EG Funds Management

Summer Hill Flour Mill

Traffic and Parking Study: Stage 1

220640

Issue | 21 February 2013

Job number 220640

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Document Verification

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Job title		Summer Hill Flour Mill			**Job number** 220640
Document title		Traffic and Parking Study: Stage 1			**File reference**
Document ref		220640			
Revision	**Date**	**Filename**	Allied Mills Stage 1 Report.docx		
Draft 1	18 Jan 2013	**Description**	Draft 1		
			Prepared by	Checked by	Approved by
		Name	James Turner	Andrew Hulse	Andrew Hulse
		Signature			
Issue	21 Feb 2013	**Filename**	SHFM Stage 1 DA Report.docx		
		Description	Issue		
			Prepared by	Checked by	Approved by
		Name	James Turner	Andrew Hulse	Andrew Hulse
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
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		Signature			
		Filename			
		Description			
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		Name			
		Signature			
				Issue Document Verification with Document	✓

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1 Introduction

EG Funds Management commissioned Arup in 2012 to undertake a traffic and parking study for the Stage 1 development of the Summer Hill Flour Mill (SHFM) site (also known as the Allied Mills site). Stage 1 develops a precinct in the northwest corner of the SHFM site at 2-32 Smith Street Summer Hill.

This report addresses the requirements under the test of adequacy of the Environmental Assessment (EA) for Stage 1 Project Application, submitted on 9 November 2012. This study addresses the key assessment issues for traffic and parking identified from the letter issued by the Department of Planning and Infrastructure (DoPI) on 29 November 2012.

Reference is made to previous transport assessments that were undertaken for SHFM development. These reports were prepared as part of the Concept Plan (MP_0155) and Project Application (MP_0180) under Part 3A. The Director-General of the NSW Department of Planning (DoP) accepted the project under Part 3A of the Environmental Planning and Assessment Act 1979 (EPA Act). These reports were prepared as a Transport Management and Accessibility Plan (TMAP) in 2011 and a Preferred Project Report (PPR) in 2012.

2 Existing Conditions

2.1 Existing Road Network

The site is served by a number of key arterial roads, including:

- Old Canterbury Road
- Parramatta Road
- Railway Terrace / Longport Street / Carlton Crescent

On-site observations of traffic conditions at key intersections surrounding the site were undertaken for the purposes of the previous study. The observations of the existing key intersections surrounding the site are outlined below:

Edward Street / Smith Street / Chapman Street

This priority intersection was observed to operate well during peak periods. Traffic volumes at this intersection were relatively low, with no significant queues or delays observed. The northern leg of the intersection (Chapman Street) is slightly offset, however due to the low traffic volumes no issues were observed

Smith Street / Longport Street / Carlton Crescent

This intersection is a roundabout, with one central circulating lane. Some vehicles were observed to be queued back from the Longport Street / Old Canterbury Road intersection, however this did not affect the operation of the roundabout.

Old Canterbury Road / Edward Street

This priority intersection was observed to be operating efficiently for vehicles travelling east-west along Old Canterbury Road. Vehicles turning right out of Edward Street onto Canterbury Road experienced significant delays of up to three minutes due to the high traffic volumes on Old Canterbury Road. Additionally, sight lines for this movement are poor as the intersection is located at the base of the railway overpass.

2.2 Existing Traffic Volumes

Current daily traffic volumes on selected roads surrounding the Summer Hill Flour Mill precinct is presented in Table 1.

Table 1: Daily Traffic Volumes

Location	Daily Traffic Volume
Longport Street	19,330
Carlton Crescent	7,950
Railway Terrace	17,250
Old Canterbury Road	19,980
Toothill Street	9,490
Smith Street	4,650
Edward Street	2,100

2.2.1 Public Transport

The site is well connected to existing State Transit routes, with a number of public bus routes operating near the Summer Hill Flour Mill site. These are presented in Figure 1.

Figure 1: Bus Network Surrounding Summer Hill Flour Mill site

Source: Sydney Buses (2010)

Route 413 runs directly adjacent to the site along Old Canterbury Road, from Campsie to the City via Ashbury. This bus route stops at the intersection of Edward Street and Old Canterbury Road. Five services are provided in the weekday morning peak hour (8am – 9am).

Additional bus services to local town centres are available within viable walking distance from the site. This includes routes servicing Marrickville, Ashfield and Dulwich Hill.

The precinct is also well located for people wishing to use heavy rail as a mode of transport. Both Summer Hill and Lewisham stations are located approximately 500m from the Summer Hill Flour Mill site. These stations are located on the Inner West Line of the City Rail network some 8km from the Sydney CBD, with four trains travelling to the CBD in peak hours.

2.2.2 Walking and Cycling

Local footpaths provide walking access to key destinations surrounding the site. A pedestrian underpass exists at Lewisham Station (entrance via Victoria Street and Thomas Street) which provides through access across the railway line. There are also footpaths located along Smith Street and Lackey Street providing a suitable walking route to Summer Hill railway station.

The Summer Hill Flour Mill site is located nearby to a number of local cycling routes. An off-road regional route which links Canada Bay, Leichhardt, Ashfield and Marrickville also exists in close proximity to the site. A new route known as Greenway is also proposed along the proposed light rail line from Cooks River to Iron Cove.

The local cycling network surrounding the site is shown in Figure 2.

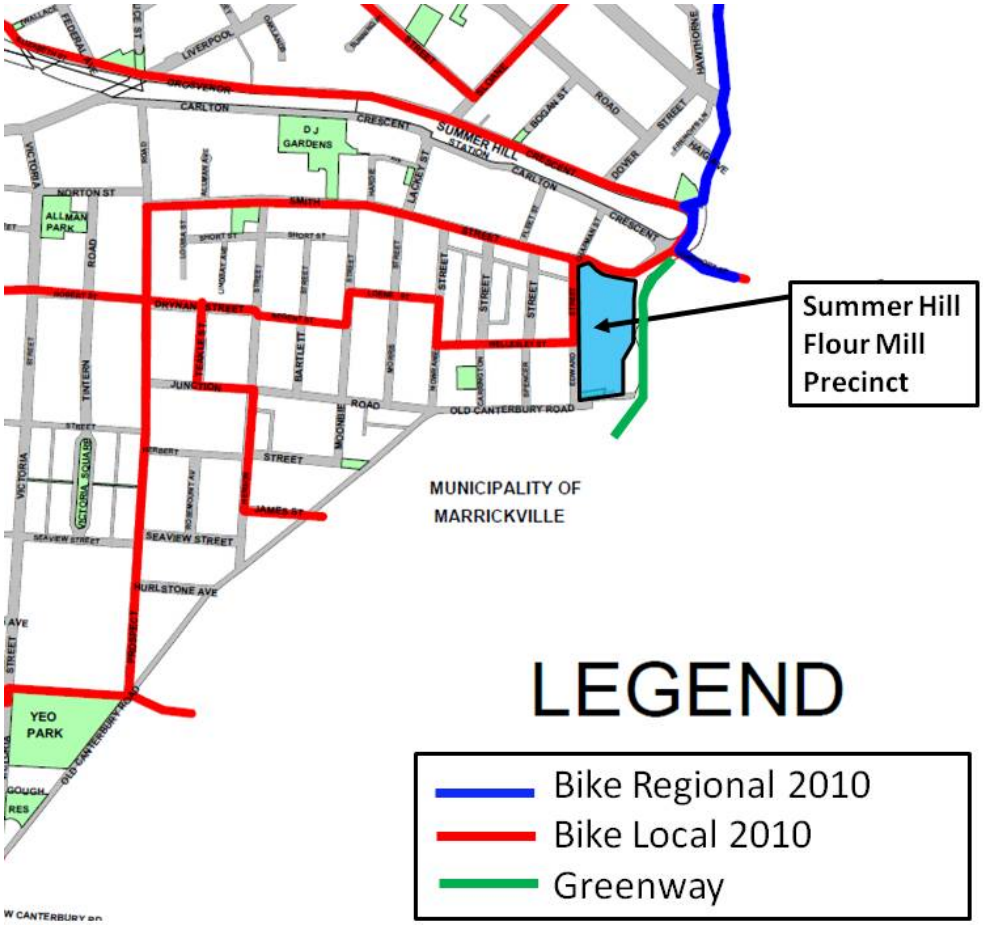


Figure 2: Cycling Network Surrounding Site

Source: Ashfield Council (2010)

3 Proposed Development

This section provides a general description of the Stage 1 DA including parking provision for cars and bicycles, traffic generation and connectivity for all users.

3.1 Development Description

The SHFM site is located at 2-32 Smith Street, Summer Hill NSW. It is proposed to be redeveloped into separate precincts for mixed use purposes, including largely residential use and ancillary retail and commercial uses. The subject site, Summer Hill Flour Mill (SHFM), falls mainly in the Ashfield Local Government Area (LGA) with a small section east of the Hawthorne Canal within the Marrickville LGA. It is located in the suburb of Summer Hill and is bounded by Edward Street to the west, Smith Street to the north, Hawthorne Canal and the Rozelle Goods Line to the east and Old Canterbury Road to the south. The location of the site is shown in Figure 3.

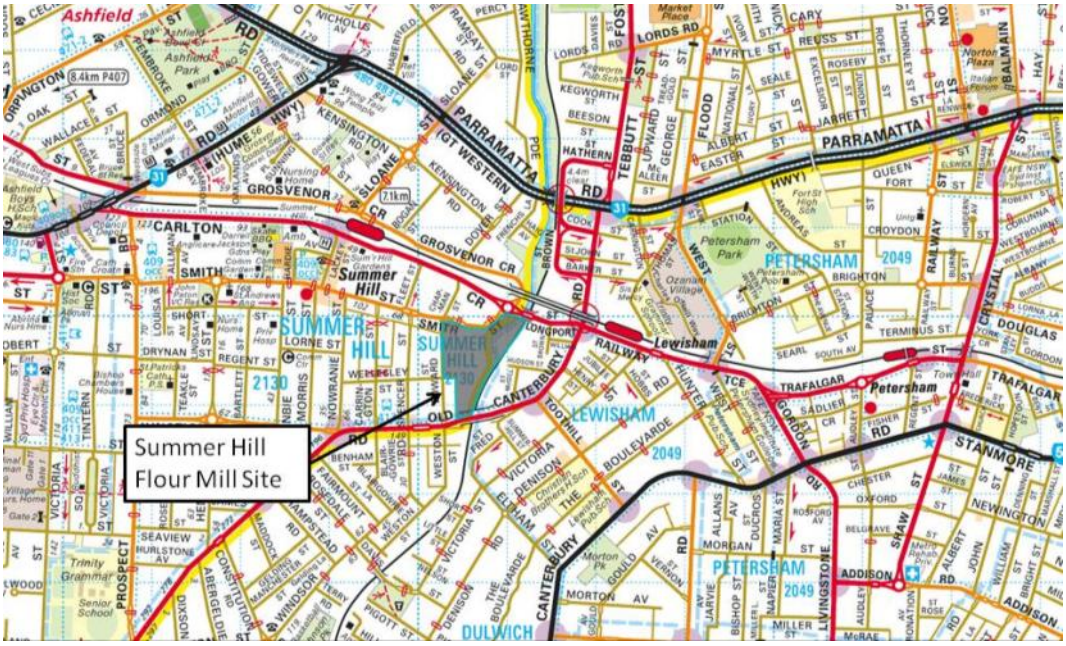


Figure 3: Site Location

The Concept Plan proposal involves five separate precincts (refer to Figure 4). An internal road network separates the site and allows a total of five sub-precincts within the development. The Stage 1 works focus on Precinct 4 in the northwest of the site, including the two new internal streets. This precinct includes 44 apartments and a small retail component:

- 3 one-bedroom apartments
- 29 two-bedroom apartments
- 8 three-bedroom apartments
- 4 four-bedroom apartments
- 443 m^2 of retail/commerical floor space

Figure 4: Summer Hill Flour Mill Precincts

3.2 Parking Provision

3.2.1 Parking requirement

The Concept Plan Approval, 7 December 2012, provides the required parking rates for uses on the site as shown in Table 2.

Table 2: Parking Rates

Land Use	Parking Rate
Residential	1 space per 4 studio/1 bedroom apartment 1 space per 2/3 bedroom apartment 1.5 space per 4 bedroom townhouse/terrace 1 visitor space per 10 apartments
Commercial	1 space per 80m2 GFA
Retail	1 space per 80m2 GFA

3.2.2 Proposed Parking Provision

The stage 1 development results in a requirement for 54 parking spaces:

- Residential: 44 spaces for residents and 4 spaces for visitors
- Commercial/Retail: 6 spaces

The basement car park provides 53 car spaces as shown in Figure 5. The parking provision allows for resident and visitor parking as well as retail uses on-site. Additional on-street parking will be available on the new streets and it is expected that this would be time restricted to encourage turnover by visitors.

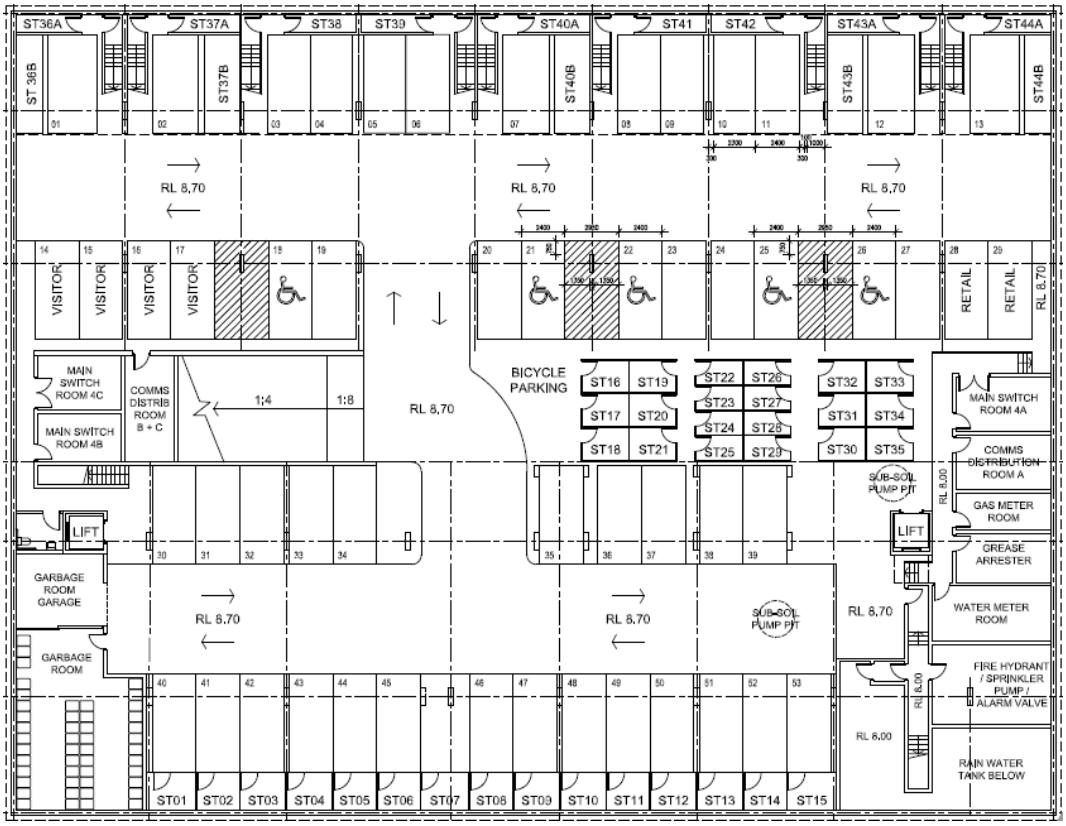


Figure 5: Basement Car Park Allocation

3.2.3 On-street Parking

The on-street car parking allows for loading zones, car share spaces and high turnover visitor spaces. There are 15 designated bays proposed which will be signposted according to their use. In addition there is a drop-off zone for the precinct.

Implementing constrained parking rates at SHFM development, in addition to implementing a future resident parking scheme or time restricted parking (if required) in the adjoining streets, to which future residents of SHFM will not have access, will result in less vehicles in the area and less overall traffic congestion in the future.

Marrickville Council has introduced a resident parking scheme with time restricted parking within 250m of Lewisham Station to restrict commuter car parking from occurring on local streets. Ashfield Council has introduced time

restricted parking on streets in the Summer Hill town centre adjacent to Summer Hill Station. The majority of other streets are unrestricted.

With the introduction of the light rail stop at Lewisham, drop-off and pick-up zones would be facilitated by the local streets in both the Summer Hill Flour Mill site and the McGill Street precinct.

3.2.4 Proposed Street Network

As outlined previously in Section 3.1, there is a proposed internal street network that will separate the sub-precincts. The Stage 1 development forms two of the new internal streets. These new streets separate the remaining precincts and bound Precinct 4 in the northwest of the SHFM site. The new streets provide a rectangular block, and connect as T junctions to Edward Street and Smith Street as shown below in Figure 6.

Figure 6: Precinct 4

3.3 Mode Split and Travel Patterns

The existing 2006 ABS Journey to Work data for the travel zone surrounding the Summer Hill Flour Mill site was analysed in a previous study.

The analysis indicated that public transport currently accounts for over 40% of work related trips in the area surrounding the site. This is a result of the proximity of Lewisham and Summer Hill railway stations to the site. The proportion of people utilising public transport will increase following the planned light rail extension, which includes a station adjacent to the site.

The final destination of all workers departing from the travel zones surrounding the site was also analysed. A high proportion of residents in this travel zone have Sydney (38%) as the work destination which is best served by rail for commuter access. There are also 16% of residents who work in Marrickville (6%) or Ashfield (10%) LGAs, which may encompass walking, cycling and bus modes to be viable travel options.

4 Traffic and Transport Assessment

4.1 Road Network Design

4.1.1 Local Street Design

Two new local streets are proposed as part of the Stage 1 development which will provide on-street parking as shown in Figure 7. These streets were introduced and described in Section 3.2.4. The design of the streets has been checked with Austroads Design Guide and Australian Standards including:

- AS2890.1-2004 Parking Facilities: Off-street car parking
- AS2890.2-2002 Parking Facilities: Off-street commercial vehicle facilities
- AS2890.5-1993 Parking Facilities: On-street parking

A swept path analysis was conducted for the site to check compliance with the road design standards using approved software. Turning paths, using the B99 vehicles (99th percentile passenger car) and B85 vehicles (85th percentile passenger car) and MRV (8.8m truck) were tested on the road layout, including the entry and exits from the car park and access to the existing road network. The turning paths show the design complies with standards and drawings are attached in Appendix A.

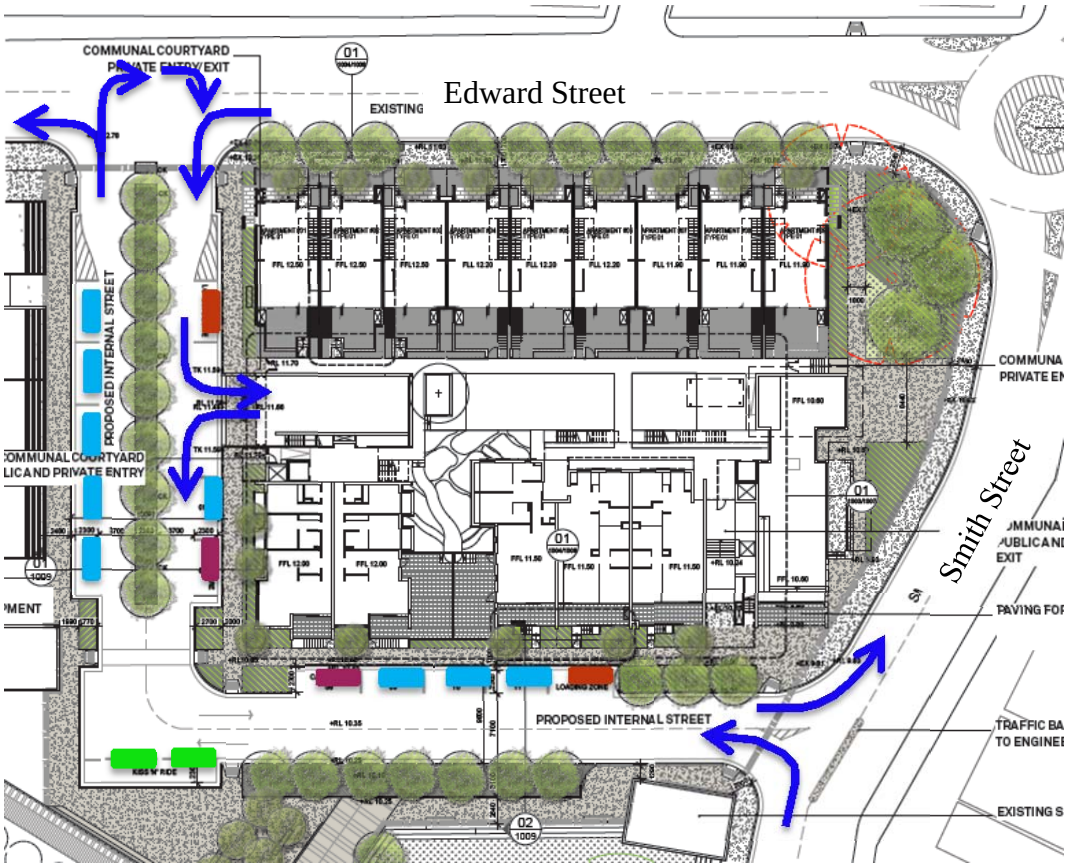


Figure 7: New Streets

4.1.2 Roundabout at Smith and Edward Streets

The TMAP had originally recommended a roundabout at the Edward Street / Smith Street / Chapman Street intersection to improve the intersection performance, given the movement restrictions along Smith Street. This would 'clean up' the intersection, which is currently offset slightly by the northern Chapman Street leg. Further, it would provide improved traffic circulation around the site, particularly given the proposed central medians preventing right turns off Smith Street into the precinct. This would be configured as a minor road roundabout in keeping with other traffic calming devices along Smith Street.

The roundabout was designed as a detailed concept design in October 2012. The design utilises the wide opening provided between Edward Street and Smith Street. The design is attached to the report as Appendix A.

4.1.3 Minimising Through Traffic

It is envisaged that there will be little through traffic. A roundabout will be installed at the Edward Street / Smith Street / Chapman Street intersection, which will allow traffic wishing to turn right into and out of the site to utilise Edward Street connection. A median is also proposed on Smith Street to force left in left out of the site only.

Due to the median on Smith Street, the only through traffic that may occur will be westbound traffic turning left from Smith Street and then using Edward Street. This is unlikely due to the slow speed environment proposed on the local street. There will be traffic calming measures and another intersection. It is likely that traffic will continue to the roundabout and turn left.

4.2 Site Access

4.2.1 Basement Access, Layout and Circulation

Basement access and circulation has been checked for the B99 design vehicle. Car parking bays are provided in accordance with AS2890.1-2004 and AS2890.6-2009.

4.2.2 Loading Areas

The garbage room for the development is located in the basement. Bins will be taken to street level for collection via the car ramp and stored on the footpath. All loading for the development will occur from the two on-street loading zones.

4.2.3 Forecast Traffic Generation

Traffic generation rates are heavily influenced by factors such as public transport provision, availability and cost of parking, mixed use and complementary nature of various land use components and peak traffic generation hours.

The RTA peak hour rate of 0.4 trips / unit for medium density residential flats was applied to Precinct 4, which produces 18 total trips for the proposed 44 units. For

the retail use, a turnover rate of 2 vehicle movements per space in the peak hour has been applied resulting in 12 peak hour trips.

These rates produce 30 peak hour trips in total for Precinct 4. It is expected during morning peak there would be 5 trips in and 25 trips out of the site. During evening peak, there would be 25 trips in and 5 trips out of the development.

4.2.4 Traffic Distribution

The following proportions shown in Figure 8 were assumed for the distribution of traffic onto the local road network. The proportions are applied from the 30 peak hour trips assumed in the traffic generation above. This results in 22 additional vehicle movements at the Smith Street/Edward Street intersection and 8 vehicle movements on the southern section of Edward Street.

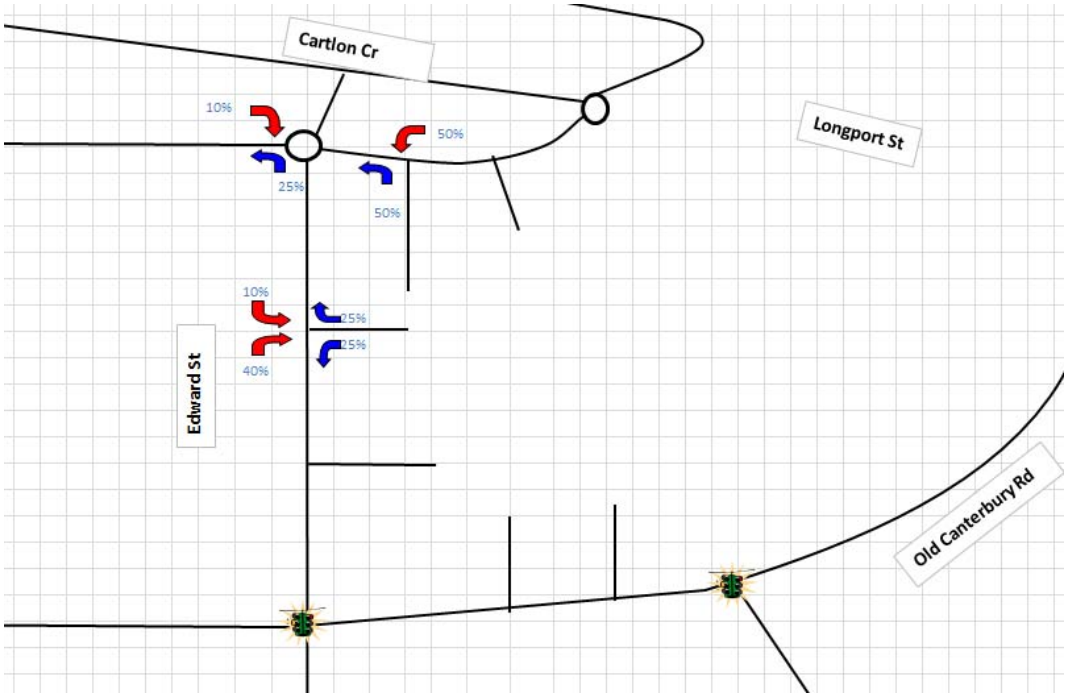


Figure 8: Traffic Distribution Proportions

4.2.5 Traffic Impacts

The stage 1 development generates low levels of traffic which can easily be accommodated at the nearby access intersections. In the vicinity of the site the traffic increases are shown in Table 3.

Table 3: Traffic Increases

Street	AM Peak Two-way Trafic		PM Peak Two-way traffic	
	Existing	Increase	Existing	Increase
Edward Street	200	8 (4%)	250	8 (3%)
Smith Street	475	22 (5%0	450	22 (5%)

4.3 Travel Plan

The implementation of a Work Place Travel Plan (WPTP) would contribute to reducing parking demand, particularly for staff, and encourage other forms of transport to the site. The Premier's Council for Active Living (PCAL) describes the three key objectives for a WPTP as follows:

- To reduce the need to travel
- To improve non-car travel methods
- To ensure the most efficient use of car parking spaces

Travel demand management measures, e.g. Travel Plans, should be prepared for all future site retail and commercial developments and Transport Access Guides should be prepared for all future site community and residential developments to ensure full information regarding future site sustainable access and public transport access options is available to all future residents of and visitors to the site.

As there is no commercial development and little retail development proposed in Stage 1(less than 500m^2), a WPTP is not able to be prepared until Stage 3.

4.4 Pedestrian and Cycle Upgrades

To encourage cycling as a viable form of transport for residents, appropriate facilities are to be provided in the site. This will include a dedicated bicycle parking area in the basement of the building that would provide residents with secure and convenient access to the buildings. This area could offer direct access from the building foyer/lobby, and would provide an attractive option for residents who potentially may choose to cycle instead of using private vehicles.

The Summer Hill Flour Mill site is located nearby to a number of local cycling routes. An off-road regional route which links Canada Bay, Leichhardt, Ashfield and Marrickville also exists in close proximity to the site.

5 Summary

This report has discussed the transport and accessibility impacts relating to the Stage 1 development at the Summer Hill Flour Mill site. The site is well located to operate as a transit oriented development with good access to heavy rail services, buses, future light rail and cycling facilities. The road system adjacent to the site comprises two sub-arterial routes which provide access to the area with minimal additional traffic on local streets. A number of traffic management devices are proposed on the access road system to facilitate access to the site.

The assessment has found no traffic constraint to the proposed development. Key findings of the study include:

- The site is well connected to existing State Transit bus routes, with a number of public bus routes operating near the Summer Hill Flour Mill site.
- The site is well located for heavy rail use, with both Summer Hill and Lewisham stations located approximately 500m from the site offering direct access to the Sydney CBD.
- A planned 5.6km extension of the light rail service includes a station at Lewisham adjacent to the sites with connections to the existing heavy rail station. Provision of this infrastructure upgrade will increase public transport availability for future residents in the Summer Hill Flour Mill site.
- Local footpaths provide walking access to key destinations surrounding the site, with the site well served by a number of local and regional cycling routes.
- The Stage 1 Summer Hill Flour Mill development proposes 44 residential apartments and a small retail component with a total provision of 53 underground car spaces.
- 15 on-street parking spaces are proposed on the new internal streets and these will be time restricted with an appropriate allocation of Loading Zones.
- Implementation of sustainable travel initiatives such as the provision of car share spaces on-street, public transport accessibility and good bicycle parking provisions will further reduce the reliance on private vehicle.

Appendix A

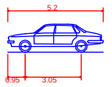
Traffic Diagrams

A3

Legend

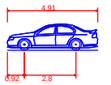
- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Car

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.527m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.120m
Track Width	1.770m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	5.750m

Issue	Date	By	Chkd	Appd
B	20/02/13	MAC	AMH	AMH
	Updated Plan			
A	11/01/13	JRT	AMH	AMH
	For Information			

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Client

AET Limited
ATF Summer Hill Ownership Trust

Job Title

Allied Mills
Summer Hill Flour Mill

Drawing Title

Turning Paths
B99 and B85 Circulation
Basement Level

Scale at A3 1:200

Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
220640-00	**SKT005**	**B**

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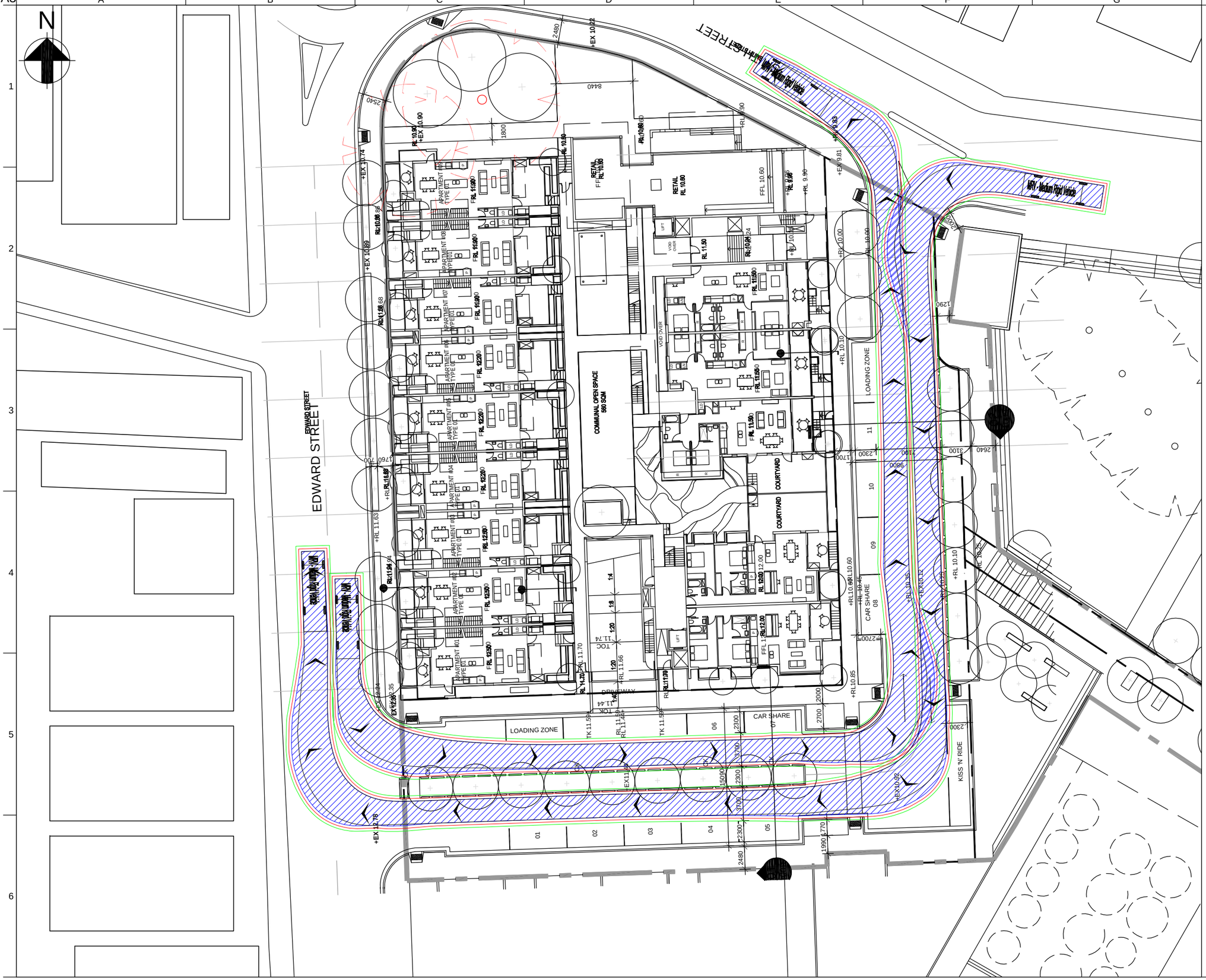
A3



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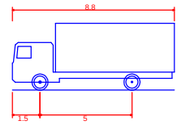

MRV - Medium Rigid Vehicle	
Overall Length	8.800m
Overall Width	2.500m
Overall Body Height	3.633m
Min Body Ground Clearance	0.428m
Track Width	2.500m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	10.000m

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	Updated Plan			
B	15/02/13	JRT	AMH	AMH
	Updated plans			
A	11/01/13	JRT	AMH	AMH
	For Information			

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Client

AET Limited
ATF Summer Hill Ownership Trust

Job Title

Allied Mills
Summer Hill Flour Mill

Drawing Title

Turning Paths
MRV Into & Out of New Street

Scale at A3
1:400

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
220640-00	**SKT003**	**C**

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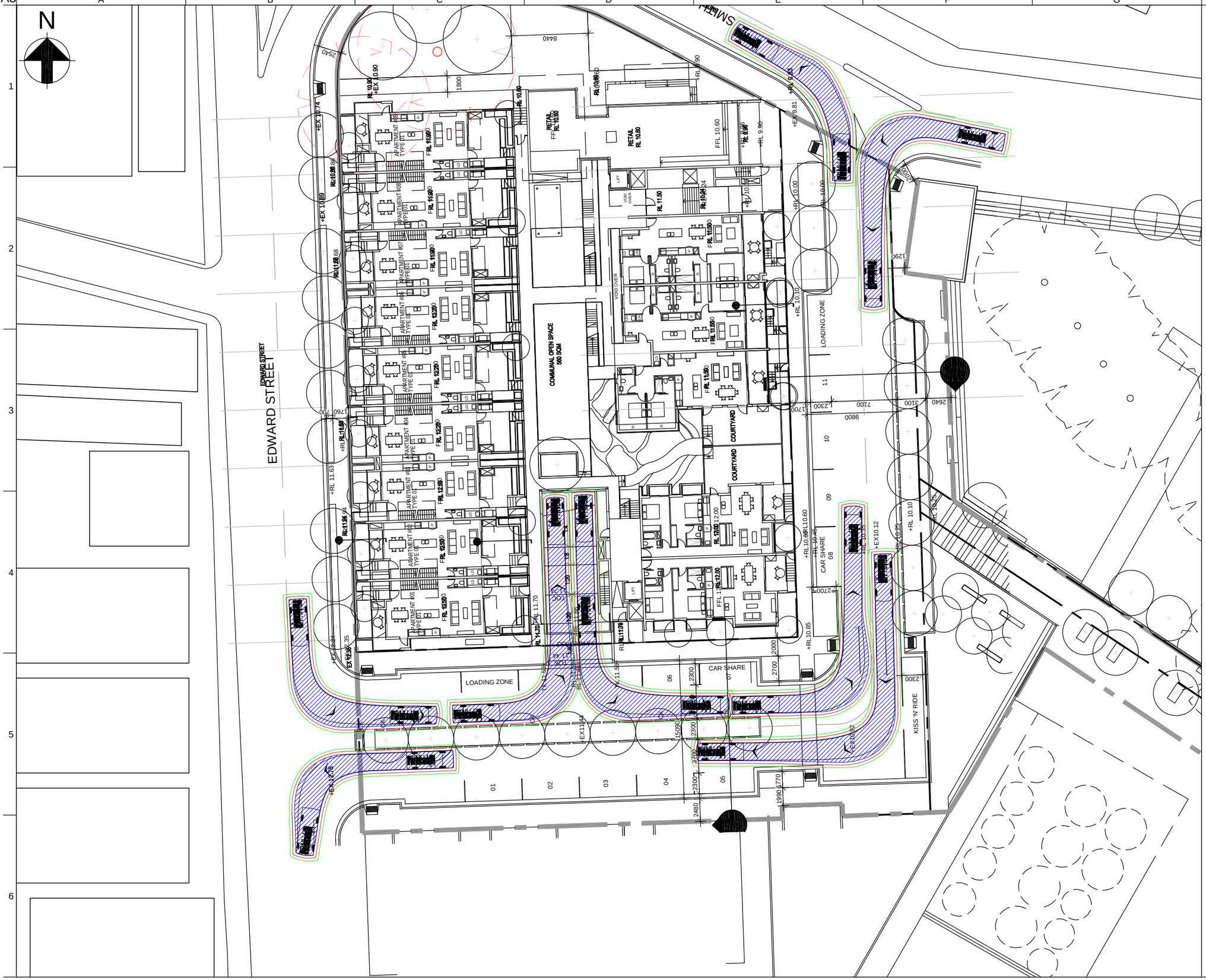

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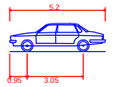
Design Vehicle(s)



B99 Car

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.527m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.250m

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	Updated Layout			
A	11/01/13	JRT	AMH	AMH
	For Information			

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Client

AET Limited
ATF Summer Hill Ownership Trust

Job Title

Allied Mills
Summer Hill Flour Mill

Drawing Title

Turning Paths
B99 Into New Street &
Into and Out of Carpark

Scale at A3 1:400

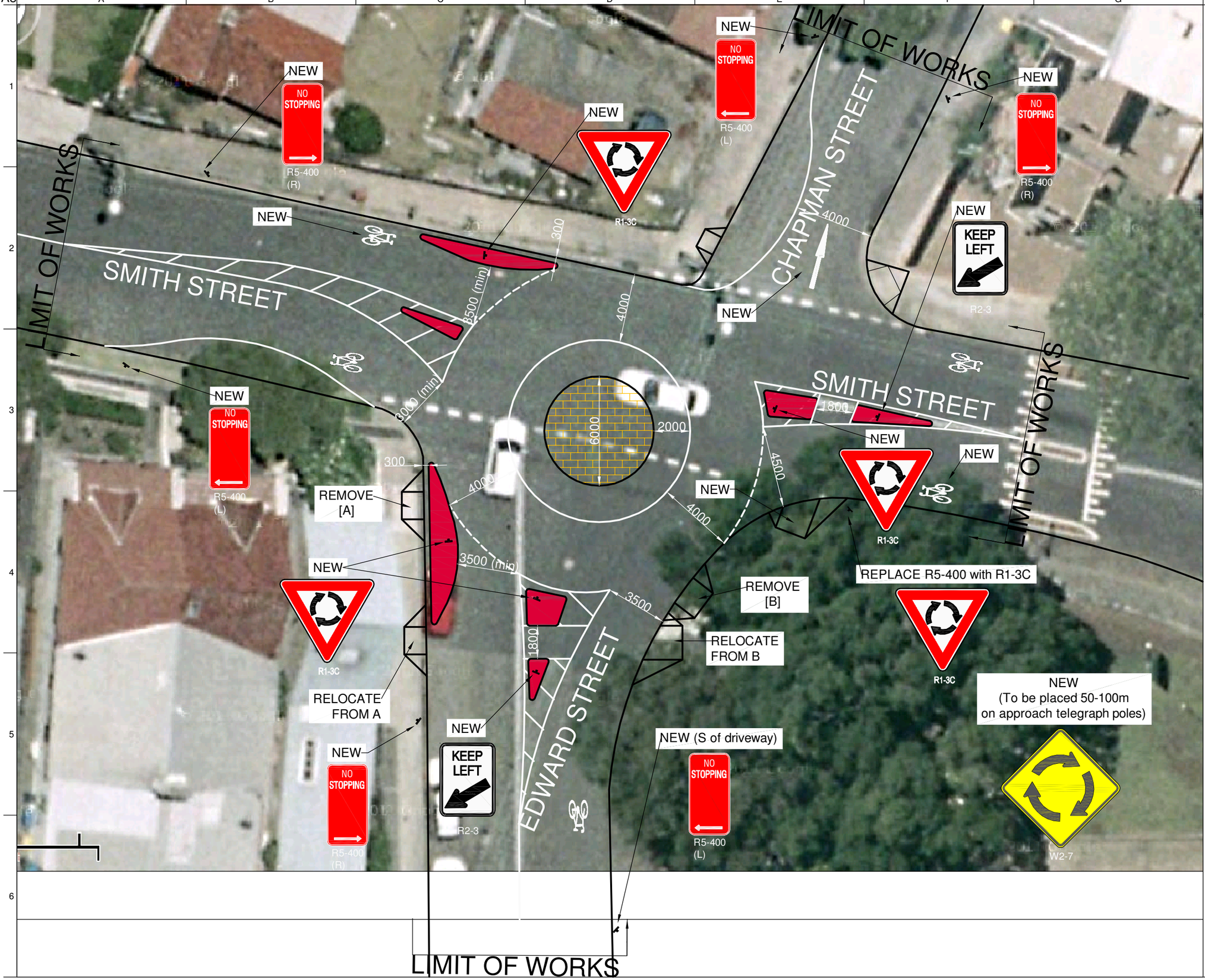
Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
220640-00	**SKT001**	**B**

Do not scale

A3



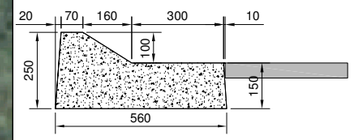
Legend

- Raised Medians
- Deflective Linemarking
- Flush Central Island

Notes

- Existing kerbs to remain in place
- Flush central island as per section:

-Raised island kerbs as per section:



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	Updated with sections			
A	02/10/12	JT	MC	AH
	For Information			

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Client
AET Limited
ATF Summer Hill Ownership Trust

Job Title
Allied Mills
Summer Hill Flour Mill

Drawing Title
Intersection Upgrade
Edward Street and Smith Street

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
220640-00	**SKT100**	**B**

Do not scale

A3

Legend

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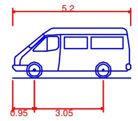
- Wheel Envelope

Design Vehicle(s)



Car/van vehicle (5.2 m)	
Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	2.200m
Min Body Ground Clearance	0.312m
Track Width	1.840m
Lock to Lock Time	4.00 sec
Curb to Curb Turning Radius	6.300m

Issue	Date	By	Chkd	Appd
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	Updated central island			
A	02/10/12	JT	MC	AH
	For Information			

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Client
AET Limited
ATF Summer Hill Ownership Trust

Job Title
Allied Mills
Summer Hill Flour Mill

Drawing Title
Intersection Upgrade
Edward Street and Smith Street
Turning Paths: Car / Van

Scale at A3 1:200

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
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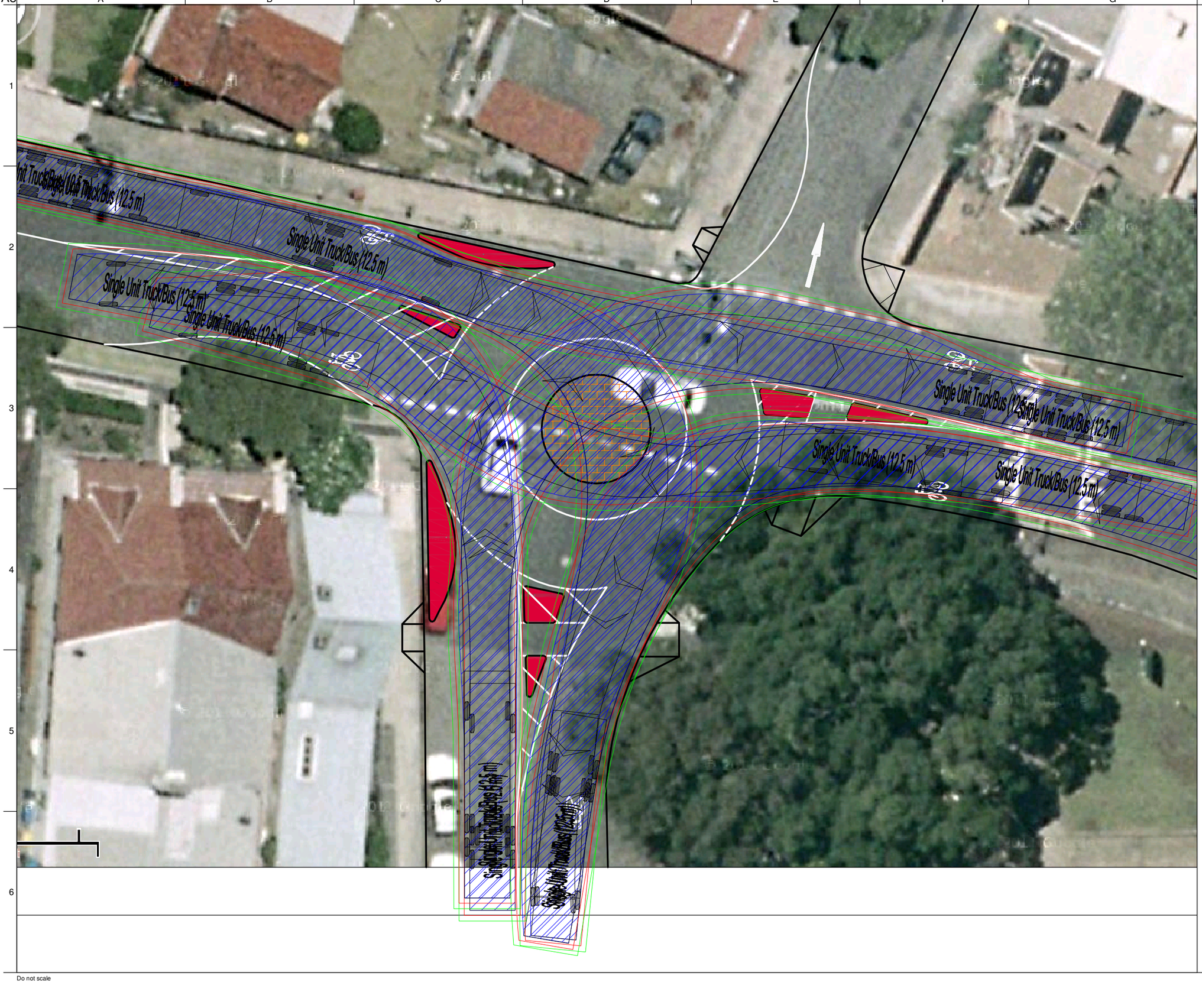
Do not scale

A3

A B C D E F G

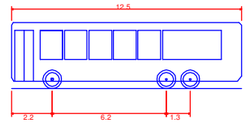
1 2 3 4 5 6



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Single Unit Truck/Bus (12.5 m)	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	3.600m
Min Body Ground Clearance	0.409m
Track Width	2.500m
Lock to Lock Time	6.00 sec
Curb to Curb Turning Radius	12.500m

Issue	Date	By	Chkd	Appd
B	05/10/12	JT	MC	AH
	Updated central island			
A	02/10/12	JT	MC	AH
	For Information			

ARUP

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Client

AET Limited
ATF Summer Hill Ownership Trust

Job Title

Allied Mills
Summer Hill Flour Mill

Drawing Title

Intersection Upgrade
Edward Street and Smith Street
Turning Paths: Bus / Truck

Scale at A3 1:200

Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
220640-00	**SKT102**	**B**

Do not scale