Traffic Impact Assessment

Planning Proposal
Proposed Mixed Use Developments
Parkes and Harris Street, Harris Park

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traffix
traffic & transport planners
Suite 2.08, 50 Holt Street
Surry Hills NSW 2011
t: +61 2 8324 8700
w: www.traffix.com.au

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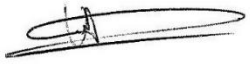
v03	13/08/2018	Hayden Dimitrovski	Vince Doan	

Suite 2.08, 50 Holt Street
Surry Hills NSW 2011
t: +61 2 8324 8700
w: www.traffix.com.au
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traffic & transport planners

Contents

1. Introduction 1

2. Location and Site 2

2.1 Location 2
2.2 Site 1 2
2.3 Site 2 2
2.4 Site 3 2

3. Existing Traffic Conditions 5

3.1 Road Network 5
3.2 Key Intersections 7
3.3 Public Transport 8
3.4 Existing Site Generation 10

4. Concept Development 11

5. Parking Requirements 12

5.1 Council Controls 12
5.2 Accessible Parking 14
5.3 Bicycle Parking 15
5.4 Motorcycle Facilities 15
5.5 Servicing 15

6. Traffic Impacts 17

6.1 Existing Intersection Performance 17
6.2 Trip Generation 19
6.3 Trip Distribution 23
6.4 Peak Period Intersection Performances 27

7. Vehicular Access 31

7.1 Access Requirements 31
7.2 Site 1 31
7.3 Site 2 31
7.4 Site 3 31

8. Conclusions 32

List of Appendices

Appendix A: Photographic Record
Appendix B: Reduced Plans
Appendix C: SIDRA Intersection Modelling Outputs

1. Introduction

TRAFFIX has been commissioned to undertake a Traffic Impact Assessment (TIA) in support of a Planning Proposal relating to three mixed use developments at the following addresses and their respective client:

- Site 1: 114 – 118 Harris Street, Harris Park – Harris Street Development Pty Ltd
- Site 2: 26 – 30 Parkes Street, Harris Park – Parkes St, NSW Pty Ltd
- Site 3: 24 Parkes Street, Harris Park – SH Parkes International Pty Ltd

The development is located within the Parramatta Council LGA and has been assessed under that Council's controls. This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the concept development
- Section 5: Assesses the parking requirements
- Section 6: Discusses the traffic impacts of the development
- Section 7: Discusses vehicular access requirements
- Section 8: Presents the overall study conclusions.

2. Location and Site

2.1 Location

The sites are situated on the corner of Parkes and Harris Street, Harris Park and lie within the sector bounded by Harris Street to the east, Parkes Street to the south, a mixed use development to the west and Clay Cliff Creek to the north. The subject sites are approximately 400 metres east of Parramatta railway station and approximately 19 kilometres west of the Sydney CBD.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**, which provide an appreciation of the general character of roads and other key attributes in proximity to the site. Reference should also be made to the photographic record in **Appendix A**.

2.2 Site 1

Site 1 is located at 114-118 Harris Street, Harris Park. It has an irregular configuration and currently accommodates a mixed use development at 114 Harris Street and a medium density residential development at 116 – 118 Harris Street. Site 1 has an eastern site frontage of approximately 40 metres to Harris Street, a southern site boundary of approximately 40 metres to Site 2, a western boundary of approximately 45 metres to Site 3 and a northern boundary of approximately 45 metres to Clay Cliff Creek.

2.3 Site 2

Site 2 is located at 26-30 Parkes Street, Harris Park. It has a rectangular configuration and is currently vacant. Site 2 has an eastern site frontage of approximately 35 metres to Harris Street, a southern site frontage of approximately 40 metres to Parkes Street, a western boundary of approximately 35 metres to Site 3 and a northern boundary of approximately 40 metres to Site 1.

2.4 Site 3

Site 3 is located at 24 Parkes Street, Harris Park. It has a rectangular configuration and is currently vacant. It has an eastern site boundary of approximately 80 metres to Sites 1 and 2, a southern site frontage of approximately 20 metres to Parkes Street, a western boundary of approximately 75 metres

to a neighbouring mixed use development and a northern boundary of approximately 20 metres to Clay Cliff Creek.

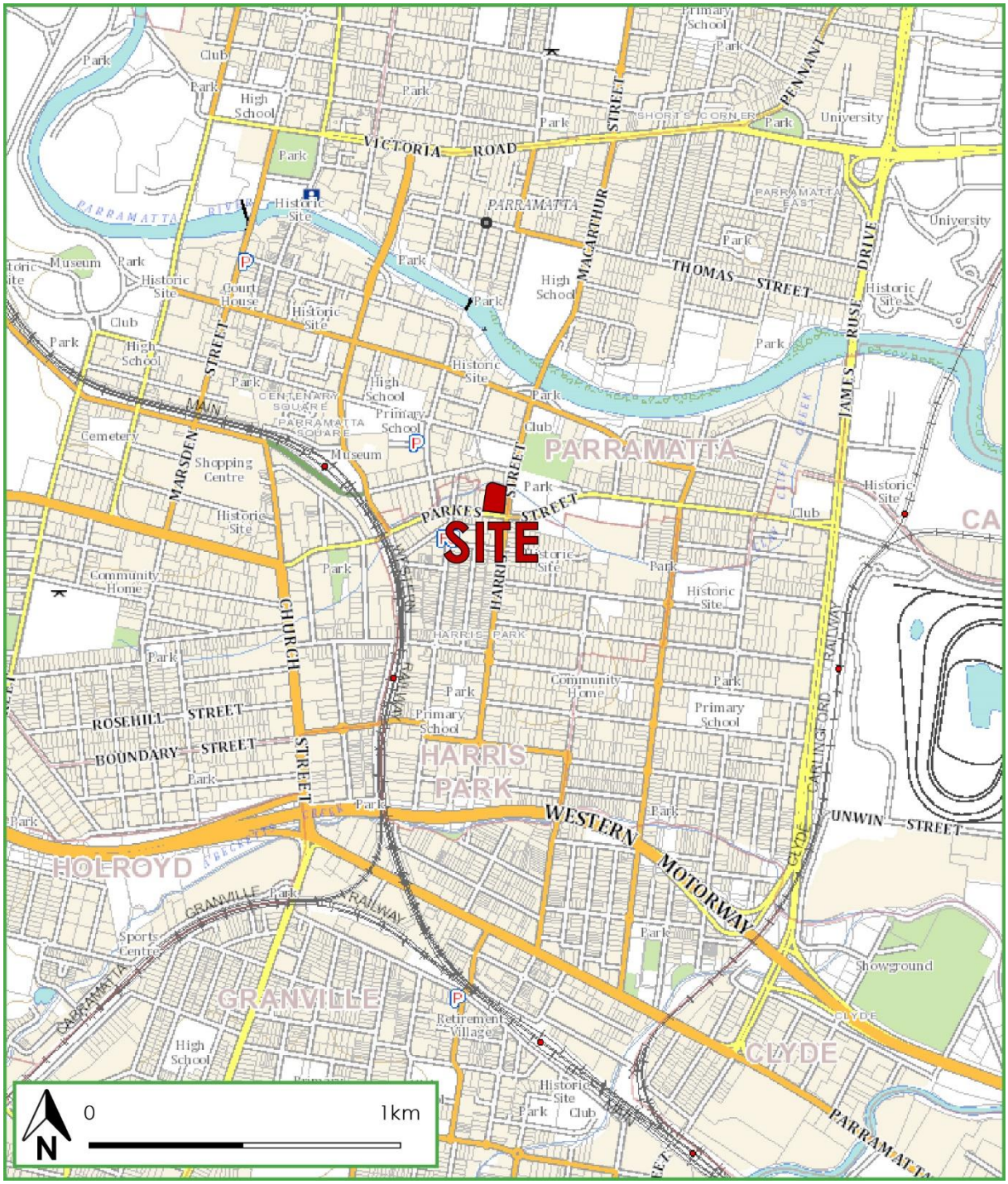


Figure 1: Location Plan

Figure 2: Site Plan

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Parkes Street: an RMS Secondary Road (SR 2049) that runs in an east-west direction between Hassall Street in the east and Parkes Street in the west. Parkes Street is subject to a 60km/h speed zoning and carries two lanes of traffic in each direction within an undivided carriageway. No parking is available along Parkes Street in the vicinity of the site.

- Harris Street: an Unclassified Regional Road (RR 7484) and local road that runs in a north-south direction between MacArthur Street in the north and forms a cul-de-sac in the south. It is an unclassified regional road between MacArthur Street in the north and Parkes Street, in the south. Harris Street is a local road south of Parkes Street. It permits paid time restricted parallel parking the along the western kerbside in front of the site outside of peak periods. It is subject to a 60km/h speed zoning and carries two lanes of traffic in both directions north of Parkes Street and a 50km/h speed zoning with one lane of traffic in each direction south of Parkes Street.

- Wigram Street: a local road that runs in a north-south direction between Hassall Street in the north and forms a cul-de-sac in the south. It permits time restricted parallel parking on both kerbsides and is subject to a 50km/h speed zoning. Wigram Street carries a single lane of traffic in both directions.

It can be seen from **Figure 3** that the site is conveniently located with respect to the arterial and local road systems serving the region. It is therefore able to effectively distribute traffic onto the wider road network, minimising traffic impacts.

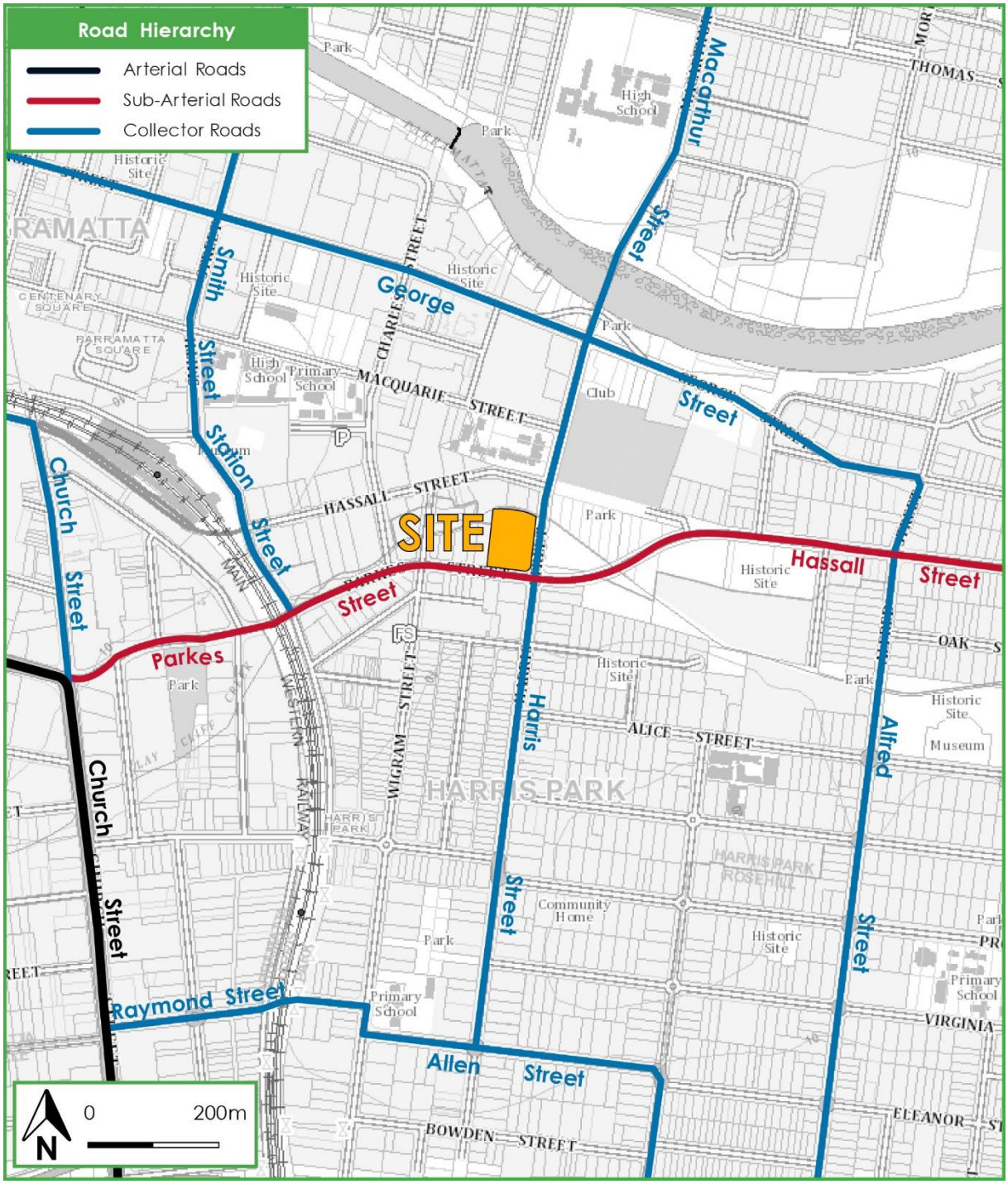


Figure 3: Road Hierarchy

3.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment

Figure 4: Intersection of Parkes Street with Harris Street

It can be seen from **Figure 4** that the intersection of Parkes Street and Harris Street form a 4-way signal controlled intersection to the south-east of the site. Figure 4 also shows that a signalised controlled pedestrian crossing is provided across all approaches. No restrictions are applied to all movements with the exception of Parkes Street right turn on the western approach which states “No Right Turn” buses excepted. All approaches and exit lane provide two lanes at the intersection.

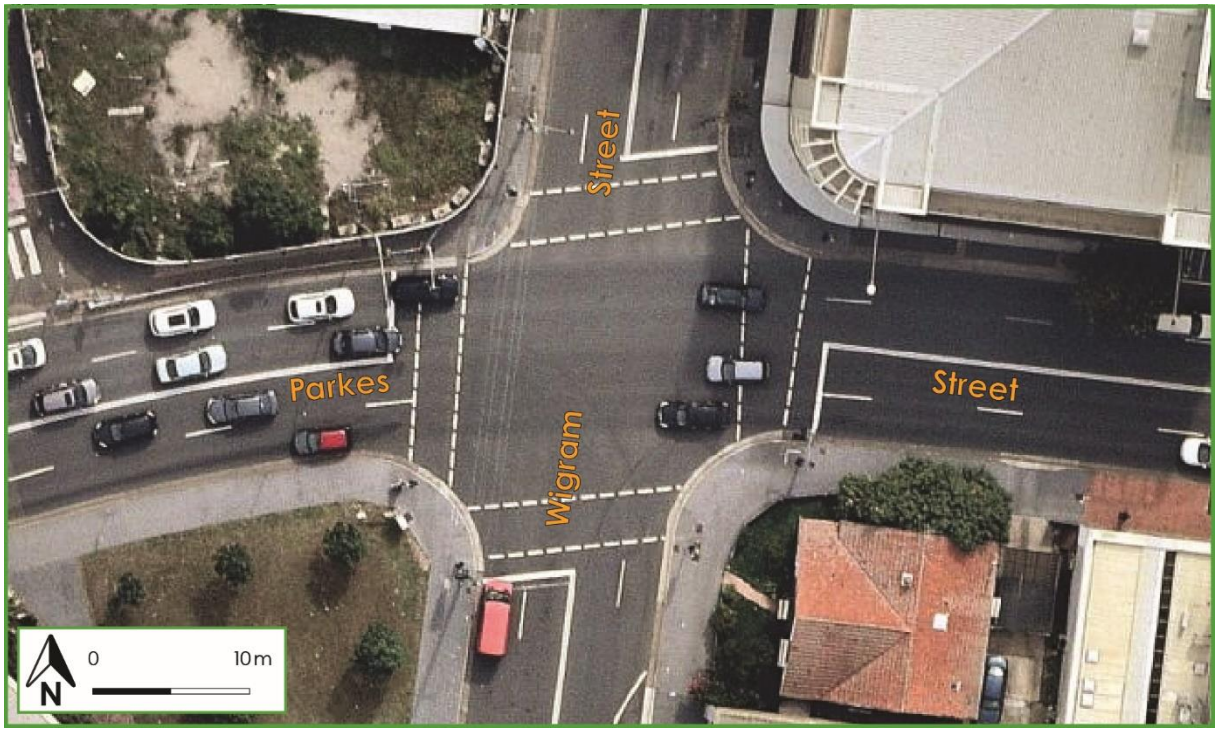


Figure 5: Intersection of Parkes Street with Wigram Street

It can be seen from **Figure 5** that Parkes Street and Wigram Street form a 4-way signal intersection to the south-west of the site. Figure 5 also shows that pedestrian signals are provided across all approaches. No restrictions are applied to all movements with the exception of Parkes Street right turn on the eastern approach which states "No Right Turn" buses excepted. All approaches and exit lane provide two lanes at the intersection.

3.3 Public Transport

The site is well located to take advantage of the numerous public transport services that serve the local area. The existing train and bus services that operate in the locality are shown in **Figure 6**. The site is approximately 400 metres east of Parramatta Railway Station and 600 metres north east of Harris Park Railway Station, which provide services along the T1 Western Line, T2 Inner West Line and T5 Cumberland Line. In addition, there are bus stops within 400 metres walk of the site, providing access to the numerous bus routes that operates in the vicinity of the site providing connections to Macquarie Park, Sutherland, Bankstown and Fairfield.

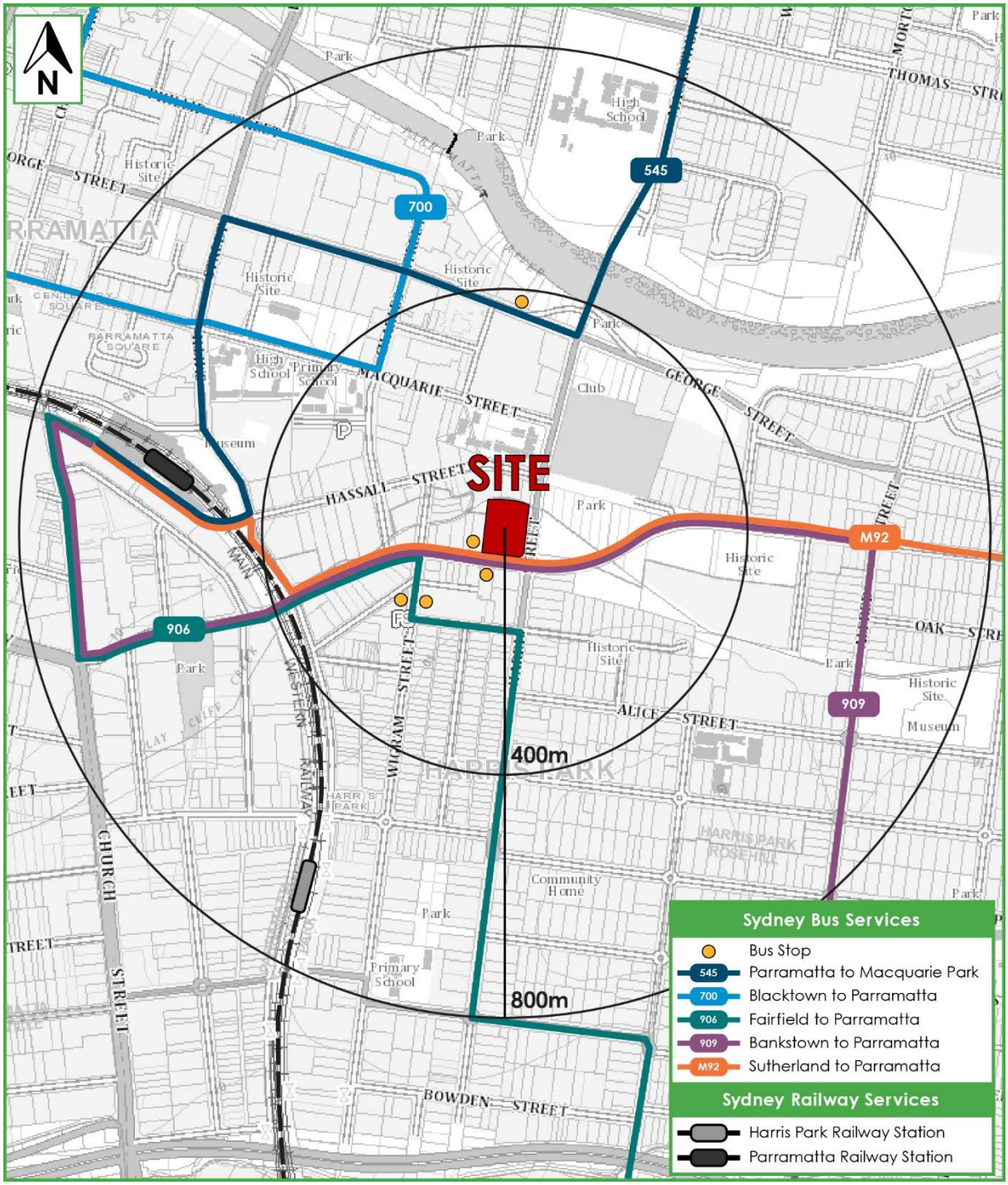


Figure 6: Public Transport

3.4 Existing Site Generation

Based on the RMS Guide to Traffic Generating Developments, a medium density residential dwelling can be expected to generate 0.5 trips / dwelling during the AM and PM peak hours. Application of these rates to the 24 dwellings results in an expected traffic generation of:

- 12 vehicle trips during the AM peak hour (2 in, 10 out) and
- 12 vehicle trips during the PM peak hour (10 in, 2 out).

4. Concept Development

A detailed description of the changes sought to the LEP can be found in the Planning Proposal, prepared separately. It is understood that the following concept developments would represent the maximum potential of each site:

- Site 1 at 114-118 Harris Street proposes 262 apartments, 1,280m^2 of gross floor area (GFA) for retail use and 1,560m^2 of GFA for commercial use in a 37-storey building and basement car parking with access from Harris Street. The proposed yield for the apartments are as follows:

  - 35 x one bedroom apartments,
  - 198 x two bedroom apartments,
  - 23 x three bedroom apartments; and
  - 6 x four bedroom apartments.

- Site 2 at 26 – 30 Parkes Street will provide 231 apartments, 536m^2 of GFA for retail use, 1,277m^2 of GFA for commercial use and 331m^2 of GFA for a function centre in a 36 storey building and basement car parking with access from Harris Street. The proposed yield for the apartments are as follows:

  - 2 x studio apartments,
  - 70 x one bedroom apartments,
  - 137 x two bedroom apartments; and
  - 22 x three bedroom apartments.

- Site 3 at 24 Parkes Street will provide 196 apartments and 1,630m^2 of GFA for commercial use in a 38 storey building with basement and above ground car parking with access from Parkes Street. The proposed yield for the apartments are as follows:

  - 193 x two bedroom apartments; and
  - 3 x three bedroom apartments.

The parking and traffic impacts arising from the development are discussed in Sections 5 and 6, respectively.

5. Parking Requirements

5.1 Council Controls

The Parramatta Central Business District Strategic Transport Study dated 10 April 2017 resolved that "Council endorses the action recommended by the Parramatta CBD Strategic Transport Study to reduce maximum car parking rates to levels currently used by City of Sydney CBD." Accordingly, the parking requirements of the concept developments have been assessed against the parking rates of the City of Sydney Local Environmental Plan 2012, using the Category A rates for residential parking, and are summarised in **Table 1** below. The maximum provision for each site is discussed in the following subsections.

Table 1: Council Maximum Parking Rates

Type	Council DCP Parking Rates
Retail	See Formula *
Commercial	
Residential	0.1 spaces per studio dwelling
	0.3 spaces per 1-bedroom dwelling
	0.7 spaces per 2-bedroom dwelling
	1 space per 3 or more bedroom dwelling

* Maximum Retail and Office parking requirements under CoS LEP

The required parking is to be calculated using the following formula: **M = (G x A) / (50 x T) where:**

M is the maximum number of parking spaces, and

G is the gross floor area of all retail premises in the building in square metres, and

A is the site area in square metres, and

T is the total gross floor area of all buildings on the site in square metres.

5.1.1 Site 1: Maximum Parking Provision

The concept development for Site 1 will have a maximum parking provision according to **Table 2** in accordance with the Parramatta CBD Strategic Transport Study.

Table 2: Maximum Parking Provision for Site 1

Type	Area (GFA) / No	Council DCP Parking Rates	Maximum allowable spaces
Retail	1,280m^2	See Formula * A = 1,776m^2 T = 25,675m^2	1.8
Commercial	1,560 m^2		2.2
Residential	-	0.1 spaces per studio dwelling	-
	35	0.3 spaces per 1-bedroom dwelling	11
	198	0.7 spaces per 2-bedroom dwelling	139
	29	1 space per 3 or more bedroom dwelling	29
		Totals	183

It can be seen from Table 2 that the development is permitted to provide a maximum of 183 spaces under Council's controls for the retail, commercial and residential components of the concept development.

5.1.2 Site 2: Maximum Parking Provision

The concept development for Site 2 will have a maximum parking provision according to **Table 3** in accordance with the Parramatta CBD Strategic Transport Study.

Table 3: Maximum parking Provision for Site 1

Type	Area (GFA) / No	Council DCP Parking Rates	Maximum allowable spaces
Retail	363m^2	See Formula * A = 1,493m^2 T = 21,375m^2	3
Function	386m^2		
Commercial	1265m^2		
Serviced Apartments	12	1 space for every 4 bedrooms up to 100 bedrooms	3
Residential	2	0.1 spaces per studio dwelling	0.2
	70	0.3 spaces per 1-bedroom dwelling	21
	137	0.7 spaces per 2-bedroom dwelling	96
	22	1 space per 3 or more bedroom dwelling	22
		Totals	146

It can be seen from Table 3 that the development is permitted to provide a maximum of 146 spaces under Council's controls for the residential component of the concept development.

5.1.3 Site 3: Maximum Parking Provision

The concept development for Site 3 will have a maximum parking provision according to **Table 4** in accordance with the Parramatta CBD Strategic Transport Study.

Table 4: Maximum parking Provision for Site 1

Type	Area (GFA) / No	Council DCP Parking Rates	Maximum allowable spaces
Commercial	1,630 m^2	See Formula * A = 1,631m^2 T= 18,756m^2	2.8
Residential	-	0.1 spaces per studio dwelling	-
	-	0.3 spaces per 1-bedroom dwelling	-
	193	0.7 spaces per 2-bedroom dwelling	135
	3	1 space per 3 or more bedroom dwelling	3
		Totals	141

It can be seen from Table 4 that the development is permitted to provide a maximum of 141 spaces under Council's controls for the commercial and residential components of the concept development.

5.2 Accessible Parking

Schedule 7.8.5 of the City of Sydney Council's DCP 2012 states the following requirements with regard to accessible parking:

- One (1) accessible car parking space is to be provided for every adaptable residential unit.
- One (1) space for every 20 car parking spaces or part thereof is to be allocated as accessible visitor parking.
- The space shall meet the requirements of AS2890.6 providing an adjacent 'shared zone' of 2.4m x 5.4m to assist with loading and unloading.

- For residential development, accessible car parking spaces are to be allocated to adaptable units, or as visitor parking. Accessible car parking spaces allocated to adaptable dwelling units are to be a part lot to an adaptable unit in the strata plan.

With regards to the subject development, the site location within land use Category A precludes the provision of visitor parking on site. As such, accessible visitor spaces are not required.

5.3 Bicycle Parking

Part 4 of Council's City Centre DCP requires provision for secure bicycle parking at a rate of one (1) bicycle parking space per 200m^2 of commercial / retail GFA or part thereof and one (1) bicycle parking space for every two (2) dwellings. The bicycle parking spaces are to be provided in accordance with security level B under AS2890.3 which requires a secure room or structure to contain the bicycle parking spaces. The provision of end of trip facilities including lockers and showers for retail and commercial uses must be provided.

5.4 Motorcycle Facilities

Council's DCP requires an area equal to a minimum of one motorcycle space to be provided as separate parking for motorcycles for every 25 on-site car parking spaces provided, or part thereof.

5.5 Servicing

The RMS *Guide to Traffic Generating Developments* recommends the following service vehicle parking bays be provided at the following rates:

- Commercial (50% for trucks)
  - 1 spaces per 4,000m^2 for the first 20,000m^2 GFA, plus
  - 1 space per 8,000m^2 over 20,000m^2 GFA
- Retail (all spaces for trucks)
  - 5 + 1 space per 1,000m^2 for more than 2,000m^2 GFA

As such, no development will require a loading dock however smaller servicing for up to a B99 vehicle or 6.4m long small rigid vehicle could be accommodated on site for occasional servicing such as private waste collection and deliveries. However this will be depend on the requirements of each development and further analysis can be provided at development application stage.

If on site servicing is required, a Loading Dock Management Plan can be prepared by building management to ensure that demands for service vehicles bays is appropriately managed and this can be conditioned as part of a consent for a future development application. It is expected that this Management Plan would restrict service vehicle access to the site outside of peak periods to reduce potential conflicts with cars using the basement car park.

6. Traffic Impacts

6.1 Existing Intersection Performance

For the purposes of assessment of the traffic impacts of the concept developments, surveys were undertaken on a typical weekday in 2018 of the most critical intersections adjacent to the site during the network peaks between 7:00am and 9:00am and 4:00pm and 6:00pm, being:

- Parkes Street / Harris Street,
- Parkes Street / Wigram Street,

It is noted that the results of the surveys indicated that the network peak hour occurred at 7:45am – 8:45am during the morning (AM) and 4:30pm – 5:30pm during the evening (PM). The results of these surveys were analysed using the SIDRA Intersection 8 computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below:

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

A summary of the modelled results are provided below in **Table 5**. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual movements and approaches.

Table 5: Existing Intersection Performances

Intersection	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Parkes Street / Harris Street	Signals	AM	1.004	55.4	D
		PM	1.056	71.6	F
Parkes Street / Wigram Street	Signals	AM	0.653	27.7	B
		PM	0.987	55.1	D

It can be seen from **Table 5** that the intersection of Parkes Street with Harris Street do not operate satisfactorily under the existing 'base case' scenario during the PM peak, with a Levels of Service (LOS) F. However, during the AM peak, Parkes Street with Harris operates with a LOS D being near capacity. The intersection of Parkes Street with Wigram Street operates with a LOS B and D during the AM and PM peak periods, respectively. Nevertheless, it is stressed that the most relevant use of this analysis is to compare the relative change in the performance parameters as a result of the concept development. This is discussed further in **Section 6**.

6.2 Trip Generation

The traffic generation rates used to determine the traffic generation are discussed below. The rates will then be used to determine the traffic generation for each component of each of the concept developments.

6.2.1 Residential

The RMS Technical Direction (TDT 2013/04a) provides traffic generation rates for high density residential use based upon surveys conducted during 2012. It recommends an average Sydney trip rate of 0.19 vehicle trips per unit during the AM peak hour and 0.15 vehicle trips per unit during the PM peak hour. The traffic is assumed to have a 20:80 split for in and out during the AM peak and vice versa during the PM peak.

Application of the above rates to the proposed 262 residential units for Site 1 results in an expected traffic generation of:

- 50 vehicle trips per hour during the AM peak period (10 in, 40 out); and
- 39 vehicle trips per hour during the PM peak period (31 in, 8 out).

Application of the above rates to the proposed 231 residential units for Site 2 results in an expected traffic generation of:

- 44 vehicle trips per hour during the AM peak period (9 in, 35 out); and
- 35 vehicle trips per hour during the PM peak period (28 in, 7 out).

Application of the above rates to the proposed 196 residential units for Site 3 results in an expected traffic generation of:

- 38 vehicle trips per hour during the AM peak period (8 in, 30 out); and
- 30 vehicle trips per hour during the PM peak period (24 in, 6 out).

6.2.2 Retail

The RMS Guide to Traffic Generating Developments specifies a traffic generation rate for retail speciality shops of 4.6 vehicle trips per hour per 100m^2 of GFA. The rate for the AM Peak was discounted to 25% of the full rate as customers are unlikely to be shopping during this period and the discounted would only account for staff and deliveries. The rate for the PM peak was discounted by 50% as the proposed retail will be catering mostly to local residents and employees who would walk to the retail shops. Therefore, the discounted rates for the retail component of the developments are considered a supportable estimate. The traffic is assumed to have a 50:50 split for in and out during the AM and PM peaks.

Application of the above rates to the proposed 1,280m^2 of GFA for Site 1 results in an expected traffic generation of:

- 15 vehicle trips per hour during the AM peak period (8 in, 7 out); and
- 29 vehicle trips per hour during the PM peak period (15 in, 14 out).

Application of the above rates to the proposed 536m^2 of GFA for Site 2 results in an expected traffic generation of:

- 4 vehicle trips per hour during the AM peak period (2 in, 2 out); and
- 8 vehicle trips per hour during the PM peak period (4 in, 4 out).

6.2.3 Commercial

The RMS Technical Direction (TDT 2013/04a) specifies a traffic generation rate for office blocks of 1.6 vehicle trips per 100m^2 during the AM peak hour and 1.2 vehicle trips per 100m^2 during the PM peak hour. However Appendix D of the Technical Direction specifies the rate for the different suburbs around Sydney and there is significant variation between the traffic generation rates at different locations. As such, the rate for Parramatta has been assumed for the sites which is considered a more accurate assessment. The rates assumed are 0.69 vehicles per 100m^2 during the AM peak hour and 0.28 vehicles per 100m^2 during the PM peak hour. The traffic is assumed to have an 80:20 split for in and out during the AM peak and vice versa during the PM peak.

Application of the above rates to the proposed 1,560m^2 of GFA for Site 1 results in an expected traffic generation of:

- 11 vehicle trips per hour during the AM peak period (9 in, 2 out); and
- 4 vehicle trips per hour during the PM peak period (1 in, 3 out).

Application of the above rates to the proposed 1,277m^2 of GFA for Site 2 results in an expected traffic generation of:

- 9 vehicle trips per hour during the AM peak period (7 in, 2 out); and
- 4 vehicle trips per hour during the PM peak period (1 in, 3 out).

Application of the above rates to the proposed 1,630m^2 of GFA for Site 3 results in an expected traffic generation of:

- 11 vehicle trips per hour during the AM peak period (9 in, 2 out); and
- 5 vehicle trips per hour during the PM peak period (1 in, 4 out).

6.2.4 Function Centre

The function centre is assumed to operate outside of the network peaks of 7:45am – 8:45am and 4:30pm – 5:30pm. Therefore, the traffic generation for the function centre has not been included in the analysis of the intersections as the peak period of the function centre and network peak do not overlap.

6.2.5 Serviced Apartments

The RMS *Guide to Traffic Generating Developments* does not specify trip generation rates for serviced apartments, however recommends a rate of 0.4 vehicle trips per unit for a motel. Application of this rate to the 12 proposed serviced apartments ordinarily results in five (5) vehicle trips per hour being generated. However, due the parking provision allowing a maximum of three (3) parking spaces the traffic generation is assumed to be less than the motel rate and in line with the number of parking spaces provided. On this basis, the estimated traffic generation for this component is as follows:

- 3 vehicle trips per hour during the AM peak period (0 in, 3 out); and
- 3 vehicle trips per hour during the PM peak period (3 in, 0 out).

6.2.6 Summary of Traffic Generation Rates

Table 6 provides a summary of the traffic generation rates for each of the proposed uses of the sites as described in the previous subsections. **Table 7** provides a summary of the traffic generation for each use of each site using the rates in Table 6.

Table 6: Summary of Traffic Generation Rates

Land Use	AM Peak			PM Peak		
	Traffic Generation Rate	IN	OUT	Traffic Generation Rate	IN	OUT
High Density Residential	0.19 / unit	20%	80%	0.15 / unit	80%	20%
Commercial	0.69 / 100m^2	80%	20%	0.28 / 100m^2	20%	80%
Retail	1.15 / 100m^2	50%	50%	2.3 / 100m^2	50%	50%
Serviced Apartments	2 / 5 units	0%	100%	1 / 6 units	100%	0%

Table 7: Summary of Traffic Generation for Each Site and Use

Land Use		No. / Area	AM Peak			PM Peak		
			COMBINED	IN	OUT	COMBINED	IN	OUT
Residential	Site 1	262	50	10	10	39	31	8
	Site 2	231	44	9	35	35	28	7
	Site 3	199	38	8	30	30	24	6
Commercial (GFA)	Site 1	1,560	11	9	2	4	1	3
	Site 2	1,277	9	7	2	4	1	3
	Site 3	1,630	11	9	2	5	1	4
Retail (GLA)	Site 1	1,280	15	8	7	29	15	14
	Site 2	363	4	2	2	8	4	4
Serviced Apartments	Site 2	12	3	0	3	3	3	0
Total	Site 1		76	26	50	74	48	26
	Site 2		60	18	42	50	36	14
	Site 3		49	17	32	35	25	10

6.2.7 Combined Traffic Generation

Having consideration for the above the total traffic generation for each site is as follows.

Site 1 is expected to have a traffic generation of:

- 76 vehicle trips per hour during the AM peak period (26 in, 50 out); and
- 74 vehicle trips per hour during the PM peak period (48 in, 26 out).

Site 2 is expected to have a traffic generation of:

- 60 vehicle trips per hour during the AM peak period (18 in, 42 out); and
- 50 vehicle trips per hour during the PM peak period (36 in, 14 out).

Site 3 is expected to have a traffic generation of:

- 49 vehicle trips per hour during the AM peak period (17 in, 32 out); and
- 35 vehicle trips per hour during the PM peak period (25 in, 10 out).

It should be noted that existing traffic generation for Site 1 as discussed in Section 3.4 has not been taken into account. Therefore, the following analysis is considered conservative assessment as this will not be deducted from the assessment.

6.3 Trip Distribution

6.3.1 Residential and Commercial Traffic Distribution

The relative distribution of 2011 Journey-to-Work trips by car for the area in the vicinity of the site (Travel Zone 1057) has been used to determine the future distribution of traffic to and from the developments on the surrounding road network for the residential and commercial uses. In this regard, the localised distribution of this traffic onto the surrounding road network is summarised in **Table 8** below.

Table 8: Traffic Distribution for Residential and Commercial Traffic

Direction	Vehicles Percentage		Location (To/From)
	Employed residents travelling to	Employed people coming from	
Harris Street (North)	21%	21%	Baulkham Hills and Hawkesbury, Parramatta
Harris Street (South) – excl. Site 3 exit	7%	4%	Parramatta
Parkes Street (East) heading south – Site 3 exit only			
Parkes Street (East)	35%	34%	City and Inner South, Eastern Suburbs, Inner South West, Inner West, North Sydney and Hornsby, Northern Beaches, Ryde, Sutherland
Parkes Street (West)	37%	41%	Blacktown, Outer South West, Outer West and Blue Mountains, Parramatta

6.3.2 Retail and Serviced Apartments Traffic Distribution

It is assumed that the retail and serviced apartment traffic will arrive and depart using the two arterial roads to and from the site, which are Harris Street to the north and South and Parkes Street to the east and west. **Table 9** shows the assumed distribution for each direction. It was assumed the three arterial directions North, East and West would have equal traffic arrivals and as the south direction is a local road this was assumed to have a lower distribution. This is considered appropriate for the serviced apartments as the low distribution to the south results in no traffic from this direction and therefore all traffic from arterial roads, which is considered a reasonable assumption

Table 9: Traffic Distribution for Retail Traffic

Direction	Assumed Distribution	
	In	Out
Harris Street (North)	30%	30%
Harris Street (South)	10%	10%
Parkes Street (East)	30%	30%
Parkes Street (West)	30%	30%

6.3.3 Site Traffic Distributions

Based on the above traffic distributions **Figure 7** and **Figure 8** below show the traffic generation for each site and the direction of all vehicles entering and exiting the sites during the AM and PM peak hours.

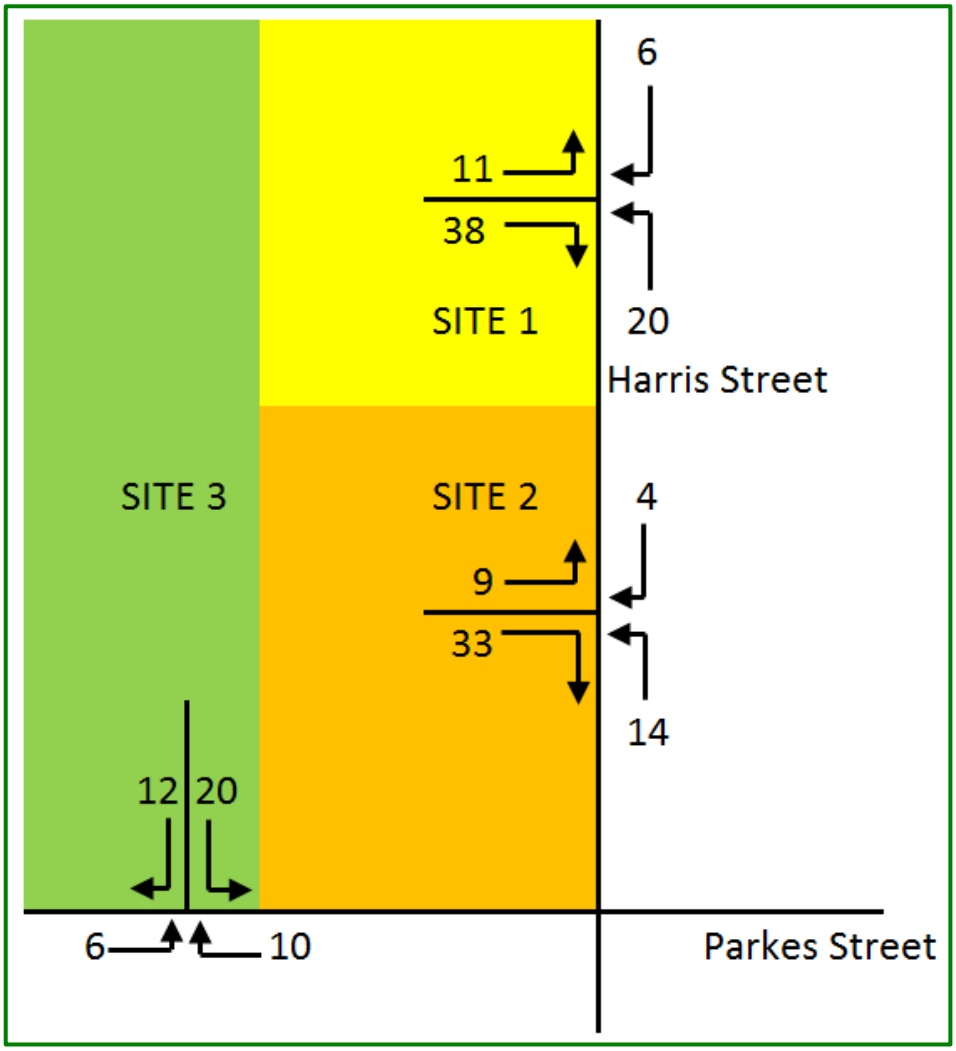


Figure 7: Site Traffic Distributions during the AM Peak Hour

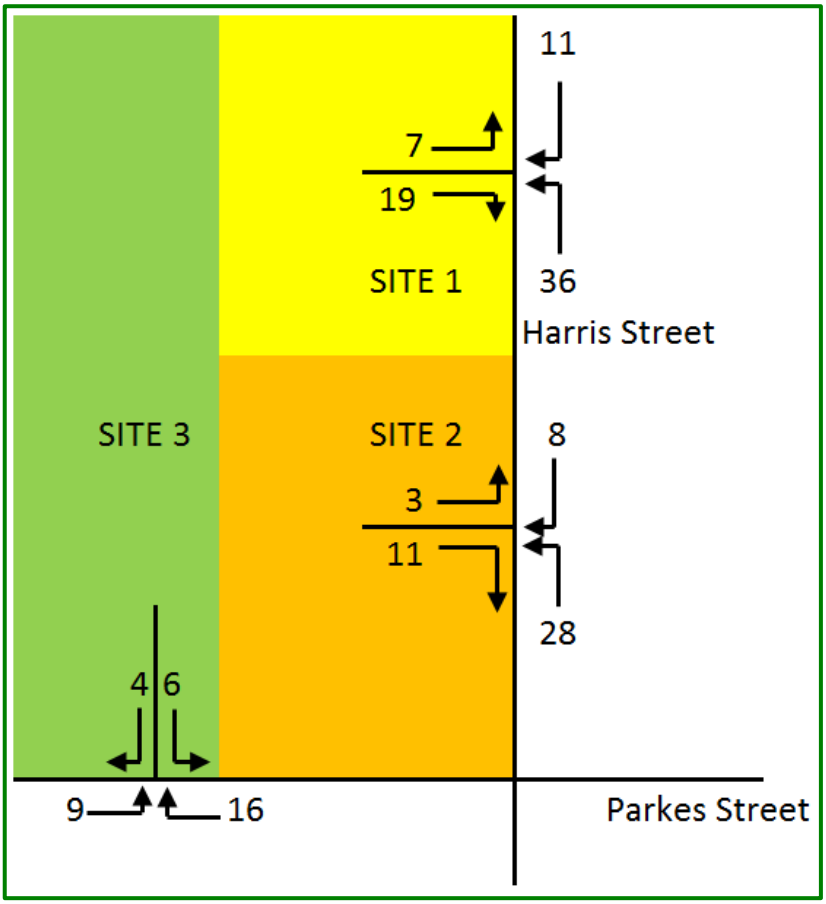


Figure 8: Site Traffic Distributions during the PM Peak Hour

6.3.4 Intersection Traffic Distribution

Based on the distribution on the above Figures, **Figure 9** and **Figure 10** below show the distributions of the traffic generated by the three concept developments at the two key intersections in the vicinity of the sites during the AM and PM peak hours.

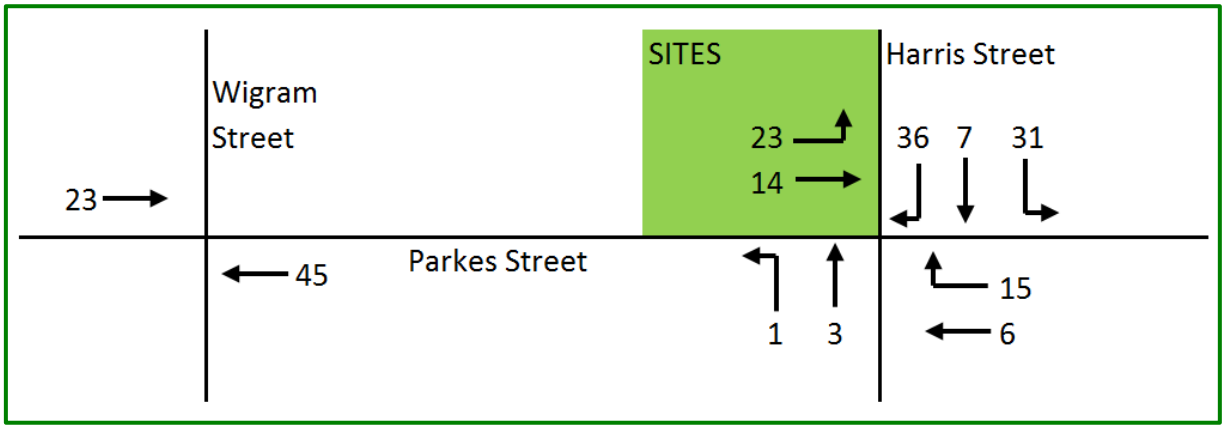


Figure 9: Intersection Traffic Distributions during the AM Peak Hour

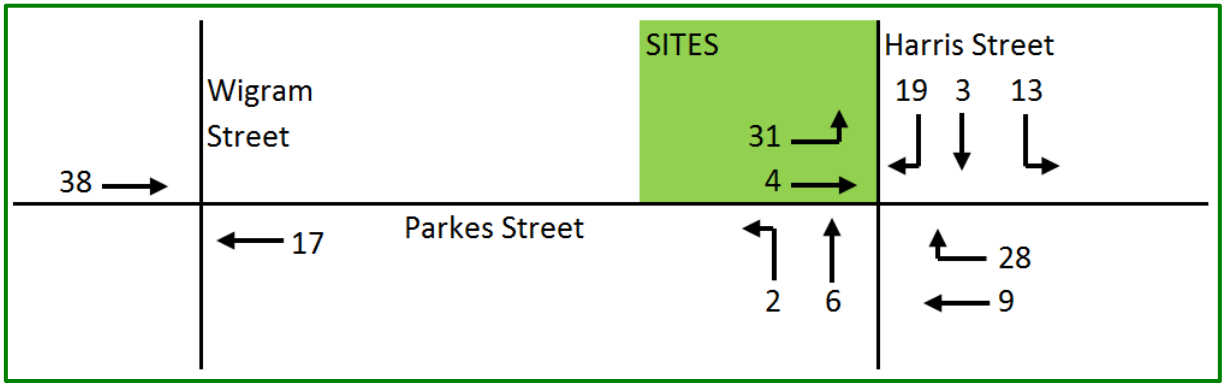


Figure 10: Intersection Traffic Distributions during the AM Peak Hour

6.4 Peak Period Intersection Performances

6.4.1 Existing + Developments Model (No Improvements)

The traffic distribution in Figure 9 and Figure 10 have been applied to the existing network models from Section 6.1 to determine the operation of the future network with the concept developments. A summary of the modelled results are provided in **Table 10** below. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual movements and approaches.

Table 10: Intersection Performance - Existing + Developments

Intersection Description	Control Type	Period	Model	Degree of Saturation	Intersection Delay	Level of Service
Parkes Street / Harris Street	Signals	AM	Existing	1.004	55.4	D
		AM	With Development	1.093	89.6	F
		PM	Existing	1.056	71.6	F
		PM	With Development	1.111	94.8	F
Parkes Street / Wigram Street	Signal	AM	Existing	0.653	27.7	B
		AM	With Development	0.781	30.1	C
		PM	Existing	0.987	55.1	D
		PM	With Development	1.168	124.2	F

It can be seen from **Table 6** that the intersections do not operate satisfactorily under the future scenario, with a level of service F during both peak periods for the intersection of Harris Street and Parkes Street and for Parkes Street and Wigram Street in the PM peak hour. Therefore, improvements are proposed to improve the operation of the intersections with the proposed traffic generation.

6.4.2 Existing + Developments with Improvements

To improve the performance of the intersections with the additional development traffic, changes to the cycle times and phase sequence of both traffic signals are proposed. **Figure 11** and **Figure 12** show the proposed phasing for each intersection. The input phase sequence and phasing summary outputs for both intersections during the AM and PM peaks are included in Appendix C. A summary of the modelled results are provided in **Table 11** below. Reference should also be made to the SIDRA outputs provided in **Appendix C** which provide detailed results for individual lanes and approaches.

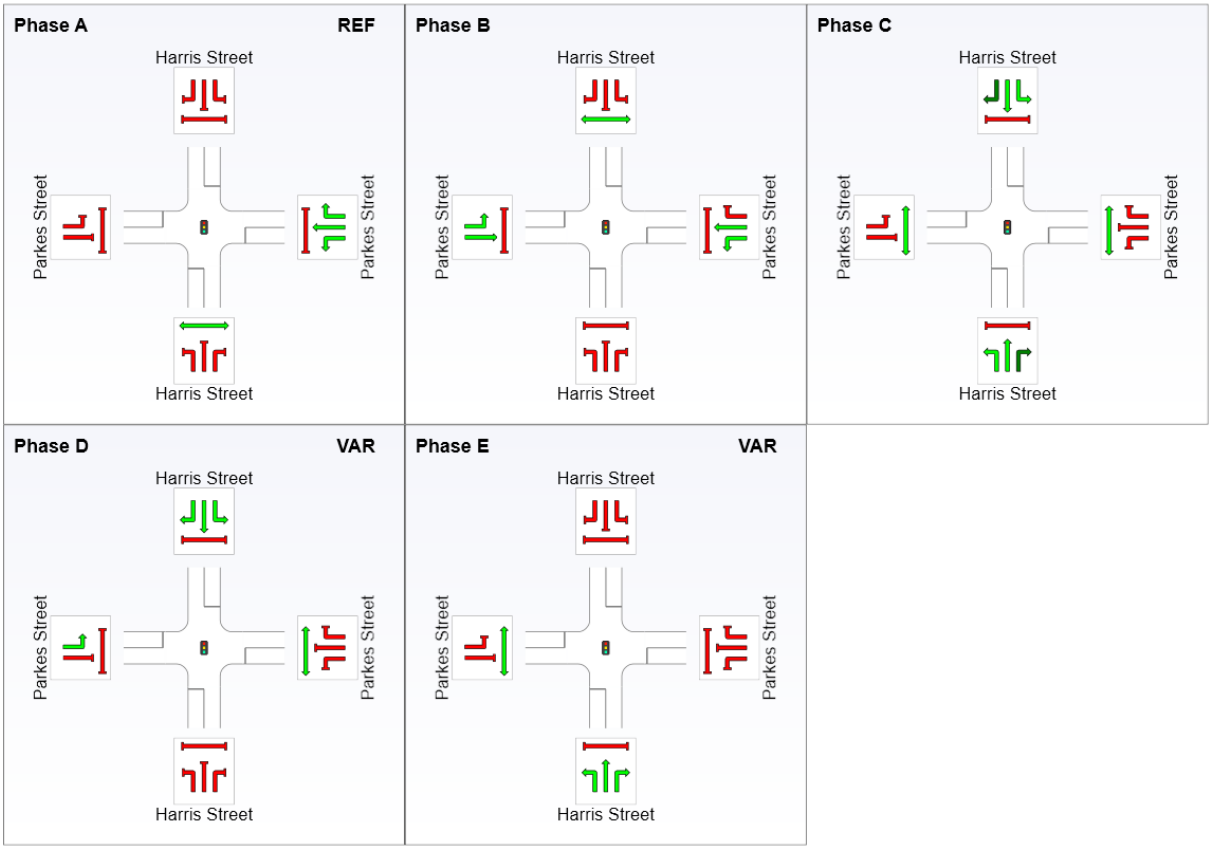


Figure 11: Proposed Phasing Input for the Intersection Harris Street and Parkes Street

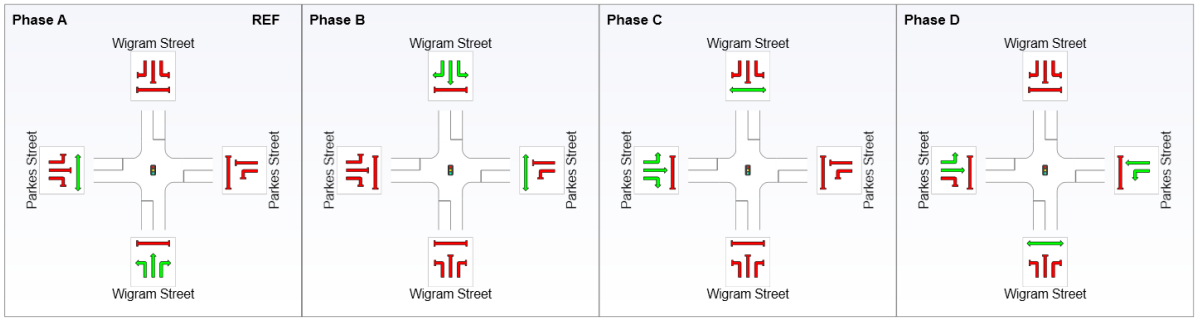


Figure 12: Proposed Phasing Input for the Intersection Wigram Street and Parkes Street

Table 11: Intersection Performance - Existing + Development with Improvements

Intersection	Control Type	Period	Degree of Saturation	Intersection Delay	Level of Service
Parkes Street / Harris Street	Signals	AM	1.004	58.4	E
		PM	1.148	59.0	E
Parkes Street / Wigram Street	Signals	AM	0.754	28.2	B
		PM	0.892	35.4	C

It can be seen from **Table 11** that the intersections operate significantly better under the future with improvements scenario for the cumulative assessment, with a LOS E during both peak periods for the intersection of Harris Street and Parkes Street. The intersection of Parkes Street and Wigram Street now operates satisfactorily with a LOS C or better during both peak periods. Therefore, the improvements are recommended to be adopted to improve existing traffic flow, particularly during the PM peak and allow for the increased traffic generation with the concept developments. Accordingly, the traffic impacts associated with the developments can be accommodated on the road network with the proposed changes to the timing cycle and phase sequence.

7. Vehicular Access

7.1 Access Requirements

The concept developments are required provide vehicular accesses in accordance with AS 2890.1 (2004). This will depend on the requirements of each development and further analysis can be provided at development application stage. The following requirements are noteworthy for each site.

7.2 Site 1

With a maximum parking provision of 183 'Class 1A' car parking spaces with access on a local road (Harris Street), the development is required to provide a 'Category 2' driveway under AS2890.1. This requires a combined entry exit driveway of 6.0m – 9.0m.

7.3 Site 2

With a maximum parking provision of 146 'Class 1A' car parking spaces with access on a local road (Harris Street), the development is required to provide a 'Category 2' driveway under AS2890.1. This requires a combined entry exit driveway of 6.0m – 9.0m.

7.4 Site 3

With a maximum parking provision of 141 'Class 1A' car parking spaces with access on an arterial road (Parkes Street), the development is required to provide a 'Category 3' driveway under AS2890.1. This requires separate entry and exit driveways of 6.0m and 4.0m – 6.0m, respectively. However , if the development provides 100 parking spaces or less the development can provide a Category 2 driveway which requires a combined entry exit driveway of 6.0m – 9.0m.

8. Conclusions

In summary:

- TRAFFIX has been commissioned to undertake a Traffic Impact Assessment (TIA) in support of a Planning Proposal relating to three mixed use developments at the following addresses and their respective client
  - 114 – 118 Harris Street, Harris Park – Harris Street Development Pty Ltd
  - 26 – 30 Parkes Street, Harris Park – Parkes St, NSW Pty Ltd
  - 24 Parkes Street, Harris Park – SH Parkes International Pty Ltd

- A detailed description of the concept development is provided in the Statement of Environmental Effects prepared separately. In summary, the developments for which approval is sought comprise the following components:
  - Site 1 at 114-118 Harris Street proposes 262 apartments, 1,150m^2 of gross floor area (GFA) for retail use and 1,560m^2 of GFA for commercial use in a 537-storey building and basement car parking with access from Harris Street.
  - Site 2 at 26-30 Parkes Street will provide 231 apartments, 12 serviced apartments, 363m^2 of GFA for retail use, 1,265m^2 of GFA for commercial use and 386m^2 of GFA for a function centre in a 36 storey building and basement car parking with access from Harris Street.
  - Site 3 at 24 Parkes Street will provide 199 apartments and 1,630m^2 of GFA for commercial use in a 38 storey building with basement and above ground car parking with access from Parkes Street.

- The maximum parking requirements for the concept developments have been provided in accordance with the City of Sydney Local Environmental Plan 2012 as required by Parramatta City Council for development within the Parramatta City Centre.

- The three developments will generate the following traffic during the AM and PM peak hours which were found to be 7:45am – 8:45am and 4:30pm – 5:30pm:
  - Site 1 is expected to have a traffic generation of:
    - 76 vehicle trips per hour during the AM peak period (26 in, 50 out); and
    - 74 vehicle trips per hour during the PM peak period (48 in, 26 out).
  - Site 2 is expected to have a traffic generation of:
    - 60 vehicle trips per hour during the AM peak period (18 in, 42 out); and
    - 50 vehicle trips per hour during the PM peak period (36 in, 14 out).

- Site 3 is expected to have a traffic generation of:
  - 49 vehicle trips per hour during the AM peak period (17 in, 32 out); and
  - 35 vehicle trips per hour during the PM peak period (25 in, 10 out).

- The existing and existing + development scenarios were modelled using SIDRA Intersection to determine the impact of the additional traffic generation on the local road network. It was found that both scenarios were operating unsatisfactorily. Therefore, further analysis was conducted to propose improvement to the intersections.

  The improvements proposed are to modify timing cycle and phase sequence for both intersections, which was shown to have significantly improved average delay and Level of Service. Therefore, the modifications are recommended to be adopted to improve the current operation of the intersections.

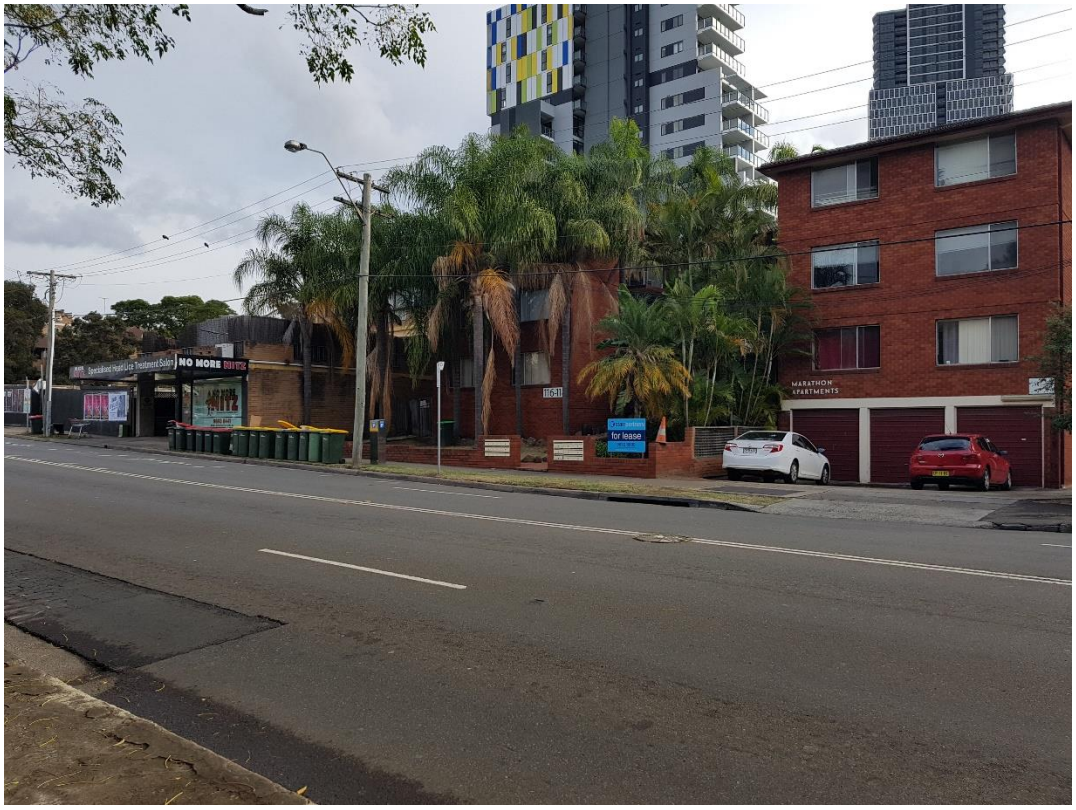
- The vehicular access requirements for each development have been provided to ensure the concept developments comply with AS2890.1 (2004).

It is therefore concluded that the concept developments are supportable on traffic planning grounds and would operate satisfactorily.

Appendix A

Photographic Record

View looking east along Parkes Street toward sites 2 and 3.



View looking west across Harris Street at site 1.

View looking west across Harris Street at site 2.

View looking north west across the intersection of Parkes Street and Harris Street at site 2.

View looking west along Parkes Street at its intersection with Harris Street.

View looking north along Harris Street at its intersection with Parkes Street.

View looking east along Parkes Street at its intersection with Wigram Street.

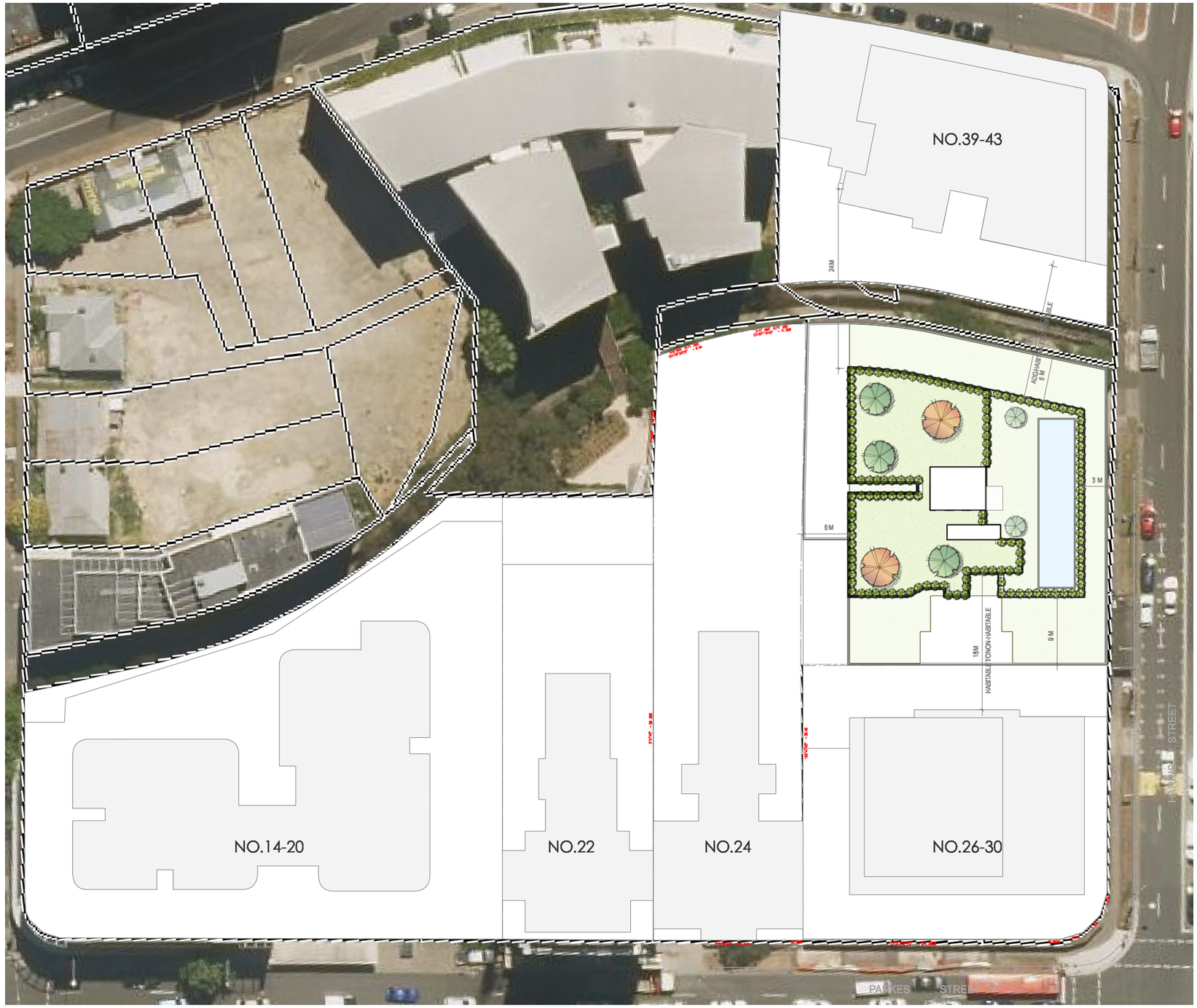
View looking south along Wigram Street at its intersection with Parkes Street.

Appendix B

Reduced Plans

PROPOSAL

SITE PLAN



NOTE:

COMMUNAL OPEN SPACE CALCULATION:

LEVEL 4:	440 M2
LEVEL 35:	260 M2
TOTAL:	**700 M2 (39.4%)** min. 25% required
2 HOURS SOLAR	410 M2 (58.5%) min. 50% required

KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

TYPICAL BASEMENT PLAN

URBAN DESIGN REPORT
114, 116-118 HARRIS STREET, HARRIS PARK
HARRIS PARK DEVELOPMENTS PTY LTD

PROPOSAL

TYPICAL BASEMENT 02-05 PLAN

NOTE:

CAR SPACES CALCULATION:

TYPICAL BASEMENT LEVEL:	41 CARS
BASEMENT 01:	38 CARS
TOTAL:	**183 CARS**
	52 BIKES

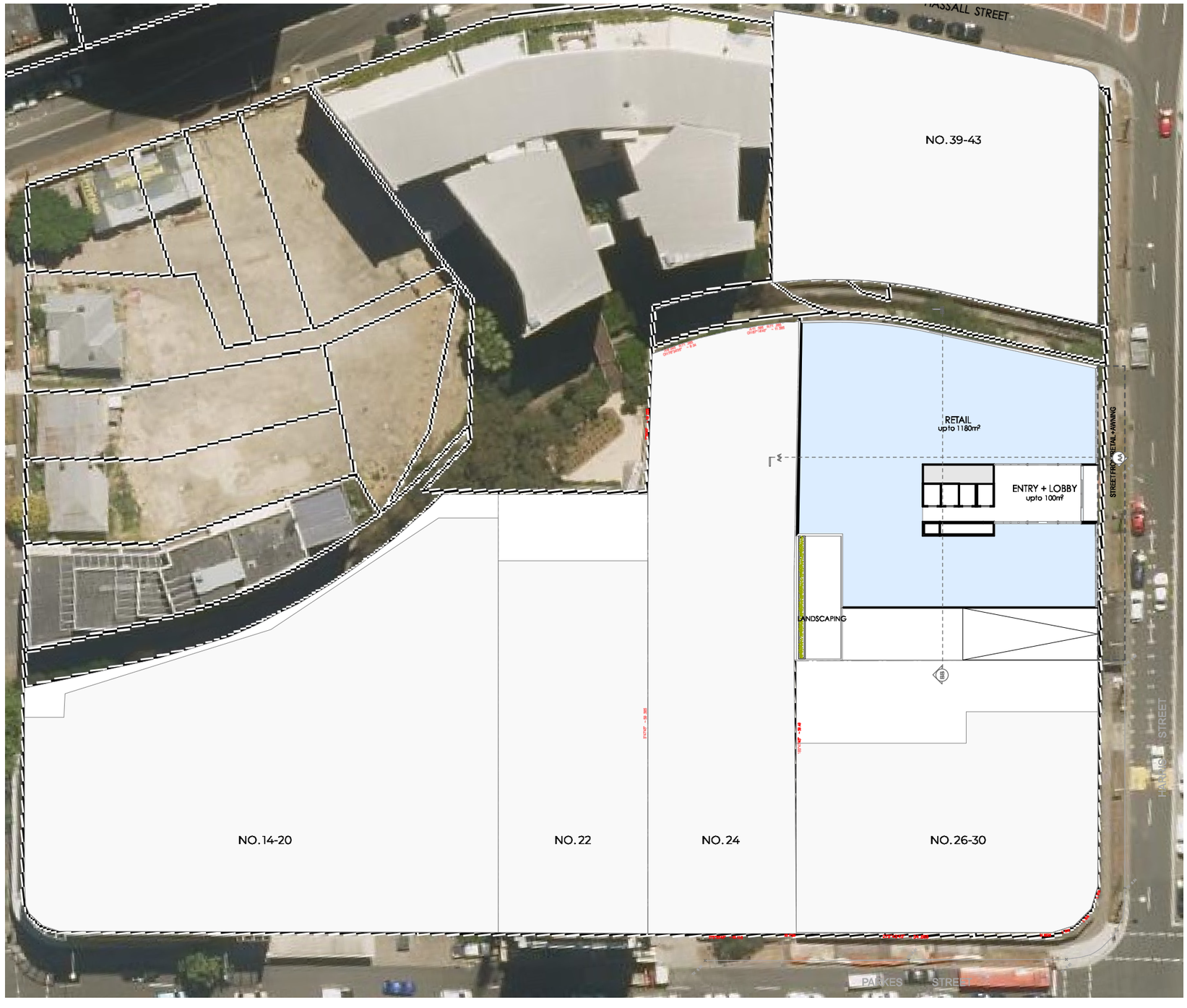
KEY

- FIRE STAIR
- SERVICE / PLANT ROOMS
- MOTOBIKE / BIKE PARKING
- STORAGE
- DEEP SOIL

SCALE 1:600

PROPOSAL

GROUND FLOOR PLAN



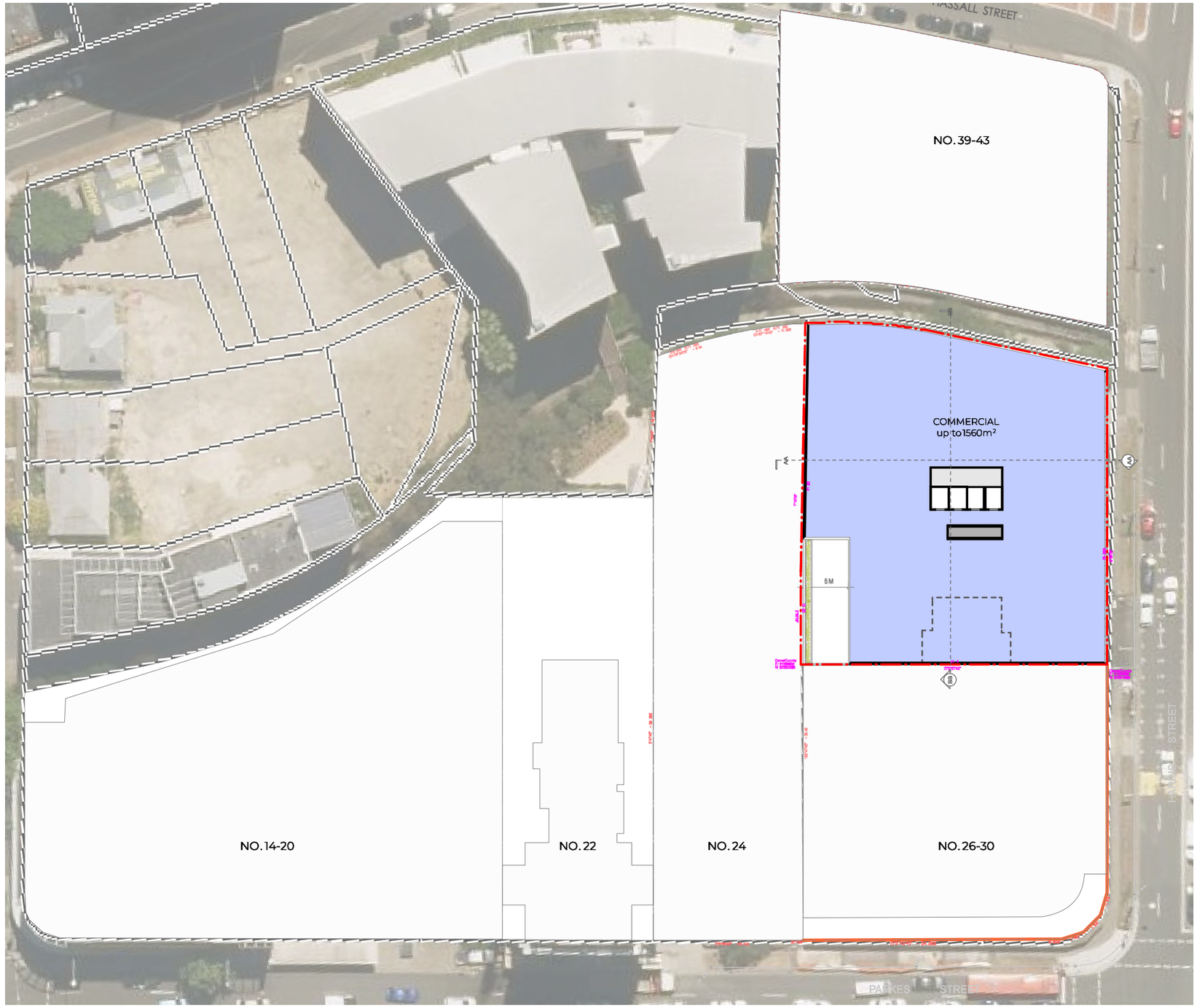
KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

PODIUM FLOOR PLAN



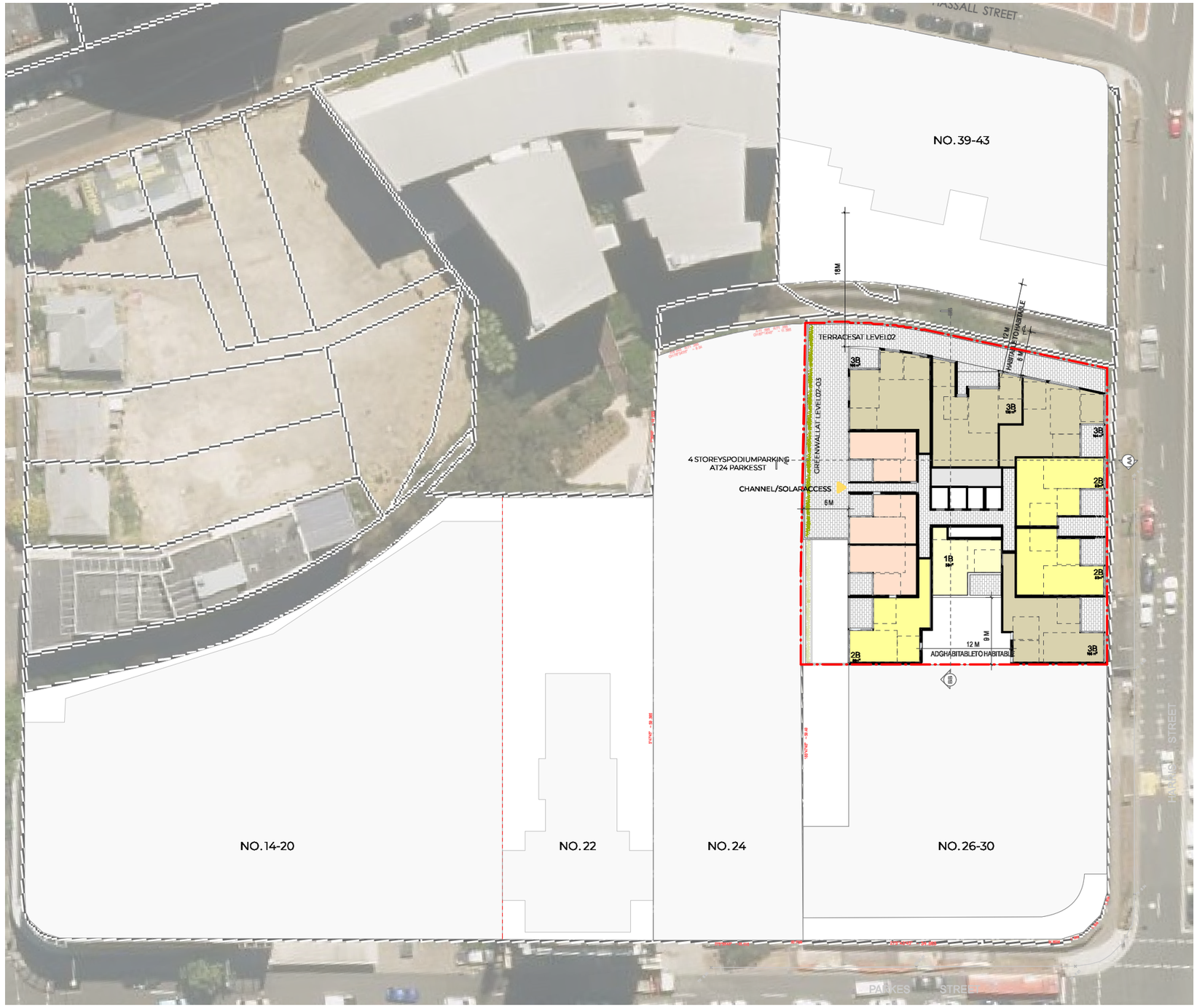
KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

L2-3 FLOOR PLAN



NOTE:

SOLAR + PRIVACY SCREENINGS ARE TO BE DESIGNED AT DA STAGE

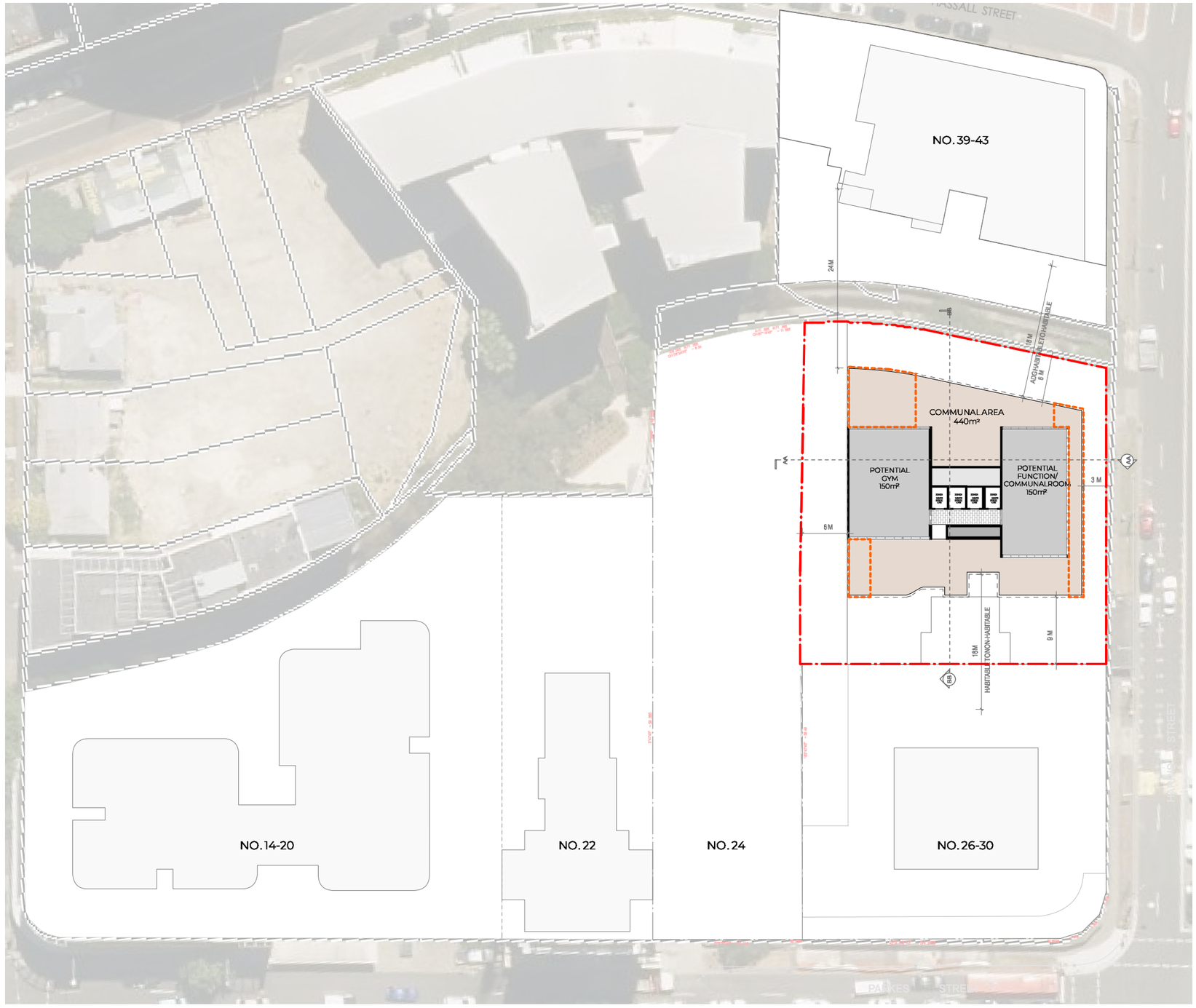
KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

L4 FLOOR PLAN



NOTE:

COMMUNAL AREA: 440 M2
COS RECEIVING 2 HOURS SOLAR: 150 M2

KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS
- COMMUNAL AREAS RECEIVING 2HR SOLAR

SCALE 1:600

PROPOSAL

L5-31 FLOOR PLAN

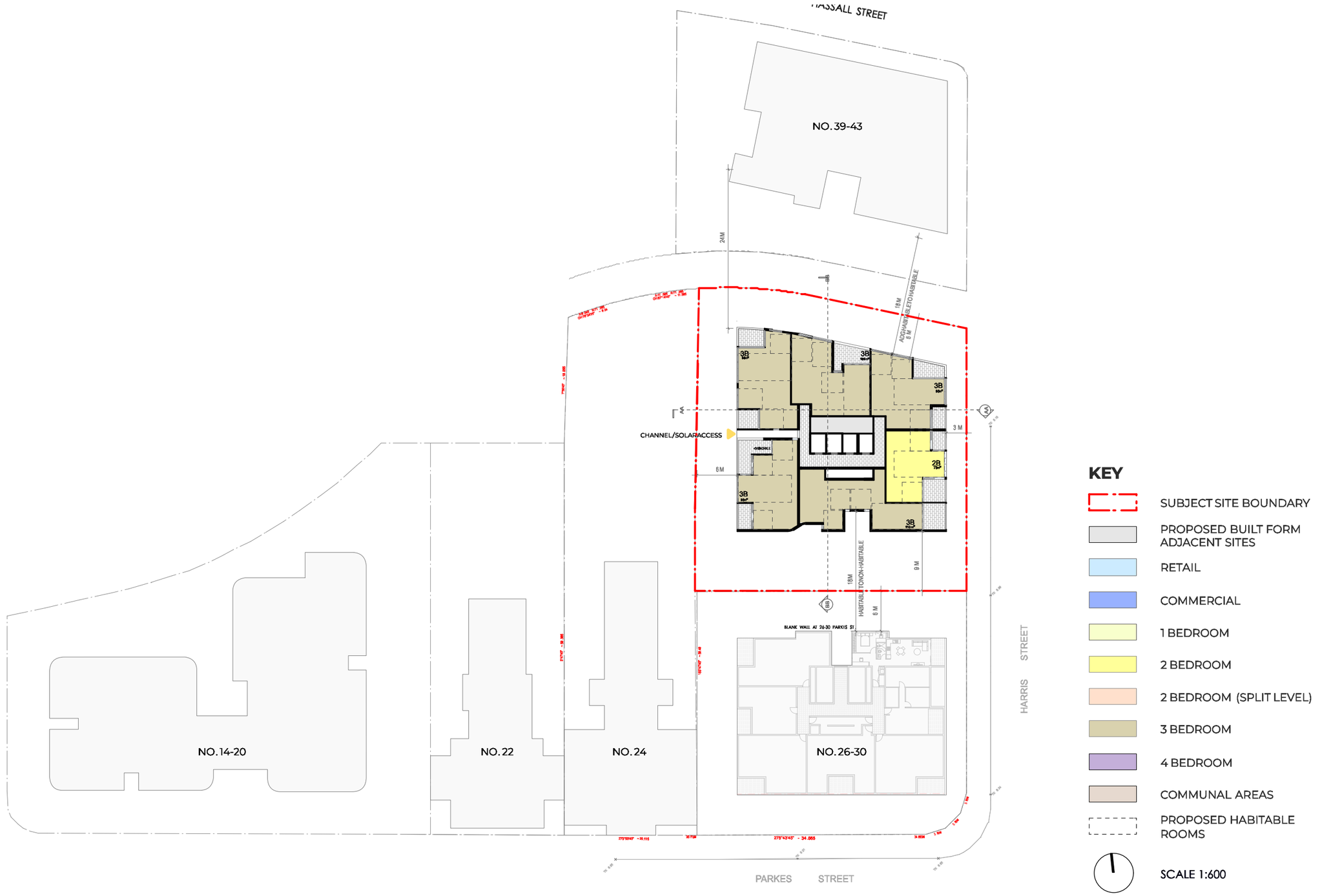
KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

L32-34 FLOOR PLAN



KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS

SCALE 1:600

PROPOSAL

L35-37 PENTHOUSE FLOOR PLAN

NOTE:

COMMUNAL AREA: 260 M2
COS RECEIVING 2 HOURS SOLAR: 260 M2

KEY

- SUBJECT SITE BOUNDARY
- PROPOSED BUILT FORM ADJACENT SITES
- RETAIL
- COMMERCIAL
- 1 BEDROOM
- 2 BEDROOM
- 2 BEDROOM (SPLIT LEVEL)
- 3 BEDROOM
- 4 BEDROOM
- COMMUNAL AREAS
- PROPOSED HABITABLE ROOMS
- COMMUNAL AREAS RECEIVING 2HR SOLAR

SCALE 1:600

PROPOSAL
YIELD

SITE AREA	1776 M2					
YIELD						
LEVEL	GFA (M2)	1 BED	2 BED	3 BED	4 BED	COS (M2)
GF	1280					
LEVEL 01	1560					
LEVEL 02	990	1	6	4		
LEVEL 03	990	1	3	4		
LEVEL 04	300					440
LEVEL 05	650	1	7			
LEVEL 06	650	1	7			
LEVEL 07	650	1	7			
LEVEL 08	650	1	7			
LEVEL 09	650	1	7			
LEVEL 10	650	1	7			
LEVEL 11	650	1	7			
LEVEL 12	650	1	7			
LEVEL 13	650	1	7			
LEVEL 14	650	1	7			
LEVEL 15	650	1	7			
LEVEL 16	650	1	7			
LEVEL 17	650	1	7			
LEVEL 18	650	1	7			
LEVEL 19	650	1	7			
LEVEL 20	650	1	7			
LEVEL 21	650	1	7			
LEVEL 22	650	1	7			
LEVEL 23	650	1	7			
LEVEL 24	650	1	7			
LEVEL 25	650	1	7			
LEVEL 26	650	1	7			
LEVEL 27	650	1	7			
LEVEL 28	650	1	7			
LEVEL 29	650	1	7			
LEVEL 30	650	1	7			
LEVEL 31	650	1	7			
LEVEL 32	645		1	5		
LEVEL 33	645		1	5		
LEVEL 34	645		1	5		
LEVEL 35	400				2	260
LEVEL 36	400				2	
LEVEL 37	400				2	
HEIGHT LIMITED TO 38 STOREYS (AT 3.1M FLR TO FLR) DUE TO OVERSHADOWING OF EXPERIMENT FARM COTTAGE						

TOTALS	25805	35	198	23	6	700
		13.4%	75.6%	8.8%	2.3%	39.4%
			TOTAL UNITS		262	
			FSR	14.53 :1		

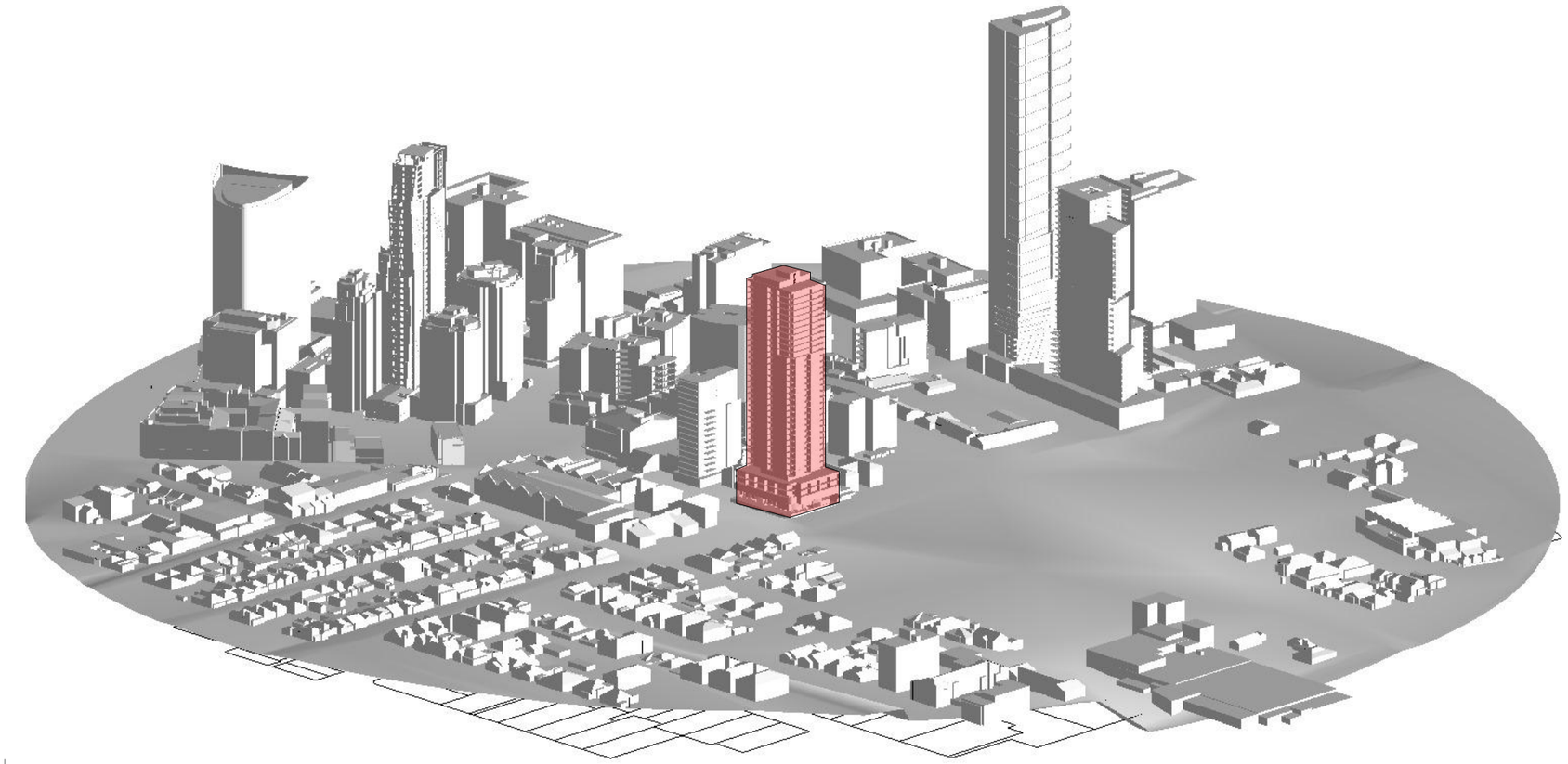
26-30 PARKES STREET, PARRAMATTA

UPDATED PLANNING PROPOSAL

FEBRUARY/2018

PREPARED FOR

PARKES STREET NSW PTY LTD.



Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064

1 LOCATION PLAN
1:2000

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

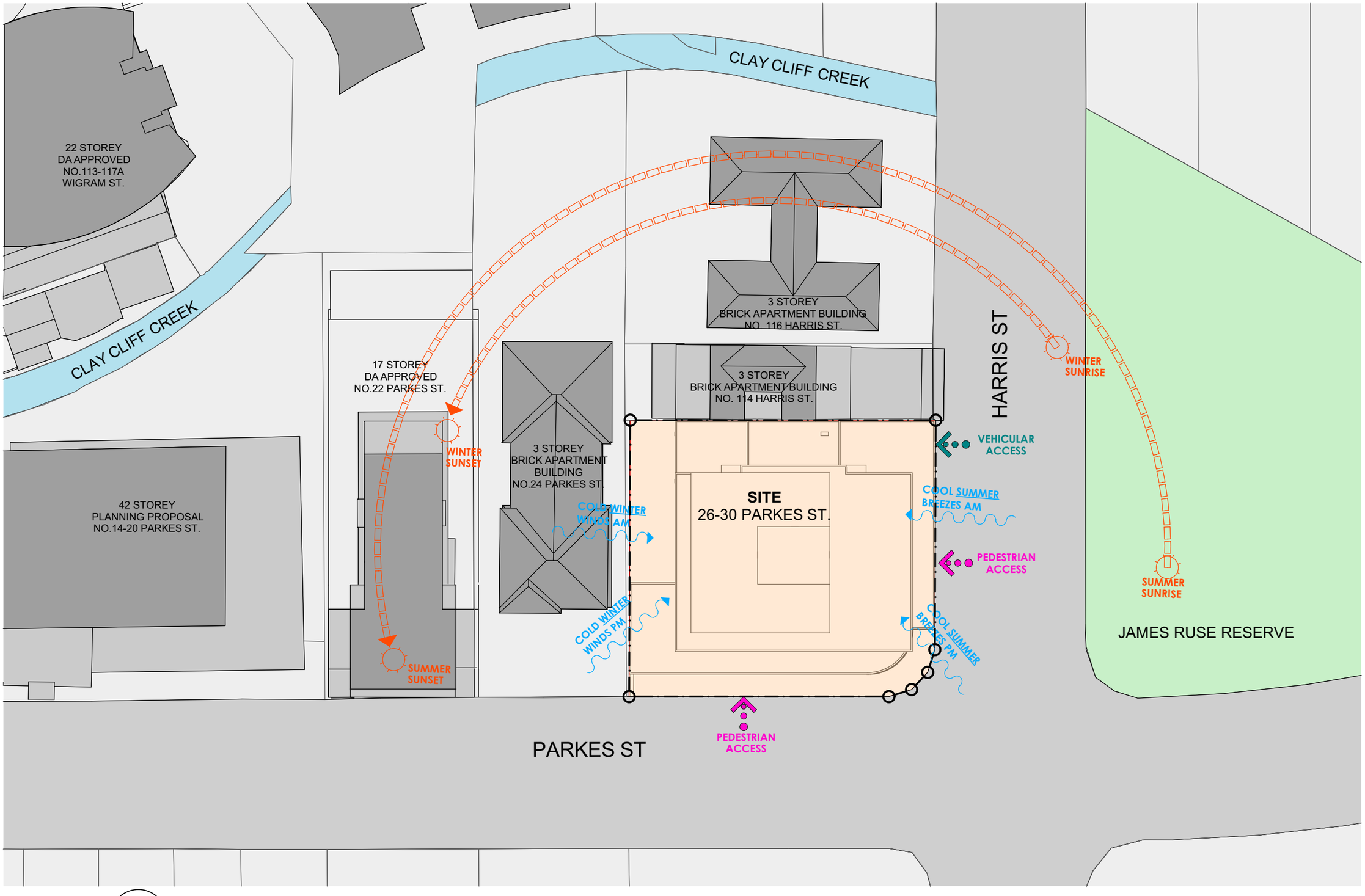
PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LOCATION PLAN

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:2000
PROJECT No: P368

SK 01 P4
stage. dwg no. revision



1 SITE ANALYSIS
1:500

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

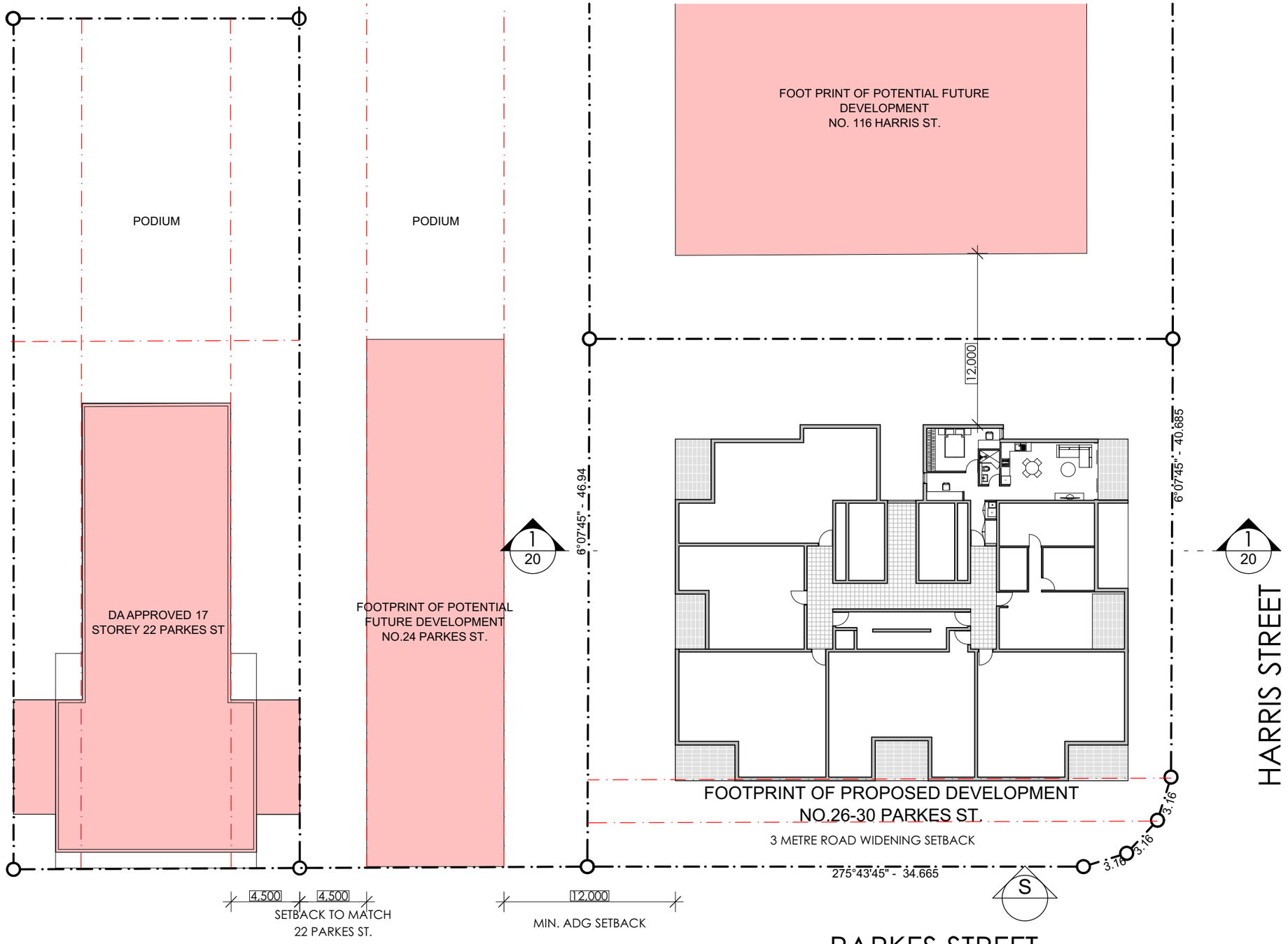
DRAWING TITLE:
SITE ANALYSIS

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:500
PROJECT No: P368

SK stage. 02 dwg no. P4 revision

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)



1 TYPICAL LEVEL-ADJACENT SITES DEVELOPMENT POTENTIAL
1:300

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT: PARKES STREET NSW PTY LTD.

PROJECT TITLE: 26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE: ADJACENT SITES DEVELOPMENT POTENTIAL

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:300
PROJECT No: P368

SK stage. 03 dwg no. P4 revision

1 GROUND FLOOR
1:200

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

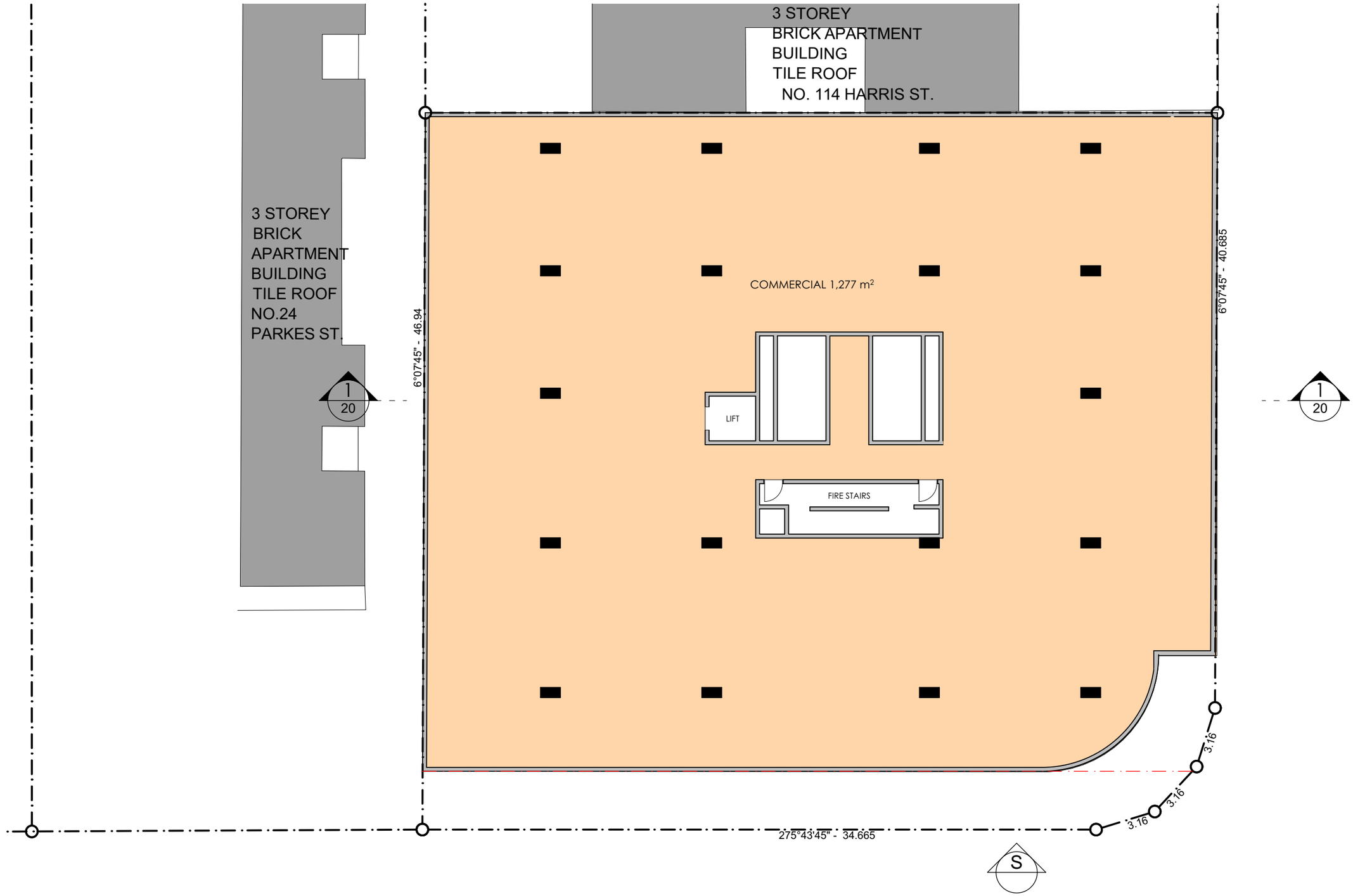
DRAWING TITLE:
GROUND FLOOR

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 11 dwg no. P4 revision

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)



1 LEVEL 1 (COMMERCIAL)
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

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P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 1 (COMMERCIAL)

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 12 dwg no. P4 revision

1 LEVEL 2-3 APARTMENT
1:200

PARKES STREET

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT: PARKES STREET NSW PTY LTD.

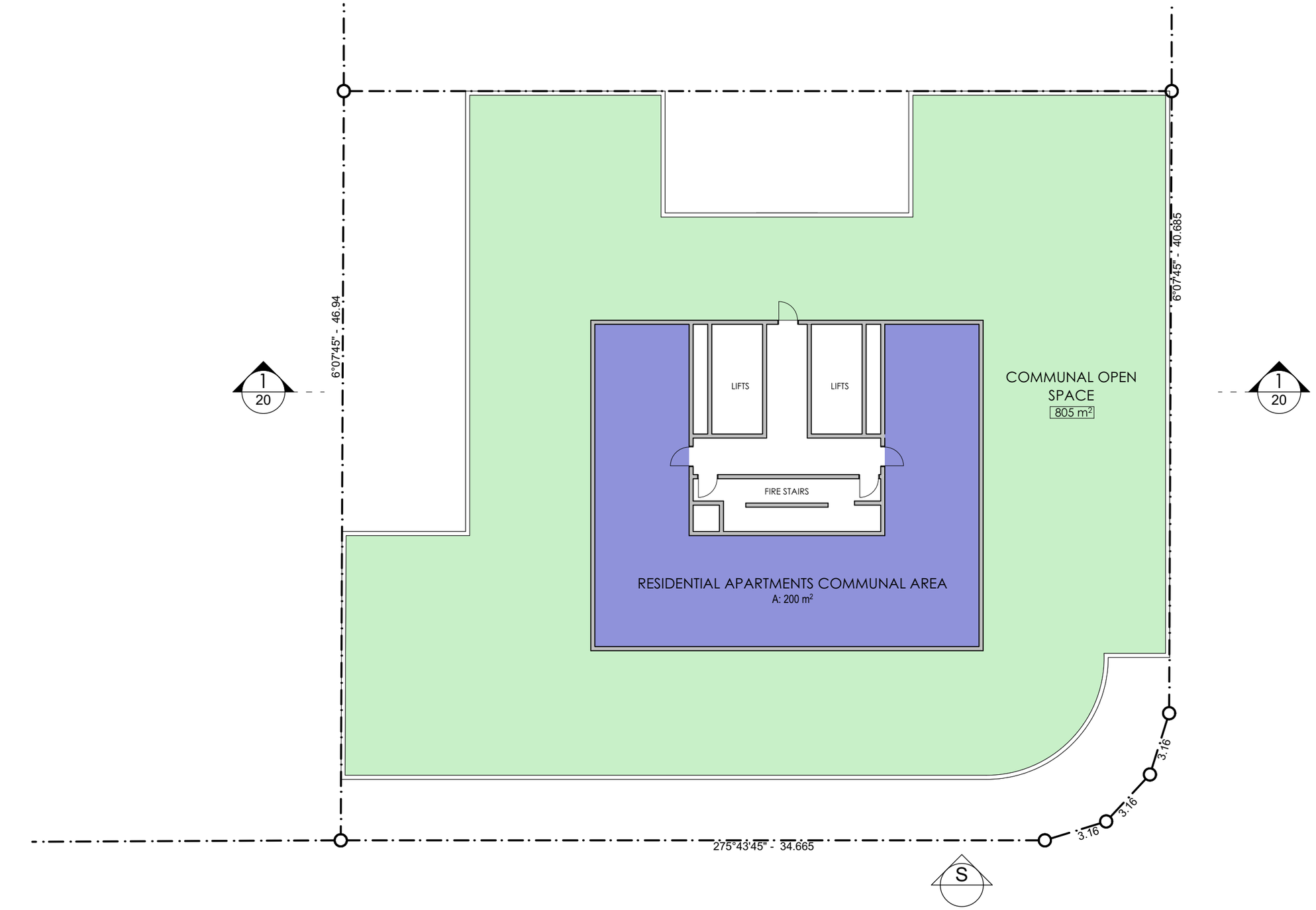
PROJECT TITLE: 26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE: LEVEL 2-3 (RESIDENTIAL)

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 13 dwg no. P4 revision



1 LEVEL 4 (PODIUM)
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 4 (PODIUM)

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 14 dwg no. P4 revision

1 LEVEL 5-24 (TYPICAL APARTMENTS)
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 5-24 TYPICAL RESIDENTIAL LEVELS

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 15 dwg no. P4 revision

1 LEVEL 5-24 (RESIDENTIAL OPTION)
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 5-24 TYPICAL RESIDENTIAL LEVEL OPTION

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 16 dwg no. P4 revision

1 LEVEL 25-34 (UPPER LEVEL RESIDENTIAL)
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 25-34 TYPICAL RESIDENTIAL LEVEL

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK 17 P4
stage. dwg no. revision

1 LEVEL 35-FUNCTION ENTRY AND UNITS
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

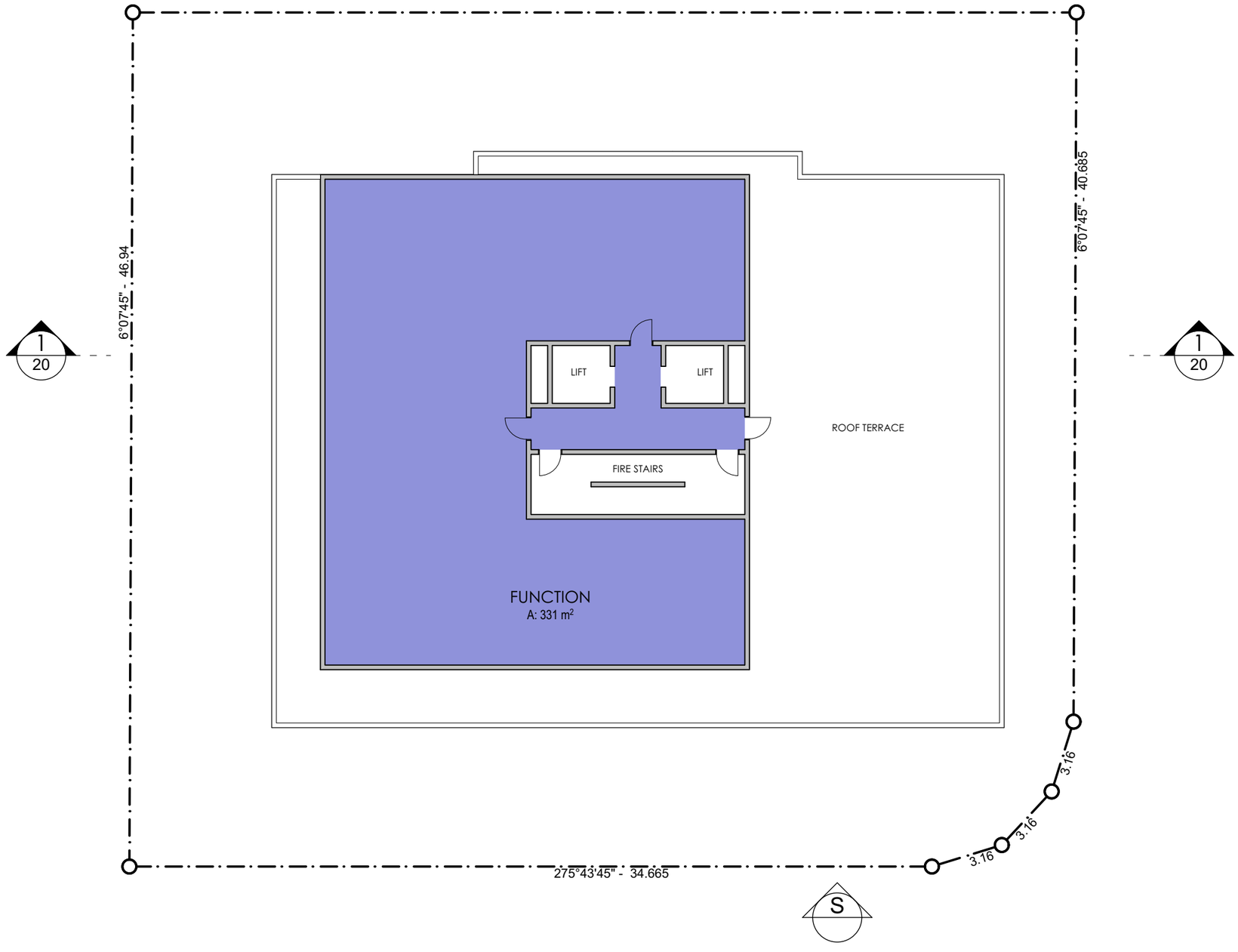
PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVEL 35 FUNCTION ENTRY AND UNITS

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK stage. 18 dwg no. P4 revision



1 LEVEL 36 ROOF FUNCTION
1:200

Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

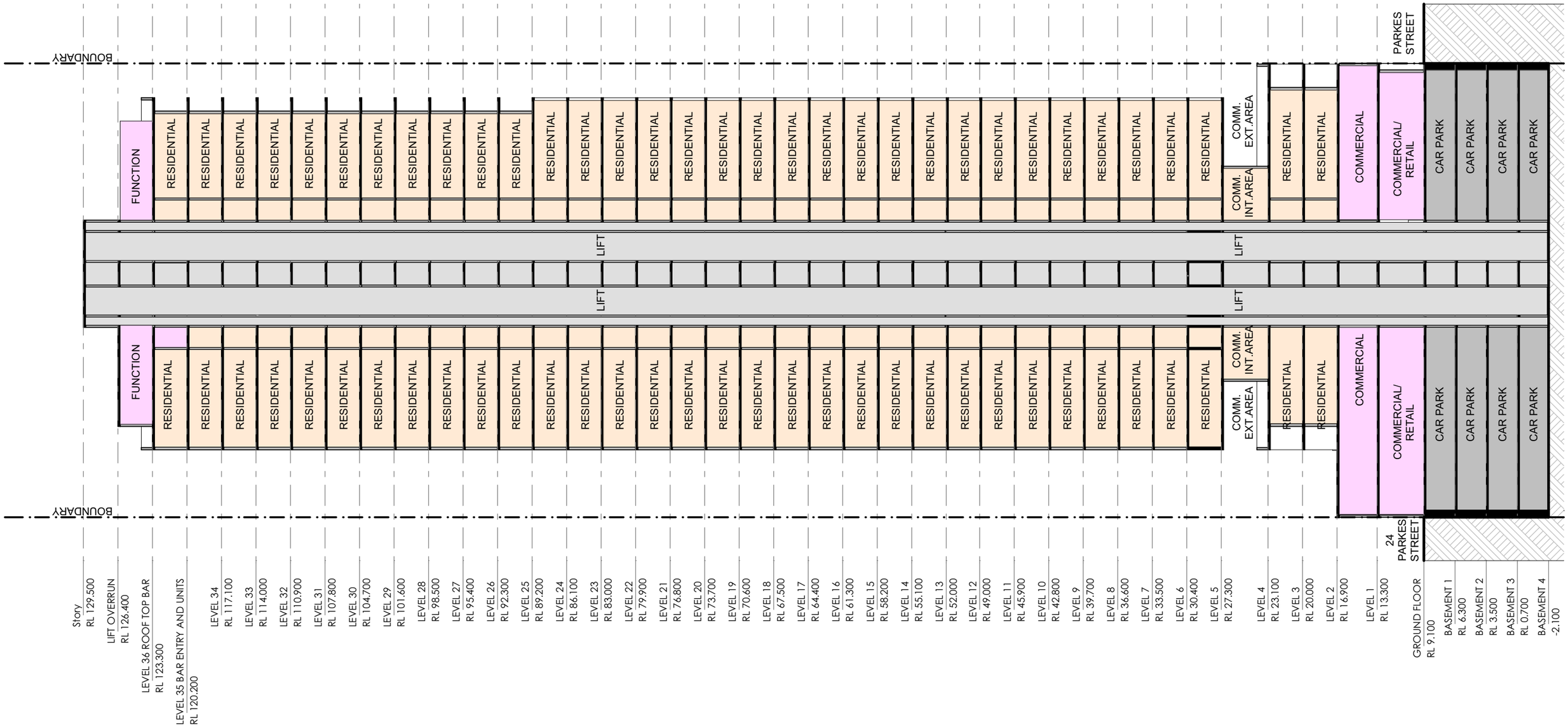
PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
LEVELS 36 ROOF TOP FUNCTION

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:200
PROJECT No: P368

SK 19 P4
stage. dwg no. revision



Project Tourism International Architecture Pty Ltd
Level 10, 263 Clarence Street Sydney NSW 2000
T +61 2 9283 0860 www.ptigroup.com.au ABN 90 050 071 022
Nominated Registered Architect: Peter Israel (reg no. 5064)

REV	DESCRIPTION	BY	DATE
P1	ISSUED FOR COUNCIL MEETING	AB	3/10/17
P2	ISSUED FOR REVIEW	AB	23/10/17
P3	ISSUED FOR REVIEW	AB	09/11/17
P4	ISSUED FOR REVIEW	AB	26/02/18

CLIENT:
PARKES STREET NSW PTY LTD.

PROJECT TITLE:
26-30 PARKES STREET, PARRAMATTA

DRAWING TITLE:
SECTIONS

NORTH POINT:

DRAWN BY: AB
CHECKED BY: PI
SCALE: 1:350
PROJECT No: P368

SK stage. 20 dwg no. P4 revision

CONCEPT DESIGN

Proposed Option SK-8
24 Parkes Street Parramatta NSW 2150

Site Area 1631 m²

COMMERCIAL -	
Ground -L3	1,630 m²
	FSR 1:1
RESIDENTIAL	GFA
Typical L5 - L18	
L20-L41	
L43-L55	18,406
Penthouse L56	350
	18,756 m²
	FSR 11.5:1

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

Drawing is NOT VALID or issued for use, unless checked.

GENERAL NOTES:

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Drawing to be read in conjunction with information on first page.
Check all dimensions and levels on site before commencing work or ordering materials.
All existing ground lines & trees location are approximate, therefore to be verified on-site by the builder.
Any discrepancies to be verified back to Zhinar Architects before proceeding.
All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturer's instructions.
Unless noted 'Issued for Construction', drawing not to be used for construction.

Zhinar Architects Pty Ltd
Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122
+61 2 8893 8888 / p
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT STATUS :
Option SK-8

PROJECT NAME
Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A.: Parramatta City Council

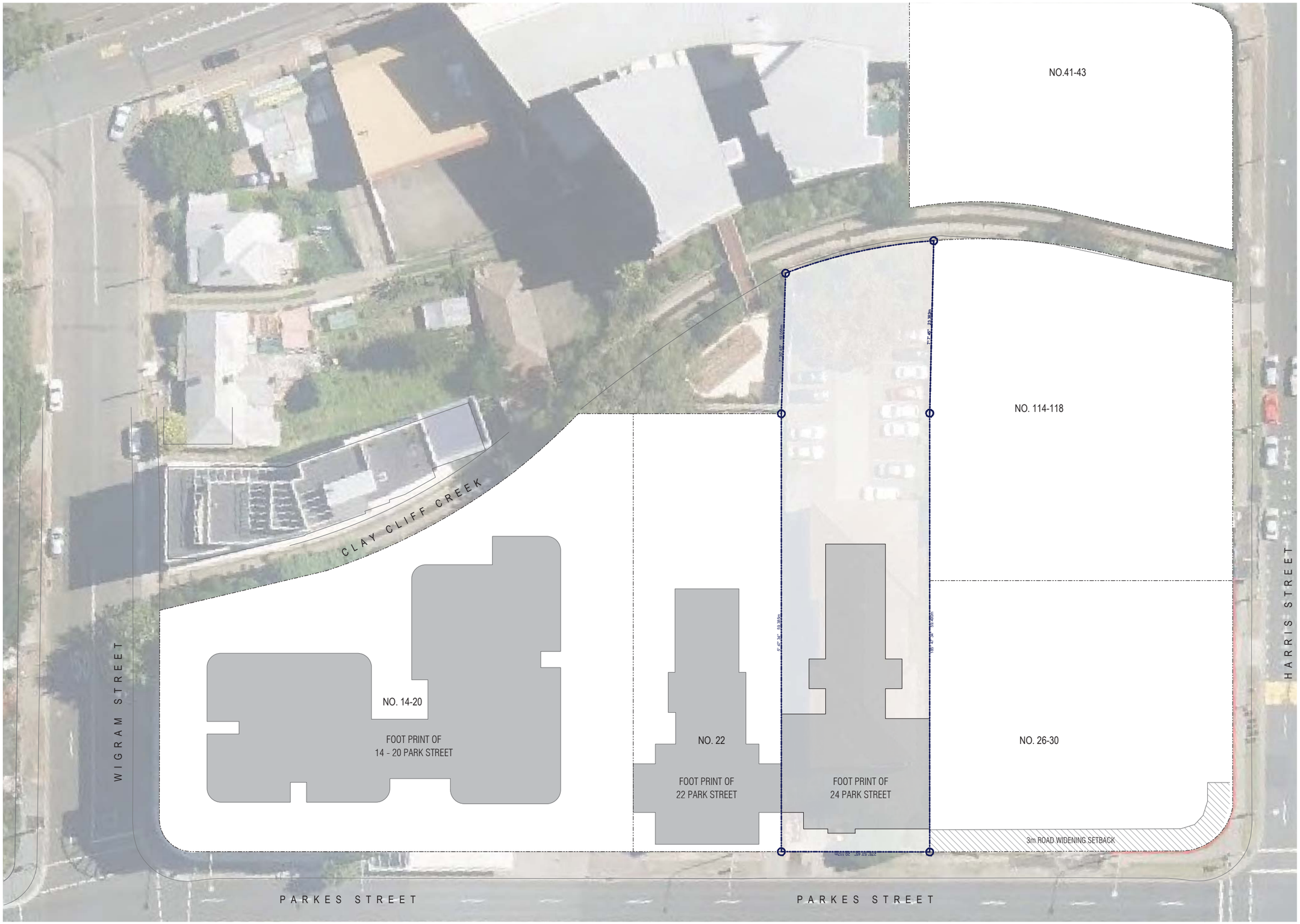
NORTH:

SHEET TITLE:
Cover Sheet

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016		A3 SHEET

JOB No.	DRAWING No.	ISSUE
08486	SK-8 01	8

PRINT DATE: Thursday, 10 May 2016 1:33 pm



Potential Development Site Plan

Scale @A1 - 1:250

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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A.: Parramatta City Council

NORTH:

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SHEET TITLE:

Potential Development Site Plan

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016		A3 SHEET

08486	SK-8 02	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2018 11:20 am

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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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Zhinar Architects Pty Ltd

Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122

+61 2 8893 8888 / p
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A. : Parramatta City Council

NORTH:

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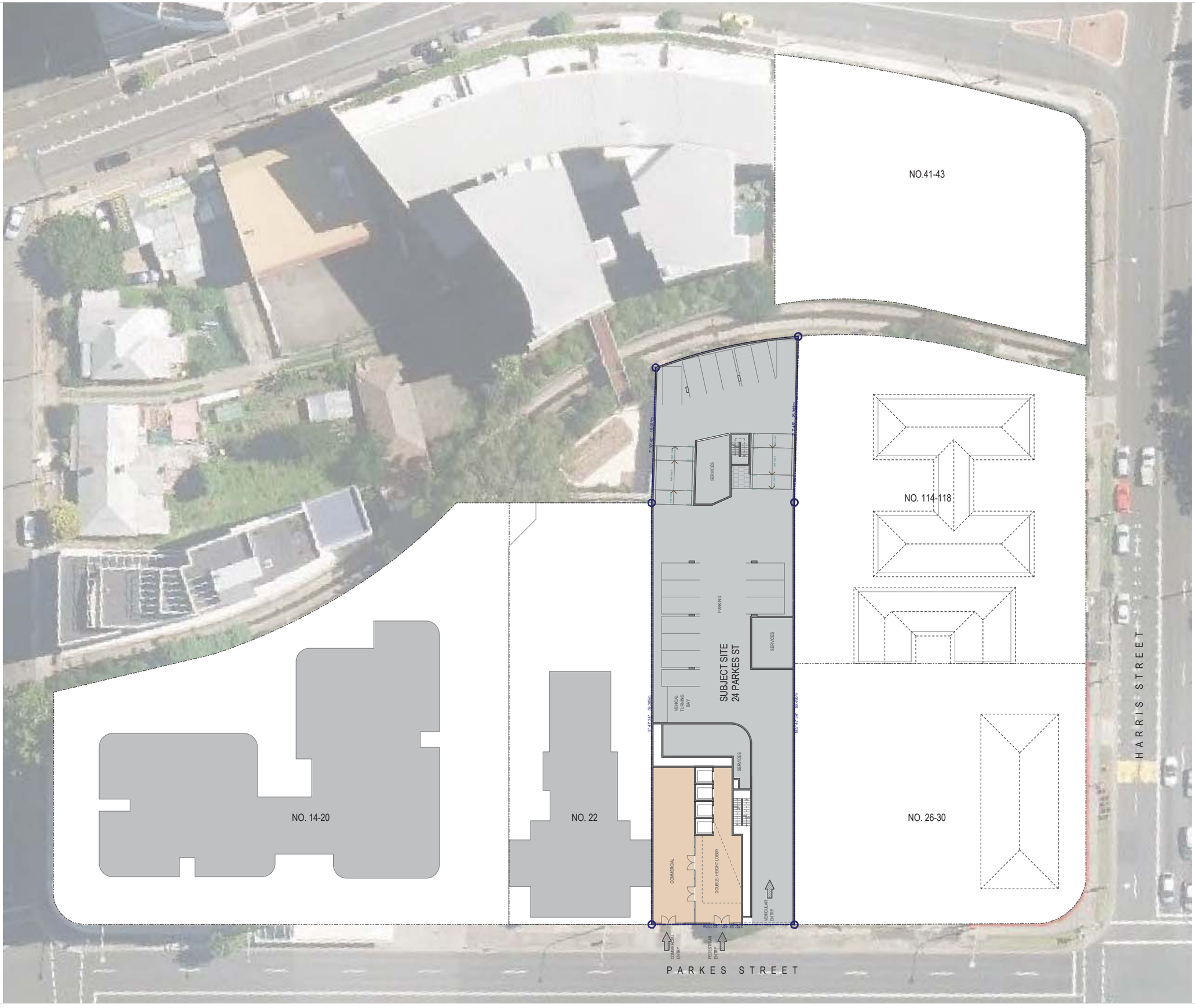
SHEET TITLE:

Typical Basements

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016		A3 SHEET

08486	SK-8 03	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2018 11:09 am



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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A.: Parramatta City Council

NORTH:

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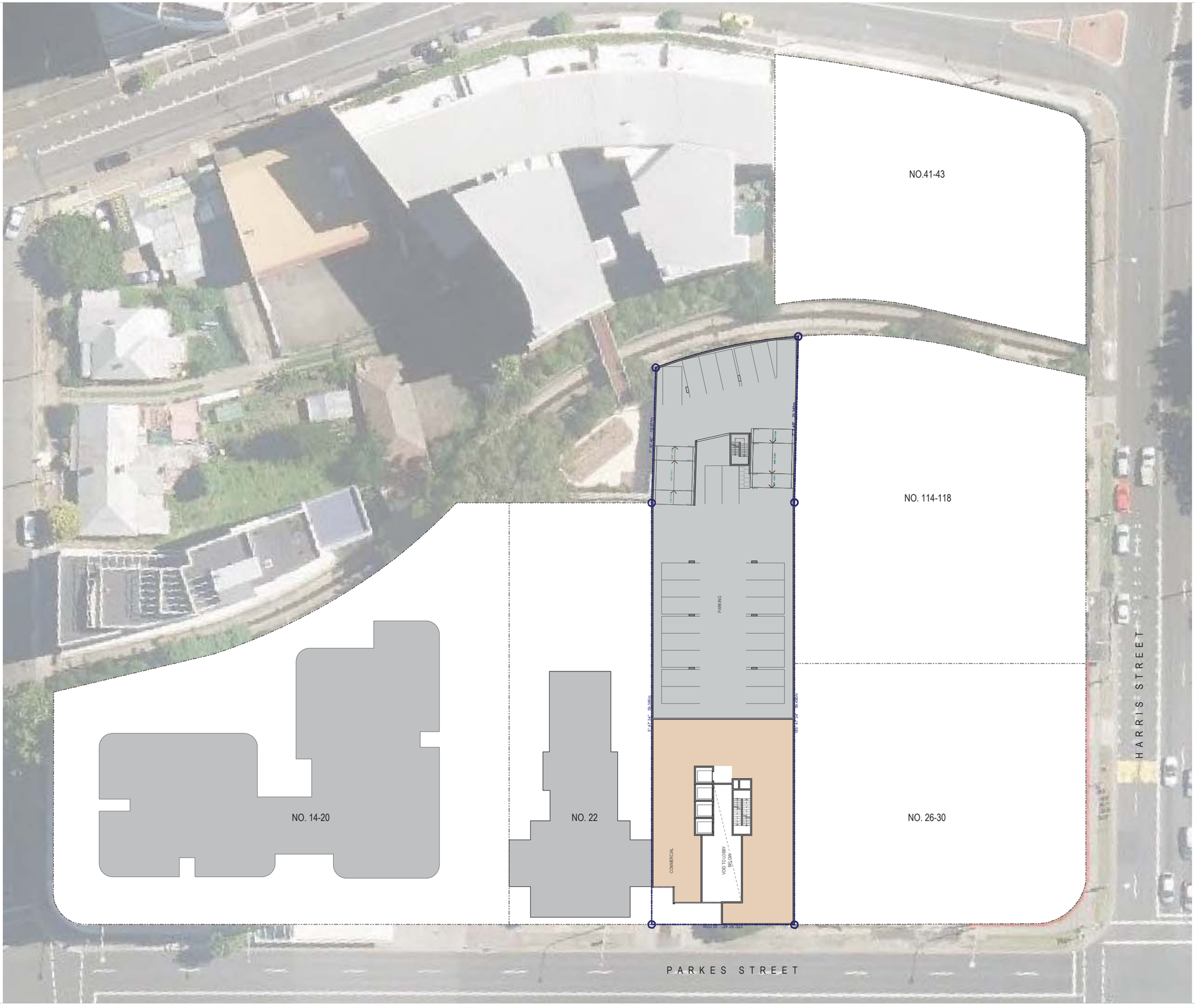
SHEET TITLE:

Ground - Entry & Commercial

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486 JOB No. | SK-8 04 DRAWING No. | 8 ISSUE

PRINT DATE: Thursday, 10 May 2016 11:00 am



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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122

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+61 2 8893 8833 / f
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28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A.: Parramatta City Council

NORTH:

DIAL BEFORE YOU DIG www.1100.com.au

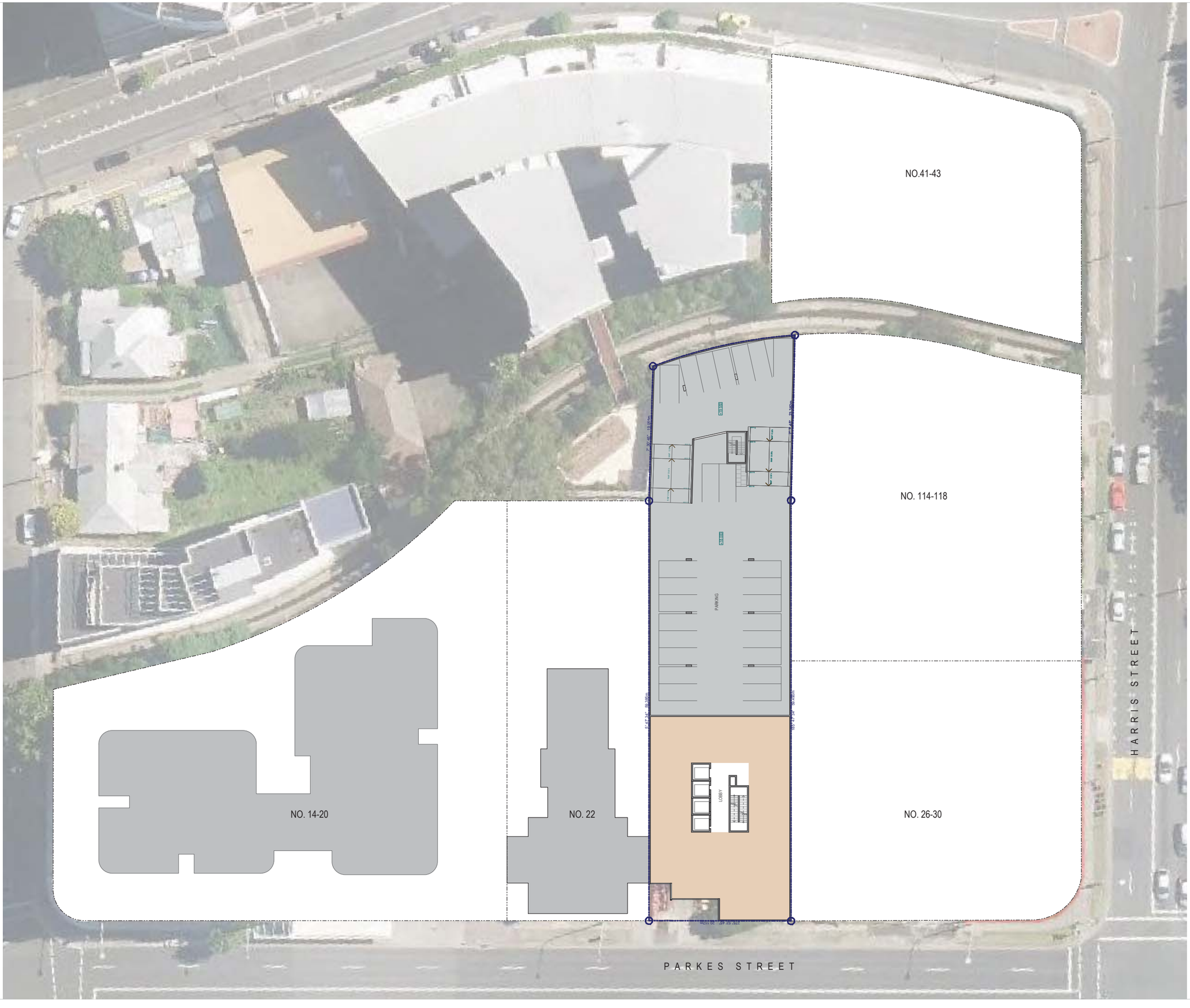
SHEET TITLE:

L1 - Commercial

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486	SK-8 05	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2016 11:09 am



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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A.: Parramatta City Council

NORTH:

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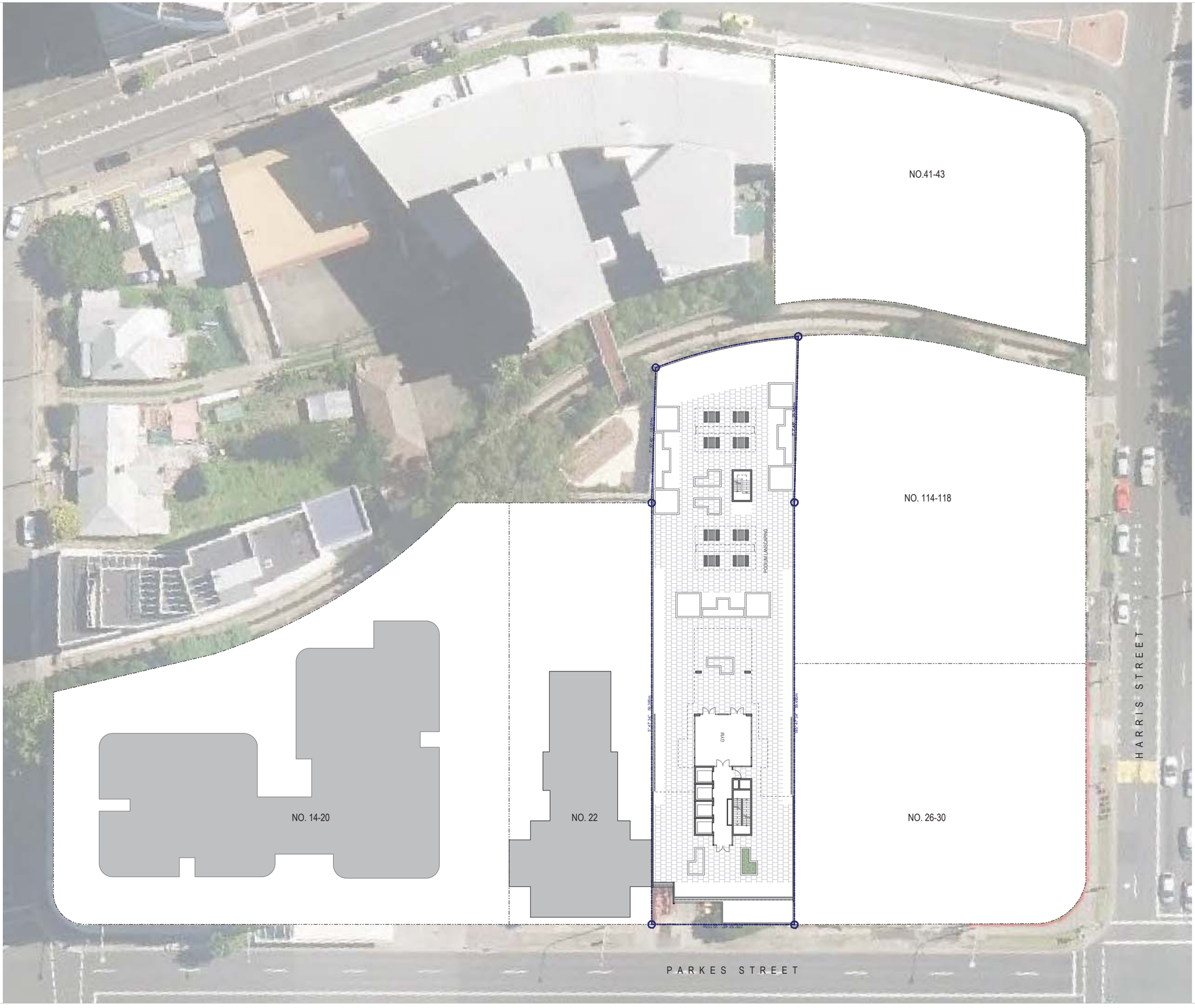
SHEET TITLE:

L2&3 - Typical Commercial

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486	SK-8 06	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2016 11:09 am



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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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Suite 1, Level 2
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Eastwood NSW 2122

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28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A. : Parramatta City Council

NORTH:

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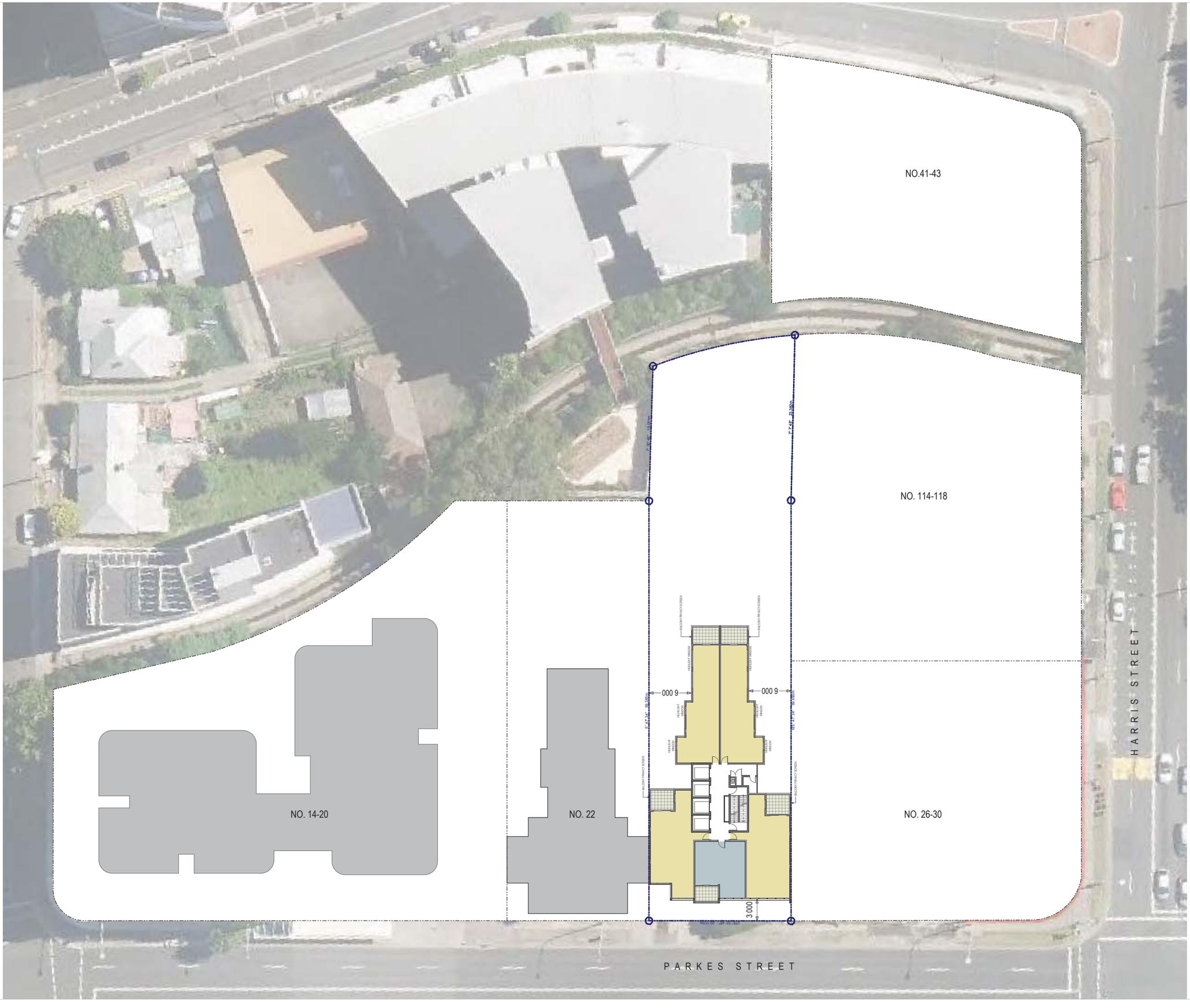
SHEET TITLE:

L4 - Podium COS

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486	SK-8 07	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2018 11:09 am



1 BEDROOM UNIT

2 BEDROOM UNIT

3 BEDROOM UNIT

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

Drawing is NOT VALID or issued for use, unless checked.

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Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122

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PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A. : Parramatta City Council

NORTH:

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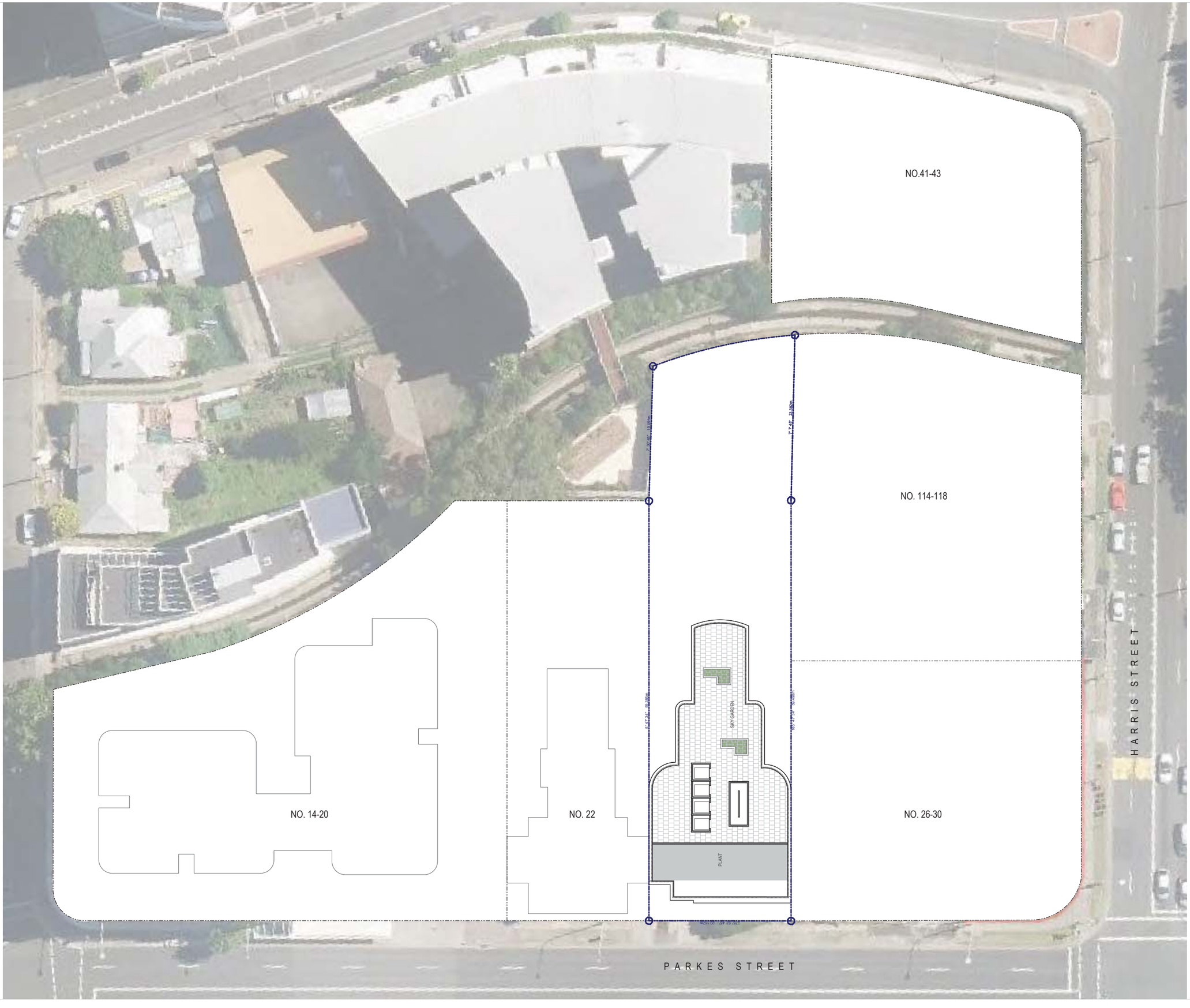
SHEET TITLE:

L5-18 + L20-41 + L43-55 - Typical Residential

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486	SK-8 08	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2018 11:09 am



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ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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Zhinar Architects Pty Ltd

Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122

+61 2 8893 8888 / p
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A. : Parramatta City Council

NORTH:

DIAL BEFORE YOU DIG www.1100.com.au

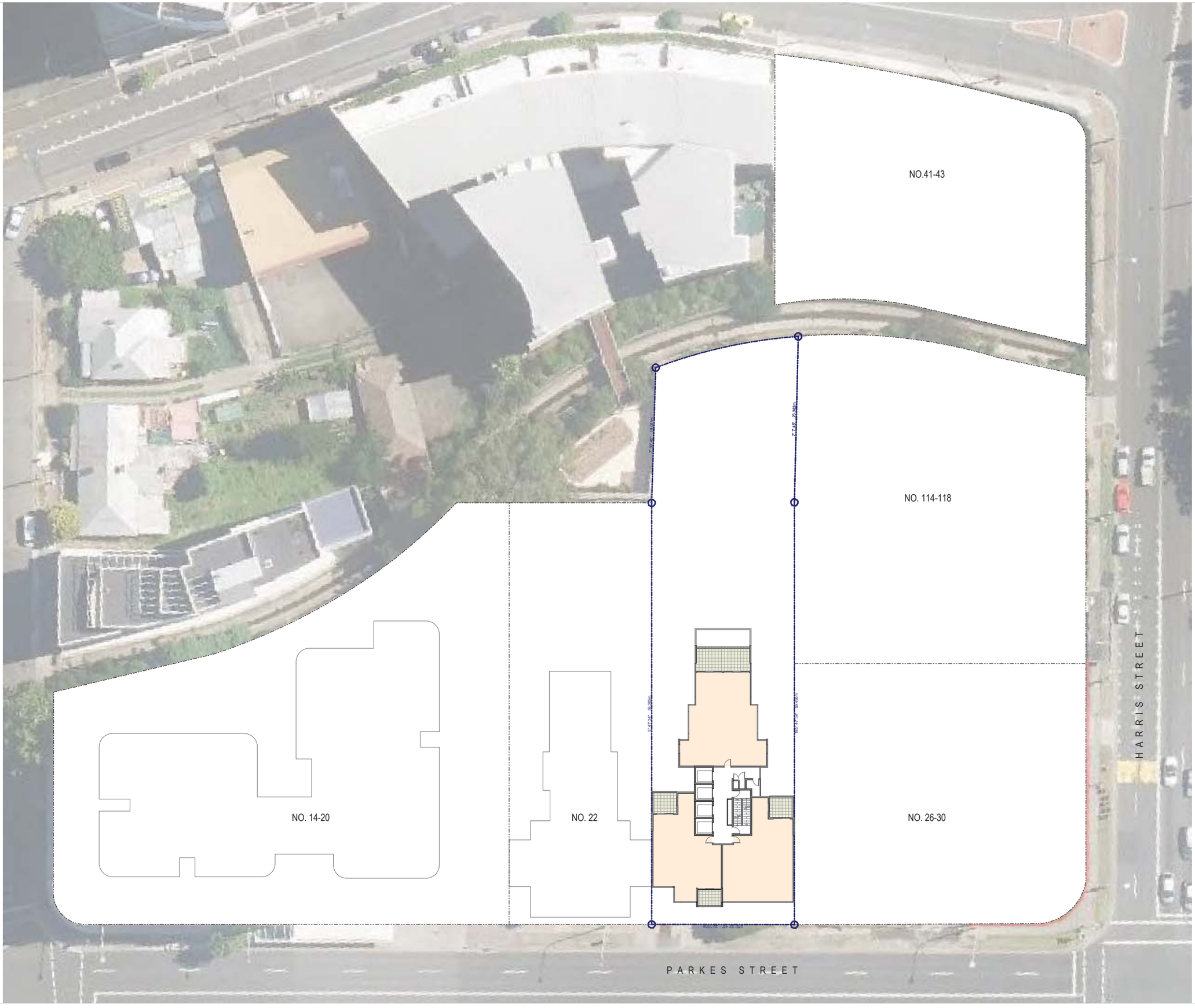
SHEET TITLE:

L19+42 - Typical Service & COS

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	1:500	A3 SHEET

08486	SK-8 09	8
JOB No.	DRAWING No.	ISSUE

PRINT DATE: Thursday, 10 May 2018 11:09 am



1 BEDROOM UNIT

2 BEDROOM UNIT

3 BEDROOM UNIT

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

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28 495 869 790 / abn

PROJECT STATUS :

Option SK-8

PROJECT NAME

Concept Design

24 Parkes Street
Parramatta NSW 2150

L.G.A : Parramatta City Council

NORTH:

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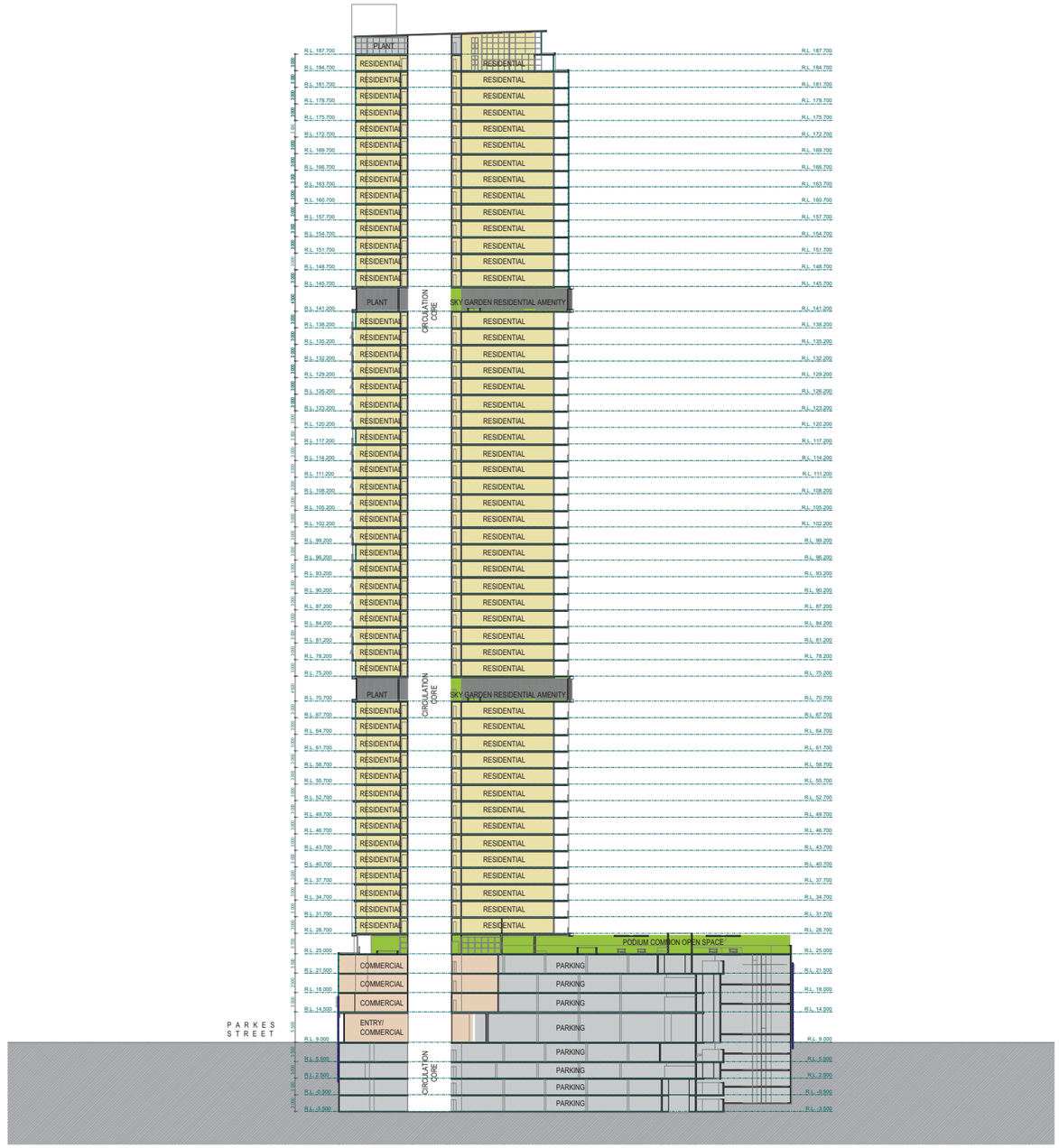
SHEET TITLE:

L56 - Residential Penthouse

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016		A3 SHEET

08486 JOB No. | SK-8 10 DRAWING No. | 8 ISSUE

PRINT DATE: Thursday, 10 May 2018 11:09 am



LONG SECTION (east)

Scale @A1 - 1:500

ISSUE	AMENDMENT	DATE	DRAWN	CHECKED

PRINT DATE: Thursday, 10 May 2018 2:09 pm

Drawing is NOT VALID or issued for use, unless checked.

GENERAL NOTES:
Figured dimensions shall be taken in preference to scaling. Drawing to be read in conjunction with information on first page. Check all dimensions and levels on site before commencing work or ordering materials. All existing ground lines & trees location are approximate, therefore to be verified on-site by the builder. Any discrepancies to be verified back to Zhinar Architects before proceeding. All workmanship and materials shall comply with all relevant codes, ordinances, Australian Standards and manufacturer's instructions. Unless noted 'Issued for Construction', drawing not to be used for construction.

Zhinar Architects Pty Ltd
Suite 1, Level 2
2 Rowe Street
Eastwood NSW 2122
+61 2 8893 8888 / p
+61 2 8893 8833 / f
www.zhinar.com.au / w
28 495 869 790 / abn

SHEET TITLE:
Section

DESIGNED:	DRAWN:	COMMENCED:	SCALE:	PRINT:
AHM	AH	February 2016	AS NOTED	A3 SHEET

L.G.A : Parramatta City Council

NORTH:

PROJECT STATUS :

Option SK-8

PRELIMINARY

PROJECT NAME
Concept Design

24 Parkes Street
Parramatta NSW 2150

08486	SK-8 13	8
JOB No.	DRAWING No.	ISSUE

Appendix C

SIDRA Intersection Modelling Outputs

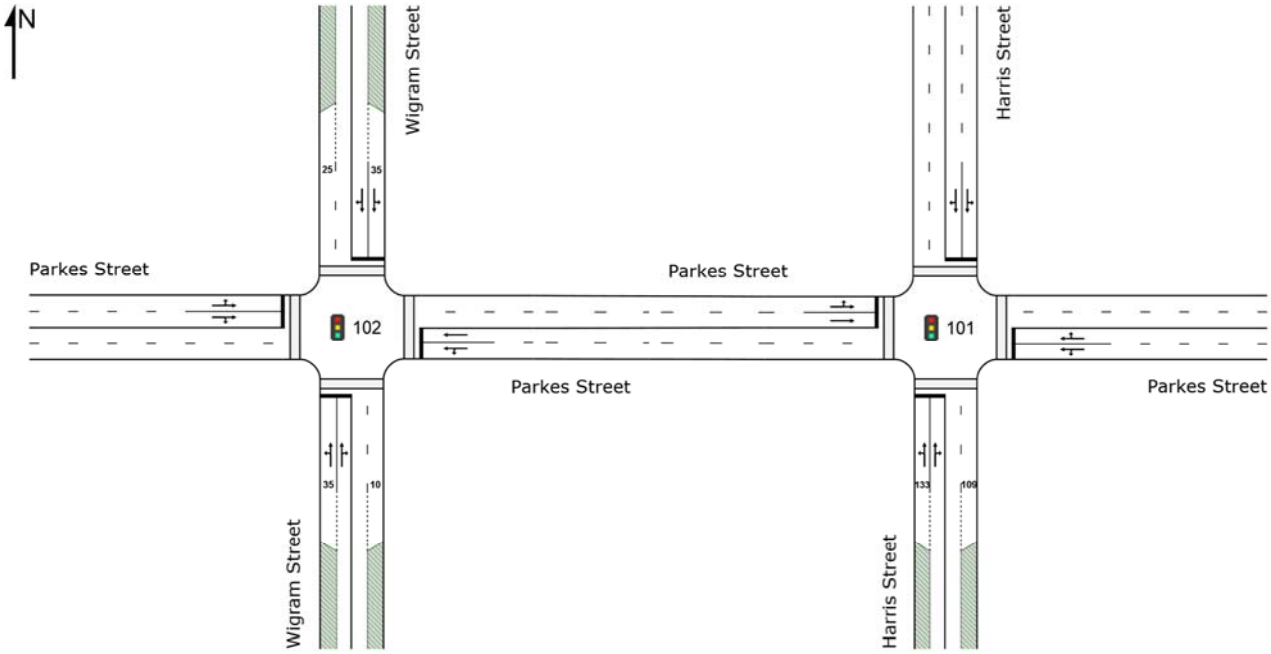
Appendix C-1

Existing

NETWORK LAYOUT

Network: N101 [Parkes Street Network EX AM]

Parkes Street, Harris Street and Wigram Streets.
7:45-8:45
Network Category: Existing AM



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
101	NA	Harris St Parkes St EX AM
102	NA	Wigram St Parkes St EX AM

Organisation: TRAFFIX PTY LTD | Created: Wednesday, 6 June 2018 12:24:51 PM
Project: T:\Synergy\Projects\18\18.217\Modelling\18.217m01v01 TRAFFIX Parkes Street Network.sip8

MOVEMENT SUMMARY

Site: 101 [Harris St Parkes St EX AM]

Network: N101 [Parkes Street Network EX AM]

Harris Street and Parkes Street
7.45-8.45
Site Category: Exisitng AM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	48	10.9	48	10.9	0.927	68.1	LOS E	9.4	67.3	1.00	1.15	1.51	8.7
2	T1	437	0.7	437	0.7	0.927	64.4	LOS E	9.8	68.9	1.00	1.15	1.50	17.3
3	R2	34	3.1	34	3.1	0.927	67.6	LOS E	9.8	68.9	1.00	1.15	1.49	18.1
Approach		519	1.8	519	1.8	0.927	65.0	LOS E	9.8	68.9	1.00	1.15	1.50	16.8
East: Parkes Street														
4	L2	44	4.8	44	4.8	0.686	29.7	LOS C	13.4	98.2	0.86	0.78	0.86	31.2
5	T1	514	5.9	514	5.9	0.686	24.1	LOS B	13.4	98.2	0.86	0.78	0.86	26.4
6	R2	309	3.4	309	3.4	1.004	97.3	LOS F	14.1	101.9	1.00	1.17	1.81	16.0
Approach		867	5.0	867	5.0	1.004	50.5	LOS D	14.1	101.9	0.91	0.92	1.20	19.9
North: Harris Street														
7	L2	62	5.1	62	5.1	0.585	40.2	LOS C	6.8	48.7	0.94	0.80	0.94	26.3
8	T1	272	0.8	272	0.8	0.975	48.1	LOS D	17.5	124.8	0.96	0.92	1.13	20.3
9	R2	335	2.2	335	2.2	0.975	79.3	LOS F	17.5	124.8	1.00	1.23	1.60	11.3
Approach		668	1.9	668	1.9	0.975	63.0	LOS E	17.5	124.8	0.98	1.06	1.35	15.9
West: Parkes Street														
10	L2	275	3.1	275	3.1	0.925	31.3	LOS C	10.5	75.9	0.96	0.98	1.29	25.5
11	T1	486	6.9	486	6.9	0.925	56.8	LOS E	13.5	99.9	0.99	1.09	1.39	19.3
Approach		761	5.5	761	5.5	0.925	47.6	LOS D	13.5	99.9	0.98	1.05	1.36	21.2
All Vehicles		2816	3.8	2816	3.8	1.004	55.4	LOS D	17.5	124.8	0.96	1.03	1.33	18.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [Wigram St Parkes St EX AM]

Network: N101 [Parkes Street Network EX AM]

Wigram Street and Harris Street
7.45-8.45
Site Category: Existing AM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	54	11.8	54	11.8	0.147	36.4	LOS C	1.5	11.5	0.82	0.72	0.82	26.6
2	T1	139	0.8	139	0.8	0.635	44.7	LOS D	4.4	31.2	0.98	0.81	1.01	21.9
3	R2	22	0.0	22	0.0	0.635	50.3	LOS D	4.4	31.2	0.99	0.82	1.03	19.0
Approach		215	3.4	215	3.4	0.635	43.2	LOS D	4.4	31.2	0.94	0.79	0.97	22.8
East: Parkes Street														
4	L2	35	3.0	35	3.0	0.653	22.8	LOS B	8.6	62.0	0.68	0.61	0.68	34.9
5	T1	853	4.0	853	4.0	0.653	23.2	LOS B	11.0	79.9	0.79	0.70	0.79	27.3
Approach		887	3.9	887	3.9	0.653	23.2	LOS B	11.0	79.9	0.79	0.70	0.79	27.7
North: Wigram Street														
7	L2	38	8.3	38	8.3	0.164	45.3	LOS D	1.0	7.5	0.90	0.72	0.90	7.7
8	T1	65	3.2	65	3.2	0.452	47.1	LOS D	2.6	18.7	0.98	0.77	0.98	21.2
9	R2	23	4.5	23	4.5	0.452	51.7	LOS D	2.6	18.7	0.98	0.77	0.98	15.1
Approach		126	5.0	126	5.0	0.452	47.4	LOS D	2.6	18.7	0.96	0.75	0.96	17.2
West: Parkes Street														
10	L2	99	1.1	99	1.1	0.646	28.5	LOS B	12.4	90.5	0.83	0.76	0.83	24.1
11	T1	703	5.5	703	5.5	0.646	24.3	LOS B	12.4	90.5	0.84	0.76	0.84	18.6
12	R2	97	3.3	97	3.3	0.646	32.3	LOS C	8.5	62.1	0.84	0.75	0.84	30.3
Approach		899	4.8	899	4.8	0.646	25.6	LOS B	12.4	90.5	0.84	0.76	0.84	21.3
All Vehicles		2127	4.3	2127	4.3	0.653	27.7	LOS B	12.4	90.5	0.83	0.73	0.84	23.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

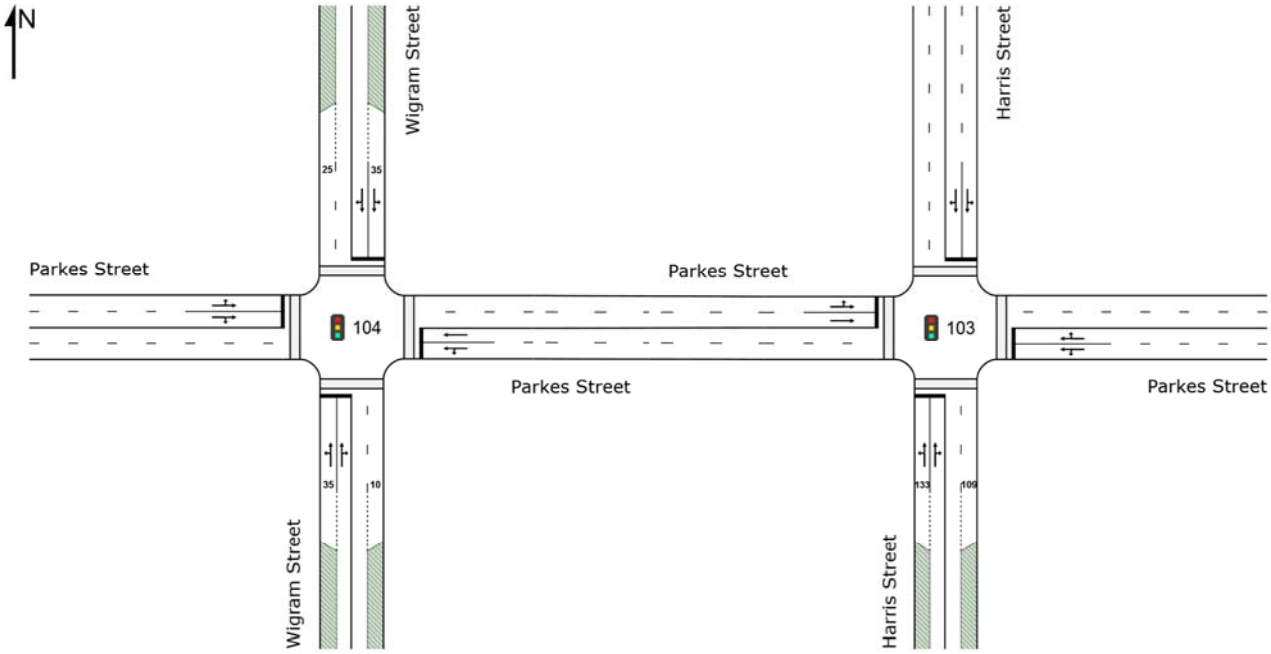
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

NETWORK LAYOUT

Network: N102 [Parkes Street Network EX PM]

Parkes Street, Harris Street and Wigram Streets.
4:30-5:30
Network Category: Existing PM



SITES IN NETWORK		
Site ID	**CCG ID**	**Site Name**
103	NA	Harris St Parkes St EX PM
104	NA	Wigram St Parkes St EX PM

Organisation: TRAFFIX PTY LTD | Created: Wednesday, 6 June 2018 12:25:12 PM
Project: T:\Synergy\Projects\18\18.217\Modelling\18.217m01v01 TRAFFIX Parkes Street Network.sip8

MOVEMENT SUMMARY

Site: 103 [Harris St Parkes St EX PM]

Network: N102 [Parkes Street Network EX PM]

Harris Street and Parkes Street
4:30-5:30
Site Category: Exisitng PM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	51	0.0	51	0.0	0.987	88.2	LOS F	8.8	62.1	1.00	1.27	1.81	7.0
2	T1	354	0.6	354	0.6	0.987	83.3	LOS F	9.6	67.3	1.00	1.28	1.79	16.1
3	R2	31	0.0	31	0.0	0.987	87.5	LOS F	9.6	67.3	1.00	1.28	1.78	15.2
Approach		435	0.5	435	0.5	0.987	84.1	LOS F	9.6	67.3	1.00	1.28	1.79	15.1
East: Parkes Street														
4	L2	32	0.0	32	0.0	0.716	31.3	LOS C	12.5	89.3	0.87	0.77	0.87	30.5
5	T1	484	2.6	484	2.6	0.716	25.7	LOS B	12.5	89.3	0.87	0.77	0.87	25.5
6	R2	228	0.5	228	0.5	1.028	110.4	LOS F	11.0	77.5	1.00	1.22	1.99	15.3
Approach		744	1.8	744	1.8	1.028	52.0	LOS D	12.5	89.3	0.91	0.91	1.21	19.6
North: Harris Street														
7	L2	64	3.3	64	3.3	0.634	38.5	LOS C	9.1	64.5	0.92	0.81	0.92	30.9
8	T1	376	0.8	376	0.8	1.056	55.7	LOS D	28.3	200.6	0.94	0.95	1.18	20.6
9	R2	417	1.5	417	1.5	1.056	128.2	LOS F	28.3	200.6	1.00	1.36	2.00	8.3
Approach		857	1.4	857	1.4	1.056	89.7	LOS F	28.3	200.6	0.97	1.14	1.56	13.5
West: Parkes Street														
10	L2	287	0.7	287	0.7	0.968	51.0	LOS D	15.4	108.9	1.00	1.11	1.54	21.8
11	T1	588	2.3	588	2.3	0.968	70.9	LOS F	17.6	125.8	1.00	1.20	1.56	16.5
Approach		876	1.8	876	1.8	0.968	64.4	LOS E	17.6	125.8	1.00	1.17	1.55	18.0
All Vehicles		2912	1.5	2912	1.5	1.056	71.6	LOS F	28.3	200.6	0.97	1.11	1.50	16.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [Wigram St Parkes St EX PM]

Network: N102 [Parkes Street Network EX PM]

Wigram Street and Harris Street
4:30-5:30
Site Category: Existing PM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	85	6.2	85	6.2	0.169	29.4	LOS C	2.1	15.5	0.74	0.71	0.74	29.4
2	T1	84	1.3	84	1.3	0.732	46.3	LOS D	3.2	22.3	0.95	0.85	1.12	21.3
3	R2	33	0.0	33	0.0	0.732	55.9	LOS D	3.2	22.3	1.00	0.88	1.21	17.5
Approach		202	3.1	202	3.1	0.732	40.7	LOS C	3.2	22.3	0.87	0.79	0.97	23.7
East: Parkes Street														
4	L2	40	5.3	39	5.3	0.829	29.7	LOS C	11.9	85.2	0.87	0.81	0.94	30.9
5	T1	887	2.6	875	2.6	0.829	31.7	LOS C	13.4	95.6	0.93	0.87	1.00	22.8
Approach		927	2.7	914 N1	2.7	0.829	31.6	LOS C	13.4	95.6	0.93	0.87	1.00	23.2
North: Wigram Street														
7	L2	49	0.0	49	0.0	0.197	37.6	LOS C	1.3	9.3	0.83	0.71	0.83	9.1
8	T1	145	1.4	145	1.4	0.987	82.5	LOS F	8.2	59.3	0.99	1.25	1.79	14.9
9	R2	54	7.8	54	7.8	0.987	89.2	LOS F	8.2	59.3	1.00	1.27	1.83	9.8
Approach		248	2.5	248	2.5	0.987	75.0	LOS F	8.2	59.3	0.96	1.15	1.60	13.2
West: Parkes Street														
10	L2	80	1.3	80	1.3	0.981	78.6	LOS F	22.5	159.9	0.90	1.24	1.50	11.2
11	T1	797	2.0	797	2.0	0.981	74.2	LOS F	22.5	159.9	0.89	1.23	1.51	8.0
12	R2	92	5.7	92	5.7	0.981	81.3	LOS F	17.6	126.3	0.87	1.21	1.53	17.6
Approach		968	2.3	968	2.3	0.981	75.2	LOS F	22.5	159.9	0.89	1.23	1.51	9.4
All Vehicles		2346	2.6	2333 N1	2.6	0.987	55.1	LOS D	22.5	159.9	0.91	1.04	1.27	15.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix C-2

Existing + Development (No Improvements)

MOVEMENT SUMMARY

Site: 201 [Harris St Parkes St EX + FU AM]

Network: N201 [Parkes Street Network EX + FU AM]

Harris Street and Parkes Street
7.45-8.45
Site Category: Future AM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	49	10.6	49	10.6	1.093	154.8	LOS F	15.0	107.6	1.00	1.61	2.33	4.1
2	T1	440	0.7	440	0.7	1.093	151.0	LOS F	16.0	113.2	1.00	1.62	2.32	9.4
3	R2	34	3.1	34	3.1	1.093	154.0	LOS F	16.0	113.2	1.00	1.62	2.31	9.4
Approach		523	1.8	523	1.8	1.093	151.6	LOS F	16.0	113.2	1.00	1.62	2.32	9.0
East: Parkes Street														
4	L2	44	4.8	44	4.8	0.686	29.7	LOS C	13.4	98.2	0.86	0.78	0.86	31.2
5	T1	520	5.9	520	5.9	1.074	25.5	LOS B	19.0	136.4	0.86	0.78	0.88	26.1
6	R2	325	3.2	325	3.2	1.074	141.9	LOS F	19.0	136.4	1.00	1.34	2.18	12.1
Approach		889	4.9	889	4.9	1.074	68.3	LOS E	19.0	136.4	0.91	0.98	1.35	16.2
North: Harris Street														
7	L2	95	3.3	95	3.3	0.648	40.1	LOS C	8.2	58.2	0.95	0.81	0.95	26.3
8	T1	279	0.8	279	0.8	1.080	63.6	LOS E	26.5	188.1	0.96	1.01	1.26	17.3
9	R2	373	2.0	373	2.0	1.080	144.4	LOS F	26.5	188.1	1.00	1.57	2.16	7.0
Approach		746	1.7	746	1.7	1.080	101.0	LOS F	26.5	188.1	0.98	1.27	1.67	11.5
West: Parkes Street														
10	L2	299	2.8	299	2.8	0.979	46.4	LOS D	13.1	94.9	1.00	1.06	1.45	20.8
11	T1	501	6.7	501	6.7	0.979	71.5	LOS F	15.6	115.3	1.00	1.17	1.52	16.5
Approach		800	5.3	800	5.3	0.979	62.1	LOS E	15.6	115.3	1.00	1.13	1.49	17.9
All Vehicles		2959	3.6	2959	3.6	1.093	89.6	LOS F	26.5	188.1	0.97	1.21	1.64	13.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 203 [Harris St Parkes St EX + FU PM]

Network: N202 [Parkes Street Network EX + FU PM]

Harris Street and Parkes Street
4:30-5:30
Site Category: Future PM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	53	0.0	53	0.0	1.016	103.5	LOS F	9.8	69.0	1.00	1.35	1.95	6.0
2	T1	360	0.6	360	0.6	1.016	98.2	LOS F	10.8	75.8	1.00	1.36	1.93	14.2
3	R2	31	0.0	31	0.0	1.016	102.1	LOS F	10.8	75.8	1.00	1.36	1.92	13.5
Approach		443	0.5	443	0.5	1.016	99.1	LOS F	10.8	75.8	1.00	1.36	1.93	13.3
East: Parkes Street														
4	L2	32	0.0	32	0.0	0.732	33.2	LOS C	13.2	94.3	0.91	0.82	0.92	29.5
5	T1	494	2.6	494	2.6	1.111	30.3	LOS C	16.8	118.2	0.91	0.83	0.95	24.1
6	R2	258	0.4	258	0.4	1.111	170.0	LOS F	16.8	118.2	1.00	1.43	2.42	10.9
Approach		783	1.7	783	1.7	1.111	76.4	LOS F	16.8	118.2	0.94	1.03	1.43	15.0
North: Harris Street														
7	L2	78	2.7	78	2.7	0.660	38.1	LOS C	9.7	68.8	0.93	0.82	0.93	31.1
8	T1	379	0.8	379	0.8	1.100	61.2	LOS E	33.1	234.7	0.94	0.97	1.22	19.4
9	R2	436	1.4	436	1.4	1.100	160.9	LOS F	33.1	234.7	1.00	1.48	2.25	6.7
Approach		893	1.3	893	1.3	1.100	107.9	LOS F	33.1	234.7	0.97	1.21	1.70	11.7
West: Parkes Street														
10	L2	320	0.7	300	0.7	1.036	83.8	LOS F	17.4	122.7	1.00	1.21	1.74	13.6
11	T1	593	2.3	555	2.3	1.036	102.4	LOS F	18.9	135.0	1.00	1.39	1.87	12.1
Approach		913	1.7	855 N1	1.7	1.036	95.8	LOS F	18.9	135.0	1.00	1.33	1.82	12.6
All Vehicles		3032	1.4	2974 N1	1.5	1.111	94.8	LOS F	33.1	234.7	0.98	1.22	1.70	12.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 202 [Wigram St Parkes St EX + FU AM]

Network: N201 [Parkes Street Network EX + FU AM]

Wigram Street and Harris Street
7.45-8.45
Site Category: Future AM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	54	11.8	54	11.8	0.181	39.2	LOS C	1.7	12.5	0.85	0.72	0.85	25.7
2	T1	139	0.8	139	0.8	0.781	50.6	LOS D	4.7	33.4	0.99	0.91	1.19	20.4
3	R2	22	0.0	22	0.0	0.781	56.9	LOS E	4.7	33.4	1.00	0.92	1.23	17.5
Approach		215	3.4	215	3.4	0.781	48.4	LOS D	4.7	33.4	0.95	0.86	1.11	21.4
East: Parkes Street														
4	L2	35	3.0	34	3.0	0.687	18.0	LOS B	7.4	53.7	0.58	0.53	0.58	38.2
5	T1	900	3.7	875	3.8	0.687	23.8	LOS B	12.5	90.7	0.79	0.70	0.79	27.0
Approach		935	3.7	908 N1	3.7	0.687	23.6	LOS B	12.5	90.7	0.78	0.70	0.78	27.5
North: Wigram Street														
7	L2	38	8.3	38	8.3	0.228	48.7	LOS D	1.1	8.0	0.93	0.74	0.93	7.3
8	T1	65	3.2	65	3.2	0.561	49.9	LOS D	2.7	19.4	1.00	0.78	1.02	20.6
9	R2	23	4.5	23	4.5	0.561	54.5	LOS D	2.7	19.4	1.00	0.78	1.02	14.5
Approach		126	5.0	126	5.0	0.561	50.4	LOS D	2.7	19.4	0.98	0.77	0.99	16.5
West: Parkes Street														
10	L2	99	1.1	99	1.1	0.756	32.2	LOS C	13.5	98.4	0.90	0.84	0.93	22.2
11	T1	726	5.4	726	5.4	0.756	28.3	LOS B	13.5	98.4	0.91	0.85	0.95	16.8
12	R2	97	3.3	97	3.3	0.756	36.3	LOS C	11.0	80.0	0.92	0.87	0.98	28.7
Approach		922	4.7	922	4.7	0.756	29.6	LOS C	13.5	98.4	0.91	0.85	0.95	19.4
All Vehicles		2198	4.2	2171 N1	4.2	0.781	30.1	LOS C	13.5	98.4	0.87	0.78	0.90	22.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 204 [Wigram St Parkes St EX + FU PM]

Network: N202 [Parkes Street Network EX + FU PM]

Wigram Street and Harris Street
4:30-5:30
Site Category: Future PM
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Aver. Back of Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	85	6.2	85	6.2	0.210	32.8	LOS C	2.5	18.3	0.79	0.72	0.79	28.2
2	T1	84	1.3	84	1.3	0.905	54.0	LOS D	3.3	23.4	0.93	0.95	1.39	19.4
3	R2	33	0.0	33	0.0	0.905	70.5	LOS F	3.3	23.4	1.00	1.06	1.67	14.8
Approach		202	3.1	202	3.1	0.905	47.7	LOS D	3.3	23.4	0.88	0.87	1.18	21.7
East: Parkes Street														
4	L2	40	5.3	39	5.4	0.827	29.8	LOS C	11.8	84.9	0.87	0.81	0.94	30.9
5	T1	905	2.6	873	2.6	0.827	31.8	LOS C	13.3	95.2	0.93	0.87	1.00	22.8
Approach		945	2.7	912 N1	2.7	0.827	31.7	LOS C	13.3	95.2	0.93	0.87	1.00	23.2
North: Wigram Street														
7	L2	49	0.0	49	0.0	0.229	39.4	LOS C	1.4	10.0	0.85	0.74	0.85	8.8
8	T1	145	1.4	145	1.4	1.147	185.2	LOS F	13.1	94.6	0.99	1.63	2.58	7.8
9	R2	54	7.8	54	7.8	1.147	197.6	LOS F	13.1	94.6	1.00	1.68	2.67	4.7
Approach		248	2.5	248	2.5	1.147	158.9	LOS F	13.1	94.6	0.97	1.46	2.26	7.1
West: Parkes Street														
10	L2	80	1.3	80	1.3	1.168	218.3	LOS F	42.3	300.7	1.00	2.04	2.66	4.4
11	T1	837	1.9	837	1.9	1.168	213.7	LOS F	42.3	300.7	1.00	2.01	2.68	3.0
12	R2	92	5.7	92	5.7	1.168	220.5	LOS F	35.9	257.0	1.00	1.98	2.69	7.9
Approach		1008	2.2	1008	2.2	1.168	214.6	LOS F	42.3	300.7	1.00	2.01	2.68	3.6
All Vehicles		2404	2.5	2371 N1	2.5	1.168	124.2	LOS F	42.3	300.7	0.96	1.42	1.86	7.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Appendix C-3

Existing + Development with Improvements

MOVEMENT SUMMARY

Site: 301 [Harris St Parkes St EX + FU AM Improvements]

Network: N301 [Parkes Street Network EX + FU AM Improvements]

Harris Street and Parkes Street
7.45-8.45
Site Category: Improved Future AM
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	49	10.6	49	10.6	1.069	126.4	LOS F	13.0	93.1	1.00	1.63	2.44	4.9
2	T1	440	0.7	440	0.7	1.069	123.2	LOS F	13.0	93.1	1.00	1.62	2.45	11.1
3	R2	34	3.1	34	3.1	1.069	126.8	LOS F	12.5	88.2	1.00	1.62	2.45	11.1
Approach		523	1.8	523	1.8	1.069	123.7	LOS F	13.0	93.1	1.00	1.62	2.45	10.6
East: Parkes Street														
4	L2	44	4.8	44	4.8	0.669	24.3	LOS B	10.6	77.6	0.84	0.76	0.84	34.4
5	T1	520	5.9	520	5.9	1.040	19.8	LOS B	14.9	107.1	0.85	0.76	0.86	29.8
6	R2	325	3.2	325	3.2	1.040	108.3	LOS F	14.9	107.1	1.00	1.35	2.20	14.8
Approach		889	4.9	889	4.9	1.040	52.4	LOS D	14.9	107.1	0.90	0.98	1.35	19.4
North: Harris Street														
7	L2	95	3.3	95	3.3	0.503	23.0	LOS B	6.8	47.9	0.80	0.72	0.80	32.7
8	T1	279	0.8	279	0.8	0.503	19.5	LOS B	6.8	47.9	0.80	0.72	0.80	29.7
9	R2	373	2.0	373	2.0	0.864	44.7	LOS D	8.8	62.6	1.00	1.21	1.78	16.4
Approach		746	1.7	746	1.7	0.864	32.6	LOS C	8.8	62.6	0.90	0.96	1.29	22.9
West: Parkes Street														
10	L2	299	2.8	299	2.8	1.000	53.0	LOS D	12.6	90.9	1.00	1.17	1.69	19.3
11	T1	501	6.7	501	6.7	1.000	42.8	LOS D	12.6	90.9	1.00	1.13	1.52	23.1
Approach		800	5.3	800	5.3	1.000	46.6	LOS D	12.6	90.9	1.00	1.15	1.58	21.4
All Vehicles		2959	3.6	2959	3.6	1.069	58.4	LOS E	14.9	107.1	0.95	1.13	1.59	17.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 303 [Harris St Parkes St EX + FU PM Improvements]

Network: N302 [Parkes Street Network EX + FU PM Improvements]

Harris Street and Parkes Street
4:30-5:30
Site Category: Improved Future PM
Signals - Fixed Time Coordinated Cycle Time = 72 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Harris Street														
1	L2	53	0.0	53	0.0	1.012	84.4	LOS F	8.2	57.5	1.00	1.42	2.20	7.2
2	T1	360	0.6	360	0.6	1.012	80.0	LOS F	8.2	57.5	1.00	1.42	2.20	16.4
3	R2	31	0.0	31	0.0	1.012	84.8	LOS F	8.0	56.0	1.00	1.42	2.21	15.5
Approach		443	0.5	443	0.5	1.012	80.9	LOS F	8.2	57.5	1.00	1.42	2.20	15.5
East: Parkes Street														
4	L2	32	0.0	32	0.0	0.667	23.4	LOS B	9.0	64.2	0.86	0.76	0.86	35.2
5	T1	494	2.6	494	2.6	1.148	21.0	LOS B	16.0	112.5	0.86	0.78	0.90	30.4
6	R2	258	0.4	258	0.4	1.148	185.4	LOS F	16.0	112.5	1.00	1.76	3.20	10.2
Approach		783	1.7	783	1.7	1.148	75.2	LOS F	16.0	112.5	0.91	1.10	1.65	15.2
North: Harris Street														
7	L2	78	2.7	78	2.7	0.604	24.1	LOS B	7.9	55.5	0.84	0.78	0.84	38.2
8	T1	379	0.8	379	0.8	0.604	19.6	LOS B	7.9	55.5	0.84	0.78	0.84	34.9
9	R2	436	1.4	436	1.4	1.019	69.0	LOS E	14.9	105.9	1.00	1.20	2.09	11.0
Approach		893	1.3	893	1.3	1.019	44.1	LOS D	14.9	105.9	0.92	0.98	1.45	19.3
West: Parkes Street														
10	L2	320	0.7	320	0.7	1.018	57.8	LOS E	12.9	91.4	1.00	1.19	1.73	17.7
11	T1	593	2.3	593	2.3	1.018	44.1	LOS D	13.7	98.1	1.00	1.20	1.64	21.7
Approach		913	1.7	913	1.7	1.018	48.9	LOS D	13.7	98.1	1.00	1.20	1.67	20.1
All Vehicles		3032	1.4	3032	1.4	1.148	59.0	LOS E	16.0	112.5	0.95	1.14	1.68	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P2	East Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P4	West Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
All Pedestrians		211	30.3	LOS D			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 302 [Wigram St Parkes St EX + FU AM Improvements]

Network: N301 [Parkes Street Network EX + FU AM Improvements]

Wigram Street and Harris Street
7.45-8.45
Site Category: Improved Future AM
Signals - Fixed Time Coordinated Cycle Time = 80 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	54	11.8	54	11.8	0.277	41.6	LOS C	1.2	9.6	0.95	0.74	0.95	24.6
2	T1	139	0.8	139	0.8	0.754	41.5	LOS C	4.1	29.1	1.00	0.91	1.21	22.9
3	R2	22	0.0	22	0.0	0.754	46.0	LOS D	4.1	29.1	1.00	0.91	1.21	20.2
Approach		215	3.4	215	3.4	0.754	42.0	LOS C	4.1	29.1	0.99	0.87	1.14	23.1
East: Parkes Street														
4	L2	35	3.0	35	3.0	0.730	31.8	LOS C	10.3	74.7	0.95	0.85	0.98	30.0
5	T1	900	3.7	897	3.7	0.730	31.4	LOS C	11.2	80.7	0.98	0.87	1.01	23.0
Approach		935	3.7	931 N1	3.7	0.730	31.4	LOS C	11.2	80.7	0.98	0.87	1.01	23.3
North: Wigram Street														
7	L2	38	8.3	38	8.3	0.191	41.0	LOS C	0.9	6.5	0.94	0.72	0.94	8.4
8	T1	65	3.2	65	3.2	0.416	37.5	LOS C	2.1	15.0	0.97	0.76	0.97	24.0
9	R2	23	4.5	23	4.5	0.416	42.1	LOS C	2.1	15.0	0.97	0.76	0.97	17.5
Approach		126	5.0	126	5.0	0.416	39.4	LOS C	2.1	15.0	0.96	0.75	0.96	19.3
West: Parkes Street														
10	L2	99	1.1	99	1.1	0.687	19.6	LOS B	12.3	89.5	0.78	0.72	0.78	30.6
11	T1	726	5.4	726	5.4	0.687	17.5	LOS B	12.3	89.5	0.81	0.75	0.83	23.0
12	R2	97	3.3	97	3.3	0.687	41.4	LOS C	5.1	36.9	0.99	0.86	1.07	26.3
Approach		922	4.7	922	4.7	0.687	20.2	LOS B	12.3	89.5	0.83	0.76	0.85	24.5
All Vehicles		2198	4.2	2195 N1	4.2	0.754	28.2	LOS B	12.3	89.5	0.91	0.82	0.95	23.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	34.3	LOS D			0.93	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 304 [Wigram St Parkes St EX + FU PM Improvements]

Network: N302 [Parkes Street Network EX + FU PM Improvements]

Wigram Street and Harris Street
4:30-5:30
Site Category: Imporved Future PM
Signals - Fixed Time Coordinated Cycle Time = 72 seconds (Network Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	Aver. Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Wigram Street														
1	L2	85	6.2	85	6.2	0.429	38.9	LOS C	1.8	13.5	0.97	0.76	0.97	25.6
2	T1	84	1.3	84	1.3	0.592	35.4	LOS C	2.6	18.2	1.00	0.81	1.05	24.6
3	R2	33	0.0	33	0.0	0.592	40.0	LOS C	2.6	18.2	1.00	0.81	1.05	21.9
Approach		202	3.1	202	3.1	0.592	37.6	LOS C	2.6	18.2	0.99	0.79	1.02	24.7
East: Parkes Street														
4	L2	40	5.3	40	5.3	0.892	41.5	LOS C	11.6	83.3	1.00	1.05	1.29	26.0
5	T1	905	2.6	903	2.6	0.892	40.9	LOS C	12.1	86.2	1.00	1.05	1.29	19.4
Approach		945	2.7	942 N1	2.7	0.892	40.9	LOS C	12.1	86.2	1.00	1.05	1.29	19.7
North: Wigram Street														
7	L2	49	0.0	49	0.0	0.257	37.2	LOS C	1.0	7.2	0.94	0.74	0.94	9.1
8	T1	145	1.4	145	1.4	0.841	40.4	LOS C	4.9	35.1	1.00	1.01	1.39	23.1
9	R2	54	7.8	54	7.8	0.841	45.0	LOS D	4.9	35.1	1.00	1.01	1.39	16.6
Approach		248	2.5	248	2.5	0.841	40.8	LOS C	4.9	35.1	0.99	0.96	1.30	19.9
West: Parkes Street														
10	L2	80	1.3	80	1.3	0.846	29.2	LOS C	16.2	115.3	0.93	0.97	1.09	24.0
11	T1	837	1.9	837	1.9	0.846	26.9	LOS B	16.2	115.3	0.94	0.98	1.15	17.6
12	R2	92	5.7	92	5.7	0.846	43.6	LOS D	7.0	50.0	1.00	1.02	1.35	25.9
Approach		1008	2.2	1008	2.2	0.846	28.6	LOS C	16.2	115.3	0.95	0.98	1.16	19.5
All Vehicles		2404	2.5	2401 N1	2.5	0.892	35.4	LOS C	16.2	115.3	0.98	0.99	1.21	20.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate
P1	South Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P2	East Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
P4	West Full Crossing	53	30.3	LOS D	0.1	0.1	0.92	0.92
All Pedestrians		211	30.3	LOS D			0.92	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.