

## **Kaufland Australia Pty Ltd**

Construction of two-storey retail development for Kaufland Supermarket including internal supporting small tenancies, solar-panels, associated undercroft car park, offices, various signage, and landscaping.

### **10 Anzac Highway Forestville**

090/E004/18

#### **TABLE OF CONTENTS**

	<b>PAGE NO</b>
<b>AGENDA REPORT</b>	2-36
<b>ATTACHMENTS</b>	
1: PLANS	37-54
2: APPLICATION DOCUMENTS	55-389
3: AGENCY COMMENTS	390-395
4: COUNCIL COMMENTS or TECHNICAL ADVICE	396-441
5: REPRESENTATIONS	442-452
6: RESPONSE TO REPRESENTATIONS	453-490



## **OVERVIEW**

<b>Application No</b>	090/E004/18
<b>Unique ID/KNET ID</b>	#3167- 2018/09469/01
<b>Applicant</b>	Kaufland Australia
<b>Proposal</b>	Construction of two-storey retail development for Kaufland Supermarket including internal supporting small tenancies, solar-panels, associated undercroft car park, offices, various signage, and landscaping.
<b>Subject Land</b>	10 Anzac Highway Forestville
<b>Zone/Policy Area</b>	Urban Corridor Zone / Transit Living Policy Area
<b>Relevant Authority</b>	State Commission Assessment Panel pursuant to Schedule 10 (20) State Coordinator General
<b>Lodgement Date</b>	16 April 2018
<b>Council</b>	City of Unley
<b>Development Plan</b>	Unley Development Plan (Consolidated 19 December 2017)
<b>Public Notification</b>	Category 2
<b>Representations</b>	6 – 5 to be heard
<b>Referral Agencies</b>	DPTI (for Commissioner of Highways)
<b>Report Author</b>	Lauren Talbot
<b>RECOMMENDATION</b>	Grant Development Plan Consent

## **EXECUTIVE SUMMARY**

Kaufland Australia Pty Ltd has applied for Development Plan Consent to construct a two-storey large format retail development which comprises a supermarket on the first floor with some smaller supporting internal tenancies, car parking on the ground floor and associated landscaping (including a playground), new and replacement signage and solar panels.

The proposed development is a merit form of development and was subject to Category 2 public notification from which a number of formal and informal representations were received. A total of 6 representations from land owners/occupiers directly adjoining the subject land were received and 4 have indicated they wish to be heard. A further 15 informal submissions from the wider locality were also received and acknowledged.

The key issues in respect to the proposal are:

- The appropriateness of the land use and built form in the Urban Corridor Zone.
- The compatibility and management of interface issues in terms of overall amenity and bulk and scale to the locality.
- The impact and management of the access points and increased traffic generation on the surrounding road network.

Unley Council were referred the application initially and have reviewed the amendments post-public notification. Council have acknowledged a number of positive improvements to the plans however remain concerned with the large scale single-use retail format and would like more details on (and proposed solutions to) increased traffic generation both for the proposed development and future development on the site in the Zone.



DPTI Transport are a statutory referral agency due to proposed alterations to (and change in nature of movement through) an existing access point on an arterial road. DPTI Transport also raised concern with the potential impact that this development (and future development of the site) would have on the road network and Anzac Highway/Leader Street junction.

DPTI Transport remain concerned that traffic impacts for Anzac Highway have not been optimally worked through. There are two proposed solutions to this that will require further negotiations to resolve the best outcome for the intersection treatment. It is envisaged that DPTI Transport would also need to consult with Council as appropriate on this matter and therefore a reserved matter is proposed to ensure the best technical outcome is reached.

Notwithstanding the some of the policy variances this proposal presents, when considering the development in the context of the existing site, its strategic location, the mixed-use nature of the locality, and the intent of the Development Plan as a whole, the proposed land use is considered to be appropriate within the Zone. The development is considered to act as a catalyst for further development of a mixed use nature to occur on the undeveloped portion of the site and in the general locality.

The height, bulk and scale of the building is sufficiently controlled through high quality design and landscaping to the effect that the development sits comfortably within the site and in the locality without being obtrusive. On balance, it is considered that the proposed development demonstrates sufficient merit overall to warrant consent and will ensure the re-development of a key, underutilised site of the inner metropolitan area.

## **ASSESSMENT REPORT**

### **1. BACKGROUND**

#### **1.1 Strategic Context**

The subject site has recently been re-zoned to Urban Corridor Zone as per the Inner and Middle Metro Corridor (Sites) DPA on 19 December 2017 (Ministerial). It was one of 8 sites that were re-zoned to Urban Corridor Zone to encourage a more compact urban form with increased densities and a mix of uses at strategic locations close to public transport along significant urban corridors. Prior to this, the land was zoned Light Industry.

#### **1.2 Pre-Lodgement Process**

The State Commission Assessment Panel is the relevant planning authority for this application pursuant to Schedule 10 Item 20 (1) of the *Development Regulations 2008*, because:

- the total amount to be applied to any work exceeds \$5 million, and
- the State Coordinator-General determined the assessment of the development would be best achieved under a scheme established by the Department of the Minister to facilitate the assessment of such developments.

The applicant engaged in two pre-lodgement discussions with DPTI Planning, ODASA, Unley Council and DPTI Transport in order to understand and appreciate the extent of issues that would arise through the assessment process however no pre-lodgement agreements were obtained.

Also of note is that the demolition of the existing buildings on the site has been approved by Unley Council and the land division (to amalgamate the existing sites

over the land to be developed) is currently under assessment by State Commission Assessment Panel and is likely to be considered under delegation upon completion of the land use application.

### **1.3 Amended Plans**

The development application was submitted with architectural plans prepared by Architecture HQ however, since the public notification process, Rowthe Lowman Architects were engaged to prepare revised plans and landscaping concept for the development.

The proposed use and site layout has not altered significantly from the first submitted plans however, a number of alterations have occurred as a result of the applicants attempt to address the concerns raised as part of the assessment process. The changes to be noted are:

- Updated architectural drawings with some materiality/cladding alterations.
- Modification to the Leader Street access to include additional entry lane (which requires removal of 1 street tree)
- Modification to the Anzac Highway access (which results in retention of all street trees along Anzac Highway)
- Revised landscape concept to incorporate local species and to increase planting throughout the site;
- Relocation of playground zone and modifications to the design;
- Incorporation of a layered landscaped screening to undercroft car parking areas;
- Addition of landscaping and boom-gates to the rear lane way for emergency access only

## **2. SITE AND LOCALITY**

### **2.1 Site Description**

The subject site occurs on the eastern site of Anzac Highway approximately 3km southwest of Adelaide CBD. The land comprising the development contains multiple allotments which are all historically known as 10 Anzac Highway, Forestville. The overall site is 3.6 hectares in area and the front portion of the site that is to be developed is just over two 2 hectares.

The site has three road frontages and is irregular in shape. The Anzac Highway frontage is 130m long and contains one vehicle access point. The southern secondary frontage to Leader Street is approximately 240m long and contains two vehicle access points. The northern secondary frontage to Maple Avenue is 172m long and contains one vehicle access point.

The land is currently developed with large, interconnected warehouse buildings which were originally used for car and parts manufacturing and was most recently used as a retail furniture showroom for LeCornu from 1973 until 2016. The existing buildings are built on the boundary of the Leader Street and Maple Avenue frontages and the large front setback to Anzac Highway contains an asphalt carpark and pylon sign approximately 20m in height.

There is limited screening vegetation around perimeter of the front portion of the land. There are also numerous mature and semi-mature street trees along each road frontage, the most significant of which are located along the Anzac Highway frontage.

The subject land comprising the development site consists of 13 allotments and 1 piece, described as follows:

Lot No	Street	Suburb	Hundred	Title Reference
ALLOTMENTS 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106 & Piece 123	10 Anzac Highway	Forestville	Adelaide	5888/429

## **2.2 Locality**

The surrounding locality comprises mixture of single and multi-storey developments including residential and commercial premises.

Anzac Highway creates a separation of the land from adjoining development to the west which includes the Ashford Hospital, Ashbrook apartments and retirement living complex and other commercial tenancies including retail showrooms to the northwest.

Development to the north of the subject land is commercial in nature comprising a range of uses including warehousing, motor repair, service trade and other light industrial uses which extends east along Maple Avenue through to the train line.

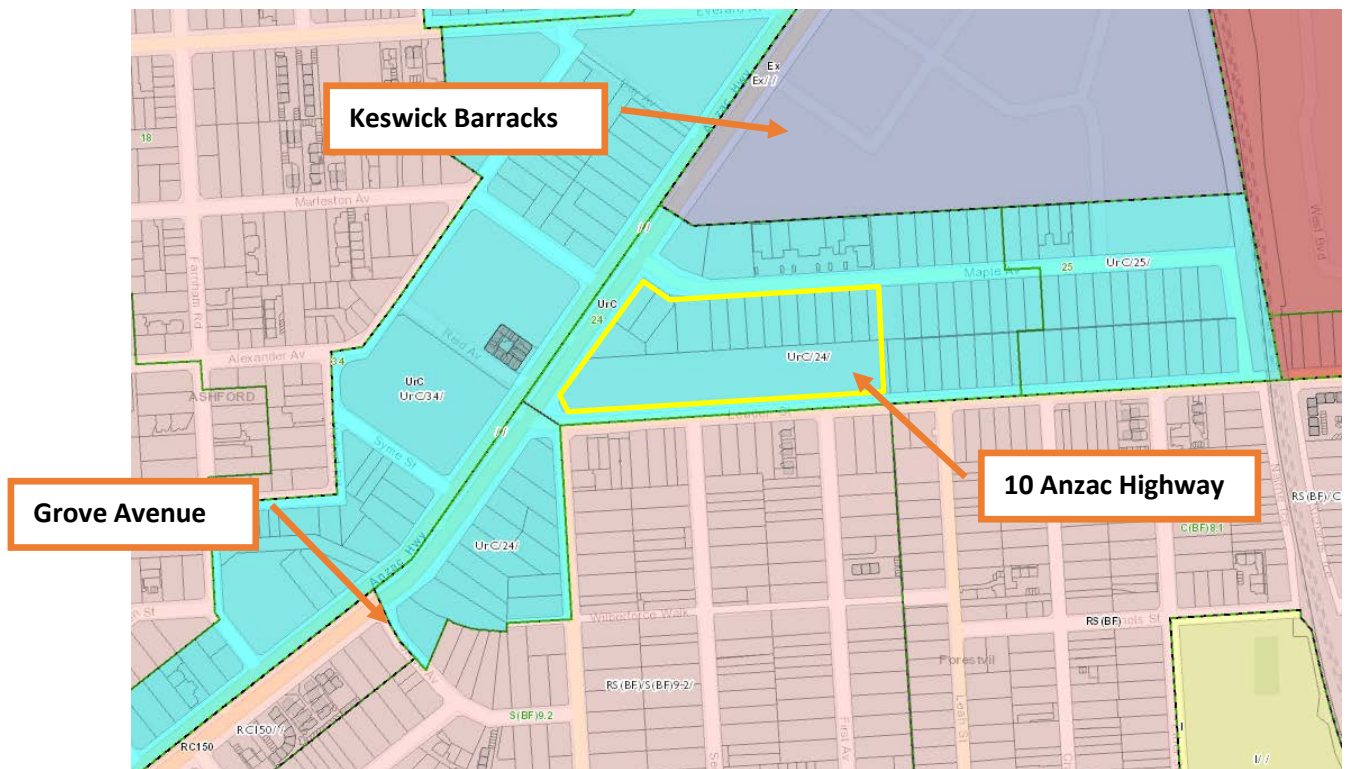
Immediately to the east of the subject land is the balance of the entirety of 10 Anzac Highway land holdings (on separate allotments) and currently comprises a number of industrial/warehouse buildings and further east, there a number of small industrial uses.

Development to the south of the subject land fronting Leader Street accommodates predominantly single-storey residential development however also contains long standing commercial land uses including a large, two-storey factory building operating as a bakery between First Avenue and Leah Street and Hungry Jacks and KFC restaurants to the southwest.

The wider locality comprises a mix of uses with the Keswick Barracks to the far north, more commercial uses to the far south which leads into a Residential Zone fronting Anzac Highway and the Adelaide Showgrounds on the eastern side of the train line. The majority of development occurring to the south is residential in nature.

It is also worth noting the zoning of the locality is also mixed. Of particular relevance is that the Urban Corridor Zone on this eastern section of Anzac Highway is not contiguous along the main corridor in the way most other tracts of Urban Corridor Zoning usually occurs. There is a break at a Residential Zone C150 to the south past Gove Avenue, and an Excluded Zone on land further north where the Keswick Barracks are. The zoning for this site also extends a significant way back from the main corridor (being Anzac Highway) unlike most other corridor zones which usually only extend 1 or 2 allotment lengths back which gives rise to potentially a less 'compact' built-form compared to what usually occurs in Urban Corridor Zone areas.

Figures 1 and 2 –Zoning and Location Map





### 3. STATUTORY REFERRAL BODY COMMENTS

Referral responses are contained in the ATTACHMENTS.

#### 3.1 Commissioner of Highways

The Commissioner of Highways is a mandatory referral pursuant to Schedule 8 Item 3 of the *Development Regulations 2008*. The State Commission Assessment Panel must have regard to this advice.

The referral to the Commissioner of Highways is triggered due to the proposed development altering and changing the nature of movement through an existing entry/exit point on an arterial road.

The proposed alterations to the existing access point on Anzac Highway is supported subject to detailed plans being supplied. DPTI Transport note that the site is affected by MARWP at the Anzac Highway / Maple Avenue corner. It is noted that the corner cut-off has not been set aside but is partly used as footpath. Given that there is no development encroaching in this area, there is no concern here.

DPTI also identified concerns with the impact that the proposed development will have on the traffic network, in particular on the Anzac Highway/ Leader Street junction. It was identified that the proposed development would generate approximately 805 vehicle movements in the weekday PM peak hour. As the projected volumes are in accordance with the RTA Guide to Traffic Generating Development, these volumes are considered reasonable however no consideration has been given to future development of the remaining portion of this land.

The traffic impact assessment undertaken by the applicant's traffic consultant indicated that the existing right turn lane on Anzac Highway into Leader Street would need to be lengthened to cater for the additional volumes associated with the development and that this would ensure the overall Level of Service of the junction would remain as it does currently (which is at near capacity) (WGA Report S 6.3.4 page 17).

The assessment also identified that queuing on the southbound leg of the Anzac Highway/Leader Street junction would increase from approximately 300-400 metres to over 780 metres. The post development assessment was based on using a signal cycle of 150 seconds which is longer than that permissible on Anzac Highway. Given that the cycle length for signals on Anzac Highway cannot exceed 120 seconds, as they are coordinated for traffic progression, the impacts are expected to be greater than identified. Accordingly, the extended right turn lane will not contain the expected queues.

The department considered the impacts of the subject development on Anzac Highway were not acceptable and it was suggested that upgrading the intersection may be required to address the issue. The applicant did investigate the option of providing two right turn lanes on Anzac Highway and two eastbound lanes on Leader Street for a short distance before merging back to one lane (which would thus clear the right turn lane faster). The applicant has indicated they are open to pursuing this and even provide some of their land within the front setback to accommodate a wider turn path for the two lanes entering Leader Street (see technical note WGA dated 3 August 2018). This option however will require a more extensive study and consultation with Unley Council as it will affect Leader Street both by physical alterations (footpath, stormwater, street trees), and traffic volumes.

It is noted that Unley Council have expressed concern in their latest response and have advised that they do not support any additional traffic entering Leader Street

however as this has not been fully explored, this response could possibly be investigated further with Council, DPTI Transport and the applicant.

It is not considered reasonable for the applicant to wait for both DPTI Transport and Council to reach agreement now in order to obtain their planning consent, particularly when the single extension outcome will not be fatal to the intersection.

It is DPTI's strong preference that the dual right turn lane option be pursued. It is noted that the applicant is willing to enter further discussions on this, particularly as it has the potential to impact on their development commercially. However, the applicant has requested that it be dealt with via condition or reserved matter which DPTI have agreed to.

In addition to the above, in order to ensure that the Leader Street access does not adversely impact on traffic flow along this street and the Anzac Highway / Leader Street junction, it will be necessary for entering traffic to have clear right of way over traffic from the intersecting aisles. Accordingly, appropriate line marking will need to be installed.

Also of note, DPTI Transport have stated that access for service vehicle will be via Maple Avenue and Leader Street however this has been confined to Maple Avenue only.

#### 4. COUNCIL TECHNICAL ADVICE

##### 4.1 City of Unley

A number of the issues were raised by Council in their initial response to the proposed development which are contained within the ATTACHMENTS. Council also provided expert consultant advice on the landscaping plan and the various traffic impacts of the development which are also provided in the ATTACHMENTS.

The applicant has since revised their plans upon receiving the comments from Council, referral agencies and the general public. Council's comments in relation to the revised plans and response documents is summarised below:

Council have acknowledged that a number of the changes are positive however there still remains some areas which are of concern. Some responses from the applicant to these concerns are in italics below:

- Large scale retail use rather than integrated, primarily residential development with limited local commercial/retail uses;
- Potential large scale residential development of rear portion of site is not assured, a known quantity nor a substitute for the contrary outcome on what is the largest and most prominent site in the Policy Area;

*The retail proposal will occupy approximately 50% of the site and will not compromise the ability for the balance of the site to be developed for residential purposes.*

- Sub-optimal minimum building scale not capitalising on 6 storey potential;

*The proposed building height is appropriate for the proposed use and has been designed to limit the impact of the built form on surrounding interfaces*



- Inadequate building setback (and landscaping) to Maple Avenue streetscape (ie. 1 metre vs minimum 3 metres); Given the large size of the site and being a new building there is no justifiable reason why the minimum 3 metre setback should not be provided along Maple Avenue. Any necessary floor area adjustment is readily achieved by extension of the building to the large open area available to the east;

***Note: Council are of the opinion that the required 2m setback is not sufficient and that Maple Avenue should be considered a 'primary frontage' this requiring a setback of 3m also. Maple Avenue is considered to be a secondary frontage and the Development Plan requires a minimum setback of 2m- not 3m.***

*The proposed 1m shortfall to Maple Avenue is considered to be an appropriate response for the context of the site and still allows sufficient space for genuine landscaping to soften the appearance of the built form.*

- Waste servicing should be consolidated into one main area off Maple Avenue to reduce paved exposed areas and limit the number of crossovers on to the site. Council have suggested a condition which requires the building be setback to 3m and the front tenancy delivery area either be removed or the crossover reduced and additional landscaping be proposed.

*Separate waste areas for the supermarket and the other retail tenancies is considered an appropriate outcome for a development of this size.*

- Still have concerns with lack of detailed traffic study, traffic response and consideration of the impacts to the overall local traffic network not just for this development, but for the remaining portion of undeveloped land. Are opposed to any changes to Leader Street that adversely impact on traffic volumes, cycling and walking.
- Trading hours have potential to unreasonably impact on adjacent residential properties amenity and that standard trading hours be conditioned.
- Clarify the rear service and delivery area vehicles (maximum length of 16 metres) access openings be secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing along Maple Avenue and joining to eastern boundary fencing;
- Condition suggested for the rear service laneway, along eastern boundary, only be used for emergency vehicle egress, with suitable security and movement prevention at all other times;
- Noted that removal of street tree on Leader Street to accommodate widened entry/exit point is reasonable in context of the retention of all other street trees.
- Outdoor advertising reduced in number and the pylon sign be reduced to complement scale of building- 12-15m max height

Overall the Council advised that there is some compliance with the broad intent of the Development Plan policy however it is unfortunate that the development is not a more integrated mixed-use outcome that the policy speaks strongly of and remain of the opinion that traffic modelling for the proposed development and future development of the site should be provided for now before planning consent is issued.

Some of Councils suggested conditions are proposed to be incorporated as part of the recommendation of this report however it is not deemed reasonable to request that the applicant provide additional traffic modelling for their own and the proposed future development when this is largely unknown. The applicant has already supplied AIMSUN and SIDRA modelling as they were requested, which show that during peak times, the impact of this proposed development in terms of additional traffic volumes will be modest during the PM peak- and negligible during the AM peak.

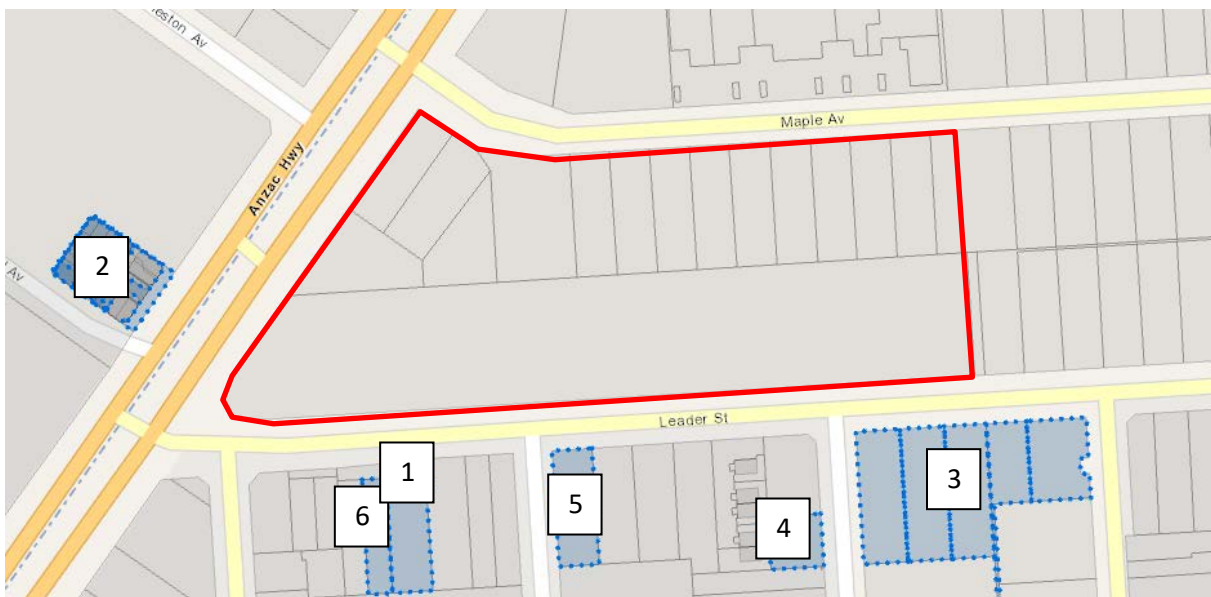
It is the existing traffic issues within the area that will require broader network mapping and this should be a collaborative effort by Council and DPTI Transport. It is noted that DPTI Transport have suggested one possible way to ensure traffic at the Leader Street and Anzac Highway intersection is managed is to duplicate the right-turn lane into Leader Street however Council, need to be consulted if this option is pursued.

## **5. PUBLIC NOTIFICATION**

A copy of the representations and the applicants response (including revised reports and plans) are contained in the ATTACHMENTS.

The application was assigned Category 2 for the purposes of notification because it did not meet any kind of development defined in the Development Plan as Category 1 and therefore defaults to Category 2 as per PDC 23 of the Urban Corridor Zone.

A total of 6 representations were received, with 5 indicating they wish to be heard. These are numbered and shown on the corresponding map below. Representors 1-4 support the development but have raised concerns and representors 5 and 6 are opposed.



A total of 15 additional submissions were received from land owners and occupiers from the wider locality who wished to voice their concerns on the proposal.

Whilst the public notification (Category 2) does not allow the relevant authority to seek the views of persons who are not directly adjoining the subject site, the issues contained in those submissions are relevant and raised by other valid representations to the planning assessment and have been generally covered in the summarised table below with responses from the applicant.

Some general comments from representors indicating support of the proposal are as follows:

- Ensure enough car parking remains on site so no increase in on-street parking
- Abandoned site will look better and will be easier for shopping
- Would prefer to see the site developed ASAP and not delayed like the North Adelaide site

ISSUE	RESPONSE BY APPLICANT
<b>Traffic and Car Parking</b>	
<i>Parking congestion will occur in streets- currently other businesses utilise this site for parking</i>	<p>The proposed development will provide 487 car parking spaces on site which is in excess of the requirements of the Development Plan and has been done so as to avoid the instance of customers parking in the streets.</p> <p>Car parking is free for the first 2-3 hours and free with any in-store purchase thereafter.</p> <p>Staff will be provided with free all day parking.</p> <p>It is not applicable to consider the parking requirements of other development within the vicinity.</p>
<i>Development will create traffic congestion on Leader Street and surrounding local road network south of Leader Street - significant impacts compounded by future development in area, particularly in peak hour times</i>	<p>Acknowledge the existing concerns residents have particularly with respect to Leah St as this is a very heavily trafficked local collector road linking Leader Street to Daws Road, St Marys some 5 km to the south.</p> <p>WGA have undertaken site observations of Leah Street during both peak periods and have observed the delays are significantly higher during the AM peak periods due to traffic heading towards the CBD which is also confirmed from feedback within the submissions. Please note that from a traffic generation and analysis perspective we are not required to undertake assessment for the AM peak period.</p> <p>The accepted guide to development rates, RTA Guide to Traffic Generating Developments does not provide a rate for the AM peak period. This is due to the fact that trips generated by a development of this type are low during the AM peak period and are not expected to impact the surrounding network as they are primarily employee trips only.</p> <p>Regarding the PM peak period. Whilst we have observed high traffic levels, the delays are not as significant as the AM peak period as the traffic is either turning left or right into Leah St or continuing through instead of right or left out which is subject to higher delays as they are required to give way (AM peak condition).</p>

ISSUE	RESPONSE BY APPLICANT
	<p>We note many informal submissions from Leah Street residents have concerns re the lack of wider traffic study. There is no requirement from DPTI to undertake a wider network analysis, however, at the request of Council we have extended our modelling to include Leah Street where no significant or additional delay was observed at the junction as a result of the proposed development.</p> <p>To put the additional traffic into perspective with respect to the PM demand, we expect there will be an additional 95 veh/hour heading east along Leader Street towards Leah St. Observed counts show a 65/35 ratio of right turning to through traffic into Leah Street therefore the total additional traffic we expect along Leah Street is approximately 60 veh/hr or an additional 1 vehicle per minute which is well within the range of stochastic variation of traffic for a peak hour period.</p>
<p><i>Leader Street / Anzac Highway intersection at capacity at peak hour WGA report states that Maple Avenue/Anzac highway intersection unsatisfactory performance- will push majority of traffic to enter and exit via Leader Street.</i></p>	<p>The concerns about the performance of this junction were regarding the potential for vehicles waiting to enter the site to hold up through traffic along Leader Street, particularly after Councils recent installation of WSUD protuberances which have reduced capacity at the adjacent signalised intersection and along the length of Leader Street.</p> <p>In response to these concerns the proposed consolidated access has been located far enough along Leader Street to ensure that the queues from Anzac Highway do not extend past the access.</p> <p>In addition, Kaufland proposes a revised dual in and out lanes and a short channelized right turn lane into the site to minimise impact to the adjacent network as much as possible. Based on these improvements, WGA have modelled the average delay at the junction to be 6.6 seconds with the worst-case delay of 30 seconds for only those exiting the site at this access point.</p>
<p><i>Heavy vehicles (delivery and waste trucks, vans, trailers) through residential streets is inappropriate</i></p>	<p>It has now been confirmed that all service vehicles will enter and exit the site from Maple Avenue only and will not travel along Leader Street unless unforeseen closure out of the control of the applicant occurs on Maple Avenue.</p>
<p><i>All access to the site should be via Maple Avenue and Anzac Highway only, remove the customer access Leader Street</i></p>	<p>The primary entry/exit point to and from the site will be the Anzac Highway access point and signage will indicate this.</p> <p>The development has been designed in accordance with Concept Map Un/11 of the Development Plan</p>

ISSUE	RESPONSE BY APPLICANT
	which identifies desired consolidated vehicles access/egress point from Leader Street.
<i>Rear through lane from Maple Ave to Leader Street should for emergency vehicles only</i>	The rear vehicle access lane will be for emergency vehicle access only. This rear lane way will be closed off from 'through access' via boom gates.
<b>Urban Corridor Zone Compliance</b>	
<i>No residential component</i>	The retail proposal will occupy approximately 50% of the total site and will not compromise the ability for the remainder of the site to achieve a mixed use outcome.
<i>Excessive parking provision will draw more people to the area from all over the state and the car park is highly visible from Leader Street and Anzac Highway</i>	<p>The ground level undercroft carpark has now been screened through revised plans which incorporate a mixture of landscaping and built form to screen views of the under croft car park.</p> <p>The existing on-street parking issues within the locality is the reason for exceeding the required number of car parks so as to not exacerbate this issue.</p>
<i>No streetscape appeal - Lack of ground level activation along the frontages</i>	The Anzac Highway frontage will be broken up through variation in materials, recessive built form elements and glass façade. Active uses are also present along the Anzac Highway façade.
<i>Inappropriate size of retail - area already well serviced by supermarkets</i>	<p>Shop or group of shops is an envisage use in the Urban Corridor Zone. Moreover, the development will incorporate a number of smaller internal tenancies which will complement the supermarket use including a café.</p> <p>An Economic Impact Assessment has been prepared and submitted to SCAP which supports the proposed supermarket use in this location.</p> <p>The trading impacts that are likely to be experienced by existing supermarket and grocery store operators will not be of such a magnitude as to imperil the continued operation of any existing store.</p> <p><i>(This EIA was provided after public notification)</i></p>
<i>Hours of operation will cause amenity issues</i>	Subject to legislative requirements, Kaufland anticipates operating hours from 12AM- 9PM on week days, Saturday 12AM- 5PM and Sunday 11AM- 5AM. This is the same operating hours as the nearby Coles,

ISSUE	RESPONSE BY APPLICANT
	<p>Kurralta Park further south on Anzac Highway.</p> <p>It is anticipated that night time customer activity will be minimal and is predicted to achieve the relevant criterion for a car park area adjoining a residential zone in accordance with requirements of the Noise EPP (as per the acoustic report by Resonate)</p>
<b>Miscellaneous</b>	
<i>Request made to preserve and relocate Chrysler Signage to the Motor Museum</i>	Kaufland have committed to 2 Chrysler heritage groups that the Chrysler sign on Maple Avenue will be preserved and transported to a suitable location for further preservation.
<i>Profits from business should remain in Australia.</i>	N/A
<i>Site contamination</i>	<p>Testing has been undertaken on the site and there are two areas where chemical contamination have been identified. It is also noted that the existing warehouse buildings contain asbestos and as such, will be removed using specialists.</p> <p>Development Approval has already been granted by Unley Council for the demolition works and contractors will at all times, conform to the strictest EPA management criteria. Local residents will be advised of any risk and signage will also be provided as required by law.</p>
<i>Open Public Space</i>	A revised landscaping design has been submitted for the site and provides for a nature play area directly adjoining the café area as well as providing substantially more landscaping across the site in line with Unley Council requirements.

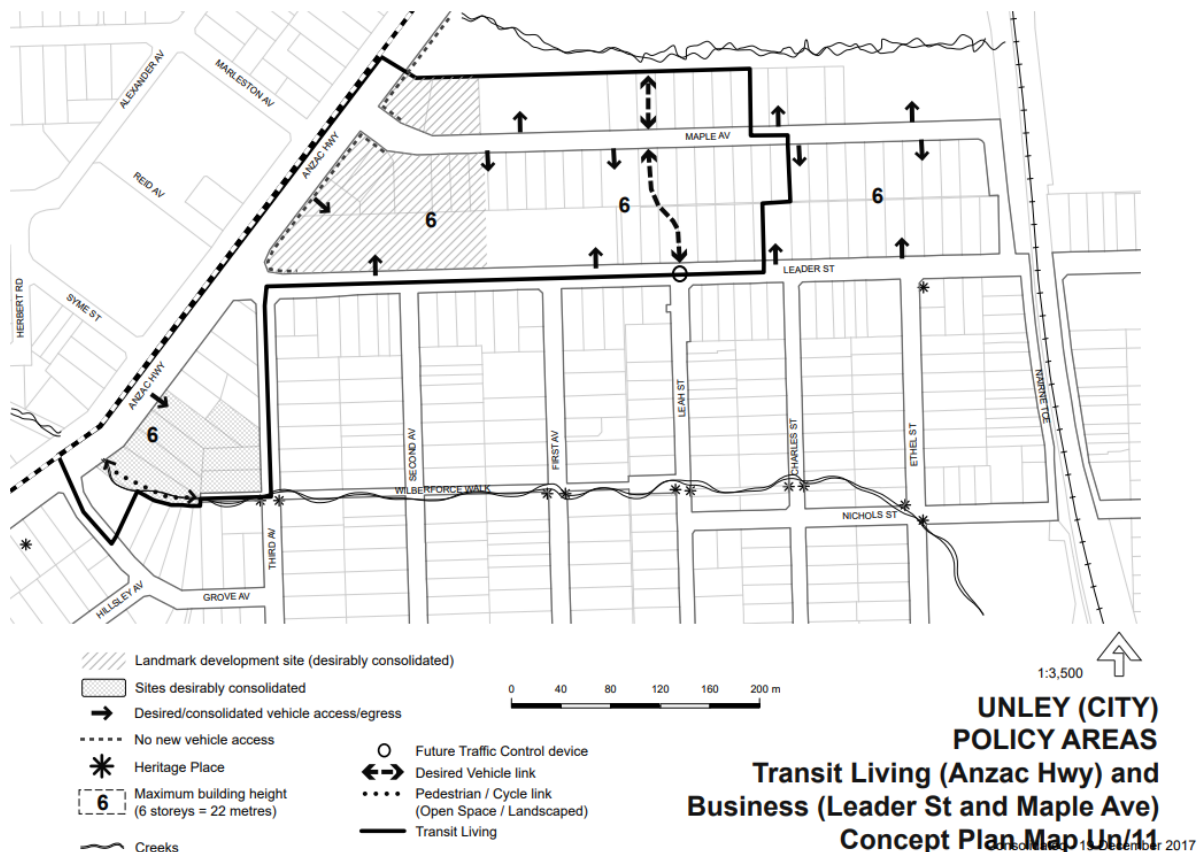


## 6. POLICY OVERVIEW

The subject site is within the Urban Corridor Zone and the Transit Living (Anzac Highway) Policy Area 24 as described within the Unley (City) Development Plan Consolidated 19 December 2017.

Relevant planning policies are contained in Appendix One and summarised below.

Figure 3 – Zoning/Policy Area Map



### 6.1 Urban Corridor Zone

The Urban Corridor Zone supports mixed use development which includes a range of compatible non-residential and medium to high density residential land uses that are oriented towards a high frequency public transport corridor (Objective 1).

Whilst the intensity of development is expected to increase in this zone, the built form should provide a transition down in scale and intensity at the zone boundary and provide for a safe, comfortable and appealing street environment for pedestrians, and ensure the amenity enjoyed by residential development in adjoining zones is maintained (Objectives 5 & 6).

The desired character with the built form is for buildings of 3 or more storeys and strategic sites developed with landmark buildings that will feature prominent, attractive activating road facades.

The zone seeks to ensure parking areas are sited and designed to minimise impacts (both visual and functional) on adjoining residential areas through consolidating parking areas and access points and providing separation and buffer landscaping.

Impacts on adjoining zones will be minimised through the siting of appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

## **6.2 Transit Living (Anzac Highway) Policy Area 24**

Transit Living (Anzac Highway) Policy Area anticipates taller, mixed use buildings (up to 6-storeys) that are intended for predominantly residential development together with low impact, generally commercial uses that support the daily needs of the local population (such as offices, consulting rooms, shops, cafés and restaurants) located at ground level.

On-site vehicle parking will not be visible from the primary street frontage through the use of design solutions such as locating parking areas behind the front building façade and screening parking areas with landscaping and articulated screening.

The 'Le Cornu' site should be developed as an integrated mixed use development that provides landmark quality buildings and a setting to respect and celebrate the important history and gateway to the Anzac Highway Memorial Avenue, and which comprises a mixture of commercial uses including retail showrooms, offices, medical services, and residential uses above. In general, no single use buildings are to be developed, unless residential or in combination with other on-site buildings to achieve the desired mixed use.

Development should seek to create a vibrant and active street frontage to Anzac Highway and Leader Street, with commercial activities on the ground floor promoting transparent and / or articulated frontages for interest.

Retail development will be of scale that supports an active, mixed use environment which is compatible with residential development. Shops and commercial uses will be primarily accommodated on the ground floor or lower floor levels within mixed use buildings. The development of any large floor plate retailing will be 'sleeved' by smaller specialty shops to ensure an activated street frontage.

## **6.3 Council Wide**

The Council Wide Section of the Development Plan contains broad policies relating to the 'Form of Development', 'Interface Between Land Uses', 'Centres and Shops', 'Outdoor Advertisements' and 'Crime Prevention'.

It is noted that the policy framework for 'Centres and Shops' Objective 10 provides that retailing which is not compatible with the grouping of facilities envisaged for centre zones, may be considered elsewhere provided the development is compatible with land uses in the locality, including its impact on any designated centre, commercial, business, or residential zones or areas and the impact on traffic movements on surrounding roads.

Shopping development with a total floor area of greater than 250 square metres should be located in a centre or mixed-use zone, or area and where centre type development is located outside of a centre zone, it should be of a size and type which would not hinder the development or function of any centre zone (Centre and Shops, Principles of Development Control 6 & 10).

## **6.4 Overlays**

### **6.4.1 Affordable Housing**

The subject land is within a designated area of Map Un/1 (Overlay 5a) for affordable housing to be provided where the development comprises 20 or more dwellings.

The proposed development does not propose any residential component therefore this overlay is not relevant. It is noted that there is still opportunity to provide affordable residential development on the remainder of the site.

### **6.4.2 Noise and Air Emissions**

The subject land is within a designated area on Map Un/1 (Overlay 3a) which requires protection of adjoining land uses against impacts on community health and amenity with regards air or noise emissions.

Air emissions are not typically associated with supermarkets and are not in this instance considered to be of particular concern.

With regards to noise emissions, a variety of methods are suggested in PDC 1 of the Overlay to reduce the impacts of any noise generating activities to adjoining sensitive noise receptors. Methods such as placing buildings containing less sensitive uses between the emission source and sensitive land uses and erecting noise attenuation barriers are suggested.

The applicant as supplied an acoustic report by Resonate dated 7 March 2018 advising of the predicted noise generating activities for the proposed development and the impact these have in the context of the locality.

The details of the report will be discussed in the main body of this assessment however, the report findings are considered to adhere to the requirements of the Overlay and provide that the noise levels generated from the development will not exceed the Environment Protection (Noise) Policy 2007 which is widely accepted as a standard measure to determine the appropriateness of a development and its external impacts.

### **6.4.3 Strategic Transport Routes**

The subject land is partially within the designated area Map Un/1 (Overlay 4a) for Strategic Transport Routes. The Overlay requires that development not impede the traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles (Objective 1).

The Overlay also requires that development adjacent strategic transport routes avoid parking on the main carriage way, ensure all access is provided via a service road where possible and should be setback to allow space for intended bus bays (including hard stand area, shelter, and path).

The proposed development is considered to adhere to the requirements of the Overlay and will not impede traffic flows of the main carriage way (Anzac Highway) or create hazardous conditions. Details of this will be discussed in greater detail in the main body of this assessment report.

## 7. PLANNING ASSESSMENT

### 7.1 Quantitative Provisions of Urban Corridor Zone

	Development Plan Guideline	Proposed	Guideline Achieved	Comment
Building Height (PDC 12 ZONE)	Minimum of 3 storeys or no less than 11.5m and 2 storeys or no less than 8m fronting Leader or Maple.	11.8m top of parapet fronting Anzac Highway and 11.4m top of parapet fronting Leader and Maple.	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input type="checkbox"/>	Complies with minimum building height
Land Use (PDC 2 TL PA)	Shop or group of shops (no GLA limit north of Leader Street) But integrated with residential	GLA of 5041m <sup>2</sup> including shop, offices and amenities and back of house however no residential.	YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input checked="" type="checkbox"/>	Shop is an envisaged land use within the Zone and policy area however, no residential component proposed so only partially complies.
Car Parking (Table Un/5A)	3/100 m <sup>2</sup> = 151	8.7/100 m <sup>2</sup> = 443	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input type="checkbox"/>	Exceeds parking rates
Bicycle Parking (Table Un/5A)	Customer: 8 Employee: 16	Customer: 16 Employee: 26	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input type="checkbox"/>	Exceeds bicycle parking rates
Front Setback (PCD 14 ZONE)	Minimum setback of 3m	7.5m to the closest point to extending to 75m to the south.	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input type="checkbox"/>	Exceeds minimum
Rear Setback (PDC 16 ZONE)	3m	Well in excess of 3m	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input type="checkbox"/>	Exceeds minimum
Side Setback (PDC 15 ZONE)	2m	5m from Leader Street however only 1m from Maple Avenue	YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input checked="" type="checkbox"/>	The Leader St setback is in excess of 2m however the Maple St setback is only 1m
Gross Leasable Area	Shops with a GLA of more than 500 square metres should be integrated with residential development and comprise a range of tenancies	Residential development is not integrated within the development, but rather proposed for a later stage on a separate but contiguous site	YES <input type="checkbox"/> NO <input type="checkbox"/> PARTIAL <input checked="" type="checkbox"/>	The site is north of Leader Street therefore a greater GLA is anticipated however, this proposal is not integrated with a residential development

## 7.2 Land Use

The Transit Living (Anzac Highway) Policy Area encourages development north of Leader Street (the 'LeCornu' site) to be integrated mixed-use developments that provide landmark quality buildings and create a vibrant active frontage to Anzac Highway and Leader Street.

The policy also states that large floor plate retail development should be 'sleeved' by smaller speciality shops to create an activated frontage and that where a shop or group of shops is greater than 500m<sup>2</sup> Gross Leasable Area (GLA), that it be integrated with residential development and comprise a number of tenancies. The policy goes on to state that in general, no single use buildings are to be developed, unless residential or in combination with other on-site buildings to achieve the desired mixed use.

The proposed retail development is greater than 500m<sup>2</sup> GLA (5041m<sup>2</sup>) and does propose a number of internal tenancies however, it does not propose a residential component as part of this application, nor does it propose a 'sleeving' with smaller specialty shops on all street frontages. The design of the development is guided largely by operational and customer experience requirements of the business, including the ability to offer an extensive range of fresh food and groceries and non-food goods, as well as providing an easy to navigate and comfortable shopping experience for customers.

The proposal does incorporate an outward facing café which activates the Anzac Highway façade along with creating a connected playground area, further providing an activated open space within the carpark area which goes some way to providing external activation sought by the policy. Leader Street is not given an 'activated' frontage however it is well articulated and provides extensive landscaping to soften and create a pleasant environment which will assist in preserving the amenity of existing residential development to the south.

It is also noted that although the proposal does not include a residential component, the land to be developed comprises approximately 50% of the total land and the balance of the site to the east may still achieve the aspirations of the Zone to include a mixed-use residential outcome.

The proposed development is a much larger floor plate compared to other supermarkets typically found in Australia. The Council Wide provisions for Centres and Shops provides guidance for when centre-type development is not suitable for existing centre zones. Whilst it is possible to have retail development occur outside a centre zone, PDC 10 states that centre-type development located outside centre zones should of a size and type which would not hinder the development or function of any centre zone. PDC 11 (e) goes on to state that shopping development that is more appropriately located outside centre zones, should not demonstrably lead to the physical deterioration of any designated centre.

To demonstrate whether this could occur as a result of the proposed development, the applicant has sought and provided an Economic Impact Assessment as part of their proposal which is contained within the ATTACHMENTS. The findings of this assessment conclude that whilst the proposed Kaufland store will bring additional competitive tension for the food and grocery market in the area, the impacts to surrounding retailers is expected to be a 'one off' trading impact of a modest 4-5% following the introduction of the new store. After this, all businesses will then compete equally for future growth which for Adelaide, is approximately 5% per annum. It is also noted within the assessment that the addition of a new entrant to the market also has other net community benefits that are important including

improved shopping choice and convenience, downward pressure on grocery prices and additional avenues for retail sales for local suppliers.

What is most relevant to this assessment is that the proposed development is not expected to impact on existing operators within the predicted trade catchment of Kaufland to the extent that it will imperil their continuing operation which satisfies the above policy.

Whilst the development does not strictly conform to the specific land use composition suggested by the policy, overall it is not considered to completely remove the possibility that this aspiration may be achieved due to the large area of the site within the zone which still remains undeveloped. Overall, the proposed land use is considered to be appropriate for the Zone and locality and broadly aligns with the intent of the Development Plan.

### **7.3 Built form & Setbacks**

The desired character of the Urban Corridor Zone is for a taller, more compact urban form with mixed use buildings sited close to road frontages to create an activated and interesting public realm which frames the strategic transport corridors and transitions down in intensity and scale moving closer to development outside of the Zone.

Strategic sites are also to be developed with landmark buildings that will feature prominent, attractive and activating road facades. To encourage this taller and more compact form, building heights for the Zone and more specifically, for the Transit Living (Anzac Highway) Policy Area, should be a minimum height of 3 storeys or no less than 11.5m fronting Anzac Highway and 2 storeys or no less than 8m fronting Leader Street or Maple Avenue (PDC 12 UC Zone). The proposed development achieves the minimum height provisions.

With regards to setbacks, PDC 14 and 15 of the Urban Corridor Zone require that buildings are setback a minimum of 3m to Anzac Highway, and 2m to secondary road frontages (Leader and Maple). The exception to this is in PDC 22 of the Urban Corridor Zone which lists non-complying forms of development and states that any development greater than 2-storeys and/or 9m in height within 5 metres of the Leader Street frontage is non-complying.

Due to the uniform shape of the proposed building and angle of the Anzac Highway frontage, the setback to the front boundary ranges from 7.5m to 75m which still complies with the provisions of the Zone which calls for a minimum setback and not maximum.

The setback from Leader Street exceeds the Policy Area requirement of 2m however due to the height of the building, has been setback 5m so as to not trigger a non-complying status. The larger setback to Leader Street enables a greater level of landscaping to be provided along this frontage and provides greater separation of the proposed building to the adjoining residential land further reducing its visual impact.

The Maple Avenue frontage setback is proposed at 1m which is at variance to the setback provisions for the Policy Area which calls for a minimum of 2m. Whilst it is noted that the adjoining land to the north is also zoned Urban Corridor Zone and may one day be developed with some residential development, it is at the moment and for the foreseeable future, commercial in nature. The proposed 1m setback will not have an unreasonable visual impact to the existing locality which is due in part to the existing nature of the locality to the north and due to the landscaping proposed along this frontage (as shown in the Street Scape Renders) which will assist in screening and softening its visual impact and retain a human scale. The variance in this setback is not considered to be fatal to the proposal.



## 7.4 Design and Appearance

The proposed building is large, and box like in form. To offset the massing and scale issues created by the buildings shape and form, the proposal incorporates the following measures:

- A landscaping scheme through the site to complement the scale of the site and the proposed built form.
- The retention of existing established trees around the site's perimeter and the provision of a range of additional trees which will reach varying heights at maturity.
- A range of materials to be used for external cladding of the building. These materials include perforated screening, light and dark textured finishes, modular cladding and batten cladding of different colours, timber features and the development signage. There is also a large amount of glazing to the front façade facing Anzac Highway.
- Appropriate screening of the undercroft car parking area to minimise impacts on adjoining residential properties. This includes sections of 1.9 metre high x 1.9 metre wide cable grid web, which is to be attached the building façade. Climbing plants will then be trained across each grid, to restrict views to the adjacent car space.
- It is also noted that the plant equipment on the roof of the building will be setback well within and away from the edges of the roof and the screening to 2.8m will not be readily visible when viewed from the street level.

With regards to carparking, the Transit Living Policy Area seeks to ensure that vehicle parking does not form a dominant feature of the locality and that no parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for those with a disability.

When compared to the existing site, the proposed development will bring the built form forward and only leave a small portion of the land within the front setback as exposed car parking that will be visible. To address this matter, the applicant has proposed extensive landscaping along the perimeter of the site and within the carpark area which will sufficiently screen the car parking from the locality. Whilst not strictly in accordance with the Development Plan provisions the car parking area to the Anzac Highway frontage is not considered fatal to the proposed development.

## 7.5 Traffic Impact, Access and Parking

### *The Development Plan*

The Development Plan seeks to ensure that development provides safe and convenient access that is designed in such a way as to minimise any traffic hazards, vehicle queuing on public roads and intrusion of vehicles into adjacent residential areas (Council Wide, Transportation PDC 3).

Development should also ensure that walking and cycling paths are safe, convenient and attractive and ensure priority is given to and does not compromise existing designated bicycle paths (Transportation PDC 7).

Development should provide enough off-street parking to accommodate the proposed use in accordance with the rates specified in Table Un/5A where a reduced number of parking may be considered under certain conditions in designated areas (Urban Corridor Zone).

The Transit Living (Anzac Highway) Policy Area also seeks to ensure that vehicle parking does not form a dominant feature of the locality and that no parking is to

be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for those with a disability. It also stipulates that access to loading areas not occur from Leader Street or Anzac Highway (PDC's 7 & 8) The applicant has provided a detailed assessment of the traffic, parking and access arrangements of the proposed development within the Traffic Impact Assessment Report prepared by WGA Revision G and supplementary reports for Pedestrian Paths and various Traffic Response documents to a number of concerns raised by local residents, DPTI Transport and Unley Council.

It is considered that the information supplied demonstrates that the proposed development has carefully considered the above provisions as well as taken on board specific matters raised to overcome specific issues for this site in the below areas to the extent that the development itself is considered appropriate.

#### *Access- Anzac Highway*

With regards to access to the site from Anzac Highway, the development will utilise and modify an existing left in and left out access point. DPTI Transport are convinced that this access point is safe and convenient and will not create queuing or hazardous conditions entering and exiting the site onto the arterial road. A raised concrete separator is proposed for the existing right turn facility directly opposite the Anzac Highway access point to avoid the risk of motorists undertaking to cross Anzac Highway from the site to access the right turn. This is acceptable and welcomed by DPTI Transport.

#### *Access- Maple Avenue*

There are three vehicle access points on Maple Avenue however only one is for use to access the supermarket. This access point is considered to be in a safe and convenient location on Maple Avenue.

The two other access points on Maple Avenue are for delivery and waste vehicle services which is envisaged in the Transit Living Policy Area in order to avoid using Leader Street or Anzac Highway. The loading dock is designed to enable 19m long semi-trailer vehicles and the secondary waste/deliver area can accept a vehicle length of 8.8m. It is expected that deliveries to the site will occur at a maximum rate of 1 in a 15-minute period, 24 hours a day with restrictions of one 19m articulated refrigeration truck during the night time period (10PM-7AM).

All delivery and waste vehicles will access the site solely from Maple Avenue which is a commercial/industrial area and will utilise 'white noise' alarms and will therefore have no impact on residential development to the south.

#### *Access- Leader Street*

Leader Street is a Collector road and caters for high traffic volumes. The proposed access point on Leader Street is a consolidation of two existing access points along this frontage. The traffic report provided by WGA advises that this access point will experience provide a sufficient level of service and with its double lane configuration, delays are kept at a reasonable level and are not expected to create any significant issues for through traffic. This access will require the removal of 1 street tree which is a mature Wallangarra White Gum. The tree is not a regulated tree as per the *Development Act 1993* however will require the approval of Unley Council to remove. Appropriate line marking will also need to be installed however overall, the access arrangements for the site from Leader Street are not considered to create hazardous or unsafe conditions.

There are ticketless boom gates proposed at the customer entry and exit points which will be set up using automatic number plate recognition system. During peak periods and at times where a fault is detected, the system runs in 'gate open' mode with a speed hump at the number plate recognition point to provide separation between vehicles to ensure no queues extending past the site boundaries will occur.

There is also an emergency services access lane along the rear of the site to the east which will need to be widened by 900mm to enable fire truck access turning manoeuvre. The final design will need to incorporate this widening and retain the proposed vegetation along the lane. It is noted that this access point will not be used by the general public and only likely to be used sporadically in case of emergency.

Overall, the access arrangements for the site are not considered to create hazardous or unsafe conditions and complies with the requirements of the Development Plan.

#### *Traffic flow and intersection management*

The applicant has sought the expert advice of a traffic engineer who have undertaken extensive traffic modelling (SIDRA & AIMSUN) to analyse the performance of the surrounding road network at the key peak times when this development will generate the most activity – the PM weekday peak and the AM Saturday peak.

The analysis suggests that due to the current poor performance of the Anzac Highway/Maple Avenue intersection, most motorists will prefer to utilise the Anzac Highway/Leader Street intersection to access the site which in the current configuration, is expected to create significant delays during the PM Peak period.

As outlined in the section in the DPTI Transport response, a possible solution to this has been devised where the right turn lane from Anzac Highway to Leader Street is duplicated. The details of this however will require more detailed analysis including consultation with Unley Council as it will affect Leader Street road verge and infrastructure. It is acknowledged by the applicant they wish to ensure the best possible solution is found and have agreed to a condition as a reserved matter which will enable further discussion on the best possible solution to the intersection so no unreasonable impacts are created as a result of the proposed development.

It is also noted that many concerns were raised during the public notification period with regards to traffic congestion within the local road network where may residents currently experience a high levels of congestion, particularly along Leah Street. In response, the applicant included the junction with Leah Street in the AIMSUN modelling and have undertaken site observations of Leah Street during both AM and PM peak periods.

In the report, WGA note that traffic generated from the proposed development is minimal during the AM peak, and greatest during the PM peak time. The observations and study show that delays experienced along Leah and Leader Street are significantly higher during the AM peak periods due to traffic heading towards the CBD which is also confirmed from feedback within the submissions.

Regarding the PM peak period, whilst high traffic levels are experienced, the delays are not as significant as the AM peak period as the traffic is either turning left or right into Leah St or continuing through instead of right or left out which is subject to higher delays as they are required to give way (AM peak condition).

There were no significant or additional delays was observed at the junction during the PM peak as a result of the operation of the proposed development. The report summarises this as follows:

*"To put the additional traffic into perspective with respect to the PM demand we expect there will be an additional 95 peh/hour heading east along Leader Street towards Leah St. Observed counts show a 65/35 ratio of right turning to through traffic into Leah Street therefore the total additional traffic we expect along Leah Street is approximately 60 veh/hr or an additional 1 vehicle per minute which is well within the range of stochastic variation of traffic for a peak hour period"*

It is therefore reasonably concluded that the proposed development will not create significantly delays or traffic congested already experienced within the locality.

Future development of the adjoining balance of the site will need to be taken into account when future development of the land occurs. Unley Council are well aware of the issues in this area however it is not the responsibility of the developer to account for the potential future development of the site and it is also considered that the applicant has provided sufficient justification and are willing to provide for traffic modifications to ensure the safe and efficient movement of traffic for their own site and network.

#### *Car parking*

The proposed development will provide an excess of parking compared to the Development Plan requirements in accordance with Table Un/5A. This is considered to be appropriate.

The provision of some car parking within the site frontage is considered an appropriate response given the existing site conditions, with car parking provided in this location. The design and layout of the car park, including the provision of landscaped areas and tree planting to provide shade and soften the appearance of the hard surface, results in an improved design outcome (Urban Corridor Zone PDC 6 & Transit Living Policy Area PDC 7).

#### *Pedestrian Movement*

Pedestrian Zebra crossings have been provided in the eastern and northern sections of the carpark however it has also been recommended that additional pedestrian access is provided to the eastern side of the carpark from the entrance point. This will be incorporated as a condition of approval in the final design.

As for pedestrian access around the perimeter of the site, it is noted that each vehicle access point will need to provide 'sight triangles' in order to maximise visibility for vehicles to see pedestrians and vice versa. Again, this will be required as per condition in the final design documents.

The applicant has provided a Pedestrian Movement Plan and the diagrams provided in that plan are based on the previous architectural drawings however, the suggestions for the provision of pedestrian facilities remain valid and applicable to the current plans which do not differ greatly in terms of where pedestrians will move in and around the site. Most importantly, it indicates that pedestrian movements associated with the proposed development can be satisfactorily accommodated and that the final design incorporates some additional elements such as sight triangles at the vehicle access points, pram ramps and signage to ensure pedestrians are guided to the safest travel lines.

## **7.6 Environmental Factors**

### **7.6.1 Crime Prevention**

The Development Plan promotes safety for users of development and security of the property through appropriate design outcomes including the provision of clearly defined public and private spaces, active uses at the street frontage overlooking Anzac Highway and adequate lighting and signage. Landscaping and fencing should also be designed to ensure sightlines are available throughout the development and to avoid concealment opportunities (Crime Prevention PDC 1 & 2). PDC 9 of the Urban Corridor Zone also requires that sightlines be maintained between buildings and the street to improve safety through passive surveillance.

The proposed development incorporates a number of design measures to ensure it provides a safe environment where risk of crime and vandalism is minimised. The proposed development is set back from Anzac Highway behind an open car park area, and will comprise an active frontage through extensive glazing, and a ground floor café which promotes activity and casual surveillance of the customer car park at the front of the store from both Anzac Highway and within the development itself. Fencing is proposed to screen the loading dock on Maple Avenue and the rear emergency access lane.

The risk of vandalism and graffiti will be minimised through the use of a variety of building materials and colours and landscaping along externally facing walls as deterrents. The car parking area will include lighting to Australian Standards and signage will be provided to assist with wayfinding and to highlight the entrances and pathways to and within the site. The proposed landscaping will maintain view-lines to entrances and exits as well as allowing clear views to areas where people may gather, this will also assist in ensuring potential entrapment spots will be avoided and provide choice for pedestrian for movement options.

Clearly defined entrances to the building will assist shoppers to orient themselves and gain an understanding of their surroundings. Where proposed, the development incorporates visually permeable fencing to allow for casual surveillance and limit concealed areas. It is considered that sufficient measures have been put in place to ensure a safe, secure and crime resistant environment.

### **7.6.2 Noise Emissions**

The Desired Character Statement of the Urban Corridor Zone acknowledges the mixed nature of the site's locality, and states, overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques. It is not expected that noise and air amenity cannot be completely eradicated or measured to the same standards as a development in a solely residential area.

The applicant has provided an acoustic report prepared by Resonate (updated 14 August 2018) which measures the current noise levels experienced from the closest sensitive noise receptors on Leader Street, the current Environment Protection (Noise) Policy 2007 (Noise EPP) standards for land uses (day and night time) and the predicted noise level expected from noise generating activities of the proposed development. The three main noise generating

activities of the proposed development is noise from the carpark (greatest source), the loading dock and plant equipment.

The report finds that during peak day time operations, the noise levels will exceed the Noise EPP by 2dB however, it is noted that when accounting for the current ambient noise levels of Leader Street, the predicted noise levels generated from the proposed development will be approximately 5dB less than the *existing* ambient noise levels (during peak times). Noise levels during the night (with lower traffic volumes) are expected to achieve the target Noise EPP standards for residential interface.

Noise emissions from the loading dock are expected to exceed the day time criterion at the adjoining commercial noise receptor by 2dB (noting that receptor is on land zoned Urban Corridor Zone) however, the existing land uses along Maple Avenue are commercial/light industry uses and when considering the existing noise levels from the adjacent commercial loading areas along Maple Avenue, this is not considered to be a significant impact.

The development attempts to address noise interface issues through the following measures:

- Locating the loading dock on Maple Avenue, away from sensitive noise receptors on Leader Street
- Screening to the roof plant equipment to 2.8m
- Restrictions on reversing beepers in loading dock
- Electric forklifts and support machinery
- Restriction of 1 refrigeration delivery truck during night time

The proposed development has been designed to mitigate noise emissions as best as possible, however given the nature of the development being a large scale retail development, some noise generation throughout the day is inevitable.

It is noted that in future, should mixed use development be proposed on sites north of Maple Avenue and to the far east of the subject land, those developments will need to make provisions for the control of existing noise emissions at the time the development is proposed.

Given the above, the proposed development is considered to be acceptable regarding noise emissions at the nearest sensitive noise receptors and is also consistent with Interface between Land Uses PDC 7.

### **7.6.3 Waste Management**

A waste management plan has been provided to outline the waste management proposed by the development which details the provision and location of the waste facilities, as well as the access and collection requirements.

The development proposes waste be stored in two separate locations, with one area servicing the Ancillary Tenancies (referred to as the Bin Room) and the other capturing the waste produced by the Supermarket operations.

Waste collection is to be conducted by a commercial waste collector and will take place from two locations, as follows:

- Ancillary tenancies - collection would be direct from the Bin Room. The loading dock can be accessed from Maple Avenue allowing the forward entry and exit of the collection vehicle.



- Supermarket - collection will be direct from the loading dock, entering the premises in a forward direction from Maple Avenue. Collection would take place direct from the designated waste area.

The applicant has outlined the following measures with regards to waste:

- Efficient recycling measures, with the development estimated to generate more than 30,000 litres of co-mingled recycling, organics (food) recycling and cardboard recycling per week (PDC 1).
- Waste will be stored within designated waste storage areas within the development and once full will be transferred to collection areas on the Ground Level loading dock area. This will ensure that waste is separated from adjoining areas, limiting odour within the development as well as limiting any detrimental impact on the surrounding area (PDC 6).
- The waste storage areas proposed by the development are of an appropriate size to allow for the efficient recycling of waste. This includes the likely installation of an organics compactor to manage supermarket organics waste, facilitating efficiency onsite, reducing daily traffic movements and achieving best practice waste management (PDC 5).

Council have advised that the optimal outcome would be for there to be only 1 waste and delivery servicing area in order to limit exposed paved areas along Maple Avenue and to limit the number of crossovers to the street. It is noted however the smaller tenancy delivery area is an existing crossover to the site and that the Maple Avenue frontage is of a length that can handle the number of crossovers and retain a safe pedestrian outcome, noting that Maple Avenue experiences low levels of pedestrian activity.

The acoustic report did not recommend any specific hours of operation for waste collection nor did the waste management plan. At this time, it is not considered to be a significant concern as the areas for collection have a commercial interface however for potential future residents within the Urban Corridor Zone, the restriction of hours is recommended, despite the applicant advising they do not wish for this to be restricted.

With the addition of a condition on the hours for waste collection, it is considered that the proposed waste management plan sufficiently addresses the requirements of the Development Plan to minimise the production of waste and will prevent undesired impacts on the environment and on the amenity of the locality.

#### **7.6.4 Energy Efficiency, Sustainable Design and Stormwater**

The proposed development has been designed to incorporate energy efficient and water management initiatives in accordance with the relevant Council wide PDC's as outlined below:

- The development incorporates includes the provision of PV solar panels across the building's rooftop to provide for on-site energy generation. The panels are located toward the northern section of the building's rooftop to ensure maximum exposure to direct sunlight (Energy Efficiency PDC 3).
- The building has been designed and sited to ensure that the main activity area at the frontage of the building is provided with adequate daylight access throughout the year (Energy Efficiency PDC 2).

- The development includes the provision of rainwater collection tanks for the capture and re-use of stormwater on the site and manage stormwater flows during peak flooding events (Natural Resources PDC 7 & 11).

The development incorporates integrated bioswales, tree pits and raingardens across the hard surfaces areas, including the front and rear car parking areas, to provide for appropriate water capture and re-use, while also ensuring that water flows from the site are appropriately filtered to minimise pollutant transport to the stormwater system (Natural Resources PDC 7, 8, & 11).

A Stormwater Management Plan has been prepared by WGA that highlights the locations of water flows and catchment on the site. The development includes three rainwater tanks with a total volume of 85kL for rainwater reuse, as well as two onsite detention tanks with a total capacity for 40kL for slow release of stormwater to the bio swales/raingardens. Council have indicated general support for the Stormwater Management Plan however will require final details of the design to be submitted prior to Development Approval being issued.

The application is considered to satisfy relevant ESD principles of the Development Plan.

#### **7.6.5 Site Contamination**

The applicant has supplied an environmental report outlining the testing undertaken of the site and the results. The report confirms there are two areas of historical chemical contamination have been identified. The existing LeCornu warehouse contains asbestos, as such a professional asbestos removal company will be employed during construction.

The applicant has confirmed that at all times during construction, contractors will conform to the strictest of EPA management criteria. Prior to on site demolition, advance notification will be provided to Unley Council (for the endorsement of a Construction Management Plan) as well as notification to all surrounding properties. Local residents will be advised of any risk and signage will also be erected as required by law.

The entire ground level of the site will be covered with car parking and existing soils will be capped by either paved carpark, or a minimum of 0.5m of imported clean material that will be placed in garden beds as a growing medium. The ongoing use of the proposed development is considered to be a low risk to the health of future site occupants from exposure to impacted soils. A condition will be placed on the approval to ensure no exposed contaminated soil will result once the development is complete.

### **7.7 Signage**

The Development Plan contains a number of provisions for outdoor advertisements which seek to ensure that advertising signage is sensitively designed and is integrated with the associated building design while avoiding visual clutter.

The proposed development includes a number of free standing and wall mounted signage throughout the site. The Development Plan examines advertisements in Table Un/1 with advertisements to comply with Column 2 or conditions listed in Column 3. These are summarised below:

Wall fixed: No more than three advertisements to be displayed on any separate tenancy or occupancy

Free-standing Advertisements:

- Overall height of advertisements not to exceed six metres.
- Only one free-standing advertisement on each site.

The proposal will incorporate a total of 19 external wall mounted signs of varying size and some with pictorial representation of fresh produce and goods. There are also 3 free standing signs, one along Anzac Highway entrance, one at the Leader Street entrance (both 7m in height and internally illuminated) and one in the front carpark area replacing the existing LeCornu sign with a similar sized structure at approximately 20m in height and will be externally illuminated.

Whilst there is a significant variance to the number of wall mounted signs compared with what the Development Plan deems appropriate, the signage is not considered to overcrowd the building. The signs are uniform, coordinated in appearance and directly related to the use of the proposed development and are complementary to the architectural form and design of the building (Outdoor Advertisements PDC's 1, 5 & 7).

Advertising displays are contained within the boundaries of the subject land and have been designed and located to clearly identify the retail activity to passing traffic and clearly identify the access points into the site to facilitate safe traffic movements, without any flashing or animations (PDC 17 & 21).

Whilst the proposed two 7m pylon (freestanding) signs exceed the preferred overall height of 6 metres for freestanding advertisements, one of the signs is a replacement of the existing freestanding sign and the height variance is marginal. The replacement of the existing 20m high LeCornu sign is not considered to have a detrimental impact on the locality as it is setback within the car park area and will be a more slimline, subdued version of the current long standing LeCornu sign.

When considering the substantial size of the site, its location on an arterial road, and the scale and nature of the proposed development, the signage will not detrimentally impact of the appearance of the surrounding area and are considered an appropriate response in the Urban Corridor Zone.

It is noted that the roof signage as first proposed has been removed and the signage along the southern side of the site at the interface between the subject land and the residential development to the south is proposed to be illuminated. This aspect is discussed below in the next section of the report.

## **7.8 Interface**

To ensure the interface issues between the proposed development and the residential uses directly adjoining the site to the south is managed, the proposal has been setback 5m from the Leader Street boundary. This area is proposed to contain extensive landscaping, including trees, which will assist greatly in reducing the visual impact of the building in terms of bulk and scale.

The zone looks to ensure parking areas are sited and designed to minimise impacts (both visual and functional) on adjoining residential areas through consolidating parking areas and access points and providing separation and buffer landscaping. The proposed development is considered to have

implemented these measures to sufficiently minimise the visual impacts of the car parking areas to the locality. The acoustic report provided also advises that the noise associated with the development will not exceed the current ambient noise levels associated with Leader Street and Anzac Highway. Further to this, the relatively benign frontage along Leader Street (with the exception of one access point) will further minimise interface issues with all customer entry and exit movements occurring on the Anzac Highway façade.

The applicant has supplied a lighting plan which notes that the lighting will unlikely affect any obtrusive lighting requirements in accordance with Australian Standards for the control of obtrusive effects of outdoor lighting which crosses property boundaries that may negatively impact on surrounding properties.

The calculations show that during the 'curfew' hours in AS4282 (11pm-6am), the maximum lux is 4, maximum illumination is 2500cd at a threshold increment of 20%.

The proposed development will not exceed those standards with Leader Street having a maximum lux of 1.5, a maximum illumination of 2133 and threshold increment of 0%.

It is noted that plan does not specifically state whether the illuminated signage forms part of the light spill assessment therefore a final lighting plan will be submitted prior development approval being granted to ensure full compliance with AS 4282 are met.

Overshadowing will be limited. For the majority of even the shortest day in June, midday shadow will not extend beyond the southern side of Leader Street And only extend to the front yard of dwellings before 9:00am and after 3:00pm.

It is therefore considered that interface issues have been sufficiently addressed through design of the development.

## 8. CONCLUSION

The proposed development is of a nature that does not readily conform to the policy within which it is being assessed. It is acknowledged that whilst the use of the site for a shop is appropriate for the Zone, the scale and configuration pushes beyond what the policy calls for albeit there is still potential for the site overall to meet the residential objectives of the Zone.

The Urban Corridor Zoning was introduced to create uplift and ensure that the main transport routes and key strategic sites were developed to create a more compact urban form to assist with preventing further urban sprawl by providing infill development and facilities along transport routes to cater for the current and future population of the inner metropolitan suburbs.

The development is considered to adhere to the landmark status of this strategic site and it is noted that the land holding is vast and currently underutilised and its development is of great economic importance to the area, and to the State. The proposed development, whilst not strictly adhering to the designed character of the Zone, is a catalyst for development within the remainder of the newly uplifted Zoning and is considered to be in keeping with the broad intent of the Zone and Development Plan.

The proposed traffic issues have been acknowledged by the proponent and every effort has been made by the developer to ensure the increases to traffic as a result of their proposal have been addressed.

The proposed development is considered to deliver a high quality retail development that provides attractive design elements in the use of different materials that contrast and complement the façade of the building and reduces the overall bulk and scale. The development has also included landscape treatments which provide a good level of amenity to the area and retain the walkability of the pedestrian paths around the development. On balance, it is considered that the proposed development demonstrates sufficient merit overall to warrant consent and will ensure the re-development of a key, underutilised site of the inner metropolitan area.

## **9. RECOMMENDATION**

It is recommended that the State Commission Assessment Panel:

- 1) RESOLVE that the proposed development is NOT seriously at variance with the policies in the Development Plan.
- 2) RESOLVE that the State Commission Assessment Panel is satisfied that the proposal generally accords with the relevant Objectives and Principles of Development Control of the Unley Council Development Plan.
- 3) RESOLVE to grant Development Plan Consent to the proposal by Kaufland Pty Ltd for construction of a retail development including internal supporting small tenancies, solar-panels, associated under croft car park, offices, various signage, and landscaping 10 Anzac Highway, Forestville, subject to the following reserved matter and conditions of consent.

## **RESERVED MATTERS**

1. Pursuant to Section 33(3) of the Development Act 1993, the following matters shall be reserved for further assessment, to the satisfaction of the State Commission Assessment Panel, prior to the granting of Development Approval:
  - 1.1 Concept plans detailing proposed modifications to the Anzac Highway / Leader Street signalised junction shall be prepared in consultation with the Department of Planning Transport and Infrastructure (DPTI) (and Unley Council where necessary).

## **PLANNING CONDITIONS**

1. That except where minor amendments may be required by other relevant Acts, or by conditions imposed by this application, the development shall be established in strict accordance with the details and following plans submitted in Development Application No 090/E004/18:

<b>Drawing Title</b>	<b>Drawing No.</b>	<b>Revision</b>	<b>Date</b>
Cover Sheet	TP-00	P4	03/07/18
Locality Plan	TP-01	P5	06/07/18
Site Plan and Ground Floor Plan	TP-02	P8	03/07/18
First Floor Plan	TP-03	P8	03/07/18



Roof Plan	TP-04	P6	13/04/18
Elevations and Sections	TP-05	P6	13/04/18
Streetscape and Signage	TP-06	P4	02/07/18
Shadow Diagrams	TP-07	P5	13/04/18
Building Materials	TP-08	P1	09/07/18
Landscape Screening Sketch	TP-09	P1	07/08/18
Landscaping Screening Elevations	TP-10	P1	07/08/18
Site works and Drainage Plan	C02 1 of 2	C	12/07/18
Site works and Drainage Plan	C03 2 of 2	C	12/07/18
Landscape Concept Plan	LC01	B	July 2018
Landscape Concept Plan Details	LC0 3-4	A	
Landscaping Photo Sheet	LC05-6	A	July 2018
Maple Avenue/Leader Street Renders	SK-100		August 18

Reports and correspondence not listed in any subsequent conditions-

- Rawtec Waste Management Plan March 2018
  - ACT Building Services Engineers Solar Panels Letter dated 13 August 2018
  - WGA Water tanks letter dated 13 August 2018
2. A statement by a suitably qualified professional that confirms that the land is suitable for its intended use (or can reasonably be made suitable for its intended use) shall be submitted to the State Commission Assessment Panel prior to any superstructure works commencing.
  3. The acoustic attenuation measures recommended in the acoustic report, dated 14 August 2018 by Resonate, shall be fully incorporated into the building rules documentation to the reasonable satisfaction of the SCAP. Such acoustic measures shall be made operational prior to the occupation or use of the development.
  4. All works within the vicinity of the street trees to be retained shall be undertaken in accordance with the recommendations for Tree Protection Zones in the arborist report from (Arborman Tree Solutions dated 9 July 2018) and in consultation with the City of Unley, so as to preserve their health.
  5. All vehicle car parks, driveways and vehicle entry and manoeuvring areas shall be designed and constructed in accordance with relevant Australian Standards and be constructed, drained and paved with bitumen, concrete or paving bricks in accordance with sound engineering practice and appropriately line marked to the reasonable satisfaction of the State Commission Assessment Panel prior to the occupation or use of the development.
  6. All bicycle parks shall be designed and constructed in accordance with relevant Australian Standards and be made available for use at all times during operating hours.
  7. The rear service laneway, along eastern boundary, only be used for emergency vehicle egress, with suitable security and movement prevention at all other times;
  8. There shall be a maximum of one (1) delivery at night (between 10PM and 7AM) which requires a 19m articulated refrigerated plant and sound suppressing, broadband reversing alarm or spotter shall be used.

9. All car parking areas, driveways and vehicle manoeuvring areas shall be maintained at all times to the reasonable satisfaction of the State Commission Assessment Panel.
10. All Council, utility or state agency maintained infrastructure (i.e. roads, kerbs, drains, crossovers, footpaths, etc.) that is demolished, altered, removed or damaged during the construction of the development shall be reinstated to Council, utility or state-agency specifications. All costs associated with these works shall be met by the proponent.
11. The access points shall be located and constructed in general accordance with Site Plan and Ground Floor Plan Project Number 218033, Drawing TP-02, Revision P8, dated 13 July 2018.
12. The Anzac Highway / Leader Street junction shall be upgraded to cater for the projected traffic impacts associated with the development. Additionally, the Anzac Highway u-turn bay / emergency vehicle bay shall be modified to prohibit its use by traffic exiting the Anzac Highway access point. All required road works associated with this shall be designed and constructed in accordance with Austroads Guides/Australian Standards and to DPTI's satisfaction. All associated costs (including project management and any necessary road lighting and drainage upgrades) shall be borne by the applicant (unless otherwise agreed by DPTI). These road works shall be completed prior to occupation of the development.
13. The applicant shall contact DPTI's, Traffic Operations Section, Network Planning Engineer, Ms Teresa Xavier on (08) 8226 8389 or via email at Teresa.Xavier@sa.gov.au, to discuss the proposed road works prior to undertaking any detailed design. Furthermore, the applicant shall enter into a "Developer Agreement" to undertake the above works.
14. All vehicles shall enter and exit the site in a forward direction.
15. The largest vehicle permitted on-site shall be restricted to a 19-metre articulated vehicle (AS 2890.2-2002).
16. All off-street car parking shall be designed in accordance with AS/NZS 2890.1:2004 and AS/NZS 2890.6:2009. In particular, pedestrian sight lines at the access points shall be in accordance with AS/NZS 2890.1:2004 Figure 3.3.
17. All commercial vehicle facilities shall be designed in accordance with AS 2890.2-2002.
18. A traffic management plan for the construction phase of the development shall be developed in consultation with and to the satisfaction of DPTI and Council.
19. The illuminated signage shall be permitted to use LED lighting for internal illumination of a light box only.
20. The illuminated signage shall be limited to a low level of illumination so as to minimise distraction to motorists ( $\leq 150\text{cd/m}^2$ ).
21. The signage shall not contain any element that flashes, scrolls, moves or changes, or imitate a traffic control device

22. Any floodlighting associated with the site shall be positioned and/or shielded so as to not produce glare or create a distraction for passing motorists on the abutting roads.
23. Stormwater run-off shall be collected on-site and discharged without jeopardising the integrity and safety of the adjacent roads. Any alterations to the road drainage infrastructure required to facilitate this shall be at the applicant's cost.
24. All mechanical services plant and equipment shall be located within the designated areas on the roof of the building and behind the mechanical plant screen to the extent shown in the Architectural Plans.
25. A final detailed landscaping plan shall be submitted to the reasonable satisfaction of the SCAP prior to Building Rules Consent being granted for superstructure works. This shall confirm planting medium depths, irrigation methods and other features of the approved landscaping scheme to demonstrate viability of all plantings and lawn. The updated detailed landscaping plan shall be reflected, as necessary, in all other relevant plans and drawings (including, for example, sectional drawings).
26. A watering system shall be installed at the time landscaping is established and operated so that all plants receive sufficient water to ensure their survival and growth, with any dead or dying plants removed and replaced to the satisfaction of the State Commission Assessment Panel.
27. The recommendations detailed in the traffic management report dated 13 August 2018 by Wallbridge Gilbert Aztec, forming part of this consent shall be fully incorporated into the development to the reasonable satisfaction of the State Commission Assessment Panel. Such measures shall be made operational prior to the occupation or use of the development.
28. The recommendations detailed in the Pedestrian Plan dated 13 May 2018 by Wallbridge Gilbert Aztec forming part of this consent shall be fully incorporated into the development to the reasonable satisfaction of the State Commission Assessment Panel. Such measures shall be made operational prior to the occupation or use of the development.
29. All trade waste and other rubbish shall be stored in covered containers prior to removal and shall be kept screened from public view.
30. Waste service vehicles only visit the site between: 7.00am and 7.00pm Monday to Saturday (excluding public holidays) 9:00am to 5:00pm Sunday (or public holiday).
31. All external lighting of the site, including car parking areas, advertising signs and buildings shall be designed and constructed to conform with Australian Standards and must be located, directed and shielded and of such limited intensity that no nuisance or loss of amenity is caused to any person beyond the site as advised in NDY Lighting Plan dated 16 April 2018.
32. Subject to legislative requirements for operating hours of large format retail businesses, the maximum hours of operation of the premises shall be restricted to the following times:

Monday – Friday:	12am- 9pm
Saturday:	12am to 5pm
Sunday:	11am to 5pm

33. Final detailed plans for Stormwater Management shall be submitted, in consultation with Unley Council to the satisfaction of the State Commission Assessment Panel. The details of the plan shall be incorporated within the Building Rules Consent documentation, submitted for Development Approval, and be implemented prior to occupation or use of the development.
34. Due to identified contaminants on the land as per the Greencap environmental report dated 27 February, 2018, a Construction Environment Management Plan (CEMP) shall be prepared (in consultation with the City of Unley) for the construction phase of the redevelopment and any additional works relating to the identified contamination area will inform this CEMP. The CEMP shall be implemented in accordance with current industry standards – including the *Local Nuisance and Litter Control Act 2016*, the EPA publications “Handbook for Pollution Avoidance on Commercial and Residential Building Sites – Second Edition” and, where applicable, “Environmental Management of On-site Remediation” – to minimise environmental harm and disturbance during construction.

The management plan should incorporate, without being limited to, the following matters:

- timing, staging and methodology of the construction process and working hours;
- traffic management strategies;
- control and management of construction noise, vibration, dust and mud;
- management of infrastructure services during construction;
- management of stormwater and groundwater during construction;
- site security, fencing and safety and management of impacts on local amenity for residents, traffic and pedestrians;
- disposal of construction waste, any hazardous waste and refuse in an appropriate manner according to the nature of the waste;
- protection and cleaning of roads and pathways; and
- overall site clean-up

## ADVISORY NOTES

- a. Building Rules Consent must be obtained for the development within 12 months of the date of this notification, unless this period has been extended by the SCAP.
- b. The applicant is also advised that any act or work authorised or required by this Notification must be completed within 3 years of the date of the Notification unless this period is extended by the SCAP.
- c. The applicant will require a fresh consent before commencing or continuing the development if unable to satisfy these requirements.
- d. The applicant has a right of appeal against the conditions which have been imposed on this consent.
- e. The applicant is reminded of its general environmental duty, as required by Section 25 of the *Environment Protection Act 1993*, to take all reasonable and practical measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm. Environment Protection Authority information sheets, guidelines documents, codes of practice technical bulletins etc can be accessed on the following web site: <http://www.epa.sa.gov.au>

- f. The applicant is reminded the emission of noise from the premises is subject to control under the *Environment Protection Act and Regulations 1993*, and the applicant (or person with the benefit of this consent) should comply with those requirements.
- g. The Metropolitan Adelaide Road Widening Plan shows a possible requirement for a 4.5-metre x 4.5-metre cut-off at the Anzac Highway / Maple Avenue corner for future road purposes. The consent of the Commissioner of Highways under the Metropolitan Adelaide Road Widening Plan Act 1972 is required to all building works on or within 6 metres of the possible requirement. As no building works are proposed within the above areas, consent is not required in this instance.



**Lauren Talbot**  
**A/TEAM LEADER DEVELOPMENT ASSESSMENT**  
**DEVELOPMENT DIVISION**  
**DEPARTMENT OF PLANNING**



# KAUFLAND, FORESTVILLE

10 Anzac Highway, Forestville,  
South Australia 5035



\*ARTIST IMPRESSION ONLY

DRAWING SCHEDULE	
TP-00	COVER SHEET
TP-01	LOCALITY PLAN
TP-02	SITE PLAN AND GROUND FLOOR PLAN
TP-03	FIRST FLOOR PLAN
TP-04	ROOF PLAN
TP-05	ELEVATIONS AND SECTIONS
TP-06	STREETSCAPE AND SIGNAGE
TP-07	SHADOW DIAGRAMS
TP-08	BUILDING MATERIALS
TP-09	LANDSCAPE SCREENING DETAILS
TP-10	LANDSCAPE SCREENING ELEVATIONS

PRELIMINARY

Revisions / P2 07.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P4 13.08.18 RPI RESPONSE

PN

13/08/2018 9:28:32 AM

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project / 10 ANZAC HIGHWAY,  
FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / COVER SHEET

Project No / 218033

Date / 03.07.18

Author / CL

Scale: @ A3 /

Drawing No. / TP-00

P4

rothelowman

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





SITE DESCRIPTION	
OVERALL SITE	36 089m² approx.
SITE - STAGE 01 (767)	20 951m² approx.
SITE - REMAINING LAND	15 138m² approx.
AREA ANALYSIS - FIRST FLOOR	
SUPERMARKET	3856.4m² approx.
LIQUOR STORE	260.9m² approx.
EXC. OFFICES, AMENITIES & BOH - 1925.5m2	
EXC. SERVICES AREA - 210.9m2	
TENANCY T1 (GROUND FLOOR)	118.0m² approx.
TENANCY T2	80.6m² approx.
TENANCY T3	162.4m² approx.
TENANCY T4	135.9m² approx.
TENANCY T5	135.9m² approx.
TENANCY T6	135.9m² approx.
TENANCY T7	135.9m² approx.
TOTAL AREAS	
BALCONY	157.4m² approx.
CAR PARKING SCHEDULE	
STANDARD CAR PARKS	417 Spaces
PWD CAR PARKS	10 Spaces
PARENTS CAR PARKS	16 Spaces
OVERALL CAR PARKS	
	443 Spaces
CAR PARKING RATIO	
CAR PARKS PROVIDED	443 Spaces
CAR PARK RATIO	8.7/100m²
BICYCLE PARKING	
CUSTOMER PARKS PROVIDED	16
STAFF PARKS PROVIDED	26

PRELIMINARY

Revisions / P2 07.12.17 PRELODGEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 20.12.17 PRELODGEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P4 02.03.18 LOGO/MENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 13.08.18 RFI RESPONSE

PN

13/08/2018 9:34:56 AM

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project / 10 ANZAC HIGHWAY,  
FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / LOCALITY PLAN

Project No. / 218033 Date / 06.07.18

Author / CL

Scale: @ A3 / 1 : 500

Drawing No. / TP-01

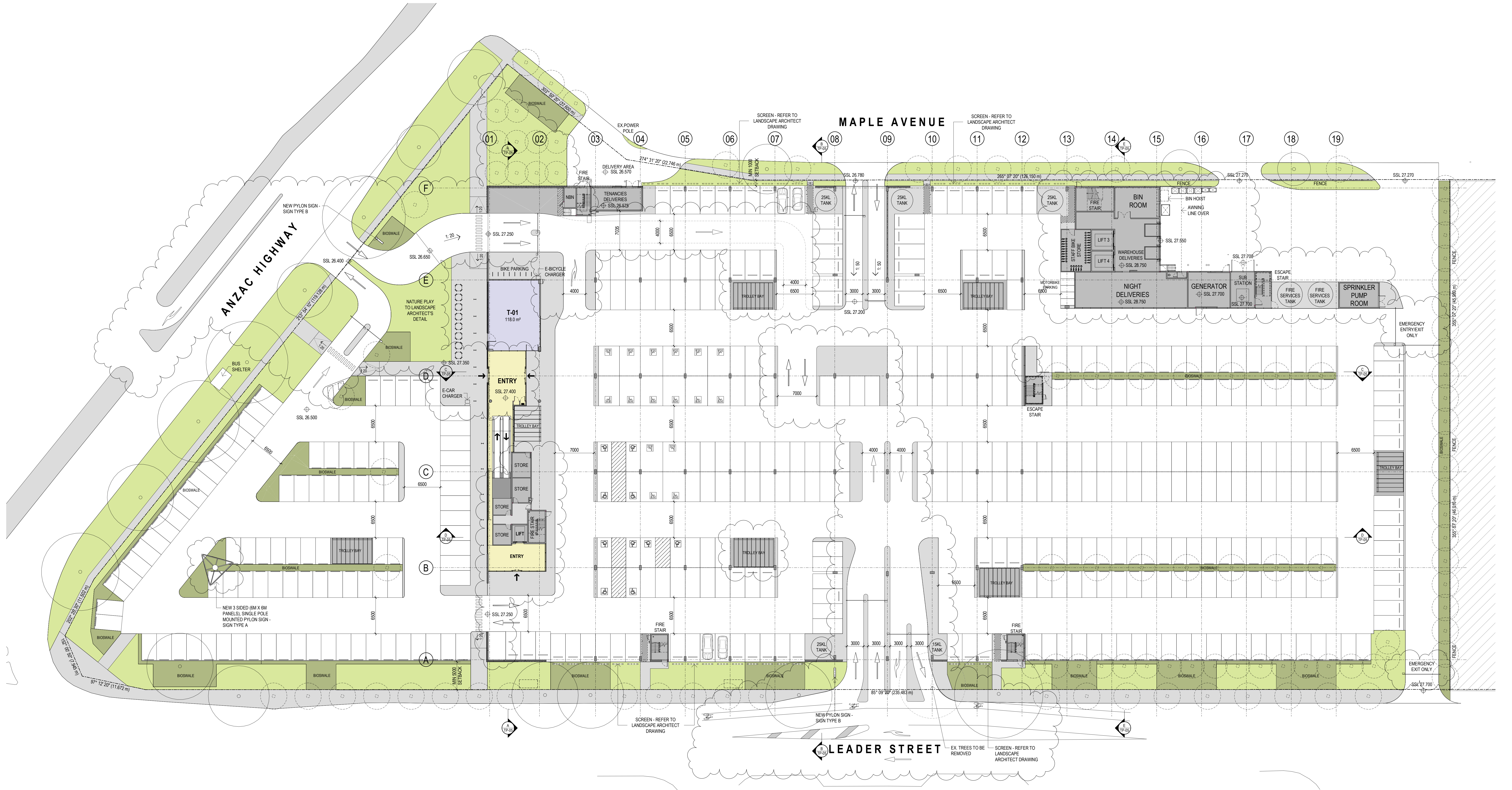
P5

rothelowman

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





- LEGEND**
- LANDSCAPE ZONE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - BIOSWALE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - PAVING
  - SERVICES AREAS
  - SUPERMARKET AREAS
  - SPECIALTY RETAIL
  - LIQUOR STORE
  - BACK OF HOUSE, OFFICES AND AMENITIES
  - ADJACENT DEVELOPMENT SITE (NOT PART OF THIS APPLICATION)

PRELIMINARY

Revisions / P4 21.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 23.02.18 REVISED TO SUIT CONCEPT ISSUE DATED 5.2.18 & CLIENT MEETING 19.2.18 - REFER TO ARCHITECTURE HQ DRAWING  
P6 28.02.18 GENERAL UPDATE SPRINKLER TANKS ADDED - REFER TO ARCHITECTURE HQ DRAWING  
P7 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P8 13.08.18 RPI RESPONSE

PH

13/08/2018 9:29:45 AM

Project / **10 ANZAC HIGHWAY, FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / **SITE PLAN AND GROUND FLOOR PLAN**

Project No. / **218033** Date / **03.07.18**

Author / **CL**

Scale: @ A3 / **As indicated**

Drawing No. / **TP-02**

**P8**

**rothelowman**

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document or other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997



PRELIMINARY

Revisions / P4 21.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 23.02.18 REVISED TO SUIT CONCEPT ISSUE DATED 5.2.18 & CLIENT MEETING 19.2.18 - REFER TO ARCHITECTURE HQ DRAWING  
P6 27.02.18 KAUFUND INTERNAL FIT OUT UPDATED - REFER TO ARCHITECTURE HQ DRAWING  
P7 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P8 13.08.18 RPI RESPONSE

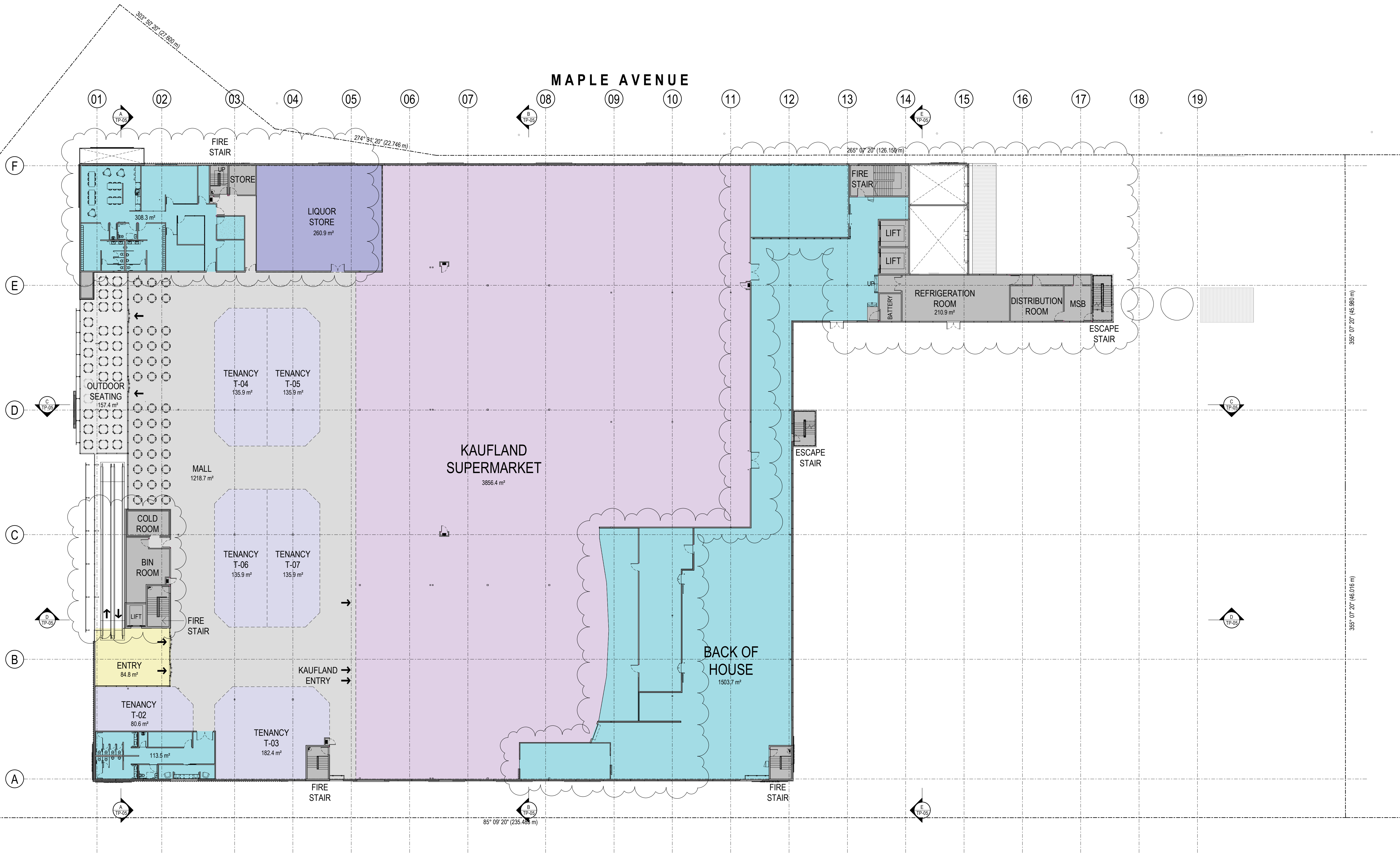
PH

13/08/2018 9:29:55 AM

LEADER STREET

MAPLE AVENUE

ANZAC HIGHWAY



- LEGEND**
- LANDSCAPE ZONE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - BIOSWALE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - PAVING
  - SERVICES AREAS
  - SUPERMARKET AREAS
  - SPECIALTY RETAIL
  - LIQUOR STORE
  - BACK OF HOUSE, OFFICES AND AMENITIES
  - ADJACENT DEVELOPMENT SITE (NOT PART OF THIS APPLICATION)

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project / **10 ANZAC HIGHWAY, FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / **FIRST FLOOR PLAN**

Project No. / **218033** Date / **03.07.18**

Author / **CL** Scale: @ A3 / **As indicated**

Drawing No. / **TP-03** **P8**

**rothelowman**

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorized changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997

PRELIMINARY

Revisions /  
P2 07.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 23.02.18 REVISED TO SUIT CONCEPT ISSUE DATED 5.2.18 & CLIENT MEETING 19.2.18 - REFER TO ARCHITECTURE HQ DRAWING  
P4 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 18.04.18 REVISED LODGEEMENT ISSUE  
P6 13.08.18 RPI RESPONSE

PN

13/08/2018 9:30:00 AM

LEADER STREET

MAPLE AVENUE

ANZAC HIGHWAY

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project /  
**10 ANZAC HIGHWAY,  
FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing /  
**ROOF PLAN**

Project No. /  
**218033** Date /  
**13.04.18**

Author /  
**PN**

Scale: @ A3 /  
**1 : 250**

Drawing No. /  
**TP-04**

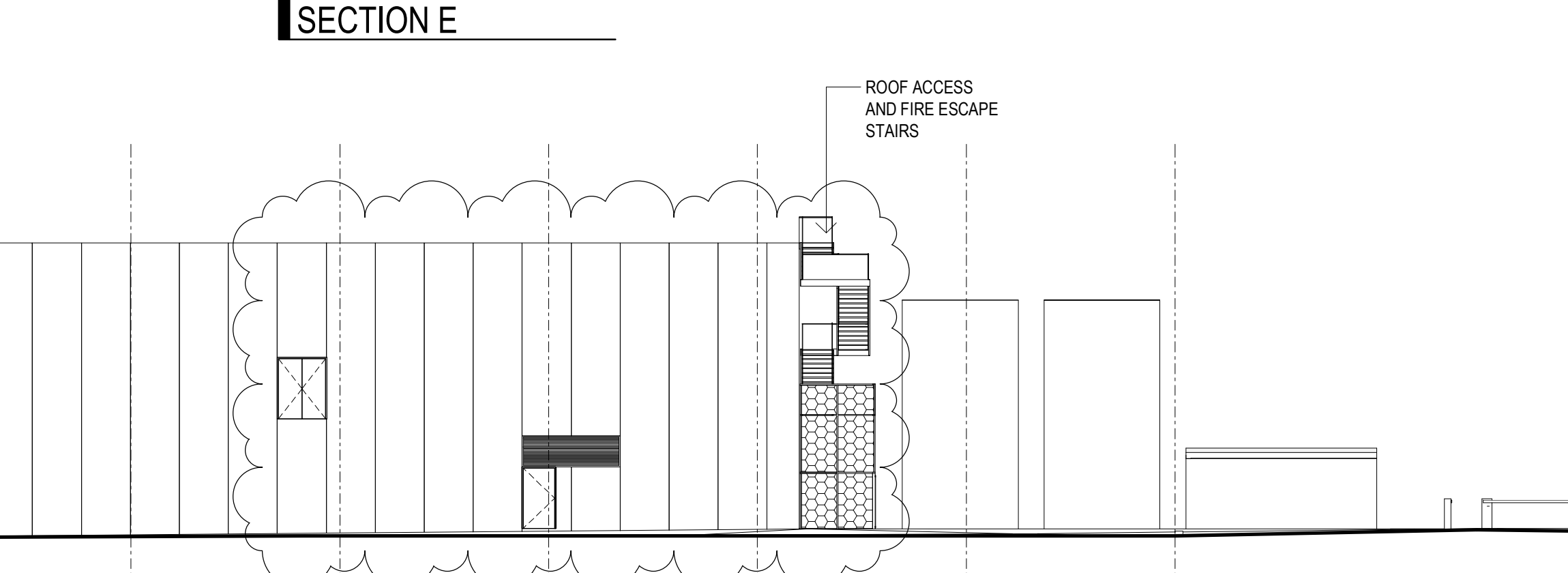
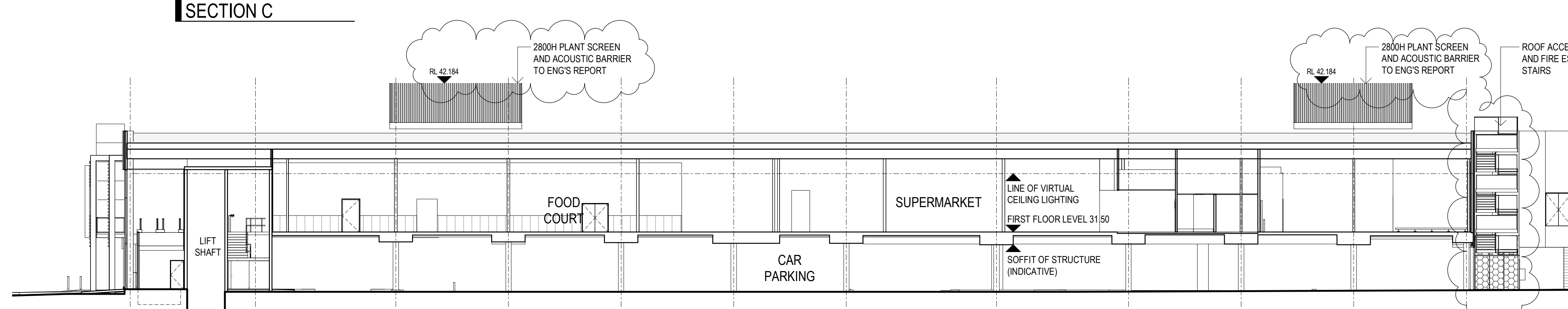
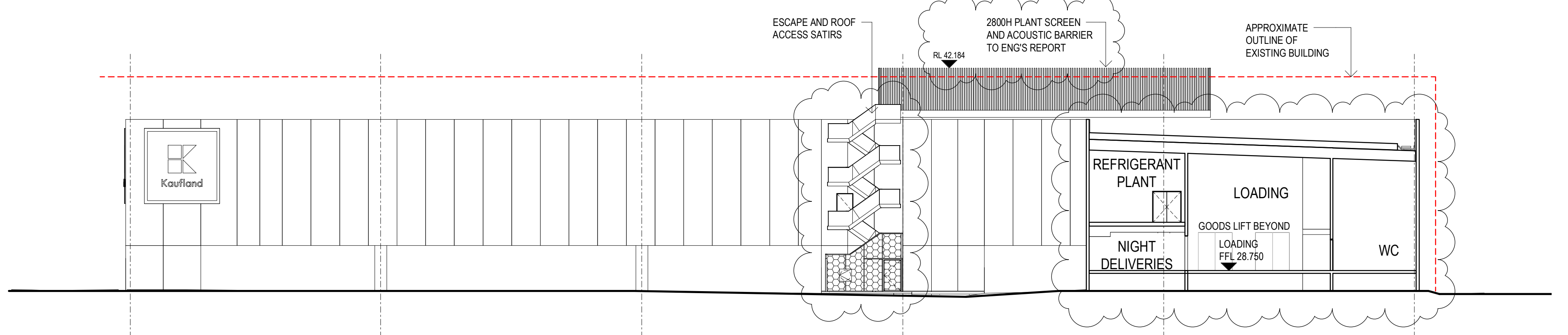
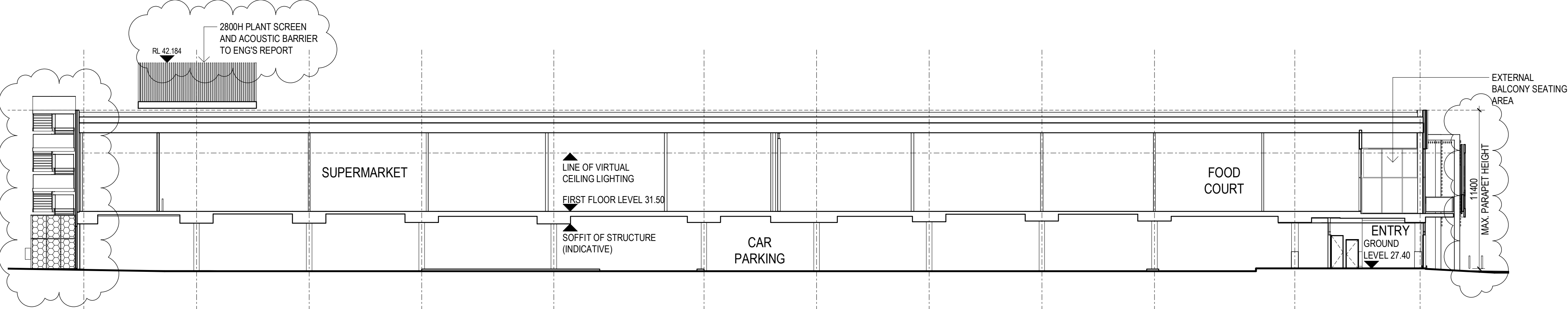
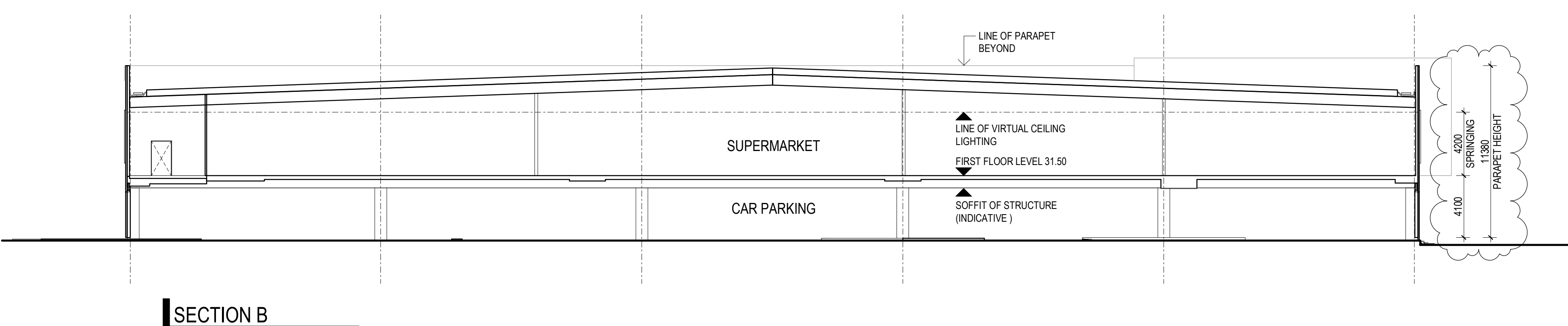
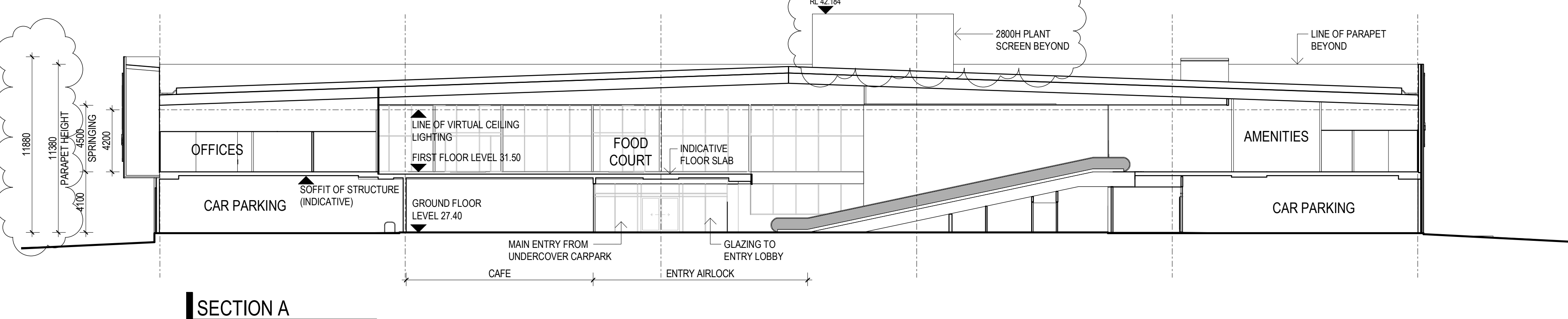
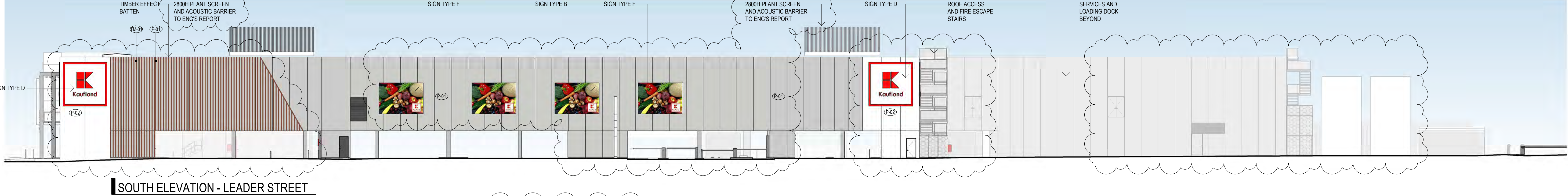
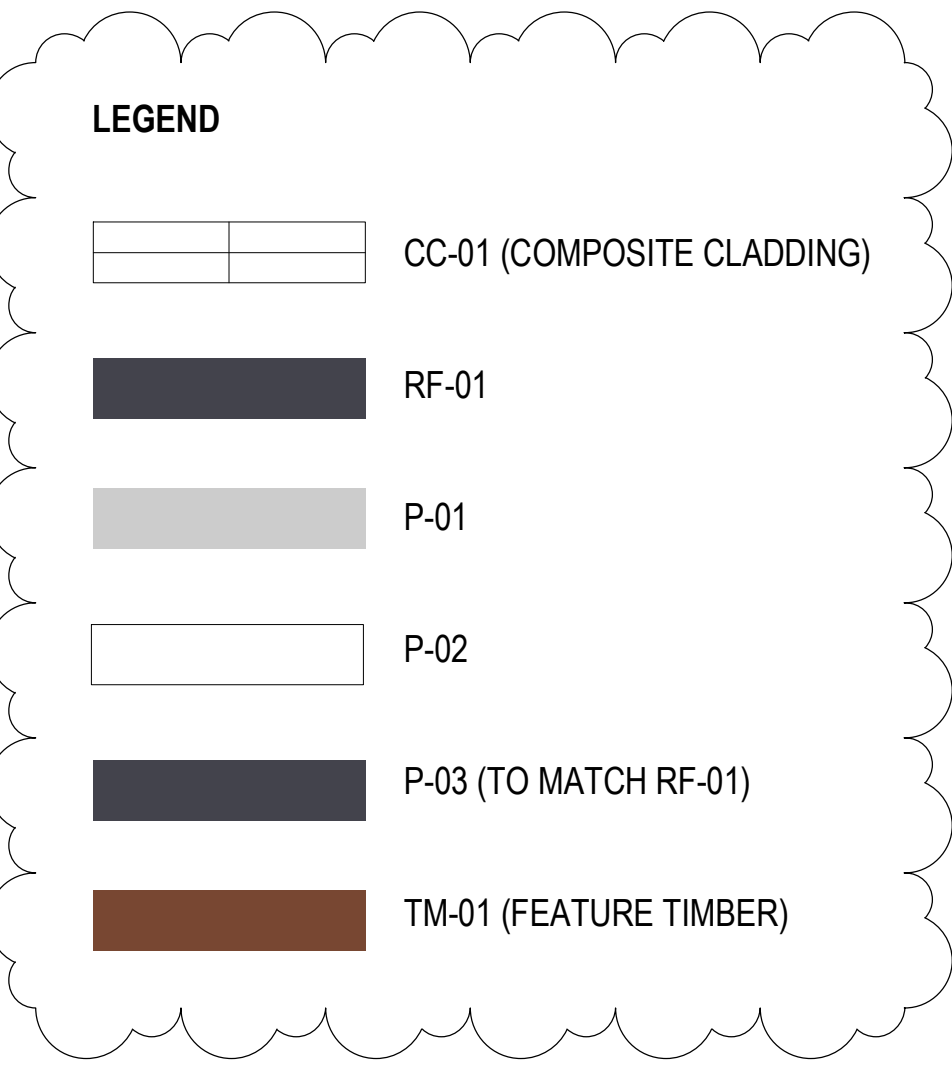
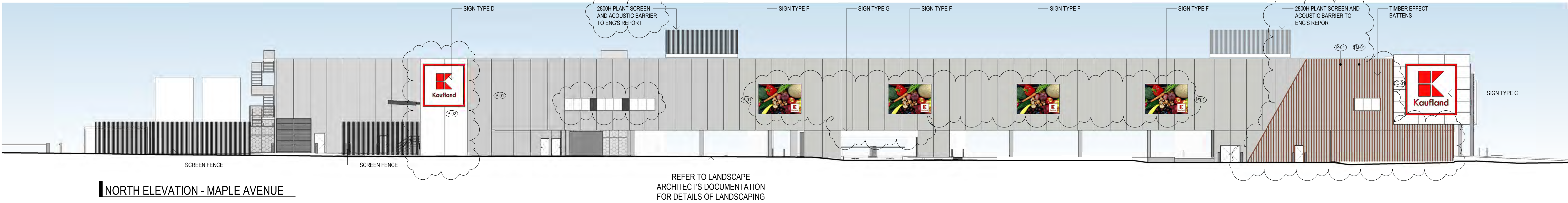
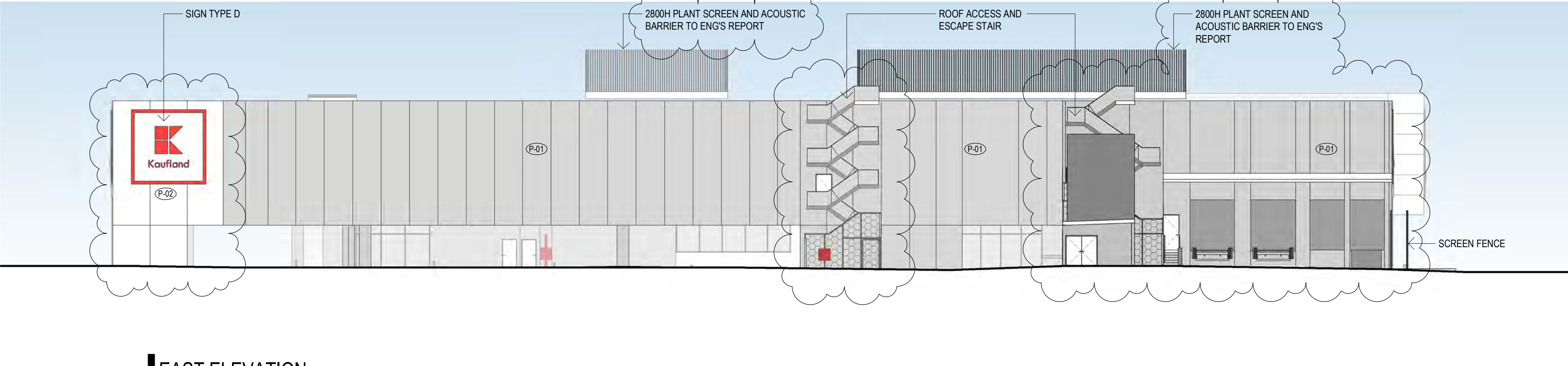
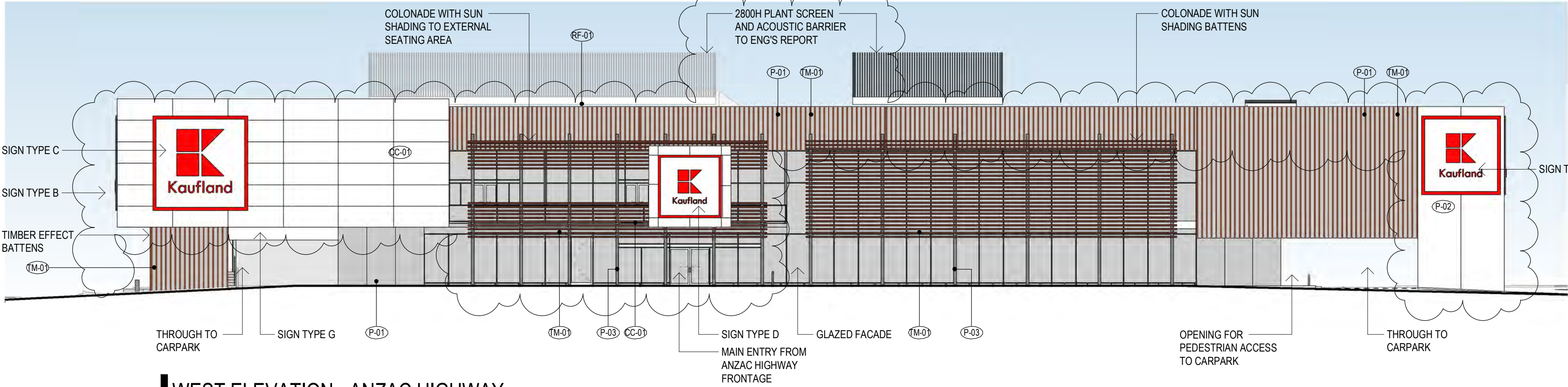
**P6**

**rothelowman**

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document or other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





PRELIMINARY

Revisions / P2 07.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 02.03.18 LODGEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P4 02.03.18 LODGEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 18.04.18 REVISED LODGEMENT ISSUE  
P6 13.08.18 RPI RESPONSE

PN

13/08/2018 9:33:23 AM

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project / 10 ANZAC HIGHWAY, FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / ELEVATIONS AND SECTIONS

Project No / 218033 Date / 13.04.18

Author / PN

Scale: @ A3 / As indicated

Drawing No / TP-05

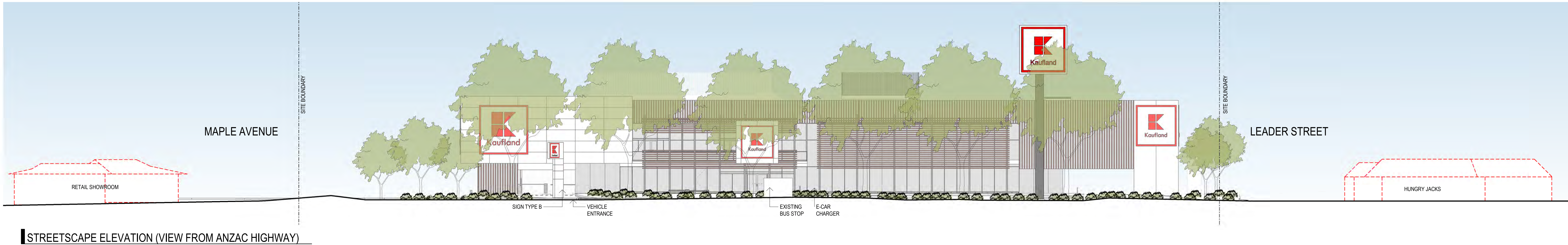
P6

rothelowman

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use. Unauthorised changes or reuse of the document or other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997

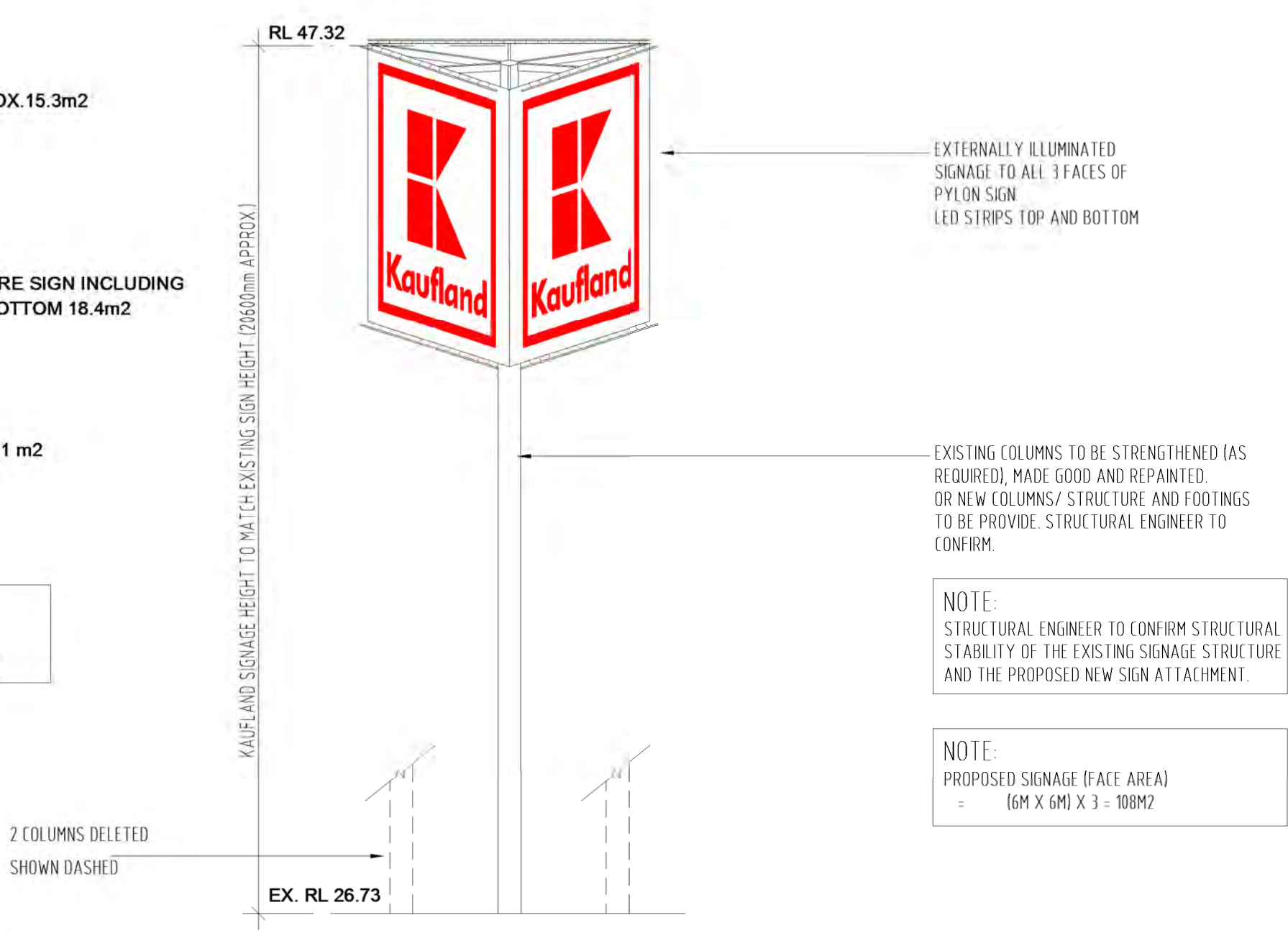




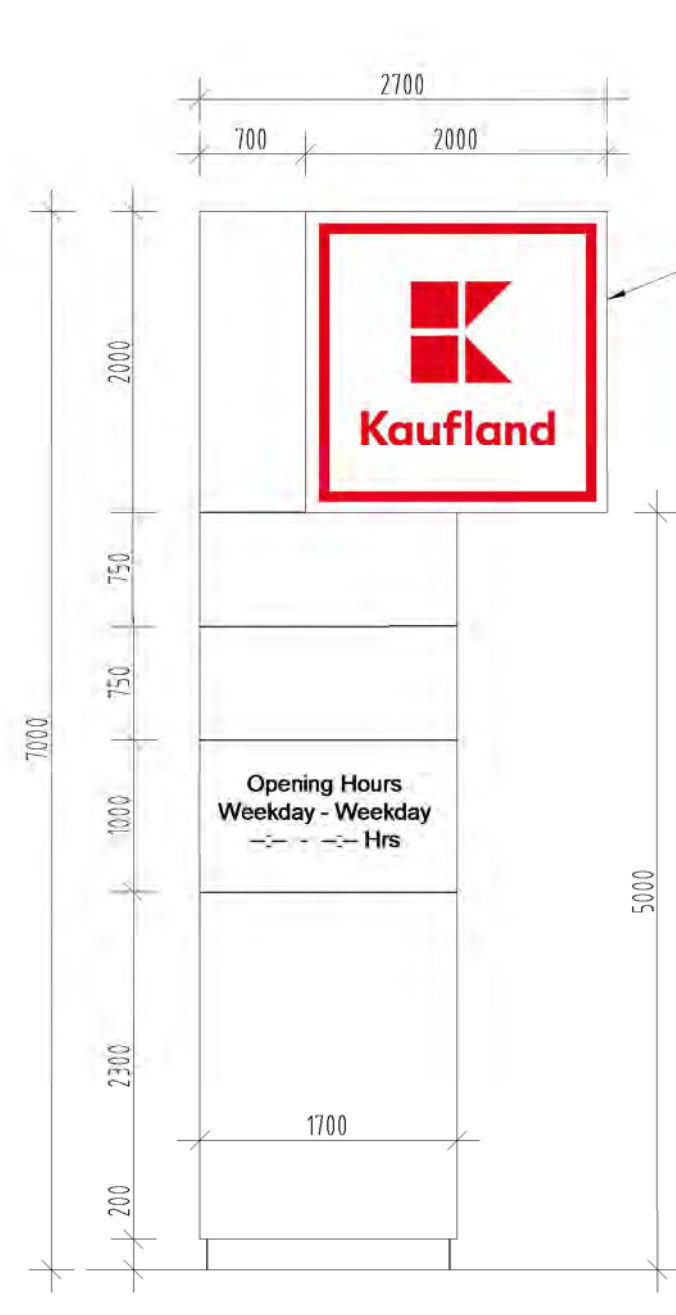
STREETSCAPE ELEVATION (VIEW FROM ANZAC HIGHWAY)



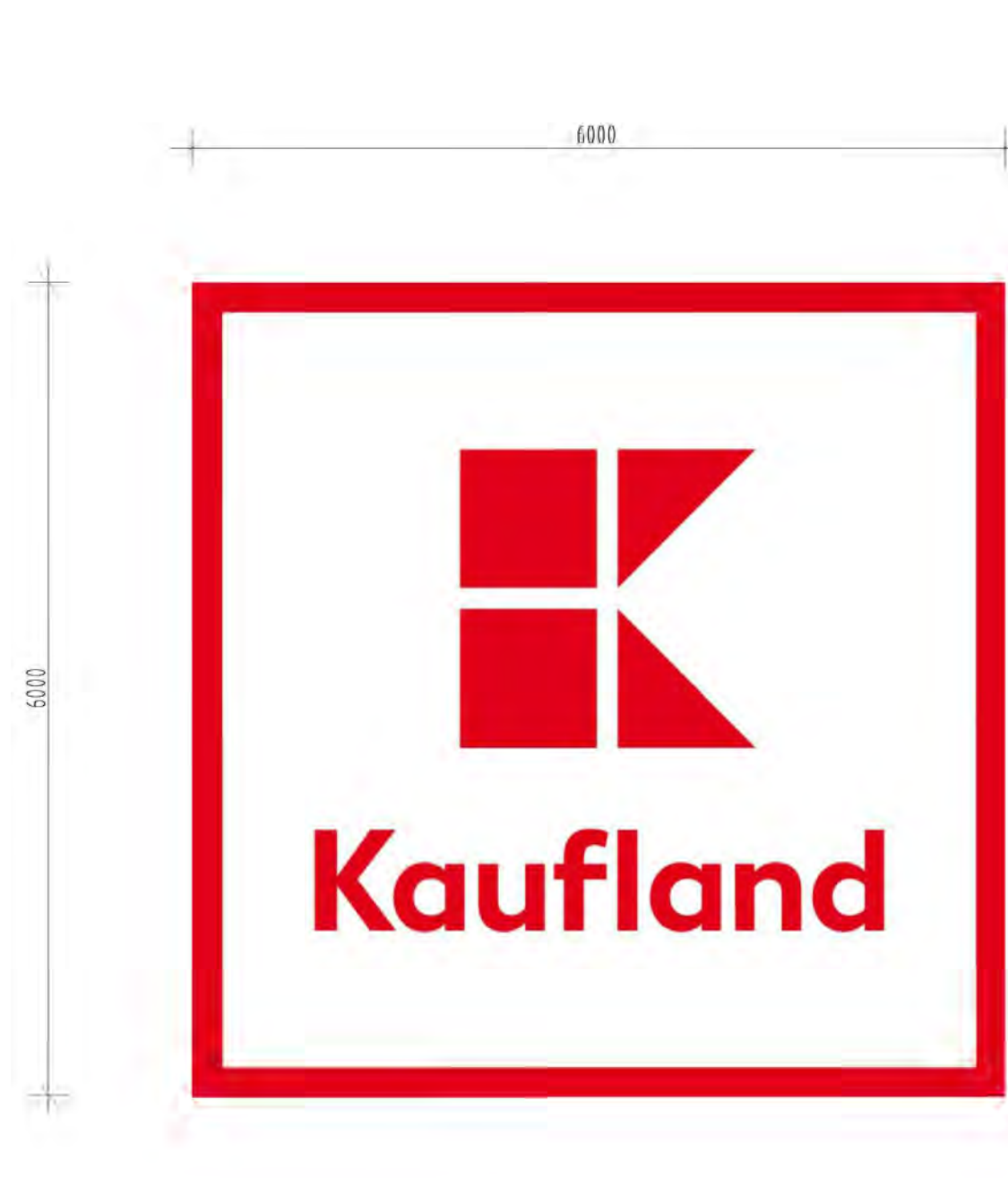
EXISTING PYLON SIGN  
(SURVEY FROM ALEXANDER SYMONDS)



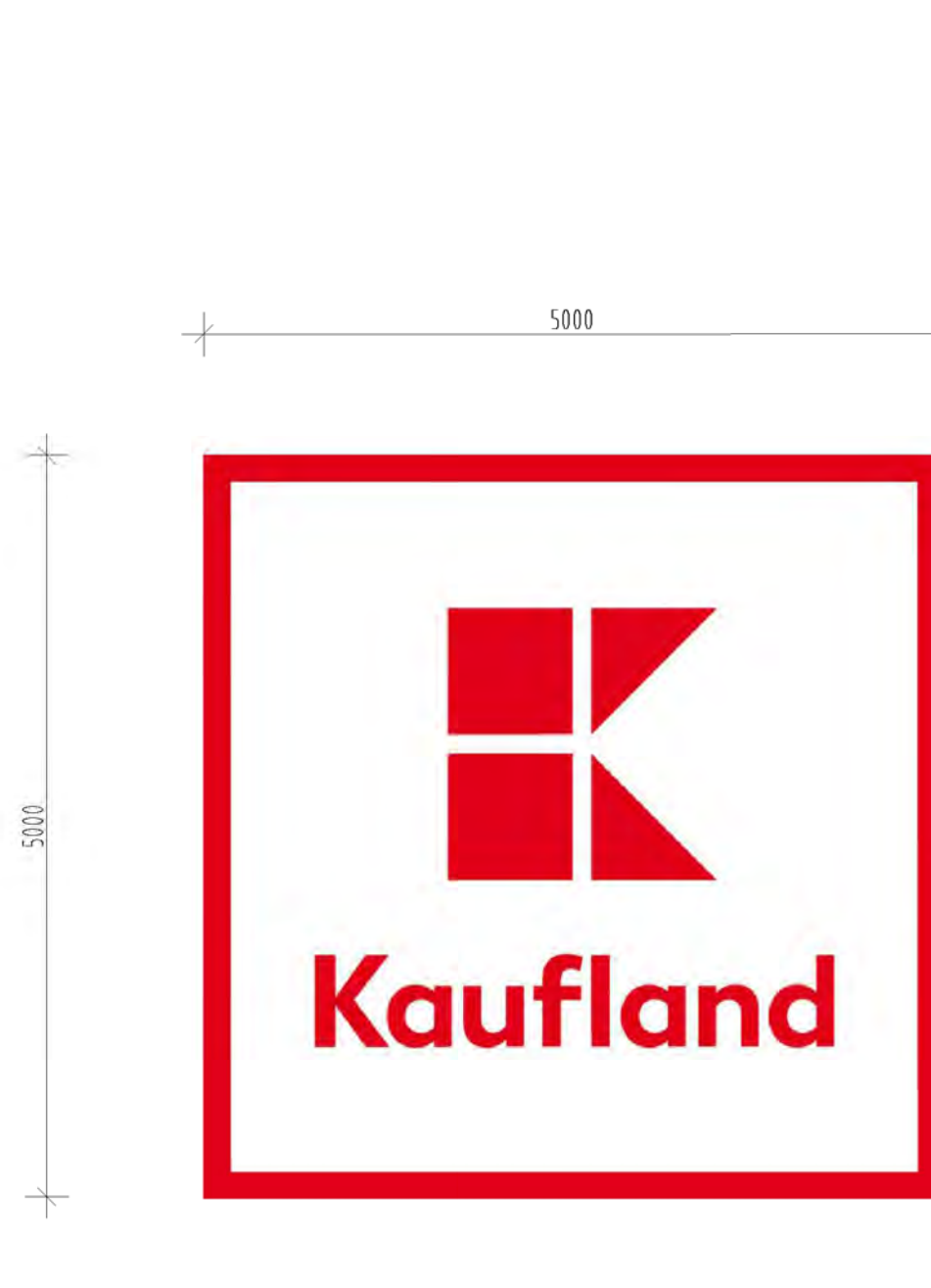
SIGN TYPE A - PROPOSED CONCEPT SIGN  
KAUFLAND PYLON SIGN



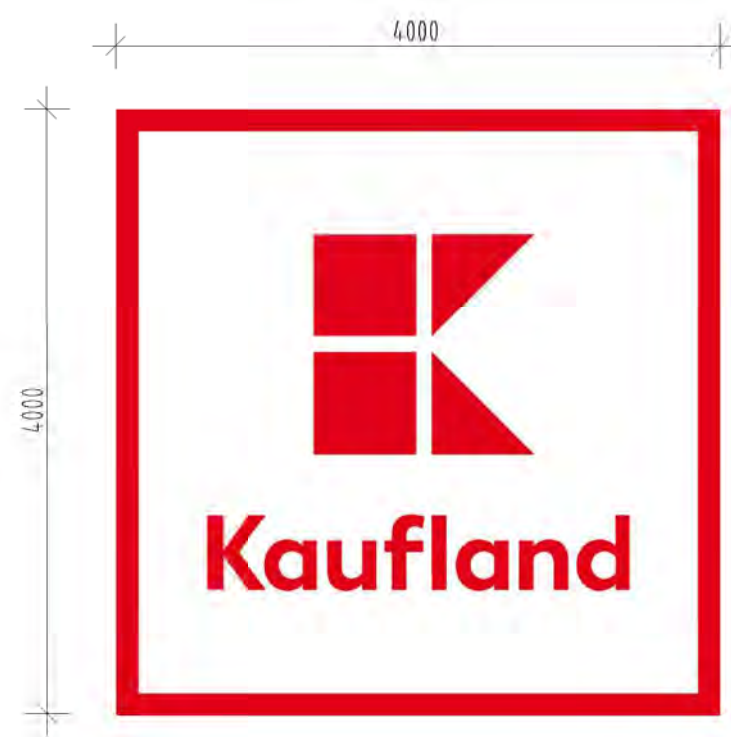
SIGN TYPE B - PROPOSED PYLON SIGN  
KAUFLAND PYLON SIGN



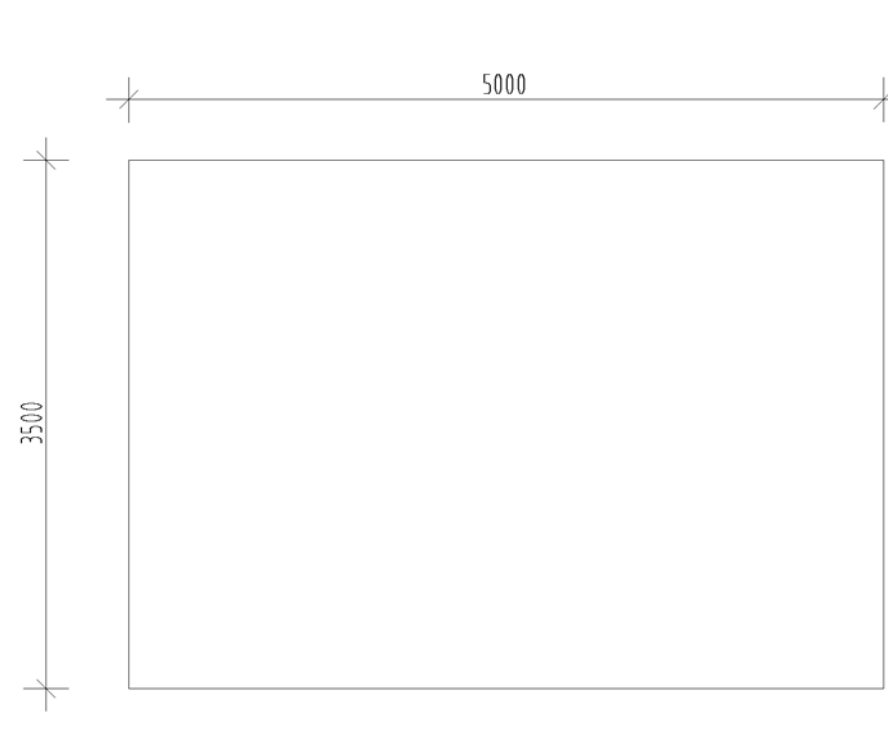
SIGN TYPE C - PROPOSED WALL MOUNTED SIGN  
KAUFLAND INTERNALLY ILLUMINATED SIGN



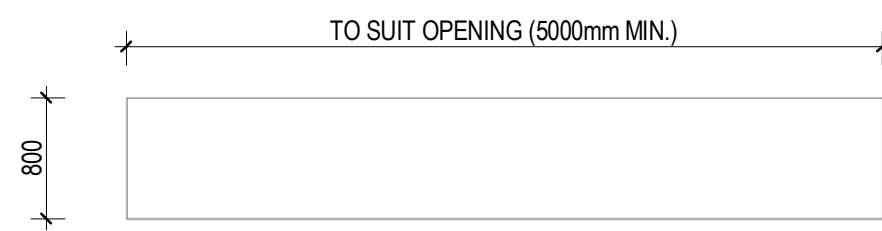
SIGN TYPE D - PROPOSED WALL MOUNTED SIGN  
KAUFLAND INTERNALLY ILLUMINATED SIGN



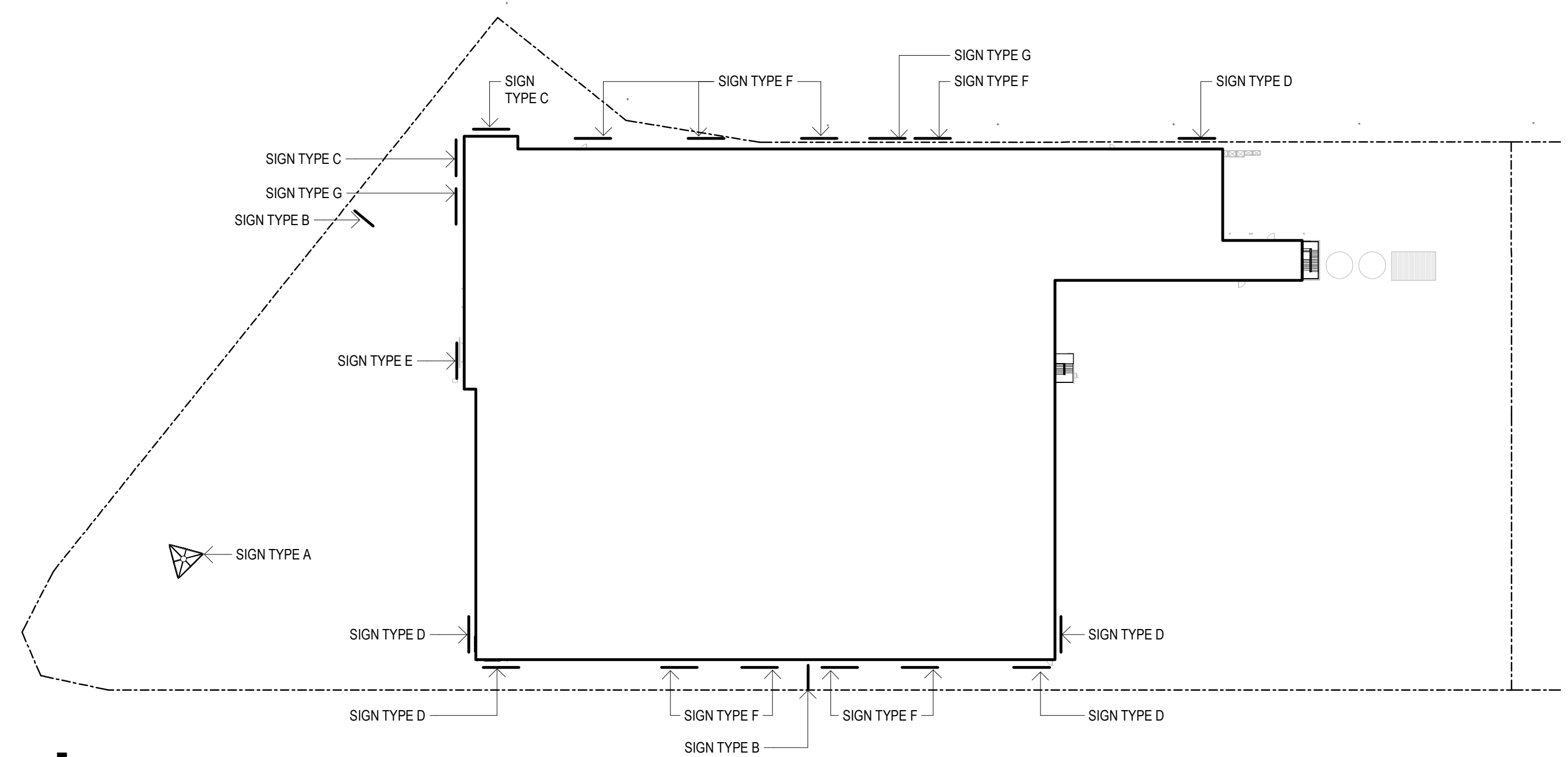
SIGN TYPE E - PROPOSED WALL MOUNTED SIGN  
KAUFLAND INTERNALLY ILLUMINATED SIGN



SIGN TYPE F - PROPOSED WALL MOUNTED SIGN  
EXTERNALLY ILLUMINATED SIGN



SIGN TYPE G - PROPOSED WALL MOUNTED SIGN  
CARPARK ENTRY SIGN



SIGNAGE KEY PLAN

PRELIMINARY

Revisions / P2 07.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P4 13.08.18 RPI RESPONSE

PN

13/08/2018 9:30:14 AM

Project / 10 ANZAC HIGHWAY,  
FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / STREETSCAPE AND  
SIGNAGE

Project No / 218033 Date / 02.07.18

Author / CL

Scale: @ A3 / As  
indicated

Drawing No / TP-06

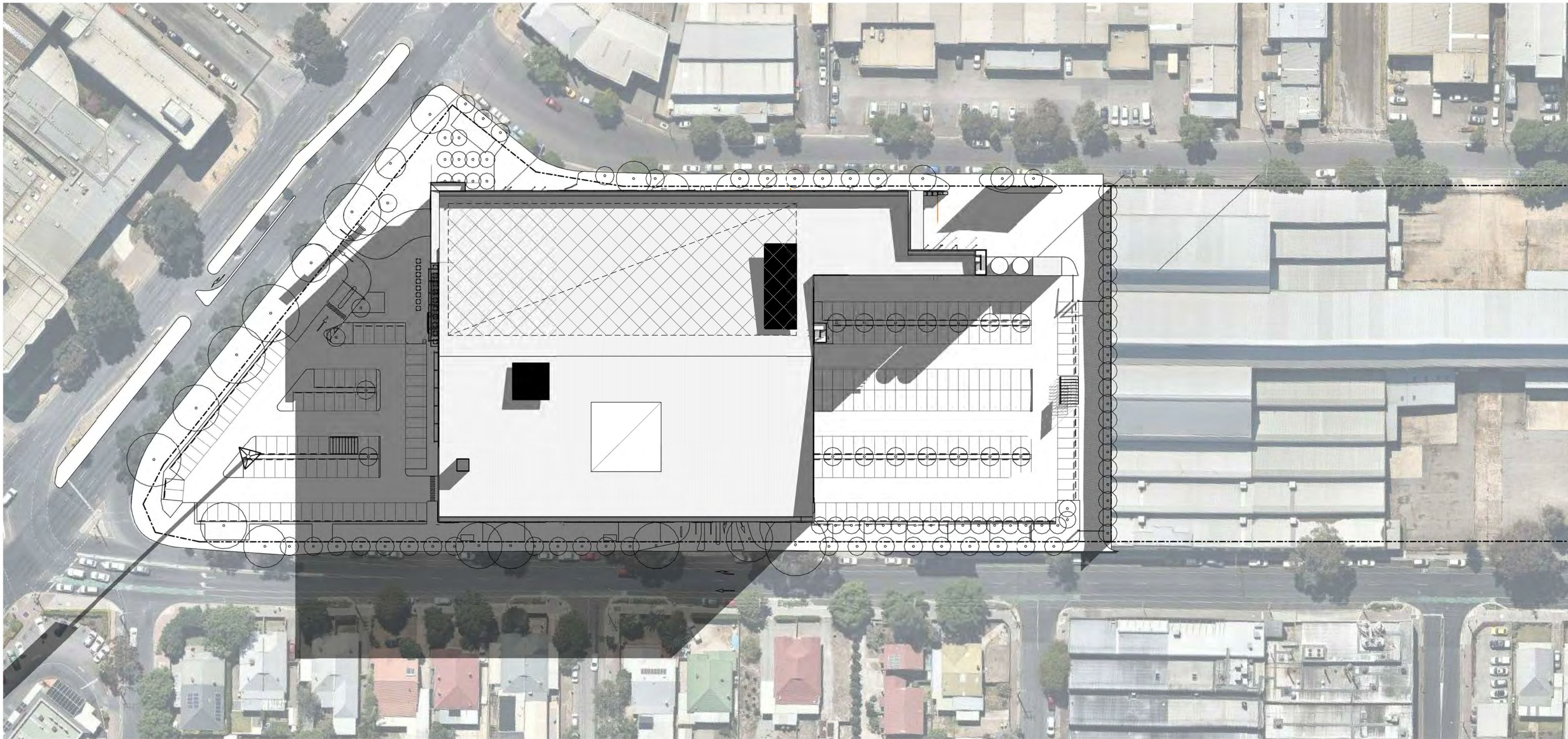
P4

rothelowman

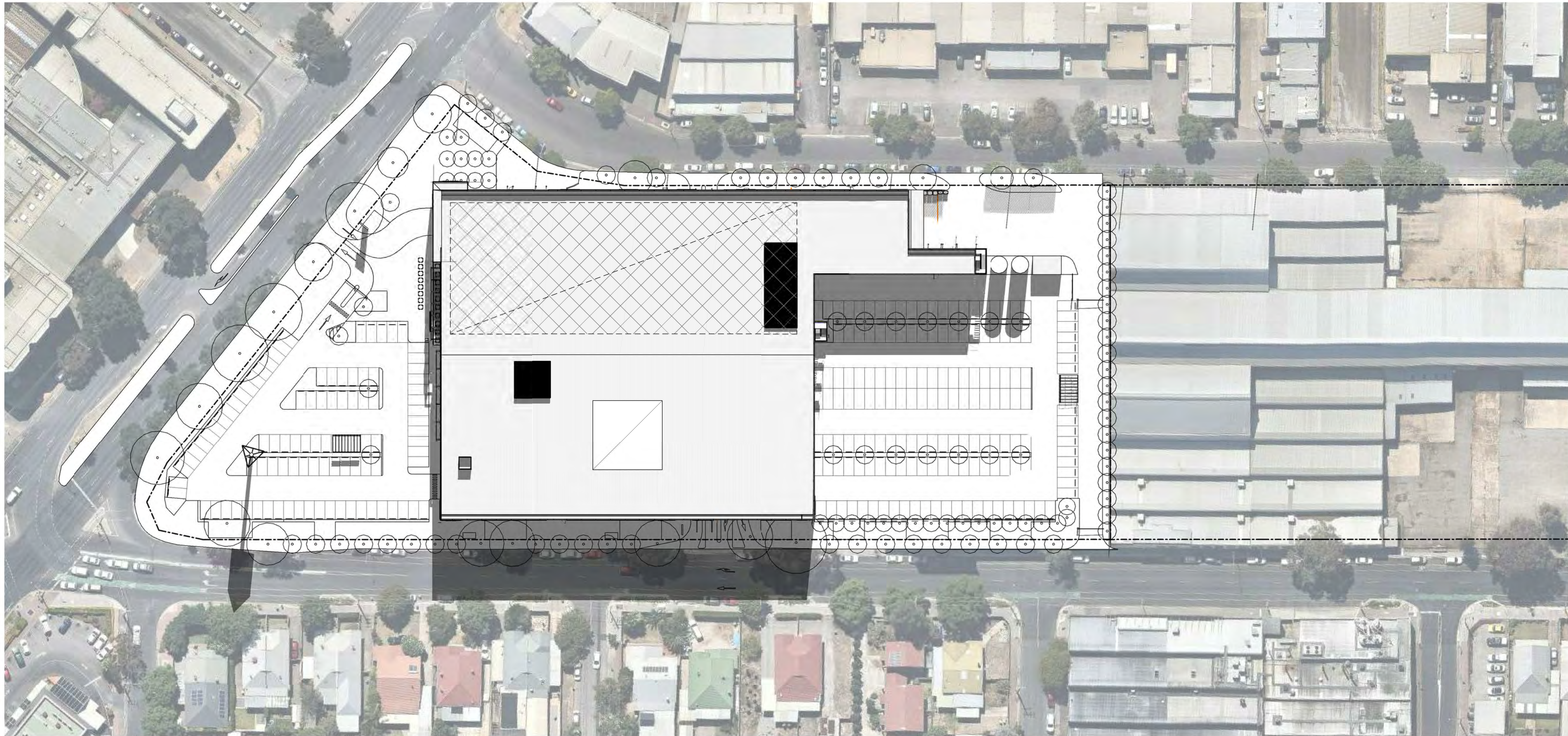
Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997

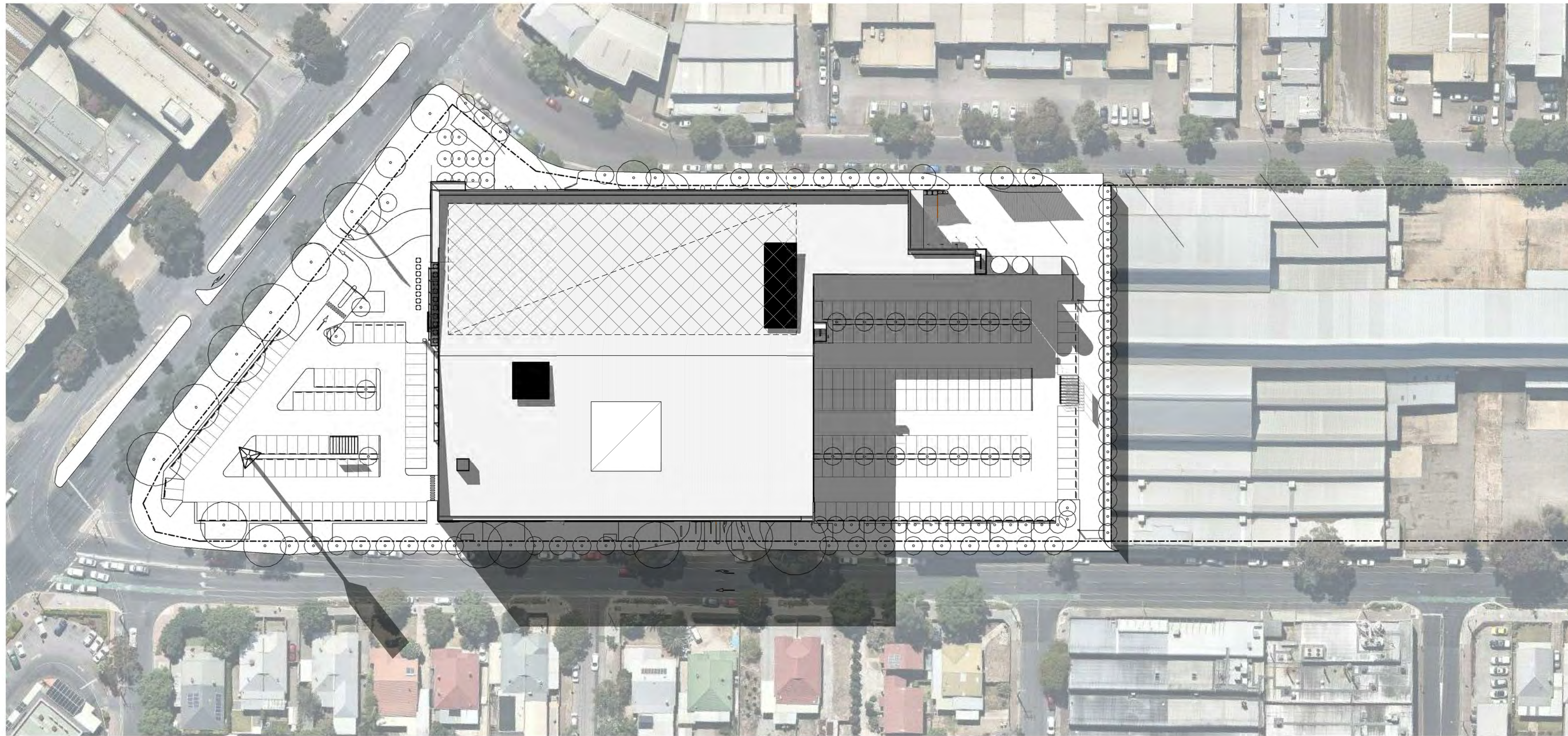




**PROPOSED SHADOW PLAN 9am**  
APPRXIMATE SHADING EXTENT, SEPTEMBER EQUINOX  
NOT TO SCALE



**PROPOSED SHADOW PLAN 12pm**  
APPRXIMATE SHADING EXTENT, SEPTEMBER EQUINOX  
NOT TO SCALE



**PROPOSED SHADOW PLAN 3pm**  
APPRXIMATE SHADING EXTENT, SEPTEMBER EQUINOX  
NOT TO SCALE

**PRELIMINARY**

Revisions /  
P2 07.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P3 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P4 18.04.18 REVISED LODGEEMENT ISSUE  
P5 13.08.18 RFI RESPONSE

PN

13/08/2018 9:30:37 AM

**10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA**

Project /  
**10 ANZAC HIGHWAY,  
FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing /  
**SHADOW DIAGRAMS**

Project No /  
**218033** Date /  
**13.04.18**

Author /  
**PN** Scale: @ A3 /  
**1 : 750**

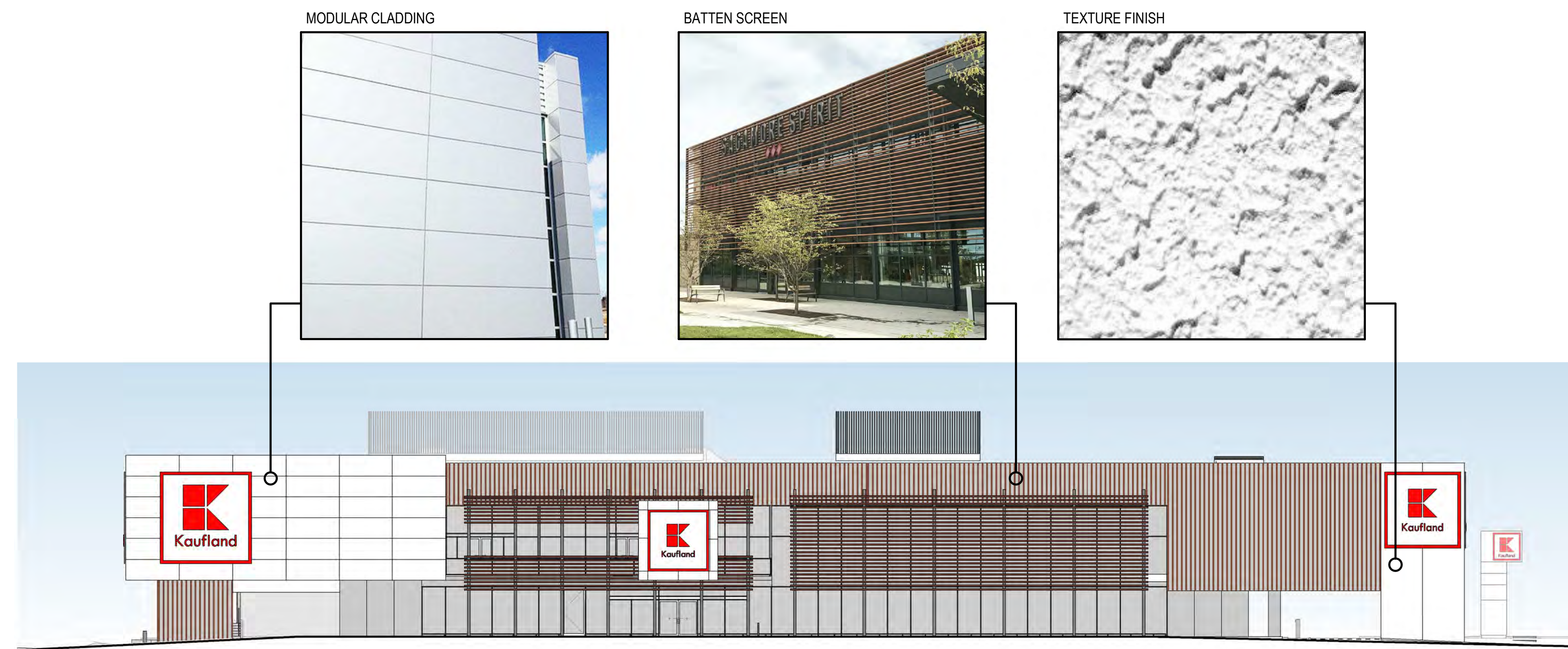
Drawing No /  
**TP-07** **P5**

**rothelowman**

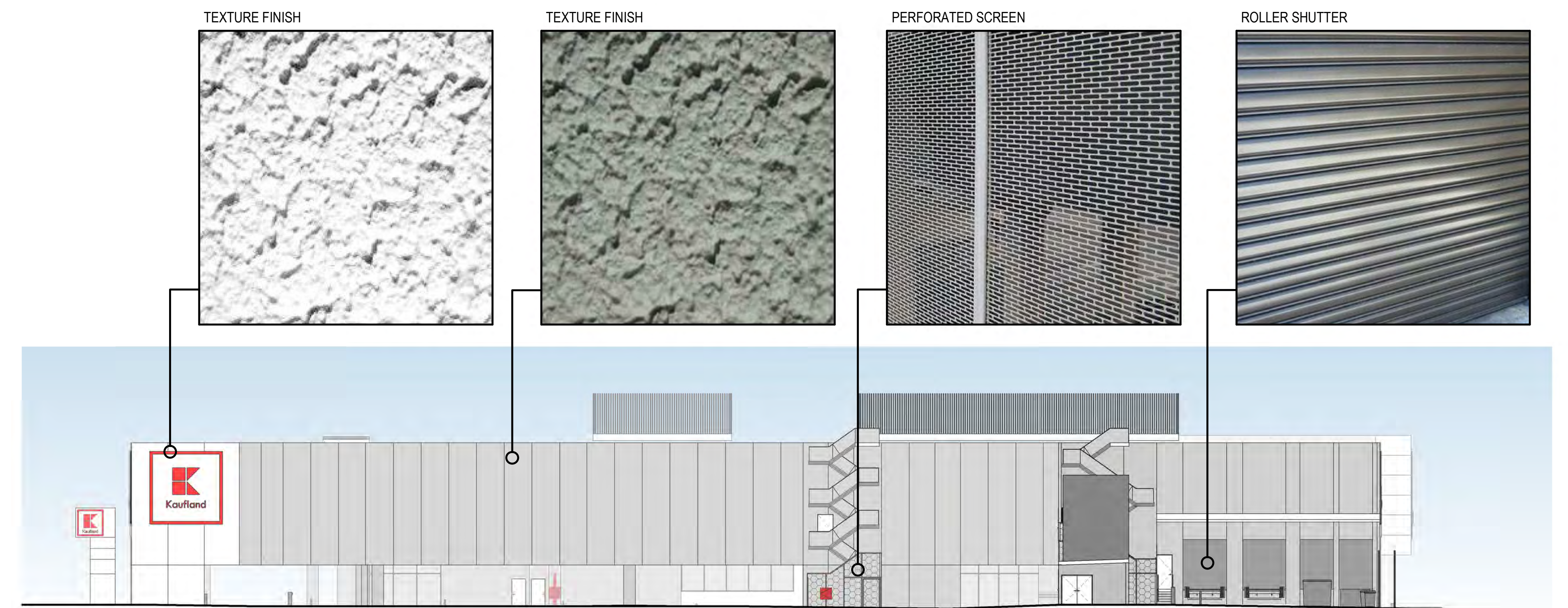
Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





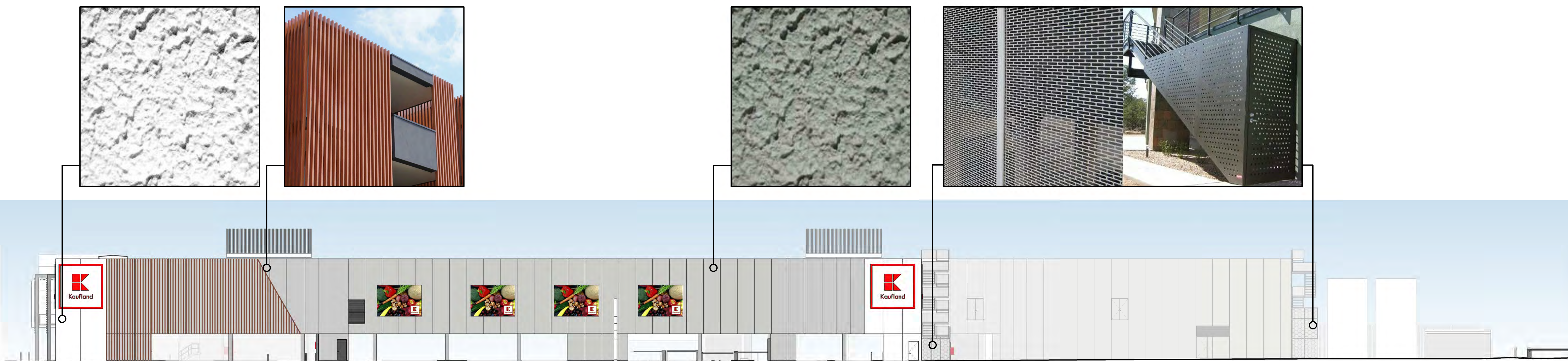
WEST ELEVATION - ANZAC HIGHWAY



EAST ELEVATION



NORTH ELEVATION - MAPLE AVENUE



SOUTH ELEVATION - LEADER STREET

PRELIMINARY

Revisions / P1 13.08.18 RFI RESPONSE

PN

10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA

Project / 10 ANZAC HIGHWAY, FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / BUILDING MATERIALS

Project No. / 218033

Date / 09.07.18

Author / PN

Scale: @ A3 / 1 : 200

Drawing No. / TP-08

P1

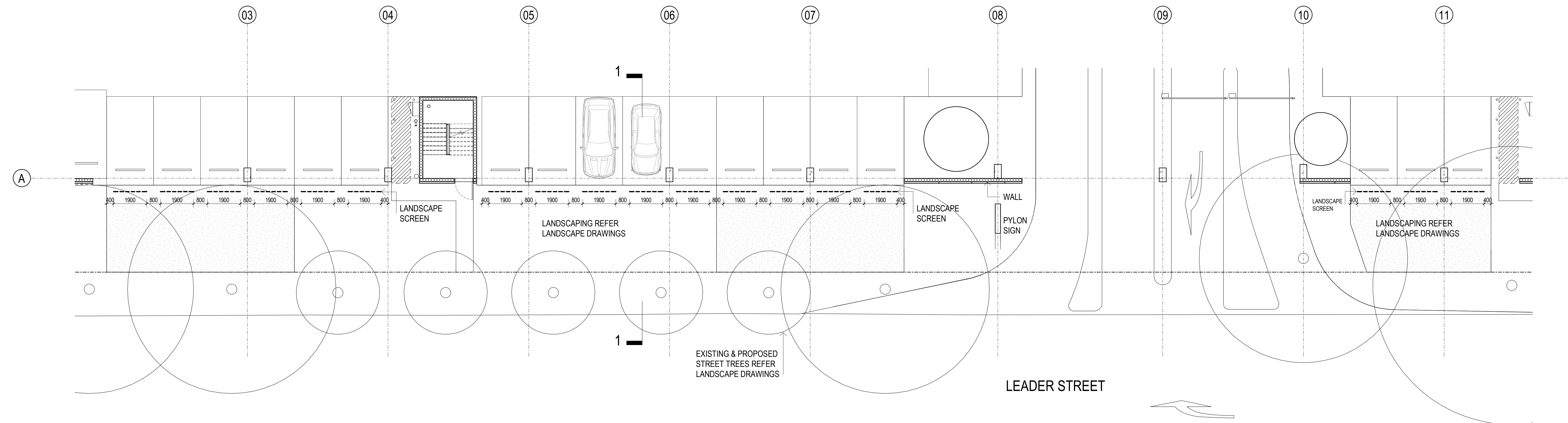
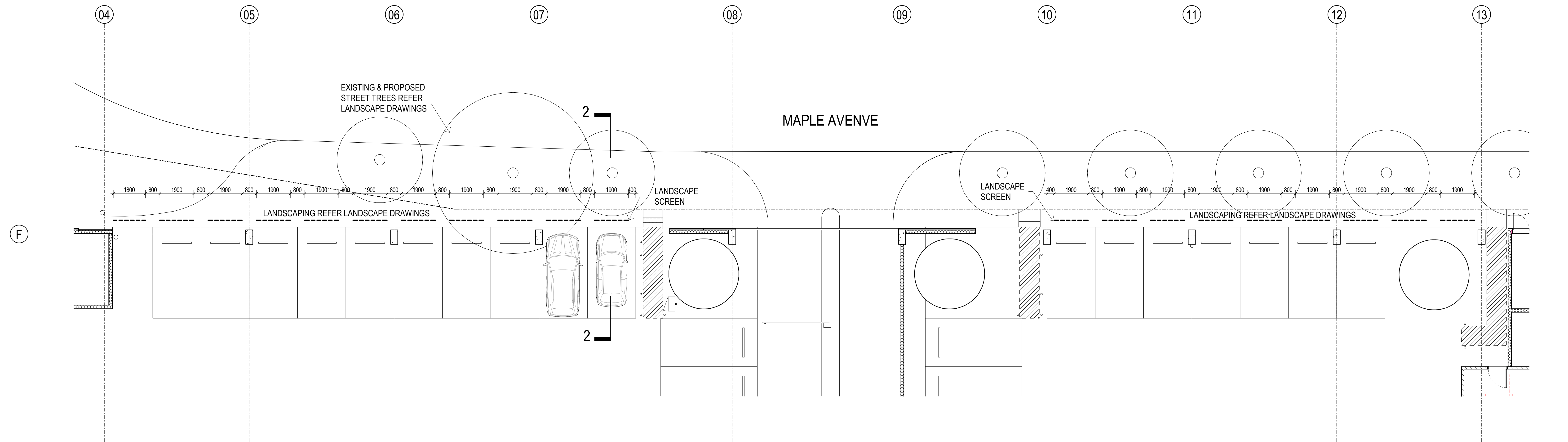
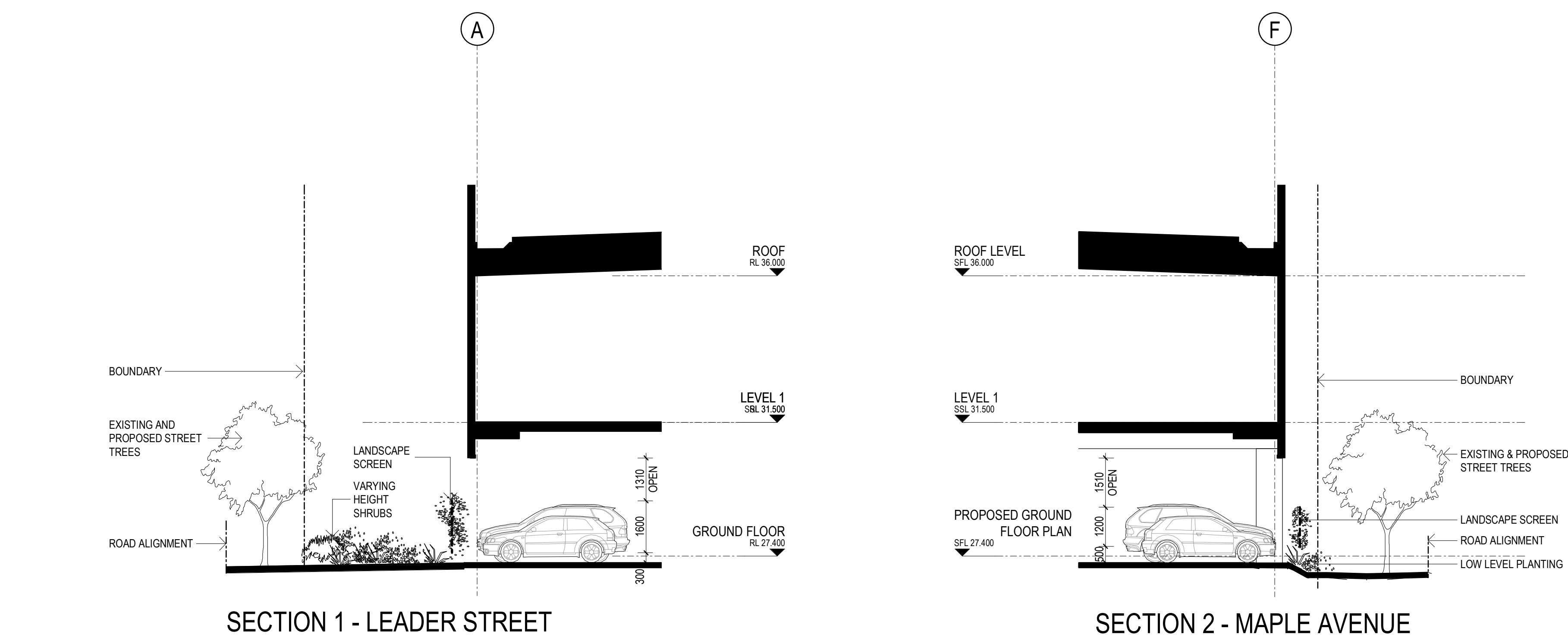
rothelowman

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

13/08/2018 11:29:07 AM

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





PRELIMINARY

Revisions / P1 13.08.18 RFI RESPONSE

PN

Project / 10 ANZAC HIGHWAY, FORESTVILLE  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / LANDSCAPE SCREENING DETAILS

Project No / 218033 Date / 07.08.18

Author / PN

Scale: @ A3 / 1 : 100

Drawing No / TP-09

P1

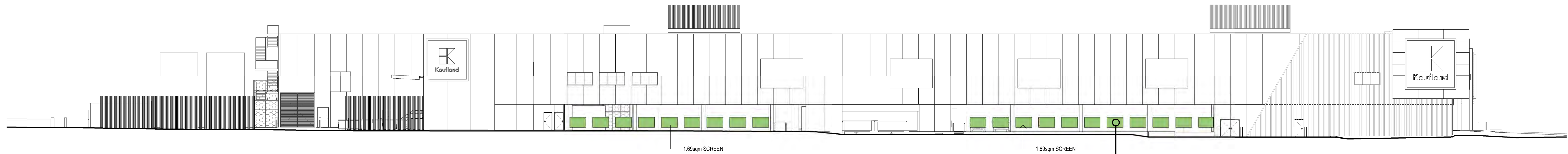
rothelowman

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

13/08/2018 11:29:12 AM

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorized changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997





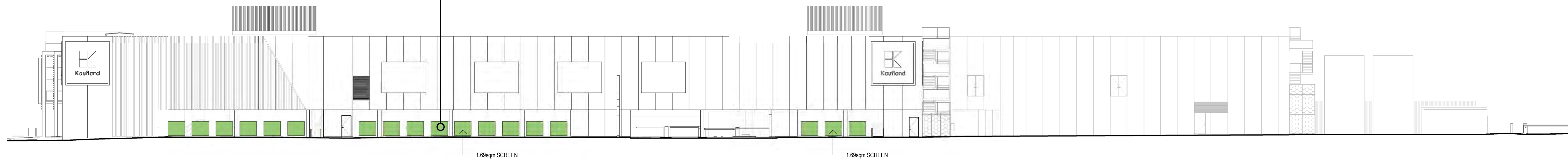
**NORTH ELEVATION - MAPLE AVENUE**



LEADER STREET LANDSCAPE SCREENING



MAPLE STREET LANDSCAPE SCREENING



**SOUTH ELEVATION - LEADER STREET**

**PRELIMINARY**

Revisions / P1 13.08.18 RFI RESPONSE

PN

13/08/2018 11:29:47 AM

**10 ANZAC HIGHWAY, FORESTVILLE SOUTH AUSTRALIA**

Project / **10 ANZAC HIGHWAY, FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / **LANDSCAPE SCREENING ELEVATIONS**

Project No. / **218033** Date / **07.08.18**

Author / **PN**

Scale: @ A3 / **1 : 200**

Drawing No. / **TP-10**

**P1**

**rothelowman**

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document on other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstance shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997



LIST OF DRAWINGS

LC01	LANDSCAPE CONCEPT
LC02	LANDSCAPE DETAILS
LC03	LANDSCAPE DETAILS
LC04	PLANTS SCHEDULE
LC05	PLANT PHOTO SHEET 1
LC06	PLANT PHOTO SHEET 2

ENTRY PLAZA CONCOURSE  
With City of Unley Streetscape Furniture

SS BIKE HOOPS

ANZAC AVENUE  
INTERPRETATION SIGN  
To Council Approved Detail

CIVIC SEAT NODE

CHARCOAL  
CONCRETE PAVING

EXISTING ANZAC MEMORIAL  
AVENUE OF HONOUR TREES  
CLARET ASH  
Fraxinus 'Raywoodii'  
To be Carefully Retained  
and Protected

MASSED LOW GROUND COVER  
Eg: Dietes 'Variegata'  
OR other Species  
Approved by Council

GRANITIC SAND  
MULCH PAVING  
60mm Deep Consolidated  
Granitic Sand  
Note: Porous Resin  
Aggregate Alternative  
Option

GRID OF EMERGENT BOTTLE TREES -  
*Brachychiton rupestris*  
See Rain Garden Detail

RAIN GARDEN 'INSTALLATION'  
Concrete Edge Strips  
Yankalilla Aggregate Mulch  
Massed Low Sedges

'BOARDWALK' DECK  
OVER RAIN GARDEN

PLANT CLIMBING SCREEN  
See Detail D2 LC02

STREET TREES (Alternating)  
Eucalyptus torquata CORAL GUM  
Koelreuteria paniculata GOLDEN RAIN TREE  
@ 6m Crs

ADVANCED HEDGE  
Ficus 'Flash' @ 600mm CRS  
Clip to 1.2m Even Height

STRAPPY LEAF PLANTING  
Lomandra 'Tanika' and  
Dianella 'Little Rev'  
@ 400mm Staggered Crs.

CAFE/OUTDOOR DINING  
  
PLAY AREA  
RUBBER MOUNDS - 'LOW OLGAS'  
MAZE OF TOTEM TREE TRUNKS.  
2-2.1m Ht. / 500mm Dia  
Mulch Softfall.  
See Detail D4 LC02

PLANT CLIMBING SCREEN  
RONSTAN SS GRID MESH  
300x300x6mm  
TENSIONED B/W BUILDING  
& GROUND GARDEN BED  
(3m NOM HT.)  
CLIMBING PLANTS VARY  
B/W SCREENS  
STAR JASMINE  
Trachelospermum jasminoides  
PLANTED @ 600mm Crs

LARGE SHRUBS  
Callistemon 'Harkness'

GRANITIC SAND BAND

STREET TREES  
Ulmus parvifolium  
Chinese Elm @ 7.5m Crs

RAIN GARDEN  
Concrete Edge Strips  
Yankalilla Aggregate Mulch  
20mm Nom. Size  
Alternating Swathes of Sedges  
Ficinia nodosa (Knobby Club Rush)  
Juncus amabilis (Green Rush)  
Scattered @ 600mm Crs

GROUPED SHRUB CLUSTERS  
• Westringia fruticosa  
• Correa alba  
• Eriostemon glabra  
@ 100mm Crs.

TREE PIT  
2m x 1m x 1m Depth  
Drained Structural Soil  
Porous Resin  
Aggregate Cutout  
150x1500mm

GARDEN BED  
(1.5m WIDE)  
LINE OF SHRUBS  
Correa alba  
@ 600mm Staggered Crs

MASSED GROUND COVER  
Lomandra 'Tanika' and  
Dianella 'Little Jess'  
@ 450mm Staggered Crs.

RAIN GARDEN  
Concrete Edge Strips  
Yankalilla Aggregate Mulch  
20mm Nom. Size  
Alternating Swathes of Sedges  
Ficinia nodosa (Knobby Club Rush)  
Juncus amabilis (Green Rush)  
Scattered @ 600mm Crs

STREET TREES  
Ulmus parvifolium  
Chinese Elm @ 7.5m Crs

LINE OF TREES  
Eucalyptus scoparia  
@ 5.2m Crs  
ie: 2 No. CAR BAY INTERVALS

REV NO.	ISSUE	DATE
A	FOR REVIEW	JULY 2018
B	FOR REVIEW	JULY 2018

KEY:

No. 16  
EXISTING TREES  
To Be Retained

EXISTING TREES  
To Be Removed

PROPOSED TREES  
Refer Plant Schedule

GARDENBED  
• Remove weeds  
• 15mm cultivation,  
• 200mm imported topsoil  
• 15 mm Deep Wood  
Chip Mulch  
• Refer Theme Plant  
Schedule

RAIN GARDEN  
Concrete Edge Strips  
Yankalilla Aggregate Mulch  
20mm Nom. Size

PAVING  
600x300 Sawn Stone  
Paver  
See Detail D1 LC03  
SEAT & LITTER BIN  
See Detail D8 LC03

GRANITIC SAND  
50mm Deep Yankalilla  
Compacted Granitic Sand

CHARCOAL CONCRETE  
PAVING

TANK  
STORMWATER  
HARVESTING TANK

FENCE  
2.4m Ht.

Pyrus 'Capital'  
Capital Fear  
@ 4m Crs

LOW TUFT LEAF PLANT  
Alternating Lengths (8m)  
of  
Lomandra 'Tanika' and  
Dianella 'Little Rev'  
@ 400mm Staggered Crs.

CARPARK THEME TREES  
Eucalyptus 'Euky Dwarf'  
@ 3No. CAR BAY INTERVALS

BIOSWALE  
Concrete Edge Strips  
Yankalilla Aggregate Mulch  
20mm Nom. Size  
Alternating Swathes of Sedges  
between Trees:  
Ficinia nodosa (Knobby Club Rush)  
Juncus amabilis (Green Rush)  
Scattered @ 600mm Crs



rothelowman



Project	KAUFLAND 10 ANZAC HWY		
Title	LANDSCAPE CONCEPT (DRAFT)		
Date	JULY 2018	Scale	1:300@B1
Project No.	2032	File/Drawing No.	LC01
		Revision	B

EXISTING TREE LIST

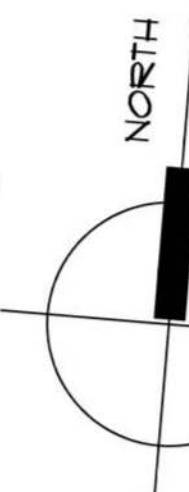
Refer to 'Arborman Tree Solutions' Tree Assessment Report for information on Existing Trees.  
Existing Tree numbers are based on above report.

TREE No.	BOTANICAL NAME	COMMON NAME	STATUS
No.13	Koelreuteria paniculata	Golden Rain Tree	Retain
No.14	Eucalyptus torquata	Coral Gum	Retain
No.15	Koelreuteria paniculata	Golden Rain Tree	Retain
No.16	Koelreuteria paniculata	Golden Rain Tree	Retain
No.17	Koelreuteria paniculata	Golden Rain Tree	Retain
No.18	Koelreuteria paniculata	Golden Rain Tree	Retain
No.19	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain

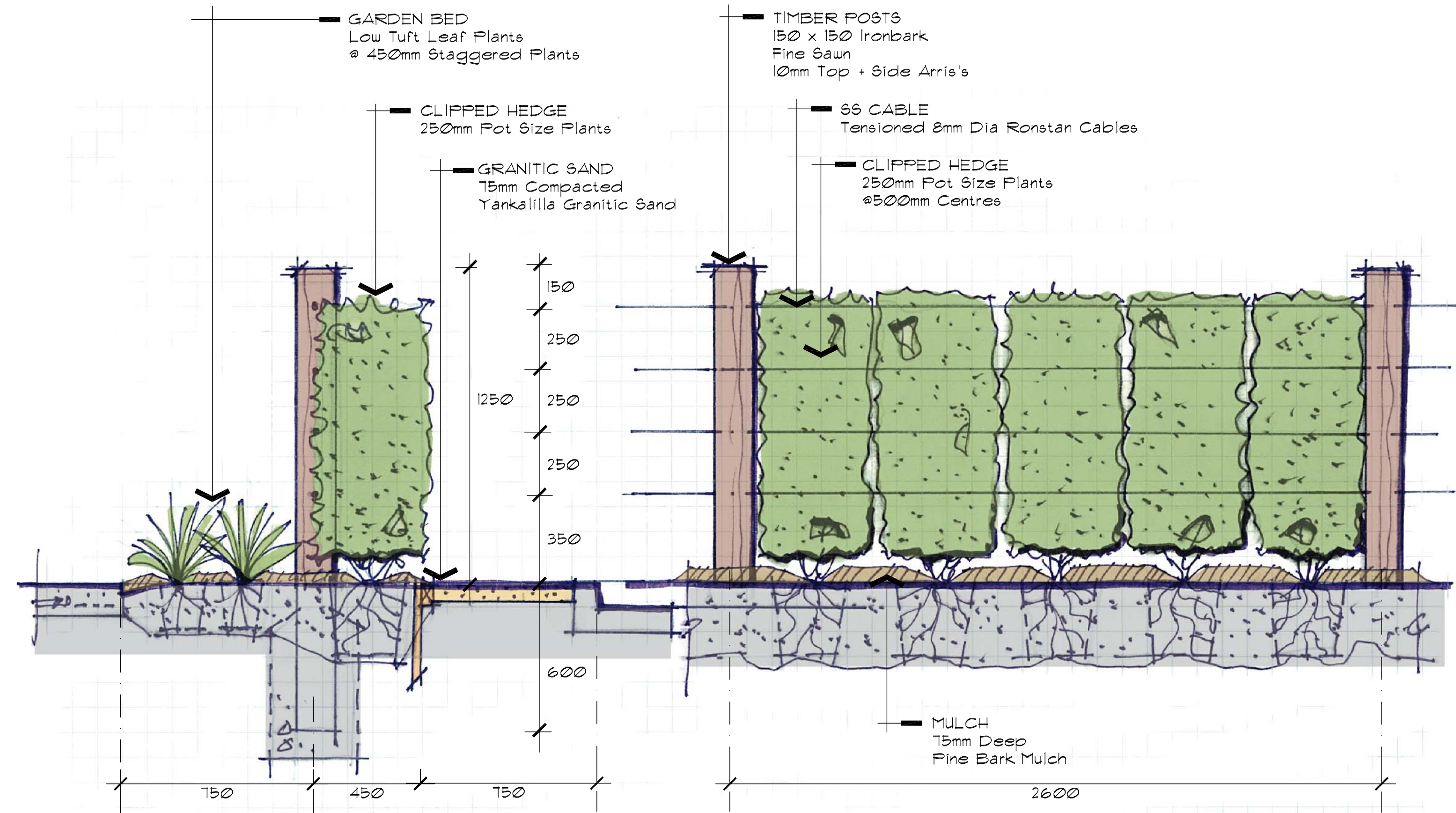
TREE No.	BOTANICAL NAME	COMMON NAME	STATUS
No.20	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.21	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.22	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.23	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.24	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.25	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain
No.26	Fraxinus angustifolia 'Raywood'	Claret Ash	Retain

TREE No.	BOTANICAL NAME	COMMON NAME	STATUS
No.27	Eucalyptus scoparia	Wallangarra White Gum	Retain
No.28	Eucalyptus cinerea	Argyle Apple	Retain
No.29	Eucalyptus cinerea	Argyle Apple	Retain
No.30	Eucalyptus scoparia	Wallangarra White Gum	Retain
No.32	Eucalyptus scoparia	Wallangarra White Gum	Remove
No.33	Eucalyptus scoparia	Wallangarra White Gum	Retain
No.41	Fraxinus angustifolia ssp. angustifolia	Desert Ash	Retain

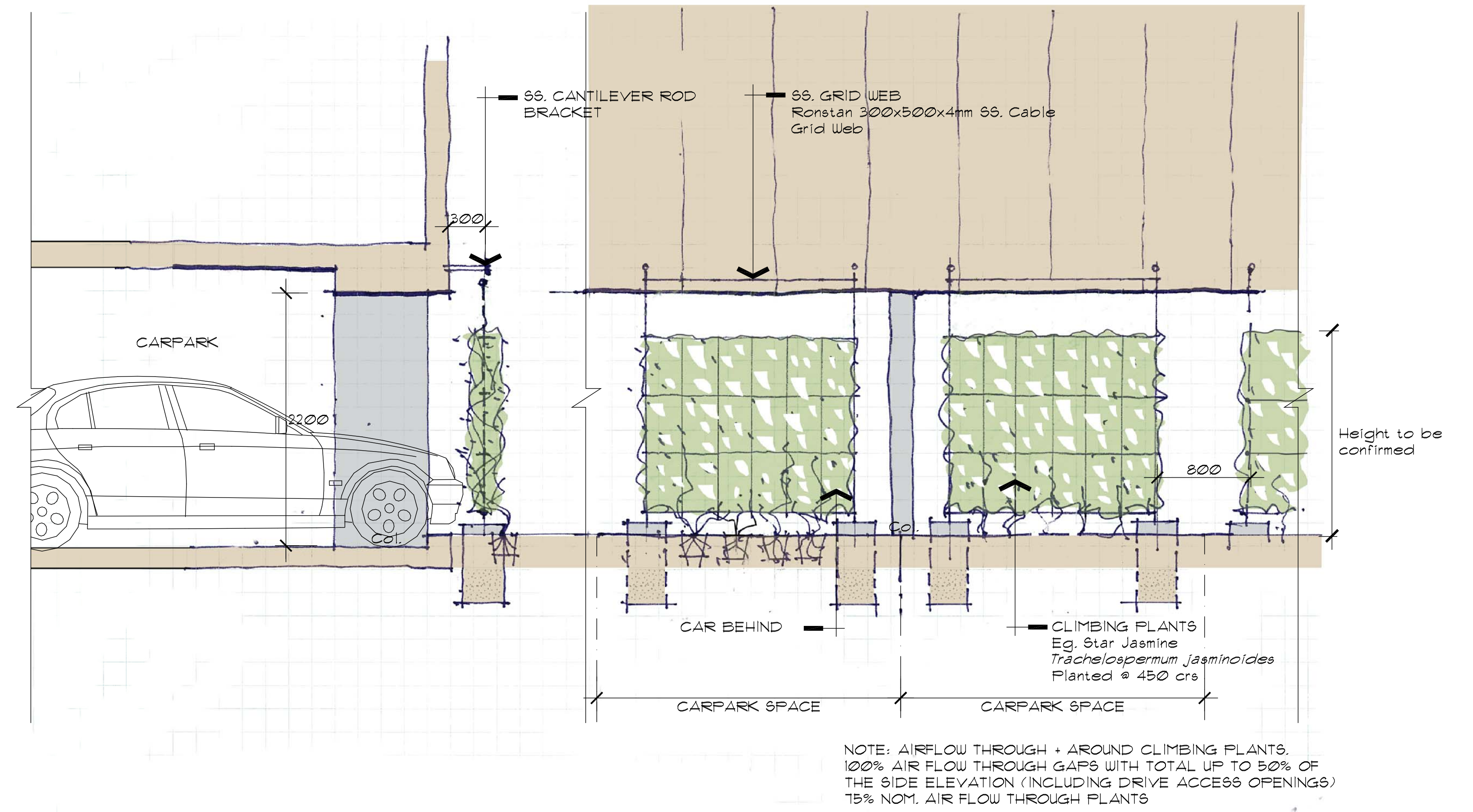
AUTOMATIC IRRIGATION NOTES:  
Stormwater Harvesting Tanks (5 No) which are shown on this plan collect stormwater from the roof.  
The Rain Gardens and Bioswales will be irrigated from these tanks. This will filter, reduce and slow any stormwater discharge from the site. It will also water the associated massed sedge planting, which will utilise the moisture for evapotranspiration and nutrient uptake.  
All soft landscape garden bed areas within the site will have an automatic irrigation system, integrated with the above system. One of the stormwater harvesting tanks will have a top-up to the mains water supply. The system will also be linked to a rainfall sensor, located on the roof. The system will have a computer controller, with adjustable programs for each season, and 24 programmable stations, and an efficient inline drip emitter distribution system.  
PVC conduits (100mm dia) will be provided under all footpaths and driveway crossings, to allow for a continuous ring circuit.  
A detailed CAD drawing and As-Built layout will be provided with an Instructions and Maintenance Manual



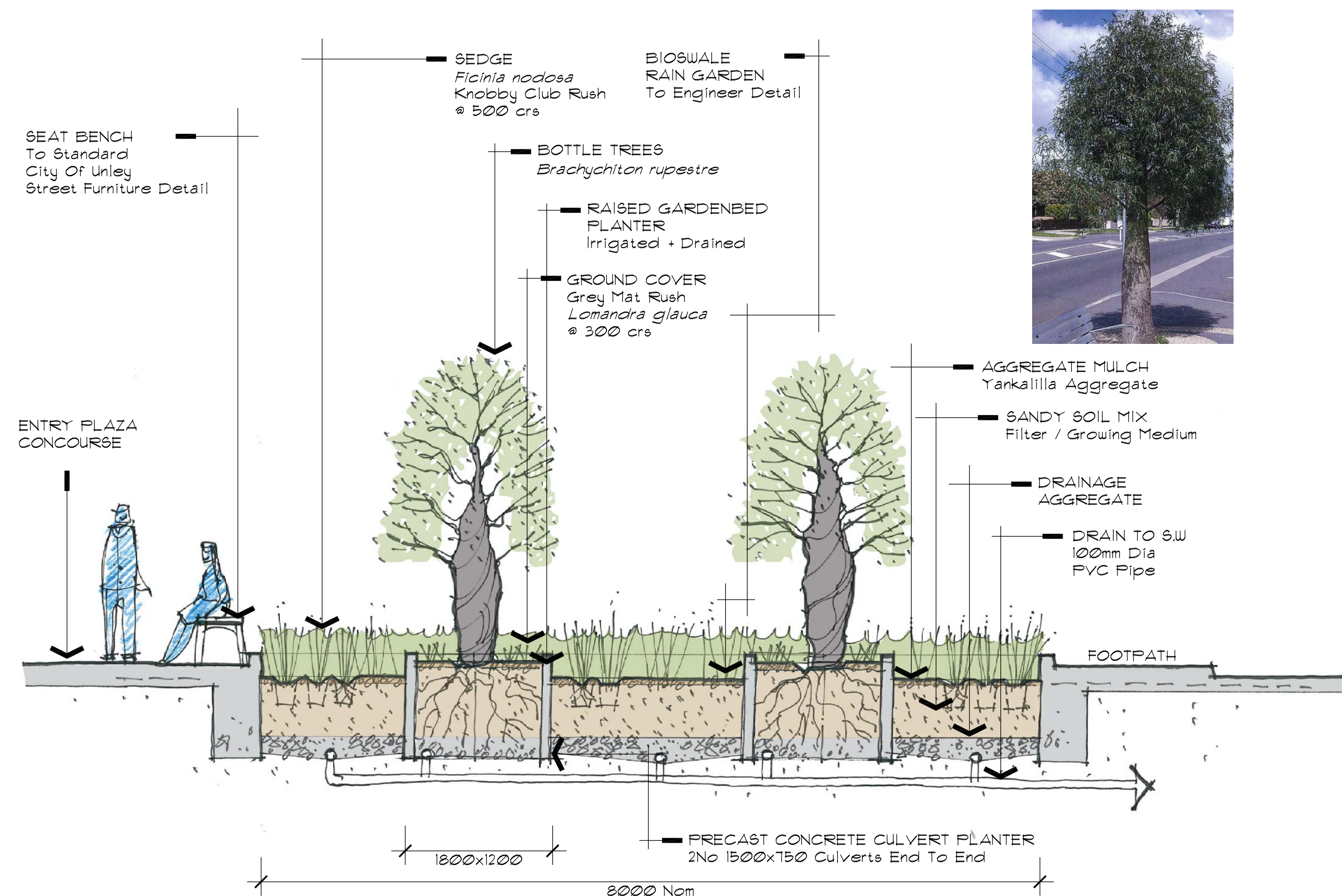




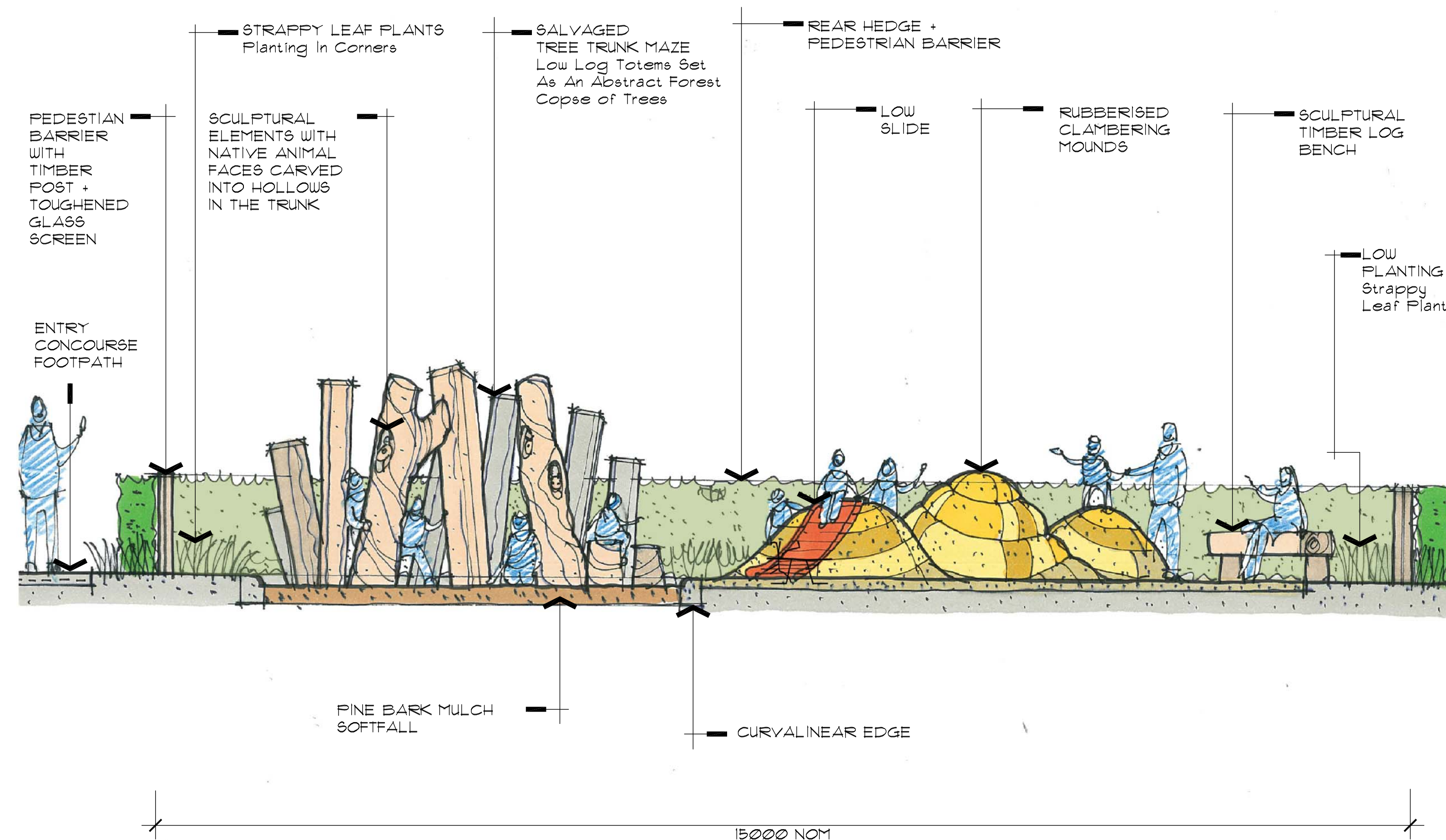
D1 PEDESTRIAN HEDGE BARRIER INDICATIVE DETAIL  
(NTS)



D2 PLANT CLIMBING SCREEN DETAIL INDICATIVE GUIDELINE  
(NTS)



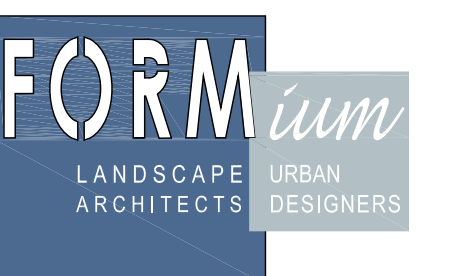
D3 CONCOURSE ENTRY FEATURE RAIN GARDEN - INDICATIVE  
(NTS)



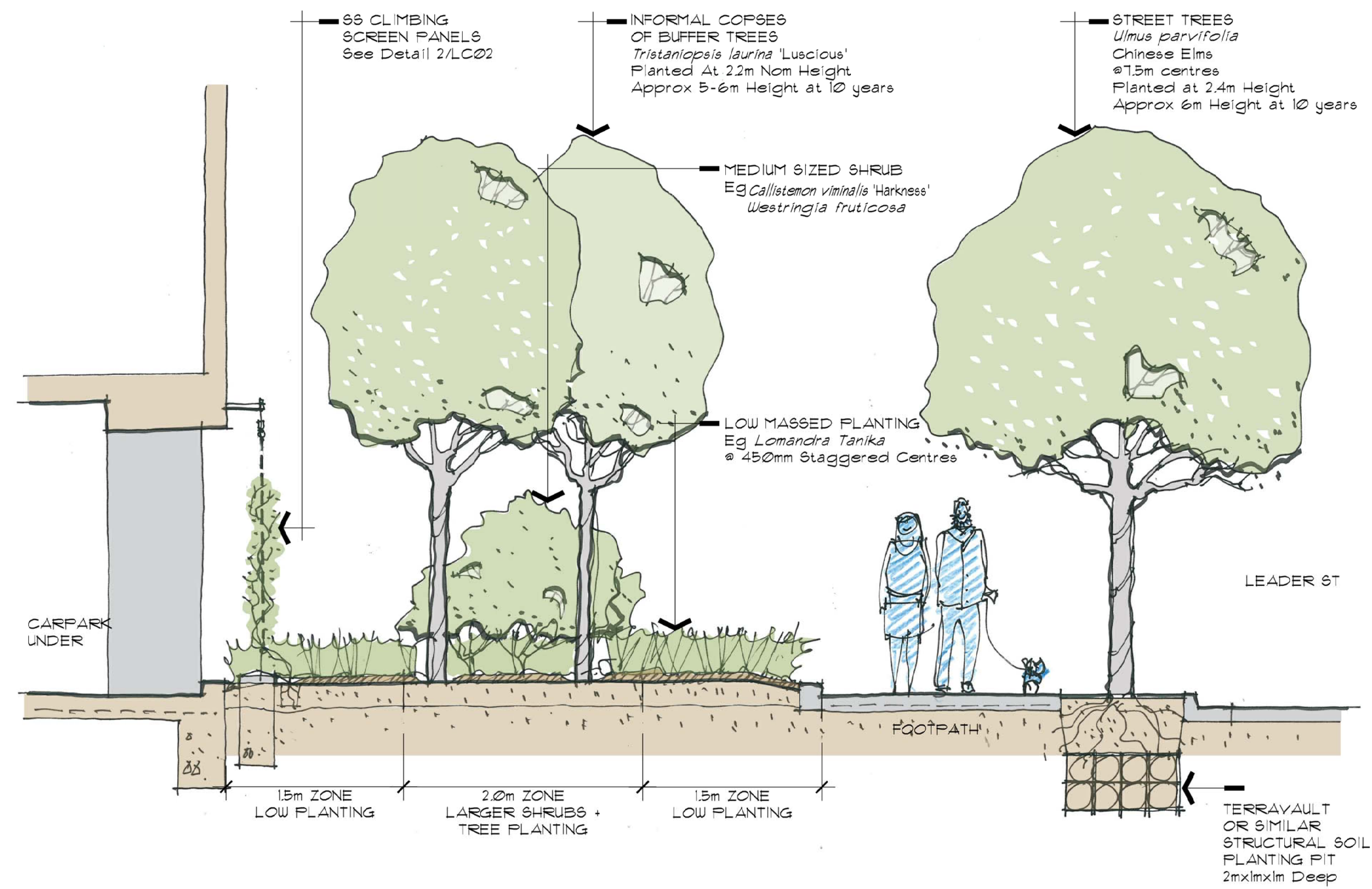
D4 PLAY AREA - INDICATIVE SKETCH SECTION  
(NTS)



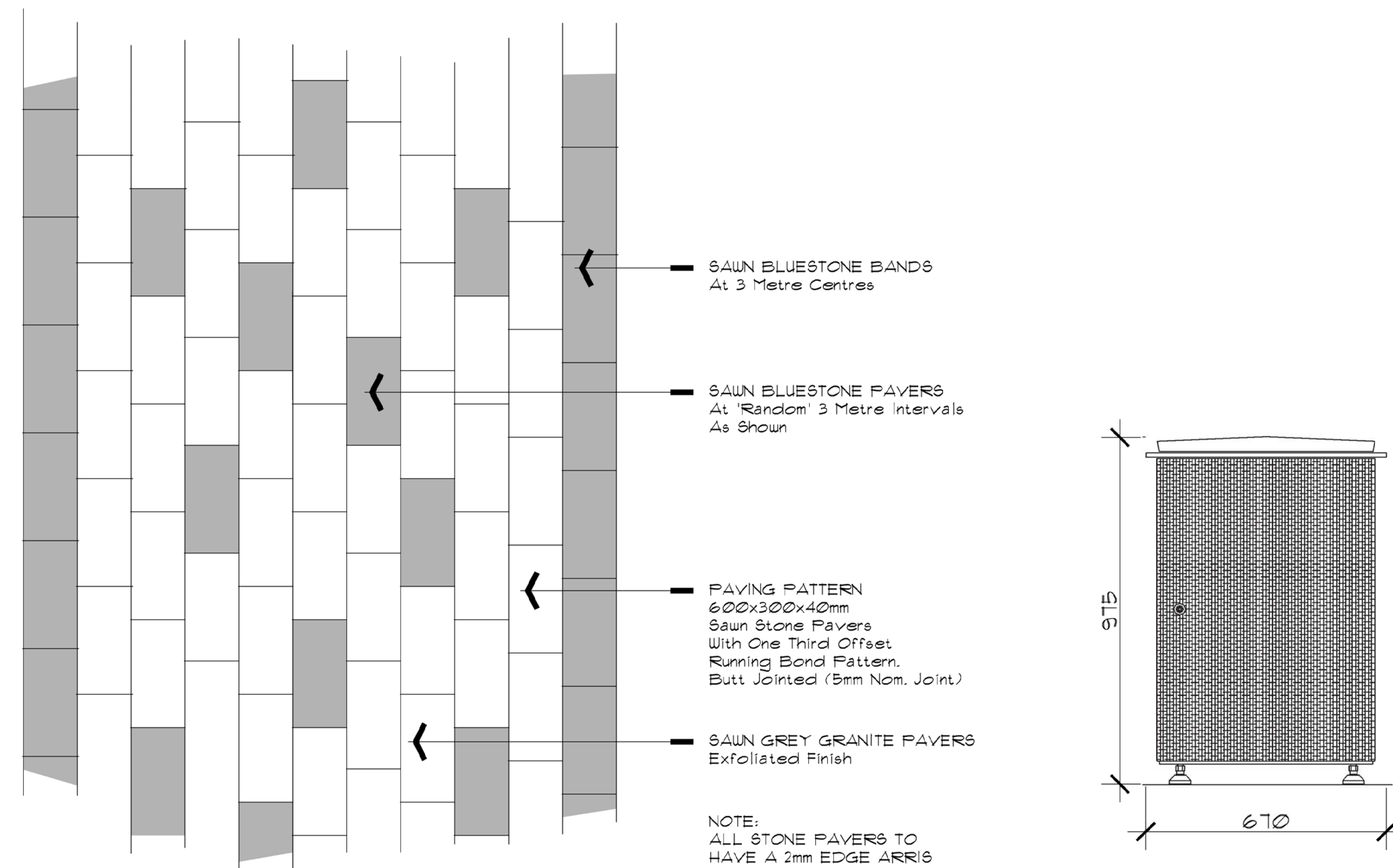
rothelowman





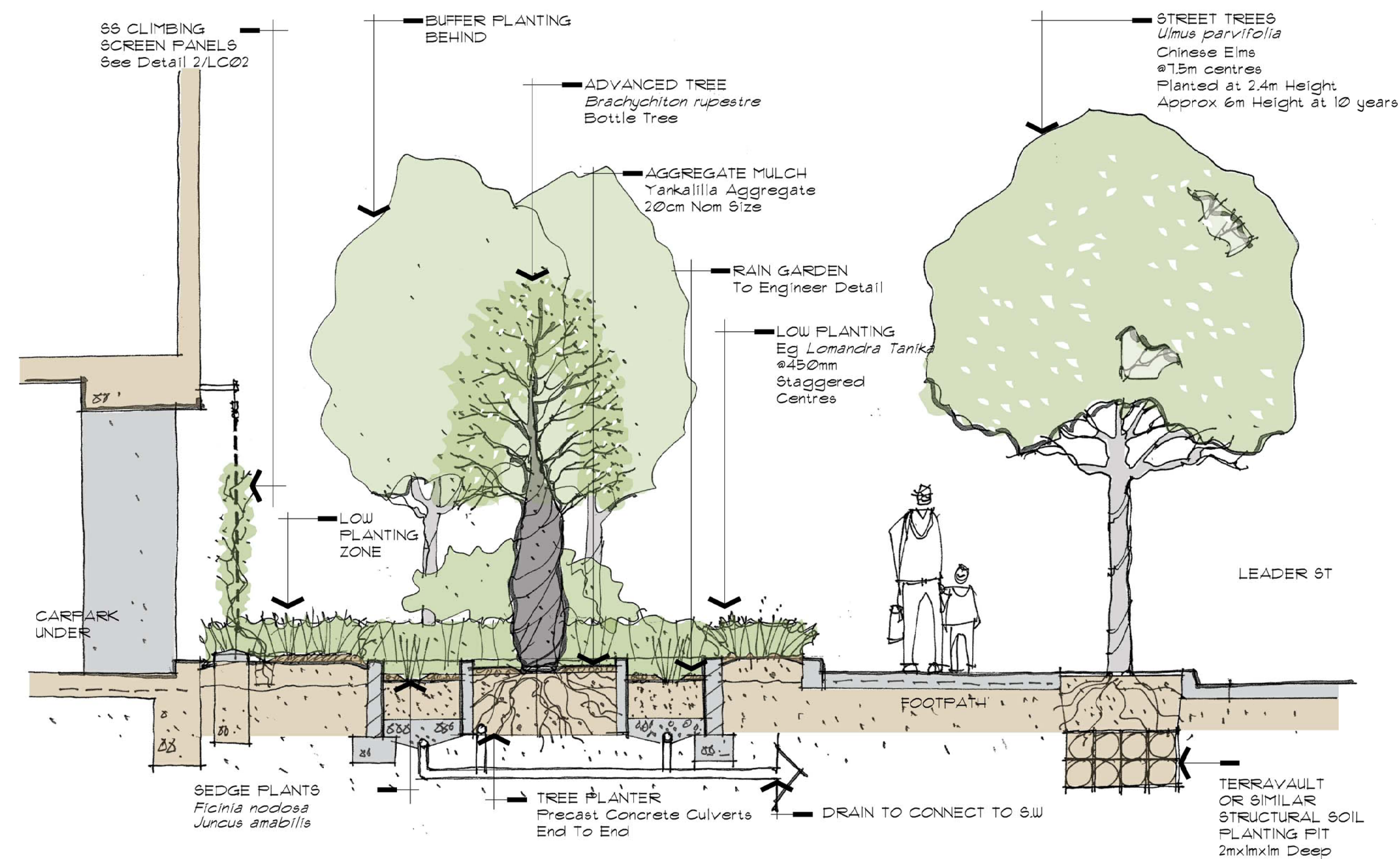


D5 LEADER ST LANDSCAPE SETBACK - INDICATIVE DETAIL  
(5m width) (NTS)

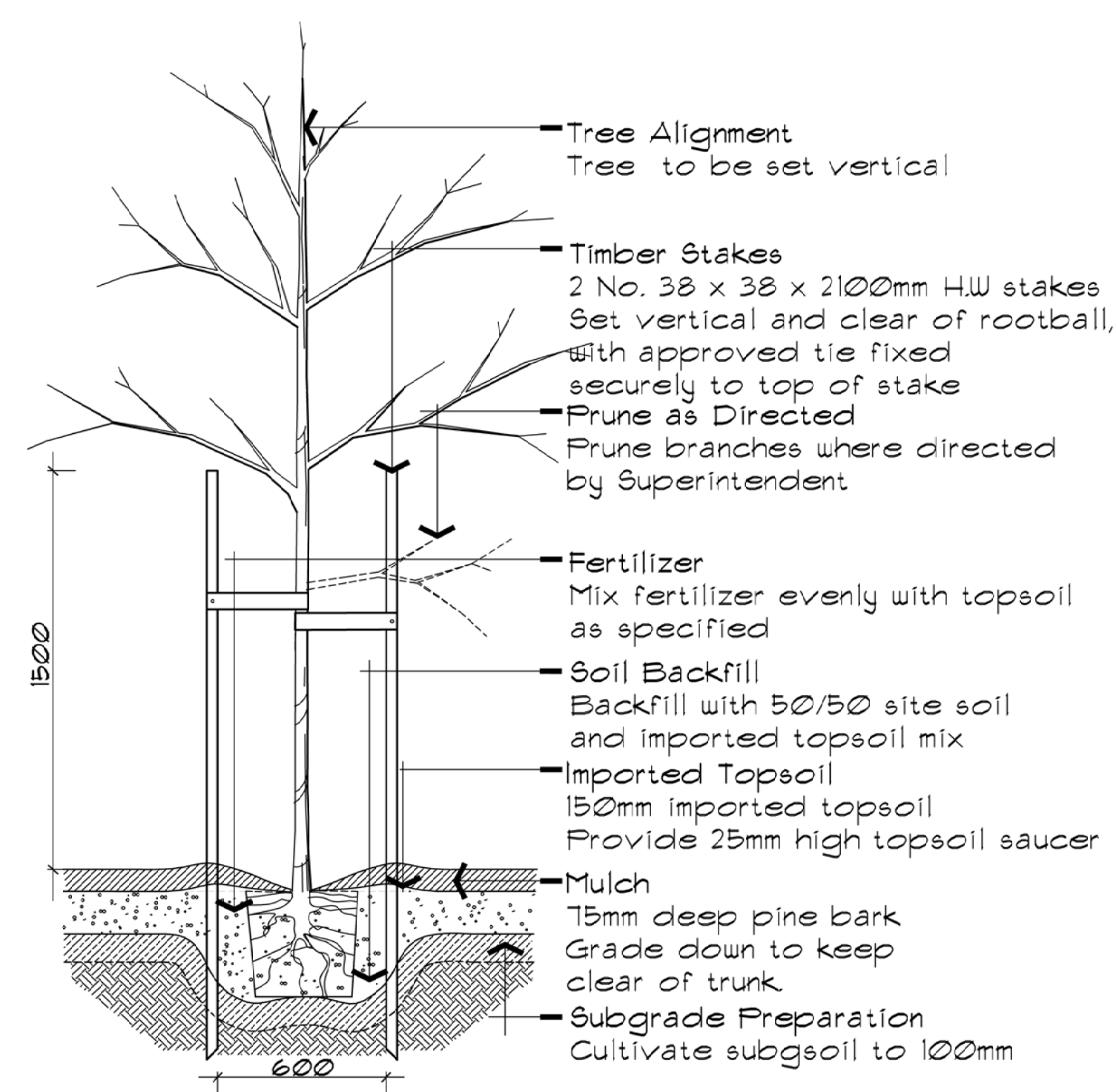


D7 MODULAR STONE PAVING DETAIL  
1:20@B1 - INDICATIVE LAYOUT

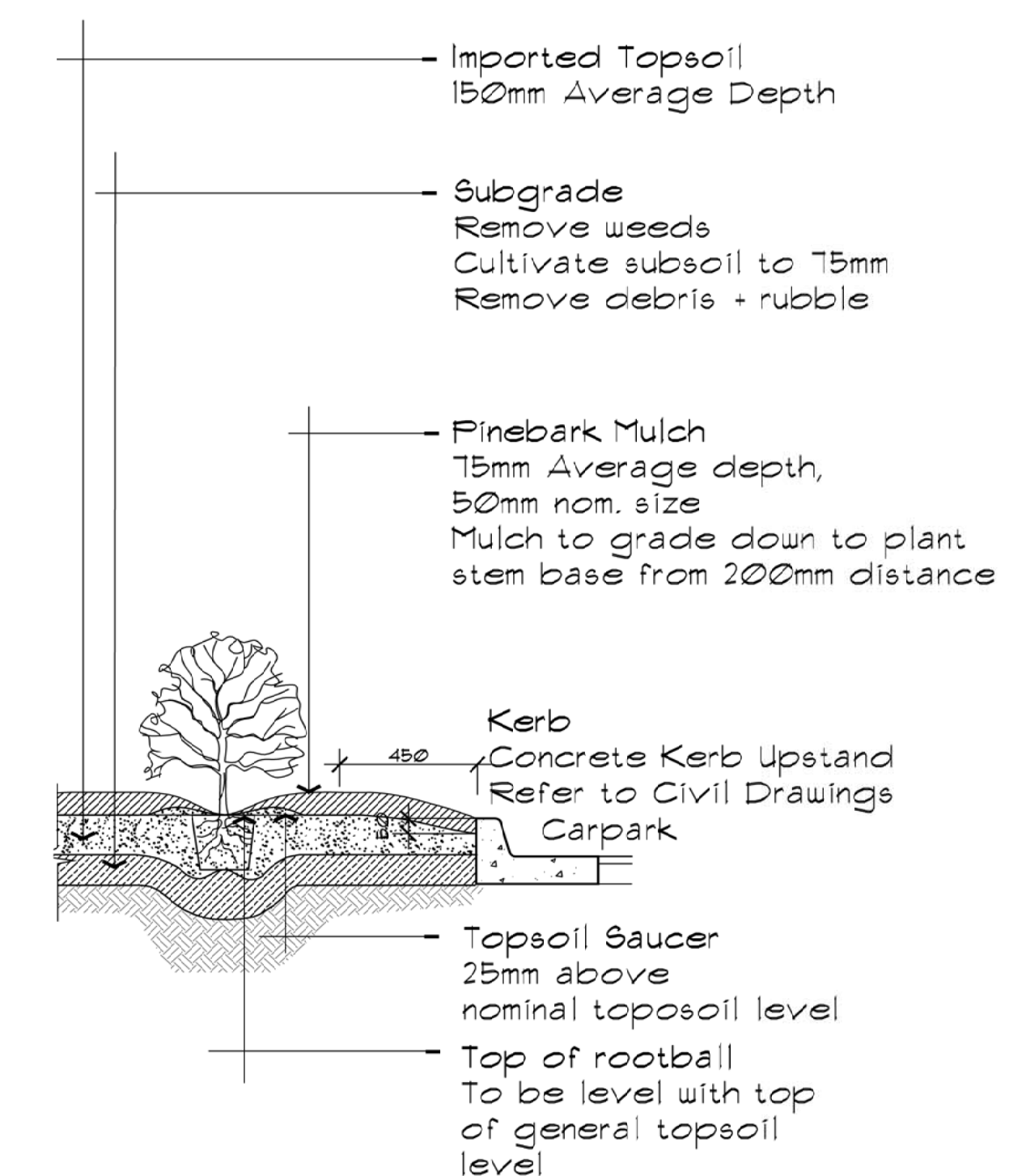
D8 LITTER BIN DETAIL  
INDICATIVE - 1:10@B1



D6 LEADER ST INTERFACE - WITH RAIN GARDEN  
INDICATIVE DETAIL (NTS)



D9 ADVANCED TREE DETAIL  
1:20@B1



D10 GARDENBED DETAIL  
1:20@B1



rothelowman





PLANT THEME SCHEDULE

BOTANICAL NAME	COMMON NAME	SUPPLY SIZE	APPROXIMATE MATURE SIZE (HxW) (25 yrs)	SPACINGS/ PLANT DENSITIES
STREET TREES				
<i>Eucalyptus torquata</i>	Coral Gum	75 litre, 2.1m ht	6 x 4m	As Shown
<i>Koelreuteria paniculata</i>	Golden Rain Tree	100 litre, 3.0m ht	8 x 5m	As Shown
<i>Ulmus parvifolia</i>	Chinese Elm	100 litre, 3.6m ht	8 x 5m	As Shown
TREES				
<i>Brachychiton rupestre</i>	Bottle Tree	100 litre, 2.4m ht	5 x 3m	As Shown
<i>Eucalyptus leucoxylon</i> 'Euky Dwarf'	Euky Dwarf Gum	75 litre, 2.1m ht	7 x 5m	As Shown
<i>Eucalyptus scoparia</i>	White Gum	75 litre, 2.3m ht	8 x 5m	As Shown
<i>Pyrus calleryana</i> 'Capital'	Capital Ornamental Pear	100 litre, 3.0m ht	7 x 4m	As Shown
<i>Tristaniopsis laurina</i> 'Luscious'	Luscious Kanuka	100 litre, 3.0m ht	7 x 5m	As Shown
LARGE SHRUBS				
<i>Callistemon viminalis</i> 'Harkness'	Harkness Callistemon	200mm pot size	4 x 3m	As Shown
<i>Callistemon</i> 'Kings Park Special'	Kings Park Special Callistemon	200mm pot size	4 x 3m	As Shown
HEDGE AND SCREEN PLANTS (CLIPPED)				
<i>Callistemon viminalis</i> 'Little John'	Little John Bottlebrush	250mm pot size	1 x 1m	Ø.5 m Centres
<i>Ficus hillii</i> 'Flash'	Hills Flash	300mm pot size	2 x 1m	Ø.6 m Centres
<i>Metrosideros kermadecensis</i>	Glossy NZ Xmas Bush	300mm pot size	1 x 1m	Ø.5 m Centres
<i>Westringia fruticosa</i>	Coast Rosemary	250mm pot size	1 x 1m	Ø.5 m Centres
GENERAL SHRUBS				
<i>Correa alba</i>	White Correa	200mm pot size	1.2 x 1.5m	Ø.6 m Centres
<i>Correa glabra</i>	Rock Correa	200mm pot size	2 x 2m	Ø.6 m Centres
<i>Eremophila glabra</i> 'Murchison River'	Silver Emu Bush	200mm pot size	1.5 x 1.2m	Ø.6 m Centres
<i>Westringia fruticosa</i> 'Mundi'	Mundi Westringia	200mm pot size	1 x 1m	Ø.5 m Centres
<i>Westringia fruticosa</i>	Coast Rosemary	200mm pot size	1.5 x 2.0m	Ø.6 m Centres
TUFT LEAF PLANTS + GRASSES				
<i>Dianella caerulea</i> 'Little Jess'	Little Jess Dianella	150mm pot size	Ø.4m tuft	Ø.45 m Centres
<i>Dianella revoluta</i> 'Little Rev'	Little Rev Dianella	150mm pot size	Ø.6m tuft	Ø.45 m Centres
<i>Dietes grandiflora</i> 'variegata'	Variegated Dietes	200mm pot size	Ø.6m tuft	Ø.50 m Centres
<i>Juncus amabilis</i>	Woodland Rush	150mm pot size	Ø.7m tuft	Ø.50 m Centres
<i>Ficinia nodosa</i>	Knobby Club Rush	150mm pot size	Ø.8m tuft	Ø.50 m Centres
<i>Lomandra</i> 'Tanika'	Tanika Lomandra	150mm pot size	Ø.6m tuft	Ø.45 m Centres
<i>Lomandra glauca</i> 'Blue Ridge'	'Blue Ridge' Mat Rush	150mm pot size	Ø.4m tuft	Ø.45 m Centres
GROUND COVERS				
<i>Myoporum parvifolium</i> 'Broad Leaf'	Broad Leaf Creeping Boobialla	200mm pot size	Ø.2 x 1.0m	Ø.50 m Centres
<i>Acacia cognata</i> 'River Cascade'	River Cascade Wattle	200mm pot size	Ø.4 x Ø.8m	Ø.50 m Centres
<i>Correa alba prostrate</i> 'Silver Star'	Silver Star Correa	200mm pot size	Ø.5 x 1.0m	Ø.50 m Centres
CLIMBING PLANTS				
<i>Hardenbergia comptoniana</i>	Native Lilac	200mm pot size	3m ht	As Shown
<i>Muehlenbeckia complexa</i>	Wire Vine	200mm pot size	3m ht	As Shown
<i>Trachelospermum jasminoides</i>	Star Jasmine	200mm pot size	7m ht	As Shown



rothelowman



Project		
KAUFLAND - FORESTVILLE		
Title		
PLANT SCHEDULE		
Scale	Date	
NTS	JULY 2018	
Project Number	File/Drawing Number	Revision
2032	LC04	A





*Eucalyptus torquata*  
Coral Gum



*Eucalyptus leucoxylon* 'Euky Dwarf'  
Euky Dwarf Gum



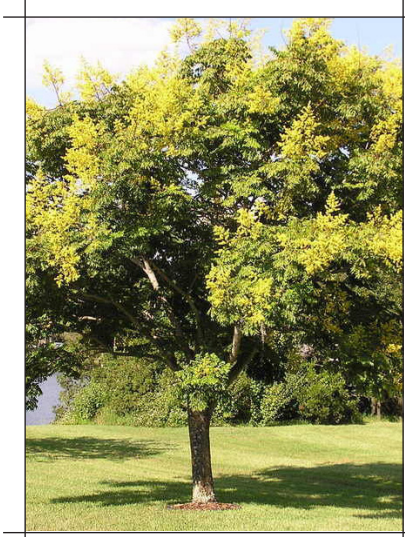
*Metrosideros kermadecensis*  
Cultivar NZ Xmas Bush



*Callistemon citrinus* 'Kings Park Special'  
Kings Park Callistemon



*Correa alba*  
Correa alba



*Koelreuteria paniculata*  
Golden Rain Tree



*Brachychiton rupestris*  
Bottle Tree



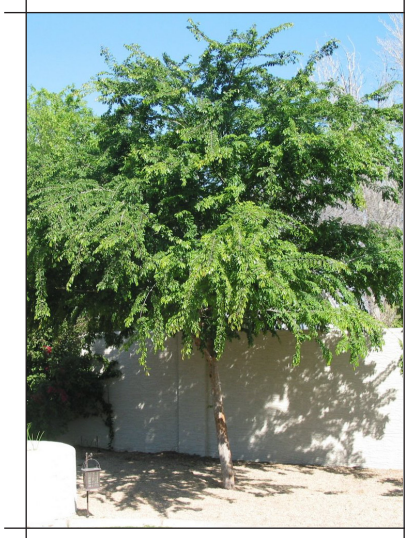
*Westringia fruticosa*  
Coast Rosemary



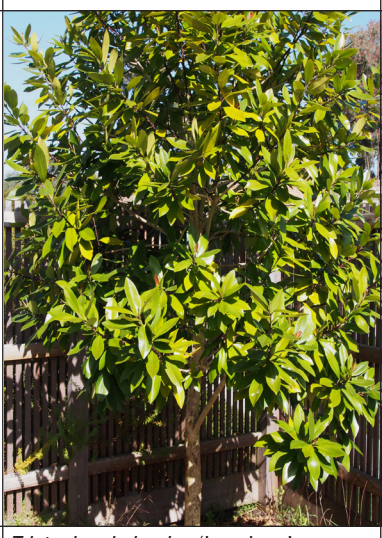
*Callistemon viminalis* 'Harkness'  
Harkness Callistemon



*Correa glabra*  
Rock Correa



*Ulmus parvifolia*  
Chinese Elm



*Tristaniopsis laurina* 'Luscious'  
Luscious Kanuka



*Ficus hillii* 'Flash'  
Hills Flash



*Westringia fruticosa* 'Mundi'  
Mundi Westringia

Street Trees

Trees

Hedges

Shrubs



rothelowman

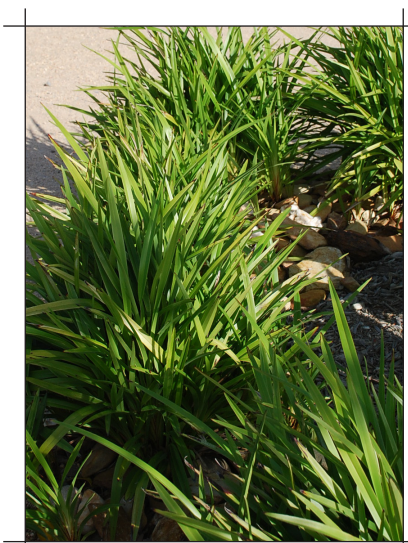


Project  
KAUFLAND -  
FORESTVILLE

Title  
PLANT PHOTO SHEET 1

Project Number Drawing No.  
2032 LC05





*Dianella caerulea* 'Little Rev'  
Little Jess Dianella



*Juncus amabilis*  
Hollow Rush



*Myoporum parvifolium* 'Broad Leaf'  
Creeping Boobialla



*Dianella revoluta* 'Little Rev'  
Little Rev Dianella



*Ficinia nodosa*  
Knobby Club Rush



*Acacia cognata* 'River Cascade'  
River Cascade Wattle



*Lomandra glauca* 'Blue Ridge'  
'Blue Ridge' Mat Rush



*Lomandra* 'Tanika'  
Tanika Lomandra



*Correa alba prostrate* 'Silver Star'  
Silver Star Correa



*Muehlenbeckia complexa*  
Wire Vine



*Hardenbergia comptoniana*  
Native Lilac



*Trachelospermum jasminoides*  
Star Jasmine

Climbing Plants

Tuft Leaf Plants and Ground Covers



rothelowman



Project  
KAUFLAND  
FORESTVILLE  
Title  
PLANT PHOTO SHEET 2  
Project Number Drawing No.  
2032 LC06





MAPLE AVENUE



LEADER STREET

PRELIMINARY

SK-100

FORESTVILLE RENDERS





# 10 ANZAC HIGHWAY, FORESTVILLE

TOWN PLANNING REPORT



APRIL 2018

**URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:**

Director	Jane Kelly
Consultant	Mietta Gleeson
Project Code	MA10864
Report Number	Rep01

# TABLE OF CONTENTS

<b>Executive Summary.....</b>	<b>i</b>
<b>Kaufland Overview .....</b>	<b>iii</b>
<b>1. The Proposal.....</b>	<b>1</b>
1.1. Supermarket Use.....	1
1.2. Building Layout and Form.....	2
1.3. Car Parking, Access and Loading .....	2
1.4. Signage.....	3
1.5. Land Division .....	3
1.6. Procedural Requirements .....	3
<b>2. Subject Site Context .....</b>	<b>4</b>
2.1. Subject Site.....	4
2.2. Immediate Surrounds.....	7
2.3. Wider Area .....	9
<b>3. Planning Assessment .....</b>	<b>11</b>
<b>4. Response to Planning Policy Framework .....</b>	<b>12</b>
4.1. The 30-Year Plan for Greater Adelaide .....	12
4.2. Response to the City of Unley Development Plan.....	12
4.3. Appropriateness of the proposed land use in the UCZ.....	14
<b>5. Building Design .....</b>	<b>15</b>
5.1. Building Response to the desired character.....	15
5.2. Appropriateness of the Proposed Built Form.....	16
<b>6. External Amenity Considerations.....</b>	<b>17</b>
6.1. Visual Privacy .....	18
6.2. Visual Bulk .....	17
6.3. Overshadowing .....	18
6.4. Noise .....	18
6.5. Crime Prevention measures .....	19
6.6. Appropriateness of Proposed Outdoor Advertising Signage .....	19
<b>7. Building Services and Performance.....</b>	<b>22</b>
7.1. Parking, Traffic and Access .....	22
7.2. Waste Management.....	22
7.3. Landscaping.....	23
7.4. Environmentally Sustainable Design & Stormwater Management .....	24
<b>8. Conclusion.....</b>	<b>25</b>
<b>Disclaimer.....</b>	<b>26</b>
<b>Appendix A.....</b>	<b>Planning Policy and Controls</b>

## FIGURES:

Figure 1 – Proposed first floor layout (extract from TP-03) .....	1
Figure 2 – Proposed car parking layout (TP-02) .....	2
Figure 3 – Subject Site Aerial .....	4
Figure 4 – Locality Map .....	10
Figure 5 – Extract of Concept Plan Map Un/11 .....	15
Figure 7 - Perspective of the proposed development from Anzac Highway .....	17
Figure 7 – Proposed additional overshadowing at 3pm on the September equinox.....	18
Figure 8 – Overview of proposed landscaping concept .....	23
Figure 9 – Landscaping concept viewed from Leader Street .....	23
Figure 9 – Examples of proposed kerb inlet swales and raingardens.....	24

## PICTURES:

Picture 1 – Subject site, existing conditions viewed east from Anzac Highway .....	5
Picture 2 – Existing car parking within front setback .....	5
Picture 3 – Existing undercover car parking on site .....	5
Picture 4 – Existing site, viewed west from Maple Avenue .....	5
Picture 5 – Existing site, viewed west on Leader Street.....	5
Picture 6 – Rear of No.10 Anzac Highway, Forestville (viewed from Maple Avenue) .....	7
Picture 7 – Rear of No.10 Anzac Highway, Forestville (viewed from Leader Street).....	7
Picture 8 – Double storey commercial use fronting Maple Avenue.....	7
Picture 9 – Double storey commercial use fronting Maple Avenue.....	7
Picture 10 – Brick factory (bakery) fronting Leader Street .....	8
Picture 11 – Single storey dwellings on the southern side of Leader Street .....	8
Picture 12 – Ashford Hospital, Forestville.....	8
Picture 13 – Anzac Highway, viewed north .....	8
Picture 14 – Existing pylon sign within the front setback and fixed wall signs fronting Anzac Highway .....	20
Picture 15 – Proposed advertising signage (replacement pylon sign and fixed wall sign western elevation) .....	20

## TABLES:

Table 1 – Quantitative Provisions of the Urban Corridor Zone.....	16
---	----

# EXECUTIVE SUMMARY

This report has been prepared on behalf of Kaufland Australia Pty Ltd in support of a planning permit application to construct a supermarket at the former LeCornu site located at No.10 Anzac Highway, Forestville (the subject site).

The site is significant in Adelaide, having operated as LeCornu's main retail showroom for over 40 years until late 2016. The redevelopment of the site to accommodate one of Kaufland Australia's flagship stores in Australia will allow the site to reinstate its important and well established retail legacy, continuing to service the residents of Adelaide.

The proposal is best described as the demolition of an existing large format retail premises and the construction of a group of shops, including a supermarket (Kaufland Store) with associated sale of liquor, car parking, signage and landscaping. The retail development site will occupy approximately half of the overall site at 10 Anzac Highway, with the balance of the site to be subject to a separate application in the future.

Pursuant to the 'procedural matters' section of the Urban Corridor Zone, the application is neither complying nor non-complying and therefore, must be assessed on its merits against the relevant provisions of the Unley (City) Development Plan.

This planning report describes the subject site and surrounding context; details the proposed works; and provides an assessment of the proposal against the relevant planning controls and policies contained within the Unley (City) Development Plan.

The report concludes the proposed use and development is of high architectural merit and is suitable for the site and surrounding neighbourhood character. Specifically, the report determines:

- The redevelopment of an underutilised strategic site on a high frequency transport corridor for a high-quality retail development is strongly aligned with State and Local planning policy.
- The development of the site for retail premises is consistent with the site's inclusion within the Urban Corridor Zone, which encourages a mix of land uses including shops and services.
- The proposed development will not compromise the ability for an overall mixed use outcome (including residential uses) to be delivered on the site, as the retail component that is the subject of this application occupies approximately half of the total site.
- The building is appropriately resolved on site and respectful of its surrounds. This is achieved through orientating the building towards Anzac Highway; introducing substantial setbacks to the residential interfaces; the use of quality materials and finishes; and siting loading and waste collection operations away from the residential interface.
- The proposed design response is sensitive to its context and has been carefully designed to respond to each of the site's interfaces. The proposal does not result in any unreasonable off-site amenity impacts by way of visual bulk, overlooking or overshadowing.
- The development will deliver activation to Anzac Highway through the orientation of the building towards the Highway and the use of substantial glazing which will provide views into the development, and the siting of the café and outdoor spaces to the highway.
- The proposal will achieve principles of Environmentally Sustainable Design (ESD) through building design features and initiatives, and Water Sensitive Urban Design (WSUD).
- The proposal has been designed to incorporate a variety of landscaping elements including tree planting and low level shrubs and garden beds. The building and hard stand areas are setback off the boundaries to allow for tree planting and landscaping around the site's perimeter and within the car parking areas. The landscaping proposed will improve the site's appearance for customers and from the public realm and neighbouring properties, and will deliver positive WSUD outcomes.
- Car parking areas are predominantly screened from view, and sufficient car parking is provided to ensure that customers can efficiently park on site, and to minimise offsite amenity impacts upon the surrounding area.

- Anticipated traffic movements can be accommodated within the capabilities and capacity of surrounding streets, including Anzac Highway, Maple Avenue and Leader Street.
- The proposal will deliver an overall net community benefit through a high quality and accessible retail development offering a new range of essential household products not currently available to residents in Adelaide.

This report should be read in conjunction with the following:

- Current Certificate of Title
- Architectural Plans prepared by Architecture HQ, dated 2 March 2018
- Architectural Design Statement, prepared by Tony Parks of Architecture HQ
- Land Division Survey prepared by Alexander Symonds Surveying Consultants, dated 11 December 2017
- Landscape Concept Plan prepared by Urbis, dated 9 March 2018
- Traffic Assessment prepared by WGA, dated 15 March 2018
- Stormwater Management Plan prepared by WGA, dated 8 March 2018
- Acoustic Report prepared by Resonate Consultants, dated 7 March 2018
- Waste Management Plan prepared by Rawtec, dated March 2018
- Contamination Letter prepared by Greencap, dated 27 February 2018
- Further Due Diligence Assessment prepared by EP Risk, dated 7 June 2017



# KAUFLAND OVERVIEW

Headquartered in Neckarsulm Germany, Kaufland is a subsidiary of the Schwarz Group, the world's fourth largest retailer. As a grocery chain, Kaufland are committed to providing customers with access to a wide range of reasonably priced produce. Each store can stock up to 60,000 product lines, some of which are our their own attractive K-Classic brands. Kaufland operate more than 1,230 stores in Germany, the Czech Republic, Poland, Bulgaria, Croatia, Romania and Slovakia with more than 150,000 employees across Europe.

Kaufland are a growth-oriented corporation continually assessing their expansion possibilities in existing and potential markets. With this in mind, Kaufland are currently conducting a feasibility study by analysing the Australian market, with the Forestville development to be one of the first Kaufland stores in Australia.





# 1. THE PROPOSAL

The proposal can be described as a freestanding retail development comprising a full line supermarket including the sale of liquor, associated offices, a café, retail tenancies and associated car parking, landscaping and signage, as outlined below.

## 1.1. SUPERMARKET USE

The proposal is for a purpose built Kaufland supermarket, along with associated retail uses. The development will comprise:

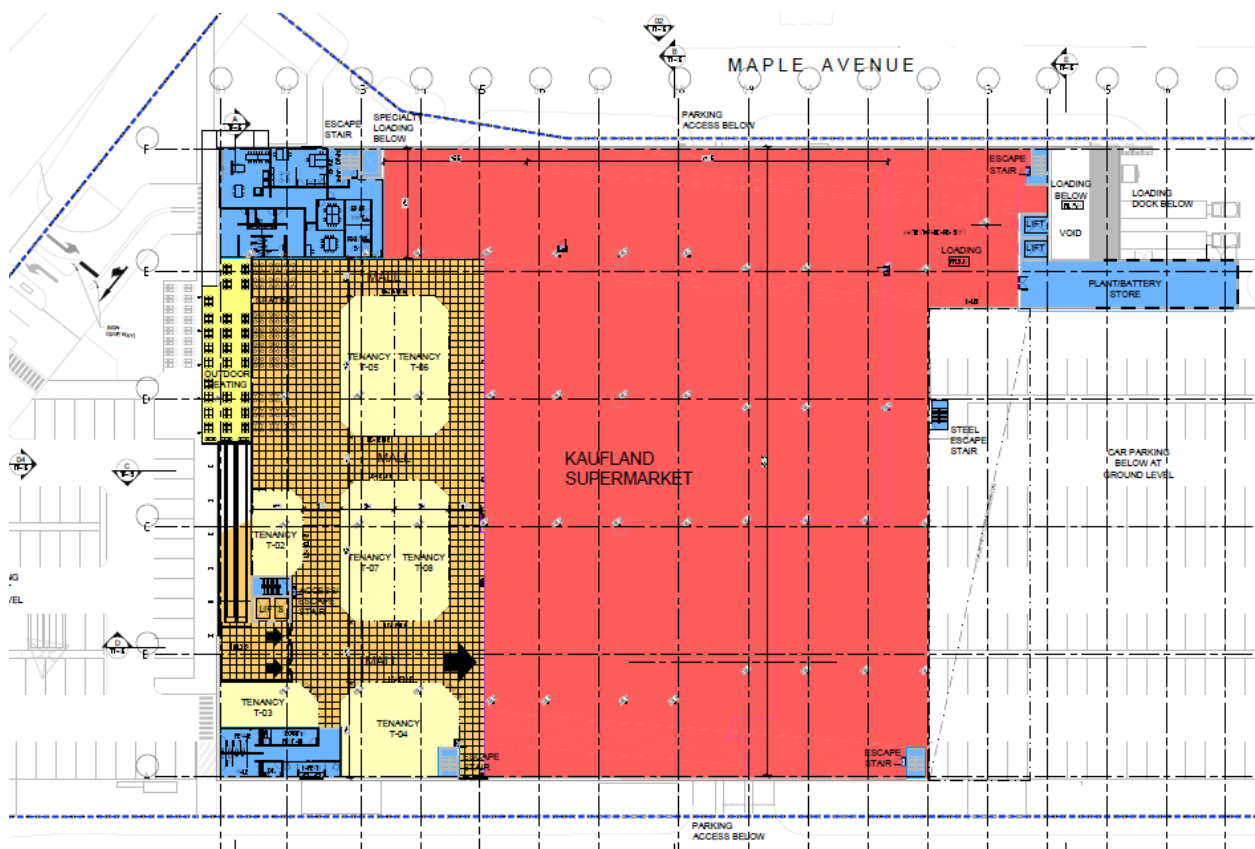
- 5,808 square metre supermarket
- 336 square metres of associated offices
- Eight retail tenancies, comprising 6821.4 square metres, broken down as follows:
 

<b>T-01</b>	102.7 square metres	<b>T-04</b>	189.9 square metres
<b>T-02</b>	79.5 square metres	<b>T-05 &amp; T-06</b>	136.8 square metres each
<b>T-03</b>	79.4 square metres	<b>T-07 &amp; T-08</b>	136.8 square metres each

Trading house for the Centre are proposed as follows:

- Weekdays: 12.00 AM – 9.00 PM
- Saturday: 12.00 AM – 5.00 PM
- Sunday: 11.00 AM – 5.00 PM

Figure 1 – Proposed first floor layout (extract from TP-03)



## 1.2. BUILDING LAYOUT AND FORM

The building will be of contemporary design, with siting and design responses to respect the neighbourhood character context and to minimise impacts on surrounding residences.

Key aspects of the proposal are as follows:

- A mixture of at grade and under croft car parking located across the ground level. Some car parking will be provided within the front setback of the site which is typical of a retail development, to provide some immediately visible and accessible car parking to passing traffic.
- Supermarket and retail uses located at the upper level.
- A double storey built form oriented towards Anzac Highway, with the main pedestrian entrance from this frontage.
- An overall building height of 11.88 metres at the rear parapet and a height of 11.38 metres as the building addresses Anzac Highway, tapering down to 9.45 metres to both the Leader Street and Maple Avenue interfaces.
- Setbacks to all site boundaries to facilitate landscaping at all interfaces, including a setback to Leader Street of 5 metres and 1 metre to Maple Avenue.
- Business identification signage (as detailed in Section 1.4)

## 1.3. CAR PARKING, ACCESS AND LOADING

The existing vehicle crossover located at the northern end of the Anzac Highway frontage is proposed to be retained to allow for vehicle access to the site. Direct vehicle access to the undercroft car parking area will be provided by a double width vehicle crossover to Maple Avenue and a triple width crossover to Leader Street.

A total of 487 car parking spaces are proposed across the site, with spaces located within the front site setback, the building undercroft and to the rear of the building. The undercroft parking area will comprise 12 accessible parking spaces and 16 parent parking spaces. The provision for 16 bicycle parking spaces and 8 motorbike parking spaces are proposed within the undercroft parking area. All car spaces have been designed in accordance with the relevant Australian Standards.

A full scale loading dock is proposed within the north east of the development site. Trucks will enter the loading area via Maple Avenue, with egress provided either to Maple Avenue or along the rear of the development site to Leader Street via an internal roadway.

The Traffic and Parking Assessment report by WGA dated 15 March 2018 provides further details of the proposed access and loading arrangements and car parking provision.

**Figure 2 – Proposed car parking layout (TP-02)**



## 1.4. SIGNAGE

The development proposes the provision of six advertising signs across the site. This will comprise:

- 1 x 3 sided, externally illuminated pylon sign to replace the existing 'Le Cornu' sign in the site's front setback, measuring approximately 20 metres in height, comprising the Kaufland logo.
- 1 x 2 sided, internally illuminated pylon sign located in the front setback, measuring 7 metres in height, comprising the Kaufland logo.
- 3 x internally illuminated wall mounted sign measuring 5 metres x 5 metres, located on the western and northern building façade, comprising the Kaufland logo.
- 3 x internally illuminated wall mounted signs measuring 4 metres x 4 metres, located on the northern and southern building façades, comprising the Kaufland logo.
- 8 x externally illuminated wall mounted signs measuring 3.5 x 5 metres, located on the northern and southern building façades, comprising business identification signs for future speciality tenants.
- 2 x internally illuminated wall mounted signs measuring 1.3 x 4 metres, located on the western building façade, comprising business identification signage for future speciality tenants.
- 3 x externally illuminated wall mounted signs measuring 2 x 2.665 metres, located on the western building façade, comprising business identification signage for future speciality tenants.
- 1 x non-illuminated roof mounted sign measuring 18 x 18 metres, located on the southern portion of the building's rooftop, comprising the Kaufland logo (noting that this sign will not be visible from surrounding streets/ the public realm, and only visible from the air).

## 1.5. LAND DIVISION

The application seeks land division consent to consolidate the existing land titles. The consolidation applies only to the front portion of the site, affected by this application, with the titles within balance of the site unchanged.

As detailed on the proposed Plan of Division, Allotments 94 to 105 in F216991 are proposed to be consolidated to form Allotment 501 of the Deposited Plan.

## 1.6. PROCEDURAL REQUIREMENTS

### 1.6.1. Relevant Authority

The relevant authority to determine the development application is the State Commission Assessment Panel (SCAP), with referral being made to the City of Unley. A request was made under Schedule 10, Part 20 of the Development Regulations, 2008 to the State Coordinator-General, and by letter dated 26 March 2018, the State Coordinator-General confirmed that the application would be assessed by the SCAP.

### 1.6.2. Nature of Development

As outlined above, it is considered that the proposal is best described as the demolition of an existing large format retail premises and the construction of a new retail development including a supermarket with associated car parking, signage and landscaping. Pursuant to the 'Procedural Matters' section of the Urban Corridor Zone, the application is neither complying nor non-complying and therefore, must be assessed on its merits against the relevant provisions of the Unley (City) Development Plan.

### 1.6.3. Public Notification

The 'Procedural Matters' section of the Urban Corridor Zone identifies that the proposed development is a Category 2 form of development as the site is located within the Transit Living (Anzac Highway) Policy Area 24 and proposes the development of a group of shops with a gross leasable floor area greater than 500 square metres.



## 2. SUBJECT SITE CONTEXT

As outlined in Section 1.5, this application proposes the division of the site at 10 Anzac Highway, Forestville. This site has a total area of 3.6 hectares, and is illustrated in Figure 3 below in blue shading. The section of the site that is the subject of this application relates to proposed Lot 501 only and is outlined in red in Figure 3. The rear portion, or balance of the overall site, will be subject to a separate development application in the future.

### 2.1. SUBJECT SITE

The subject site is located at 10 Anzac Highway, Forestville, on the eastern side of Anzac Highway, approximately 400 metres south of the intersection with Richmond Road/Greenhill Road and approximately 3 kilometres southwest of the Adelaide CBD.

The site is irregular in shape and features a generally flat topography. The site has a frontage to Anzac Highway of approximately 130 metres, a secondary frontage to both Maple Avenue (approximately 172 metres) and Leader Street (approximately 240 metres), comprising a total site area of approximately 2.058 hectares.

The subject site currently comprises a number of warehouse buildings and a large asphalt, at grade car park. The site has most recently been used for a large scale furniture store, Le Cornu. Vehicle access to the site is provided by a single vehicle crossover to each road frontage. Limited vegetation borders the car park and a number of street trees are located adjacent to the western site boundary.

Figure 3 – Subject Site Aerial



- Subject Site
- 10 Anzac Highway

#### 2.1.1. Certificate of Title

No.10 Anzac Highway, Forestville is currently located across five titles comprising 34 allotments; Lots 94-123 on FP 216991, Lot 52 & 53 on DP 2907 and Lot 18 & 19 on FP 9791.

An easement in favour of the SA Water Corporation Easement, for sewerage purposes is located on Lot 19 FP 9791 and a Right of Way and Easement to the Crown, for the purpose of laying and maintaining pipes, runs north-south down the centre of Lot 108 on 216991 from Leader Street.





Picture 1 – Subject site, existing conditions viewed east from Anzac Highway



Picture 2 – Existing car parking within front setback



Picture 3 – Existing undercover car parking on site



Picture 4 – Existing site, viewed west from Maple Avenue



Picture 5 – Existing site, viewed west on Leader Street

### 2.1.2. Site History

The site has considerable history in Adelaide. The site was originally used for industrial and commercial uses including the manufacturing of military vehicles, aircraft and ammunition during WWII and car manufacturing including the Chrysler Factory. Since 1973 the site was used for the iconic Le Cornu store, a large scale self-service furniture warehouse, until the showroom closed in late 2016.

A preliminary Site Contamination Report has been prepared by ES Risk, with the initial assessment highlighting the following:

- No significantly elevated volatile compounds (the key contaminants of concern identified from the Site history) were identified at any of the grid based or targeted MiHPT investigation locations.
- No extensive hydrocarbon contamination is present that would likely impede future proposed use of the site.
- Asbestos, synthetic mineral fibers (SMF), polychlorinated biphenyls (PCB), lead and oxygen depleting substances (ODS) were all identified, or presumed to be present at the site. Qualified professionals should be engaged to ensure the proper removal, management and disposal of any suspected or confirmed hazardous materials.
- The results do not indicate that site conditions would prohibit the future development of the site for low or high density residential use (pg. 16).

In addition, Greencap undertook a soil investigation to assess the contamination status of soils at the site, and to provide information relating to offsite soil disposal requirements.

To the best of Greencap's knowledge, no groundwater investigations or direct soil vapour measurements have previously been undertaken at the site, however, there are unlikely to be complete pathways that result in an unacceptable risk to human health to on-site occupants (of the retail development) on the basis of the following:

- Groundwater is located at depth (available information suggests groundwater underlying the site is likely to be at depths greater than 10 metres below ground level). Proposed construction works and any future works at the site would not extend to these depths. Furthermore, groundwater will not be used for any purpose (i.e. irrigation, etc) following development.
- Previous reports (mentioned above) indicated there was considered to be a low likelihood of significant soil vapour impacts being present at the site in terms of the proposed future commercial redevelopment.
- The proposed development, which incorporates a carpark at grade under the majority of the proposed commercial building, with open sides, reduces the likelihood of any accumulation of vapours that may pose any risk to human health through inhalation.

In light of the above, there is considered to be a low risk to the health of future site occupants (of the retail development) from exposure to any impacted soils that might remain on site, or from inhalation from vapours that may potentially be present under the site. The site is deemed to be suitable to accommodate the proposed retail development from an environmental impacts perspective.

## 2.2. IMMEDIATE SURROUNDS

### East

Immediately to the east of the subject site is the rear or balance of No. 10 Anzac Highway. As outlined within Section 1.5 of this report, the proposal seeks to consolidate the land at No.10 Anzac Highway affected by this proposal into 1 lot. As such, abutting the site to the east will be the rear portion of No.10 Anzac Highway.

This land currently comprises a number of large, double storey light industrial/warehouse buildings.

Further east, land comprises small industrial and warehouse buildings, and a train line connecting Adelaide City with the southern suburbs of Adelaide. The Adelaide Showgrounds is located on the eastern side of the train line.



Picture 6 – Rear of No.10 Anzac Highway, Forestville (viewed from Maple Avenue)



Picture 7 – Rear of No.10 Anzac Highway, Forestville (viewed from Leader Street)

### North

Maple Avenue forms the subject site's northern boundary, providing access from Anzac Highway through to the railway line to the east. Maple Avenue accommodates one lane of traffic in each direction and on-street parallel car parking. A range of small industrial and warehouse uses are located on the northern side of Maple Avenue, predominantly comprising single or double storey brick buildings.

Further north is the Keswick Army Barracks, which is earmarked as a future high density mixed use precinct.



Picture 8 – Double storey commercial use fronting Maple Avenue



Picture 9 – Double storey commercial use fronting Maple Avenue



## South

Leader Street forms the subject site's southern boundary, providing connection between Anzac Highway and Goodwood Road to the east. Leader Street accommodates one lane of traffic in each direction and on-street parallel car parking. A number of single storey dwellings front the southern side of Leader Street, as well as a set of double storey units. A large double storey brick factory building operating as a bakery fronts Leader Street between First Avenue and Leah Street. It is understood that the bakery is to be relocated in the near future and replaced by residences.

Further south, land predominantly comprises residential land uses, featuring single storey detach dwellings on large lots.



Picture 10 – Brick factory (bakery) fronting Leader Street



Picture 11 – Single storey dwellings on the southern side of Leader Street

## West

The subject site abuts Anzac Highway to the west. Anzac Highway is a main arterial road running southwest from the Adelaide CBD, providing three lanes of traffic in each direction. A pedestrian footpath, bus stop and eight established street trees are located within the nature strip between the subject site and Anzac Highway.

Further west, across Anzac Highway is the Ashford Hospital. The hospital and associated buildings range in height from single storey up to five storeys. The hospital presents as a five storey form to the corner of Anzac Highway and Reid Avenue and is built to both site boundaries.



Picture 12 – Ashford Hospital, Forestville



Picture 13 – Anzac Highway, viewed north

## 2.3. WIDER AREA

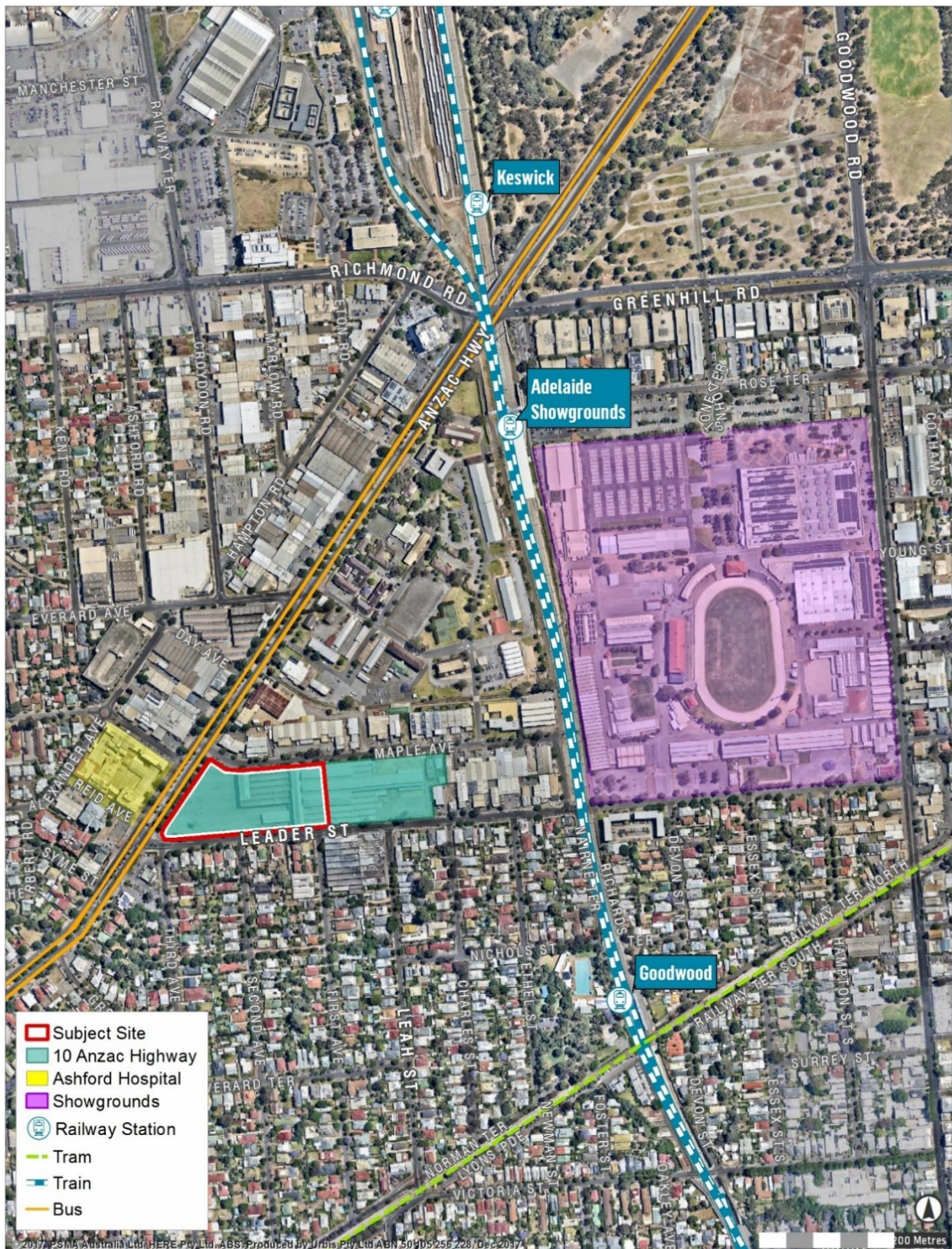
The subject site is located on the boundary of an established residential area to the south, and a commercial/light industrial to the north. The site is within close proximity to a variety of amenities and services including public transport, recreation and community facilities. These include:

- Ashford Hospital is located opposite the subject site on Anzac Highway.
- Adelaide Showgrounds are located directly east of the subject site, across the railway line.
- Goodwood Railway Station (approximately 500 metres south east).
- Adelaide Showgrounds Railway Station (approximately 550 metres north east).
- Tram route running between the CBD and Glenelg (approximately 500 metres south).
- Eleven bus routes utilise Anzac Highway, with a bus stop is located directly adjacent to the site (245, 248, 263, 265, 719, 721, 722, 723, AO31, M44, N262 & N721).
- Two bus routes utilise Leader Street, with a bus stop located adjacent to the site, between Leah Street and Charles Street (W90 & W91).

Figure 4 illustrates the location of the above surrounding services and facilities.



Figure 4 – Locality Map





### **3. PLANNING ASSESSMENT**

The planning assessment addresses the following key matters:

- Planning policy support for the proposal
- Appropriateness of the proposed land use
- Built form outcomes
- External amenity considerations
- Building services and performance

Details of the planning controls and policy are included within Appendix A.

## 4. RESPONSE TO PLANNING POLICY FRAMEWORK

The proposed development of the subject site is considered to meet the objectives of the Planning Strategy (*The 30-Year Plan for Greater Adelaide, 2017 update*) and the Unley (City) Development Plan. A summary of the relevant State and Local Planning policies is contained within Appendix A, with the key points outlined below:

### 4.1. THE 30-YEAR PLAN FOR GREATER ADELAIDE

The proposal reflects the objectives of the *30-Year Plan for Greater Adelaide, 2017 update*, as follows:

- The proposal facilitates the revitalisation of a large vacant and underutilised strategic inner suburban with a quality commercial development, supporting employment and economic growth within the local area.
- The proposal will reinstate the site's historic and well established retail use, for a contemporary development, which will service the convenience shopping needs of local residents and passing commuters.
- The proposal achieves the locational requirements for retail development outside of a designated activity centre, and will support the principles of accessibility, high quality urban design and economic growth and competitiveness.
- The proposed development provides an appropriate response to the site and surrounding context, including a transition in scale to the nearby residential properties and the provision of landscaping to soften the appearance of the built form and contribute to the presentation of the development to the streetscape.
- The development contributes to 'the new urban form' of compact mixed use communities through the provision of a supermarket use within an established community, and within an area identified for renewal and intensification. The development will provide for day-to-day shopping needs of local residents, and commuters returning home, on a highly accessible site and within immediate proximity to public transport services and walking and cycling distance of surrounding residential areas.
- The development has been designed to incorporate measures to promote energy efficiency and water security, including the installation of solar panels and water sensitive urban design and stormwater management measures such as rainwater storage and bioswales for runoff filtration.

### 4.2. RESPONSE TO THE CITY OF UNLEY DEVELOPMENT PLAN

#### 4.2.1. Council Wide Policy

The Unley (City) Development Plan outlines strategic and policy objectives to guide the preferred development outcomes of the municipality. The proposed development aligns with the General Policy section of the Development Plan, with the key points outlined below:

- The proposed retail development is considered an appropriate development outcome outside of a business, centre or shopping zone given the site's established retail use and identification for a future mixed use outcome including retail uses (Transit Living Policy Area 24); the existing mixed use nature of the surrounding area; the site's location on a main transport corridor and the ability of the road network to accommodate future traffic generated by the proposal; the site's proximity to public transport options; the site's substantial size to ensure all customer car parking and loading activities occur on site; the ability to minimise amenity impacts upon nearby residences along Leader Street through setbacks, design, landscaping and the siting of loading and waste collection operations on Maple Avenue. (*Centres and Shops PDC 10 & 11*).
- The development promotes safety of users of the site and security of the property through appropriate design outcomes including the provision of clearly defined public and private spaces, active uses at the street frontage overlooking Anzac Highway and adequate lighting and signage. (*Crime Prevention PDC 1 & 2*).
- Landscaping forms an integral part of the overall design of the development, fostering a human scale and to enhance the visual amenity of the area. The proposed plant and tree species have been selected

to ensure sight lines are available throughout the development, and to avoid concealment opportunities. (*Crime Prevention PDC 1 & 2*).

- The proposed development is of high design quality and appropriately responds to the context of the site and surrounds. As further detailed in Section 7, the built form responds to the immediate surrounds to limit external amenity impacts including visual bulk, overshadowing, overlooking and noise (*Design and Appearance PDC 1, 9 & 10*).
- Solar panels are proposed to be installed on the roof of the building to provide for on-site power generation. In addition, the built form has been designed to ensure efficient solar access is maintained to all surrounding properties (*Energy Efficiency PDC 2 & 3*).
- The development has been appropriately sited and designed to minimise adverse impact on the existing residential properties to the south, located within the Residential Streetscape Zone. This includes locating the loading bay and mechanical services to the north of the site, limiting the potential for noise sources to the more sensitive residential interface along Leader Street. (*Interface between Land Uses PDC*).
- Landscaping is incorporated into the design to enhance the overall appearance of the development, and to provide opportunities for WSUD. The landscaping concept for the site will be further developed with environmental officers from the City of Unley Council. (*Landscaping PCD 1 & 2*).

#### **4.2.2. Urban Corridor Zone**

The Urban Corridor Zone contemplates the inclusion of a mix of uses, at varying densities, and with active street frontage, while ensuring the metropolitan transport movement function is preserved. The proposed development responds to the objectives of the Urban Corridor Zone in the following ways:

- The proposal is for a retail development at a medium density scale, which is oriented towards Anzac Highway. The supermarket and complementary retail tenancies are a compatible non-residential use in this location, that will provide for the day-to-day shopping needs of the local community and support the economic vitality of the area (*Objective 1 & 3*).
- The proposed development incorporates variation in the roof form across the development, including the provision of skylights at the upper level to add visual interest to the skyline when viewed from the streetscape and afar.
- The building has been designed to transition down in scale to the north and south to appropriately respond to the surrounding context of lower built form that currently exists along Maple Avenue and Leader Street (*Objective 5*).
- The incorporation of a ground level café with alfresco seating encourages activation of the site frontage at a human scale and ensures the development contributes to an appealing street environment for pedestrians along Anzac Highway (*Objective 2*).
- The development, including the car parking areas across the site, has been designed to provide a comfortable and safe experience for customers, through the provision of pedestrian paths, pedestrian crossings and external lighting (*Objective 6*).
- The development has been designed in consultation with an acoustic consultant who has provided advice on the fencing and screening, to limit the impact of noise sources on the amenity of residential properties along Leader Street (*Objective 7*).
- The proposal will contribute to the desired character of the zone through the redevelopment of a currently vacant and underutilised key strategic site, with a quality retail anchor that will serve as a catalyst for new development in the precinct. The site is of a substantial size, which will ensure the offsite amenity impacts can be appropriately controlled through generous building setbacks and the transition of building height across the site, and the siting of loading and waste collection on Maple Avenue, and away from residences along Leader Street. The new retail development will occupy approximately half of the overall former LeCornu site, and the balance of the site will be subject to a future development application. The retail proposal will not prejudice the overall site from achieving a mixed use outcome, as desired by the zone (*Objective 8*).

### 4.3. APPROPRIATENESS OF THE PROPOSED LAND USE IN THE UCZ

As outlined previously, the proposed development incorporates a Kaufland Supermarket (Shop), including the sale of liquor, and eight retail tenancies (shop). A 'shop or group of shops' is an envisaged form of development in the Urban Corridor Zone.

Similarly, the desired character statements of the Urban Corridor Zone and Transit Living Policy Area encourage the development of the site for a mixed use development, with an emphasis on commercial uses that support the day to day needs of the local population.

*PDC 1* of the Transit Living Policy Area states:

*"Shops or groups of shops contained in a single building should have a gross leasable area of less than 500 square metres, except for sites located north of Leader Street."*

Given the subject site is situated to the north of Leader Street, the proposed leasable floor area of the group of shops located within the proposed development, in excess of 500 square metres, is considered an appropriate land use outcome in this location and consistent with the Urban Corridor Zone.

Consistent with *PDC 2* of the Transit Living Policy Area, the development incorporates a number of smaller integrated tenancies, which will complement the predominate supermarket use, including a café space.

As outlined above, the retail proposal will occupy approximately half of the site at 10 Anzac Highway, and will not compromise the ability for the balance of the site to be developed for residential purposes in the future, and for an overall mixed use outcome to be achieved for the site.

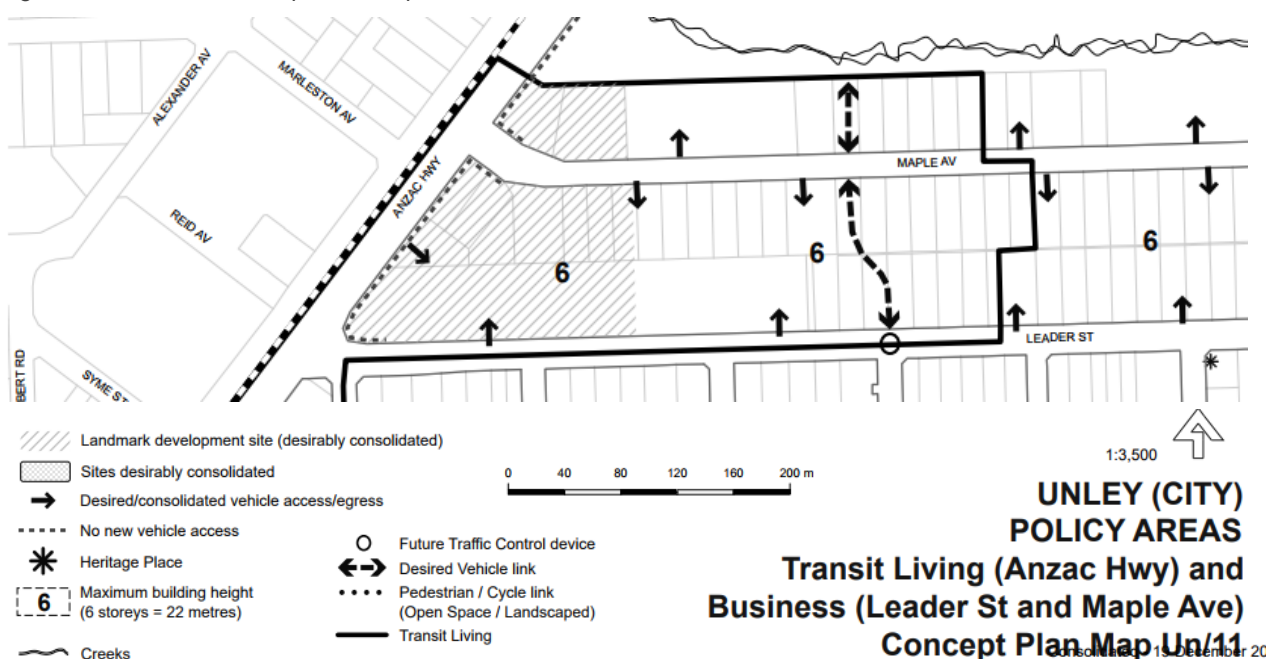
## 5. BUILDING DESIGN

### 5.1. BUILDING RESPONSE TO THE DESIRED CHARACTER

The development has been designed to reflect the existing and emerging character of the surrounding area. It is considered that the proposed development is consistent with the desired character of the Urban Corridor Zone and the Transit Living Policy Area, as follows:

- Consistent with the desired character for land within the Transit Living Zone north of Leader Street, the development proposes a quality retail development, which capitalises on direct access to public transport and supports the daily needs of residents and local workers.
- The development has been designed to respond to the adjoining residential properties located on the southern side of Leader Street, by lowering the scale of the development through a transition in height in the building and roof form.
- The development has been carefully designed to minimise overshadowing and overlooking amenity impacts to adjoining residential properties on the southern side of Leader Street.
- Well designed landscaping is proposed across the site, assisting in integrating the development with the streetscape. The landscape concept plan proposes planting around the perimeter of the site, with a particular emphasis on tree planting within the front site setback to visually soften the appearance of the built form and hard surface area of the car park.
- The design of the development proposes appropriate screening of the undercroft car parking area to minimise impacts on adjoining residential properties. This includes timber screens on the building, as well as a landscape buffer between the wall of the car parking areas and the site boundary.
- The development includes WSUD and ESD measures to appropriately contribute to the reuse and treatment of stormwater and provide for a reduction in energy consumption and the urban heat island effect.
- Vehicle access is proposed from each site frontage, with predominate access from Leader Street and Maple Avenue, while the existing vehicle crossing to Anzac Highway will be retained to allow for left-in and left-out access only.
- The general layout of the development has been designed in accordance with Concept Plan Map Un/11, including the consolidation of the site for a landmark development and the provision of appropriate vehicle links and vehicle access points.

Figure 5 – Extract of Concept Plan Map Un/11





## 5.2. APPROPRIATENESS OF THE PROPOSED BUILT FORM

The proposed development has been designed to reflect the Principles of Development Control of the Urban Corridor Zone and Transit Living Policy, ensuring an appropriate built form outcome on the site. It is noted that Kaufland stores have specific design requirements in terms of the operation and function of their supermarkets, which have sought to be replicated wherever possible. The development responds to the PDC's as detailed below and within Section 6 of this report.

Table 1 – Quantitative Provisions of the Urban Corridor Zone

	DEVELOPMENT PLAN GUIDELINE	PROPOSED
<b>MIN. BUILDING HEIGHT (PDC 12)</b>	3 storeys or no less than 11.5 metres (Anzac Hwy) or 2 storeys or no less than 8 metres (Leader St or Maple Ave)	Anzac Hwy: 2 storeys & 11.38 metres, Maple Ave: 9.54 metres, Leader St: 9.54 metres
<b>MAX. BUILDING HEIGHT (PDC 12)</b>	6 storeys or 22 metres	2 storeys & 11.88 metres
<b>MIN. PRIMARY ROAD SETBACK (PDC 14)</b>	3 metres from Anzac Highway	More than 3 metres from Anzac Highway
<b>MIN. SECONDARY ROAD SETBACK (PDC 15)</b>	2 metres from Leader St and Maple Ave	5 metres from Leader Street and 1 metre from Maple Avenue

In addition to the provisions outlined above and the amenity considerations discussed in Section 6, the development presents an appropriate design outcome as follows:

- At least 50 percent of the frontage of the development to Anzac Highway is visually permeable, including large sections of glazing at both the ground and upper level. In combination with the ground level café and upper level outdoor seating area, this promotes activation of the street frontage and maximises passive surveillance (*Transit Living Policy Area PDC 6*).
- In response to *Urban Corridor Zone PDC 6* and *Transit Living Policy Area PDC 7* the provision of some car parking within the site frontage is considered an appropriate response given the existing site conditions, with car parking provided in this location. This site layout is typical of retail developments, which require some visible and accessible car parking for passing customers. The design and layout of the car park, including the provision of landscaped areas and tree planting to provide shade and soften the appearance of the hard surface, results in an improved design outcome.
- The proposed location of the loading bay to the north east of the site, ensures loading operations will predominantly occur via Maple Avenue, with opportunity for vehicles to exit the site via the rear lane to Leader Street where required. (*Transit Living Policy Area PDC 8*).
- No solid fencing is to be proposed around the development. Where fencing is proposed, this is to be constructed of aluminium battens allowing for visual permeability to improve site lines and allow for passive surveillance to Maple Avenue and Leader Street *Urban Corridor Zone PDC 9*.

### 5.2.1. Leader Street Setback

The Urban Corridor Zone specifies that development involving the following is non-complying:

*'Any development or portion thereof within 5 metres of the Leader Street road boundary that exceeds 2 storeys, or 9 metres in height above natural ground level within the Transit Living Policy Area and Business Policy Area north of Leader Street.'*

To ensure the development is not assessed as being 'non-complying', and on the basis that the proposed maximum height of the development is required to exceed 9 metres for operational reasons, the building has been setback a minimum of 5 metres from the southern site boundary adjacent to Leader Street.

## 6. EXTERNAL AMENITY CONSIDERATIONS

The site is within an area of transition, earmarked for substantial change. The light industrial and former large format retail uses on the subject site and to the north of Leader Street are set to be replaced by more intensive mixed use development, with a predominantly residential focus. The existing residences to the south of Leader Street are also identified for change, and are expected to be replaced by town houses or apartment developments over time.

As outlined in the Architect's statement, the proposed large format supermarket has specific design requirements which influence the site layout and built form. The proposed development has been designed to respond to the desired character of the area, whilst also being respectful to the existing residences along Leader Street. The design has given particular consideration to the three key measures of amenity impact – visual bulk, overlooking and overshadowing.

The design response in relation to these factors is outlined below, reflecting the relevant Principles of Development Control of the General Section and the Urban Corridor Zone of the City of Unley Development Plan, while also representing a design outcome that reflects the overarching commercial nature of the development.

### 6.1. VISUAL BULK

The design response seeks to minimise visual bulk through a range of design elements, including the following:

- Large windows and the provision of an outdoor seating area with a canopy at the upper level provides visual interest and breaks up the scale of the development when viewed from Anzac Highway (*Urban Corridor Zone PDC 7*).
- The varied construction materials across each street frontage provide articulation in the built form, which assists with reducing the perceived bulk of the development when viewed from the streetscape (*Design and Appearance PDC 1*).
- The bulk of the development when viewed from Anzac Highway is broken up through variation in light and dark elements, recessive built form elements and the provision of architectural features including a permeable timber canopy (*Design and Appearance PDC 1*).
- The raised parapet heights at the site frontage, as well as the varied roof heights provide articulation across the development, while also ensuring that roof top services are screened from view within the public realm ((*Design and Appearance PDC 4*).
- Landscaping is proposed across the site, providing an attractive environment for customers, while also softening the appearance of the built form from the public realm.
- The proposed visually permeable fencing to the Leader Street frontage will provide additional visual interest and assists with reducing the mass of the development when viewed from these interfaces.

Figure 6 - Perspective of the proposed development from Anzac Highway



## 6.2. VISUAL PRIVACY

The development has been designed to avoid direct views to the habitable room windows and areas of secluded private open space of adjoining properties, consistent with *Design and Appearance PDC 10*. The development does not include any windows along the southern façade, ensuring no opportunity for overlooking to the residential properties situated along Leader Street.

Views from the development at the upper level will be contained to the west, across the car parking area and to Anzac Highway.

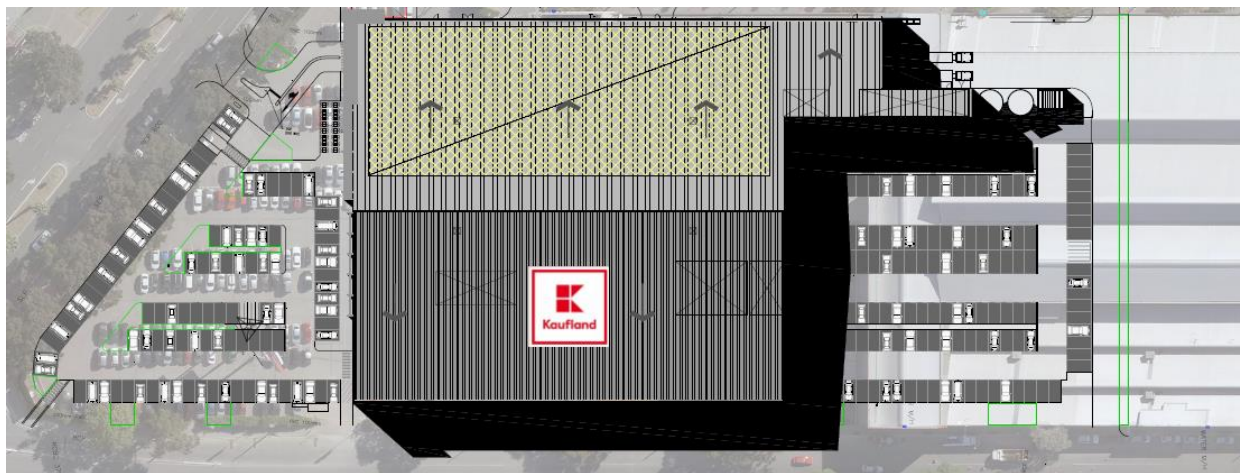
## 6.3. OVERSHADOWING

Having considered the orientation, layout and scale of the proposed building, shadows created by the development will primarily fall within the subject site and to the south within Leader Street.

Shadow diagrams for the proposed development have been prepared for at 9am, 12pm and 3pm on the September equinox and are included within the Architectural Plans. The shadow diagrams illustrate that the additional shadowing created by the proposal will not impact on the existing conditions for daylight access to the neighbouring residential properties to the south, in accordance with *Design and Appearance PDC 9*.

Similarly, the development will not impact upon the efficient solar access or open space of the properties to the south in accordance with *Energy Efficiency PDC 1 and 2*.

**Figure 7 – Proposed additional overshadowing at 3pm on the September equinox**



## 6.4. NOISE

The principal anticipated noise sources from the proposed development will be from vehicles within the car park, delivery trucks and from the fixed mechanical services plant.

The desired character statement of the Urban Corridor Zone acknowledges the mixed nature of the site's locality, and states, '*Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area.*' (our emphasis).

The proposed development has been designed to mitigate noise emissions as best as possible, however given the nature of the development being a large scale retail development, some noise generation throughout the day is inevitable.

The development has been designed in consultation with an acoustic consultant who has provided advice on the fencing and screening around the perimeter of the development.

The siting of the loading operations for the development on Maple Avenue will minimise noise impacts associated with the development upon existing Leader Street residents.

Consistent with *Interface Between Land Uses PDC's 7 & 10*, the development and proposed noise attenuation measures proposed by the development, achieve the relevant criteria of the *Environment Protection (Noise) Policy 2007*, as follows:

- The predicted noise levels are expected to be a minimum of 5 dB less than the existing ambient noise levels during the daytime period on Leader Street, satisfying the intent of the Noise EPP.
- Noise emissions from the loading dock are predicted to exceed the day time criterion on Maple Avenue by 2 dB. However, it is noted that Maple Avenue has a high volume of commercial vehicles servicing the commercial and industrial developments in this area, as such noise emissions from the loading dock is expected to be less than the existing noise levels from adjacent commercial loading areas and accordingly, is not considered a significant impact.
- The noise levels during the night time period are predicted to achieve the relevant criterion for both the car park area and is compliant with the requirements of Noise EPP.

Given the above, the proposed development is considered to be acceptable regarding noise emissions at the nearest proposed residential premises.

A detailed assessment of the noise emissions of the proposed development are provided within the Acoustic Report prepared by Resonate Consultants.

## 6.5. CRIME PREVENTION MEASURES

The Development Plan contains a number of provisions which seek to ensure that development provides a safe environment where the risk of crime is minimised. The proposed development has been designed to reflect *Crime Prevention PDC 1 and 2*, and provide a safe environment for future users and surrounding residents as follows:

- The proposed development is set back from Anzac Highway behind an open car park area, and will comprise an active frontage through extensive glazing, and a ground floor café. These features will provide activity within the site's frontage and casual surveillance of the customer car park at the front of the store from both Anzac Highway and within the development itself.
- The risk of vandalism and graffiti will be minimised through the use of a variety of building materials and colours, and through the opportunities for casual surveillance which have been built in to the design of the development.
- The car parking area will include lighting to Australian Standards and signage will be provided to assist with wayfinding and to highlight the entrances and pathways to and within the site.
- The proposed landscaping will maintain view-lines to entrances and exits as well as allowing clear views to areas where people may gather, this will also assist in ensuring potential entrapment spots will be avoided and provide choice for pedestrian for movement options.
- Clearly defined entrances to the building will assist shoppers to orient themselves and gain an understanding of their surroundings.
- Where proposed, the development incorporates visually permeable fencing to allow for casual surveillance and limit concealed areas.

## 6.6. APPROPRIATENESS OF PROPOSED OUTDOOR ADVERTISING SIGNAGE

The Development Plan contains a number of provisions for outdoor advertisements which seek to ensure that advertising signage is sensitively designed and is integrated with the associated building design while avoiding visual clutter.

In terms of the proposal's consistency with the *Outdoor Advertisements PDC's*, it is noted that:

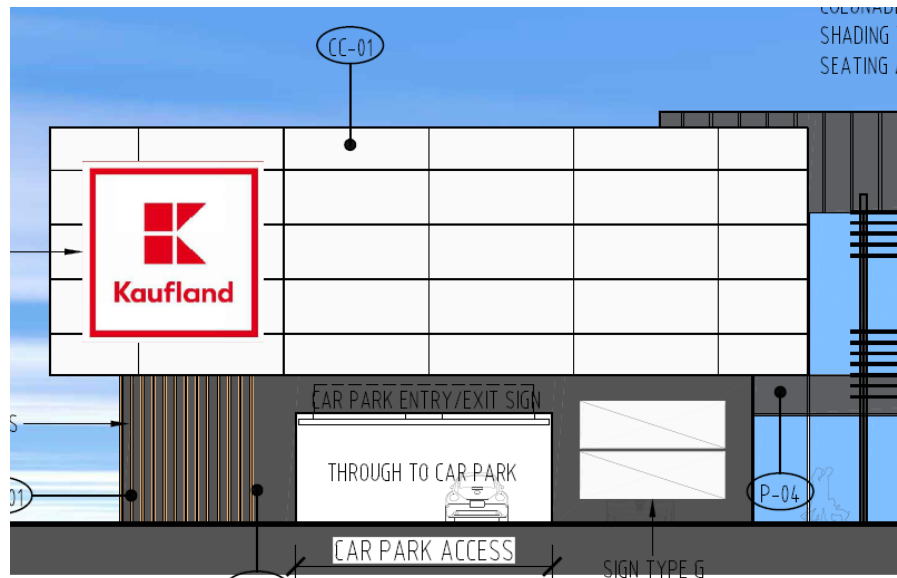
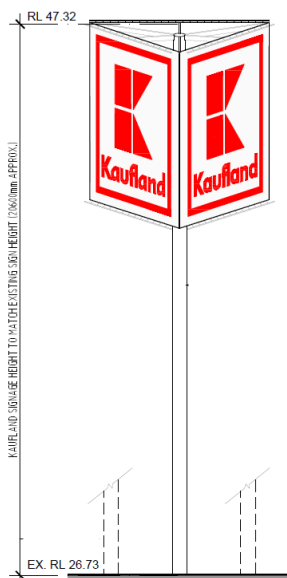
- The lettering and colouring of the proposed signage is consistent across the proposed development and directly aligns with the Kaufland supermarket use and Kaufland branding (*PDC 1*).
- The proposed wall mounted signs will be affixed to the building to prevent entry of birds or other pests (*PDC 4*).
- The proposed signs do not extend above the silhouette of the building, with the design ensuring that the location, siting, design, materials and shape of the proposed signs are coordinated with, and complimentary to, the architectural form and design of the proposed building (*PDC 5 & 7*).



- Advertising displays are contained within the boundaries of the subject land and have been designed and located to clearly identify the retail activity to passing traffic and clearly identify the access points into the site to facilitate safe traffic movements, without any flashing or animations (PDC 17 & 21).
- The illumination of the proposed advertisements will not impact on an approaching driver or create difficulty in the driver's perception of the road or persons or objects on the road due to their location and height above ground level (PDC 19).



Picture 14 – Existing pylon sign within the front setback and fixed wall signs fronting Anzac Highway



Picture 15 – Proposed advertising signage (replacement pylon sign and fixed wall sign western elevation)

PDC 6 relates to complying advertisement signs as outlined in Table Un/1. With regard to free-standing advertisements (pylon signs) Table Un/1 states:

- Overall height of advertisements not to exceed six metres.
- Only one free-standing advertisement on each site.

The proposed freestanding advertising signs are considered appropriate for the following reasons:

- Proposed Pylon Sign A will utilise the existing Le Cornu signage structure located on the site and has been designed to reflect the existing height. The replacement sign is deemed a 'like for like replacement' in terms of height and scale.
- Whilst the proposed pylon (freestanding) signs exceed the preferred overall height of 6 metres for freestanding advertisements, one of the signs is a replacement of the existing freestanding sign.
- It is considered the substantial size of the site, its location on an arterial road, and the scale and nature of the proposed development supports the scale and quantum of the signage proposed. It is considered



that the signage will not detrimentally impact of the appearance of the surrounding area and are considered an appropriate response in the Urban Corridor Zone.

- While there will be two pylon (freestanding) signs, they will be appropriately separated across the front car parking area and will provide an important directional role for customers to identify the site. Given the size of the site and the scale of development, the provision of two pylon signs is considered an appropriate outcome.
- The proposed sign to be horizontally mounted onto the roof top will not be visible from the public realm, or neighbouring properties. It will only be visible from the air, for passing aeroplanes. The proposed rooftop sign is a creative way to brand the site and to raise awareness of Kaufland's entry into Australia. It is considered that the sign will not will not impact upon the public realm, or the amenity of the area, and is appropriate.

## 7. BUILDING SERVICES AND PERFORMANCE

### 7.1. PARKING, TRAFFIC AND ACCESS

The Development Plan contains numerous provisions which seek to ensure that traffic can move efficiently and safely while also ensuring that an appropriate amount of car parking is provided to meet the demands generated by the development.

A detailed assessment of the proposed traffic, parking and access arrangements of the proposed development are provided within the Traffic Impact Assessment Report prepared by WGA. The analysis presented in the report concludes that the traffic generation and parking requirements associated with the proposed development can be satisfactorily accommodated by the proposal.

The proposed development is in accordance with the relevant Council Wide and Urban Corridor specific *PDC's* as detailed below:

- Parking provision and disabled parking provisions exceeds Development Plan requirements (*Transportation PDC 19 & Urban Corridor Zone PDC 20*).
- The existing signalised Anzac Highway/Leader Street has sufficient capacity to accommodate the anticipated trip generation based on existing traffic volumes (*Transportation PDC 4*).
- The development does not propose to increase the number of access points to Anzac or alter the function of the existing function of the existing access point, limiting traffic hazards and the function of the surrounding road network (*Transportation PDC 4*).
- Access for delivery and service vehicles to the proposed development will be via Maple Avenue and is anticipated to have a minimal impact on surrounding road networks. (*Transportation PDC 16 & Transit Living Policy Area PDC 8*).
- The provision of some car parking within the site frontage is considered an appropriate response given the existing site conditions, with car parking provided in this location. The design and layout of the car park, including the provision of landscaped areas and tree planting to provide shade and soften the appearance of the hard surface, results in an improved design outcome (*Urban Corridor Zone PDC 6 & Transit Living Policy Area PDC 7*).

### 7.2. WASTE MANAGEMENT

A Waste Management Plan has been prepared by Rawtec Pty Ltd and details the provision and location of waste facilities, as well as the access and collection requirements.

The development proposes waste be stored in two separate locations, with one area servicing the Ancillary Tenancies (referred to as the Bin Room) and the other capturing the waste produced by the Supermarket operations.

Waste collection is to be conducted by a commercial waste collector. Collection is to take place from two locations, as follows:

- Ancillary tenancies - collection would be direct from the Bin Room. The loading dock can be accessed from Maple Avenue allowing the forward entry and exit of the collection vehicle.
- Supermarket - collection will be direct from the loading dock, entering the premises in a forward direction from Maple Avenue. Collection would take place direct from the designated waste area.

The proposed landscaping design is consistent Council Wide *PDC's* for Waste as follows:

- The development has been designed to minimise the generation of waste through the inclusion of efficient recycling measures, with the development estimated to generate more than 30,000 litres of co-mingled recycling, organics (food) recycling and cardboard recycling per week (*PDC 1*).
- Waste will be stored within designated waste storage areas within the development and once full will be transferred to collection areas on the Ground Level loading dock area. This will ensure that waste is

separated from adjoining areas, limiting odour within the development as well as limiting any detrimental impact on the surrounding area (PDC 6).

- The waste storage areas proposed by the development are of an appropriate size to allow for the efficient recycling of waste. This includes the likely installation of an organics compactor to manage supermarket organics waste, facilitating efficiency onsite, reducing daily traffic movements and achieving best practice waste management (PDC 5).

## 7.3. LANDSCAPING

A Landscape Plan has been prepared by Urbis and highlights the proposed landscaping throughout the site.

The proposed landscaping design is consistent with Council Wide PDC's for Landscaping as follows:

- The proposed landscaping scheme has been carefully designed to complement the scale of the site and the proposed built form. This is achieved through the retention of existing established trees around the site's perimeter and the provision of a range of additional trees, particularly within the side setbacks, which will reach varying heights at maturity (PDC 1).
- The landscaping proposed within the front setback includes defined spaces including seating areas and a playground, which provide gathering spaces for customers, while also defining edges between the areas for pedestrian movement and the car parking area (PDC 1).
- Tree and shrub planting is provided around the perimeter of the site to define the edge between public and private space, while also establishing a visual buffer to the adjoining interfaces. Particular emphasis has been placed on providing a landscaped setback/buffer along the Leader Street frontage to provide screening to the ground level car parking area and improve the amenity of the adjoining residential interface (PDC 1).
- The provision of low-level landscaping throughout the front car parking area breaks softens the appearance of the hard surfaces and ensures that passive surveillance to and from the site remains unrestricted (PDC 1 & 2).

Figure 8 – Overview of proposed landscaping concept



Figure 9 – Landscaping concept viewed from Leader Street



## 7.4. ENVIRONMENTALLY SUSTAINABLE DESIGN & STORMWATER MANAGEMENT

The proposed development has been designed to incorporate energy efficient and water management initiatives in accordance with the relevant Council wide PDC's as outlined below:

- The development incorporates includes the provision of PV solar panels across the building's rooftop to provide for on-site energy generation. The panels are located toward the northern section of the building's rooftop to ensure maximum exposure to direct sunlight (*Energy Efficiency PDC 3*).
- The building has been designed and sited to ensure that the main activity area at the frontage of the building is provided with adequate daylight access throughout the year (*Energy Efficiency PDC 2*).
- The development includes the provision of rainwater collection tanks for the capture and re-use of stormwater on the site and manage stormwater flows during peak flooding events (*Natural Resources PDC 7 & 11*).
- The development incorporates integrated bios wales, tree pits and raingardens across the hard surfaces areas, including the front and rear car parking areas, to provide for appropriate water capture and re-use, while also ensuring that water flows from the site are appropriately filtered to minimise pollutant transport to the stormwater system (*Natural Resources PDC 7, 8, & 11*).

Figure 10 – Examples of proposed kerb inlet swales and raingardens



A Stormwater Management Plan has been prepared by WGA and highlights the locations of water flows and catchment on the site. The development includes three rainwater tanks with a total volume of 85kL for rainwater reuse, as well as two onsite detention tanks with a total capacity for 40kL for slow release of stormwater to the bio swales/raingardens.

## 8. CONCLUSION

The proposed development will deliver an exciting new format of supermarket shopping to the residents of Adelaide. The proposal at No.10 Anzac Highway, Forestville represents a considered design response for a strategic main road site, as expressed in the enclosed documentation. The proposed development is aligned with state and local planning policy and is worthy of support noting:

- The proposal will reinstate an underutilised and currently vacant strategic site, and deliver a quality retail development generating new employment opportunities and essential goods and services to local residents.
- The proposal will facilitate the regeneration of the site and broader precinct to a vibrant mixed use area, as desired by the objectives of the Urban Corridor Zone.
- The proposed retail development will not compromise the ability for the balance of the site to be developed for residential purposes in the future, and for an overall mixed use outcome to be achieved for the site.
- The proposed design responds to the existing and desired character of the area, through a substantial setback to the sensitive residential interface along Leader Street; variations in building scale across the site; the use of a variety of quality materials and finishes, and landscaping along site boundaries and within car parking areas.
- The proposed development seeks to minimise offsite amenity impacts for existing residents through the siting of loading operations on Maple Avenue, away from Leader Street; the provision of an appropriate supply of on-site car parking; and a scale of development that will not cause any overshadowing or overlooking impacts upon existing residents.

For the above mentioned reasons, it is respectfully submitted that the proposal is worthy of planning support.



# DISCLAIMER

This report is dated 20 November 2017 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Kaufland Australia Pty Ltd (**Instructing Party**) for the purpose of Planning Permit Application (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report, and upon which Urbis relied. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

In preparing this report, Urbis may rely on or refer to documents in a language other than English, which Urbis may arrange to be translated. Urbis is not responsible for the accuracy or completeness of such translations and disclaims any liability for any statement or opinion made in this report being inaccurate or incomplete arising from such translations.

Whilst Urbis has made all reasonable inquiries it believes necessary in preparing this report, it is not responsible for determining the completeness or accuracy of information provided to it. Urbis (including its officers and personnel) is not liable for any errors or omissions, including in information provided by the Instructing Party or another person or upon which Urbis relies, provided that such errors or omissions are not made by Urbis recklessly or in bad faith.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.



# **APPENDIX A      PLANNING POLICY AND CONTROLS**



# CITY OF UNLEY DEVELOPMENT PLAN

## COUNCIL WIDE

### Centres and Shops

#### OBJECTIVES

- Objective 1:** Shopping, administrative, cultural, community, entertainment, educational, religious, and recreational, facilities located in integrated centres which are distributed rationally.
- Objective 2:** Centres established and developed in accordance with a hierarchy based on function, so that each type of centre provides a proportion of the total requirement of goods and services commensurate with its role.
- Objective 3:** A hierarchy of centres located in centre zones or areas.

The grouping of a wide range of facilities in integrated centres will benefit the community by encouraging economic, and shared, use of facilities, providing a meeting place for communities, and encouraging ready access by both public and private transport. The hierarchy of centres is based on the principle that each type of centre provides a proportion of the total community requirement for goods and services commensurate with its role.

Centres within the area of metropolitan Adelaide are of the following type:

- (a) The Central Business Area of the City of Adelaide;
- (b) Regional Centre;
- (c) District Centre;
- (d) Neighbourhood Centre; and
- (e) Local Centre.

The degree to which the various facilities can be located within a centre will depend, among other things, upon the size of the centre, the specific policies relating to the centre, the implications of competing centres for the population being served, and the characteristics of the population to be served. Each development proposal for a centre should be evaluated against that centre's and other centres', defined roles in the centre hierarchy.

New development in centres should result in the expansion of the total range of retail goods and services available to the population to be served, have regard to the location and role of other existing and proposed centre zones, and be of a size and type which would not demonstrably lead to the physical deterioration of any existing centre zone or designated shopping area.

The identification of each zone in a hierarchy of centres should be such as to:

- (a) cater for the existing and future population's shopping and community needs;
- (b) provide a degree of choice in the location of centre facilities;
- (c) be safely and readily accessible to the population to be served, particularly by public transport, and obviate the need for unscheduled large-scale traffic and transport works;
- (d) have minimal adverse impact on residential areas;
- (e) concentrate development on one side of an arterial road, or one quadrant of an arterial road, intersection and have minimal adverse impact on traffic movement on arterial roads. Linear extension of centre zones or areas along arterial, roads is to be minimised;
- (f) reflect the potential to rehabilitate or extend centre zones or areas, and make effective use of existing investment in public infrastructure, utilities and transport, any costs involved being offset by benefits to the population being served;



- (g) be of a size and shape suitable for their functions, and provide car parking facilities:
- (h) have regard to the maintenance of retail employment levels in the area; and
- (i) have regard to the degree to which existing centres satisfy the above objectives.

The development of new centres may be staged, and specific areas may be set aside for community and other non-retail uses, with the total integrated development producing a character desired for that particular centre.

**Objective 4:** The central business area to provide the principal focus for the economic, social and political life of metropolitan Adelaide, and the State.

The central business area is located in the City of Adelaide.

**Objective 5:** Regional centres to function as the main centres outside the central business area for a full range of shopping, administrative, cultural, community, entertainment, education, religious and recreational facilities, as public transport interchanges and focus of public transport networks and public and private office development.

Regional centres are shown in the Development Plans for the relevant council areas, at Elizabeth, Modbury, Marion, Noarlunga and Port Adelaide.

In some instances the distribution of existing shopping development will be such that some centres, which provide a full range of other regional facilities, will be unable to develop the full range of shopping facilities envisaged for a regional centre.

**Objective 6:** District centres served by public transport and including shopping facilities that provide mainly 'convenience' goods and a sufficient range of 'comparison' goods to serve the major weekly shopping trips, as well as a comparable range of other community facilities.

The size of a district centre and the range of facilities within it, may vary throughout the area of metropolitan Adelaide but should be related to the size and characteristics of the population it serves. The largest district centres should serve a population in the order of 60 000 people.

The following list indicates those facilities which are appropriate in a fully developed district centre:

Ambulance Station Bank	Primary School Restaurant
Child Minding/Child Care Centre	Secondary School Service
Church	Station Special School
Cinema Civic	Specialty Shop Supermarket
Centre	Swimming Pool
Club/Meeting Hall Commercial	Community Health Centre
Development	Consulting Room
Library	Day Care Centre
Offices (general, professional, governmental)	Discount Department Store
Park	Further Education
Personal Service Establishments	Hospital Hotel/Tavern
Playing Field	Indoor Recreation Centre
Police Station	
Pre-school	

**Objective 7:** Neighbourhood centres to include shopping facilities that provide mainly 'convenience' goods to serve the day-to-day needs of the neighbourhood, and a limited range of more frequently required 'comparison' goods as well as a narrow range of facilities. There are not likely to be administrative facilities in neighbourhood centres.

The size of a neighbourhood centre and the range of facilities within it may vary within the area of metropolitan Adelaide but it should be related to the size and characteristics of the population it serves. The



largest neighbourhood centres should serve a population in the order of 10 000 people.

The following list indicates those facilities which are appropriate in a fully developed neighbourhood centre:

Bank	Park
Branch Library	Personal Service Establishment
Child Minding/Child Care Centre	Playing Field
Church	Pre-school Primary
Club/Meeting Hall	School Restaurant
Commercial Development	Service Station
Community Welfare Local Office	Specialty Shop
Consulting Room	Squash Court
Local Health Centre	Supermarket
Office (to serve nearby residents)	

**Objective 8:** Local centres to include shopping and local community facilities to serve day-to-day needs of the local community.

Local centres on arterial roads should comply with the same criteria as those for other local centres.

**Objective 9:** Retail showroom development should only be allowed outside of designated centres if it can be clearly demonstrated that it could be undesirable or impractical to locate them in the vicinity of designated centres.

Retail showrooms, trading in furniture, floor coverings, household appliances and other similar articles of bulky merchandise, require expensive indoor areas for the display of products and exhibit a lower parking demand than convenience shops. Retail showrooms complement the overall provision of facilities in centres and should be located on the periphery of those centres.

In inner areas, the designation of service retail zones for retail showroom development may be appropriate in the event that a centre location cannot be achieved. Such a zone should not be created in a linear fashion along arterial roads.

**Objective 10:** Retailing not consistent with facilities envisaged in a centre located and operated so as not to adversely affect any designated centre, commercial, business or residential, zones, or areas, and traffic movements on local, primary, and primary arterial roads.

The diversification of locations for retailing providing goods and services not compatible with the grouping of facilities envisaged for regional, district, and neighbourhood, centres may be considered so long as the integrity of the centre hierarchy is not compromised and the development is compatible with land uses in the locality.

Retail development of this kind should be evaluated having regard to:

- (a) its locational and operational compatibility with existing shopping, business, commercial zones, or areas, including the nature of the goods and materials to be stocked, and the noise levels of vehicles and plant used on, and servicing, the site;
- (b) its effect on adjacent residential development;
- (c) the increased use of local and arterial roads;
- (d) the adequacy of vehicular access and car parking; and
- (e) the maintenance of building and site development standards required for centres.



## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development or redevelopment within centre and mixed use zones, or areas, should meet the following criteria:
  - (a) Their location and assigned role in the centre hierarchy of designated centres and designated centre zones, or areas.
  - (b) The need to integrate facilities in the zone, or area.
  - (c) Staging of development within the centre and the needs for any future expansion of the zone, or area, as a whole.
  - (d) Multiple use of facilities and sharing of utility spaces.
  - (e) Attractive development, with a unified design of buildings and produce a close relationship between shops in a lively setting.
  - (f) Materials compatible with the natural features of the site and adjacent buildings.
  - (g) Acceptable micro-climatic conditions and degree of exposure in designing and orienting buildings, and locating open space and car parking areas.
  - (h) Development and operation of facilities within a zone, or area, compatible with adjoining areas. This should be promoted through landscaping, screen walls, centre orientation, location of access ways, buffer strips and transitional use areas.
  - (i) Signs designed in scale with the amenity of the area, and carefully located. Illumination from signs or floodlights should not spill over to adjacent areas.
  - (j) Access and car parking for residential areas located within centres separate from the access and car parking areas serving the other centre facilities.
  - (k) Integration of public transport requirements.
  - (l) Provision of retail showrooms for the trading of bulky goods on the periphery of centres, or in designated service retail zones in inner areas.
- 2 Centres should have minimal adverse impacts on residential areas.
- 3 Centres should be so located as to make effective use of existing investment in public infrastructure, utilities, transport and other facilities, and any costs involved should be off-set by benefits to the population being served.
- 4 Centres should be located consistent with policies pertaining to adjoining council areas.
- 5 The development of centres should not result in the physical deterioration of any designated centre.

### Location and Design

- 6 Shopping development should be located as follows:
  - (a) A shop or group of shops with a total floor area of greater than 250 square metres should be located in a centre or mixed use zone, or area.
  - (b) A shop or group of shops with a gross leasable floor area of 250 square metres or less should not be located on an arterial road as shown on [Map Un/1 \(Overlay 1\)](#) unless located in a centre or mixed use zone, or area.



- (c) A shop or group of shops with a gross leasable floor area of 250 square metres or less located outside a centre or mixed use zone, or area should not hinder the development or function of any centre or mixed use zone, or area, and should conform with the design, access, car parking and design principles for centre or mixed use zones or areas set out in principle of development control numbered 11 below.

7 The total floor area of shops in a Local Centre Zone should not exceed 450 square metres.

8 Development within centre zones should conform with the following design and location principles:

- (a) Development should provide for the integration of existing and future facilities so as to promote ease of pedestrian movement and sharing of facilities as well as to retain the opportunity for future expansion within the zone.
- (b) Within zones which straddle arterial roads or intersections of arterial roads, the major shopping focus, defined by the total floor area and associated car parking, should be restricted to one side of the road or one quadrant of the intersection.
- (c) Development should not:
  - (i) generate pedestrian or vehicular traffic onto or across an arterial road in such a way as to materially impair the movement of traffic on that road or to cause safety hazards; and
  - (ii) involve utilization of land, including car parking and landscaping, which is required for road widening.
- (d) Development within centre zones should avoid significant vertical separation between the public footway and ground floor level, or separation of the public footway and ground floor level by voids to undercroft parking areas.
- (e) Where necessary, development should:
  - (i) provide access and facilities for the disabled and parking in accordance with principles of development control numbered 24 and 25 under the heading Transport (Movement of People and Goods);
  - (ii) minimise energy consumption for lighting, heating, cooling and ventilation;
  - (iii) provide public spaces such as malls, plazas and courtyards;
  - (iv) provide public facilities including toilets, infant changing facilities for parents, seating, telephones and community information boards;
  - (v) provide access for public transport and sheltered waiting areas for passengers;
  - (vi) provide lighting for buildings and ancillary areas, with no light spill causing nuisance or hazard;
  - (vii) provide facilities for the parking and securing of bicycles; and
  - (viii) provide facilities for the storage and collection of shopping trolleys.
- (f) Landscaping should be provided and maintained in order to:
  - (i) establish a buffer between development in the zone and adjacent areas;
  - (ii) complement the landscaping provided by adjacent development and enhance the visual appearance and character of the zone;
  - (iii) shade, define and create windbreaks for pedestrian paths and spaces; and
  - (iv) screen service yards, loading areas and outdoor storage areas.



- 9 Centres should develop on one side of an arterial road, or one quadrant of an arterial road intersection. Where centre facilities, already straddle an arterial road, or the intersection of two arterial roads, development within them should:
- (a) concentrate on one side of the arterial, road or one quadrant of the arterial road intersection; and
  - (b) minimise the need for pedestrian and vehicular movement across the arterial road, from one part of the centre to another.
- 10 Centre type development located outside centre zones should of a size and type which would not hinder the development or function of any centre zone, in accordance with the objectives for centres and shops and the objectives for the appropriate zones and should conform with the access, car parking and design principles for centre zones set out below.
- 11 Shopping development which is more appropriately located outside business, centre or shopping, zones, or areas, should:
- (a) be of a size and type which would not hinder the development or function of any business, centre, or shopping, zone or area, in accordance with the objectives and principles of development control for centres and shops, and the objectives and principles of development control for the appropriate zones, or areas;
  - (b) conform to the criteria above, and the design, access, and car parking requirements for business, centre, and shopping, zones, or areas, set out in other principles of development control;
  - (c) result in the expansion of the total range of retail goods and services presently available to the community;
  - (d) result in a maintenance of retail employment in the area; and
  - (e) not demonstrably lead to the physical deterioration of any designated centre.
- 12 The location and design of centres and shopping development should ensure that all sources of noise, including refrigeration and air conditioning equipment, garbage collection and car parking, do not cause excessive or disturbing noise at neighbouring properties.

### **Transport, Access and Parking**

- 13 Centres should be highly accessible to the population to be served, especially by public transport, where that applies.
- 14 Centres should have a minimal adverse impact on traffic movements on arterial roads.
- 15 Access points for the development should be determined by Transport SA in consultation with the Planning Authority.
- 16 Development in the form of retail showrooms trading in bulky goods merchandise, should provide adequate manoeuvring and circulation areas in order to accommodate truck and trailer movements.
- 17 Centre type development should make adequate provision on the site to enable the loading, unloading and manoeuvring of vehicles without the necessity to use public roads, and in a manner which results in minimal conflict between service vehicles and customer vehicles, pedestrians and cyclists.
- 18 Provision for the movement of people and goods within business, centre, and shopping zones, or areas, should comply with the following:
- (a) Development should not cause inconvenient and unsafe traffic and pedestrian movements or be likely to result in the need for significant expenditure on transport and traffic works, or facilities within, or outside, the locality.



- (b) Development should be concentrated for pedestrian convenience and not allowed to extend unnecessarily along road frontages; (increasing the depth of development is a more desirable alternative).
- (c) The separation of pedestrian and vehicle movements within zones or areas, is most desirable to ensure safety and convenience.
- (d) Access to car parking areas should be designed not to cause congestion or detract from the safety of traffic on abutting roads.
- (e) Adequate and convenient provision should be made for service vehicles and the storage and removal of waste goods and materials.
- (f) Parking areas should be consolidated and co-ordinated into convenient groups, rather than located individually, and the access points minimised.
- (g) Car parks should be orientated so as to facilitate direct and convenient access of pedestrians between them and the facilities they serve.
- (h) On-site parking shall be determined having regard to:
  - (i) the amount, type and timing of movement generated by the use;
  - (ii) the design, location and configuration of parking spaces;
  - (iii) the ability of the site to accommodate the parking spaces;
  - (iv) the potential for shared use of parking spaces;
  - (v) the effect on surrounding activities;
  - (vi) specific in requests of cyclists; and
  - (vii) the availability of appropriate on-street parking.

(Also see Principles 21 and 22 under the heading Transport (Movement of People and Goods) and [Table Un/5](#) for Off Street Vehicle Parking Requirements).

## **Crime Prevention**

### **OBJECTIVES**

- Objective 1: A safe, secure, crime resistant environment where land uses are integrated and designed to facilitate community surveillance.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should promote the personal safety of people by:
  - (a) enabling them to be seen, to see and to interpret their surrounds, through:
    - (i) adequate lighting; clear sightlines;
    - (ii) the elimination of entrapment spots;
    - (iii) the design of buildings to overlook public space;
    - (iv) the mixing of activities which facilitate more constant public use;
    - (v) appropriate use and design of landscaping and fencing;



- (b) enabling them to leave an area or seek assistance when in danger, through legible design and comprehensive signage.
- 2 Development should promote the security of property by:
- (a) clearly defining ownership and legitimate use of private, public and community space
  - (b) minimising access between roofs, balconies and windows of adjacent buildings;
  - (c) avoiding the use of materials which are likely to be susceptible to damage and vandalism;
  - (d) avoiding landscaping and fencing which may present a security risk by providing concealment opportunities;
  - (e) screen planting and use of prickly plant species in areas susceptible to vandalism.

## Design and Appearance

### OBJECTIVES

- Objective 1:** Development of a high design standard and appearance that responds to and reinforces positive aspects of the local environment and built form.
- Objective 2:** Roads, open spaces, paths, buildings and land uses laid out and linked so that they are easy to understand and navigate.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Buildings should reflect the desired character of the locality while incorporating contemporary designs that have regard to the following:
  - (a) building height, mass, proportion and siting;
  - (b) external materials, patterns, colours and decorative elements;
  - (c) roof form and pitch;
  - (d) façade articulation and detailing;
  - (e) verandahs, eaves, parapets and window screens.
- 2 Where a building is sited on or close to a side or rear boundary, the boundary wall should minimise:
  - (a) the visual impact of the building as viewed from adjoining properties;
  - (b) overshadowing of adjoining properties and allow adequate sunlight access to neighbouring buildings.
  - (c) The external walls and roofs of buildings should not incorporate highly reflective materials which will result in glare to neighbouring properties, drivers or cyclists.
- 3 Structures located on the roofs of buildings to house plant and equipment should be screened from view to the street and adjacent building viewing points (existing or envisaged) and should form an integral part of the building and roof top design in relation to creating an attractive appearance, external finishes and colours.
- 4 Balconies should:
  - (a) be integrated with the overall form and detail of the building;



- (b) include balustrade detailing that enables line of sight to the street;
  - (c) be recessed where wind would otherwise make the space unusable;
  - (d) be self-draining and plumbed to minimise runoff.
- 5 Transportable buildings and buildings which are elevated on stumps, posts, piers, columns or the like, should have their suspended footings enclosed around the perimeter of the building, and the use of verandahs, pergolas and other suitable architectural detailing to give the appearance of a permanent structure.

### **Overshadowing**

- 6 The design and location of buildings should enable direct winter sunlight into adjacent dwellings and private open space and minimise the overshadowing of:
- (a) windows of habitable rooms;
  - (b) upper-level private balconies that provide the primary open space area for a dwelling;
  - (c) solar collectors (such as solar hot water systems and photovoltaic cells).

### **Visual Privacy**

- 7 Development should minimise direct overlooking of the habitable rooms and private open spaces of dwellings through measures such as:
- (a) appropriate site layout and building orientation;
  - (b) off-setting the location of balconies and windows of habitable rooms with those of other buildings so that views are oblique rather than direct to avoid direct line of sight;
  - (c) building setbacks from boundaries (including building boundary to boundary where appropriate) that interrupt views or that provide a spatial separation between balconies or windows of habitable rooms;
  - (d) screening devices (including fencing, obscure glazing, screens, external ventilation blinds, window hoods and shutters) that are integrated into the building design and have minimal negative effect on residents' or neighbours' amenity.
- 8 Permanently fixed external screening devices should be designed and coloured to complement the associated building's external materials and finishes

### **Relationship to the Street and Public Realm**

- 9 Buildings (other than ancillary buildings, group dwellings or buildings on allotments with a battle axe configuration) should be designed so that the main façade faces the primary street frontage of the land on which they are situated.
- 10 Buildings, landscaping, paving and signage should have a coordinated appearance that maintains and enhances the visual attractiveness of the locality.
- 11 Buildings should be designed and sited to avoid extensive areas of uninterrupted walling facing areas exposed to public view.
- 12 Building design should emphasise pedestrian entry points to provide perceptible and direct access from public street frontages and vehicle parking areas.
- 13 In mixed use and medium and high density residential areas, development facing the street should be designed to provide interesting and pedestrian friendly street frontages by:
- (a) including features such as frequent doors and display windows, retail shopfronts and/or outdoor



eating or dining areas;

- (b) minimising the frontage for fire escapes, service doors, plant and equipment hatches;
  - (c) avoiding undercroft, semi-basement or ground floor vehicle parking that is visible from the primary street frontage;
  - (d) using colour, vertical and horizontal elements, roof overhangs and other design techniques to provide visual interest and reduce massing; and
  - (e) including awnings, eaves, verandahs or similar, to the street where setbacks and ground floor uses allow.
- 14 Where zero or minor setbacks are desirable, development should incorporate shelter over footpaths to enhance the quality of the pedestrian environment.

### **Outdoor Storage and Service Areas**

- 15 Outdoor storage, loading and service areas should be:
- (a) screened from public view by a combination of built form, solid fencing and/or landscaping;
  - (b) conveniently located and designed to enable the manoeuvring of service and delivery vehicles;
  - (c) sited away from sensitive land uses.

### **Building Setbacks from Road Boundaries**

- 16 Except in areas where a new character is desired, the setback of buildings from public roads should:
- (a) be similar to, or compatible with, setbacks of buildings on adjoining land and other buildings in the locality;
  - (b) contribute positively to the function, appearance and/or desired character of the locality.

- 17 Except where specified in a particular zone, policy area or precinct, buildings and structures should be set back from road boundaries having regard to the requirements set out in [Table Un/2](#)

Except where specified in a particular zone, policy area or precinct, the main face of a building should be set back from the primary road frontage in accordance with the following table:

- 18 Except in areas where a new character is desired or where specified in a zone, policy area or precinct, the setback of development from a secondary street frontage should reflect the setbacks of the adjoining buildings and other buildings in the locality.
- 19 All setbacks from the road frontage should be additional to the road widening setback established under the *Metropolitan Adelaide Road Widening Plan Act 1972*.

## **Energy Efficiency**

### **OBJECTIVES**

- Objective 1:** Development designed and sited to conserve energy.
- Objective 2:** Development that provides for on-site power generation including photovoltaic cells and wind power.

### **PRINCIPLES OF DEVELOPMENT CONTROL**

- 1 Development should provide for efficient solar access to buildings and open space all year around.



2 Buildings should be sited and designed:

- (a) to ensure adequate natural light and winter sunlight is available to the main activity areas of adjacent buildings;
- (b) so that open spaces associated with the main activity areas face north for exposure to winter sun;
- (c) to allow for cross ventilation and natural cooling of buildings and zoning of building layouts to enable main living room areas to be separately heated and cooled;
- (d) to incorporate roof top gardens and green 'living' walls, particularly for multi-storey and large developments, to reduce the 'urban heat island effect';
- (e) to use energy efficient building materials or the re-use of existing materials (embodied energy).

**On-site Energy Generation**

3 Development should facilitate the efficient use of photovoltaic cells and solar hot water systems by:

- (a) taking into account overshadowing from neighbouring buildings;
- (b) designing roof orientation and pitches to maximise exposure to direct sunlight.

4 Public infrastructure and lighting, should be designed to generate and use renewable energy.

**Form of Development**

**OBJECTIVES**

**Objective 1:** Orderly and economic development.

**Objective 2:** The development of Adelaide as an international and national centre for cooperative research and innovation in science, technology, environmental management, education and the arts.

**Objective 3:** The establishment of urban development which provides models in the conservation and management of resources and the natural environment and the enhancement of natural site features, in urban planning and the provision of physical and social infrastructure.

A concept that encapsulates the vision of Adelaide as an international city where a wide variety of social and economic activities can occur and which provides models, through research, innovation and the application of technology, in the conservation and management of resources, the natural environment, urban planning community development and the provision of physical and social infrastructure.

The Adelaide economy built on research, education and advanced industries, serviced by advanced infrastructure and be export oriented. The principal industries identified for Adelaide are education, information technology and environmental management. Other important industries are media, leisure, tourism and health.

**Objective 4:** A proper distribution and segregation of living, working and recreational activities by the allocation of suitable areas of land for those purposes.

In the 21st Century Adelaide's growth will be accommodated through higher densities within the present urban area and development within the Willunga Basin and northern Adelaide Plains. The future form and nature of the existing metropolitan area will be influenced by meeting housing choice in the metropolitan area. Current and anticipated demographic trends in the metropolitan area indicate population growth but a changing population structure, with falling dwelling occupancy rates and declining population in many areas, particularly in the inner and middle suburbs, will necessitate increasing dwelling density to maintain population levels.

While taking these trends into account, there are social, environmental and economic benefits to be gained from higher residential densities within the metropolitan area and in turn this Plan promotes and seeks to implement a policy of housing choice.



It is an essential element in the future development of Adelaide, to address concerns about increased housing demand, efficient use of urban infrastructure and population change. This can be achieved by increasing the number of dwellings that can be accommodated within the existing boundary of the metropolitan area, and arresting and perhaps reversing the decline in population which has been evident in many parts of the metropolitan area. While these aims are applicable across the metropolitan area, implementation must recognise the particular requirements of residential character and amenity, environmentally sensitive areas, water catchment areas, and other land which is subject to specific hazard or constraint.

**Objective 5:** Maintenance of the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport and Parafield Airport.

**Objective 6:** Adequate public parks and recreation areas conveniently located.

Open spaces are needed in a city for outdoor recreation, and all age groups must be catered for. The size of the open spaces must be adequate, and they must be located conveniently for the people who use them.

**Objective 7:** The City of Unley will be a City that offers its citizens the best of living and working environments.

In the next decade, the City of Unley will be recognised for community spirit, desirable character, and business success in a sustainable and safe environment.

New people and investment growth will bring vibrancy to the City's tapestry of local communities supporting their environment and each other. Unley will be recognised for its social and economic innovations. Citizens will be proud of their environment, their successes and their strength of community well being.

Development will primarily occur on individual sites as compatible, complementary and reinforcing elements within the existing desirable form and character of localities and the City.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Development should be in accordance with the Unley Plan, [Map Un/1 \(Overlay 1\)](#) primarily by:
  - (a) concentrating comprehensive redevelopment and renewal for more intensive mixed activity and housing development along major transport corridors and within/adjacent to key centres and activity hubs;
  - (b) replacing existing buildings and land uses not contributing to a locality's character within areas of historic and valued streetscape character where revitalisation is warranted;
  - (c) restoring and conserving valued buildings and streetscape character, including the visual rhythms and patterns created by physical elements in a streetscape including the valued buildings, site proportions, building curtilage, fencing, mature trees and private gardens.
- 2 Development should be orderly and economic.
- 3 New housing and other urban development should create a safe, convenient and pleasant environment in which to live.
- 4 No development other than residential development and advertisements, should be erected, added to or altered on any land so that any portion of it is constructed nearer to the existing boundary of a road, or to the boundary of any land shown as being required for road widening on the plan deposited under the provisions of the *Metropolitan Adelaide Road Widening Plan Act*, than the distance prescribed for each road or portion thereof in Column 3 of [Table Un/2](#).
- 5 Landfill facilities should not be located in existing or future urban, township, living, residential, commercial, centre, office, business, industry or institutional zones, or environment protection, conservation, landscape, open space or similar zones, or in a Water Protection Area.

## Interface Between Land Uses



## OBJECTIVES

- Objective 1:** Development located and designed to minimise adverse impact and conflict between land uses.
- Objective 2:** Protect community health and amenity from adverse impacts of development.
- Objective 3:** Protect desired land uses from the encroachment of incompatible development.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:
  - (a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants
  - (b) noise
  - (c) vibration
  - (d) electrical interference
  - (e) light spill
  - (f) glare
  - (g) hours of operation
  - (h) traffic impacts.
- 2 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.
- 3 Development adjacent to a Residential Zone should be designed to minimise overlooking and overshadowing of adjacent dwellings and private open space.
- 4 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.
- 5 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.
- 6 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

## Noise Generating Activities

- 7 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant *Environment Protection (Noise) Policy* criteria when assessed at the nearest existing noise sensitive premises.
- 8 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.
- 9 Outdoor areas (such as beer gardens or dining areas) associated with licensed premises should be designed or sited to minimise adverse noise impacts on adjacent existing or future noise sensitive development.



- 10 Development proposing music should include noise attenuation measures that achieve the following desired noise levels:

Noise level assessment location	Desired noise level
Adjacent existing <i>noise sensitive development</i> property boundary	Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and Less than 5 dB(A) above the level of background noise ( $LA_{90,15min}$ ) for the overall (sum of all octave bands) A-weighted level
Adjacent land property boundary	Less than 65dB(Lin) at 63Hz and 70dB(Lin) in all other octave bands of the sound spectrum or Less than 8 dB above the level of background noise ( $L_{90,15min}$ ) in any octave band of the sound spectrum and 5 dB(A) overall (sum of all octave bands) A-weighted level

## Air Quality

- 11 Development with the potential to emit harmful or nuisance-generating air pollution should incorporate air pollution control measures to prevent harm to human health or unreasonable interference with the amenity of sensitive uses within the locality.
- 12 Chimneys or exhaust flues associated with commercial development (including cafes, restaurants and fast food outlets) should be designed to ensure they do not cause a nuisance or health concerns to nearby sensitive receivers by:
- (a) incorporating appropriate treatment technology before exhaust emissions are released to the atmosphere
  - (b) ensuring that the location and design of chimneys or exhaust flues maximises dispersion and takes into account the location of nearby sensitive uses.

## Land Division

### OBJECTIVES

- Objective 1:** Land in appropriate localities divided into allotments in an orderly and economic manner
- Objective 2:** Land division to provide for development opportunities appropriate to the desired character.
- Objective 3:** Public open space providing diverse recreational opportunities.
- Objective 4:** Encouragement of walking, cycling and public transport usage.

### PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Land should not be divided:
- (a) in a manner which would prevent the satisfactory future division of the land, or any part thereof;
  - (b) if the proposed use, or the establishment of the proposed use, is likely to lead to undue erosion of the land or land in the vicinity thereof;
  - (c) unless wastes produced by the proposed use of the land, or any use permitted by the principles of development control, can be managed so as to prevent pollution of a public water supply or any



surface or underground water resources;

- (d) if the size, shape and location of, and the slope and nature of the land contained in each allotment resulting from the division is unsuitable for the purpose for which the allotment is to be used;
- (e) if any part of the land is likely to be inundated by floodwaters and the proposed allotments are to be used for a purpose which would be detrimentally affected when the land is inundated;
- (f) where community facilities or public utilities are lacking or inadequate;
- (g) where the proposed use of the land is the same as the proposed use of other existing allotments in the vicinity, and a substantial number of the existing allotments have not been used for that purpose;
- (h) if it would cause an infringement of any provisions relating to building work contained in the *Development Act 1993* or any by-law or regulation made thereunder;
- (i) if the division and subsequent use is likely to lead to clearance of or damage to one or more significant trees.

2 When land is divided:

- (a) any reserves or easements necessary for the provision of public utility services should be provided;
- (b) stormwater not used or disposed of on the subject land should be capable of being drained safely and efficiently from each proposed allotment and disposed of from the land in a satisfactory manner;
- (c) a water supply sufficient for the purpose for which the allotment is to be used should be made available to each allotment;
- (d) provision should be made for the disposal of waste waters, sewage and other effluent from each allotment without risk to health;
- (e) roads or thoroughfares should be provided where necessary for safe and convenient communication with adjoining land and neighbouring localities;
- (f) each allotment resulting from the division should have safe and convenient access to the carriageway of an existing or proposed road or thoroughfare;
- (g) proposed roads should be graded, or be capable of being graded to connect safely and conveniently with an existing road or thoroughfare;
- (h) at the intersection of two or more roads, an appropriate corner cut-off is provided to ensure adequate sight lines are maintained for motorists and pedestrians.

## Landscaping

### OBJECTIVES

**Objective 1:** The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.

### PRINCIPLES OF DEVELOPMENT CONTROL

1 Landscaping of development should:

- (a) be provided to soften the appearance of built form;



- (b) complement the scale of the built form;
- (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;
- (d) define spaces and edges;
- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

2 Landscaping should not:

- (a) unreasonably restrict solar access to habitable rooms and solar collection areas in adjoining development;
- (b) be likely to cause structural damage or impact upon adjoining development through root damage and canopy drop;
- (c) remove opportunities for passive surveillance to public areas;
- (d) promote concealment and the potential for criminal activities adjacent to footpaths and public activity areas;
- (e) introduce environmental weeds to sensitive environmental areas.

## Medium and High Rise Development (3 or More Storeys)

### OBJECTIVES

- Objective 1:** Medium and high rise development that provides housing choice and employment opportunities.
- Objective 2:** Residential development that provides a high standard of amenity and adaptability for a variety of accommodation and living needs.
- Objective 3:** Development that is contextual and responds to its surroundings, having regard to adjacent built form and character of the locality and the Desired Character for the Zone and Policy Area.
- Objective 4:** Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.
- Objective 5:** Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:
- (a) enlivening building edges;
  - (b) creating attractive, welcoming, safe and vibrant spaces;
  - (c) improving public safety through passive surveillance;
  - (d) creating interesting and lively pedestrian environments;
  - (e) integrating public art into the development where it fronts the street and public spaces;



- (f) incorporating generous areas of high quality fit for purpose landscaping, green walls and roofs.

**Objective 6:** Commercial, office and retail development that is designed to create a strong visual connection to the public realm and that contributes to the vitality of the locality.

**Objective 7:** Buildings designed and sited to be energy and water efficient.

## PRINCIPLES OF DEVELOPMENT CONTROL

*Note: Some of the following Principles of Development Control (PDC) prescribe a measurable design solution as one way of achieving the intent of the PDC. Where this solution is met, it should be taken as meeting the intent of the principle. Alternative design solutions may also achieve the intent of the PDC and, when proposed should be assessed on their merits.*

### Design and Appearance

- 1 Buildings should be designed to respond to key features of the prevailing local context within the same zone as the development. This may be achieved through design features such as vertical rhythm, proportions, composition, material use, parapet or balcony height, and use of solid and glass.
- 2 In repetitive building types, such as row housing, the appearance of building facades should provide some variation, but maintain an overall coherent expression such as by using a family of materials, repeated patterns, facade spacings and the like.
- 3 Windows and doors, awnings, eaves, verandas or other similar elements should be used to provide variation of light and shadow and contribute to a sense of depth in the building façade.
- 4 Buildings should:
  - (a) achieve a comfortable human scale at ground level through the use of elements such as variation in materials and form, building projections and elements that provide shelter (for example awnings, verandas, and tree canopies);
  - (b) be designed to reduce visual mass by breaking up the building façade into distinct elements;
  - (c) ensure walls on the boundary that are visible from public land include visually interesting treatments to break up large blank facades.
- 5 Buildings should reinforce corners through changes in setback, materials or colour, roof form or height.
- 6 Materials and finishes should be selected to be durable and age well to minimise ongoing maintenance requirements. This may be achieved through the use of materials such as masonry, natural stone and prefinished materials that minimise staining, discolouring or deterioration.
- 7 Balconies should be integrated into the overall architectural form and detail of the development and should:
  - (a) utilise sun screens, pergolas, louvres, green facades and openable walls to control sunlight and wind;
  - (b) be designed and positioned to respond to daylight, wind, and acoustic conditions to maximise comfort and provide visual privacy;
  - (c) allow views and casual surveillance of the street while providing for safety and visual privacy of nearby living spaces and private outdoor areas;
  - (d) be of sufficient size, particularly depth, to accommodate outdoor seating.



## Street Interface

- 8 Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:
- (a) incorporating active uses such as shops or offices, prominent entry areas for multi-storey buildings (where it is a common entry), habitable rooms of dwellings, and areas of communal public realm with public art or the like where consistent with the Zone and/or Policy Area provisions;
  - (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired).

One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;

- (c) designing building façades that are well articulated by creating contrasts between solid elements (such as walls) and voids (for example windows, doors and balcony openings);
  - (d) positioning services, plant and mechanical equipment (such as substations, transformers, pumprooms and hydrant boosters, car park ventilation) in discreet locations, screened or integrated with the façade;
  - (e) ensuring ground, undercroft, semi-basement and above ground parking does not detract from the streetscape;
  - (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on street trees and pedestrian areas.
- 9 Common areas and entry points of the ground floor level of buildings should be designed to enable surveillance from public land to the inside of the building at night.
- 10 Entrances to multi-storey buildings should:
- (a) be oriented towards the street;
  - (b) be visible and clearly identifiable from the street, and in instances where there are no active or occupied ground floor uses, be designed as a prominent, accentuated and welcoming feature;
  - (c) provide shelter, a sense of personal address and transitional space around the entry;
  - (d) provide separate access for residential and non-residential land uses;
  - (e) be located as close as practicable to the lift and/or lobby access;
  - (f) avoid the creation of potential areas of entrapment.
- 11 To contribute to direct pedestrian access and street level activation, the finished ground level of buildings should be no more than 1.2 metres above the level of the footpath, except for common entrances to apartment buildings which should be at ground level or universally accessible.
- 12 Dwellings located on the ground floor with street frontage should have individual direct pedestrian street access.
- 13 The visual privacy of ground floor dwellings within multi-storey buildings should be protected through the use of design features such as orientation, elevation of ground floors above street level, setbacks from street and the location of verandas, windows, porticos or the like.

One way of achieving this is for ground floor level dwellings in multi-storey developments to be raised by up to 1.2 metres (provided access is not compromised where relevant).



## Building Separation and Outlook

- 14 Residential buildings (or the residential floors of mixed use buildings) should have habitable rooms, windows and balconies designed and positioned with adequate separation and screening from one another to provide visual and acoustic privacy and allow for natural ventilation and the infiltration of daylight into interior and outdoor spaces.

One way of achieving this is to ensure any habitable room windows and/or balconies are separated by at least 6 metres from one another where there is a direct 'line of sight' between them and be at least 3 metres from a side or rear property boundary. Where a lesser separation is proposed, alternative design solutions may be applied (such as changes to orientation, staggering of windows or the provision of screens or blade walls, or locating facing balconies on alternating floors as part of double floor apartments), provided a similar level of occupant visual and acoustic privacy, as well as light access, can be demonstrated.

- 15 Living rooms should have a satisfactory short range visual outlook to public, communal or private open space.

## Dwelling Configuration

- 16 Buildings comprising more than 10 dwellings should provide a variety of dwelling sizes and a range in the number of bedrooms per dwelling.
- 17 Dwellings located on the ground floor with street frontage should have habitable rooms with windows overlooking the street or public realm.
- 18 Dwellings with 3 or more bedrooms, should, where possible, have the windows of habitable rooms overlooking internal courtyard space or other public space.

## Adaptability

- 19 Multi-storey buildings should include a variety of internal designs that will facilitate adaptive reuse, including the conversion of ground floor residential to future commercial use (i.e. by including floor to ceiling heights suitable for commercial use).

## Environmental

- 20 Multi-storey buildings should:
  - (a) minimise detrimental micro-climatic and solar access impacts on adjacent land or buildings, including effects of patterns of wind, temperature, daylight, sunlight, glare and shadow;
  - (b) incorporate roof designs that enable the provision of photovoltaic cells and other features that enhance sustainability (including landscaping).
- 21 Green roofs (which can be a substitute for private or communal open space provided they can be accessed by occupants of the building) are encouraged for all new residential commercial or mixed use buildings.
- 22 Development of 5 or more storeys, or 21 metres or more in building height (excluding the rooftop location of mechanical plant and equipment), should be designed to minimise the risk of wind tunnelling effects on adjacent streets by adopting one or more of the following:
  - (a) a podium at the base of a tall tower and aligned with the street to deflect wind away from the street;
  - (b) substantial verandas around a building to deflect downward travelling wind flows over pedestrian areas;
  - (c) the placement of buildings and use of setbacks to deflect the wind at ground level.
- 23 Deep soil zones should be provided to retain existing vegetation or provide areas that can accommodate new deep root vegetation, including tall trees with large canopies.

One way of achieving this is in accordance with the following table:



Site area	Minimum deep soil area	Minimum dimension	Tree/ deep soil zones
<300m <sup>2</sup>	10m <sup>2</sup>	1.5 metres	1 small tree/10m <sup>2</sup> deep soil
300-1500m <sup>2</sup>	7% site area	3 metres	1 medium tree/30m <sup>2</sup> deep soil
>1500m <sup>2</sup>	7% site area	6 metres	1 large or medium tree/60m <sup>2</sup> deep soil
Tree size and site area definitions			
Small tree:	< 6 metres mature height and < less than 4 metres canopy spread		
Medium tree:	6-12 metres mature height and 4-8 metres canopy spread		
Large tree:	12 metres mature height and > 8 metres canopy spread		
Site area:	The total area for development site, not average area per dwelling		

24 Deep soil zones should be provided with access to natural light to assist in maintaining vegetation health.

### Site Facilities and Storage

25 Dwellings should provide a covered storage area of not less than 8 cubic metres in one or more of the following areas:

- (a) in the dwelling (but not including a habitable room)
- (b) in a garage, carport, outbuilding or an on-site communal facility and be conveniently located and screened from view from streets and neighbouring properties.

26 Development should provide a dedicated area for the on-site collection and sorting of recyclable materials and refuse, green organic waste and wash-bay facilities for the ongoing maintenance of bins. This area should be screened from view from public areas so as to not detract from the visual appearance of the ground floor.

27 Where the number of bins to be collected kerbside is 10 or more at any one time, provision should be made for on-site collection.

28 The size of lifts, lobbies and corridors should be sufficient to accommodate movement of bicycles, strollers, mobility aids and visitor waiting areas.

### Zone Interface

29 Unless separated by a public road or reserve, development site(s) adjacent to any zone that has a primary purpose of accommodating low rise (1 to 2 storey) residential activity should incorporate deep soil zones along the common boundary to enable medium to large trees to be retained or established to assist in screening new buildings of 3 or more storeys in height.

One way of achieving this is for development comprising building elements of three or more storeys in height to be setback at least 6 metres from a zone boundary, and incorporate a deep soil zone area capable of accommodating medium to large trees with a canopy spread of not more than 8 metres when fully mature.

## Natural Resources

### OBJECTIVES

**Objective 1:** Retention, protection and restoration of the natural resources and environment.

**Objective 2:** Protection of the quality and quantity of South Australia's surface waters, including inland, and underground waters.

**Objective 3:** The ecologically sustainable use of natural resources including water resources, ground water, surface water and watercourses.



- Objective 4:** Natural hydrological systems and environmental flows reinstated, and maintained and enhanced.
- Objective 5:** Development consistent with the principles of water sensitive design.
- Objective 6:** Development sited and designed to:
- (a) protect natural ecological systems;
  - (b) achieve the sustainable use of water;
  - (c) protect water quality, including receiving waters;
  - (d) reduce runoff and peak flows and prevent the risk of downstream flooding;
  - (e) minimise demand on reticulated water supplies;
  - (f) maximise the harvest and use of stormwater;
  - (g) protect stormwater from pollution sources.
- Objective 7:** Storage and use of stormwater which avoids adverse impact on public health and safety.
- Objective 8:** Native flora, fauna and ecosystems protected, retained, conserved and restored.
- Objective 9:** Restoration, expansion and linking of existing native vegetation to facilitate habitat corridors for ease of movement of fauna.
- Objective 10:** Minimal disturbance and modification of the natural landform.
- Objective 11:** Protection of the physical, chemical and biological quality of soil resources.
- Objective 12:** Protection of areas prone to erosion or other land degradation processes from inappropriate development.
- Objective 13:** Protection of the scenic qualities of natural and rural landscapes.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be undertaken with minimum impact on the natural environment, including air and water quality, land, soil, biodiversity, and scenically attractive areas.
- 2 Development should ensure that South Australia's natural assets, such as biodiversity, water and soil, are protected and enhanced.
- 3 Development should not significantly obstruct or adversely affect sensitive ecological areas such as creeks or wetlands.
- 4 Development should be appropriate to land capability and the protection and conservation of water resources and biodiversity.

## Water Sensitive Design

- 5 Development should be designed to maximise conservation, minimise consumption and encourage reuse of water resources.
- 6 Development should not take place if it results in unsustainable use of surface or underground water resources.
- 7 Development should be sited and designed to:
  - (a) capture and re-use stormwater, where practical;



- (b) minimise surface water runoff;
- (c) prevent soil erosion and water pollution;
- (d) protect and enhance natural water flows;
- (e) protect water quality by providing adequate separation distances from watercourses and other water bodies;
- (f) not contribute to an increase in salinity levels;
- (g) avoid the water logging of soil or the release of toxic elements;
- (h) maintain natural hydrological systems and not adversely affect:
  - (i) the quantity and quality of groundwater;
  - (ii) the depth and directional flow of groundwater;
  - (iii) the quality and function of natural springs.

8 Water discharged from a development site should:

- (a) be of a physical, chemical and biological condition equivalent to or better than its pre- developed state;
- (b) not exceed the rate of discharge from the site as it existed in pre-development conditions.

9 Development should include stormwater management systems to protect it from damage during a minimum of a 1-in-100 year average return interval flood.

10 Development should have adequate provision to control any stormwater over-flow runoff from the site and should be sited and designed to improve the quality of stormwater and minimise pollutant transfer to receiving waters.

11 Development should include stormwater management systems to mitigate peak flows and manage the rate and duration of stormwater discharges from the site to ensure the carrying capacities of downstream systems are not overloaded.

12 Development should include stormwater management systems to minimise the discharge of sediment, suspended solids, organic matter, nutrients, bacteria, litter and other contaminants to the stormwater system.

13 Stormwater management systems should preserve natural drainage systems, including the associated environmental flows.

14 Stormwater management systems should:

- (a) maximise the potential for stormwater harvesting and re-use, either on-site or as close as practicable to the source;
- (b) utilise, but not be limited to, one or more of the following harvesting methods:
  - (i) the collection of roof water in tanks;
  - (ii) the discharge to open space, landscaping or garden areas, including strips adjacent to car parks;
  - (iii) the incorporation of detention and retention facilities;
  - (iv) aquifer recharge.



- 15 Where it is not practicable to detain or dispose of stormwater on site, only clean stormwater runoff should enter the public stormwater drainage system.
- 16 Artificial wetland systems, including detention and retention basins, should be sited and designed to:
  - (a) ensure public health and safety is protected;
  - (b) minimise potential public health risks arising from the breeding of mosquitoes.

### **Water Catchment Areas**

- 17 Development should ensure watercourses and their beds, banks, wetlands and floodplains are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.
- 18 No development should occur where its proximity to a swamp or wetland will damage or interfere with the hydrology or water regime of the swamp or wetland.
- 19 A wetland or low-lying area providing habitat for native flora and fauna should not be drained, except temporarily for essential management purposes to enhance environmental values.
- 20 Along watercourses, areas of remnant native vegetation, or areas prone to erosion, that are capable of natural regeneration should be fenced off to limit stock access.
- 21 Development such as cropping, intensive animal keeping, residential, tourism, industry and horticulture, that increases the amount of surface run-off should include a strip of land at least 20 metres wide measured from the top of existing banks on each side of a watercourse that is:
  - (a) fenced to exclude livestock;
  - (b) kept free of development, including structures, formal roadways or access ways for machinery or any other activity causing soil compaction or significant modification of the natural surface of the land;
  - (c) revegetated with locally indigenous vegetation comprising trees, shrubs and other groundcover plants to filter runoff so as to reduce the impacts on native aquatic ecosystems and to minimise soil loss eroding into the watercourse.
- 22 Development resulting in the depositing of an object or solid material in a watercourse or floodplain or the removal of bank and bed material should not:
  - (a) adversely affect the migration of aquatic biota;
  - (b) adversely affect the natural flow regime;
  - (c) cause or contribute to water pollution;
  - (d) result in watercourse or bank erosion;
  - (e) adversely affect native vegetation upstream or downstream that is growing in or adjacent to a watercourse.
- 23 The location and construction of dams, water tanks and diversion drains should:
  - (a) occur off watercourse;
  - (b) not take place in ecologically sensitive areas or on erosion prone sites;
  - (c) provide for low flow by-pass mechanisms to allow for migration of aquatic biota;
  - (d) not negatively affect downstream users;



- (e) minimise in-stream or riparian vegetation loss;
  - (f) incorporate features to improve water quality (eg wetlands and floodplain ecological communities);
  - (g) protect ecosystems dependent on water resources.
- 24 Irrigated horticulture and pasture should not increase groundwater induced salinity.
- 25 Development should comply with the current *Environment Protection (Water Quality) Policy*.

### **Biodiversity and Native Vegetation**

- 26 Development should retain existing areas of native vegetation and where possible contribute to revegetation using locally indigenous plant species.
- 27 Development should be designed and sited to minimise the loss and disturbance of native flora and fauna.
- 28 Native vegetation should be conserved and its conservation value and function not compromised by development if the native vegetation does any of the following:
- (a) provides an important habitat for wildlife or shade and shelter for livestock;
  - (b) has a high plant species diversity or includes rare, vulnerable or endangered plant species or plant associations and communities;
  - (c) provides an important seed bank for locally indigenous vegetation;
  - (d) has high amenity value and/or significantly contributes to the landscape quality of an area, including the screening of buildings and unsightly views;
  - (e) has high value as a remnant of vegetation associations characteristic of a district or region prior to extensive clearance for agriculture;
  - (f) is growing in, or is characteristically associated with a wetland environment.
- 29 Native vegetation should not be cleared if such clearing is likely to lead to, cause or exacerbate any of the following:
- (a) erosion or sediment within water catchments;
  - (b) decreased soil stability;
  - (c) soil or land slip;
  - (d) deterioration in the quality of water in a watercourse or surface water runoff;
  - (e) a local or regional salinity problem;
  - (f) the occurrence or intensity of local or regional flooding.
- 30 Development that proposes the clearance of native vegetation should address or consider the implications that removing the native vegetation will have on the following:
- (a) provision for linkages and wildlife corridors between significant areas of native vegetation;
  - (b) erosion along watercourses and the filtering of suspended solids and nutrients from runoff;
  - (c) the amenity of the locality;
  - (d) bushfire safety;
  - (e) the net loss of native vegetation and other biodiversity.



- 31 Where native vegetation is to be removed, it should be replaced in a suitable location on the site with locally indigenous vegetation to ensure that there is not a net loss of native vegetation and biodiversity.
- 32 Development should be located and occur in a manner which:
- (a) does not increase the potential for, or result in, the spread of pest plants, or the spread of any nonindigenous plants into areas of native vegetation or a conservation zone;
  - (b) avoids the degradation of remnant native vegetation by any other means including as a result of spray drift, compaction of soil, modification of surface water flows, pollution to groundwater or surface water or change to groundwater levels;
  - (c) incorporates a separation distance and/or buffer area to protect wildlife habitats and other features of nature conservation significance.
- 33 Development should promote the long-term conservation of vegetation by:
- (a) avoiding substantial structures, excavations, and filling of land in close proximity to the trunk of trees and beneath their canopies;
  - (b) minimising impervious surfaces beneath the canopies of trees;
  - (c) taking other effective and reasonable precautions to protect both vegetation and the integrity of structures and essential services.
- 34 Horticulture involving the growing of olives should be located at least:
- (a) 500 metres from:
    - (i) a national park;
    - (ii) a conservation park;
    - (iii) a wilderness protection area;
    - (iv) the edge of a substantially intact stratum of native vegetation greater than 5 hectares in area;
  - (b) 50 metres from the edge of stands of native vegetation 5 hectares or less in area.
- 35 Horticulture involving the growing of olives should have at least one locally indigenous tree that will grow to a height of at least 7 metres sited at least every 100 metres around the perimeter of the orchard.

## **Soil Conservation**

- 36 Development should not have an adverse impact on the natural, physical, chemical or biological quality and characteristics of soil resources.
- 37 Development should be designed and sited to prevent erosion.
- 38 Development should take place in a manner that will minimise alteration to the existing landform.
- 39 Development should minimise the loss of soil from a site through soil erosion or siltation during the construction phase of any development and following the commencement of an activity.

## **Outdoor Advertisements**

### **OBJECTIVES**



**Objective 1:** An urban environment not disfigured by advertisements.

**Objective 2:** Advertisements in retail, commercial and industrial urban areas, and centre zones, designed to enhance the appearance of those areas.

**Objective 3:** Advertisements not hazardous to any person.

## PRINCIPLES OF DEVELOPMENT CONTROL

### General

- 1 Lettering, colouring and other design work on any advertisement should be carried out in a competent manner, and relate to the activity carried out upon the site on which it is erected.
- 2 Advertisements should be simple in form and provide for instant recognition and should not dominate or obscure other advertisements or result in visual clutter.
- 3 In residential zones advertisements should only be erected upon non-residential premises.
- 4 Advertisements affixed to a building should be affixed as closely as possible to the building to prevent the entry of birds and vermin behind the advertisement.
- 5 Advertisements should not be erected upon:
  - (a) public footways, verandah posts or public utility poles located on public footways;
  - (b) a vehicle carriageway, dividing strip or traffic island;
  - (c) a vehicle adapted and exhibited primarily as an advertisement;
  - (d) a building so as to extend above the silhouette of the building; and
  - (e) residential land unless erected to fulfil a statutory requirement associated with the residential use of the land.
- 6 Advertisements not complying with Column 2 of the section of [Table Un/1](#) relating to Advertisements should, however, comply with the relevant conditions specified in Column 3 of that section of [Table Un/1](#).

### Amenity and Character

- 7 The location, siting, size, shape and materials of construction, of advertisements should be:
  - (a) consistent with the desired character of areas or zones as described by their objectives;
  - (b) consistent with the predominant character of the urban or rural landscape; or
  - (c) in harmony with any building or site of historic significance or heritage value in the locality.
- 8 Advertisements should not detrimentally affect by way of their siting, size, shape, scale, glare, reflection or colour the amenity of areas, zones, or localities, in which they are situated.
- 9 Advertisements should not impair the amenity of areas, zones, or localities, in which they are situated by creating, or adding to, clutter, visual disorder and the untidiness of buildings and spaces.
- 10 Advertisements should not obscure views of attractive landscapes or particular trees or groups of trees.
- 11 The scale of advertisements should be compatible with the buildings on which they are situated and with nearby buildings and spaces.
- 12 Advertisements wholly or partly consisting of bunting, streamers, flags, windvanes, and the like should not



detrimentially affect the amenity of areas, zones or localities in which they are situated.

- 13 Buildings occupied by a number of tenants should exhibit co-ordinated and complementary advertisements to identify the tenants and their types of businesses.
- 14 Structural supports of any advertisement should be designed wherever possible to be concealed from public view.
- 15 Advertisements should be located so as not to require the lopping of street and site vegetation.
- 16 Illuminated advertisements should not be erected in residential zones.

## **Safety**

- 17 Advertisements should not create a hazard to persons travelling by any means.
- 18 Advertisements should not obscure a driver's view of other road vehicles, of rail vehicles at or approaching level crossings, of pedestrians and of features of the road such as junctions, bends, changes in width, traffic control devices and the like that are potentially hazardous.
- 19 Advertisements should not be so highly illuminated as to cause discomfort to an approaching driver, or create difficulty in their perception of the road, or of persons or objects on it.
- 20 Advertisements should not be liable to interpretation by drivers as an official traffic sign, or convey to drivers information that might be confused with instructions given by traffic signals or other control devices, or impair the conspicuous nature of traffic signs or signals.
- 21 Advertisements should not detract drivers from the primary driving task at a location where the demands on driver concentration are high.
- 22 Advertisements should not be erected in positions close to existing electricity mains so that potentially hazardous situations are created.

## **Advertising in Mixed Use, Corridor and District Centre Zones**

- 23 Advertisements and/or advertising hoardings should be:
  - (a) no higher than the height of the finished floor level of the second storey of the building to which it relates;
  - (b) where located below canopy level, flush with the wall or projecting horizontally;
  - (c) where located at canopy level, in the form of a fascia sign;
  - (d) where located above the canopy, flush with the wall and within the height of the parapet.
- 24 Advertisements or advertising hoardings should not exceed 25 percent of the ground floor wall area on the façade the sign is placed.

## **Waste**

### **OBJECTIVES**

- Objective 1:** Development that, in order of priority, avoids the production of waste, minimises the production of waste, re-uses waste, recycles waste for re-use, treats waste and disposes of waste in an environmentally sound manner.
- Objective 2:** Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.



## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development should be sited and designed to prevent or minimise the generation of waste (including wastewater) by applying the following waste management hierarchy in the order of priority as shown below:
  - (a) avoiding the production of waste;
  - (b) minimising waste production;
  - (c) reusing waste;
  - (d) recycling waste;
  - (e) recovering part of the waste for re-use;
  - (f) treating waste to reduce the potentially degrading impacts;
  - (g) disposing of waste in an environmentally sound manner.
- 2 The storage, treatment and disposal of waste materials from any development should be achieved without risk to health or impairment of the environment.
- 3 Development should avoid as far as practical, the discharge or deposit of waste (including wastewater) onto land or into any waters (including processes such as seepage, infiltration or carriage by wind, rain, sea spray, stormwater or by the rising of the water table).
- 4 Untreated waste should not be discharged to the environment, and in particular to any water body.
- 5 Development should include appropriately sized area to facilitate the storage of receptacles that will enable the efficient recycling of waste.
- 6 Development that involves the production and/or collection of waste and/or recyclable material should include designated collection and storage area(s) that are:
  - (a) screened and separated from adjoining areas;
  - (b) located to avoid impacting on adjoining sensitive environments or land uses;
  - (c) designed to ensure that wastes do not contaminate stormwater or enter the stormwater collection system;
  - (d) located on an impervious sealed area graded to a collection point in order to minimise the movement of any solids or contamination of water;
  - (e) protected from wind and stormwater and sealed to prevent leakage and minimise the emission of odours;
  - (f) stored in such a manner that ensures that all waste is contained within the boundaries of the site until disposed of in an appropriate manner.

## Wastewater

- 7 The disposal of wastewater to land should only occur where methods of wastewater reduction and reuse are unable to remove the need for its disposal, and where its application to the land is environmentally sustainable.
- 8 Wastewater lagoons should not be sited in any of the following areas:
  - (a) within land subject to a 1-in-100 year average return interval flood event;



- (b) within 50 metres of the top of the bank of a watercourse;
  - (c) where the base of the lagoon would be below any seasonal water table.
- 9 Artificial wetland systems for the storage of treated wastewater, such as wastewater lagoons, should be:
- (a) sufficiently separated from adjoining sensitive uses to minimise potential adverse odour impacts
  - (b) sited and designed to minimise potential public health risks arising from the breeding of mosquitoes.

## **Waste Treatment Systems**

- 10 Development that produces any sewage or effluent should be connected to a waste treatment system that complies with (or can comply with) the relevant public and environmental health legislation applying to that type of system.
- 11 The methods for, and siting of, effluent and waste storage, treatment and disposal systems should minimise the potential for environmental harm and adverse impacts on:
- (a) the quality of surface and groundwater resources;
  - (b) public health;
  - (c) the amenity of a locality;
  - (d) sensitive land uses.
- 12 Waste treatment should only occur where the capacity of the treatment facility is sufficient to accommodate likely maximum daily demands including a contingency for unexpected high flows and breakdowns.
- 13 Any on-site wastewater treatment system/ re-use system or effluent drainage field should be located within the allotment of the development that it will service.
- 14 A dedicated on-site effluent disposal area should not include any areas to be used for, or could be reasonably foreseen to be used for, private outdoor open space, driveways, car parking or outbuildings.
- 15 The spreading or discharging of treated liquid or solid waste onto the ground should only occur where the disposal area consists of soil and vegetation that has the capacity to store and use the waste without contaminating soil or surface or ground water resources or damaging crops.
- 16 Stock slaughter works, poultry processors, saleyards, piggeries, cattle feedlots, milking sheds, milk processing works, fish processing works, wineries, distilleries, tanneries and fellmongeries, composting works, waste or recycling depots and concrete batching works should have a wastewater management system that is designed so as not to discharge wastes generated by the premises:
- (a) into any waters;
  - (b) onto land in a place where it is reasonably likely to enter any waters by processes such as:
    - (i) seepage;
    - (ii) infiltration;
    - (iii) carriage by wind, rain, sea spray, or stormwater;
    - (iv) the rising of the watertable.

# ZONE

## URBAN CORRIDOR ZONE

Refer to [Maps Un/3, 4, 5 and 9](#) that relate to this zone.

### OBJECTIVES

- Objective 1:** A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.
- Objective 2:** Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.
- Objective 3:** A mix of land uses that enable people to work, shop and access a range of services close to home.
- Objective 4:** Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.
- Objective 5:** A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.
- Objective 6:** A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.
- Objective 7:** Noise and air quality impacts mitigated through appropriate building design and orientation.
- Objective 8:** Development that contributes to the desired character of the zone.

### DESIRED CHARACTER

This zone supports mixed use development on major road corridors and comprises non-residential development in association with medium to high density residential living, including more than 15 percent of dwellings as affordable housing. Development will create a linear corridor that will focus and frame the main road and create active street frontages. Buildings of 3 or more storeys will be the predominant built form, with key strategic sites developed with landmark buildings that will feature prominent, attractive and activating road facades.

The siting and design of buildings will achieve high quality urban design outcomes. Development will be undertaken within defined building envelopes. Buildings at the periphery of the zone will have an appropriate transition that relates to development in adjacent zones of a lower scale and intensity.

Contextual qualities, including the setting and juxtaposition of heritage places/character items with new or refurbished development, will be respected.

Heritage buildings will be adapted, maintaining their heritage qualities with development encouraged to the rear and behind the front façades. Buildings adjacent to heritage buildings will be sympathetic to the heritage nature in their design.

The urban corridor roads function as major metropolitan transport movement systems as well as for local movement, access and parking. Restricted and consolidated vehicle access points will be available and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way. Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations. Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking.

Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and



screen and buffer landscaping. Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.

A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces. Access for people with disabilities, signage, seating and street lighting will be provided along key walking routes between public transport stops and major activity nodes. Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe.

Overlooking, overshadowing and emission impacts will be moderated through good design and mitigation techniques, however, it is noted noise and air amenity cannot be expected to be equivalent to a purely residential area. Impacts on adjoining zones will be minimised through appropriate land uses, building envelopes, transition of building heights, design and location of on-site activities/windows/balconies, and use of landscaping.

Well-designed landscaping will assist to visually soften large building façades, screen and buffer parking/service areas/zone interface areas, and provide amenity, biodiversity and micro-climate benefits.

Water sensitive urban design (WSUD) for the harvest, treatment, storage and reuse of stormwater, and environmentally sustainable design (ESD) for reduction in energy consumption through passive design, construction and operation is envisaged with development. Green (vegetated) places will assist urban heat island effects and roof top gardens will provide opportunities for private and communal open space.

Given the distinctly different land use mixes, urban design features and street character intended for the various sites to which the zone is applied, four different policy areas have been designated as follows:

- (a) Boulevard Policy Area – where taller, mixed use buildings of predominantly office uses at ground and low building levels and residential apartments above are intended along the Greenhill Road and Glen Osmond Road frontage with its premium Park Land interface where grand buildings and strong landscape settings are appropriate.
- (b) High Street Policy Area – where more moderate scaled buildings of mixed use are intended along Unley Road with predominantly small scale shops, mixed business services and hospitality uses at ground and low building levels and upper level comprising residential apartments.
- (c) Business Policy Area – where development will be varied in focus on commercial and business land uses at street level with dwellings located above along the more commercially oriented parts of Leader Street.
- (d) Transit Living Policy Area – where taller, mixed use buildings are intended for predominantly residential development together with low impact, generally commercial uses that support the daily needs of the local population (such as offices, consulting rooms, shops, cafés and restaurants) located at ground level. Upper levels are intended to provide residential apartments to take advantage of high frequency public transport corridors upon which such developments are located.

Detailed concept plans are prepared for distinct sections of the roads, detailing matters including desired accessways/road links, excluded property frontage access, variations to prescribed building heights, consolidated sites, heritage sites and any particular intended urban design element or feature.

The potential for buildings within the zone to penetrate the Adelaide International Airport Obstacle Surface Limitation exists. It is essential that development within the zone not impede the long-term operational, safety and commercial aviation requirements of the Adelaide International Airport.

## **PRINCIPLES OF DEVELOPMENT CONTROL**

### **Land Use**

- 1 The following types of development, or combination thereof, are envisaged in the zone: Affordable housing  
Aged persons accommodation  
Community centre Consulting room Dwelling  
Educational establishment  
Entertainment venue Licensed

premises  
Office  
Pre-school  
Residential flat building  
Retirement village Shop or  
group of shops  
Supported accommodation Tourist  
accommodation.

- 2 Development listed as non-complying is generally inappropriate.

### Form and Character

- 3 Development should be consistent with the desired character for the zone.
- 4 Development should be in accordance with Concept Plan [Maps Un/1 to 7 and 11](#).
- 5 Residential development should achieve a minimum net residential site density in accordance with the following:

Policy Area	Minimum net residential site density
Boulevard (Greenhill Road) Policy Area 19	75 dwellings per hectare net (except within the southern half of the Annesley Campus Area fronting Rose Terrace 35 dwellings per hectare net)
High Street (Unley Road) Policy Area 20	60 dwellings per hectare net
Transit Living (Anzac Highway) Policy Area 24	45 dwellings per hectare net
Business (Leader Street and Maple Avenue) Policy Area 25	No minimum

- 6 Vehicle parking should be located to the rear of development or not be visible from public land along the primary road frontage.

### Design and Appearance

- 7 Buildings on sites with a frontage greater than 10 metres should be well articulated through variations in forms, materials, openings and colours.
- 8 Buildings should be designed and sited to address the primary public road and to face other public thoroughfares (other than rear laneways) and open spaces and to enable suitable sunlight access to public and common private open space as well as good daylighting of habitable room windows of dwellings.

## OVERLAYS

### Overlay – Affordable Housing

Refer to [Maps Un/1 \(Overlay 5a and 5b\)](#) that relates to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

### OBJECTIVES



**Objective 1:** Affordable housing that is integrated into residential and mixed use development.

**Objective 2:** Development that comprises a range of affordable dwelling types that caters for a variety of household structures.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development comprising 20 or more dwellings should include a minimum of 15 percent affordable housing (as defined by the *South Australian Housing Trust Regulations 2010* as amended).

## Overlay – Strategic Transport Routes

Refer to [Maps Un/1 \(Overlay 4a and 4b\)](#) that relates to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

### OBJECTIVES

**Objective 1:** Development that recognises the importance of strategic transport routes and does not impede traffic flow or create hazardous conditions for pedestrians, cyclists or drivers of vehicles, including emergency services vehicles.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Development adjacent to a strategic transport route should:
  - (a) avoid the provision of parking on the main carriageway;
  - (b) be accessible via service roads, where possible, that provide:
    - (i) parking off the main carriageway;
    - (iii) a buffer from the main carriageway for pedestrian and cycle activity;
  - (c) not impede the potential for overhead cabling and associated infrastructure to be established in an existing or proposed tram corridor.
- 2 Vehicular site access should not be provided along the main street frontage where an alternative access is available.
- 3 Development adjacent kerbside bus stops should be set back to provide sufficient space for indented bus bays with associated hard stand area, shelter and a 1.2 metre wide continuous accessible path behind the bus shelter.

## Overlay – Noise and Air Emissions

Refer to [Maps Un/1 \(Overlay 3a, 3b and 3c\)](#) that relate to this overlay. The following policies apply to the 'designated area' marked on the relevant Overlay Map.

### INTERPRETATION

Where the Objectives and/or Principles of Development Control that apply in relation to this overlay are in conflict with the relevant General Objectives and/or Principles of Development Control in the Development Plan, the overlay will prevail.

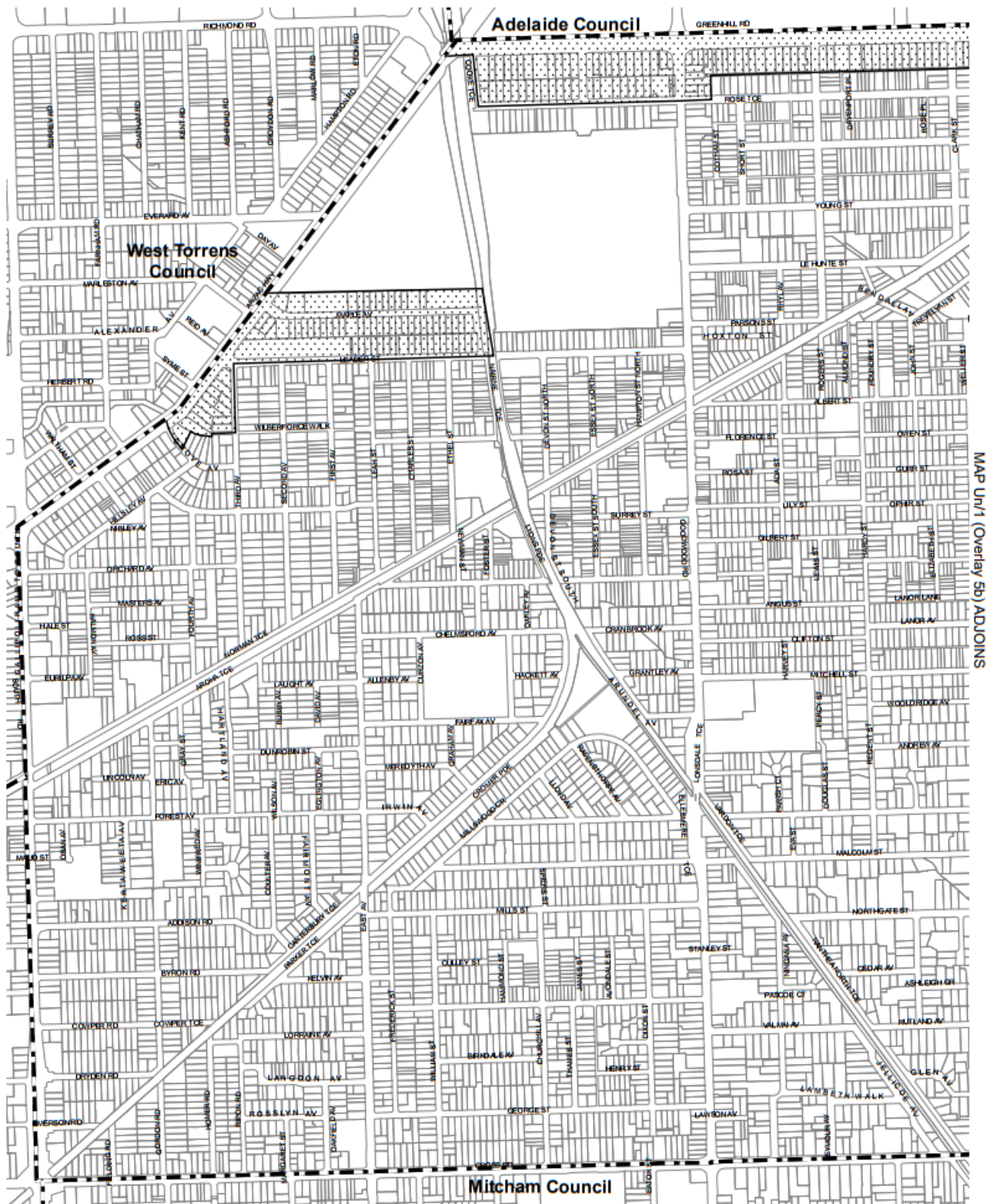
## OBJECTIVES

**Objective 1:** Protect community health and amenity from adverse impacts of noise and air emissions.

## PRINCIPLES OF DEVELOPMENT CONTROL

- 1 Noise and air quality sensitive development located adjacent to high noise and/or air pollution sources should:
  - (a) shield sensitive uses and areas through one or more of the following measures:
    - (i) placing buildings containing less sensitive uses between the emission source and sensitive land uses and areas;
    - (ii) within individual buildings, place rooms more sensitive to air quality and noise impacts (e.g. bedrooms) further away from the emission source;
    - (iii) erecting noise attenuation barriers provided the requirements for safety, urban design and access can be met;
  - (b) use building design elements such as varying building heights, widths, articulation, setbacks and shapes to increase wind turbulence and the dispersion of air pollutants provided wind impacts on pedestrian amenity are acceptable;
  - (c) locate ground level private open space, communal open space and outdoor play areas within educational establishments (including childcare centres) away from the emission source.





MAP Un/1 (Overlay 5a) ADJOINS

1:12,500

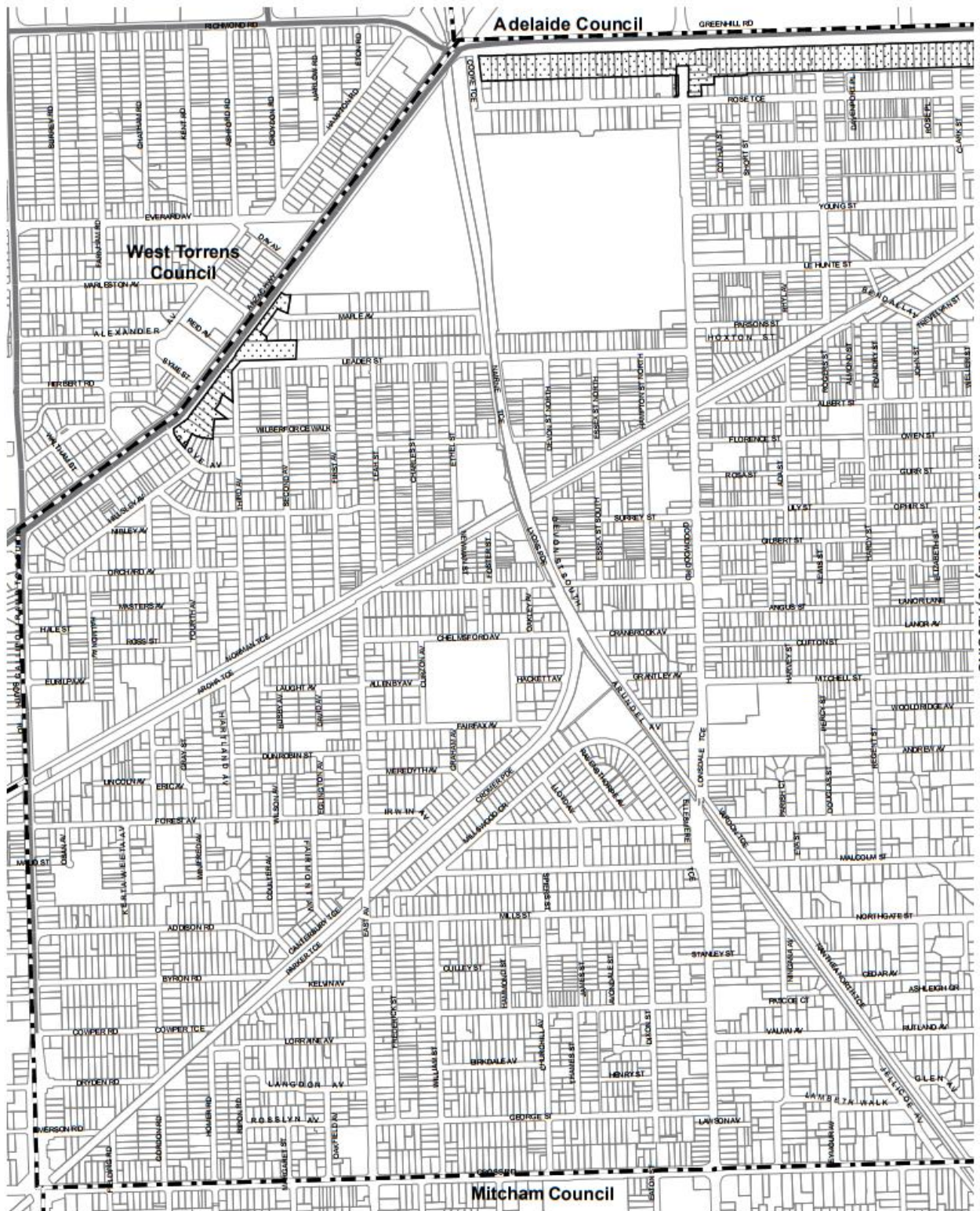
0 100 200 300 400 500 m



# **UNLEY (CITY)** **AFFORDABLE HOUSING** **MAP Un/1 (Overlay 5a)** Consolidated - 19 December 2017

- Designated Area within which Affordable Housing applies
- Development Plan Boundary

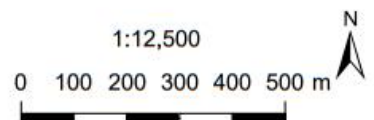




MAP Un/1 (Overlay 4a) ALUJINS

1:12,500

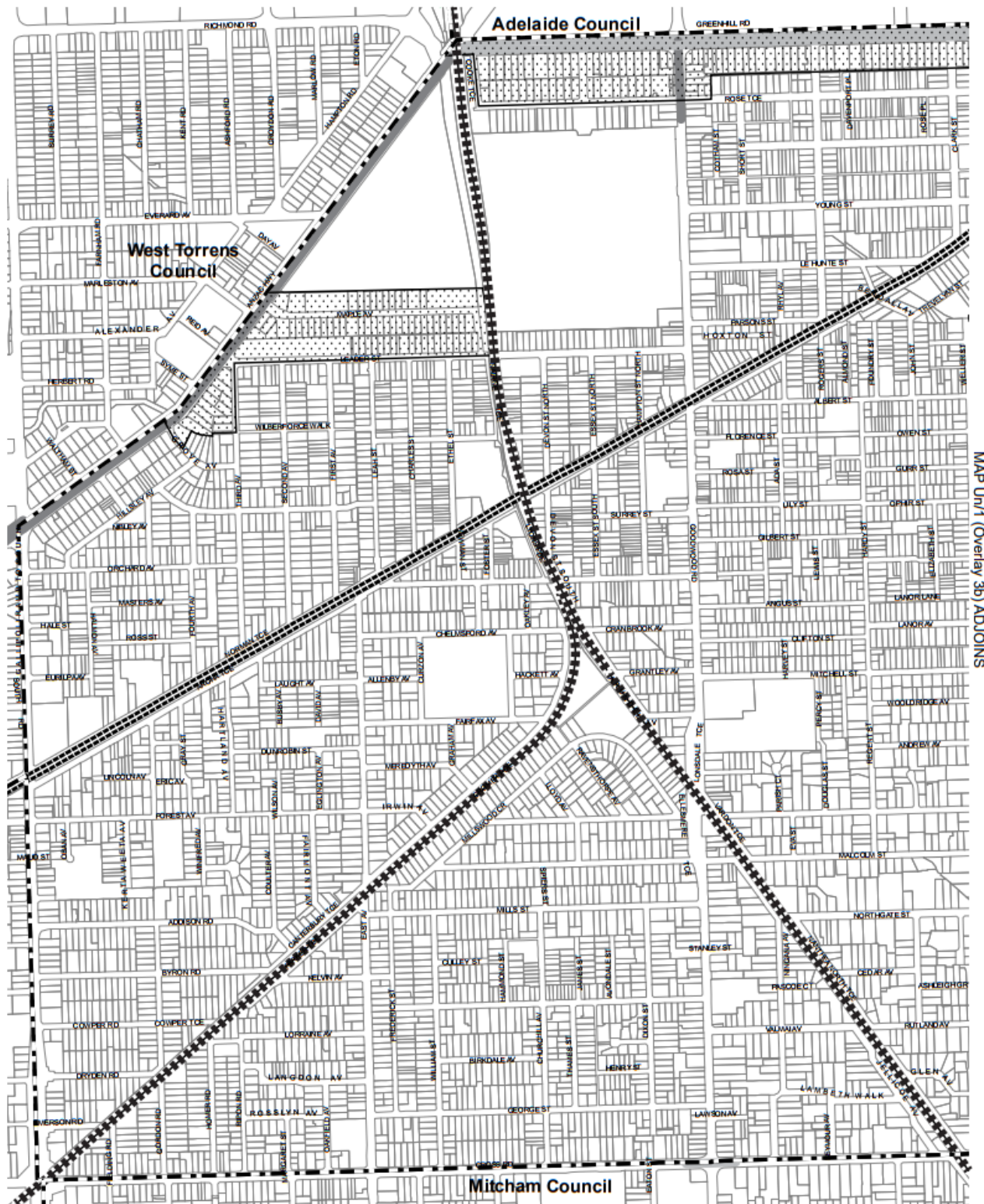
0 100 200 300 400 500 m



# **UNLEY (CITY)** **STRATEGIC TRANSPORT ROUTES** **MAP Un/1 (Overlay 4a)** Consolidated - 19 December 2017

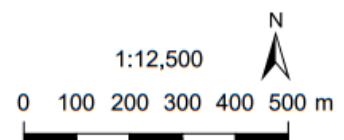
-  Designated Area
-  Strategic Roads Network
-  Development Plan Boundary





MAP Un/1 (Overlay 3b) ADJOINS

- Train Corridor
- Tram Corridor
- Designated Road: Type A road
- Designated Road: Type B road
- Designated Area
- Development Plan Boundary



# **UNLEY (CITY)** **NOISE AND AIR EMISSIONS** **MAP Un/1 (Overlay 3a)**









### **BRISBANE**

Level 7, 123 Albert Street  
Brisbane QLD 4000  
Australia  
T +61 7 3007 3800

### **MELBOURNE**

Level 12, 120 Collins Street  
Melbourne VIC 3000  
Australia  
T +61 3 8663 4888

### **PERTH**

Level 14, The Quadrant  
1 William Street  
Perth WA 6000  
Australia  
T +61 8 9346 0500

### **SYDNEY**

Level 23, Darling Park Tower 2  
201 Sussex Street  
Sydney NSW 2000  
Australia  
T +61 2 8233 9900



# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia

## 10 Anzac Highway Forestville

### TRAFFIC AND PARKING ASSESSMENT

Job No. ADL171147 / Rev G  
12 July 2018

# WGA

---

### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	06.12.17	Draft	SSS	JZ	HB
B	12.12.17	Draft incorporating client comments	SSS	JZ	HB
C	08.03.18	Revised to address new layout	SSS	JZ	HB
D	15.03.18	Final	SSS	HB	HB
E	18.04.18	Final	SSS	HB	HB
F	25.05.18	Updated SIDRA modelling	JZ	JZ	HB
G	12.07.18	DA Submission Updates	JZ	JZ	HB



# CONTENTS

---

<b>1 Introduction.....</b>	<b>1</b>
<b>2 Proposed Development .....</b>	<b>3</b>
<b>3 Existing Roadway and Traffic Conditions.....</b>	<b>4</b>
3.1 Current Use .....	4
3.2 Existing Road Network .....	4
3.2.1 Anzac Highway .....	4
3.2.2 Leader Street .....	5
3.2.3 Maple Avenue .....	5
3.3 Planned Roadway Improvements .....	5
<b>4 Parking Demand and Supply.....</b>	<b>6</b>
4.1 Parking Demand.....	6
4.1.1 General .....	6
4.1.2 Disabled Parking.....	6
4.1.3 Bicycle Parking .....	7
4.2 Parking Supply .....	7
4.3 Parking Demand Vs Parking Supply .....	7
4.3.1 General .....	7
4.3.2 Disabled Parking.....	7
4.3.3 Bicycle Parking .....	7
<b>5 Traffic Generation.....</b>	<b>8</b>
5.1 Trip Generation and Peak Period.....	8
5.2 Turning Movements.....	9
<b>6 Traffic Generation Analysis.....</b>	<b>13</b>
6.1 General.....	13
6.2 Assessment Criteria .....	14
6.2.1 Level of Service .....	14
6.2.2 Degree of Saturation.....	14
6.3 Anzac Highway/Leader Street Junction .....	15
6.3.1 General .....	15
6.3.2 Inputs and Assumptions .....	15
6.3.3 Results of Analysis .....	16
6.3.4 Summary .....	17
6.4 Anzac Highway/Maple Avenue Junction .....	17
6.4.1 General .....	17
6.4.2 Inputs and Assumptions .....	18
6.4.3 Results of Analysis .....	18
6.4.4 Summary .....	20
6.5 Southern Access Point .....	20
6.5.1 General .....	20
6.5.2 Inputs and Assumptions .....	21
6.5.3 Results of Analysis .....	21

6.5.4	Summary .....	22
6.6	Northern Access Point.....	22
6.6.1	General .....	22
6.6.2	Inputs and Assumptions .....	23
6.6.3	Results of Analysis .....	23
6.6.4	Summary .....	24
6.7	Western Access Point .....	24
6.7.1	General .....	24
6.7.2	Inputs and Assumptions .....	24
6.7.3	Results of Analysis .....	25
6.7.4	Summary .....	26
6.8	AIMSUN Modelling .....	26
6.8.1	General .....	26
6.8.2	Assessment Criteria.....	26
6.8.3	Results of Analysis .....	27
6.9	Summary .....	27
<b>7</b>	<b>Development Access and Layout .....</b>	<b>29</b>
7.1	General.....	29
7.2	Layout.....	30
7.2.1	Parking Bays.....	30
7.2.2	Disabled Parking Bays.....	30
7.2.3	Bicycle Parking .....	30
7.3	Entry and Exit Points .....	30
7.3.1	Northern Access Point .....	30
7.3.2	Southern Access Point .....	30
7.3.3	Western Access Point.....	30
7.3.4	Access Controls.....	31
7.4	Heavy Vehicle Access.....	32
7.4.1	General .....	32
7.4.2	Arrangement of Loading Docks .....	32
7.4.3	Delivery Volumes and Timing .....	33
7.4.4	Operational Restrictions .....	33
7.4.5	Summary .....	33
7.5	Emergency Vehicle Access.....	33
7.6	Pedestrian Access.....	34
7.7	Sight Distance .....	34
7.7.1	Safe Intersection Sight Distance.....	34
7.7.2	Pedestrian Sight Distance .....	35
<b>8</b>	<b>Summary .....</b>	<b>36</b>
<b>9</b>	<b>References .....</b>	<b>37</b>

## Appendices

### Appendix A Site Plans

### Appendix B Site Inspection Report

### Appendix C Traffic Counts



**Appendix D** SIDRA Outputs

**Appendix E** AIMSUN Modelling Report

**Appendix F** Heavy Vehicle Tracking

# 1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland Australia (Kaufland) to undertake a traffic assessment for the proposed flagship Kaufland store to be located at 10 Anzac Highway, Forestville (a site previously occupied by Le Cornu). It is understood that the proposed development will primarily consist of a major supermarket, with an adjacent market place area also providing specialty stores.

A locality plan of the proposed development is shown in Figure 1 below.



Figure 1 Proposed Development, Locality Plan



The purpose and key elements of the study are to review and assess:

- Existing traffic flow conditions on roads adjacent to the development.
- The traffic impact of the proposed development, with primary focus on the peak conditions.
- The peak car parking demand and supply of the development.
- Vehicle capacity, road safety, and / or traffic operational constraints to the proposal, as well as potential measures to mitigate such constraints, where appropriate.

The methodology used in this analysis has been based on relevant Department of Planning, Transport and Infrastructure (DPTI) and Austroads guidelines.

# 2 PROPOSED DEVELOPMENT

The proposed development is to be located on the vacant Le Cornu site at 10 Anzac Highway Forestville, as illustrated in Figure 1 above.

The proposed development will comprise the following elements:

- 1 x Kaufland and 8 x Supporting Specialty Stores (GLFA) 6,500m<sup>2</sup> Gross Leasable Floor Area
- Associated Offices 160m<sup>2</sup> GLFA (combined)

The development is proposed to be accessed via three un-signalised access points (located on Maple Street, Leader Street and Anzac Highway) as illustrated in Figure 2 below. Architectural plans for the site are also included in Appendix A for reference.

Note that the GLFA is the sum of the area of each floor of a building where the area of each floor is taken to be the area within the internal faces of the walls, excluding stairs, amenities, lifts, corridors and other public areas but including stock storage area.

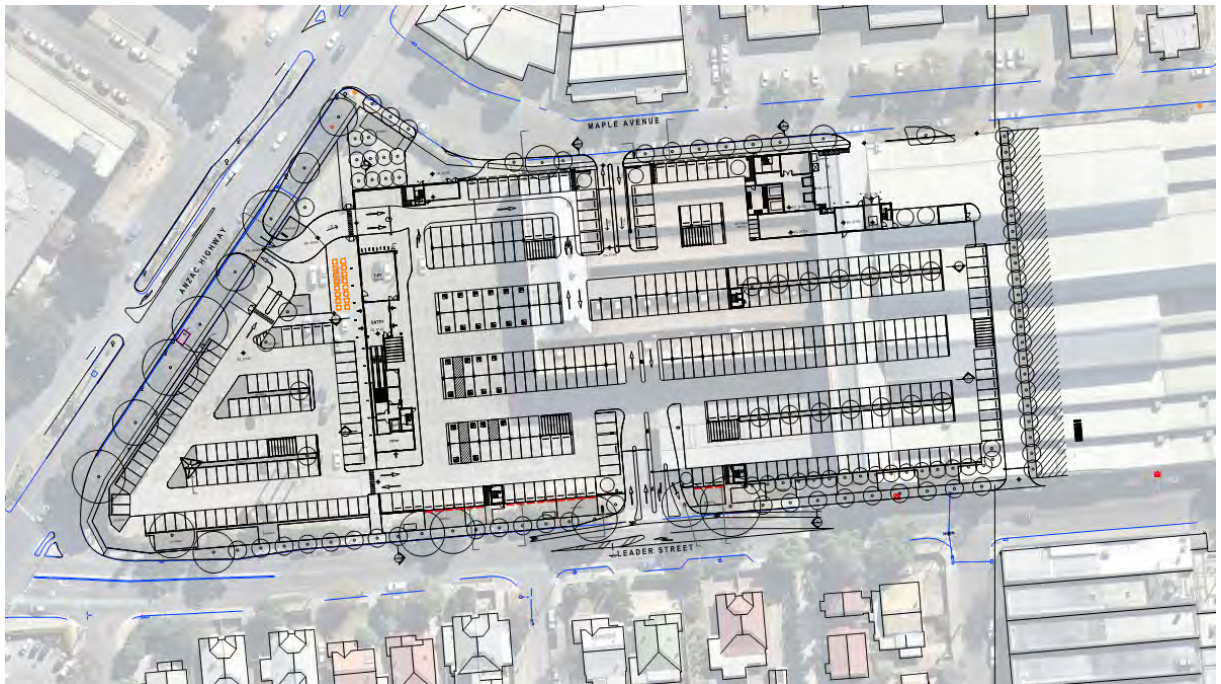


Figure 2 General Site Plan



# 3 EXISTING ROADWAY AND TRAFFIC CONDITIONS

## 3.1 CURRENT USE

The existing undeveloped site is shown in Figure 3 below and consists of a currently disused furniture shop (Le Cornu), as well as associated car parks. Access to car parking and loading dock areas of the site are provided via access/egress points on Maple Avenue, Leader Street and Anzac Highway.

The site is bounded by Maple Avenue, Leader Street and Anzac Highway, with the surrounding development a combination of residential/light industrial. Directly opposite the proposed development site on Anzac Highway is Ashford Hospital, a 239 bed private hospital.



Figure 3 Current Site Use

## 3.2 EXISTING ROAD NETWORK

### 3.2.1 Anzac Highway

In the vicinity of the site, Anzac Highway is a six-lane divided urban arterial road under the care and control of DPTI. Average Annual Daily Traffic (AADT) volumes on Anzac Highway are in the order of

47,100 vehicles per day (vpd), with approximately 1,650 heavy vehicles (Source: SA Viewer Website), and a posted speed limit of 60 kph.

### **3.2.2 Leader Street**

Leader Street is a two lane undivided local road, under the care and control of The City of Unley. A collection road, its key function is providing access between Anzac Highway and Goodwood Road as well as to a number of local streets. AADT volumes are in the order of 7,900 vehicles per day (vpd), with approximately 2.6% heavy vehicles (Source: DPTI Traffic Count), and it has a posted speed limit of 50 kph. It is understood that the road has recently been upgraded to include formalised parallel parking on each side of the road, as well as bicycle lanes.

### **3.2.3 Maple Avenue**

In the vicinity of the site, Maple Avenue is a two lane local road, under the care and control of The City of Unley. Based on observations by WGA during site visits, it is considered likely that the AADT volumes are in the order of 1,000 vpd (applying the same peak hour factor as Leader Street). The road provides local access to a number of light industrial properties and has a posted speed limit of 50km/hr.

## **3.3 PLANNED ROADWAY IMPROVEMENTS**

WGA are not aware of any major road works planned in the immediate vicinity of the proposed development.



# 4 PARKING DEMAND AND SUPPLY

## 4.1 PARKING DEMAND

### 4.1.1 General

Applicable vehicle parking rates provided in the City of Unley Development Plan (Council Development Plan) include a rate for shops and a rate for office spaces, as shown in Table 1 below.

Table 1 Council Development Plan Vehicle Parking Rates

Area	Number of Vehicle Parks Required
Urban Corridor Zone	Minimum 3 spaces per 100 square metres of GLFA Maximum 5 spaces per 100 square metres of GLFA

Based on this parking a maximum of 333 car parks are required for this development.

### 4.1.2 Disabled Parking

The Council Development Plan states that the disabled parking provision should be as follows:

- If a car park has more than 25 spaces then 1 space per 25 car parks must be provided for disabled car parking up to a maximum of 5 car parks.

Whilst the Building Code of Australia (BCA) states that for a Class 6 development (“a shop or other building for the sale of goods by retail or the supply of services direct to the public”) the disabled parking requirement shall be:

- 1 space for every 50 car parking spaces up to 1,000 car parking spaces or part thereof; and
- 1 space for every 100 car parking spaces or part thereof above 1,000 spaces

In accordance with the BCA rates, a total of 10 disabled parking bays should be provided within the proposed development. This rate also meets the requirement of the Council Development Plan (minimum 5 car parks).

#### 4.1.3 Bicycle Parking

The Council Development Plan includes bicycle parking rates for shops and office spaces, as shown in Table 2 below.

Table 2 Council Development Plan Bicycle Parking Rates

Area	Bicycle Parking Rates	
	Employee/Residents	Visitor/Shopper
Shop	1 for every 300 square metres of GLFA	1 for every 600 square metres of GLFA
Office	1 for every 150 square metres of GLFA	2 plus 1 for every 500 square metres of GLFA

The required number of bicycle parks for the proposed development based on the above rates are summarised in Table 3.

Table 3 Bicycle Parking Demand

Area	GLFA	Required Bicycle Parks	
		Employee/Residents	Visitor/Shopper
Shops	6,500 m <sup>2</sup>	22	11
Office	160 m <sup>2</sup>	1	3
Total	6,660 m <sup>2</sup>	23	15

## 4.2 PARKING SUPPLY

The current proposed development provides 448 parking spaces, including a total of 10 disabled parking spaces, 16 'pram' parking spaces and 5 motorcycle spaces.

## 4.3 PARKING DEMAND VS PARKING SUPPLY

### 4.3.1 General

The 487 parking spaces provided exceed the parking demand rate (333 spaces). However, given the lack of available on street parking and public transport provisions to the site, the provided number of parking spaces is considered reasonable.

### 4.3.2 Disabled Parking

The 10 disabled parking bays provided meets the BCA and Council Development Plan requirements (which call for a total of 10 disabled parking bays to be provided).

### 4.3.3 Bicycle Parking

A total of 16 visitor/shopper bicycle racks and secure storage for 28 employee bicycles are provided within the ground level car parking area. This exceeds the minimum requirement.



# 5 TRAFFIC GENERATION

---

## 5.1 TRIP GENERATION AND PEAK PERIOD

The NSW Road and Traffic Authority (RTA) publication Guide to Traffic Generating Developments – Updated Traffic Surveys has been used to determine the anticipated peak period traffic generation for the proposed development. Based on review of the RTA and AITPM research data we believe the following traffic generation rates are applicable for the proposed development:

- Shopping Centre
  - Weekday Peak Afternoon Hour, 12.3 Trips per 100m<sup>2</sup> Gross Leasable Floor Area (GLFA)
  - Weekend Peak Hour, 16.3 Trips per 100m<sup>2</sup> GLFA
- Offices
  - Weekday Peak Afternoon Hour, 2 Trips per 100m<sup>2</sup> GLFA
  - Weekend Peak Hour, 2 Trips per 100m<sup>2</sup> GLFA

A passing traffic discount of 20 percent has also been applied to the traffic generation rates for the shopping centre component of the development. Passing traffic is a principle that applies to higher volume roads where a new development may not increase traffic within the external road network by the entire trip generation rate that is predicted to occur. This is due to a proportion of customers that would use any new retail facility would currently already be travelling along the local roads (i.e. Anzac Highway). The 20 percent discount is based on recommendations included in the RTA Guide to Traffic Generating Developments. The passing trade discount has been applied to traffic from Anzac Highway only

The total trips expected to be generated by the proposed development is summarised in Table 4 below.

Table 4 Peak Hour Trip Generation

Area	GLFA	Total Trips Generated	
		Weekday Peak Hour	Weekend Peak Hour
Shopping Centre	6,500 m <sup>2</sup>	802	1062
Office	160 m <sup>2</sup>	3	3
<b>Total</b>	<b>6,660 m<sup>2</sup></b>	<b>805</b>	<b>1065</b>

In accordance with the above, a total of approximately 805 trips are expected to be generated in the weekday peak hour, and 1065 trips generated in the weekend peak hour and these values have been adopted for assessment.

## 5.2 TURNING MOVEMENTS

The proposed development site can be accessed from four directions - Maple Avenue, Leader Street, Anzac Highway South and Anzac Highway North and three access points – Southern Access Point (Leader Street), Northern Access Point (Maple Avenue) and Western Access Point (Anzac Highway), as shown in Figure 4 below.



Figure 4 Proposed Development Access Roads and Access Points

As the current site is not operational, no information is able to be obtained on the proportion of motorists accessing the site from each direction. Therefore, WGA have assumed the proportion of traffic that will enter and exit from each road and each access point, and these assumptions are summarised in Figure 5 below for the weekday peak hour and in Figure 6 for the weekend peak hour.

For example, it has been assumed that in the weekday peak hour, 30% of all trips will originate from Leader Street. 50% of these trips will be motorists accessing the facility, and 50% of these motorists



exiting the facility, resulting in 15% of the total trips respectively. As the Southern Access Point is the most readily available for these motorists, it has been assumed that they will all utilise this access point. A nominal 10% has been assumed for the Maple Street access as it is expected that repeat customers may use this access due to its underutilisation.

During the weekday peak hour, it has been assumed that a higher number of motorists will access the proposed development from Anzac Highway North then during the weekend peak hour to cater for motorists accessing the development on their way home from work in the CBD. The fact that these motorists will then likely continue on to Anzac Highway South to continue home rather than return to Anzac Highway North has been taken into account in the proportioning.

In order to understand what the impact of additional traffic on the junction of Leader Street/Anzac Highway junction would be if the majority of traffic was to utilise this junction, it has been assumed a percentage of motorists who entered the proposed development from the Northern Access Point will instead exit at the Southern Access Point.

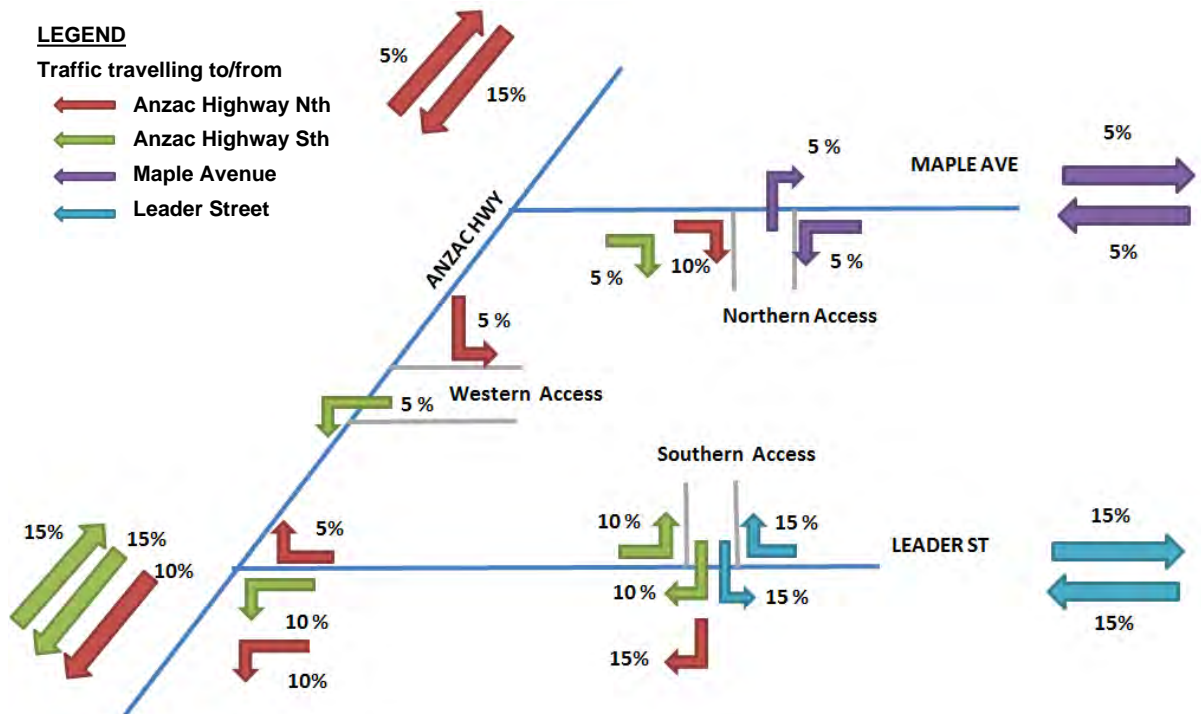


Figure 5 Adopted Trip Proportions – Weekday Peak Hour

# LEGEND

Traffic travelling to/from

- ← Anzac Highway Nth
- ← Anzac Highway Sth
- ← Maple Avenue
- ← Leader Street

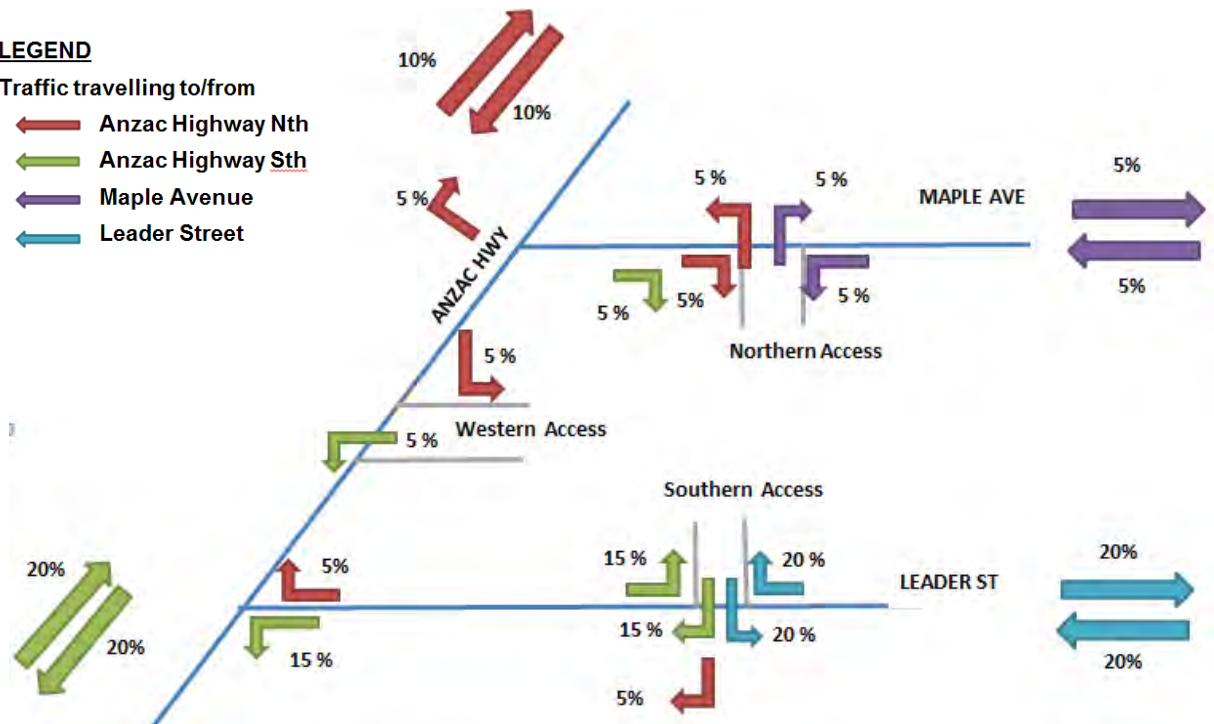


Figure 6 Adopted Trip Proportions – Weekend Peak Hour

These proportions have then been applied to the trip generation rates determined in the weekday and weekend peak hours (refer to Section 5.1) in order to determine the generated traffic turning movements for the proposed development. The resultant trip generation movements in the weekday peak are shown in Figure 7 and the weekend peak in Figure 8.

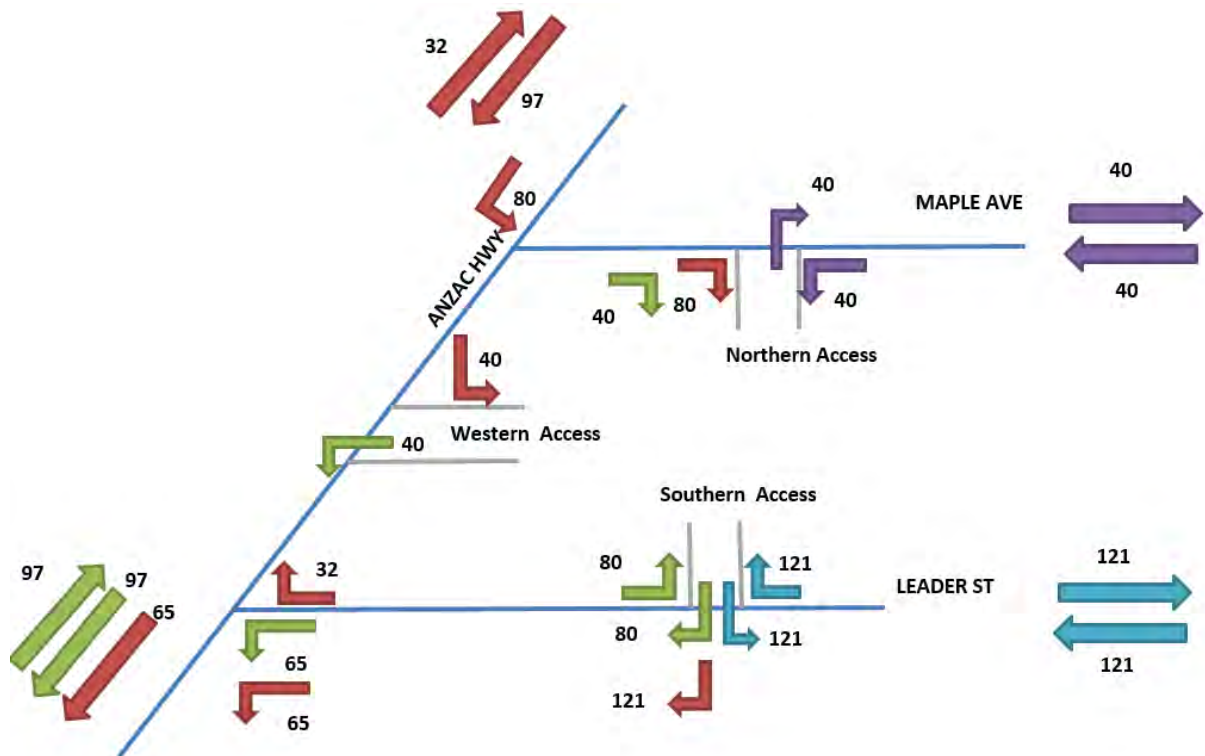


Figure 7 Weekday Peak Hour Trip Generation Movements



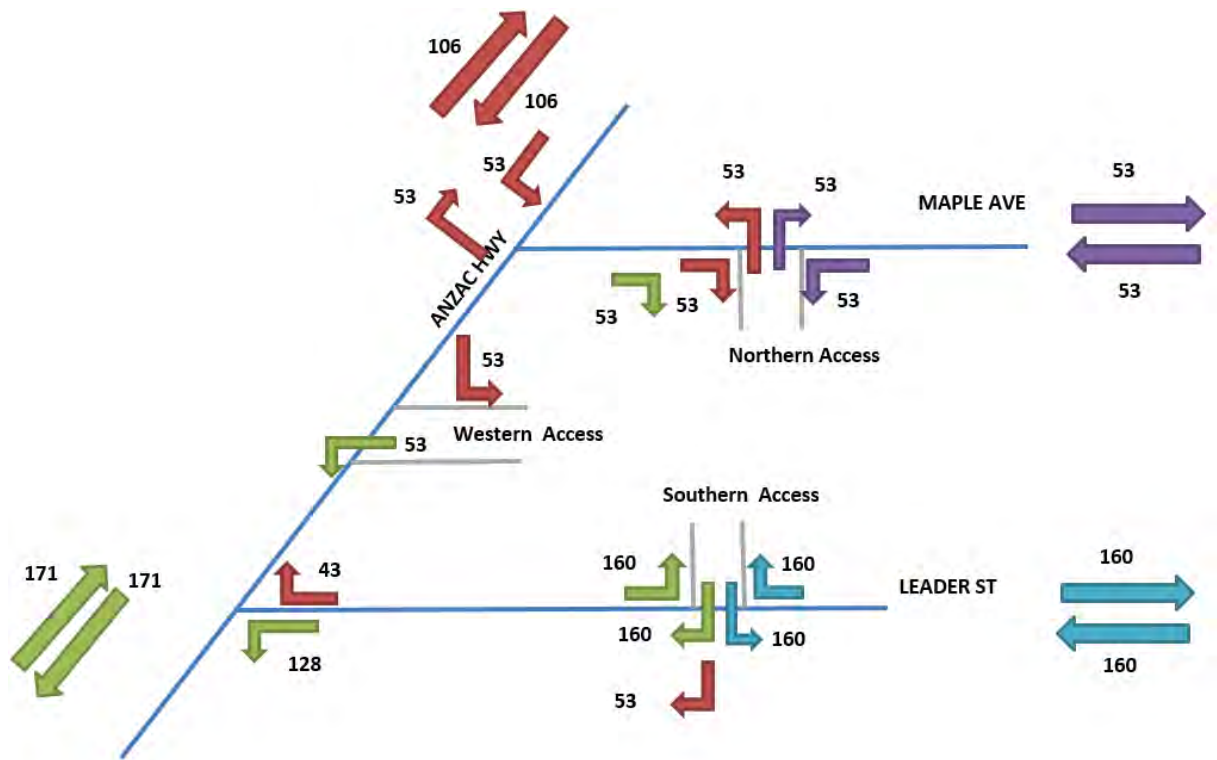


Figure 8 Weekend Peak Hour Trip Generation Movements

# 6 TRAFFIC GENERATION ANALYSIS

## 6.1 GENERAL

In order to assess the impact of the proposed development traffic on the adjacent road network, the following junctions/access points have been assessed using SIDRA traffic analysis software, Version 7.0:

- Anzac Highway/Leader Street Junction
- Anzac Highway/Maple Avenue Junction
- Southern Access Point
- Northern Access Point
- Western Access Point

The locations of these junctions and access points are illustrated in Figure 9 below.

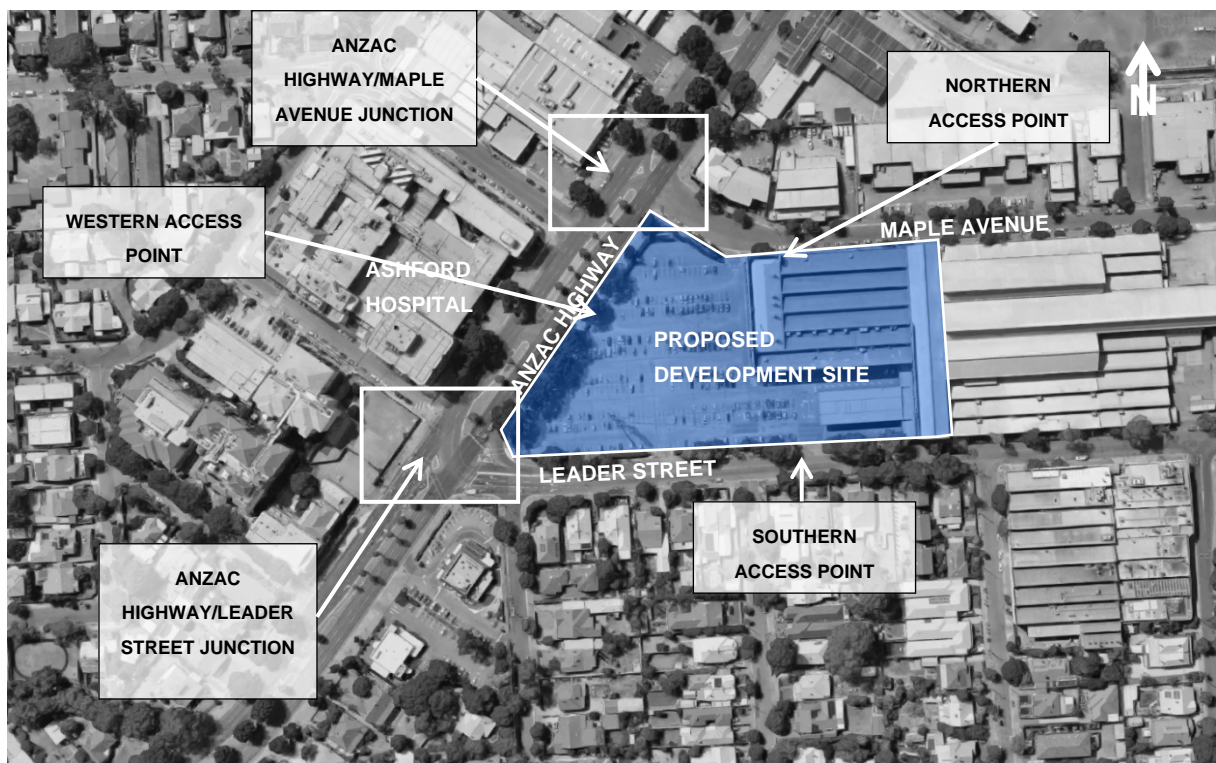


Figure 9 Location of Junctions/Access Points Assessed



Four scenarios have been modelled for each junction:

- Base Case (2017) – Weekday PM peak
- Base Case (2017) – Weekend AM peak
- Base Case (2017) + Development Traffic – Weekday PM peak
- Base Case (2017) + Development Traffic – Weekend AM peak

As the proposed access points are not in use at the time of assessment, the following two scenarios were modelled for each access point:

- Base Case (2017) + Development Traffic – Weekday PM peak
- Base Case (2017) + Development Traffic – Weekend AM peak

As no future traffic volumes have been provided by DPTI, analysis has not been undertaken for any future scenarios.

An analysis of the impact on the road network has also been undertaken using AIMSUN modelling (discussed further in Section 6.8).

## 6.2 ASSESSMENT CRITERIA

Each intersection/ scenario has been assessed against the below criteria.

### 6.2.1 Level of Service

Level of Service (LOS) is defined as a qualitative measure describing operating conditions within a traffic stream and the perception by motorists. A level of service definition generally describes these conditions in terms of factors such as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience and safety.

In general, there are six levels of service designated from A to F, with level of service A representing the best operating conditions ( i.e. free flow) and level of service F the worst (i.e. forced or breakdown flow). Further definition of level of services designations is shown in Table 5 for signalised junctions.

Table 5 Intersection Level of Service

Level of Service	Description
A	Good operation
B	Good with acceptable delays and spare capacity
C	Satisfactory
D	Operating near capacity
E	At capacity, at signals incidents will cause excessive delays
F	Unsatisfactory and requires additional capacity, roundabouts require other control mode

### 6.2.2 Degree of Saturation

The Degree of Saturation (DOS) is a ratio between the demand traffic flow and the capacity of an intersection. DOS over 1.0 represent oversaturated conditions, and degrees of saturations below 1.0 represent unsaturated conditions. As a junction reaches a degree of saturation of 1.0, the operating conditions deteriorate and delays increase. A DOS of between 0.9 and 1.0 is considered very poor. DPTI TS100 states that any modification to a site must operate within a DOS of 0.9.

## 6.3 ANZAC HIGHWAY/LEADER STREET JUNCTION

### 6.3.1 General

The junction of Anzac Highway/Leader Street is located approximately 150m to the west of the proposed development Southern Access Point on Leader Street. It is a signalised junction comprising three approaches – Leader Street to the east, Anzac Highway South to the south and Anzac Highway North to the north, as shown in Figure 10 below. Reid Avenue, a one-way local street also has an egress only point just to the north of the junction.



Figure 10 Anzac Highway/Leader Street Junction

### 6.3.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Stop line saturation flows utilised within the model have been obtained via observation utilising the JCT Traffic Tools data collection app. These recorded saturations flows are included within the attached site visit report.
- Existing traffic data for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix C)



- Existing traffic data on Leader Street for the weekend AM peak was obtained from 2017 DPTI SCATS data with turning movements apportioned from the turning counts
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5
- The cycle time for the weekday and weekend peak hour was based on a user given phase time of 120 seconds based on WGA site observations and DPTI provided SCATS summary.
- Proposed Scenario assumes extension of right turn lane into Leader Street is extended to the start of downstream U-Turn facility. This extends the right turn to 130m.
- DPTI have requested the pedestrian phase that runs in C phase to be assumed that it is called in every phase. This was observed on site therefore results of the analysis below are higher than what is expected and observed, particularly queue lengths.
- DPTI have requested the results of analysis of assuming all traffic turning into the site from the south is undertaken from Leader Street rather than assuming a small percentage at Maple. This has been included within the SIDRA summary within Appendix D as information only. We do not consider this accurate as even public submissions have observed some traffic bypassing the queue at Leader Street to turn into Maple Avenue.

### 6.3.3 Results of Analysis

The existing operating performance of the junction has been assessed in order to provide a base case for assessment, as shown in Table 6 below. In addition, the operating performance of the junction with the addition of the development traffic for has also been assessed, with the results shown in

Table 7 below. The detailed SIDRA outputs are contained within Appendix D.

Table 6 Junction of Anzac Highway/Leader Street Operating Performance – Base Case (2017)

Peak Hour	Traffic Movement	95 <sup>th</sup> ile Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Leader Street	48	49	0.45	D
	Anzac Highway North	660	61	1.0	E
	Anzac Highway South	87	14	0.9	B
	<b>All Movements</b>	660	<b>44</b>	<b>1.0</b>	<b>D</b>
<b>Weekend AM</b>	Leader Street	41	52	0.51	D
	Anzac Highway North	95	11	0.53	B
	Anzac Highway South	75	9	0.53	A
	<b>All Movements</b>	<b>95</b>	<b>14</b>	<b>0.53</b>	<b>B</b>

Table 7 Junction of Anzac Highway/Leader Street Operating Performance – Base Case (2017) + Development Traffic – assuming 150 second cycle time and extended right turn lane

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Leader Street	120	61	0.63	E
	Anzac Highway North	790	47	1.0	E
	Anzac Highway South	130	15	0.77	B
	<b>All Movements</b>	<b>790</b>	<b>47</b>	<b>1.0</b>	<b>C</b>
<b>Weekend AM</b>	Leader Street	84	47	0.62	D
	Anzac Highway North	148	20	0.64	C
	Anzac Highway South	110	12	0.65	B
	<b>All Movements</b>	<b>148</b>	<b>20</b>	<b>0.65</b>	<b>B</b>

#### 6.3.4 Summary

The analysis shows that during the weekday PM peak period whilst the intersection appears to operate near capacity and LOS D.

With the addition of the development traffic incorporating the proposed right turn lane extension on Anzac Highway (S) the overall LOS of the junction is proposed to remain as it is currently.

### 6.4 ANZAC HIGHWAY/MAPLE AVENUE JUNCTION

#### 6.4.1 General

The junction of Anzac Highway/Maple Street is located approximately 60m to the north of the proposed development Western Access Point on Anzac Highway. It is an un-signalised junction comprising three approaches – Maple Avenue to the east, Anzac Highway South to the south and Anzac Highway North to the north, as shown in Figure 11 below. Anzac Highway traffic has priority at the junction.





Figure 11 Anzac Highway/Maple Avenue Junction

#### 6.4.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Anzac Highway for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix B)
- Existing traffic data on Leader Street for the weekend AM peak was obtained from 2017 DPTI SCATS data with turning movements apportioned from the turning counts from the downstream signalised junction
- Existing traffic data on Maple Avenue for the weekday PM peak was determined from WGA undertaken traffic counts (provided in Appendix C)
- Existing traffic data on Maple Avenue for the weekend AM peak was determined from WGA observed traffic counts undertaken on a weekday, reduced by a 70% factor to allow for the reduced traffic loading on Maple Street during the weekend. The 70% reduction has been applied on the basis that as Maple Avenue primarily provides access to industrial properties the amount of traffic on Maple Avenue would be significantly reduced outside of standard working hours.
- The Maple Avenue right turn out movement was modelled as a two-stage crossing
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

#### 6.4.3 Results of Analysis

The existing operating performance of the junction has been assessed in order to provide a base case for assessment, as shown in Table 8 below. In addition, the operating performance of the junction with the addition of the development traffic has also been assessed, with the results shown in Table 9 below. The detailed SIDRA outputs are contained within Appendix D.

Table 8 Junction of Anzac Highway/Maple Avenue Operating Performance – Base Case (2017)

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Maple Avenue - Left Out	9	54*	0.38	F
	Maple Avenue - Right Out	3	179*	0.19	F
	Anzac Highway - Left In	0	6.5	0.46	A
	Anzac Highway - Right In	3	22	0.19	C
	<b>All Movements</b>	<b>9</b>	<b>1</b>	<b>0.46</b>	<b>NA</b>
<b>Weekend AM</b>	Maple Avenue - Left Out	1	14	0.03	B
	Maple Avenue - Right Out	1	47	0.02	C
	Anzac Highway - Left In	0	7	0.27	A
	Anzac Highway - Right In	2	35	0.10	D
	<b>All Movements</b>	<b>2</b>	<b>0.3</b>	<b>0.27</b>	<b>NA</b>

\*Isolated SIDRA Junction Delay. Observed delay and expected delay would be considerably less given the proximity of downstream signals in Leader Street which would provide gaps into the stream for vehicle to exit.

Table 9 Junction of Anzac Highway/Maple Avenue Operating Performance – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Maple Avenue - Left Out	21	182*	0.82	F
	Maple Avenue - Right Out	22	593*	0.53	F
	Anzac Highway - Left In	0	7	0.54	A
	Anzac Highway - Right In	8	43	0.45	E
	<b>All Movements</b>	<b>21</b>	<b>2.5</b>	<b>0.82</b>	<b>NA</b>
<b>Weekend AM</b>	Maple Avenue - Left Out	1	19*	0.04	C



Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
	Maple Avenue - Right Out	26	111*	0.40	E
	Anzac Highway - Left In	0	7	0.30	A
	Anzac Highway - Right In	17	86	0.78	F
	<b>All Movements</b>	<b>17</b>	<b>3.1</b>	<b>0.78</b>	<b>NA</b>

\*Isolated SIDRA Junction Delay. Observed delay and expected delay would be considerably less given the proximity of downstream signals in Leader Street which would provide gaps into the stream for vehicle to exit.

#### 6.4.4 Summary

The modelling results show that currently during the weekday peak hour, the level of service provided to vehicles turning left and right out of Maple Avenue is unsatisfactory, with vehicles turning right experiencing average delays in the order of 3 minutes. These delays are not experienced in the weekend peak hour, with motorists experiencing greatly reduced delays and queue lengths when compared to the weekday peak hour.

Following addition of the development generated traffic, the delays to motorists turning left and right out of Maple Avenue is expected to remain at unacceptable levels during the weekday peak hour, with right turning motorists experiencing an average delay of 10 minutes. However, during the weekend peak hour, the level of service of all legs is considered acceptable, with the exception of the right turning motorists from Anzac Highway, who will experience additional delays and additional maximum queue lengths. Although longer than the base case, the maximum queue length of 16 m will still be contained within the separated turning lane in the centre median.

It should be noted that, although not taken into account in modelling, motorists queuing on Anzac Highway due to the Anzac Highway/Leader Street junction are likely to provide gaps to motorists turning right from and into Maple Street. This is in accordance with observations during WGA's site inspection, where approximately 80% of the time, motorists queuing on Anzac Highway were observed to leave a gap for Maple Street motorists. This is evidence by the delays demonstrated within the base SIDRA not being which is considered to also be the case for the proposed model.

Due to delays and queues motorists will face entering and exiting the facility via Maple Avenue, it is assumed that the majority of motorists will instead travel to the signalised junction of Anzac Highway/Leader Street, which will have spare capacity following the development and will result in lower delays to motorists.

## 6.5 SOUTHERN ACCESS POINT

### 6.5.1 General

The Southern Access Point is located on the southern side of the proposed development, and provides access and egress to Leader Street, as shown in Figure 12 below. It is proposed to be an un-signalised junction, with both left and right turning provisions provided.

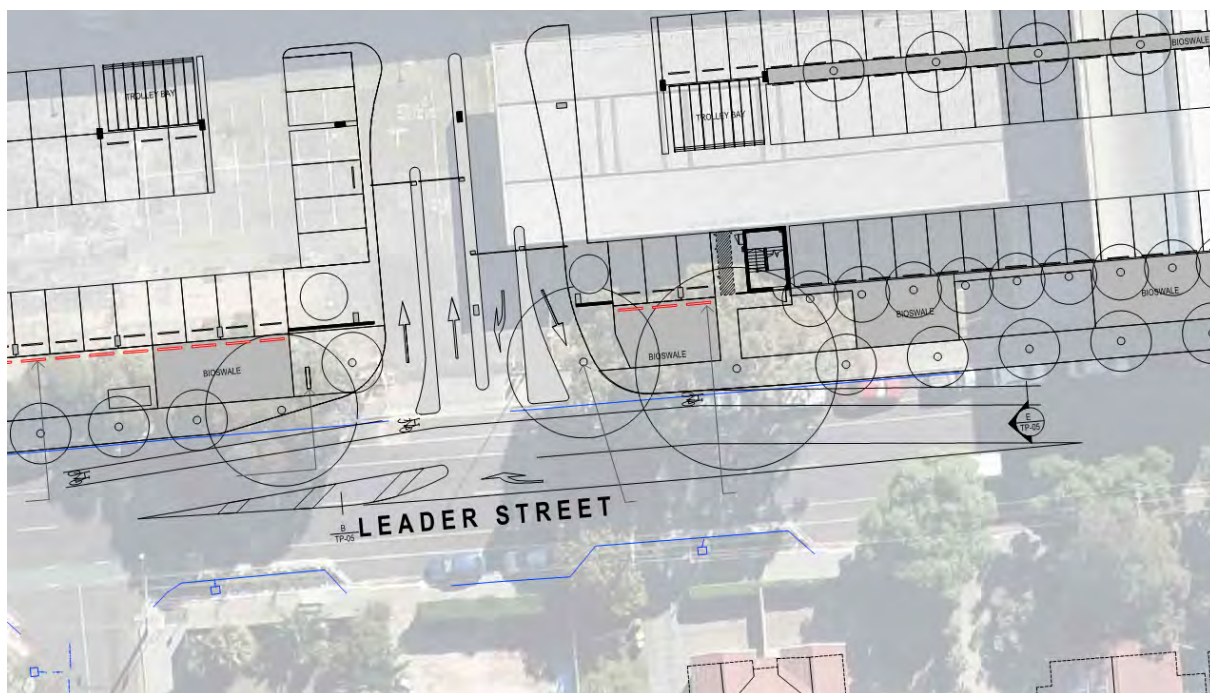


Figure 12 Southern Access Point

### 6.5.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Leader Street for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix B)
- Existing traffic data on Leader Street for the weekend AM peak was obtained from 2017 DPTI SCATS data with turning movements apportioned from the turning counts
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

### 6.5.3 Results of Analysis

The operating performance of the junction with the addition of development traffic for has been assessed, with the results shown in Table 10 below. The detailed SIDRA outputs are contained within Appendix D.

Table 10 Southern Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Southern Access - Left Out	3	8	0.11	A
	Southern Access - Right Out	12	14	0.40	B
	Leader Street- Left In	0	5	0.31	A



Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekend AM</b>	Leader Street - Right In	11	9	0.31	A
	<b>All Movements</b>	<b>12</b>	<b>4.2</b>	<b>0.40</b>	<b>NA</b>
	Southern Access - Left Out	4	6	0.11	A
	Southern Access - Right Out	9	11	0.32	B
	Leader Street- Left In	0	5	0.20	A
	Leader Street - Right In	11	7	0.29	A
	<b>All Movements</b>	<b>11</b>	<b>4.2</b>	<b>0.32</b>	<b>NA</b>

#### 6.5.4 Summary

Modelling of the Southern Access Point shows that during both the weekday peak hour and the weekend peak hour, the junction will have a good level of service with acceptable delays and spare capacity. The maximum queue length of right turning motorists from Leader Street of 11 m in both the weekday peak and the weekend peak is equivalent to approximately 2 cars and is not expected to introduce significant delays to through traffic.

## 6.6 NORTHERN ACCESS POINT

### 6.6.1 General

The Northern Access Point is located on the northern side of the proposed development, and provides access and egress to Leader Street, as shown in Figure 13 below. It is proposed to be an un-signalised junction, with both left and right turning provisions provided.

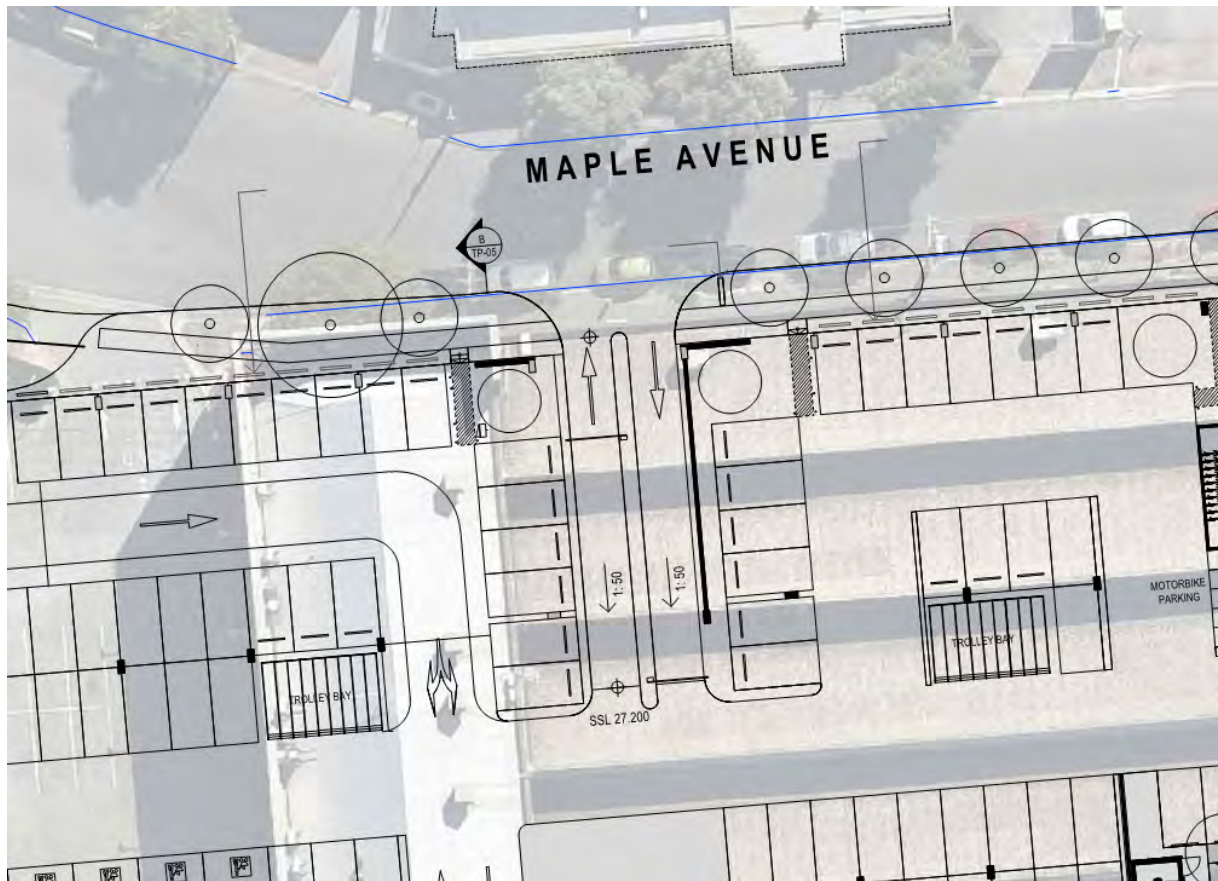


Figure 13 Northern Access Point

### 6.6.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Maple Avenue for the weekday PM peak was determined from WGA undertaken traffic counts (provided in Appendix C)
- Existing traffic data on Maple Avenue for the weekend AM peak was determined from WGA undertaken traffic counts undertaken on a weekday, reduced by a 70% factor to allow for the reduced traffic loading on Maple Street during the weekend. The 70% reduction has been applied on the basis that as Maple Avenue primarily provides access to industrial properties, the amount of traffic on Maple Avenue would be significantly reduced outside of standard working hours.
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

### 6.6.3 Results of Analysis

The operating performance of the junction with the addition of development traffic for has been assessed, with the results shown in Table 11 below. The detailed SIDRA outputs are contained within Appendix D.



Table 11 Northern Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Northern Access - Left Out	0	6	0.00	A
	Northern Access - Right Out	1	6	0.03	A
	Maple Avenue - Left In	0	6	0.04	A
	Maple Avenue - Right In	2	3	0.07	A
	<b>All Movements</b>	<b>2</b>	<b>3.3</b>	<b>0.07</b>	<b>NA</b>
<b>Weekend AM</b>	Northern Access - Left Out	1	6	0.03	A
	Northern Access - Right Out	1	6	0.04	A
	Maple Avenue - Left In	0	6	0.03	A
	Maple Avenue - Right In	2	3	0.09	A
	<b>All Movements</b>	<b>2</b>	<b>3.7</b>	<b>0.09</b>	<b>NA</b>

#### 6.6.4 Summary

The results of the modelling show that the Northern Access Point will have a good level of service during both the weekday peak hour and the weekend peak hour.

### 6.7 WESTERN ACCESS POINT

#### 6.7.1 General

The Western Access Point is located on the western side of the proposed development, and provides access and egress to Anzac Highway, as shown in Figure 14 below. It is proposed to be an un-signalised junction, with only left in and left out provisions provided. Note that median works are also proposed on Anzac Highway (refer to Section 7.3.3 for more information).

Figure 14 Western Access Point

#### 6.7.2 Inputs and Assumptions

The following inputs and assumptions were applied to the SIDRA modelling:

- Existing traffic data on Anzac Highway for the weekday PM peak was provided by 2017 DPTI turning movement count data (provided in Appendix C)

- Existing traffic data on Anzac Highway for the weekend AM peak was provided by 2017 DPTI SCATS data
- Modelling of Base Case (2017) + Development Traffic assumes full completion of the proposed development and the traffic generation rates and movements calculated in Section 5

### 6.7.3 Results of Analysis

The operating performance of the junction with the addition of development traffic for has been assessed, with the results shown in Table 12 below. The detailed SIDRA outputs are contained within Appendix D.



Table 12 Western Access Point – Base Case (2017) + Development Traffic

Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
<b>Weekday PM</b>	Western Access - Left Out	2	14	0.11	B
	Anzac Hwy - Left In	0	7	0.54	A
	<b>All Movements</b>	<b>2</b>	<b>0.2</b>	<b>0.54</b>	<b>NA</b>
<b>Weekend AM</b>	Western Access - Left Out	2	7	0.06	A



Peak Hour	Traffic Movement	Maximum Queue Length (m)	Average Delay (sec)	Degree of Saturation	Level of Service
	Anzac Hwy - Left In	0	7	0.30	A
	<b>All Movements</b>	<b>2</b>	<b>0.2</b>	<b>0.33</b>	<b>NA</b>

#### 6.7.4 Summary

The results of the modelling show that the Western Access Point will have a good level of service during both the weekday peak hour and the weekend peak hour.

### 6.8 AIMSUN MODELLING

#### 6.8.1 General

An AIMSUN microsimulation model has been used to analyse the performance of the surrounding road network during the weekday PM peak hour and Saturday AM before and after the development. AIMSUN V8.2.1 R49393 has been used for the analysis and a calibration and summary report is included in Appendix E. The microsimulation modelling has been developed in accordance with the DPTI AIMSUN Model Development Manual.

#### 6.8.2 Assessment Criteria

Key performance indicators provided by the model include:

- overall network delay time
- queue lengths
- number of stops per vehicle
- average speed
- travel time – average and for key routes
- intersection delay

### 6.8.3 Results of Analysis

A summary of the existing performance of road network, as well as the performance of the network following the proposed development is shown in Table 13 below.

Table 13 Key Performance Indicators

Performance Indicator	Existing AM Weekend Peak	+Development AM Weekend Peak	Existing PM Weekday Peak	+Development PM Weekday Peak
Delay time (sec/km)	19	33	25	45
Flow (veh/h)	3734	4479	4904	5481
Mean Queue (veh)	14	24	22	39
Number of stops #/veh/km	0.05	0.1	0.07	0.1
Speed km/h	45	41	43	40
Travel time sec/km	85	100	91	112
Vehicles waiting to enter (veh)	0	0	0	0

For analysis and summary of the AIMSUN modelling refer attached AIMSUN Modelling Report (Appendix E).

## 6.9 SUMMARY

Analysis of the Anzac Highway/Leader Street junction shows that the junction is currently operating at a good level of service with acceptable delays and spare capacity. Following application of the development traffic, the junction still performs at a satisfactory level of service.

The current level of service of the Anzac Highway/Maple Avenue junction is considered unsatisfactory, with vehicles turning right experiencing average delays in the order of 3 minutes in the weekday peak hour. Following addition of the development generated traffic, the delays to motorists turning left and right out of Maple Avenue is expected to remain at unacceptable levels during the weekday peak hour, with right turning motorists experiencing an average delay of 10 minutes. However, during the weekend peak hour, the level of service of all legs is considered acceptable, with the exception of the right turning motorists from Anzac Highway, who will experience additional delays and additional maximum queue lengths. It should be noted that, although not taken into account in modelling, motorists queuing on Anzac Highway due to the Anzac Highway/Leader Street junction are likely to give way to motorists turning right from Maple Street. Due to this, the delays shown by modelling for these movements are likely to be less in reality.

Due to delays and queues motorists will face entering and exiting the facility via Maple Avenue, it is assumed that the majority of motorists will instead travel to the signalised junction of Anzac Highway/Leader Street, which will have spare capacity following the development and will result in lower delays to motorists.



All three proposed access points are expected to perform to a good level of service during both the weekday and weekend peak hour.

# 7 DEVELOPMENT ACCESS AND LAYOUT

## 7.1 GENERAL

As discussed in Section 2, it is understood that the existing access points to the site will be slightly modified to provide three access points to the site via Maple Avenue, Leader Street and Anzac Highway. The carpark area is shown in Figure 15 and currently incorporates:

- A total of 448 parking bays
- 10 disabled parking bays
- 16 “pram” parking bays
- 5 motorcycle parking bays
- 16 Visitor / Shopper bicycle parks
- 28 Employee secure bicycle parks

Pedestrian access to the upper levels of the development is proposed to be via internal travelators and lifts located within the eastern portion of the car park.

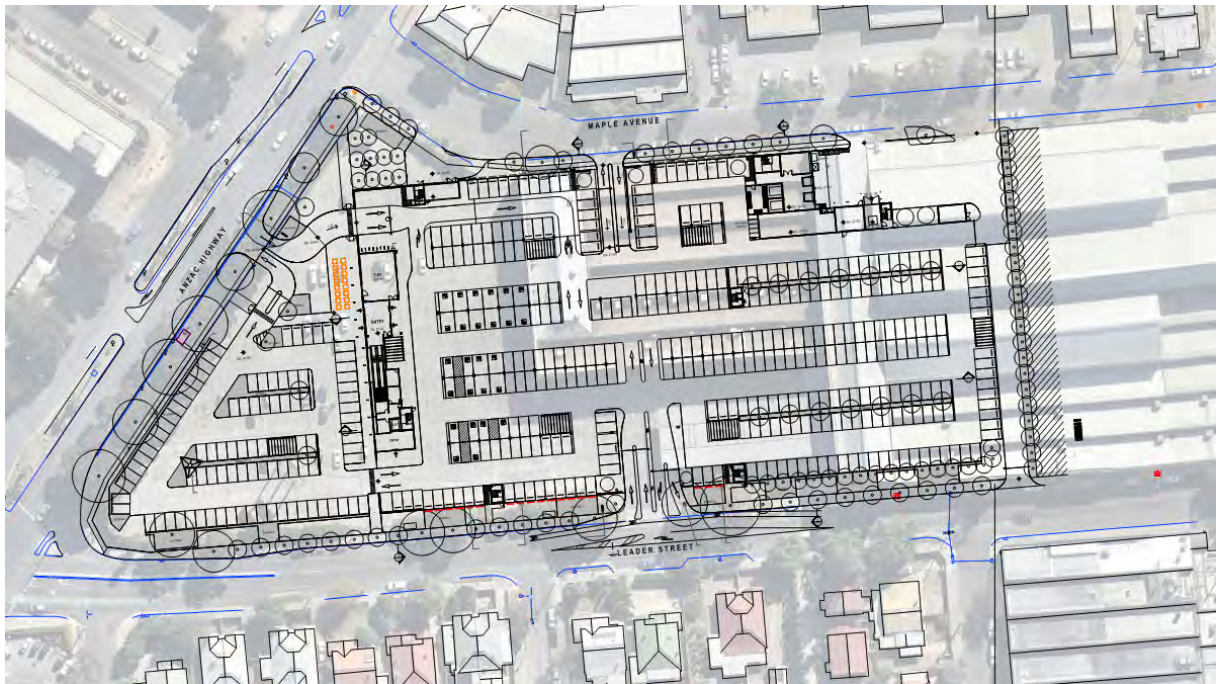


Figure 15 Car Parking Layout



Circulation between parking bays is provided via internal access roads which intersect the car parking area. Pavement marking and signage shall be in accordance with AS2890.1.

## **7.2 LAYOUT**

### **7.2.1 Parking Bays**

In accordance with AS2890.1 for a Class 3A facility (short, high turnover parking at shopping centres), the size of the parking bays provided should be a minimum of 2.7m wide by 5.4m long, separated by a 6.5m aisle width. Wider than standard aisles have been incorporated to improve pedestrian safety throughout the car park. Wider aisles were considered a better treatment than specific pathways within the car park and they provide improved access to all parks. Pathways cannot be provided on all aisles therefore they would improve safety for only those pedestrians that pathway aligns with their desire line.

### **7.2.2 Disabled Parking Bays**

In accordance with AS2890.6, the disabled parking bays should be a minimum of 2.4 m wide by 5.4 m long with a 2.4 m wide clear zone provided adjacent each space. The current design appears to meet these requirements.

It is recommended that if possible, the disabled access bays are re-located such that clear access is provided from the disabled bays to the entrance point ramps. It is envisaged that this could be achieved by placing some disabled bays at the location of the current 'pram' parking bays.

### **7.2.3 Bicycle Parking**

The bicycle parking facilities to be provided within the proposed development should meet the requirements of AS2890.3.

## **7.3 ENTRY AND EXIT POINTS**

As discussed in Section 2, the proposed development will be accessed by three access points – the Northern Access Point, Southern Access Point and Western Access Point.

### **7.3.1 Northern Access Point**

The Northern Access Point is considered a Class 3 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at least 6.0 m and an exit width of at least 4.0 to 6.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and one exit lane, with vehicles able to turn left and right to enter and exit the proposed development.

### **7.3.2 Southern Access Point**

The Southern Access Point is considered a Class 3 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at least 6.0 m and an exit width of at least 4.0 to 6.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and two exit lanes, with vehicles able to turn left and right to enter and exit the proposed development.

### **7.3.3 Western Access Point**

The Western Access Point is considered a Class 4 access driveway in accordance with AS2890.1 and should therefore be provided with an entry width of at 6.0 m to 8.0 m and an exit width of at least 6.0 to 8.0 m, separated by a 1 m to 3 m median.

The Access Point will include one entry lane and one exit lanes, with vehicles restricted from turning right into and out of the proposed development. The left out is considered a low impact movement and adequate sight distance is available for motorists to safely enter Anzac Highway traffic. The current layout of the Access Point will be improved by the installation of a new tapered Anzac Highway kerb that enables left turning vehicles to clear the through traffic as they turn in.

An existing right turn facility exists adjacent the Western Access Point which could potentially create a hazardous manoeuvre for drivers attempting to cross Anzac Highway and it is considered a safer alternative for staff and customers to turn right instead at either the Anzac Highway / Leader Street Junction or the Anzac Highway / Maple Avenue Junction. Therefore, to eliminate the risk of motorists undertaking this manoeuvre, it is recommended that a raised concrete separator be provided, as shown in Figure 16 below. Provision of this treatment will still retain access to the Ashford Hospital U-turn facility.

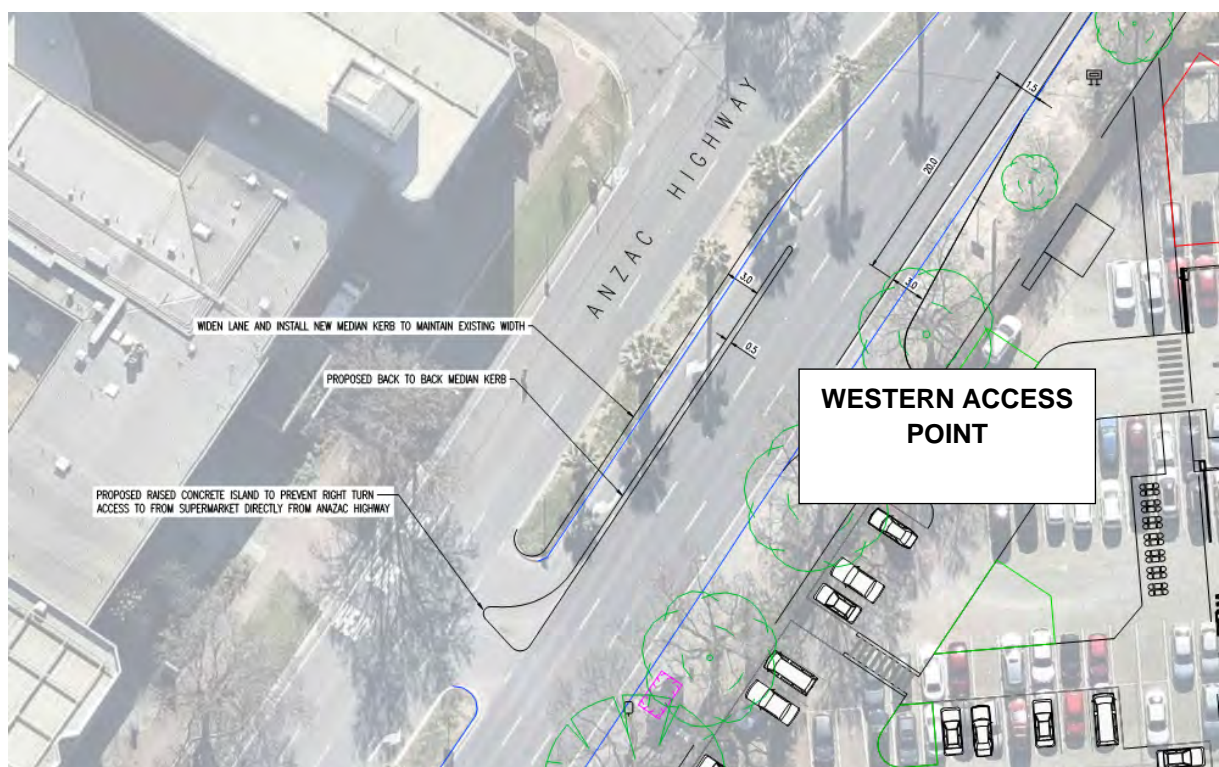


Figure 16 Proposed Modifications to Median adjacent Western Access Point

### 7.3.4 Access Controls

It is understood that the latest generation ticketless parking technology is to be used to control access to and from the proposed development at all car park access points. The technology incorporates automatic number plate recognition and boom gates for vehicles entering and exiting the facility.

Traditional boom gates systems typically result in queuing on their approach during peak periods which in this case may result in queues extending to the adjacent road network. To eliminate this risk the proposed system during peak periods runs in gate open mode with a speed hump at the number plate recognition point to provide separation between vehicles. Current sites in operation are achieving flows of up to 1600 veh/hour per gate. This effectively operates as a free flow arrangement. Likewise,



the failsafe operation function results in the boom gates automatically opening if any fault or power loss is detected within the system. The adoption of these functions is expected to result in no queues extending past the site boundaries, eliminating impact on the surrounding road network.

## 7.4 HEAVY VEHICLE ACCESS

### 7.4.1 General

Heavy vehicle access to the site is required to service the refuse area and the loading dock area, as shown in Figure 17 below. All vehicles will enter and exit the site in a forward direction and access points for the loading docks are positioned on sections of road that provide sufficient sight distances.

Maple Avenue is an industrial area and the locating of the loading dock and refuse area on this street is expected to alleviate any impact on nearby residents located adjacent Leader Street.

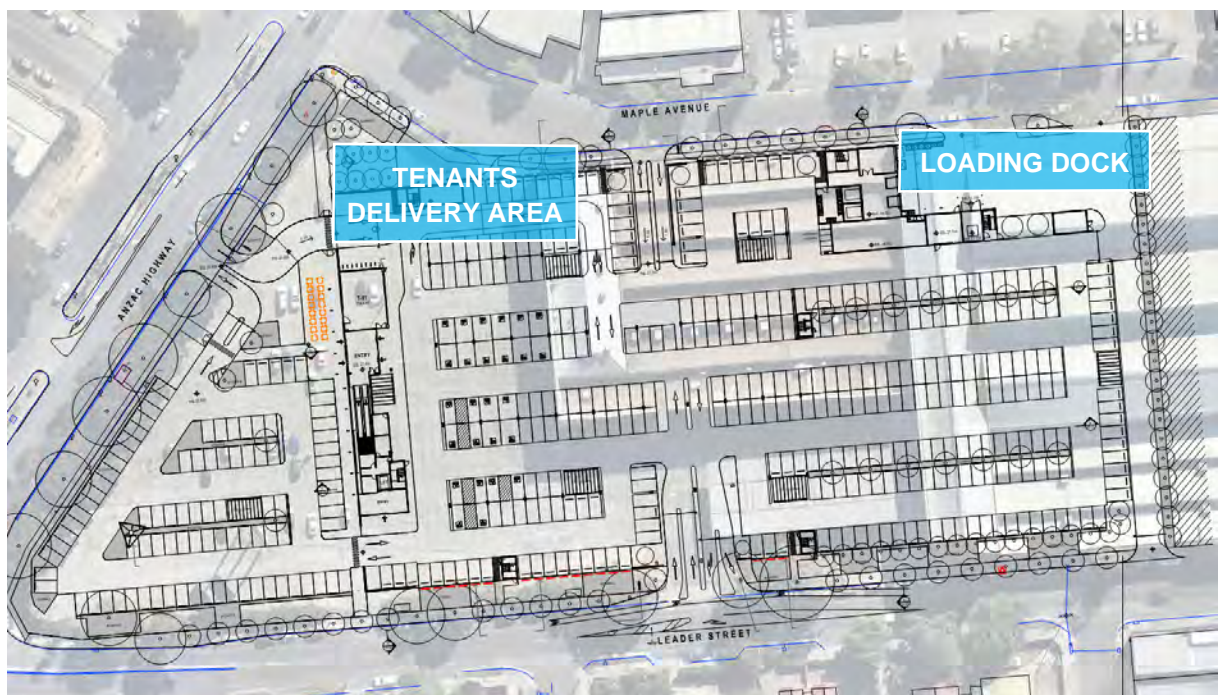


Figure 17 Heavy Vehicle Access Areas

### 7.4.2 Arrangement of Loading Docks

The current arrangement of the loading docks is:

- Maple Avenue Loading Dock
  - Maximum modelled vehicle length is a 19m long semi-trailer
  - All deliveries and refuse vehicles to turn right in from Maple Avenue
  - Delivery vehicles and refuse vehicles will exit to Maple Avenue
- Maple Avenue Secondary Delivery Area
  - Maximum vehicle length is an 8.8m long rigid vehicle (accommodating MRV Delivery Vehicle and Fire Truck)
  - Vehicles to turn right in from Maple Avenue and left out to Maple Avenue

Tracking has been undertaken on each access area, to ensure that the areas are accessible to the required heavy vehicles (refer to Appendix F). The sketches indicate there is sufficient manoeuvring area to accommodate the largest vehicles that will be accommodated by the two separate loading docks.

#### **7.4.3 Delivery Volumes and Timing**

It is understood that deliveries to the development will be 24 hours per day with delivery vehicles ranging from small trucks to 19m articulated trucks with refrigeration plant. It is expected that there will be one delivery vehicle in a 15 minute period and there will be one delivery using a 19m articulated truck with refrigeration plant during the night time period (Resonate Kaufland Report, March 2018).

#### **7.4.4 Operational Restrictions**

WGA understand that the logistics company that will be engaged will operate their heavy vehicles with broadband/white noise reversing alarms instead of pulsed tonal “beeper” alarms as the pulsed tonal alarms can lead to considerable annoyance in the surrounding community due to their high frequency.

All deliveries are proposed to be via Maple Avenue to ensure no impact to Leader or Leah Street residents.

#### **7.4.5 Summary**

Based on our review we also consider the location and dimensions of the loading docks to be sufficient to accommodate the required vehicles for the two proposed loading docks.

### **7.5 EMERGENCY VEHICLE ACCESS**

An emergency vehicle access is provided on the north eastern corner of the car park via a dedicated access point, as shown in Figure 18 below. WGA have undertaken tracking to confirm that a typical fire truck can utilise the access point when accessed from Maple Avenue. As can be seen in the image below, the truck can only just fit through the proposed access area. However, in accordance with AS2890.2 Clause 5.4, an additional 300 mm clearance should be provided on the inside of the turn path and 600 mm clearance provided on the outside of the turn path. A total additional width of 900 mm should therefore be provided in the detailed design to ensure access is able to be provided in accordance with the requirements of AS2890.2.



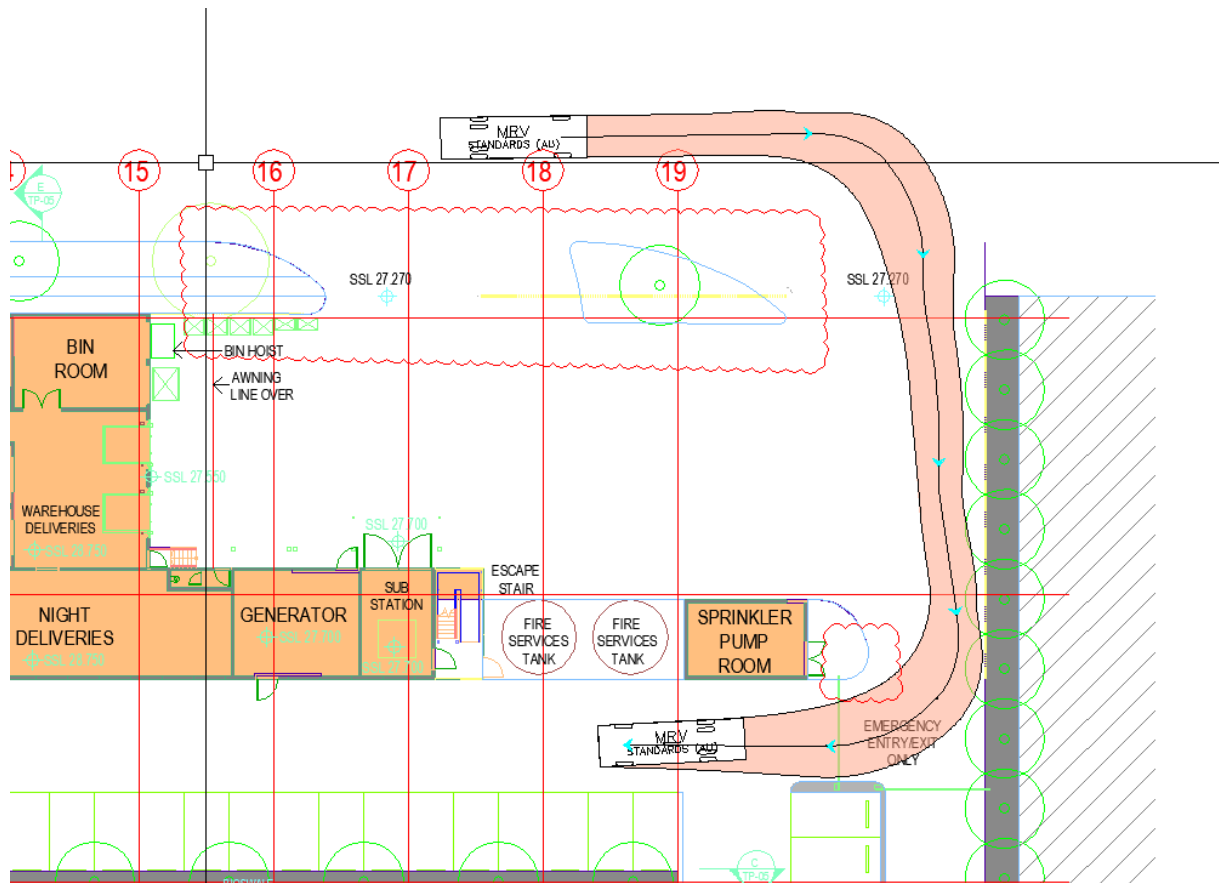


Figure 18 Emergency Vehicle Access

## 7.6 PEDESTRIAN ACCESS

Clearly defined pedestrian crossings are provided to the north and west of the carpark, allowing pedestrians to safely access surrounding local roads (and associated public transport).

It is recommended that pedestrian access is provided to the eastern side of the car park from the entrance point via a clearly defined pedestrian pathway, with pedestrian crossings provided across internal access roads. The width of this path should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.

## 7.7 SIGHT DISTANCE

### 7.7.1 Safe Intersection Sight Distance

A sight distance assessment has been undertaken of the proposed access points based on sight distance requirements specified in AS2890.1, Section 3.2.4, as shown in Table 14 below.

Table 14 Access Point Sight Distance Assessment

Access Point	Required Sight Distance Along Frontage Road		Approximate Available Sight Distance Provided	Required Sight Distance Achieved?
	Desirable (5 sec gap)	Minimum		
<b>Northern Access Point</b>	69 m	45 m	60 m (West)	Yes (West)
			250 m (East)	Yes (East)
<b>Southern Access Point</b>	69 m	45 m	150 m (West)	Yes (West)
			250 m (East)	Yes (East)
<b>Western Access Point</b>	83 m	65 m	250 m (North)	Yes (North)
			250 m (South)	Yes (South)

It can be seen in Table 14 above that the minimum sight distance is expected to be achieved at all access points. However, this should be further assessed in detailed design to ensure that existing and proposed vegetation is not impacting required sight lines.

### 7.7.2 Pedestrian Sight Distance

In order to achieve adequate sight lines for pedestrian safety, AS2890.1, Figure 3.3, recommends that 'sight triangles' are included at access driveways in order to maximise visibility. Figure 19 below illustrates the areas required to be kept clear of obstructions to visibility.

The current plans indicate that the sight triangles at the access driveway are not obstructed, in accordance with AS2890.1 recommendations.

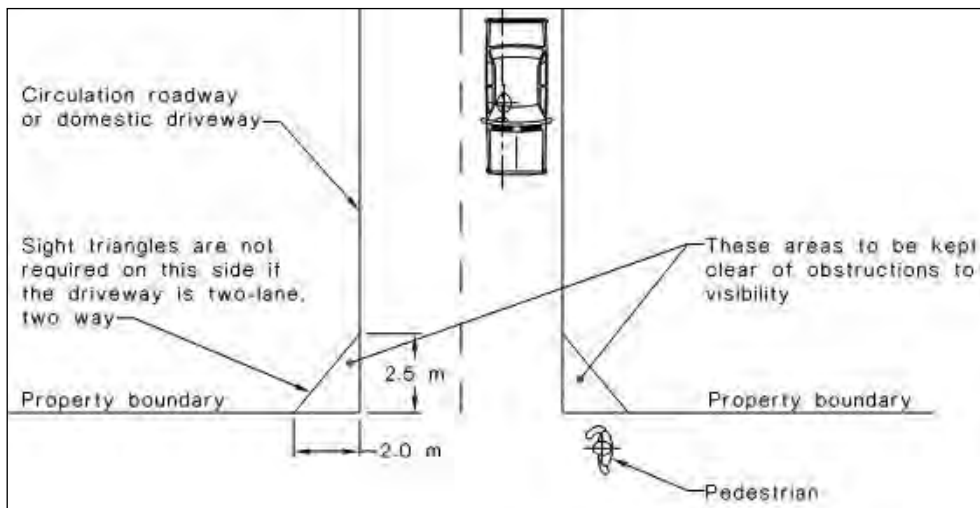


Figure 19 Minimum Sightlines for Pedestrian Safety





# 8 SUMMARY

---

The main points relating to the proposed development are as follows:

- The proposed development will be on the site of the former “Le-Cornu” retail showroom
- Parking provision, disabled parking and bicycle parking provisions exceeds Development Plan requirements.
- All three proposed access points are expected to perform to a good level of service during both the weekday peak hour and the weekend peak hour.
- Delivery vehicles accessing the proposed development will do so via Maple Avenue and are anticipated to have a minimal impact on surrounding road networks.

In summary, the analysis presented in this report concludes that the traffic generation and parking requirements associated with the proposed development can be satisfactorily accommodated.

# 9 REFERENCES

---

- City of Unley, 2017. Development Plan
- National Construction Code 2016, Volume One, Building Code of Australia Class 2 to Class 9 Buildings
- Department of Planning, Transport and Infrastructure, 2013. Trip Generation Rates for Assessment of Development Proposals
- Department of Planning, Transport and Infrastructure, Nov 2017. Traffic Signal Design - TS100
- Resonate, 7 March 2018. Kaufland – 10 Anzac Highway Forestville, Planning Stage Acoustic Report
- Roads and Traffic Authority, 2002. Guide to Traffic Generating Developments
- Roads and Traffic Authority, 2013. Guide to Traffic Generating Developments Updated Traffic Surveys, Technical Direction TDT 2013/04a
- Standards Australia, 2004. Australian Standard 2890, Part 1: Off-Street Car Parking
- Standards Australia, 2009. Australian Standard 2890, Part 3: Bicycle Parking Facilities
- Standards Australia, 2009. Australian Standard 2890, Part 6: Off-Street Parking for People with Disabilities



---

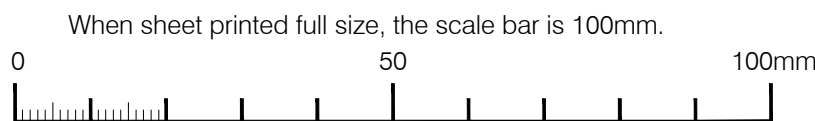
# APPENDIX A

## SITE PLANS





I:\2017\1710-171200\171147 - KAU LAND ORESTVILLE.dwg, A, 12/12/2018 7:34 AM, jzhy



PRELIMINARY ISSUE  
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHECKED

**WGA**  
WALLBRIDGE GILBERT  
AZTEC  
60 Wyatt Street, Adelaide  
South Australia 5000  
Telephone 08 8223 7433  
Email adelaide@wga.com.au

KAU LAND ORESTVILLE

SITE LAYOUT

A1

Design  
TB

DRAWING NUMBER  
Job Number Sheet No. Rev.  
ADL171147 SK31



---

# APPENDIX B

## SITE INSPECTION REPORT

**Project No:** ADL 171147

**Subject:** Anzac Highway/ Leader Street Junction Traffic Survey – AM/PM

---

**Traffic surveys conducted by:** Huy Le

**Location:**

- Anzac Highway/ Leader Street Junction
- Anzac Highway/ Maple Avenue Junction

**Time of Traffic Surveys:** Monday 16/10/2017 (5:00 PM – 6:00 PM), Tuesday 17/10/2017 (8:00 AM – 9:00 AM), Wednesday 10/05/2018 (5:00 PM to 6:00 PM)

**Weather:**

16/10/2017 – PM period: ~23°, sunny, warm, no rain during survey

17/10/2017 – AM period: ~28°, sunny, hot, no rain during survey

10/05/2018 – PM period: ~17°, dull sky, cold, no rain during survey

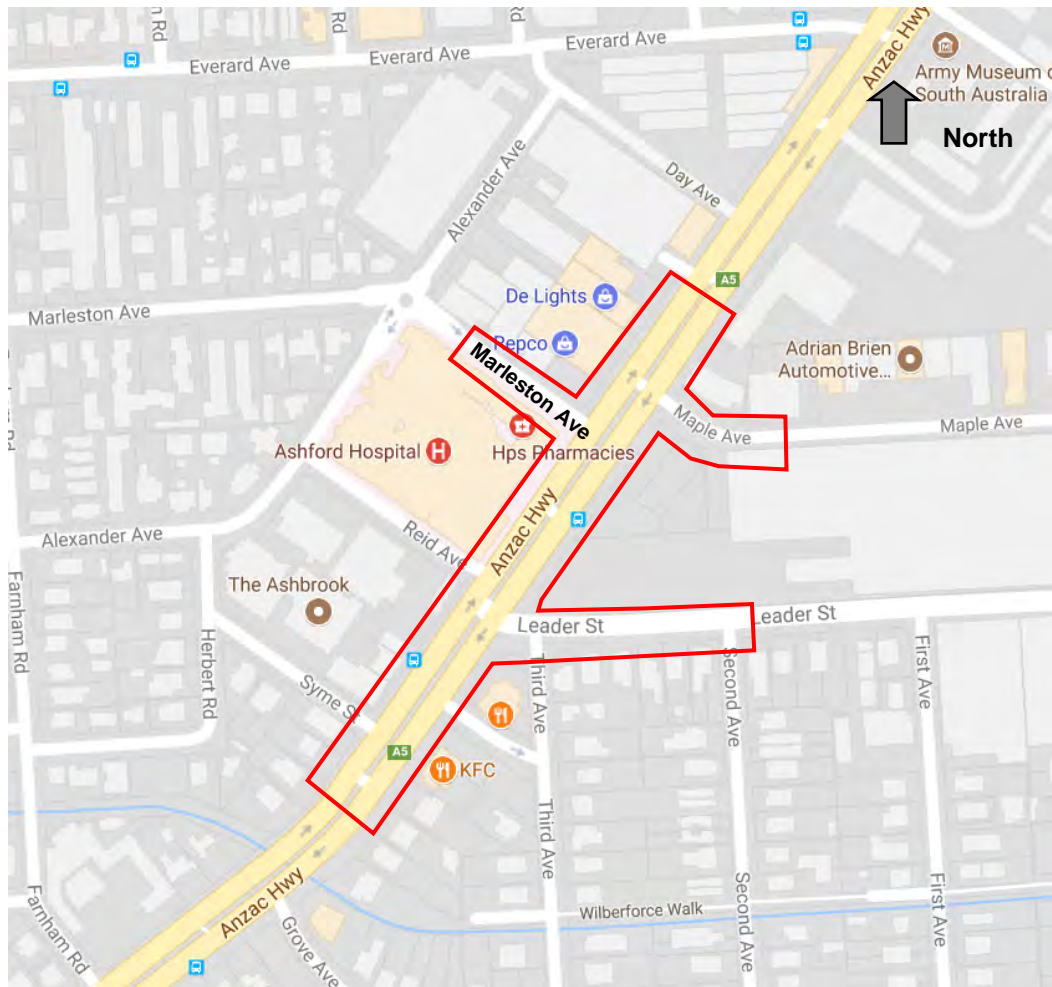




Figure 1: Locality Plan

## INTERSECTION SITE LAYOUT



Figure 2: Junction Layout- Anzac Highway/Leader Street Junction

The junction of Anzac Highway and Leader Street is currently a signalized junction with an average cycle time of 120 seconds. The junction is in close proximity to a private hospital, a large-size furniture shop, fast-food stores and bus stops, thereby giving high level of pedestrian activity.



Figure 3: Junction layout- Maple Avenue/ Anzac Highway junction and Marlestone Ave/ Anzac Highway junction

The junction of Maple Avenue and Anzac Highway is a T junction with Anzac Highway forming the major road. Outgoing vehicles from Maple Avenue are required to give way to incoming traffic on Anzac Highway before proceeding. The median island opening allows vehicles from Maple Avenue to perform staged crossing, as well as vehicles from Anzac Highway citybound to undertake U-turn manoeuvres.





Figure 4: The median island opening in front of Ashford Hospital

Table 1 below represents speed limits applied to the subject roads/ streets.

Speed limit on roads/streets within the study area		
Name	Applied speed limit	Comment
Anzac Highway	60 km/h	As signed Assumed as default speed limit for built-up area
Leader Street	50 km/h	
Maple Avenue	40 km/h	40 km/h area
Marlestone Avenue	40 km/h	40 km/h area
Reid Avenue	40 km/h	40 km/h area

Table 1: Speed limit on roads/streets within the study area

## GENERAL OBSERVATION

Observed traffic counts were recorded for the following locations where turning movement surveys were not provided by DPTI:

- The junction of Maple Avenue and Anzac Highway
- The junction of Marlestone Avenue and Anzac Highway
- The open median island in front of Ashford Hospital
- The intersection of Anzac Highway and Leader Street

Maple Avenue / Anzac Highway Junction				
Peak Period	Maple Avenue		Anzac Highway	
	Left Out	Right Out	Left In	Right In
AM	8	4	20	44
PM	36	4	4	36

Table 2: Traffic counts - Maple Avenue/ Anzac Highway Junction

Marlestone Avenue / Anzac Highway Junction		
Peak Period	Marlestone Avenue	Anzac Highway
	Left Out	Left In
AM	80	72
PM	60	68

Table 3: Traffic counts – Marlestone Avenue

Anzac Highway/Ashford Hospital Open Median, U-turn count		
Peak Period	U-turn	U-turn
	from city bound traffic	from outbound traffic
AM	20	12
PM	4	16

Table 4: Traffic counts – Marlestone Avenue

The number of vehicles turning left from Anzac Highway to Leader Street using the slip lane on Anzac Highway (NE) approach was also recorded during both AM peak hour and PM peak hour.

Left-turning vehicles from Anzac Hwy to Leader St	
AM	PM
44	240

Table 5: Counts for vehicles turning left from Anzac Hwy to Leader St at the junction.



The SCATS information for TS 207 Anzac Highway/ Leader Street junction was provided by DPTI, and this was observed during site visit. The average cycle time is 120s with left turn from Anzac Highway (NE) approach to Leader Street filtering fulltime. The table below summaries signal phasing information for TS 207.

Phase	Movement description	AM green time allocation (seconds)	PM green time allocation (seconds)
A	<ul style="list-style-type: none"> <li>Anzac Highway (SW) through movement</li> <li>Anzac Highway (NE) through movement</li> <li>Pedestrian movement across Leader Street</li> </ul>	55	57
C	<ul style="list-style-type: none"> <li>Leader Street right turn movement</li> <li>Pedestrian movement across Anzac Highway south-western approach</li> <li>Leader Street left turn movement begins 14 s after the start of the phase when pedestrian movement has been closed down.</li> </ul>	28	24
D	<ul style="list-style-type: none"> <li>Anzac Highway (SW) through movement</li> <li>Anzac Highway (SW) right turn movement</li> <li>Leader Street left turn movement</li> </ul>	17	17

Table 6: Phasing summary- TS 207

Maximum queue lengths at each approach were also recorded, and are presented in tables 7 to 10.

Approach	Maximum length (m)	Time of occurrence
Anzac Highway (NE)	135	8:19 AM
Anzac Highway (SW) (thr)	180	8:38 AM
Anzac Highway (SW) (right turn)	50	8:35 AM
Leader St (right turn)	210	8:37 AM
Leader St (left turn)	30	8:35 AM

Table 7: AM peak period- queue length- Anzac Highway/ Leader Street junction

Approach	Maximum length (m)	Time of occurrence
Anzac Highway (NE)	230	5:08 PM
Anzac Highway (SW) (thr)	100	5:34 PM
Anzac Highway (SW) (right turn)	50	5:40 PM
Leader St (right turn)	42	5:45 PM
Leader St (left turn)	50	5:45 PM

Table 8: PM peak period- queue length- Anzac Highway/ Leader Street junction



Figure 5: Observed maximum queue length during AM peak- TS 207



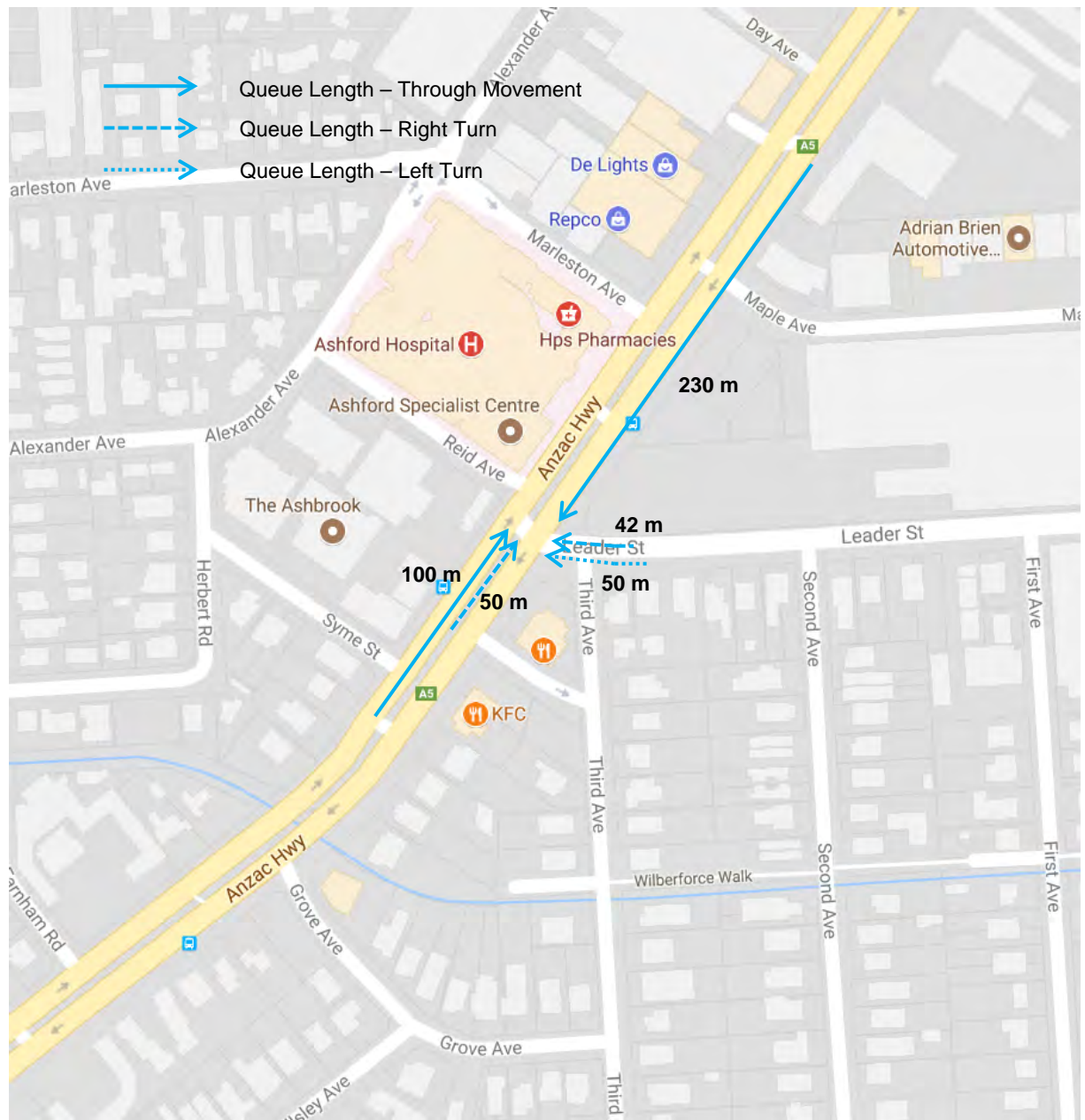


Figure 6: Observed maximum queue length during PM peak- TS 207

<b>Movement</b>	<b>Observed Period</b>	<b>Maximum queue length (veh)</b>
Maple Avenue - left turn	AM peak hour	1
	PM peak hour	2
Maple Avenue – right turn	AM peak hour	1
	PM peak hour	1
Anzac Highway – right turn	AM peak hour	3
	PM peak hour	3
Anzac Highway – U turn	AM peak hour	3
	PM peak hour	3
Anzac Highway – left turn	AM peak hour	1
	PM peak hour	1

Table 9: Recorded maximum queue length at the Maple Avenue/ Anzac Highway junction.

<b>Movement</b>	<b>Observed Period</b>	<b>Maximum queue length (veh)</b>
Marleston Avenue - left turn	AM peak hour	4
	PM peak hour	3
Anzac Highway – left turn	AM peak hour	1
	PM peak hour	1

Table 10: Recorded maximum queue length at the Marleston Avenue/ Anzac Highway junction.



## MEASURED SATURATION FLOWS

Saturation flows of all traffic lanes at the intersection of Anzac Highway and Leader Street were measured during period from 17:00 to 18:00 on Wednesday 9th May 2018 utilising JCT Traffic Tools as recommended by DPTI Traffic Modelling Guidelines. Measured saturation flows are presented in Table 11 below.

Measured Saturation Flows - Average	
Leader Street	
Lane 1	1673
Lane 2	1948
Lane 3	1839
Anzac Highway (NE)	
Lane 1	1299
Lane 2	1959
Lane 3	1968
Anzac Highway (SW)	
Lane 1	1788
Lane 2	1837
Lane 3	2016
Lane 4	2051

Table 11: Measured Saturation Flows

## ADDITIONAL OBSERVATIONS

- There is a private hospital, fast-food stores, a large-size furniture shop and bus stops within the study area.
- Reid Avenue is a one-way street, only allows vehicles to turn left from Reid Avenue to Anzac Highway to travel towards CBD.
- High level of pedestrian activity was observed during both AM peak and PM peak.
- Unlimited on-street parking is provided along both sides of Leader Street whereas Marlestone Avenue and Maple Avenue only facilitate timed parking as short as half an hour. Furthermore, Reid Avenue is a private parking area. These parking areas were observed to be at least half-full during PM peak and almost fully-packed during AM peak.

### 1. Anzac Highway/ Leader Street junction

AM Peak period:

- Generally, during AM peak period there were more vehicles travelling citybound than travelling outbound.
- Pedestrian crossing activity across Anzac Highway, primarily from and to Hungry Jack's fast-food store, was observed to be very frequent, as many as 6 pedestrians per signal cycle.

PM Peak period:

- Generally, during PM peak period there were more vehicles travelling outbound than travelling citybound.
- A considerable number of left-turn movements from Anzac Highway (NE) to Leader St were seen during PM peak compared to AM peak (almost 6 times higher).
- A higher number of buses stopping at stop 3 Anzac Highway SE side were observed during PM peak. A maximum queue of 3 busses at the bus stop was recorded.
- A higher number of pedestrians that crossed Leader Street at the junction were observed during PM peak compared to AM peak. They were observed to be mainly public transport users who were stopping at bus stop 3 Anzac Highway SE side.

2. The junction of Maple Avenue and Anzac Highway:

- Average delay time for vehicles on Maple Avenue is one minute.
- Almost 50% of vehicles that were observed to turn right into Maple Avenue and 30% of vehicles that were observed to make a U-turn from the median island opening were travelling from Marlestone Avenue.

3. The junction of Marlestone Avenue and Anzac Highway:

- Almost 70% of outgoing vehicles from Marlestone Avenue were observed to perform two-stage crossing via the Maple Avenue median opening to either make a U-turn or turn right to Maple Avenue.

4. The median island opening in front of Ashford Hospital

- The hospital entrance in front of the subject median island opening is reserved only for emergency services.
- Pedestrian crossing across this section of Anzac Highway via the median island was non-existent.





Figure 7: Observed queue length on Anzac Highway (NE)





Figure 8: Observed queue length on Leader Street



Figure 9: Observed queue length on Anzac Highway (SW)





Figure 10: A vehicle making a U-turn at the median island opening in front of Ashford Hospital



Figure 11: Ashford hospital - Entrance for emergency services





Figure 12: On-street parking spaces along Leader Street were observed to be fully occupied during AM peak hour



---

# APPENDIX C

## TRAFFIC COUNTS

Intersection of: ANZAC HIGHWAY / LEADER STREET

Locality: FORESTVILLE

AMG Reference: TG786297

Date of Count: 25/05/2017

Day: Thursday

Weather: Dry

Control: SIGNALS

Survey Status:

Arm	Road Number - Name
1	6212 - ANZAC HIGHWAY
2	6197 - LEADER STREET
3	6212 - ANZAC HIGHWAY



	Arm	1		2		3	
	Exit Arm	2 (L)	3	3 (L)	1 (R)	1	2 (R)
11 hour totals	Cars	1373	15570	919	2605	16121	1176
	CV	28	575	37	57	544	43
	Total	1401	16145	956	2662	16665	1219
AM Peak hour (08:00)	Cars	60	946	65	506	2646	116
	CV	2	73	8	4	53	8
	Total	62	1019	73	510	2699	124
PM Peak hour (17:00)	Cars	316	2437	134	232	1402	170
	CV	3	59	2	1	44	2
	Total	319	2496	136	233	1446	172

		1				2				3			
One-way Flows	11 Hour Totals	(IN) 17546 (OUT) 19327				(IN) 3618 (OUT) 2620				(IN) 17884 (OUT) 17101			
	AM Peak Hour	11:45	1334	08:00	3209	08:00	583	08:15	220	08:15	2829	11:45	1326
	PM Peak Hour	17:00	2815	17:00	1679	17:15	374	16:45	504	17:00	1618	17:00	2632
Two-way Flows	AM Peak Hour	08:00 4290				08:15 787				08:15 3917			
	PM Peak Hour	17:00 4494				17:00 860				17:00 4250			
All Vehicles	11 Hour Totals	36873 3.3% CV				6238 2.6% CV				34985 3.4% CV			
	Estimated AADT	46800 SF( 1.00) ZF( 1.27)				7900 SF( 1.00) ZF( 1.27)				44400 SF( 1.00) ZF( 1.27)			

AADT - Annual Average Daily Traffic SF - Seasonal Factor ZF - Zone Factor CV - Commercial Vehicles



---

# APPENDIX D

## SIDRA OUTPUTS

## LANE SUMMARY

**Site: 101 [Anzac Highway/ Leader Street- 2017 Thursday PM-base - SCATS timing]**

New Site

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Phase Times)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block %
East: Leader Street													
Lane 1	143	1.5	460	0.311	100	39.8	LOS D	6.6	46.9	Short	65	0.0	NA
Lane 2	126	0.4	283	0.445	100	54.1	LOS D	6.8	47.5	Full	500	0.0	0.0
Lane 3	119	0.4	267	0.445	100	54.2	LOS D	6.4	45.0	Short	65	0.0	NA
Approach	388	0.8		0.445		48.9	LOS D	6.8	47.5				
NorthEast: Anzac Highway (NE)													
Lane 1	738	1.7	738	1.001	100	64.7	LOS E	53.1	377.3	Full	500	0.0	0.0
Lane 2	1110	2.4	1109	1.001	100	60.2	LOS E	92.5	660.9	Full	500	0.0	30.4
Lane 3	1115	2.4	1114	1.001	100	60.1	LOS E	92.9	663.4	Full	800	0.0	0.0
Approach	2963	2.2		1.001		61.3	LOS E	92.9	663.4				
SouthWest: Anzac Highway (SW)													
Lane 1	482	3.0	1271	0.380	100	6.6	LOS A	10.5	75.4	Full	500	0.0	0.0
Lane 2	496	3.0	1306	0.380	100	6.6	LOS A	10.8	77.4	Full	500	0.0	0.0
Lane 3	544	3.0	1433	0.380	100	6.6	LOS A	11.8	84.7	Full	500	0.0	0.0
Lane 4	181	1.2	199	0.908	100	75.7	LOS E	12.3	86.8	Short	85	0.0	NA
Approach	1703	2.8		0.908		13.9	LOS B	12.3	86.8				
Intersection	5055	2.3		1.001		44.4	LOS D	92.9	663.4				

## LANE SUMMARY

**Site: 101 [Anzac Highway/ Leader Street- 2017 Thursday PM-Proposed - Post Dev 150 cycle]**

New Site

Signals - Fixed Time Coordinated Cycle Time = 150 seconds (User-Given Phase Times)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block %
East: Leader Street													
Lane 1	279	0.8	469	0.595	100	50.0	LOS D	17.0	120.0	Short	65	0.0	NA
Lane 2	143	0.4	227	0.633	100	72.5	LOS E	10.2	71.3	Full	500	0.0	0.0
Lane 3	135	0.4	214	0.633	100	72.8	LOS E	9.6	67.6	Short	65	0.0	NA
Approach	558	0.6		0.633		61.3	LOS E	17.0	120.0				
NorthEast: Anzac Highway (NE)													
Lane 1	743	1.7	739	1.005	100	64.1	LOS E	61.1	433.9	Full	500	0.0	0.0
Lane 2	1124	2.3	1119	1.005	100	64.7	LOS E	110.2	786.9	Full	500	0.0	46.6
Lane 3	1130	2.3	1124	1.005	100	64.6	LOS E	110.6	789.8	Full	800	0.0	3.8
Approach	2997	2.2		1.005		64.5	LOS E	110.6	789.8				
SouthWest: Anzac Highway (SW)													
Lane 1	493	3.0	1368	0.360	100	5.3	LOS A	10.7	77.1	Full	500	0.0	0.0
Lane 2	507	3.0	1406	0.360	100	5.3	LOS A	11.0	79.2	Full	500	0.0	0.0
Lane 3	556	3.0	1543	0.360	100	5.3	LOS A	12.1	86.7	Full	500	0.0	0.0
Lane 4	248	0.8	320	0.777	100	72.6	LOS E	18.2	128.2	Short	130	0.0	NA
Approach	1804	2.7		0.777		14.5	LOS B	18.2	128.2				
Intersection	5359	2.2		1.005		47.3	LOS D	110.6	789.8				

## LANE SUMMARY

**Site: 101 [Anzac Highway/ Leader Street- 2017 Thursday PM-Proposed - Post Dev 150 cycle + MAPLE RT TRAFFIC]**

New Site

Signals - Fixed Time Coordinated Cycle Time = 150 seconds (User-Given Phase Times)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block %
East: Leader Street													
Lane 1	279	0.8	469	0.595	100	50.0	LOS D	17.0	120.0	Short	65	0.0	NA
Lane 2	143	0.4	227	0.633	100	72.5	LOS E	10.2	71.3	Full	500	0.0	0.0
Lane 3	135	0.4	214	0.633	100	72.8	LOS E	9.6	67.6	Short	65	0.0	NA
Approach	558	0.6		0.633		61.3	LOS E	17.0	120.0				
NorthEast: Anzac Highway (NE)													
Lane 1	740	1.7	736	1.006	100	63.4	LOS E	59.4	421.5	Full	500	0.0	0.0
Lane 2	1126	2.3	1119	1.006	100	65.3	LOS E	110.7	790.1	Full	500	0.0	47.0
Lane 3	1131	2.3	1124	1.006	100	65.2	LOS E	111.1	793.0	Full	800	0.0	4.2
Approach	2897	2.2		1.006		64.6	LOS E	111.1	793.0				
SouthWest: Anzac Highway (SW)													
Lane 1	493	3.0	1368	0.360	100	5.3	LOS A	10.7	77.1	Full	500	0.0	0.0
Lane 2	507	3.0	1406	0.360	100	5.3	LOS A	11.0	79.2	Full	500	0.0	0.0
Lane 3	556	3.0	1543	0.360	100	5.3	LOS A	12.1	86.7	Full	500	0.0	0.0
Lane 4	303	0.7	320	0.947	100	95.2	LOS F	26.7	187.9	Short	130	0.0	NA
Approach	1859	2.6		0.947		19.9	LOS B	26.7	187.9				
Intersection	5414	2.2		1.006		49.0	LOS D	111.1	793.0				



## LANE SUMMARY

 Site: 101 [Anzac Highway/ Leader Street- 2017 Saturday AM-base - SCATS timing]

New Site

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Leader Street													
Lane 1	125	3.5	454	0.276	100	39.4	LOS D	5.7	41.2	Short	65	0.0	NA
Lane 2	108	3.1	212	0.508	100	59.3	LOS E	6.1	43.7	Full	500	0.0	0.0
Lane 3	102	3.1	200	0.508	100	59.4	LOS E	5.8	41.3	Short	65	0.0	NA
Approach	335	3.2		0.508		51.9	LOS D	6.1	43.7				
NorthEast: Anzac Highway (NE)													
Lane 1	408	3.5	771	0.529	100	14.3	LOS B	9.5	68.5	Full	500	0.0	0.0
Lane 2	582	3.5	1101	0.529	100	10.4	LOS B	13.2	94.9	Full	500	0.0	0.0
Lane 3	585	3.5	1106	0.529	100	10.4	LOS B	13.2	95.3	Full	800	0.0	0.0
Approach	1575	3.5		0.529		11.4	LOS B	13.2	95.3				
SouthWest: Anzac Highway (SW)													
Lane 1	497	3.5	1340	0.371	100	4.8	LOS A	9.3	67.0	Full	500	0.0	0.0
Lane 2	511	3.5	1377	0.371	100	4.8	LOS A	9.5	68.8	Full	500	0.0	0.0
Lane 3	561	3.5	1511	0.371	100	4.8	LOS A	10.4	75.3	Full	500	0.0	0.0
Lane 4	148	3.5	278	0.534	100	57.0	LOS E	8.3	59.5	Short	85	0.0	NA
Approach	1718	3.5		0.534		9.3	LOS A	10.4	75.3				
Intersection	3627	3.5		0.534		14.2	LOS B	13.2	95.3				

## LANE SUMMARY

 Site: 101 [Anzac Highway/ Leader Street- 2017 Saturday AM- post dev]

New Site

Signals - Fixed Time Coordinated Cycle Time = 120 seconds (User-Given Cycle Time)

Lane Use and Performance													
	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Leader Street													
Lane 1	260	1.6	595	0.437	100	34.1	LOS C	11.5	81.4	Short	65	0.0	NA
Lane 2	131	2.9	212	0.617	100	60.4	LOS E	7.5	54.1	Full	500	0.0	0.0
Lane 3	124	2.9	201	0.617	100	60.7	LOS E	7.2	51.3	Short	65	0.0	NA
Approach	515	2.2		0.617		47.2	LOS D	11.5	81.4				
NorthEast: Anzac Highway (NE)													
Lane 1	420	3.4	662	0.635	100	23.8	LOS C	14.4	103.9	Full	500	0.0	0.0
Lane 2	598	3.4	942	0.635	100	18.7	LOS B	20.4	147.2	Full	500	0.0	0.0
Lane 3	601	3.4	947	0.635	100	18.7	LOS B	20.5	147.9	Full	800	0.0	0.0
Approach	1620	3.4		0.635		20.0	LOS C	20.5	147.9				
SouthWest: Anzac Highway (SW)													
Lane 1	512	3.4	1341	0.382	100	4.9	LOS A	9.7	69.7	Full	500	0.0	0.0
Lane 2	526	3.4	1378	0.382	100	4.9	LOS A	9.9	71.5	Full	500	0.0	0.0
Lane 3	577	3.4	1512	0.382	100	4.8	LOS A	10.9	78.3	Full	500	0.0	0.0
Lane 4	283	1.8	447	0.634	100	49.9	LOS D	15.1	107.4	Short	85	0.0	NA
Approach	1898	3.2		0.634		11.6	LOS B	15.1	107.4				
Intersection	4033	3.1		0.635		19.5	LOS B	20.5	147.9				

---

# APPENDIX E

## AIMSUN MODELLING REPORT



# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia Pty Ltd

## **Kaufland Shopping Centre, Forestville, Traffic Assessment**

**AIMSUN TRAFFIC MODELLING**

Job No. ADL171147 / Rev A  
09 March 2018

# WGA

---

#### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	10/03/2018	Issued for client comment	JZ	JZ	HB
B	15/03/2018	Administration	JZ	JZ	HB



# CONTENTS

---

**1 INTRODUCTION..... 1**

    1.1 Background ..... 1

**2 MODEL DESCRIPTIONS AND BASE DATA ..... 2**

    2.1 Model Extents ..... 2

    2.2 Base Data..... 3

    2.3 Public Transport ..... 5

    2.4 Network Coding and Traffic Control Plans..... 5

    2.5 Traffic Demand Generation..... 6

**3 MODEL CALIBRATION..... 7**

**4 SCENARIO ANALYSIS AND SUMMARY..... 11**

**Appendices**

**Appendix A** Travel Time Comparison

# 1 INTRODUCTION

---

## 1.1 BACKGROUND

This AIMSUN summary report has been prepared to outline the model development, calibration and traffic impacts of the proposed Kaufland Development at 10 Anzac Highway, Forestville. The proposal will consist of a new supermarket and 'market place' area incorporating a number of specialty stores.

The City of Unley has requested that AIMSUN modelling be undertaken to assist stakeholders with the analysis of traffic impacts as AIMSUN provides a visual microsimulation output of the existing and scenario arrangements enabling those with non-technical background to easily interpret the proposed operation.

Two separate models have been developed to simulate the impacts to the surrounding network.

This report will summarise the development of the base models and the following proposed scenarios:

- Existing PM peak period
- Existing Saturday peak period
- Post Development PM peak period
- Post Development Saturday peak period

This analysis was undertaken within AIMSUN V8.2.1 R49393 and in accordance with DPTI's AIMSUN Model Development Manual. (AMDM). This report is to be read in conjunction with the supporting Traffic Impact Assessment Report.



# 2 MODEL DESCRIPTIONS AND BASE DATA

---

## 2.1 MODEL EXTENTS

The AIMSUN Model extent is shown in Figure 1 below.

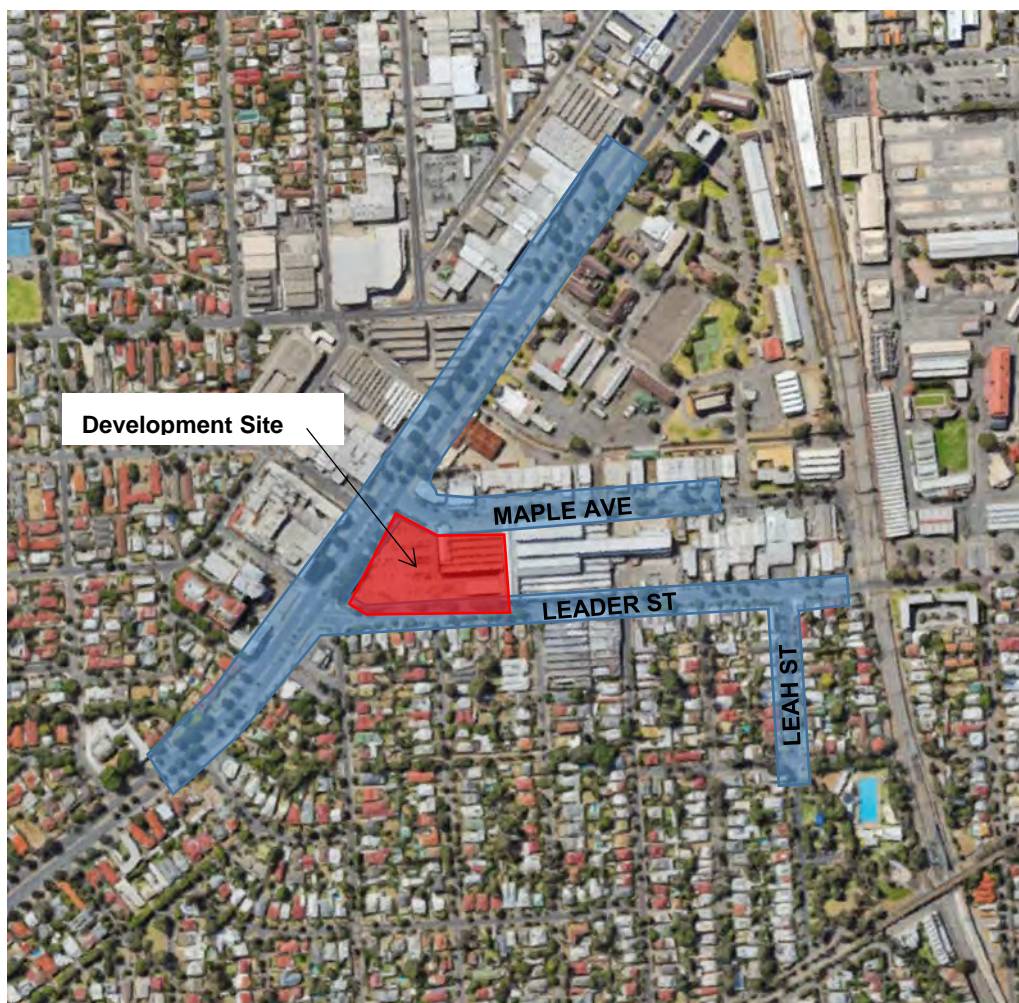


Figure 1 AIMSUN Modelling Extents

The modelling extents include but are not limited to the following junctions:

- Junction of Anzac Highway and Maple Avenue
- Junction of Anzac Highway and Leader Street
- Junction of Anzac Highway and Marleston Avenue
- Junction of Leader Street and Leah Street

The model is bound by the Seaford Railway Line to the east.



Figure 2 AIMSUN network model

## 2.2 BASE DATA

Traffic volumes data has been obtained from a number of sources, including:

- DPTI provided data:
  - SCATS data (24 hour count) for TS207 as of Wednesday 18 October 2017 and Saturday 21 October 2017 - Anzac Highway/Leader Street junction
  - Turning Movement Survey as of Thursday 25/05/2017 - Anzac Highway/ Leader Street junction.
- WGA traffic counts:
  - Monday 16 October 2017 (1 hour count during PM peak) – Maple Avenue/ Anzac Highway junction.
  - Monday 16 October 2017 (1 hour count during PM peak) – Marleston Avenue/ Anzac Highway junction.
  - Monday 16 October 2017 (1 hour count during PM peak) – Left turn from Anzac Highway to Leader Street
  - Tuesday 17 October 2017 (1 hour count during AM peak) – Maple Avenue/ Anzac Highway junction.
  - Tuesday 17 October 2017 (1 hour count during AM peak) – Marleston Avenue/ Anzac Highway junction.
  - Tuesday 17 October 2017 (1 hour count during AM peak) – Left turn from Anzac Highway to Leader Street.
  - Thursday 9 March 2018 (1 hour count during PM peak) – Leader Street and Leah Street Junction



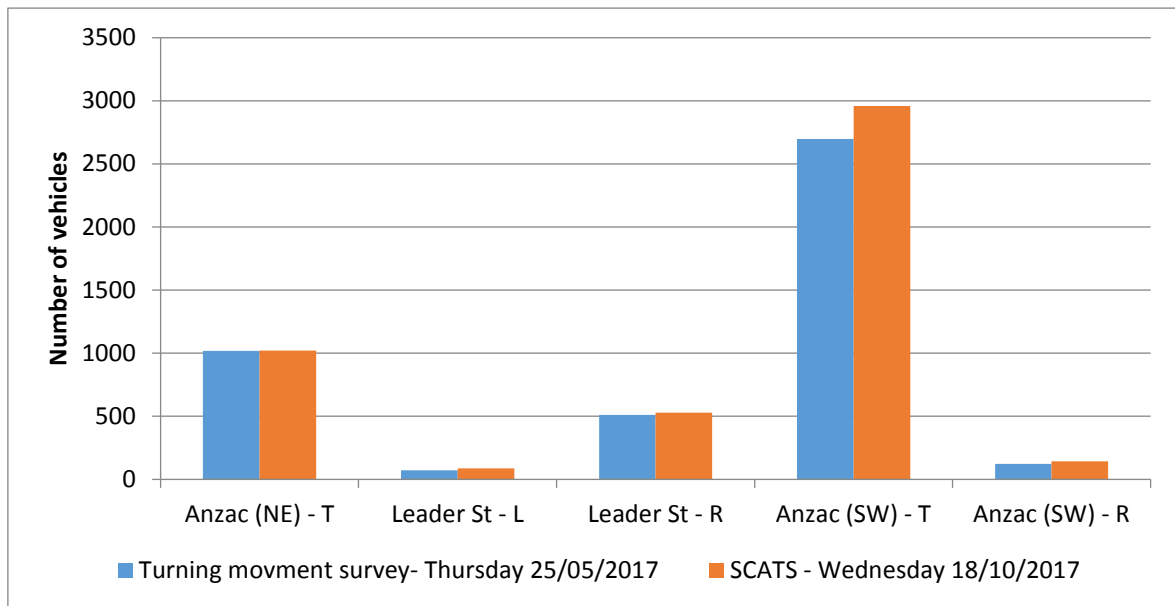


Figure 3 Comparison of turning counts - AM peak hour

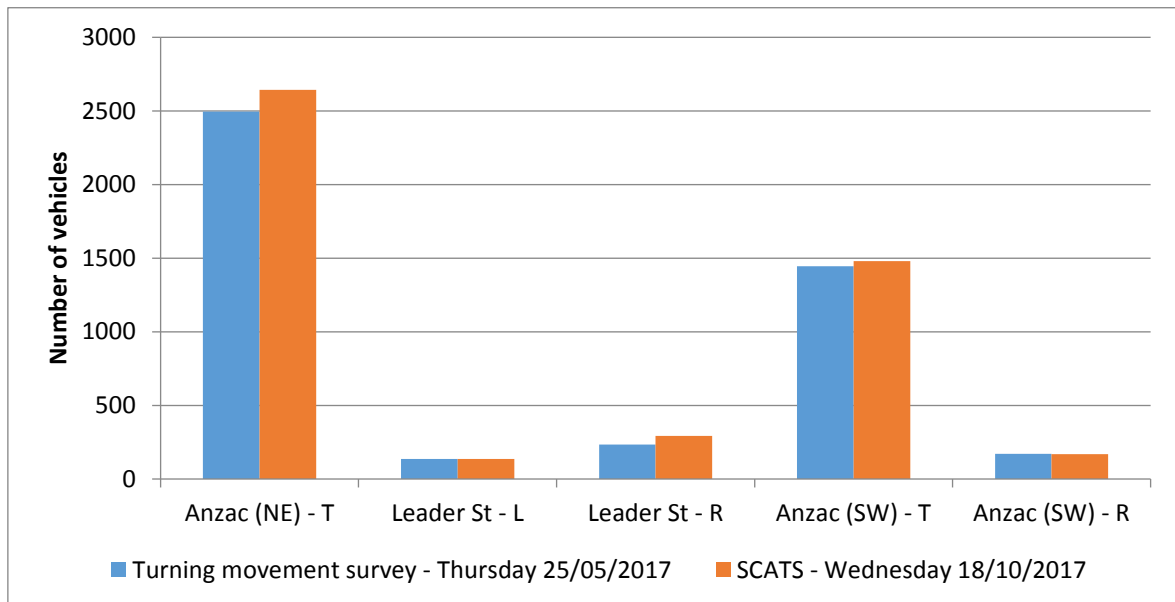


Figure 4 Comparison of turning counts - PM peak hour

Comparing the DPTI SCATS data volumes to the turning movement survey shows reasonably similar traffic volumes and peak periods, with SCATS data generally slightly higher. Given that turning movement surveys do not provide full traffic counts outside the peak hours, SCATS data have therefore been used for developing traffic demands of the model. For the left turn from Anzac Hwy to Leader St, where SCATS data is absent, the turning movement survey data has been used to supplement. Lastly, traffic demands at the junction of Maple St/ Anzac Highway junction have been developed from manual traffic counts from WGA Associates.

Aerial photography has been obtained Nemap. This has been used to code the network.

## **2.3 PUBLIC TRANSPORT**

The following Bus services have been modelled as of July to December 2017:

- 245: Hove - City via Anzac Highway
- 248: Marion Centre Interchange – City via Anzac Highway
- 248F: Marion Centre Interchange – City via Anzac Highway
- 262: Marion Centre Interchange – City via Anzac Highway
- 263: Marion Centre Interchange – City via Anzac Highway
- 265: Marion Centre Interchange – City via Anzac Highway
- 719: Flinders University – City via Anzac Highway
- 721: Noarlunga Centre Interchange – City via Anzac Highway
- 721F: Noarlunga Centre Interchange – City via Anzac Highway
- 722: Noarlunga Centre Interchange – City via Anzac Highway
- 722F: Noarlunga Centre Interchange – City via Anzac Highway
- 723F: Colonnades Centre Interchange – City via Anzac Highway
- M44: Marion Centre Interchange - Golden Grove Village Interchange – via Leader Street
- W90: Marion Centre Interchange - Paradise Interchange via Leader Street
- W91: St Marys – Marden via Leader Street

Bus stops that have been included in the model:

- Stops 2, 3, 4 Anzac Highway south east side
- Stops 2, 3, 4 Anzac Highway north west side
- Stop 6 Leader Street north side
- Stop 6 Leader Street south side

No Train services have been modelled.

## **2.4 NETWORK CODING AND TRAFFIC CONTROL PLANS**

All roads within extent of project have been modelled using DPTI standard road types. Speed limits of local streets within the model have been modified to reflect the posted speed limits. Furthermore, the turn parameter 'Visibility along Main Stream' of road type Local has been set from 20 m to 100 m to reduce aggressiveness of turning vehicles from local roads within the model.

Yellow box speeds at the junction of Anzac Highway and Maple Street have been reduced to calibrate to length of queues from observed results.

No other parameters have been modified.

AIMSUN control plans have been developed using the SCATS summaries provided by DPTI.



## 2.5 TRAFFIC DEMAND GENERATION

To adequately cover peak spreading for this network a 2 hour model period has been chosen. From the provided SCATS data the weekend AM peak hour occurs between 11.00AM – 12.00AM and the weekday PM peak occurs between 4.50PM and 5.50PM. The peak period has been centred around these peak hour periods.

Real Data Sets (RDS), which are used for validation process of the model, were created using the SCATS data for Anzac Highway/Leader Street junction provided by DPTI and manual traffic counts at Maple/ Anzac Highway junction recorded from site observations. Analysis of the DPTI provided SCATS data contained some anomalous counts with some values exceeding 500% of their adjacent time period values. These counts were identified as outliers and have been replaced with the average value of the remaining counts within the surrounding time period. Furthermore, data from the bicycle detectors located on the Leader Street approach have been excluded.

Preliminary Origin- Destination (OD) matrices for the AM and PM peak hours have been developed using a spreadsheet model from the VS data. As SCATS VS data does not differentiate traffic composition data from the turning movement survey has been adopted to develop commercial vehicle percentages.

# 3 MODEL CALIBRATION

---

The model calibration has been undertaken in accordance with DPTI's AMDM and the following criteria:

- Calibration criteria  $R^2 > 99.5$ .
- $GEH < 3$  for all turns included within the RDS.
- Report the average of 5 replications only using the standard DPTI seed values – 6422, 12841, 17906, 18370 and 22744.

Figures 5 and 6 demonstrate the observed vs modelled flows for both peak periods and the coefficient of determination  $R^2$  and peak hours shown within Figures 7 and 8.

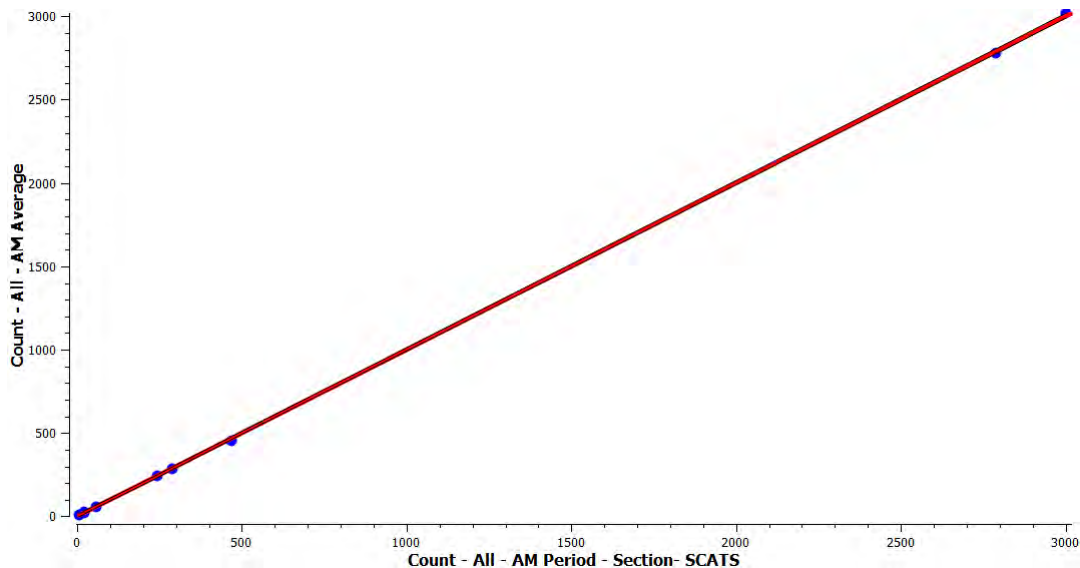


Figure 5 AIMSUN Modelled vs Observed Flow AM Peak Period (10:30AM – 12:30PM)



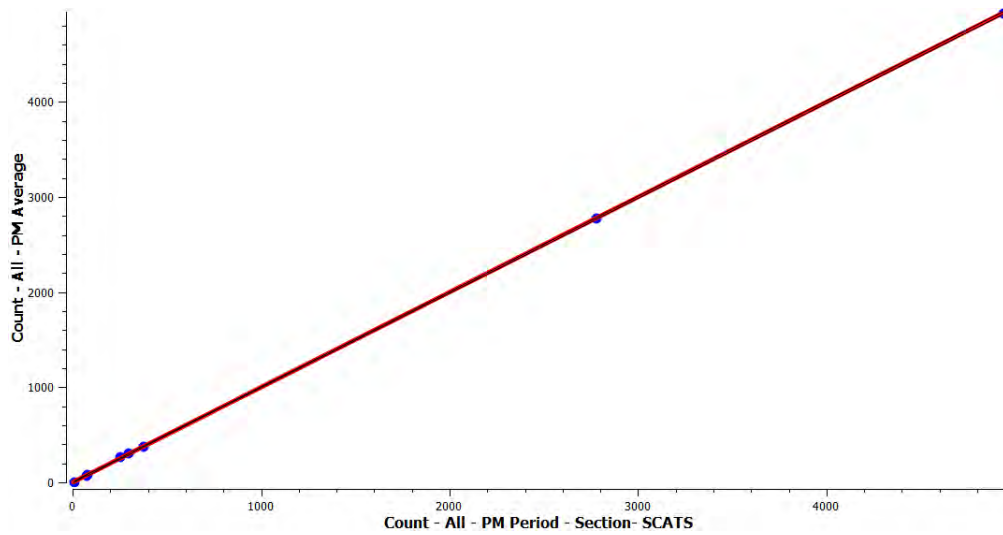


Figure 6 AIMSUN Modelled vs Observed Flow PM Peak Period (4:20PM – 6:20PM)

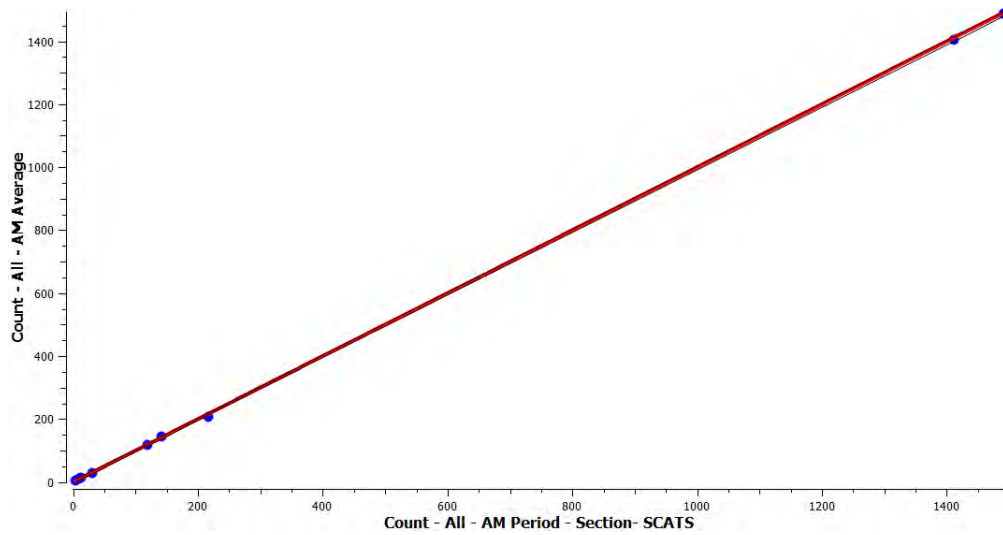


Figure 7 AIMSUN Modelled vs Observed Flow Peak Hour (11:00AM – 12:00PM)

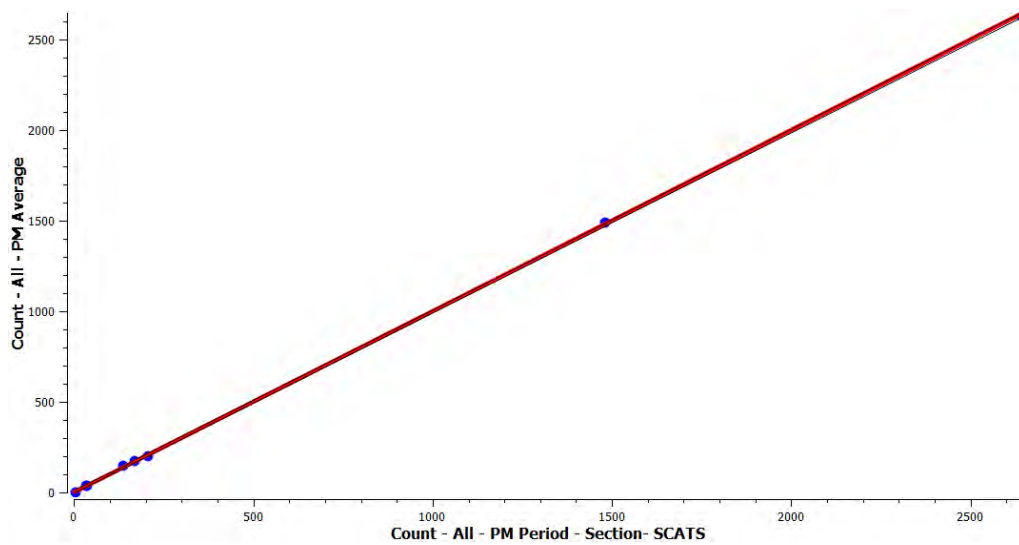


Figure 8 AIMSUN Modelled vs Observed Flow Peak Hour (4:50PM – 5:50PM)

Calibration results for defined locations for both peak hours are shown below within Tables 1 and 2.

Object	RDS	AM Average	Difference	Difference (%)	GEH	Criteria	Criteria Met
2251: Maple Ave (entrance lane)	30	29.8	-0.2	-0.7	0.04	< 10	Yes
2125: Leader St (left turn lane)	119	118.6	-0.4	-0.3	0.04	< 10%	Yes
2009: Anzac Hwy (right in)	10	9.6	-0.4	-4.0	0.13	< 10	Yes
1999: Maple Ave (right out)	4	4.4	0.4	10.0	0.20	< 10	Yes
1926: Anzac Hwy (right turn lane)	141	145.2	4.2	3.0	0.35	< 10%	Yes
1891: Maple Ave(exit lane)	12	13.4	1.4	11.7	0.39	< 10	Yes
1885: Leader St(right turn lane)	217	205.8	-11.2	-5.2	0.77	< 10%	Yes
1882: Anzac Hwy (southbound lane)	1411	1404.2	-6.8	-0.5	0.18	< 100	Yes
1879: Anzac Hwy (northbound lane)	1491	1488.6	-2.4	-0.2	0.06	< 100	Yes

Table 1 AIMSUN Calibration Criteria AM Peak Hour (11:00AM – 12:00PM)

Object	RDS	AM Average	Difference	Difference (%)	GEH	Criteria	Criteria Met
2251: Maple Ave (entrance lane)	37	37.6	0.6	1.6	0.10	< 10	Yes
2125: Leader St (left turn lane)	136	145	9	6.6	0.76	< 10%	Yes
2009: Anzac Hwy (right in)	33	33.8	0.8	2.4	0.14	< 10	Yes
1999: Maple Ave (right out)	4	1	-3	-75.0	1.90	< 10	Yes
1926: Anzac Hwy (right turn lane)	169	170	1	0.6	0.08	< 10%	Yes
1891: Maple Ave(exit lane)	37	36.6	-0.4	-1.1	0.07	< 10	Yes
1885: Leader St(right turn lane)	206	199	-7	-3.4	0.49	< 10%	Yes
1882: Anzac Hwy (southbound lane)	2644	2626.4	-17.6	-0.7	0.34	< 5%	Yes
1879: Anzac Hwy (northbound lane)	1480	1486.4	6.4	0.4	0.17	< 100	Yes

Table 2 AIMSUN Calibration Criteria PM Peak Hour (4:50PM – 5:50PM)

Queue length comparison is included within Table 3 below. Only PM peak queue length comparison was undertaken as this is the critical peak period.



PM		
Approach	Observed Q	Modelled Q
Leader Street @ TS 207	42 m	50 m
Anzac Highway (North East) @TS207	220 m	230 m
Anzac Highway (South West) @TS207	65 m	~ 100 m
Maple Ave (left out)	3 cars	3 cars
Anzac Hwy (right in) @ Maple Ave	4 cars	3 cars
Maple Ave (right out)	1 car	1 car

Table 3 Queue length comparison

# 4 SCENARIO ANALYSIS AND SUMMARY

The scenario analysis is based on the trip generation and distribution as outlined within the Traffic Impact Assessment Report. To summarise the proposed development includes the following three main access points:

- Full movement access/ egress from Maple Street (N)
- Full movement access/ egress from Leader Street (S)
- Left in and out access/ egress from Anzac Highway

Some additional time has been provided to Anzac Highway PM peak period to counter the marginal increased demand. Boom gates have been modelled at the 3 access points to model the potential impact to the surrounding network and to confirm exit delay. As outlined in more detail within the Traffic Assessment Report the site proposes to make use of the latest advancements in ticketless parking which effectively provide zero delay to entering traffic. However, as vehicles will be slowed by speed hump treatments to provide some separation between vehicles to enable accurate number plate recognition an average delay of 2 seconds has been modelled at the entry gates. This does not include the delay time for opening of barriers so represents a worst case sensitivity analysis scenario.

Comparison between the key performance indicators are included within Table 4.

Parameter	PM		SAT AM	
	Base	Scenario	Base	Scenario
Delay Time (sec/km)	25	38	18	31
Flow (veh/hr)	4904	5475	3734	4488
Mean Queue (veh)	22	33	14	23
Number of Stops (#/veh/km)	0.07	0.1	0.05	0.1
Speed (km/h)	43	41	45	41
Travel Time (sec/km)	91	104	85	98
Vehicles Waiting to Enter (veh)	0	0	0	0

Table 4 KPI Comparison

The difference in delay demonstrated within Table 4 is greater than what is typically expected due to the delay experienced within the site due to the requirement to model the impacts of the boom gate facilities. These delays are not experienced on the wider network as is demonstrated within the Anzac Highway travel times graphs with average differences typically measured in only several seconds. These are included within Appendix A.

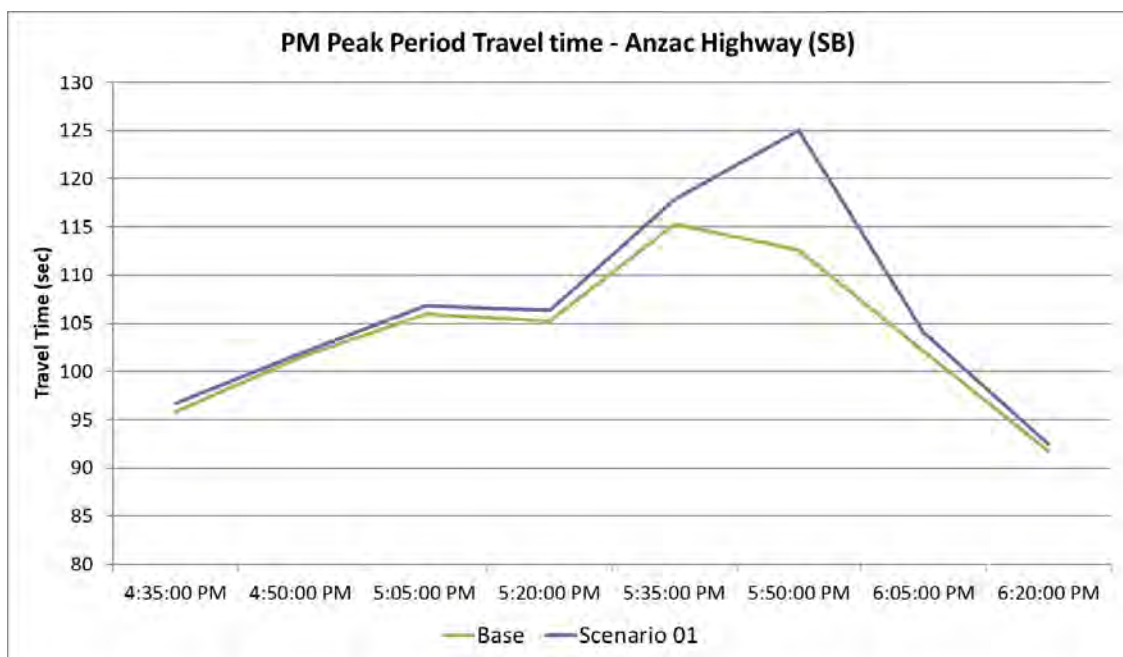
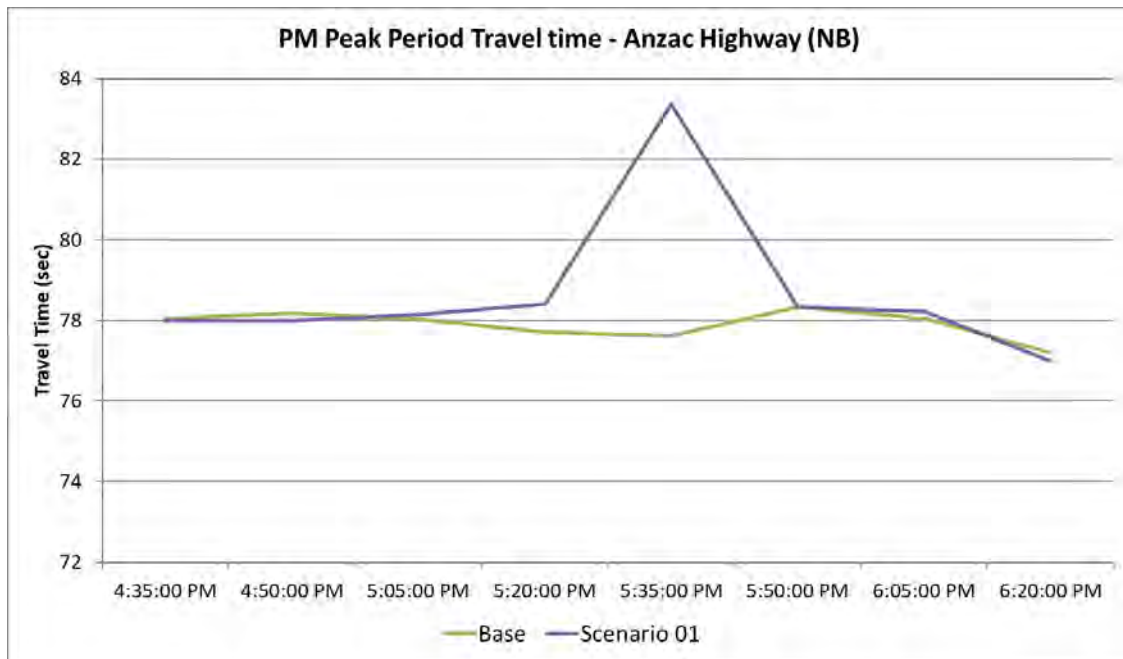
In summary the operation of the proposed Kaufland development results in marginal impact to the surrounding network in average delay and travel times.



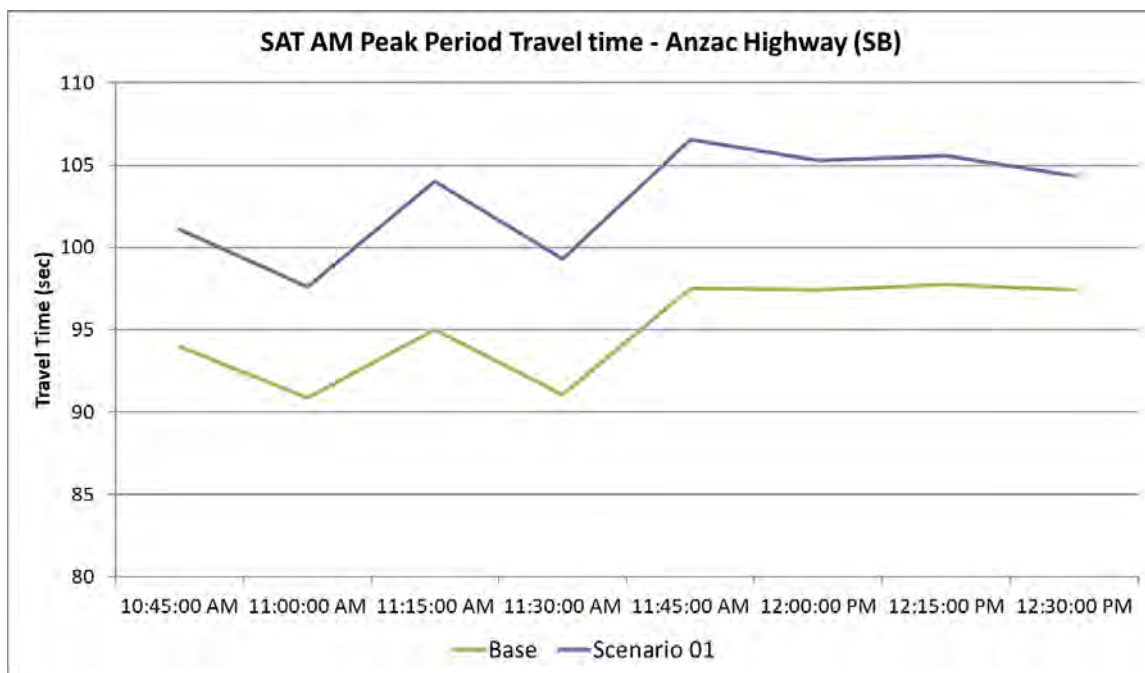
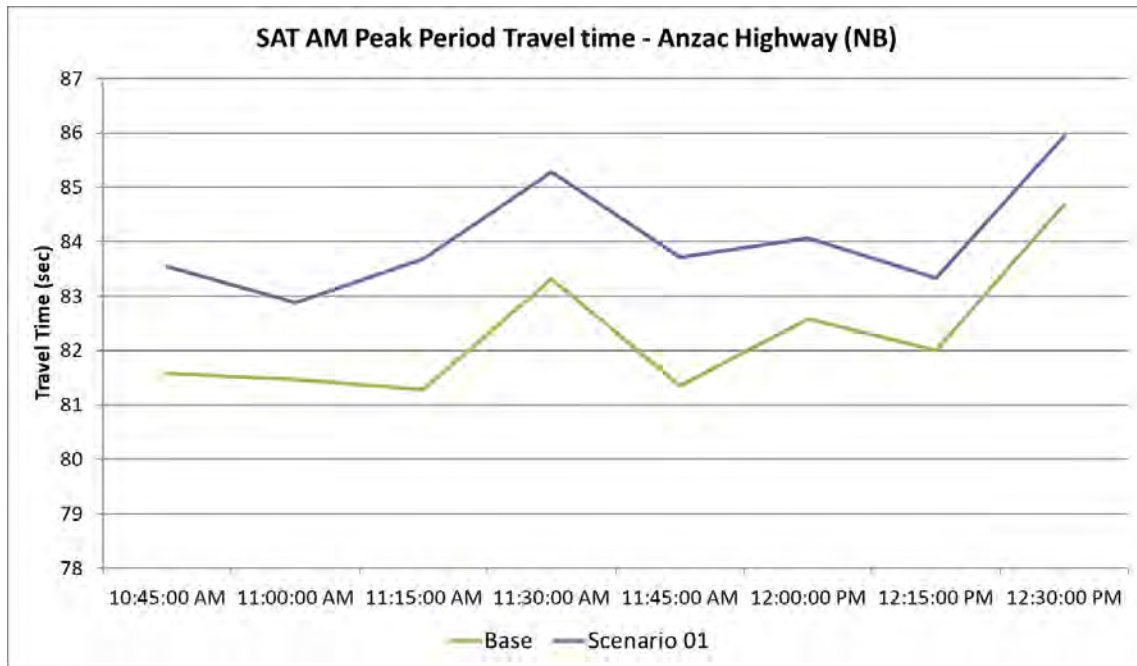
---

# APPENDIX A

## TRAVEL TIME COMPARISON





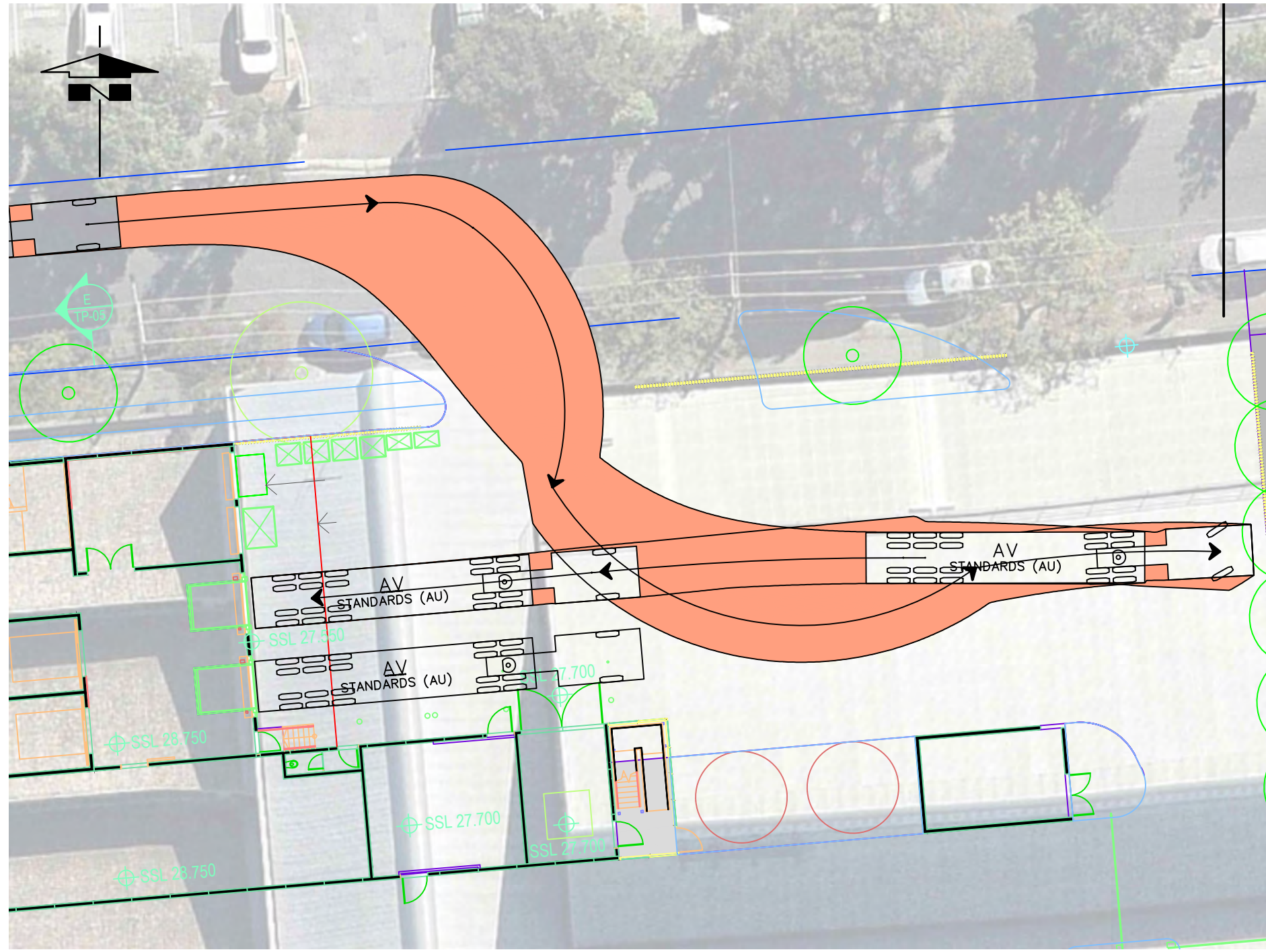


---

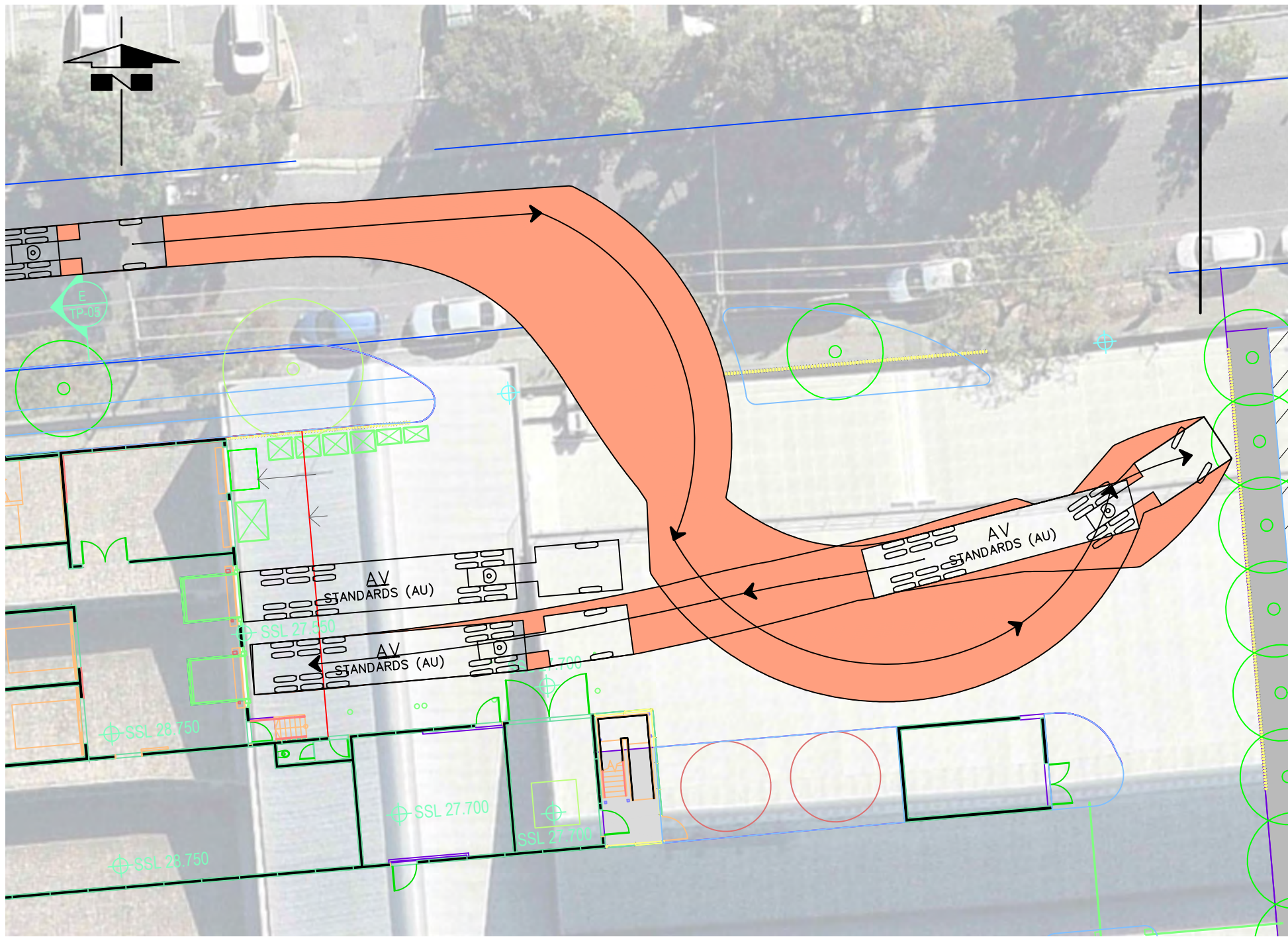
# APPENDIX F

## HEAVY VEHICLE TRACKING

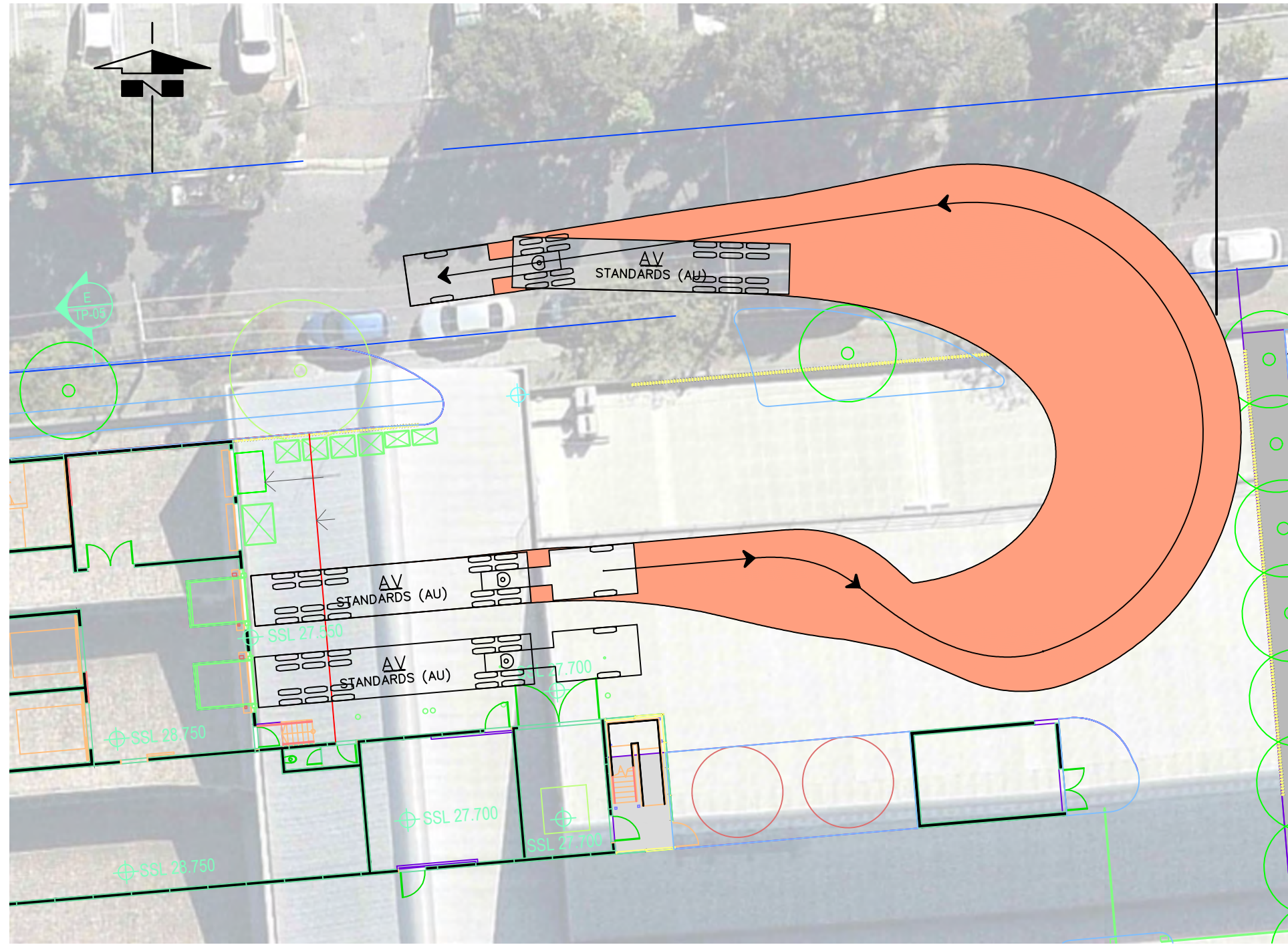




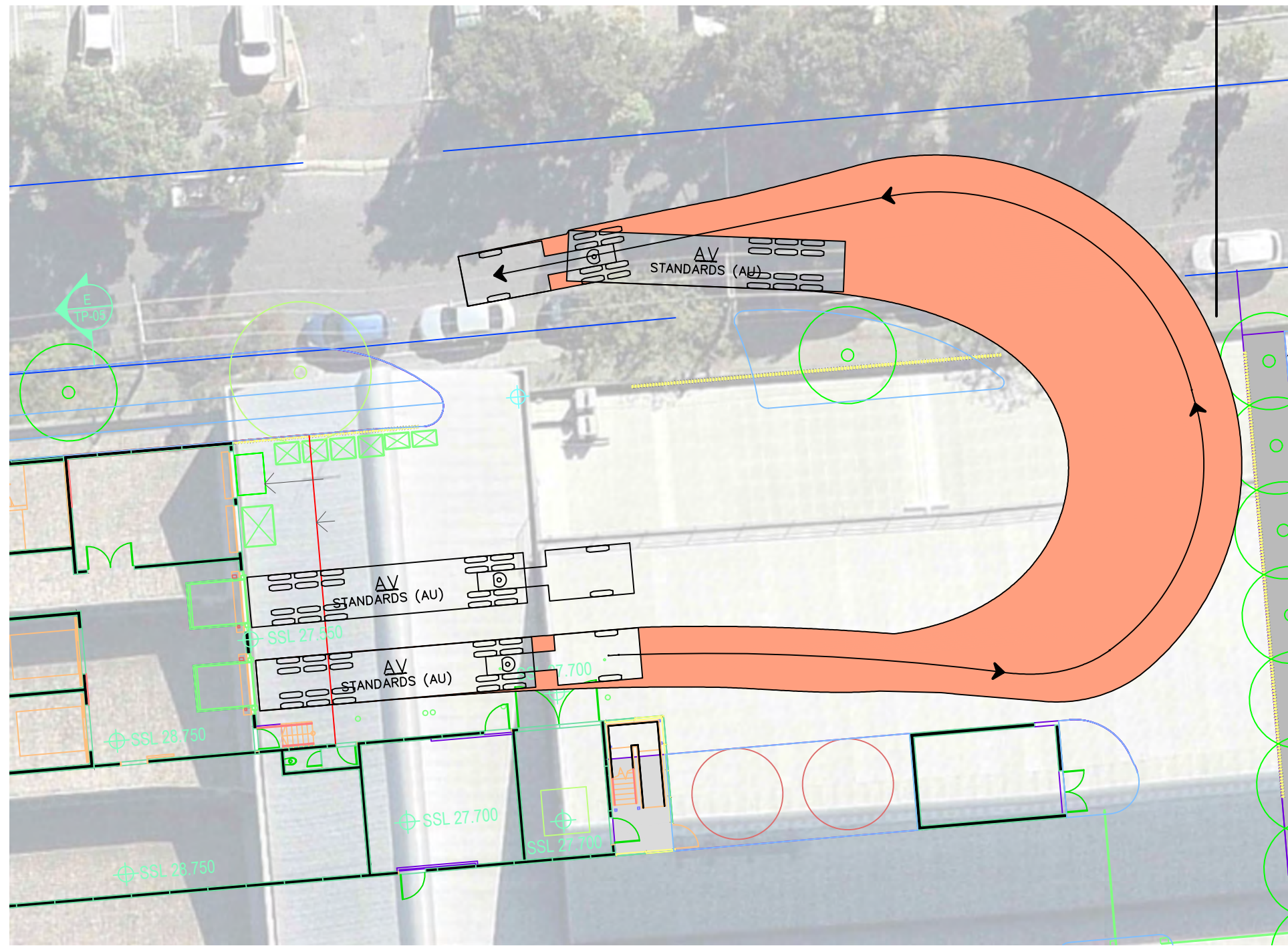
19m SEMI TRAILER - LOADING DOCK 1 - "ENTERING"



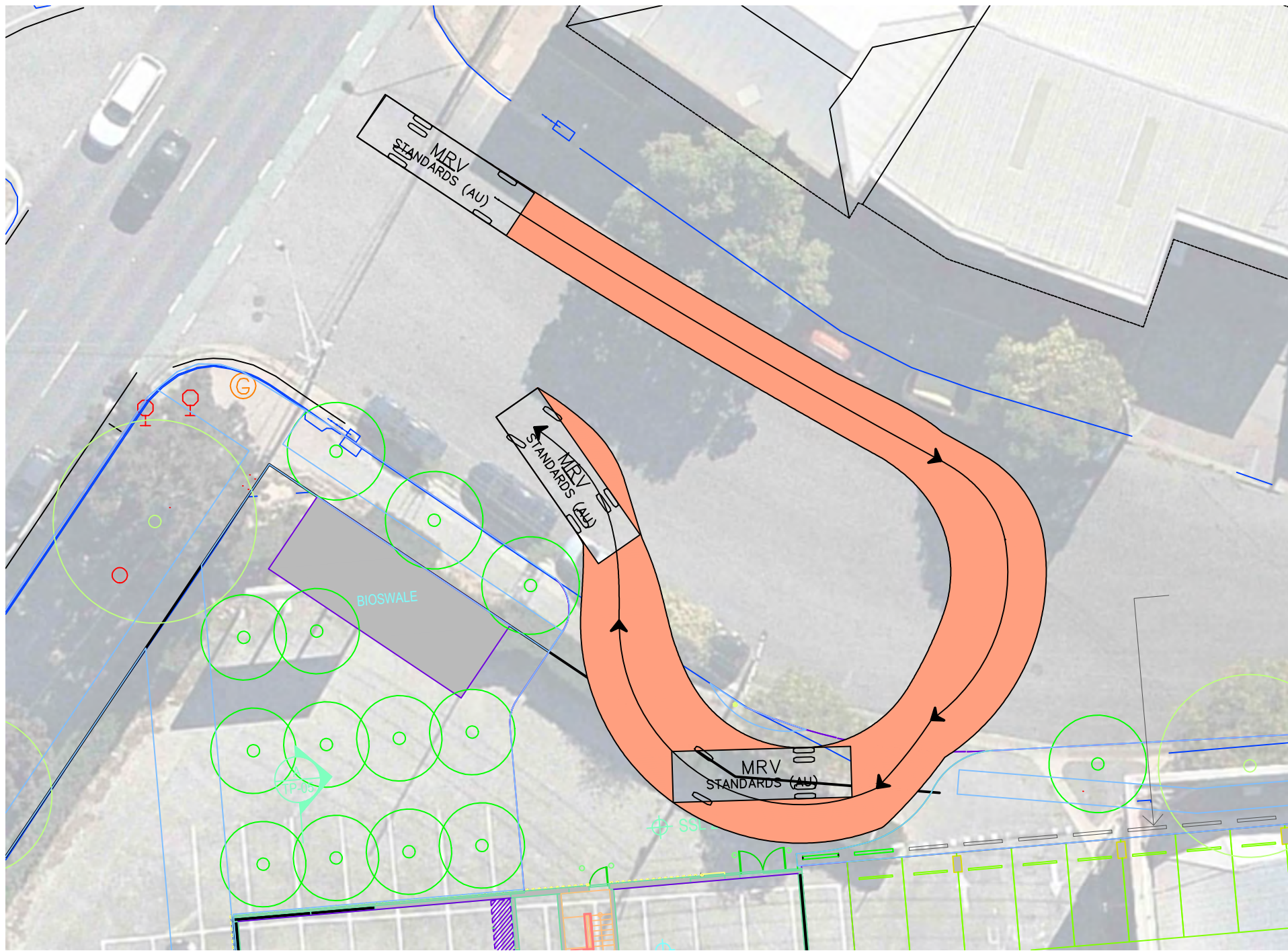
19m SEMI TRAILER - LOADING DOCK 2 - "ENTERING"



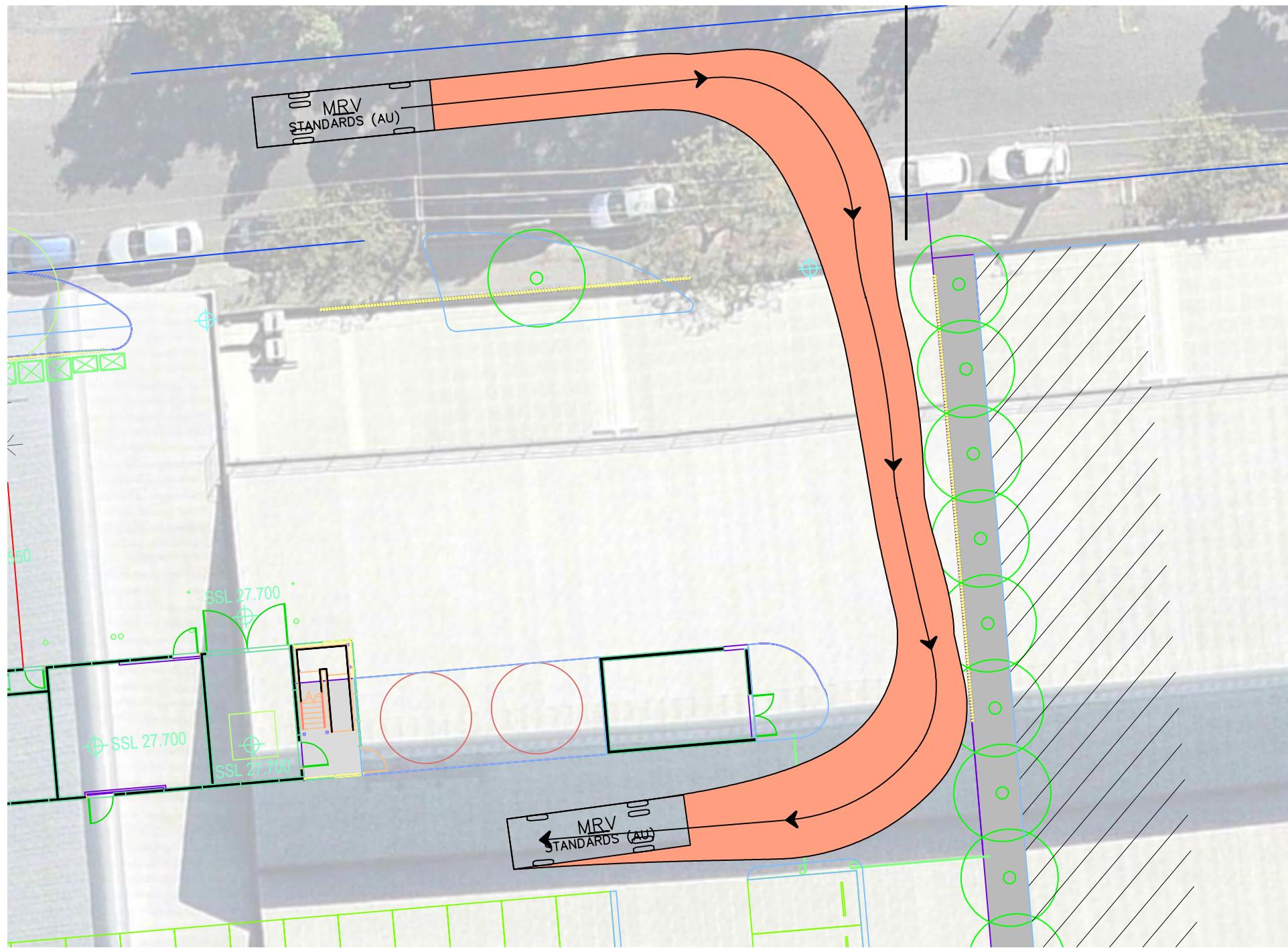
19m SEMI TRAILER - LOADING DOCK 1 - "EXITING"



19m SEMI TRAILER - LOADING DOCK 2 - "EXITING"



8.8m MRV - SECONDARY TENANTS LOADING DOCK



8.8m MRV - SECONDARY TENANTS LOADING DOCK

I:\2017\1710-171200\171147\_Kauland\171147\_SCSI.dwg, B, 12/7/2018 10:55 AM, jefry

When sheet printed full size, the scale bar is 100mm.

5 2.5 0 5 10  
SCALE BAR (m)

PRELIMINARY ISSUE NOT FOR CONSTRUCTION	REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHD	<b>WGA</b> WALLBRIDGE GILBERT AZTEC 60 Wyatt Street, Adelaide South Australia 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au	KAU LAND ORESTVILLE				
	TURNPATHS											
	A1											
	DRAWING NUMBER											
Design TB							Draught TB		ADL171147		Sheet No. B	





WALLBRIDGE GILBERT  
AZTEC

Heath Blacker  
PRINCIPAL

Telephone: 08 8223 7433

Email: HBlacker@wga.com.au

---

**ADELAIDE**

60 Wyatt St

Adelaide SA 5000

Telephone: 08 8223 7433

Facsimile: 08 8232 0967

**MELBOURNE**

Level 2, 31 Market St

South Melbourne VIC 3205

Telephone: 03 9696 9522

**PERTH**

634 Murray St

West Perth WA 6005

Telephone: 08 9336 6528

**DARWIN**

Suite 7/9 Keith Ln

Fannie Bay NT 0820

Telephone: 08 8941 1678

Facsimile: 08 8941 5060

**WHYALLA**

1/15 Darling Tce

Whyalla SA 5600

Phone: 08 8644 0432

**WALLBRIDGE GILBERT AZTEC**

[www.wga.com.au](http://www.wga.com.au)

[Adelaide@wga.com.au](mailto:Adelaide@wga.com.au)

---





WALLBRIDGE GILBERT  
AZTEC

## TECHNICAL NOTE

PROJECT: KAUF LAND AUSTRALIA – 10 ANZAC HIGHWAY FORESTVILLE

DATE: 03/08/2018

JOB NUMBER: 171147

TO: Samuel Russell-McLeod

AUTHOR: Jason Zafry

SUBJECT: UPGRADE OF ANZAC HIGHWAY AND LEADER STREET JUNCTION

### 1. BACKGROUND

DPTI have expressed concerns with the potential for increased congestion at the intersection of Anzac Highway and Leader Street post the development of the Kaufland Store on the old Le Cornu site.

The existing junction is already operating at or near capacity with the critical period occurring during the PM peak. The volume of traffic exiting from the CBD is such that any reduction in available green time has the potential to increase delays. This technical note provides a summary of a proposal to offset additional delay attributed to the increase in traffic from the development.

### 2. PROPOSAL

The proposal includes an additional right turn lane from Anzac Highway (S) into Leader Street. The additional lane minimises the amount of green time required to accommodate this movement which currently conflicts with the critical Anzac Highway southbound movement. This subsequently improves capacity and overall performance of the intersection offsetting the potential traffic impact from the development.

Our Design assumptions include:

- Length of auxiliary exit lane to accommodate 4 secs of travel at expected design speed of 40 km/h in accordance Austroads GRD 4A Section 5.5
- Traffic Signal Design compliant with AS1742.14 and DPTI Traffic Signal Faces
- Design vehicle – 19.0m Articulated Semi

To accommodate this upgrade the following modifications to the junction are required:

- Removal of existing median to accommodate new pavement for right turn lane
- Removal of existing 5 x Palm trees within median
- Modifications to NE high entry island
- Modification of median on Leader Street
- Widening of Leader Street exit
- Removal of some on street parking
- Land from Kaufland to accommodate new footpath
- Modifications to traffic signals and upgrade to road lighting

60 Wyatt Street  
Adelaide SA 5000  
T: 08 8223 7433  
WGASA Pty Ltd  
ABN 97 617 437 724

A concept plan of this proposal is included within Attachment A and turn path analysis within Attachment B

There is an existing HV stobie pole located within the north east left turn island. This is a 'cross' pole (pole that carries HV and LV lines in two directions), removing it would also impact four other up and down line poles as they would be required to be upgrade to 'end poles' (poles that transition overhead lines to underground). The extent of undergrounding and impacted overhead poles is shown below in Figure 1. Effectively all the overhead lines currently shown below in cyan would now be required to be undergrounded to be able to remove the central pole. This would require trenching across both Anzac Highway and Leader Street.

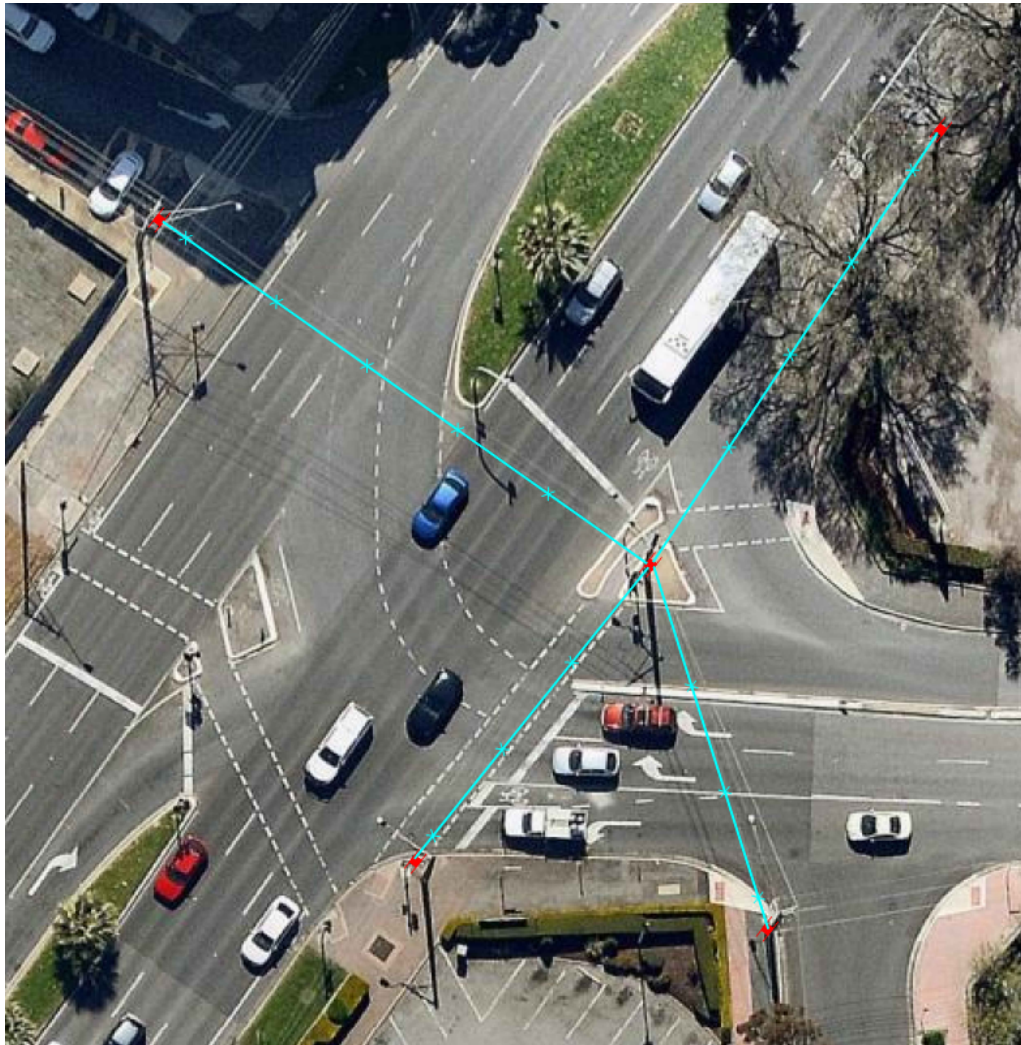


Figure 1 – SAPN Stobie Poles and overhead cables

Considering this impact, it is not recommended to consider removal of this stobie pole. Even with the reduced island size the stobie pole is still located a minimum of 1.2 m from the carriageway. This is still further than DPTI Mast Arm poles which also are a rigid structure located only 1.0 m from the edge of carriageway.

### 3. RECOMMENDATION

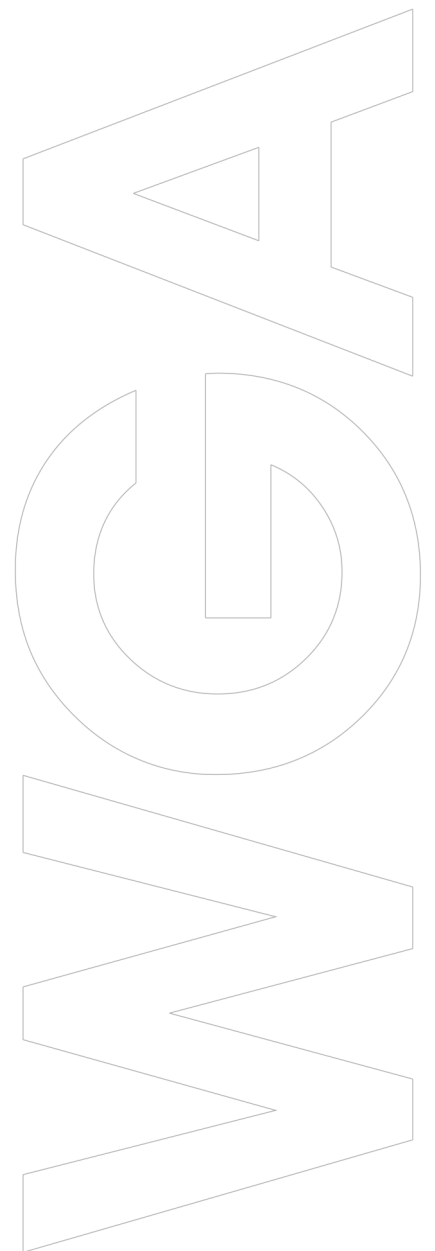
In summary we recommend the attached proposal to ameliorate DPTI's concerns regarding the potential increase in delay imposed by the proposed development.

The attached concept design demonstrates that two right turns can be accommodated by narrowing the median on the southern approach along with some minor signals modifications without relocation of the aforementioned stobie pole.

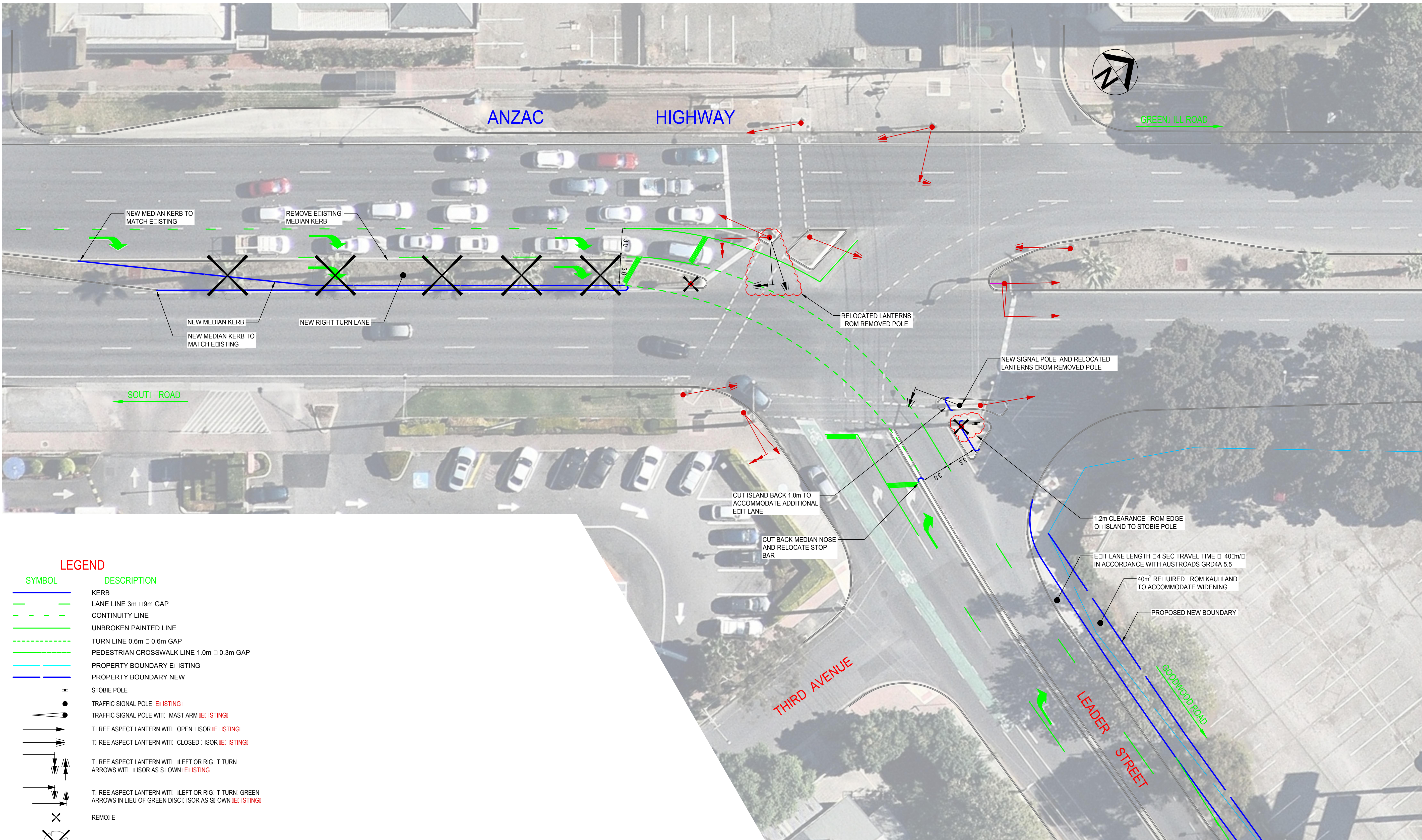


---


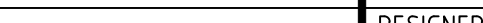
**ATTACHMENT A**  
**CONCEPT PLAN**







LEGEND	
SYMBOL	DESCRIPTION
	KERB
	LANE LINE 3m @ 9m GAP
	CONTINUITY LINE
	UNBROKEN PAINTED LINE
	TURN LINE 0.6m @ 0.6m GAP
	PEDESTRIAN CROSSWALK LINE 1.0m @ 0.3m GAP
	PROPERTY BOUNDARY EXISTING
	PROPERTY BOUNDARY NEW
	STOBIE POLE
	TRAFFIC SIGNAL POLE (EXISTING)
	TRAFFIC SIGNAL POLE WITH MAST ARM (EXISTING)
	TRAFFIC ASPECT LANTERN WITH OPEN ISOR (EXISTING)
	TRAFFIC ASPECT LANTERN WITH CLOSED ISOR (EXISTING)
	TRAFFIC ASPECT LANTERN WITH LEFT OR RIGHT TURN
	ARROWS WITH ISOR AS SHOWN (EXISTING)
	TRAFFIC ASPECT LANTERN WITH LEFT OR RIGHT TURN GREEN ARROWS IN LIEU OF GREEN DISC ISOR AS SHOWN (EXISTING)
	REMOVE
	TREES TO BE REMOVED

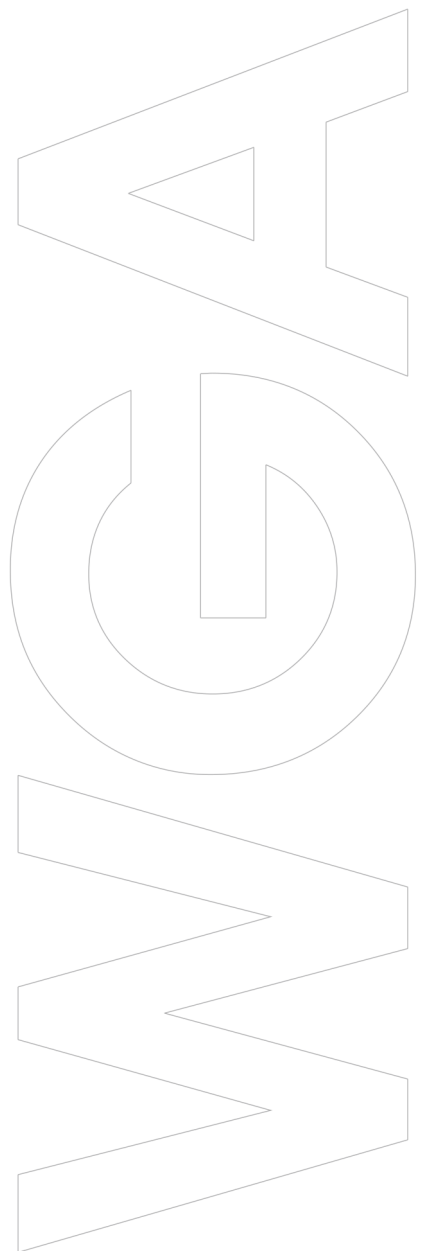
					INDEX SHEET REFERENCE: SHEET		CONCEPT ONLY NOT FOR CONSTRUCTION		<div>WGA</div> <div>WALLBRIDGE GILBERT AZTEC</div> <div>60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au</div>		<div></div> <div>Government of South Australia</div> <div>Department of Planning, Transport and Infrastructure</div>		<div>PROJECT No.: DESIGN No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE:</div>		<div>FILE No.: SURVEY No.:</div>		ROAD No. 6212/6197 ANZAC HIGHWAY JUNCTION LEADER STREET TRAFFIC SIGNALS					SIGNAL No.: TS207												
A PRELIMINARY CONCEPT					SC		JZ		03.08.18																									
No. AMENDMENT DESCRIPTION					BY		CHECK		ACCEPTANCE		DATE		UNCONTROLLED COPY WHEN PRINTED		100 MILLIMETRES ON ORIGINAL DRAWING		ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE		<div>SCALES: </div>		<div>DESIGNED: WGA CHECKED: WGA</div>		<div>DRAFTED: WGA CHECKED: WGA</div>		<div>ACCEPTED FOR USE: TITLE: DATE:</div>		<div>ACCEPTANCE FORM KNET No.: IN ACCORDANCE WITH DP013</div>		<div>DRAWING No.: 171147</div>		<div>SHEET No.: 26</div>		<div>AMEND No.: A</div>	
																					SHEET LATITUDE -34.949062 SHEET LONGITUDE 138.577027													

CAD FILE NAME: 171147-SSK26.DWG



---

**ATTACHMENT B**  
**TURN PATHS**







A PRELIMINARY CONCEPT					INDEX SHEET REFERENCE: SHEET		CONCEPT ONLY NOT FOR CONSTRUCTION		WGA WALLBRIDGE GILBERT AZTEC 60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email adelaide@wga.com.au		SOUTH AUSTRALIA Government of South Australia Department of Planning, Transport and Infrastructure		PROJECT No.: FILE No.: DESIGN No.: SURVEY No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE:		ROAD No. 6212/6197 ANZAC HIGHWAY JUNCTION LEADER STREET TURN PATHS		DESIGNED: WGA CHECKED: WGA ACCEPTED FOR USE: WGA		ACCEPTANCE FORM KNET No.: DRAWING No.: 171147		SHEET No.: 35		AMEND No.: A	
BY SC JZ 03.08.18					UNCONTROLLED COPY WHEN PRINTED		100 MILLIMETRES ON ORIGINAL DRAWING		WGA JOB NUMBER ADL171147		ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE		SCALES: 4 0 2 4 6 8		TITLE: DATE:		IN ACCORDANCE WITH DP013		SHEET LATITUDE -34.949062 SHEET LONGITUDE 138.577027					





Kaufland

**Kaufland – 10  
Anzac Hwy  
Stormwater  
Management  
Plan**

**REPORT**

Job No. WME170735 / Rev E  
11 July 2018



---

#### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	07.12.17	DRAFT	EH	EH	
B	19.12.17	APPROVAL	EH	EH	
C	02.03.18	APPROVAL	EH	EH	
D	08.03.18	APPROVAL	EH	EH	
E	11.07.18	APPROVAL	CH	CH	



# CONTENTS

---

<b>1 Stormwater Management Plan .....</b>	<b>1</b>
1.1 Introduction.....	1
1.1.1 Catchment Description .....	1
1.1.2 Existing Stormwater Infrastructure .....	1
1.1.3 Existing Flood Mapping .....	2
1.1.4 Council Requirements .....	3
1.2 Stormwater Management Methodology .....	3
1.2.1 Catchments & Outfalls.....	3
1.2.2 Detention and Retention.....	3
1.2.3 Water Quality.....	5
1.2.4 Site Levels .....	6
1.3 Summary.....	6

## **Appendices**

**Appendix A** Existing Survey & Preliminary Site Plan

**Appendix B** Catchment Plans

**Appendix C** Flood Mapping

**Appendix D** Council Correspondance

**Appendix E** Calculations

**Appendix F** Stormwater Management Plan

# 1 STORMWATER MANAGEMENT PLAN

---

## 1.1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland to prepare a preliminary stormwater management report for the proposed commercial development at 10 Anzac Highway, Forestville in the City of Unley. It is understood the proposed development will comprise a new supermarket building, including loading dock and storage, undercroft parking at grade open carparking facilities and landscaped areas. Refer to Appendix A for a copy of the preliminary site plan.

The development of this Stormwater Management Plan (SMP) has included communications with the City of Unley as well as review of a fact sheet provided by the City of Unley regarding stormwater management requirements and the current Brownhill Creek Flood mapping.

This report is intended to conceptually outline the stormwater design for the proposed development and detail the stormwater management methodology. A final detailed design should be carried out to provide construction documentation and incorporate the stormwater design principles outlined in this report. The final documentation is considered to be beyond the scope of this report.

### 1.1.1 Catchment Description

The site is located approximately 3km south- west of the Adelaide CBD, bounded by Anzac Highway, Leader Street and Maple Avenue.

The site is currently developed and was the site of the Le Cornu Complex. The site is a long term commercial and industrial site.

### 1.1.2 Existing Stormwater Infrastructure

Locations SA (<http://location.sa.gov.au/viewer/>) drainage layers were reviewed along with site survey to understand the existing stormwater infrastructure.

Existing plans show no existing underground stormwater infrastructure in Maple Avenue, and it was observed onsite that existing downpipes discharge to the kerb and drain to a side entry pit at the corner of Maple Avenue and Anzac Highway.

There is an existing stormwater drain in Anzac Highway which has a size of 450-600mm diameter (note: survey and Locations SA have differing records), this site survey shows a connection to this drain from the site, via side entry pits in Anzac Highway (Outfall #1). The Anzac Highway drain discharges to Brownhill Creek approximately 200m south of the site.



There are two stormwater drains in Leader Street, to the west a number of side entry pits connect back to the Anzac Highway drain (Outfall #2), and from Second Avenue there are side entry pits and a 900mm diameter drain which drains to Brownhill Creek via Second Avenue (Outfall #3). It is assumed that the majority of the existing roof discharges to the drain to the east (Outfall #3), and the existing carpark drains and small portion of the roof drain to the west and the Anzac Highway drain (Outfall#2).

An image from Locations SA is provided below.



**Figure 1 Existing drainage outfalls**

Reference: <http://location.sa.gov.au/viewer/>

Existing site catchment plans are provided in Appendix B outlining the assumed existing drainage connections.

### 1.1.3 Existing Flood Mapping

Existing floodplain mapping has been undertaken by Council for the area due to the flooding from Brownhill Creek (to the south of the site) and Keswick Creek (to the north of the site). There is a Stormwater Management Plan in place for the catchment to reduce the flood extents, however delivery dates for the upgrade works have not been confirmed therefore the development will need to assume the existing flood mapping conditions as current for the purpose of this development. A copy of the existing Flood Mapping overlay is provided in Appendix C.

The proposed Finished Floor Levels for the building have been with respect to this mapping, as outlined in Section 1.2.4 and overland flow paths have been maintained across the site for major flood events.

#### 1.1.4 Council Requirements

Communication with The City of Unley commenced on the 21<sup>st</sup> September 2017, to ascertain guidance on the stormwater management requirements for the site. Matthew Sanderson (City of Unley) provided references including;

- The City of Unley Development and Stormwater Management Design Guidelines
- High Resolution Flood Mapping Brownhill & Keswick Creek 100yr ARI base case
- Leader Street Streetscape Upgrade detailed design drawings

These documents were used to understand the stormwater management requirements, existing surrounding infrastructure and potential flood risk. The key criteria outlined for the site stormwater management requirements were determined to be;

- Maximum outflow from the site equivalent to 1 in 5 year ARI (45min) pre-development rate based on a predevelopment percentage impervious 80%.
- Combined Rainwater Harvest Tanks (RWT) and Water Sensitive Urban Design (WSUD) elements will be integrated into the site design and OSD calculations.
- Maximum discharge rate to kerb of 4L/s per outlet in 5 year ARI.
- 300mm freeboard above the 100 year floodplain to habitable floor space.
- Best Practice Stormwater Quality Reduction Targets met.

A copy of the correspondence with Council is provided in Appendix D.

## 1.2 STORMWATER MANAGEMENT METHODOLOGY

The stormwater management methodology is outlined below and presented on the Stormwater Management Plan in Appendix F.

### 1.2.1 Catchments & Outfalls

There are three existing catchment outfalls on the site as shown in Figure 1. The stormwater management methodology has been designed to match the existing catchments conditions to each outfall where possible to minimise the risk of overloading any existing drainage network, as outlined on the proposed site catchment plan is provided in Appendix B.

### 1.2.2 Detention and Retention

To satisfy Council's On Site Detention (OSD) requirement, the maximum outflow from the site must be no greater than the equivalent of 1 in 5 year ARI (45min) pre-development rate based on a predevelopment percentage impervious 80%. An OSD calculation for the total site was undertaken, the parameters and result are outlined in Table 1.

**Table 1 Overall Site OSD Requirement**

Preliminary OSD (Whole of Site)	
Total Site Area (ha)	2.05ha
Intensity 5 year ARI (45min)	26.1mm/hr
Pre-development Flow (Q5) 5 yr ARI (45min) @ C=0.8	119L/s
Post-Development C value	0.9
OSD Total Site	147kL



As the site has three outfalls therefore the OSD requirement designed accommodates this as outlined in Table 2a and 2b. As the new sub-catchments have different times of concentration, the refined OSD calculation as outlined in Table 2b provide subcatchment OSD breakdowns and total which have been accommodated in the strategy.

**Table 2a Maximum Allowable Discharge - Based on 5 year ARI (45min) pre-development Flow**

Drainage Catchment	Existing Catchment Area (ha)	Pre-Development C (Council specified) *	Intensity 5yr ARI 45min (mm/hr)	Q <sub>allowable</sub> ** (m3/s)
Outfall #1	1.45	0.8	26.1	0.084
Outfall #2	0.35	0.8	26.1	0.020
Outfall #3	0.25	0.8	26.1	0.015
<b>Total</b>	<b>2.05</b>			<b>0.12</b>

\* Assumes 80% paved existing condition

\*\* Q<sub>allowable</sub> – maximum outfall discharge (based on C=0.8 Q5)

**Table 2b OSD Requirement (per sub-catchment) – Assuming no WSUD**

Drainage Catchment	New Catchment Area (ha)	Q <sub>allowable</sub> * (m3/s)	OSD Volume <sup>#1</sup> (kL)
Outfall #1	1.195	0.084	67
Outfall #2	0.465	0.020	50
Outfall #3	0.39	0.015	44
<b>Total</b>	<b>2.05</b>		<b>161</b>

\*\* Q<sub>allowable</sub> – maximum outfall discharge (based on C=0.8 Q5)

# Assumes no WSUD

In keeping with the City of Unley Guidelines and discussions with Council the stormwater management methodology aims to integrate WSUD and rainwater harvesting for a more holistic outcome. Therefore a combined storage strategy based on Rainwater Tanks (RWT) for reuse, raingarden for detention storage (and infiltration) and OSD tanks is proposed for the site. Acknowledging that RWTs can be partially full during a rain event, where RWTs have been assumed to provide OSD, only 40% of the total capacity has been considered for OSD, as outlined in Table 3.

It is noted that the City of Unley's "Development and Stormwater Management Design Guide (September 2016) provides recommendation for the split of retention and detention for Commercial sites however this only caters for site up to 2,500m<sup>2</sup>. This site is significantly larger and is not strictly therefore covered by the requirements of the Design Guide.

The proposed combined storage strategy is outlined in Table 3.

**Table 3 Proposed Combined OSD & Retention Integrating WSUD & RWTs**

Drainage Catchment	OSD volume required (kL)	RWT Volume (kL)	35% RWT Volume <sup>1</sup> (kL)	OSD Tank (kL)	OSD (Raingarden) <sup>3</sup> (kL)	Total (kL)	Target Met?
Outfall #1	67	90	36	0	34	70	Yes
Outfall #2	50	0	0	25	25	50	Yes
Outfall #3	44	0	0	15	29	44	Yes
<b>Total</b>	<b>161</b>	85	42.5	40	88	<b>165.5</b>	

RWT = Rain Water Tank (plumbed reuse)

OSD = On Site Detention Tank (slow release with orifice control)

OSD (Raingarden/bioswale) = On Site Detention within Raingarden (based on a 200 (swale) -250mm (raingarden) ponding depth)

<sup>1</sup> Only 40% of RWT volume considered in OSD assessment to allow a partially full tank in storm event given the daily draw-down it is assumed that rainwater tanks will provide OSD capacity.

<sup>2</sup> Based on 200-250mm ponding depth in raingarden. (Subject to final design intent, the actual area available for OSD area may be up to 80% of total area due to batters, the above calculation has accommodated this reduction).

Filter Areas to raingardens are less than the total area the filter area is sized to meet the treatment requirement.

Supporting calculations including the rainwater tank reuse figures as determined by the Services Engineer are provided in Appendix E.

### 1.2.3 Water Quality

The stormwater management methodology integrates raingardens and rainwater tanks for treatment and reuse. In accordance with the City of Unley water quality requirements these elements have been sized to achieve the pollutant reduction targets outlined in Table 4. A MUSIC model has been produced to review pollutant reduction across the site for the proposed stormwater management methodology and the results are outlined in Table 4, with summary of the modelling provided in Appendix E.

**Table 4 Water Quality Targets**

	City of Unley Reduction Target	MUSIC Modelling Result		
		Outfall #1	Outfall #2	Outfall #3
Gross Pollutants	90%	100%	100%	100%
Suspended Solids	80%	94%	93%	97%
Total Phosphorous	60%	74%	61%	77%
Total Nitrogen	45%	60%	60%	68%

All stormwater pits provided to collect runoff from trafficable areas will be grated inlet pits.

Additional water quality treatment will be provided to the loading dock, where the site grading will not allow the pavement to fall to a raingarden. A Humeceptor or similar approved treatment unit will be installed to remove total suspended solids and entrained hydrocarbons from runoff.



#### 1.2.4 Site Levels

The site is located in the floodplain as shown in Appendix C, therefore the habitable floor space is to be set a minimum 300mm above the adjacent floodplain.

The majority of the ground floor is at-grade carparking therefore the minimum FFL requirement is not required to be met, therefore the levels will be designed to match into existing and have grading to suit access requirements and drainage flow paths. However, the minimum floor levels to the office and plant within the loading area and the first floor escalator access and entry will be set in accordance with the flood plain as outlined in Table 5 and shown on plan.

**Table 5 Proposed Minimum Finished Floor Levels**

	<b>Estimated Existing Flood Level</b>	<b>Minimum FFL (+300mm)</b>	<b>Adopted Minimum FFL</b>
<b>Service Area</b>	27.1m	27.4m	27.4m
<b>Escalator Access/Entry</b>	26.8 m	27.1m	27.4m*

\*To suit architecture plan and achieve flood freeboard at entry.

### 1.3 SUMMARY

The stormwater management methodology adopts an integrated design including WSUD and traditional OSD. The Stormwater Management Plan provided in Appendix F outlines the proposed concept for managing stormwater runoff across the site and discharging to Council drains at one of three outfalls to meet the OSD requirements outlined by Council.

The stormwater management methodology has reviewed the floodplain mapping for the area provided by Council and acknowledges the estimated 100 year ARI flood levels around the site. The proposed finished floor levels for all habitable areas have therefore been set a minimum 300mm above the expected 100 year ARI flood level to mitigate the risk of flood waters on habitable zones and entry.

The calculations and plans contained within this report have been prepared to demonstrate the philosophy behind the proposed treatment of the stormwater runoff from this development. The information provided is preliminary and will be subject detailed design and documentation.

---

# APPENDIX A

## EXISTING SURVEY & PRELIMINARY SITE PLAN



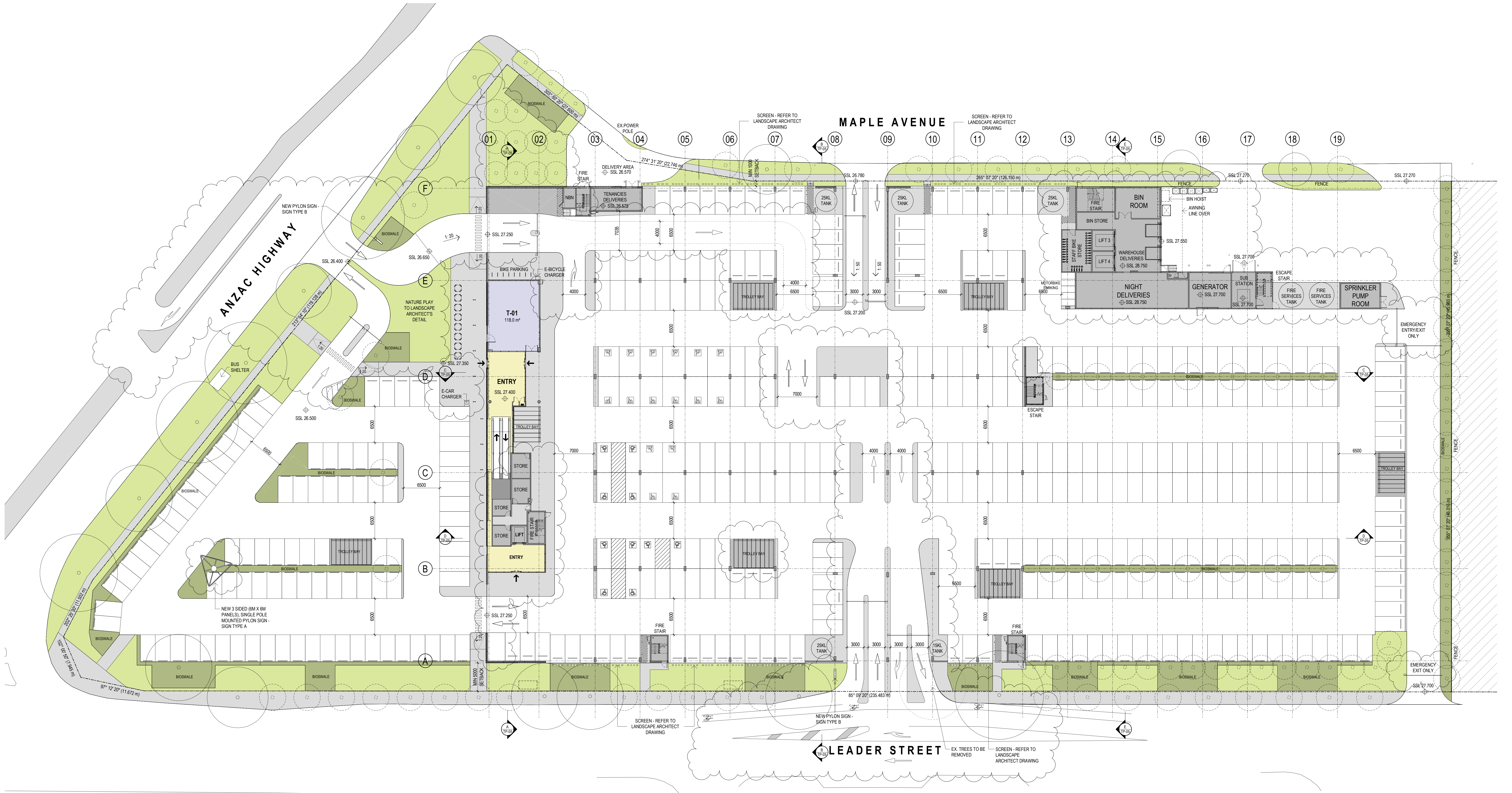


07.07.2017 A B C D	ORIGINAL ISSUE SERVICE TOPSTONES / OVERHEAD WIRES ADDITIONAL ROOF HEIGHTS, INVERTS POWERLINE HEIGHTS MAPLE AVE ADDED LE CORNU SIGN ELEVATIONS ADDED	CB TLH HJD NLT RES RES	AMX TLH HJD NLT RES RES
<div>47.36V7 WATER TABLE</div> <div>45.16FL FLOOR LEVEL</div> <div>48.12IL INVERT LEVEL</div> <div>TEL COMM. PILLAR / PIT</div> <div>TRAFFIC LIGHT</div> <div>SIGN / BUS SIGN</div> <div>BOREHOLE</div> <div>WATER METER</div> <div>SPRINKLER / IRRIG VALVE</div> <div>HYDRANT</div> <div>DOMESTIC OUTLET</div> <div>DOWNPIPE</div> <div>DOMESTIC SUMP</div> <div>STORMWATER WHOLE</div> <div>SEP / GRATING</div>			
<div>PSM</div> <div>PEQ / TBM</div> <div>SURVEY MARKS</div> <div>POWER / LIGHT POLE</div> <div>CABLE MARKER</div> <div>STOBIE / WOODEN POLE</div> <div>POST / BOLLARD</div> <div>SEWER MH / IO / SIP</div> <div>UNKNOWN POINT / SERVICE</div>			
<div>EDGE OF VEGET</div> <div>ROAD SIGN / HOARD</div> <div>TREE / SHRUB</div> <div>Possible REGULATED / SIGNIFICANT TREE by measurement only (trunk greater than 2.0m dia @ 1.4m above ground) - call council or arborist required.</div> <div>WATER PIPE UG</div> <div>BUILDING</div> <div>WALL</div> <div>GI BUILDING</div> <div>CONCRETE</div> <div>FENCE</div> <div>GATE</div>			
<div>BOTTOM OF BANK</div> <div>TOP OF BANK</div> <div>CHANGE OF GRADE</div> <div>DRAIN</div> <div>SEWER PIPE UG</div> <div>TEL COMM. UG</div> <div>WATER PIPE UG</div> <div>LEVEL</div> <div>CONCRETE</div> <div>FENCE</div> <div>GATE</div>			
<div>COORDINATE SYSTEM</div> <div>VERTICAL: A / D</div> <div>HORIZONTAL: GROUND PLANE ORIENTED TO MGA 94 ZONE 54</div> <div>SCALE: GROUND 1:1000 196 438 58</div> <div>ADOPTED STATION &amp; AUTHORITY</div> <div>PSM 6628.8071 RL 27.338 SDB</div> <div>PSM 6628.8071 E 278995.728 SDB</div> <div>PSM 6628.8071 N 6129922.193 SDB</div> <div>SDB denotes SA Government survey data base values (Dated: 06 / 12 / 2004)</div>			
<div>0 5 10 20 30 40 50 m</div> <div>1:500</div> <div>ORIGINAL SHEET SIZE A1</div> <div>CONTOUR INTER: AL 0.5m</div> <div>SUR: EY</div> <div>DRAWN: CB</div> <div>C: EC: ED</div>			
<div>Notes:</div> <div>Property boundaries shown hereon have been compiled from the government records and have not been verified by field survey.</div> <div>Level information shown hereon is suitable for planning purposes only &amp; should not be used for detailed design.</div>			
<div>Alexander &amp; Symonds Pty Ltd</div> <div>11 King William Street Kent Town, South Australia 5067</div> <div>PO Box 1000 Kent Town, SA 5071</div> <div>ABN 93007 753 988</div> <div>T (08) 8130 1666</div> <div>F (08) 8362 0099</div> <div>W www.alexander.com.au</div> <div>E adelaide@alexander.com.au</div> <div>+ Property + Land Development +</div> <div>+ Construction + Mining +</div> <div>+ Spatial Information Management +</div>			
<div>DETAIL SURVEY</div> <div>LEADER ST</div> <div>FORESTVILLE</div> <div>DRAWING No.</div> <div>SHEET 1 OF 2</div> <div>A070717 Det[D]</div> <div>REVISION</div> <div>D</div>			









- LEGEND**
- LANDSCAPE ZONE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - BIOSWALE (REFER TO LANDSCAPE ARCHITECTS DOCUMENTATION)
  - PAVING
  - SERVICES AREAS
  - SUPERMARKET AREAS
  - SPECIALTY RETAIL
  - LIQUOR STORE
  - BACK OF HOUSE, OFFICES AND AMENITIES
  - ADJACENT DEVELOPMENT SITE (NOT PART OF THIS APPLICATION)

PRELIMINARY

Revisions / P4 21.12.17 PRELODGEEMENT MEETING ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P5 23.02.18 REVISED TO SUIT CONCEPT ISSUE DATED 5.2.18 & CLIENT MEETING 19.2.18 - REFER TO ARCHITECTURE HQ DRAWING  
P6 28.02.18 GENERAL UPDATE SPRINKLER TANKS ADDED - REFER TO ARCHITECTURE HQ DRAWING  
P7 02.03.18 LODGEEMENT ISSUE - REFER TO ARCHITECTURE HQ DRAWING  
P8 12.07.18 PRELIMINARY ISSUE

12/07/2018 12:08:05 PM

Project / **10 ANZAC HIGHWAY, FORESTVILLE**  
10 ANZAC HIGHWAY, FORESTVILLE

Drawing / **SITE PLAN AND GROUND FLOOR PLAN**

Project No. / **218033** Date / **03.07.18**

Author / **CL**

Scale: @ A3 / **As indicated**

Drawing No. / **TP-02**

**P8**

**rothelowman**

Brisbane, Melbourne, Sydney  
www.rothelowman.com.au

Disclaimer: Rothelowman Property Pty. Ltd. retains all common law, statutory law and other rights including copyright and intellectual property rights in respect of this document. The recipient indemnifies Rothelowman Property Pty. Ltd. against all claims resulting from use of this document for any purpose other than its intended use, unauthorised changes or reuse of the document or other projects without the permission of Rothelowman Property Pty. Ltd. Under no circumstances shall transfer of this document be deemed a sale or constitute a transfer of the license to use this document. ABN 76 005 783 997

---

# APPENDIX B

## CATCHMENT PLANS





[illegible]

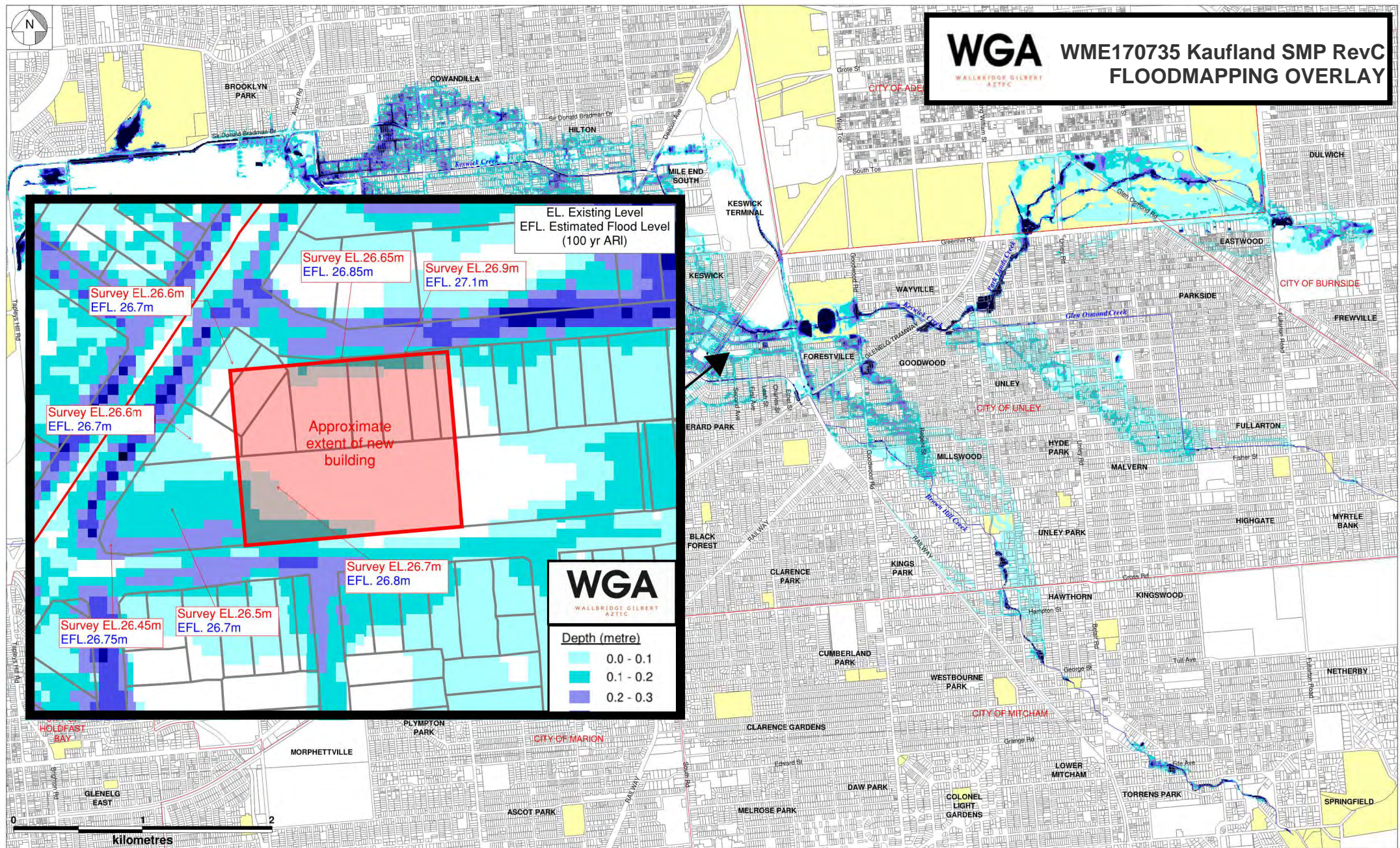


---

# APPENDIX C

## FLOOD MAPPING





**LEGEND**

- Local Government Boundary
- Cadastre
- Parks

**Depth (metre)**

- 0.0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- > 0.5

**FIGURE 1**

**100 YEAR ARI (COMPOSITE) - BASE CASE 50a  
FLOOD DEPTH MAPPING**



---

# APPENDIX D

## COUNCIL CORRESPONDANCE

## Emma Hendy

---

**From:** Matthew Sanderson <msanderson@unley.sa.gov.au>  
**Sent:** Monday, 30 October 2017 5:03 PM  
**To:** Emma Hendy  
**Cc:** Giuseppe (Joe) LaSpina; Michael Harnack; John Devine  
**Subject:** WME170735 IN 171030 Meeting with City of Unley 10 Anzac Highway

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Emma,

It was great to discuss the site and stormwater requirements. I agree with the information provided below from our meeting Friday. A couple of comments:

- Planter rain-gardens to Leader St were discussed being within the property boundary on Leader St. The footpath width in front of the site is not large enough to be able to construct raingardens, but the current building footprint would appear to have room for planter rain-gardens between the building and property boundary.
- I fully support, in fact encourage, the concept of a slow release (leaky tank) to bio-swale and permeable paving (providing the separation distance from the building footprint is sufficient, typically 6 m but open to discussion). I would however like to see some calculations showing that subsequent rain events will not be adversely affected; i.e. that the discharge rate is sufficient to ensure the tank is empty enough to have detention capacity.
- Preference is underground drainage infrastructure connection, with flow rates to each system (Leader St and Anzac Highway) roughly matching existing configuration to ensure the stormwater systems are not overloaded with additional flow.

Regards,

**Matt Sanderson**  
**Asset/Project Engineer**  
City of Unley  
T (08) 8372 5175 | f (08) 8271 4579  
M 0407 733 715  
Email: [msanderson@unley.sa.gov.au](mailto:msanderson@unley.sa.gov.au)

[www.unley.sa.gov.au](http://www.unley.sa.gov.au)  



**please consider the environment**

---

**From:** Emma Hendy [mailto:EHendy@wga.com.au]  
**Sent:** Monday, 30 October 2017 3:55 PM  
**To:** Matthew Sanderson  
**Cc:** Giuseppe (Joe) LaSpina; Michael Harnack  
**Subject:** WME170735 OUT 171030 Meeting with City of Unley 10 Anzac Highway

Hi Matthew,

Thank you for meeting with us on Friday regarding the proposed development at 10 Anzac Highway, Forestville.

As discussed the stormwater management and design for the site should include;



- On site detention (OSD) based on retention of the 5 year ARI 45 minute volumetric runoff generated from the developed site, back to pre-development 80% impervious equivalent (for commercial site use).
- WSUD will be included in the open carpark and open loading dock access to treat stormwater run-off to remove 90% of gross pollutants, 80% suspended solids, 60% total phosphorous, and 45% total nitrogen of the typical urban stormwater annual load.
- Roof water where possible will be directed to rainwater harvest tanks for onsite retention/reuse. Tank sizing to be confirmed based on a water balance assessment and irrigation/toilet flushing demand.
- WSUD options include carpark raingardens, planter rain-gardens to Leader Street, rainwater harvest tanks, slow release (leaky tank) to bio-swale and permeable paving.
- Council's preference will be for underground drainage connections as kerb/water-table outlets should not exceed 4L/s.
- Council acknowledge the surrounding flood mapping and potential 100 year ARI flood levels. Habitable building space should be set 300mm above this 100 year ARI flood level. Carparking, including undercover carparking space, can however be inundated in this event and minimum floor level requirements are not imposed.

These recommendations are in-line with the City of Unley's City of Unley Development & Stormwater Management Design Guide Policy September 2016. As the site is a non-standard large development the stormwater management plan will demonstrate compliance with the requirements and achieve a tailored acceptable solution.

We also note that the recent upgrade works to Leader Street integrates WSUD on the southern side of the road but to the north side (adjacent the site boundary) there was minimal scope upgrades. Council are aware construction works will be required to the northern side (site boundary) and reconstruction of civil works may be required within the streetscape adjacent the site.

Regards,

**Emma Hendy SENIOR CIVIL ENGINEER**

BE Civil & Env, MIEAust, CPENG, NER, RBP



Level 2, 31 Market Street, South Melbourne VIC 3205

PHONE 03 9696 9522

WEB [www.wga.com.au](http://www.wga.com.au)



Adelaide | Darwin | Melbourne | Perth | Whyalla

ABN 59 127 466 997 | WGA VIC Pty Ltd trading as Wallbridge Gilbert Aztec [www.wga.com.au](http://www.wga.com.au)

NOTICE: This e-mail is confidential. If you are not the intended recipient, any use, disclosure or reproduction of this document is unauthorised. If you have received this e-mail in error, please erase it and telephone (08) 8223 7433. While virus scanning software is utilised by Wallbridge Gilbert Aztec, no responsibility is taken for any virus damage that may originate from the transmission and the receiver is urged to scan this transmission and any attachments for computer viruses.



The City of Unley advises that, under the State Records Act 1997 and the Freedom of Information Act 1991, email messages may be monitored and/or accessed by Council staff. The contents of this email are confidential and intended only for the named recipient of this email. If the reader of this e-mail is not the intended recipient you are hereby notified that any use, reproduction, disclosure or distribution of the information contained in the email is prohibited. If you have received this email in error please immediately advise the sender by return email and delete the message from your system.

---

# APPENDIX E

## CALCULATIONS



**SUMMARY OF CALCULATIONS - OSD**

Drainage Catchment	Existing Catchment Area (ha)	Pre-Dev C (Council) specified	Intensity 5yr ARI 45min (mm/hr)	Q max allowable (m3/s)	Ex Outlet Size (mm)	Ex Outlet Capacity (m3/s)	New Outlet Size (mm)
#1	1.45	0.8	26.1	0.084	tbc	exceeded *	300
#2	0.35	0.8	26.1	0.020	100	exceeded *	225
#3	0.25	0.8	26.1	0.015	300	exceeded *	225
<b>Total</b>	<b>2.05</b>			<b>0.12</b>			

Drainage Catchment	New Catchment Area (ha)	PSD ## Pre-development Q5	OSD Req'd# (kL)
#1	11950	84L/s out	67
#2	4650	20L/s out	50
#3	3900	15L/s out	44
<b>Total</b>	<b>20500</b>		<b>161</b>

\* New outlet connection required. Currently much of the site discharges to kerb and into SEP, new design will manage all flows on site to the outlet/SEP therefore new upsized connections required

(New connections will have orifice controls to meet the PSD/Pre-development Q5 as outlined in the table)

# Assumes no WSUD

## PSD - permissible Site Discharge (based on C=0.8 Q5)

Drainage Catchment	OSD Required (kL)	RWT (kL)	*50% RWT volume (kL)	OSD Tank (kL)	OSD (Raingarden)* (kL)	Total (kL)	Meet Target
#1	67	85	42.5		34	77	Yes
#2	50			25	25	50	Yes
#3	44			15	29	44	Yes
<b>Total</b>	<b>161</b>	<b>85</b>		<b>40</b>	<b>88</b>	<b>171</b>	

\* Only 50% of RWT volume considered in OSD assessment to allow partial full tank in storm event

The RWT draw-down water balance is provided and given the daily draw-down it is assumed that rainwater tanks will provide sufficient OSD capacity

WSUD Rain-gardens will be designed with a minimum 200-250 mm ponding depth to achieve the required OSD volumes. Noting the extents shown will need to accommodate

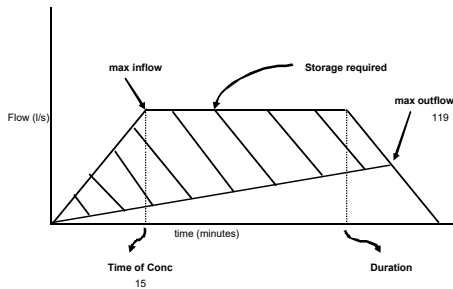
batters/transition to surround (subject to final design intent, therefore actual area available for OSD up to 80% less than total area which is accommodated above with the Vol. = Depth x 0.8/

Note: Filter Areas to raingardens are less than the total area and sized to meet the treatment requirement, the area shown is to achieve the required OSD and passive infiltration

## Basic Stormwater Detention Assessment

Title Overall Site OSD Job No  
Area 20500 m<sup>2</sup>  
Coeff Permeability 0.9 Location: Adelaide  
Time of conc. 15 min  
ARI Storm 5 Year  
Max Outflow Qp 119 l/sec

Duration min	Intensity mm/hr	Inflow rate Ip l/sec	Inflow Vol Vi m3	Max Storage Smax m3
5	81	415.1	124.54	53.14
5.5	78	399.8	131.92	58.73
6	75	384.4	138.38	63.41
6.5	73	374.1	145.91	69.15
7	70	358.8	150.68	72.14
7.5	68	348.5	156.83	76.50
8	67	343.4	164.82	82.71
8.5	65	333.1	169.89	86.00
9	63	322.9	174.35	88.67
9.5	62	317.8	181.12	93.65
10	60	307.5	184.50	95.25
11	57	292.1	192.80	99.98
12	55	281.9	202.95	106.56
13	53	271.6	211.87	111.91
14	51	261.4	219.56	116.03
15	49.1	251.6	226.47	119.37
16	47.5	243.4	233.70	123.03
17	46	235.8	240.47	126.23
18	44.6	228.6	246.86	129.05
19	43.3	221.9	252.98	131.60
20	42.1	215.8	258.92	133.97
21	41	210.1	264.76	136.24
22	39.9	204.5	269.92	137.83
23	38.9	199.4	275.12	139.46
24	38	194.8	280.44	141.21
25	37.1	190.1	285.21	142.41
26	36.3	186.0	290.22	143.85
27	35.5	181.9	294.74	144.80
28	34.8	178.4	299.63	146.12
29	34.1	174.8	304.09	147.01
30	33.4	171.2	308.12	147.47
32	32.1	164.5	315.86	148.07
34	31	158.9	324.11	149.18
36	29.8	153.2	330.99	148.92
38	29	148.6	338.87	149.66
40	28.1	144.0	345.63	149.28
45	26.1	133.8	361.16	146.96
50	24.4	125.1	375.15	143.10
55	23	117.9	388.99	139.09
60	21.7	111.2	400.37	132.62
75	18.9	96.9	435.88	114.58
90	16.8	86.1	464.94	90.09
105	15.2	77.9	490.77	62.37
120	14	71.8	516.60	34.65
135	12.9	66.1	535.51	0.01
150	12.1	62.0	558.11	-30.94
165	11.3	57.9	573.33	-69.27
180	10.7	54.8	592.25	-103.91
195	10.2	52.3	611.62	-138.08
210	9.67	49.6	624.44	-178.81
225	9.25	47.4	639.98	-216.82
240	8.86	45.4	653.87	-256.48
270	8.2	42.0	680.81	-336.65
300	7.65	39.2	705.71	-418.84
360	6.79	34.8	751.65	-587.10
420	6.14	31.5	792.98	-759.97
480	5.63	28.9	830.99	-936.16
540	5.21	26.7	865.12	-1116.23
600	4.86	24.9	896.67	-1298.88
660	4.57	23.4	927.48	-1482.27
720	4.32	22.1	956.45	-1667.50
840	3.86	19.8	997.04	-2055.31
960	3.5	17.9	1033.20	-2447.55
1080	3.21	16.5	1066.04	-2843.11
1200	2.97	15.2	1095.93	-3241.62
1320	2.76	14.1	1120.28	-3645.67
1440	2.58	13.3	1146.85	-4047.50
1800	2.18	11.2	1206.63	-5272.92
2160	1.9	9.7	1261.98	-6502.77
2520	1.68	8.6	1301.83	-7748.12
2880	1.51	7.7	1337.26	-8997.89
3240	1.36	7.0	1354.97	-10265.38
3600	1.25	6.4	1383.75	-11521.80
3960	1.15	5.9	1400.36	-12790.40
4320	1.06	5.4	1408.10	-14067.85

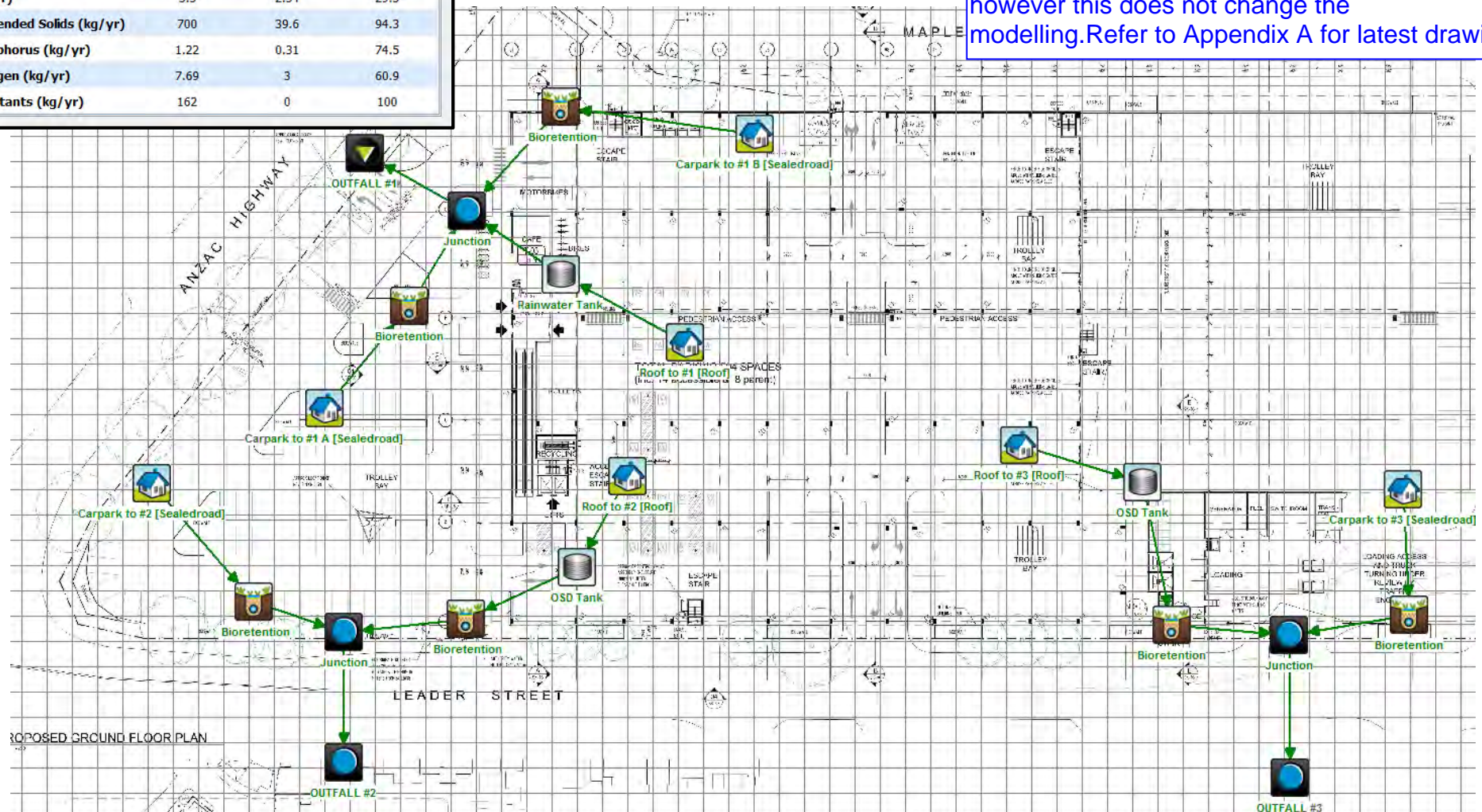




Note: Sketch plan shows outdated background  
however this does not change the  
modelling. Refer to Appendix A for latest drawing

Treatment Train Effectiveness - OUTFALL #1

Sources	Residual Load	% Reduction
Flow (ML/yr)	3.3	29.3
Total Suspended Solids (kg/yr)	700	94.3
Total Phosphorus (kg/yr)	1.22	74.5
Total Nitrogen (kg/yr)	7.69	60.9
Gross Pollutants (kg/yr)	162	100



Treatment Train Effectiveness - OUTFALL #2

Sources	Residual Load	% Reduction
Flow (ML/yr)	1.34	10.4
Total Suspended Solids (kg/yr)	157	93.3
Total Phosphorus (kg/yr)	0.377	61.5
Total Nitrogen (kg/yr)	3.05	60.6
Gross Pollutants (kg/yr)	65.3	100

Treatment Train Effectiveness - OUTFALL #3

Sources	Residual Load	% Reduction
Flow (ML/yr)	1.09	11.6
Total Suspended Solids (kg/yr)	285	97.3
Total Phosphorus (kg/yr)	0.54	77.7
Total Nitrogen (kg/yr)	2.5	68.8
Gross Pollutants (kg/yr)	53.7	100

## Memorandum

**Company:** Architecture HQ  
**Project:** Kaufland  
10 Anzac Hwy Forestville SA  
**Date:** 01 March 2018  
**Subject:** Rainwater Collection Review

**Att.:** Keith Woodhouse  
**Ref No:** 21453  
**Pages:** 3

## Rainwater Collection Review

### INTRODUCTION

Simpson Kotzman has undertaken a detailed analysis of the rain water storage and re-use system for the proposed Kaufland Development at 10 Anzac Hwy Forestville. The following discussion provides clarification on required quantity of rain water storage for use in toilet flushing and landscaping and provides estimates on the amount of potable water saved as a consequence.

The proposed development contains a significant roof area that has potential for rain water capture. Rain water reuse is recommended for the following applications.

- Toilet Flushing
- Urinal Flushing
- Irrigation

The following design assumptions and methods have been utilized throughout the calculations.

- Water consumptions for toilet fixtures based expected occupant density.
- Water consumption for landscaping based on Standards Australia publication HB230-2008 Rainwater Tank Design and Installation Handbook
- Annual rain fall data for Forestville area from Bureau of Metrology

### INPUTS

Daily rainfall data from Bureau of Metrology adjusted to suit average annual rain fall (470mm/year for Forestville area)

Roof rain water catchment area # 1	=	4,780m <sup>2</sup>
Collectable rainwater from roof catchment area # 1	=	149,800 L/ month
Roof rain water catchment area # 2	=	4,164m <sup>2</sup>
Collectable rainwater from roof catchment area # 1	=	130,500 L/ month
Total Roof rain water catchment area	=	8,944m <sup>2</sup>
Total collectable rainwater from roof	=	280,300 L/ month



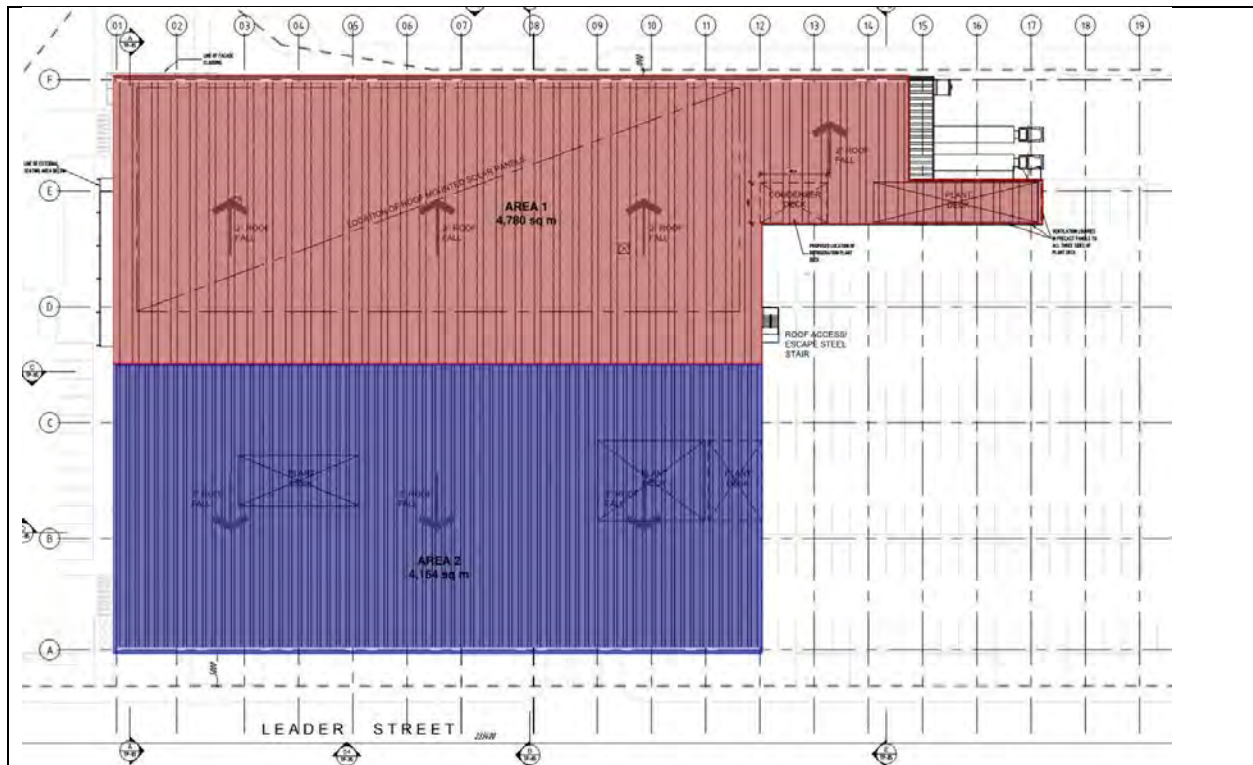


Figure- 1 Roof catchment area.

**ASSUMPTIONS:**

	Floor Area	Occupant Density:	Flush/ person/day
Commercial Office	307	10m <sup>2</sup> /person	2.4
General retail	4228	3.5m <sup>2</sup> /person	0.42
Food and Café Tenancies	897	1.0m <sup>2</sup> /person	0.42

Water usage based on 4 Star WELS WC's = 3,340 L/day  
 = 101,600 L/month

Irrigation water requirements for warm season grasses in Adelaide based on HB230-2008 produced by Standards Australia.

Area of garden (m2)	100	200	300	400	500	600
Water requirement (L/year)	37300	74500	111800	149000	186300	223500

Landscaping area = 2351 m<sup>2</sup>  
 Water usage for irrigation = 73,000 L/month

Total monthly demand for water for toilet flushing and irrigation = 174,600 L/month

## **SUMMARY AND RECOMMENDATIONS**

The average volume of water requirement for toilet flushing and irrigation is estimated at 174,600 L/month and the average total collectable volume of rain water is estimated at 280,300 L/month

The average volume of collectable rainwater exceeds the estimated volume of water consumption. It is expected that there will be periods of little or no rainfall. In these events the tank may empty and mains water would be relied upon through a changeover facility. The quantum of rainwater storage required to minimise the likelihood that the tank is emptied but equally without providing considerable storage is estimated at 87,500L.

Our recommendation is that an 87,500L rainwater storage tank is implemented for retention of rainwater discharging from at least 70% of the roof catchment area in the rainwater reuse system design.

Rainwater from the remaining 30% of the roof catchment area is proposed to connect to stormwater detention system.



---

# APPENDIX F

## STORMWATER MANAGEMENT PLAN





1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT CONSULTANTS DRAWINGS, SPECIFICATIONS & REPORTS.
2. REFER TO ARCHITECTS DRAWINGS FOR ANY TREES TO BE REMOVED OR RETAINED AND FOR ANY TREE PROTECTION REQUIREMENTS.
3. CONTRACTOR TO ALLOW TO CAP OFF & SEAL ANY REDUNDANT DRAINS AS A RESULT OF THE DEMOLITION OF EXISTING BUILDINGS.

PLEASE NOTE THIS WGA DRAWING HAS BEEN PREPARED USING ARCHITECTURAL BACKGROUNDS AND LAYOUTS, SURVEY INFORMATION AND/OR "AS BUILT" BACKGROUNDS AS SUPPLIED BY OTHERS. WGA CAN NOT ENSURE THAT THE INFORMATION SHOWN IS ACCURATE AND ENTIRELY USING THESE DRAWINGS ACCEPT ALL LIABILITY IN THE USE OF THIS INFORMATION. WGA WILL NOT ACCEPT ANY LIABILITY FOR INACCURACIES IN THE INFORMATION PROVIDED. THIS DRAWING MUST NOT BE USED FOR SET OUT PURPOSES UNDER ANY CIRCUMSTANCES.

THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND  
THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.  
NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

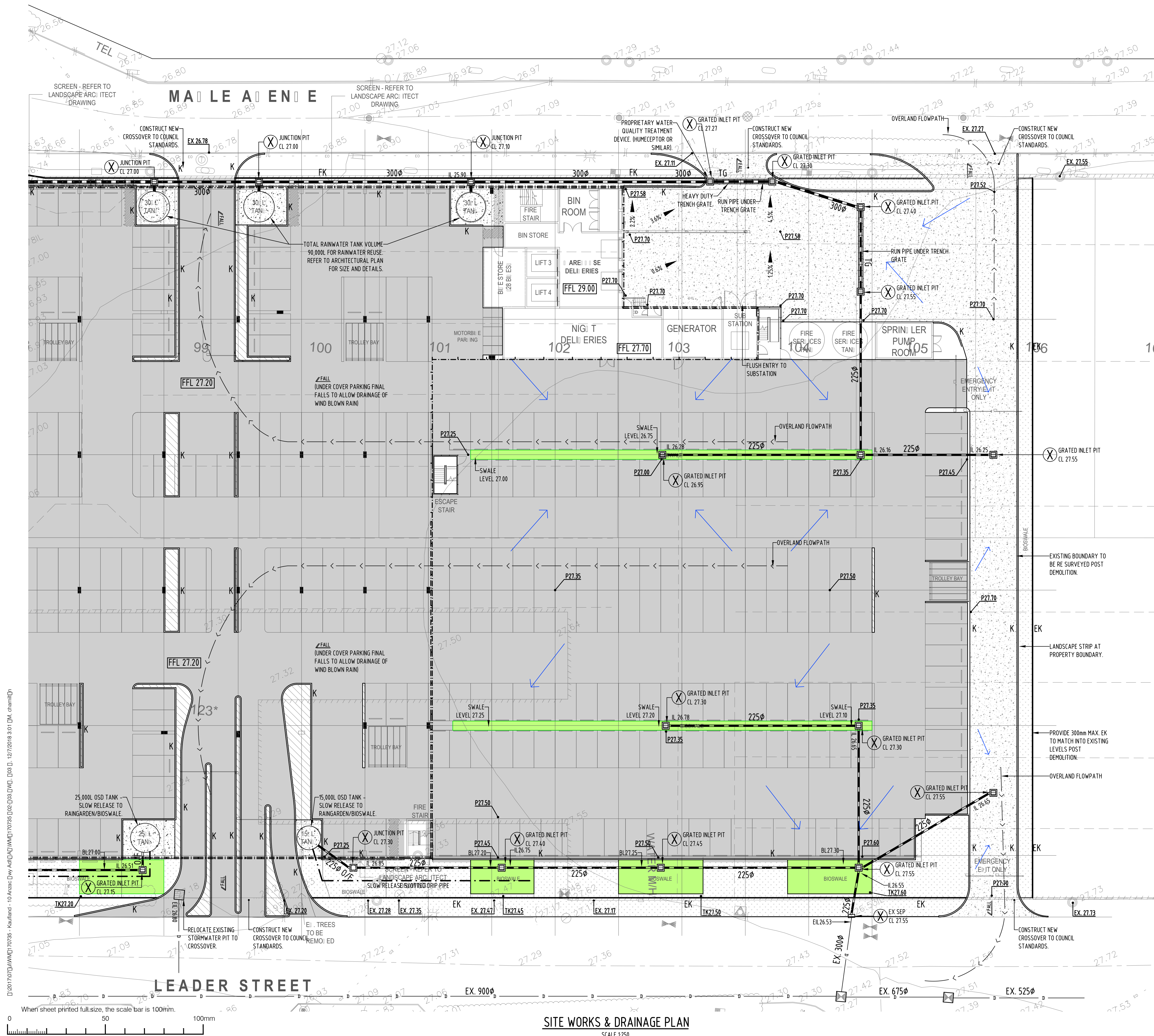
— > — OVERLAND FLOWPATH

Level 2, 31 Market Street, South  
Melbourne  
Victoria 3205  
Telephone 03 9696 9522  
Email [melbourne@wga.com.au](mailto:melbourne@wga.com.au)

**PRELIMINARY ISSUE**  
**NOT FOR CONSTRUCTION**

A1	Scale	DRAWING NUMBER		
	1:250	Job Number	Sheet No.	Rev.
Design	Drawn	WME170735	C02	C
BY				





- ## NOTES:
1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT CONSULTANTS DRAWINGS, SPECIFICATIONS & REPORTS.
  2. REFER TO ARCHITECTS DRAWINGS FOR ANY TREES TO BE REMOVED OR RETAINED AND FOR ANY TREE PROTECTION REQUIREMENTS.
  3. CONTRACTOR TO ALLOW TO CAP OFF & SEAL ANY REDUNDANT DRAINS AS A RESULT OF THE DEMOLITION OF EXISTING BUILDINGS.





**DISCLAIMER:**





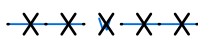

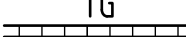
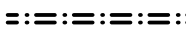


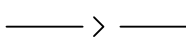
PLEASE NOTE THIS WGA DRAWING HAS BEEN PREPARED USING ARCHITECTURAL BACKGROUNDS AND LAYOUTS, SURVEY INFORMATION AND/OR AS BUILT\* BACKGROUNDS AS SUPPLIED BY OTHERS. WGA CAN NOT ENSURE THAT THE INFORMATION SHOWN IS ACCURATE AND ENTITIES USING THESE DRAWINGS ACCEPT ALL LIABILITY IN THE USE OF THIS INFORMATION. WGA WILL NOT ACCEPT ANY LIABILITY FOR INACCURACIES IN THE INFORMATION PROVIDED. THIS DRAWING MUST NOT BE USED FOR SET OUT PURPOSES UNDER ANY CIRCUMSTANCES.

**WARNING**

**BEWARE OF UNDERGROUND SERVICES**

THE LOCATION OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND  
THEIR EXACT POSITION SHOULD BE PROVEN ON SITE.  
NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

- ### PAVEMENT LEGEND:
- |   |                                  |
|---|----------------------------------|
|  | LIGHT DUTY CONCRETE<br>PAVEMENT  |
|  | VEHICLE DUTY ASPHALT<br>PAVEMENT |
|  | HEAVY DUTY CONCRETE<br>PAVEMENT  |
|  | LANDSCAPING                      |

- |   |  |
|---|--|
| BL 75.35  | 'BIO' BED LEVEL (SWALE OR RAINGARDEN)                        |
| EL 75.35  | EXISTING INVERT LEVEL  |
| CL 73.60  | PROPOSED TOP OF PIT (COVER LEVEL)                            |
| IL 71.25  | PROPOSED INVERT LEVEL  |
|  <u>EX 02</u>    | PROPOSED FINISHED SURFACE LEVEL                              |
|  <u>EX 15.02</u> | EXISTING LEVEL   |
|  <u>P25.02</u>   | DESIGN PAVEMENT LEVEL  |
|                  | PROPOSED STORMWATER DRAIN @ 1200 TYP. GRADE                  |
|                  | DENOTES EXISTING SERVICES TO BE DEMOLISHED                   |
|                  | PROPOSED STORMWATER PIT                                      |
| <u>K&amp;C</u>  | PROPOSED KERB & CHANNEL,<br>REFER DRAWINGS FOR DETAILS.      |
| <u>K</u>  | PROPOSED BARRIER KERB, REFER<br>DRAWINGS FOR DETAILS.        |
| <u>FK</u>   | PROPOSED FLUSH KERB,<br>REFER DRAWINGS FOR DETAILS.          |
| <u>EK</u>   | SITE BOUNDARY EDGE KERB<br>(200mm TYP, 500mm MAX).           |
| <u>RW</u>   | PROPOSED RETAINING WALL (RW),<br>REFER DRAWINGS FOR DETAILS. |
|                | PROPOSED TRENCH GRATE OR<br>GRADED DRAIN.                    |
|                | ROOF LINING  |
|                | EXTERNAL PAVEMENT FALLS                                      |
|                | RAINWATER REUSE OR OSD TANK<br>PROPOSED.                     |
|                | OVERLAND FLOWPATH  |

C	12.07.18	LAYOUT UPDATED	CJH	C HILL	
B	25.05.18	DESIGN DEVELOPMENT	PH	EH	
A	26.04.18	ISSUE FOR PRELIMINARY	PH	EH	
REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHKD

<h1 style="margin: 0;">WGA</h1> <p style="margin: 0;"><b>WALLBRIDGE GILBERT AZTEC</b></p>	<p>Le: el 2, 31 Mari el Street, South              Mail: ourne              i toria 3205              Telephone 03 9696 9522              Email m: ourne@wga.com.au</p>
---	---



Emma Hendy  
SENIOR CIVIL ENGINEER

Telephone: 03 9696 9522

Email: ehendy@wga.com.au

---

**ADELAIDE**

60 Wyatt St

Adelaide SA 5000

Telephone: 08 8223 7433

Facsimile: 08 8232 0967

**MELBOURNE**

Level 2, 31 Market St

South Melbourne VIC 3205

Telephone: 03 9696 9522

**PERTH**

634 Murray St

West Perth WA 6005

Telephone: 08 9336 6528

**DARWIN**

Suite 7/9 Keith Ln

Fannie Bay NT 0820

Telephone: 08 8941 1678

Facsimile: 08 8941 5060

**WHYALLA**

1/15 Darling Tce

Whyalla SA 5600

Phone: 08 8644 0432

**WALLBRIDGE GILBERT AZTEC**

www.wga.com.au

melbourne@wga.com.au

---



# WGA

WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia

## 10 Anzac Highway Forestville

### PEDESTRIAN MOVEMENT PLAN

Job No. ADL171147 / Rev B  
03 May 2018

# WGA

---

#### Revision History

Rev	Date	Issue	Originator	Checker	Approver
A	18.04.18	Draft	SSS	HB	HB
B	03.05.18	Final	SSS	HB	HB



# CONTENTS

---

<b>1 Introduction.....</b>	<b>1</b>
<b>2 Proposed Development .....</b>	<b>3</b>
<b>3 Existing Roadway and Traffic Conditions .....</b>	<b>4</b>
3.1 Current Use .....	4
3.2 Existing Road and Pedestrian Network .....	4
3.2.1 Anzac Highway .....	4
3.2.2 Leader Street.....	5
3.2.3 Maple Avenue.....	5
3.3 Public Transport .....	5
3.4 Planned Roadway Improvements .....	6
<b>4 Pedestrian demand .....</b>	<b>7</b>
4.1 General.....	7
4.2 Vehicle Driven Pedestrian Demand .....	7
4.3 Other Pedestrian Demand .....	7
4.4 Total Pedestrian Demand .....	8
4.5 Pedestrian Movements .....	9
<b>5 Development Access and Layout .....</b>	<b>13</b>
5.1 General.....	13
5.2 Pedestrian Entry and Exit Points .....	14
5.3 Internal Pedestrian Access .....	14
5.3.1 Pedestrian Movement A .....	14
5.3.2 Pedestrian Movement B .....	14
5.3.3 Pedestrian Movement C .....	15
5.3.4 Pedestrian Movement D .....	16
5.3.5 Pedestrian Movement E .....	16
5.3.6 Pedestrian Movement F .....	17
5.3.7 Pedestrian Movement G.....	18
5.4 Impact on Surrounding Roads .....	18
5.5 Sight Distance .....	20
<b>6 Summary .....</b>	<b>21</b>
<b>7 References .....</b>	<b>23</b>

## Appendices

### Appendix A Site Plans

# 1 INTRODUCTION

Wallbridge Gilbert Aztec (WGA) has been engaged by Kaufland Australia (Kaufland) to undertake a Pedestrian Movement Plan (PMP) for the proposed flagship Kaufland store to be located at 10 Anzac Highway, Forestville (a site previously occupied by Le Cornu). It is understood that the proposed development will primarily consist of a major supermarket, with an adjacent market place area providing specialty stores.

A locality plan of the proposed development is shown in Figure 1 below.



Figure 1 Proposed Development, Locality Plan



The purpose and key elements of the study are to review and assess:

- Existing pedestrian conditions and treatments on roads adjacent to the development.
- The estimated peak pedestrian demand of the development.
- Pedestrian safety, and / or operational constraints to the proposal, as well as potential measures to mitigate such constraints, where appropriate.

# 2 PROPOSED DEVELOPMENT

The proposed development is to be located on the vacant former Le Cornu site at 10 Anzac Highway Forestville, as illustrated in Figure 1 above.

The proposed development will comprise the following elements:

- 1 x Kaufland and 8 x Supporting Specialty Stores
- Associated Offices

Architectural plans for the site are included in Appendix A for reference.



Figure 2 General Site Plan



# 3 EXISTING ROADWAY AND TRAFFIC CONDITIONS

## 3.1 CURRENT USE

The existing undeveloped site is shown in Figure 3 below, and consists of a currently disused furniture shop (Le Cornu), as well as associated car parks. It is understood that the car parking area is currently available to the public, with Ashford Hospital staff utilising the area.

The site is bounded by Maple Avenue, Leader Street and Anzac Highway, with the surrounding development a combination of residential/light industrial. Directly opposite the proposed development site on Anzac Highway is Ashford Hospital, a 239 bed private hospital.



Figure 3 Current Site Use

## 3.2 EXISTING ROAD AND PEDESTRIAN NETWORK

### 3.2.1 Anzac Highway

In the vicinity of the site, Anzac Highway is a six-lane divided urban arterial road under the care and control of DPTI. Average Annual Daily Traffic (AADT) volumes on Anzac Highway are in the order of 47,100 vehicles per day (vpd), with approximately 1,650 heavy vehicles (Source: SA Viewer Website),

and a posted speed limit of 60 kph. Pedestrian paths are provided on both sides of Anzac Highway, with pedestrian crossings also provided on the Leader Street and Anzac Highway South approach to the Anzac Highway/Leader Street signalised junction. The SAVIEWER website shows that from 2012 to 2016, there were a number of road crashes involving pedestrians on Anzac Highway adjacent the proposed development (including one fatality), and it is understood that signage has recently been installed to encourage pedestrians to cross at the signalised crossings.

### **3.2.2 Leader Street**

Leader Street is a two lane undivided local road, under the care and control of The City of Unley. A collection road, its key function is providing access between Anzac Highway and Goodwood Road as well as to a number of local streets. AADT volumes are in the order of 7,900 vehicles per day (vpd), with approximately 2.6% heavy vehicles (Source: DPTI Traffic Count), and it has a posted speed limit of 50 kph. It is understood that the road has recently been upgraded to include formalised parallel parking on each side of the road, as well as bicycle lanes. Pedestrian paths are provided on both sides of Leader Street.

### **3.2.3 Maple Avenue**

In the vicinity of the site, Maple Avenue is a two lane local road, under the care and control of The City of Unley. Based on observations by WGA during site visits, it is considered likely that the AADT volumes are in the order of 1,000 vpd (applying the same peak hour factor as Leader Street). The road provides local access to a number of light industrial properties and has a posted speed limit of 50km/hr. Pedestrian paths are provided on both sides of Maple Avenue.

## **3.3 PUBLIC TRANSPORT**

There are a number of public transport services operating within the vicinity of the proposed development, as shown in Figure 4 below, including:

- Anzac Highway Bus Stops 2 and 3 – Stops are part of the Anzac Highway “Go Zone”, with services approximately every 15 minutes between 7.30am and 6.30pm Monday to Friday and every 30 minutes at night, Saturday, Sunday and public holidays until 10pm. Buses servicing the route provide connectivity between the Adelaide CBD and Adelaide Southern and South-Western Suburbs.
- Everard Avenue Bus Stop 2A – Buses servicing the route provide connectivity between the Marion Centre Interchange and the Adelaide CBD, via the suburbs of Edwardstown and Glandore
- Leader Street Bus Stop 6 - Buses servicing the route provide connectivity between the Marion Centre Interchange and the Adelaide CBD, via the suburb of St Marys
- Goodwood and Adelaide Showground Rail Stations – Stations are serviced by Adelaide Metro Belair and Seaford rail lines, which combined provide a high frequency of services to the Adelaide CBD and Adelaide Southern suburbs.

All of the identified bus stops and train stations are within an approximate 10 minute walk (or 800 m) of the site of the proposed development.





Figure 4 Public Transport Infrastructure

### 3.4 PLANNED ROADWAY IMPROVEMENTS

WGA are not aware of any major road works or pedestrian upgrades planned in the immediate vicinity of the proposed development.

# 4 PEDESTRIAN DEMAND

## 4.1 GENERAL

The majority of pedestrian demand of the new development is expected to be generated by customers travelling to/from their cars within the proposed development car park. In addition, there is expected to be a small number of customers who will travel to/from the site on foot, from either a nearby residence or business or from a public transport stop/station.

The use of the term 'Trip' represents a one-way movement from one point to another. Therefore, a pedestrian entering and leaving the proposed development will correspond to two trips.

## 4.2 VEHICLE DRIVEN PEDESTRIAN DEMAND

Vehicle trip generation rates of the proposed development have been calculated in the WGA Traffic and Parking Assessment Report, and are summarised in Table 1 below. To assess the impact that this vehicle demand will have on pedestrian trip rates, it has been assumed that there would be one pedestrian movement per vehicle. Although in reality, the number of pedestrians per car is likely to be higher than one (to allow for additional passengers in the car); it has been assumed that the pedestrians would be travelling together through the car park (entering/exiting the car and the access development point at the same time) and therefore represent one singular trip. Based on this assumption, the resultant estimated pedestrian trips generated by vehicle movements are also shown in Table 1 below.

Table 1 Vehicle Peak Hour Trip Generation

	Weekday Peak Hour	Weekend Peak Hour
<b>Vehicle Trips Generated</b>	<b>675</b>	<b>900</b>
<b>Pedestrian Trips Generated</b>	<b>675</b>	<b>900</b>

## 4.3 OTHER PEDESTRIAN DEMAND

In addition to those pedestrian movements generated by vehicles, there is also expected to be a small number of customers who will travel to/from the site on foot, from either a nearby residence or business or from a public transport stop/station.

It is generally recognised that pedestrians will walk up to 400 metres to local facilities and bus stops and up to 800 metres to town centres or train stations, with the spacing of safe crossings having a major impact on walk catchments and the level of walking (WA Main Roads Transport Impact Assessment Guidelines). As shown in Figure 5 below, the 400m "walking zone" of the proposed development includes as a majority a number of light industrial businesses, the Ashford Hospital and some residential properties.





Figure 5 Pedestrian Walking Zone of Proposed Development

Given the relatively low density walking zone, it has therefore been assumed that there would generally be less than 100 pedestrian movements an hour generated from outside the proposed development site. This rate allows for the fact that the peak pedestrian generation of the residential properties is likely to be outside that of the local businesses, with pedestrians travelling from residences considered more likely to walk to the site on weekends and pedestrians travelling from local businesses and Ashford Hospital more likely to be on a weekday. This rate also includes customers walking from nearby bus stops and train stations, which are expected to be minimal given the suburban nature of the site.

In addition, an outdoor playground facility is provided on the northern side of the site. Given that the playground will be located outside of the main facility (and therefore away any associated cafes etc) the number of pedestrian trips generated by the facility is expected to be minimal, and have assumed to be no more than 20 in the weekday and weekend peak hours.

#### 4.4 TOTAL PEDESTRIAN DEMAND

The total combined pedestrian demand of the proposed development during peak hours is summarised in Table 2 below.

Table 2 Pedestrian Peak Hour Trip Generation

Area	Pedestrian Trips Generated	
	Weekday Peak Hour	Weekend Peak Hour
<b>Vehicle Generated Pedestrian Trips</b>	<b>675</b>	<b>900</b>

Area	Pedestrian Trips Generated	
	Weekday Peak Hour	Weekend Peak Hour
Other Pedestrian Trips	<120	<120
<b>Total</b>	<b>795</b>	<b>1020</b>

## 4.5 PEDESTRIAN MOVEMENTS

It is understood that all pedestrian access to the proposed development will be through the ground floor entry point (which provides access to the upper level of the development via travellers). Based on this, key pedestrian movements considered likely to be generated by the proposed development have been developed and are shown graphically in Figure 6 below.

The key pedestrian movements have been designated an alphanumeric reference for use in this report, and include:

- Movement A – pedestrians travelling from/to the north-east, including Maple Avenue and light industrial businesses as well as a small number of car parks and the playground area.
- Movement B - pedestrians accessing their vehicles within the eastern segment of the car park.
- Movement C - pedestrians accessing their vehicles within the south-eastern segment of the car park.
- Movement D - pedestrians travelling from/to the south, including those travelling to/from residential properties and to/from Bus Stop 6 on Leader Street and Goodwood and Adelaide Showground train stations
- Movement E - pedestrians accessing their vehicles within the south-western segment of the car park.
- Movement F - pedestrians travelling from/to the south-west, including those utilising the signalised pedestrian crossings at the Anzac Highway/Leader Street junction. Likely to include all Ashford Hospital pedestrians and those accessing Bus Stop 2 on the western side of Anzac Highway.
- Movement F - pedestrians travelling to/from the west (likely just those using Bus Stop 3 on Anzac Highway) and a small number of car parks





Figure 6 Key Pedestrian Movements

The number of car parks that each movement is considered likely to service, and the assumed percentage of other pedestrian movements it is considered likely to service is summarised in Table 3 below.

Table 3 Pedestrian Trip Movements

Pedestrian Movement	No. of Carparks Serviced	% of Carparks Serviced	% of Other Pedestrian Movements Serviced	% of Playground Trips Serviced
A	5	1%	10%	100%
B	335	69%	0%	0%
C	46	9%	0%	0%
D	0	0%	40%	0%
E	99	20%	0%	0%
F	0	0%	40%	0%
G	2	0%	10%	0%
<b>Total</b>	<b>487</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Based on the assumptions above, and the trip generation rates summarised in Table 2, the likely number of pedestrian trips that will generated at each movement has been calculated and is shown graphically in Figure 7 and summarised in Table 4 below.

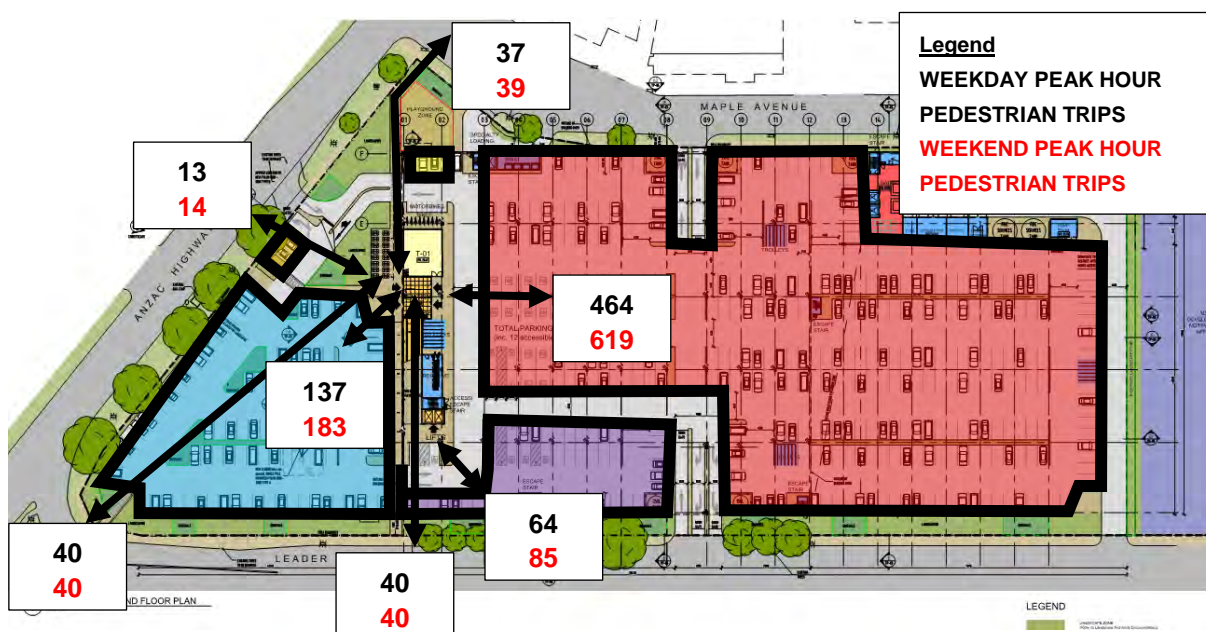


Figure 7 Pedestrian Trip Movements



Table 4 Pedestrian Trip Movements

Pedestrian Movement	Weekday Peak Hour			Weekend Peak Hour		
	Vehicle Pedestrian Trips	Other Pedestrian Trips	Total	Vehicle Pedestrian Trips	Other Pedestrian Trips	Total
<b>A</b>	7	30	37	9	30	39
<b>B</b>	464	0	464	619	0	619
<b>C</b>	64	0	64	85	0	85
<b>D</b>	0	40	40	0	40	40
<b>E</b>	137	0	137	183	0	183
<b>F</b>	0	40	40	0	40	40
<b>G</b>	3	10	13	4	10	14
<b>Total</b>	<b>675</b>	<b>120</b>	<b>795</b>	<b>900</b>	<b>120</b>	<b>1020</b>

It can be seen in the table above that those movements providing access to high numbers of car parks will likely be the most utilised, with Movement B (providing access to the eastern section of the carpark) by far the highest utilised, primarily due to the high volume of car parking spaces accessed by this movement.

# 5 DEVELOPMENT ACCESS AND LAYOUT

## 5.1 GENERAL

The current layout of the proposed carpark area is shown in Figure 8 and currently incorporates:

- A total of 487 parking bays
- 12 disabled parking bays
- 16 “pram” parking bays
- 8 motorcycle parking bays
- A bicycle storage area

Circulation between parking bays is provided via internal access roads which intersect the car parking area. Pedestrian access to the upper levels of the development is proposed to be via internal travelators and lifts located within the eastern portion of the car park.

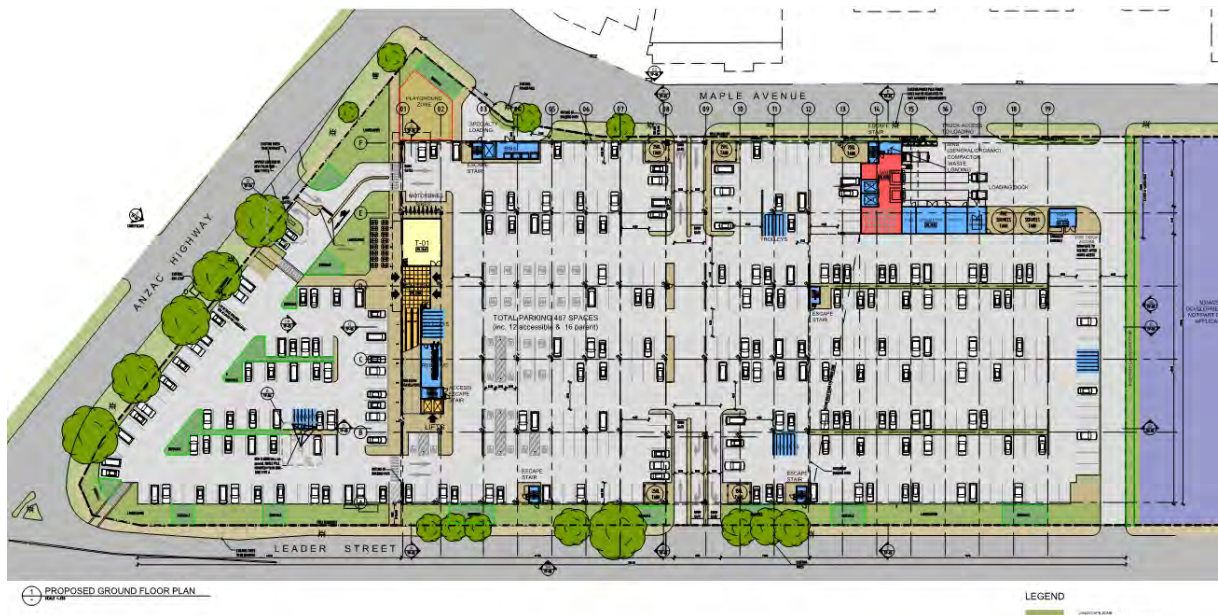


Figure 8 Car Parking Layout



## 5.2 PEDESTRIAN ENTRY AND EXIT POINTS

As previously discussed, it is understood that all pedestrian access to the proposed development will be through the ground floor entry point (which provides access to the upper level of the development via travellers).

## 5.3 INTERNAL PEDESTRIAN ACCESS

The current proposed pedestrian access provisions within the car park are discussed further in the sections below with regard to the pedestrian movement that they service (refer to Figure 6 for locations).

### 5.3.1 Pedestrian Movement A

Pedestrian Movement A caters for pedestrians travelling from/to the north-east, including Maple Avenue and light industrial businesses as well as a small number of car parks and the playground, as shown in Figure 9 below. During both a weekday and a weekend peak hour, the number of pedestrians utilising this movement is expected to be in the order of 38 (refer to Section 4.5). Assuming that pedestrians will likely be clumped in minimum groups of two due to the adjacent playground (to allow for an adult and a child travelling together), this equates to approximately one pedestrian movement every 3 minutes.

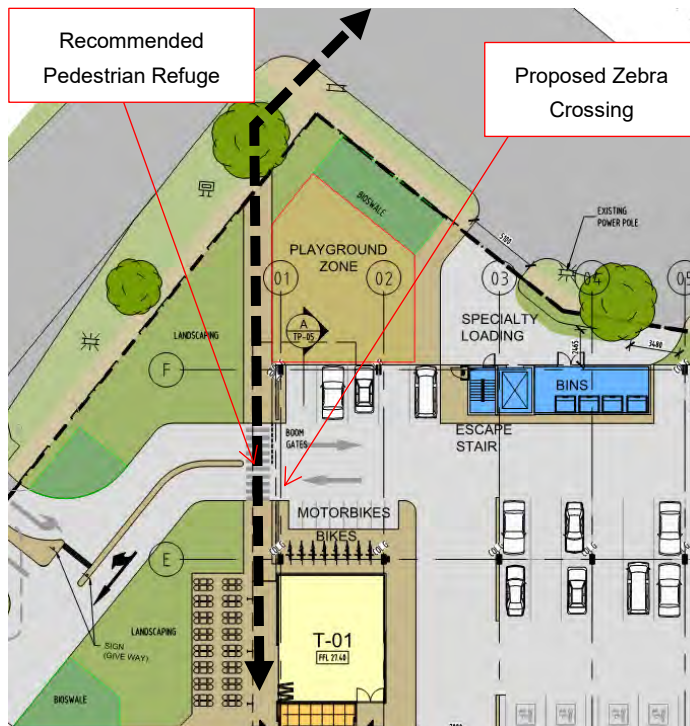


Figure 9 Pedestrian Movement A

Currently, a zebra crossing is proposed across the internal vehicular access road for this movement. However, it is located adjacent a major vehicle control point and is expected to introduce conflict issues with vehicles queuing across the crossing whilst using the vehicular control point. Given the relatively low frequency of pedestrian movements, it is therefore recommended to replace this crossing with a pedestrian refuge, which will still provide protection to pedestrians without impacting on the vehicular movements within the area. This will also provide additional protection to cyclists considered likely to use this crossing point to access the nearby bicycle parking area.

### 5.3.2 Pedestrian Movement B

Pedestrian Movement B caters for pedestrians accessing their vehicles within the eastern segment of the car park, as shown in Figure 10 below. This movement is expected to have an extremely high level of pedestrian movements (464 on a weekday peak hour and 614 on a weekend peak hour), particularly toward the western end adjacent the access point. This equates one pedestrian approximately every 8 seconds on a weekday and one pedestrian every 6 seconds on a weekend.

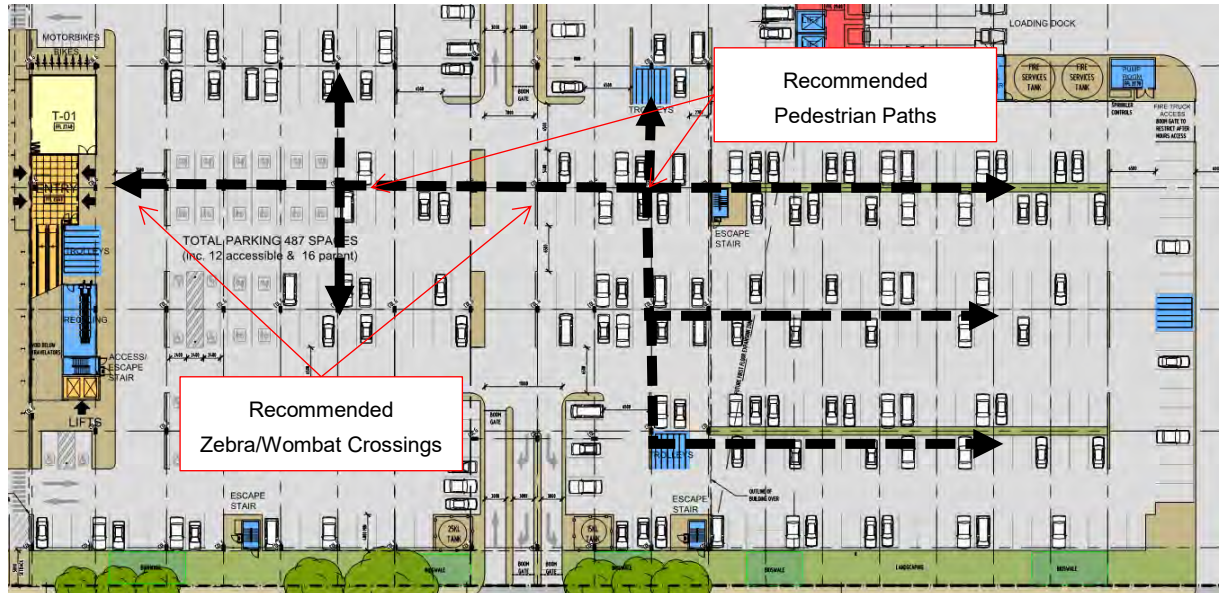


Figure 10 Pedestrian Movement B

Given the high volume of pedestrians, it is highly recommended that additional pedestrian facilities are provided to cater for this movement. It is recommended that these include:

- A dedicated pedestrian path to allow pedestrians to travel from the development access point to the eastern portion of the car park. The width of this path should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.
- A zebra crossing connecting this pedestrian path to the access point (this could also be installed as a raised wombat crossing for additional pedestrian safety)
- A zebra crossing across the internal central access road connecting the pedestrian path in the eastern and western segments of the car park (this could also be installed as a raised wombat crossing for additional pedestrian safety)

### 5.3.3 Pedestrian Movement C

Pedestrian Movement C caters for pedestrians accessing their vehicles within the south-eastern segment of the car park, as shown in Figure 11 below. Given the small amount of pedestrian movements expected to be generated (in the order of 64 on a weekday peak and 84 on a weekend peak), the wide distribution of pedestrian movements and the short distance that pedestrians need to travel, it is not considered necessary to install additional pedestrian infrastructure in this area. However, if desired and if allowable within the geometric constraints, a dedicated pedestrian path could be provided in the eastern area of the site. If provided, the width of this path should be in accordance with AS1428.2, which states that walkways should have an unobstructed width of not less than 1.2m.



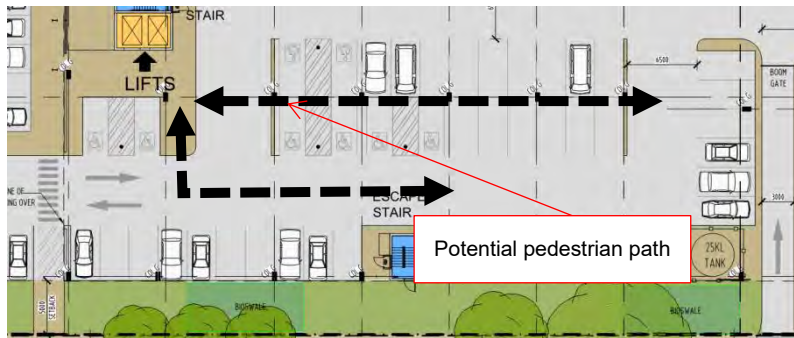


Figure 11 Pedestrian Movement C

#### 5.3.4 Pedestrian Movement D

Pedestrian Movement D caters for pedestrians travelling from/to the south, including those travelling to/from residential properties and to/from Bus Stop 6 on Leader Street and Goodwood and Adelaide Showground train stations, as shown in Figure 12 below.

Given the relatively low volume of pedestrian movements predicted in this area (40 in the weekday and weekend peak hours), and the fact that the opposing traffic movements are expected to be minimal, it is not considered necessary to install additional pedestrian infrastructure in this area. The currently proposed zebra crossing could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians, but will not impact on the flow of traffic.

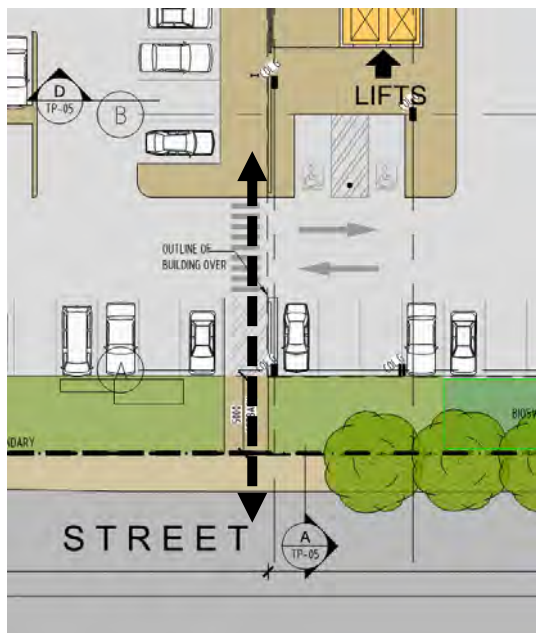


Figure 12 Pedestrian Movement D

#### 5.3.5 Pedestrian Movement E

Pedestrian Movement E caters for pedestrians accessing their vehicles within the south-western segment of the car park, as shown in Figure 13 below. The proposed pedestrian facilities include 1.2m wide pedestrian paths between parks and there are expected to be minimal conflicting vehicle movements in the area and it is therefore not considered necessary to install additional pedestrian infrastructure in this area.



Figure 13 Pedestrian Movement E

### 5.3.6 Pedestrian Movement F

Pedestrian Movement F caters for pedestrians travelling from/to the south-west, including those utilising the signalised pedestrian crossings at the Anzac Highway/Leader Street junction, as shown in Figure 14 below.

There are currently zebra crossings proposed to the south and the west of the site to cater for these movements. However, as per Pedestrian Movement D, given the relatively low volume of pedestrian movements predicted in the southern area and the fact that the opposing traffic movements are expected to be minimal, it is not considered necessary to install additional pedestrian infrastructure in this area. The currently proposed zebra crossing could likely be modified to simply include pram ramps on each side. The pram ramps will still alert vehicles to the presence of pedestrians, but will not impact on the flow of traffic.

Similarly, the western zebra crossing could also be considered to be amended to simply pram ramps, given the low volume of pedestrians expected to be utilising the area.





Figure 14 Pedestrian Movement F

### 5.3.7 Pedestrian Movement G

Pedestrian Movement G caters for pedestrians travelling to/from the west (likely just those using Bus Stop 3 on Anzac Highway) and a small number of car parks, as shown in Figure 15 below.

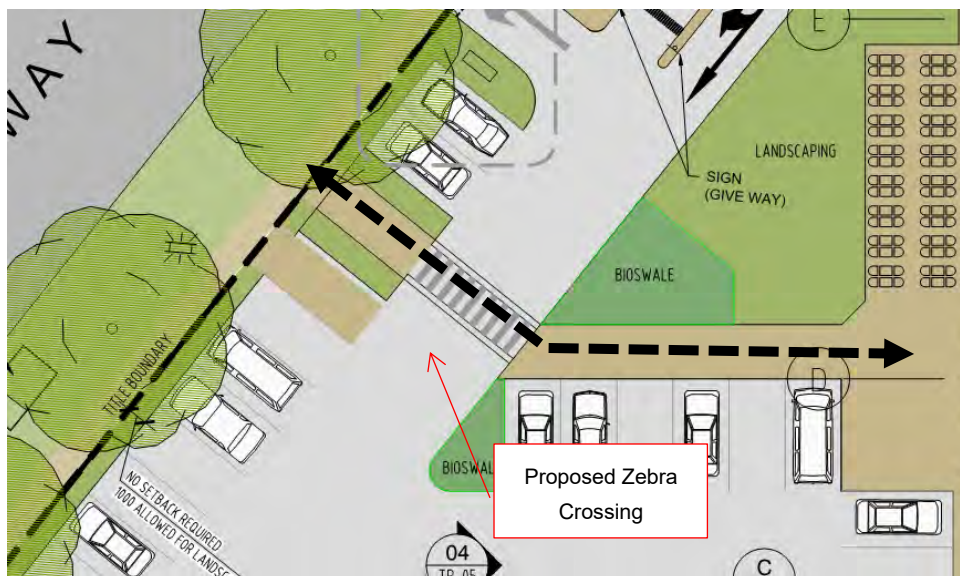


Figure 15 Pedestrian Movement G

As per discussion on Pedestrian Movement F, the proposed zebra crossing could be considered to be amended to simply pram ramps, given the low volume of pedestrians expected to be utilising the area.

## 5.4 IMPACT ON SURROUNDING ROADS

Of critical importance to the development is the ability of pedestrians to cross the surrounding roads of the development safely and efficiently, in order to access public transport infrastructure and surrounding residences/businesses. Although WGA are not aware of any guidelines developed for South Australia, guidelines contained within the WA Main Roads Transport Impact Assessment

Guidelines have been utilised to assess the surrounding roads, which provides indicative maximum traffic volumes for road types based on their cross sections (after which additional safe crossing points should be provided). These traffic volumes are shown in Table 5 below.

Examples of safe crossing facilities are:

- Pedestrian refuge islands
- Zebra crossings
- Signalised pedestrian crossings
- Crossing facilities at signalised intersections
- Overpasses/underpasses

Table 5 Traffic Volumes Affecting Pedestrian Crossing Amenity (Source: WA Main Roads Transport Impact Assessment Guidelines)

Road cross-section	Traffic volume affecting ability of pedestrians to cross* (vehicles per hour – two-way)
2 lane undivided	1,100 vph
2 lane divided (or with pedestrian refuge islands)	2,800 vph
4 lane undivided (without pedestrian refuge islands)	700 vph
4 lane divided (or with pedestrian refuge islands)	1,600 vph

The peak hour traffic volumes of the surrounding roads with the development traffic applied have been obtained from modelling undertaken in the WGA Traffic and Parking Assessment Report and are shown in Table 6 below. Also shown in the table below are the applicable rates from the WA Main Roads Transport Impact Assessment Guidelines.

Table 6 Surrounding Road Pedestrian Impact

Surrounding Road	Post Development Traffic Volume (2017)		Maximum Traffic Volume Before Pedestrians are Impacted	Pedestrians Impacted?
	Weekday Peak Hour	Weekend Peak Hour		
<b>Anzac Highway</b>	4,810 vph	3,528 vph	1,600 vph	Yes
<b>Maple Avenue</b>	166 vph	186 vph	1,100 vph	No
<b>Leader Street</b>	1,156 vph	901 vph	1,100 vph	Borderline

It can be seen in the table above, that based on the WA Main Roads Transport Impact Assessment Guidelines assessment method, safe pedestrian crossing points should be provided on Anzac Highway and potentially on Leader Street.

The existing pedestrian facilities provided at the signalised intersection of Anzac Highway/Leader Street are considered to provide appropriate safe crossing facilities for pedestrians. Given the safety



risks introduced with pedestrian crossing away from the signals, it is recommended that the existing signage arrangement is maintained, which directs all pedestrian movements to the signalised junction. Adherence to this could be monitored during operation of the proposed development, to ensure that pedestrians are utilising the signals to cross Anzac Highway.

Consideration could also be given to providing a pedestrian walkthrough facility on Leader Street to cater for pedestrians travelling to the South, geometry permitting.

## 5.5 SIGHT DISTANCE

In order to achieve adequate sight lines for pedestrian safety, AS2890.1, Figure 3.3, recommends that 'sight triangles' are included at access driveways in order to maximise visibility. Figure 16 below illustrates the areas required to be kept clear of obstructions to visibility.

The current plans indicate that the sight triangles at the access driveway are not obstructed, in accordance with AS2890.1 recommendations.

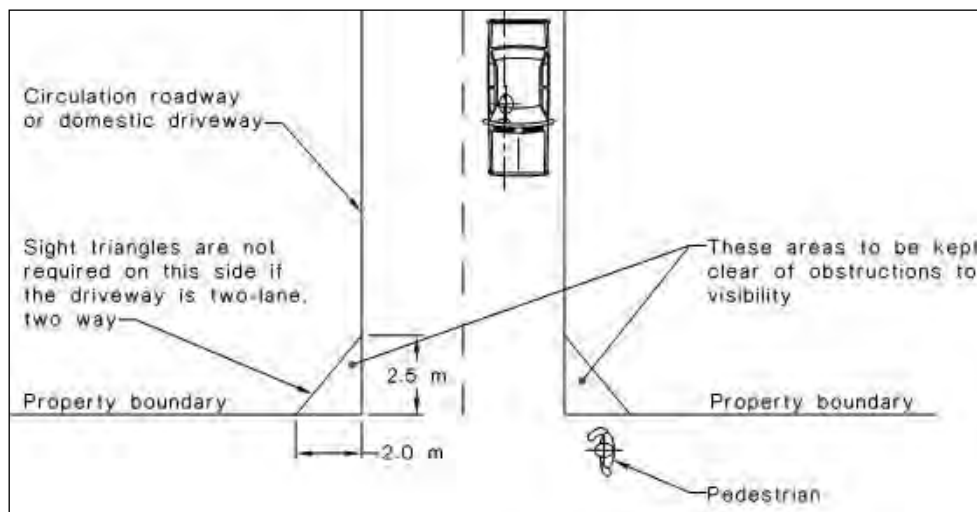


Figure 16 Minimum Sightlines for Pedestrian Safety

# 6 SUMMARY

In summary, the analysis presented in this report concludes that the pedestrian movements associated with the proposed development can be satisfactorily accommodated. The main points relating to the proposed development are as follows (refer to Figure 17 for locations):

1. Consideration could be given to replacing the proposed zebra crossing on the northern internal access road with a pedestrian refuge, which will still provide protection to pedestrians without impacting on the vehicular movements within the area.
2. A dedicated pedestrian path should be considered within the eastern section of the carpark to allow pedestrians to travel from the development access point to the eastern portion of the car park.
3. To provide safe connectivity to the pedestrian path from the development, zebra crossings are recommended to be placed across the internal access roads (these could also be installed as a raised wombat crossing for additional pedestrian safety)
4. Given the relatively low volume of pedestrian movements predicted in these areas, and the fact that the opposing traffic movements are expected to be minimal, the currently proposed zebra crossings could likely be modified to simply include pram ramps on each side.
5. It is recommended that the existing signage arrangement on Anzac Highway is maintained, which directs all pedestrian movements to the signalised junction. Adherence to this could be monitored during operation of the proposed development, to ensure that pedestrians are utilising the signals to cross Anzac Highway.
6. Consideration could also be given to providing a pedestrian walkthrough facility on Leader Street to cater for pedestrians travelling to the South, geometry permitting.



Figure 17 Proposed Development Recommendations





# 7 REFERENCES

---

- City of Unley, 2017. Development Plan
- National Construction Code 2016, Volume One, Building Code of Australia Class 2 to Class 9 Buildings
- Department of Planning, Transport and Infrastructure, 2013. Trip Generation Rates for Assessment of Development Proposals
- Department of Planning, Transport and Infrastructure, Nov 2017. Traffic Signal Design - TS100
- Resonate, 7 March 2018. Kaufland – 10 Anzac Highway Forestville, Planning Stage Acoustic Report
- Roads and Traffic Authority, 2002. Guide to Traffic Generating Developments
- Roads and Traffic Authority, 2013. Guide to Traffic Generating Developments Updated Traffic Surveys, Technical Direction TDT 2013/04a
- Standards Australia, 2004. Australian Standard 2890, Part 1: Off-Street Car Parking
- Standards Australia, 2009. Australian Standard 2890, Part 3: Bicycle Parking Facilities
- Standards Australia, 2009. Australian Standard 2890, Part 6: Off-Street Parking for People with Disabilities
- WA Department of Planning, 2016. Transport Impact Assessment Guidelines
- WGA, 2018. Traffic and Parking Assessment, 10 Anzac Highway Forestville

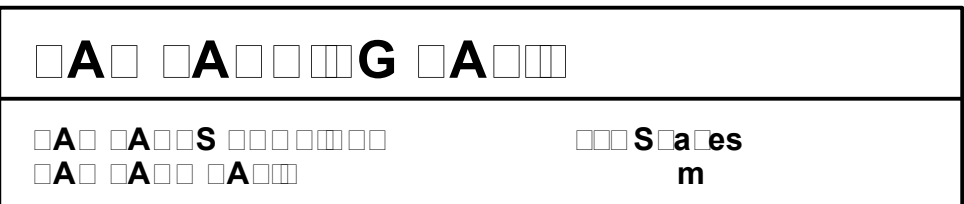


---

# APPENDIX A

## SITE PLANS









1 PROPOSED GROUND FLOOR PLAN  
SCALE 1:250



KEY PLAN  
SCALE 1:1000

LEGEND	
	LANDSCAPING (Refer to Landscaping Architecture Documentation)
	BIOSWALES (Refer to Landscaping Architecture Documentation)
	DRIVELANE
	SERVICES AREAS
	GENERAL TRAFFIC CARRIAGEWAY/LANE
	PARKING SPACE
	SUPERMARKET AREAS
	SPECIALTY RETAIL
	PUBLIC CIRCULATION
	OUTDOOR TERRACE
	ADJACENT DEVELOPMENT SITE (Not part of this application)

ARCHITECTURE  
ARCHITECTS INTERIOR DESIGNERS

REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION	Copyright	North	Project	Job No	Drawing No
P2	01.12.2017	PRELIMINARY MEETING ISSUE	P1	02.03.18	CONCEPT ISSUE	© Copyright 2018 All rights reserved. Designs shown herein is retained by this office. Written authorisation is required for any reproduction.		KAUFLAND 1 ANACIGWA FORESTVILLE S.A.	171111	T0000
P3	20.12.2017	PRELIMINARY MEETING ISSUE							1:1000 A3	
P4	21.12.2017	PRELIMINARY MEETING ISSUE							DEC 17.	
P5	23.02.18	REVISED TO SUIT CONCEPT ISSUE DATED 5.2.18 AND CLIENT MEETING 19.2.18							Drawn KW/SC	Revision 07
P6	28.02.18	GENERAL UPDATE SPRINKLER TANKS ADDED								





- # A S An a i h a orestville SA

**architecture**  
ARCHITECTS INTERIOR DESIGNERS





WALLBRIDGE GILBERT  
AZTEC

Heath Blacker  
PRINCIPAL

Telephone: 08 8223 7433

Email: [HBlacker@wga.com.au](mailto:HBlacker@wga.com.au)

---

**ADELAIDE**

60 Wyatt St

Adelaide SA 5000

Telephone: 08 8223 7433

Facsimile: 08 8232 0967

**MELBOURNE**

Level 2, 31 Market St

South Melbourne VIC 3205

Telephone: 03 9696 9522

**PERTH**

634 Murray St

West Perth WA 6005

Telephone: 08 9336 6528

**DARWIN**

Suite 7/9 Keith Ln

Fannie Bay NT 0820

Telephone: 08 8941 1678

Facsimile: 08 8941 5060

**WHYALLA**

1/15 Darling Tce

Whyalla SA 5600

Phone: 08 8644 0432

**WALLBRIDGE GILBERT AZTEC**

[www.wga.com.au](http://www.wga.com.au)

[Adelaide@wga.com.au](mailto:Adelaide@wga.com.au)

---



# Consultant Advice

---

**From:** Anthony Norton      **Date:** 16 Apr. 18      **File No:** m39444\002\E-121\ca180413m0029      **Pages:** 3 (+10)  
**Project:** Kaufland - External Lighting Design      **No:** E-001[1.0]

---

	Attention	Company	Email
<b>To:</b>	Sam Russell-McLeod	Kaufland Australia Pty Ltd	samuel.russell-mcleod@kaufland.com

---

## Electrical - Kaufland Forestville External Lighting Design

### Objective:

The purpose of this correspondence is to summarise our external lighting design calculation results for Kaufland Forestville and demonstrate that our design intent meets the relevant standards and for development approval submission.

### Project Background:

The Forrestville project in Adelaide is designed to be a raised store, with carparking underneath. Lighting to this carparking will typically be undertaken by lower wattage fittings mounted on the underside of the slab. It is unlikely this will affect any obtrusive lighting requirements and our calculations ignore this at this stage.

The final external lighting design, when complete, would need to ensure this is compliant with AS2482 requirements.

There will be open carpark areas on the eastern and western side of the new Kaufland building.

The site will also include a wall/fence of 4m in height along the eastern site boundary. Final wall construction to be confirmed during detailed design. Baffling of fittings to prevent light reaching the adjacent property could also be considered.

The intended hours of operation of Kaufland Forestville is 12am to 9pm daily.

### Australian Standards and Other Requirements:

#### AS/NZS 1158:

Lighting for roads and public spaces is the applicable Australian Standard for assessment of external lighting. Note that although this is not a required standard and that it is not a requirement to provide illumination to external spaces, NDY recommend that we still use this standard as a minimum basis of our design.

We have identified the carpark areas which are designed to AS1158, Category P11a. Details as follows:

Lighting Category (AS1158)	P11a
Type of Space	Parking Spaces. Aisles and circulation roadways
Night time vehicle or pedestrian movement	High
Night time occupancy rates (NTOR)	<75%





Risk of Crime	High
---------------	------

#### AS/NZS 4282:

Control of the obtrusive effects of outdoor lighting is the applicable Australian Standard for assessment of lighting which crosses property boundaries and that may negatively impact surrounding properties. Also not a required standard, the guidelines set out within the standard are often used as a basis for determining acceptable levels of light spill by local government and other authorities.

As the *curfewed hours* is defined in AS4282 as the time from 11pm to 6am and Kaufland's hours of operation is 12am to 9pm, the AS4282 requirements for *curfewed hours* apply. The relevant requirements corresponding to *curfewed hours* are summarised as follows:

Illuminance in vertical plane (Ev)	4 lux (maximum)
Luminous intensity emitted by luminaires (I)	2500 cd
Threshold increment (TI)	20% based on adaptation luminance of 10 cd/m <sup>2</sup>

#### Kaufland Requirement:

30lux average horizontal illuminance.

#### Luminaires:

Our calculation utilises the Cree OSQ Series luminaire with various optics to suit. Please refer luminaire technical datasheet attached for your reference. The specific luminaires used are shown on the calculation results/layout attached. Luminaires are typically mounted on 7m poles.

To achieve compliance with AS4282 limitations, some lights (P1a and P1b fittings) have reduced wattage outputs, which has been confirmed with the manufacturer as available but is not available in an .ies file for modelling. The lumen package for the fitting has been proportionately decreased to model this.

#### Calculation Results:

Refer to the attached modelling results. At the relevant locations, relevant levels are limited the following:

	Maximum Lux level	Maximum Illumination	Threshold Increment
Anzac Hwy	1.2	2450	0%
Maple Road	2.4	2248	1%
Leader Street	1.5	2133	0%
Adjacent property to west	2.0	1178	0%

#### Conclusion:

The proposed lighting arrangement complies with the requirements of AS4282 for curfew lighting. While the design is not yet finalised as the project is in it's early development, the final lighting arrangement will generally follow that outlined in this advice and comply with the requirements of AS4282.

Please contact the undersigned if you have any questions.



Thank you.

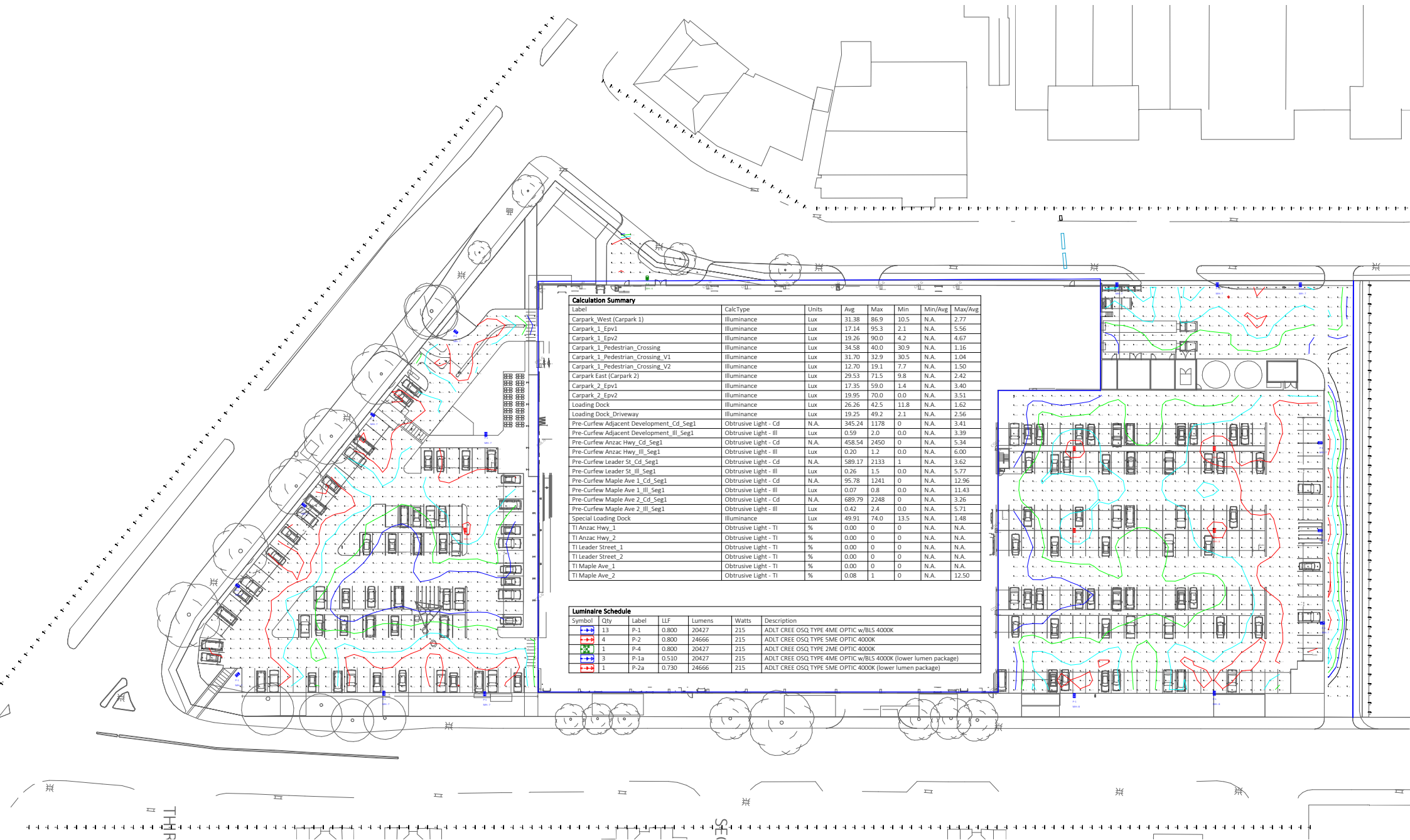
Yours sincerely,

**NORMAN DISNEY & YOUNG**

A handwritten signature in black ink, appearing to read 'AN', is positioned below the company name.

Anthony Norton  
Senior Associate  
a.norton@ndy.com





Calculation Summary

Label	Calc.Type	Units	Avg	Max	Min	Min/Avg	Max/Avg
Carpark_West (Carpark 1)	Illuminance	Lux	31.38	86.9	10.5	N.A.	2.77
Carpark_1_Epv1	Illuminance	Lux	17.14	95.3	2.1	N.A.	5.56
Carpark_1_Epv2	Illuminance	Lux	19.26	90.0	4.2	N.A.	4.67
Carpark_1_Pedestrian_Crossing	Illuminance	Lux	34.58	40.0	30.9	N.A.	1.16
Carpark_1_Pedestrian_Crossing_V1	Illuminance	Lux	31.70	32.9	30.5	N.A.	1.04
Carpark_1_Pedestrian_Crossing_V2	Illuminance	Lux	12.70	19.1	7.7	N.A.	1.50
Carpark_East (Carpark 2)	Illuminance	Lux	29.53	71.5	9.8	N.A.	2.42
Carpark_2_Epv1	Illuminance	Lux	17.35	59.0	1.4	N.A.	3.40
Carpark_2_Epv2	Illuminance	Lux	19.95	70.0	0.0	N.A.	3.51
Loading_Dock	Illuminance	Lux	26.26	42.5	11.8	N.A.	1.62
Loading_Dock_Driveway	Illuminance	Lux	19.25	49.2	2.1	N.A.	2.56
Pre-Curfew_Adjacent_Development_Cd_Seg1	Obtrusive Light - Cd	N.A.	345.24	1178	0	N.A.	3.41
Pre-Curfew_Adjacent_Development_Ill_Seg1	Obtrusive Light - Ill	Lux	0.59	2.0	0.0	N.A.	3.39
Pre-Curfew_Anzac_Hwy_Cd_Seg1	Obtrusive Light - Cd	N.A.	458.54	2450	0	N.A.	5.34
Pre-Curfew_Anzac_Hwy_Ill_Seg1	Obtrusive Light - Ill	Lux	0.20	1.2	0.0	N.A.	6.00
Pre-Curfew_Leader_St_Cd_Seg1	Obtrusive Light - Cd	N.A.	589.17	2133	1	N.A.	3.62
Pre-Curfew_Leader_St_Ill_Seg1	Obtrusive Light - Ill	Lux	0.26	1.5	0.0	N.A.	5.77
Pre-Curfew_Maple_Ave_1_Cd_Seg1	Obtrusive Light - Cd	N.A.	95.78	1241	0	N.A.	12.96
Pre-Curfew_Maple_Ave_1_Ill_Seg1	Obtrusive Light - Ill	Lux	0.07	0.8	0.0	N.A.	11.43
Pre-Curfew_Maple_Ave_2_Cd_Seg1	Obtrusive Light - Cd	N.A.	689.79	2248	0	N.A.	3.26
Pre-Curfew_Maple_Ave_2_Ill_Seg1	Obtrusive Light - Ill	Lux	0.42	2.4	0.0	N.A.	5.71
Special>Loading_Dock	Illuminance	Lux	49.91	74.0	13.5	N.A.	1.48
TI_Anzac_Hwy_1	Obtrusive Light - TI	%	0.00	0	0	N.A.	N.A.
TI_Anzac_Hwy_2	Obtrusive Light - TI	%	0.00	0	0	N.A.	N.A.
TI_Leader_Street_1	Obtrusive Light - TI	%	0.00	0	0	N.A.	N.A.
TI_Leader_Street_2	Obtrusive Light - TI	%	0.00	0	0	N.A.	N.A.
TI_Maple_Ave_1	Obtrusive Light - TI	%	0.00	0	0	N.A.	N.A.
TI_Maple_Ave_2	Obtrusive Light - TI	%	0.08	1	0	N.A.	12.50

Luminaire Schedule

Symbol	Qty	Label	LLF	Lumens	Watts	Description
+	13	P-1	0.800	20427	215	ADLT CREE OSQ TYPE 4ME OPTIC w/BLS 4000K
+	4	P-2	0.800	24666	215	ADLT CREE OSQ TYPE 5ME OPTIC 4000K
+	1	P-4	0.800	20427	215	ADLT CREE OSQ TYPE 2ME OPTIC 4000K
+	3	P-1a	0.510	20427	215	ADLT CREE OSQ TYPE 4ME OPTIC w/BLS 4000K (lower lumen package)
+	1	P-2a	0.730	24666	215	ADLT CREE OSQ TYPE 5ME OPTIC 4000K (lower lumen package)

# OSQ Series

OSQ™ LED Area/Flood Luminaire – Medium

## Product Description

The OSQ™ Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The 'B' Input power designator is a suitable upgrade for HID applications up to 250 Watt, and the 'K' Input power designator is a suitable upgrade for HID applications up to 400 Watt.

**Applications:** Parking lots, walkways, campuses, car dealerships, office complexes, and internal roadways

## Performance Summary

NanoOptic® Precision Delivery Grid™ optic

Assembled in the U.S.A. of U.S. and imported parts

**Initial Delivered Lumens:** Up to 17,291

**Efficacy:** Up to 136 LPW

**CRI:** Minimum 70 CRI

**CCT:** 3000K (+/- 300K), 4000K (+/- 300K), 5700K (+/- 500K)

**Limited Warranty:** 10 years on luminaire/10 years on Colorfast DeltaGuard® finish

\* See <http://lighting.cree.com/warranty> for warranty terms

## Accessories

Field-Installed	
<b>Backlight Shield</b> OSQ-BLSMF - Front facing optics OSQ-BLSMR - Rotated optics	<b>Hand-Held Remote</b> XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required

## Ordering Information

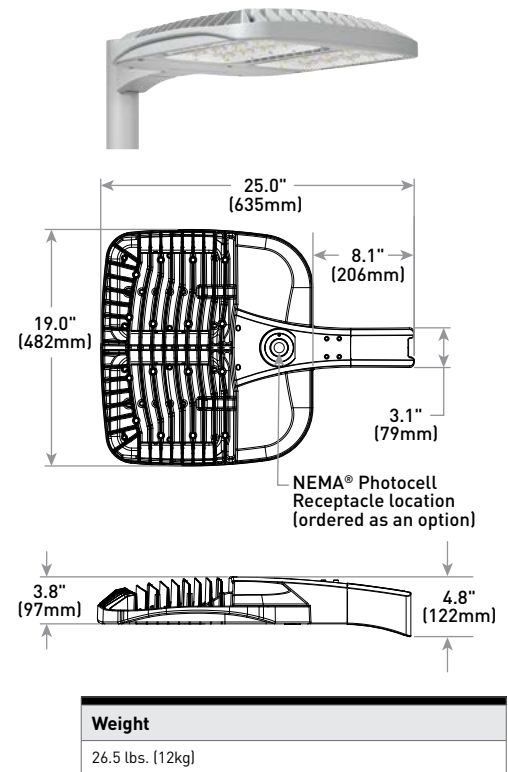
Fully assembled luminaire is composed of two components that must be ordered separately:

Example: **Mount:** OSQ-AASV + **Luminaire:** OSQ-A-NM-2ME-B-40K-UL-SV

Mount (Luminaire must be ordered separately)*			
<b>OSQ-</b>			
<b>OSQ-AA</b> Adjustable Arm <b>OSQ-DA</b> Direct Arm	<b>Color Options:</b>	<b>SV</b> Silver <b>BK</b> Black	<b>BZ</b> Bronze <b>WH</b> White

\* Reference EPA and pole configuration suitability data beginning on page 7

## DA Mount



Luminaire (Mount must be ordered separately)									
OSQ	A	NM							
Product	Version	Mounting	Optic	Input Power Designator	CCT	Voltage	Color Options	Options	
OSQ	A	NM No Mount	<b>Asymmetric</b> 2ME* Type II Medium 4ME* Type IV Medium 3ME* Type III Medium	B 86W K 130W	30K 3000K 40K 4000K 57K 5700K	UL Universal 120-277V UH Universal 347-480V	BK Black BZ Bronze SV Silver WH White	<b>DIM</b> 0-10V Dimming - Control by others - Refer to <a href="#">Dimming spec sheet</a> for details - Can't exceed wattage of specified input power designator	<b>PML2</b> Programmable Multi-Level, 10-30' Mounting Height - Refer to <a href="#">PML spec sheet</a> for details - Intended for downlight applications at 0° tilt
			<b>Symmetric</b> 5ME 25D Type V Medium 5SH 40D Type V Short WSN 60D Wide Sign 15D 15" Flood					<b>F</b> Fuse - When code dictates fusing, use time delay fuse - Available for U.S. applications only	<b>Q9/Q6/Q5/Q4/Q3/Q2/Q1</b> Field Adjustable Output - Must select Q9, Q6, Q5, Q4, Q3, Q2, or Q1 - Offers full range adjustability - Refer to pages 9-10 for power and lumen values
								<b>ML</b> Multi-Level - Refer to <a href="#">ML spec sheet</a> for details - Available with UL voltage only - Intended for downlight applications at 0° tilt	<b>R</b> NEMA® Photocell Receptacle - Intended for downlight applications with maximum 45° tilt - 3-pin receptacle per ANSI C136.10 - Photocell and shorting cap by others
								<b>PML</b> Programmable Multi-Level, up to 40' Mounting Height - Refer to <a href="#">PML spec sheet</a> for details - Intended for downlight applications at 0° tilt	<b>RL</b> Rotate Left - LED and optic are rotated to the left <b>RR</b> Rotate Right - LED and optic are rotated to the right

\* Available with Backlight Shield when ordered with field-installed accessory (see table above)



## OSQ™ LED Area/Flood Luminaire – Medium

### Product Specifications

#### CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weathertight LED driver compartment and high performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3-6" (76-152mm) square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Mounting for the adjustable arm mount adaptor is rugged die cast aluminum and mounts to 2" (51mm) IP, 2.375" (60mm) O.D. tenon
- Adjustable arm mount can be adjusted 180° in 2.5° increments
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** 26.5 lbs. (12kg)

#### ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV surge suppression protection standard
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- **10V Source Current:** 0.15mA

#### REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed
- Suitable for wet locations
- Enclosure rated IP66 per IEC 60529 when ordered without R option
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G bridge and overpass vibration standards
- 10kV surge suppression protection tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A standards for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- DLC and DLC Premium qualified versions available. Some exceptions apply. Please refer to <https://www.designlights.org/search/> for most current information
- RoHS compliant. Consult factory for additional details
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT. Please refer to <http://darksky.org/fsa/fsa-products/> for most current information

#### Electrical Data\*

Input Power Designator	System Watts 120-480V	Total Current (A)					
		120V	208V	240V	277V	347V	480V
B	86	0.73	0.43	0.37	0.32	0.25	0.19
K	130	1.09	0.65	0.56	0.49	0.38	0.28

\* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-480V +/-10%

#### OSQ Series Ambient Adjusted Lumen Maintenance<sup>1</sup>

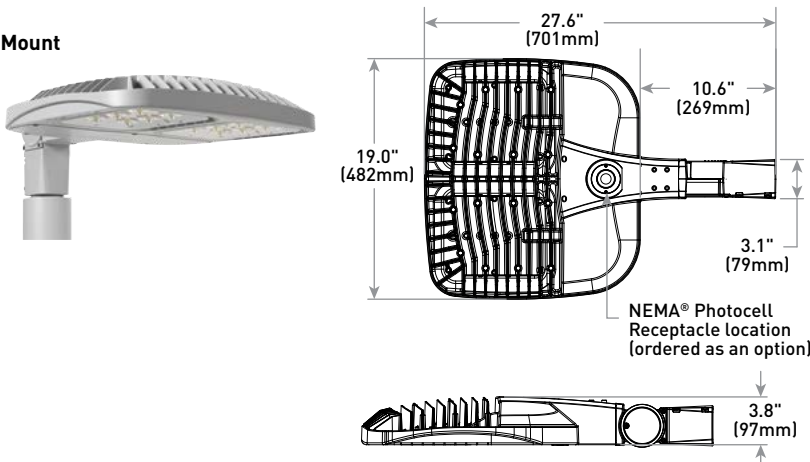
Ambient	Optic	Initial LMF	25K hr Projected <sup>2</sup> LMF	50K hr Projected <sup>2</sup> LMF	75K hr Projected <sup>2</sup> /Calculated <sup>3</sup> LMF	100K hr Projected <sup>2</sup> /Calculated <sup>3</sup> LMF
5°C (41°F)	Asymmetric	1.04	1.00	0.95	0.91 <sup>3</sup>	0.87 <sup>3</sup>
	Symmetric	1.05	1.04	1.03	1.03 <sup>3</sup>	1.02 <sup>3</sup>
10°C (50°F)	Asymmetric	1.03	0.99	0.94	0.90 <sup>3</sup>	0.86 <sup>3</sup>
	Symmetric	1.04	1.03	1.02	1.01 <sup>2</sup>	1.00 <sup>2</sup>
15°C (59°F)	Asymmetric	1.02	0.98	0.93	0.89 <sup>3</sup>	0.86 <sup>3</sup>
	Symmetric	1.02	1.02	1.01	1.00 <sup>2</sup>	0.99 <sup>2</sup>
20°C (68°F)	Asymmetric	1.01	0.97	0.93	0.89 <sup>3</sup>	0.85 <sup>3</sup>
	Symmetric	1.01	1.01	1.00	0.99 <sup>2</sup>	0.98 <sup>2</sup>
25°C (77°F)	Asymmetric	1.00	0.96	0.92	0.88 <sup>3</sup>	0.84 <sup>3</sup>
	Symmetric	1.00	0.99	0.98	0.98 <sup>2</sup>	0.97 <sup>2</sup>

<sup>1</sup> Lumen maintenance values at 25°C (77°F) are calculated per TM-21 based on LM-80 data and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors

<sup>2</sup> In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

<sup>3</sup> In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip

#### AA Mount



#### Weight

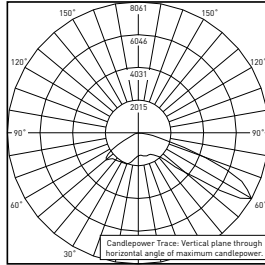
26.5 lbs. (12kg)

## OSQ™ LED Area/Flood Luminaire – Medium

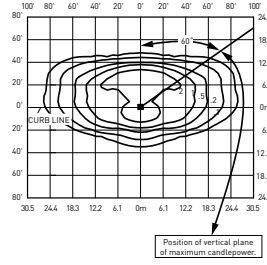
### Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

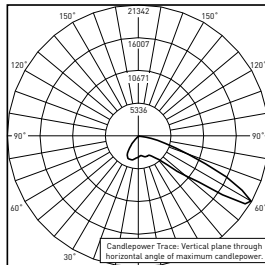
#### 2ME



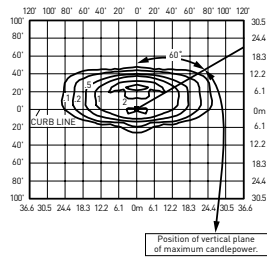
**RESTL Test Report #:** PL08877-001  
**OSQ-A-\*\*-2ME-B-30K-UL**  
**Initial Delivered Lumens:** 10,381



**OSQ-A-\*\*-2ME-B-40K-UL**  
**Mounting Height:** 25' (7.6m) A.F.G.  
**Initial Delivered Lumens:** 11,424  
**Initial FC at grade**



**CESTL Test Report #:** PL07700-001A  
**OSQ-A-\*\*-2ME-U-57K-UL w/OSQ-BLSLF**  
**Initial Delivered Lumens:** 22,822



**OSQ-A-\*\*-2ME-B-40K-UL w/OSQ-BLSMF**  
**Mounting Height:** 25' (7.6m) A.F.G.  
**Initial Delivered Lumens:** 8,779  
**Initial FC at grade**

#### Type II Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

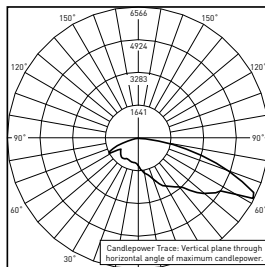
#### Type II Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B2 U0 G2	8,779	B2 U0 G2	8,950	B2 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

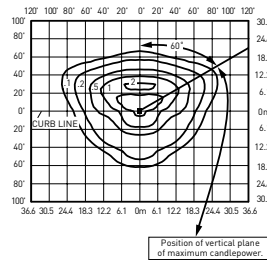
\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

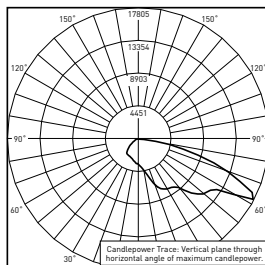
#### 3ME



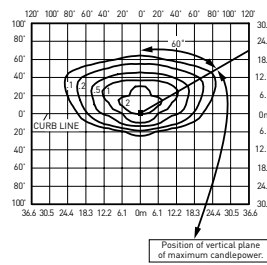
**RESTL Test Report #:** PL08876-001A  
**OSQ-A-\*\*-3ME-B-30K-UL**  
**Initial Delivered Lumens:** 10,421



**OSQ-A-\*\*-3ME-B-40K-UL**  
**Mounting Height:** 25' (7.6m) A.F.G.  
**Initial Delivered Lumens:** 11,424  
**Initial FC at grade**



**CESTL Test Report #:** PL07699-001A  
**OSQ-A-\*\*-3ME-U-57K-UL w/OSQ-BLSLF**  
**Initial Delivered Lumens:** 23,601



**OSQ-A-\*\*-3ME-B-40K-UL w/OSQ-BLSMF**  
**Mounting Height:** 25' (7.6m) A.F.G.  
**Initial Delivered Lumens:** 9,019  
**Initial FC at grade**

#### Type III Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	10,738	B3 U0 G3	11,424	B3 U0 G3	11,648	B3 U0 G3
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

#### Type III Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	8,477	B1 U0 G2	9,019	B1 U0 G2	9,196	B1 U0 G2
K	12,649	B2 U0 G2	13,389	B2 U0 G2	13,650	B2 U0 G2

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

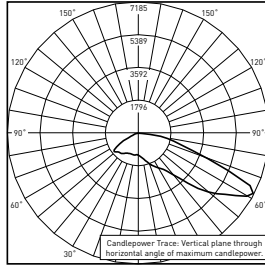


## OSQ™ LED Area/Flood Luminaire – Medium

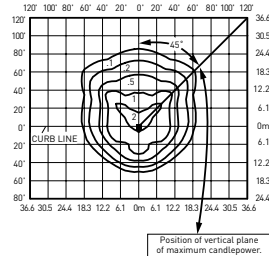
### Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

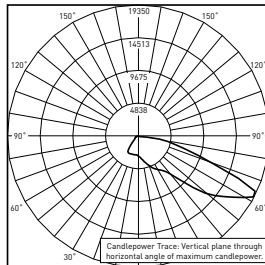
#### 4ME



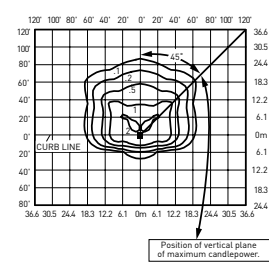
RESTL Test Report #: PL08878-001A  
 OSQ-A-\*\*-4ME-B-30K-UL  
 Initial Delivered Lumens: 10,230



OSQ-A-\*\*-4ME-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G.  
 Initial Delivered Lumens: 11,424  
 Initial FC at grade

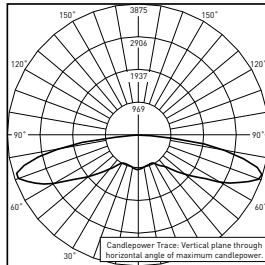


CESTL Test Report #: PL07692-001A  
 OSQ-A-\*\*-4ME-U-57K-UL w/OSQ-BLSLF  
 Initial Delivered Lumens: 22,793

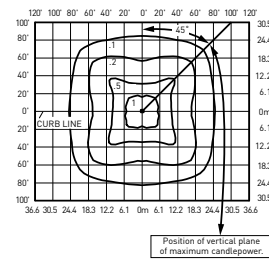


OSQ-A-\*\*-4ME-B-40K-UL w/OSQ-BLSMF  
 Mounting Height: 25' (7.6m) A.F.G.  
 Initial Delivered Lumens: 8,779  
 Initial FC at grade

#### 5ME

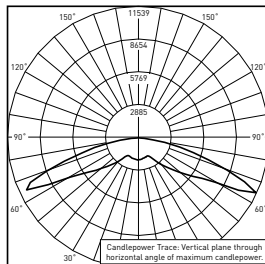


CESTL Test Report #: PL08101-001C  
 OSQ-A-\*\*-5ME-B-30K-UL  
 Initial Delivered Lumens: 9,304

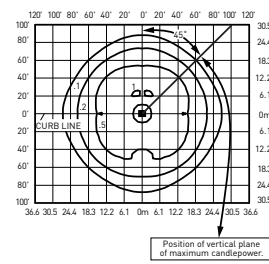


OSQ-A-\*\*-5ME-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G.  
 Initial Delivered Lumens: 10,867  
 Initial FC at grade

#### 5SH



CESTL Test Report #: PL10754-001A  
 OSQ-A-\*\*-5SH-U-40K-UL  
 Initial Delivered Lumens: 25,679



OSQ-A-\*\*-5SH-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G.  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade

#### Type IV Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,738	B2 U0 G2	11,424	B2 U0 G2	11,648	B2 U0 G2
K	16,022	B3 U0 G3	16,959	B3 U0 G3	17,291	B3 U0 G3

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

#### Type IV Medium w/BLS Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	8,251	B1 U0 G2	8,779	B1 U0 G2	8,950	B1 U0 G2
K	12,312	B2 U0 G2	13,032	B2 U0 G2	13,286	B2 U0 G2

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

#### Type V Medium Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11	Initial Delivered Lumens*	BUG Ratings** Per TM-15-11
B	10,232	B4 U0 G4	10,867	B4 U0 G4	11,056	B4 U0 G4
K	15,063	B4 U0 G5	15,999	B4 U0 G5	16,277	B4 U0 G5

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

#### Type V Short Distribution

Input Power Designator	3000K		4000K		5700K	
	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11	Initial Delivered Lumens*	BUG Ratings** Per TM 15 11
B	10,806	B4 U0 G2	11,478	B4 U0 G2	11,678	B4 U0 G2
K	15,909	B4 U0 G3	16,897	B4 U0 G3	17,191	B4 U0 G3

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

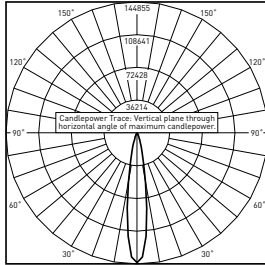
\*\* For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

## OSQ™ LED Area/Flood Luminaire – Medium

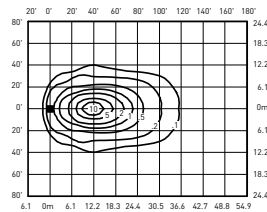
### Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

#### 15D



CESTL Test Report #: PL07689-001A  
 OSQ-A\*\*-15D-U-30K-UL  
 Initial Delivered Lumens: 23,254



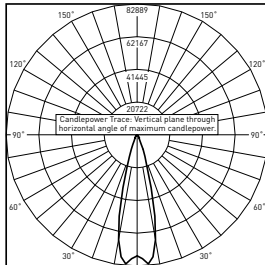
OSQ-A\*\*-15D-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade

#### 15° Flood Distribution

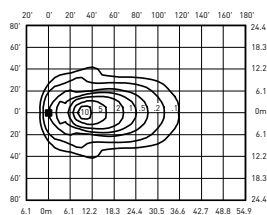
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	10,806	11,478	11,678
K	15,909	16,897	17,191

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

#### 25D



CESTL Test Report #: PL07697-001A  
 OSQ-A\*\*-25D-U-30K-UL  
 Initial Delivered Lumens: 23,265



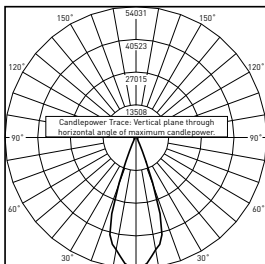
OSQ-A\*\*-25D-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade

#### 25° Flood Distribution

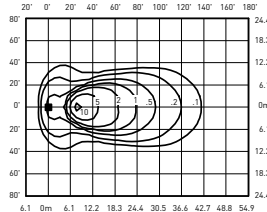
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	10,806	11,478	11,678
K	15,909	16,897	17,191

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

#### 40D



CESTL Test Report #: PL07697-001A  
 OSQ-A\*\*-40D-U-30K-UL  
 Initial Delivered Lumens: 22,943



OSQ-A\*\*-40D-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade

#### 40° Flood Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	10,806	11,478	11,678
K	15,909	16,897	17,191

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

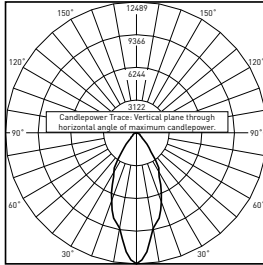


## OSQ™ LED Area/Flood Luminaire – Medium

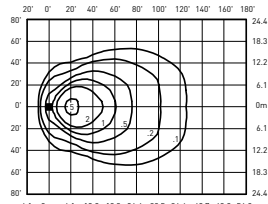
### Photometry

All published luminaire photometric testing performed to IESNA LM-79-08 standards by a NVLAP accredited laboratory. To obtain an IES file specific to your project consult: <http://lighting.cree.com/products/outdoor/area/osq-series>

#### 60D



CESTL Test Report #: PL08100-001B  
 OSQ-A-\*\*-60D-B-30K-UL  
 Initial Delivered Lumens: 10,079



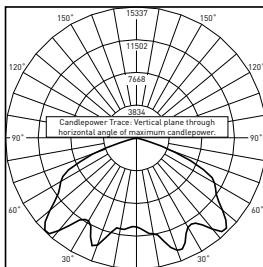
OSQ-A-\*\*-60D-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade

#### 60° Flood Distribution

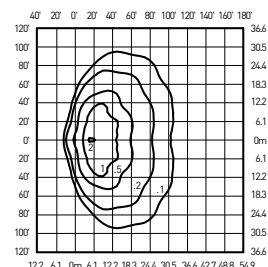
Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	10,806	11,478	11,678
K	15,909	16,897	17,191

\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

#### WSN



CESTL Test Report #: PL07695-001A  
 OSQ-A-\*\*-WSN-B-40K-UL  
 Initial Delivered Lumens: 23,116



OSQ-A-\*\*-WSN-B-40K-UL  
 Mounting Height: 25' (7.6m) A.F.G., 60° Tilt  
 Initial Delivered Lumens: 11,478  
 Initial FC at grade







#### Wide Sign Distribution

Input Power Designator	3000K	4000K	5700K
	Initial Delivered Lumens*	Initial Delivered Lumens*	Initial Delivered Lumens*
B	10,806	11,478	11,678
K	15,909	16,897	17,191







\* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

## OSQ™ LED Area/Flood Luminaire – Medium

### Luminaire EPA

Fixed Arm Mount – OSQ-DA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 120°	4 @ 90°	
							
0.74	1.48	1.19	1.93	1.63	1.63	2.38	

Adjustable Arm Mount – OSQ-AA Weight: 26.5 lbs. (12kg)							
Single	2 @ 180°	2 @ 90°	3 @ 90°	3 @ 120°	3 @ 180°	4 @ 180°	4 @ 90°
<b>Tenon Configuration</b> [0°–80° Tilt]; If used with Cree tenons, please add tenon EPA with Luminaire EPA							
							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*; PD-2A4(90); PT-2(90)	PB-3A*; PD-3A4(90); PT-3(90)	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375; PD-4A4(90); PT-4(90)
<b>0° Tilt</b>							
0.74	1.48	1.19	1.93	1.63	3.33	4.66	2.38
<b>10° Tilt</b>							
0.75	1.48	1.49	2.23	2.15	4.22	5.84	2.98
<b>20° Tilt</b>							
1.12	1.48	1.86	2.60	2.85	5.31	7.32	3.72
<b>30° Tilt</b>							
1.46	1.48	2.20	2.94	3.56	6.34	8.68	4.40
<b>45° Tilt</b>							
1.96	1.96	2.69	3.43	4.54	7.83	10.68	5.38
<b>60° Tilt</b>							
2.33	2.33	3.07	3.81	5.11	8.94	12.16	6.14
<b>70° Tilt</b>							
2.49	2.49	3.23	3.97	5.11	9.43	12.80	6.46
<b>80° Tilt</b>							
2.58	2.58	3.32	4.06	5.11	9.71	13.16	6.64
<b>Tenon Configuration</b> [90° Tilt]; If used with Cree tenons, please add tenon EPA with Luminaire EPA							
PB-1A*; PT-1; PW-1A3**	PB-2A*; PB-2R2.375; PD-2A4(180); PT-2(180); PW-2A3**	PB-2A*	PB-3A*	PB-3A*; PT-3(120)	PB-3A*; PB-3R2.375	PB-4A*(180)	PB-4A*(90); PB-4R2.375
<b>90° Tilt</b>							
2.61	2.61	4.44	6.05	5.11	9.79	13.28	10.39

\* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation

\*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]



## Tenon EPA

Part Number	EPA
PB-1A*	None
PB-2A*	0.82
PB-3A*	1.52
PB-4A*(180)	2.22
PB-4A*(90)	1.11
PB-2R2.375	0.92
PB-3R2.375	1.62
PB-4R2.375	2.32
PD Series Tenons	0.09
PT Series Tenons	0.10
PW-1A3**	0.47
PW-2A3**	0.94
WM-2	0.08
WM-4	0.25
WM-DM	None

\* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation

\*\* These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

Tenons and Brackets† (must specify color)	
<b>Square Internal Mount Vertical Tenons (Steel)</b> - Mounts to 3-6" (76-152mm) square aluminum or steel poles PB-1A* – Single PB-4A*(90) – 90° Quad PB-2A* – 180° Twin PB-4A*(180) – 180° Quad PB-3A* – 180° Triple	<b>Round External Mount Vertical Tenons (Steel)</b> - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons PB-2R2.375 – Twin PB-4R2.375 – Quad PB-3R2.375 – Triple
<b>Square Internal Mount Horizontal Tenons (Aluminum)</b> - Mounts to 4" (102mm) square aluminum or steel poles PD-2A4(90) – 90° Twin PD-3A4(90) – 90° Triple PD-2A4(180) – 180° Twin PD-4A4(90) – 90° Quad	<b>Round External Mount Horizontal Tenons (Aluminum)</b> - Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons - Mounts to square pole with PB-1A* tenon PT-1 – Single (Vertical) PT-3(90) – 90° Triple PT-2(90) – 90° Twin PT-4(90) – 90° Quad PT-2(180) – 180° Twin
<b>Wall Mount Brackets</b> - Mounts to wall or roof WM-2 – Horizontal for OSQ-AA mount WM-4 – L-Shape for OSQ-AA mount WM-DM – Plate for OSQ-DA mount	<b>Mid-Pole Bracket</b> - Mounts to square pole PW-1A3** – Single PW-2A3** – Double
	<b>Ground Mount Post</b> - For ground mounted flood luminaires PGM-1 – for OSQ-AA mount

† Refer to the [Bracket and Tenons spec sheet](#) for more details

## Direct Mount Configurations

Compatibility with OSQ-DA Direct Mount Bracket					
Input Power Designator	2 @ 90°	2 @ 180°	3 @ 90°	3 @ 120°	4 @ 90°
<b>3" Square</b>					
B & K	N/A	✓	N/A	N/A	N/A
<b>3" Round</b>					
B & K	N/A	✓	N/A	N/A	N/A
<b>4" Square</b>					
B & K	✓	✓	✓	N/A	✓
<b>4" Round</b>					
B & K	✓	✓	✓	✓	✓
<b>5" Square</b>					
B & K	✓	✓	✓	N/A	✓
<b>5" Round</b>					
B & K	✓	✓	✓	✓	✓
<b>6" Square</b>					
B & K	✓	✓	✓	N/A	✓
<b>6" Round</b>					
B & K	✓	✓	✓	✓	✓

**Field Adjustable Output (Q9/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:**

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

**Q Option Power & Lumen Data – Designator B**

Q Option Setting	CCT	System Watts	Lumen Values						Optics Qualified on DLC QPL	
		120-480V	Asymmetric	5ME	5SH & Floods	2ME w/ BLS	3ME w/ BLS	4ME w/BLS	Standard	Premium
Q9 (Full Power)	30K	86	10,738	10,232	10,806	8,251	8,477	8,251	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		11,424	10,867	11,478	8,779	9,019	8,779	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		11,648	11,056	11,678	8,950	9,196	8,950		
Q6	30K	77	9,449	9,004	9,509	7,261	7,460	7,261	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		10,053	9,563	10,101	7,726	7,937	7,726	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		10,250	9,729	10,277	7,876	8,092	7,876		
Q5	30K	72	8,913	8,492	8,969	6,848	7,036	6,848	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		9,482	9,020	9,527	7,287	7,486	7,287	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		9,668	9,176	9,693	7,429	7,633	7,429		
Q4	30K	62	7,731	7,367	7,780	5,941	6,103	5,941	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		8,225	7,824	8,264	6,321	6,494	6,321	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		8,387	7,960	8,408	6,444	6,621	6,444		
Q3	30K	53	6,550	6,241	6,592	5,033	5,171	5,033	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		6,969	6,629	7,002	5,355	5,502	5,355	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		7,105	6,744	7,124	5,460	5,610	5,460		
Q2	30K	45	5,476	5,218	5,511	4,208	4,323	4,208	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		5,826	5,542	5,854	4,477	4,600	4,477	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		5,940	5,639	5,956	4,565	4,690	4,565		
Q1	30K	34	4,188	3,990	4,214	3,218	3,306	3,218	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		4,455	4,238	4,476	3,424	3,517	3,424	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		4,543	4,312	4,554	3,491	3,586	3,491		



**Field Adjustable Output (Q9/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:**

The Field Adjustable Output option enables the OSQ area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

**Q Option Power & Lumen Data–Designator K**

Q Option Setting	CCT	System Watts	Lumen Values						Optics Qualified on DLC QPL	
		120-480V	Asymmetric	5ME	5SH & Floods	2ME w/BLS	3ME w/BLS	4ME w/BLS	Standard	Premium
Q9 (FullPower)	30K	130	16,022	15,063	15,909	12,312	12,649	12,312	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		16,959	15,999	16,897	13,032	13,389	13,032	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		17,291	16,277	17,191	13,286	13,650	13,286		
Q6	30K	117	14,099	13,255	14,000	10,835	11,131	10,835	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		14,924	14,079	14,869	11,468	11,782	11,468	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		15,216	14,324	15,128	11,692	12,012	11,692		
Q5	30K	110	13,298	12,502	13,204	10,219	10,499	10,219	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		14,076	13,279	14,025	10,817	11,113	10,817	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		14,352	13,510	14,269	11,027	11,330	11,027		
Q4	30K	93	11,536	10,845	11,454	8,865	9,107	8,865	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		12,210	11,519	12,166	9,383	9,640	9,383	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		12,450	11,719	12,378	9,566	9,828	9,566		
Q3	30K	80	9,773	9,188	9,704	7,510	7,716	7,510	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		10,345	9,759	10,307	7,950	8,167	7,950	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		10,548	9,929	10,487	8,104	8,327	8,104		
Q2	30K	67	8,171	7,682	8,114	6,279	6,451	6,279	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		8,649	8,159	8,617	6,646	6,828	6,646	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		8,818	8,301	8,767	6,776	6,962	6,776		
Q1	30K	51	6,249	5,875	6,205	4,802	4,933	4,802	5ME	2ME, 3ME, 4ME, 5SH, 15D, 25D, 40D, 60D, WSN
	40K		6,614	6,240	6,590	5,082	5,222	5,082	N/A	2ME, 3ME, 4ME, 5ME, 5SH, 15D, 25D, 40D, 60D, WSN
	57K		6,743	6,348	6,704	5,182	5,324	5,182		



**Norman  
Disney &  
Young**  
A TETRA TECH COMPANY

6 July 2018

Kaufland Australia Pty Ltd  
Level 8  
80 Dorcas Street  
South Melbourne VIC 3205  
AU

**Attention: Tom Sheridan**

### **Kaufland - External Lighting Design - Forrestville External Lighting**

Further to discussions and the Town Planning conditions provided for this project, NDY advise that the design and Lighting Plan submitted as part of the Town Planning submission included compliance to AS4282, which includes limitations to spill light to neighbouring properties.

NDY advise that the final lighting design for the project will need to comply with the requirements set forth in NDYs External Lighting Design advice dated 23<sup>rd</sup> April 2018.

MELBOURNE  
SYDNEY  
BRISBANE  
PERTH  
CANBERRA  
ADELAIDE  
GOLD COAST

AUCKLAND  
WELLINGTON

LONDON

VANCOUVER

HONG KONG

#### **NORMAN DISNEY & YOUNG**

Anthony Norton  
Senior Associate





# Arboricultural Impact Assessment

Site: 10 Anzac Highway, Forestville

Date: Monday, 9 July 2018  
ATS4923-010AnzHwyDIR

## Contents

Brief .....	1
Documents and Information Provided .....	1
Executive Summary .....	1
Site Location .....	2
Assessment .....	4
Recommendation .....	5
Glossary .....	6
References .....	6
Appendix A Tree Assessment Methodology	
Appendix B Tree Assessment Findings	
Appendix C Mapping	
Appendix D Tree Findings Summary Table	
Appendix E Tree Protection Zone Guidelines	

Report Reference Number: ATS4923-010AnzHwyDIR

Report prepared for

Tom Sheridan, Property Development, Kaufland Australia Pty Ltd

Author

Peter Oates, Consulting Arborist, Arborman Tree Solutions Pty Ltd



## Brief

Arborman Tree Solutions was engaged to undertake an Arboricultural Impact Assessment and provide a Development Impact Report for 10 Anzac Highway, Forestville. The purpose of the Arboricultural Impact Assessment and Development Impact Report is to identify potential impacts the proposed development will have on the identified trees.

The proposed development includes the demolition of the existing shopping centre and the construction of a shopping centre and car park. Impact mitigation strategies in accordance with Australian Standard AS4970-2009 *Protection of trees on development sites* (AS4970-2009) for trees to be retained have been recommended.

In accordance with section 2.2 of the AS4970-2009 (2.2) the following information is provided:

- Assessment of the general condition and structure of the subject trees.
- Identification of the legislative status of trees on site as defined in the *Development Act 1993* which is marked on the plan.
- Identify and define the Tree Protection Zone and Structural Root Zone for each tree which is marked on the plan.
- Identify potential impacts the development may have on tree health and/or stability which are identified on the plan.
- Recommend impact mitigation strategies in accordance with AS4970-2009 for trees to be retained.
- Provide information in relation to the management of trees.

## Documents and Information Provided

The following information was provided for the preparation of this assessment

- Forestville Site Plan
- Preliminary Tree Assessment ATS4923-010AnzHwyPTA2

## Executive Summary

Arborman Tree Solutions has assessed the potential impacts to three trees (Trees 21, 22 and 32) from the proposed development and supporting infrastructure located at 10 Anzac Highway, Forestville. The assessment has determined the impacts to the trees and recommended mitigations strategies where appropriate.

Tree 32 presented good overall condition but is in direct conflict with the proposal. As it is understood to be otherwise preventing reasonable and expected development, its removal is required to achieve the development.

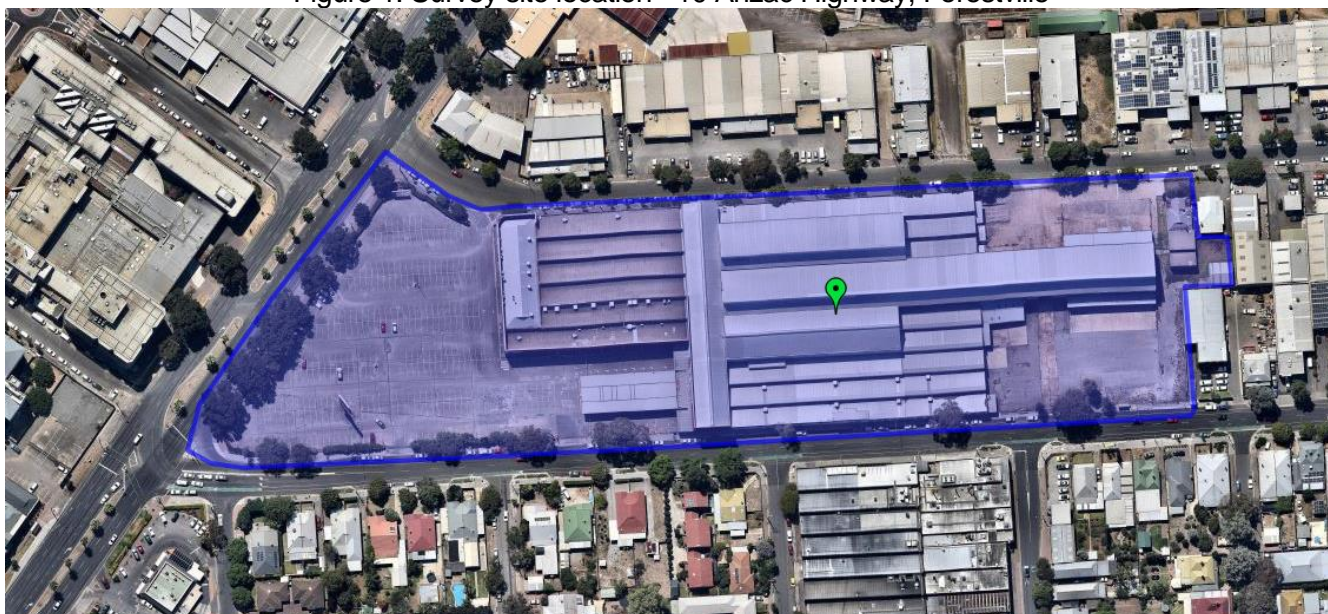
Tree 21 presented a 'Major Encroachment' as defined in AS4970-2009, however there are relevant factors consistent with AS4970-2009 section 3.3.4 which allows for encroachments such as this and impacts to the health of Tree 21 are not expected.

Tree 22 displayed a 'Minor Encroachment', which AS4970-2009 section 3.3.2 states 'detailed root investigations should not be required'

The long-term health, structure and stability of the trees identified for retention are not expected to be compromised if the recommendations within this document and the guidelines of AS4970-2009 are followed.

## Site Location

Figure 1: Survey site location - 10 Anzac Highway, Forestville





## Methodology

The proposed design was reviewed in association with the information supplied in ATS4923-010AnzHwyPTA2 and in the Design Drawings and CAD files as supplied by Kaufland Australia Pty Ltd.

When determining potential impacts of encroachment in to the TPZ, the following should be considered as per AS4970-2009 section 3.3.4;

- a) Location of roots and root development.
- b) The potential loss of root mass from the encroachment.
- c) Tree species and tolerance to root disturbance.
- d) Age, vigour and size of the tree.
- e) Lean and stability of the tree.
- f) Soil characteristics and volume, topography and drainage.
- g) The presence of existing or past structures or obstacles affecting root growth.
- h) Design factors.

Potential Development Impacts were determined in accordance with Australian Standard 4970-2009 *Protection of trees on development sites*. Impacts were classified into the following categories;

- Low - the identified encroachment is less than 10% of the TPZ area and the proposed development is not expected to have a noticeable impact on the viability of the tree.
- High - the identified encroachment is greater than 10% and less than 40% of the TPZ area however there are factors that indicate the proposed development is achievable.
- Substantial - the identified encroachment is greater than 40% of the TPZ area but does not impact the structural root zone or the trunk and there are factors that indicate the proposed development is achievable.
- Conflicted - the identified encroachment is greater than 40% of the TPZ area and impacts the structural root zone and/or the trunk and there are no opportunities to minimise this.

Trees with an Impact identified as High have calculated encroachments greater than 10% however the clauses in AS4970-2009 3.3.4 indicate these trees are sustainable.

Trees with an Impact identified as Substantial have calculated encroachments greater than 40% and therefore alternative design solutions, additional root investigations or tree sensitive construction measures are required.

Trees with an Impact identified as Conflicted have a calculated encroachment greater than 40% and no mitigating clauses in AS4970-2009 3.3.4 apply or alternative design solutions, additional root investigations or tree sensitive construction measures are not available.

Regulatory Status, Tree Protection Zones and Development Impacts are shown in Appendix B.

## Assessment

Arborman Tree Solutions has assessed the potential impacts to three trees (Trees 21, 22 and 32) from the proposed development and supporting infrastructure located at 10 Anzac Highway, Forestville. The assessment has determined the impacts to the trees and recommended mitigations strategies where appropriate. The proposal includes the demolition of the existing shopping centre and the construction of a new shopping centre and car park. This assessment aims to identify potential impacts and recommend mitigation strategies in accordance with Australian Standard AS4970-2009 *Protection of trees on development sites* (AS4970-2009) to ensure tree sustainability.

Trees 21 and 22 both identified as mature specimens of *Fraxinus angustifolia* ssp. *oxycarpa* 'Raywood' (Claret Ash) and presented good overall condition. The trees did not achieve a trunk measurement greater than two metres therefore they are unregulated; however as assets of the City of Unley their protection is warranted in accordance with AS4970-2009.

The encroachment within the Tree Protection Zone (TPZ) of Tree 22 has been calculated to be 8% of the total TPZ area. This encroachment is recognised as a 'Minor Encroachment' as defined by AS4970-2009. A Minor encroachment has a Low impact on the tree and therefore long-term health, structure and stability are not likely to be affected.

The proposed development within the TPZ of Tree 21 has been calculated to be 21% and is recognised as a 'Major Encroachment' under AS4970-2009. Section 3.3.4 (g) allows consideration for the presence of existing or past structures or obstacles affecting root growth. The existing sealed car park and footpath are such obstacles, and substantial root development is not expected within these areas. The development proposed in this area is therefore not expected to damage the root system. The tree also presents good vigour and vitality and impacts to the health of the tree are not expected.

Tree 32 identified a mature specimen of *Eucalyptus scoparia* (Wallangarra White Gum) and presented good overall condition. The proposed development within the TPZ of Tree 32 has been calculated to be 100% and is recognised as a 'Major Encroachment' under AS4970-2009. The tree is in direct conflict with the proposal, there are no Arboricultural grounds to remove this tree however, as it is understood to be otherwise preventing reasonable and expected development; its removal is required to achieve the development. Whilst this is an unregulated tree, it is an asset of the City of Unley and therefore a development application for its removal will be required to be submitted to Council.

If the recommendations within this document and the guidelines of AS4970-2009 are closely adhered to, the structural integrity, stability and health Trees 21 and 22 are not expected to be compromised by this development.



## Recommendation

The following recommendations are presented based on the Arboricultural Impact Assessment:

### **Tree 21 and 22**

1. A Project Arborist should be appointed to assist in the compilation and installation of the tree protection.
2. Erect a protective fence around the TPZ of the trees during the development, which can be removed once the development is completed. (A TPZ sign has been appended to the end of this report which is intended to be reproduced, laminated and attached to the TPZ fence).
3. All personnel and contractors should be briefed regarding the purpose of a TPZ and activities prohibited within a TPZ and copies of necessary documentation should be available for their reference.
4. No materials, soil or vehicles should be stored within the TPZ (see Appendix E for a complete list of prohibited activities within a TPZ).
5. All services including water and electrical connections etc., should be located as much as practicable outside the TPZ.
6. The Project Arborist should conduct compliance checks throughout the development process.

### **Tree 32**

1. A development application is required to be submitted to the City of Unley for tree removal.
2. Tree 32 should be removed prior to the commencement of the development.
3. Development Approval must be obtained prior to any tree damaging activities.

Thank you for the opportunity to provide this report. Should you have any questions or require further information, please contact me and I will be happy to be of assistance.

Yours sincerely



**PETER OATES**  
**Consulting Arboriculturist**  
**Diploma of Arboriculture**



## Glossary

<b>Size:</b>	approximate height and width of tree in metres.
<b>Age:</b>	identification of the maturity of the subject tree.
<b>Useful Life Expectancy:</b>	expected number of the years that the subject specimen will remain alive and sound in its current location and/or continues to achieve the relevant Principles of Development Control.
<b>Health:</b>	visual assessment of tree health.
<b>Structure:</b>	visual assessment of tree structure.
<b>Circumference:</b>	trunk circumference measured at one metre above ground level. This measurement is used to determine the status of the tree in relation to the <i>Development Act 1993</i> .
<b>Diameter at Breast Height (DBH):</b>	trunk diameter measured at 1.4 metres above ground level used to determine the Tree Protection Zone as described in Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> .
<b>Diameter at Root Buttress (DRB):</b>	trunk diameter measured just above the root buttress as described in Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> and is used to determine the Structural Root Zone.
<b>Tree Damaging Activity</b>	Tree damaging activity includes those activities described within the <i>Development Act 1993</i> such as removal, killing, lopping, ringbarking or topping or any other substantial damage such as mechanical or chemical damage, filling or cutting of soil within the TPZ. Can also include forms of pruning above and below the ground.
<b>Tree Protection Zone:</b>	area of root zone that should be protected to prevent substantial damage to the tree's health.
<b>Structural Root Zone:</b>	calculated area within the tree's root zone that is considered essential to maintain tree stability.
<b>Project Arborist</b>	A person with the responsibility for carrying out a tree assessment, report preparation, consultation with designers, specifying tree protection measures, monitoring and certification. The Project Arborist must be competent in arboriculture, having acquired through training, minimum Australian Qualification Framework (AQTF) Level 5, Diploma of Horticulture (Arboriculture) and/or equivalent experience, the knowledge and skills enabling that person to perform the tasks required by this standard.

## References

Australian Standard AS4970–2009 ***Protection of trees on development sites***: Standards Australia.

Matheny N. Clark J. 1998: ***Trees and Development a Technical Guide to Preservation of Trees During Land Development***. International Society of Arboriculture, Champaign, Illinois, USA.



## Appendix A - Tree Assessment Methodology

## Tree Assessment Form (TAF©)

Record	Description
<b>Tree</b>	A perennial woody plant with a mature height of greater than 5 metres and life expectancy of more than 10 years.
<b>Genus and Species</b>	Trees are identified using normal field plant taxonomy techniques. Due to hybridisation and plant conditions available on the day of observation it may not always be possible to identify the tree to species level; where species cannot be ascertained <i>sp.</i> is used.
<b>Height</b>	Tree height is observed and recorded in the following ranges; <5m, 5-10m, 10-15m and >20m.
<b>Spread</b>	Crown width (projection) diameter is recorded by the following fields <5m, 5-10m, 10-15m, 15-20m, >20m.
<b>Tree Health</b>	Tree health was assessed using the Arborman Tree Solutions - Tree Health Assessment Method that is based on international best practice.
<b>Tree Structure</b>	Tree structure was assessed using Arborman Tree Solutions - Tree Structure Assessment Method that is based on international best practice.
<b>Tree Risk Assessment</b>	Trees were assessed using the International Society of Arboriculture Level 1 Tree Assessment method. The person conducting the assessment has acquired the International Society of Arboriculture Tree Risk Assessment Qualification (TRAQ).
<b>Legislative Status</b>	Legislation status was identified through the interpretation of the <i>Development Act 1993</i> , and the <i>Natural Resource Management Act 2004</i> as well as other relevant legislation, therefore determining regulatory status of the subject tree.
<b>Mitigation</b>	Measures to reduce tree risk may be recommended in the form of pruning and this listed in the Tree Assessment Findings (Appendix C). Tree pruning is recommended in accordance with AS4373-2007 <i>Pruning amenity trees</i> where practicable. Where measures to mitigate risk is not possible and the risk is unacceptable, then tree removal or further investigation is recommended.

## Useful Life Expectancy (ULE)

ULE Rating	Definition
Surpassed	The tree has surpassed its Useful Life Expectancy.
<10 years	The tree displays either or both Poor Health and/or Structure and is considered to have a short Useful Life Expectancy of less than ten years.
>10 years	The tree displays Fair Health or Structure and Good Health and Structure and is considered to have a Useful Life Expectancy of more than ten years.
>20 years	The tree displays Good Health and Structure and is considered to have an extended Useful Life Expectancy of more than twenty years.

## Maturity (Age)

Age Class	Definition
Senescent	The tree has surpassed its optimum growing period and is declining and/or reducing in size. May be considered as a veteran in relation to its ongoing management. Tree will have generally reached greater than 80% of its expected life expectancy.
Mature	A tree which has reached full maturity in terms of its predicted life expectancy and size, the tree is still active and experiencing cell division. Tree will have generally reached 20-80% of its expected life expectancy.
Semi Mature	A tree which has established, but has not yet reached maturity. Normally tree establishment practices such as watering will have ceased. Tree will generally not have reached 20% of its expected life expectancy.
Juvenile	A newly planted tree or one which is not yet established in the landscape. Tree establishment practices such as regular watering will still be in place. Tree will generally be a newly planted specimen up to five years old; this may be species dependant.



## Tree Health Indication (THI©)

Category	Description
Good	Tree displays high vigour, uniform leaf colour, no or little dieback (<5%), crown density (>85%) and or healthy axillary buds and typical internode length. The tree has little to no pest and/or disease infestation.
Fair	Tree displays low vigour, dull leaf colour, little dieback (<15%), crown density (>70%) and/or reduced axillary buds and internode length. Minor pest and/or disease infestation potentially impacting on tree health.
Poor	Tree displays no vigour, chlorotic or dull leaf colour, moderate to high crown dieback (>15%), low crown density (<70%) and/or few or small axillary buds and shortened internode length. Pest and or disease infestation is evident and/or widespread.
Dead	The tree has died and has no opportunity for recovery.

## Tree Structural Assessment (TSA©)

Category	Description
Good	Little to no branch failure observed within the crown, well-formed unions, no included bark, good branch and trunk taper present, root buttressing and root plate are typical.
Fair	History of minor branch failure observed in crown, well-formed unions, no included bark, acceptable branch and trunk taper present, root buttressing and root plate are typical.
Poor	History of significant branch failure observed in crown, poorly formed unions, included bark present, branch and trunk taper absent, root buttressing and root plate are atypical.
Failed	The structure of the tree has or is in the process of collapsing.

## Tree Retention Rating (TRR)

The Tree Retention Rating is based on a number of factors that are identified as part of the standard tree assessment criteria including Condition, Size, Environmental, Amenity and Special Values. These factors are combined in a number of matrices to provide a Preliminary Tree Retention Rating and a Tree Retention Rating Modifier which combine to provide a Tree Retention Rating that is measurable, consistent and repeatable

### Preliminary Tree Retention Rating

The Preliminary Tree Retention Rating is conducted assessing Tree Health and Structure to give an overall Condition Rating and Height and Spread to give an overall Size Rating. The following matrices identify how these are derived.

Condition Matrix				
Structure	Health			
	Good	Fair	Poor	Dead
Good	C1	C1	C3	C4
Fair	C1	C2	C3	C4
Poor	C3	C3	C4	C4
Failed	C4	C4	C4	C4

Size Matrix					
Spread	Height				
	>20	15-20	10-15	5-10	<5
>20	S1	S1	S1	S2	S3
15-20	S1	S1	S2	S3	S3
10-15	S1	S2	S2	S3	S4
5-10	S2	S3	S3	S4	S5
<5	S3	S3	S4	S5	S5

The results from the Condition and Size Matrices are then placed in the Preliminary Tree Retention Rating Matrix.

Preliminary Tree Retention Rating				
Size	Condition			
	C1	C2	C3	C4
S1	High	High	Low	Low
S2	High	Moderate	Low	Low
S3	Moderate	Moderate	Low	Low
S4	Moderate	Moderate	Low	Low
S5	Low	Low	Low	Low

The Preliminary Tree Retention Rating gives a base rating for all trees regardless of other environmental and/or amenity factors and any Special Value considerations. The Preliminary Tree Retention Rating can only be modified if these factors are considered to be of high or low enough importance to warrant increasing or, in a few cases, lowering the original rating.



### Tree Retention Rating Modifier

The Preliminary Tree Retention Rating is then qualified against the recognised Environmental and Amenity benefits that trees present to the community thereby providing a quantitative measure to determine the overall Tree Retention Rating. Data is collected in relation to Environmental and Amenity attributes which are compared through a set of matrices to produce a Tree Retention Rating Modifier.

Environmental Matrix				
Origin	Habitat			
	Active	Inactive	Potential	No Habitat
Indigenous	E1	E1	E2	E3
Native	E1	E2	E3	E3
Exotic	E2	E3	E3	E4
Weed	E3	E3	E4	E4

Amenity Matrix				
Character	Aesthetics			
	High	Moderate	Low	None
Important	P1	P1	P2	P3
Moderate	P1	P2	P3	P3
Low	P2	P3	P3	P4
None	P3	P3	P4	P4

Tree Retention Rating Modifier				
Amenity	Environment			
	E1	E2	E3	E4
P1	High	High	Moderate	Moderate
P2	High	Moderate	Moderate	Moderate
P3	Moderate	Moderate	Moderate	Moderate
P4	Moderate	Moderate	Moderate	Low

### Tree Retention Rating

The results of the Preliminary Tree Retention Rating and the Tree Retention Rating Modifier matrices are combined in a final matrix to give the actual Tree Retention Rating.

Tree Retention Rating Matrix			
Tree Retention Rating Modifier	Preliminary Tree Retention Rating		
	High	Moderate	Low
High	Important	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

## **Special Value Trees**

There are potentially trees that have Special Value for reasons outside of normal Arboricultural assessment protocols and therefore would not have been considered in the assessment to this point; to allow for this a Special Value characteristic that can override the Tree Retention Rating can be selected. Special Value characteristics that could override the Tree Retention Rating would include factors such as the following:

### *Cultural Values*

Memorial Trees, Avenue of Honour Trees, Aboriginal Heritage Trees, Trees planted by Dignitaries and various other potential categories.

### *Environmental Values*

Rare or Endangered species, Remnant Vegetation, Important Habitat for rare or endangered wildlife, substantial habitat value in an important biodiversity area and various other potential categories.

Where a tree achieves one or more Special Value characteristics the Tree Retention Rating will automatically be overridden and assigned the value of Important.

## **Tree Retention Rating Definitions**

- |                  |  |
|------------------|--|
| <b>Important</b> | These trees are considered to be important and will in almost all instances be required to be retained within any future development/redevelopment. It is highly unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should as a minimum be consistent with Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> however given the level of importance additional considerations may be required.   |
| <b>High</b>      | These trees are considered to be important and will in most instances be required to be retained within any future development/redevelopment. It is unlikely that trees that achieve this rating would be approved for removal or any other tree damaging activity. Protection of these trees should be consistent with Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> .  |
| <b>Moderate</b>  | These trees are considered to be suitable for retention however they achieve less positive attributes than the trees rated as Important or High and as such their removal or other tree damaging activity is more likely to be considered to be acceptable in an otherwise reasonable and expected development. The design process should where possible look to retain trees with a Moderate Retention Rating. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> . |
| <b>Low</b>       | These trees are not considered to be suitable for retention in any future development/redevelopment; trees in this category do not warrant special works or design modifications to allow for their retention. Trees in this category are likely to be approved for removal and/or other tree damaging activity in an otherwise reasonable and expected development. Protection of these trees, where they are identified to be retained, should be consistent with Australian Standard AS4970-2009 <i>Protection of trees on development sites</i> .  |



## Appendix B - Tree Assessment Findings

## Claret Ash

**Inspected:** Wednesday, 11 April 2018

**Height:** >10 metres

**Spread:** >10 metres

**Health:** Fair

**Structure:** Good

**Trunk Circumference:** 1.98 metres

**Useful Life Expectancy:** >10 years

**Tree Protection Zone (TPZ):** 8.40 metres

**Structural Root Zone (SRZ):** 1.50 metres

### Legislative Status

This tree is not regulated by the Development Act 1993.  
This tree does not achieve a regulated trunk circumference.

### Retention Rating

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

### Development Impact

The identified encroachment is greater than 10% of the TPZ area however the existing or past structures in the root zone would minimise root activity in this area.

### Observations

This tree is a council asset.

### Recommendation

This tree should be protected in accordance with AS4970-2009.



**GPS Coords (MGA Zone 54)**

278818 E, 6130010 N

**Legislative Status**

Unregulated

**Retention Rating**

Moderate

**Development Impact**

High

**Recommendation**

Apply TPZ



## Claret Ash

**Inspected:** Wednesday, 11 April 2018

**Height:** >10 metres

**Spread:** >10 metres

**Health:** Fair

**Structure:** Fair

**Trunk Circumference:** 1.85 metres

**Useful Life Expectancy:** >10 years

**Tree Protection Zone (TPZ):** 6.96 metres

**Structural Root Zone (SRZ):** 1.50 metres

### Legislative Status

This tree is not regulated by the Development Act 1993.  
This tree does not achieve a regulated trunk circumference.

### Retention Rating

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

### Development Impact

The identified encroachment is less than 10% of the TPZ area and the proposed development is not expected to have a noticeable impact on the viability of the tree.

### Observations

This tree is a council asset.

### Recommendation

This tree should be protected in accordance with AS4970-2009.



**GPS Coords (MGA Zone 54)**

278806 E, 6129995 N

**Legislative Status**

Unregulated

**Retention Rating**

Moderate

**Development Impact**

Low

**Recommendation**

Apply TPZ

## Wallangarra White Gum

**Inspected:** Wednesday, 11 April 2018

**Height:** >10 metres

**Spread:** >10 metres

**Health:** Good

**Structure:** Good

**Trunk Circumference:** 1.51 metres

**Useful Life Expectancy:** >10 years

**Tree Protection Zone (TPZ):** 5.76 metres

**Structural Root Zone (SRZ):** 1.50 metres

### Legislative Status

This tree is not regulated by the Development Act 1993. This tree does not achieve a regulated trunk circumference.

### Retention Rating

This tree has a Moderate Retention Rating and could be considered for retention in any future development.

### Development Impact

The proposed development is in direct conflict, tree removal is required to achieve the proposal.

### Observations

This tree is a council asset.

### Recommendation

Tree removal is recommended.



**GPS Coords (MGA Zone 54)**

278932 E, 6129933 N

**Legislative Status**

Unregulated

**Retention Rating**

Moderate

**Development Impact**

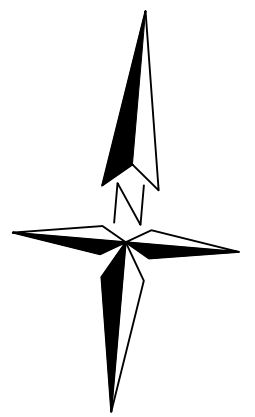
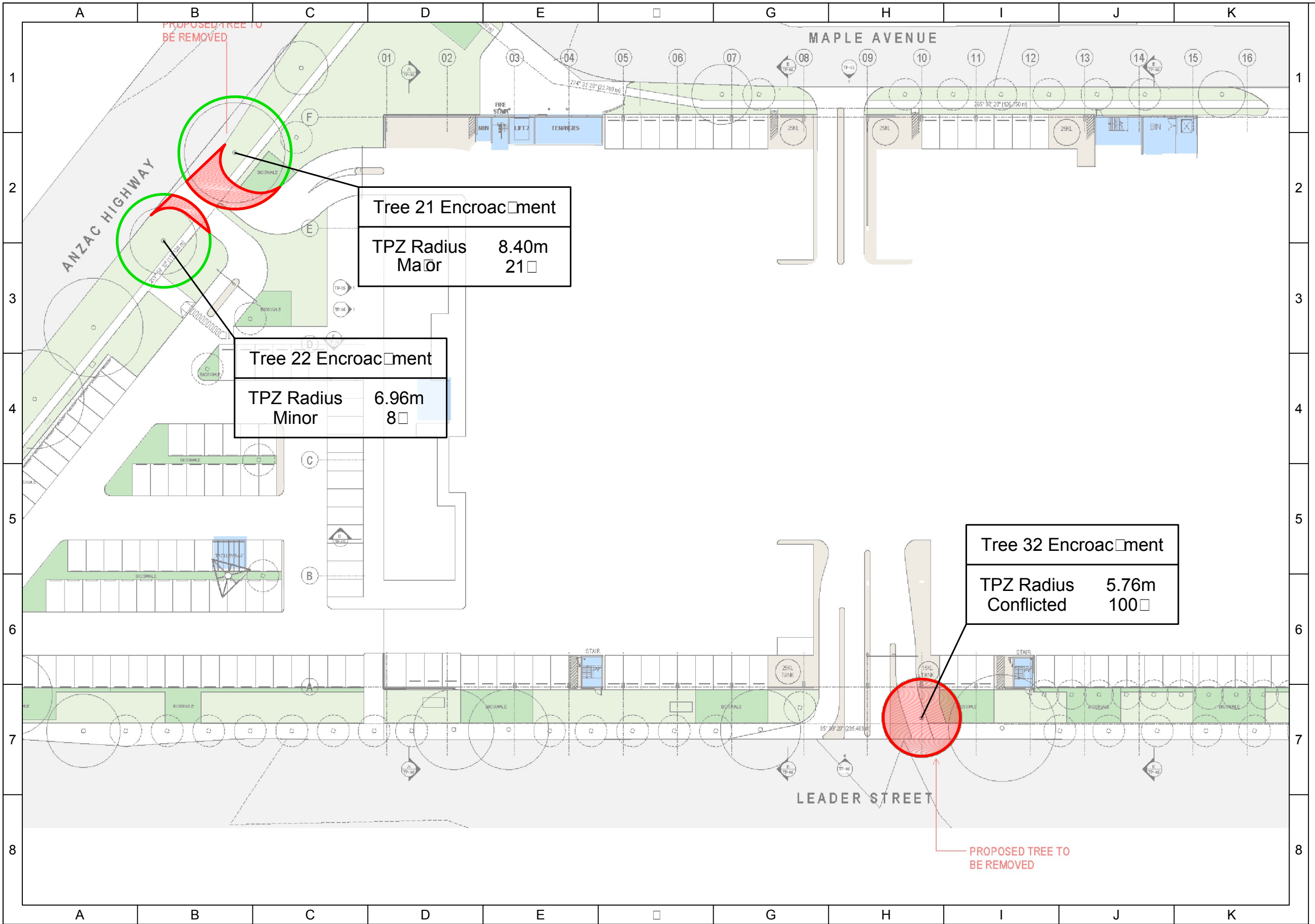
Conflicted

**Recommendation**

Remove



## Appendix C - Mapping



Arborman Pty Ltd

TPZ

Trunk

Encroachment Zone

Tree 21 Encroachment

TPZ Radius Major	8.40m
	21°

Tree 22 Encroachment

TPZ Radius Minor	6.96m
	8°

Tree 32 Encroachment

TPZ Radius Conflicted	5.76m
	100°

Date 9/07/2018    Re 2  
 Ref ATS4923 Encroachment 180409  
 Arborman Tree Solutions  
 23 Aberdeen Street  
 Port Adelaide SA 5015  
 08 8240 5555  
[www.arborman.com.au](http://www.arborman.com.au)

# TPZ Encroachment

Not to Scale





## Appendix D - Tree Assessment Summary

# Tree Assessment Summary

Tree No.	Botanic Name	Legislative Status	Retention Rating	Development Impact	TPZ Radius	Observations	Recommendations
21	<i>Fraxinus angustifolia</i> <i>ssp. oxycarpa</i> 'Raywood'	Unregulated	Moderate	High	8.40 metres	This tree is a council asset.	This tree should be protected in accordance with AS4970-2009.
22	<i>Fraxinus angustifolia</i> <i>ssp. oxycarpa</i> 'Raywood'	Unregulated	Moderate	Low	6.96 metres	This tree is a council asset.	This tree should be protected in accordance with AS4970-2009.
32	<i>Eucalyptus scoparia</i>	Unregulated	Moderate	Conflicted	5.76 metres	This tree is a council asset.	Tree removal is recommended.



## Appendix E - Tree Protection Zone Guidelines

## **Tree Protection Zone General Specifications and Guidelines**

The Tree Protection Zone(s) is identified on the site plan. The TPZ is an area where construction activities are regulated for the purposes of protecting tree viability. The TPZ should be established so that it clearly identifies and precludes development/construction activities including personnel.

If development activities are required within the TPZ then these activities must be reviewed and approved by the Project Arborist. Prior to approval, the Project Arborist must be certain that the tree(s) will remain viable as a result of this activity.

### **Work Activities Excluded from the Tree Protection Zone:**

- a) Machine excavation including trenching;
- b) Excavation for silt fencing;
- c) Cultivation;
- d) Storage;
- e) Preparation of chemicals, including preparation of cement products;
- f) Parking of vehicles and plant;
- g) Refuelling;
- h) Dumping of waste;
- i) Wash down and cleaning of equipment;
- j) Placement of fill;
- k) Lighting of fires;
- l) Soil level changes;
- m) Temporary or permanent installation of utilities and signs, and
- n) Physical damage to the tree.



## Protective Fencing

Protective fencing must be installed around the identified Tree Protection Zone (See Figure1). The fencing should be chain wire panels and compliant with AS4687 - 2007 *Temporary fencing and hoardings*. Shade cloth or similar material should be attached around the fence to reduce dust, other particulates and liquids entering the protected area.

Temporary fencing on 28kg bases are recommended for use as this eliminates any excavation requirements to install fencing. Excavation increase the likelihood of root damage therefore should be avoided where possible throughout the project.

Existing perimeter fencing and other structures may be utilised as part of the protective fencing.

Any permanent fencing should be post and rail with the set out determined in consultation with the Project Arborist.

Where the erection of the fence is not practical the Project Arborist is to approve alternative measures.

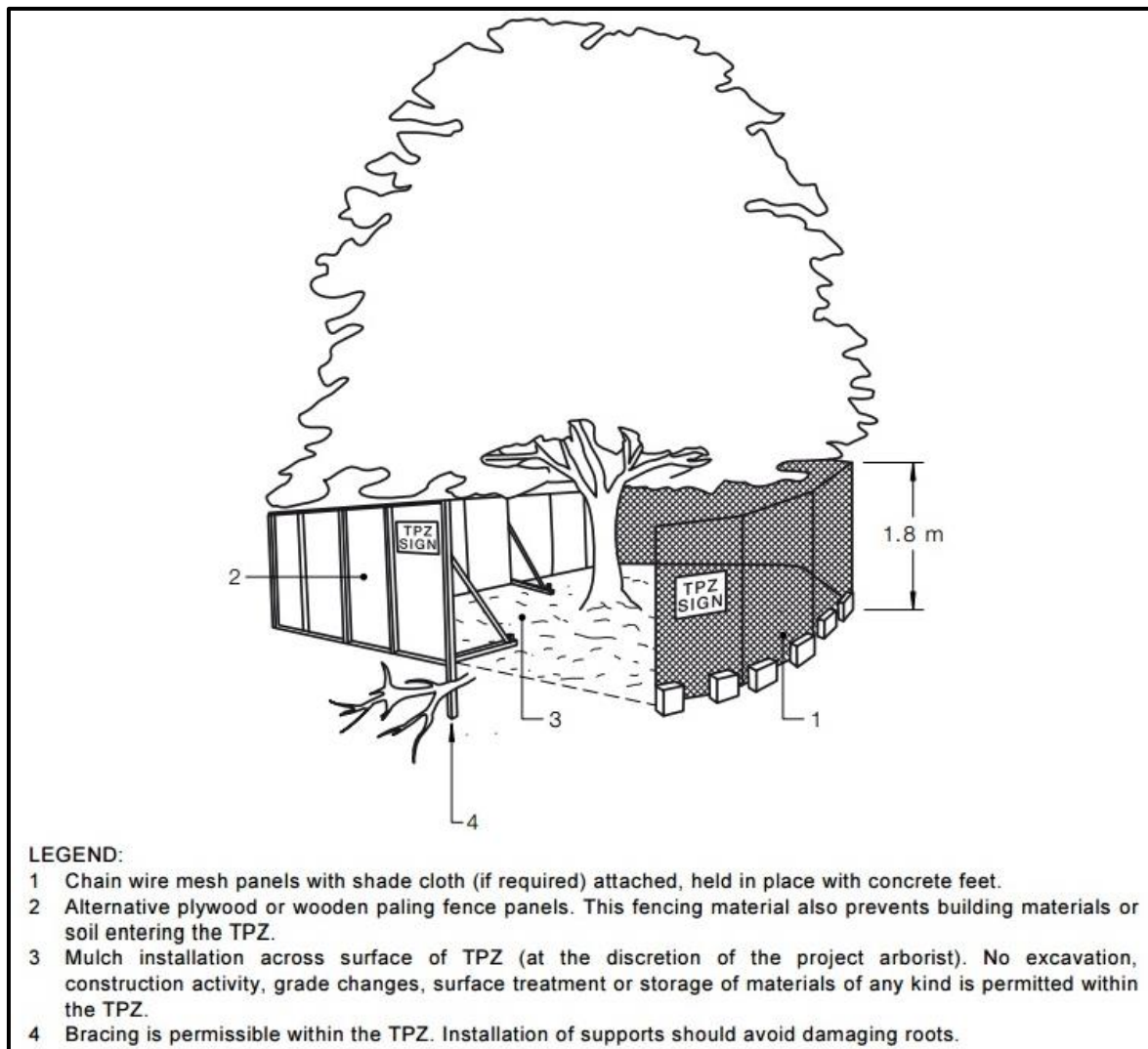


Figure 1 Showing example of protection fencing measures suitable.

## Other Protection Measures

### General

When a TPZ exclusion area cannot be established due to practical reasons or the area needs to be entered to undertake construction activities then additional tree protection measures may need to be adopted. Protection measures should be compliant with AS4970-2009 and approved by the Project Arborist

### Installation of Scaffolding within Tree Protection Area.

Where scaffolding is required within the TPZ branch removal should be minimised. Any branch removal required should be approved by the Project Arborist and performed by a certified Arborist and performed in accordance with AS4373-2007. Approval to prune branches must be documented and maintained.

Ground below scaffold should be protected by boarding (e.g. scaffold board or plywood sheeting) as shown in Figure below. The boarding should be left in place until scaffolding is removed.

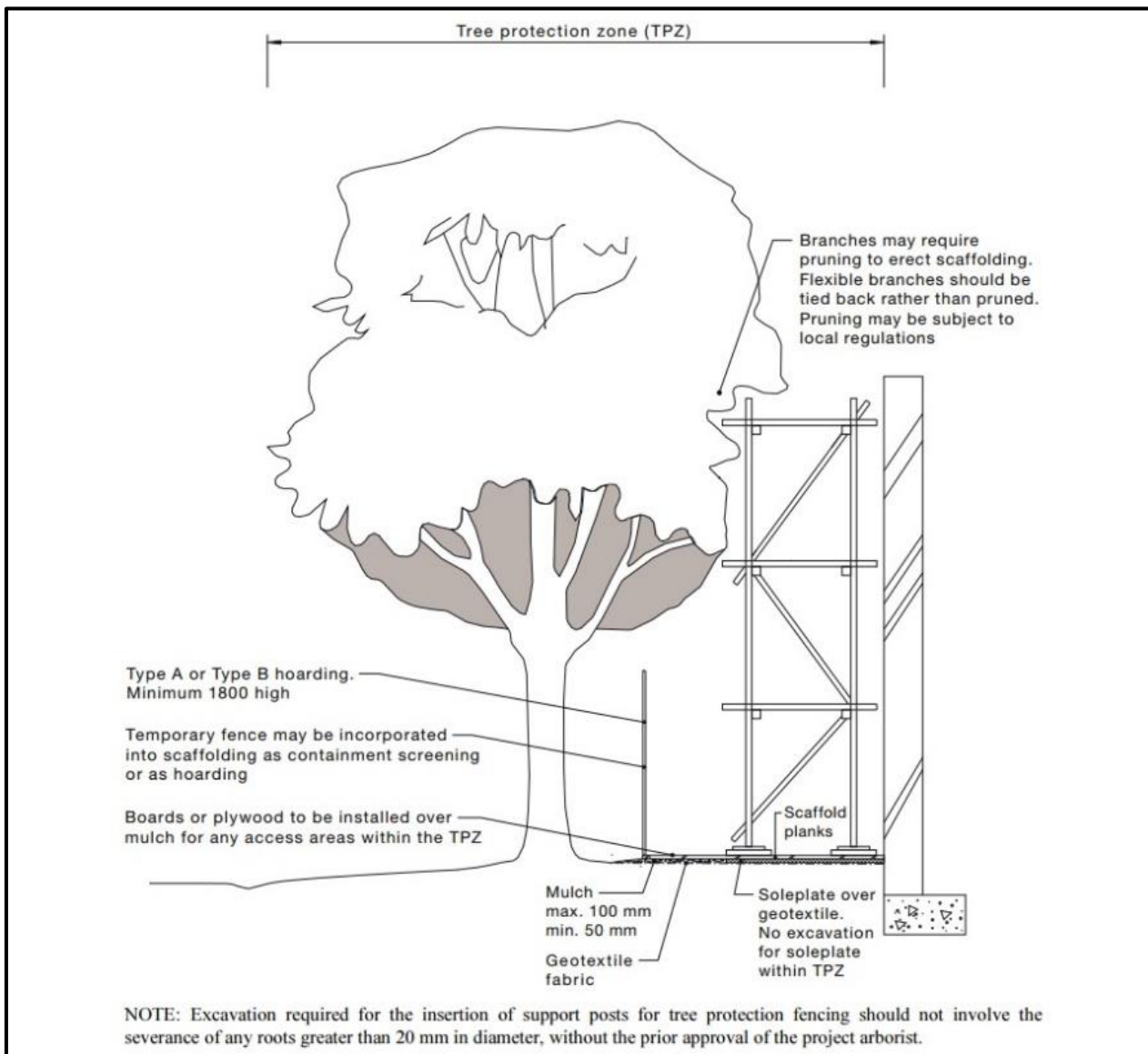


Figure 2 – Showing scaffolding constructed within TPZ.



## Ground Protection

Where access is required within the TPZ ground protection measures are required. Ground protection is to be designed to prevent both damage to the roots and soil compaction.

Ground protection methods include the placement of a permeable membrane beneath a layer of non-compactable material such as mulch or a no fines gravel which is in turn covered with rumble boards or steel plates.

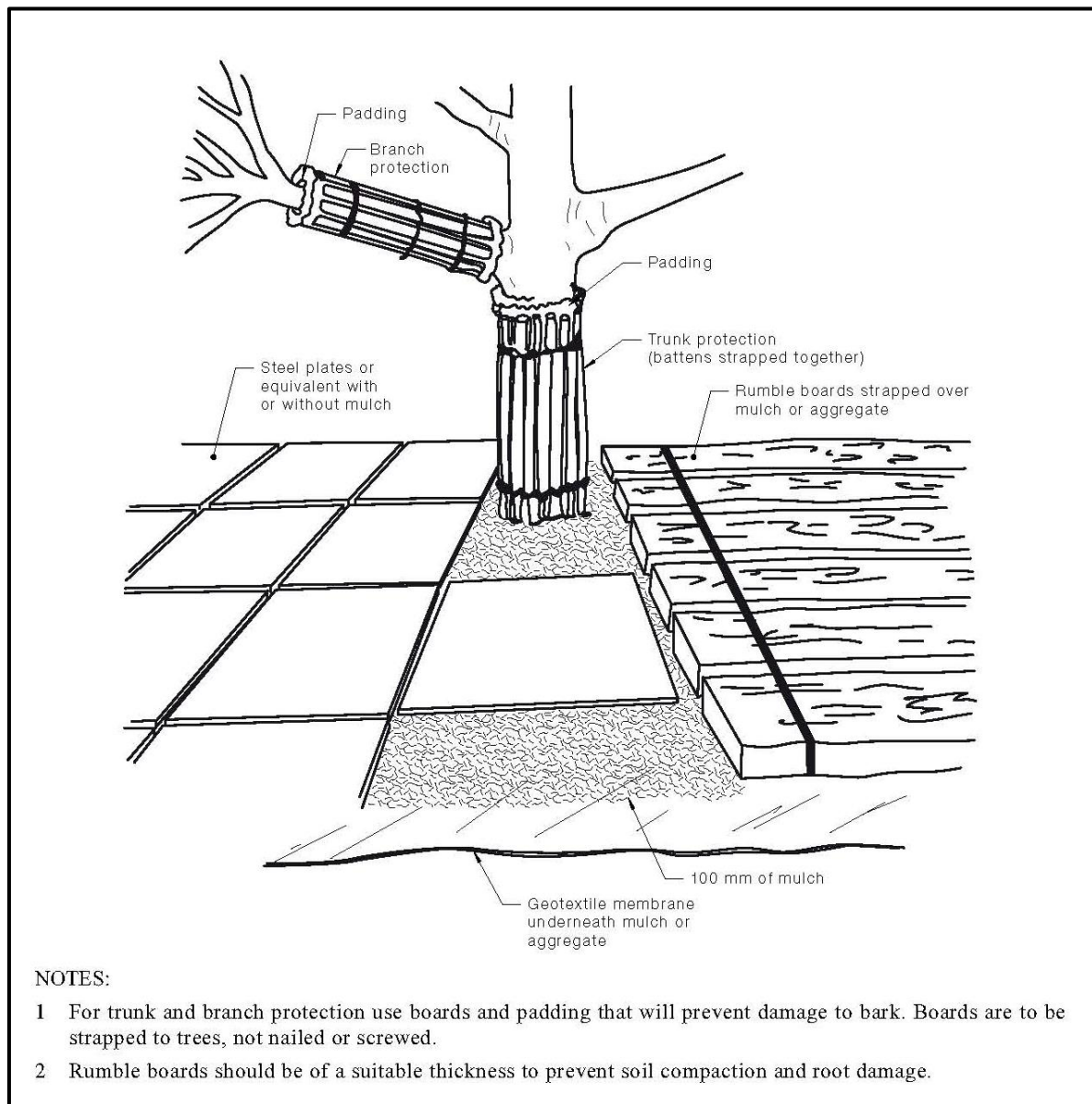


Figure 3 – Ground protection methods.

## Document Source:

Diagrams in this document are sourced from AS4970-2009 Protection of trees on development sites. Further information and guidelines are available in within that document.

### Paving Construction within a Tree Protection Zone

Paving within any Tree Protection Zone (TPZ) must be carried out above natural ground level unless it can be shown with non-destructive excavation (AirSpade® or similar) that no or insignificant root growth occupies the proposed construction area.

Due to the adverse effect filling over a Tree Protection Zone (TPZ) can have on tree health; alternative mediums other than soil must be used. Available alternative mediums include structural soils or the use of a cellular confinement system such as *Ecocell*®.

### Ecocell®

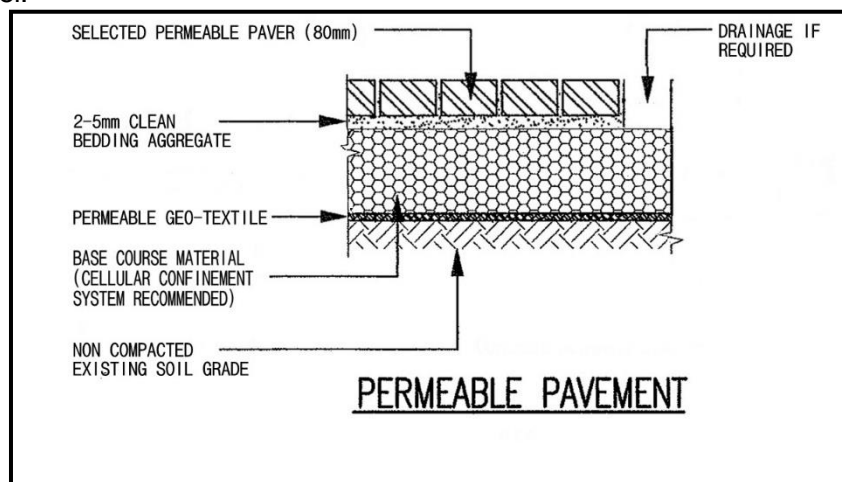
Ecocell® systems are a cellular confinement system that can be filled with large particle sized gravels as a sub-base for paving systems to reduce compaction to the existing grade.

### Site preparation

- Clearly outline to all contracting staff entering the site the purpose of the TPZ's and the contractors' responsibilities. No fence is to be moved and no person or machinery is to access the TPZ's without consent from the City of Unley and/or the Project Arborist.
- Fence off the unaffected area of the TPZ with a temporary fence leaving a 1.5 metre gap between the work area and the fence; this will prevent machinery access to the remaining root zone.

### Installation of Ecocell® and EcoTrihex Paving®

- Install a non-woven geotextile fabric for drainage and separation from sub base with a minimum of 600mm overlap on all fabric seams as required.
- Add Ecocell®, fill compartments with gravel and compact to desired compaction rate.
- If excessive groundwater is expected incorporate an appropriate drainage system within the bedding sand level.
- Add paving sand to required depth and compact to paving manufacturer's specifications.
- Lay EcoTrihex Paving® as per manufactures specifications and fill gaps between pavers with no fines gravel.
- Remove all debris, vegetation cover and unacceptable in-situ soils. No excavation or soil level change of the sub base is allowable for the installation of the paving.
- Where the finished soil level is uneven, gullies shall be filled with 20 millimetre coarse gravel to achieve the desired level.



This construction method if implemented correctly can significantly reduce and potentially eliminated the risk of tree decline and/or structural failure and effectively increase the size of the Tree Protection Zone to include the area of the paving.



## Certificates of Control

Stage in development	Tree management process	
	Matters for consideration	Actions and certification
Development submission	Identify trees for retention through comprehensive arboricultural impact assessment of proposed construction. Determine tree protection measures Landscape design	Provide arboricultural impact assessment including tree protection plan (drawing) and specification
Development approval	Development controls Conditions of consent	Review consent conditions relating to trees
<b>Pre-construction (Sections 4 and 5)</b>		
Initial site preparation	State based OHS requirements for tree work  Approved retention/removal  Refer to AS 4373 for the requirements on the pruning of amenity trees  Specifications for tree protection measures	Compliance with conditions of consent  Tree removal/tree retention/transplanting  Tree pruning Certification of tree removal and pruning  Establish/delineate TPZ Install protective measures Certification of tree protection measures
<b>Construction (Sections 4 and 5)</b>		
Site establishment	Temporary infrastructure Demolition, bulk earthworks, hydrology	Locate temporary infrastructure to minimize impact on retained trees Maintain protective measures Certification of tree protection measures
Construction work	Liaison with site manager, compliance Deviation from approved plan	Maintain or amend protective measures Supervision and monitoring
Implement hard and soft landscape works	Installation of irrigation services Control of compaction work Installation of pavement and retaining walls	Remove selected protective measures as necessary Remedial tree works Supervision and monitoring
Practical completion	Tree vigour and structure	Remove all remaining tree protection measures Certification of tree protection
<b>Post construction (Section 5)</b>		
Defects liability/maintenance period	Tree vigour and structure	Maintenance and monitoring Final remedial tree works Final certification of tree condition

### Document Source:

This table has been sourced from AS4970-2009 Protection of trees on development sites. Further information and guidelines are available in within that document.

# Tree Protection Zone



## NO ACCESS

Contact: Arborman Tree Solutions

Ph. 8240 5555

m: 0418 812 967

e: [arborman@arborman.com.au](mailto:arborman@arborman.com.au)





# Kaufland

## AUS1 – 10 Anzac Highway Waste Management Plan

---

March 2018



Prepared by Rawtec Pty Ltd



ABN 59 127 176 569  
PO Box 1159,  
Glenelg South SA 5045  
Ph: +61 8 8294 5571  
[www.rawtec.com.au](http://www.rawtec.com.au)

#### - IMPORTANT NOTES-

*This document has been prepared by Rawtec Pty Ltd (Rawtec) for a specific purpose and client (as named in this document) and is intended to be used solely for that purpose by that client.*

*The information contained within this document is based upon sources, experimentation and methodology which at the time of preparing this document were believed to be reasonably reliable and the accuracy of this information subsequent to this date may not necessarily be valid. This information is not to be relied upon or extrapolated beyond its intended purpose by the client or a third party unless it is confirmed in writing by Rawtec that it is permissible and appropriate to do so.*

*Unless expressly provided in this document, no part of this document may be reproduced or copied in any form or by any means without the prior written consent of Rawtec or the client.*

*The information in this document may be confidential and legally privileged. If you are not the intended recipient of this document (or parts thereof), or do not have permission from Rawtec or the client for access to it, please immediately notify Rawtec or the client and destroy the document (or parts thereof).*

*This document, parts thereof or the information contained therein must not be used in a misleading, deceptive, defamatory or inaccurate manner or in any way that may otherwise be prejudicial to Rawtec, including without limitation, in order to imply that Rawtec has endorsed a particular product or service.*

#### Document verification

Date	Version	Title	Prepared by	Approved by
14/12/2017	Draft	Kaufland Draft WMP	Jarvis Webb & Kristian Le Gallou	Jarvis Webb
08/03/2018	Final	Kaufland Draft WMP	Jarvis Webb & Kristian Le Gallou	Jarvis Webb



# 1. Introduction

## 1.1 About This WMP and the Proposed Development

This document provides a waste management plan (WMP), for the proposed development identified in Table 1.1 below. This WMP will be included with building plans for the development to obtain Development Approval. The WMP outlines the proposed waste management system (WMS) for the development at high-level, which demonstrate that successful management of waste can be achieved at the site.

**Table 1.1: Proposed development's details**

<b>Site Location</b>	10 Anzac Highway, Forestville, South Australia
<b>Development Project</b>	AUS1 - Kaufland
<b>Client</b>	Kaufland
<b>Project Architect</b>	Architecture HQ
<b>Traffic Consultant</b>	WGA

## 1.2 Purpose and Scope Of WMP

This WMP has been developed for the planning stage of this development. It provides a preliminary design for the WMS for this site and is intended to demonstrate that successful management of waste can be achieved.

The WMP has been prepared with the policy and requirements for waste management (identified in Appendix 1) in conjunction with the Client, Project Managers, Project Architects, and Traffic Consultant, who have indicated the intended site uses of the development, occupancy data, and requirements for how waste should be managed. If future land uses and waste management arrangements for the development are altered, the WMP may need to be updated.

The suggested arrangements in this WMP are preliminary and reflect one possible configuration for the waste management system at this site. These arrangements could evolve and be refined (during detailed building design) before the construction takes place. This may affect the WMP for the site, which should be updated accordingly.

## 1.3 What This WMP Contains

Table 1.2 below outlines what is contained in the waste management plan (WMP)

Table 1.2: What this WMP contains

<b>Section 2 – Description of Development</b>	Provides details of the development relevant to the WMP preparation and indicates the waste and recycling collection services proposed for the development.
<b>Section 3 – Outcomes from the Analysis on Waste and Recycling Requirements at the Development</b>	Provides estimates of the waste and recycling volumes likely to be generated at the site which will require storage, collection and disposal. This includes the recommended size and layout of the development waste and recycling storage locations.
<b>Section 4 – Proposed Waste Management System (WMS)</b>	Provides an overview of the proposed WMS for the development, including the main elements and important design requirements, and how these systems should operate. The WMS outlines how waste would be stored, transferred and collected at the site.
<b>Section 5 – Collection Vehicle Requirements</b>	Includes relevant information on collection requirements, including number of collections per week and provision for access and maneuverability for waste collection vehicles.
<b>Appendix 1 – Policy, Design and Operational Waste Management Requirements</b>	This Appendix identifies the policy, design, and/or operational requirements for waste management that have been used in relation to the development of the WMP.
<b>Appendix 2 – Additional Waste Management Design Considerations</b>	This Appendix provides better practice design advice and other waste management design considerations for the development, based on the South Australia Better Practice Waste Management Guide for Residential and Mixed Use Developments and other applicable documents.



## 2. Description of the Development

### 2.1 Land Uses and Occupancy Data

The Client and Project Architects have provided Rawtec with a description of the development and plans showing the proposed layout of the site, buildings and land uses. A breakdown of the land use and tenancy assumptions used for estimating waste and recycling volumes for the development, can be found in Table 2.1 below. Please note that at the development of this plan, only Tenancy One has a prescribed classification. All other tenancies are currently undesignated and for the purposes of this WMP it has been assumed that they are split between 50/50 between retail and café/restaurant style land uses.

**Table 2.1: Land use and occupancy overview**

<b>Floor</b>	<b><i>Tenancy according to plans</i></b>	<b><i>Waste &amp; Recycling Generating Rate Land Use<sup>1</sup></i></b>	<b>m<sup>2</sup></b>
<b>Ground</b>	Tenancy 1	<i>Café/Restaurant</i>	115
<b>Level 1</b>	Tenancy 2	<i>Mixed Retail/Cafe</i>	78
	Tenancy 3		78
	Tenancy 4		187
	Tenancy 5		136
	Tenancy 6		136
	Tenancy 7		136
	Tenancy 8		136
	Offices	<i>Offices or Consulting Rooms</i>	208
	Liquor	<i>Retail (&gt;100m<sup>2</sup>)</i>	285
	Supermarket	<i>Supermarket</i>	5,315

<sup>1</sup> Waste and recycling generation rate land use categories are based on the SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

## 2.2 Site Waste Management Requirements

The following waste management and operational arrangements were identified as preferred for the site by the Client and Project Architect (Table 2.2). These arrangements have been considered when developing the design of the proposed waste management system and the information contained in the waste management plan.

**Table 2.2: Site requirement summary**

<b>Waste Management Requirement</b>	<b>Description</b>
<b>Waste Storage</b>	<p>Waste would be stored in two separate locations, with one area servicing the Ancillary Tenancies (referred to as the Bin Room) and the other capturing the waste produced by the Supermarket operations. The supermarket will have two storage collection areas including:</p> <p>Level One</p> <ul style="list-style-type: none"> <li>• Bulk Bins for the capture of waste from daily operations</li> <li>• A cardboard/soft plastics Baler</li> </ul> <p>Ground Level</p> <ul style="list-style-type: none"> <li>• A General Waste compactor facilitating the transfer of waste from the 1100 bulk bins.</li> <li>• Storage of full 1100L bins prior to collection and the storage of empty 1100 and 660L bins prior to their use upstairs within the supermarket.</li> </ul>
<b>Movement of Waste throughout the Development</b>	<p>Waste will potentially be moved by:</p> <ul style="list-style-type: none"> <li>• Staff at each Ancillary Tenancy,</li> <li>• Cleaners and building management.</li> </ul>
<b>Waste management at the site and collection services</b>	<p>Collection would be conducted by a commercial waste collector. This Waste Management Plan assumes all Ancillary Tenancies are using the same service.</p>
<b>Collection point(s)</b>	<p>Collection would take place from two locations. For the Ancillary Tenancy collection would be direct from the Bin Room. The loading dock can be accessed from Maple Avenue allowing the forward entry and exit of the collection vehicle.</p> <p>Collection for the Supermarket waste area will be direct from the loading dock, entering the premises in a forward direction from Maple Avenue. Collection would take place direct from the designated waste area.</p>



## 2.3 Recommended Waste and Recycling Services

To achieve effective waste and recycling management at the site, Table 2.3 below outlines the recommended waste and recycling services that should be collected from the development. These services are based on the outlines provided in the *SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments* (Green Industries SA, 2014), industry experience and other policy or development plan requirements outlined in Appendix 1 – Policy, Design and Operational Waste Management Requirements.

**Table 2.3: Proposed waste recycling services for the development per identified land uses<sup>2</sup>**

Service type	Required/Desired Waste and Recycling Collection Services					
	Land Use	Commercial	Commercial	Commercial	Commercial	Commercial
	Development Land Uses	Supermarket	Liquour	Retail (Food and Beverage)	Retail (Dry)	Offices
Waste/Recycling Streams						
Routine collection (e.g. rear-lift collection)	General Waste	X	X	X	X	X
	Co-mingled Recycling	X	X	X	X	X
	Organics (Food) Recycling	X	X	X	X	X
	Cardboard Recycling	X	X	X	X	NS
	Paper Recycling	NS	NS	NS	NS	X
	Soft Plastic Recycling	X	NS	NS	NS	NS
	Confidential Paper Recycling	NS	NS	NS	NS	X
*On-call collection (pick-up by contractor)/ External drop-off (by building services)	Hard Waste	X	X	X	X	X
	E-waste	X	X	X	X	X

X = Required/Desired

NS = Not serviced as not required/desired

The following tenancy managed waste and recycling streams are not included in this WMP:

- E-waste (batteries and printer cartridges, lighting etc.) – These waste streams would be temporarily stored within land uses (e.g. offices) before being dropped off at an appropriate external location (e.g. local recycling depot or office supply store) or collected by an appropriate collection company. Some items may be managed through an external collection contractor (e.g. for carpark lighting replacement).
- Hard waste (e.g. during tenancy fit out) – hard waste would be temporarily stored within tenancies and be managed via a pull-in/pull-out collection service during retrofitting or maintenance activities. This would be arranged by the tenants in conjunction with building services, to ensure that collection via the on-property loading area, is undertaken at an appropriate time.

<sup>2</sup> 'X' indicates required/desired as per The SA Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA, 2014).

## 3. Outcomes from the Analysis

### 3.1 Estimated Total Development Waste & Recycling Volumes

Table 3.1 below includes the estimated volumes of waste generated at the development each week overall, and by stream.

**Table 3.1: Estimated waste and recycling volumes by land development<sup>3</sup>**

Estimated Waste Generation Volumes (Litres Per Week) by Land Use & Waste Stream (All Land Uses)							
Land Use Type		Commercial	Commercial	Commercial	Commercial	Commercial	Totals (Litres Per Week)
Development Land Use		Supermarket	Liquour	Retail (Food and Beverage)	Retail (Dry)	Offices	
WRGR Classification		Supermarket	Retail (Greater than 100m2)	Café/Restaurant	Retail (Greater than 100m2)	Offices or Consulting Rooms	
Waste Stream	General Waste	67,000	1,200	13,900	2,300	300	84,700
	Co-mingled Recycling	6,500	300	2,300	600	100	9,800
	Organics (Food) Recycling	67,000	60	18,600	100	50	85,800
	Cardboard Recycling	65,000	900	7,000	1,700	NE	74,600
	Paper Recycling	NE	NE	NE	NE	200	200
	Soft Plastic Recycling	2,900	NE	NE	NE	NE	2,900
	Confidential Paper Recycling	NE	NE	NE	NE	20	20
Total Site Volume (Litres per Week)		208,400	2,500	41,800	4,700	700	258,000

\*Note: Totals have been rounded to better reflect estimates and may not equate

NE = Not Estimated as Not Required

<sup>3</sup> Estimated volumes based on: The proposed land use data; Waste generation metrics found in the South Australian Better Guide Practice Guide – Waste Management in Residential or Mixed-Use Developments (Green Industries SA (previously Zero Waste SA), 2014); Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.



## 3.2 Waste and Recycling Stream Volumes, Bin Sizes and Collection Details

Table 3.2 and Table 3.3 below identifies the:

- estimated waste and recycling volumes generated at the development;
- nominated bin sizes for each waste stream;
- proposed collection frequency;
- number of bins required;
- proposed waste collection service provider; and
- the location where bins are presented for collection.

The data in the tables below also assumes that the waste collection service provider would be the same for all land uses generating waste within the building. Note that the below calculations assume that no compaction would occur for the general waste bins.

**Table 3.2: Estimates of waste and recycling volumes (litres/week) with proposed services and collection frequency for Ancillary Tenancy Bin Room**

Waste Stream	Estimated Waste Volume (Litres Per Week)*	Proposed Services				Proposed Location Where Bins/ Waste Is Presented for Collection
		Bin Size	Collection Frequency	Est. No. Of Bins Required	Proposed Waste Collection Service Provider	
General Waste	16,000	1100L	4 x per week	4 x 1100L bins	Commercial Contractor	Ground Floor Bin Room
Co-mingled Recycling	3,000	1100L	2 x per week	2 x 1100L bins		
Organics (Food) Recycling	19,000	660LL	5 x per week	6 x 660L		
Cardboard Recycling	8,500	1100L	4 x per week	2 x 1100L		
<b>Totals</b>	<b>46,500</b>	-	<b>15 x per week</b>	<b>14</b>		

*\*Note: Totals have been rounded to better reflect estimation of the volumes and may not equate*

**Table 3.3 Estimates of waste and recycling volumes (litres/week) with proposed services and collection frequency for Supermarket Waste**

Waste Stream	Est. Waste Volume (Litres Per Week)*	Proposed Services				Proposed Location Where Bins/ Waste is Presented for Collection
		Bin Size(S)	Collection Frequency	Est. No. Of Bins Required	Proposed Waste Collection Service Provider	
General Waste	68,500	1100L + general waste compactor	1 x per week	4 x 1100L bins for daily use before emptying into the general waste compactor as required	Commercial Contractor	Loading Dock - Ground Level
Co-mingled Recycling	7,000	1100L	3 x per week	4 x 1100L bins		
Organics (Food) Recycling	67,000	660L + organics compactor	1 x per week (if an organics compactor is utilised)  (6 x per week if no compactor is utilised))	6 x 660L bins for daily use before emptying into the organics compactor as required  (16 x 660L bins if no compactor is utilised)		
Cardboard Recycling	66,000	1100L + cardboard/ soft plastics baler	baled and stored onsite	2 x 1100L bins for daily use before emptying into the baler as required		
Paper Recycling	200	240L	1 x per week	1 x 240L bin		
Soft Plastics Recycling	3,000	Bale frames + cardboard/ soft plastics baler	1 x per month	2 x bale frames before emptying into the baler as required		
Confidential Paper Recycling	20	240L	1 x per week	1 x 240L bin		
Totals	212,000	-	6 collections per week <u>with</u> an organics compactor or 12 collections per week <u>without</u> an organics compactor	2 soft plastics bale frames + 18 bins <u>with</u> an organics compactor or 28 bins <u>without</u> an organics compactor		

\*Note: Totals have been rounded to better reflect estimation of the volumes and may not equate

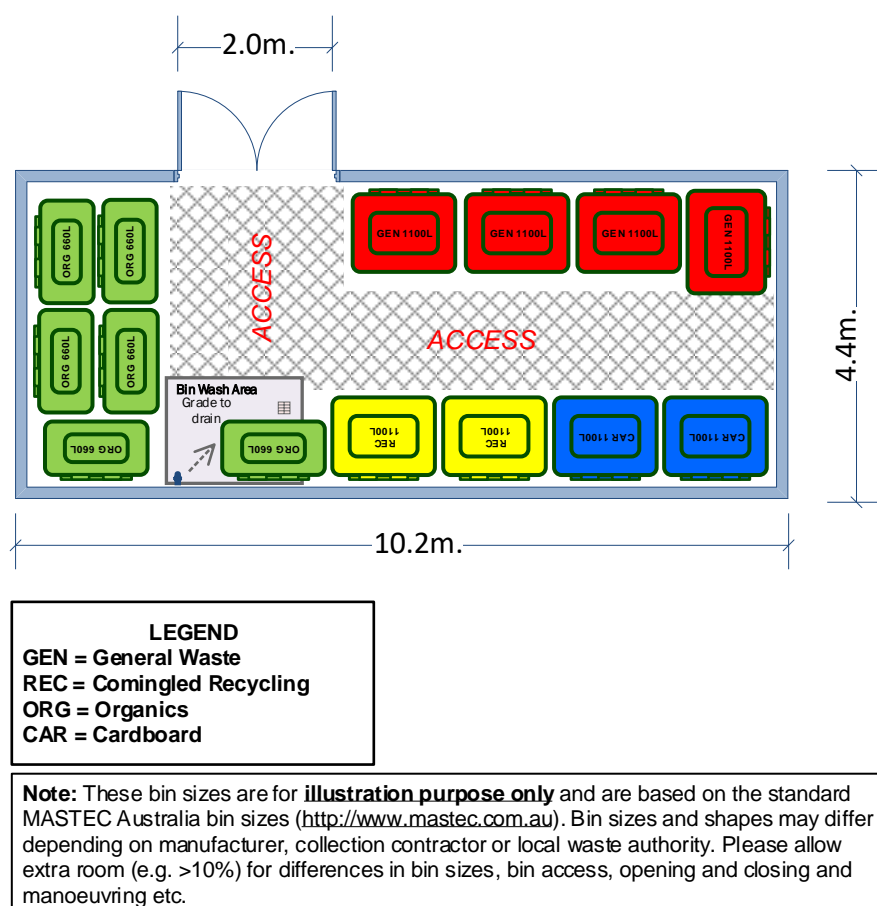


### 3.3 Waste Storage Area and Considerations for the Development

#### 3.3.1 Ancillary Tenant Bin Room

An indicative drawing of the development's Ancillary Tenant Bin Room on the ground floor containing the required number of bin and bin configuration can be found in Figure 3.1. The current estimated volumes of waste generated with the allocated storage area confirms that the ancillary tenant bin room can accommodate the estimated number of bins required for the ancillary tenancies based on the collection frequency proposed in Table 3.2 above.

**Figure 3.1: Preliminary drawing showing the estimated required size and layout of the Ancillary Tenants Bin Room and no. bins**



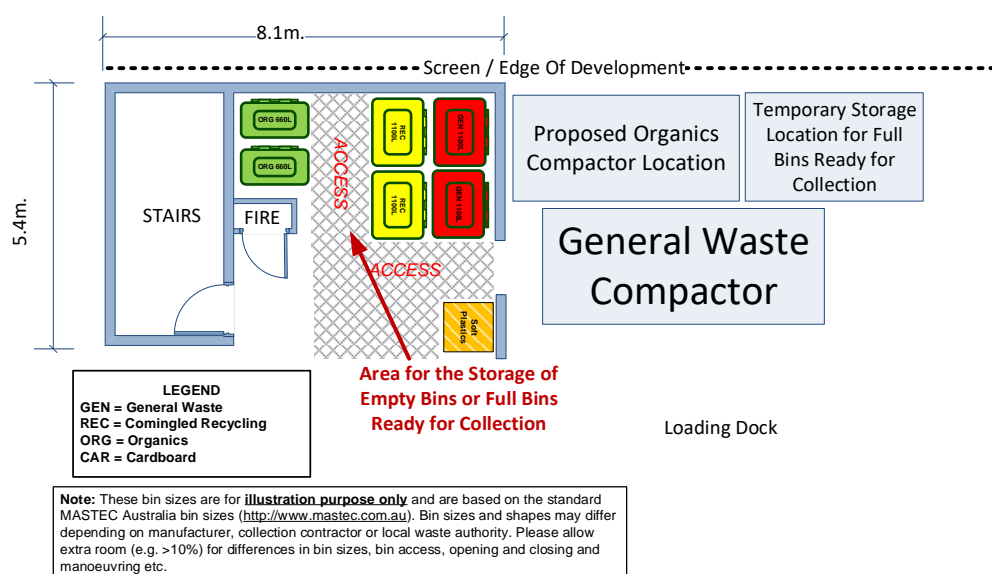
### 3.3.2 Supermarket Ground Floor

Figure 3.2 provides an indicative drawing of the Ground Floor Supermarket Waste Area based on the equipment and bin storage required. This storage location is not required to be in a separate room. For flexibility in use of space and stacking of bins ready for collection, should be an open area as shown in the figure.

A general waste compactor has been included in the design and located in the loading dock. Please note, the number of general waste bulk bins outlined in Table 3.3 above is dependent on this compactor being included in the final design. If the compactor is not included, a recalculation of waste areas and bin numbers will need to be undertaken.

Based on previous discussions with the Project Manager and Architects, it is understood that an organics compactor will likely be included in the development in the detailed design phase. This would be located in the loading dock area. The bulk bins currently showed in the indicative drawings below are based on providing supermarket staff aggregated collection options for daily operations within the supermarket, which would then be transferred to the organics compactor. If there is no organics compactor included in the development, the large volumes of organic waste that will be produced from the supermarket will require a minimum of 16 x 660L bulk bins, collected six days a week (detailed in Table 3.3). Currently there is no space allocated for this number of bins to fit within the development. To facilitate efficiency onsite, reduce traffic movements and achieve best practice waste management it is highly recommended that an organics compactor utilised at the development to manage supermarket organics waste and to be included in the detailed design phase.

**Figure 3.2 Preliminary drawing showing the estimated required size and layout of the Ground Floor Supermarket Waste Area and Bin Storage.**





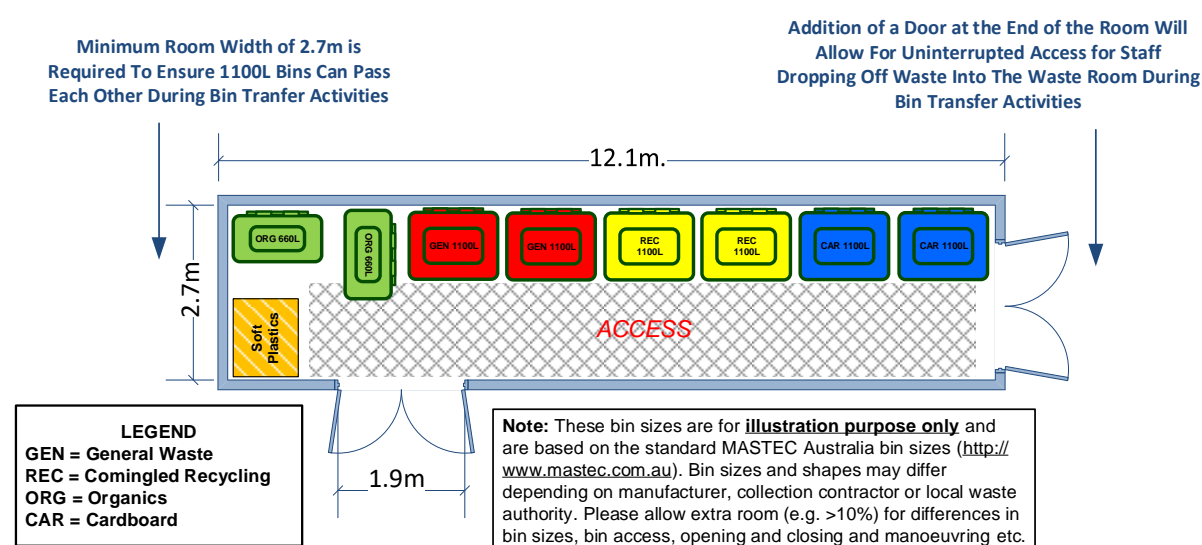
### 3.3.3 Supermarket Level One

The inclusion of a waste room on the first floor is recommended and been allocated in the plans. A minimum of 30m<sup>2</sup> is required and would allow convenient storage of bulk bins for use by supermarket staff, which is in a separate room to reduce the risk of odours making their way to the supermarket floor area. Once full, bulk bins from this room would be transferred to the collection area(s) on the Ground level in the loading dock area (outline above in Figure 3.2).

The significant volumes of cardboard and soft plastics produced in the supermarket operations will require a cardboard/soft plastic baler to allow these resources to be aggregated and stored in the loading area ready for collection when required. Balers are used commonly for supermarkets across Australia to minimise the use of space required to manage these wastes (e.g. number of bins) and minimise collection frequency and cost of collections. The most recent issue of the architectural plans outlines the inclusion of a cardboard/soft plastics baler on the first floor. During the detailed design phase, it is recommended that the baler be relocated to the ground floor to ensure the transfer of baled cardboard/ and storage of the bales before pick-up can take place efficiently and safely.

As with the use of a residual waste compactor and an organics compactor, the volumes of waste expected to be produced is significant and its efficient handling is dependent on the inclusion of the baler. The number of bulk bins in the indicative drawings is not based on the volumes expected but provide an aggregation point before they are baled. If a cardboard/soft plastic baler is not included in the final design, the area required for waste storage and the number of bins would need to be recalculated.

**Figure 3.3 Preliminary drawing showing the estimated required size and layout of the First Floor Supermarket Waste Area.**



## 4. Proposed Waste Management System

### 4.1 Overview of the WMS

To effectively manage the waste generated at the site, an appropriate Waste Management System (WMS) is required. The WMS consists of:

- User storage of waste
- Waste transfer to common disposal area
- Aggregation and storage of this waste
- Waste/bin collection.

The tables below provide an outline of the waste management system for each land use within the building. This is based on the waste management steps recommended in the Guide, summarised in Appendix 2.

### 4.2 Ancillary Tenancies Waste Management System

Table 4.1 below provides details on the WMS for the waste generated by the Ancillary Tenancies within the development.

**Table 4.1: WMS for the waste generated in by the Ancillary Tenancies**

	WMS step	WMS Notes
<b>Storage, transfer pathways and collection details for:</b> <ul style="list-style-type: none"> <li>• General Waste</li> <li>• Comingled Recycling</li> <li>• Organics (Food) Recycling</li> </ul>	<b>Step 1 – User storage</b>	<ul style="list-style-type: none"> <li>• Ancillary Tenancies would store waste in 60 – 120L bins within the tenancy in bins for each stream.</li> <li>• Food Organics bins would have compostable bin liners.</li> </ul>
	<b>Step 2 – Transfer pathways</b>	<ul style="list-style-type: none"> <li>• Tenancy staff/cleaners would move waste from the tenancies to the ground floor Bin Room via the Northern lifts.</li> <li>• Ground level Café staff would move waste from the tenancy to the Bin Room via the carpark walkways.</li> <li>• <i>Design Requirement: Ensure the transfer pathways do not have any steps, are at least 1.25m wide and do not include gradients greater than 1:10.</i></li> </ul>
	<b>Step 3 – Aggregation and Storage</b>	<ul style="list-style-type: none"> <li>• General waste, commingle recycling and cardboard recycling would be stored in 1100L bins. Organics would be stored in 660L bins.</li> </ul>
	<b>Step 4 – Bin collection</b>	<ul style="list-style-type: none"> <li>• Waste would be collected by a commercial collector on a regular basis.</li> <li>• 1100L and 660L bins would be collected via a pull in, pull out service; a rear lift truck would drive into the loading area, the operator would drag the bins out and load them into the truck, and then return the bins to the Bin Room.</li> </ul>



## 4.3 Supermarket Waste Management System

Table 4.2 below provides details on the WMS for the Supermarket, Liquor Store, and Offices on the first floor.

**Table 4.2: WMS for the Supermarket waste generated in the building**

	WMS step	WMS Notes
<b>Storage, transfer pathways and collection details for:</b> <ul style="list-style-type: none"> <li>General Waste</li> <li>Comingled Recycling</li> <li>Organics (Food) Recycling</li> <li>Cardboard Recycling (collected in co-mingled recycling bins)</li> </ul>	<b>Step 1 – User storage</b>	<ul style="list-style-type: none"> <li>60 – 120L bins would be utilised throughout the supermarket floor and preparation areas and would be emptied into the larger bins in the Waste Room on Level One as required.</li> <li>Food Organics bins would have compostable bin liners.</li> <li>1100L General Waste, Comingle Recycling and Cardboard bins would be stored in the Waste Room on Level One.</li> <li>660L Organics bins and a soft plastics bale frame will also be stored in this location.</li> </ul>
	<b>Step 2 – Transfer pathways</b>	<ul style="list-style-type: none"> <li>Building Management would transfer full bins from the first floor Waste Room to the Ground Floor Waste area as required via the lifts.</li> <li><i>Design Requirement: Ensure the transfer pathways do not have any steps, are at least 1.25m wide and do not include gradients greater than 1:10.</i></li> </ul>
	<b>Step 3 – Aggregation and Storage</b>	<ul style="list-style-type: none"> <li>General waste and organics bins would be emptied into the compactors.</li> <li>Cardboard and soft plastics emptied into the baler and be baled. Bales would be stored within the development in a convenient location until pick-up</li> </ul>
	<b>Step 4 – Bin collection</b>	<ul style="list-style-type: none"> <li>Waste would be collected by a commercial operator on a regular basis.</li> <li>Compactor Bins would be collected by a Roll-on/Roll-off collection vehicle and replaced.</li> <li>1100L bins would be collected via a pull in, pull out service; a rear lift truck would drive into the loading area, the operator would drag the bins out and load them into the truck, and then return the bins to the storage area.</li> <li>Cardboard and Soft Plastic bales would be collected via a pan tech or flatbed truck when sufficient quantities have been produced.</li> </ul>

## 5. Collection Vehicle Requirements

### 5.1 Collection Vehicle Requirements

The collection vehicles expected for waste collection at this development would generally be:

- Rear-lift trucks – for collection of routine waste, comingled recycling and organics;
- Pan-tech or flat-bed trucks – for collection of at-call waste streams.

Examples of the likely truck dimensions are provided in Table 5.1 below to assist the Traffic Engineer/Consultant in ensuring that the loading zone can accommodate the waste and recycling collection vehicles, and that vehicles can enter and exit the area safely. In addition to the truck length, the parking area will need to accommodate at least 2m behind collection vehicles for waste bin loading for the rear-lift trucks.

Collection vehicle dimensions and operating requirements vary between waste collection contractors. The Client would be required to ensure that the collection vehicle used by the waste collection contractor servicing the development is able to accommodate for the Loading Zone and other requirements before collection can begin.

**Table 5.1: Likely dimensions and turning circles of waste collection vehicles that would be required to access the site<sup>4</sup>**

Likely <u>minimum</u> dimensions and turning circles of waste collection trucks		
<b>Vehicle Type</b>	<i>Rear-lift waste trucks (to collect bins up to 1100L)</i>	<i>Pan-tech/flat bed* (to collect hard waste/e-waste)</i>
<b>Dimensions</b>	Up to 4.5m (h) x 2.5m (w) x 8.8m (l)	Up to 4.5m (h) x 2.5m (w) x 8.8m (l)
<b>Space at the rear to load bins</b>	2m	-
<b>Vehicle height in operation</b>	Up to 4m	Up to 4.5m
<b>Vehicle turning circle</b>	18-25m	10m

### 5.2 Estimated Number of Waste Vehicle Movements Per Week

We have estimated that there would be:

- 15 collection vehicle movements per week for the Ancillary Tenants Bin Room.
- 6-12 collection vehicle movements per week for the Supermarket waste (12 if there was no organics compactor). This figure does not include intermittent collection of baled resources or hard waste and E-waste collection.

---

<sup>4</sup>Vehicle width dimensions are based on Australian MRV standard specifications - AS 2890.2-2002. Vehicle length and heights are based on common collection vehicles currently operating in the SA market. However, it should be noted that waste and recycling collection vehicles are custom designed and may differ from these specifications.



## 6. Further Considerations

### 6.1 Estimated Number of Waste Vehicle Movements Per Week

Due to the nature of the development and volumes of waste calculated to be produced, Rawtec suggest that Operational Waste Management plans be developed for the supermarket and tenancies following the design and build phase. These documents would provide guidance for tenants and staff top ensure appropriate and consistent waste management practices are implemented throughout the development.

# Appendix 1 – Policy, Design and Operational Waste Management Requirements

This WMP has been prepared with the following policy, design, and/or operational requirements for waste management in mind:

- *City of Unley – Waste Management Strategy 2013-2017*
  - This Waste Management Strategy 2013-2017 outlines a vision and key strategies for the Council during this period.
- *Unley (City) Development Plan, Consolidated 19 December 2017 (Waste Section)*
  - Waste Objective 1: Development that, in order of priority, avoids the production of waste, minimises the production of waste, re-uses waste, recycles waste for re-use, treats waste and disposes of waste in an environmentally sound manner.
  - Waste Objective 2: Development that includes the treatment and management of solid and liquid waste to prevent undesired impacts on the environment including, soil, plant and animal biodiversity, human health and the amenity of the locality.
- *The South Australian Environment Protection (Waste to Resources) Policy 2010 (W2REPP) (Government of South Australia, 2011):*
  - This Policy requires that waste is subject to resource recovery processes, which can include source separation, before disposal to landfill.
- *South Australian Better Practice Guide – Waste Management in Residential or Mixed Use Developments (Green Industries SA (previously Zero Waste SA), 2014):*
  - Identifies need for areas to store waste and recyclable materials, appropriate to the size and type of development, screened from public, which minimises disturbance to residents and provides for service vehicle access.
  - Provides guidance on design of waste management systems for medium to high density residential and mixed use developments.
- *Adelaide (City) – Development Plan (Department of Planning, Transport & Infrastructure, 2017).*
  - Objectives and principles of development control regarding waste management, specifically:
    - OBJ 28: Development which supports high local environmental quality, promotes waste minimisation, re-use and recycling, encourages waste water, grey water and stormwater re-use and does not generate unacceptable levels of air, liquid or solid pollution.
    - PDC 101: A dedicated area for on-site collection and sorting of recyclable materials and refuse should be provided within all new development.
    - PDC 102: A dedicated area for the collection and sorting of construction waste and the recycling of building materials during construction as appropriate to the size and nature of the development should be provided and screened from public view.
    - PDC 103: Development greater than 2 000 square metres of total floor area should manage waste by:
      - a) containing a dedicated area for the collection and sorting of construction waste and recyclable building materials;
      - b) on-site storage and management of waste;
      - c) disposal of non-recyclable waste; and
      - d) incorporating waste water and stormwater re-use including the treatment and re-use of grey water.



The estimation of waste and recycling volumes contained in this waste management plan, is based on:

- The proposed land use data;
- Client and regulatory expected services for different development land uses; and
- Waste generation metrics found in:
  - The *South Australian Better Guide Practice Guide – Waste Management in Residential or Mixed Use Developments* (Green Industries SA (previously Zero Waste SA), 2014)
  - Waste and recycling metrics developed by Rawtec, which are based on industry knowledge and experience.

## Appendix 2 – Additional Waste Management Design Advice

The below table provides design advice and other considerations based on the *South Australia Better Practice Waste Management Guide for Residential and Mixed Use Developments*. For further recommendations and information from this guide, please visit the [Green Industries SA](http://www.greenindustries.sa.gov.au) website.

**Table 0.1: Additional waste management design advice and other considerations**

Area	Recommendation/ Consideration
<b>Bin transfer routes</b>	<ul style="list-style-type: none"> <li>The Better Practice Guide recommends transfer routes be free of obstructions and steps, at least 1.25m wide and a slope of no more than 1:10.</li> <li>These should also not pass through living areas or dwellings.</li> </ul>
<b>Bin washing</b>	<ul style="list-style-type: none"> <li>It is recommended that a bin wash area be installed and that it:               <ul style="list-style-type: none"> <li>Is sloped to a drain leading to the sewer;</li> <li>Has an installed tap with mains supply and a hose nearby;</li> <li>Is at least 2m x 2m; and</li> <li>Is slip resistant to prevent slippage during washing.</li> </ul> </li> <li>Note that line marking and bunding is not required around the bin wash area, and bins can be stored on top of the bin wash area in the waste room. During washing, other bins can be placed outside the waste collection room while bins are washed in the waste room. Alternatively, the bin wash area can be installed outside the waste room. It may also be possible for the waste contractor to be contracted to provide this service (either on-site or off-site).</li> </ul>






## **Kaufland - 10 Anzac Highway Forestville**

### **Planning Stage Acoustic Report**

A17983RP1 Revision C

Tuesday, 14 August 18

## Document Information

<b>Project</b>	Kaufland - 10 Anzac Highway Forestville	
<b>Client</b>	Kaufland Australia	
<b>Report title</b>	Planning Stage Acoustic Report	
<b>Project Number</b>	A17983	
<b>Author</b>	Greg Barry / Nick Henrys Senior Acoustic Consultant p+61 8 8155 5888 m+61 450 455 079 greg.barry@resonate-consultants.com	
<b>Reviewed by</b>	Matthew Stead	

## Revision Table

Report revision	Date	Comments
0	07 December 2017	First Issue
A	15 December 2017	Minor update following feedback
B	7 March 2018	Relocated loading dock
C	14 August 2018	Mechanical plant screen/barrier



## Glossary

A-weighting	A spectrum adaption that is applied to measured noise levels to represent human hearing. A-weighted levels are used as human hearing does not respond equally at all frequencies.
Characteristic	Associated with a noise source, means a tonal, impulsive, low frequency or modulating characteristic of the noise that is determined in accordance with the Guidelines for the use of the Environment Protection (Noise) Policy (Noise EPP) to be fundamental to the nature and impact of the noise.
Continuous noise level	A-weighted noise level of a continuous steady sound that, for the period over which the measurement is taken using fast time weighting, has the same mean square sound pressure as the noise level which varies over time when measured in relation to a noise source and noise-affected premises in accordance with the Noise EPP
Day	Between 7 am and 10 pm as defined in the Noise EPP
dB	Decibel—a unit of measurement used to express sound level. It is based on a logarithmic scale which means a sound that is 3 dB higher has twice as much energy. We typically perceive a 10 dB increase in sound as a doubling of that sound level.
dB(A)	Units of the A-weighted sound level.
Frequency (Hz)	The number of times a vibrating object oscillates (moves back and forth) in one second. Fast movements produce high frequency sound (high pitch/tone), but slow movements mean the frequency (pitch/tone) is low. 1 Hz is equal to 1 cycle per second.
Indicative noise level	Indicative noise level determined under clause 5 of the Noise EPP.
L <sub>90</sub>	Noise level exceeded for 90 % of the measurement time. The L <sub>90</sub> level is commonly referred to as the background noise level.
L <sub>eq</sub>	Equivalent Noise Level—Energy averaged noise level over the measurement time.
L <sub>max</sub>	The maximum instantaneous noise level.
Night	Between 10.00 p.m. on one day and 7.00 a.m. on the following day as defined in the Noise EPP
Noise source	Premises or a place at which an activity is undertaken, or a machine or device is operated, resulting in the emission of noise
Quiet locality	A locality is a quiet locality if the Development Plan provisions that make land use rules for the locality principally promote land uses that all fall within either or both of the following land use categories: (a) Residential; (b) Rural Living;

## Table of Contents

1	Introduction .....	1
2	Proposed development .....	2
2.1	Location .....	2
2.2	Operation .....	2
2.3	Anticipated noise sources .....	2
3	Existing noise environment .....	4
4	Noise Criteria .....	5
4.1	Development Plan .....	5
4.2	Environmental noise policy.....	6
5	Assessment.....	8
5.1	Noise modelling.....	8
5.1.1	Modelling parameters .....	8
5.1.2	Peak car park usage with no delivery vehicles.....	8
5.1.3	Typical car park usage including a delivery vehicle .....	8
5.1.4	-Night time car park (10 pm to 7 am) .....	9
5.2	Characteristic noise penalties.....	9
5.3	Mechanical Services.....	9
6	Predicted noise levels and discussion .....	10
7	Conclusion .....	11



## 1 Introduction

This report outlines the details of our planning stage acoustic report for the proposed commercial development at 10 Anzac Highway, Forestville SA 5035. The proposal comprises a supermarket at first floor level with associated car parking and facilities including deliveries at ground floor level at the rear of the site.

The closest noise sensitive receivers are the residences along Leader Street which will be located opposite the car park area. The potential noise emissions from the development have been assessed against the requirements of the South Australian Environment Protection (Noise) Policy 2007 and the Unley (City) Development Plan.

## 2 Proposed development

### 2.1 Location

The proposed development is located at 10 Anzac Highway, Forrestville SA 5035, and comprises a supermarket on first floor and associated car park at ground floor. The site is surrounded by a mixture of single and multi-storey developments including residential and commercial premises. Anzac Highway is located to the west of the site and runs from north east to south west with Leader Street located to the south and Maple Avenue located to the north. The closest residences are located to the south of the site on Leader Street. The loading dock is located at the north east of the site adjacent to Maple Avenue, away from residences. A number of commercial premises are located on Leader Street including Buttercup Bakeries, Amphora Wine Group and Derringers Music. The site location is presented in the following Figure 1.

### 2.2 Operation

We have been advised that the proposed supermarket is seeking to have opening hours of midnight to 9 pm, however refrigeration plant will operate 24 hours per day. Deliveries to the development are 24 hours per day with delivery vehicles ranging from small trucks to 19m articulated trucks with refrigeration plant. It is expected that there will be one delivery vehicle in a 15 minute period and there will be one delivery using a 19m articulated truck with refrigeration plant during the night time period. The loading dock is located away from residences on Leader Street.

### 2.3 Anticipated noise sources

The principal sources of noise emissions from the proposed development will be noise from cars moving (including door slams) within the car park, noise from delivery vehicles (including refrigeration plant) and fixed mechanical services plant. Given the location of the loading dock, it is anticipated that the car park will be the dominant noise source impacting on the residential noise receivers. A compactor, located within the deliveries area, will be used to compact general waste. The noise sources are discussed in detail in Section 5.



**Figure 1**

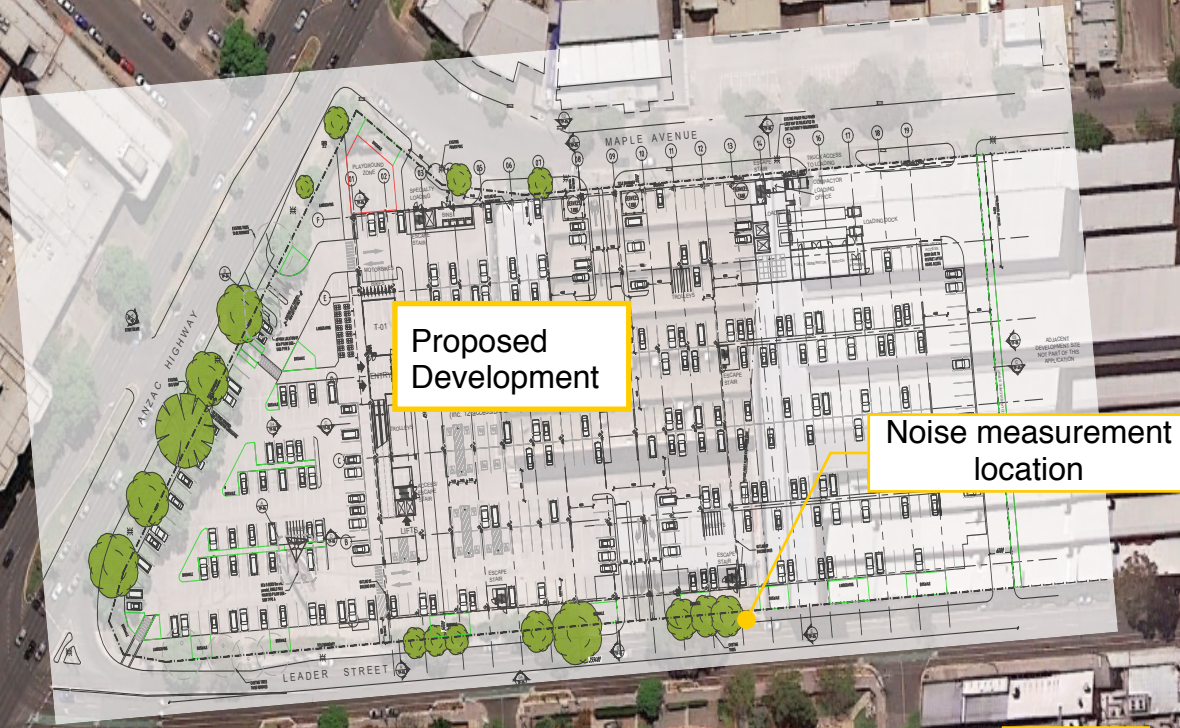
Date: 07.03.2018

Revision: B

Project: Kaufland - 10 Anzac HW

Project Number: A17983

Resonate



Proposed  
Development

Noise measurement  
location

Bakery



## 3 Existing noise environment

The site was inspected on two occasions and noise measurements were carried out at the location indicated in Figure 1. The measurements are representative of the noise environment at the nearest noise sensitive receivers. It was observed during site visits carried out on Monday 4 December 2017 (between 12 pm and 2 pm and again between 9 pm and 12 am) that the noise environment around the site is controlled by road traffic on Anzac Highway and on Leader Street. It was also noted during the measurement period that there are typically around 400 vehicle movements per hour (approx. 2% commercial vehicles) on Leader Street during the day time period with measured  $L_{eq,15min}$  of around 60 dB(A). The number of cars was noted to reduce to around 30 – 50 vehicles per hour during the night time period (10pm – 12am, with one 19 m articulated truck passing on Leader Street in this time frame) with  $L_{eq,15min}$  reducing to around 55 dB(A). The measured noise levels are presented in Table 1. Note that the  $L_{max}$  noise levels presented have been corrected to account for the difference in distance between the measurement location and the nearest noise sensitive receiver.

**Table 1 Measured noise levels**

Time period	Typical $L_{eq,15min}$ dB(A)	$L_{max}$ dB(A)	Lowest $L_{90}$ dB(A)
12 pm – 2 pm (Day Time)	60	73 – 82	49
9 pm – 10pm (Day Time)	58	69 – 81	47
10 pm – 12am (Night Time)	55	69 – 74	43



## 4 Noise Criteria

### 4.1 Development Plan

The proposed development is located within the Unley (City) Council area and should conform to the Principles of Development Control (PDCs) within the Unley (City) Development Plan (DP), and in particular the council wide provisions for noise emission control

The relevant Principles of Development Control for noise sources are:

#### **PRINCIPLES OF DEVELOPMENT CONTROL**

96 Development should not detrimentally affect the amenity of the locality or cause unreasonable interference through any of the following:

(a) the emission of effluent, odour, smoke, fumes, dust or other airborne pollutants

(b) noise

(c) vibration

.....

97 Development should be sited and designed to minimise negative impacts on existing and potential future land uses desired in the locality.

99 Residential development adjacent to non-residential zones and land uses should be located, designed and/or sited to protect residents from potential adverse impacts from non-residential activities.

100 Sensitive uses likely to conflict with the continuation of lawfully existing developments and land uses desired for the zone should be designed to minimise negative impacts.

101 Non-residential development on land abutting a residential zone should be designed to minimise noise impacts to achieve adequate levels of compatibility between existing and proposed uses.

#### **Noise Generating Activities**

102 Development that emits noise (other than music noise) should include noise attenuation measures that achieve the relevant Environment Protection (Noise) Policy criteria when assessed at the nearest existing noise sensitive premises.

103 Development with the potential to emit significant noise (e.g. industry) should incorporate noise attenuation measures that prevent noise from causing unreasonable interference with the amenity of noise sensitive premises.

Further to the above council wide PDCs, the proposed development and nearest noise sensitive commercial receiver is to be located in the Urban Corridor Zone which has the following objectives:

#### **OBJECTIVES**

Objective 1: A mixed use zone accommodating a range of compatible non-residential and medium and high density residential land uses orientated towards a high frequency public transport corridor.

Objective 2: Integrated, mixed use, medium and high rise buildings with ground floor uses that create active and vibrant streets with residential development above.

Objective 3: A mix of land uses that enable people to work, shop and access a range of services close to home.

Objective 4: Adaptable and flexible building designs that can accommodate changes in land use and respond to changing economic and social conditions.

Objective 5: A built form that provides a transition down in scale and intensity at the zone boundary to maintain the amenity of residential properties located within adjoining zones.

Objective 6: A safe, comfortable and appealing street environment for pedestrians that is sheltered from weather extremes, is of a pedestrian scale and optimises views or any outlook onto spaces of interest.

Objective 7: Noise and air quality impacts mitigated through appropriate building design and orientation.

Objective 8: Development that contributes to the desired character of the zone.

The above objectives demonstrate that the land use generally promoted by the zone is a mixture of commercial and residential.

The closest residential noise sensitive receivers are located in the Residential Streetscape (Built Form) Zone (Policy Area 9 – Spacious) which has the following objectives:

## OBJECTIVES

**Objective 1:** Enhancement of the desired character of areas of distinctive and primarily coherent streetscapes by retaining and complementing the siting, form and key elements as expressed in the respective policy areas and precincts.

**Objective 2:** A residential zone for primarily street-fronting dwellings, together with the use of existing non-residential buildings and sites for small-scale local businesses and community facilities.

**Objective 3:** Retention and refurbishment of buildings including the sensitive adaptation of large and non-residential buildings as appropriate for supported care or small households.

**Objective 4:** Replacement of buildings and sites at variance with the desired character to contribute positively to the streetscape.

The above objectives demonstrate that the land use generally promoted by the zone is residential.

Compliance with all of the above requirements is normally demonstrated through an assessment of a proposed development against the requirements of the *Environment Protection (Noise) Policy 2007* (Noise EPP).

## 4.2 Environmental noise policy

Environmental noise emissions from the proposed development should comply with the *Environment Protection (Noise) Policy 2007* (Noise EPP) and this is the most relevant guideline to address the requirements of the Development Plan.

The noise goals in the Noise EPP are based on the zoning of the development and the closest noise affected premises in the relevant development plan. The land uses primarily promoted by the zones are used to determine the environmental noise criteria with the indicative noise factors shown in Table 2.



**Table 2 Excerpt from Noise EPP—Table 2(subclause(1)(b))**

Land use category	Indicative noise factor dB(A)	
	Day (7 am to 10 pm)	Night (10 pm to 7 am)
Rural living	47	40
Residential	52	45
Rural industry	57	50
Light industry	57	50
Commercial	62	55
General industry	65	55
Special industry	70	60

The proposed retail development and the nearest noise sensitive commercial receiver is located in the Urban Corridor Zone for which a mixture of residential and commercial land uses is promoted. The nearest noise sensitive residential receivers are located in a residential zone for which a residential land use is principally promoted. In cases that more than one land use is promoted in a zone then the indicative noise factor for that zone is determined as the average of the land use categories that are promoted.

Where the source and receivers are located in different zones then the relevant criteria are based on the average of the indicative noise factors for the source and receiver.

In accordance with Part 5 of the Noise EPP, the relevant criteria at the nearest noise sensitive receivers for the proposed development will be the average of the indicative noise factors for the source and receiver less 5 dB(A). The application of Noise EPP Part 5 results in the following environmental noise criteria:

- Commercial
  - Daytime: 52 dB(A) continuous
- Residential
  - Daytime: 50 dB(A) continuous
  - Night time: 43 dB(A) continuous and 60 dB(A) maximum

Penalties can also be applied to a noise source for a variety of characteristics, such as impulsive, low frequency, modulating or tonal characters. For a characteristic penalty to be applied to a noise source it must be fundamental to the impact of the noise and dominate the overall noise impact. Application of the characteristic penalty is discussed in the noise emission assessment.

We note that under Part 5, Clause 20(6) of the Noise EPP, exceedance of the recommended criterion does not necessarily mean that the development will be non-compliant. Some of the following matters should be considered when considering compliance:

- the amount by which the criterion is exceeded (in dB(A))
- the frequency and duration for which the criterion is exceeded
- the ambient noise that has a noise level similar to the predicted noise level
- the times of occurrence of the noise source
- the number of persons likely to be adversely affected by the noise source and whether there is any special need for quiet.

## 5 Assessment

This section presents the results of the noise modelling carried out for the proposed development and the assumed operating conditions of the vehicles and plant to determine the noise emissions from the proposed development. The model is based on the drawings supplied by Kaufland (Architecture HQ drawings TP-01 – TP-05) and the WGA Traffic and Parking Assessment report ref: 171147RP001 Revision C.

### 5.1 Noise modelling

#### 5.1.1 Modelling parameters

Noise emissions from site have been modelled in SoundPLAN Environmental Software v7.4 program, using the general prediction method. The model takes into consideration:

- attenuation of noise source due to distance
- barrier effects from buildings, topography and the like
- air absorption
- ground effects
- neutral meteorological conditions (zero wind and temperature gradients).

#### 5.1.2 Peak car park usage with no delivery vehicles

For car park noise during a peak 15 minute period, the following has been assumed for the assessment of the supermarket car park:

- 207 car movements within a peak 15 minute period (based on advice provided by WGA Consultants).
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- No delivery trucks
- Sound power level of 90 dB(A) for the compactor (day time only)
- Electric operated forklifts and support machinery

#### 5.1.3 Typical car park usage including a delivery vehicle

For car park and loading dock noise during a typical 15 minute period, the following has been assumed for the assessment:

- 100 car movements within a 15 minute period. During the night time this reduces to approximately 33 within a peak 15 minute period.
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- 1 delivery truck movement in a 15 minute period (including 1 refrigeration truck during the night time period)
- Sound power of  $L_{eq}$  101 dB(A) for refrigeration or delivery truck moving through the loading area
- Sound power of  $L_{eq}$  97 dB(A) for refrigeration or delivery truck idling in the loading dock
- The entry gate will be closed as soon as the truck enters the delivery area
- Truck and refrigeration plant will be switched off whilst in loading dock
- Sound power of  $L_{eq}$  111 dB(A) for truck accelerating out of loading dock
- Tonal reversing beepers will not be used (either a broadband reversing alarm or spotter will be used instead)
- Sound power level of 90 dB(A) for the compactor
- Electric operated forklifts and support machinery



## 5.1.4 -Night time car park (10 pm to 7 am)

For car park noise during the night time period, the following has been assumed for the assessment:

- 33 car movements within a 15 minute period.
- Sound power of  $L_{eq}$  82 dB(A) for cars moving through the car park
- Sound power of  $L_{eq}$  85 dB(A) for cars idling in car parking spaces (including doors opening/ closing)
- No delivery truck

## 5.2 Characteristic noise penalties

Penalties to the source level should be applied in accordance with the Noise EPP to recognise annoyance associated with noise that is dominated by tonal, modulating, low frequency, or impulsive characteristics. A 5 dB(A) penalty is applied for one characteristic, an 8 dB(A) penalty is applied for two characteristics, and a 10 dB(A) penalty is applied for three or more characteristics.

For a characteristic penalty to be applied to a noise source it must be fundamental to the impact of the noise and dominate the overall noise impact.

Application of a characteristic penalty will depend on the received noise levels compared with the background noise levels to determine whether or not the character(s) are fundamental to the impact of the noise and dominate the overall noise impact.

In this situation it is not considered appropriate to apply a characteristic penalty for the loading dock noise nor for the noise emissions from the car park. In both cases the activity noise is considered to be similar in nature to the existing noise environment given the roadway between the sources and existing houses.

## 5.3 Mechanical Services

At this stage the detailed design and selection of mechanical plant has not been undertaken. Mechanical services noise emissions from the development will be designed to satisfy the requirements of the development plan through appropriate design measures such as selection of quiet plant, use of in-line attenuators and/or noise barriers.

In the absence of specific equipment selections at this stage of the project, Kaufland propose to take a precautionary approach to mechanical plant noise mitigation through the installation of a 2.8m high acoustic barrier around the rooftop plant platform. To provide effective noise mitigation the barrier should be constructed of solid material (minimum 10kg/m<sup>2</sup>) without gaps between panels or at the base.

## 6 Predicted noise levels and discussion

The results of the noise model for each of the scenarios described in Section 4 are presented in the following Table 3.

**Table 3 Predicted noise levels**

Scenario	Sensitive Receptor Location	Predicted noise level dB(A)	Target Noise Criteria dB(A)
Peak daytime (car park)	109 – 127 Leader Street	50 – 52 $L_{eq,15mins}$	50 dB(A) $L_{eq,15mins}$
Typical daytime (car park)	105 A – 127 Leader Street	45 – 47 $L_{eq,15mins}$	50 dB(A) $L_{eq,15mins}$
Typical daytime (loading dock)	52 – 54 Maple Avenue	55 $L_{eq,15mins}$	52 dB(A) $L_{eq,15mins}$
Night time (car park)	105 A – 107 Leader Street	43 $L_{eq,15mins}$ / 56 $L_{max}$	43 $L_{eq}$ / 60 $L_{max}$

It may be seen from the above Table 3 that the peak volume daytime scenario is predicted to exceed the criteria by 2 dB. However, as mentioned in Section 2, the ambient noise levels on Leader Street are around 60 dB(A)  $L_{eq,15mins}$  during quieter periods of the day. The existing noise is around 2 – 3 dB higher during busy periods (based on the WGA Traffic and Parking Assessment report ref: 171147/RP001 Revision C). On this basis, the predicted noise levels are expected to be at least 5 dB less than the existing ambient noise levels. Therefore noise emissions from the proposed development during the daytime period satisfies the intent of the Noise EPP and the requirements of the Development Plan.

The noise levels during the night time period are predicted to achieve the relevant criterion. Note that the predicted  $L_{max}$  noise level also complies with the requirements of the Noise EPP.

Noise emissions from the loading dock are predicted to exceed the day time criterion at the commercial property (52 – 54 Maple Avenue) by 2 dB. Maple Avenue has a high volume of commercial vehicles servicing the commercial and industrial developments in this area. Noise emissions from the loading dock is expected to be less than the existing noise levels from adjacent commercial loading areas and accordingly, is not considered a significant impact.

It should also be noted that any future developments located to the east of the site should consider the impact and make provisions for the control of noise emissions from the proposed development.



## 7 Conclusion

An environmental noise impact assessment has been undertaken for the proposed development of the site at 10 Anzac Highway, Forestville, SA 5035.

This assessment has demonstrated that typical daytime operations of the development satisfies the Noise EPP at the nearest existing noise sensitive receivers. This assessment also demonstrated that the noise emissions from the night time deliveries also comply with the environmental noise criteria at the nearest noise sensitive premises.

On this basis of this assessment the proposed development is expected to operate within the Development Plan requirements and suitably addresses the Noise EPP noise requirements. Noise from the proposed development is not considered to be significant given the existing noise environment.

J154055

27 February 2018

Sam Russell-McLeod  
Kaufland Australia  
Level 8, 80 Dorcas Street  
South Melbourne, VIC 3205

Dear Sam,

**Re: 10 Anzac Highway, Forestville, SA**

This letter has been prepared to provide an overview of the potential environmental issues associated with the proposed redevelopment of the western portion of the above site for commercial purposes and specifically relating to the potential risk to future site occupants.

The redevelopment of the western portion of the site will include: -

- Demolition of existing site infrastructure; (including the removal of any underground infrastructure, where and if identified).
- Establishment of a paved carpark across the entire site. This carpark will be at ground level and will not contain any basement areas.
- Construction of a supermarket above the carpark.

Previous works conducted at the site have included a Site History (Mott MacDonald, 2015) and Due Diligence Assessments, with a focussing on preliminary vapour investigations (EP Risk, March and June 2017). The preliminary screening conducted by EP Risk in 2017 did not identify significant concentrations of volatile compounds in soil vapour underlying the site.

Grencap was engaged by Kaufland to conduct a soil investigation at the site which comprised the drilling of 30 soil bores in an approximate grid pattern across the site. The purpose of the investigation was to assess the contamination status of soils at the site, and also provide information relating to offsite soil disposal requirements.

The soil investigation identified elevated lead concentrations exceeding the adopted health investigation level for commercial/industrial land use in portion of the proposed commercial development site, in the upper metre of the soil profile. No other contaminants were identified that exceeded guidelines for commercial/industrial land use.

In terms of the proposed redevelopment, the entire ground level of the site will be covered with car parking and existing soils will be capped by either paved carpark, or a minimum of 0.5m of imported clean material that will be placed in garden beds as a growing medium. This will minimise the potential for exposure to existing site soils to future occupants (including retail staff and customers)

Given the above, the only complete exposure pathway associated with soil contamination will be to construction workers during the redevelopment works which will be managed through a Construction Environment Management Plan (CEMP). This will be prepared for the construction phase of the redevelopment and any additional works relating to the identified lead impacts will inform this CEMP. The document will be designed to ensure all works associated with the site development are managed appropriately to avoid, minimise and effectively mitigate potential impacts to human health and the environment. As long as soil to be excavated from the site is managed in accordance with relevant SA EPA



guidelines, and construction environmental management measures (to be further informed through additional investigations) are implemented during demolition and construction, there will not be any access to contaminated soils as part of the development.

It is noted chemicals used on the site during former manufacturing activities (pre 1970's) could potentially have caused volatile contamination. To the best of Greencap's knowledge, no groundwater investigations or direct soil vapour measurements have been undertaken at the site to date, however, in terms of the potential risk to future site occupants in terms of the proposed development, there are unlikely to be complete pathways that result in an unacceptable risk to human health to on-site occupants (of the retail development) on the basis of the following: -

- Groundwater is located at depth (available information suggests groundwater underlying the site is likely to be at depths greater than 10 metres below ground level). Proposed construction works and any future works at the site would not extend to these depths. Furthermore, groundwater will not be used for any purpose (i.e. irrigation, etc) following development.
- Previous reports (mentioned above) indicated there was considered to be a low likelihood of significant soil vapour impacts being present at the site in terms of the proposed future commercial redevelopment. Furthermore the proposed development, which incorporates a carpark at grade under the majority of the proposed commercial building, with open sides, reduces the likelihood of any accumulation of vapours that may pose any risk to human health through inhalation.

There is generally considered to be a low risk to the health of future site occupants (of the retail development) from exposure to any impacted soils that might remain on site, or from inhalation from vapours that may potentially be present under the site.

Please feel free to contact the undersigned if you have any queries.

Yours sincerely,



**Andrew Durand**  
**Regional Practice Manager - Environment**

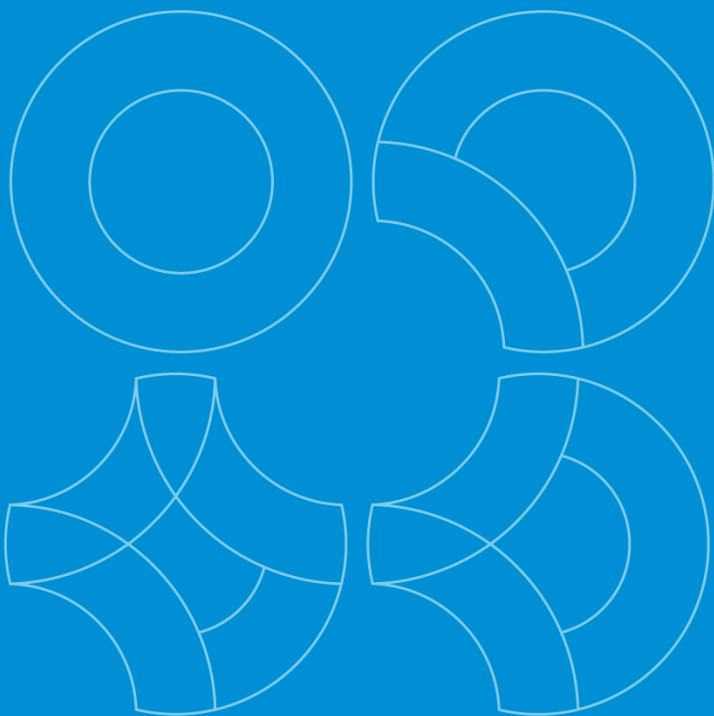
# Existing Electrical Infrastructure Clearance Report

## Kaufland AUS 1 development Forestville, South Australia

Prepared by  
Simpson Kotzman  
Consulting Engineers  
1 March 2018



**Simpson**Kotzman





# Existing Electrical Infrastructure Clearance Report

## Kaufland AUS 1 development Forestville, South Australia

Prepared by  
Simpson Kotzman  
Consulting Engineers  
1 March 2018

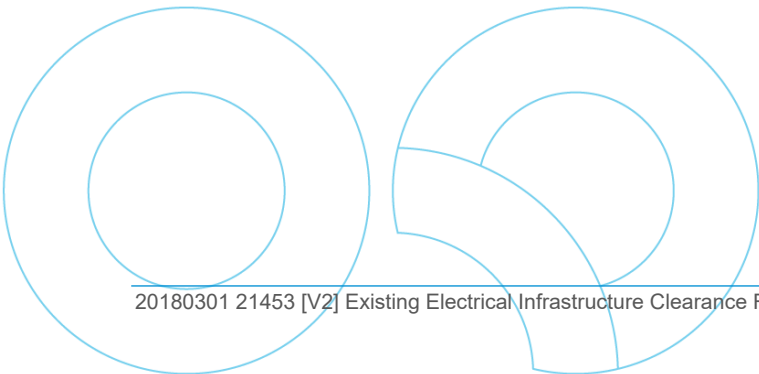
Table of Contents

1 Introduction.....2

2 Existing Building and Powerline locations .....2

3 Proposed Building and Powerline locations .....2

4 Conclusion .....2





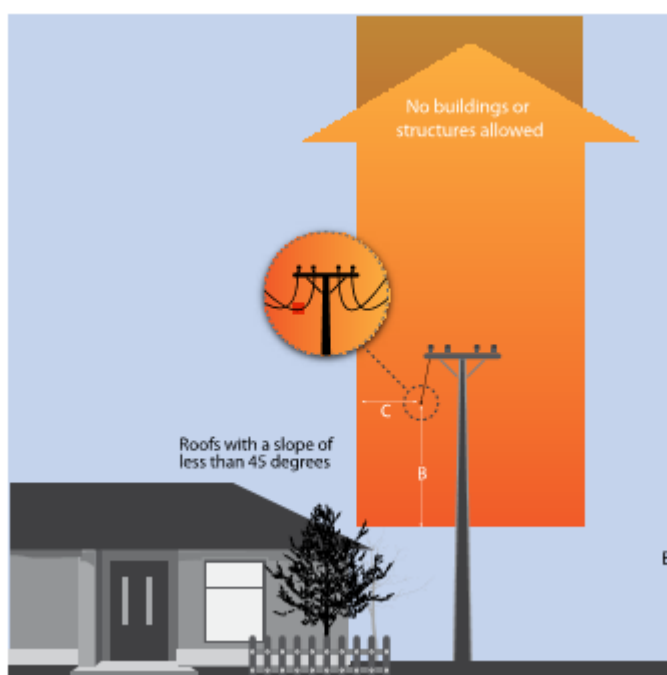
## 1 Introduction

This report relates to the clearance requirements from existing overhead electricity cable to the proposed building to be located at 10 Anzac Highway Forestville South Australia

This review and report is based on information regarding the required clearances from overhead cabling provided by the Government of South Australia and the respective Office of the Technical Regulator relating to "Building Safely Near Powerlines" and on-site survey of the existing power lines in Maple Avenue.

We have assessed the existing powerlines on all perimeter roads and note the following:

- Leader street powerlines are located on the opposite of the road to the proposed development and are considered safe from the development.
- Maple Avenues power lines are located on the same side of the street to the development and require assessment to determine if affected by the proposed building.
- Powerlines located on Anzac Highway are a long distance from the proposed building and are considered safe from the development.



Voltage	Up to and including 1 kV		Above 1 kV		Above 1 kV up to and including 33 kV	66 kV
Conductor type	Insulated	Bare	Insulated with earthed screen	Insulated without earthed screen	Bare or covered	Bare
<b>Dimension A</b> – Vertically above those parts of a building or structure normally accessible to persons.	2.7 m	3.7 m	2.7 m	3.7 m	5.5 m	6.7 m
<b>Dimension B</b> – Vertically above those parts of a building or structure not normally accessible to persons but on which a person can stand.	0.1 m	2.7 m	2.7 m	2.7 m	4.7 m	5.5 m
<b>Dimension C</b> – In horizontal direction from those parts of a building or structure normally accessible to persons or that is not normally accessible to persons but on which a person can stand.	0.1 m	1.5 m	1.5 m	1.5 m	3.1 m	5.5 m
<b>Dimension D</b> – In any direction from those parts of a building or structure not normally accessible to persons.	0.1 m	0.6 m	0.1 m	0.6 m	2.5 m	4.5 m

## 2 Existing Building and Powerline locations

It is proposed to locate the building with a 1metre offset from the current property boundary and has a height of approximately 9metres.

The existing power lines consist of “bare/covered” conductors one set at the lower level being Low Voltage(LV) less than 1kV and the upper cables being High Voltage(HV) being >1kV and <33kV. The Low voltage cables have been surveyed to have a height of approximately 7.14metres and the high voltage cables have a height of approximately 7.6metres.

The HV cabling is installed symmetrically on the pole heads until pole number 5 from Anzac highway corner where it is offset away from the property on outrig arms across poles 5 and 6 then it re-aligns to be again symmetrically mounted to the pole heads.  
(refer Photographs Fig 1-4.)



**Figure 1.**



**Figure 2.**



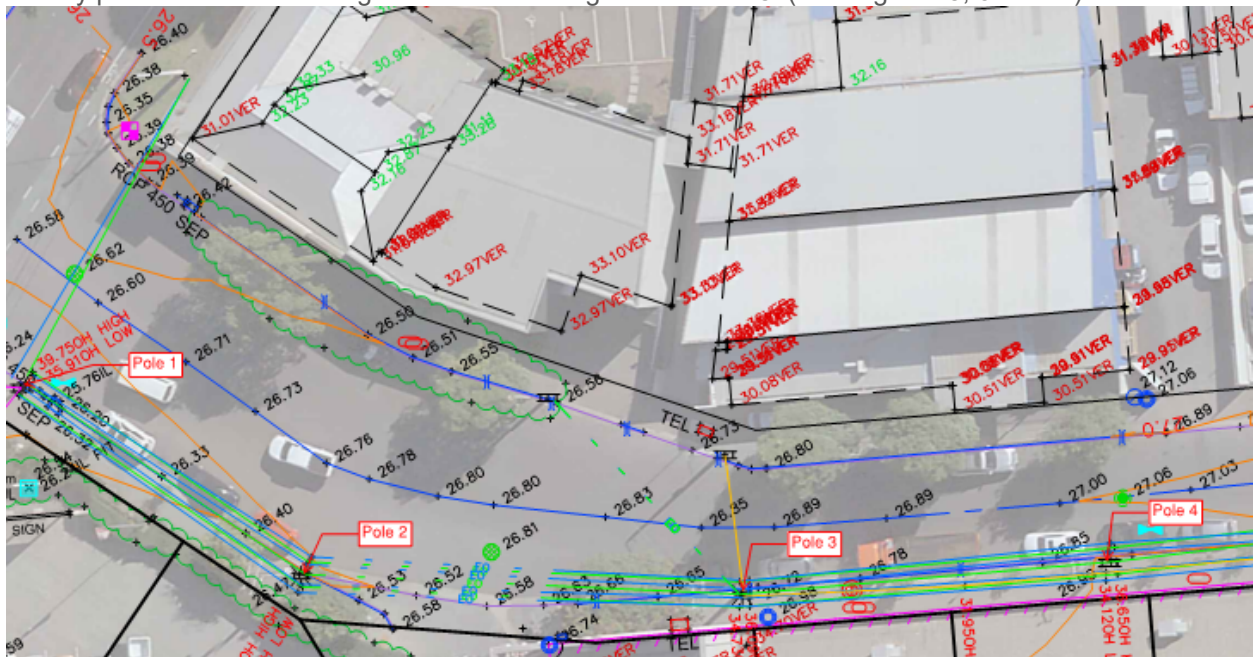


**Figure 3.**



**Figure 4.**

Survey plan shows the existing HV and LV cabling and Poles 1-8. (See Figures 5, 6 and 7.).



**Figure 5**

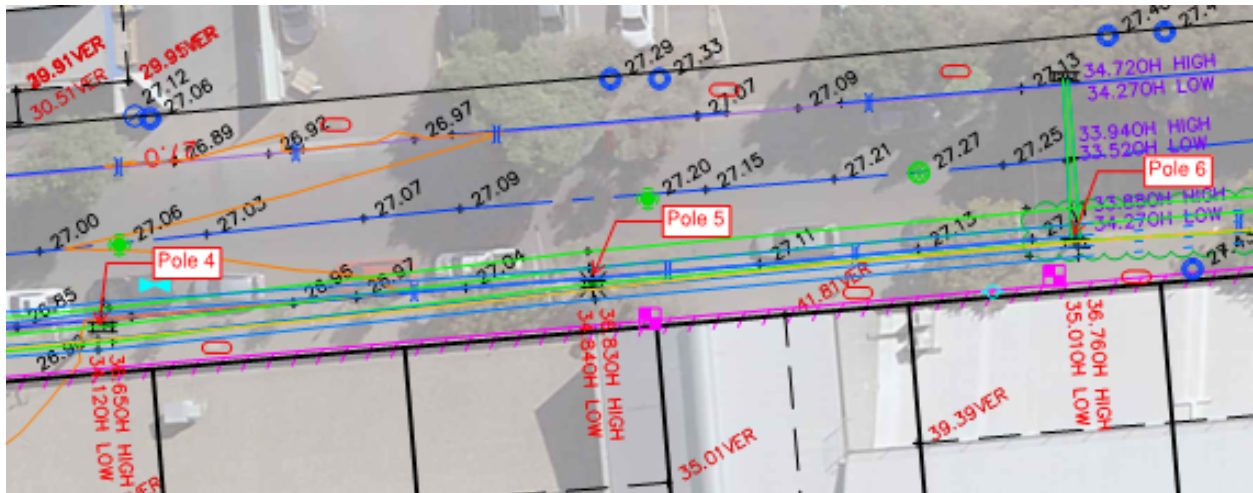


Figure 6

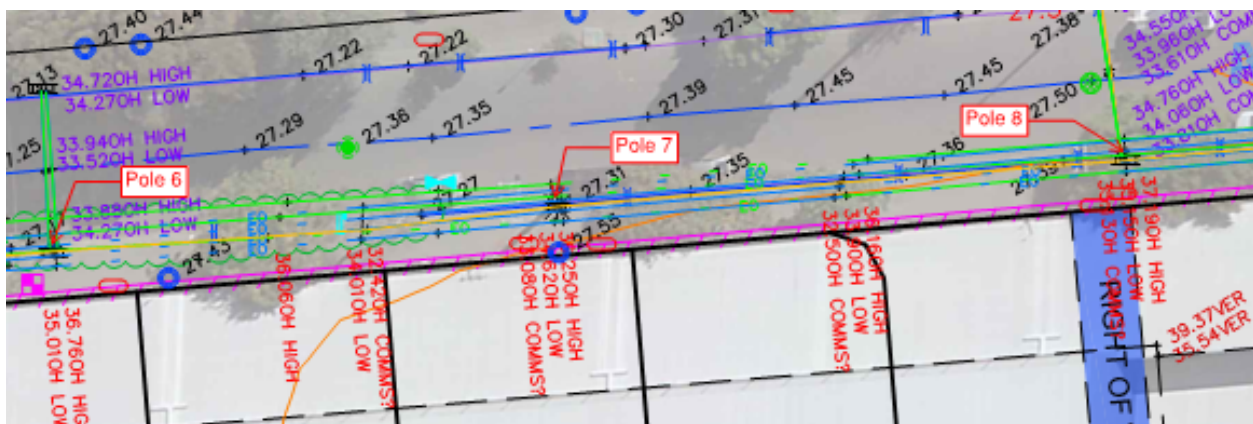


Figure 7.

### 3 Proposed Building and Powerline locations

The proposed new building is offset from the existing property line by 1 metre, see Figure 8 showing the proposed building and the existing power lines. This shows that in the worst case (i.e. the closest location) the building is inside the 3.1m high voltage no go zone, 650mm worst case sag & sway assumed between pole 3 and 4. This seems conservative enough due to the tautness of the existing lines and the short spans between the poles. Figures 9-11 show the closest clearances.

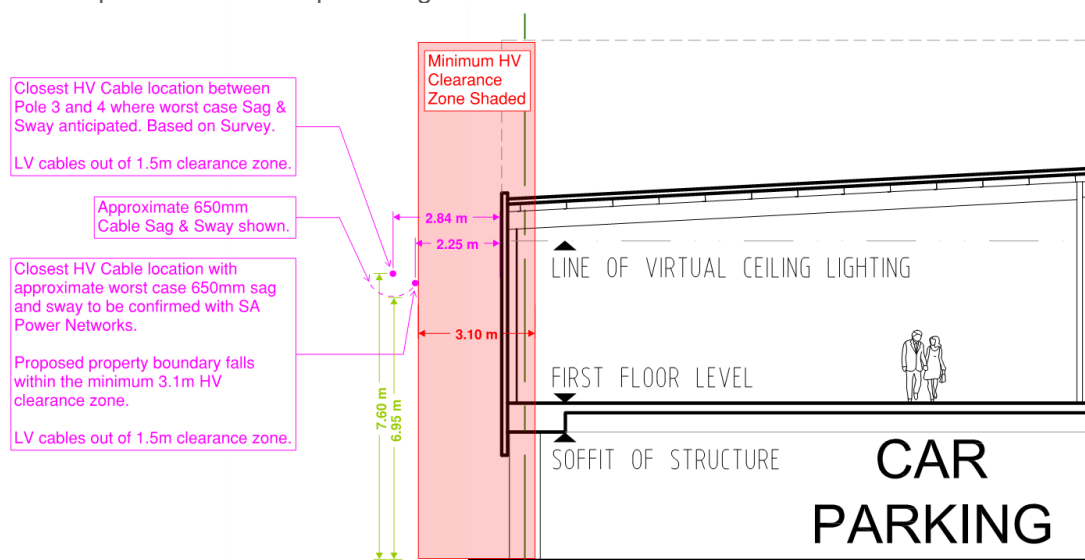


Figure 8





## 4 Conclusion

From the surveyed existing powerline locations and the proposed building location with an excessive sway allowance the proposed building is inside the designated clearance zone for the existing powerlines.

An application will be made to SA Power to relocate these existing overhead HV power lines either by offsetting these on the existing poles using cantilever arms (as per the existing offsets on poles 5 & 6) or relocating all the overhead HV and LV cabling underground.

This application and resolution will be made to SA Power, to ensure the existing cabling meets the requirements of Government of South Australia and the respective Office of the Technical Regulator relating to "Building Safely Near Powerlines".

The approval process for this application will take some time but would need to be undertaken prior to construction starting on this site.

We would recommend that this be put into action as soon as possible.



**Simpson Kotzman Pty Ltd** Consulting Engineers    [www.sk.com.au](http://www.sk.com.au)    ACN 006 757 446  
Melbourne: Level 1, 1 Southbank Bvd Southbank VIC 3006 Australia    T +61 3 9663 3030    F +61 3 9663 3050  
Sydney: Level 1, 2 Elizabeth Plaza North Sydney NSW 2060 Australia    T +61 2 9929 3321    F +61 2 9929 3327  
**Managing Director:** John Kennedy    **Director:** Rick Hollett    **Consultant:** Dermot Small  
**Associates:** Tom Christie, Chris Downing, Nathan Meier, Tony Spillane, Robert Tombolato, Daniel Vogrig





# Kaufland Australia's Sustainability Commitment

**Kaufland Australia | 10 Anzac Highway, Forestville SA**

Kaufland Australia stores will set a new benchmark for energy efficient and environmentally conscious retail development. By utilizing sustainable construction, intelligent waste management and renewable energy systems in order to minimize our environmental impact, we have accounted for every last detail – and we are proud to be implementing them all.

## **Solar Photovoltaics | Power supply**

Wherever the environment permits, our stores will be equipped with a solar photovoltaic plant spanning up to 3,000m<sup>2</sup> across our roof. This substantial investment in renewable energy combined with future proofing our services spaces to allow for commercial batteries to be utilized in-lieu of diesel generators for back-up power supply, means that our stores will be at the forefront of environmentally sustainable design.

## **LED Lighting | Lower electricity consumption**

Lights with efficient LED technology will be used in all of Kaufland Australia's stores. This enables pleasant and optimal illumination of our fresh and yummy food whilst reducing our electricity consumption.

## **E-charging Stations | Applicable to electric cars and e-bikes**

During store opening hours, Kaufland customers can charge their electric car with green electricity quickly and free of charge. Our 50 kW quick charging stations, equipped with plugs for all common vehicle types make this possible. We also plan to make this service available for e-bikes.

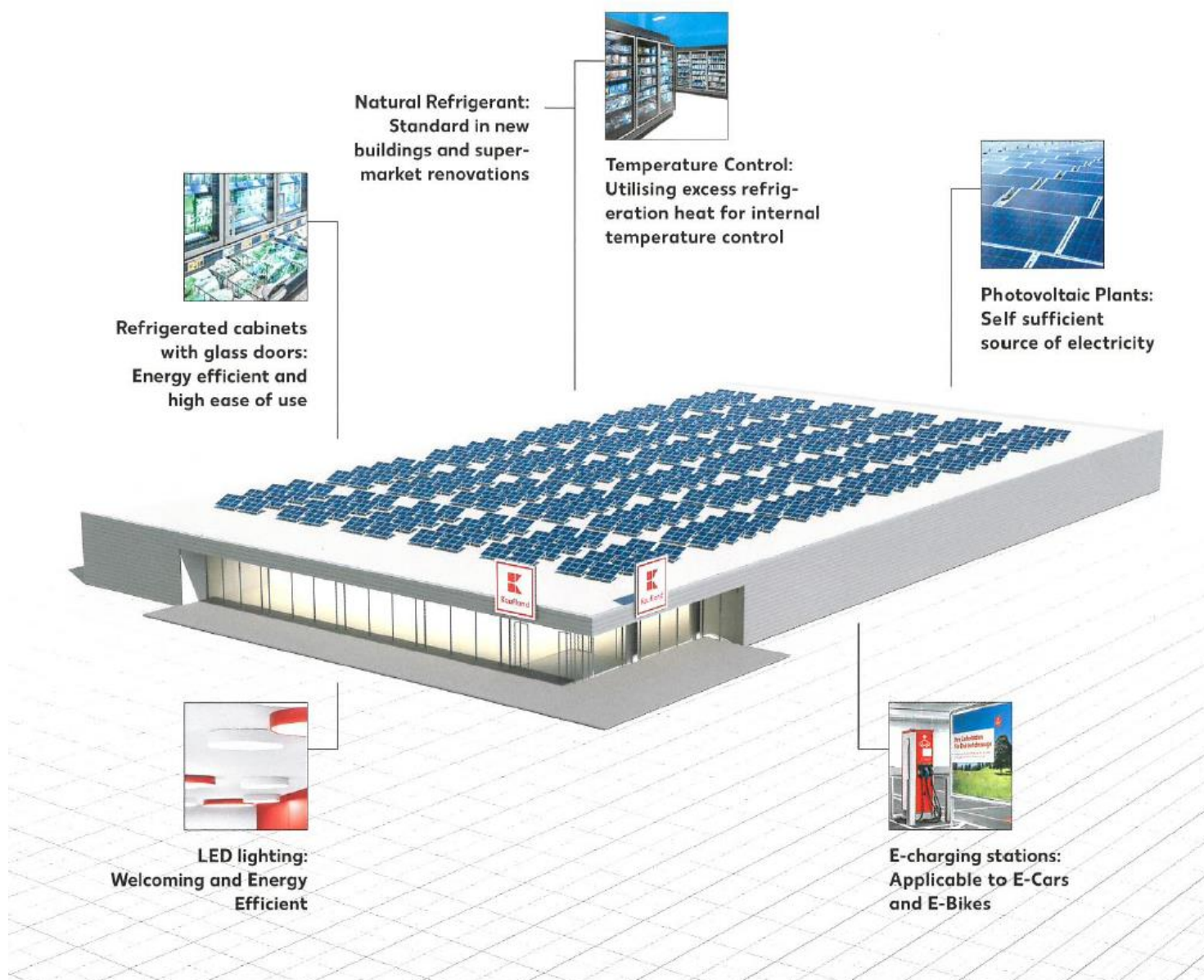
## **Refrigeration | Combining refrigeration and temperature control**

Kaufland Australia stores will feature the latest in sustainable energy re-use to keep our carbon footprint to a minimum. Excess heat generated by the operation of our refrigeration systems will be used to assist in optimizing the efficiency of our climate control – minimizing energy usage for internal heating by collecting the used hot water from the refrigeration plant and reticulating it back throughout the store for other purposes.



## Efficient Refrigeration Units | The result – optimal store climate

The use of improved glass doors keeps the cold where it belongs. This will save about 10 percent of the refrigeration plant's energy requirements and creates a pleasant room and shopping climate for our customers and employees.



KAUFLAND Australia Pty Ltd  
Attention: Kimberley Holmes  
Level 8, 80 Docras Street,  
SOUTH MELBOURNE, VIC 3205

26 July 2018

Dear Kimberley,

**RE: KAUFLAND – FORESTVILLE  
IRRIGATION SYSTEM**

**AUTOMATIC IRRIGATION:**

Stormwater Harvesting Tanks (5 No) are shown on the landscape plan. These collect stormwater from the roof.

The Rain Gardens and Bioswales will be irrigated from these tanks. This will filter, reduce and slow any stormwater discharge from the site. It will also water the associated massed sedge planting, in the rain gardens, which will utilise the moisture for evapotranspiration and nutrient uptake.

All soft landscape garden bed areas within the site will have an automatic irrigation system, integrated with the above system, which is being detailed by the Hydraulic consultants. One of the stormwater harvesting tanks, will have a top-up to the mains water supply. The system will also be linked to a rainfall sensor, located on the roof. The system will have a computer controller, with adjustable programs for each season, and 24 programmable stations, and an efficient in-line drip emitter distribution system.

PVC conduits (100mm dia) will be provided under all footpaths and driveway crossings, to allow for a continuous ring circuit.

A detailed CAD drawing and As –Built layout will be provided, as part of the Irrigation Design and Documentation; with an associated Instructions and Maintenance Manual.

Yours faithfully,



**Mark McWha**  
DIRECTOR  
FORM *ium* PTY LTD



13 August 2018

**Lauren Talbot**

A/Team Leader- Development Assessment  
Department of Planning, Transport and Infrastructure

Dear Lauren

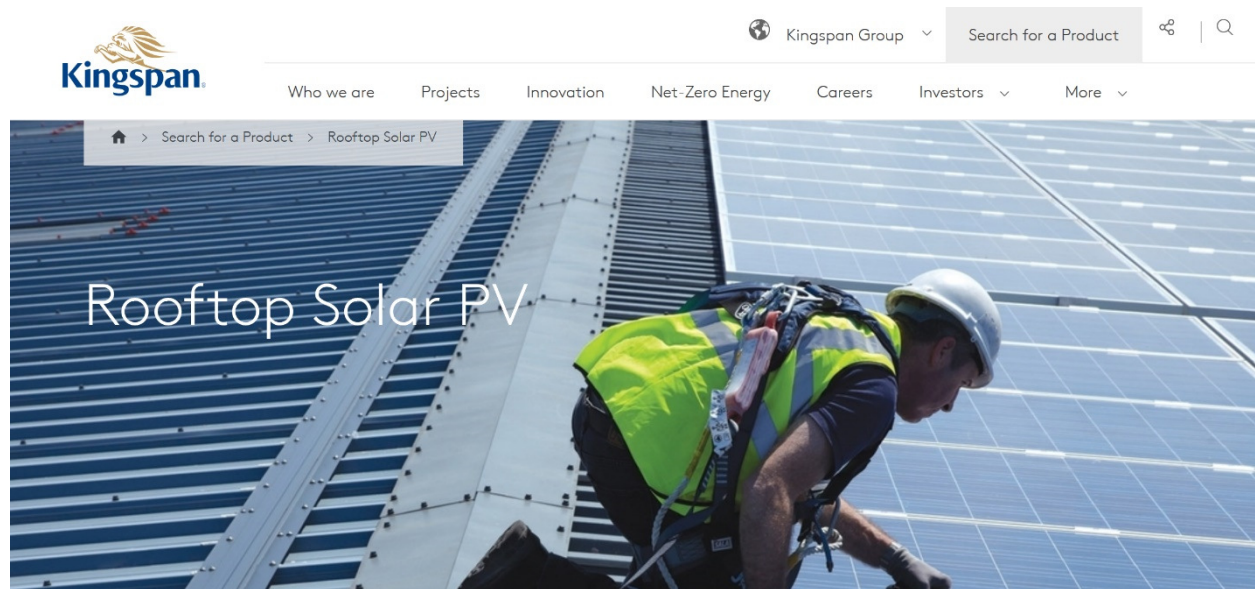
**RE: KAUF LAND – 10 ANZAC HWY FORESTVILLE  
Proposed Solar Photovoltaic System**

ATG consultants are Building Services Engineers working for Kaufland on the design of the engineering services for the proposed retail development.

In response to your query, we are designing for a nominal 300kW grid-connected solar photovoltaic (PV) system to cover the electrical base-load for the proposed building.

We are proposing 900 PV panels. Each panel is approx 1956mm x 992mm x 40mm and produces a peak power output of approx 330W per panel. **900 panels x 330W each = 297kW**


The current design proposes to mount the PV panels flat on the roof using Kingspan proprietary concealed mounting rails and brackets to suit the Kingspan roof system, similar to the image below.



Please let us know if you have any further queries regarding this matter.

Yours faithfully,

**A. T. Gormanns & Associates Pty Ltd**

  
**Andrew Gormanns**  
Director

Kaufland Australia Pty Ltd  
Level 8, 80 Dorcas Street  
SOUTH MELBOURNE VIC 3205

13 August 2018

Job No.: WME170735

Attention: Mr. Tom Sheridan

Dear Tom

## KAUFLAND FORESTVILLE – RAINWATER TANK DETAILS

Further to the details contained in our Stormwater Management Report dated 11<sup>th</sup> July 2018, I can confirm that the tanks are to be above-ground concrete tanks. The size of the tanks vary with 2 x 30kL, 1 x 25L and 1 x 15kL tanks proposed.

Based on the information provided by SA Concrete Tanks (<http://saconcretetanks.com.au/tanks/>) and Hills Concrete Products (<https://www.hillsconcrete.com.au/products/above-ground-tanks/17000l-tank/>), the tanks have the following dimensions:

- 30kL – 3.5m dia x 3.1m high
- 25kL – 3.5m dia x 2.6m high
- 15kL – 3.3m dia x 2.45m high.

Please contact me if you have any queries.

Regards



Colin Hill  
for  
**WALLBRIDGE GILBERT AZTEC**

CJ:MH;nd

Level 2, 31 Market Street  
South Melbourne, VIC 3205  
T: 03 9696 9522  
WGA VIC Pty Ltd  
ABN 59 127 466 997



NORMAN WATERHOUSE  
L 15  
45 PIRIE ST  
ADELAIDE SA 5000

LTO BOX 59

13 October 2017

## CONFIRMATION OF REGISTRATION NOTICE

The following dealings have been registered -

**Dealing(s):** TRANSFER 12805260  
TRANSFER 12805261  
TRANSFER 12805262  
TRANSFER 12805263  
TRANSFER 12805264

**Title(s):** CT 5772/282  
CT 5772/287  
CT 5835/831  
CT 5880/803  
CT 5888/429

**Registration Date:** 13/10/2017

**Customer Reference:** 290526

Confirmations of registration are attached on the following page(s).



**Michael Burdett**

**Registrar-General**

**Lands Titles Office**



# CONFIRMATION OF REGISTRATION

## Certificate of Title - Volume 5772 Folio 282

### Estate Type

FEE SIMPLE

### Registered Proprietor(s)

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 53 DEPOSITED PLAN 2907  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

Dealing Number	Description
11950318	LEASE TO FANTASTIC HOLDINGS LIMITED COMMENCING ON 1/12/2012 AND EXPIRING ON 30/11/2022

Registrar-General

Lands Titles Office





# CONFIRMATION OF REGISTRATION

## Certificate of Title - Volume 5772 Folio 287

### Estate Type

FEE SIMPLE

### Registered Proprietor(s)

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 52 DEPOSITED PLAN 2907  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

Dealing Number	Description
11950319	LEASE TO FANTASTIC HOLDINGS LIMITED COMMENCING ON 1/12/2012 AND EXPIRING ON 30/11/2022

Registrar-General

Lands Titles Office



# CONFIRMATION OF REGISTRATION

## Certificate of Title - Volume 5835 Folio 831

### Estate Type

FEE SIMPLE

### Registered Proprietor(s)

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 18 FILED PLAN 9791  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

NIL

### Schedule of Dealings

Dealing Number	Description
11950315	LEASE TO FANTASTIC HOLDINGS LIMITED COMMENCING ON 1/12/2012 AND EXPIRING ON 30/11/2022

Registrar-General

Lands Titles Office





# CONFIRMATION OF REGISTRATION

## Certificate of Title - Volume 5880 Folio 803

### Estate Type

FEE SIMPLE

### Registered Proprietor(s)

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENT 19 FILED PLAN 9791  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

SUBJECT TO THE EASEMENT(S) OVER THE WITHIN LAND TO THE SOUTH AUSTRALIAN WATER  
CORPORATION (T 9389787)

### Schedule of Dealings

Dealing Number	Description
11950316	LEASE TO FANTASTIC HOLDINGS LIMITED COMMENCING ON 1/12/2012 AND EXPIRING ON 30/11/2022

### Registrar-General

### Lands Titles Office



# CONFIRMATION OF REGISTRATION

## Certificate of Title - Volume 5888 Folio 429

### Estate Type

FEE SIMPLE

### Registered Proprietor(s)

KAUFLAND AUSTRALIA PTY. LTD. (ACN: 616 591 667)  
OF L 8 80 DORCAS STREET SOUTH MELBOURNE VIC 3205

### Description of Land

ALLOTMENTS 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119 AND 120 FILED PLAN 216991  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

ALLOTMENT COMPRISING PIECES 121, 122 AND 123 FILED PLAN 216991  
IN THE AREA NAMED FORESTVILLE  
HUNDRED OF ADELAIDE

### Easements

SUBJECT TO RIGHT(S) OF WAY AND EASEMENT(S) OVER THE LAND MARKED A (LAND GRANT VOL.1197 FOLIO 172)

### Schedule of Dealings

Dealing Number	Description
11950317	LEASE TO FANTASTIC HOLDINGS LIMITED COMMENCING ON 1/12/2012 AND EXPIRING ON 30/11/2022

### Registrar-General

### Lands Titles Office





# DEVELOPMENT APPLICATION FORM

PLEASE USE BLOCK LETTERS

COUNCIL: CITY OF UNLEY

APPLICANT: KAUFLAND AUSTRALIA

Postal Address: LEVEL 2 / 100 DORCAS  
ST. SOUTH MELBOURNE 3205

Owner: AS ABOVE

Postal Address: AS ABOVE

BUILDER: TBA

Postal Address: -

Licence No: \_\_\_\_\_

## CONTACT PERSON FOR FURTHER INFORMATION

Name: SAM RUSSELL-MCLEOD

Telephone: 0424 043 602 [work] \_\_\_\_\_ [Ah] \_\_\_\_\_

Fax: \_\_\_\_\_ [work] \_\_\_\_\_ [Ah] \_\_\_\_\_

EXISTING USE: FORMER LE CORNU RETAIL  
OUTLET.

DESCRIPTION OF PROPOSED DEVELOPMENT: FREESTANDING RETAIL DEVELOPMENT

LOCATION OF PROPOSED DEVELOPMENT: 10 ANZAC HIGHWAY, FORESTVILLE 5035

House No: 10 Lot No: \_\_\_\_\_ Street: ANZAC HIGHWAY Town/Suburb: FORESTVILLE

Section No [full/part] - Hundred: ADELAIDE Volume: 5888 Folio: 429

Section No [full/part] \_\_\_\_\_ Hundred: \_\_\_\_\_ Volume: \_\_\_\_\_ Folio: \_\_\_\_\_

## LAND DIVISION:

Site Area [m<sup>2</sup>] 36,120m<sup>2</sup> Reserve Area [m<sup>2</sup>] - No of existing allotments 35

Number of additional allotments [excluding road and reserve]: - Lease: YES ☐ NO ☒

BUILDING RULES CLASSIFICATION SOUGHT: 6, 7a Present classification: 6

If Class 5,6,7,8 or 9 classification is sought, state the proposed number of employees: Male: 30 Female: 30

If Class 9a classification is sought, state the number of persons for whom accommodation is provided: -

If Class 9b classification is sought, state the proposed number of occupants of the various spaces at the premises: -

DOES EITHER SCHEDULE 21 OR 22 OF THE DEVELOPMENT REGULATIONS 2008 APPLY? YES ☐ NO ☒

HAS THE CONSTRUCTION INDUSTRY TRAINING FUND ACT 2008 LEVY BEEN PAID? YES ☐ NO ☒

DEVELOPMENT COST [do not include any fit-out costs]: \$ 34,610,000

I acknowledge that copies of this application and supporting documentation may be provided to interested persons in accordance with the Development Regulations 2008.

SIGNATURE: Sam McLeod

Dated: 04 / 05 / 2018

## FOR OFFICE USE

Development No: \_\_\_\_\_

Previous Development No: \_\_\_\_\_

Assessment No: \_\_\_\_\_

- ☐ Complying
- ☐ Non Complying
- ☐ Notification Cat 2
- ☐ Notification Cat 3
- ☐ Referrals/Concurrences
- ☐ DA Commission

Application forwarded to DA

Commission/Council on

/ /

Decision: \_\_\_\_\_

Type: \_\_\_\_\_

Date: / /

	Decision required	Fees	Receipt No	Date
Planning:	_____	_____	_____	_____
Building:	_____	_____	_____	_____
Land Division:	_____	_____	_____	_____
Additional:	_____	_____	_____	_____
Development Approval	_____	_____	_____	_____

In reply please quote 2018/01926/01, Process ID: 514012  
Enquiries to George Morias  
Telephone (08) 8226 8384  
Facsimile (08) 8226 8330  
E-mail dpti.luc@sa.gov.au



**Government of South Australia**  
Department of Planning,  
Transport and Infrastructure

3/05/2018

Mr Sam Russell - McLeod  
Kaufland Australia  
Level 2/100 Dorcas Street  
South Melbourne VIC 3205

**SAFETY AND SERVICE –  
Traffic Operations**

GPO Box 1533  
Adelaide SA 5001

Telephone: 61 8 8226 8222  
Facsimile: 61 8 8226 8330

ABN 92 366 288 135

Dear Mr Russell - McLeod,

#### **SCHEDULE 8 - FURTHER INFORMATION REQUEST**

<b>Development No.</b>	090/E004/18
<b>Applicant</b>	Kaufland Australia
<b>Location</b>	10 Anzac Highway, Forestville
<b>Proposal</b>	Supermarket
<b>Information required within 30 days from the date of this letter</b>	

The above development application was referred to the Safety and Service Division of the Department of Planning, Transport and Infrastructure (DPTI) by the State Commission Assessment Panel in accordance with Section 37 of the *Development Act 1993*.

The department has received the supporting documentation submitted with the development application and has undertaken a preliminary review of the Traffic and Parking Assessment and Sidra modelling and notes that there a number of matters that require clarification. Therefore, as provided for by Section 37(2) of the *Development Act 1993*, DPTI requires the following additional information before it gives its response.

1. The traffic assessment assumes a 20% passing traffic discount consistent with the RTA Guide to Traffic Generating Development. However, this has been incorrectly applied as a flat reduction to the generation rate rather than a reallocation from the adjacent road. This results in the turning movements associated with the development being underestimated. This should be reviewed.
2. The report assumes that 10% (5% in and 5% out) of traffic accessing the site will utilise the eastern portion of Maple Avenue. Maple Avenue provides access to a relatively small catchment and has poor connectivity to the wider network. Further justification is required.
3. The origin of the Saturday AM peak traffic volumes is not clearly stated in the report. This requires clarification as the volumes appear low.



4. It appears that not all of the data used to inform the Sidra Base Case for the Anzac Highway/Leader Street junction has been included in the report. This should be updated.
5. The Sidra Base Case does not reflect the actual operation of this junction:
  - The existing junction layout does not reflect the existing length of the right turn lane on Anzac Highway and the lane lengths on Leader Street.
  - Stop line saturation flows that have been used are not achievable. Achievable saturation flows were provided by DPTI.
  - Phase times do not reflect the current operation of the junction.
  - No adjustment has been provided for current lane utilisation.

Modifications are required to this model to ensure that it is representative of the existing operation.

6. It is noted that the existing volumes for the Anzac Highway/Maple Avenue junction are not provided in the report. These should be included.
7. The Sidra model for the Anzac Highway/Maple Avenue junction indicates that delays will increase to 10 minutes. Accordingly, it is likely that traffic will redistribute to avoid such delays. The redistribution of this traffic needs to be considered for the weekday PM scenario and the impacts defined, particularly given that some of this traffic will redistribute to the Anzac Highway/Leader Street junction.
8. The report does not indicate that there are any improvements to road infrastructure required to facilitate the development other than modifications to the adjacent u-turn facility. It is noted that even under the PM peak development model provided for the Anzac Highway/Leader Street junction that the right turn queue will exceed capacity. Accordingly, improvements to road assets will need to be further considered.

The further information must be supplied within 30 days of the date of this letter. Failure to comply with this request may result in DPTI advising the planning authority to refuse the application.

Please send the further information, labelled with your Development Number, to both DPTI and the planning authority at the addresses provided below.

All information must be forwarded to:

Transport Assessment and Policy Reform Section Department of Planning, Transport and Infrastructure GPO Box 1533 ADELAIDE SA 5001	State Commission Assessment Panel C/- Department of Planning, Transport and Infrastructure GPO Box 1815 ADELAIDE SA 5001
--	---

Early attention to this matter would be appreciated.

Yours sincerely,

  
A/

MANAGER, TRANSPORT ASSESSMENT AND POLICY REFORM

For COMMISSIONER OF HIGHWAYS

cc:	<i>Planning Authority:</i>	State Commission Assessment Panel
	<i>Attention:</i>	Jeremy Wood/Lauren Talbot



In reply please quote 2018/01926/01, Process ID: 514012  
Enquiries to George Morias  
Telephone (08) 8226 8384  
Facsimile (08) 8226 8330  
E-mail dpti.luc@sa.gov.au



**Government of South Australia**  
Department of Planning,  
Transport and Infrastructure

3/05/2018

Mr Sam Russell - McLeod  
Kaufland Australia  
Level 2/100 Dorcas Street  
South Melbourne VIC 3205

**SAFETY AND SERVICE –  
Traffic Operations**

GPO Box 1533  
Adelaide SA 5001

Telephone: 61 8 8226 8222  
Facsimile: 61 8 8226 8330

ABN 92 366 288 135

Dear Mr Russell - McLeod,

#### **SCHEDULE 8 - FURTHER INFORMATION REQUEST**

<b>Development No.</b>	090/E004/18
<b>Applicant</b>	Kaufland Australia
<b>Location</b>	10 Anzac Highway, Forestville
<b>Proposal</b>	Supermarket
<b>Information required within 30 days from the date of this letter</b>	

The above development application was referred to the Safety and Service Division of the Department of Planning, Transport and Infrastructure (DPTI) by the State Commission Assessment Panel in accordance with Section 37 of the *Development Act 1993*.

The department has received the supporting documentation submitted with the development application and has undertaken a preliminary review of the Traffic and Parking Assessment and Sidra modelling and notes that there a number of matters that require clarification. Therefore, as provided for by Section 37(2) of the *Development Act 1993*, DPTI requires the following additional information before it gives its response.

1. The traffic assessment assumes a 20% passing traffic discount consistent with the RTA Guide to Traffic Generating Development. However, this has been incorrectly applied as a flat reduction to the generation rate rather than a reallocation from the adjacent road. This results in the turning movements associated with the development being underestimated. This should be reviewed.
2. The report assumes that 10% (5% in and 5% out) of traffic accessing the site will utilise the eastern portion of Maple Avenue. Maple Avenue provides access to a relatively small catchment and has poor connectivity to the wider network. Further justification is required.
3. The origin of the Saturday AM peak traffic volumes is not clearly stated in the report. This requires clarification as the volumes appear low.

4. It appears that not all of the data used to inform the Sidra Base Case for the Anzac Highway/Leader Street junction has been included in the report. This should be updated.
5. The Sidra Base Case does not reflect the actual operation of this junction:
  - The existing junction layout does not reflect the existing length of the right turn lane on Anzac Highway and the lane lengths on Leader Street.
  - Stop line saturation flows that have been used are not achievable. Achievable saturation flows were provided by DPTI.
  - Phase times do not reflect the current operation of the junction.
  - No adjustment has been provided for current lane utilisation.

Modifications are required to this model to ensure that it is representative of the existing operation.

6. It is noted that the existing volumes for the Anzac Highway/Maple Avenue junction are not provided in the report. These should be included.
7. The Sidra model for the Anzac Highway/Maple Avenue junction indicates that delays will increase to 10 minutes. Accordingly, it is likely that traffic will redistribute to avoid such delays. The redistribution of this traffic needs to be considered for the weekday PM scenario and the impacts defined, particularly given that some of this traffic will redistribute to the Anzac Highway/Leader Street junction.
8. The report does not indicate that there are any improvements to road infrastructure required to facilitate the development other than modifications to the adjacent u-turn facility. It is noted that even under the PM peak development model provided for the Anzac Highway/Leader Street junction that the right turn queue will exceed capacity. Accordingly, improvements to road assets will need to be further considered.

The further information must be supplied within 30 days of the date of this letter. Failure to comply with this request may result in DPTI advising the planning authority to refuse the application.

Please send the further information, labelled with your Development Number, to both DPTI and the planning authority at the addresses provided below.

All information must be forwarded to:

Transport Assessment and Policy Reform Section Department of Planning, Transport and Infrastructure GPO Box 1533 ADELAIDE SA 5001	State Commission Assessment Panel C/- Department of Planning, Transport and Infrastructure GPO Box 1815 ADELAIDE SA 5001
--	---



Early attention to this matter would be appreciated.

Yours sincerely,

  
A/

MANAGER, TRANSPORT ASSESSMENT AND POLICY REFORM

For COMMISSIONER OF HIGHWAYS

cc:	<i>Planning Authority:</i>	State Commission Assessment Panel
	<i>Attention:</i>	Jeremy Wood/Lauren Talbot



Reference 090/E004/18  
Contact Officer: Lauren Talbot  
Telephone: 84021786  
Email: [Lauren.Talbot@sa.gov.au](mailto:Lauren.Talbot@sa.gov.au)

Level 5, 50 Flinders Street  
Adelaide SA 5000

GPO Box 1815  
Adelaide SA 5001

Telephone: 08 7109 7060  
ABN 92 366 288 135

<http://www.dpti.sa.gov.au>

19 April 2018

**Application Number:**  
**Applicant:**  
**Proposed Development:**  
**Subject Land:**

## SCAP REFERRAL - COUNCIL

The State Commission Assessment Panel (SCAP) has recently received a copy of the proposed development application described above (Note: all relevant documentation is attached).

Pursuant to Section 33(1) of the *Development Act 1993* and Regulation 38(2) of the *Development Regulations 2008* a copy of the application is attached for your review and comment.

Council's attention is particularly drawn to the time allowed for comments under Regulation 38(2):

38(2) A period of six (6) weeks from the date of lodgement (where Council has received the application) is provided to enable comments to be prepared and forwarded to the SCAP. *Note: If the application is a type of development lodged directly with the SCAP pursuant to Regulation 15(3), the six-week period for comment starts from when a copy of the application is received by Council from SCAP.*

On request, the SCAP may grant an extension to the indicated timeframe, however this request should be made in advance of the due date to the relevant planning officer (or to the SCAP Secretary on 71097060) indicating the reasons for the request and the period of extension sought.

When replying please attach a copy of this letter with your details below.

Yours faithfully,

A handwritten signature in blue ink, appearing to be 'L. Talbot'.

Lauren Talbot

For **STATE ASSESSMENT COMMISSION PANEL**

I advise that this Council has ~~the attached~~ **no report** to make on the proposed development described below.

David Brown Principal Policy Planner  
Reporting Officer  
31/5/18  
Date  
City of Unley

#11851050



31 May 2018

The Secretary  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

**Attention:** **Lauren Talbot** - [Lauren.Talbot@sa.gov.au](mailto:Lauren.Talbot@sa.gov.au) and [scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au)  
Development Assessment, Planning and Development Directorate  
Department of Planning, Transport and Infrastructure

Dear Sir/Madam

**SCAP REFERRAL – COUNCIL COMMENTS – DA 090/E004/18  
RETAIL DEVELOPMENT - 10 ANZAC HIGHWAY EVERARD PARK**

Thank you for your agency referral received on the 19 April 2018 regarding the above-mentioned application and invitation for comment within 6 weeks (viz 31 May 2018) to assist the planning assessment process by the State Commission Assessment Panel (SCPA).

In accord with Section 34(1) of the *Development Act 1993* and Regulation 38(2) of the *Development Regulations 2008*, in relation to this application where the Acting State Coordinator-General determined to appoint SCAP as the relevant planning authority pursuant to Schedule 10(20) of the *Development Regulations 2008*, Council now provides:

- a report on the matters under Section 33(1) of the *Development Act 1993* [viz Unley (City) Development Plan]; and
- comment on Council controlled matters [viz vehicle access, public streetscapes, flooding, stormwater, waste management and the like] to assist with the application review and assessment by the SCAP.

There are a number of areas of concern with the proposed development, discussed in more detail below, which require comprehensive review by SCAP including in summary:

- Large scale retail use rather than integrated primarily residential development with limited local commercial/retail uses;
- Sub-optimal minimum building scale not capitalising on 6 storey potential;

- Exposed carparking to Anzac Highway (and Leader Street) with insufficient landscaping and shady canopy trees, and the under building and rear carpark areas screening/fencing;
- Inadequate building setback (and landscaping) to Maple Avenue streetscape (ie 1 metre vs minimum 3 metres);
- Ground level playground integrated with café and outdoor dining, and not located remotely and across a main vehicle driveway;
- Traffic control treatment of Leader Street access/egress, traffic modelling assumptions and review of implications on local network, service area to Maple Avenue, vehicle conflicts and pedestrian safety in carpark and rear laneway vehicle movement management;
- Landscaping increased areas to perimeter, eg along Anzac Highway, Maple Avenue and rear laneway, and internally to afford screening and shade canopy. A complete review of species to suit Adelaide and site circumstances;
- Street trees not to be removed, other than in Maple Avenue if additional replacements included as part of proposal;
- Waste servicing preferably consolidated into one main area in Maple Avenue;
- Flood and stormwater management noted details to be addressed;
- Comprehensive and complete Construction Management Plan and resolution with Council before Development Approval.

### **PLANNING POLICY MATTERS**

There is general compliance with the broad intent for development per the Development Plan policy requirements and guidelines but there are also some fundamental elements and detailed design matters that are considered to need addressing.

- The major investment, international/national operator and local employment is welcomed on the neglected and under-utilised LeCornu site.  
It is unfortunate the development is not a more integrated mixed-use with a primarily residential function with limited local services (albeit there is no specific floor area limit) in a mixed-use and residential development sought by the new Urban Corridor Zone and Transit Living (Anzac Highway) Policy Area. It is trusted, although not guaranteed, there is major residential development on the remaining area of the subject site.  
While not strictly in accord with the desired character of the zone, it is appreciated why the location of the site suits the nature of the proposed development;

The stand-alone major retail development fails to offer the more integrated primarily residential function with limited local services encouraged in the Desired Character, namely:

*“... primarily serve a residential function with local shops, offices and community land uses to support the daily living and working needs of residents and local workers.”*



*“The Le Cornu site should be developed as an integrated mixed use development that provides landmark quality buildings and a setting to respect and celebrate the important history and gateway to the Anzac Highway Memorial Avenue, and which comprises a mixture of commercial uses including retail showrooms, offices, medical services, and residential uses above.”*

*“... create a vibrant and active street frontage to Anzac Highway and Leader Street, with commercial activities on the ground floor promoting transparent and/or articulated frontages for interest.*

*Retail development will be of scale that supports an active, mixed use environment which is compatible with residential development. ...”*

- Business trading hours are nominated as 12:00am (midnight) to 9:00pm Monday to Saturday and 11:00am to 5:00pm Sunday. Aside from State rules, the impacts upon adjacent residential properties and street network requires containment to more appropriate and accepted times such as 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday.
- The ground level tenancy and outdoor seating provide for positive activation but the location of playground remote from these areas and across a dual traffic lane internal driveway is inappropriate. The playground should be integrated with outdoor dining/seating area to allow surveillance and safety, with area to Maple Avenue substantially landscaped to complement site appearance;
- Building height should be a minimum of 3 storeys (11.5 metres) to Anzac Highway, 2 storey (8.0 metres) to Leader Street and Maple Avenue, and maximum up to 6 storeys (22.0 metres).  
Actual building height is below minimum. Main façade to Anzac Highway is 11.9 metres for major central portion, reduced to 11.4 metres at edges, and Leader Street and Maple Avenue facades are 9.54 metres.  
Plant facilities, screened by 3.5 metre high acoustic barriers, sit atop the roof but well setback from edge of building/site to avoid being obtrusive;
- Road setbacks should be 3 metres to primary frontage and 2 metres to secondary frontages. Given the scale of the site and extensive frontages to 3 roads it is considered all should be 3 metres. A setback of 5 metres above 9 metres to Leader Street is a Non-Complying requirement.  
The 9.54 metres height to Leader Street has led to a setback of 5 metres as required, which positively allows for greater landscaping.  
Conversely, the extra 2 metres to Leader Street has been removed from the Maple Avenue frontage to retain only 1 metre setback and reduced streetscape landscaping opportunities to what is also to be in the future a streetscape for mixed use and residential development opposite.  
The minimum 3 metre setback should be provided along Maple Avenue, with any necessary floor area loss compensated by extension of the building to the large available to the east;
- Building appearance is a relatively simple large elevated 2 to 3 storey height ‘box’ with ground level largely open car-parking, albeit with varied articulation and materials mix, rather than the desired:

*“... landmark quality buildings and a setting to respect and celebrate the important history and gateway to the Anzac Highway Memorial Avenue ...”*

*“On-site vehicle parking will not be visible from the primary street frontage through the use of design solutions such as locating parking areas behind the front building façade and screening parking areas with landscaping and articulated screening.”*

*“No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.”*

*“Development will be interspersed with landscaping, particularly behind the main road frontage, along with small side setbacks to ensure space between boundaries to soften the appearance of buildings from the street and reduce heat load in summer.”*

The proposal cannot be fundamentally changed from what it is, and the articulation and materials afford a reasonable design detail, however, the landscaping and car-parking screening should be improved

The open car-parking area to the front onto Anzac Highway is reduced from the current situation but should be further screened, enhanced and shaded by comprehensive landscaping and substantial number of trees.

The ground level car-parking below the upper building and in the rear open areas should be entirely obscured from road frontages with appropriate effective screening, fencing and substantial landscaping.

- Traffic movement is consolidated access/egress to single points on each of the three road frontages, loading and servicing confined to Maple Avenue and excess of car-parking provided but a range of significant and detailed issues have been identified, particularly including:
  - Need for appropriate traffic control device for Leader Street access/egress, ie the warrant for signalisation is met;
  - Internal circulation driveways include multiple inappropriate conflict points;
  - Carparking areas under the building and to the rear should be obscured and screened by appropriate panels / fencing;
  - Traffic modelling assumptions, local network implications and road safety assessment need review;
  - Eastern laneway usage unclear, eg emergency vehicles, and needs to be controlled to avoid cut-through traffic and service vehicle use;
  - Bicycle on-road network and on-site parking for staff needs review;
  - Pedestrian walkways connections to streets are impractical and need to be controlled, plus a system of on-site separated walkways and designated paths are required, to support safe and convenient movement.

Full details are documented in the attached assessment by InfraPlan;



Car parking on-site exceeds standards, but is reasonable for the nature of such a major stand-alone destination retail land use, rather than an integrated mixed-use and residential complex.

There is 165m<sup>2</sup> retail tenancy and outdoor seating at the ground level, approximately another 150m<sup>2</sup> for public entry and associated non-leasable areas, and 7,510m<sup>2</sup> of gross leasable floor space at the first floor level; primarily in a supermarket of 5,810m<sup>2</sup>, tenancies and indoor / outdoor seating areas; in an overall building area of 8,520m<sup>2</sup>.

The total gross leasable area is 7,680m<sup>2</sup>, albeit there is a potential future extension at the rear of 900m<sup>2</sup> also flagged. The adopted stand-alone retail practice of 5.5 spaces per 100m<sup>2</sup> is more applicable, rather than the inappropriate mixed-use rate of 3 spaces per 100m<sup>2</sup>, there is 422 spaces required (472 with extension) compared to provision of 487.

This includes 12 'accessible' places and 16 'parent' spaces;

Motorcycle parking for 8 vehicles is provided, which is a positive, albeit location next to main northern entry off Anzac Highway raises some concerns – a location close to pedestrian lobby entry but in a quieter place is encouraged;

Bicycle parking for 16 visitors meets requirements. Provision for staff has not been indicated whereas requirements seek 26 staff spaces;

- The main loading and waste truck servicing to Maple Avenue accords with policy which excludes it from Leader Street. Careful detailed design allows effective operation to allow forward entry and exit of the range of service vehicles.

Service and waste vehicles should be limited to suit service/loading areas, ie main loading area to up to semi-articulated trucks (not B-double) up to 16 metres in length and waste area to west fixed trucks up to 8 metres in length. Detail is unclear on main loading dock but it would be desirable to narrow the very wide openings as much as possible and screen whole area with fencing and gates (noiseless systems) to screen and mitigate noise to Maple Ave. Maple Avenue is also envisaged to be an attractive streetscape for future promoted mixed use and residential development opposite that needs to be respected

General traffic use and service vehicle use of rear eastern laneway should be avoided by appropriate control treatments;
- Waste stream separation and servicing capacity is appropriate in accord with the supplied Waste Management Plan.

The supermarket will be serviced from the loading dock, with bins located in designated areas within the building and transferred once bins are full. The ancillary tenancies in the front mall area will be serviced by a separate smaller 'bin room' located off Maple Ave nearer Anzac Highway.

Waste generation will be minimised by inclusion of comprehensive recycling measures, including organics compactor and cardboard/soft plastic balers to facilitate efficiency on-site, reduce daily traffic movements and achieve best practice. Waste collection will be managed by a commercial waste collector;
- To afford safe, convenient and responsible movements of all service vehicles to and from the site, the service times should be limited to avoid peak traffic times and generally be between 7.00am to 7.00pm Monday to Saturday and 9.00am to 5.00pm Sunday to limit safety and amenity impacts;

- 
- No overlooking is apparent to residential private yards or spaces;
  - Overshadowing will be limited. For the majority of even the shortest day in June, midday shadow will not extend beyond the southern side of Leader Street and only extend to the front yard of dwellings before 9:00am and after 3:00pm;
  - Reasonable environmental sustainability incorporated into building services, including a large solar panel array on northern half of the roof, low energy lighting, equipment and some natural light and comprehensive recycling facilities.  
There are limited substantial initiatives such as green roofs or walls which are encouraged with new major buildings;
  - Site flood inundation is limited and with minor site fill and levelling the building floor areas (as opposed to other areas, eg carparking) will be set 300mm above the expected 1:100 ARI flood level to mitigate building risks;
  - Stormwater management requirements limit out-flows below existing rates and maximum of an 80% impervious level, in accord with the supplied preliminary Stormwater Management Plan.  
A system of retention tanks and detention is provided to limit out-flows and enable water re-use on-site. Further, water detention and quality will be supplemented by generous provision of Water Sensitive Urban Design (WSUD) treatments including bio-swales and raingardens throughout landscaped areas. Further details of council assets and engineering assessment is provided below;
  - Landscaping opportunities are reasonably available, but the design is limited, with a lack of trees, shade canopy and screening to site perimeter, within exposed carparking areas and development generally.  
The surplus of car parking affords an opportunity to favour an increase in spaces for softening landscaping and trees to perimeter road and laneway frontages and within exposed open car parking areas.  
The inappropriate species selection for local circumstances, pedestrian safety and maintenance needs comprehensive review.  
Full details are documented in attached Landscape Assessment by Oxigen;
  - The development includes an extensive area of outdoor advertising in total, but it is carefully integrated, relative to existing signs (notably existing front carpark pylon sign) and modest in comparison to the scale of the site, road frontages and building. The outdoor advertising will comprise:
    - Existing large 2 sided pylon sign will be substituted with a similar scale 3 sided (approximately 20 metres high) externally illuminated mono pylon sign;
    - A 2 sided 7 metres high internally illuminated pylon sign adjacent to Anzac Highway entry;
    - On the building a number of internally and externally illuminated wall mounted signs the western, northern and southern building façades, 6 for Kaufland and 13 smaller signs for the range of future specialty tenancies;
    - A large (18 x 18 metres) non-illuminated sign mounted flat on the southern portion of the roof, noting it will not be visible from surrounding streets or the public realm, and only visible from the air;



- External lighting of site and carpark (7m high pole lights), service areas, covered carpark and within building is designed to relevant standard and to avoid obtrusive effects of outdoor lighting, including reduced emissions for curfew hours (11pm to 6am);
- A comprehensive Construction Management Plan, eg addressing temporary traffic management and control, parking, noise, hours etc, is essential to ensure effectiveness and should be resolved with council before Development Approval.

Overall, the proposal has a number of variations from fundamental policy parameters. Some are limited variations, individually of moderate significance, but some are considered substantial variations.

The SCAP is advised that Council has concerns with the degree of variation from some fundamental and detailed planning policy parameters in its current form. The Council requests the range of matters raised in this report be given due consideration as part of the assessment process.

## **COUNCIL MATTERS**

Council provides specific comment in relation to matters where there are direct implications upon local public infrastructure as follows:

- streetscapes, including street trees and footpaths
- vehicle access, traffic and servicing
- flooding and storm-water management

### ***Street trees and footpaths***

There is a significant memorial 'Avenue' of mature *Fraxinus angustifolia* 'Raywood' street trees on Anzac Highway. No need or sufficient justification is evident for removal of any tree.

The plans are inaccurate with 8 trees indicted rather than the 7 actual trees. Design alternatives are available to address suggested cross-over and kerb re-alignment off Anzac Highway.

The addition of a planting strip and trees within the site along its frontage could significantly enhance the site appearance, the avenue of trees and screen car-parking.

Further, there is an extensive 5.0 metres from back of kerb to footpath as a potential opportunity for softening and greening to enhance frontage as a small offset of the hard environment within the site.

The Leader Street frontage consists of mostly mature *Eucalyptus* species while juvenile *Ulmus parvifolia* have recently been planted.

The plans are once again inaccurate. Removal of 1 large *Eucalyptus scoparia* near the Anzac Highway intersection is indicated. There is no need or justification for this, or arboriculture reason to remove a tree in good condition. Mature plants that soften and enhance the amenity must be maintained.

Leader Street has recently been upgraded, including Water Sensitive Urban Design rain gardens. The proposed development lends itself to a similar coordinated design. Four existing tree groups, each containing two mature *Eucalyptus* species, have the proximity of civil infrastructure (kerb/water table) causing conflict. There is an opportunity for built out rain gardens in line with the remainder of Leader Street to enhance tree and WSUD conditions. There is also an opportunity for further street tree planting throughout the road reserve with the recommended species of *Ulmus parvifolia*.

Maple Avenue consists of 16 street trees, despite the plans showing only 11 trees, with *Koelreuteria* species dominant. The tree age and condition varies and there is an opportunity for an overall aesthetic and amenity improvement.

Current plans indicate removal of one street tree to accommodate vehicle crossovers, however, the reality is that three trees will require removal, while another tree should be removed as it has surpassed its useful life expectancy.

The required street tree removals can be accommodated providing additional replacement street trees are planted. These should consist of both *Eucalyptus torquata* and *Koelreuteria paniculata*.

The growing environment the street trees currently exist within is a 1.0 metre nature verge between back of kerb and the footpath. This environment does not replicate the recently upgraded Leader Street road reserve, south of this proposed development, which has full width pavement to back of kerb with 'tree wells' provided for the street trees. It is recommended a similar treatment with full width paving while providing large 'tree wells' 2.0 metres wide and 1.0 metre deep (from back of kerb) be incorporated. This will complement the proposed development, particularly if the inadequate building setback and on-site landscaping prevails, and the streetscape quality of Maple Avenue for future major mixed use anticipated development.

It is noted the species selection for planting on-site does not relate well to local circumstances and includes trees that drop copious nuts and berries creating a safety hazard for pedestrians and cleaning maintenance problem. These should be reviewed per attached Landscape Assessment by Oxygen.

Footpath across driveways will be kept level for pedestrian priority, convenience and safety.

Liaison should occur with Council, and specialist officers, to ensure any unacceptable damage is avoided, eg from excavations and construction of driveways, paths or any other nearby structures.



A requirement should be included with any approval to ensure the development incorporates support and contribution to the opportunities to enhance site and streetscape planting, WSUD and the quality of the public realm.

These requirements serve to support the broader Development Plan policy intent and aims of *The 30-Year Plan for Greater Adelaide, including:*

“A Green Liveable City”, with increased urban green / tree canopy cover and all its benefits on urban areas cooling and water sensitive design

“Walkable Neighbourhoods”, with dedicated and convenient pedestrian priority provisions and access to cycling and public transport facilities.

Any footpath paving disturbed from construction, and the altered or relocated cross-overs, would be reinstated or compensated through normal operational practices.

### ***Vehicle access, traffic and servicing***

Traffic movement is consolidated access/egress to single points on each of the three road frontages, loading and servicing confined to Maple Avenue and an excess of car-parking provided.

However, a range of significant and detailed traffic issues have been identified, particularly including:

- Need for appropriate traffic control device for Leader Street access/egress, ie the warrant for signals is met;
- Traffic modelling assumptions, local network implications and road safety assessment need review;
- Eastern laneway usage unclear, eg emergency vehicles, and needs to be controlled to avoid cut-through traffic and service vehicle use;
- Bicycle on-road network and on-site parking needs review;
- Pedestrian walkways connections to streets are impractical and need to be controlled, plus a system of on-site separated walkways and designated paths are required, to support safe and convenient movement.

Full details are documented in the attached assessment by InfraPlan;

### ***Flooding and Storm-water Management***

The following comments are based on the preliminary report for planning approval, but Council requires review of the ‘Final Detailed Stormwater Management Report’ to ensure appropriate management (ie control of required discharge flow rate, on-site detention (OSD) and water quality) to ensure guidelines are met before Development Approval is granted.

The large scale of site and development requires specific engineering assessment based upon desired principles and intent of guidelines to contain outflows to lesser of existing or 80% site cover for commercial developments. The following matters should be addressed in the final detailed design plans and specifications:

- Table 1 incorrectly states the required OSD (Onsite Detention) volume as 139kL, when referring to Appendix F “Basic Stormwater Detention Assessment”. For a 45min storm duration the minimum detention volume should be 147kL. However it is acknowledged that as the site has been divided into the 3 existing outfall catchments and combined with on-site water retention, the proposed onsite detention volume is 170.5kL;
- clarification/justification on assumption that 50% of the on-site water retention can be used to meet detention requirements. This does not take into consideration repeat storm events or situations where the tank is at or near capacity when a major/significant rain event occurs. Therefore a much lower percentage should be used, if not zero. As weather patterns are unpredictable, assumptions should not be made as to how full the tank will be at any point in time when the consequences will result in flooding of properties lower in the catchment;
- Table 3 incorrectly states 70% of the on-site water retention volume to be used for detention;
- The detailed design shall also stipulate orifice sizes at outfall pipes, to adhere to required discharge flow rates;
- the detailed design should build in additional conservatism, by maximising carpark surface storage for stormwater during major/significant rain events, over and above the detention volume already provided;
- All direct stormwater connections to council's underground stormwater network shall be through reinforced concrete pipe only;
- to ensure the bio-retention/swales continually provide satisfactory water quality targets into the future all maintenance costs should be identified and an appropriate maintenance schedule included in site operation program;
- with no Gross Pollutant Traps (GPT's) proposed, all internal drainage system inlets shall be Grated Inlet Pits (GIP's).
- all vehicle entry/exit locations be designed as a typical crossover where footpaths remain level at grade and pedestrians have priority;
- Finished Floor Levels (FFL's) of proposed buildings are satisfactory.

Conditions of approval will be required to address the appropriate stormwater matters are reflected in the plans and final Stormwater Management Plan before final Development Approval is issued.

### ***Council Approval***

The Chief Executive Officer or his nominee(s) will negotiate appropriate outcomes regarding protection (and necessary removal) of street trees, crossover alterations, storm-water, traffic changes and public realm upgrades funded by the developer should the application be approved.



**PLANNING CONDITIONS**

In the event approval is contemplated there are various issues that have been identified where planning conditions are warranted, as follows:

- Business trading hours be limited to:
  - 7:00am to 9:00pm Monday to Saturday
  - 10:00am to 5:00pm Sunday.
- The playground adjacent to Maple Avenue be relocated to in front of the ground level tenancy and outdoor dining area, and the area adjacent to Maple Avenue be substantially landscaped, including with numerous medium to large trees.
- The building setback to Maple Avenue be increased to 3.0 metres.
- The areas below the main building to ground level along Leader Street and Maple Avenue and the rear open carpark areas be screened and/or fenced to obscure car parking areas and control pedestrian access to dedicated safe points and protect landscaping.
- The rear laneway only be used as necessary by emergency vehicles, and other general or service vehicles be prevented from through movement to Leader Street.
- Traffic modelling, management and control, particularly Leader Street access/egress and Maple Avenue service/loading areas, and car park layout, cycling and pedestrian movement be reviewed and addressed in accord with detailed assessment by InfraPlan.
- Car-parking on-site be freely available to staff and visitors for the duration of the business trading hours.
- Waste service vehicles only visit the site between:
  - 7.00am and 7.00pm Monday to Saturday (excluding public holidays)
  - 9:00am to 5:00pm Sunday (or public holiday).
- Waste and service vehicles be limited to maximum of 8.0 metres or 16.0 metres in length for western recycling pick-up area or eastern main service and loading area in Maple Avenue respectively, and enter and exit areas in a forward direction.
- The storm-water management concerns be addressed in a final Storm-water Management Plan to Council's satisfaction before issuing of Development Approval.
- Street trees are not be removed, other than in Maple Avenue subject to provision of additional replacements in accord with Council requirements.
- In accord with expert arboricultural advice and Council requirements, all existing and street trees be adequately protected during construction, eg site works, excavations driveways and buildings, and from being impacted as a result of the proposed final development.
- Proposed landscaping be reviewed to use appropriate locally suitable species and the extent of area and trees, shade canopy and screening increased along Anzac Highway frontage, Maple Avenue, rear laneway and in car parking areas by reduction of excess number of car parking spaces.

- External lighting be provided in accord with Lighting Plan, including requirements for curfew hours between 11:00pm and 6:00am, and that unreasonable overspill to adjacent residential properties be avoided.
- A Construction Management Plan be resolved with Council to address the requirements and operations during construction to manage traffic, parking, pedestrian and amenity issues, before issuing of Development Approval.

It is trusted this information will be duly considered by the Planning Assessment Officers, Department of Planning Transport and Infrastructure, and the State Commission Assessment Panel in their deliberations.

***ENQUIRIES***

If there are any queries or need for further explanation or information please contact David Brown, Principal Planner.

Yours sincerely

A handwritten signature in dark ink, appearing to read 'P. Tsokas', with a long horizontal flourish extending to the right.

**Peter Tsokas**  
**CHIEF EXECUTIVE OFFICER**





21 May 2018

David Brown  
City of Unley

## 10 Anzac Highway, Forestville (former le Cornu site) Preliminary Assessment of Landscaping

Dear David

Further to your request for preliminary advice on the landscaping aspects of the proposed development of the former le Cornu site for Kaufland, I offer the following comments on the documentation provided to date.

### 1. BACKGROUND

This report is prepared in relation to an application for the proposed redevelopment of the former le Cornu site by Kaufland.

The report considers the landscaping aspects of the proposal as they relate to the City of Unley (City) Development Plan Consolidated – 17 December 2017. These provisions include the following:

#### Council Wide Provisions: Landscaping

Objective 1: The amenity of land and development enhanced with appropriate planting and other landscaping works, using locally indigenous plant species where possible.

#### PRINCIPLES OF DEVELOPMENT CONTROL

1 Landscaping of development should:

- (a) be provided to soften the appearance of built form;
- (b) complement the scale of the built form;
- (c) be consistent with any particular desired character or important contextual features of the landscape setting in the locality;
- (d) define spaces and edges;
- (e) provide microclimate benefits such as shade and shelter;
- (f) retain existing landscaping, where practicable;
- (g) use species and techniques that require low water use and support and enhance local biodiversity;
- (h) enhance the appearance of development, establish visual buffers to adjacent development and screen service, loading, outdoor storage and parking areas.

2 Landscaping should not:

- (a) unreasonably restrict solar access to habitable rooms and solar collection areas in adjoining development;
- (b) be likely to cause structural damage or impact upon adjoining development through root damage and canopy drop;
- (c) remove opportunities for passive surveillance to public areas;
- (d) promote concealment and the potential for criminal activities adjacent to footpaths and public activity areas;
- (e) introduce environmental weeds to sensitive environmental areas.

Medium and High Rise Development (3 or More Storeys)

Objective 4: Development that integrates built form within high quality landscapes to optimize amenity, security and personal safety for occupants and visitors.

Objective 5: Development that enhances the public environment, provides activity and interest at street level and a high quality experience for residents, workers and visitors by:

- (e) integrating public art into the development where it fronts the street and public spaces;
- (f) incorporating generous areas of high quality fit for purpose landscaping, green walls and roofs.

Street Interface 8 Development facing the street should be designed to provide attractive, high quality and pedestrian friendly street frontage(s) by:

- (b) providing a well landscaped area that contains a deep soil zone space for a medium to large tree in front of the building (except in a High Street Policy Area or other similar location where a continuous ground floor façade aligned with the front property boundary is desired). One way of achieving this is to provide a 4 metre x 4 metre deep soil zone area in front of the building;
- (e) ensuring ground, undercroft, semi-basement and above ground parking does not detract from the streetscape;
- (f) minimising the number and width of driveways and entrances to car parking areas to reduce the visual dominance of vehicle access points and impacts on street trees and pedestrian areas.



#### Transit Living (Anzac Highway) Policy Area 24

Development will be interspersed with landscaping, particularly behind the main road frontage, along with small side setbacks to ensure space between boundaries to soften the appearance of buildings from the street and reduce heat load in summer. On-site vehicle parking will not be visible from the primary street frontage through the use of design solutions such as locating parking areas behind the front building façade and screening parking areas with landscaping and articulated screening.

#### North of Leader Street

The Le Cornu site should be developed as an integrated mixed use development that provides landmark quality buildings and a setting to respect and celebrate the important history and gateway to the Anzac Highway Memorial Avenue, and which comprises a mixture of commercial uses including retail showrooms, offices, medical services, and residential uses above.

Development will provide variations in scale, and building mass will be carefully articulated and distributed across the site. Development will also be carefully designed to minimise massing of buildings and overshadowing impacts on existing residential land uses on the southern side of Leader Street.

Development should seek to create a vibrant and active street frontage to Anzac Highway and Leader Street, with commercial activities on the ground floor promoting transparent and/or articulated frontages for interest.

Retail development will be of scale that supports an active, mixed use environment which is compatible with residential development. Shops and commercial uses will be primarily accommodated on the ground floor or lower floor levels within mixed use buildings. The development of any large floor plate retailing will be 'sleeved' by smaller specialty shops to ensure an activated street frontage.

Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road. The creation of laneways and shared vehicle access is encouraged. South of Leader Street In the area south of Leader Street, bound by Anzac Highway and Grove and Third A

## **2. DEVELOPMENT PROPOSAL**

### **DESCRIPTION**

The proposed development is for a supermarket operated by Kaufland on the former le Cornu site at 10 Anzac Highway, Forestville. The proposal includes surface carparking and landscaping.

In preparing this report, I viewed the following documents:

Drawings prepared by Architecture Q

- TP-02, Revision P7, SITE PLAN (Job no. 171111), dated December 2017

- TP-05, Revision P4, ELEVATIONS AND SECTIONS (Job no. 171111), dated December 2017
- TP-06, Revision P3, STREETSCAPE AND SIGNAGE (Job no. 171111), dated December 2017

Drawings and documents prepared by Urbis

- LCP\_001, LANDSCAPE CONCEPT PLAN (Job no. ND2019), dated 09 March 2019
- LCP\_002, LANDSCAPE CONCEPT IMAGES AND DETAILS (Job no. ND2019), dated 09 March 2019
- Town Planning Report, dated 5 April 2019

### 3. ASSESSMENT

#### 3.1 Leader Street interface

I note the following treatment proposed for the Leader Street interface:

1. Planting of *Lophostemon confertus* and *Syzygium smithii* as trees within a planting bed adjacent to the property boundary.
2. Proposed planting of small shrubs, tufting plants and groundcovers within the planting bed.
3. Removal of a street tree at the western end towards Anzac Highway.
4. Removal of a mature tree within the subject site also at the western end towards Anzac Highway.
5. Significantly, there is no inclusion of a fence or other barrier treatment along the Leader Street boundary.

#### Recommendation

I recommend the following:

1. Replacement of the proposed trees with more suitable species for Adelaide conditions that do not drop fruits and hard seeds.
2. Depending on the tree species proposed, increased density of tree planting along this interface, also taking into account the interspersed location of street trees along this section of Leader Street.
3. Revision of the planting bed species to consider a variety of compatible urban landscaping species that add amenity and variety to the planting scheme. Species to be selected for their proven performance in Adelaide's conditions and for the level of maintenance that could be expected.
4. Inclusion of species that will partially screen the proposed surface carpark within the subject site from Leader Street.
5. Further justification of removal of the existing street tree.

6. Inclusion of fencing or other suitable barriers to prevent continuous access from the Leader Street footpath into the site and consequently passage over the proposed planting beds.

### **3.2 Anzac Highway interface**

I note the following treatment proposed for the Anzac Highway interface:

1. Inclusion of a narrow bed against the Anzac Highway boundary.
2. No addition tree planting within this bed.
3. Proposed removal of a mature street tree within the Anzac Highway verge.
4. Two carparks adjacent to the Leader Street/Anzac highway intersection.
5. No fencing or barrier to the boundary.

#### Recommendation

I recommend the following:

1. Increasing the width of the planting bed on the subject site boundary to include tree and shrub/groundcover planting to achieve partial screening of the proposed surface carpark within the subject site from Anzac Highway.
2. Inclusion of fencing or other suitable barriers to prevent continuous passage over the proposed planting bed.
3. Deletion of the two proposed carparks adjacent to the Leader Street/Anzac highway intersection.

### **3.3 Maple Avenue interface**

I note the following treatment proposed for the Maple Avenue interface:

1. Planting of *Syzygium smithii* as trees within a planting bed adjacent to the property boundary.
2. Proposed planting of small shrubs, tufting plants and groundcovers within a narrow bed approximately 1.0m wide against the Maple Avenue boundary.
3. Proposed removal of a street tree within the Maple Avenue verge.
4. No fencing or barrier to the boundary.

#### Recommendation

I recommend the following:

1. Replacement of the proposed trees with more suitable species for Adelaide conditions that do not drop fruits prolifically.
2. Depending on the tree species proposed, increased density of tree planting along this interface, also taking into account the interspersed location of street trees along this section of Maple Avenue.



3. Revision of the planting bed species to widen it to a minimum width of approximately 2.5m and consideration of a variety of compatible urban landscaping species that add amenity and variety to the planting scheme. Species to be selected for their proven performance in Adelaide's conditions and for the level of maintenance that could be expected.
4. Inclusion of species that will partially screen the proposed surface carpark within the subject site from Maple Avenue.
5. Inclusion of fencing or other suitable barriers to prevent continuous access from the Maple Avenue footpath into the site and consequently passage over the proposed planting beds.

### **3.4 Eastern boundary interface**

I note the following treatment proposed for the eastern boundary interface:

1. Planting of *Callitris preissii* as trees within a planting bed adjacent to the property boundary.
2. It is unclear whether a lower or ground storey of plants is also proposed.

#### Recommendation

I recommend the following:

1. Replacement of the proposed trees with a more suitable species that will grow at a faster rate and are available as semi-mature stock. I recommend that minimum 3.5m trees are planted along this boundary.
2. Inclusion of lower storey shrubs and groundcovers within this bed.

### **3.5 Playspace and amenity zone to the north-west of the proposed carpark and building**

I note the following:

1. A playspace with canopy is proposed for near the intersection of Anzac Highway and Maple Avenue.
2. Vehicle roadway proposed between the playspace and amenity zone.

I recommend the following:

1. Relocation of the playspace to a more suitable and safe location.
2. Fencing and screening of the playspace depending on its location.
3. Further detail be provided of both the playspace and the amenity zone, including proposed planting, materials, lighting, furniture and signage.

### 3.6 Street Trees

I note the proposed removal of three street trees from the subject site.

#### Leader Street

Further justification for removal of this tree is sought.

#### Anzac Highway

There is no obvious reason for removal of the existing mature Claret Ash in the Anzac Highway verge. This tree is part of an avenue of these trees extending along both of the Anzac Highway verges and its removal is not supported.

#### Maple Avenue

Removal of this tree is supported.

### 3.7 Proposed Plant Schedule

The proposed plant schedule indicated on drawing number LCP\_00 Landscape Concept Plan is, generally, not considered to be appropriate for the high standard of amenity planting expected, as well as Adelaide's conditions, for the reasons below:

Species	Comment
<b>TREES</b>	
<i>Lophostemon confertus</i>	No longer planted by most councils (including the City of Unley) in SA due to hard fruits which cause OH+S issues on hard surfaces such as footpaths and hard paving. Proposed location is adjacent public footpaths.
<i>Syzygium smithii</i>	Same as above. Fruits cause nuisance, particularly on hard surfaces such as footpaths. Proposed locations are adjacent to public footpaths.
<i>Callistris preisii</i>	Proposed for eastern boundary. Native pines are very slow growing in urban conditions, particularly initially. Stock greater than 500mm in height is also difficult (and expensive) to obtain given the slow initial growing rate.
<i>Syzygium austral</i> 'Pinnacle'	Considered unsuitable for areas adjacent to hard surfaces for the reasons given above.
<b>SHRUBS AND TUFTING</b>	
<b>PLANTS</b>	
<i>Acacia acinacea</i>	Native shrub usually used for revegetation of bushland areas and native gardens interspersed with other native shrubs of similar horticultural characteristics.
<i>Correa alba</i>	Native shrub that grows to approximately 1.5m in irrigated conditions. May cause CPTED issues depending on density of planting.

<i>Dianella tasmanica</i> 'Tas Red'	Small native flax. Can grow large and uncontrolled if not maintained. <i>Dianella revoluta</i> and cultivars listed below more suitable for Adelaide conditions.
<i>Dianella caerulea</i> 'Cassa Blue'	Small native flax. Suitable for use.
<i>Dianella caerulea</i> 'Little Jess'	Small native flax. Suitable for use.
<i>Ficinia nodosa</i>	Formally <i>Isolepis nodosa</i> – Knobby Club Rush. Usually used as a wetland species. Can get out of control if not regularly maintained by bulk removal.
<i>Juncus flavidus</i>	As above but less likely to spread.
<i>Lomandra longifolia</i>	Commonly specified native flax for eastern states. Very fast growing and tough. Can become unattractive if not maintained.
<i>Westringia fruticosa</i> 'Mundi'	Attractive cultivar widely and successfully used.

#### **GROUNDCOVERS AND CLIMBERS**

<i>Atriplex semibaccata</i>	Creeping saltbush commonly used as roadside planting and for revegetation. Can get woody in the centre. Not usually used as an amenity species given its habit and appearance.
<i>Chrysocephalum apiculatum</i>	Small herb that requires high density of planting to be effective.
<i>Myoporum parvifolium</i>	Suitable commonly used low spreading groundcover.
<i>Trachelospermum jasminoides</i>	As above.

### **3.8 Water Sensitive and Environmentally Sustainable Urban Design**

I note WSUD initiatives are proposed as part of the proposal (Environmentally Sustainable Design & Stormwater Management), however, there is little evidence of these initiatives in the landscaping concepts.

I recommend:

1. Inclusion of trees within all surface carpark areas to reduce the urban heat island effect and support the principles and objectives as described in the Town Planning Report.
2. Provision of further details of the WSUD initiatives proposed.

### **3.9 Generally**

I recommend editing of the Town Planning Report to better reflect the requirements of the provisions of the Unley (City) Development Plan and the design proposed as it relates to landscaping. In general, I find the descriptions and intentions of the report do not reflect the actual landscaping design.



If I can provide any further advice or clarification, or comment on updated plans, please let me know.

Regards,

A handwritten signature in black ink, appearing to read 'James Hayter', with a horizontal line extending from the end.

James Hayter  
Practice Director

May 22, 2018

Mr David Brown  
Principal Policy Planner - City of Unley  
PO Box 1  
**UNLEY SA 5061**

**RE: REVIEW OF TRAFFIC AND PARKING ASSESSMENT for the  
PROPOSED KAUF LAND STORE AT 10 ANZAC HIGHWAY FORESTVILLE**

Dear David

We have reviewed the following documents and plans relating to the Kaufland Store development proposed at 10 Anzac Highway, Forestville:

- Traffic and Parking Assessment, WGA, Rev E - 18 April 2018
- Pedestrian Movement Plan, WGA, Rev B – 3 May 2018
- Preliminary drawings by Architecture HQ (Site Plan P7, First Floor Plan P7, Roof Plan P4 and Sections & Elevations P4)

In our detailed assessment of these, we have summarised key traffic and transport related issues for consideration by Council.

**Key Issues Summary**

The following dot points list the issues that require further information or design to enable support of the development. These issues are in the order of priority with major items of concerns bolded.

- **Major Concern** - The proposed accessway onto Leader Street will warrant a signalised intersection. Further consideration should be given to infrastructure provision for an appropriate traffic control device to facilitate safe and efficient access with minimal delay along Leader Street.
- **Major Concern** - The main internal circulation driveway does not comply with AS2890.1 to reduce as far as practicable the number of conflict points. This is due to the proposed straight alignment between Maple Avenue and Leader Street, and the formation of three 4-way intersections. A review of the accessway is subsequently recommended.
- A false discount is applied to the number of trips utilising accessways. This should be revised and each accessway tested for appropriate control or infrastructure provision with a view to provide a safe and efficient interface.
- The intent and usage of the eastern laneway is not described in detail. This lane could encourage cut-through traffic to avoid the delays at the Leader St signals and increase traffic in the local area. Leader Street is a major east-west cycling route. This needs to be documented and shown that the access to the site via Leader Street does not compromise cyclist safety or efficiency.
- The car parking and bicycle parking rates used were not the most current and it is recommended that they are reviewed.

- Bicycle parking (long term, safe and secure) for staff is not detailed but should be required.
- The impact to on-street car parking is not quantified nor discussed.
- Sustainable transport to/from the site is not discussed (public transport & cycling).
- There are insufficient internal walkways, particularly at the crossing of the circulation roadways. The walkways leading outside of the site are not well-positioned to form a practical, continuous path of travel. There have been recommendations from the Pedestrian Movement Plan to address this which should be actioned.
- Crash frequency and locations on the surrounding streets is not discussed and road safety is not addressed.
- The site layout is not in line with the requirements of the development plan for this zone, and the zoning of all surrounding sites is not discussed.

## Detailed Assessment

The proposed Kaufland development has a gross leasable floor area of 7,100m<sup>2</sup>, which includes a major supermarket, a market place, specialty stores and associated offices.

The subject site (shown in blue) is designated as a Landmark Development Site, within an Urban Corridor Zone (Transit Living Policy Area No. 24) as illustrated in Figure 1. This map indicates locations for desirable/consolidated vehicle access/egress.

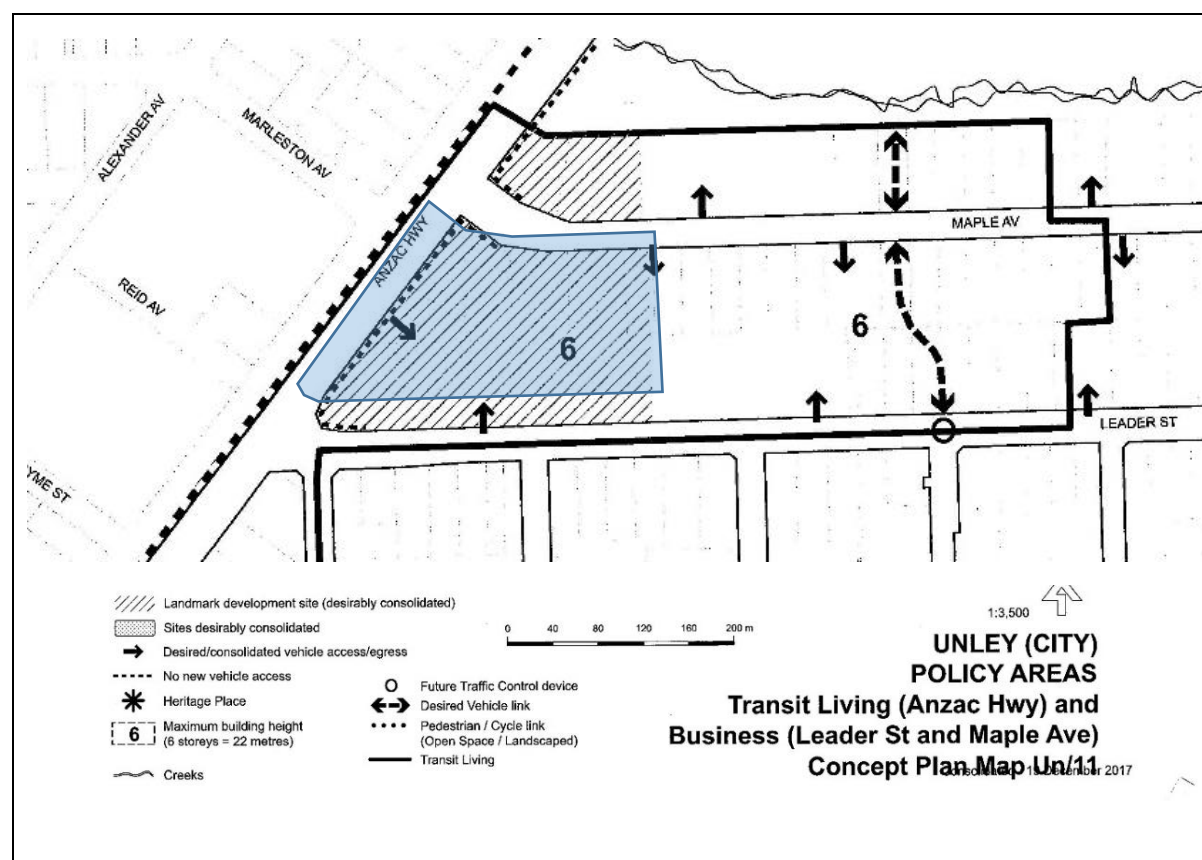


Figure 1: Concept Plan Map Un/11 – from Unley Development Plan



With this background knowledge, we have created a set of tables in detailed review of documents submitted along with the planning proposal. These are detailed in Appendix A and includes:

- Table 1: Review of WGA Traffic & Parking Report, Rev E
- Table 2: Review of Pedestrian Movement Report, Rev B
- Table 3: General comments in review of plans
- Table 4: Comments in review of Development Plan

Additionally, we have used the 'Technical Completeness Checklist' from AUSTROADS, Guide to Traffic Management Part 12: Traffic Impacts of Development as a cross reference for completeness, which is provided in Appendix B for information.

I trust this provides a comprehensive review of the proposal and will assist Council in submitting comments in response to the proposal.

Yours sincerely,



Erik Stopp  
Senior Transport Engineer  
**infraPlan**

## Appendix A

Table 1: Review of WGA Traffic & Parking Report, Rev E

Item No.	WGA Report Reference	InfraPlan Comment	Action
R1	Sect. 3.2.2	<b>Function of Leader St</b> Leader Street is a major east-west cycling route.	Ensure that design at Leader Street Access does not compromise cyclist safety or block the bicycle lane.
R2	Sect. 4.1.1	<b>Car Parking Rates</b> Do not agree with the use of parking demand as 5.5 spaces/100m <sup>2</sup> .  The Unley Development Plan vehicle parking rates table for non-residential development (Urban Corridor Zone) is as follows:  3 spaces/100m <sup>2</sup> GFA (desirable minimum)  5 spaces/100m <sup>2</sup> GFA (desirable maximum)  Therefore, the desirable maximum no of spaces is 355, not 374.	Modify report to reflect Development Plan car parking rates
R3	Sect. 4.1.2	<b>Accessible Parking Rates</b>  Agree to use BCA rates for Accessible Parking (1/50 spaces) instead of Development Plan (max. 5 spaces). The BCA rate results in a higher number of accessible parking.	N/A
R4	Sect. 4.1.3	<b>Bicycle Parking Provision Rates</b> have been updated in 2017 Austroads Cycling Aspects. Current rates for shops more than 1000m <sup>2</sup> and offices are:  Shop: Employees = 1/300m <sup>2</sup> , Visitor/shopper = 1/500m <sup>2</sup>  Office: Employee = 1/200m <sup>2</sup> , Visitor = 1/500m <sup>2</sup>	Update Bicycle Parking requirement and ensure that this number are provided. Employee bike parking to be undercover, safe and secure.
R5	Sect. 4.2	<b>Car Parking Provision Rates</b>  The proposal includes 487 spaces, which is more than the desired maximum requirement of the	Refer Item R6

Item No.	WGA Report Reference	InfraPlan Comment	Action
		<p>Development Plan (by 132 spaces, when calculated with DP rates, refer item R2).</p> <p>An excess of parking bays is acceptable given the land use and that additional GFLA is proposed in the future. However, sustainable forms of travel should also be encouraged, e.g. bicycle parking, high quality pathways, and links to bus stops.</p>	
R6	Sect. 4.3.3	<p><b>Bicycle Parking</b></p> <p>Insufficient bicycle parking is currently shown on plan – this is noted in report.</p>	Ensure additional bike parking is provided and is in a safe, secure location.
R7	Sect. 5.1	<p><b>Traffic Generation Rate</b></p> <p>A 20% discount has been applied as a ‘passing traffic’ discount. While this may be true for the road network, this causes a false decrease of 20% in traffic utilising the accessways. These lowered rates are applied throughout investigations.</p>	Review discount provided and reflect likely accessway volumes
R8	Sect. 5.2	<p><b>Traffic Distribution Profile</b></p> <p>Proportions of traffic have been applied to access locations. While this is an estimation, the Southern Access seems underrepresented in the number of trips handling 65% in the weekday peak and 75% in the weekend peak.</p> <p>While difficult to put facts behind, there are some movements that are not intuitive such as Maple Avenue east of the northern access carrying 10% of trips, yet being a longer trip for most users.</p>	For noting
R9	Sect. 6	<p><b>SIDRA modelling</b> has not been provided for review.</p> <p>Further understanding required as to model calibration. For example, observations during the Weekday AM registered a queue of 210m for a right turn from Leader Street onto Anzac Highway. SIDRA outputs in table 7 suggests a queue of 45m maximum during the same time.</p> <p>This is important since the proposed accessway onto Leader Street is approximately 160m from the signalised intersection with Anzac Hwy</p>	Provide commentary on signalised intersection impact on proposed accessway and provide model for review.



Item No.	WGA Report Reference	InfraPlan Comment	Action
		<p>meaning that traffic is queued across the accessway.</p> <p>Additionally, it is unclear whether future volumes have been modelled which are likely to worsen results.</p>	
R10	Sect. 6.8	<p><b>AIMSUN modelling</b> has been undertaken but no outputs provided to indicate probable increase of traffic on Council roads such as Leah Street or First, Second and Third Avenue.</p> <p>Understanding impacts to the local road network was the primary purpose of Council requesting AIMSUN modelling.</p>	Generate likely impacts to the local road network using the developed AIMSUN scenario.
R11	Sect. 7	<p><b>Development Access and Layout.</b> The main circulation roadway between Maple Avenue and Leader Street is not best practice design. AS2890.1 Clause 2.3.1 (c) states: <i>Arrangements of internal roadways to avoid, as far as practicable, conflicts between intersecting streams of circulating traffic.</i></p> <p>T-junctions are preferred over 4-way intersections for safety and clear right-of-way.</p> <p>The eastern laneway could be used as a cut-through route to avoid the delay at the Leader St signals and increase traffic in the local street network. Through traffic via this lane is not supported.</p>	<p>Consider re-designing the internal circulation roadway to remove 4-way intersections and reduce potential cut-through traffic.</p> <p>Provide discussion on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.</p>
R12	Sect. 7.2.1	<p><b>Parking Bay and aisle design</b></p> <p>Report notes that some bays are 4800 long and therefore 600mm overhang is required (e.g., no landscaping). However, the carpark screening may prevent overhang</p>	Ensure 600mm (min) clear space is provided to allow vehicle overhang where bays are 4800 long.
R13	Sect 7.2.2	<p><b>Designated Accessible Parking Bays</b></p> <p>Report notes that the numbers are appropriate, but the spaces should be more appropriately located - <i>next to entrances</i>.</p>	Agree - ensure Accessible Car parks are as close as possible to building entries.

Item No.	WGA Report Reference	InfraPlan Comment	Action
R14	Sect. 7.3	<p><b>Entry and Exit Points.</b></p> <p>The Report discusses the '3' access points (northern, southern and western), but does not discuss in detail, the entry and exit point at Leader Street (eastern side of boundary).</p> <p>The northern and southern entry/exit access points are aligned to form a straight access through road. This may be used as a short-cut to avoid the signals/delay at Leader Street and increase traffic in the local street network – this is not supported.</p>	<p>Provide details on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.</p> <p>Offset the northern and southern entry/exit points to reduce the likelihood of through traffic.</p>
R15	Sect. 7.3.3	<p><b>Anzac Highway</b></p> <p>A raised concrete separator is proposed at the median opening in Anzac Highway opposite the proposed access, to 'eliminate the risk of motorists undertaking a potentially hazardous right turn manoeuvre into or out of the site'. This will require liaison with DPTI as the proposal may not be in line with DPTI's objective of these median openings.</p>	Liaison with DPTI required.
R16	Sect. 7.4	<p><b>Heavy Vehicle Access</b></p> <p>Although Maple Avenue currently provides access to light industrial land uses, the site to the north of Maple Avenue is within the same zone as the subject site. This could become future residential, mixed use. The loading docks on this road frontage need to consider future adjacent use. Will there be gates at the delivery entries?</p> <p>The laneway along the eastern boundary of the site and access point at Leader Street is not discussed in detail. It does not state the number of heavy vehicles that may exit via Leader Street local area. The report notes that this is an exit only, but this is not entirely clear, and the roadway is 6m wide which indicates 2-way. The encouragement of heavy vehicles into the local area is not supported.</p> <p>Will on-street parking on Maple Avenue be banned to allow for heavy vehicle access?</p>	<p>Require more information on the controls at the delivery areas off Maple st.</p> <p>Require more information on the use and intent of the eastern lane and the vehicles exiting to Leader St.</p> <p>Confirm the proposed status of the on-street parking in Maple Avenue.</p> <p>Demonstrate the need for proposed crossover widths or reduce to required size (loading &amp; waste)</p>

Item No.	WGA Report Reference	InfraPlan Comment	Action
		<p>The driveway crossovers are indicated at around 12-15m in width which is not conducive to pedestrian movements. Need for this width should be demonstrated (i.e. with turning movements) or the crossover reduced to the required width.</p> <p>The development is proposed to be available to receive deliveries or be services 24 hours a day.</p>	
R17	Sect. 7.5	<p><b>Emergency Vehicle Access</b></p> <p>Report notes that <i>Additional clearance width required</i>.</p> <p>Is Emergency vehicle access also via eastern lane?</p>	<p>Ensure that clearance is provided.</p> <p>Confirm if Emergency Vehicles also use eastern lane</p>
R18	Sect. 7.6	<p><b>Pedestrian Access</b></p> <p>The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location.</p> <p>There is a north-south ped walkway out to the mid-block of Leader Street, but does not connect to a road crossing facility here.</p> <p>There are no crossing facilities in the car park to assist crossing of the circulation roadways east of the lifts/travelators.</p> <p>The details of the internal pedestrian crossing facilities are not shown – but we assume are zebra crossings.</p>	<p>Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.</p> <p>Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway.</p> <p>Add pedestrian crossing facilities across circulation roadways within car park.</p> <p>Confirm type of internal pedestrian crossing facilities proposed.</p>



The following table provides our assessment of the Pedestrian Movement Report (Rev B), prepared by WGA.

Table 2: Review of Pedestrian Movement Report, Rev B

Item No.	Pedestrian Movement Report (WGA) Reference	InfraPlan Comment	Action
P1	Sect. 4.3	It has been assumed that the site is in a low density walking zone, using the existing land use. However, zoning of the site to the north of Maple Avenue and potentially the remainder of the development site will increase residential land use and therefore pedestrian trips.	Consideration of adjacent zoning is required to predict pedestrian trips.
P2	Sect. 4.3	It is stated that walking trips from/to bus stops and train stations will be minimal given the suburban nature of the site. We disagree with this statement and consider that sustainable transport is an increasing, equitable form of transport which is encouraged by Council. The public transport stops are located within close proximity of the site, and given the flagship nature of the store assume that it will attract various transport users.	Increase trip assumptions from public transport stops
P3	Sect. 4.5	It is considered that pedestrian trips from Leader Street are under-represented. In addition to local residents, and public transport stops, Marino Rocks Greenway runs along the rail line. This is a very popular pedestrian and cycling route and potential origin for pedestrian or cycling trips to the subject site.	Increase trip assumptions to/from Leader St (refer also P8)
P4	Sect. 4.5	It is assumed that all pedestrians from the east (Leader Street) will use the Leader Street footpath until they are adjacent the building entry. This would also require that pedestrians cross the busy driveway entry on Leader Street. In reality, pedestrians are more likely to take the shortest route and cut diagonally through the car park. There is a lack of designated paths and roadway crossing facilities within the car park east of the lifts/travelators to facilitate this movement.	Provide additional paths and internal road crossings through the eastern car park (refer also P7)

Item No.	Pedestrian Movement Report (WGA) Reference	InfraPlan Comment	Action
		In addition, the eastern car park has a significantly high number of pedestrian trips, with designated paths and crossings.	
P5	Sect. 4.5	There is a north-south ped walkway mid-block of Leader Street, but does not connect to a road crossing facility here.	Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway to facilitate crossing.
P6	Sect. 5.3.1	The report recommends replacing the wombat crossing with a pedestrian refuge. This proposal changes priority and requires pedestrians to give way to vehicles, whilst the Wombat crossing required that vehicles yield to pedestrians.	Pedestrian priority is preferred, and a Wombat also facilitates slower traffic speed. However, a refuge is acceptable providing that it is of sufficient width to facilitate a person wheeling a pram (2.5m wide min.)
P7	Sect. 5.3.2	Agree with additional pedestrian crossings and paths recommended by WGA in report	n/a
P8	Sect. 5.3.4	Disagree that the proposed zebra crossing to Leader Street be removed. It is our opinion that pedestrian trips will be higher at this location (refer also P3)	Retain proposed Zebra Crossing that links to Leader St.
P9	Sect. 5.3.6	The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. We assume this will be realigned as part of the detail design.	Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.
P10	Sect. 5.3.7	Pedestrian movement G facilitates movement to and from the bus stop on Anzac Highway. We disagree that the zebra crossing be removed.	Retain proposed Zebra Crossing that links to the Anzac Highway bus stop.
P11	Sect. 5.4	The signalised intersection at Anzac Highway and Leader Street does not have a crosswalk on the northeast leg. Therefore, it is considerably anti-directional and adds to delay for pedestrians from Anzac Highway northwest to use this crosswalk. Pedestrians will be more likely to cross	Liaise with DPTI regarding the provision of a crosswalk on the northeast leg of the intersection.  Desire lines should be explored along the Anzac Highway frontage and

Item No.	Pedestrian Movement Report (WGA) Reference	InfraPlan Comment	Action
		Anzac Highway opposite the site without a safe crossing facility.	capture the demand from Marlestone Avenue for example where there is a clear desire line.
P12	Sect. 5.5	Consideration of a pedestrian walkthrough (geometry permitting) at Leader street is recommended in the report.	It is recommended to assess the road geometry and provide a crossing facility at this location (refuge preferred).



Table 3 below provides general comments collated in review of plans provided with the planning assessment.

Table 3: General comments in review of plans

Item No.	WGA Report Reference	InfraPlan Comment	Action
C1	On-street car parking	The impact to on-street car parking is not shown nor discussed (as recommended in Austroads Checklist)	Provide detail on-street car parking status on Maple Avenue and Leader Street
C2	Planning Zones	Planning zones in the vicinity are not discussed (as recommended in Austroads Checklist)	To be included for completeness
C3	Non-car transport	Non-car transport to/from site is not discussed. For example, the Marino Rocks Greenway is close by, which provides a high quality off-road cycling link to the development and encourages cycling as transport.	To be included in report
C4	Safety	Traffic crashes at potentially impacted locations and other known traffic safety or operational problems, and any proposals to address them, have not been documented (as recommended in Austroads Checklist).	Document at Maple/Anzac and Leader/Access point
C5	Regulatory Devices	There is no discussion of a speed limit to be applied in the car park.  While crossing locations for pedestrians are shown and appear to be either Zebra or Wombat Crossings, these are not specified nor is regulatory signage associated with them.	Further information to be provided on speed limit and pedestrian crossing type
C6	Southern Access	While a SIDRA model has been run, there has been no investigation into the suitability of intersection type. A basic turn treatment is currently shown. Austroads Guidelines along with DPTI's <i>The Code</i> provide guidance on appropriate treatments.  Based on the traffic generation estimates and volume summaries in the report, the Leader Street access would warrant traffic signals in the PM peak.	<b>Major Concern</b>  Leader Street access warrants traffic signals – further investigation required around accessway.

		<p>This includes the 20% discount applied to the accessway which is not representative of the probable outcome as discussed in R7.</p> <p>While this may not be an ideal solution in consideration of proximity to the Anzac Hwy Leader St intersection, it demonstrates that additional consideration to the interaction of the proposed accessway with Leader Street is required.</p>	
--	--	---	--

The following table provides an overall assessment of the proposed Plans with reference to the traffic and parking requirements of the Development Plan.

*Table 4: Comments in review of Development Plan*

Item No.	DP Ref.	Development Plan Requirement	InfraPlan Comment
D1	P.182	Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road.	<p>The proposed layout does not comply with the DP requirements:</p> <p>All car parks are at ground level and at the front and side of the buildings.</p> <p>Vehicle access is proposed from all road frontages (Anzac Hwy, Maple Avenue and Leader Street).</p>
D2	P.183	<p>No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.</p> <p>Access to loading areas and parking for service vehicles should not occur from Anzac Highway and Leader Street for those sites located north of Leader Street</p>	<p>The proposed layout does not comply with the DP requirements, refer above, and;</p> <p>The extent of the car park screening is not detailed. None of the spaces that are visible from Anzac Hwy or Leader St are shown as being for people with a disability.</p> <p>The loading areas are accessed from Maple Avenue but also connects directly to Leader Street.</p>
D3	P158	Restricted and consolidated vehicle access points will be available, and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way.	With reference Figure 1, vehicle access is approximately where shown as desired. <b>Except</b> for the laneway and access points along the eastern most boundary.
D4	P158	Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations.	Not shown on drawings.



Item No.	DP Ref.	Development Plan Requirement	InfraPlan Comment
D5	P158	Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking	There are insufficient designated walkways proposed through the car park.
D6	P158	Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping	Refer Items 1 and 2.
D7	P158	Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.	Road treatments are not shown. Laneway that links Maple Avenue to Leader Street may encourage through traffic to Leader Street
D8	P159	A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces.	There is a walkway proposed that connects to Bus Stop 3 on Anzac Highway – however this link is not discussed in report. Type of treatment not clear on drawing – but assume may be Zebra Crossing. Other pedestrian links do not connect to existing pedestrian ramps,
D9	P159	Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe	Not shown.

## Appendix B

Table 5: Checklist for Traffic Impact Assessments – from Austroads guide to traffic management – Part 12

GTM section	Steps in traffic impact assessment	InfraPlan Checked
<b>4.4.1</b>	<b>Document proposed development</b>	
	Obtained plans showing layout of all traffic and pedestrian areas on site, locations of vehicle and pedestrian accesses, position and layout of nearby driveways and intersections.	Assessed
	Each type of internal access (cars, pedestrians, trucks, etc.) is direct, connected, continuous and makes sense.	Assessed
	Approach roads and paths are clearly understood and practical.	Assessed
	The correct design vehicle and checking vehicle have been used in various sections of the development.	Assessed
	Basic design requirements have been applied.	Assessed
	Land use planning zonings in the vicinity are documented.	Assessed
	Traffic-related features of the development have been summarised.	Assessed
	Timing and staged phasing (if any) has been described, including any connections with external timings.	n/a
<b>4.4.2</b>	<b>Resolve any initial problems with designers</b>	
	Any initial problems or issues needing resolution by designers have been identified.	NO
	Designers notified.	TBA
	Issues have been checked and re-worked by designers.	TBA
	Amended proposal has been re-documented.	TBA
<b>4.4.3</b>	<b>Identify area and stakeholders affected</b>	
	Agreed functional road hierarchy in area has been documented.	Assessed
	Relevant or affected non-car transport networks or services have been documented.	Assessed
	Initial assessment of area affected by changed traffic conditions has been made.	Assessed
	Sites potentially impacted have been listed.	Assessed
	All affected stakeholders have been identified and a note made about when each needs to be consulted.	Assessed

GTM section	Steps in traffic impact assessment	InfraPlan Notes
<b>4.4.4 Describe existing and design year conditions</b>		
	Existing on-site conditions, including traffic and parking, have been documented.	Assessed
	Existing traffic conditions for external sites, road lengths and/or areas identified as potentially impacted have been documented for critical periods.	Assessed
	Design year has been selected, and traffic conditions, excluding traffic generated by the development, have been documented. Volumes shown on plan.	Assessed
	Parking conditions, as relevant, have been described.	Assessed
	Traffic crashes at potentially impacted locations have been documented.	Assessed
	Other known traffic safety or operational problems, and any proposals to address them, have been documented.	Assessed
	Any traffic, transport or parking policies which affect the proposed development have been documented.	Assessed
<b>4.4.5 Determine generated traffic and modal split</b>		
	Number of trips which will be generated by the development (daily, peak period, etc.) has been determined for the design year or years.	Assessed
	The split of general traffic, commercial vehicles, public transport vehicles (including taxis), bicycles, pedestrians, etc. has been determined.	Assessed
<b>4.4.6 Determine approach and departure directions</b>		
	Approach and departure directions for the traffic have been determined.	Assessed
	Nature of attracted traffic (same origin and return destination, linked trips, etc.) has been considered and described.	Assessed
<b>4.4.7 Assign traffic to roads</b>		
	Traffic generated by the development has been assigned to the road network in the potentially affected area for the design year or years.	Assessed
	Development-generated traffic has been shown on plans.	Assessed
	Background traffic (existing volumes factored to the design year) and development-generated traffic have been added together.	Assessed
	Total traffic has been shown on plans for critical times of day or week, etc.	Assessed
<b>4.4.8 Determine where non-car traffic will go</b>		
	Paths, lanes, etc. required for pedestrians, cyclists, buses, delivery vehicles, etc. have been determined.	Assessed
<b>4.4.9 Review limits of area affected</b>		
	Limits of area impacted by the development have been checked, and necessary alterations noted.	Assessed
	If assessment over a greater area is needed, further analysis has been done.	N/A
<b>4.4.10 Assess traffic operation on roads</b>		
	Traffic operations (traffic volumes, capacity, level of service, delays) for access points, mid-blocks and intersections have been assessed; consequences noted.	Assessed
	Circulation of traffic near the site has been considered.	Assessed
	Need for on-street parking, and potential impact on arterial roads / traffic routes, has been determined.	Assessed



	Impact on public transport services, from development generated use and from increased traffic on public transport routes (buses and trams) has been assessed.	N/a
<b>4.4.11 Assess traffic operation on-site</b>		
	Traffic operation of roads, aisles, access ways on-site, including traffic circulation within the site, has been analysed.	Assessed
	Expected traffic volumes and vehicle types can be safely and efficiently accommodated within the traffic and parking areas on-site.	Assessed
	On-site parking provision is adequate and is suitably located.	Assessed
<b>4.4.12 Determine required impact-mitigating treatments</b>		
	Required changes, improvements, upgrades and/or modifications to roads, intersections, traffic lanes, controls, access driveways, have been determined.	Assessed
	Required changes on-site and on nearby roads/streets to manage parking have been determined.	Assessed
	Required works and traffic management to accommodate pedestrians, cyclists, public transport, delivery vehicles, on-site and in the nearby area, have been determined.	Assessed
	Required treatments relating to pavements, safety and environmental issues have been determined.	n/a
	Coordination of all required treatments has been considered.	n/a
<b>4.4.13 Obtain road safety engineering assessment</b>		
	Need for an independent assessment of the road safety aspects of the development has been considered.	n/a
	If necessary, independent road safety engineering assessment has been arranged.	n/a
<b>4.4.14 Document findings and recommendations</b>		
	The above steps and their outcomes have been documented in a suitable report.	Assessed

13 August 2018

The Secretary  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

**Attention:** **Lauren Talbot** - [Lauren.Talbot@sa.gov.au](mailto:Lauren.Talbot@sa.gov.au) and [scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au)  
Development Assessment, Planning and Development Directorate  
Department of Planning, Transport and Infrastructure

Dear Sir/Madam

**SCAP REFERRAL – COUNCIL FURTHER COMMENTS – DA 090/E004/18  
POST CONSULTATION and AGENCY COMMENTS REVISION  
RETAIL DEVELOPMENT - 10 ANZAC HIGHWAY EVERARD PARK**

Thank you for referral of the post consultation and Agency comments revision and applicant's response received on the 26 July 2018 in relation to the above-mentioned application and invitation for further comment by 13 August 2018 to assist the planning assessment process by the State Commission Assessment Panel (SCPA).

These further comments supplement the original comments and detailed submission, and focus on addressing the revised elements and highlighting the remaining areas of concern.

The revisions address some of the areas of concern originally raised and are a positive refinement of the detail of the proposal. However, a number of areas of major concern remain which require comprehensive review by SCAP:

- Development comprises a large scale retail use rather than an integrated primarily residential development with limited local commercial/retail uses in accord with the Urban Living Policy Area of the Urban Corridor Zone;
- Potential large scale residential development of rear portion of site is not assured, a known quantity nor a substitute for the contrary outcome on what is the largest and most prominent site in the Policy Area;
- Results in a sub-optimal minimum building scale not capitalising on 6 storey zoning potential and an integrated built form contrary to the Policy Area desired character;

- Inadequate building setback (and landscaping) to Maple Avenue streetscape (ie 1 metre vs required minimum 3 metres) compromises the quality of the future streetscape for anticipated mixed use and residential development opposite along Maple Avenue. The proposed variation justification of "... *an appropriate response in the context of the site... to this interface ... allows adequate space for genuine landscaping opportunities... and should not be increased...*" is not an explanation nor adequate respect for the Desired Character of the Policy Area. Given the large size of the site and being a new building there is no justifiable reason why the minimum 3 metre setback should not be provided along Maple Avenue. Any necessary floor area adjustment is readily achieved by extension of the building to the large open area available to the east;
- The secondary tenancies waste and delivery servicing area at the western end of Maple Avenue should be avoided. It should be consolidated into the one main area to the east along Maple Avenue, where access openings and movements are more limited, controlled and screened by landscaping. The tenancies waste and delivery area creates a large highly exposed paved area, requires large vehicle movement swept paths (even though maximum 8 metre length trucks envisaged) including over the public verge area, leaving no defined footpath alignment or landscaping along Maple Avenue for over 22 metres.  
An increased area on-site, and providing the additional building setback to Maple Avenue, would allow greater on-site vehicle manoeuvring space and ability to limit the extent of crossovers to street, increase landscaping/street trees and better defined footpath alignment

#### *Condition*

*The tenancies waste and delivery area desirably be relocated and consolidated with the main waste and service area. The building setback to Maple Avenue be increased to at least 3.0 metres to afford the required policy setback and add space for greater on-site vehicle manoeuvring (up to maximum vehicle length of 8 metres) to limit the extent of street crossovers, increase extent of landscaping/street trees and provide for a better defined pedestrian footpath alignment;*

- Relocation and integration of ground level playground with café and outdoor dining, avoiding remote location across a main vehicle driveway, is positive;
- Given the scale of development and future additional development (including on the large remaining portion of the site and rest of the Policy Area) the impact will be substantial on the broader local road network, key intersections and in particular on traffic operation at local intersection of Leah/Leader Streets. Concerns are raised in relation to the lack of detailed study, traffic response and consideration of the impacts to the overall local traffic network;
- The Leader Street intersection with Anzac Highway is of strategic importance to Council, with particular focus on management of traffic in/out of the local area. The development will lead to a substantial increase in the number of movements through the intersection, but overloading Leader Street with undue promotion of increased volumes, ie further undue increase in length and/or volume of right turns off Anzac Highway, is not supported. Traffic delays along Anzac Highway, through the intersection and into Leader Street, which is a key



bicycle and walking route, need to be balanced with avoiding adverse impacts on local streets, network and the nature of the area. Changes to Leader Street that adversely impact on traffic volumes, cycling and walking are not supported;

- The consequences from potential overall development and traffic implications of the whole LeCornu site (being the most significant and major change in the precinct) should be addressed before any approvals are granted.

It would be orderly planning to avoid establishing an inferior inherent situation that thereafter must be managed with reactionary individual site by site and band-aid traffic control treatments.

The traffic implications from the whole site potential and intrinsic traffic treatments for the broader local network, Maple Ave, Leader Street, Leah Street, local intersections and junctions with Anzac Hwy, should be considered and addressed as part of gaining planning approval.

The potential for the eastern portion of the site (15,000m<sup>2</sup>) based on a conservative conceptual analysis could readily realise 2,000 to 3,000m<sup>2</sup> retail/commercial development and 300 or more dwellings leading to potentially several thousand extra vehicles per day across the local road network.

This is in addition to the traffic generation from the western Kaufland portion of the site and proposed development (approx. 60% and 18,000m<sup>2</sup>) and estimated 805 and 1065 vehicles per peak hour on weekday and weekend respectively);

#### *Condition*

*The consequences and traffic implications, including potential development from the whole LeCornu site, be properly modelled in the context of all the surrounding streets, intersections and the broader local network, particularly including Leader and Leah Streets, and be comprehensively assessed for compatibility, optimal design and necessary treatments for appropriate management before final planning approval;*

- Trading hours from 12:00am (midnight) to 9:00pm Monday to Friday, to 5:00pm Saturday and from 11:00 am to 5:00 pm Sunday have the potential to unreasonably impact overnight adjacent existing (Leader Street in particular) and potential (to east and Maple Ave) residential properties amenity and the broader neighbourhood. The scope of trading hours and/or the nature of operation at overnight hours should be mitigated to avoid undue loss of residential amenity beyond and within the Policy area as a consequence of the development.

Standard limits encompass 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday by planning condition;

#### *Condition*

*The commercial trading hours be limited to 7:00am to 9:00pm Monday to Saturday and 10:00am to 5:00pm Sunday and noise control measures be provided before Development Approval and undertaken to mitigate emissions and noise impacts beyond the site;*

- Servicing hours and potential greater noise disruptions, noting there is an undefined proposal for “night fill deliveries”, should be separately limited and noise control and cancelling treatments incorporated to mitigate unreasonable impacts upon adjacent existing and potential (to east and Maple Ave) residential properties amenity and the broader neighbourhood.

Standard limits encompass 7:00am to 7:00pm Monday to Saturday and 9:00 to 5:00pm Sunday by planning condition;

*Condition*

*The delivery and servicing hours be limited to 7:00am to 7:00pm Monday to Saturday and 9:00 to 5:00pm Sunday and noise control measures be provided before Development Approval and be undertaken to mitigate emissions and noise impacts beyond the site;*

- Main waste and delivery area on Maple Avenue has limited extent of crossovers relative to size of trucks and maintained areas of screening landscaping and fences. It is unclear if there are matching fence sliding gates to close-off and secure the area from visibility and access when area not being accessed and after hours;

*Condition*

*The rear service and delivery area vehicles (maximum length of 16 metres) access openings be secured and closed-off from view by sliding gates (noiseless system) matching the boundary fencing along Maple Avenue and joining to eastern boundary fencing;*

- The rear service laneway, along the eastern boundary, is proposed to only be used for emergency vehicle egress. This should be affirmed by a planning condition;

*Condition*

*The rear service laneway, along eastern boundary, only be used for emergency vehicle egress, with suitable security and movement prevention at all other times;*

- Landscaping quantity and quality increase and refinement, including retention of desired street trees, in and around rear carpark and laneway, under building screening to car parking and locally successful species is positive. On-going maintenance will be critical to maintain screening and should be reinforced by suitable planning condition to enforce suitable species, design detail, implementation and ongoing maintenance, for endorsement by SCAP and City of Unley before Development Approval and commencement;

*Condition*

*Full details of suitable final species, design detail, implementation and provision for ongoing maintenance be provided for endorsement before Development Approval;*

- Architecture site plan indicates a few trees in front Anzac Hwy carpark whereas Landscaping Plan does not. More trees should be included in front carpark to create green canopy and shade for car park area;

*Condition*

*Suitable trees be included in all bio-swale and landscaping areas as far as reasonable within the front western carpark to create a canopy and shade for exposed parking;*

- Retention of key street trees on Anzac Highway and Leader Street, and supplementary planting, is positive.

The removal of the mature on-site tree to Leader Street to accommodate the widened vehicle egress is unfortunate but reasonable in the context of the retention of all the street trees and the supplementary planting;

- Outdoor advertising signs area and number increased with less sensitivity to context of building scale and particularly adjacent residential properties, the nature of the area and Transit Living Policy Area Desired Character; Building elevation signs relocated, enlarged (from 6 to 7 and 4 to 5 metres square) and increased from 6 to 8 internally illuminated “Kaufland” signs. Reduced smaller externally illuminated tenancy signs by 3 to 8. Replacement pylon sign (triple sided 6x6 metres panels but matching existing one at 20.6 metres high) relocation within the front western carpark is closer to Anzac Highway. As a new and relocated sign its scale should be reduced to relate to the scale of building, the nature of the area and desired character of the Policy Area;

*Condition*

*Outdoor advertising signs be reduced in number and scale, including internally illuminated signs on building elevations from 8 to 6 in number and from 7 and 5 to 6 and 4 metres in size, and the pylon sign in the front carpark adjacent to Anzac Highway from 20.6 to 12-15 metres in height to better relate to the building scale of 12 metres and Transit Living Policy Area Desired Character;*

- Flood and stormwater management details as submitted are noted and generally acceptable. Final details be addressed by condition and confirmed prior to Development Approval.  
Noted a few matters in Stormwater Management Report for correction including:  
Table 3 shows 35% of RWT, whereas the calculations in Appendix E show 50% of RWT. Both are acceptable as the total volume for both is greater than the required volume. Table 3 on page 5, the total for the 35% RWT volume should be 36, not 42.5;  
The undercover carpark surface be carefully graded (as indicated on the site works and drainage plans) to ensure that any surface water can flow away;  
All stormwater connections from site to Council’s drainage infrastructure in the road reserve should be Reinforced Concrete Pipe (PVC connections not acceptable) into Council’s stormwater drainage network;

*Condition*

*The final floor, site and grading (for appropriate water flow) levels and appropriate stormwater management (final specifications and maintenance regimes of on-site detention depressions (carparks) and tanks, retention tanks, water reuse, bio-retention/swales and limitation of discharge outflow (to be below equivalent of 80% site impervious area) and use of only Reinforced Concrete Pipe to Council’s stormwater infrastructure be confirmed and endorsed before final Development Approval is granted;*

- A comprehensive Construction Management Plan is required prior to Development Approval and commencement of works on-site to avoid undue external impacts during construction;

*Condition:*



*Construction Management Plan be developed and agreed prior to Development Approval to mitigate undue impacts upon the locality; including:*

- *Staging to contain activity to the site;*
- *Traffic requirements including construction access/egress and heavy vehicle routes;*
- *Tradesperson vehicle parking;*
- *Work in the public realm;*
- *Hoardings;*
- *Operating hours and noise control.*

## **Conclusion**

The development proposal is of great interest to Unley residents, particularly those in close proximity to the site.

The Council is not the assessing authority, and only a referral agency able to make comments. It is therefore appropriate that Council concentrate on the specific areas of direct control while raising its concerns regarding the most significant divergences from the planning policy parameters.

It is trusted this information, and original comprehensive analysis, will be duly considered by the Planning Assessment Officers, Department of Planning Transport and Infrastructure, and the State Commission Assessment Panel in their deliberations.

## ***ENQUIRIES***

If there are any queries or need for further explanation or information please contact David Brown, Principal Planner.

Yours Sincerely



**Peter Tsokas**  
**CHIEF EXECUTIVE OFFICER**

**SOUTH AUSTRALIAN DEVELOPMENT ACT 1993**  
**REPRESENTATION ON APPLICATION – CATEGORY 2**

Applicant:	Kaufland Australia Pty Ltd
Development Number:	090/E004/18
Nature of Development:	Construction of two-storey retail development for Kaufland Supermarket including eight (8) supporting small tenancies, associated undercroft car park, offices, various signage, and landscaping.
Zone / Policy Area:	Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24
Subject Land:	10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)
Contact Officer:	Lauren Talbot
Phone Number:	8402 1786
Close Date:	25 May 2018

My name: Carol Olsen, Portfolio Manager

My phone number: 08 8297 2400 / 0400 223 292

PRIMARY METHOD(s) OF CONTACT: Email address: colsen@mrs.com.au

Postal address: PO Box 6200  
Halifax Street Postcode 5000

**You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.**

My interests are:

- ☒ owner of local property (Represent the owners) Harmony Forestville AL  
☐ occupier of local property  
☐ a representative of a company/other organisation affected by the proposal  
☐ a private citizen

The address of the property affected is 95-103 Leader St, Forestville Postcode 5035

The specific aspects of the application to which I make comment on are:

- ☐ I support the development;  
☒ I support the development with some concerns;  
☐ I oppose the development

(Please tick one)

For the following reasons:

See attached letter  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

- I ☒ wish to be heard in support of my submission  
☐ do not wish to be heard in support of my submission  
(Please tick one)

By ☒ appearing personally OR  
☒ being represented by the following person: Andrew Cain, Director  
(Please tick one)

Date 25/5/18 Signature Colsen

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or  
[scadmin@sa.gov.au](mailto:scadmin@sa.gov.au).



25 May 2018

Attention: Ms Lauren Talbot

State Commission Assessment Panel  
Level 5, 50 Flinders Street  
ADELAIDE SA 5000

Via Email: [lauren.talbot@sa.gov.au](mailto:lauren.talbot@sa.gov.au)

Dear Lauren

**KAUFLAND AUSTRALIA APPLICATION 090/E004/18  
10 ANZAC HIGHWAY, FORESTVILLE**

We write in relation to the Category 2 public notification for the above application.

Harmony Forestville Pty Ltd owns an adjoining site located at 95-103 Leader Street (officially 4 Leah Street), Forestville, sited directly opposite the Le Cornu's site (10 Anzac Highway). Our site comprises 7,264m<sup>2</sup> of land on the southern side of Leader Street which is currently occupied by a wholesale bakery manufacturing operation.

Our site contains large warehouse buildings of two to three storey scale which cover the majority of the land and present a highly industrial appearance. The bakery operates 24 hours, 7 days a week (due to long established use rights).

Both Council and the Department of Planning, Transport and Infrastructure are aware of Harmony's interest in developing our site for medium density residential infill, an outcome far more suited to the established residential area surrounding the site.

It is in this strategic context that we wish to provide comment on the Kaufland proposal.

We welcome the recent rezoning of the adjacent land to **Urban Corridor Zone** and note it is also in the **Transit Living (Anzac Highway) Policy Area 24** which encourages:

- Medium density residential development supported by local shops, offices and community land uses; and
- A highly varied built streetscape allowing multiple built form design responses that support innovative housing and mixed-use development.



Ms Lauren Talbot  
State Commission Assessment Panel

---

On viewing the proposal, these objectives do not appear to be met by the proposed large plate supermarket design and the associated at grade carparking.

Policy Area 24 is intended as a mixed use/residential area with buildings up to 6 storeys with 2-3 storey podiums fronting ANZAC Highway and Leader Street.

Development is meant to present a continuous edge of built form along Leader Street and contribute positively to the quality of the public realm by articulating buildings with canopies, modelled facades and balconies.

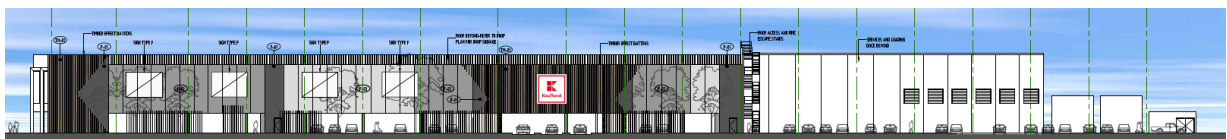
None of these features are offered by the Kaufland proposal.

We note that specific policy for the former Le Cornu's site states the site should incorporate:

- a vibrant and active street frontage;
- landmark quality buildings;
- commercial activities on the ground floor promoting transparent and/or articulated frontages for interest;
- smaller specialty shops which sleeve any proposed large floor plate retailing to ensure an activated street frontage;
- buildings presenting variation in scale with mass carefully articulated and distributed across the site; and
- shops with a gross leasable area of more than 500 square meters integrated with residential development and a range of tenancies.

The proposal does not appear to achieve any of these requirements.

In particular, we note that the Leader Street elevation presents highly visible, at grade car parking and that the rear of the site is essentially an open lot carpark with no built form edge (elevation shown below).



This inactive, non-articulated streetscape presentation to Leader Street is not appropriate and compromises the intended improvement to this street for the long term.

There is no sleeving of the large supermarket floor plate, no ground level activation and certainly no elements that would offer the 'vibrancy' that is sought.

Ms Lauren Talbot  
State Commission Assessment Panel

---

Given the efforts to re-zone the site and the detail in the desired character and planning policies for the Urban Corridor Zone and Transit Living (Anzac Highway) Policy Area 24, it would be disingenuous for SCAP to approve the application as currently proposed.

The application submitted appears to be proposing the least amount of effort possible to activate and enhance the site. It is simply a large warehouse surrounded by car parking.

We are confident that Kaufland's design team could establish a more creative, interesting proposal which enhances Leader Street and demonstrates value for the recent re-zoning.

We reserve the opportunity to speak at the SCAP meeting.

Thank you for the opportunity to comment on this proposal.

Yours sincerely  
**HARMONY PROPERTY SYNDICATION PTY LTD**



CAROL OLSEN  
Portfolio Manager  
[colsen@mrs.com.au](mailto:colsen@mrs.com.au)

**SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2**

<b>Applicant:</b>	Kaufland Australia Pty Ltd
<b>Development Number:</b>	090/E004/18
<b>Nature of Development:</b>	Construction of two-storey retail development for Kaufland Supermarket including eight (8) supporting small tenancies, associated undercroft car park, offices, various signage, and landscaping.
<b>Zone / Policy Area:</b>	Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24
<b>Subject Land:</b>	10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)
<b>Contact Officer:</b>	Lauren Talbot
<b>Phone Number:</b>	8402 1786
<b>Close Date:</b>	25 May 2018

My name: \_\_\_\_\_

My phone number: \_\_\_\_\_

PRIMARY METHOD(s) OF CONTACT:

Email address: \_\_\_\_\_

Postal address: \_\_\_\_\_

Postcode: \_\_\_\_\_

**You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.**

My interests are:

- ☒ owner of local property  
☐ occupier of local property  
☐ a representative of a company/other organisation affected by the proposal  
☐ a private citizen

The address of the property affected is \_\_\_\_\_

Postcode \_\_\_\_\_

The specific aspects of the application to which I make comment on are:

- ☐ I support the development;  
☒ I support the development with some concerns;  
☐ I oppose the development

(Please tick one)

For the following reasons:

- There will be an extra-ordinary increase in parking problems
- ① Pls. ensure a large number of underground car parks.
- ② Pls. push the development back from Anzac Hwy frontage.

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

- I ☐ wish to be heard in support of my submission  
☐ do not wish to be heard in support of my submission  
(Please tick one)

By

- ☐ appearing personally  
☐ being represented by the following person:  
(Please tick one)

Date

22.5.18

Signature





**SOUTH AUSTRALIAN DEVELOPMENT ACT 1993**  
**REPRESENTATION ON APPLICATION – CATEGORY 2**

<b>Applicant:</b>	Kaufland Australia Pty Ltd
<b>Development Number:</b>	090/E004/18
<b>Nature of Development:</b>	Construction of two-storey retail development for Kaufland Supermarket including eight (8) supporting small tenancies, associated undercroft car park, offices, various signage, and landscaping.
<b>Zone / Policy Area:</b>	Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24
<b>Subject Land:</b>	10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)
<b>Contact Officer:</b>	Lauren Talbot
<b>Phone Number:</b>	8402 1786
<b>Close Date:</b>	25 May 2018

My name: Huy Le

My phone number: 0433 786 011

PRIMARY METHOD(S) OF CONTACT: Email address: htle81@hotmail.com

Postal address: 12 A Gambia Avenue  
Hampstead Gardens Postcode 5086

**You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard in support of your submission.**

- My interests are:
- ☒ owner of local property
  - ☐ occupier of local property
  - ☐ a representative of a company/other organisation affected by the proposal
  - ☐ a private citizen

The address of the property affected is 115 Leader St, Forestville Postcode 5035

The specific aspects of the application to which I make comment on are:

- ☐ I support the development;
- ☐ I support the development with some concerns;
- ☒ I oppose the development

(Please tick one)

For the following reasons:

- Lack of ground level activation for Leader St elevation. Currently dominated by carparking, should incorporate some active usage, eg. shops, cafe, public art, play space, etc.
- Significant increase in traffic and demand for on-street parking for Leader St.

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

- I
- ☒ wish to be heard in support of my submission
  - ☐ do not wish to be heard in support of my submission
- (Please tick one)

- By
- ☒ appearing personally
  - ☐ being represented by the following person:
- (Please tick one)

Date 23/05/2018 Signature [Signature]

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or [scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au).



**RECEIVED****13 JUN 2018**State Commission  
Assessment Panel**SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2**

<b>Applicant:</b>	Kaufland Australia Pty Ltd
<b>Development Number:</b>	090/E004/18
<b>Nature of Development:</b>	Construction of two-storey retail development for Kaufland Supermarket including eight (8) supporting small tenancies, associated undercroft car park, offices, various signage, and landscaping.
<b>Zone / Policy Area:</b>	Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24
<b>Subject Land:</b>	10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)
<b>Contact Officer:</b>	Lauren Talbot
<b>Phone Number:</b>	8402 1786
<b>Close Date:</b>	25 May 2018

My name: LENORE TINKERMy phone number: 8293 8139PRIMARY METHOD(s) OF CONTACT: Email address: \_\_\_\_\_  
Postal address: 2A FIRST AVENUE  
FORESTVILLE Postcode 5035

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

- My interests are:
- ☒ owner of local property
  - ☒ occupier of local property
  - ☐ a representative of a company/other organisation affected by the proposal
  - ☒ a private citizen

The address of the property affected is 2A FIRST AVENUE, FORESTVILLE Postcode 5035

The specific aspects of the application to which I make comment on are:

- ☒ I support the development;
- ☐ I support the development with some concerns;
- ☐ I oppose the development

(Please tick one)

For the following reasons:

PREFER TO SEE IT DEVELOPED ASAP AND NOT DELAYED  
LIKE THE NORTH ADELAIDE SITE. HOMELESS PEOPLE  
ALREADY SLEEPING IN AREA

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

- I ☒ wish to be heard in support of my submission  
☐ do not wish to be heard in support of my submission  
(Please tick one)

- By ☒ appearing personally  
☐ being represented by the following person:  
(Please tick one)

Date 22/05/2018 Signature Lenore Tinker

RECEIVED

22 MAY 2018

SOUTH AUSTRALIAN DEVELOPMENT ACT 1993  
REPRESENTATION ON APPLICATION – CATEGORY 2

State Commission Assessment Panel	
Applicant:	Kaufland Australia Pty Ltd
Development Number:	090/E004/18
Nature of Development:	Construction of two-storey retail development for Kaufland Supermarket including eight (8) supporting small tenancies, associated undercroft car park, offices, various signage, and landscaping.
Zone / Policy Area:	Urban Corridor Zone / Transit Living (Anzac Highway) Policy Area 24
Subject Land:	10 Anzac Highway, Forestville SA 5034 (front portion of former Le Cornu site)
Contact Officer:	Lauren Talbot
Phone Number:	8402 1786
Close Date:	25 May 2018

My name: LOUCAS THEODORE LOUCA

My phone number: 82974426

PRIMARY METHOD(S) OF CONTACT: Email address: \_\_\_\_\_  
Postal address: 121 LEADER ST  
FORESTVILLE Postcode 5035

**You may be contacted via your nominated PRIMARY METHOD(S) OF CONTACT if you indicate below that you wish to be heard in support of your submission.**

- My interests are:
- ☒ owner of local property
  - ☒ occupier of local property
  - ☐ a representative of a company/other organisation affected by the proposal
  - ☒ a private citizen

The address of the property affected is as above Postcode \_\_\_\_\_

The specific aspects of the application to which I make comment on are:

- ☒ I support the development;
- ☒ I support the development with some concerns;
- ☐ I oppose the development

(Please tick one)

For the following reasons:

The suburban land will look better  
with the development and will be  
easier for our shopping

Should the State Commission Assessment Panel conduct a public hearing for this Development Application:

- I
- ☒ wish to be heard in support of my submission
  - ☒ do not wish to be heard in support of my submission
- (Please tick one)

- By
- ☒ appearing personally
  - ☐ being represented by the following person:

(Please tick one)

Date 15/5/2018 Signature Lucas Theodore Louca

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide SA 5001 or  
[scapadmin@sa.gov.au](mailto:scapadmin@sa.gov.au).



**From:** Tracey Pursey  
**To:** [DPTI:State Commission Assessment Panel](#)  
**Subject:** DEVELOPMENT 090/E004/18 KAUF LAND AUSTRALIA 10 ANZAC HIGHWAY FORESTVILLE SA  
**Date:** Friday, 25 May 2018 8:18:32 AM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[20180525074009131.pdf](#)

---

Good Morning

Peter and myself (Tracey Pursey) of 123 leader Street, Forestville, submit the attached document and request for a representative to appear before SCAP to act on our behalf. We are happy to supply representative details if required.

I have attached a two page document detailing our concerns over the proposed development 090/E001/18 18 Kaufland Australia, 10 Anzac Highway, Forestville SA. Because our home is so close to the recommended development areas, we feel this will have a great impact on our day to day living, and a detrimental effect on our health and wellbeing.

Please do not hesitate to contact Peter Pursey on 0438813595 or Tracey Pursey on 0400712488 if needed.

Regards,



**TRACEY PURSEY**  
**ACCOUNTS RECEIVABLE OFFICER**  
P: (08) 8406 5807  
Australian Truck & 4WD Rentals Pty Ltd | Hertz International Sublicensee  
211 Richmond Rd  
Richmond, South Australia, 5033  
[hertztrucks.com.au](http://hertztrucks.com.au)

**HertzTrucks\_Sig**



## Appendix 1

The proposed Kaufland development at 10 Anzac Highway (LeCornu site), is seriously at variance to the Unley Development Plan. We wish to portray our disappointment and fear of the current proposal to the SCAP members, and request that the decision at hand take into consideration the great divide between the Unley DP and the Kaufland proposal. We accept and understand that there is going to be development on the site, and are far more comfortable with seeing something that will enhance our community, such as a residential development with cafes and other small shops with some community spaces.

We note that this is exactly what the Unley Development Plans' vision for the precinct was. The site is part of Policy Area 24 within the plan. The objectives for Policy Area 24 are as follows:

### Objective 1

**A medium Density Residential area" supported" by local shops, offices and community spaces.**

### Objective 2

**A highly varied streetscape allowing "multiple" built form design responses that supports innovative housing and mixed-use development.**

The desired character for the policy area therefore is to **"primarily" serve a residential function with support "only" of shops, offices etc.**

We also note that although we would prefer to see much less, **the plan calls for about 90 homes/units on this site.** There are none being proposed.

This is a major factor that will impact on us directly as the volume of traffic that a residential development would generate compared to the proposed Kaufland development is many times the total number, especially should the hours of operation that are proposed be approved. Not

only will we have a major increase in traffic from the local catchment area but no doubt we will see people from across Adelaide inner metro. We are already seeing increased commuter traffic heading down Leader during peak hours, and this will put increased pressure on all the surrounding streets.

We are also very worried about the proposed entrance to the site off leader as this will have a significant impact on access to our property especially if the numbers suggested by Kaufland prove to be underestimated.

Another serious concern that we have is the fact that the whole site is one big carpark on the ground floor. This is again in contrast to what is stated in the Unley DP:

**“no” vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.”**

In conclusion we strongly feel that the proposed development is in complete conflict with the Development Plan, it is a mega supermarket. It has no residential component and the hours of operation are unacceptable, 21 out of 24 hours a day. Not only are we going to see a flood of cars running up and down Leader street but no doubt a fleet of service trucks to feed the volume of sales that would accompany a mega supermarket.

We therefore ask that you adhere to the vision that both Sate Gouvernement and Unley Council have for the area, that being medium density residential development, with a emphasis on community and local shops with community space for residents to interact. Should you allow a mega supermarket to be established, simply because they had the 25 million dollars to spend to purchase a site they wanted; surely this would nullify any planning that governments make and send a signal to all developers that in South Australia, laissez faire capitalism is the norm.



Confidential



**Ms Lauren Talbot**

A/Team Leader – Development officer  
State Commission Assessment Panel  
Sent via email: [lauren.talbot@sa.gov.au](mailto:lauren.talbot@sa.gov.au)

Kaufland Australia  
Level 2/100 Dorcas Street  
South Melbourne VIC 3205  
ABN 866 165 916 67

Sam Russell-McLeod  
0424 043 602  
[samuel.russell-mcleod@kaufland.com.au](mailto:samuel.russell-mcleod@kaufland.com.au)

**Application Number: 090/E004/18**

**In response to: 2018/19469/01**

13 July 2018

Dear Lauren,

## **1. INTRODUCTION**

Thank you for your information request dated 25<sup>th</sup> June 2018 with respect to our proposed development at 10 Anzac Highway, Forestville (Application No. 090/E004/18).

This letter has been prepared in conjunction with Urbis Pty Ltd and provides a response to the information requests received from DPTI Planning, DPTI Traffic and the City of Unley. In addition, the letter highlights other key changes that have been made to the plans to improve the overall design and function of the development.

The changes to the overall scheme can be summarised as follows:

- Modification to Leader Street access to include additional entry lane;
- Revised landscape concept to incorporate local species and to increase planting throughout the site;
- Relocation of playground zone and modifications to the design;
- Incorporation of a layered landscaped screening approach to undercroft car parking areas;
- The retention of all street trees along Anzac Highway.

For SCAP's consideration, please find enclosed:

- Updated Architectural Plans prepared by Rowthe Lowman, dated July 2018
- Traffic Advice prepared by WGA, dated July 2018
- Updated Traffic Report prepared by WGA, dated July 2018
- Updated Storm Water Management Plan by WGA, dated July 2018
- Response to representations received from City of Unley and residents (provided to DPTI 10<sup>th</sup> July 2018)

## **2. RESPONSE TO RFI ITEMS**

In your letter, you requested that we respond to twelve matters. Please see below our responses.

1. The Ground Floor and First Floor plans have been updated to clearly detail the internal layout of the proposed retail development, including the offices and liquor tenancy.

In addition, the location of internal access ways and key pedestrian entrances have been identified on each plan.

***Please refer to TP-02 & TP-03.***

2. The proposal comprises seven (7) small retail tenancies, in addition to the proposed Kaufland supermarket and liquor store. This includes one (1) café tenancy on the ground floor and six (6) tenancies contained within the internal mall at First Floor Level, which customers will walk through prior to entering the Kaufland supermarket retail floor.

Although the precise mix and operators of the internal tenancies are still to be confirmed, they will likely include:

- Sushi eatery
- Pastry/coffee eatery
- Chemist
- Optometrist
- Specialist bakery
- Specialist butchery

***Please refer to TP-02 & TP-03.***

3. An outdoor seating area, located at Ground Level, will provide 32 seats for the exclusive use of proposed tenancy T-01. At First Floor, seating is proposed for the use of the relevant upper level tenancies, comprising c.100 indoor seats and c.60 outdoor seats, which will be located on the upper level balcony.

Given that the use of the upper level retail tenancies has not yet be defined, the upper level seating areas will act as a general public eating area associated with the overall supermarket, unless otherwise required by future tenants.

***Please refer to TP-02 & TP-03.***

4. Kaufland is continuously refining its retail offering as it prepares to enter into the Australian market. The company prides itself in delivering uncompromising quality and freshness in all facets of its offering and the product range will include:
  - Fruit and vegetables
  - Dairy Products
  - Fresh meat
  - International and national cheese
  - Fresh seafood
  - Household items
  - Small electrical goods
  - Stationary
  - Seasonal products
5. Kaufland appreciates the importance of providing clarity to surrounding residences and to the broader community as to what hours of operation our proposed development will be bound to.

As an underpinning principle, Kaufland acknowledges that each individual has different availabilities and preferences with respect to shopping times and we believe that consumers should be provided with the flexibility to choose when to do their weekly or daily shop.

The proposed hours of operation of the supermarket are as follows:

*Monday to Friday – 12am to 9pm*

*Saturday – 12am to 5pm*

*Sunday – 11am to 5pm*

It is noted that the nearest comparable retail development, the Kurralta Central Vicinity Centre at Kurralta Park, which includes an operational Coles, operates to the above opening hours.

6. The hours outlined in Item 5, above, are sought as a basis for determining the final operating hours for the supermarket. This is not to say that these will be the hours that Kaufland Forestville will end up operating to.

It is simply too early to commit or agree to a permit condition restricting operational hours as the relevant resources within the company – being Store Operations and Facility Managers have not yet been staffed.

In light of this, we respectfully request that SCAP (and DPTI and the City of Unley) work collaboratively and with an open mind with Kaufland as we work towards confirming the operational hours of the proposed store. In the interim, we request approval of the above opening hours until a final position can be determined.

7. A full redesign of the landscape concept for the site has been undertaken to address the various matters raised by both SCAP and the City of Unley.

The proposed species have responded to the advice of the City of Unley, presented within their submission to SCAP and the advice of their external consultant, Oxigen. On this basis, the revised landscape concept provides a considered response, which appropriately reflects the climate and context of metropolitan Adelaide.

As detailed further within Item 11 of this letter, the revised landscape design seeks to soften the building façade to both Leader Street and Maple Avenue, as well as screen views to the undercroft car parking area, through a layered landscaped approach including the installation of climbing plant screens attached the building façade.

In addition, it is noted that all street trees along the frontage to Anzac Highway are proposed now proposed to be retained.

Figure 1 – Artist impression of the proposed development, viewed from Anzac Highway



***Please refer to TP-02, LC01, LC02 & LC03.***

8. The previously proposed 'playground' has been retained and amended to a 'nature play area'. The play area has been relocated to ensure direct access and surveillance is possible from the ground floor café.

In addition, the revised location provides an improved safety outcome, given that the arrangement ensures that children and parents are no longer required to cross the internal roadway to access the play area.

***Please refer to TP-02 & LC01 & LC02.***

9. It is confirmed that the rear laneway, located behind the loading dock, traversing the site north to south between Maple Avenue and Leader Street will only be utilised by the South Australian Metropolitan Fire Service and other emergency vehicles.



Public access will be restricted by boom gates (or similar) and clear signage, as detailed on the revised plans.

**Please refer to TP-02.**

10. Kaufland can agree to this condition request – with the acknowledgement that should for some reason access be restricted in the future (e.g. a hypothetical and unforeseen road closure at Maple Ave/Anzac Highway) then this Condition can be revisited.
11. We have taken the concerns raised by DPTI and City of Unley with respect to the screening of the undercroft car park seriously. We have sought to provide an aesthetically appealing and effective screening outcome that is responsive to the site's residential interfaces

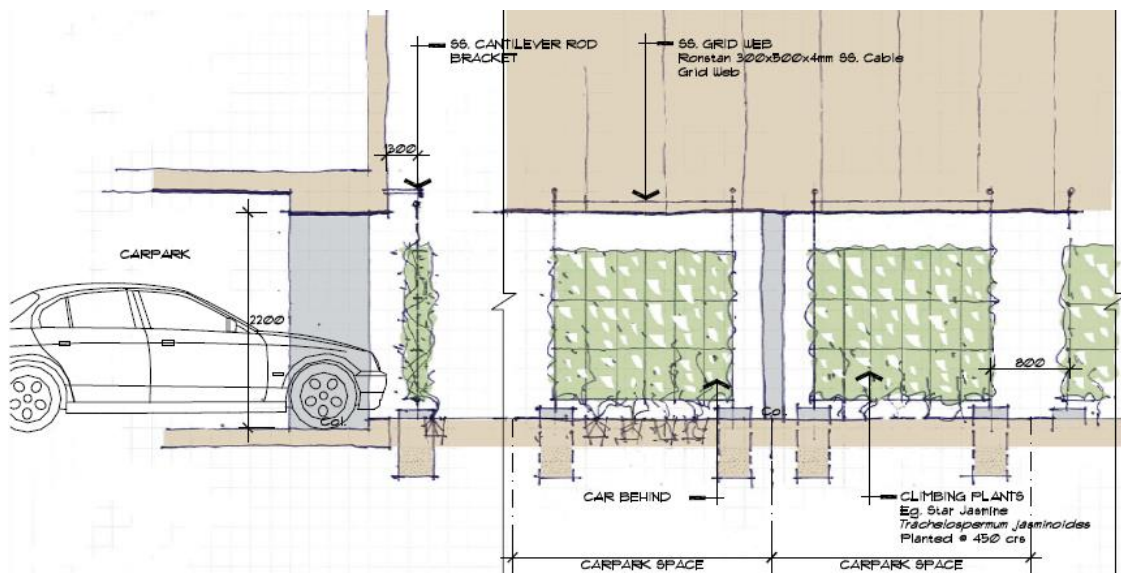
As detailed within the submitted landscape package, it is proposed to install sections of 1.9 metre high x 1.9 metre wide cable grid web, which is to be attached the building façade. Climbing plants will then be trained across each grid, to restrict views to the adjacent car space.

An individual landscaped grid will be located immediately in front of each car parking space adjacent both Maple Avenue and Leader Street, providing complete and well-articulated screening of the undercroft car parking area when viewed from these streetscapes.

In addition to the proposed landscaped grids attached to the built form, the proposal includes the provision of additional street trees, to both Maple Avenue and Leader Street, which will provide additional filtration of views from the respective streetscapes.

It is confirmed that Kaufland would be able to accept a condition requiring a landscaping management plan, or the like, to ensure the ongoing maintenance and upkeep of the proposed screening. If this is desired, Kaufland can commission one to be endorsed by DPTI and the City of Unley.

Figure 1 – Extract from LC02 highlighting plant climbing screen detail



**Please refer to LC01, LC02, TP-02 and the Car Park Screening Detail plans.**

12. A detailed schedule of materials has been prepared, specifying the materials to be used for external cladding of the building. These materials include perforated screening, light and dark textured finishes, modular cladding and batten cladding.

**Please refer to TP-08.**

### **3. ADDITIONAL AMENDMENTS**

Further to the proposed amendments outlined above, which have been directly requested by SCAP, it is noted that a number of additional voluntary changes have been included on the plans. A list of the proposed changes is provided at Appendix A.

The additional amendments are predominately as a result of the engagement of a new architect and landscape team, as well as the inclusion of additional design requirements, and do not result in a transformation of the proposal, or require additional approval under the requirements of the City of Unley Development Plan.

### **4. CONCLUSION**

We trust that the above information clarifies the matters in your letter, and that the proposed design changes respond to the key issues raised by DPTI, public submitters and the City of Unley. Should you require further information or detail, please do not hesitate to contact the undersigned.

Kind regards,

**Sam Russell-McLeod**

Kaufland Australia – Property Development

0424 043 602

[samuel.russell-mcleod@kaufland.com.au](mailto:samuel.russell-mcleod@kaufland.com.au)

# APPENDIX A

## GROUND LEVEL CHANGES

### Waste:

- Removed compactor
- 1 x Front lift bin added
- Bin hoist added
- Waste room added – R.S.D opening from Waste Room to bin and bin hoist
- Fence to be added
- Tenancy Waste Room – Removed on GL, replaced with Tenancy Delivery
- Bin storage added

### Landscape:

- Trees to be added to external car park area
- Screens added on Leader and Maple St perimeter
- Hedges added
- Removed Playground and replaced with Nature Play area

### Deliveries:

- Unloading dock requires 5m clearance to lift
- Night fill deliveries added – Cold Storage.
- Unisex amenities for truck drivers added

### Car Parks:

- Add 2 extra Trolleys
- Trolley bays to take up 3 car parks
- Relocate motorbike parking – entry area to be kept clear
- Remove 4 x car parks near Anzac Hwy
- Tenant deliveries area added
- 26 Staff bike parks
- Added line-marking
- Access on Leader St. added 2 "in" and 2 "out"
- Anzac Tree to remain
- 1 x Leader St tree removed
- Street detail on Leader removing existing external car parks
- Boom Gates added to Fire Access
- Pylon sign relocated
- Extend opening (near customer lift) to allow for pedestrian and car access
- Motorcycle parking relocated
- Bike Parking Relocated
- 2 x EV parking at front
- Relocated entry boom gates (Anzac Hwy)
- Relocated sprinkler pump room
- Tank sizes adjusted

### Main Entry

- Apron at the main entrance is same level to car parks
- 1 x large mat rather than 4 individuals
- Airlock added at lift area



- 1 x Customer entry lift removed

## **LEVEL 1 CHANGES**

- Waste Press located at each tenancy
- Compactor added
- Machine cleaning room
- Access door added on the south side of elevation to allow for maintenance for refrigeration
- Access door added on south side of elevation to allow for maintenance for compactor
- Windows added on north side of elevation
- Tenants areas updated
- Deliveries lift removed
- Machine cleaning room added
- Tenant waste room added
- Tenant cold room added
- Relocated Services – DB room and MSB

## **ELEVATIONS**

- Updated "K" signage to every corner of building
- Angles of timber adjusted
- "K" signage at glazing
- Removed "K" roof
- Added windows to North Elevation
- Parapet extended
- Increased height of cube
- Relocated Sign Type "E"
- Roof pitch height adjusted



**LEVEL 12  
120 COLLINS STREET  
MELBOURNE VIC 3000**

URBIS.COM.AU  
Urbis Pty Ltd  
ABN 50 105 256 228

10 July 2018

Lauren Talbot  
Team Leader Development Officer  
State Commission Assessment Panel  
GPO Box 1815  
ADELAIDE SA 5001

Dear Lauren,

**APPLICATION NO. 090/E004/18  
NO. 10 ANZAC HIGHWAY, FORESTVILLE  
RESPONSE TO REPRESENTATIONS FROM THE PUBLIC AND UNLEY COUNCIL**

Urbis continue to act on behalf of Kaufland Australia in support of a planning permit application for the development of a supermarket at 10 Anzac Highway, Forestville.

We refer to the State Commission Assessment Panel's (SCAP) letter dated 30 May 2018, enclosing public representations and the submission from the City of Unley. We also refer to the request for further information from DPTI Transport and SCAP, as outlined in your letter dated 25 June 2018.

The purpose of this correspondence is to respond to matters raised in public representations and the submission from the City of Unley. A further submission will be provided to respond to SCAP's 'Request for Further Information' (RFI) letter of 25 June and to traffic and car parking related matters, which are currently being considered by WGA Traffic. Kaufland and the consultant team have reviewed the matters raised by both the public and Unley Council in detail. Following this review, a number of modifications are proposed to be made to the development proposal, which include:

- The landscaping concept for the site;
- Treatment of screening of undercroft car parking areas; and
- Siting and design of children's play area
- Leader Street access points

Details of these modifications will be provided in the RFI response which will be submitted by 13 July 2018. It is considered that these changes will respond to many of the concerns raised by submitters, and will appropriately respond to the applicable controls and the site's context.

This correspondence includes a response to the key concerns raised by public respondents (please refer to Table 1) and to the key concerns of the City of Unley (please refer to Table 2).



We trust the above response and enclosed documentation satisfactorily addresses the matters raised in the public and Council representations received. We look forward to the further progression of the application to the panel hearing. Should you have any queries please do not hesitate to contact the undersigned or Mietta Gleeson on 8663 4883 or via email at [jkelly@urbis.com.au](mailto:jkelly@urbis.com.au).

Yours sincerely,

A handwritten signature in black ink, appearing to read "Jane Kelly". The signature is fluid and cursive, with the first name "Jane" and last name "Kelly" clearly distinguishable.

Jane Kelly  
Director



Table 1 – Response to Public Submissions and Representations

Matter Raised in Public Submission	Response
<b>1. Traffic and Car Parking</b>	
a) Impact of the proposal on existing traffic issues in local streets surrounding the site	<p>The primary entry/exit point to the site is to be from Anzac Highway, noting that signage located within the car park will direct customers to exit via Anzac Highway.</p> <p>It is noted that the general layout of the development, including the location of vehicle access points, has been designed in accordance with Concept Plan Map Un/11 of the City of Unley Development Plan. This map identifies a desired/consolidated vehicle access/egress point from Leader Street. (please refer to Figure 1 for the map).</p> <p>Kaufland traffic engineers have reviewed the City of Unley suggestion of signalling the Leader Street access point and have found that this would exacerbate traffic issues rather than resolve. This position is supported by DPTI traffic.</p> <p>The relevant traffic &amp; car parking concerns are currently being reviewed by WGA Traffic and will be responded to where appropriate in the RFI response.</p>
b) Maple Avenue to Leader Street access should only be used for emergency access	<p>The vehicle access point on Leader Street, near first Avenue, is for emergency vehicle access only. The rear laneway connecting Maple Ave and Leader Street will be closed off from 'through access' by boom gates, which will only be utilised by the South Australian Metropolitan Fire Service. This will ensure that customers are unable to traverse directly from Maple Avenue to Leader Street.</p>
c) Mandate that entry/exit for service vehicle to be from Maple Avenue only	<p>It is confirmed that trucks will enter and exit the site from Maple Avenue.</p> <p>Kaufland delivery trucks will not travel on Leader Street.</p>

Matter Raised in Public Submission	Response
<p>d) Impact of the proposal on existing car parking issues in local streets surrounding the site</p>	<p>The development proposes to provide 449 car parking spaces on site. The car parking provision is in excess of the requirements of the City of Unley Development Plan and has been provided to avoid the instance of customers parking in the surrounding local streets.</p> <p>To encourage parking on site, it is proposed that parking will be free for the first 2-3 hours and free with any in-store purchase thereafter. All Kaufland staff will be provided with free parking all day, ensuring they park on-site, rather than within the surrounding area.</p> <p>On this basis, there is little incentive for Kaufland customers and staff to park within the residential street network.</p> <p>It is not applicable for this application to consider the car parking requirements of other developments within the vicinity.</p>
<p><b>2. Non-compliance with Unley Development Plan &amp; Transit Living Policy Area 24</b></p>	
<p>a) Absence of residential component</p>	<p>The retail proposal will occupy approximately half of the site at 10 Anzac Highway, Forestville and will not compromise the ability for the balance of the site to be developed for residential purposes in the future, allowing for an overall mixed use outcome to be achieved for the site.</p> <p>The eastern portion of the site is to be cleared and resold, with the intent that this will be developed for residential use, as encouraged by planning policy and the site's zoning.</p>
<p>b) Use of the site for a large-scale supermarket</p>	<p>A 'shop or group of shops' is an envisaged form of development in the Urban Corridor Zone.</p> <p>PDC 1 of the Transit Living Policy Area 24 states:</p>

Matter Raised in Public Submission	Response
	<p><i>“Shops or groups of shops contained in a single building should have a gross leasable area of less than 500 square metres, except for sites located north of Leader Street.”</i></p> <p>Given the subject site is situated to the north of Leader Street, the proposed leasable floor area of the group of shops located within the proposed development (greater than 500 square metres) is considered an appropriate land use outcome in this location and consistent with the Urban Corridor Zone.</p> <p>Consistent with PDC 2 of the Transit Living Policy Area, the development incorporates a number of smaller integrated tenancies, which will complement the predominant supermarket use, including a café space.</p> <p>In addition, an Economic Impact Assessment has been prepared and submitted to SCAP, which supports the proposed supermarket use in this location.</p>
c) Location and visibility of car parking	<p>Screening of the undercroft car park is currently being redesigned. The revised design, to be submitted at the RFI response stage, will incorporate a layered approach to screening and will include both landscaping and built form.</p> <p>The provision of landscape within the setback to both Leader Street and Maple Avenue is also proposed to be increased, further assisting with filtering views to the proposed undercroft car park.</p>
d) Lack of variation in the built form & streetscape	<p>At the Anzac Highway frontage, the proposed development is broken up through variation in light and dark elements, recessive built form elements and the provision of architectural features including a permeable timber canopy and glass facade.</p> <p>Further to this, the development provides varied roof heights and active uses at ground level fronting Anzac Highway to provide variation in the form when viewed from Anzac Highway.</p>



Matter Raised in Public Submission	Response
e) Does not meet the built form objectives	<p>Setback requirements have been met to Leader Street and Anzac Highway.</p> <p>The proposed variation to the setback requirement to Maple Avenue is considered an appropriate response in the context of the site and allows adequate space for genuine landscaping opportunities to soften the appearance of the built form. It is proposed that revised plans, to be submitted at the RFI response stage, will provide for an increased provision of landscaping within this setback.</p> <p>The proposed height and setbacks combine to ensure that the building does not appear overwhelming on the site when viewed from the public realm, without the need for a podium design.</p>
<b>3. Other</b>	
a) Chrysler Signage	Kaufland have committed to two Chrysler heritage groups that the Chrysler sign will be preserved and transported to a suitable location for further preservation.
b) Site contamination risks	<p>Testing has been undertaken on site and previous tests have been reviewed. Two areas of historical chemical contamination have been identified. The existing Le Cornu warehouse contains asbestos, as such a professional asbestos removal company will be employed during construction.</p> <p>At all times, contractors will conform to the strictest of EPA management criteria. Prior to on site demolition, advance notification will be provided to Unley Council (for the endorsement of a Construction Management Plan) as well as notification to all surrounding properties.</p> <p>Local residents will be advised of any risk and signage will also be erected as required by law.</p>

Matter Raised in Public Submission	Response
c) Provision of landscaping	The landscaping design is being revised in its entirety to align with the landscape principles sought by Unley Council and provide an improved landscaping outcome across the site. An updated landscape plan is to be provided as part of the RFI Response.
d) Operating hours	Subject to any changes to legislation on shop trading hours by the new Liberal State Government, Kaufland anticipates operating hours of 12am – 9pm on weekdays, Saturday 12am-5pm, and Sunday 11am – 5pm.

Table 2 – Response to City of Unley submission

Matter Raised in City of Unley Submission	Response
<b>1. Traffic and Car Parking</b>	
a) Traffic control treatment of Leader Street access/egress, traffic modelling assumptions and review of implications on local network, service area to Maple Avenue, vehicle conflicts and pedestrian safety in carpark and rear laneway vehicle movement management	Response to the relevant traffic & car parking concerns raised by Council are currently being reviewed by WGA Traffic and will be applied where appropriate in the RFI response.
<b>2. Built Form and Site Layout</b>	
a) Sub-optimal minimum building scale not capitalising on 6 storey potential	The proposed building height is appropriate for the proposed use and has been designed to limit impact of the built form on surrounding interfaces.

Matter Raised in City of Unley Submission	Response
<p>b) Exposed carparking to Anzac Highway (and Leader Street) with insufficient landscaping and shady canopy trees, and the under building and rear carpark areas screening/fencing</p>	<p>It is noted that the landscaping design is being revised in its entirety to align with the landscape principles sought by Unley Council and provide an improved landscaping outcome across the site, including within the front setback.</p> <p>In addition, an improved screening design is proposed to limit the visibility/impact of undercroft car park to Leader Street and Maple Avenue.</p> <p>The retail development will comprise a total of 449 carparks, of that 449, 191 will be screened.</p>
<p>c) Inadequate building setback (and landscaping) to Maple Avenue streetscape (ie 1 metre vs minimum 3 metres)</p>	<p>The proposed variation to the setback requirement to Maple Avenue is considered an appropriate response in the context of the site and allows adequate space for genuine landscaping opportunities to soften the appearance of the built form. It is proposed that revised plans, to be submitted at the RFI response stage, will provide for an increased provision of landscaping within this setback.</p>
<p>d) Ground level playground integrated with café and outdoor dining, and not located remotely and across a main vehicle driveway</p>	<p>It is proposed that revised plans, to be submitted at the RFI response stage, will relocate the playground and amend to a 'nature play' style area. The revised location of the play area will ensure that access will not be required through the car parking area and will provide for a safe environment for children to play within.</p>
<p><b>3. Landscaping</b></p>	
<p>a) Landscaping increased areas to perimeter, eg along Anzac Highway, Maple Avenue and rear laneway, and internally to afford screening and shade canopy. A complete review of species to suit Adelaide and site circumstances</p>	<p>The landscaping design is being revised in its entirety to address the landscape principles sought by Unley Council and to provide an improved landscaping outcome across the site.</p> <p>An updated landscape plan is to be provided as part of the RFI Response and will provide for an increased provision of landscaping along the perimeter of the site, as well as internally within the front setback. The revised specie selection will conform with Unley Council requirements.</p>



Matter Raised in City of Unley Submission	Response
b) Street trees not to be removed, other than in Maple Avenue if additional replacements included as part of proposal	It is proposed that the vehicle access point to Anzac Highway will be redesigned to ensure that removal of the significant tree will not be required.
<b>4. Use</b>	
a) Large scale retail use rather than integrated primarily residential development with limited local commercial/retail uses	<p>The retail proposal will occupy approximately half of the site at 10 Anzac Highway, Forestville and will not compromise the ability for the balance of the site to be developed for residential purposes in the future, allowing for an overall mixed use outcome to be achieved for the site.</p> <p>The eastern portion of the site is to be cleared and resold, with the intent that this will be developed for residential use.</p>
<b>5. Other</b>	
a) Waste servicing preferably consolidated into one main area in Maple Avenue	Separate waste areas for the supermarket and other retail tenancies is considered an appropriate outcome for a development of this size.
b) Flood and stormwater management noted details to be addressed	The Stormwater Management report is to be updated to ensure no reporting errors and reflect final RFI plans. The updated document will form part of the RFI response.
c) Comprehensive and complete Construction Management Plan and resolution with Council before Development Approval	It is respectfully requested that any requirement for a detailed CMP be requested as a Condition of any permit issued for the development.

Figure 1 – Extract from the Concept Plan Map Un/11(Leader Street access highlighted in yellow)

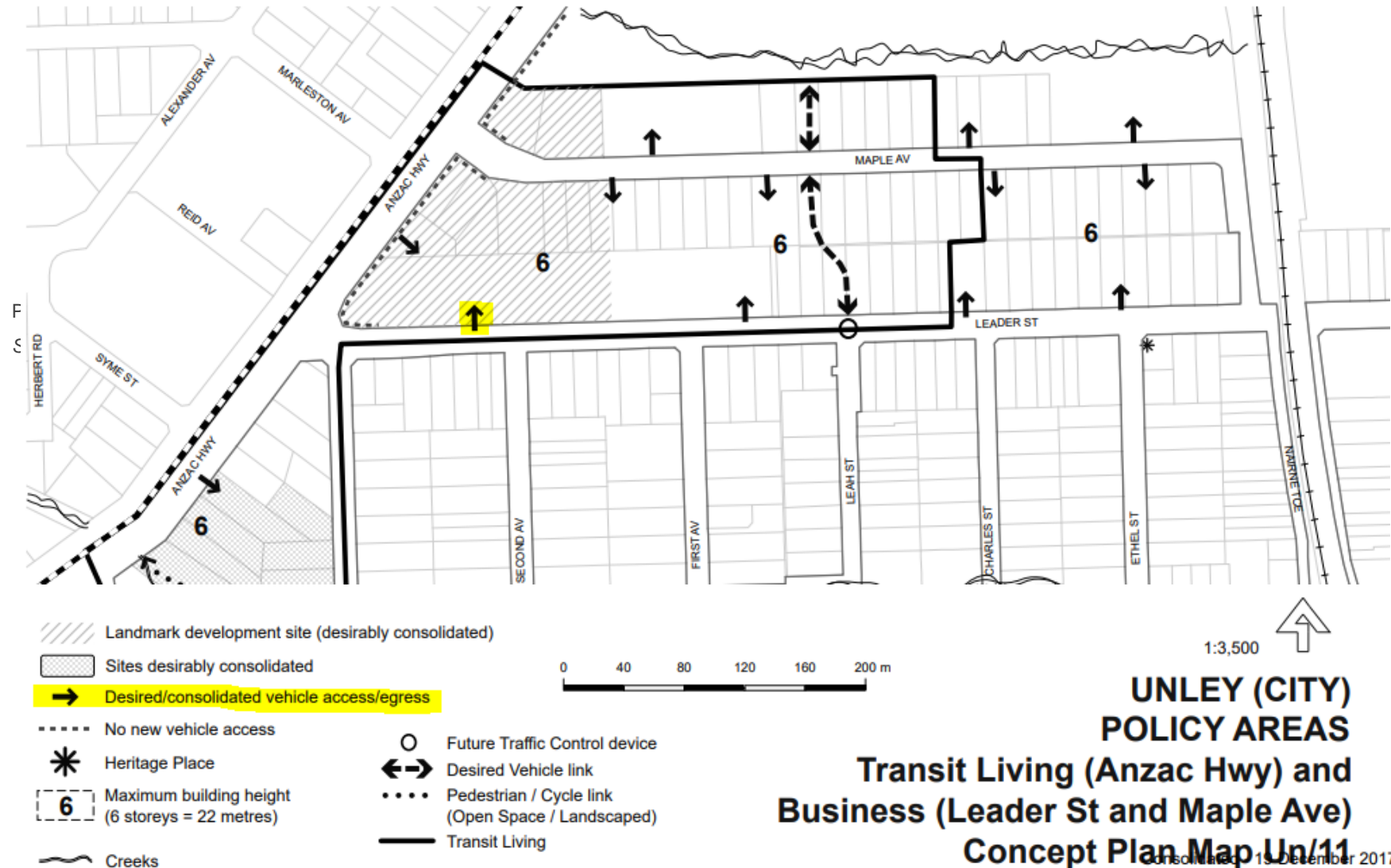




Table 3 – Response to City of Unley proposed Permit Conditions

City of Unley proposed Condition	Response
1. Business trading hours be limited to: - 7:00am to 9:00pm Monday to Saturday - 10:00am to 5:00pm Sunday.	Subject to any changes to legislation on shop trading hours by the new Liberal State Government, Kaufland anticipates operating hours of 12am – 9pm on weekdays, Saturday 12am-5pm, and Sunday 11am – 5pm.
2. The playground adjacent to Maple Avenue be relocated in front of the ground level tenancy and outdoor dining area, and the area adjacent to Maple Avenue be substantially landscaped, including with numerous medium to large trees.	It is proposed that revised plans, to be submitted at the RFI response stage, will relocate the playground and amend to a 'nature play' style area.  Additional landscaping is to be provided within the front site setback.
3. The building setback to Maple Avenue be increased to 3.0 metres.	The proposed setback to Maple Avenue is considered an appropriate response to this interface, providing adequate space for landscaping opportunities and should not be increased.
4. The areas below the main building to ground level along Leader Street and Maple Avenue and the rear open carpark areas be screened and/or fenced to obscure car parking areas and control pedestrian access to dedicated safe points and protect landscaping.	It is noted that the landscaping design is being revised in its entirety to align with the landscape principles sought by Unley Council and provide an improved landscaping outcome across the site, including within the front setback.  In addition, an improved screening design is proposed to limit the visibility/impact of undercroft car park.  The retail development will comprise a total of 449 carparks, of that 449, 191 will be screened.



City of Unley proposed Condition	Response
5. The rear laneway only be used as necessary by emergency vehicles, and other general or service vehicles be prevented from through movement to Leader Street.	Noted. The RFI plans will be updated to clearly indicate the installation of a boom gate on the rear laneway.
6. Traffic modelling, management and control, particularly Leader Street access/egress and Maple Avenue service/loading areas, and car park layout, cycling and pedestrian movement be reviewed and addressed in accord with detailed assessment by InfraPlan.	The relevant traffic & car parking concerns are currently being reviewed by WGA Traffic and will be applied where appropriate in the RFI response.
7. Car-parking on-site be freely available to staff and visitors for the duration of the business trading hours.	Free parking for staff can be supported, however the proposed timed car parking for visitors is standard at shopping centres and an appropriate outcome to manage car parking on the site.
8. Waste service vehicles only visit the site between: - 7.00am and 7.00pm Monday to Saturday (excluding public holidays) - 9:00am to 5:00pm Sunday (or public holiday).	We are unable to support the restriction of waste vehicle servicing hours.
9. Waste and service vehicles be limited to maximum of 8.0 metres or 16.0 metres in length for western recycling pick-up area or eastern main service and loading area in Maple Avenue respectively, and enter and exit areas in a forward direction.	Noted. This is currently being reviewed by WGA Traffic and will be applied where appropriate in the RFI response.



City of Unley proposed Condition	Response
10. The storm-water management concerns be addressed in a final Storm-water Management Plan to Council's satisfaction before issuing of Development Approval.	The Stormwater Management Plan is to be updated to amend any inconsistencies as part of the RFI response.
11. Street trees are not to be removed, other than in Maple Avenue subject to provision of additional replacements in accord with Council requirements.	It is proposed that the vehicle access point to Anzac Highway will be redesigned to ensure that removal of trees on Anzac Hwy will not be required.
12. In accord with expert arboricultural advice and Council requirements, all existing street trees be adequately protected during construction, eg site works, excavations driveways and buildings, and from being impacted as a result of the proposed final development.	Noted. It is proposed that the vehicle access point to Anzac Highway will be redesigned to ensure that removal of any trees on Anzac Hwy will not be required. Appropriate measures will be implemented during the construction stage to ensure protection of existing trees.
13. Proposed landscaping be reviewed to use appropriate locally suitable species and the extent of area and trees, shade canopy and screening increased along Anzac Highway frontage, Maple Avenue, rear laneway and in car parking areas by reduction of excess number of car parking spaces.	It is noted that the landscaping design is being revised in its entirety to align with the landscape principles sought by Unley Council and provide an improved landscaping outcome across the site, including within the front setback. The selected species included in the landscape plan will conform to the requirements of Unley City Council.  Car parking numbers within the front setback are not proposed to be reduced.
14. External lighting be provided in accord with Lighting Plan, including requirements for curfew hours	Further to discussions and the Town Planning conditions provided for this project, lighting consultant NDY advise that the design and Lighting Plan submitted as part of the Town Planning



City of Unley proposed Condition	Response
between 11:00pm and 6:00am, and that unreasonable overspill to adjacent residential properties be avoided.	submission included compliance to AS4282, which includes limitations to spill light to neighbouring properties.  NDY advise that the final lighting design for the project will need to comply with the requirements set forth in NDYs External Lighting Design advice dated 23rd April 2018.
15. A Construction Management Plan be resolved with Council to address the requirements and operations during construction to manage traffic, parking, pedestrian and amenity issues, before issuing of Development Approval.	It is requested that any requirement for a detailed CMP be requested as a Condition of any permit issued for the development.







WALLBRIDGE GILBERT  
AZTEC

Kaufland Australia  
Level 2 / 100 Dorcas Street  
SOUTH MELBOURNE VIC 3205

Attention: Sam Russell-McLeod

11<sup>th</sup> July 2018

Job No. ADL171147

Dear Sam

## **KAUFLAND SUPERMARKET – FORESTVILLE PRE-LODGE MENT SUBMISSION, TRAFFIC RELATED RESPONSES**

We understand Kaufland Australia has received a number of submissions from stakeholders related to the pre-lodgement submission for a proposed supermarket at 10 Anzac Highway, Forestville. To assist with the Development Application WGA is able to provide the following responses to all outstanding traffic related queries:

### **DPTI RESPONSES (Email response received 5<sup>th</sup> June 2018)**

1. *DPTI remains unconvinced that 10% of the total site traffic would access the site via the eastern approach from Maple Avenue. Entering traffic on this route is likely to be extremely low as there is no residential development to the north or east of the site along Maple Avenue, and westbound traffic on Leader Street is not permitted to turn right into Maple Avenue. It is nonetheless acknowledged that a small portion of exiting traffic may leave the site via this route to avoid queues at the Leader Street access. The traffic attributed to the eastern section of Maple Avenue should redistribute to the Leader Street access in the absolute majority.*

We have undertaken a sensitivity analysis and transferred all the Maple Avenue (E) traffic to the southern access along Leader Street. The average intersection delay increases from 6.3 seconds to 6.6 seconds. The highest delay movement (right turn out) increases from 29.1 seconds to 31.8 seconds. This level of delay is still within acceptable levels.

2. *DPTI has cross-referenced the traffic volumes in the SIDRA file with SCATS data and found that the hour used for peak Saturday traffic appears to be 11:00 – 12:00 on 21 October 2017, albeit that 334 vehicles appear to be missing from the right turn out of Leader Street. Please clarify. Additionally, DPTI notes that the WGA response letter indicates that the site inspection report (Appendix B) was used to inform distributions and volumes. None of the surveys undertaken for this report were at an equivalent time period on a Saturday morning and may not provide a reliable basis for the traffic distributions and volumes.*

There is erroneous data for time periods 11:45 – 11:55 with Detector 9 reporting volumes 2000% higher than the adjacent 5-minute periods. We replaced these two periods with the average 5-minute demand for surrounding peak hour. Except for Maple Avenue the SCATS data forms the basis for all volumes used within this analysis with demand proportioned based on observed movements. We agree that the traffic distributions may vary marginally for the Saturday peak period given the reduced delay on the adjacent arterial network but these volume changes are within the range of normal stochastic variation. To test this, we have undertaken further sensitivity analysis and relocated all traffic to the junction of Anzac Highway and Leader Street with average delay increasing from 14.2 seconds to 20.9 seconds and Level of Service (LOS) B to C.

60 Wyatt Street  
Adelaide SA 5000  
WGASA Pty Ltd  
ABN 97 617 437 724

ADELAIDE    DARWIN    MELBOURNE    PERTH    WHYALLA

3. *SIDRA Modelling*

*It is understood that the junction geometry has been picked up from aerial imagery (nearmap) and site observations. However, the full use of bay capacity does not appear to be reflected in the SIDRA outputs. Please review and clarify.*

Lane lengths used within the SIDRA Analysis have been measure to when bay widths are 2.0m.

*Measured saturation flows are acceptable for assessment purposes and it is noted that these have been used to modify the SIDRA models. It is noted that WGA were unable to calibrate the models using the phase splits from SCATS. The main issue here is that Phase C must assume that the pedestrian phase P2 is activated on every occasion during all analysis periods. The P2 walk and clearance time is 25 seconds and there is a 5 seconds intergreen period. In all models Phase C cannot be permitted to be less than the value of 30 seconds (25% of 120 second cycle time).*

*The lane utilisation produced by SIDRA does not reflect the actual use of the lanes:*

*Leader Street right lane of two right turn out lanes varies between 51% on Thursday 16% on Saturday [SIDRA 100% and 100%]*

*Anzac Highway NE through approach left lane approximately 70% [SIDRA 70%]*

*Anzac Highway SW through approach left lane approximately 40% [SIDRA 88%]*

We have undertaken further analysis utilising provided phase times, observed saturation flows and provided lane utilisation factors. The outputs do not represent observations with queues along Anzac Highway (NE) approach extending past Greenhill Road. Existing Degree of Saturation (DOS) is also above 1.0 which also provides an indication as to these parameters providing incorrect outputs as the existing DOS utilising SCATS volumes cannot exceed 1.0 or the real capacity of the junction.

4. *It is acknowledged that existing volumes for Maple Street are produced in Appendix B. The times of survey given for the Leader Street / Anzac Highway junction are:*

*Monday 16/10/17 17:00 – 18:00*

*Tuesday 17/10/17 08:00 – 0900*

*Wednesday 10/05/18 17:00 – 18:00*

*Please clarify whether the Anzac Highway / Maple Avenue junction was surveyed for the same time period as the Anzac Highway / Leader Street junction.*

Yes, Maple Street observation were undertaken during the same time periods. This is now updated within the revised traffic report.

5. *DPTI recognises that the operation of Anzac Highway / Maple Street intersection is somewhat difficult to analyse because although it is a 'give-way' junction its analysis cannot be based on gap acceptance. In order to compensate for expected behavioural issues at the junction (i.e. lower flow from Anzac Highway due to queues from the Anzac Highway / Leader Street junction blocking the Maple Avenue junction), all traffic turning right into Maple Avenue from the south west should be reassigned to the Leader Street intersection. This also reflects the anticipated driver behaviour (motorists using the first available opportunity to turn right towards the site).*

6. *WGA identify the channelised right turn lane into Leader Street will overflow into the right hand through lane of Anzac Highway in the PM peak hour following addition of development volumes (current queues are contained within the available storage). The overflow of vehicles into the right hand through lane is likely to increase once the alterations to traffic distributions identified above are applied to the Anzac Highway / Leader Street SIDRA model. Whilst WGA's rationale is noted with regard to the potential for a certain amount of this traffic to be rat-running movements between Anzac Highway and Goodwood Road, the department does not agree that this justifies acceptance of the lane overflowing into the through traffic. DPTI considers that queues of right*



*turning traffic need to be contained within a channelised turn lane post-development (i.e. status quo maintained). This is likely to require alterations to the configuration of the Anzac Highway / Leader Street junction.*

In view of the above DPTI concerns a meeting was held between DPTI, Kaufland and WGA representatives on the 26<sup>th</sup> June 2018 to discuss these outstanding issues, particularly with respect to discussion of possible improvements in capacity to the junction of Anzac Highway and Leader Street. WGA discussed one proposal to extend the right turn lane. DPTI agreed that it would be worth exploring. Since this meeting WGA have undertaken further concept design and consider that extending the lane by another 50m whilst keeping the impact to a maximum of two trees. A concept of this proposal is included within Attachment A. Extending any further would likely see at least a further three trees requiring removal. Analysis has shown that implementing this extension would maintain overall intersection LOS to a similar level to existing with the exception of the right turn movement into Leader Street. This right turn lane extension enables DPTI to provide additional green time to the critical southbound Anzac Highway movement during the PM peak period which in turn increases delay to the right turn movement, however, these queues would now be maintained within the proposed extended right turn lane and not extend into the adjacent through lane which is one of DPTI main concerns.

## **PUBLIC RESPONSES**

WGA have reviewed all the provided formal and informal public submissions and note that there are common concerns throughout. Therefore, rather than independently reply to each submission we propose to respond to address all the common concerns together. The main concerns with the proposed development including the references to the specific submissions include:

- *Increase in traffic – including Leah Street*
  - *Ref – V and R Reschke, S Fraser, C Heptinstall, P Flowers, M and E Walden, L Thomson, D Tranter, C and A Robey, B Allen, A Tran, A Sperring, H Le, J Stinson MP, K Treloar*

We appreciate the existing concerns residents have particularly with respect to Leah St as this is a very heavily trafficked local collector road linking Leader Street to Daws Road, St Marys some 5 km to the south. WGA have undertaken site observations of Leah Street during both peak periods and have observed the delays are significantly higher during the AM peak periods due to traffic heading towards the CBD which is also confirmed from feedback within the submissions. Please note that from a traffic generation and analysis perspective we are not required to undertake assessment for the AM peak period. The accepted guide to development rates, RTA Guide to Traffic Generating Developments does not provide a rate for the AM peak period. This is due to the fact that trips generated by a development of this type are low during the AM peak period and are not expected to impact the surrounding network as they are primarily employee trips only.

Regarding the PM peak period. Whilst we have observed high traffic levels, the delays are not as significant as the AM peak period as the traffic is either turning left or right into Leah St or continuing through instead of right or left out which is subject to higher delays as they are required to give way (AM peak condition). We note many informal submissions from Leah Street residents have concerns re the lack of wider traffic study. There is no requirement from DPTI to undertake a wider network analysis, however, at the request of Council we have extended our modelling to include Leah Street where no significant or additional delay was observed at the junction. To put the additional traffic into perspective with respect to the PM demand we expect there will be an additional 95 veh/hour heading east along Leader Street towards Leah St. Observed counts show a 65/35 ratio of right turning to through traffic into Leah Street therefore the total additional traffic we expect along Leah Street is approximately 60 veh/hr or an additional 1 vehicle per minute which is well within the range of stochastic variation of traffic for a peak hour period.

- *Increase in traffic – concerns re potential for increase in heavy vehicles volumes along Leader Street*
  - *Ref – L Kelly, M and E Walden, D Tranter, C and A Robey, B Allen, J Stinson MP*

All HV and service vehicle access is now proposed to be on Maple Street via Anzac Highway.

- *Leader Street Access – performance and operation*
  - *Ref – V and R Reschke, L Kelly, P Flowers, A Tran, H Le, T Pursey, J Stinson MP, K Treloar*

Concerns have been raised with respect to the operation of Kaufland's secondary access on Leader Street. They typically include concerns about the performance of the junction and the potential for vehicles waiting to enter the site to hold up through traffic along Leader Street, particularly after Councils recent installation of WSUD protuberances which have reduced capacity at the adjacent signalised intersection and along the length of Leader Street. In response to these concerns the proposed access has been located far enough along Leader Street to ensure that the queues from Anzac Highway do not extend past the access. In addition, Kaufland proposes dual in and out lanes and a short channelised right turn lane into the site to minimise impact to the adjacent network as much as possible. A concept of this proposal is included within Attachment B. Based on these improvements WGA have modelled the average delay at the junction to be 6.6 seconds with the worst-case delay of 30 seconds for only those exiting the site.

- *Parking – either too much or not enough to ensure to no spill over to on street*
  - *Ref - S Fraser, C Heptinstall, L Thomson, D Tranter, A Day, J Stinson MP*

There are two main concerns with respect to parking. The concern that the number of car parks provided infers that Kaufland are aiming to target a much wider catchment and the second is that there are not enough parks and there will be spill over onto local streets which are already congested with parking of employees from Ashford Hospital.

We have observed on site these parking issues and this is one of the main reasons for recommending more than the minimum number of parks to ensure there is no customer parking on adjacent local streets even during Christmas peak periods. The installation of boom gates is to ensure that parking is prioritised for customers and staff and not service the excess from Ashford Hospital.

#### **City of Unley Responses (infraPlan comments on Traffic Impact Assessment Report Rev E)**

**R1** *Function of Leader St - Leader Street is a major east-west cycling route.*

*Action - Ensure that design at Leader Street Access does not compromise cyclist safety or block the bicycle lane.*

The proposed access at Leader Street will now incorporate dual in and out lanes with barrier gates positioned to ensure queued vehicles do not impact both cyclists and traffic along Leader Street.

**R2** *Car Parking Rates - Do not agree with the use of parking demand as 5.5 spaces/100m<sup>2</sup>. The Unley Development Plan vehicle parking rates table for non-residential development (Urban Corridor Zone) is as follows: 3 spaces/100m<sup>2</sup> GFA (desirable minimum) 5 spaces/100m<sup>2</sup> GFA (desirable maximum) Therefore, the desirable maximum no of spaces is 355, not 374.*

*Action - Modify report to reflect Development Plan car parking rates*

WGA have updated report and calculations.

**R3** *Accessible Parking Rates - Agree to use BCA rates for Accessible Parking (1/50 spaces) instead of Development Plan (max. 5 spaces). The BCA rate results in a higher number of accessible parking.*

*Action – None*

Noted

**R4** *Bicycle Parking Provision Rates have been updated in 2017 Austroads Cycling Aspects. Current rates for shops more than 1000m<sup>2</sup> and offices are: Shop: Employees = 1/300m<sup>2</sup>, Visitor/shopper = 1/500m<sup>2</sup>. Office: Employee = 1/200m<sup>2</sup>, Visitor = 1/500m<sup>2</sup>"*

*Action - Update Bicycle Parking requirement and ensure that this number are provided. Employee bike parking to be undercover, safe and secure.*

We have used the applicable bicycle rates within the Unley DP. These should take precedence above Austroads.

- R5** *Car Parking Provision Rates The proposal includes 487 spaces, which is more than the desired maximum requirement of the Development Plan (by 132 spaces, when calculated with DP rates, refer item R2). An excess of parking bays is acceptable given the land use and that additional GFLA is proposed in the future. However, sustainable forms of travel should also be encouraged, e.g. bicycle parking, high quality pathways, and links to bus stops.*

*Action – Refer to Item R6*

Noted.

- R6** *Bicycle Parking Insufficient bicycle parking is currently shown on plan – this is noted in report.*

*Action - Ensure additional bike parking is provided and is in a safe, secure location.*

Additional bicycle parking, both secure and casual has now been included within the current proposal.

- R7** *"Traffic Generation Rate*

*A 20% discount has been applied as a 'passing traffic' discount. While this may be true for the road network, this causes a false decrease of 20% in traffic utilising the accessways. These lowered rates are applied throughout investigations." Review discount provided and reflect likely accessway volumes*

Noted and has been addressed in current modelling and report

- R8** *Traffic Distribution Profile*

*Proportions of traffic have been applied to access locations. While this is an estimation, the Southern Access seems underrepresented in the number of trips handling 65% in the weekday peak and 75% in the weekend peak.*

*While difficult to put facts behind, there are some movements that are not intuitive such as Maple Avenue east of the northern access carrying 10% of trips, yet being a longer trip for most users.*

*Action - For noting .*

Repeat customers will find faster routes in and out of the development. We expect these customers to use the Maple Street access as it will be underutilised and provide almost zero delay.

- R9** *SIDRA modelling has not been provided for review.*

*Further understanding required as to model calibration. For example, observations during the Weekday AM registered a queue of 210m for a right turn from Leader Street onto Anzac Highway. SIDRA outputs in table 7 suggests a queue of 45m maximum during the same time.*

*This is important since the proposed accessway onto Leader Street is approximately 160m from the signalised intersection with Anzac Hwy meaning that traffic is queued across the accessway.*

*Additionally, it is unclear whether future volumes have been modelled which are likely to worsen results.*

*Action - Provide commentary on signalised intersection impact on proposed accessway and provide model for review.*

The queue length of 210m noted above is for Weekday AM and Table 7 refers to Weekend SAT AM.



Future modelling has not been undertaken nor required by DPTI.

- R10 AIMSUN modelling has been undertaken but no outputs provided to indicate probable increase of traffic on Council roads such as Leah Street or First, Second and Third Avenue.*

*Understanding impacts to the local road network was the primary purpose of Council requesting AIMSUN modelling.*

*Action - Generate likely impacts to the local road network using the developed AIMSUN scenario.*

It was agreed to include the junction with Leah St within the AIMSUN Modelling. This was included and the network delay statistics included within the AIMSUN Summary Report. No specific reporting on Leah Street operation was included as no change to performance were observed noting the delays at Leah Street are primarily confined to the AM peak period and outside the scope of our analysis. As for First, Second and Third Avenue their permeability and capacity is so limited any increase in traffic demand would be negligible.

- R11 Development Access and Layout.*

*The main circulation roadway between Maple Avenue and Leader Street is not best practice design. AS2890.1 Clause 2.3.1 (c) states: Arrangements of internal roadways to avoid, as far as practicable, conflicts between intersecting streams of circulating traffic.*

*T-junctions are preferred over 4-way intersections for safety and clear right-of-way.*

*The eastern laneway could be used as a cut-through route to avoid the delay at the Leader St signals and increase traffic in the local street network. Through traffic via this lane is not supported.*

*Action - Consider re-designing the internal circulation roadway to remove 4-way intersections and reduce potential cut-through traffic.*

*Provide discussion on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route.*

The direct link between access points is now realigned to address the cut through issue.

The eastern laneway is to be controller with boom gates, therefore no connectivity is provided to the public.

- R12 Parking Bay and aisle design*

*Report notes that some bays are 4800 long and therefore 600mm overhang is required (e.g., no landscaping). However, the carpark screening may prevent overhang*

*Action - Ensure 600mm (min) clear space is provided to allow vehicle overhang where bays are 4800 long.*

Noted.

- R13 Designated Accessible Parking Bays*

*Report notes that the numbers are appropriate, but the spaces should be more appropriately located - next to entrances.*

*Agree - ensure Accessible Car parks are as close as possible to building entries.*

Noted.

- R14 Entry and Exit Points.*

*The Report discusses the '3' access points (northern, southern and western), but does not discuss in detail, the entry and exit point at Leader Street (eastern side of boundary).*

*The northern and southern entry/exit access points are aligned to form a straight access through road. This may be used as a short-cut to avoid the signals/delay at Leader Street and increase traffic in the local street network – this is not supported.*

*Action - Provide details on the intended use of the eastern laneway. Provide a bollard or similar to prohibit vehicles from using this as a cut-through route. Offset the northern and southern entry/exit points to reduce the likelihood of through traffic.*

Refer R11 response

#### **R15 Anzac Highway**

*A raised concrete separator is proposed at the median opening in Anzac Highway opposite the proposed access, to 'eliminate the risk of motorists undertaking a potentially hazardous right turn manoeuvre into or out of the site'. This will require liaison with DPTI as the proposal may not be in line with DPTI's objective of these median openings.*

*Action - Liaison with DPTI required.*

The layout has been developed in coordination with DPTI and Ashford Hospital and they are supportive.

#### **R16 Heavy Vehicle Access**

*Although Maple Avenue currently provides access to light industrial land uses, the site to the north of Maple Avenue is within the same zone as the subject site. This could become future residential, mixed use. The loading docks on this road frontage need to consider future adjacent use. Will there be gates at the delivery entries?*

*The laneway along the eastern boundary of the site and access point at Leader Street is not discussed in detail. It does not state the number of heavy vehicles that may exit via Leader Street local area. The report notes that this is an exit only, but this is not entirely clear, and the roadway is 6m wide which indicates 2-way. The encouragement of heavy vehicles into the local area is not supported.*

*Will on-street parking on Maple Avenue be banned to allow for heavy vehicle access?*

*The driveway crossovers are indicated at around 12-15m in width which is not conducive to pedestrian movements. Need for this width should be demonstrated (i.e. with turning movements) or the crossover reduced to the required width.*

*The development is proposed to be available to receive deliveries or be services 24 hours a day.*

*Action - Require more information on the controls at the delivery areas off Maple St. Require more information on the use and intent of the eastern lane and the vehicles exiting to Leader St. Confirm the proposed status of the on-street parking in Maple Avenue. Demonstrate the need for proposed crossover widths or reduce to required size (loading & waste)*

No controls are proposed. Required width is shown within Appendix F Vehicle Turnpaths of the Traffic Impact Assessment Report

#### **R17 Emergency Vehicle Access**

*Report notes that Additional clearance width required. Is Emergency vehicle access also via eastern lane?*

*Action - Ensure that clearance is provided. Confirm if Emergency Vehicles also use eastern lane.*

The eastern access is required to and is available to Emergency Vehicles and the access into the car park has been widened to accommodate a typical fire appliance.

**R18 Pedestrian Access**

*The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. There is a north-south ped walkway out to the mid-block of Leader Street, but does not connect to a road crossing facility here. There are no crossing facilities in the car park to assist crossing of the circulation roadways east of the lifts/travelators. The details of the internal pedestrian crossing facilities are not shown – but we assume are zebra crossings.*

*Action - Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.*

*Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway.*

*Add pedestrian crossing facilities across circulation roadways within car park.*

*Confirm type of internal pedestrian crossing facilities proposed.*

Pedestrian path is proposed to be realigned or relocated. Any additional pedestrian refuges will need to be located in cooperation with City of Unley. These plans are currently preliminary therefore we propose that this is coordinated during detailed design phase.

Given the size of the parking facility there are no clear pedestrian desire lines. Therefore, any facility i.e. pedestrian path down the middle would be underutilised and potentially create other issues. To improve safety the design includes wider than standard aisles and speed humps will be installed for long east - west aisles to reduce speed within the car park.

**City of Unley Responses (infraPlan comments on Pedestrian Movement Report Rev B)**

- P1** *It has been assumed that the site is in a low density walking zone, using the existing land use. However, zoning of the site to the north of Maple Avenue and potentially the remainder of the development site will increase residential land use and therefore pedestrian trips.*

*Consideration of adjacent zoning is required to predict pedestrian trips.*

Understood. However, we cannot undertake analysis on what may happen to adjacent land uses only the area as it currently.

- P2** *It is stated that walking trips from/to bus stops and train stations will be minimal given the suburban nature of the site. We disagree with this statement and consider that sustainable transport is an increasing, equitable form of transport which is encouraged by Council. The public transport stops are located within close proximity of the site, and given the flagship nature of the store assume that it will attract various transport users.*

*Action - Increase trip assumptions from public transport stops*

Noted. We can update our report; however, it does not impact any component of the development as it is currently stands.

- P3** *It is considered that pedestrian trips from Leader Street are under-represented. In addition to local residents, and public transport stops, Marino Rocks Greenway runs along the rail line. This is a very popular pedestrian and cycling route and potential origin for pedestrian or cycling trips to the subject site.*

*Increase trip assumptions to/from Leader St (refer also P8)*

See previous response.

- P4** *It is assumed that all pedestrians from the east (Leader Street) will use the Leader Street footpath until they are adjacent the building entry. This would also require that pedestrians cross the busy driveway entry on Leader Street. In reality, pedestrians are more likely to take the shortest route and cut diagonally through the car park. There is a lack of designated paths and roadway crossing*



facilities within the car park east of the lifts/travelators to facilitate this movement. In addition, the eastern car park has a significantly high number of pedestrian trips, with designated paths and crossings.

*Action - Provide additional paths and internal road crossings through the eastern car park (refer also P7)*

We do not agree. There will be bioswales, parked cars and additional obstructions. The revised landscaping and architectural design will provide delineation and guidance to pedestrians to remain on existing footpaths until designated safe crossings.

- P5 There is a north-south ped walkway mid-block of Leader Street, but does not connect to a road crossing facility here.*

*Action - Include a pedestrian refuge or similar crossing facility at Leader St opposite the walkway to facilitate crossing.*

Noted. Propose to review with Council at subsequent design stage.

- P6 The report recommends replacing the wombat crossing with a pedestrian refuge. This proposal changes priority and requires pedestrians to give way to vehicles, whilst the Wombat crossing required that vehicles yield to pedestrians.*

*Action - Pedestrian priority is preferred, and a Wombat also facilitates slower traffic speed. However, a refuge is acceptable providing that it is of sufficient width to facilitate a person wheeling a pram (2.5m wide min.)*

The crossing has now been modified from the previous revision with the barrier gate control moved inside the building the separate this from the zebra crossing to improve safety.

- P7 Agree with additional pedestrian crossings and paths recommended by WGA in report*

*Action - n/a*

Noted.

- P8 Disagree that the proposed zebra crossing to Leader Street be removed. It is our opinion that pedestrian trips will be higher at this location (refer also P3)*

*Retain proposed Zebra Crossing that links to Leader St.*

Noted. Zebra crossing is to be retained.

- P9 The pedestrian access path to the Leader St signals does not align to the existing kerb ramp location. We assume this will be realigned as part of the detail design.*

*Action - Realign pedestrian path to line up with existing kerb ramp at Leader Street signals.*

Addressed in current issue.

- P10 Pedestrian Movement G facilitates movement to and from the bus stop on Anzac Highway. We disagree that the zebra crossing be removed.*

*Action - Retain proposed Zebra Crossing that links to the Anzac Highway bus stop.*

Noted. Zebra crossing is to be retained.

- P11 The signalised intersection at Anzac Highway and Leader Street does not have a crosswalk on the northeast leg. Therefore, it is considerably anti- directional and adds to delay for pedestrians from Anzac Highway northwest to use this crosswalk. Pedestrians will be more likely to cross Anzac Highway opposite the site without a safe crossing facility.*

*Action - Liaise with DPTI regarding the provision of a crosswalk on the northeast leg of the intersection.*

*Desire lines should be explored along the Anzac Highway frontage and capture the demand from Marleston Avenue for example where there is a clear desire line.*

We expect DPTI would not consider a pedestrian crossing on the northern side as this would create significant additional delay to all traffic along Anzac Hwy and Leader Street due to the requirement to add an additional 30 second phase to allow pedestrians to cross. Only the right turn into and left turn out from Leader Street could run concurrently.

- P12 Consideration of a pedestrian walkthrough (geometry permitting) at Leader street is recommended in the report.*

*It is recommended to assess the road geometry and provide a crossing facility at this location (refuge preferred).*

This will require the removal of some on street parking to implement. Propose to review with City of Unley during detailed design phase.

- C1 The impact to on-street car parking is not shown nor discussed (as recommended in Austroads Checklist)*

*Action - Provide detail on-street car parking status on Maple Avenue and Leader Street*

There is a high demand for on-street parking within this area. This is the primary reason for the preference to maintain higher than minimum parking rates.

- C2 Planning zones in the vicinity are not discussed (as recommended in Austroads Checklist)*

*To be included for completeness*

Noted. Can add to report if significant issue but not required by DPTI.

- C3 Non-car transport to/from site is not discussed. For example, the Marino Rocks Greenway is close by, which provides a high quality off-road cycling link to the development and encourages cycling as transport.*

*To be included in report*

Noted. Can add to report if significant issue but not required by DPTI.

- C4 Traffic crashes at potentially impacted locations and other known traffic safety or operational problems, and any proposals to address them, have not been documented (as recommended in Austroads Checklist).*

*Action - Document at Maple/Anzac and Leader/Access point*

Noted. Can add to report if significant issue but not required by DPTI.

- C5 There is no discussion of a speed limit to be applied in the car park.*

*While crossing locations for pedestrians are shown and appear to be either Zebra or Wombat Crossings, these are not specified nor is regulatory signage associated with them.*

*Action - Further information to be provided on speed limit and pedestrian crossing type*

In accordance with Table 2.1 AS1742.4 a 20km/h speed limit is proposed.

- C6 While a SIDRA model has been run, there has been no investigation into the suitability of intersection type. A basic turn treatment is currently shown. Austroads Guidelines along with DPTI's The Code provide guidance on appropriate treatments.*

*Based on the traffic generation estimates and volume summaries in the report, the Leader Street access would warrant traffic signals in the PM peak. This includes the 20% discount applied to the accessway which is not representative of the probable outcome as discussed in R7.*

*While this may not be an ideal solution in consideration of proximity to the Anzac Hwy Leader St intersection, it demonstrates that additional consideration to the interaction of the proposed accessway with Leader Street is required*

*Action - Major Concern*

*Leader Street access warrants traffic signals – further investigation required around accessway.*

Appears to be an incorrect interpretation as to requirements of 'The Code'. The numerical guideline for traffic signal warrants is only a tool to determine when detailed analysis (which has been undertaken) of the intersection should be completed using modelling programs. It does not state that signals must be installed. In this situation signals would reduce performance and potentially increase crashes due to its close proximity to the existing signalised junction. This has been discussed with DPTI Traffic and they are against any consideration of signals at this location. We propose to include a right turn storage lane on Leader Street to allow vehicles to pass any stored vehicles turning into the development and increase the capacity of the access by providing dual in and out lanes (included within Attachment A).

- D1 Parking will be predominantly under or at the rear of buildings and, where possible, vehicle access will be from the rear or side rather than the main road.*

*Action - The proposed layout does not comply with the DP requirements: All car parks are at ground level and at the front and side of the buildings. Vehicle access is proposed from all road frontages (Anzac Hwy, Maple Avenue and Leader Street).*

Unable to provide comment of DP issues however the access locations are in line with the locations shown on Concept Plan Map Un/11. Also included as Figure 1 of the infraPlan report.

- D2 No vehicle parking is to be located or made visible from the Anzac Highway or Leader Street frontages, except where parking is required for people with a disability.*

*Access to loading areas and parking for service vehicles should not occur from Anzac Highway and Leader Street for those sites located north of Leader Street*

*Action - The proposed layout does not comply with the DP requirements, refer above, and;*

*The extent of the car park screening is not detailed. None of the spaces that are visible from Anzac Hwy or Leader St are shown as being for people with a disability.*

*The loading areas are accessed from Maple Avenue but also connects directly to Leader Street.*

Whilst we understand Council concerns with screening parking consideration still needs to be given that safe areas are created and that CPTED principles are maintained rather than focussing purely on the aesthetic.

- D3 Restricted and consolidated vehicle access points will be available, and access will be mainly from secondary road frontages, limited rear access lanes and through-site integrated and shared rights-of-way.*

*Action - With reference to Figure 1, vehicle access is approximately where shown as desired. Except for the laneway and access points along the eastern most boundary.*

The lane way and connectivity in this location is an emergency vehicle requirement. As discussed previously this will be controlled access and not open to the public.

- D4 Controlled pedestrian and cycle crossing points will be focused and consolidated at key locations.*

*Action - Not shown on drawings.*



This extract appears to have been taken out of context. We believe this statement relates to urban corridor roads and the need to consolidate crossings to not impact major metropolitan transport movements. For this project it is focussed at the signals of Anzac Highway and Leader Street. It is not applicable to collector and secondary roads such as Leader Street.

- D5 Development design and function will be people orientated with safe and convenient accessibility to and through buildings from roads and parking*

*Action - There are insufficient designated walkways proposed through the car park.*

Refer R18 Response

- D6 Parking areas will be consolidated and shared and screened from public view. Access and parking are to be sited and designed to minimise negative impacts on adjoining residential areas, including appropriate separation and screen and buffer landscaping*

*Action - Refer Items 1 and 2.*

Refer D2 Response

- D7 Road treatments are to be provided at the interface of the zone that correspond with the likely associated uses and discourage non-related traffic in residential streets.*

*Action - Road treatments are not shown. Laneway that links Maple Avenue to Leader Street may encourage through traffic to Leader Street.*

Refer current layout. Additional information provided and addressed.

- D8 A high amenity pedestrian environment will be established that provides integrated linkages to adjacent centres, public transport stops and public spaces.*

*There is a walkway proposed that connects to Bus Stop 3 on Anzac Highway – however this link is not discussed in report. Type of treatment not clear on drawing – but assume may be Zebra Crossing. Other pedestrian links do not connect to existing pedestrian ramps*

Refer R18 Response

- D9 Cycle routes will be visible, safe, accessible, well signed and connected with key local destinations and the Parkland fringe*

*Action - Not shown.*

We consider this outside the scope of our requirement to undertake traffic impact assessment.

We trust this addresses all the outstanding traffic related concerns arising from the pre-lodgement submission. If required we can make ourselves available to provide further clarifications or at any SCAP or DPTI meetings as required.

Yours faithfully



Jason Zafray  
for

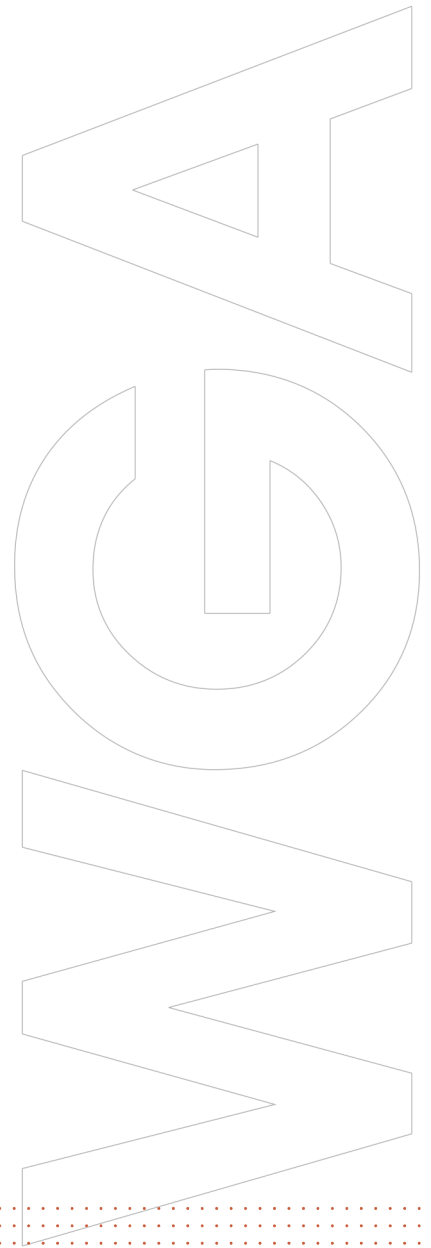
**WALLBRIDGE GILBERT AZTEC**

JZ:nd

---

# ATTACHMENT A

## ANZAC HIGHWAY AND LEADER STREET JUNCTION – PROPOSED UPGRADE








NOTES:

1. DESIGN VEHICLE TURNING PATHS USED WAS:  
AUSTRALIAN STANDARD SRV – 6.4M SMALL RIGID VEHICLE.  
-UTURN SLOT.

LEGEND	
SYMBOL	DESCRIPTION
	TREES TO BE REMOVED

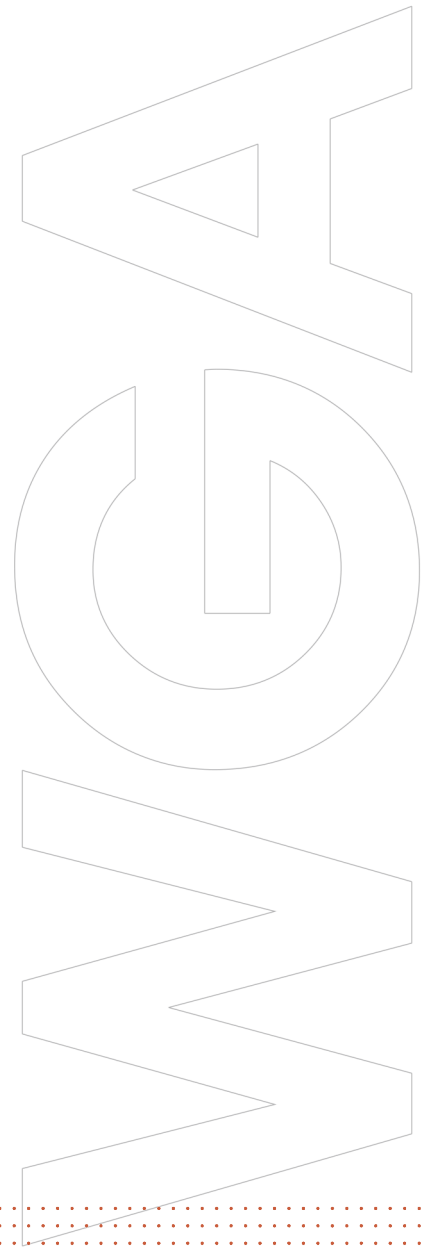
						INDEX SHEET REFERENCE: SHEET		PRELIMINARY ISSUE NOT FOR CONSTRUCTION		<div>WGA WALLBRIDGE GILBERT AZTEC  60 Wyatt Street, Adelaide, SA 5000 Telephone 08 8223 7433 Email <a href="mailto:adelaide@wga.com.au">adelaide@wga.com.au</a></div>		<div> <b>Government of South Australia</b>  Department of Planning Transport and Infrastructure</div>		<div>PROJECT No.: FILE No.: DESIGN No.: SURVEY No.: PROJECT START ROAD RUNNING DISTANCE: PROJECT END ROAD RUNNING DISTANCE:</div>		<div>ROAD No. 001000107 ANAC IGWA UTURN SLOT RIGHT TURN LANE TO LEADER STREET  CONCEPT PLAN</div>						<div>DESIGNED: AW CHECKED: AW ACCEPTED FOR USE: TITLE: DATE:</div>		<div>ACCEPTANCE FORM KNET No.: DRAWING No.: 171147 IN ACCORDANCE WITH DP013 SHEET LATITUDE -34.949967 SHEET LONGITUDE 138.576232</div>		<div>SHEET No.: AMEND No.: SK01 A</div>	
No.	AMENDMENT DESCRIPTION				B	CHECK	ACCEPTANCE	DATE	UNCONTROLLED COPIES PRINTED		1 MILLIMETRES ON ORIGINAL DRAWING		ALL DIMENSIONS ARE IN METRES UNLESS SHOWN OTHERWISE		<div>SCALES: 6 0 3 6 9 12</div>												



---

# ATTACHMENT B

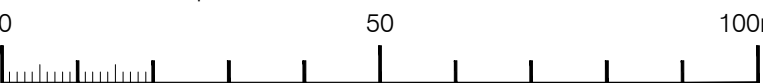
## LEADER STREET– PROPOSED ACCESS





I:\2017\1710-171200\1711-47 - Kaufland\1711-47-SIG.dwg, A (2), 12/2018 7:43 AM, jzrjy

When sheet printed full size, the scale bar is 100mm.



PRELIMINARY ISSUE  
NOT FOR CONSTRUCTION

REV.	DATE	DESCRIPTION	DRAFT	ENG.	CHKD

**WGA**  
WALLBRIDGE GILBERT  
AZTEC

60 Wyatt Street, Adelaide  
South Australia 5000  
Telephone 08 8223 7433  
Email [adelaide@wga.com.au](mailto:adelaide@wga.com.au)

KAUFLAND FORESTVILLE

LEADER STREET ACCESS

A1

Design  
TB

DRAWING NUMBER

Job Number  
ADL171147

Sheet No.  
SK31

Rev.  
A