

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2023/1433

Date: 22 December 2023



Yarrabilba, Precinct 6 ROL 1

Traffic Impact Assessment

Lendlease Communities (Yarrabilba)

Kingsgate, 2 King Street
Bowen Hills, QLD 4006

Prepared by:

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Australia

SLR Project No.: 620.V11743.00000

23 August 2023

Revision: 1.0

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v0.1	20 June 2023	T. Beauchamp	B. Rheinberger	B. McClurg
v0.2	8 August 2023	T. Beauchamp	B. Rheinberger	B. McClurg
v1.0	23 August 2023	T. Beauchamp	B. Rheinberger	B. McClurg
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Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Lendlease Communities (Yarrabilba) (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



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1.0 Introduction

SLR Consulting Australia Pty Ltd (**SLR**) has been commissioned by Lendlease Communities (**Lendlease**) to provide traffic engineering and transport planning advice for the Yarrabilba master planned development area. The Yarrabilba master planned development is located within the extents of the Yarrabilba Priority Development Area (**PDA**), which is situated approximately 20km south of Logan Central and Springwood. When fully developed, it is anticipated that the ultimate Yarrabilba development will yield approximately 17,000 residential dwellings, and approximately 45,000 residents.

The traffic and transport aspects of the overall Yarrabilba master plan have been extensively documented within several reports which are referenced in Section 1.1. This report specifically addresses the traffic and transport aspects of Precinct 6 ROL 1 (which is a northern sub-precinct of Precinct 6). The proposed layout plan for the Precinct 6 ROL 1 application is included at **Appendix A**.

Regarding an assessment of traffic impacts, this report documents the findings from an assessment of the entire Precinct 6 as it is intended for these results to be relied upon during subsequent sub-precinct applications within Precinct 6.

1.1 Previous Reporting

The traffic and transport aspects of the entire Yarrabilba master plan development (and other relevant precincts) have been previously addressed within a number of documents including the following:

- *Yarrabilba Master Plan Micro-simulation Modelling - Revised Land Use and Road Network* (Cardno, May 2015).
- *Yarrabilba Movement Infrastructure Master Plan* (Cardno, October 2015) – endorsed by EDQ on 11 November 2015, and on 3 July 2019. **Referred herein as the 'Endorsed MIMP (2019)'**.
- *Yarrabilba Master Plan Development – Movement Infrastructure Master Plan* (SLR, April 2017).
- *Yarrabilba Master Plan Development Traffic Model and Intersection Analysis Data Compendium* (SLR, November 2019) – submitted to and under review by EDQ.
- *Yarrabilba Master Plan Development Movement Infrastructure Master Plan (Version 8)* (SLR, October 2022) – submitted to and under review by EDQ. **Referred herein as the 'Current MIMP (2022)'**.

For clarity, it is acknowledged that:

- The October 2015 IMP (Cardno) has been endorsed by EDQ but uses traffic modelling information that is superseded.
- Updated traffic modelling was undertaken in 2018 and the volumes from this are most representative of current Yarrabilba planning and have been used for all traffic design and assessment since 2018.
- The updated traffic modelling (2018) is included in the Current MIMP (2022) and represents the most recent traffic forecasts and assessment for Yarrabilba.
- The Precinct 6 assessment herein uses volumes from the traffic model update in 2018.

Where relevant, some elements of these reports have been used to inform the traffic assessment herein. In particular, it is intended that the traffic and transport aspects of Precinct



6 (known as Precinct 8 within the 2018 master plan) are generally consistent with both the Endorsed MIMP (2019) and the Current MIMP (2022).

1.2 Traffic Model Update

The overall Yarrabilba road network and demographics were revised in 2018, which included reference to the initial traffic model (2015) and the Endorsed MIMP (2018). Whilst the demographics have been updated in various precincts, the demographics for the total Yarrabilba PDA are largely unchanged.

The Precinct 6 assessment herein has been based upon the most recent traffic model volumes and demographics (2018). This is discussed in **Section 4** herein. The traffic volume results from the 2018 modelling have been considered and incorporated herein. Such results include updated forecasts of traffic volumes and updated intersection capacity analysis. The latter includes key intersections providing access to Precinct 6.



2.0 Proposed Development

The proposed Precinct 6 ROL 1 (**ROL 1**) development is situated towards the north of the broader Precinct 6 area. Primary vehicular access for this precinct will be via the Town Centre North-South Road which provides connectivity to the wider road network, and travels along the western boundary of Precinct 6.

The proposed yield of ROL 1 represents 559 residential lots with the overall Precinct 6 consisting of 1,029 lots (subject to future applications). These precincts are illustrated on **Figure 1** in context of the precinct staging and overall Yarrabilba Development Area.

Figure 1 ROL 1 Site Context



The proposed development plan for ROL 1 has been prepared by Lendlease and incorporates input from the wider design team (including advice on traffic and transport design matters provided by SLR). The plan is submitted as part of the planning documents for the application and has been used as the basis of the traffic assessment herein.

Based on information provided by Lendlease and as detailed within the precinct layout plan, ROL 1 is proposed to include the following key land uses and yields:

- 559 residential lots,
- Recreational and linear parkland, and
- Open space parkland for stormwater detention.

The lot layout and road network are illustrated on **Figure 2**, with the full-scale plan provided at **Appendix A**.



It is recognised that in the interim, ROL 1 will have vehicle access only via Town Centre North-South Road from the north via Yarrabilba Drive to Waterford-Tamborine Road. In the ultimate, Town Centre North-South Road will connect to Plunkett Road to the south providing access from the external road network at Waterford-Tamborine Road and Plunkett Road.

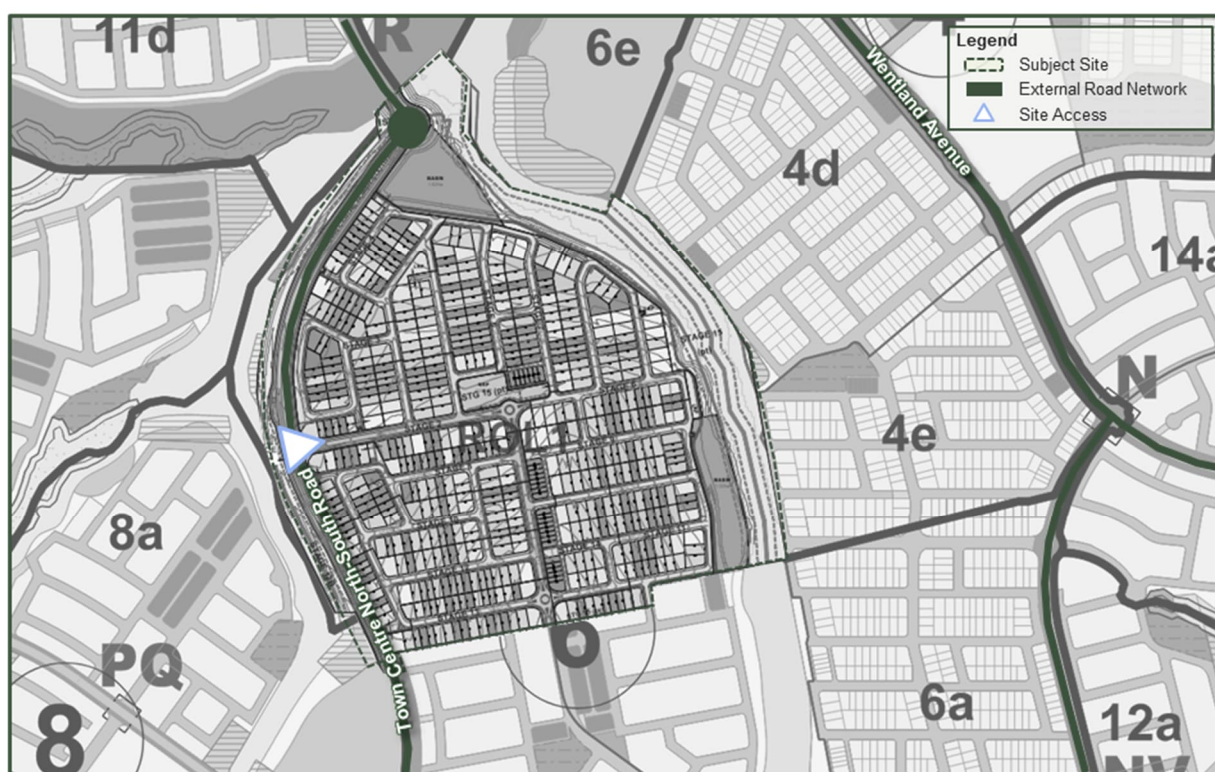
3.0 Design Review

3.1 External Access

ROL 1 does not include any major road connections which differ from what was identified in the Endorsed MIMP (2019) and the Current MIMP (2022), nor does it propose any changes to these roads. As such, the design review undertaken as a part of this traffic assessment focuses on the geometric suitability of the lower order roads and connections specific to the ROL 1 network.

For completeness the location of ROL 1 has been illustrated on **Figure 2** with respect to the wider road alignments, intersection locations and control types. The access location to the major road network can be seen in **Figure 3**.

Figure 3 Precinct 6A External Road Connections



3.2 Town Centre North-South Road Roundabout

It is proposed that a roundabout will be provided on the Town Centre North-South Road at the northern end of Precinct 6. The provision of the roundabout has occurred due to the required alignment of the road over the adjacent waterway.

To achieve the alignment of the road proposed, the following options were considered:

- a curve in the road, or
- a roundabout.

Upon further review, it was found that to provide a suitably designed curve to achieve the required alignment, while minimising impacts to the waterway, the super elevation required was significant and would likely encourage high vehicle speeds. Due to this, the provision of a roundabout, which would suitably reduce vehicle speeds and address the proposed alignment, was preferred. The provision of a roundabout in this location allows for safe vehicle



movement across the waterway (minimising impacts) and achieves the required horizontal curve while tempering vehicle speeds. The proposed design of the roundabout has been prepared by KN Group in accordance with the relevant design guidelines.

3.3 Internal Road Network

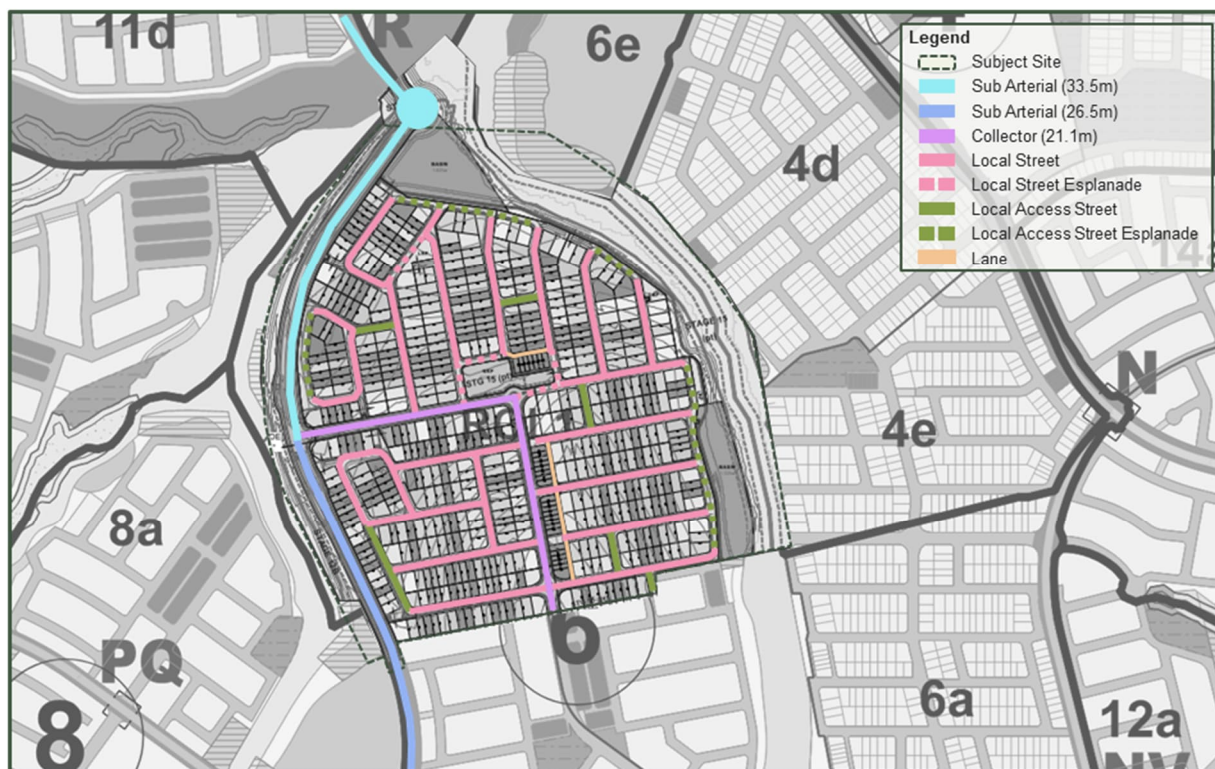
The internal roads (and their respective road reserve widths) proposed as part of the ROL 1 development will comprise the following:

- Sub Arterial (33.5m) – extension of Yarrabilba Drive.
- Sub Arterial (26.5m) – extension of Yarrabilba Drive (south of ROL 1 access).
- Collector (21.1m).
- Local Street (16.0m) and Local Street Esplanade (13.0m).
- Local Access Street (15.0m) and Local Access Street Esplanade (12.0m).
- Lane (6.5m).

The allocation of the above road cross sections to the Precinct 6 road network can be seen in **Figure 4**. The cross sections for the roads within ROL 1 are shown in the Functional Plans prepared by KN Group (at **Appendix B**).

The road hierarchy and general road alignments are compliant with that identified in both the Endorsed MIMP (2019) and the Current MIMP (2022).

Figure 4 Proposed Road Network Layout and Hierarchy



The cross sections for each road type have been developed by the project team with traffic input from SLR, and were based on the design principles outlined within the Endorsed MIMP (2019) and the Current MIMP (2022). These cross sections are generally consistent with those designed/constructed previously in Yarrabilba and are underpinned by the typical cross sections detailed within the Endorsed MIMP (2019) and the Current MIMP (2022).



It is important to note that the cross sections proposed for ROL 1 (see **Appendix B**) have some differences to those included in the Endorsed MIMP (2019) and the Current MIMP (2022). These differences are not considered to be significant and the relevant/appropriate transport functions for all roads are retained/achieved by the proposed cross sections. Therefore, the variations to the cross sections are acceptable for ROL 1.

3.4 Active Transport Provisions

The key elements of the walk and cycle network proposed in ROL 1 are consistent with the connections and elements within the Endorsed MIMP (2019) and the Current MIMP (2022). It is recognised that some active transport links as proposed in Precinct 6 are additional to that identified in the Endorsed MIMP (2019) and the Current MIMP (2022).

Key elements of the active transport network relative to ROL 1 have been reproduced below for ease of reference, as identified within the Endorsed MIMP (2019) and the Current MIMP (2022):

- Principal Cycle Route along the Town Centre North-South Road (Yarrabilba Drive extension).
- Commuter Cycle Route along the Town Centre North-South Road (Yarrabilba Drive extension).
- Commuter Cycle Route along the Ridge East-West Link (southern edge of Precinct 6).
- Local Active Transport Route along the eastern/northern side of ROL 1.

Within ROL 1, the following specific active transport infrastructure is proposed:

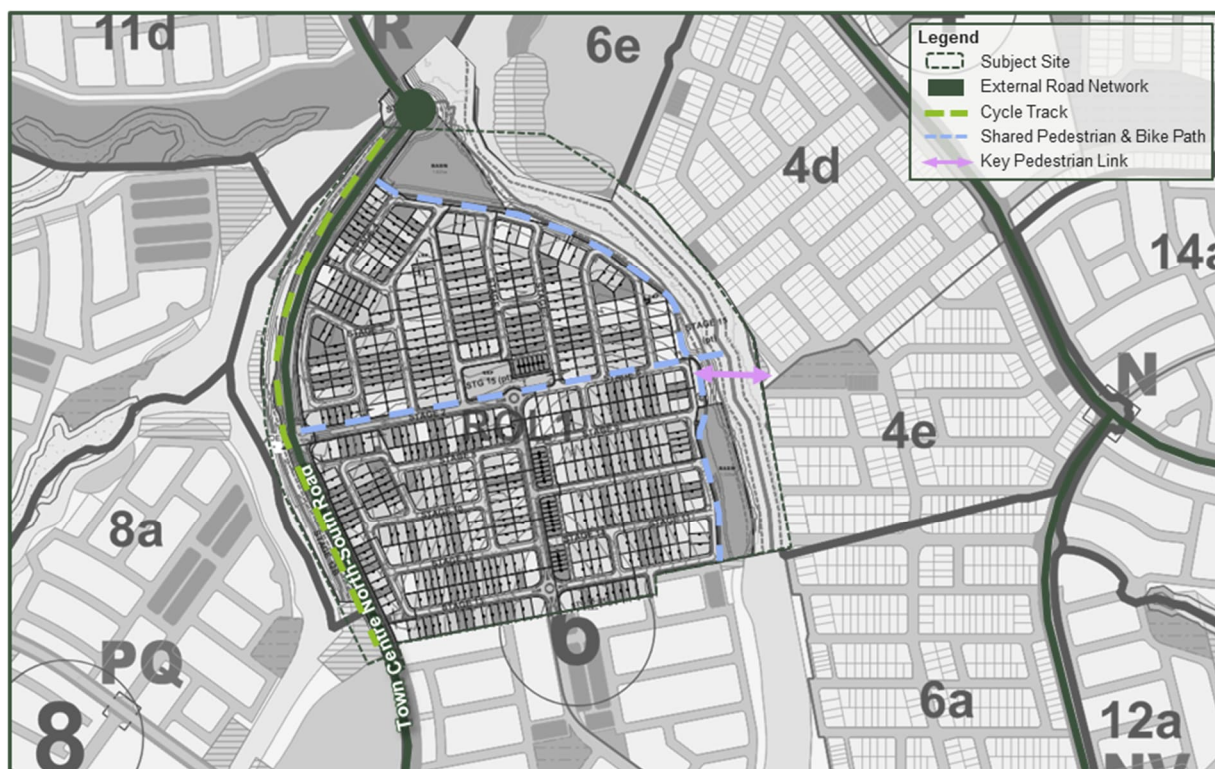
- The Town Centre North-South Road (Principal Cycle Route and Commuter Cycle Route) will include a Two-Way Cycle Track + Pedestrian Path along the western side and a Shared Path along the eastern side.
- A Shared Path (Hike & Bike trail) will be provided through the Open Space corridor along the eastern/northern side of ROL 1 (Local Active Transport Route).
- A Shared Path will be provided along the east west Collector Street and Local Street between Town Centre North-South Road and the Open Space corridor.
- A Shared Path will be provided between ROL 1 and the adjacent residential catchment to the east (Precinct 4E), across the Open Space corridor.
- All Collector Streets will provide a pathway (Shared Path or Pedestrian Path) on both sides.
- All Local Streets (excluding Lanes) will include a footpath on at least one side.

The proposed active transport paths are compliant with and exceed that identified in both the Endorsed MIMP (2019) and the Current MIMP (2022).

The location of the Cycle Track, Shared Path and pedestrian link can be seen in **Figure 5**.



Figure 5 Proposed Active Transport Provisions



3.5 Public Transport Provisions

In accordance with the provisions outlined in the Movement IMP, the Yarrabilba Master Plan Area aims to provide public transport connections within a 400m walking distance of residents within precinct developments.

As identified in **Figure 6**, several bus routes and bus stops (indicative locations only) are proposed within the subject site. Bus routes and bus stops are proposed along the Sub Arterial (Town Centre North-South Road) and the Collector running through the site. The 400m walking distance catchments (from each bus stop pair) are identified in **Figure 6**. This identifies that all lots in ROL 1 will be within 400m of a proposed bus stop.



Figure 6 Proposed Public Transport Infrastructure



It is recognised that bus services may not be implemented by TransLink on the identified routes (this is to be negotiated by contract with the bus operator, Lendlease and TransLink), however the relevant roads have been designed to enable such bus routes to occur. The bus stops will be constructed in accordance with TransLink's Public Transport Infrastructure Manual (PTIM).

On this basis, the public transport stops proposed within ROL 1 and the wider Precinct 6 will adequately service the catchment and are compliant with that identified in both the Endorsed MIMP (2019) and the Current MIMP (2022).



4.0 Traffic Analysis

4.1 Development Scenarios

The analysis herein includes the entire Precinct 6, not just ROL 1.

As identified in **Section 1.2**, since the original traffic modelling completed in 2015, updates to the model were undertaken in 2018. The proposed scenarios assessed within the revised modelling were consistent with that originally assessed. In line with this updated modelling, the analysis herein assesses the same two scenarios, identified as follows:

- Scenario 1: Interim (2031) – assumes partial (approximately 75%) development of the Yarrabilba Masterplan excluding some precincts to the south and east predominantly. This scenario also assumes no external road connections to the south via Plunkett Road are constructed.
 - o Used to establish the interim access intersection forms for Precinct 6.
- Scenario 2: Ultimate – which assumes the full development of the wider Yarrabilba Masterplan, with a completed external road network in line with the Movement IMP (including a future connection to the Southern Infrastructure Corridor).
 - o Used to establish the ultimate access intersection forms for Precinct 6.

4.2 Trunk Road Background Traffic Volumes

For the purposes of the following analysis, the traffic volumes on Town Centre North-South Road and Ridge East-West Link for both scenarios were obtained from the 2018 modelling volumes (as reported in the *Yarrabilba Master Plan Development Traffic Model and Intersection Analysis Data Compendium* (SLR, November 2019)).

4.3 Precinct 6 Development Traffic Assumptions

4.3.1 Traffic Generation

In line with previous assessments, a traffic generation rate of 0.7vph/lot has been applied to the development yield in Precinct 6.

Table 1 Precinct 6 Trip Generation – Residential

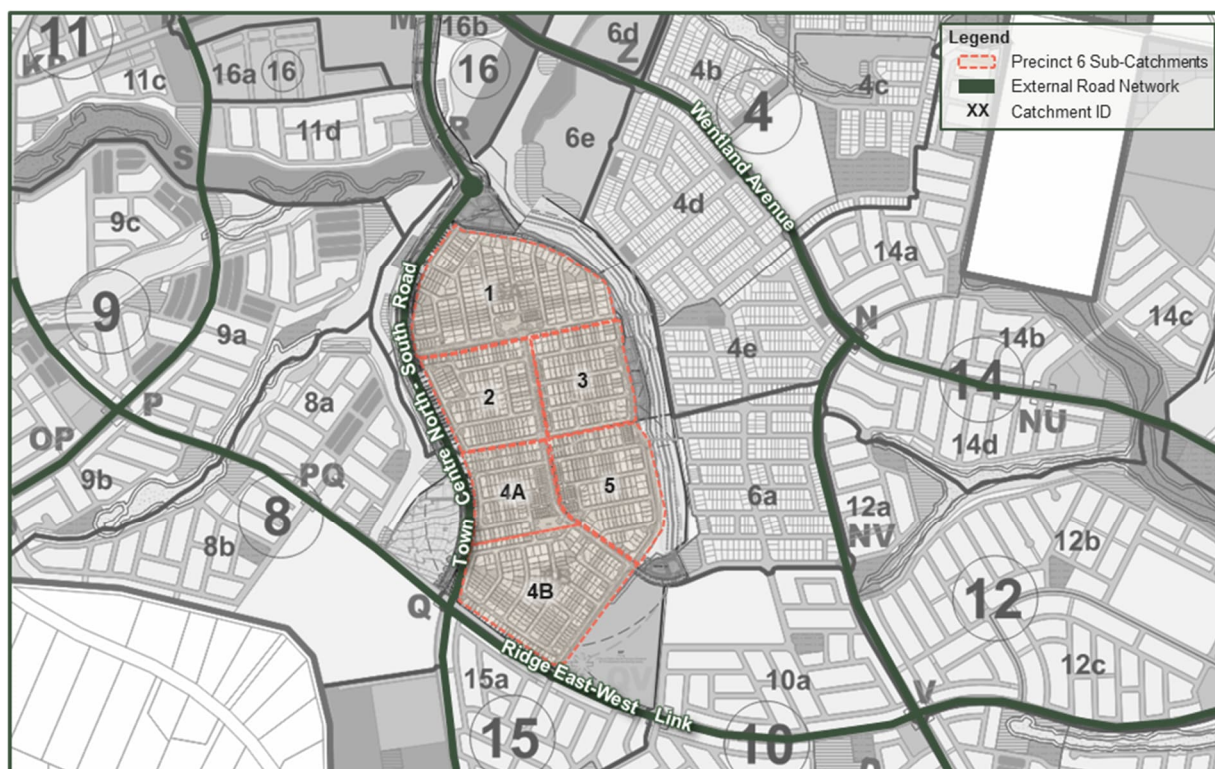
Sub-Precinct	Number of Lots	AM Trip Rate	PM Trip Rate	AM Trips	PM Trips
A	559	0.7 per lot	0.7 per lot	392	392
B	470			329	329
Total	1029	-	-	721	721

4.3.2 Trip Distribution

To quantify the traffic movements at the two site access points, Precinct 6 has been divided into smaller sub-catchments for the purposes of distribution. The identified sub-catchments can be seen in **Figure 7**.



Figure 7 Precinct 6 Sub-Catchments



The distribution of traffic generated by Precinct 6 has been assigned to the external road network consistent with the distribution assumptions adopted in the previously approved trigger analysis, with additional consideration given to the routing of traffic via the Ridge East-West Link. These distribution assumptions have been reproduced in **Table 2** for the interim scenarios, and **Table 3** for the ultimate scenario.

Table 2 Distribution of Precinct 6 Traffic – Interim (2031)

Sub-Catchment Number	To / From Town Centre North-South Road	To / From Ridge East-West Road
1	100%	0%
2	100%	0%
3	100%	0%
4A	100%	0%
4B	10%	90%
5	100%	0%



Table 3 Distribution of Precinct 6 Traffic – Ultimate

Sub-Catchment Number	To / From Town Centre North-South Road	To / From Ridge East-West Road
1	100%	0%
2	100%	0%
3	100%	0%
4A	70%	30%
4B	10%	90%
5	70%	30%

4.3.3 In / Out Split

Typical industry adopted in / out splits have been adopted for the residential component within the Precinct 6 development, summarised in **Table 4**.

Table 4 In / Out Split

Peak Period	Residential Trips	
	IN	OUT
AM	20%	80%
PM	70%	30%

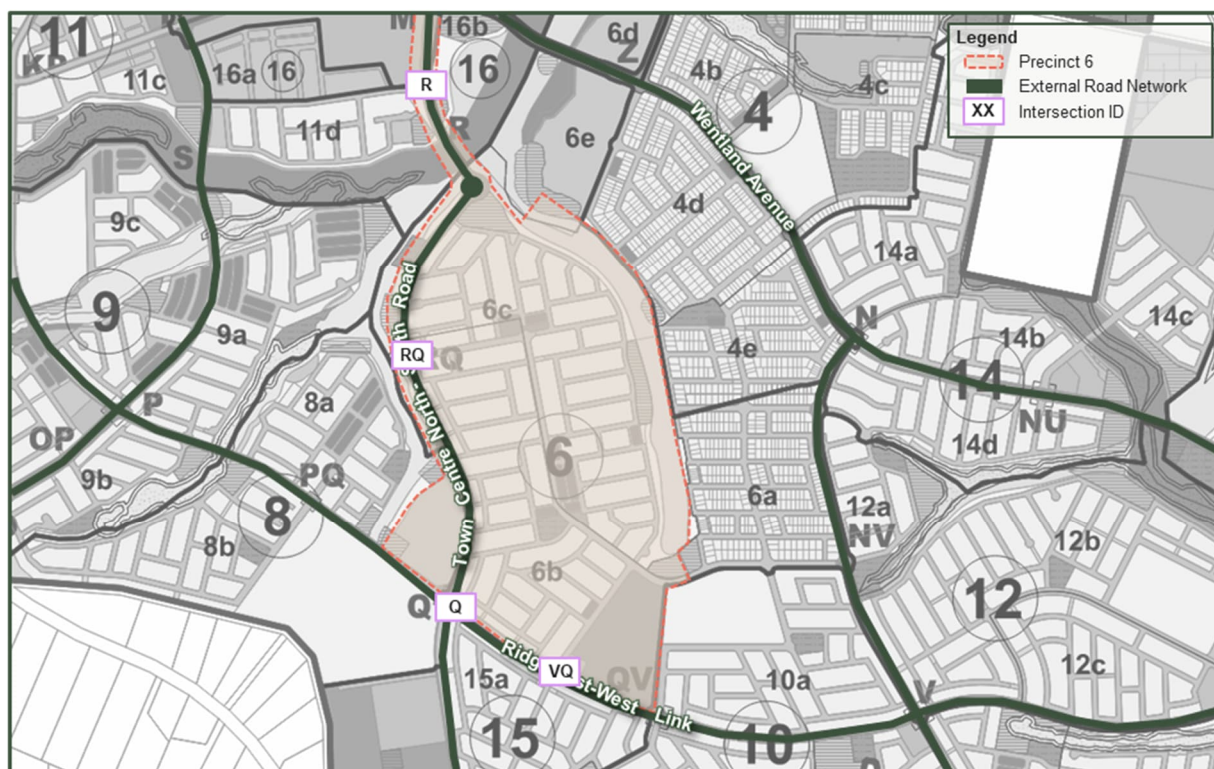
The resultant traffic volume diagrams have been included in **Appendix C**.

4.4 Study Intersections

The following analysis considers the four (4) intersections identified providing access for, and adjacent to, Precinct 6. The intersection locations, along with their interim and ultimate form allocation are identified in **Figure 8**.



Figure 8 Study Intersections



ID	Interim Form	Ultimate Form
R*		
RQ		
Q		
VQ		

* subject to development and road connection immediately west of Town Centre North-South Road.

4.5 Scenario 1 – Interim

The general interim intersection forms of key intersections within Precinct 6 have adopted the ultimate road hierarchy and cross-sectional requirements of the major roads identified in the Movement IMP. The key roads and the lane capacity requirements have been summarised in **Table 5**.



Table 5 Ultimate Lane Capacity Requirements

Road Name	Link Location	Proposed Traffic Lanes
Town Centre North-South Road	North of R	4 Lanes
	R – RQ	4 Lanes
	RQ – Q	2 Lanes
	South of Q	2 Lanes
Ridge East-West Road	West of Q	2 Lanes
	Q – V	2 Lanes
	East of V	2 Lanes

The performance of all key intersections has been assessed in SIDRA Intersection 9.1 to establish the operational performance of the proposed layout. Detailed outputs for Scenario 1 (Interim), including intersection layout plans and movement summaries, have been provided in **Appendix D**. A summary of the results is provided in **Table 6**.

Table 6 Summary of Interim Intersection Results

Intersection Location	Control Type	Operational Element	AM Peak	PM Peak
Node R	Signals	DoS	0.45	0.35
		Average Delay (s)	30	27
		95 th %ile queue (m)	82	59
Node RQ	Priority Controlled	DoS	0.75	0.35
		Critical Delay (s)	16	12
		95 th %ile queue (m)	66	13
Node Q	Priority Controlled (T-junction)	DoS	0.18	0.15
		Critical Delay (s)	10	8
		95 th %ile queue (m)	6	4
Node VQ	Priority Controlled	DoS	0.15	0.06
		Critical Delay (s)	8	8
		95 th %ile queue (m)	4	2

The performance of all key intersections within Precinct 6 in the interim scenario (Scenario 1) is within the maximum operating parameters for signalised (maximum DoS 0.90) and unsignalised (maximum DoS 0.80) intersections.

4.6 Scenario 2 – Ultimate

The performance of all intersections for the ultimate scenario has been assessed in SIDRA 9.1. The analysis results are summarised in **Table 7**, with the detailed outputs (including intersection layout plans) provided in **Appendix E**.



Table 7 Summary of Ultimate Intersection Results

Intersection Location	Control Type	Operational Element	AM Peak	PM Peak
Node R	Signals	DoS	0.58	0.58
		Average Delay (s)	26	23
		95 th ile queue (m)	79	56
Node RQ	Signals	DoS	0.75	0.68
		Average Delay (s)	27	25
		95 th ile queue (m)	71	62
Node Q	Signals (4 way)	DoS	0.81	0.79
		Average Delay (s)	34	33
		95 th ile queue (m)	93	59
Node VQ	Priority Controlled	DoS	0.16	0.12
		Critical Delay (s)	9	9
		95 th ile queue (m)	4	3

The results reported in **Table 7** confirm that the performance of all intersections within Precinct 6 in the ultimate scenario (Scenario 2) are within the adopted maximum operating parameters.

The functional drawings for Precinct 6 have been prepared by KN Group to provide sufficient road reserve allocation to accommodate the necessary road and intersection configurations.



5.0 Summary

The following summarises the key conclusions in respect of the traffic and transport aspects of Precinct 6 ROL 1 (including the traffic impacts for the overall Precinct 6) and consider the need for consistency with the Movement Infrastructure Master Plan (MIMP):

- **Road Hierarchy** – The network of roads within and adjacent to Precinct 6 are consistent with the road hierarchy identified in both the Endorsed MIMP (2019) and the Current MIMP (2022). The proposed network of roads is appropriate for the proposed ROL 1 development, the future Precinct 6 development, and the overall Yarrabilba development.
- **Key Intersections** – The design form of key intersections within Precinct 6, providing connections to/from each sub-precinct, is appropriate to accommodate the anticipated traffic volumes within Precinct 6. Adequate allowance has been made in these intersection forms to facilitate the needs of the ultimate Yarrabilba development.
- **Local Street Network** – The local street network has been designed to achieve good street design principles, particularly related to local traffic speeds and active transport needs.
- **Cross Sections** – The proposed cross sections in ROL 1, whilst differing in some aspects, are generally consistent with the Endorsed MIMP (2019) and the Current MIMP (2022). The transport functions of these MIMP's are achieved by the proposed cross sections.
- **Active Transport** – The active transport provisions are consistent with, and better than, that identified in both the Endorsed MIMP (2019) and the Current MIMP (2022) and these are appropriate to satisfy the needs of ROL 1 in conjunction with the surrounding development of Yarrabilba.
- **Public Transport** – The layout and design of streets within ROL 1 makes the appropriate provision for public transport (bus services) and potential bus stops. This is consistent with that identified in both the Endorsed MIMP (2019) and the Current MIMP (2022).

6.0 RPEQ Certification

This traffic assessment and report has been prepared under the direction of a Registered Professional Engineer of Queensland (**RPEQ**) and Senior Road Safety Auditor (as accredited by TMR) who is experienced in traffic engineering, transport planning and road safety. The report is endorsed by that RPEQ accordingly.

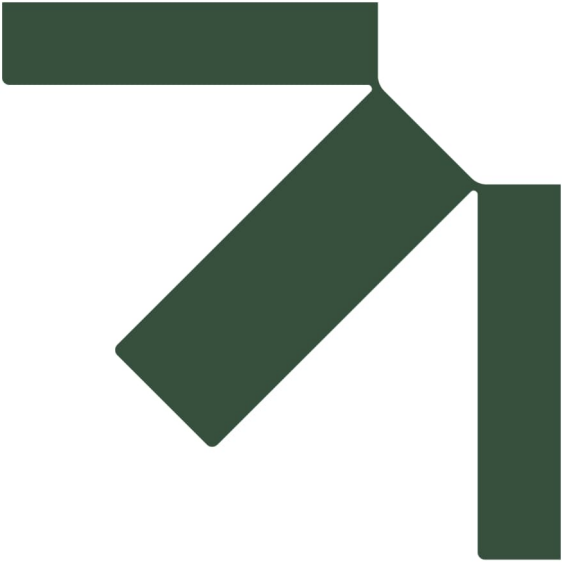
Sincerely,

SLR Consulting Australia Pty Ltd

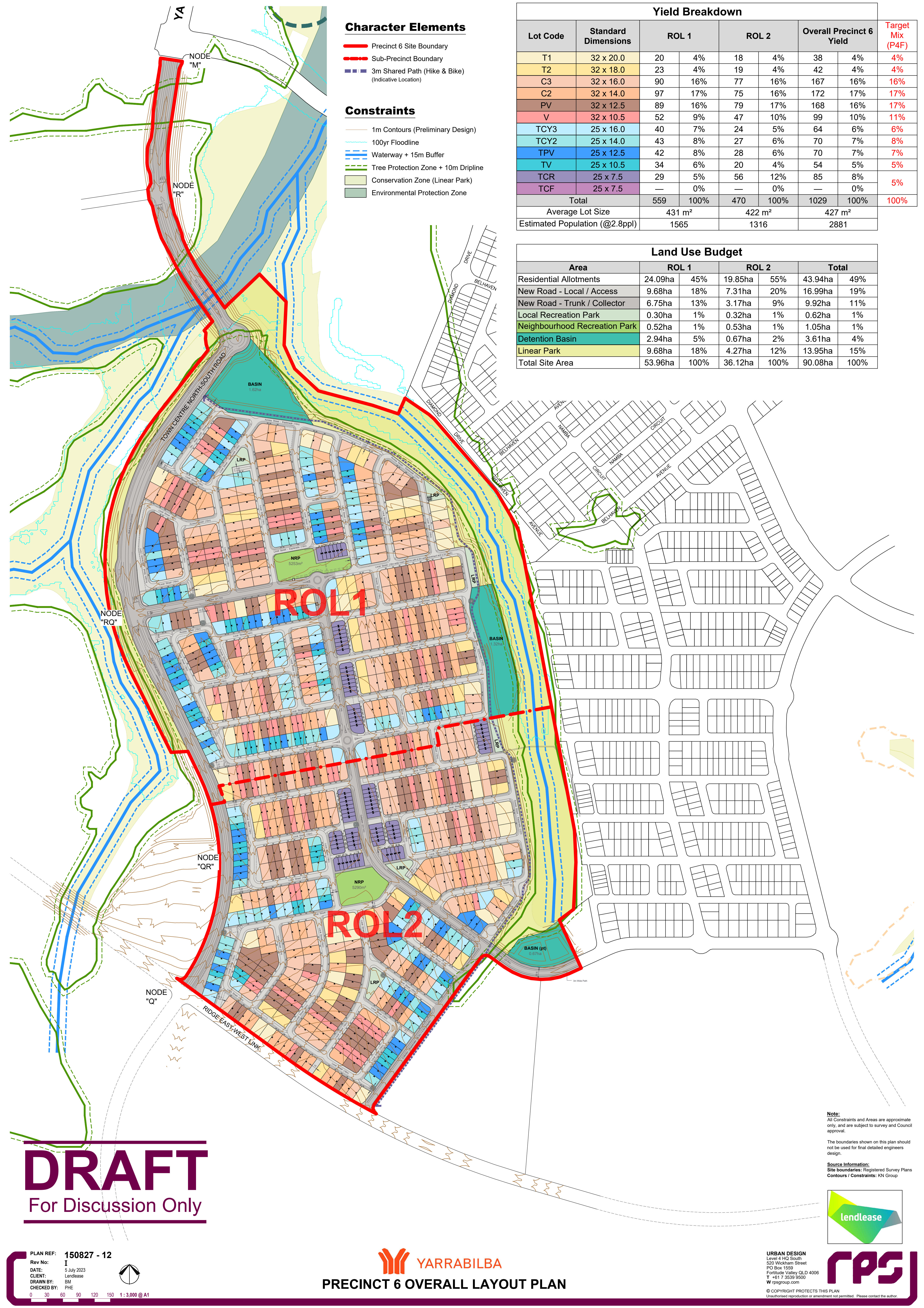
Brett McClurg, RPEQ #7628
Technical Director

Brendyn Rheinberger, RPEQ #17962
Principal Consultant





Appendix A Development Plans (RPS)



Character Elements

- Precinct 6 Site Boundary
- Sub-Precinct Boundary
- 3m Shared Path (Hike & Bike) (Indicative Location)

Constraints

- 1m Contours (Preliminary Design)
- 100yr Floodline
- Waterway + 15m Buffer
- Tree Protection Zone + 10m Dripline
- Conservation Zone (Linear Park)
- Environmental Protection Zone

Yield Breakdown

Lot Code	Standard Dimensions	ROL 1		ROL 2		Overall Precinct 6 Yield		Target Mix (P4F)
T1	32 x 20.0	20	4%	18	4%	38	4%	4%
T2	32 x 18.0	23	4%	19	4%	42	4%	4%
C3	32 x 16.0	90	16%	77	16%	167	16%	16%
C2	32 x 14.0	97	17%	75	16%	172	17%	17%
PV	32 x 12.5	89	16%	79	17%	168	16%	17%
V	32 x 10.5	52	9%	47	10%	99	10%	11%
TCY3	25 x 16.0	40	7%	24	5%	64	6%	6%
TCY2	25 x 14.0	43	8%	27	6%	70	7%	8%
TPV	25 x 12.5	42	8%	28	6%	70	7%	7%
TV	25 x 10.5	34	6%	20	4%	54	5%	5%
TCR	25 x 7.5	29	5%	56	12%	85	8%	5%
TCF	25 x 7.5	—	0%	—	0%	—	0%	—
Total		559	100%	470	100%	1029	100%	100%
Average Lot Size		431 m ²		422 m ²		427 m ²		
Estimated Population (@2.8ppl)		1565		1316		2881		

Land Use Budget

Area	ROL 1		ROL 2		Total	
Residential Allotments	24.09ha	45%	19.85ha	55%	43.94ha	49%
New Road - Local / Access	9.68ha	18%	7.31ha	20%	16.99ha	19%
New Road - Trunk / Collector	6.75ha	13%	3.17ha	9%	9.92ha	11%
Local Recreation Park	0.30ha	1%	0.32ha	1%	0.62ha	1%
Neighbourhood Recreation Park	0.52ha	1%	0.53ha	1%	1.05ha	1%
Detention Basin	2.94ha	5%	0.67ha	2%	3.61ha	4%
Linear Park	9.68ha	18%	4.27ha	12%	13.95ha	15%
Total Site Area	53.96ha	100%	36.12ha	100%	90.08ha	100%

DRAFT
For Discussion Only

Note:
All Constraints and Areas are approximate only, and are subject to survey and Council approval.

The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:
Site boundaries: Registered Survey Plans
Contours / Constraints: KN Group



PRECINCT 6 OVERALL LAYOUT PLAN

URBAN DESIGN
Level 4 HQ South
520 Wickham Street
PO Box 1559
Fortitude Valley QLD 4006
T +61 7 3559 5500
W rpsgroup.com



PLAN REF: 150827 - 12
Rev No: I
DATE: 5 July 2023
CLIENT: Lendlease
DRAWN BY: BM
CHECKED BY: PHE
0 30 60 90 120 150 1:3,000 @ A1



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- PRECINCT SIX-
APPLICATION ONE BOUNDARY
- STAGE BOUNDARY
- OPEN SPACE - LINEAR AND STORMWATER QUALITY
- OPEN SPACE - NEIGHBOURHOOD
RECREATION PARK
- OPEN SPACE - LOCAL RECREATION PARK
- LOCAL STAGE ROAD
- PATHWAY CONNECTION
- VILLAGE ROAD
- MAJOR ROAD

LAND USE	AREA (ha)
Residential	24.025 ha
Open Space - Local	0.306 ha
Open Space - Neighbourhood	0.526 ha
Open Space - Linear	10.600 ha
Road - Major Road	5.305 ha
Road - Village Road	1.472 ha
Road - Local Road	9.737 ha
TOTAL	51.970 ha

MINIMUM RESIDENTIAL DENSITY - 36.07 ha
559dw
15.50 dw/ha

MAXIMUM RESIDENTIAL DENSITY - 36.07 ha
559 dw
15.50 dw/ha

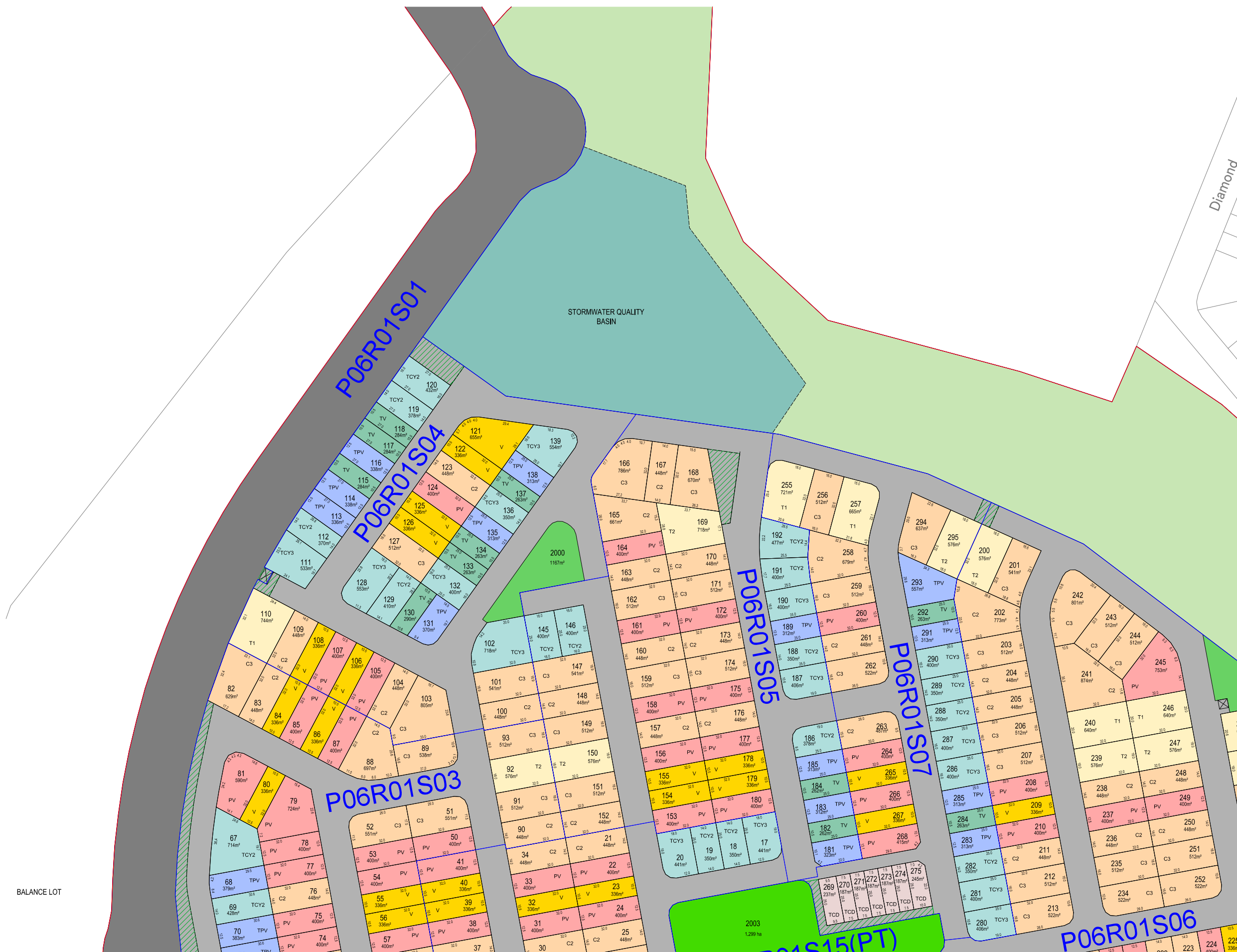
LOT YIELD BY LOT TYPE							
LOT TYPE	No.	No. %	AREA	AREA %	MINIMUM	MAXIMUM	AVERAGE
T1	21	3.76%	14148.05m²	5.89%	576.00m²	794.75m²	673.72m²
T2	23	4.11%	14019.10m²	5.84%	576.00m²	746.22m²	609.53m²
C2	96	17.17%	44723.09m²	18.62%	448.00m²	873.97m²	465.87m²
C3	88	15.74%	47254.61m²	19.67%	512.00m²	804.56m²	536.98m²
PV	89	15.92%	36641.57m²	15.25%	400.00m²	753.45m²	411.70m²
V	54	9.66%	18688.27m²	7.78%	336.00m²	654.99m²	346.08m²
TCY2	45	8.05%	17756.10m²	7.39%	350.00m²	745.03m²	394.58m²
TCY3	39	6.98%	18038.58m²	7.51%	350.00m²	718.36m²	462.53m²
TPV	40	7.16%	13380.57m²	5.57%	312.50m²	556.97m²	334.51m²
TV	35	6.26%	9648.67m²	4.02%	262.50m²	387.41m²	275.68m²
TCD	29	5.19%	5949.77m²	2.48%	187.50m²	373.27m²	205.16m²
TOTALS	559	100%	240248.37m²	100%	187.50m²	873.97m²	429.78m²

NOTE:
MINIMUM DWELLINGS is based on the development of one dwelling on each single family and multi-family strata (MFS) lot.
MAXIMUM DWELLINGS is based on the development of one dwelling on each single family lot, and three dwellings on each multi family strata (MFS).

DENSITY calculations include the area of residential lots, local roads and credited park. The boundaries, roads and pathways shown hereon are subject to detailed engineering design, final survey and approval of subsequent development applications by the relevant authorities.

PRECINCT 06 - APPLICATION ONE
RECONFIGURATION OF A LOT

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-  PRECINCT SIX-APPLICATION ONE BOUNDARY
 STAGE BOUNDARY
 OPEN SPACE - LINEAR AND STORMWATER QUALITY BASIN
 OPEN SPACE - NEIGHBOURHOOD RECREATION PARK
 OPEN SPACE - LOCAL RECREATION PARK
 LOCAL STAGE ROAD
 PATHWAY CONNECTION
 VILLAGE ROAD
 MAJOR ROAD

LOT TYPE
TRADITIONAL (T1)
TRADITIONAL (T2)
COURTYARD (C2)
COURTYARD (C3)
PREMIUM VILLA (PV)
VILLA (V)
TOWN COURTYARD (TCY2)
TOWN COURTYARD (TCY3)
TOWN PREMIUM VILLA (TPV)
TOWN VILLA (TV)
TERRACE (TCD)
TOTALS

PRECINCT 06 - APPLICATION ONE RECONFIGURATION OF A LOT

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- PRECINCT SIX-APPLICATION ONE BOUNDARY
- STAGE BOUNDARY
- OPEN SPACE - LINEAR AND STORMWATER QUALITY BASIN
- OPEN SPACE - NEIGHBOURHOOD RECREATION PARK
- OPEN SPACE - LOCAL RECREATION PARK
- LOCAL STAGE ROAD
- PATHWAY CONNECTION
- VILLAGE ROAD
- MAJOR ROAD

LOT TYPE
TRADITIONAL (T1)
TRADITIONAL (T2)
COURTYARD (C2)
COURTYARD (C3)
PREMIUM VILLA (PV)
VILLA (V)
TOWN COURTYARD (TCY2)
TOWN COURTYARD (TCY3)
TOWN PREMIUM VILLA (TPV)
TOWN VILLA (TV)
TERRACE (TCD)
TOTALS



PRECINCT 06 - APPLICATION ONE RECONFIGURATION OF A LOT

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- PRECINCT SIX-APPLICATION ONE BOUNDARY
- STAGE BOUNDARY
- OPEN SPACE - LINEAR AND STORMWATER QUALITY BASIN
- OPEN SPACE - NEIGHBOURHOOD RECREATION PARK
- OPEN SPACE - LOCAL RECREATION PARK
- LOCAL STAGE ROAD
- PATHWAY CONNECTION
- VILLAGE ROAD
- MAJOR ROAD

LOT TYPE
TRADITIONAL (T1)
TRADITIONAL (T2)
COURTYARD (C2)
COURTYARD (C3)
PREMIUM VILLA (PV)
VILLA (V)
TOWN COURTYARD (TCY2)
TOWN COURTYARD (TCY3)
TOWN PREMIUM VILLA (TPV)
TOWN VILLA (TV)
TERRACE (TCD)
TOTALS



PRECINCT 06 - APPLICATION ONE RECONFIGURATION OF A LOT

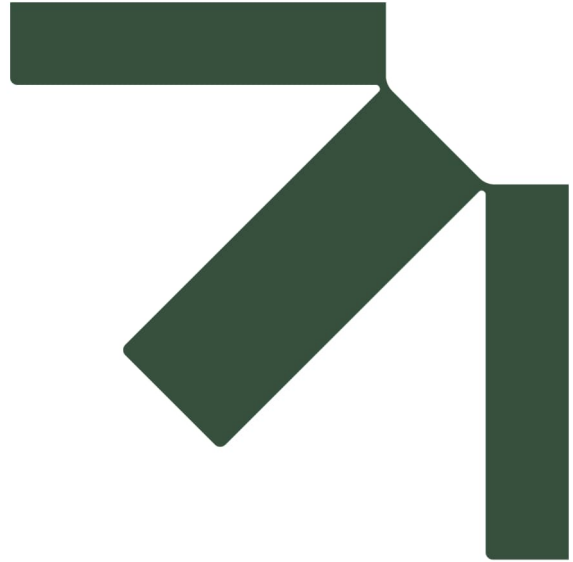
NOTE: This plan is indicative only, and specific uses, road alignment, boundaries, setbacks, and building layout shown may vary due to detailed design consideration. ©2023 Lendlease Communities (Australia). All rights reserved. Except as permitted by Lendlease, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the permission of Lendlease.



0 20 40 60 80 100m

Scale 12,000 at A3





Appendix B Functional Plans (KN Group)

Drawn SLK	Designed JAS	Checked RM	Date JUL 23
Scale AS SHOWN			Sheet 01 of 17
A1	Drawing No 21-233-SK051		Revision A

[illegible]

	Associated Consultants



Client



Project



PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



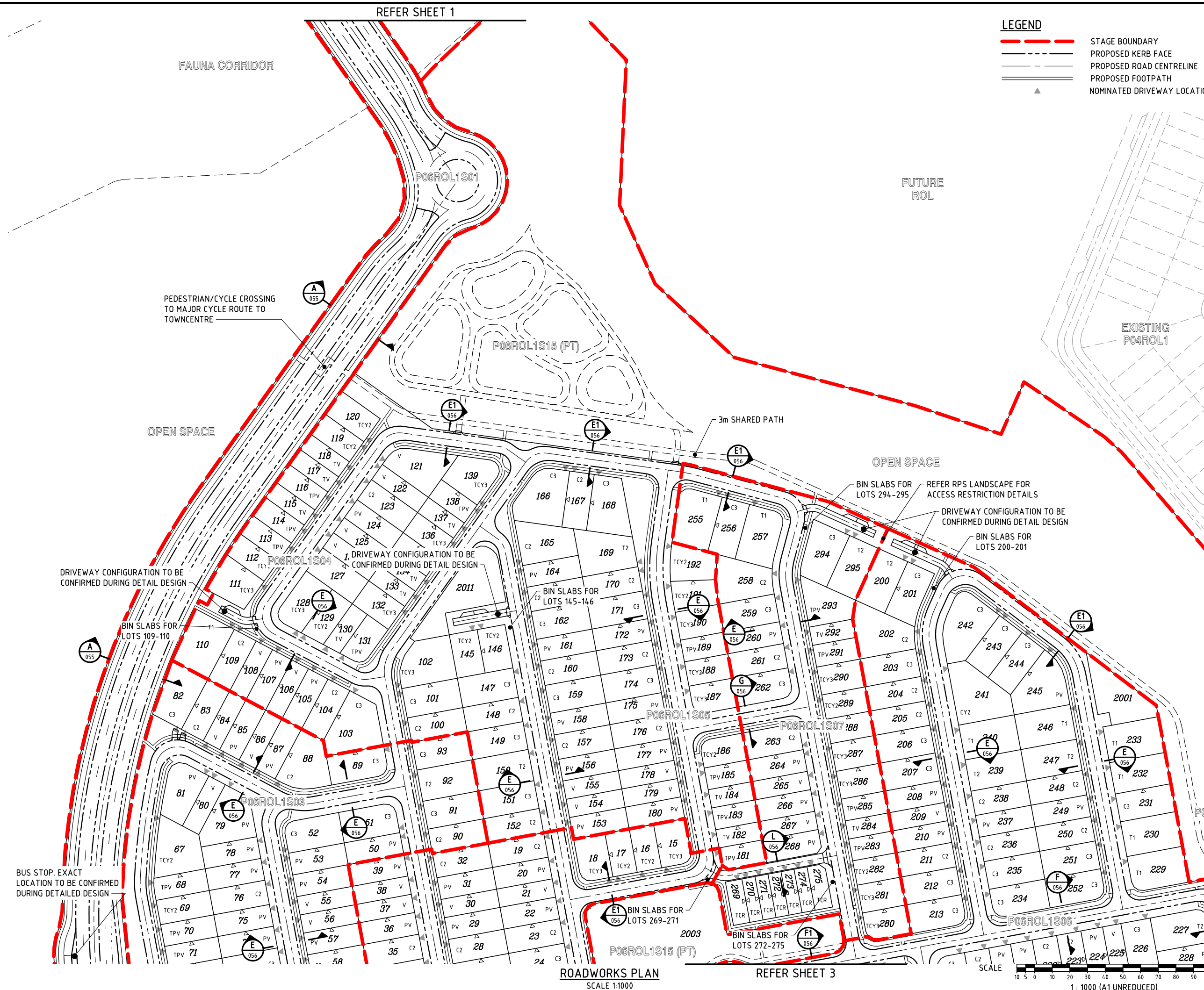
ABN 35 112 53
L1, 62 Aston
Spring Hill Q 4
07 3017 1
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Approve

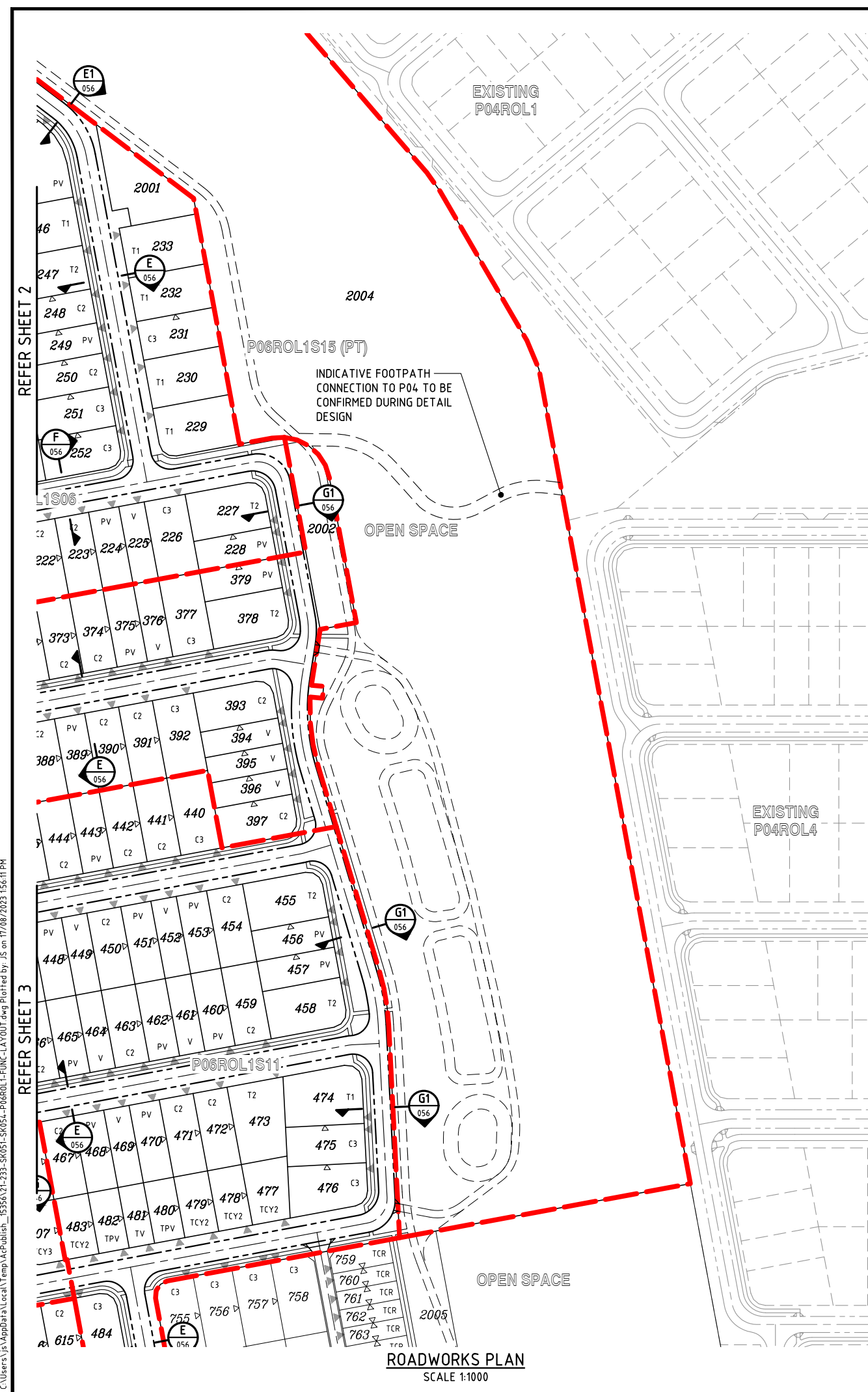
Drawing Title

P06ROL1 FUNCTIONAL LAYOUT
ROADWORKS PLAN
SHEET 2

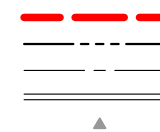
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A1	Drawing No 21-233-SK052		Revision A



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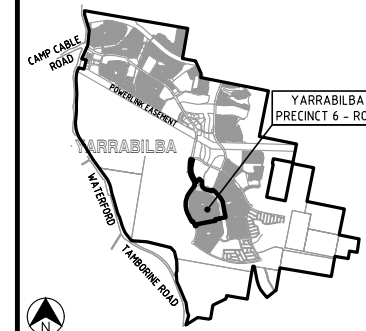


STAGE BOUNDARY
PROPOSED KERB FACE
PROPOSED ROAD CENTRELINE
PROPOSED FOOTPATH
NOMINATED DRIVEWAY LOCATION

DO NOT SCALE THIS DRAWING
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LOCALITY PLAN



REVISIONS

[illegible]

Associated Consultants



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PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



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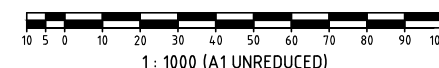
Approved

Drawing Title

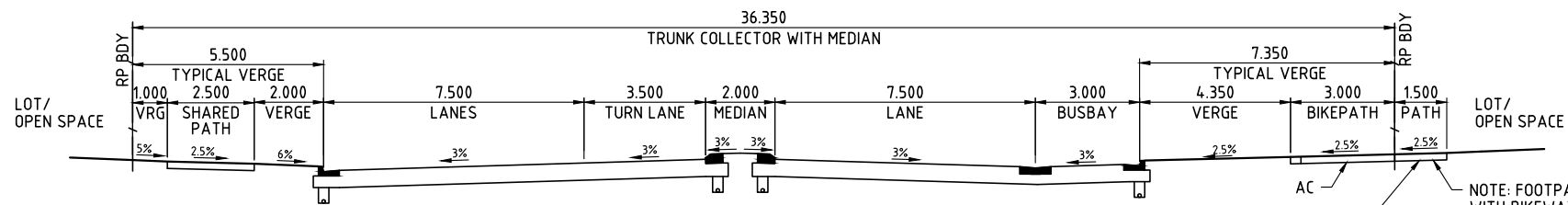
P06ROL1 FUNCTIONAL LAYOUT
ROADWORKS PLAN
SHEET 4

Drawn SLK	Designed JAS	Checked RM	Date JUL 21
Scale AS SHOWN			Sheet 04 of 1
A1	Drawing No 21-233-SK054		Revision B

SCALE



A SECTION
51 SCALE 1:100



A1 SECTION
51 SCALE 1:100

39.000

TRUNK COLLECTOR WITH MEDIAN

RP BDY

4.500

1.000

2.500

1.000

TYPICAL VERGE

3.000

BUSBAY

7.500

LANES

5.500

MEDIAN

7.500

LANES

3.500

TURN LANE

2.000

VERGE

7.500

TYPICAL VERGE

3.000

BIKEPATH

1.500

1.000

PATH

5.000

VERGE

RP BDY

LOT/ OPEN SPACE

5%

2.5%

2.5%

3%

3%

3%

3%

6%

2.5%

2.5%

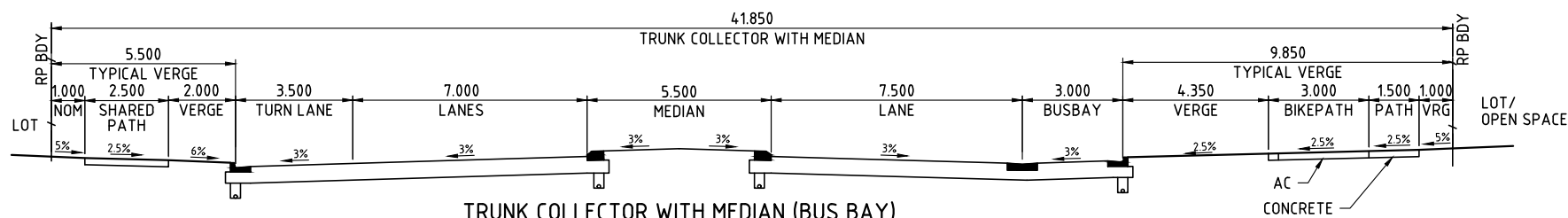
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AC

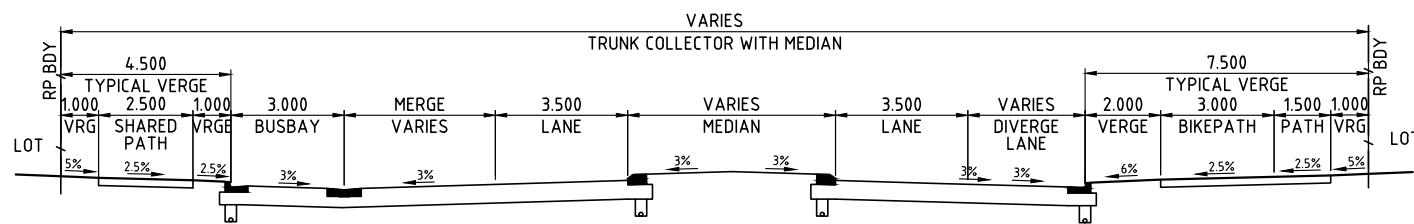
CONCRETE

LOT/ OPEN SPACE

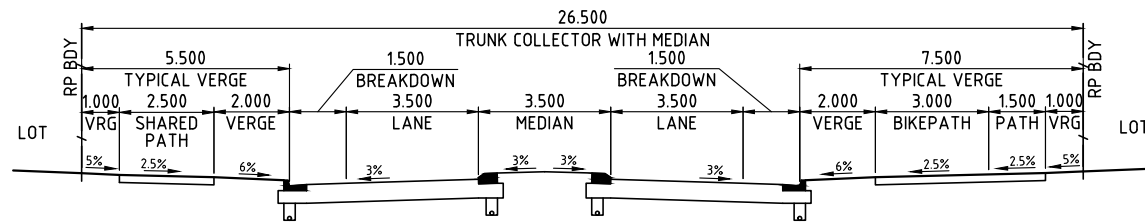
A2 SECTION
51 SCALE 1:100



A3 SECTION
53 SCALE 1:10



A4 SECTION
53 SCALE 1:10



B
53

SCALE 

[illegible]

YARRABILBA

PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



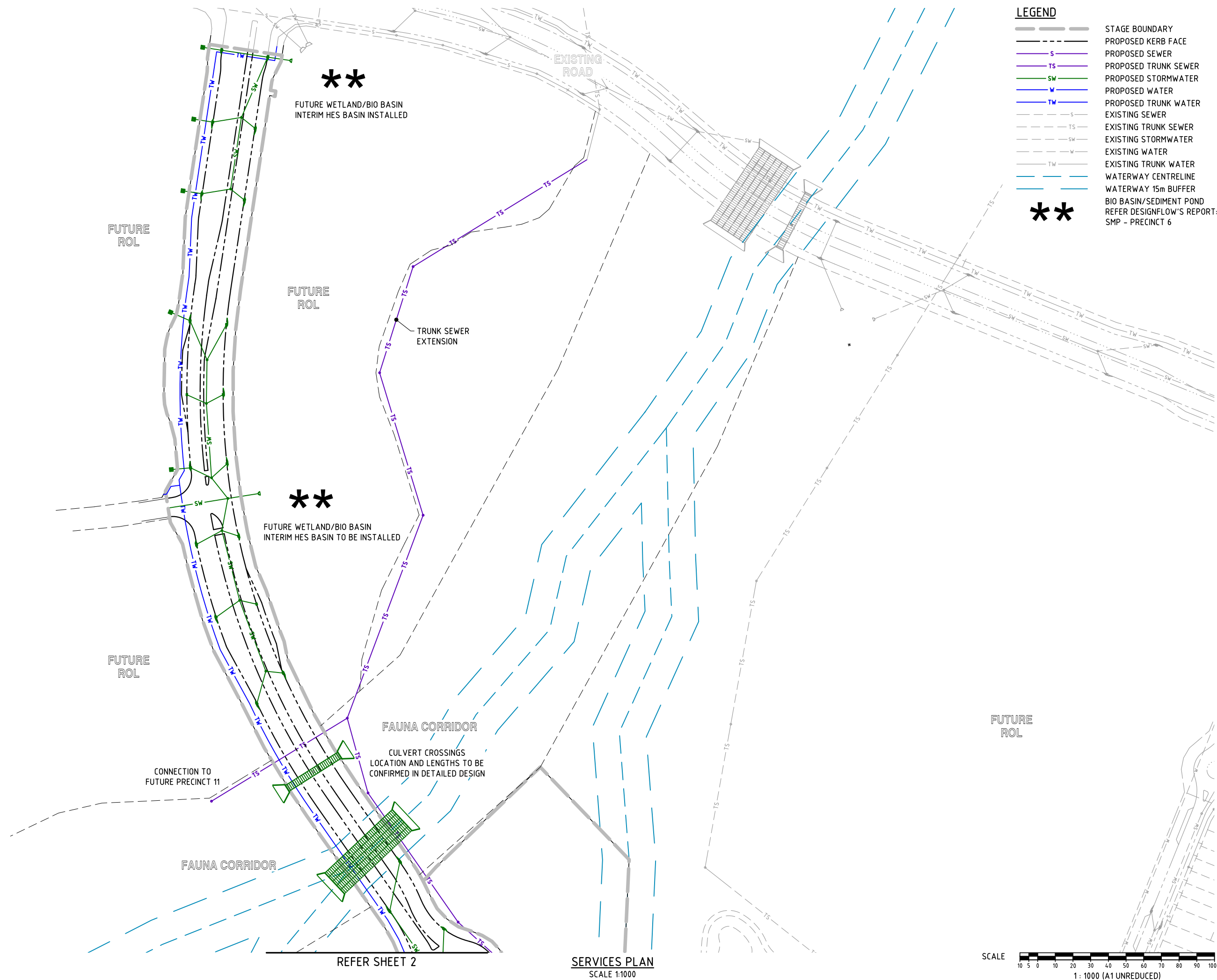
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group

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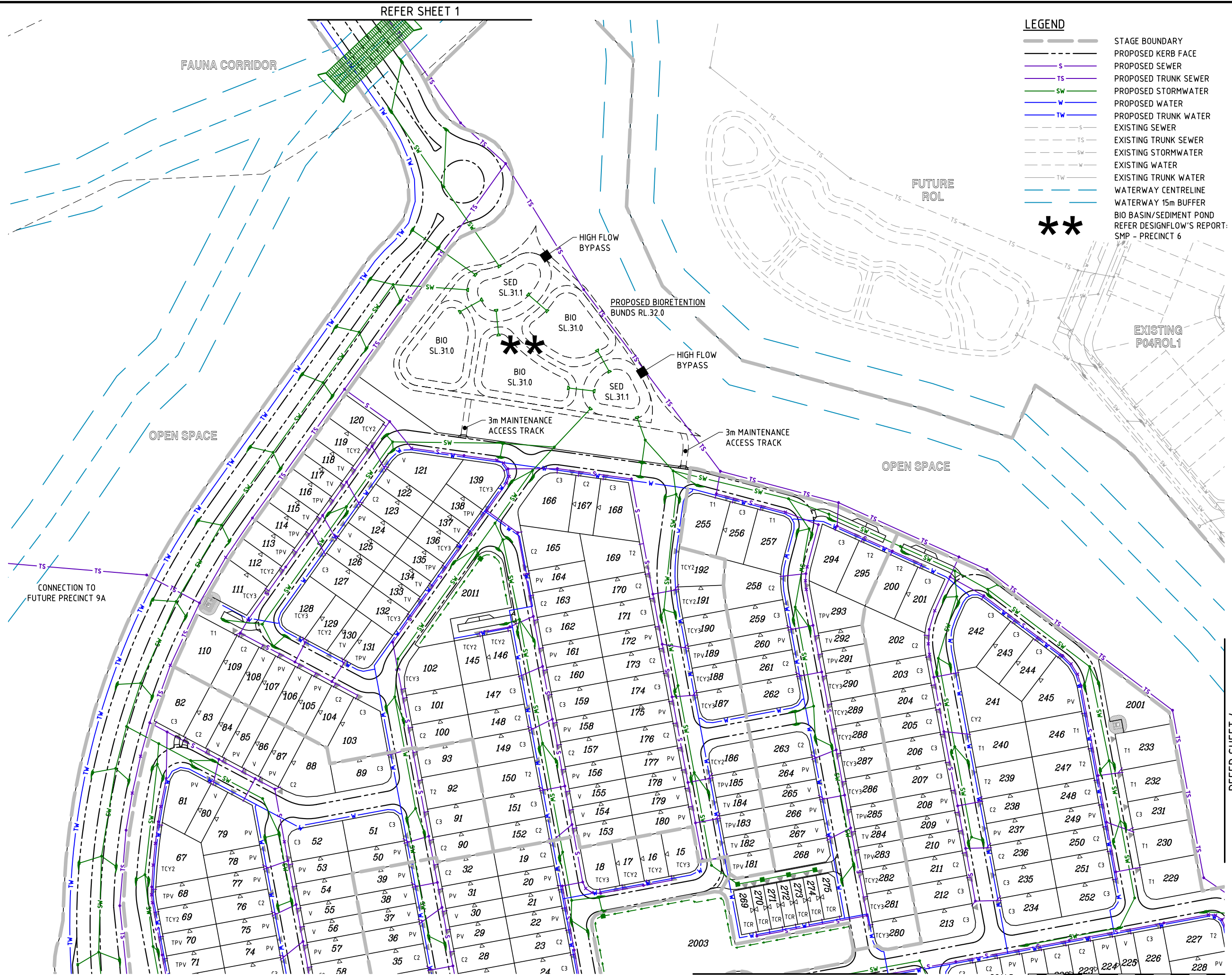
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P06ROL1 FUNCTIONAL LAYOUT
TYPICAL SECTIONS
SHEET 1

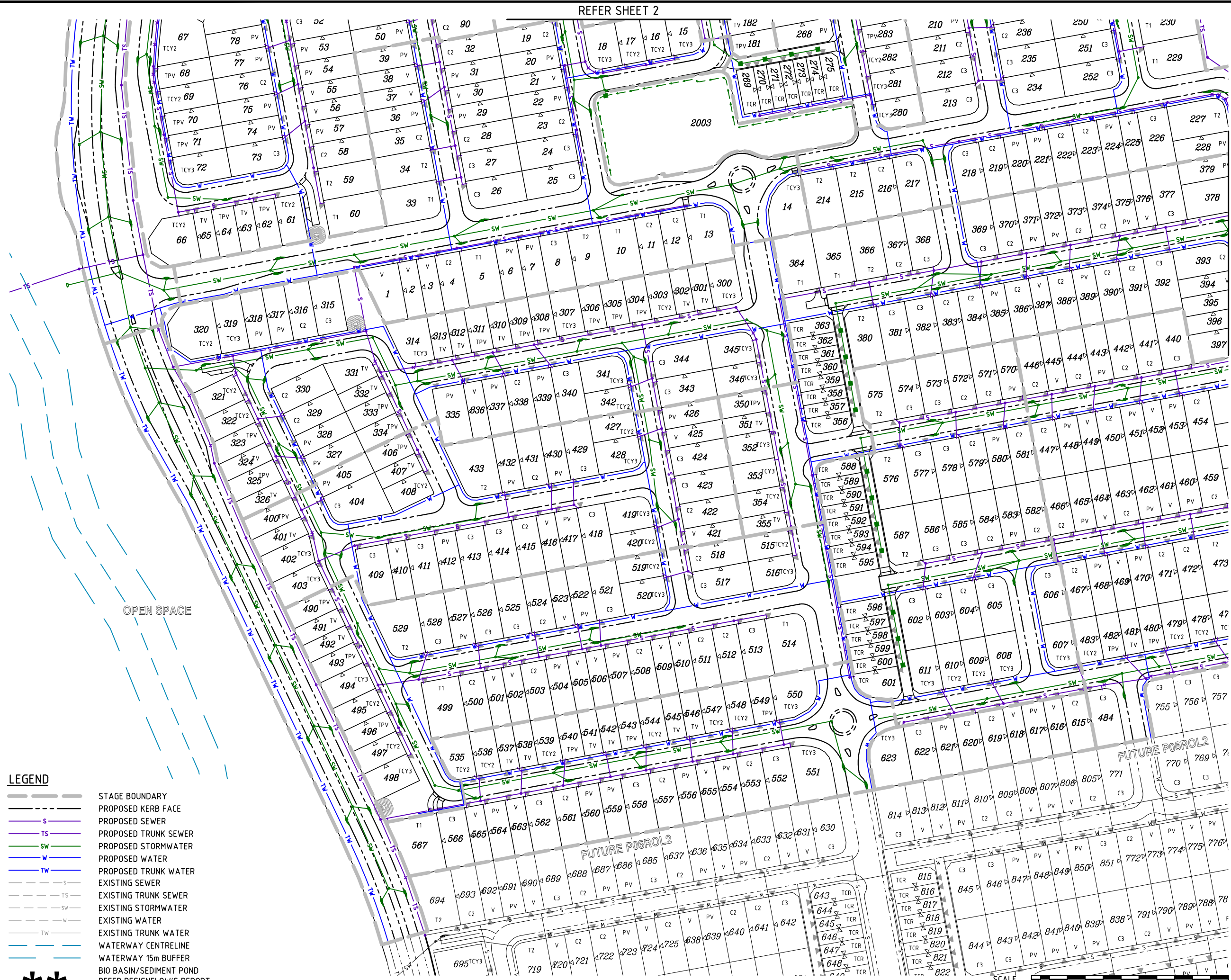
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A1	Drawing No 21-233-SK055		Revision A

[illegible]

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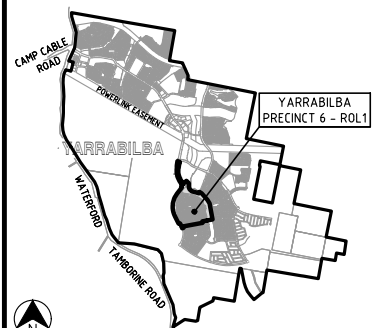
- STAGE BOUNDARY
- PROPOSED KERB FACE
- PROPOSED SEWER
- PROPOSED TRUNK SEWER
- PROPOSED STORMWATER
- PROPOSED WATER
- PROPOSED TRUNK WATER
- EXISTING SEWER
- EXISTING TRUNK SEWER
- EXISTING STORMWATER
- EXISTING WATER
- EXISTING TRUNK WATER
- WATERWAY CENTRELINE
- WATERWAY 15m BUFFER
- BIO BASIN/SEDIMENT POND
- REFER DESIGNFLOW'S REPORT:
- SMP - PRECINCT 6

SERVICES PLAN
SCALE 1:1000

DO NOT SCALE THIS DRAWING
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LOCALITY PLAN



REVISIONS

No	Description	Date	By
A	FOR APPROVAL	28.07.23	SLK

Associated Consultants



Client



Project



PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS

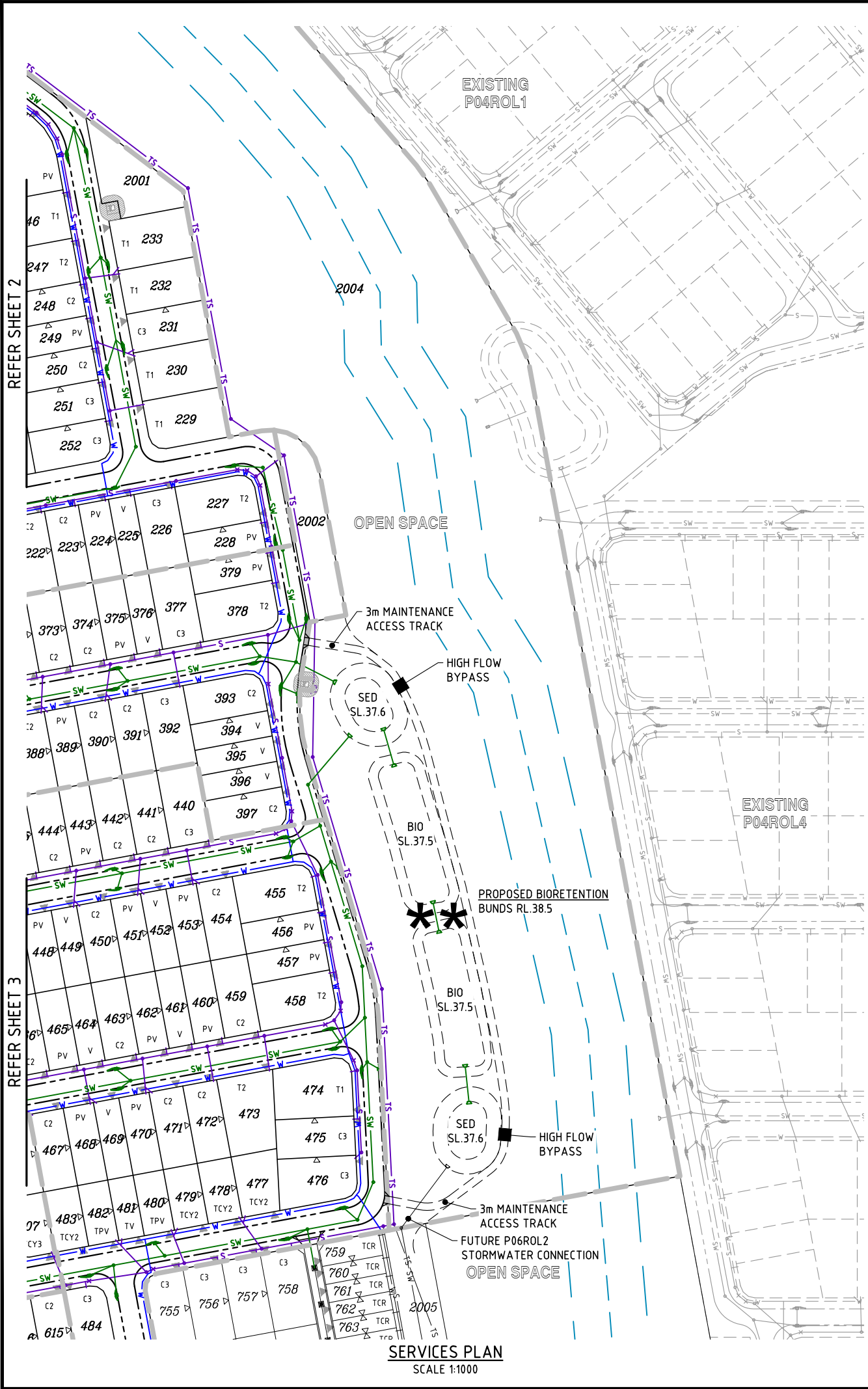


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Drawing Title
P06ROL1 FUNCTIONAL LAYOUT
SERVICES PLAN
SHEET 3

Drawn SLK	Designed JAS	Checked RM	Date JUL 23
Scale AS SHOWN	Drawing No. 21-233-SK059	Sheet 09 of 17	Revision A



LEGEND

---	STAGE BOUNDARY
---	PROPOSED KERB FACE
---	PROPOSED SEWER
---	PROPOSED TRUNK SEWER
---	PROPOSED STORMWATER
---	PROPOSED WATER
---	PROPOSED TRUNK WATER
---	EXISTING SEWER
---	EXISTING TRUNK SEWER
---	EXISTING STORMWATER
---	EXISTING WATER
---	EXISTING TRUNK WATER
---	WATERWAY CENTRELINE
---	WATERWAY 15m BUFFER
---	BIO BASIN/SEDIMENT POND
---	REFER DESIGNFLOW'S REPORT: SMP - PRECINCT 6

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NORTH

LOCALITY PLAN

CAMP CABLE ROAD
YARRABILBA
YARRABILBA PRECINCT 6 - ROL1
WATERBURY ROAD

REVISIONS

No	Description	Date	By
A	FOR APPROVAL	28.07.23	SLK
B	MINOR AMENDMENTS	17.08.23	JS

Associated Consultants

rps

Client

lendlease

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YARRABILBA
PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS

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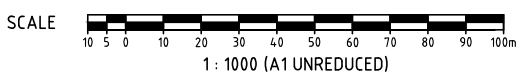
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P06ROL1 FUNCTIONAL LAYOUT
SERVICES PLAN
SHEET 4

Drawn	Designed	Checked	Date
SLK	JAS	RM	JUL 23

Scale	Sheet
AS SHOWN	10 of 17

A1	Drawing No	Revision
	21-233-SK060	B



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OPEN SPACE

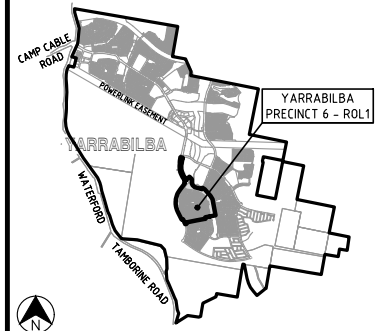
OPEN SPACE

EXISTING
P04ROL1

PROPOSED KERB FACE
PRELIMINARY CONTOURS
EXISTING CONTOURS (LIDAR)
BATTER LINE - TOP
BATTER LINE - BOTTOM
PROPOSED BATTER <0.4m
PROPOSED RETAINING WALL 0.4-1.0m
PROPOSED RETAINING WALL 1.0-2.0m
PROPOSED RETAINING WALL 2.0-2.5m



LOCALITY PLAN



REVISIONS

[illegible]

Associated Consultants



Client



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PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



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Drawing Title

P06ROL1 FUNCTIONAL LAYOUT
EARTHWORKS PLAN
SHEET 2

Drawn SLK	Designed JAS	Checked RM	Date JUL 23
Scale AS SHOWN			Sheet 12 of 17
A1	Drawing No 21-233-SK062		Revision A

REFER SHEET 4

EARTHWORKS PLAN
SCALE 1:1000

REFER SHEET 3

SCALE

1 : 1000 (A1 UNREDUCED)

[illegible]

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YARRABILBA

PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



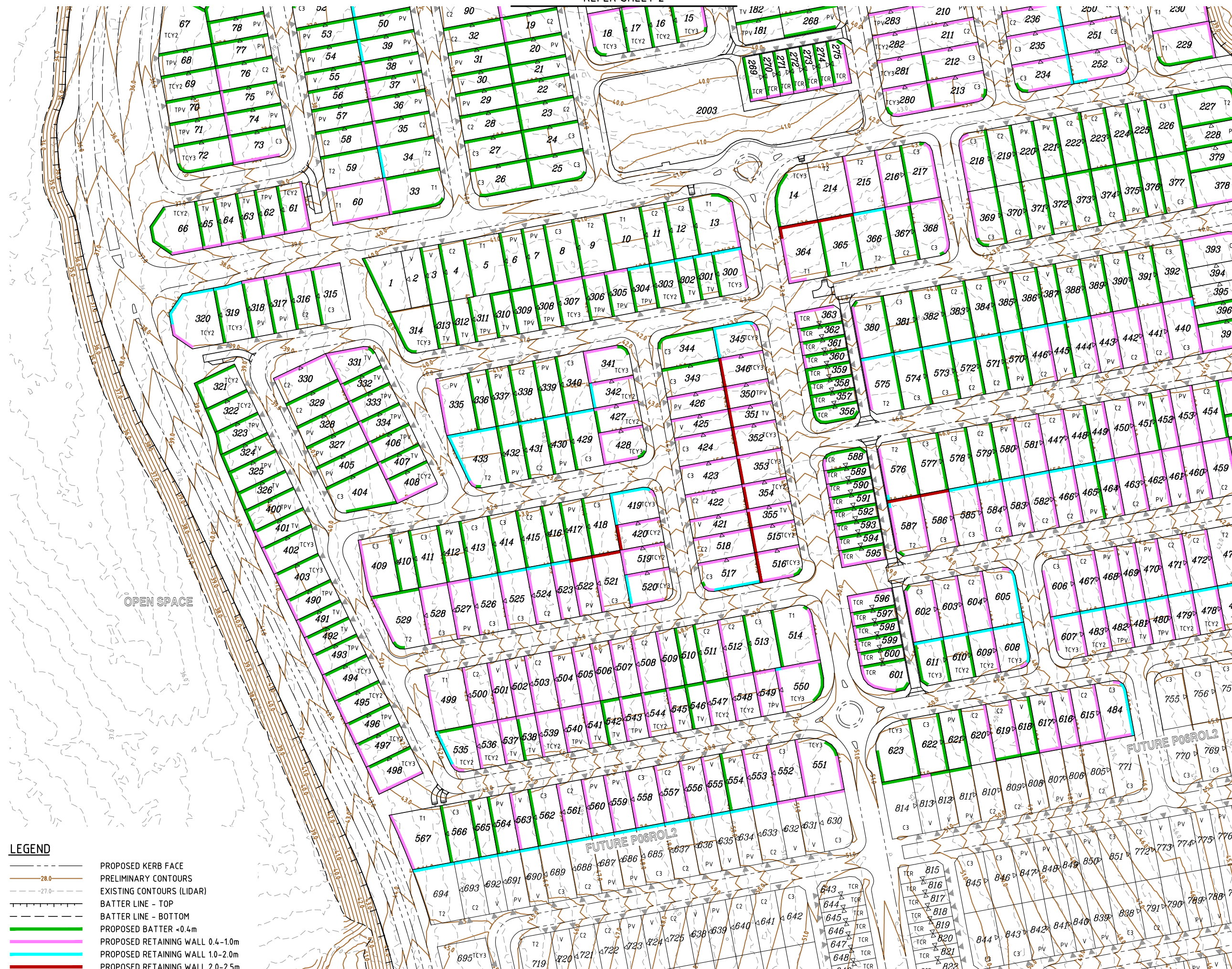
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Drawing Title

P06ROL1 FUNCTIONAL LAYOUT
EARTHWORKS PLAN
SHEET 3

Drawn SLK	Designed JAS	Checked RM	Date JUL 23
Scale AS SHOWN			Sheet 13 of 17
A1	Drawing No 21-233-SK063		Revision A



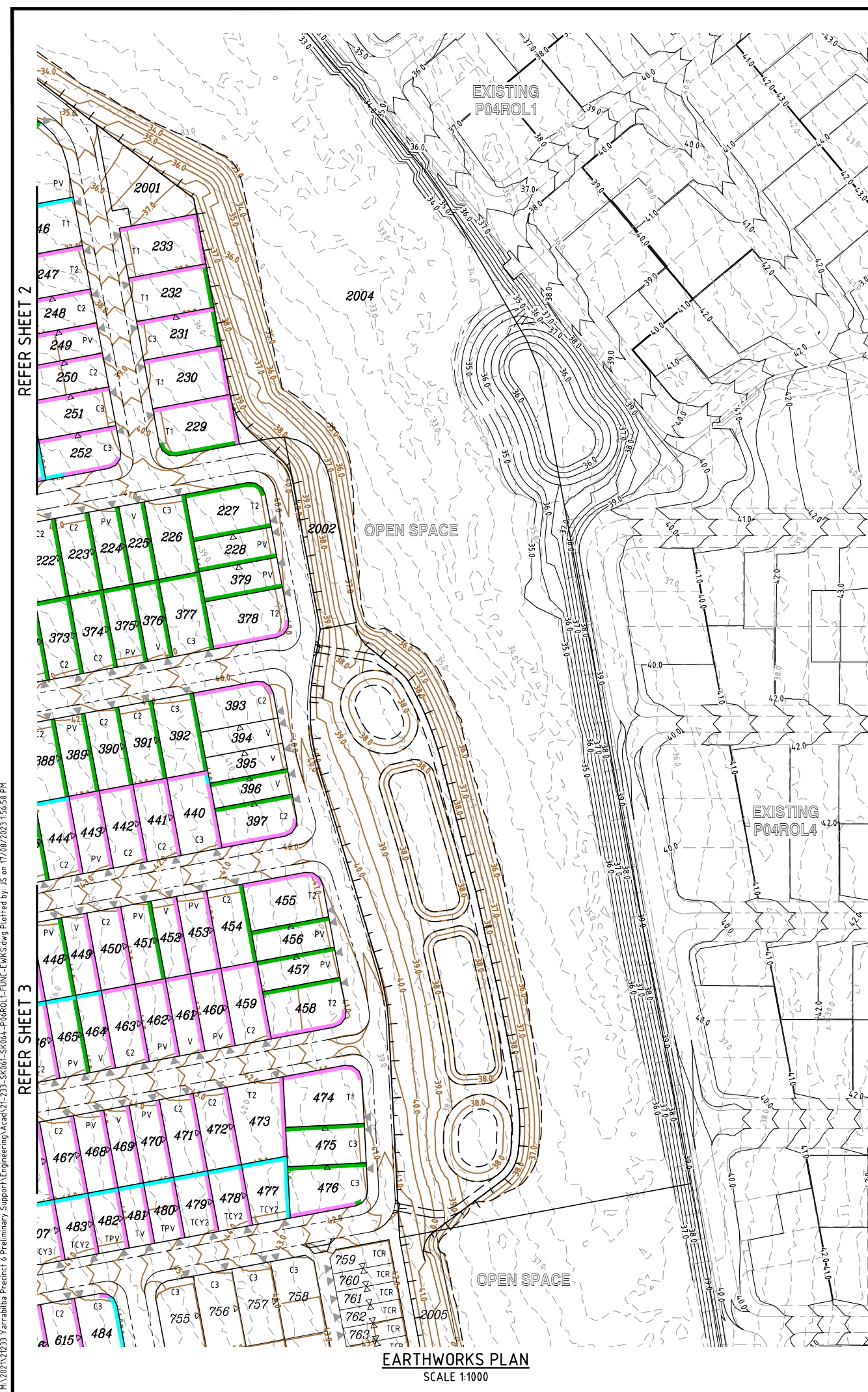
EARTHWORKS PLAN

SCALE 1:1000

SCALE 1: 1000 (A1 UNREDUCED)

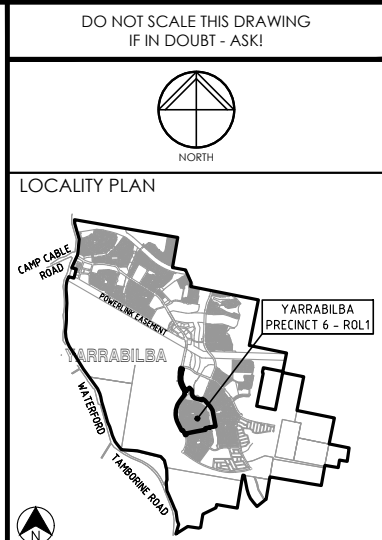
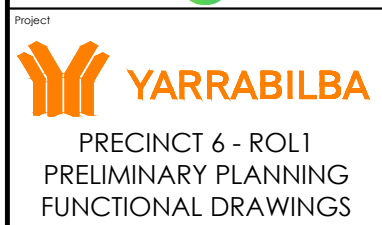
LEGEND

-
- | | |
|--|----------------------------------|
| | PROPOSED KERB FACE |
| | PRELIMINARY CONTOURS |
| | EXISTING CONTOURS (LIDAR) |
| | BATTER LINE - TOP |
| | BATTER LINE - BOTTOM |
| | PROPOSED BATTER -0.4m |
| | PROPOSED RETAINING WALL 0.4-1.0m |
| | PROPOSED RETAINING WALL 1.0-2.0m |
| | PROPOSED RETAINING WALL 2.0-2.5m |



LEGEND

	PROPOSED KERB FACE
	PRELIMINARY CONTOURS
	EXISTING CONTOURS (LIDAR)
	BATTER LINE - TOP
	BATTER LINE - BOTTOM
	PROPOSED BATTER <0.4m
	PROPOSED RETAINING WALL 0.4-1.0m
	PROPOSED RETAINING WALL 1.0-2.0m
	PROPOSED RETAINING WALL 2.0-2.5m

[illegible]

Approved			
Drawing Title			
P06R01 FUNCTIONAL LAYOUT EARTHWORKS PLAN SHEET 4			
Drawn SLK	Designed JAS	Checked RM	Date JUL 23
Scale AS SHOWN			Sheet 14 of 17
A1	Drawing No 21-233-SK064		Revision A



LEGEND

- | | |
|---|---|
|  | PROPOSED KERB FACE |
| | PROPOSED ROAD CENTRELINE |
| | EXTRA CARPARK SPACE |
| | CARPARK SPACE ALLOCATION
GREATER THAN 40m DISTANCE |
| | 2 PARKING SPACED PER 4 LOTS |

NOTE

NOTE
0.75 ON STREET PARKING SPACE PER LOT EQUIVALENT
TO 3 PARKING SPACES PER 4 LOTS AS INDICATED IN
COLOURED BLOCKS U.N.O.

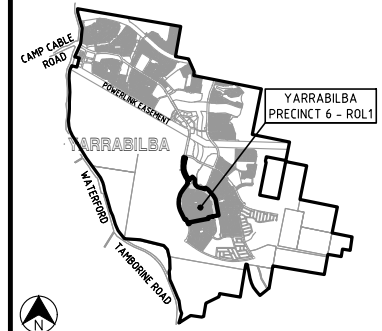
FUTURE
ROL

EXISTING
P04ROL1

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LOCALITY PLAN



REVISIONS

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PRECINCT 6 - ROL1
PRELIMINARY PLANNING
FUNCTIONAL DRAWINGS



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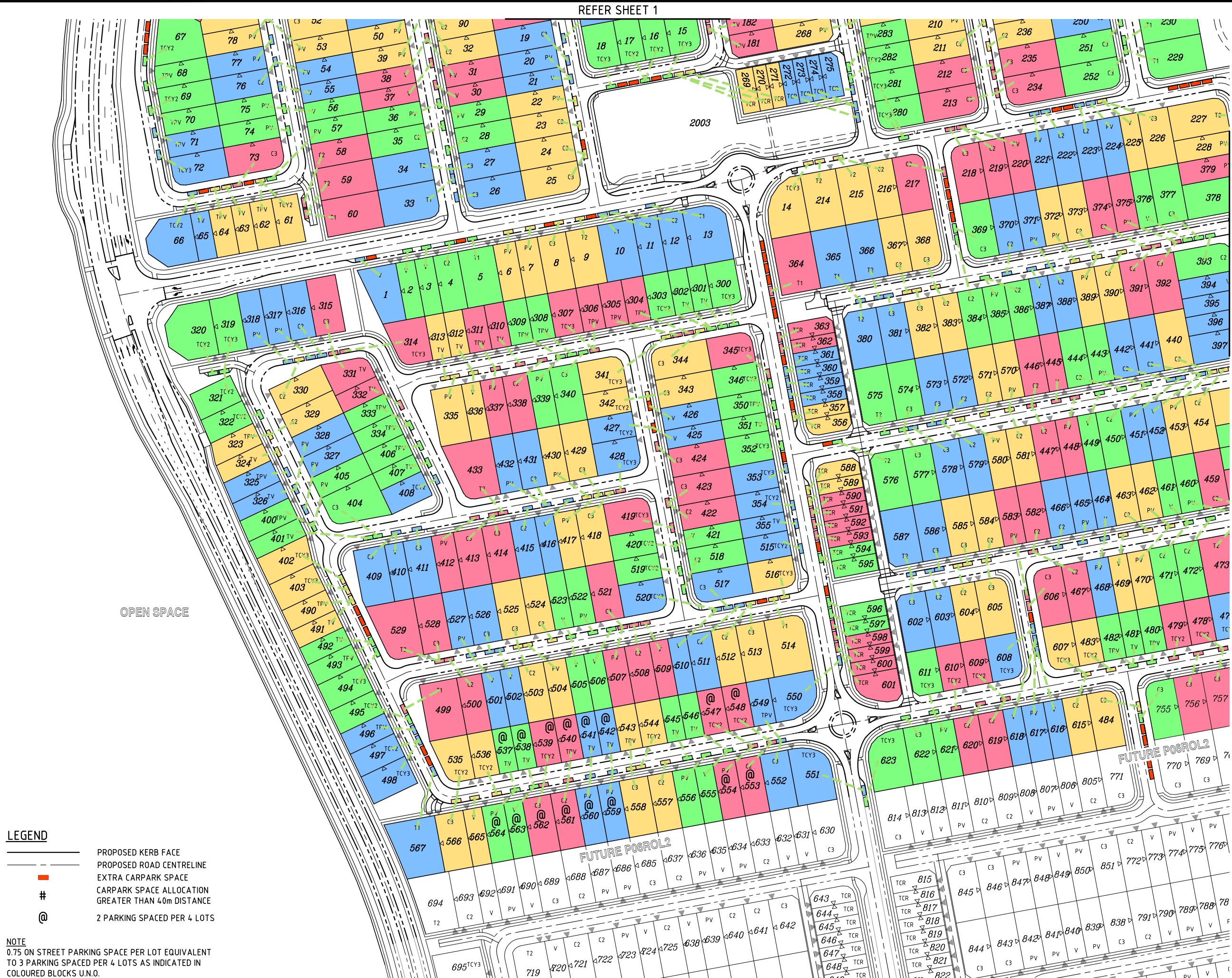
Approved

Drawing Title

P06ROL1 FUNCTIONAL LAYOUT
ON-STREET PARKING
SHEET 1

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Scale AS SHOWN			Sheet 15 of 17
A1	Drawing No 21-233-SK065		Revision A

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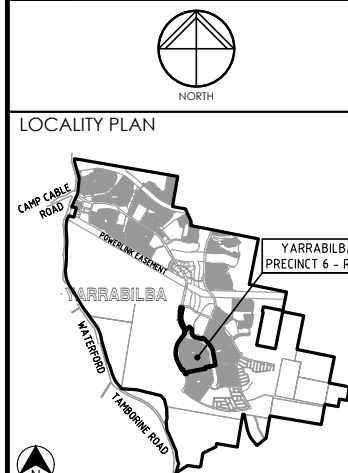
- PROPOSED KERB FACE
- PROPOSED ROAD CENTRELINE
- EXTRA CARPARK SPACE
- CARPARK SPACE ALLOCATION GREATER THAN 40m DISTANCE
- 2 PARKING SPACED PER 4 LOTS

NOTE
0.75 ON STREET PARKING SPACE PER LOT EQUIVALENT TO 3 PARKING SPACED PER 4 LOTS AS INDICATED IN COLOURED BLOCKS U.N.O.

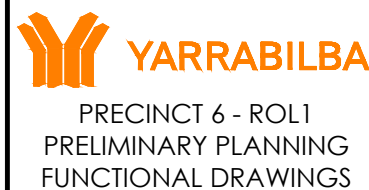
REFER SHEET 1

PARKING PLAN
SCALE 1:1000

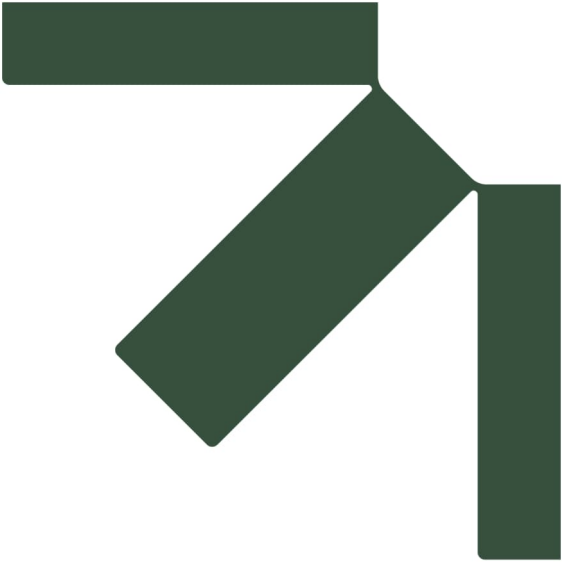
DO NOT SCALE THIS DRAWING
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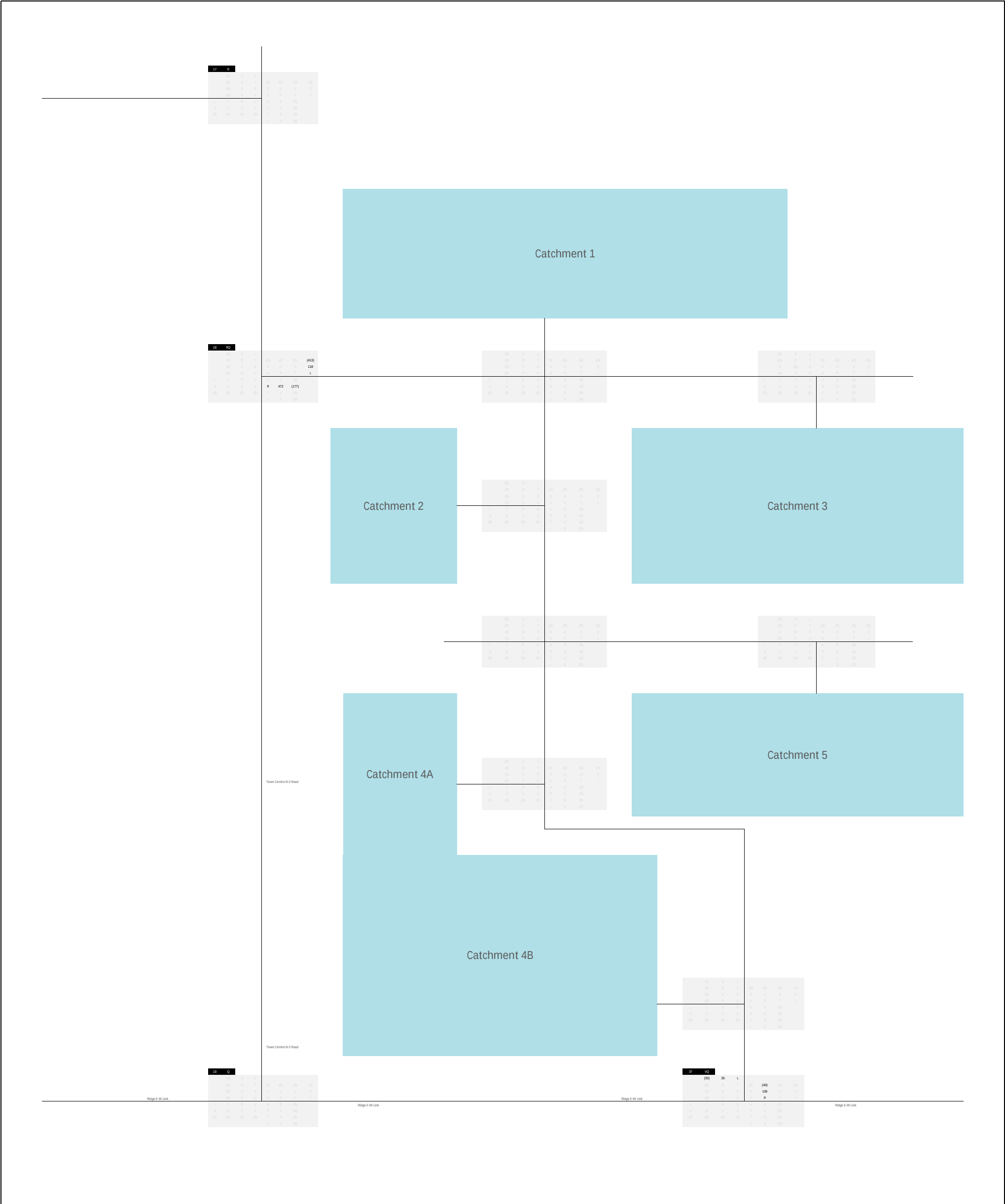
REVISIONS			
No	Description	Date	By
A	FOR APPROVAL	28.07.23	SLK



Drawing Title P06ROL1 FUNCTIONAL LAYOUT ON-STREET PARKING SHEET 2			
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Scale AS SHOWN	Drawing No 21-233-SK066		Sheet 16 of 17
A1	Revision A		



Appendix C Traffic Volume Diagrams



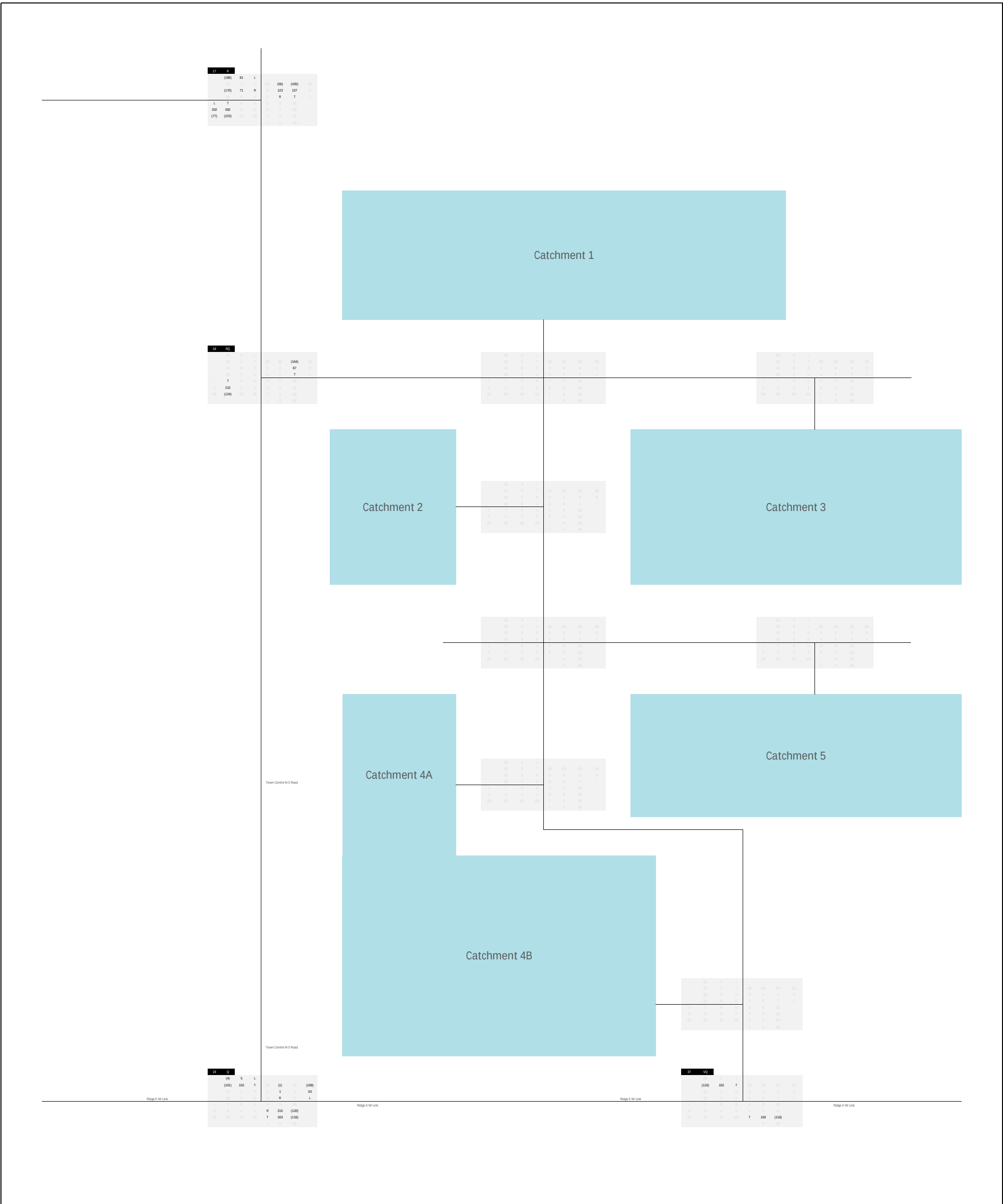


Figure 2
2031 Background Traffic Volumes
620.V11743
Precinct 6 ROL 1 - Yarrabilba Masterplan

Legend
L Left Turn
T Through
R Right Turn
U U-Turn
00 Weekday AM Peak Hour Volumes
(00) Weekday PM Peak Hour Volumes
Subject Site

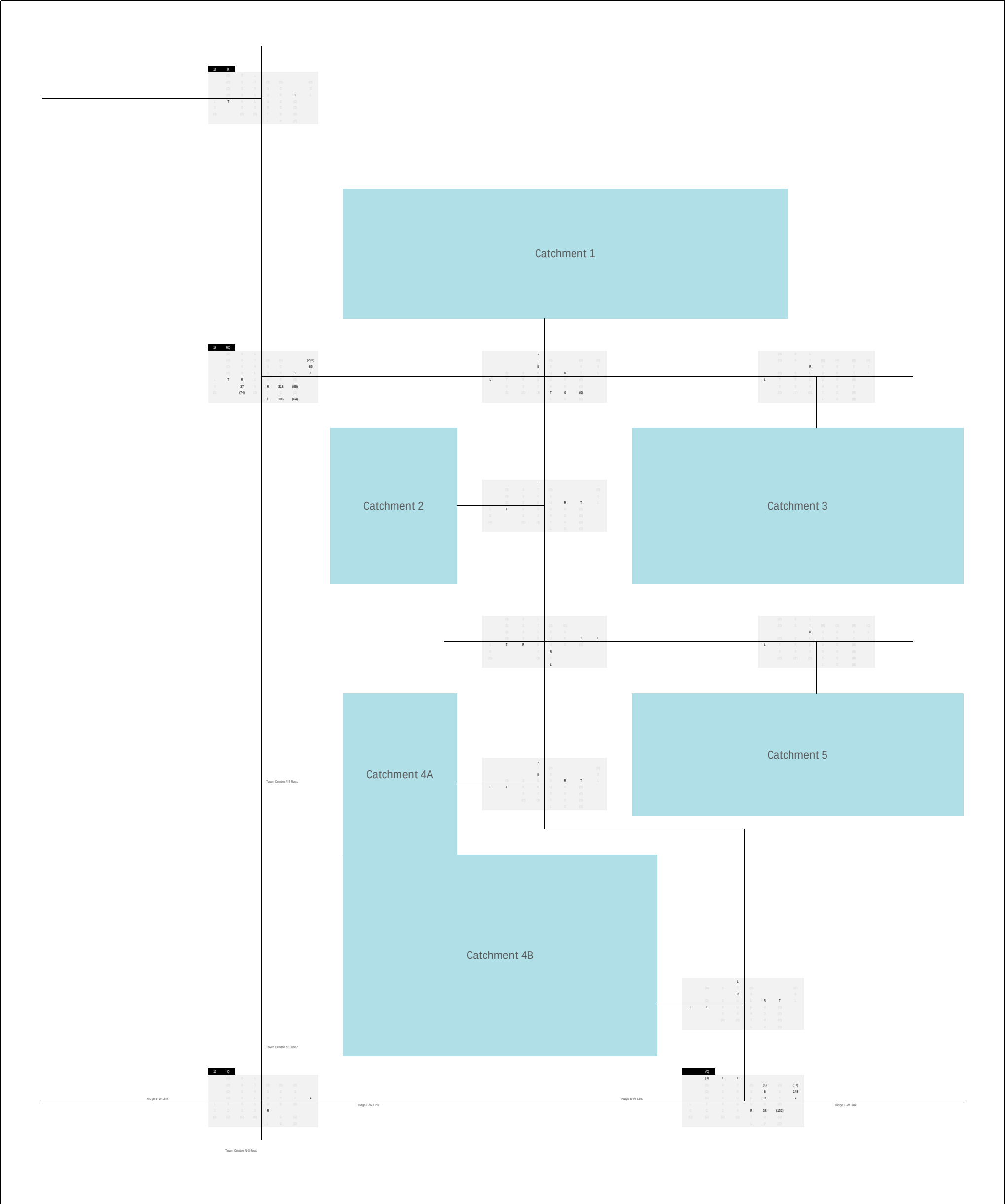
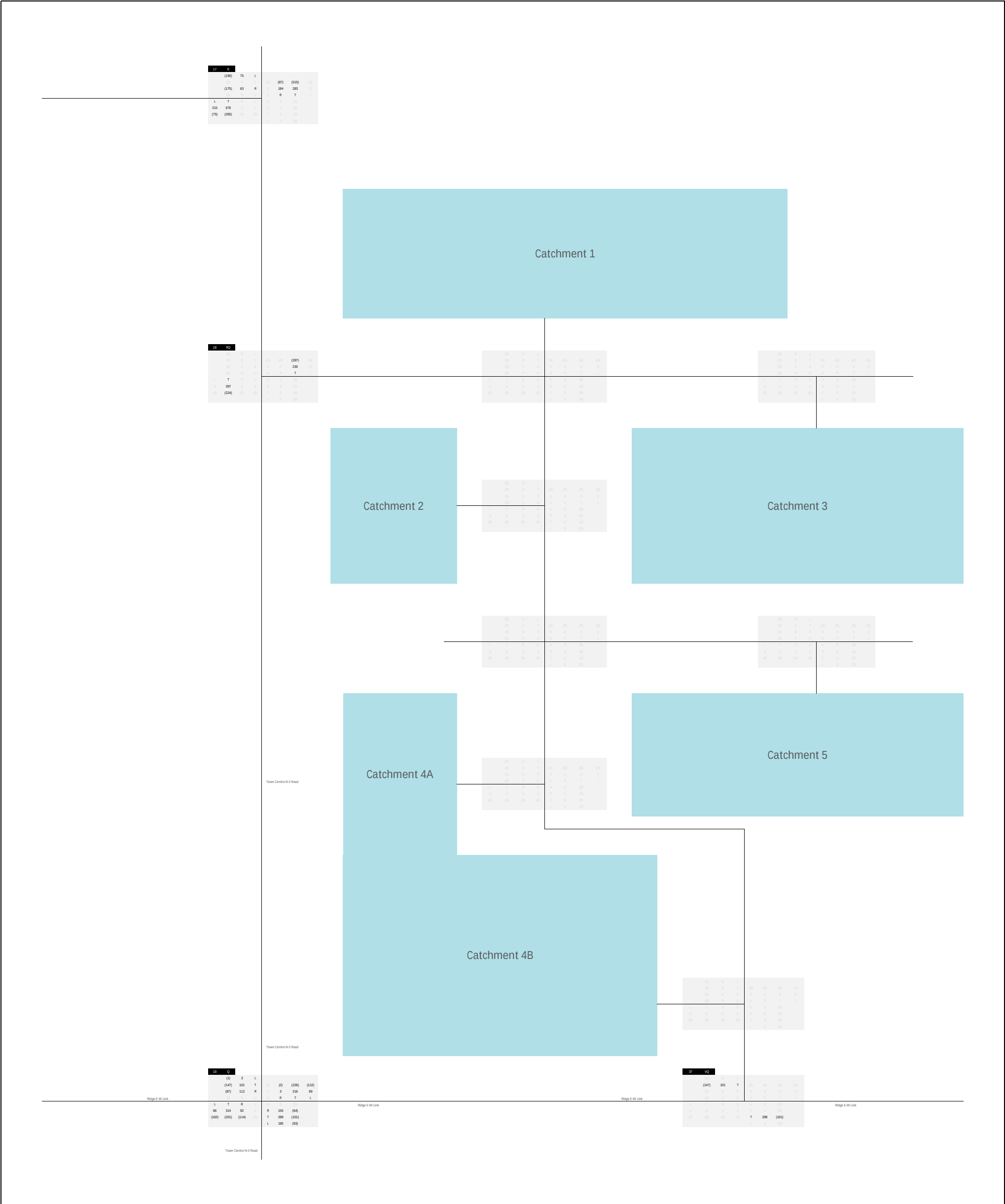


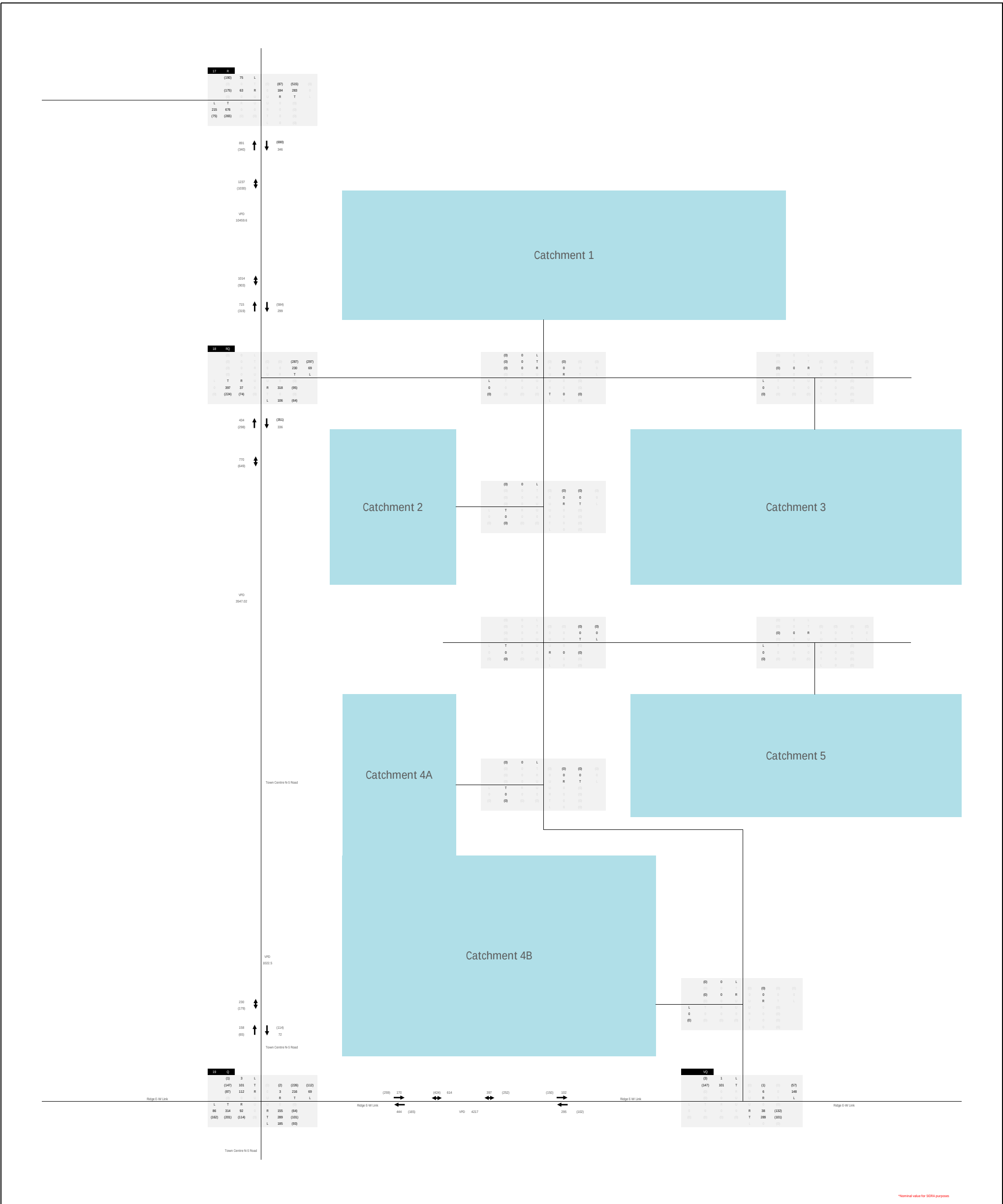
Figure 3
Ultimate Development Volumes
620.V11743
Precinct 6 ROL 1 - Yarrabilba Masterplan

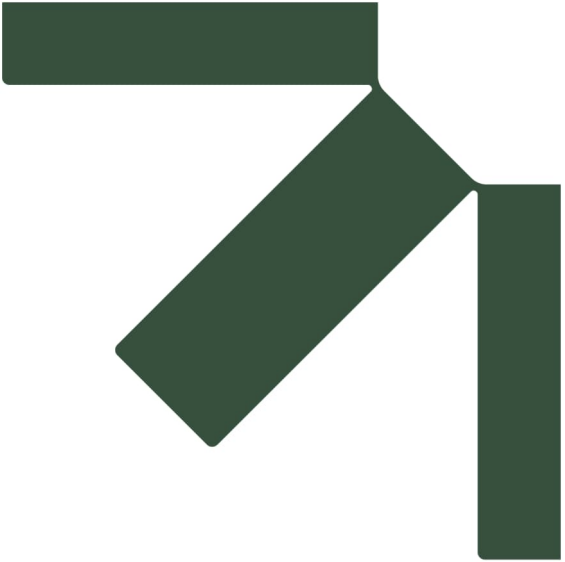
Legend
L Left Turn
T Through
R Right Turn
U U-Turn

00 Weekday AM Peak Hour Volumes
00 Weekday PM Peak Hour Volumes

Subject Site







Appendix D Detailed Sidra Outputs Scenario 1 (Interim)

SITE LAYOUT

 Site: R (17) [2031 AM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Signalised intersection: Town Centre N-S Road/New Road

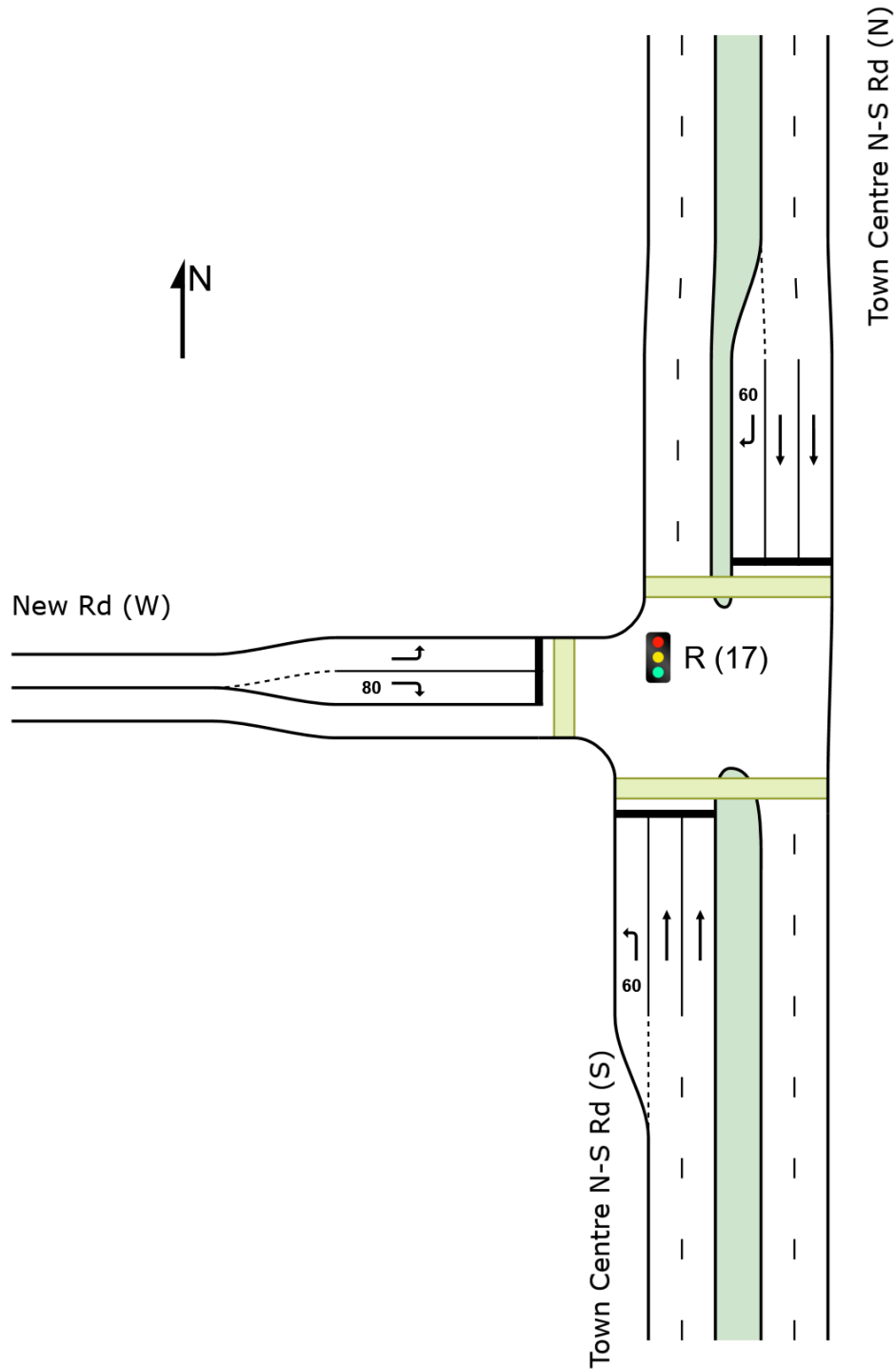
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: R (17) [2031 AM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				km/h
			veh/h		veh/h		v/c	sec							
South: Town Centre N-S Rd (S)															
1	L2	All MCs	213	3.0	213	3.0	* 0.433	38.4	LOS D	8.7	62.2	0.88	0.80	0.88	35.8
2	T1	All MCs	613	3.0	613	3.0	* 0.445	26.2	LOS C	11.4	81.8	0.81	0.69	0.81	41.9
Approach			825	3.0	825	3.0	0.445	29.4	LOS C	11.4	81.8	0.83	0.72	0.83	40.1
North: Town Centre N-S Rd (N)															
8	T1	All MCs	165	3.0	165	3.0	0.120	22.8	LOS C	2.7	19.2	0.70	0.56	0.70	43.6
9	R2	All MCs	129	3.0	129	3.0	* 0.375	44.4	LOS D	5.6	40.4	0.92	0.78	0.92	33.9
Approach			295	3.0	295	3.0	0.375	32.3	LOS C	5.6	40.4	0.80	0.66	0.80	38.7
West: New Rd (W)															
10	L2	All MCs	85	3.0	85	3.0	0.090	18.4	LOS B	2.1	14.8	0.53	0.69	0.53	44.6
12	R2	All MCs	75	3.0	75	3.0	0.152	35.6	LOS D	2.8	20.0	0.80	0.74	0.80	37.0
Approach			160	3.0	160	3.0	0.152	26.4	LOS C	2.8	20.0	0.66	0.71	0.66	40.7
All Vehicles			1280	3.0	1280	3.0	0.445	29.7	LOS C	11.4	81.8	0.80	0.71	0.80	39.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	59.7	20.0	0.34
North: Town Centre N-S Rd (N)												
P3	Full	50	53	38.8	LOS D	0.1	0.1	0.88	0.88	54.2	20.0	0.37
West: New Rd (W)												
P4	Full	50	53	25.3	LOS C	0.1	0.1	0.71	0.71	40.6	20.0	0.49
All Pedestrians		150	158	36.1	LOS D	0.1	0.1	0.85	0.85	51.5	20.0	0.39

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.

PHASING SUMMARY

 Site: R (17) [2031 AM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

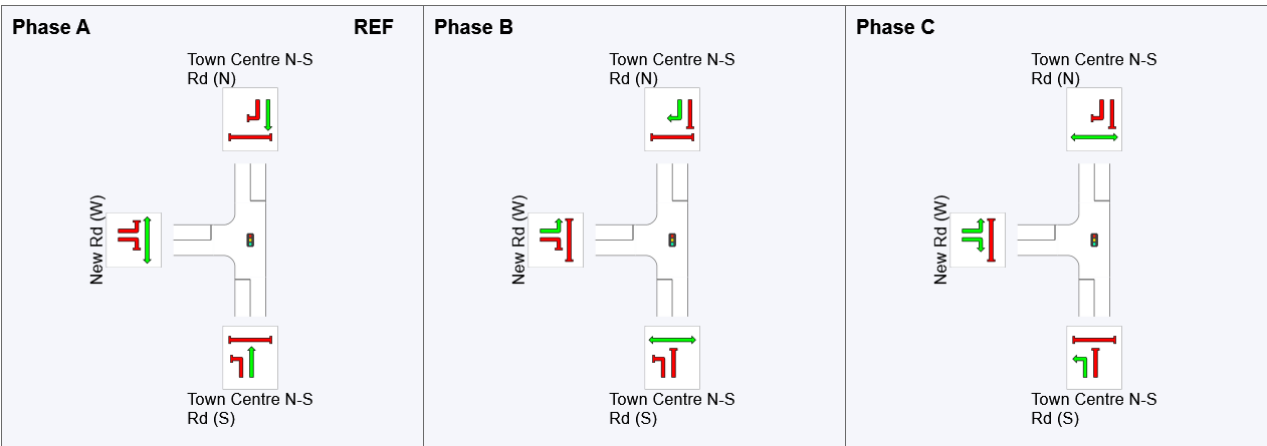
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	42	67
Green Time (sec)	36	19	27
Phase Time (sec)	42	25	33
Phase Split	42%	25%	33%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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Project: \\au.slr.local\Corporate\Projects-SLR\620-BNE\620-BNE\620.11743 Yarrabilba Master Plan Development\06 SLR Data\Precinct 6\2023 05 16 - SLR - P6A (North) SIDRA Analysis\2023 05 - SIDRA\620.11743 Yarrabilba Precinct 6 Sidra 2023 06 19.sip9

MOVEMENT SUMMARY

 Site: R (17) [2031 PM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]		[Total HV]					[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Town Centre N-S Rd (S)															
1	L2	All MCs	81	3.0	81	3.0	0.159	34.8	LOS C	3.0	21.4	0.79	0.74	0.79	37.1
2	T1	All MCs	235	3.0	235	3.0	0.175	24.1	LOS C	3.9	28.3	0.73	0.59	0.73	43.0
Approach			316	3.0	316	3.0	0.175	26.8	LOS C	3.9	28.3	0.75	0.63	0.75	41.3
North: Town Centre N-S Rd (N)															
8	T1	All MCs	458	3.0	458	3.0	* 0.342	25.8	LOS C	8.2	59.2	0.78	0.66	0.78	42.1
9	R2	All MCs	59	3.0	59	3.0	* 0.171	42.6	LOS D	2.4	17.5	0.87	0.74	0.87	34.4
Approach			517	3.0	517	3.0	0.342	27.7	LOS C	8.2	59.2	0.79	0.67	0.79	41.1
West: New Rd (W)															
10	L2	All MCs	196	3.0	196	3.0	0.203	18.7	LOS B	5.0	35.6	0.56	0.72	0.56	44.4
12	R2	All MCs	179	3.0	179	3.0	* 0.351	36.8	LOS D	7.0	50.4	0.84	0.78	0.84	36.6
Approach			375	3.0	375	3.0	0.351	27.4	LOS C	7.0	50.4	0.70	0.75	0.70	40.2
All Vehicles			1207	3.0	1207	3.0	0.351	27.4	LOS C	8.2	59.2	0.75	0.68	0.75	40.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	59.7	20.0	0.34
North: Town Centre N-S Rd (N)												
P3	Full	50	53	37.9	LOS D	0.1	0.1	0.87	0.87	53.3	20.0	0.38
West: New Rd (W)												
P4	Full	50	53	26.0	LOS C	0.1	0.1	0.72	0.72	41.4	20.0	0.48
All Pedestrians		150	158	36.1	LOS D	0.1	0.1	0.85	0.85	51.4	20.0	0.39

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.

PHASING SUMMARY

 **Site: R (17) [2031 PM (Site Folder: R_17_TownCentreN-S_NewRoad)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

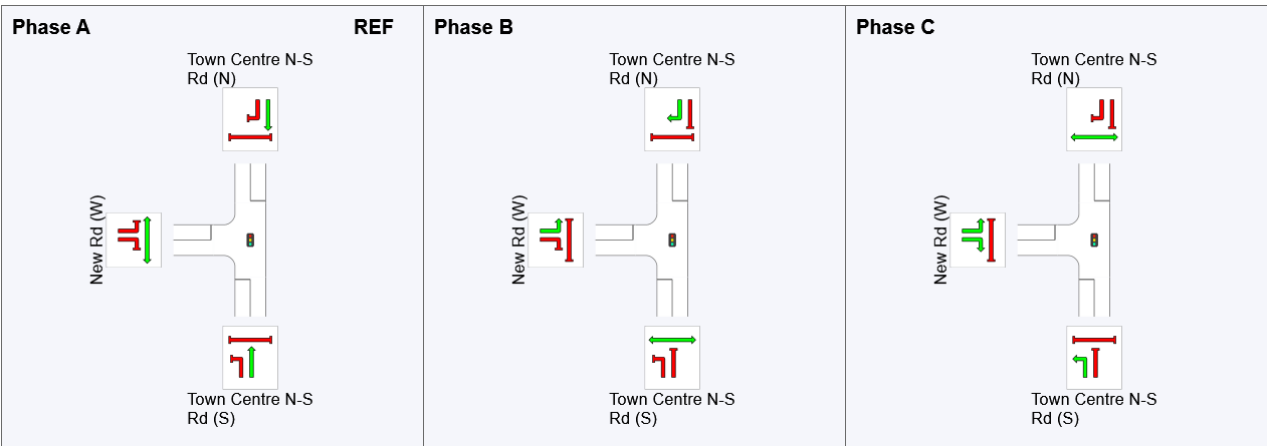
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	41	66
Green Time (sec)	35	19	28
Phase Time (sec)	41	25	34
Phase Split	41%	25%	34%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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Project: \\au.slr.local\Corporate\Projects-SLR\620-BNE\620-BNE\620.11743 Yarrabilba Master Plan Development\06 SLR Data\Precinct 6\2023 05 16 - SLR - P6A (North) SIDRA Analysis\2023 05 - SIDRA\620.11743 Yarrabilba Precinct 6 Sidra 2023 06 19.sip9

SITE LAYOUT

▽ Site: RQ (18) [2031 AM (Site Folder: RQ_18_TownCentreN-S_NewRoad)]

Priority intersection: Town Centre N-S Road/New Road

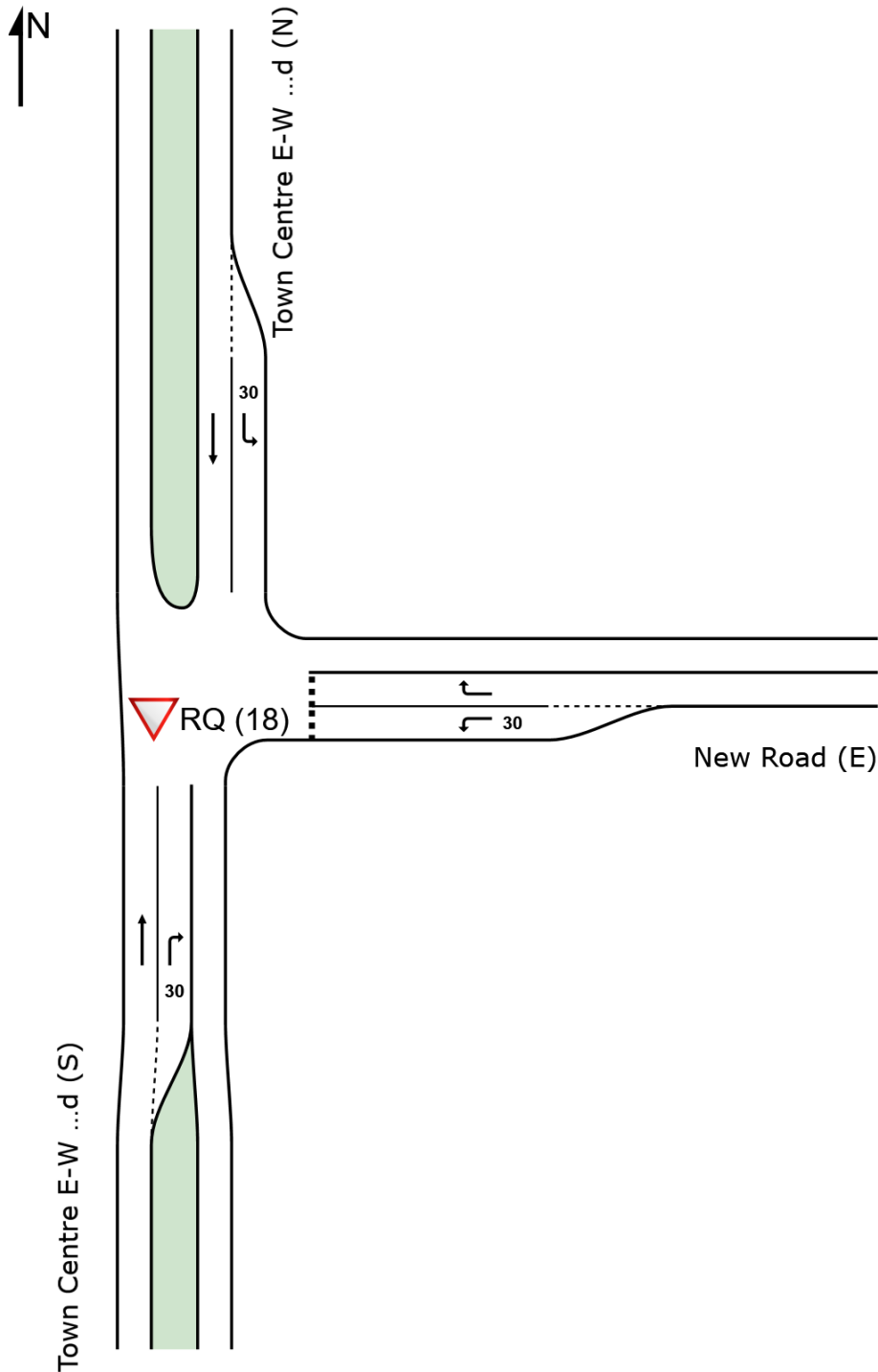
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: RQ (18) [2031 AM (Site Folder: RQ_18_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Town Centre E-W Road (S)															
2	T1	All MCs	226	3.0	226	3.0	0.118	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	All MCs	1	3.0	1	3.0	0.001	6.2	LOS A	0.0	0.0	0.29	0.52	0.29	51.8
Approach			227	3.0	227	3.0	0.118	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
East: New Road (E)															
4	L2	All MCs	1	3.0	1	3.0	0.001	5.8	LOS A	0.0	0.0	0.15	0.53	0.15	52.3
6	R2	All MCs	497	3.0	497	3.0	0.745	16.0	LOS C	9.2	65.8	0.79	1.13	1.61	46.0
Approach			498	3.0	498	3.0	0.745	16.0	LOS C	9.2	65.8	0.79	1.13	1.61	46.0
North: Town Centre E-W Road (N)															
7	L2	All MCs	124	3.0	124	3.0	0.068	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
8	T1	All MCs	71	3.0	71	3.0	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			195	3.0	195	3.0	0.068	3.6	NA	0.0	0.0	0.00	0.37	0.00	55.2
All Vehicles			920	3.0	920	3.0	0.745	9.4	NA	9.2	65.8	0.43	0.69	0.87	50.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: RQ (18) [2031 PM (Site Folder: RQ_18_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
South: Town Centre E-W Road (S)															
2	T1	All MCs	131	3.0	131	3.0	0.068	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	All MCs	1	3.0	1	3.0	0.001	8.7	LOS A	0.0	0.0	0.53	0.60	0.53	50.4
Approach			132	3.0	132	3.0	0.068	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
East: New Road (E)															
4	L2	All MCs	1	3.0	1	3.0	0.001	6.2	LOS A	0.0	0.0	0.26	0.52	0.26	52.0
6	R2	All MCs	186	3.0	186	3.0	0.351	12.1	LOS B	1.7	12.5	0.63	0.87	0.79	48.3
Approach			187	3.0	187	3.0	0.351	12.1	LOS B	1.7	12.5	0.63	0.87	0.78	48.3
North: Town Centre E-W Road (N)															
7	L2	All MCs	435	3.0	435	3.0	0.239	5.6	LOS A	0.0	0.0	0.00	0.57	0.00	52.7
8	T1	All MCs	173	3.0	173	3.0	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			607	3.0	607	3.0	0.239	4.0	NA	0.0	0.0	0.00	0.41	0.00	54.6
All Vehicles			926	3.0	926	3.0	0.351	5.1	NA	1.7	12.5	0.13	0.45	0.16	53.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

▽ Site: Q (19) [2031 AM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]

Priority intersection: Town Centre N-S Road/Ridge E-W Link

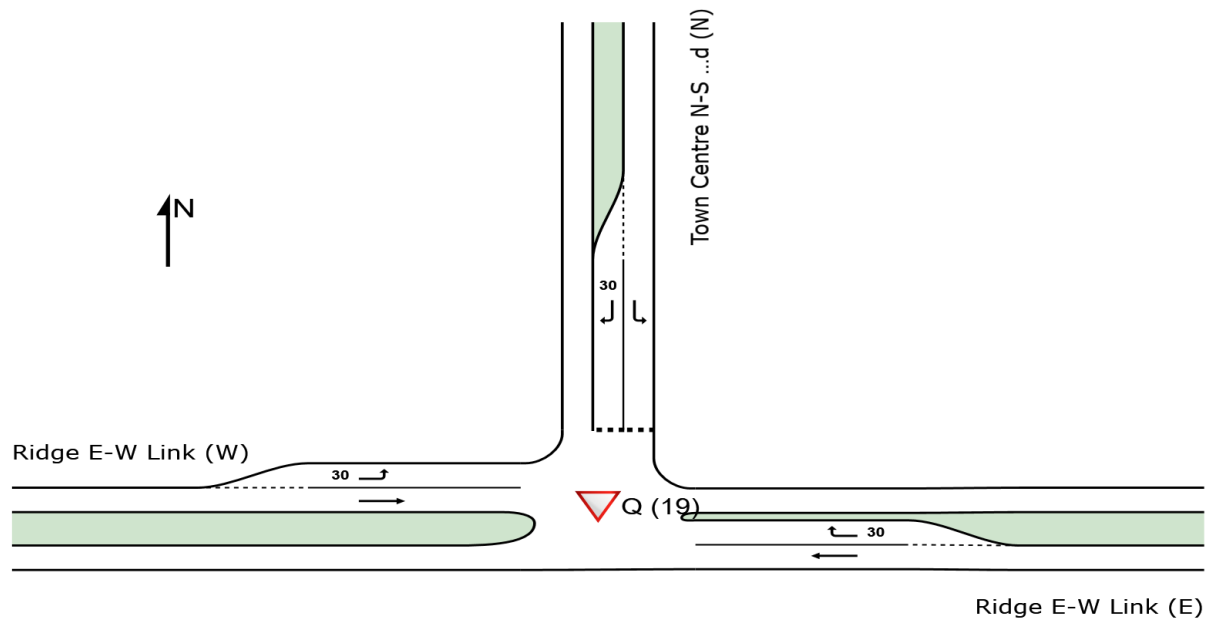
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: Q (19) [2031 AM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Town Centre N-S Road/Ridge E-W Link
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
East: Ridge E-W Link (E)															
5	T1	All MCs	172	3.0	172	3.0	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	226	3.0	226	3.0	0.178	6.1	LOS A	0.8	5.7	0.25	0.56	0.25	52.0
Approach			398	3.0	398	3.0	0.178	3.5	NA	0.8	5.7	0.14	0.32	0.14	55.1
North: Town Centre N-S Road (N)															
7	L2	All MCs	66	3.0	66	3.0	0.056	6.0	LOS A	0.2	1.5	0.20	0.55	0.20	52.1
9	R2	All MCs	1	3.0	1	3.0	0.002	9.6	LOS A	0.0	0.0	0.53	0.60	0.53	49.9
Approach			67	3.0	67	3.0	0.056	6.1	LOS A	0.2	1.5	0.21	0.55	0.21	52.1
West: Ridge E-W Link (W)															
10	L2	All MCs	5	3.0	5	3.0	0.003	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	107	3.0	107	3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			113	3.0	113	3.0	0.056	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles			578	3.0	578	3.0	0.178	3.1	NA	0.8	5.7	0.12	0.29	0.12	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: Q (19) [2031 PM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Town Centre N-S Road/Ridge E-W Link
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m				
			veh/h		veh/h		v/c	sec							km/h
East: Ridge E-W Link (E)															
5	T1	All MCs	122	3.0	122	3.0	0.064	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	126	3.0	126	3.0	0.099	6.0	LOS A	0.4	3.0	0.23	0.56	0.23	52.0
Approach			248	3.0	248	3.0	0.099	3.1	NA	0.4	3.0	0.12	0.28	0.12	55.6
North: Town Centre N-S Road (N)															
7	L2	All MCs	178	3.0	178	3.0	0.150	6.1	LOS A	0.6	4.2	0.22	0.56	0.22	52.1
9	R2	All MCs	1	3.0	1	3.0	0.002	8.1	LOS A	0.0	0.0	0.45	0.55	0.45	51.0
Approach			179	3.0	179	3.0	0.150	6.1	LOS A	0.6	4.2	0.22	0.56	0.22	52.1
West: Ridge E-W Link (W)															
10	L2	All MCs	4	3.0	4	3.0	0.002	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	106	3.0	106	3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			111	3.0	111	3.0	0.056	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
All Vehicles			538	3.0	538	3.0	0.150	3.5	NA	0.6	4.2	0.13	0.32	0.13	55.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

▽ Site: 101 [2031 AM (Site Folder: VQ_RidgeE-W_NewRoad)]

Priority intersection: Ridge E-W Link/New Road

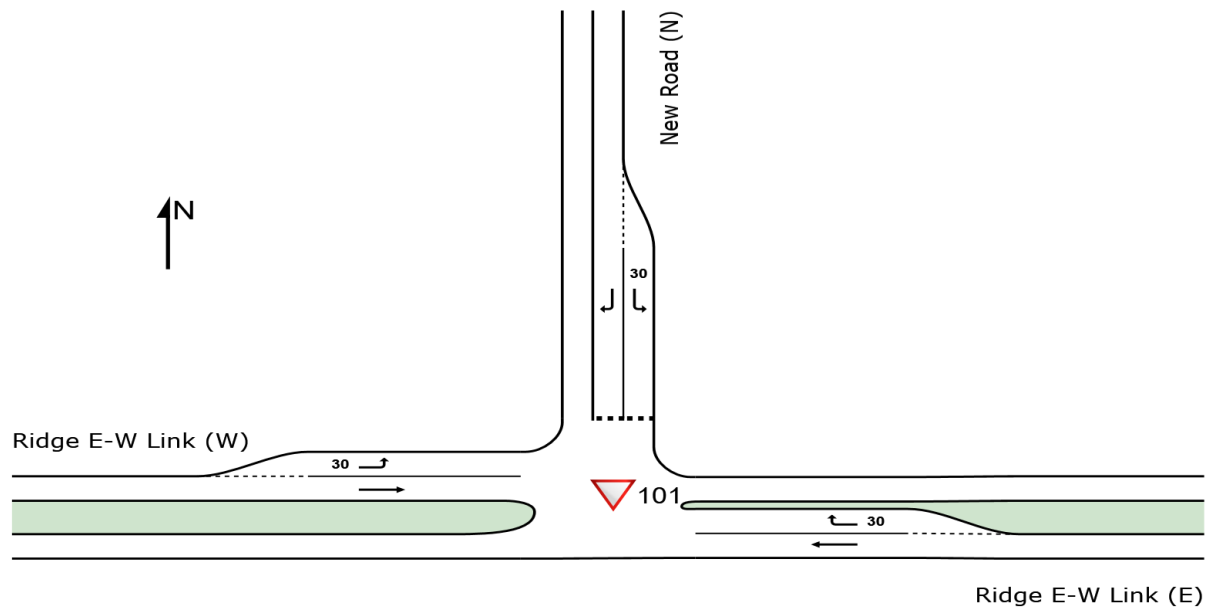
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Project: \\au.slr.local\Corporate\Projects-SLR\620-BNE\620-BNE\620.11743 Yarrabilba Master Plan Development\06 SLR Data\Precinct 6\2023 05 16 - SLR - P6A (North) SIDRA Analysis\2023 05 - SIDRA\620.11743 Yarrabilba Precinct 6 Sidra 2023 06 19.sip9

MOVEMENT SUMMARY

▼ Site: 101 [2031 AM (Site Folder: VQ_RidgeE-W_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Ridge E-W Link/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
East: Ridge E-W Link (E)															
5	T1	All MCs	172	3.0	172	3.0	0.090	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	1	3.0	1	3.0	0.001	6.0	LOS A	0.0	0.0	0.24	0.52	0.24	52.0
Approach			173	3.0	173	3.0	0.090	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: New Road (N)															
7	L2	All MCs	1	3.0	1	3.0	0.001	5.9	LOS A	0.0	0.0	0.20	0.52	0.20	52.2
9	R2	All MCs	112	3.0	112	3.0	0.152	8.0	LOS A	0.6	4.4	0.45	0.66	0.45	51.1
Approach			113	3.0	113	3.0	0.152	8.0	LOS A	0.6	4.4	0.45	0.66	0.45	51.1
West: Ridge E-W Link (W)															
10	L2	All MCs	27	3.0	27	3.0	0.015	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	107	3.0	107	3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			135	3.0	135	3.0	0.056	1.1	NA	0.0	0.0	0.00	0.12	0.00	58.4
All Vehicles			420	3.0	420	3.0	0.152	2.5	NA	0.6	4.4	0.12	0.22	0.12	56.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

▼ Site: 101 [2031 PM (Site Folder: VQ_RidgeE-W_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Priority intersection: Ridge E-W Link/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Ridge E-W Link (E)															
5	T1	All MCs	122	3.0	122	3.0	0.064	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	1	3.0	1	3.0	0.001	6.4	LOS A	0.0	0.0	0.31	0.52	0.31	51.8
Approach			123	3.0	123	3.0	0.064	0.1	NA	0.0	0.0	0.00	0.00	0.00	59.9
North: New Road (N)															
7	L2	All MCs	1	3.0	1	3.0	0.001	6.0	LOS A	0.0	0.0	0.21	0.52	0.21	52.1
9	R2	All MCs	42	3.0	42	3.0	0.057	7.8	LOS A	0.2	1.6	0.42	0.63	0.42	51.2
Approach			43	3.0	43	3.0	0.057	7.7	LOS A	0.2	1.6	0.41	0.63	0.41	51.3
West: Ridge E-W Link (W)															
10	L2	All MCs	98	3.0	98	3.0	0.054	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	122	3.0	122	3.0	0.064	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			220	3.0	220	3.0	0.064	2.5	NA	0.0	0.0	0.00	0.26	0.00	56.5
All Vehicles			386	3.0	386	3.0	0.064	2.3	NA	0.2	1.6	0.05	0.22	0.05	56.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

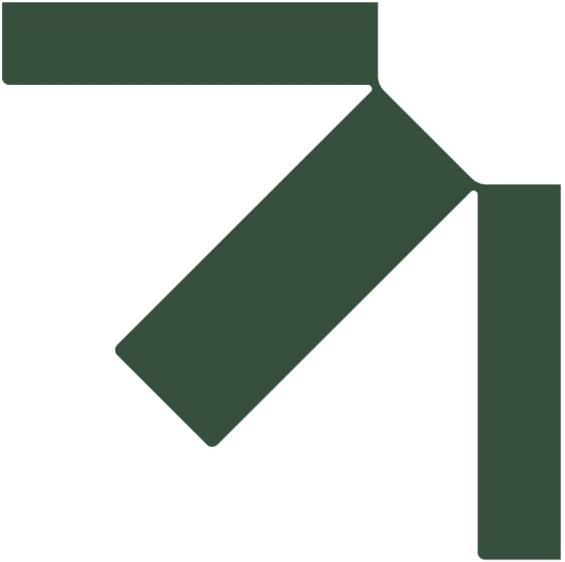
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Appendix E Detailed Sidra Outputs Scenario 2 (Ultimate)

SITE LAYOUT

 Site: R (17) [Ultimate AM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Signalised intersection: Town Centre N-S Road/New Road

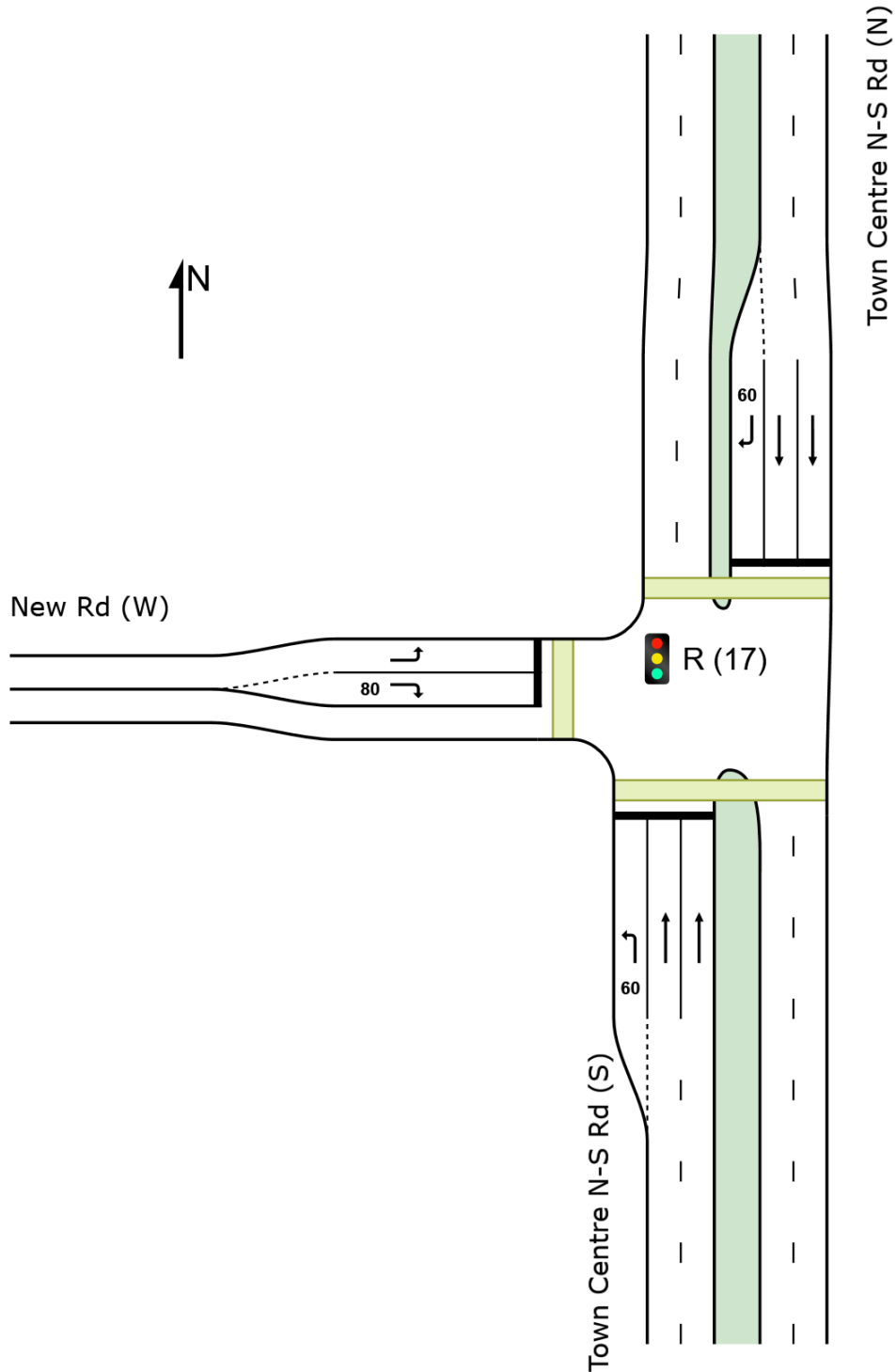
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: R (17) [Ultimate AM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h	
South: Town Centre N-S Rd (S)																
1	L2	All MCs	226	3.0	226	3.0	* 0.583	35.1	LOS D	7.7	55.3	0.95	0.82	0.95	37.0	
2	T1	All MCs	712	3.0	712	3.0	* 0.581	23.3	LOS C	11.1	79.4	0.89	0.76	0.89	43.4	
Approach			938	3.0	938	3.0	0.583	26.2	LOS C	11.1	79.4	0.90	0.77	0.90	41.6	
North: Town Centre N-S Rd (N)																
8	T1	All MCs	298	3.0	298	3.0	0.243	20.4	LOS C	4.1	29.1	0.78	0.63	0.78	44.9	
9	R2	All MCs	194	3.0	194	3.0	* 0.470	33.4	LOS C	6.3	45.4	0.91	0.80	0.91	37.7	
Approach			492	3.0	492	3.0	0.470	25.6	LOS C	6.3	45.4	0.83	0.70	0.83	41.7	
West: New Rd (W)																
10	L2	All MCs	79	3.0	79	3.0	0.083	15.2	LOS B	1.4	10.3	0.53	0.69	0.53	46.3	
12	R2	All MCs	66	3.0	66	3.0	0.171	32.1	LOS C	2.0	14.6	0.85	0.74	0.85	38.3	
Approach			145	3.0	145	3.0	0.171	22.9	LOS C	2.0	14.6	0.68	0.71	0.68	42.3	
All Vehicles			1575	3.0	1575	3.0	0.583	25.7	LOS C	11.1	79.4	0.86	0.74	0.86	41.7	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
North: Town Centre N-S Rd (N)												
P3	Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
West: New Rd (W)												
P4	Full	50	53	22.5	LOS C	0.1	0.1	0.78	0.78	37.9	20.0	0.53
All Pedestrians		150	158	28.7	LOS C	0.1	0.1	0.87	0.87	44.1	20.0	0.45

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.

PHASING SUMMARY

 **Site: R (17) [Ultimate AM (Site Folder: R_17_TownCentreN-S_NewRoad)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site Optimum Cycle Time - Minimum Delay)

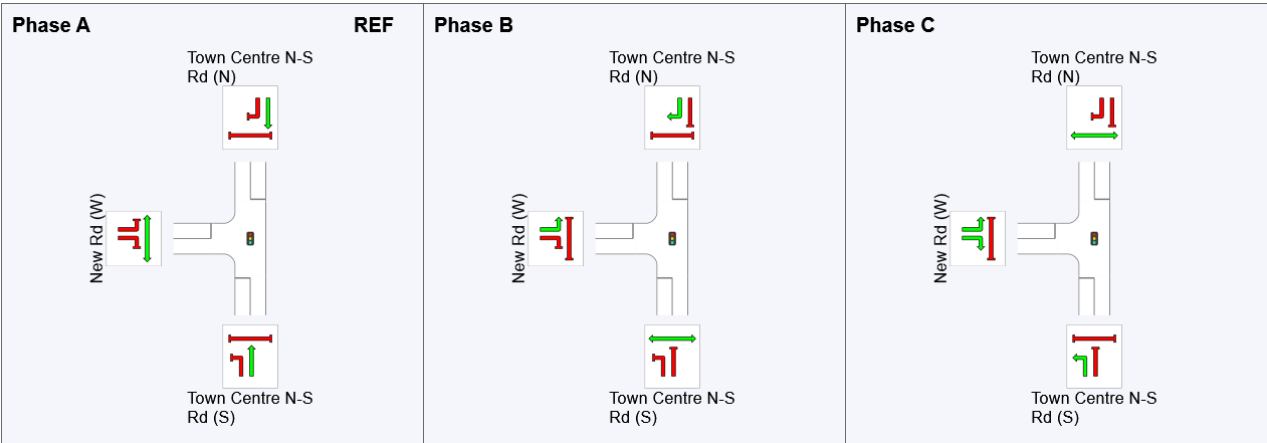
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	30	53
Green Time (sec)	24	17	16
Phase Time (sec)	30	23	22
Phase Split	40%	31%	29%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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MOVEMENT SUMMARY

 Site: R (17) [Ultimate PM (Site Folder: R_17_TownCentreN-S_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist]				
			veh/h		veh/h		v/c	sec			m				km/h
South: Town Centre N-S Rd (S)															
1	L2	All MCs	79	3.0	79	3.0	0.188	27.8	LOS C	2.1	14.9	0.84	0.74	0.84	39.9
2	T1	All MCs	279	3.0	279	3.0	0.296	22.0	LOS C	3.7	26.5	0.85	0.69	0.85	44.0
Approach			358	3.0	358	3.0	0.296	23.3	LOS C	3.7	26.5	0.85	0.70	0.85	43.1
North: Town Centre N-S Rd (N)															
8	T1	All MCs	542	3.0	542	3.0	* 0.576	23.9	LOS C	7.8	56.1	0.93	0.78	0.93	43.0
9	R2	All MCs	92	3.0	92	3.0	* 0.205	27.1	LOS C	2.4	17.0	0.83	0.75	0.83	40.3
Approach			634	3.0	634	3.0	0.576	24.4	LOS C	7.8	56.1	0.92	0.77	0.92	42.6
West: New Rd (W)															
10	L2	All MCs	200	3.0	200	3.0	0.193	12.9	LOS B	3.1	22.0	0.51	0.71	0.51	47.8
12	R2	All MCs	184	3.0	184	3.0	* 0.439	29.5	LOS C	5.2	37.2	0.90	0.79	0.90	39.4
Approach			384	3.0	384	3.0	0.439	20.8	LOS C	5.2	37.2	0.70	0.75	0.70	43.3
All Vehicles			1376	3.0	1376	3.0	0.576	23.1	LOS C	7.8	56.1	0.84	0.75	0.84	42.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	26.8	LOS C	0.1	0.1	0.91	0.91	42.2	20.0	0.47
North: Town Centre N-S Rd (N)												
P3	Full	50	53	26.8	LOS C	0.1	0.1	0.91	0.91	42.2	20.0	0.47
West: New Rd (W)												
P4	Full	50	53	24.2	LOS C	0.1	0.1	0.86	0.86	39.6	20.0	0.51
All Pedestrians		150	158	25.9	LOS C	0.1	0.1	0.89	0.89	41.3	20.0	0.48

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.

PHASING SUMMARY

 **Site: R (17) [Ultimate PM (Site Folder: R_17_TownCentreN-S_NewRoad)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 65 seconds (Site Optimum Cycle Time - Minimum Delay)

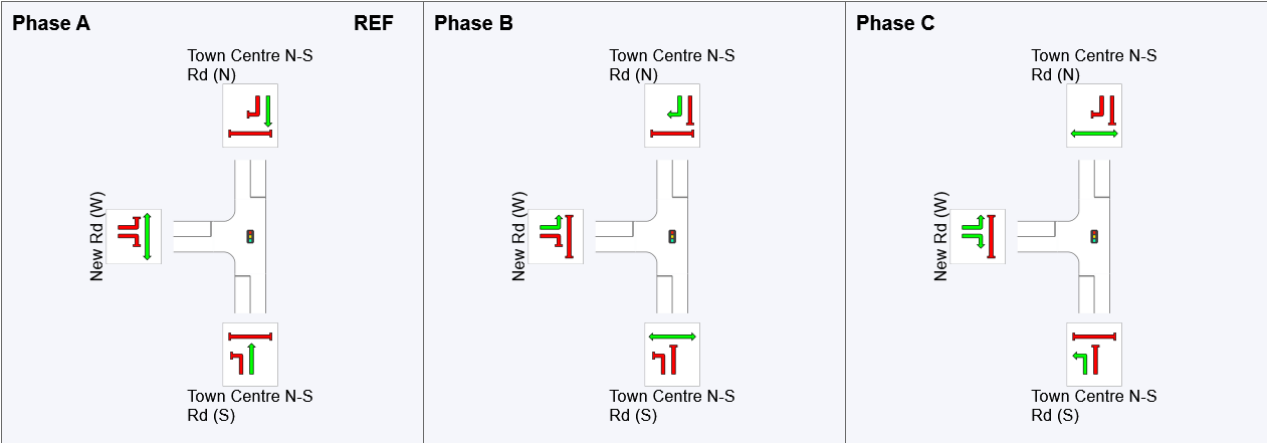
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	22	44
Green Time (sec)	16	16	15
Phase Time (sec)	22	22	21
Phase Split	34%	34%	32%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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SITE LAYOUT

Site: RQ (18) [Ultimate AM (Site Folder: General)]

Signalised intersection: Town Centre N-S Road/New Road

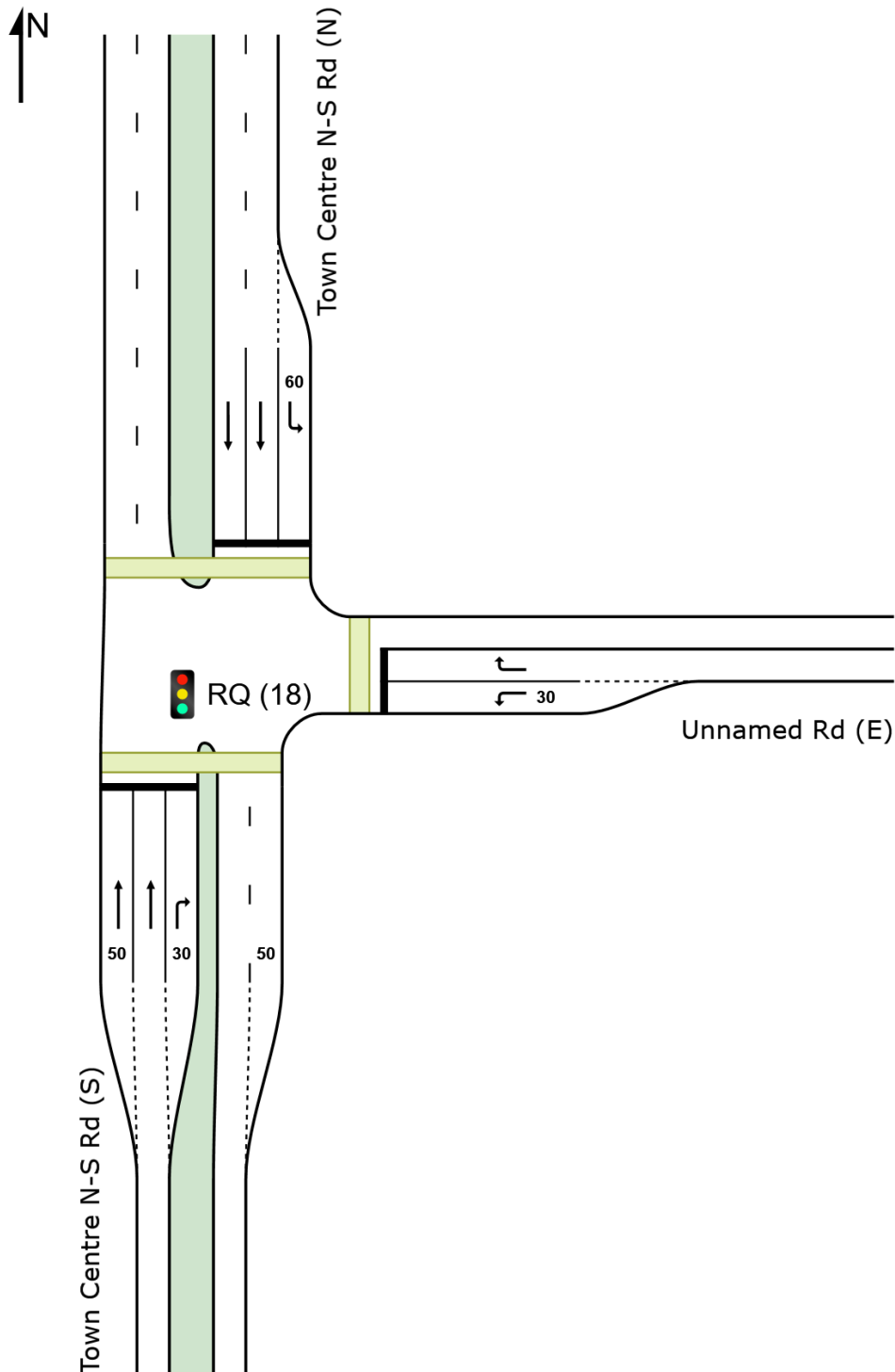
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 **Site: RQ (18) [Ultimate AM (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance																
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed	
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist] m					
			veh/h		veh/h		v/c	sec							km/h	
South: Town Centre N-S Rd (S)																
2	T1	All MCs	418	3.0	418	3.0	* 0.655	27.3	LOS C	6.2	44.4	0.99	0.84	1.07	41.4	
3	R2	All MCs	39	3.0	39	3.0	* 0.080	23.7	LOS C	0.9	6.2	0.78	0.71	0.78	41.9	
Approach			457	3.0	457	3.0	0.655	27.0	LOS C	6.2	44.4	0.97	0.83	1.04	41.4	
East: Unnamed Rd (E)																
4	L2	All MCs	112	3.0	112	3.0	0.097	13.9	LOS B	1.3	9.1	0.41	0.67	0.41	49.5	
6	R2	All MCs	335	3.0	335	3.0	* 0.747	33.8	LOS C	9.9	71.4	0.97	0.90	1.11	39.0	
Approach			446	3.0	446	3.0	0.747	28.8	LOS C	9.9	71.4	0.83	0.85	0.94	41.2	
North: Town Centre N-S Rd (N)																
7	L2	All MCs	73	3.0	73	3.0	0.150	24.1	LOS C	1.7	11.9	0.80	0.73	0.80	41.6	
8	T1	All MCs	242	3.0	242	3.0	0.579	25.9	LOS C	5.3	37.9	0.95	0.76	0.96	42.1	
Approach			315	3.0	315	3.0	0.579	25.5	LOS C	5.3	37.9	0.92	0.76	0.93	42.0	
All Vehicles			1218	3.0	1218	3.0	0.747	27.3	LOS C	9.9	71.4	0.90	0.82	0.97	41.5	

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
East: Unnamed Rd (E)												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
North: Town Centre N-S Rd (N)												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
All Pedestrians		150	158	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50

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.

PHASING SUMMARY

 **Site: RQ (18) [Ultimate AM (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Green Split Priority has been specified

Phase Sequence: Variable Phasing

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

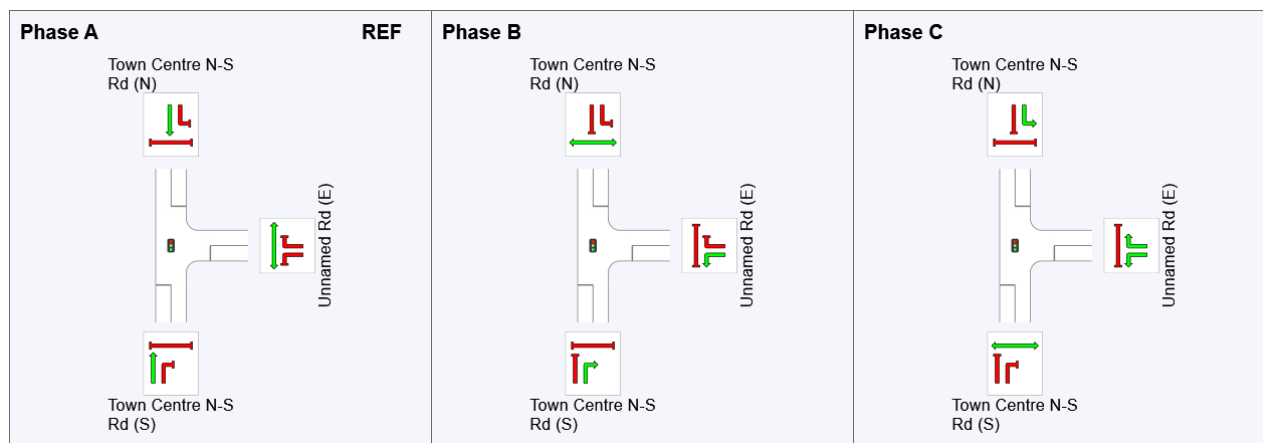
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	16	38
Green Time (sec)	10	16	16
Phase Time (sec)	16	22	22
Phase Split	27%	37%	37%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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 (North) SIDRA Analysis\2023 05 - SIDRA\IRQ_18_TownCentreN-S_NewRoad - 2023 06 27.sip9

MOVEMENT SUMMARY

 Site: RQ (18) [Ultimate PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Town Centre N-S Rd (S)															
2	T1	All MCs	236	3.0	236	3.0	0.336	24.0	LOS C	3.1	22.5	0.91	0.72	0.91	43.0
3	R2	All MCs	78	3.0	78	3.0	* 0.161	24.2	LOS C	1.8	12.9	0.80	0.74	0.80	41.7
Approach			314	3.0	314	3.0	0.336	24.0	LOS C	3.1	22.5	0.88	0.72	0.88	42.7
East: Unnamed Rd (E)															
4	L2	All MCs	67	3.0	67	3.0	0.060	10.9	LOS B	0.8	5.6	0.42	0.66	0.42	49.3
6	R2	All MCs	100	3.0	100	3.0	0.220	25.4	LOS C	2.4	17.2	0.83	0.75	0.83	41.2
Approach			167	3.0	167	3.0	0.220	19.6	LOS B	2.4	17.2	0.66	0.71	0.66	44.1
North: Town Centre N-S Rd (N)															
7	L2	All MCs	313	3.0	313	3.0	* 0.688	29.4	LOS C	8.9	63.9	0.96	0.86	1.03	39.3
8	T1	All MCs	302	3.0	302	3.0	* 0.656	25.8	LOS C	6.7	48.3	0.96	0.80	1.01	42.2
Approach			615	3.0	615	3.0	0.688	27.6	LOS C	8.9	63.9	0.96	0.83	1.02	40.7
All Vehicles			1096	3.0	1096	3.0	0.688	25.4	LOS C	8.9	63.9	0.89	0.78	0.93	41.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped ped]	[Dist] m			sec	m	m/sec
South: Town Centre N-S Rd (S)												
P1	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
East: Unnamed Rd (E)												
P2	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
North: Town Centre N-S Rd (N)												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50
All Pedestrians		150	158	24.4	LOS C	0.1	0.1	0.90	0.90	39.7	20.0	0.50

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.

PHASING SUMMARY

 **Site: RQ (18) [Ultimate PM (Site Folder: General)]**

Output produced by SIDRA INTERSECTION Version: 9.1.2.202

Signalised intersection: Town Centre N-S Road/New Road

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Green Split Priority has been specified

Phase Sequence: Variable Phasing

Input Phase Sequence: A, B, C

Output Phase Sequence: A, B, C

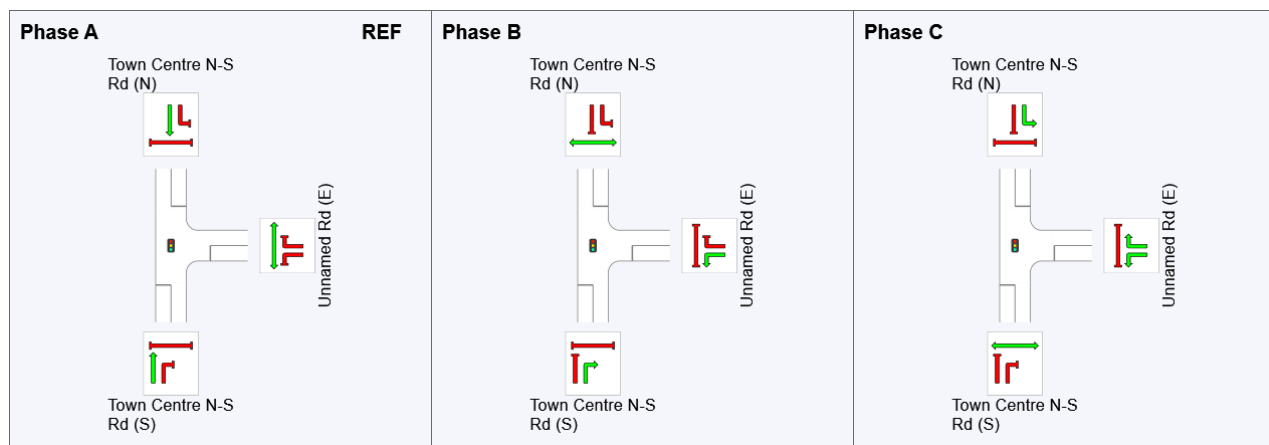
Reference Phase: Phase A

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	17	39
Green Time (sec)	11	16	15
Phase Time (sec)	17	22	21
Phase Split	28%	37%	35%
Phase Frequency (%)	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase

	Normal Movement		Permitted/Opposed
	Slip/Bypass-Lane Movement		Opposed Slip/Bypass-Lane
	Stopped Movement		Turn On Red
	Other Movement Class (MC) Running		Undetected Movement
	Mixed Running & Stopped MCs		Continuous Movement
	Other Movement Class (MC) Stopped		Phase Transition Applied

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 (North) SIDRA Analysis\2023 05 - SIDRA\IRQ_18_TownCentreN-S_NewRoad - 2023 06 27.sip9

SITE LAYOUT

 **Site: Q (19) [Ultimate AM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]**

Signalised intersection: Town Centre N-S Road/Ridge E-W Link

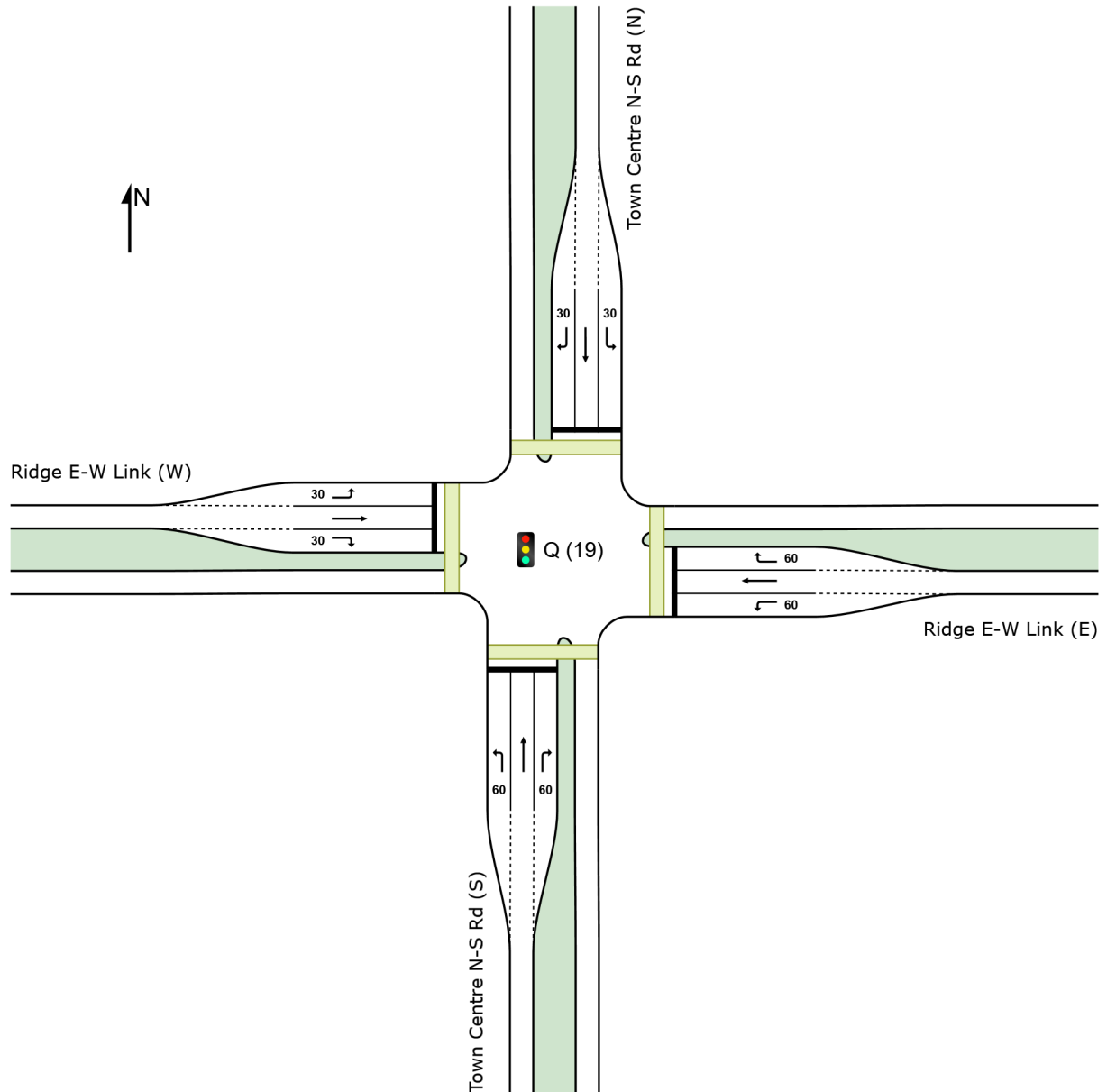
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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Site: Q (19) [Ultimate AM (Site Folder: Q_19_TownCentreN-S RidgeE-W)]

Signalised intersection: Town Centre N-S Road/Ridge E-W Link

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site Optimum Cycle Time - Minimum Delay)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Dem. Vol.	Aver. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped	Dist]					
						ped	m			sec	m	m/sec
South: Town Centre N-S Rd (S)												

P1 Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
East: Ridge E-W Link (E)											
P2 Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
North: Town Centre N-S Rd (N)											
P3 Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
West: Ridge E-W Link (W)											
P4 Full	50	53	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42
All Pedestrians	200	211	31.8	LOS D	0.1	0.1	0.92	0.92	47.2	20.0	0.42

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.

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PHASING SUMMARY

 **Site: Q (19) [Ultimate AM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/Ridge E-W Link
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 75 seconds (Site Optimum Cycle Time - Minimum Delay)

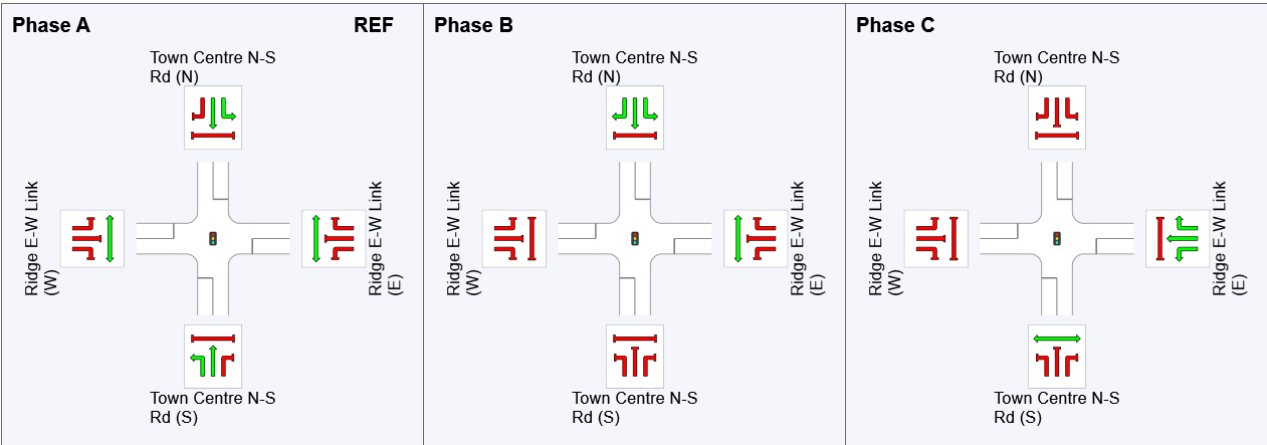
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E
Reference Phase: Phase A

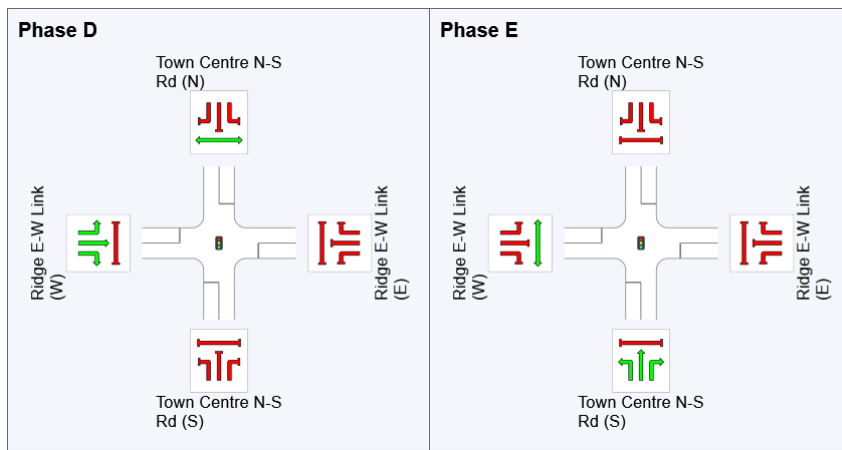
Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	9	21	42	62
Green Time (sec)	3	6	15	14	7
Phase Time (sec)	9	12	21	20	13
Phase Split	12%	16%	28%	27%	17%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

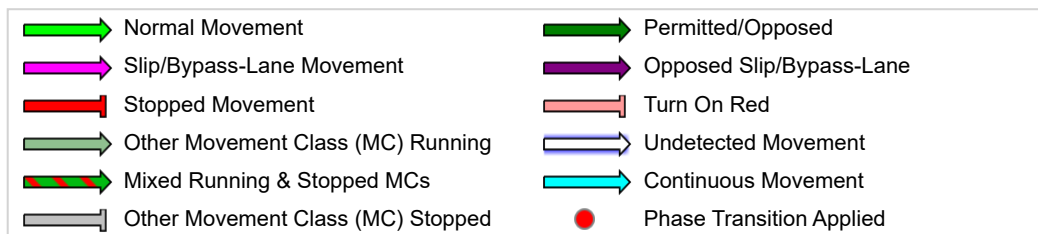
Output Phase Sequence





REF: Reference Phase

VAR: Variable Phase



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Site: Q (19) [Ultimate PM (Site Folder: Q_19_TownCentreN-S RidgeE-W)]

Signalised intersection: Town Centre N-S Road/Ridge E-W Link

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 72 seconds (Site Optimum Cycle Time - Minimum Delay)

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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.
 Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
 Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
 Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
 HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
 Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance												
Mov ID	Input Crossing	Dem. Vol.	Aver. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		[Ped	Dist]					
						ped	m			sec	m	m/sec
South: Town Centre N-S Rd (S)												

P1 Full	50	53	30.3	LOS D	0.1	0.1	0.92	0.92	45.7	20.0	0.44
East: Ridge E-W Link (E)											
P2 Full	50	53	30.3	LOS D	0.1	0.1	0.92	0.92	45.7	20.0	0.44
North: Town Centre N-S Rd (N)											
P3 Full	50	53	30.3	LOS D	0.1	0.1	0.92	0.92	45.7	20.0	0.44
West: Ridge E-W Link (W)											
P4 Full	50	53	30.3	LOS D	0.1	0.1	0.92	0.92	45.7	20.0	0.44
All Pedestrians	200	211	30.3	LOS D	0.1	0.1	0.92	0.92	45.7	20.0	0.44

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.

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PHASING SUMMARY

 **Site: Q (19) [Ultimate PM (Site Folder: Q_19_TownCentreN-S_RidgeE-W)]**

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Signalised intersection: Town Centre N-S Road/Ridge E-W Link

Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 72 seconds (Site Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Site Phasing & Timing dialog

Phase Times determined by the program

Green Split Priority has been specified

Phase Sequence: Variable Phasing

Input Phase Sequence: A, B, C, D, E

Output Phase Sequence: A, B, C, D, E

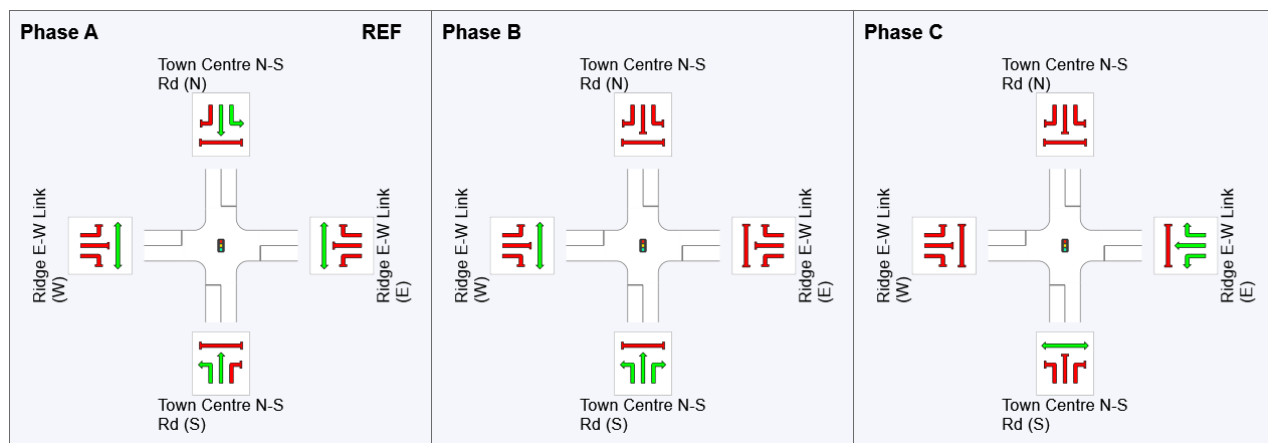
Reference Phase: Phase A

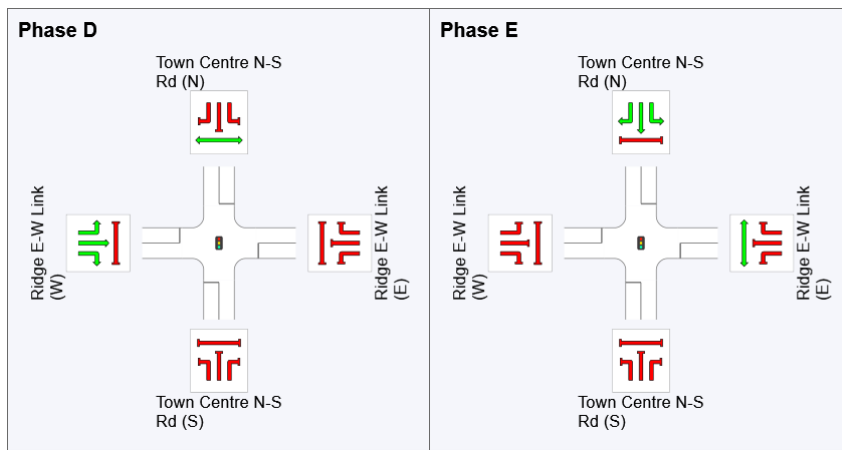
Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	8	20	40	60
Green Time (sec)	2	6	14	14	6
Phase Time (sec)	8	12	20	20	12
Phase Split	11%	17%	28%	28%	17%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0

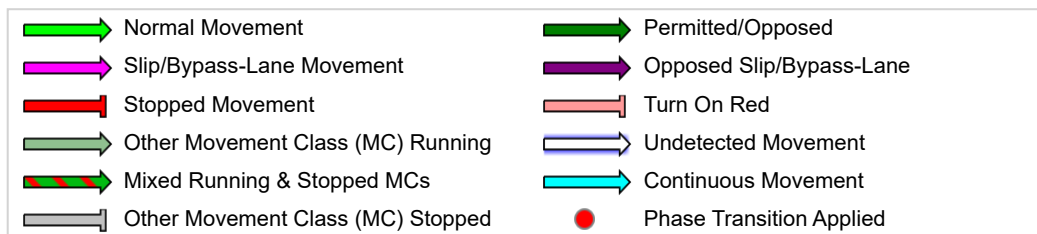
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



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Project: H:\Projects-SLR\620-BNE\620-BNE\620.11743 Yarrabilba Master Plan Development\06 SLR Data\Precinct 6\2023 05 16 - SLR - P6A (North) SIDRA Analysis\2023 05 - SIDRA\620.11743 Yarrabilba Precinct 6 Sidra 2023 06 19.sip9

SITE LAYOUT

▽ Site: 101 [Ultimate AM (Site Folder: VQ_RidgeE-W_NewRoad)]

Priority intersection: Ridge E-W Link/New Road

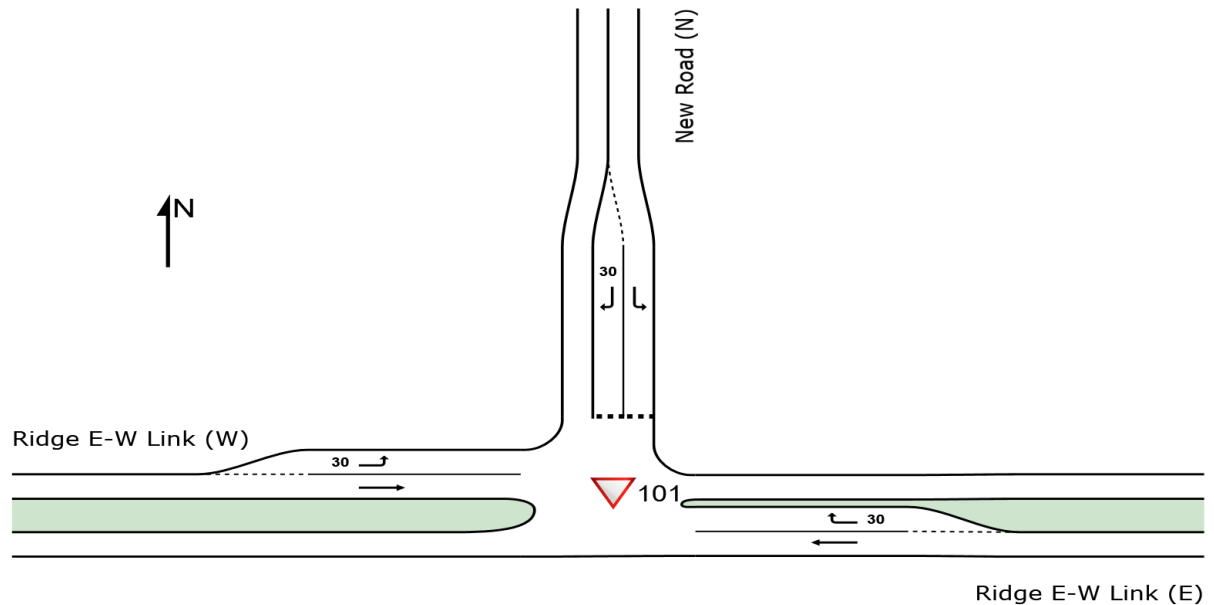
Prepared by: SJ

Reviewed by: BR

Site Category: (None)

Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

Site: 101 [Ultimate AM (Site Folder: VQ_RidgeE-W_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Priority intersection: Ridge E-W Link/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh]	[Dist]									
			veh/h	%	veh/h	%	v/c	sec			m				km/h
East: Ridge E-W Link (E)															
5	T1	All MCs	304	3.0	304	3.0	0.159	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	40	3.0	40	3.0	0.031	6.0	LOS A	0.1	0.9	0.21	0.55	0.21	52.1
Approach			344	3.0	344	3.0	0.159	0.7	NA	0.1	0.9	0.02	0.06	0.02	58.9
North: New Road (N)															
7	L2	All MCs	156	3.0	156	3.0	0.131	6.0	LOS A	0.5	3.6	0.22	0.56	0.22	52.1
9	R2	All MCs	6	3.0	6	3.0	0.011	9.2	LOS A	0.0	0.3	0.51	0.64	0.51	50.2
Approach			162	3.0	162	3.0	0.131	6.2	LOS A	0.5	3.6	0.23	0.56	0.23	52.0
West: Ridge E-W Link (W)															
10	L2	All MCs	1	3.0	1	3.0	0.001	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	106	3.0	106	3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			107	3.0	107	3.0	0.056	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles			614	3.0	614	3.0	0.159	2.0	NA	0.5	3.6	0.07	0.19	0.07	57.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

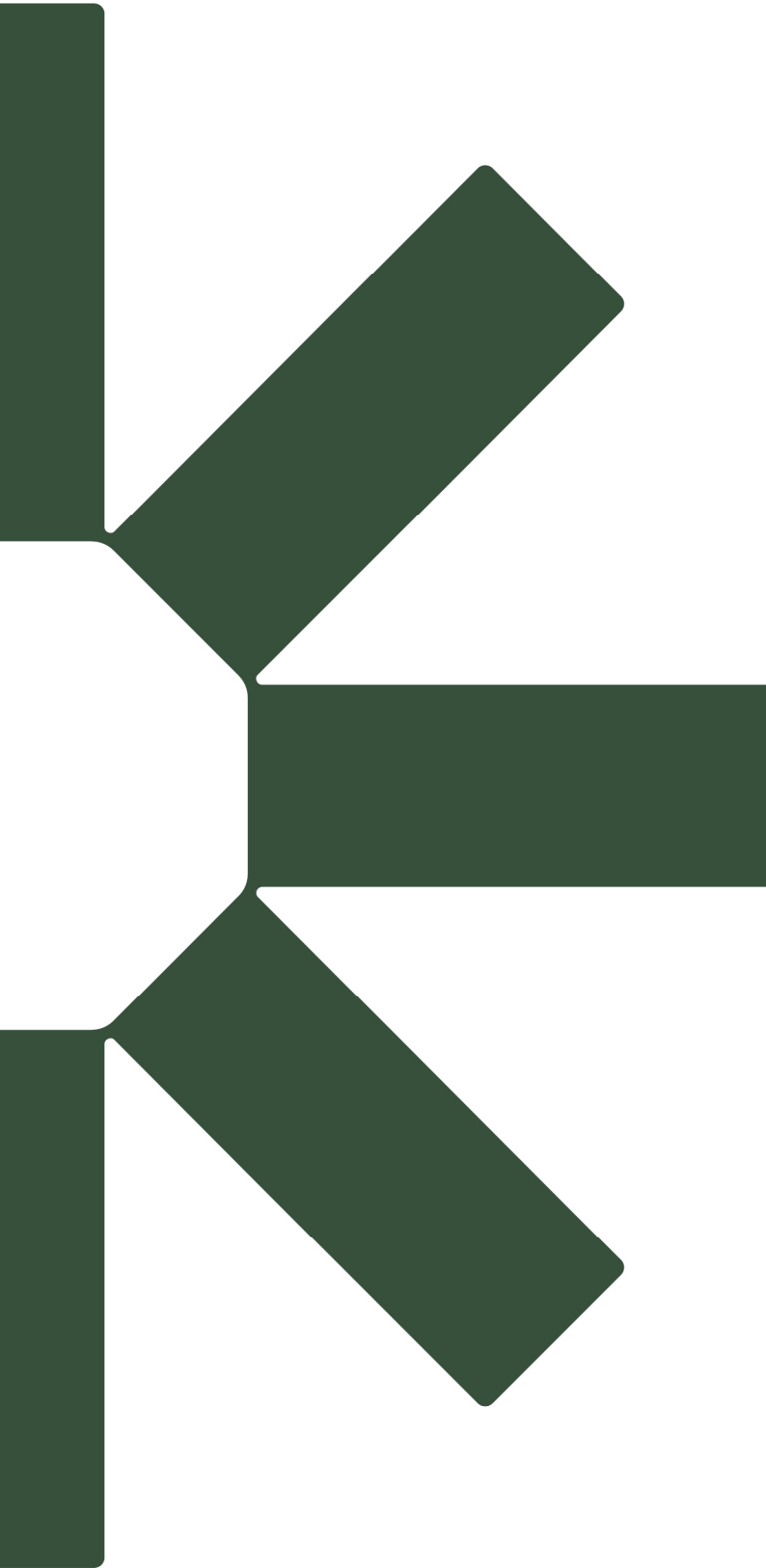
▼ Site: 101 [Ultimate PM (Site Folder: VQ_RidgeE-W_NewRoad)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Priority intersection: Ridge E-W Link/New Road
Prepared by: SJ
Reviewed by: BR
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Veh. veh]	[Dist]				m					
East: Ridge E-W Link (E)															
5	T1	All MCs	106	3.0	106	3.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	All MCs	139	3.0	139	3.0	0.115	6.2	LOS A	0.5	3.4	0.28	0.58	0.28	51.9
Approach			245	3.0	245	3.0	0.115	3.5	NA	0.5	3.4	0.16	0.33	0.16	55.1
North: New Road (N)															
7	L2	All MCs	60	3.0	60	3.0	0.053	6.2	LOS A	0.2	1.4	0.25	0.56	0.25	52.0
9	R2	All MCs	1	3.0	1	3.0	0.002	8.5	LOS A	0.0	0.0	0.47	0.56	0.47	50.7
Approach			61	3.0	61	3.0	0.053	6.2	LOS A	0.2	1.4	0.26	0.56	0.26	52.0
West: Ridge E-W Link (W)															
10	L2	All MCs	3	3.0	3	3.0	0.002	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
11	T1	All MCs	155	3.0	155	3.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach			158	3.0	158	3.0	0.081	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles			464	3.0	464	3.0	0.115	2.7	NA	0.5	3.4	0.12	0.25	0.12	56.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.



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