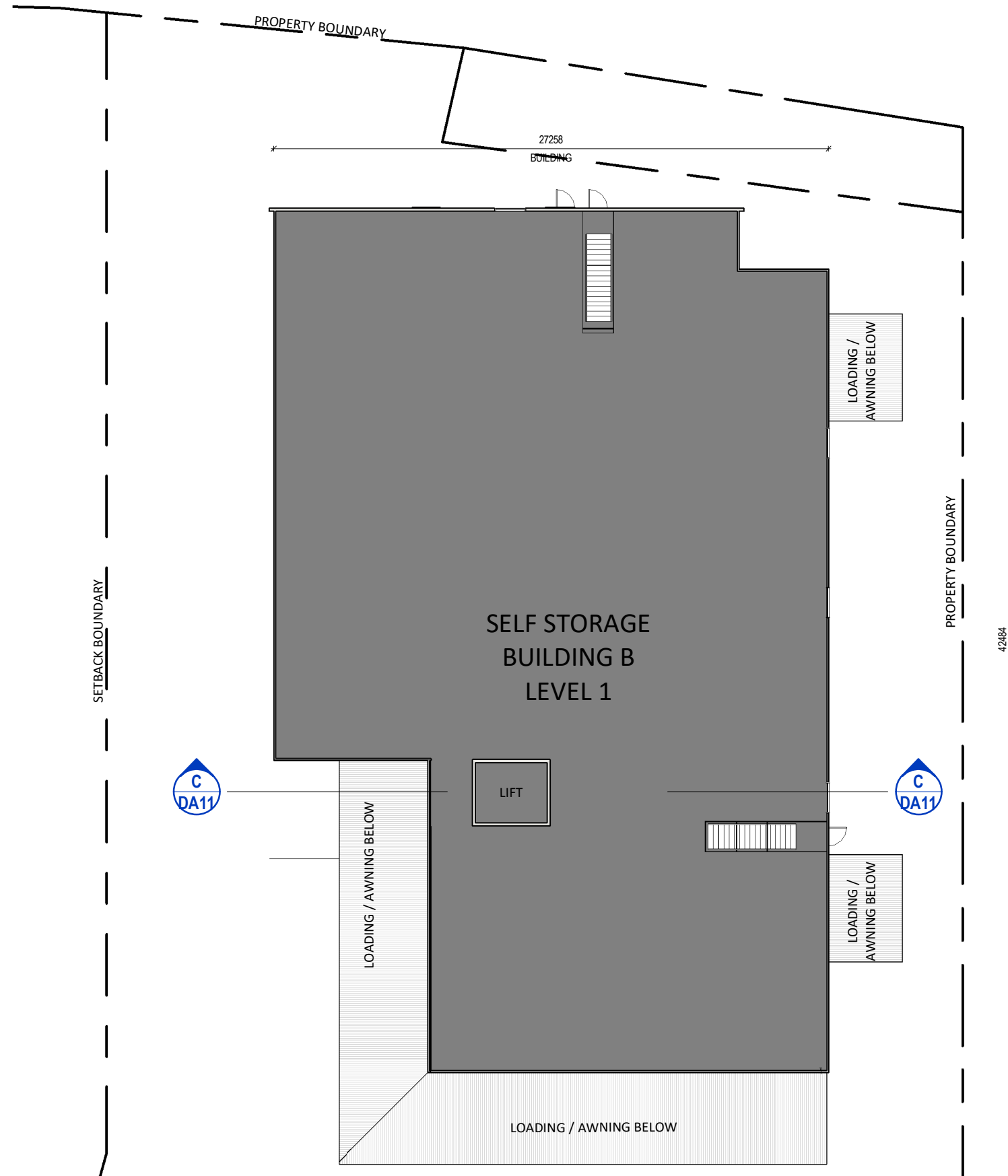
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BUILDING B - LEVEL 1 FLOOR PLAN

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2025.03.18



BUILDING DESIGN
0416 352 057



PRACTICE NOTE

QUEUING CHARACTERISTICS AT SITE ACCESSSES



BACKGROUND

On-site queuing areas are required at site access locations to ensure that vehicles do not queue across pedestrian paths or back onto the frontage road.

However, with queuing requirements in planning scheme policies becoming increasingly onerous, the usage of these figures can result in excessive queuing areas which can unnecessarily have an adverse effect on construction costs and development yields.

This practice note demonstrates how conventional queuing theory can be used in traffic engineering to determine the anticipated queue length at access locations as a function of local conditions.

QUEUING THEORY

To calculate the amount of queuing space required, we must estimate the probability of a number of vehicles in a queue (n) exceeding a specified number of vehicles (N) at any instant. This is calculated using the following formula:

$$\Pr(n > N) = \rho^{N+1} \leq \alpha$$

Where:

- ρ is the queue utilisation factor
- α is the probability of a queue of N vehicles being exceeded

Rearranging this formula enables the calculation of the design queue length in terms of the number of vehicles as follows:

$$N = \frac{\log(\alpha)}{\log(\rho)} - 1$$

The **minimum** design queue would be calculated as N vehicles, which may include a fraction of a vehicle (eg 1.2 vehicles). This

design queue could be applied subject to engineering judgment.

The **desirable** design queue would be the smallest integer which contains the value, N (ie rounded up to the nearest integer).

Application of a standard vehicle length of 6m per vehicle results in a design queue length in metres.

QUEUE UTILISATION FACTOR

The utilisation factor, ρ , is the ratio of the mean arrival rate (r) and the mean service rate (s), ie:

$$\rho = \frac{r}{s}$$

The mean arrival rate (veh/hr) varies for each situation. It is calculated using the peak hour trip generation for the facility. This is expressed in vehicles per hour.

The mean service rate (veh/hr) is determined by observing the operations of similar facilities.

PTT has calculated the mean service rate for a non-controlled (ie no boom gate) parking facility by surveying the average time taken for cars to enter and leave from visitor parks in a residential development.

This survey was undertaken at a recently approved and constructed mixed use commercial/residential development at Nundah on a Wednesday in July 2014 between 4:30-6:00pm. A minimum of 30 observations were made for both "parking" and "unparking" manoeuvres. The results of this analysis are shown in Table 1.

PRACTICE NOTE

QUEUING CHARACTERISTICS AT SITE ACCESSSES



Table 1: MEAN VEHICLE MANOEUVRING TIME (seconds/vehicle)

MANOEUVRE	MEAN TIME	STD DEV	MIN	MAX
Parking	12.2	13.8	1.1	69.5
Unparking	14.7	7.1	2.1	37.2

The application of the mean “unparking” value from Table 1 assumes that each vehicle which enters the access will be waiting for a car to “unpark” from the space nearest to the access. This is an extremely conservative assumption, which will result in an over-estimate of queue lengths.

The mean service time for car parks with entrance controls such as boom gates, ticket dispensing machines, car stackers and mechanical parking installations can usually be provided by the supplier of the product.

PROBABILITY OF EXCEEDANCE

The queuing formula is used to calculate the queue length given a specified probability (α).

Generally, the 95th percentile queue is considered an adequate measure of an acceptable queue at access driveways. This infers that there is a 5% probability that the queue length will be exceeded (ie $\alpha=0.05$).

Australian Standards, AS2890.1, outlines the requirement to provide a 98th percentile queue for situations where mechanical parking installations such as car stackers are used (ie $\alpha=0.02$).

EXAMPLE

A development with a mean peak hour trip generation of 100 veh/hr and a 80:20 in:out split results in a vehicle arrival rate of 80 veh/hr.

The service rates from Table 1 can be applied to calculate the queue utilisation factor. However common units are required to find a ratio.

Therefore, the service rate, s , is:

$$\frac{\text{vehicle}}{\text{hour}} = 3,600 \left(\frac{\text{seconds}}{\text{vehicle}} \right)^{-1}$$
$$s = \frac{3,600}{14.7} = 244.9 \text{ vehicles per hour}$$

The queue utilisation factor is:

$$\rho = \frac{r}{s} = \frac{80}{244.9} = 0.327$$

The 95th percentile design queue:

$$N = \frac{\log(\alpha)}{\log(\rho)} - 1$$
$$N = \frac{\log(0.05)}{\log(0.327)} - 1$$
$$N = 1.68 \text{ vehicles}$$

Therefore, desirably, the development should be designed to allow for an entrance queue of two vehicles (ie 12m). However, an available queuing distance of 1.68 vehicles (ie 10.1m) would be considered acceptable to cater for the 95th percentile queue, subject to engineering judgment.

PRACTICE NOTE

QUEUING CHARACTERISTICS AT SITE ACCESSSES



CONCLUSION

Conventional traffic engineering queuing theory can be used to determine the anticipated queue length at access locations. This ensures that queuing does not adversely impact on nearby traffic or pedestrian flows whilst ensuring that the queuing area is not excessive.

REFERENCES

Bennett, DW and Rose, G (1988), *Unsignalised Intersection Analysis*, University of Melbourne

Institute of Transport Studies Monash University (2003), *Traffic Engineering and Management*, Volume 2, Caulfield East

Standards Australia (2004), *AS2890.1:2004 Parking facilities Part 1: Off-street car parking*, Sydney

DISCLAIMER

The material contained in this practice note is of a general nature, for information only. Pekol Traffic and Transport accepts no liability for any damage caused by any error or omission contained herein.



Self Storage Association
of Australasia



Parking and Traffic Study

**Supporting the self storage industry
of Australia and New Zealand.**

2022/2023



Self storage plays a critical role in sustainable communities.

Today, more than 2,100 self storage facilities house the belongings of over half a million Australians and support the growing number of local and global businesses who need storage solutions.

As changes in lifestyle, living spaces and urban densification continues to change the shape of our communities, self storage offers the ideal solution.

The sector has progressed from sprawling, ranch style sheds to sophisticated multi-level and mixed-use facilities that offer significant amenity and retail experiences to residents and businesses alike.

The growth of the asset class is underpinned by unprecedented levels of demand, professional management, increasing customer awareness and strong mandates from local and global investors.

It is against this backdrop that the SSAA presents the 2022/2023 Parking and Traffic Study to assist planners, councils and authorities understand the unique transport requirements of the sector.



Purpose

The SSAA Parking & Traffic Study has been undertaken to assist and inform stakeholders in the consideration of new self storage development proposals.

The study has been produced to respond to the unusual nature of self storage in a planning context, characterised by very large floor areas and low traffic generation.

Local governments and traffic engineers are invited to use the study to inform consideration of new development applications for self storage projects.

Parking regulations often do not appreciate the characteristics of self storage visitation. Applicants may seek variations to regulations and this study offers guidance to the likely parking requirements.

SSAA members, self storage developers and operators are invited to use the study to appropriately design and accommodate for their anticipated parking demand.

This study serves as the industry guideline for minimum parking requirements based on current conditions. Members are encouraged to take into consideration a range of factors when designing for self storage.

Expert Opinion

SSAA has engaged leading design and engineering firm Stantec to provide a robust and objective analysis of the traffic and parking volumes of existing self storage facilities.

Stantec are global experts in transport planning, traffic engineering and infrastructure design and delivery. Their experienced team of 175 transport professionals are based across Australia and backed by the expertise of more than 22,000 design and engineering colleagues globally.

Stantec are well suited to deliver this study for SSAA given their deep experience in transport assessments for market leaders in adjacent sectors including shopping centres and large format retailers.

This report builds upon earlier work by Aurecon and takes a more contemporary approach to parking, and transportation planning.

For the 22/23 study, Stantec and the SSAA sought to quadruple the sample size to ensure appropriate representation of a range of facility types, sizes and geographies.

The outcome is an objective report which provides accurate estimates of parking demand for proposed new self storage facilities.



Self Storage Users

SSAA's State of the Industry 2022 Report revealed that self storage continues to fill a broad range of needs across the community.

More than 40% of current users surveyed were using storage while moving or selling their house, while 55% are storing to declutter due to a lack of space at home.

Household items, furniture and garage/shed items account for more than 80% of what's in storage. These items are typically bulky goods that require vehicular transport into/out of self storage facilities. Most residential customers access their storage unit infrequently, with an average length of stay under twelve months.

Business users demonstrate higher visitation and longer average stays but account for a smaller proportion of the overall customer base (<30%).

Parking & Traffic Context

In the parking and traffic management context, self storage is considered light impact as evidenced by low trip volumes and sporadic trip generation patterns.

Self storage facilities are generally comprised of an office or retail space and a large self storage area secured by gates and security systems with PIN code or smartphone access.

Facilities range in style and size, from drive-through facilities with ground floor units to multi-level, purpose-built assets. Facilities are characterised by large floor areas with limited parking and transport requirements.

Most facilities are staffed within business hours and offer extended access (5am – 10pm), with 24 hour access by arrangement.

Self storage visits are predominantly by motor vehicle as the purpose of a visit is to drop-off or pick-up items. The visits by a typical storer are ad-hoc and infrequent.

Observations during this study showed little activity, with office/retail visits short in nature (<20 minutes) and parking areas both at the front of facilities and within storage areas generally having a number of available spaces.

The unique nature of self storage means that warehouse vehicle parking rates and traffic counts from similar sized sites result in an excessive number of spaces being provided.



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The information has been obtained from a range of sources and provided by self storage operators and professionals in the industry. Although the SSAA has no reason to doubt the validity of the information provided to it and it has relied on this information in good faith, the SSAA is unable to state with certainty that the information upon which it has relied is absolutely accurate.

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Methodology

Stantec has been commissioned to undertake a review and assessment of self storage facilities across Australia to determine appropriate car parking requirements, vehicle access arrangements and likely vehicle trip generation for the Self Storage Association of Australasia (SSAA) and its members.

This document provides a technical study of the 2022 forecast vehicle trip generation and car parking demands requirements of self storage facilities.

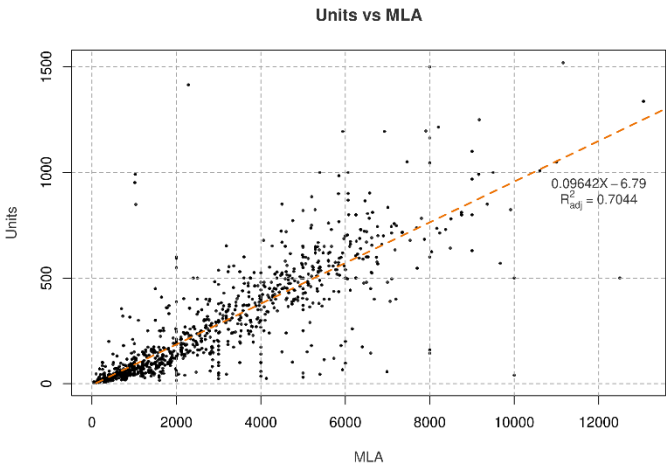
The primary generator of traffic and parking requirements is generally accepted to be the amount of storage space available. The Maximum Leasable Area (MLA) is considered the most appropriate unit of measurement to assess future parking requirements and/or the traffic implications of self storage facilities.

This study has been undertaken using MLA in square metres and number of storage units for 1,162 sites as supplied by SSAA. Of these sites, four (4) were considered atypical and were removed from the dataset for this analysis.

For the 1,158 remaining sites, the average number of units per 1,000m² was 96 units, as shown in the below figure.

For the size categories used, the average MLA was as follows:

- For the surveyed sites under 3,000 MLA the average MLA was 1,651m².
- For the surveyed sites between 3,000 and 6,000 MLA the average MLA was 4,571m².
- For the surveyed sites above 6,000 MLA the average MLA was 6,902m².



Data

The most appropriate method of data collection for vehicle data in self storage facilities is security gate data. SSAA requested its members supply the gate entry / exit logs for the week beginning 7 May 2022. This week was considered a typical week, outside of school holidays or any other public holidays.

Members supplied data for 66 facilities of which 61 of those facilities were able to be processed, and of those, 44 supplied enough information to be able to extract 'duration on site' data directly.

The data from each facility was re-coded so that all the gate data was in the same format and entered into a single data table for ease of analysis.

The geographic spread of the facilities is below and demonstrates a broad cross-section of metropolitan and regional areas. The facilities are considered diverse in nature, being a mix of styles (ranch, multi-level and conversions) and management, including major brands and independent operators.

State	City/Region	Quantity
New South Wales	Sydney	10
	Newcastle	3
	Mid North Coast	1
	Illawarra	1
	Tweed Heads	1
Victoria	Melbourne	17
Queensland	Brisbane	5
	Rockhampton	2
	Charters Towers	1
	Gold Coast	1
	Gympie	1
	Hervey Bay	1
	Townsville	1
South Australia	Adelaide	4
Western Australia	Perth	4
Tasmania	Hobart	2
Northern Territory	Darwin	1
Australian Capital Territory	Canberra	3
	Queanbeyan	1
Total		61

Data Processing & Assumptions

There are some 60 plus unique entries describing what happened at each device. From this list, two sets were created, the first being the list of entries describing people arriving, and the second being the list of entries describing people leaving. The rest of the entries were administrative events that had been recorded, and for the purposes of this analysis were ignored.

Some assumptions have been made as part of this analysis. These are:

- Every site access is done as a car trip. There is no data that allows Stantec to differentiate between walk ups and drive in trips.
- Everyone who arrives is considered to leave that same day. This analysis assumes that by midnight, everyone who arrived in that day has left.
- Over any given 15-minute period, the number of arrivals will match the number exits. This is not strictly true but is considered an acceptable choice as it will produce a conservative estimate and becomes less of an issue as the number of trips increases and the average duration becomes shorter.
- Every visit is captured at least once. If a visitor can tailgate through both inbound and outbound, the survey data has no way to capture this without the risk of double counting. Previous studies have shown that tailgating is minimal.
- This data only represents registered users or customers. It does not include people who arrive and want to become a registered user/customer, or the office staff.
- The second and third assumptions are needed because not every activity is always captured. Some sites only supplied entry records, and other sites reported that there were times when a given device was not able to report to the data server as noted by entries reporting communication errors.



Duration on Site

Processing

For the 44 sites that had supplied additional data, every entry record was paired with its following exit record for each individual user. The time difference between these two data points is taken to be the duration of stay. This was then aggregated by averaging to every 15-minutes partitioned by size category. For the period prior to 5:00 AM, and after 10:00 PM a second aggregation was also applied across all 44 sites. Finally, a rolling hour average was calculated.

Due to the low number of trips in the pre 5:00 AM period and after 10:00 PM, a two-hour rolling average of the aggregation across all 44 sites for these time periods was calculated.

This produces an estimate of the length of time people are on site by 15-minute intervals over the day. The time point recorded for each duration is its beginning time.

Weekdays

During the week before 6:30AM, there are a few long duration stays in the early morning of approximately 40 minutes. After that, the parking duration reduces to the high 20's. By 10:00AM the duration increases slightly to approximately 30 minutes before reducing steadily to the high teens by 8:00 PM, except for sites in the 6,000 plus category where duration of stay climbs to approximately 30 minutes by 8:00PM. After that, duration reduce to the high teens for the remainder of the evening.

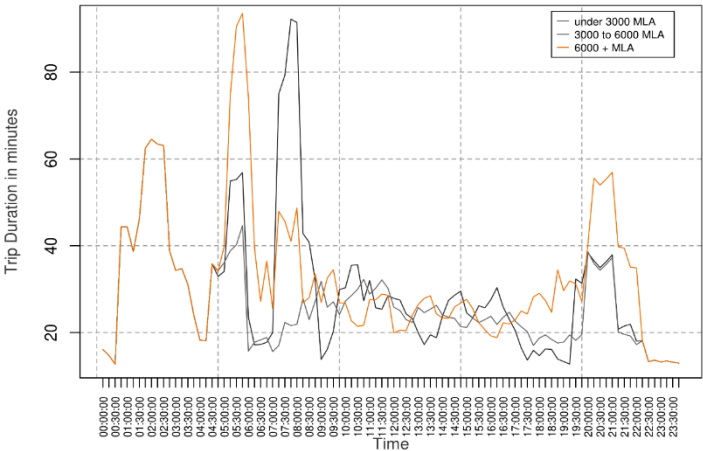
Weekday Trip duration vs Time of Day



Weekends

On the weekend there are some longer duration stays (approximately one hour) in the early morning. For stays beginning between 5:00 AM and 7:00 AM, the expected duration can increase to an hour and a half, but other than that, the average stay is stable at just under the 30 minutes, with a small pickup back towards 35 minutes after 7:00 PM. The duration then drops down to about 10 minutes after 10:00 PM.

Weekend Trip duration vs Time of Day



Trip Generation

Processing

For each 15-minute interval, the entries deemed to be arrivals and the entities deemed to be departures are totaled. The maximum of the entries and departures is multiplied by 2 and this value is deemed to be the number of trip ends generated by the site for that 15-minute interval.

A rolling hour is summed over the day to produce an estimate of the hourly trip generation for each 15-minute interval. The maximum of these numbers is the peak hourly generation rate. Summing each 15-minute estimate over the full day produces the daily trip generation estimate.

Weekdays

During the week there is a peak around 9:30 AM for sites under 6,000 MLA and the 6,000 + MLA peak is at 11:15 AM. The rest of the day is mostly stable at a rate just under the peak until 4:00 PM for all size categories. The trip rates then drop rapidly to low values in the late after-hours periods. The under 3,000 MLA has a small stable area between 4:30 PM and 5:30 PM before resuming the reduction in trip generation.

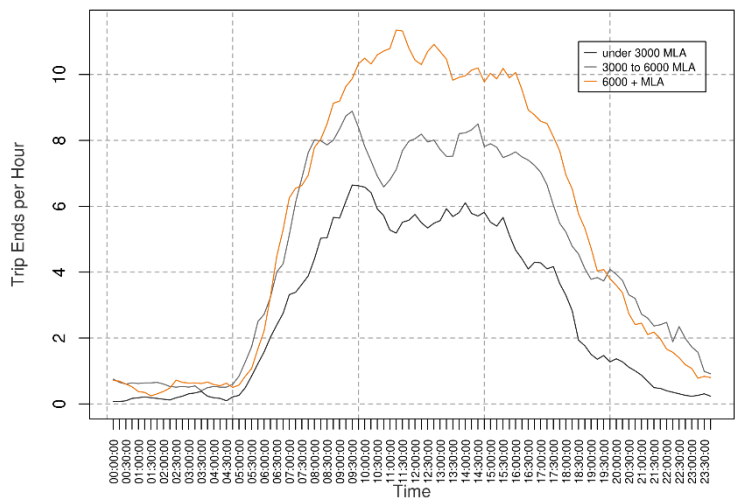
From the data provided, the following weekday trip rates have been calculated for each facility:

>3,000 MLA: 6.6 trips (max.) per peak hour and a daily rate of 63.0 trips (max.).

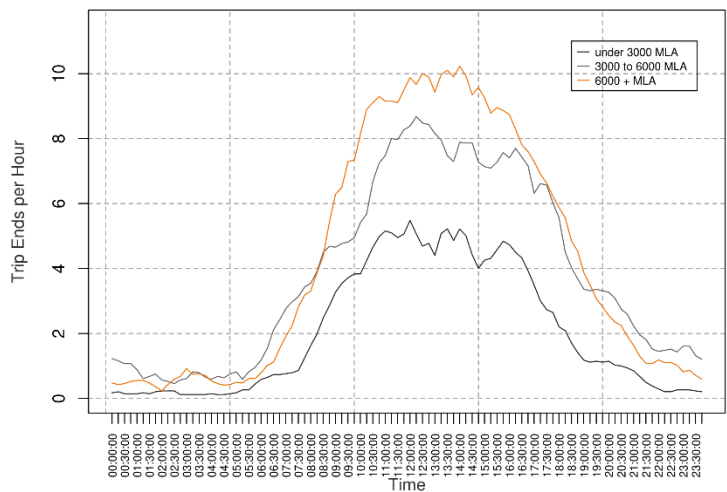
3,000 and 6,000 MLA: 8.9 trips (max.) per peak hour and a daily rate of 95.9 trips (max.).

> 6,000 MLA: 11.4 trips (max.) per peak hour and a daily rate of 108.6 trips (max.).

Weekday Trip generation vs Time of Day



Weekend Trip generation vs Time of Day



Weekends

On the weekend, the peak period occurs in the middle of the day. It then decreases until 4:30 PM before reducing for across the rest of the day.

From the data provided, the following weekend trip rates have been calculated for each facility:

>3,000 MLA: 5.5 trips (max.) per peak hour and a daily rate of 47.2 trips (max.).

3,000 and 6,000 MLA: 8.7 trips (max.) per peak hour and a daily rate of 82.5 trips (max.).

> 6,000 MLA: 10.2 trips (max.) per peak hour and a daily rate of 85.6 trips (max.).

Parking Generation

Processing

The method chosen to calculate the parking requirements for this study uses Queuing Theory. In particular, the M/M/k queues. The assumptions required for this method are:

- One car per trip.
- The number of arrivals in an hour can be modelled using a Poisson distribution. Thus, the distribution of inter-arrival times is an exponential distribution. For the most part, this is true as individual customers are not expected to coordinate their trips with random strangers. Notwithstanding, this may differ pending local traffic conditions.
- The duration of stay for each stay can be modelled with an exponential distribution. Again, true for the most part, as customers are not expected to be using these sites as meeting locations.
- If the car parking is outside the keypads that the time to and from the vehicle to the keypad is insignificant compared to the duration of the stay.

Methodology

As only 44 sites provided data that allowed for duration calculations out of the 66 sites, Stantec has chosen to use a method that has predictive power over all 66 sites should it be warranted.

The methodology assumes that customers are arriving and waiting to be “served” and the “server” is a carpark. The service time is the duration of the clients stay on site, and then when the customer is finished, they leave and free up the carpark to “serve” the next customer.

The theory has a formula that calculates the probability that an arbitrary customer will have to “wait” for a carpark given the arrival rate of customers, the length of duration and the number of carparks. Then for a generic “site” for each 15-minute period, using the estimates of the “current” arrival rate and duration of stay for that 15-minute period for that site, the formula is calculated for the number of carparks currently being tested.

This is repeated for the next higher number of carparks until the percentage is under an acceptable percentage of time. The number of carparks can be increased until the percentage of time that an arrival will need to wait for a carpark is zero. Once this number is reached, adding extra carparks has no mathematical justification.

The 95%ile and 99.9%ile demand calculations are provided in the following tables.

It is important to highlight that the 95%ile of parking is commonly adopted when calculating car parking demands and therefore is considered appropriate as a provision.

Notwithstanding, the 99.5%ile parking provision can be adopted if a more conservative approach is sought.

Weekday Parking Requirements

MLA	95% ESTIMATED PARKING SPACES	95% ESTIMATED TIME WAITING FOR A SPACE	99.9% ESTIMATED PARKING SPACES	99.9% ESTIMATED TIME WAITING FOR SPACE
Under 3,000 m ²	5 spaces	9.0 minutes	8 spaces	4.8 minutes
3,000 to 6,000 m ²	7 spaces	9.1 minutes	10 spaces	5.3 minutes
6,000 m ² +	7 spaces	8.1 minutes	11 spaces	4.1 minutes

Weekend Parking Requirements

MLA	95% ESTIMATED PARKING SPACES	95% ESTIMATED TIME WAITING FOR A SPACE	99.9% ESTIMATED PARKING SPACES	99.9% ESTIMATED TIME WAITING FOR SPACE
Under 3,000 m ²	5 spaces	9.8 minutes	7 spaces	6.3 minutes
3,000 to 6,000 m ²	6 spaces	8.3 minutes	9 spaces	4.7 minutes
6,000 m ² +	6 spaces	7.9 minutes	9 spaces	4.3 minutes

Study Comparisons

A comparison of parking and trip generation rates obtained from SSAA’s previous Parking and Traffic studies – namely Aurecon’s Self Storage Facility Traffic and Parking Study (July 2009) and subsequent 2016 Addendum – to this 22/23 study is outlined below.

Parking Rate Comparisons

A comparison of parking rates is contained in the table below and suggests that a decrease in parking demand has occurred since the last study.

Previous studies have separated office and storage car parking requirements. This study provides parking requirements for the whole facility and considers that members are best placed to determine the appropriate placement of parking spaces.

The outcomes of this larger and more contemporary study are considered justification to reduce the parking provision rates from the 2009 and 2016 study to meet current transport conditions.

MLA	2009 STUDY	2016 STUDY	2022 (THIS STUDY)
Under 3,000 m ²	6 spaces	6 spaces	5 spaces
3,000 to 6,000 m ²	10 spaces	10 spaces	7 spaces
6,000 m ² +	11 spaces	13 spaces	7 spaces

Trip Generation Comparisons

The trip generation rates from the previous studies are summarised in the below tables, noting that over time there appears to be a decrease in the trip generation demand.

On comparison of the 2009, 2016 and 2022 studies, the results indicated that the trip generation demand has reduced for these self storage facilities over time.

The outcomes of this larger and more contemporary study are considered justification to reduce the trip generation demand from the 2009 and 2016 study to meet current transport conditions.

2009 Trip Generation Demand

MLA	WEEKDAY (PEAK)	WEEKDAY (DAILY)	WEEKEND (PEAK)	WEEKEND (DAILY)
Under 3,000 m ²	19 trips	92 trips	30 trips	74 trips
3,000 to 6,000 m ²	23 trips	165 trips	30 trips	132 trips
6,000 m ² +	29 trips	195 trips	36 trips	212 trips

2016 Trip Generation Demand

MLA	WEEKDAY (PEAK)	WEEKDAY (DAILY)	WEEKEND (PEAK)	WEEKEND (DAILY)
Under 3,000 m ²	n/a	82 trips	n/a	94 trips
3,000 to 6,000 m ²	n/a	113 trips	n/a	117 trips
6,000 m ² +	n/a	148 trips	n/a	144 trips

2022 Trip Generation Demand

MLA	WEEKDAY (PEAK)	WEEKDAY (DAILY)	WEEKEND (PEAK)	WEEKEND (DAILY)
Under 3,000 m ²	6.6 trips	63 trips	5.5 trips	47.2 trips
3,000 to 6,000 m ²	8.9 trips	95.9 trips	8.7 trips	82.5 trips
6,000 m ² +	11.4 trips	108.6 trips	10.2 trips	85.6 trips

Summary and Recommendations

The below Parking and Trip Generation provisions have been determined from the calculations contained within this document. Based on these calculations and in Stantec’s expert opinion, it is considered appropriate for new self storage facilities to be designed utilising the below rates.

Members are encouraged to consider local market and operating conditions, their prospective customer base and desired amenity together with the surrounding built environment when determining parking and transport requirements for any new self storage facility.

The SSAA Self Storage Transport Design Guidelines may assist members further when considering parking and transport planning for a new self storage facility.

Recommended Parking Rate Provision

Facility Size	Number of Parking Spaces
Under 3,000 m ²	5 spaces
3,000 to 6,000 m ²	7 spaces
6,000 m ² +	7 spaces

Recommended Trip Generation Rates

	Weekday		Weekend	
Facility	Peak	Daily	Peak	Daily
Under 3,000 m ²	6.6	63	5.5	47.2
3,000 to 6,000 m ²	8.9	95.9	8.7	82.5
6,000 m ² +	11.4	108.6	10.2	85.6





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9 September 2021

Old Pub Lane Pty Ltd
c/- Ethos Urban
356 St Pauls Terrace
FORTITUDE VALLEY QLD 4006

Attention: **Rebekah McDonald**

Sent via email: rmcdonald@ethosurban.com

Dear Rebekah,

**RE: FURTHER ISSUES RESPONSE: TRAFFIC AND TRANSPORT ITEMS
PROPOSED CHANGE APPLICATION AT 43-77 OLD PUB LANE, GREENBANK**

1.0 INTRODUCTION

1.1. Overview

Bitzios Consulting (Bitzios) has been commissioned by Old Pub Lane Pty Ltd to provide traffic advice in relation to Stage 2 of the development located at 43-77 Old Pub Lane, Greenbank (subject site).

1.2. Background

The following project history and site details are outlined below:

- The subject site is located within the Logan City Council (Council) local government area (LGA), is located within the Greater Flagstone Priority Development Area (PDA) and is under the jurisdiction of Economic Development Queensland (EDQ)
- The subject site is formally described as Lot 1 on RP184067 and is approximately 20ha in size and has frontage to Pub Lane (north), Old Pub Lane (south), and a rail corridor (west)
- A three (3) stage Masterplan DA has been approved over the subject site. This included 3 lots (Lot 1: Child Care, Lot 2: Medical and Swim School, Lot 3: Storage)
- On 26th February 2021 the applicant lodged a Change Application seeking to amend the approved Master Plan (Lot 2 only) including the yields, car parking and access
- On 17th March 2021, EDQ issued a Further Issues (FI) letter requesting a Traffic Engineering report/memo assessing the suitability of the proposed changes.
- On 16th June 2021, EDQ sent an email requesting further amendments to the report/memo.

This letter has been prepared in response to the EDQ FI letter and subsequent email, which is included in **Attachment 1**.

**PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL**

Approval no: DEV2019/1035/2

Date: 14 September 2021



2.0 ITEM 2: SERVICE VEHICLE ACCESS

2. Submit a Traffic Engineering report/memo assessing the suitability of the new layout for the service/refuse vehicles movements for each of the Lots, and assessing the suitability of the new proposed driveway access for Lot 2, including amenity impacts (noise, light intrusion into the dwellings) of vehicles existing from the new driveway for residents opposite the new driveway location.

Bitzios Response:

2.1. Proposed Lot 2 Access

Overview

A new vehicular access to Old Pub Lane is proposed to Lot 2 (Stage 2) to enable the Lot to operate independently and to remove the access easement over Lot 3 that was provided as part of the Masterplan. A review of the proposed vehicular access arrangement, considering; configuration, location, and available sight distances has been undertaken as detailed herein.

The proposed site plans are included in **Attachment 2**.

Configuration

Table 2.1 summarises our review of the driveway configuration against Australian Standards (AS2890) and will be provided in accordance with IPWEAQ Standard Drawing RS-051.

Table 2.1: Driveway Crossover Configuration Review

ID	Design Vehicle	Required Configuration	Proposed Configuration
1	Heavy Rigid Vehicle (HRV)	6.5m Type B	6.6m Type B

In summary, the proposed driveway configuration complies with AS2890.

Location

Table 2.2 summarises our review of proposed driveway location against AS2890.

Table 2.2: Driveway Locations Review

ID	Frontage Road Type	Adjacent Feature	Required Separation	Proposed Separation	Compliant
1	Minor	Lance Road	6m (from continuation of the property boundary)	20m (from continuation of the property boundary)	Yes

In summary, the proposed driveway location complies with AS2890.

Sight Distances

Table 2.3 summarises our review of sight distance requirements at the proposed driveway location.

Table 2.3: Driveway Sight Distances Review

ID	Speed Environment	Direction	Available Sight Distance	AS2890 Requirement	Compliant
1	60km/h	East	130m	83m	Yes
		West	180m (end of road)		Yes

In summary, available sight distances at the proposed driveway location comply with AS2890.

Other Considerations

Whilst not a traffic engineering item, it is noted that the proposed driveway location is not directly opposite any existing residential dwellings. The driveway is directly opposite vegetation within #43 on the southern side of Old Pub Lane.

Summary

In summary, the proposed driveway location for Lot 2 meets all AS2890 requirements and is considered suitable to service the development.

2.2. Car Parking Layout

We have undertaken a layout review of the updated car park design to confirm compliance with AS2890 which is summarised in Table 2.4.

Table 2.4: Car Parking Layout Review

Design Element	Proposed	AS Requirement	Compliant
Parking Aisle Width (two-way)	6.1-6.6m	5.8m	Yes
Heavy Vehicle Movement Aisles	6.6m	6.5m	Yes
Visitor Parking Bay	2.6m x 5.4m	2.6m x 5.4m	Yes
PWD Space	2.4m x 5.4m with adjacent shared area	2.4m x 5.4m with adjacent shared area	Yes
Clearance to obstructions	0.3m	0.3m	Yes
End of Aisle Extension	1.0m	1.0m	Yes

In summary, the car parking layout complies with AS2890.

2.3. Servicing

Overview

No significant changes to the servicing arrangements compared to the existing preliminary approval is proposed. However, due to the new access for Lot 2, revised servicing will occur for Lots 2 and 3 to operate independently of each other. This has been reviewed further below.

Service Vehicle Requirements

Table 2.5 summarises our review of the servicing arrangements against Council's Servicing, Access and Parking (SAP) Code.

Table 2.5: Servicing Review

Lot	Land Use	Design Vehicle
2	Indoor Sport & Recreation	HRV / RCV
	Medical Centre	SRV / Ambulance / RCV
3	Industry (Self Storage)	HRV / RCV

Lot 2 Servicing

Consistent with the Masterplan Approval, a shared servicing bay (12.5m x 5m) that can accommodate service vehicles up to the size of HRV has been proposed for Lot 2. The provision of a single bay is expected to be adequate to service Lot 2, noting that the proposed uses (Indoor Sport and Recreation and Medical Centre) will be serviced occasionally only. Furthermore, a footpath connecting Building 1 to the loading bay has been provided.

It is noted that the Medical Centre may require access for an Ambulance vehicle. In accordance with AS.2890.1 PWD bays can also be used for ambulance parking and be marked as a shared PWD / ambulance bay. As such, one of the PWD bays near the Medical Centre entry is to be marked as a shared PWD / ambulance bay and used for ambulance parking on rare occasions it may be required. Access to these bays is via minimum 6.6m wide aisles which complies with AS2890.

Relevant swept path diagrams have been prepared which demonstrate that Lot 2 can be serviced by an RCV independently. This includes entry and exit in a forward gear and access to the proposed loading bay. Swept path diagrams are included in **Attachment 3**.

Lot 3 Servicing

No changes to the layout or servicing bay for Lot 3 are proposed; however, due to changes within Lot 2, the access to the servicing area has been revised slightly. Swept path diagrams have been prepared which demonstrate that Lot 3 can be serviced by an HRV independently (i.e. without using Lot 2). This includes entry and exit in a forward gear and access to the proposed loading bay. Swept path diagrams are included in **Attachment 3**.

In summary, Lot 3 servicing is in accordance with Councils SAP Code and is consistent with the Masterplan approval. No further analysis is considered warranted.

3.0 ITEM 3: PARKING

EDQ Further Issues Letter (17th March 2021)

3. Aspects of the proposed car parking rates do not reflect the Bitzios report, e.g. it is proposed the commercial building will have a car parking rate of 5 spaces/per 100sqm of GFA. The commercial building includes Health Care Services and Veterinary Clinic. The Bitzios report submitted with the original application requires 1 space/10sqm GFA for health centre services and 1 space/30sqm GFA for Veterinary Clinic.

Furthermore, the swim school appears to have been removed and it is unsure if this is to be relocated in Building 2. It was noted that the Swim School had a ratio of 15 spaces + 1 space per 100sqm of GFA. However, since it is now proposed to double the indoor sport and recreational space EDQ needs to determine that there is sufficient parking available in accordance with the rates set out by the Logan Planning Scheme.

Submit a Traffic Engineering report/memo that identifies the required car parking spaces for the revised proposals in accordance with the Logan Planning Scheme and submit an updated Master Plan that shows these car parking spaces can be accommodated on the site.

EDQ Response Email (16th June 2021)

1. The Trip Generation Surveys in the RMS are all NSW specific and do not correlate to the outcomes that are occurring in Logan. For instance, some of the areas used to determine trip generation rates include Bondi and Kings Cross, which are heavily orientated to PT services. This is quite different from this location where there is only 1 PT service that could service this site and this PT Service does not currently service the potential customer base for these uses, i.e. Everleigh and Covella.

2. The Traffic report further states that from the Trip Generation Surveys we can apply a Temporal Parking Demand to further reduce the car parking rates. EDQ has applied a practice in the other PDA's where if multi uses are provided and a relaxation is sought to the car parking rates, we would utilise the Logan Planning Scheme less either the temporal parking rates, or just the rates identified in the Trip Generation Survey that has been identified using relevant local examples.

3.1. Overview

Based on recent revisions to the development plans, the following GFA is noted for Lot 2

- Commercial / Healthcare: 980m² GFA (-1,020m²)
- Indoor Sport and Recreation: 1,730m² GFA (+710m²)
- **Total: 2,710m² GFA (-310m²)**

Lot 2 proposes a total of 99 car parking bays which are shared between the two proposed buildings. The total site (Lots 1-3) provides a total of 158 car parking bays across all uses. A review has been undertaken to confirm that the proposed car parking supply meets the expected maximum demands for the site in accordance with PO1 of Council's SAP Code.

3.2. Council's Requirements

Performance Outcomes

Council's SAP Code provides the following relevant performance outcomes and acceptable outcomes.

PO1 Vehicle parking, loading and servicing and pick up/set down areas are provided that satisfy the expected demand for the number and type of vehicles likely to be generated by a use having regard to: - the particular circumstances of the premises including the: - nature, intensity and hours of operation of the use; - desirability of providing a car park and attracting vehicles to the premises; - maximum number of employees and customers to be on the premises at any one time; - size, levels and dimensions of the premises; - the proximity of the premises to an existing or future Parking station, other available car park or public transport facility.	AO1 Vehicle parking, vehicle washing, loading and servicing and pick up/set down areas are provided: - for a use listed in Table 9.4.7.3.2 - Vehicle parking and servicing, to comply with columns 2 to 5 of Table 9.4.7.3.2 - Vehicle parking and servicing; - for a use not listed in Table 9.4.7.3.2 - Vehicle parking and servicing, in accordance with a car parking assessment report to be provided to the local government and prepared in accordance with Part 2 of Planning scheme policy 5 - Infrastructure. Editor's note - For building work, Car parking for people with a disability is to be provided in accordance with Table D3.5 - Carparking spaces for people with a disability in the Building Code of Australia.
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As shown, PO1 relates to the maximum expected demand of the site.

It is important to note that PO1 considers both the nature, intensity and specific use of the site (PO1(a)(i, iv)) and the maximum demands at any one time (PO1(a)(iii)). Based on the points raised in PO1 it is necessary to consider both the changed rates and temporal demands that influence parking demand across a typical day at the subject site.

3.3. Masterplan Approval

Table 3.1 presents the previous parking provision for the site within the Masterplan Approval.

Table 3.1 Masterplan Parking Rates

Lot	Use	Yield	Parking Rate	Required Parking	Proposed Parking
1	Childcare Centre	120 Children 20 Staff	1 per 10 children 1 per staff	32.0	27
2	Medical Centre	416m ² GFA	1 space per 10m ² GFA	41.6	106
	Vet / Pet Store	650m ² GFA	1 space per 30m ² GFA	21.7	
	Swim School	495m ² GFA	20 spaces	20.0	
3	Storage Facility	4,600m ² GFA	1 per staff + 1 per 100 units	8.5	34
TOTAL				123.8	167

* Swim School was existing and currently contains 20 car parking spaces.

It is important to note that the Swim School was approved to provide 20 spaces for the existing Pool at the subject site. This is at an approximate rate of one (1) space per 25m² GFA.

Council's SAP Code Rates

Table 3.2 presents the parking requirements for the subject site (Lots 1-3) as per Council's SAP Code.

Table 3.2 Required Parking Rates

Lot	Use	Yield	SAP Code Rate	Required Parking
1	Childcare Centre	120 Enrolments	1 Space per 10 enrolments	12
		20 Staff	1 Space per 1 staff	20
Lot 1 Sub Total				32
2	Health Care Service	490m² GFA	1 space per 10m² GFA	49
	Office	490m² GFA	1 space per 20m² GFA	25
	Pool (Indoor Sport and Recreation)	400m² GFA	1 space per 15m² GFA	27
	Gym (Indoor Sport and Recreation)	1,125m² GFA		75
	Dance Studio (Indoor Sport and Recreation)	206m² GFA		14
Lot 2 Sub Total				190
3	Self-Storage	350 Units	1 Space per 100 units	3.5
		5 Staff	1 Space per 1 staff	5
Lot 3 Sub Total				9
Total				231

In summary, based on Council's SAP rates, the site is required to provide 231 car parking spaces, with Lot 2 required to provide 190 spaces. However, as shown, the rates do not consider the temporal demands associated with the proposed uses. To determine a more accurate parking demand, these have been reviewed further below.

3.4. Temporal Parking Demands

Methodology

EDQ raised concerns in the Response Email dated 16th June 2021 regarding the use of reduced rates and temporal analysis to determine the parking demand of the site. Whilst this methodology is still considered appropriate, to address EDQ's concerns a revised assessment has been conducted considering parking rates in accordance with Council's requirements and considering the temporal demand nature of the proposed uses (i.e. varying parking demands per use across a typical day).

Assessment

A detailed review of likely car parking demand across a typical day has been undertaken across the whole site (Lots 1-3). Considering the differing uses on-site, and different peak times, this is considered an appropriate way to define the peak parking demand / time for the site, based on the following:

- Across Lots 1-3 there are seven (7) separate uses, all with differing operating conditions and peak periods, and it is therefore important to review each use independently
- Performance Outcome 1 of Council's SAP states that parking should be sufficient to satisfy the expected demand for the number and type of vehicles likely to be generated by a use having regard to the circumstances of the premises including the:

- Nature, intensity and hours of operation of the use
- Desirability of providing a car park and attracting vehicles to the premises
- Maximum number of employees and customers to be on the premises at any one time
- Size, levels and dimensions of the premises.

This indicates that the expected demand should be based on the specific operating conditions of the uses within the site, as well as the operating times and to determine the maximum demand.

The following key assumptions are noted:

▪ **Lot 1: Childcare Centre**

- Peak (100%) usage for staff will occur all day
- Peak usage for visitors is typically 7:00 to 9:00am and 3:00 to 6:00pm (based on information provided within the 'Guide to Traffic Generating Developments' (RMS, 2002))
- Outside of these periods, the visitor parking will operate at 0% capacity
- On weekend the use will be closed.

▪ **Lot 2: Health Care Services**

- This use will open at 8:00am and reach 75% capacity up until 11:00am (based on RMS survey data results for the sites noted as relevant to the subject site – refer to Trip Generation Surveys, Medical Centres, Data Report, prepared for RMS, August 2015)
- From 11:00 to 4:00pm the use will operate at 100% (based on RMS survey data results)
- This use will close at 6:00pm
- This use will be closed on weekends.

▪ **Lot 2: Office**

- This use will open at 8:00am and reach 100% capacity from 9:00am to 4:00pm (based on RMS survey data, refer Trip Generation & Parking Surveys, Office Blocks, Analysis Report, prepared April 2010)
- This use will close at 6:00pm
- This use will be closed on weekends.

▪ **Lot 2: Pool**

- Peak (100%) usage will occur from 6:00 to 8:00am and 4:00 to 6:00pm (based on aerial photography of existing site and typical timetables for nearby Swim Schools)
- Outside of these periods, the Pool will operate at 50% (or lower) capacity
- On weekend, peak capacity will be at 9:00am to 1:00pm.

▪ **Lot 2: Gym**

- Peak (100%) usage will occur from 6:00 to 8:00am and 6:00 to 8:00pm (based on survey data results for the sites noted as relevant to the subject site – refer to Trip Generation and Parking Demand Surveys of Gymnasiums Data and Analysis Report' (PeopleTrans, 2014))
- Outside of these periods, the Gym will operate at 50% capacity
- On weekend, peak capacity will be at 9:00am to 12:00pm.

▪ **Lot 2: Dance Studio**

- This use will open at 3:00pm and close at 8:00pm
- On weekends, this use will open at 9:00am and close at 2:00pm.

▪ **Self-Storage (Lot 3)**

- Peak (100%) usage for staff will occur all day
- Peak usage for visitors is 7:00 to 9:00am and 5:00 to 7:00pm (based on review of Google popular times nearby self-storage businesses)
- Outside of these periods, the visitor parking will operate at 60% capacity
- On weekend, peak capacity will be at 7:00am to 3:00pm

Figure 3.1 and Figure 3.2 present the daily peak parking demand for Lots 1-3.

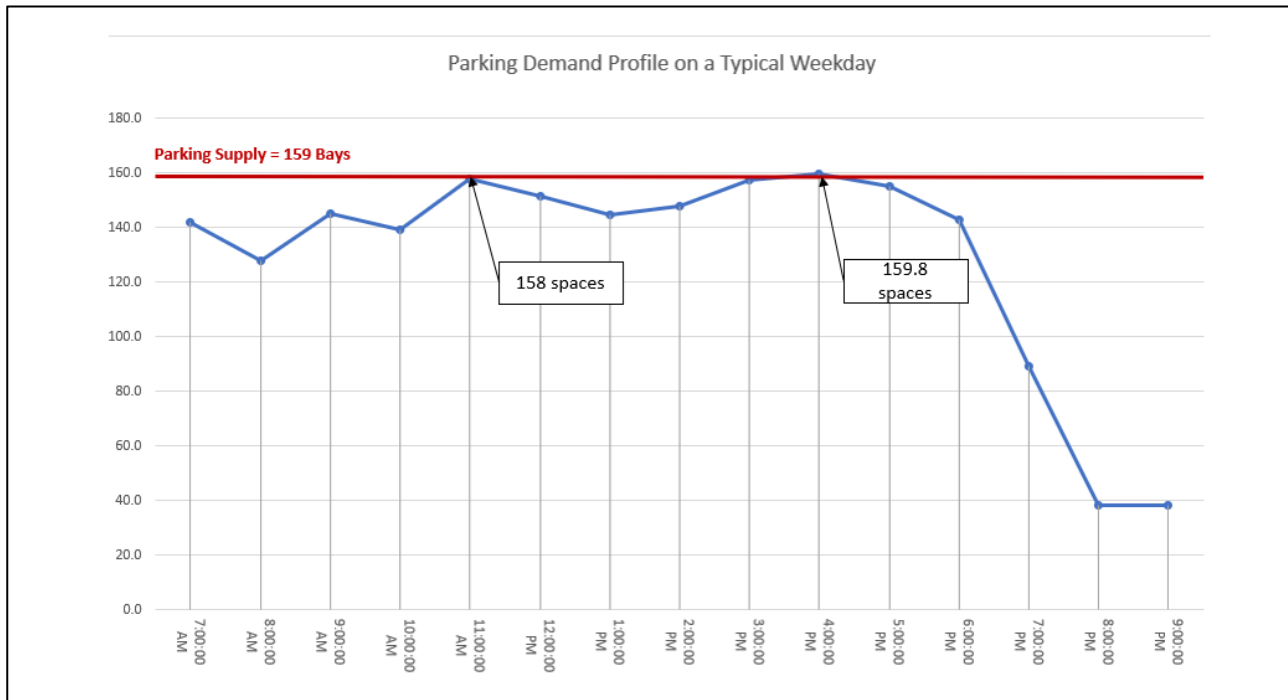


Figure 3.1: Temporal Parking Demands (Weekday)

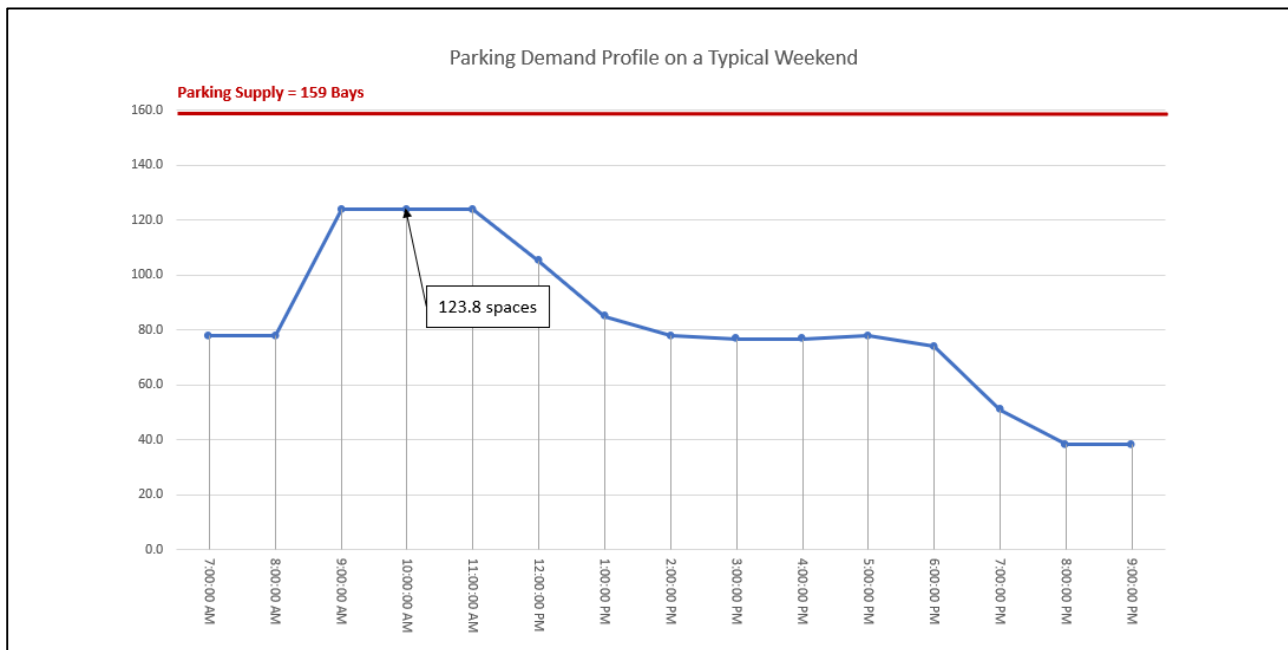


Figure 3.2: Temporal Parking Demands (Weekend)

As shown, the peak parking demand for all three (3) lots will be at 4:00pm on a weekday with a peak parking demand of 160 spaces. Detailed temporal demand analysis are provided at **Attachment 4**.

3.5. Linked Trips

The proposed uses on-site are likely to generate linked trips and therefore linked parking demand. This is especially the case between uses such as:

- Childcare Centre and Dance Studio, with afternoon Dance sessions provided for children
- Childcare Centre and Pool, with afternoon Swimming sessions provided for children
- Office / Medical Centre and Gym, with staff using the Gym before, during and after work
- Office and Medical Centre, with staff using the nearby Medical Centre for Medical bookings.

Whilst, no detailed data has been analysed on the scenario, a high-level review indicates a possible reduction of parking demands by 5-10% which would further reduce the peak parking demands for the site. If a 10% linked trip reduction was applied, which is likely reasonable given the proposed uses, the peak parking demand for the site is estimated to be 146 car parking spaces. This is 13 bays short of the proposed car parking provision (159) bays.

3.6. Parking Supply

The total parking provided between the three (3) lots is 159 spaces. This represents a shortfall of one space compared to the estimated peak temporal parking demand. The shortfall is considered acceptable from a traffic engineering standpoint because:

- Due to the likelihood of linked trips between uses present at Lots 1 & 2, 159 spaces are likely not to be required at any time, with a peak parking demand of 146 spaces anticipated
- When Lot 3 (Stage 3) is developed there is opportunity at the northern end of the parking aisle to provide at least one (1) additional car parking space.

In summary, the proposed parking supply is expected to be suitable to accommodate peak parking demands, and there are opportunities to provide additional parking in Stage 3 is necessary.

3.7. Overflow Parking

EDQ specifically requested a review of the potential impacts of parking overflow. In the unlikely event that parking overflow does occur the following is noted:

- Old Pub Lane is a low order cul-de-sac which currently provides access to a small number of large residential lots and is expected to contain very low volumes. The previous TIA noted that the road could contain less than 300 trips per day
- On-street parking will be permitted on Old Pub Lane and there is approximately 100m of street frontage along the site that could be utilised (equivalent to 17 spaces (one side) or 34 spaces (both sides))

In summary, in the unlikely event that car parking overflows from the site, there is plenty of vacant space on the shoulder of Old Pub Lane to accommodate the low levels of parking that may occur.

Furthermore, this is not expected to impact road users on Old Pub Lane given the low traffic volumes, good sightlines and pavement provision.

3.8. Summary (Parking)

In summary,

- Lot 2 proposes a total of 99 car parking spaces
- The entire site (Lots 1-3) proposes to provide a total of 159 spaces
- A detailed review of peak parking rates and consideration of temporal demands across the site indicates that the peak parking demand for the site is 160 car parking spaces
- This is likely to be reduced due to linked trips based on the proposed uses (146 spaces)
- There is opportunity within Lot 3 to provide at least one (1) additional car parking space
- In the unlikely event that overflow parking occurs, it is not expected to significantly impact the surrounding road network
- Based on the above, the proposed parking supply for the whole site is expected to be suitable to accommodate peak parking demands on-site which meets PO1 of Council's SAP Code.

4.0 SUMMARY

In summary:

- The proposed Lot 2 access is compliant with AS2890 requirements
- The proposed car parking layout is compliant with AS2890 requirements
- The proposed servicing provisions are compliant with Council's SAP Code
- The proposed the parking supply of the entire site (159 spaces) is expected to exceed the maximum parking demand (146-160 spaces) when considering the specific site uses and demands across a typical day which meets PO1 of Council's SAP Code.

I trust the above response is sufficient to address the traffic and transport related queries raised and will allow EDQ to prepare reasonable and relevant conditions of approval.

Yours faithfully



Mark Davidson
Senior Traffic Engineer & Transport Planner
BITZIOS CONSULTING



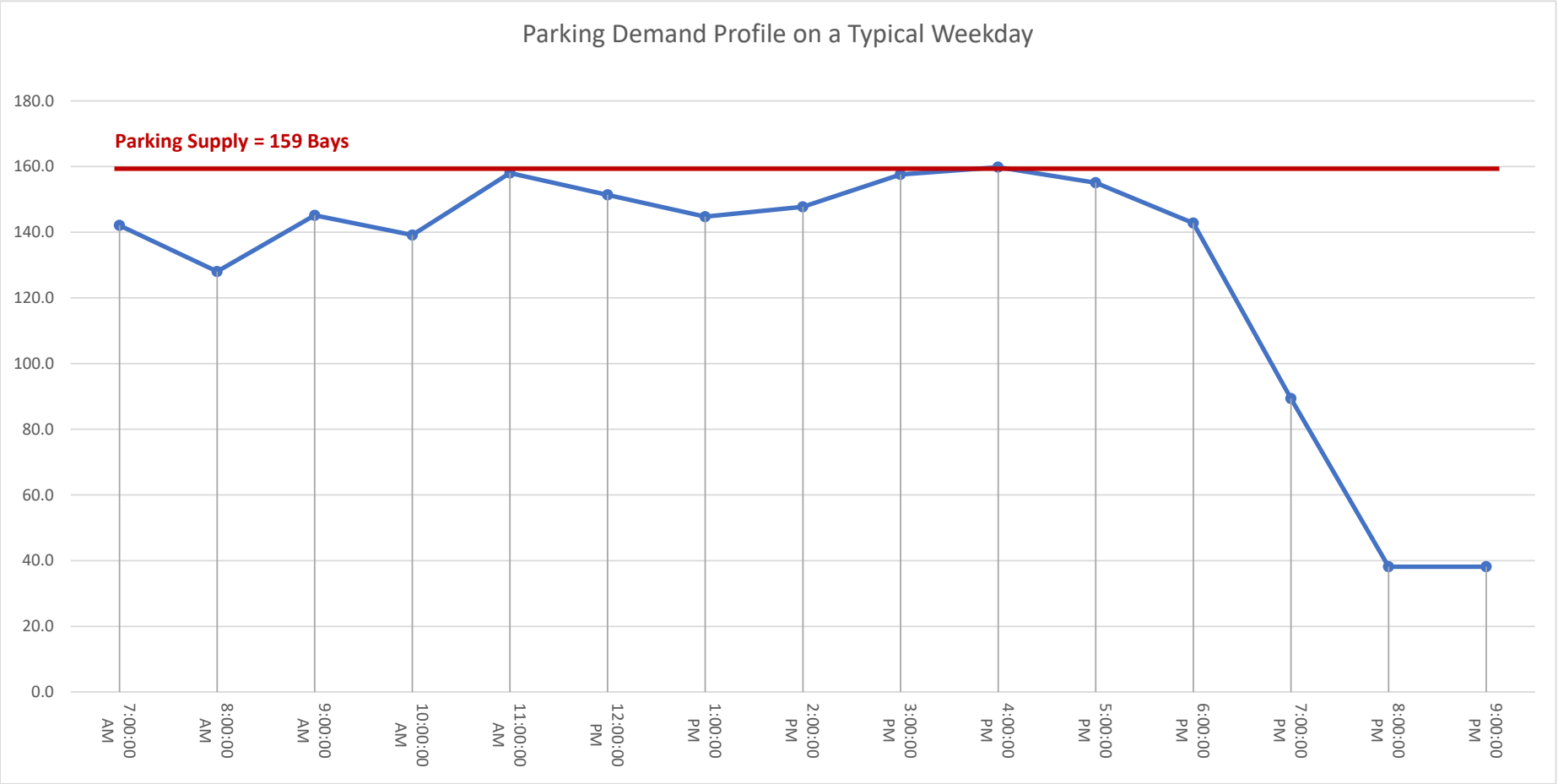
Steve Brooke (RPEQ 16182)
Principal Traffic Engineer & Transport Planner
BITZIOS CONSULTING

Attachments:

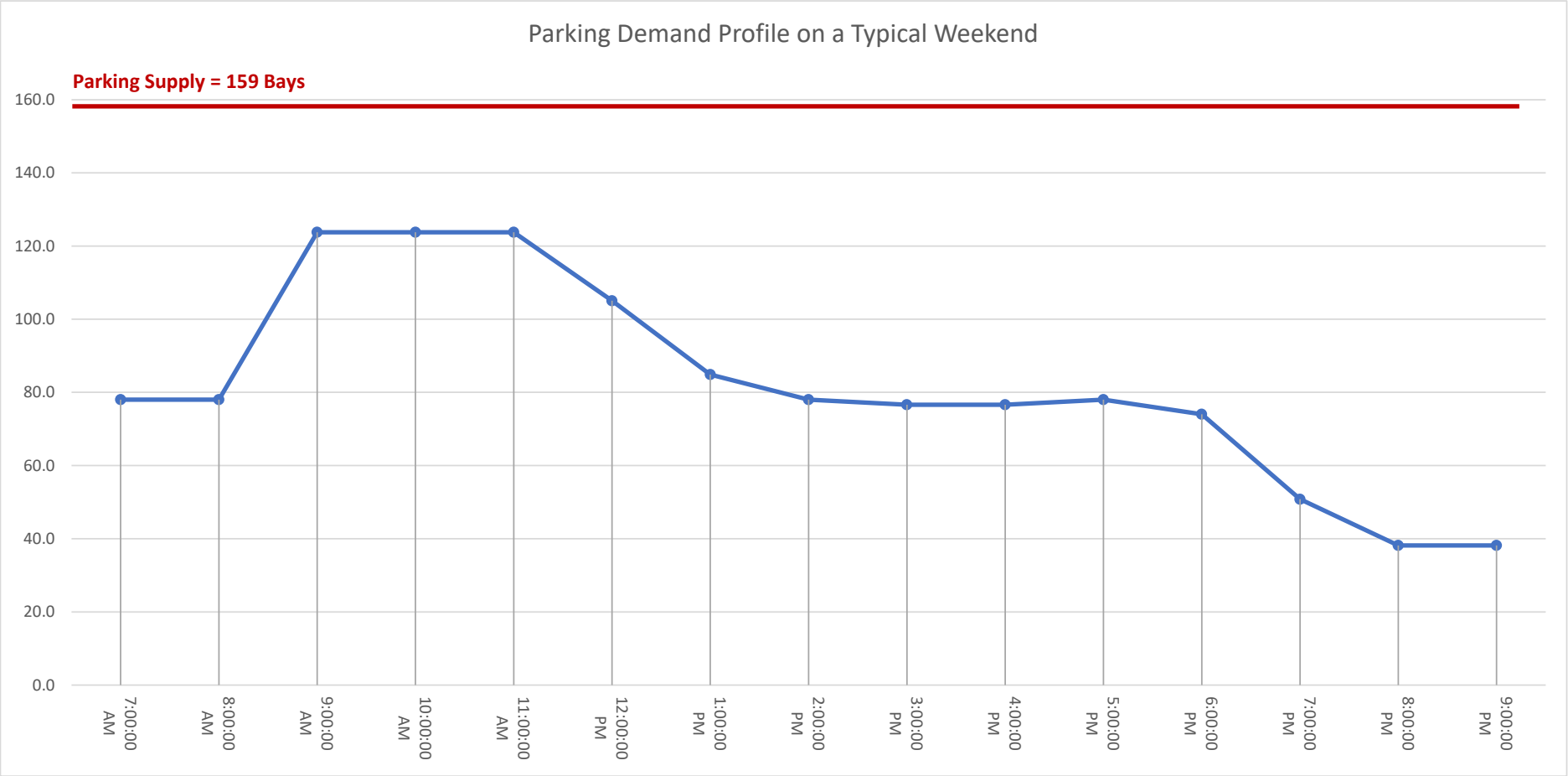
- 1: Further Issues Notice
- 2: Development Plans
- 3: Swept Path Diagrams
- 4: Temporal Demand Analysis

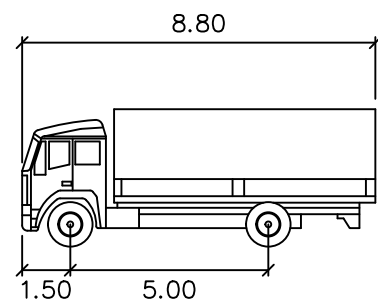
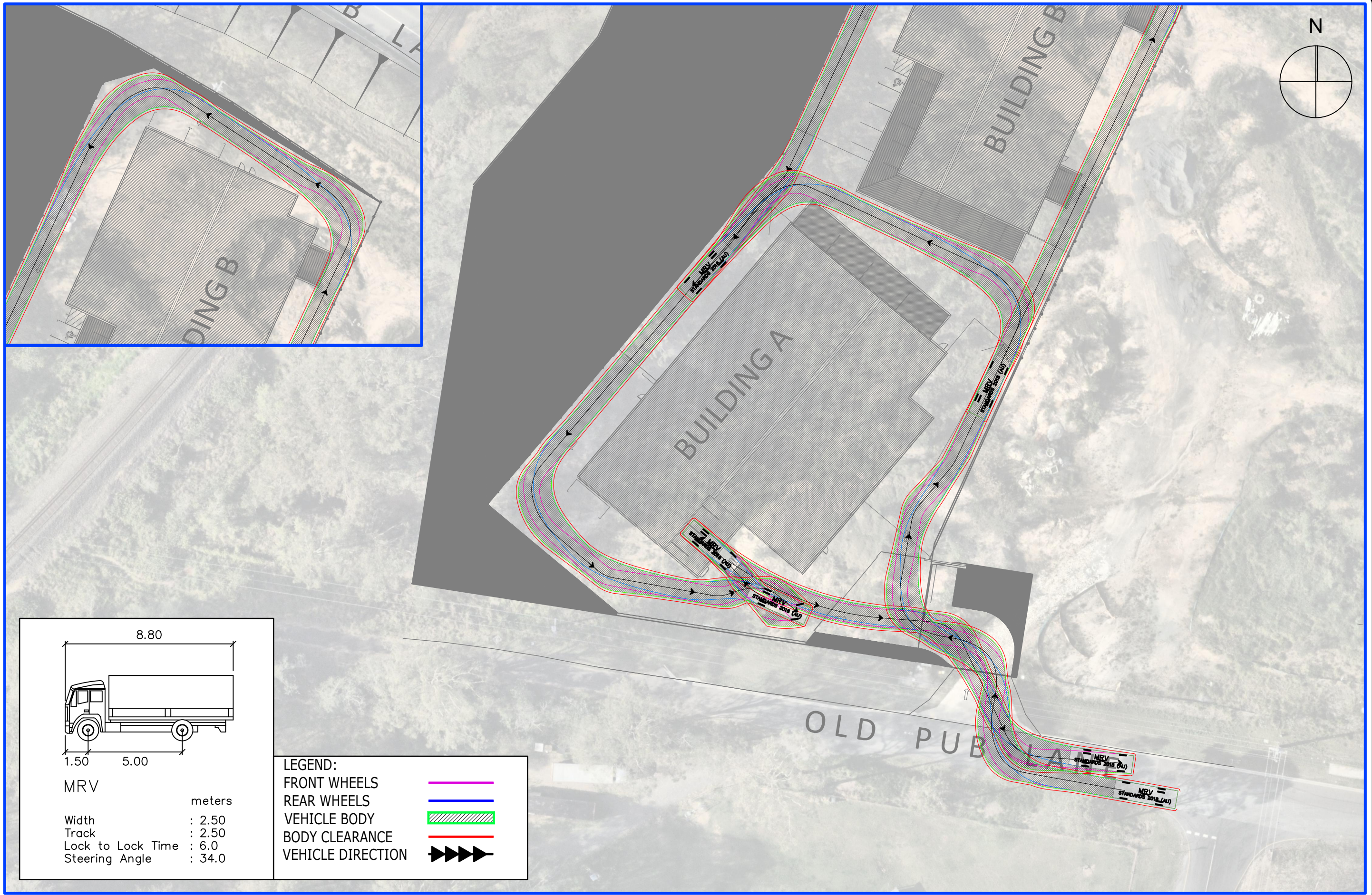
Attachment 4: Temporal Demand Analysis

Land Use	Proposed Peak Parking Rate	Proposed Peak Parking Requirement	7:00:00 AM	8:00:00 AM	9:00:00 AM	10:00:00 AM	11:00:00 AM	12:00:00 PM	1:00:00 PM	2:00:00 PM	3:00:00 PM	4:00:00 PM	5:00:00 PM	6:00:00 PM	7:00:00 PM	8:00:00 PM	9:00:00 PM
Health Care Service	10.0	49.0	0	24.5	36.75	36.75	49	49	49	49	49	24.5	24.5	0	0	0	0
		100%	0%	50%	75%	75%	100%	100%	100%	100%	100%	50%	50%	0%	0%	0%	0%
Office	5	24.5	0	12.25	24.5	24.5	24.5	24.5	24.5	24.5	24.5	18.375	12.25	0	0	0	0
		100%	0%	50%	100%	100%	100%	100%	100%	100%	100%	75%	50%	0%	0%	0%	0%
Pool	6.7	26.6	26.6	13.3	13.3	13.3	20.0	13.3	6.7	6.7	6.7	26.6	26.6	26.6	0.0	0.0	0.0
		100%	100%	50%	50%	50%	75%	50%	25%	25%	25%	100%	100%	100%	0%	0%	0%
Gym	6.66	74.925	74.9	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	74.9	74.9	37.5	37.5
		100%	100%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	100%	100%	50%	50%
Dance Studio	6.7	13.7	0	0	0.0	0.0	0.0	0.0	0.0	0	6.9	13.7	13.7	13.7	13.7	0	0
		100%	0%	0%	0%	0%	0%	0%	0%	0%	50%	100%	100%	100%	100%	0%	0%
Child care Enrolments	12.0	12.0	12	12	6	0	0	0	0	3	6	12	12	3	0	0	0
		100%	100%	100%	50%	0%	0%	0%	0%	25%	50%	100%	100%	25%	0%	0%	0%
Child care Staff	20.0	20.0	20	20	20	20	20	20	20	20	20	20	20	20	0	0	0
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%
Storage Units	3.5	3.5	3.5	3.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.5	3.5	0.7	0.7	0.7
		100%	100%	100%	60%	60%	60%	60%	60%	60%	60%	60%	100%	100%	20%	20%	20%
Storage Staff	5.0	5.0	5	5	5	5	5	5	5	5	5	5	5	1	0	0	0
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	20%	0%	0%	0%
Total (Stage 1)		32.0	32.0	32.0	26.0	20.0	20.0	20.0	20.0	23.0	26.0	32.0	32.0	23.0	0.0	0.0	0.0
Total (Stage 2)		188.8	101.6	87.5	112.0	112.0	130.9	124.3	117.6	117.6	124.5	120.7	114.6	115.3	88.6	37.5	37.5
Total (Stage 3)		8.5	8.5	8.5	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	8.5	4.5	0.7	0.7	0.7
Total		229.3	142.1	128.0	145.1	139.1	158.0	151.4	144.7	147.7	157.6	159.8	155.1	142.8	89.3	38.2	38.2



Land Use	Proposed Peak Parking Rate	Proposed Peak Parking Requirement	7:00:00 AM	8:00:00 AM	9:00:00 AM	10:00:00 AM	11:00:00 AM	12:00:00 PM	1:00:00 PM	2:00:00 PM	3:00:00 PM	4:00:00 PM	5:00:00 PM	6:00:00 PM	7:00:00 PM	8:00:00 PM	9:00:00 PM
Health Care Service	10.0	49.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Office	5	24.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Pool	6.7	26.6	13.3	13.3	26.6	26.6	26.6	26.6	13.3	13.3	13.3	13.3	13.3	13.3	13.3	0.0	0.0
		100%	50%	50%	100%	100%	100%	100%	50%	50%	50%	50%	50%	50%	50%	0%	0%
Gym	6.66	74.925	56.2	56.2	74.9	74.9	74.9	56.2	56.2	56.2	56.2	56.2	56.2	56.2	37.5	37.5	37.5
		100%	75%	75%	100%	100%	100%	75%	75%	75%	75%	75%	75%	75%	50%	50%	50%
Dance Studio	6.7	13.7	0	0	13.7	13.7	13.7	13.7	6.9	0	0.0	0.0	0.0	0.0	0.0	0	0
		100%	0%	0%	100%	100%	100%	100%	50%	0%	0%	0%	0%	0%	0%	0%	0%
Child care Enrolments	12.0	12.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Child care Staff	20.0	20.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Storage Units	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.1	2.1	3.5	3.5	0	0.7	0.7
		100%	100%	100%	100%	100%	100%	100%	100%	100%	60%	60%	100%	100%	0%	20%	20%
Storage Staff	5.0	5.0	5	5	5	5	5	5	5	5	5	5	5	1	0	0	0
		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	20%	0%	0%	0%
Total (Stage 1)		32.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total (Stage 2)		188.8	69.5	69.5	115.3	115.3	115.3	96.6	76.4	69.5	69.5	69.5	69.5	69.5	50.8	37.5	37.5
Total (Stage 3)		8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	7.1	7.1	8.5	4.5	0.0	0.7	0.7
Total		229.3	78.0	78.0	123.8	123.8	123.8	105.1	84.9	78.0	76.6	76.6	78.0	74.0	50.8	38.2	38.2





MRV

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

LEGEND:

FRONT WHEELS	—
REAR WHEELS	—
VEHICLE BODY	▨
BODY CLEARANCE	—
VEHICLE DIRECTION	➡➡➡➡

REV.	AMENDMENTS	DRN	DATE

PROJECT TITLE:	69-77 OLD PUB LANE, GREENBANK
DRAWING TITLE:	MRV SERVICING

CLIENT:				SWIFT STORAGE			
DATE:		SCALE:		DRAWN:		APPROVED:	
19/03/25		1:500		CJ		JPG	
DRAWING NO.		REV		JOB NO.			
25-069-001				25-069			