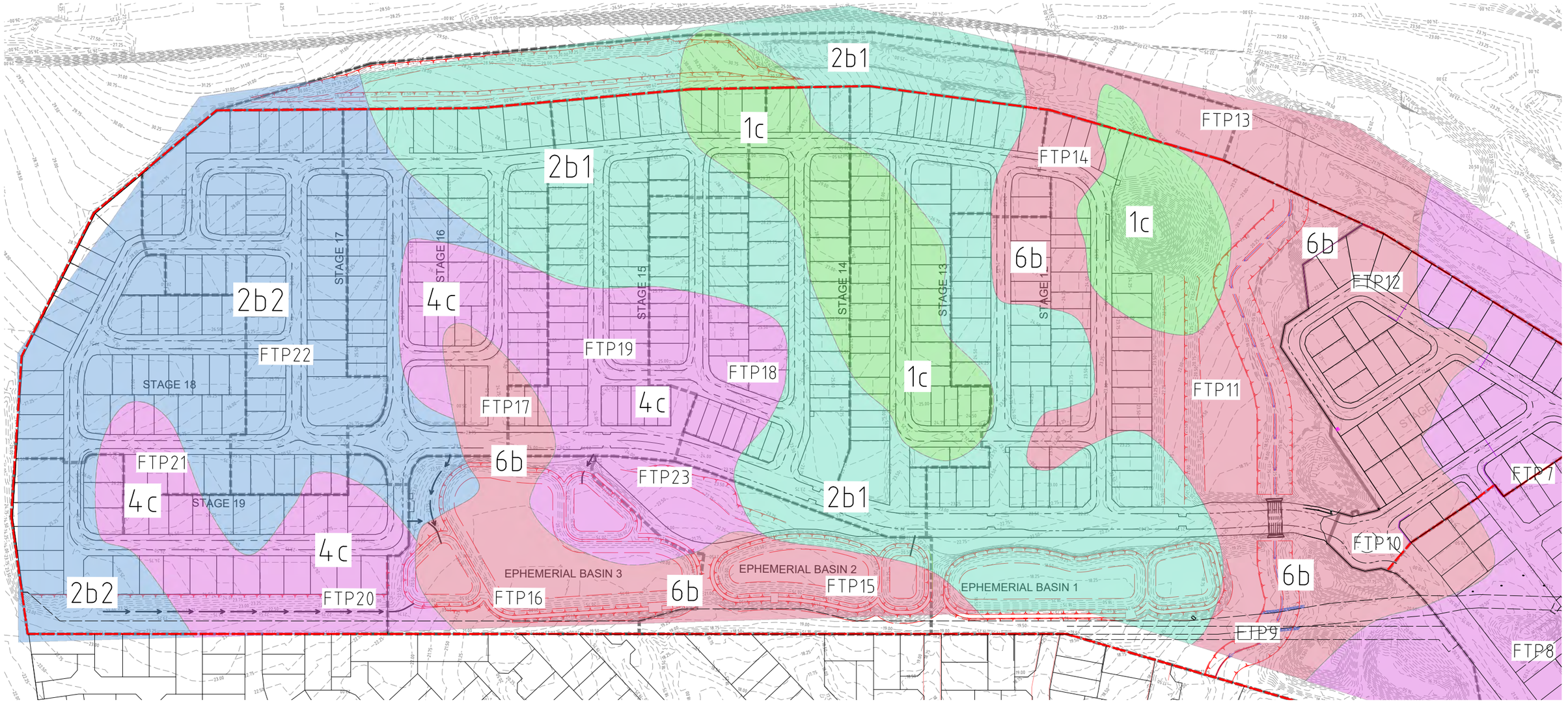


LEGEND

- 1c — 1c SOIL TYPE
- 2b1 — 2b1 SOIL TYPE
- 2b2 — 2b2 SOIL TYPE
- 3c — 3c SOIL TYPE
- 4c — 4c SOIL TYPE
- 6b — 6b SOIL TYPE
- FTP # — TEST PIT LOCATION AND ID.
- DA STAGE 2 - 11 DEVELOPMENT AND STORMWATER OPEN SPACE AREA BOUNDARIES

NOTE:

REFER REPORT TITLED "REPORT ON PRELIMINARY GEOTECHNICAL ASSESSMENT - PROPOSED RESIDENTIAL SUBDIVISION LOT 9765 ROYSTONEA AVENUE, DURACK, NT" AS PREPARED BY DOUGLAS PARTNERS (2009).

0 30 60 90 120 150m
30 22.5 15 7.5
SCALE 1:1500 (A1) 1:3000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

TERRAIN UNIT	GEOMORPHOLOGY DESCRIPTION	TEST PITS	SLOPE	DRAINAGE	SOILS	VEGETATION
1c	LOW SCARPS & SHORT STEEP SLOPES	NONE	10.0-15.0%	VERY RAPID	SHALLOW GRAVELLY LITHOSOL	EUCALYPT WOODLAND TO MINOR OPEN WOODLAND
2b1	GENTLE SIDE SLOPES	NONE	2.0-5.0%	RAPID	MODERATELY DEEP GRAVELLY YELLOW MASSIVE EARTHS	EUCALYPT OPEN WOODLAND TO WOODLAND
2b2	GENTLE SIDE SLOPES	22	2.0-5.0%	RAPID	SHALLOW GRAVELLY MASSIVE EARTHS AND LITHOSOLS	EUCALYPT LOW OPEN TO OPEN WOODLAND
3b	FLAT TO GENTLY UNDULATING UPLAND SURFACE	NONE	0.5-2.0%	MODERATE	MODERATELY DEEP GRAVELLY MASSIVE EARTH	EUCALYPT WOODLAND
4c	GENTLE LOWER SLOPES	3-8, 13-21, 23-24	0.5-1.0%	SLOW	YELLOW MASSIVE EARTHS	EUCALYPT OPEN FOREST, MINOR WOODLAND
6b	BROAD LOWLAND PLAINS	1, 2, 9-17	< 0.5%	SLOW	MODERATELY DEEP SILICEOUS SANDS	GREVILLEA/MELALEUC A TALL SHRUBLAND TO MINOR OPEN WOODLAND

BEFORE YOU DIG www.byda.com.au

NOTE: LOCATION & LEVELS OF ALL EXISTING SERVICES AND PROPOSED STORMWATER OUTLETS TO BE CONFIRMED ON SITE BY CONTRACTOR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM A BEFORE YOU DIG SEARCH PRIOR TO COMMENCEMENT OF WORKS. ANY POTENTIAL CONFLICT OF EXISTING SERVICES OR STORMWATER OUTLETS SHALL BE REPORTED TO THE SUPERINTENDENT.

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE					

REVISION IN PROGRESS

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

EMPOWER

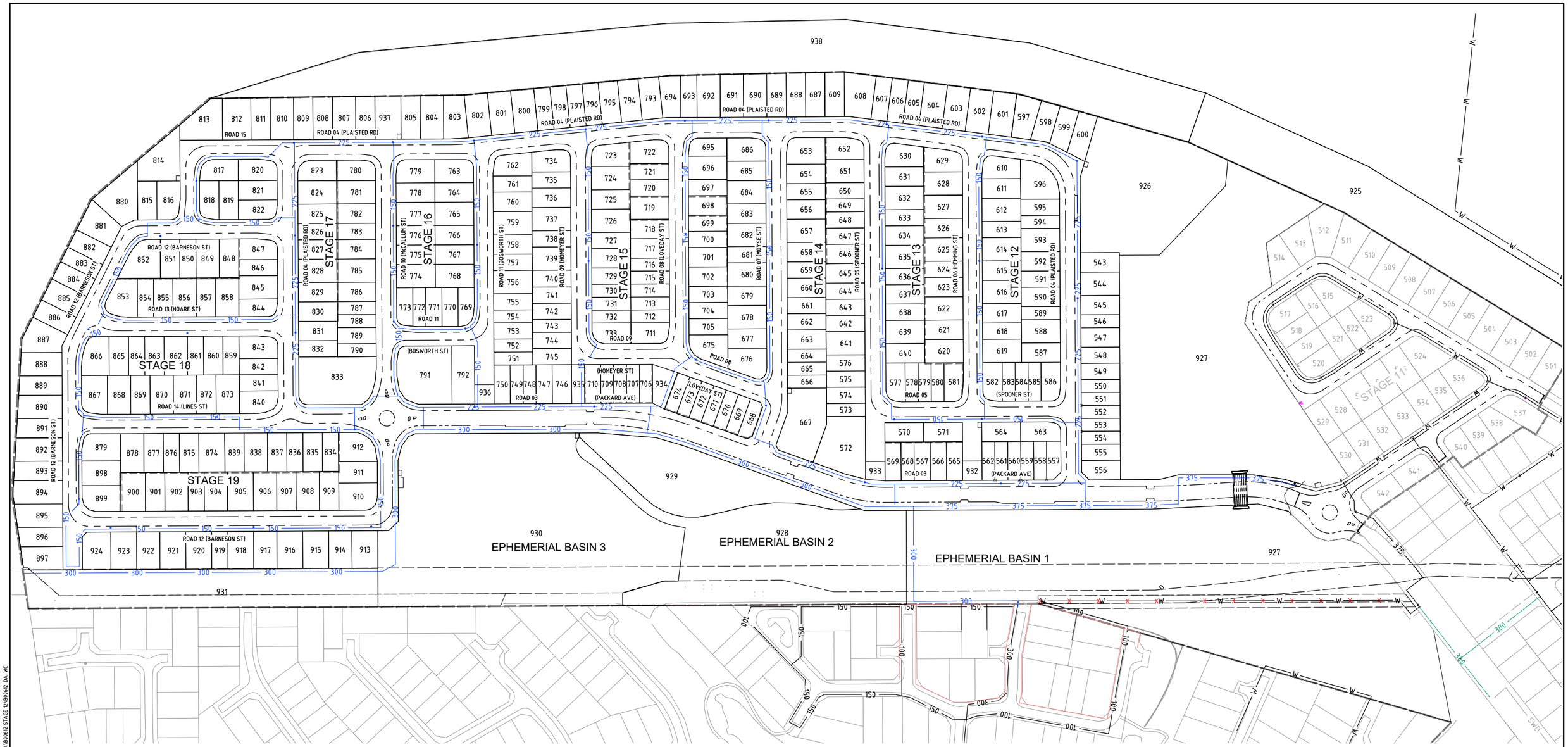
Client: URBEX PTY LTD
Project: THE HEIGHTS STAGES 12-19 DA
Title: SITE CONSTRAINTS PLAN

Datum: AHD
PSM .
RL .
CDU COORD

N

NOT FOR CONSTRUCTION

Project No. B00612
Drawing No. DA-GE01
Rev A



LEGEND

- STAGE BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- 100 — EXISTING Ø150 WATER RETICULATION
- 150 — EXISTING Ø225 WATER RETICULATION
- 300 — EXISTING Ø300 WATER RETICULATION
- 375 — EXISTING Ø375 WATER RETICULATION
- W — EXISTING SERVICE TO BE REMOVED OR ABANDONED
- 150 — PROPOSED Ø150 WATER RETICULATION
- 225 — PROPOSED Ø225 WATER RETICULATION
- 300 — PROPOSED Ø300 WATER RETICULATION

0 30 60 90 120 150m

30 22.5 15 7.5

SCALE 1:1500 (A1) 1:3000 (A3)

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE					

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS

DURACK

EMPOWER

Client URBEX PTY LTD

Project THE HEIGHTS STAGES 12-19 DA

Title WATER CATCHMENTS PLAN

Datum AHD
PSM .
RL .
CDU COORD

NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
B00612	DA-WA01	A

EMPOWER

Appendix C - Public Open Space Plan

POWERING FUTURES,
CREATING LEGACIES.

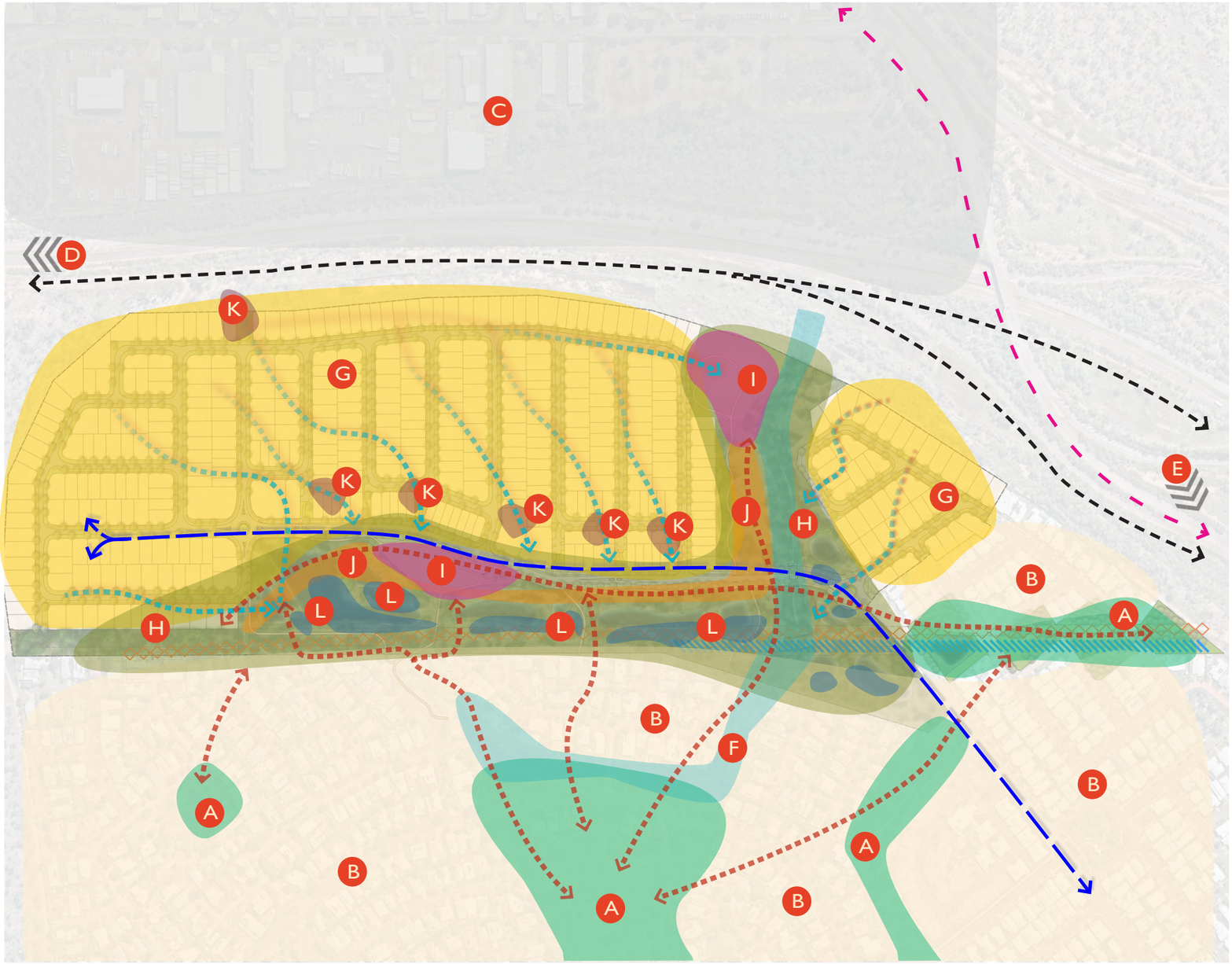
INTRODUCTION

THE PUBLIC OPEN SPACE MASTERPLAN STRATEGIC INTENT

The aim of the project is to prepare a comprehensive Landscape Masterplan (Public Open Space Masterplan) to guide the future use, development and management of The Heights Durack subdivision reflecting a consistent and comprehensive design language throughout the site.
To communicate the strategic vision of The Heights Durack Public Open Space Masterplan, the adjacent diagram has been developed to illustrate and analyse an overview of the development, with more detailed descriptions of specific components on subsequent plans.

LEGEND

- Major Arterial Road - Tiger Brennan Drive
- Major Highway - Stuart Highway
- Secondary Collector - Packards Avenue
- Connection from subdivision to Public Open Spaces
- Connection throughout existing and future Public Open Spaces
- Power Easement
- Water Easement
- A — Existing Public Open Spaces
- B — Existing Residential Zone
- C — Existing Industrial Zone
- D — Darwin City
- E — Palmerston City CBD
- F — Existing Stormwater Drainage
- G — The Heights Subdivision Residential Lots
- H — Open Space
- I — Local Park
- J — Linkage Corridor
- K — Pedestrian Linkages
- L — Ephemeral Wetland



Masterplan Strategic Diagram

THE PUBLIC OPEN SPACE MASTERPLAN

LEGEND

- A Local Park - Mary Packard Park
- B Neighbourhood Local Park - Moonta Park
- C Linkage Corridor - Linear Park
- D Pedestrian Linkages
- E Linkage Corridor - Existing Parks

PLEASE NOTE:

1. This plan is part of Public Open Space Masterplan and is to be read in conjunction with other documents such as the:

- *Staging Plan*
- *Access & Movement Plan*
- *Public Infrastructure Plan*

2. Additional Public Open Space may be accommodated within the Drainage Reserve subject to final detailed design of these areas.

3. With no definition provided in the SDG, the portion of ACTIVE space has been estimated in line with the definition of 'Active Recreation' provided in the CoP Play Space Strategy 2022 and also includes all proposed play and POS infrastructure. The ACTIVE portions are outlined in the Public Open Space Park Plans.

The remaining portion (%) should be considered the PASSIVE areas of each park.

LINKAGE CORRIDORS areas are clearly outlined in the adjoining table.

Beyond the defined POS areas (park and linkage corridors) there will be additional PASSIVE areas in the adjoining natural surrounds and Drainage Reserve. To be clear these areas have not been reflected or added to any calculations.

PUBLIC OPEN SPACE		
KEY	ITEM	AREA
A	LOCAL PARK - *Mary Packard Park*	0.89ha
B	NEIGHBOURHOOD PARK - *Moonta Park*	0.62ha
C	LINKAGE CORRIDORS *Linear Park*	3.05ha
D	PEDESTRIAN LINKAGES *Pedestrian access connections*	0.27ha
E	LINKAGE CORRIDORS *Existing parks - Stage 11*	1.6ha
TOTAL PUBLIC OPEN SPACE		7.05ha
DRAINAGE RESERVE [2]		*8.2ha*
TOTAL DEVELOPMENT AREA		44ha
PERCENTAGE OF PUBLIC OPEN SPACE		16%

POS OVERVIEW PLAN

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Appendix D - Public Transport Plan

POWERING FUTURES,
CREATING LEGACIES.

BUS STOP No. 2 CATCHMENT (400m RADIUS)

BUS STOP No. 1 CATCHMENT (400m RADIUS)

STAGE 17

STAGE 16

STAGE 15

STAGE 14

STAGE 13

STAGE 12

STAGE 11

STAGE 18

STAGE 19

PROPOSED DIPL BUS STOP No. 2. REFER DETAIL A

PROPOSED DIPL BUS ROUTE

EPHEMERIAL BASIN 3

EPHEMERIAL BASIN 2

EPHEMERIAL BASIN 1

PROPOSED DIPL BUS STOP No. 1. REFER DETAIL B

EXISTING DIPL BUS ROUTE

EXISTING DIPL BUS STATION

ROAD 03 (PACKARD AVE)

PROPOSED DIPL BUS STOP No. 2
AS PER DIPL STD DWG. CS-3733

12.000 3.600 19.000 7.100 24.600

DETAIL A
SCALE 1:250 (A1)

ROAD 03 (PACKARD AVE)

PROPOSED DIPL BUS STOP No. 1
AS PER DIPL STD DWG. CS-3733

12.000 3.600 19.000 7.100 24.600

DETAIL B
SCALE 1:250 (A1)

0 30 60 90 120 150m
28 21.5 14 7.5
SCALE 1:1500 (A1) 1:3000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

0 5 10 15 20 25m
5 3.75 2.5 1.25
SCALE 1:250 (A1) 1:500 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE					

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

EMPOWER

Client URBEX PTY LTD
Project THE HEIGHTS STAGES 12-19 DA
Title PUBLIC TRANSPORT PLAN

Datum AHD
PSM .
RL .
CDU COORD

NOT FOR CONSTRUCTION

Project No. B00612
Drawing No. DA-CR26
Rev A

EMPOWER

POWERING FUTURES,
CREATING LEGACIES.

The Heights, Durack, Stages 12-19

Part 1 - Stormwater Management Plan

Job No:
B00610

Date:
17/03/2026

POWERING FUTURES,
CREATING LEGACIES.

DOCUMENT CONTROL SHEET

Project	The Heights, Durack
Report Title	Stages 12-19 Part 1 - Stormwater Management Plan
Job No.	B00610

REVISION HISTORY

Revision Number	Prepared By	Reviewed By	Date
A	BJC	MKB	13/02/2026
B	BJC	MKB	17/03/2026
C			

DISTRIBUTION DETAILS

Destination	Revision						
	A	B	C	D	E	F	G
City of Palmerston	✓	✓					
Urbex Pty. Ltd.	✓	✓					
File: Empower Engineers & Project Managers	✓	✓					

APPROVAL

Issue Approved:	MKB	MKB					

Contents

1. Introduction

Empower has been engaged by Urbex to develop a Stormwater Management Plan to support the staged development of The Heights, Durack. This report includes the stormwater management strategy for Stages 12-19.

1.1 Project Description

All stages of the proposed development site 'The Heights, Durack' are within the City of Palmerston, between the existing Fairway Waters development (to the south), existing development abutting Roystonea Avenue (to the east) and Tiger Brennan Drive (to the north). The overall proposed development will be delivered over various stages; those stages being Stages 12-19 as show below.

A network of stormwater basins are provided for Stages 12 to 19; these being located to the south of the proposed extension (through the development) of Packard Avenue within a linear open space area. These basins constitute a combination of ephemeral wetlands for stormwater quality treatment and basins for stormwater attenuation.

There are also a number of 'kidney shaped' ponds adjacent to existing Stage 11 (located to the east of proposed Stage 12) that are to be gifted to City of Palmerston (CoP) as part of this development. We understand that these will be gifted as part of the Stage 12 process. We note CoP's opinion that these ponds have not been accepted in the past. These ponds are discussed in more detail within this report.

We respectfully suggest that we are advised that the actions of responsible persons previously at CoP provided approval of these ponds. We will be including the design elements of these ponds to CoP and including the functionality of these within the hydraulic assessment of the overall development.

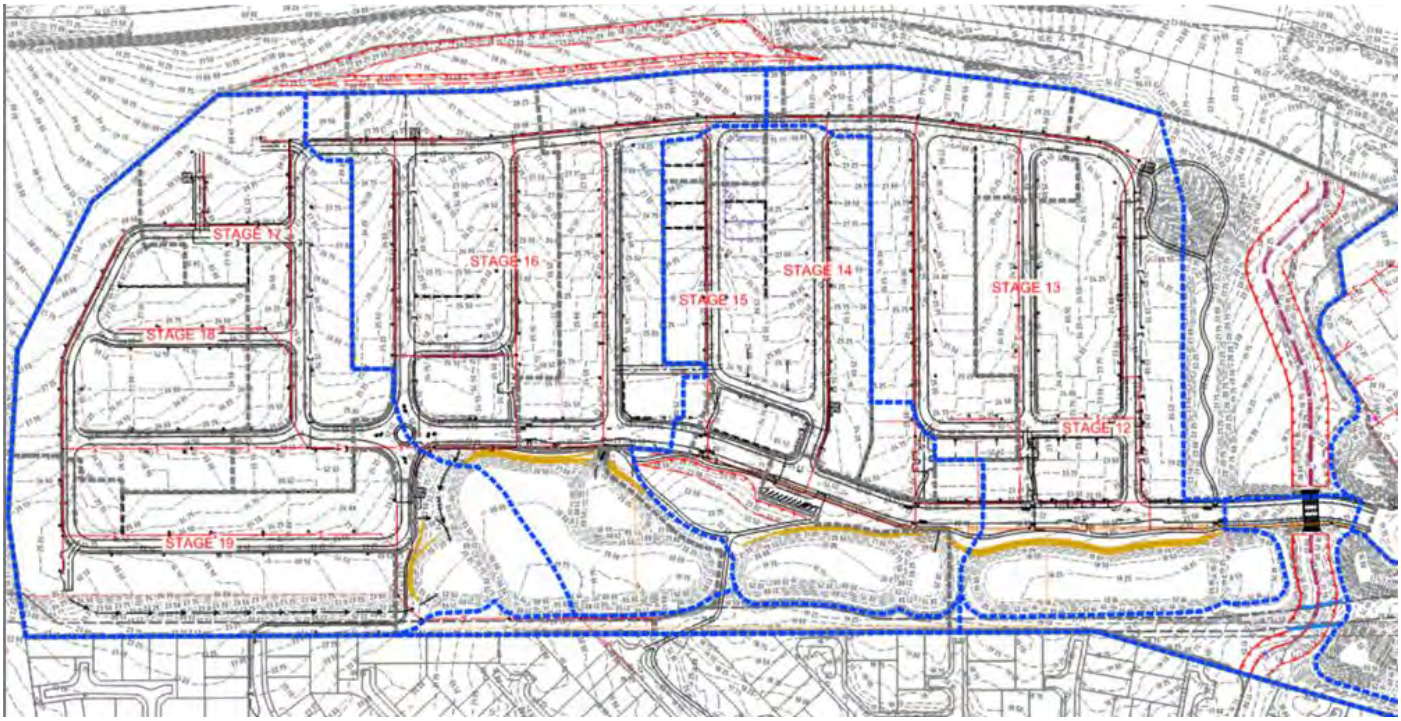

Figure 1-1 | Stages 12-19 Development Context Plan

1.2 Existing Kidney Shaped Ponds (Stages 9-11)

Five inter-connected 'kidney shaped' ponds adjacent to existing Stage 11 (located to the east of proposed Stage 12) are to be gifted to City of Palmerston (CoP) as part of this development. These are shown in the figure and table below, and demonstrate:

- these ponds serve the previously developed stages of Stage 9-11 of The Heights development
- these ponds are not required to service Stages 12-19 of The Heights development

The functionality of the ponds is crucial in supporting existing stages of The Heights development:

- So as to provide attenuation, the overall water storage capacity is split between several ponds, with underground pipes providing connectivity. This connectivity is described within the table below
- Whilst the design, documentation, approval and delivery of these ponds was not formalised as part of Stages 9-11, they clearly formed part of the overall stormwater management strategy.
- Advice from the previous developer was that the purpose of the five inter-connected ponds was to provide amenity as part of the public open space and stormwater quality treatment.

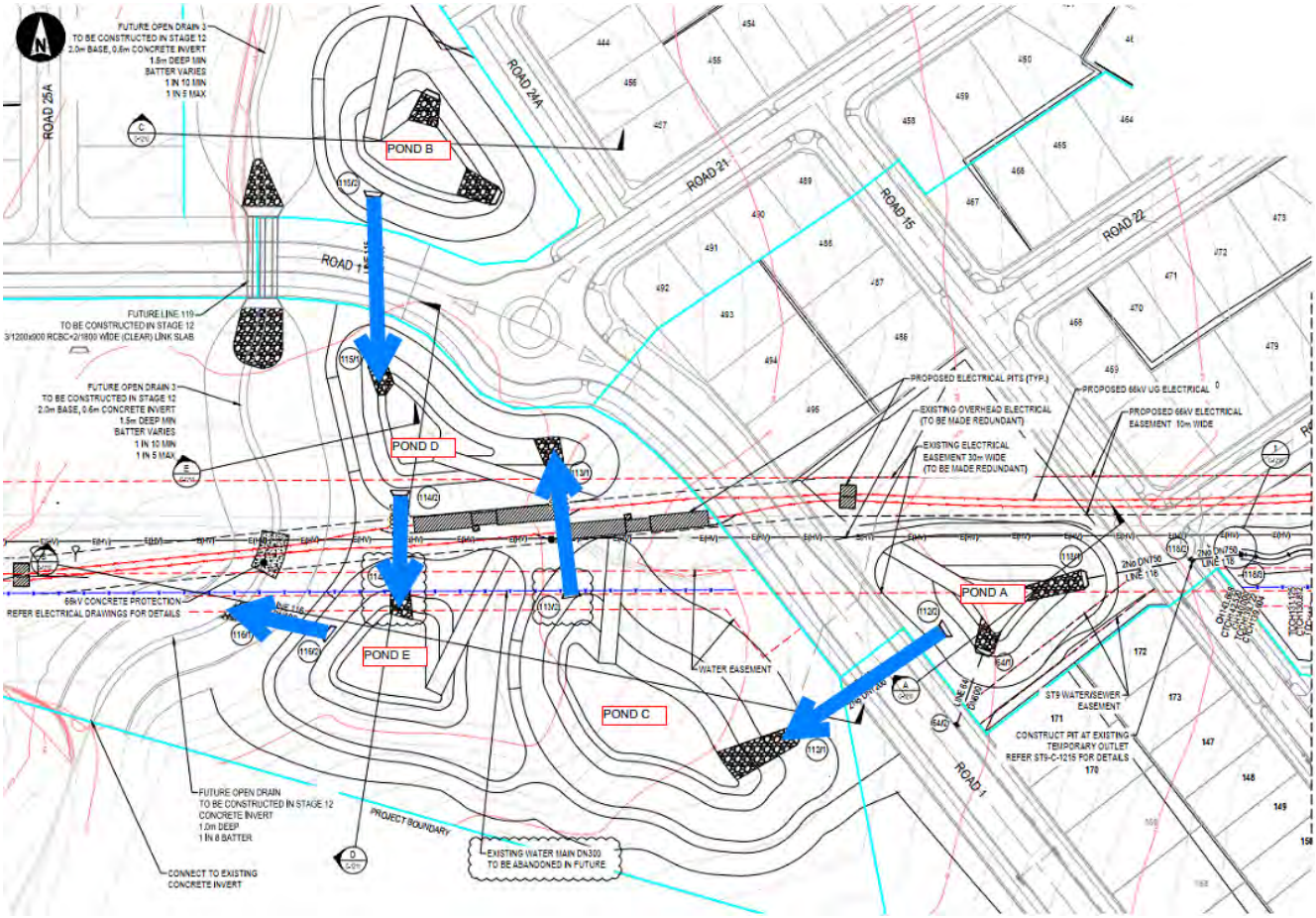

Figure 1-2 | Pond Arrangement as per Aurecon Design

Table 1-1 | Pond Details Table

Pond	A	B	C	D	E
RL at Base of Pond	17.5	15.85	16.3	15.9	15.3
RL at Standing Water Level	18.5	18	18.5	18	17.5
RL at High Flow Weir	20.4	19.1	19.8	19.2	18.8
RL at Top of Bund	20.8	19.6	20.4	19.8	19.8
Low Flow Pipe Size	2 x DN 1200 RCP	1 x DN 600 RCP	1 x DN 600 RCP	1 x DN 600 RCP	1 x DN 600 RCP
Low Flow Pipe Grade	0.517%	2.325%	2.488%	3.499%	1.002%
Permanent Pond Volume	1072.961	1357.947	3129.964	1083.352	1494.291
Volume at Top of Pond	1189.732	2631.940	6101.878	2998.350	4222.212

We understand that these ponds will be gifted to CoP as part of the development of The Heights Stage 12 process.

We note CoP's position that they have no evidence that these ponds have been formally accepted by CoP.

1.2.1 Evolution of Desired Strategy for Stormwater Management

By way of background to this issue, we note that as part of the development of Stage 1 of the Zuccoli development:

- Urbex was directed by previous engineering leadership at CoP to implement stormwater solutions that included water holding bodies. These might be defined as artificial lakes or dams, however due to size are referred herein as ponds,
- We were advised that CoP's stormwater management preference was to maintain water bodies for use with specialty plant that it had procured, that being a flat bottom marine vessel (barge / punt) used to harvest/remove nutrient-rich biomass from the water bodies.
- Direction of the preferred stormwater management scheme was subsequently rescinded by new engineering leadership at CoP, and Urbex agreed to an alternative solution that included ephemeral wetland basins

In terms of The Heights development:

- This direction from CoP for the creation of artificial lakes / dams / ponds was typical of CoP and drove the design process for The Heights Stages 9-11.
- An alternative solution is not available in the case of the kidney shaped ponds at The Heights development due to the following factors:
    - Control levels of upstream and downstream infrastructure:
        - Fixed incoming ILs of the contributing stormwater pipe catchment, and
        - Fixed ILs of the receiving catchment
    - Performance of the separate basins:
        - The separate basins, joined by the flow restricting connecting pipes provide the attenuation required for developed stormwater flows.

- Electrical HV Easement:
  - Some of the pipes between the ponds pass below underground HV electrical.

With regard to the previously developed stages of The Heights development

- As per standard industry, and common law, CoP requires that stormwater flows from developed sites are attenuated, so that flows in a post development scenario are not greater than pre development
- Stages 9-11 have been developed with the kidney shaped ponds included within the associated stormwater management scheme.
- CoP has approved engineering designs from both Empower (for Stage 11) and the previous developer's consultants (for Stages 9-10); for stormwater pipe networks associated with each of these stages.
- These stormwater pipe networks require the ponds to provide the required attenuation of stormwater flows, so as to ensure that post development flows do not adversely impact on downstream receiving waterways
- We suggest that, whilst formal handover of the kidney shaped ponds to CoP has not occurred, the approval from CoP and the handover acceptance of CoP of the stormwater pit and pipe infrastructure, that requires the stormwater attenuation provided by the kidney shaped ponds included within the engineering deisgn documentation, means that CoP has provided tacit approval of the kidney shaped ponds.

It is also noted that these kidney shaped ponds replicate what has been previously accepted by CoP immediately to the south of the site within the Fairfield Waters development, so CoP is well positioned to maintain these assets.

We understand that Urbex proposes to re-define these basins back to their design condition as part of the handover process. This includes:

- De-water of the ponds
- De-sludging the ponds back to the shape of the original design
- Re-survey of all of the inter-connecting pipes and maintenance access ramps
- Stabilisation of all banks with grass

1.3 Existing Site Condition - Topography and Flow Paths

The existing site typically falls from North to South:

- A ridgeline runs roughly north-south (~RL 30.0-33.5), bisecting the footprint of proposed Stage 13.
- A small hill, known as Packard's Knob (RL 31.0) in the north eastern corner of stage 12 distributes flows from a central high point but ultimately rejoins the flow path to the south-east.
- Two local lower areas of the site at the southern edge of the project site provide the legal points of discharge for the development,
    - To the east of the eastern end of Kooyonga Parade,
    - To the east of the northern end of Carpentaria Court.

Overall, the existing topography drains to these locations from across the site, discharging into a series of ponds before joining the greater stormwater system, to the south of the proposed development site within the Fairway Waters development.

1.4 Proposed Stormwater Management - Topography and Basins

The proposed site topography maintains the general topographical profile of the existing conditions, falling from North to the South, with earthworks undertaken to make the developed lots suitable for residential purposes. Stormwater flows will be conveyed to stormwater quality treatment and attenuation basins along the southern edge of the site, either captured by a pit-and pipe network or through overland flow.

Post-treatment flows are then conveyed to the existing identified points of discharge via open drains.

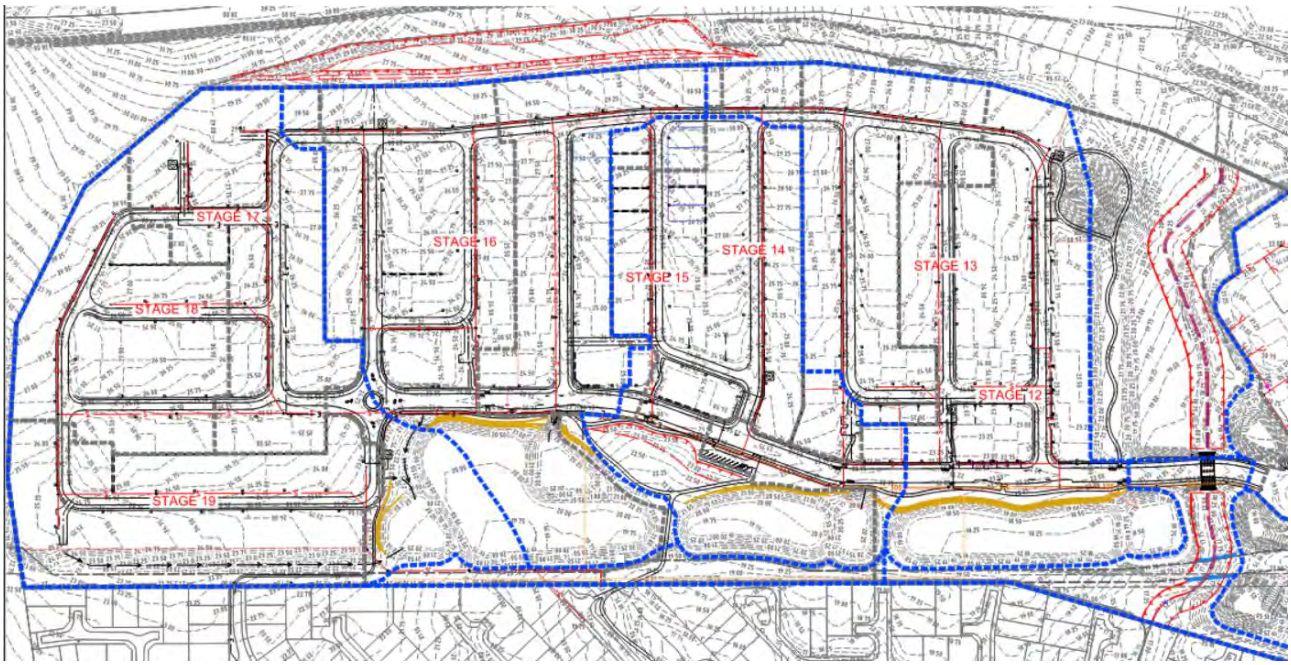

Figure 1-3 | Proposed Site Conditions

1.5 In-Flows and Lawful Points of Discharge

Figure 1-4 | Lawful Points of Discharge

Flows into the site are directed from:

1. Existing Stages of The Heights development (entering the site via the 'kidney shaped' ponds referred to previously)
2. An attenuation basin below Tiger Brennan Drive (at the top of the Stage 12 open space); this picking up flows from the north of Tiger Brennan Drive and from Tiger Brennan Drive itself
3. A smaller catchment along the western end of the northern boundary of the site: these flows being from a smaller catchment along Tiger Brennan Drive

The subject site has two distinct discharge points as listed below:

1. Discharge Point 1: Eastern Discharge Point
    a. Discharge to Public Open Space adjacent to Kooyoonga Parade
    b. Flows from this discharge point are conveyed to Lake 1B of the Fairway Waters Development and are subsequently discharge to the downstream drainage networks.
    c. Discharge Point 1 is shown in Figure 1-5 below and Figure 1-4 above.
2. Discharge Point 2: Western Discharge Point
    a. Discharge to Public Open Space adjacent to Carpentaria Court
    b. Flows from this discharge point are conveyed to Lake 1A of the Fairway Waters Development and are subsequently discharge to the downstream drainage networks.
    c. Discharge Point 2 is shown in Figure 1-6 below and Figure 1-4 above.

Figure 1-5 | Eastern Point of Discharge

Figure 1-6 | Western Point of Discharge

1.6 Staged Delivery and Handover of Stormwater management Assets

Infrastructure supporting the development will be delivered and handed over to City of Palmerston in a logical sequence. The sequence will match the staging within the Development Application submitted to the NTG, with infrastructure to ensure compliance with the NT SDG.

The proposed sequence of delivery will be in accordance with the table following.

NTG DA Stage #	Development Stage #	Handover to CoP
1	Bulk Earthworks Stage 12	No
1	Bulk Earthworks Stage 13	No
1	Bulk Earthworks Part of Stage 14	No
1	Ephemeral Basin 2 - bulk earthworks only	No
2a	Civil Works Stage 12 (41,690m2)	Yes
2b	Stormwater Open Space Area (35,210m2)	Yes
2b	Stormwater Open Space Area (41,202m2) including Ephemeral Basin 1	Yes
3	Civil Works Stage 13 (32,584m2)	Yes
4	Bulk Earthworks part of Stage 14	No
4	Bulk Earthworks Stage 15	No
4	Bulk Earthworks Stage 16	No
4	Bulk Earthworks part of Stage 17	No
5a	Civil Works Stage 14 (36,822m2)	Yes
5b	Stormwater Open Space Area (Lot 928: 20,660m2) including Ephemeral Basin 2	Yes
6a	Civil Works Stage 15 (29,863m2)	Yes
6b	Stormwater Open Space Area (Lot 930: 25,489m2) including Ephemeral Basin 3	Yes
7	Civil Works Stage 16 (37,760m2)	Yes
8	Bulk Earthworks part of Stage 17	No
8	Bulk Earthworks Stage 18	No
8	Bulk Earthworks Stage 19	No
9	Civil Works Stage 17 (32,353m2)	Yes
10	Civil Works Stage 18 (26,617m2)	Yes
11	Civil Works Stage 19 (32,989m2)	Yes

2. Design Philosophy

Empower have adopted a design philosophy for this project as required by the guidelines set out in the Northern Territory Subdivision Development Guidelines (NT SDG). The following details our commitment to this philosophy, while section 5 below actively responds to requirements as set out in the guideline for 'Part 1 - Stormwater Management Plans'.

2.1 NT SDG Item 7 General Stormwater Drainage

In addition to requirements specifically called out by the NT SDG, all stormwater drainage will be designed compliant to the following standards / in consideration of the following guidelines:

- Water Sensitive Urban Design best management practices
- Australian Rainfall and Runoff (Geoscience Australia).
- Stormwater Drainage Design in Small Urban Catchments (ARRB Special Report No. 34).
- QUDM (by the Institute of Public Works Engineering Australasia - Queensland & Northern Territory (IPWEA-QNT)).
- Austroads Guidelines, including Guide to Road Design – Part 5: Drainage.
- Relevant Australian Standards.
- CSIRO's sea level rise predictions.
- Guidelines for Preventing Biting Insect Problems for Urban Residential Developments or Subdivisions in the Top End of the NT and Constructed Wetlands in the NT.
- Guidelines to Prevent Mosquito Breeding
- The relevant policies or guidelines in NT SDG Part 2 - Reference Documents.
- The details provided in the accompanying NT SDG Part 3 – Standard Drawings.

2.2 NT SDG Item 7.2.1 Design life

In compliance with the NT SDG, all materials and components of the stormwater drainage system will be designed in accordance with the relevant Australian Standards with a design life of 50years.

2.3 NT SDG Item 7.2.2 Major / Minor Flood Management Concept

In compliance with the NT SDG, the accepted stormwater management concept of major and minor floods has been adopted for this project. The stormwater system proposed by Empower includes an underground pit and pipe network for minor flows, while major flows are able to flow overland via a road network and through swales to the ephemeral wetlands and stormwater detention basins at the southern edge of the site.

2.4 NT SDG Item 7.2.3 Stormwater Catchments and Drainage Networks

In compliance with the NT SDG, design of the stormwater drainage network will be undertaken with the following in consideration:

- Hydrological calculations consider land use across all contributing catchments as fully developed according to current permitted land use within the Planning Scheme.
- Where present, stormwater from upstream catchments that currently drains through the development site has been accommodated for in infrastructure sizing in such a way to avoid any adverse impacts on upstream infrastructure.
- Post-development flows leaving the site are equal to or less than pre-development flows for all events up to and including the 1% AEP event.

2.5 NT SDG Item 7.2.4 Natural Waterways

No natural waterways are considered to be directly affected by this project.

2.6 NT SDG Item 7.2.5 General Requirements for Residential, Mixed Use and Industrial Zones

In compliance with the NT SDG

- All allotments are to be graded to drain towards an adjacent servicing road or drainage reserve, inter-allotment drainage to be included only where approved by relevant authorities.
- House connections will be provided for all lots under 600m2 and all unit sites
- Lot connections will be designed in accordance with typical details as provided in Part 3 of the NT SDG.

2.7 NT SDG Item 7.2.6 General Requirements for Rural Zones

Not applicable to this project.

3. Stormwater Quantity Management

3.1 Hydrology

3.1.1 Setup

The hydrologic approach adopted was to define rainfall runoff within the entire contributing catchment area through the application of rainfall directly onto the two-dimensional hydraulic model, this method is known as Rain on Grid (RoG) or Direct Rainfall.

This method applies rainfall directly to a 2-dimensional hydraulic model, simulating runoff generation and routing simultaneously, as such, all areas within the model become wet and convey flow through the model domain.

Current best practices were adopted to estimate design storm runoff for the existing catchment conditions, including the following model parameters:

- BoM 2016 design rainfall depths (12.4625 S, 130.9625 E) using 2030 Climate Change Factors (AR&R v4.2, August 2024) for the 63%, 50%, 20%, 10%, 2%, 1% AEPs,
- 1% AEP Climate Change SSP3 (2100), annotated throughout this report at 1% CC1 AEP,
- 1% AEP Climate Change SSP5 (2100), annotated throughout this report at 1% CC2 AEP, and
- ARR (Ball, et al., 2019) temporal patterns (Monsoonal North region).

This model defines hydrologic losses per adopted land use of each cell as shown below.

Table 3-1 | Hydrologic Losses

Land Use	Initial Loss (mm)	Continuing Loss (mm/hr)
Urban Lot	7.5	0.75
Commercial / Industrial Lot	3.75	0.5
Road Reserve	0	0
Open Space / Base Layer	15	1.5
Water Bodies	0	0

3.2 Hydraulic Assessment

3.2.1 Methodology

The hydraulic assessment utilised a 1D/2D TUFLOW HPC model (Version 2025.2.1) to analyse site conditions. The following scenarios were examined:

- Existing: This scenario assessed the current state of the site and its external catchment.
- Proposed: In this scenario, the model was updated to incorporate the proposed development, accompanying pit-and-pipe network, along with ephemeral wetlands and several detention basins.

3.2.2 Topography

Terrain data outside the site boundary is based on LiDAR captured in 2014. Internal data was primarily captured via on-site survey.

A 3 m computational grid was used with a 0.5 m SGS adopted in the TUFLOW model using various terrain data including:

- National 5 metre Digital Elevation Model (DEM) of Australia derived from LiDAR.
- B00610 Existing Survey Surface TIN (rec 20251119), provided by Earl James & Associates

- B00610 Stage 11 TBD CHANNEL Design Surface TIN (rec 20260115), prepared by Empower
- B00610 Stage 11 ASCON Surface TIN (rec 20260115), provided by Earl James & Associates
- Ex Survey LIDAR 20251208 (rec 20260106), provided by Earl James & Associates
  - New lidar of Tiger Brennan
- Ex Survey Original (combo of lidar and ground pickup) TBD 20251208 (rec 20260106), provided by Earl James & Associates and prepared by Empower.
  - Modified version of the new lidar that removed the currently constructed basin within the site
- A detailed Design TIN was prepared by Empower for the subject site and was used as the basis for the proposed scenario.

The bathymetry of the existing ponds to the east of the proposed development were obtained from as-constructed survey.

The existing bathymetry of the two lakes downstream of the site (upstream of Woodlake Boulevard) were generally based on as-constructed lake information provided by Council, indicating invert levels of approximately 12.5 mAHD – 13.0 mAHD. A '2d_zshp' layer was created to provide a representation of the lake bathymetry.

Together, these data sets provide a good representation of the topography of the site and surrounding areas.

Figure 3-1 and Figure 3-2 illustrate the existing and proposed topography.

Figure 3-3 illustrates the topographic difference between the existing and proposed scenarios.

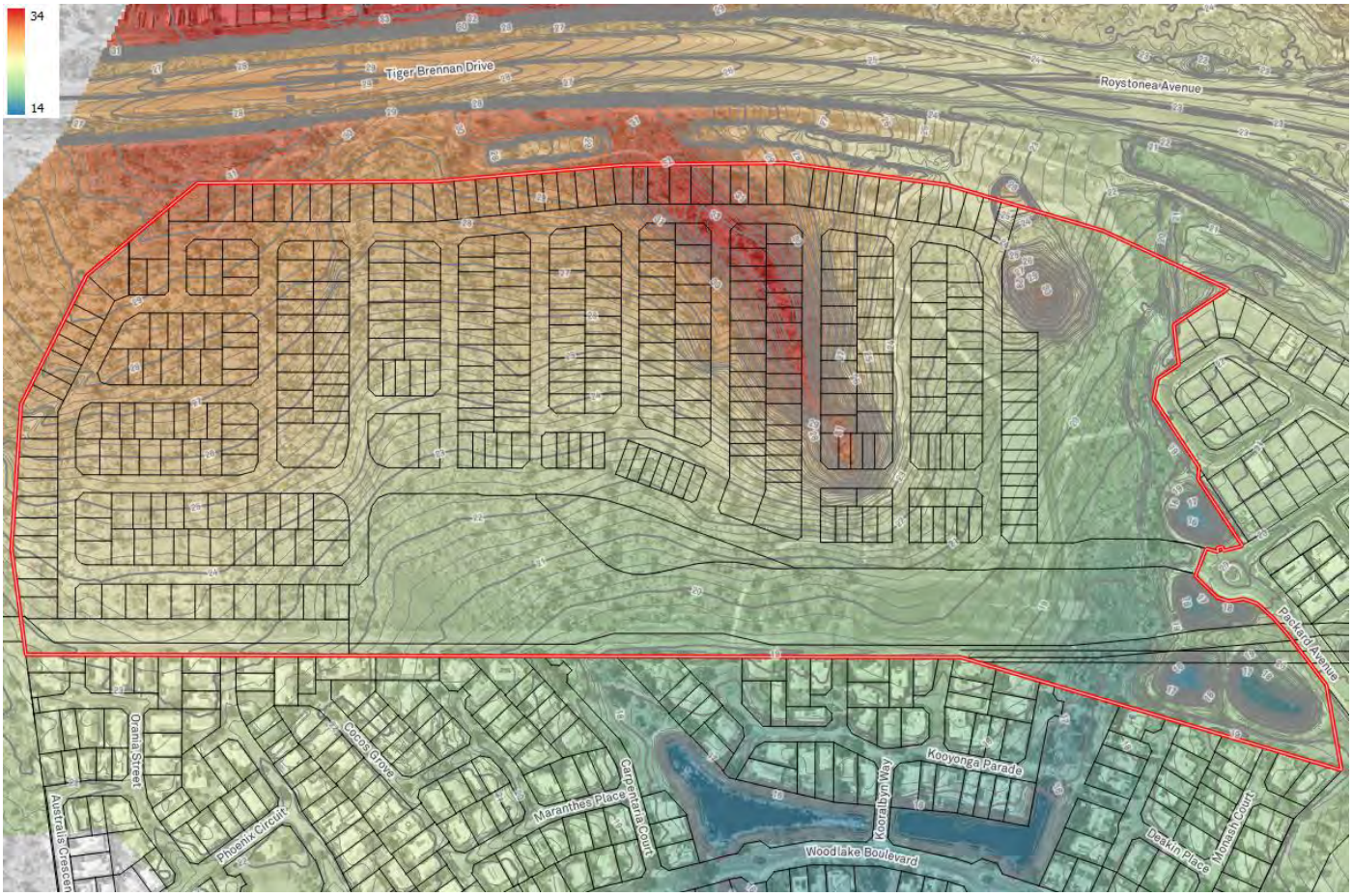

Figure 3-1 | Existing Topography

Figure 3-2 | Proposed Topography

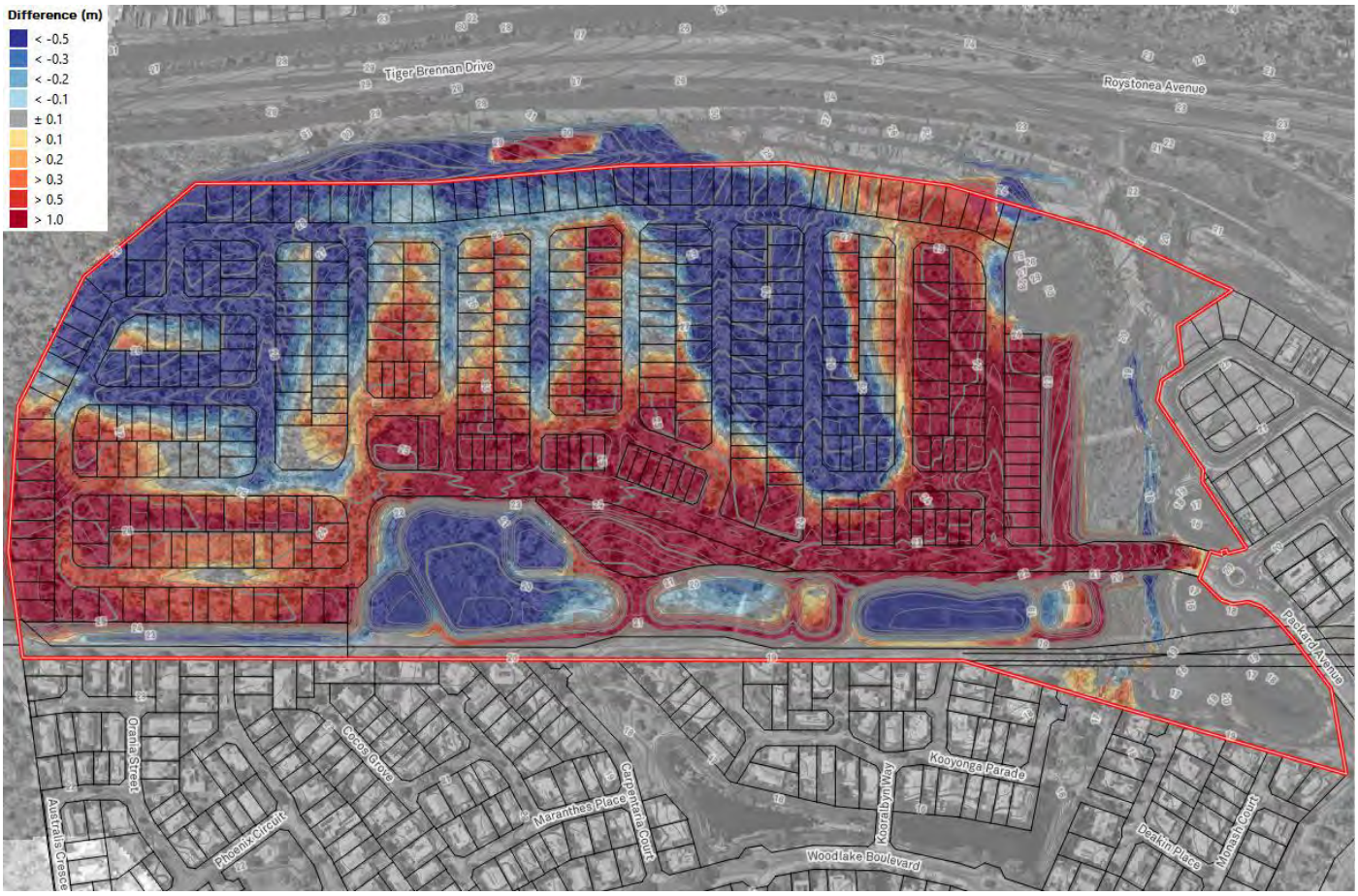

Figure 3-3 | Topography Difference

3.2.3 Roughness

The RoG model defines hydraulic roughness based on the adopted land use of each computational grid cell and is capable of adopting a single surface roughness value or depth-varying roughness values, as detailed in Table 3-2 and illustrated in Figure 3-4 and Figure 3-5 below.

Table 3-2 | Hydrologic Roughness

Land Use	Depth [1] (m)	Manning's 'n' [1]	Depth [2] (m)	Manning's 'n' [2]
Urban Lot	0.1	0.040	0.3	0.06
Commercial / Industrial Lot	0.1	0.020	0.3	0.040
Road Reserve *	-	0.025	-	-
Open Space / Base Layer	0.025	0.060	0.05	0.030
Concrete Culverts*	-	0.018	-	-
Water Bodies *	-	0.030	-	-

* Depth varying hydraulic roughness not applied

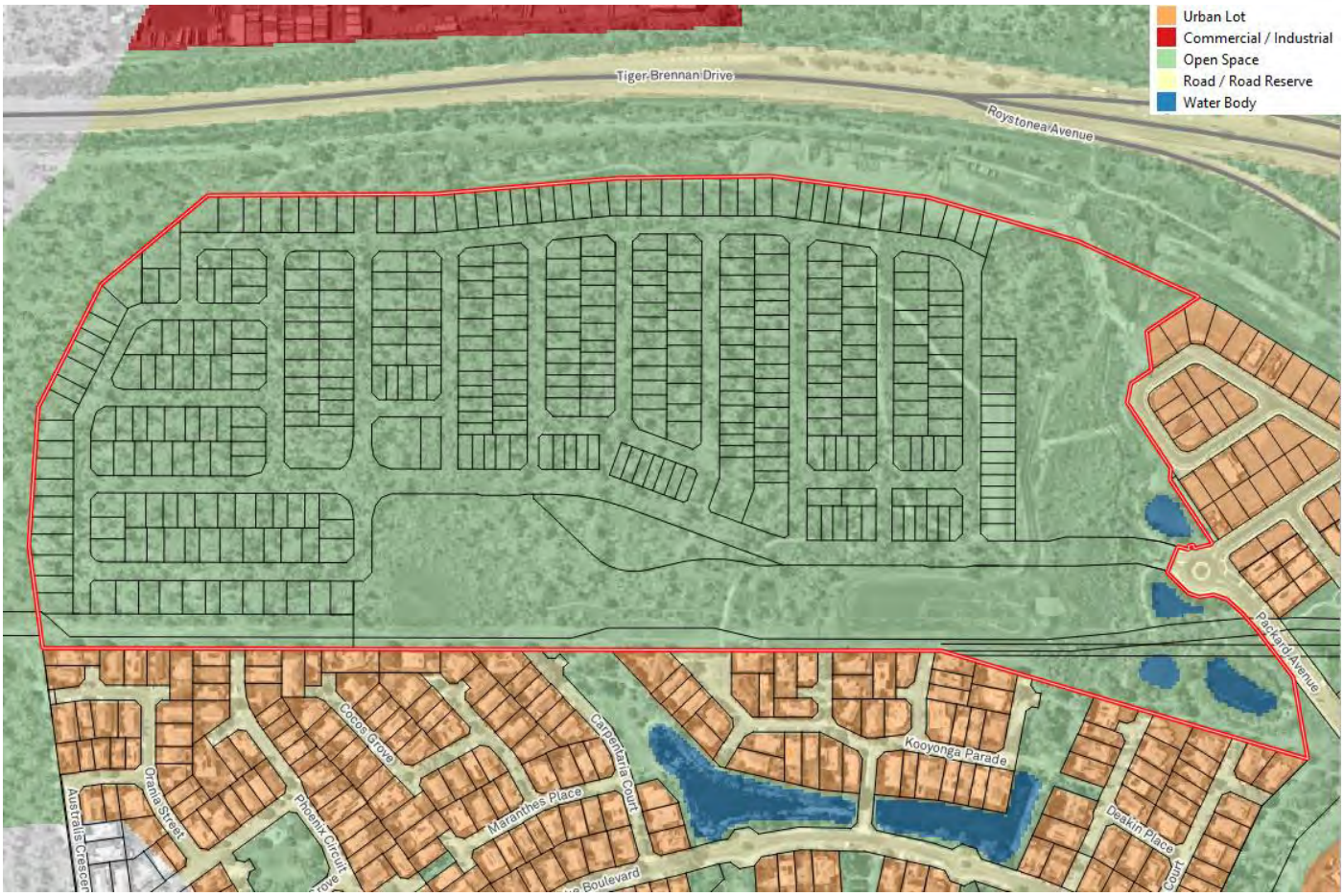

Figure 3-4 | Existing Hydraulic Roughness / Land Use

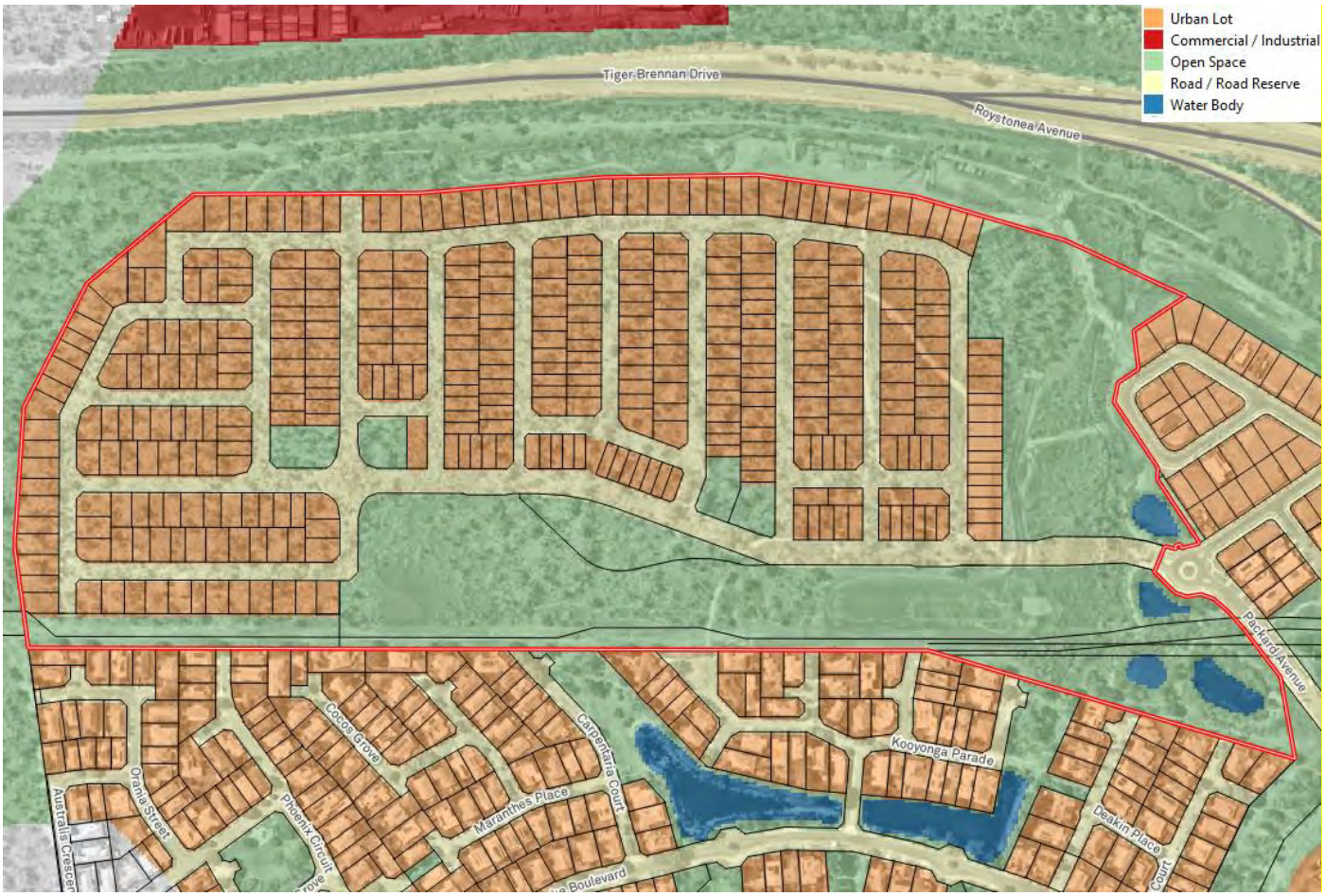

Figure 3-5 | Proposed Hydraulic Roughness / Land Use

3.2.4 Boundary Conditions

Inflows were generated as detailed in Section 3.1 and were applied to the entire model domain (incorporating the entire upstream catchment) using RoG within the hydraulic model.

The downstream tailwater boundaries were modelled normal depth level-flow (HQ) boundary conditions with an assumed flood slope of 0.005 m/m. The downstream boundaries are located sufficiently downstream as to not influence predicted flood levels at the subject site.

3.2.4.1 Critical Duration Assessment

In order to determine the critical duration relevant to the site, the hydraulic model was initially simulated on a coarser 5 m computational grid (with 1 m SGS) for all design storms from 63% to 1% AEP (including SSP3 and SSP5 climate change scenarios) for storm durations between 10 minutes and 6 hours for all temporal patterns.

Table 3-3 summarises the critical storm durations relevant to the site. It is noted that the critical duration varies spatially within the catchment, as such multiple critical durations were determined for each design storm.

Table 3-3 | Critical Duration Assessment

AEP (%)	Duration (min)
63, 50, 20	15, 25, 60
10, 5	15, 20, 45, 60

2, 1, 1 CC1, 1 CC2	15, 30, 45

It was determined that multiple critical durations were relevant to the site and varied between the 15, 20, 30, 45 and 60 minute storm durations across all design AEP, as such, these critical storm durations were simulated for all AEP's for all temporal patterns with median results extracted from the temporal patterns of each duration for each AEP and peak level extracted from the median of all durations, in accordance with best practice.

3.2.5 Hydraulic Structures

3.2.5.1 Existing Hydraulic Structures

Detailed as-constructed survey of the existing Stage 10 and 11 areas to the east of the site were obtained from Earl James & Associates. This information included the underground pit and pipe network and Side Entry Pits (SEP) inlet structures within the now existing development to the east.

Culvert information under Tiger Brennan Drive (to the north of the site) were provided by Earl James & Associates, as shown in Figure 3-6

Figure 3-6 | Existing Hydraulic Strictures – Tiger Brennan Drive

Detailed ground feature survey / as-constructed survey of the existing lakes / ponds immediately downstream of Stage 10 and 11 was provided by Earl James & Associates, as shown in Figure 3-7.

Figure 3-7 | Existing Hydraulic Structures – Ponds

Where no survey information was available, hydraulic structure information was obtained from the City of Palmerston open data portal. This data set was limited to the location and conduit opening, with no invert level information. This applied to all hydraulic structure to the south of the subject site, as such only the culverts under Woodlake Boulevard were explicitly modelled.

The stormwater pipe network immediately downstream of the subject site was instead modelled as a “virtual pipe” network. The “virtual pipe” network was based on the information contained within City of Palmerston open data portal, with the size of the inlet (i.e. the number of SEP’s) based on Google Earth’s Street View. All virtual pipe inlets were modelled using the time Shift lag method of 5 minutes. Figure 3-8 illustrates the existing virtual pipe network.

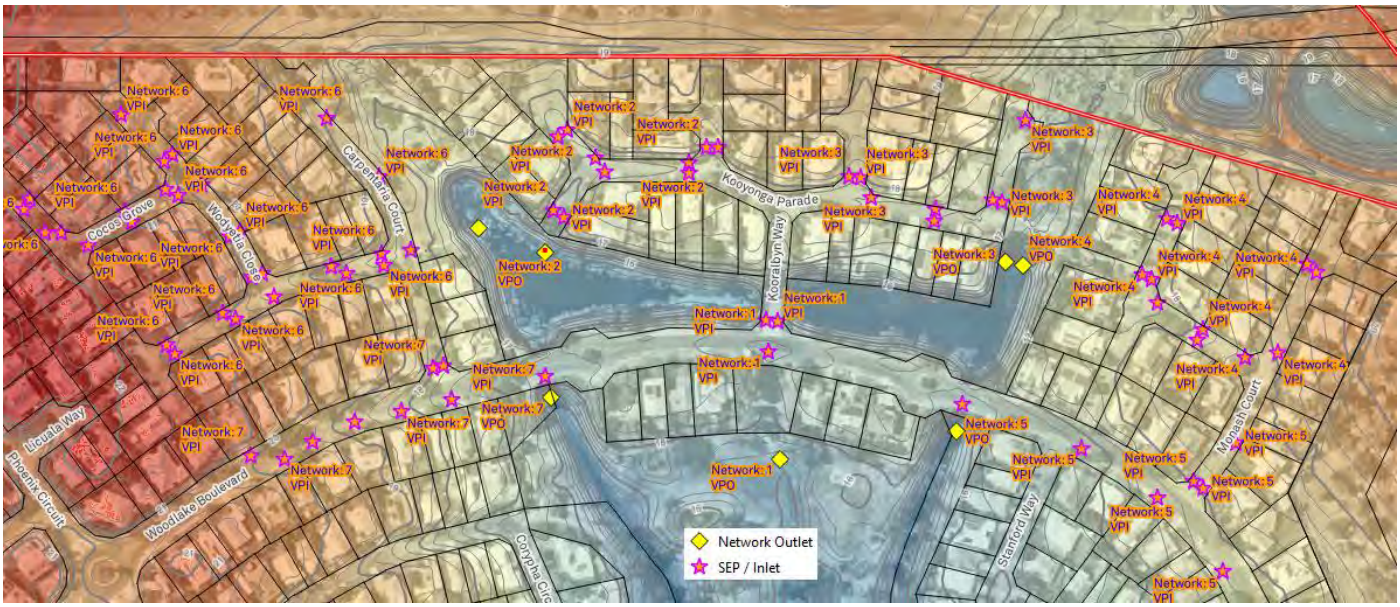

Figure 3-8 | Existing Hydraulic Strictures – Virtual Pipe Network

** Refer to Appendix A Figure A.0.1 and A.0.2 for a more detailed illustration of the existing pit and pipe network and virtual pipe network.

No conduit blockage was considered in any of the existing stormwater pipe network within the hydraulic model, this is explained further below.

3.2.5.2 Proposed Hydraulic Structures

Several culverts are proposed as part of the development, one under the road linking the subject site to the existing Stage 9 and 10 developments to the east, as show in Figure 3-9.

The proposed development includes ephemeral wetlands and stormwater detention basins along the southern boundary, each basin has a culvert outlet, as show in Figure 3-9.

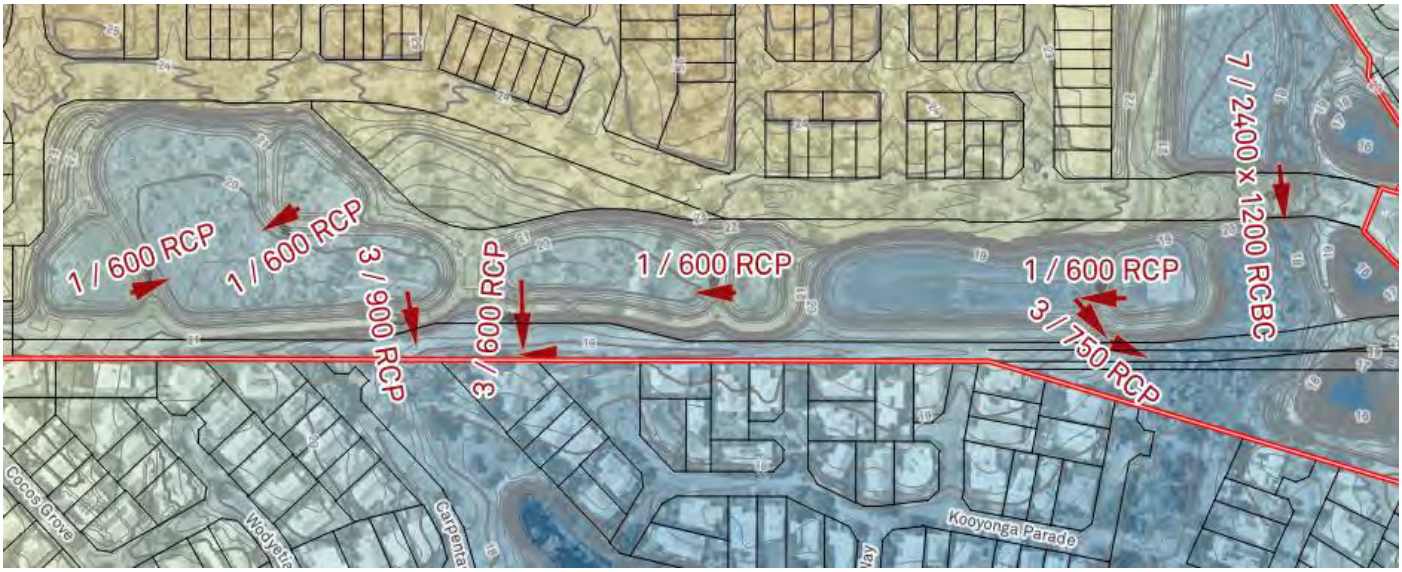

Figure 3-9 | Proposed Hydraulic Strictures – Proposed Culverts

It is noted that the proposed development will include an internal stormwater pipe network, however, at this stage of the DA this pipe network has not been designed. Instead, the internal stormwater pipe network was modelled within the hydraulic model as “Virtual Pipes” as shown on Figure 3-10.

Figure 3-10 | Proposed Hydraulic Strictures – Virtual Pipe Network

** Refer to Appendix B Figure B.0.1 and B.0.2 for a more detailed illustration of the proposed pit and pipe network and virtual pipe network.

No conduit blockage was considered in any of the proposed stormwater pipe network within the hydraulic model. It is noted that the NTG SDG requires that all Side Entry Pits situated within road sags to be modelled as 100% blockage. For this Part 1 assessment it was not considered necessary as applying blockages factors within the proposed development may overestimate the attenuation of stormwater within the proposed development.

Blockage factors will be considered in subsequent reporting in accordance with the NTG SDG to ensure that lots have sufficient freeboard.

3.3 Discussion of Results

Flood maps for the existing and proposed scenarios are included in Appendices A and B respectively and include all design events from 63% AEP to 1% AEP (including Climate Change). The flood maps illustrate the peak flood depths, velocities and flood hazard (AIDR, 2017) along with flood level and velocity difference maps.

The results of the FIA generally show no significant change to flood levels, depths or velocities external to the site. There are some minor localised areas where increases in water levels are predicted, however, it is anticipated that minor reshaping and earthworks will remove these increases and that these can be resolved as the design progresses. Notwithstanding this, these localised increases are not expected to materially affect the current use of the land or cause actionable nuisance.

From review of the pre-vs post flow depth assessment, there are some very minor increases that will be assessed in detail. Our opinion is that minor reshaping and earthworks will remove these increases in subsequent runs of the model.

Mean peak discharge from the site's eastern (Discharge Point 1) and western (Discharge Point 2) Lawful Points of Discharge (to the railway corridor) are detailed in Table 3-4 and Table 3-5. Discharge reporting lines and points are illustrated on Figure 3-11.

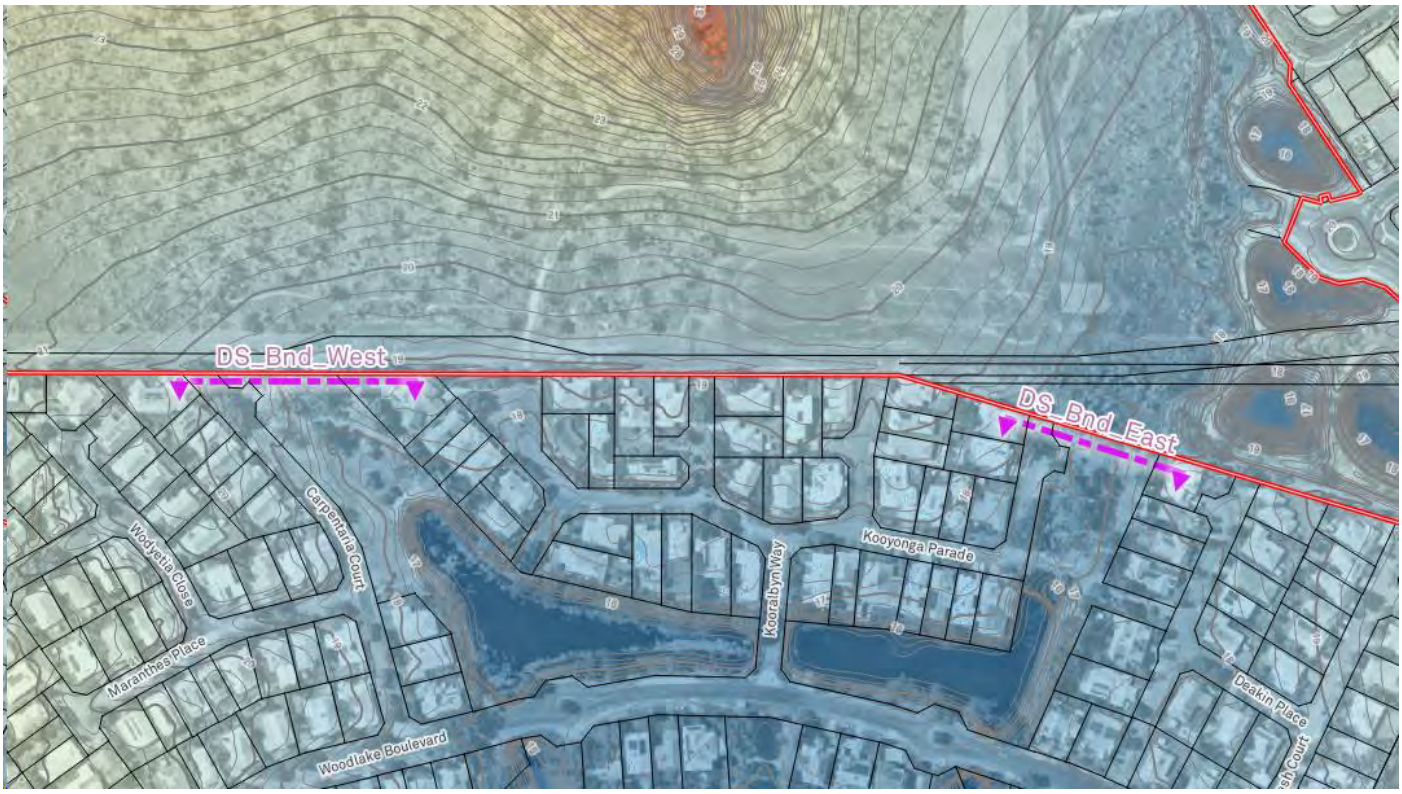

Figure 3-11 | Discharge Reporting Line

Table 3-4 | Mean Peak Discharge – Discharge Point 1: Eastern LPD (Reporting Line DS_Bnd_East)

AEP (%)	Existing Discharge (m^3/s)	Proposed Discharge (m^3/s)	Difference (m^3/s)
63	9.6	8.9	-0.7
50	10.8	10.0	-0.8
20	13.9	12.9	-1.0
10	15.0	14.0	-1.0
5	16.5	15.4	-1.1
2	18.4	16.6	-1.8
1	19.7	17.7	-2.0
1 CC1	31.6	30.0	-1.6
1 CC2	40.1	35.9	-4.2

Table 3-5 | Mean Peak Discharge – Discharge Point 2: Western LPD (Reporting Line DS_Bnd_West)

AEP (%)	Existing Discharge (m^3/s)	Proposed Discharge (m^3/s)	Difference (m^3/s)
63	5.0	3.1	-1.9
50	5.5	3.4	-2.1
20	7.0	4.4	-2.6
10	8.1	5.0	-3.1
5	9.2	5.5	-3.7
2	10.1	5.8	-4.3
1	10.9	6.1	-4.8
1 CC1	16.0	9.5	-6.5
1 CC2	18.1	11.2	-6.9

3.3.1 Detention Basins / Ephemeral Wetlands

Three detention basins / ephemeral wetlands are proposed to mitigate the increase in peak run-off associated with the proposed development. Each detention basins / ephemeral wetlands are pre-treated by a sediment forebay, as shown in Fig Figure 3-12 below:

Figure 3-12 | Detention basins / ephemeral wetlands and sediment forebay locations

Table 3-6 details the sediment forebay and ephemeral wetland pipe outlet configuration.

Table 3-6 | Basin Pipe Configuration

Basin Outlet ID	Conduit Type	Upstream IL (mAHD)	Downstream IL (mAHD)

Forebay A	1 / 600 RCP	18.45	13.35
Wetland A	3 / 750 RCP	18.1	17.8
Forebay B	1 / 600 RCP	20.05	19.97
Wetland B	3 / 600 RCP	19.7	19.2
Forebay C1	1 / 600 RCP	20.07	19.9
Forebay C2	1 / 600 RCP	20.05	19.9
Wetland C	3 / 900 RCP	19.65	19.35

Table 3-7 and Table 3-8 details the peak water surface level in the ephemeral wetland and sediment forebays respectively.

Table 3-7 | Median Peak Flood Level (mAHD) – Wetland (Basins)

AEP (%)	Wetland A	Wetland B	Wetland C
63	18.577	20.209	20.438
50	18.623	20.250	20.502
20	18.739	20.384	20.669
10	18.801	20.433	20.780
5	18.852	20.472	20.877
2	18.869	20.530	20.932
1	18.929	20.581	21.001
1 CC1	19.214	20.939	21.292
1 CC2	19.335	21.080	21.395

Table 3-8 | Median Peak Flood Level (mAHD) – Wetland Sediment Forebays

AEP (%)	Forebay A	Forebay B	Forebay C1	Forebay C1
63	19.466	21.086	20.987	21.102
50	19.478	21.100	20.999	21.114
20	19.515	21.134	21.019	21.123
10	19.532	21.152	21.025	21.131
5	19.550	21.170	21.032	21.138

2	19.568	21.185	21.050	21.146
1	19.580	21.196	21.057	21.152
1 CC1	19.643	21.255	21.292	21.296
1 CC2	19.648	21.260	21.397	21.399

4. Stormwater Quality Management

We have ensured that all stormwater generated by the development—including rainwater and any associated runoff carrying potential pollutants such as sediment, oil, chemicals, nutrients, heavy metals, and general waste—is managed in a manner that prevents contamination of public drainage systems and surrounding waterways. Our approach prioritises the protection of water quality and minimises the risk of sedimentation within stormwater infrastructure.

We have designed the stormwater systems for this project in strict accordance with all relevant requirements as outlined in the Northern Territory Subdivision Development Guidelines and other applicable standards. This ensures that both current and future stormwater management needs are addressed, providing long-term resilience and compliance.

In fulfilling our role, we have implemented robust sediment and pollution control measures throughout the subdivision development process. These measures not only safeguard the environment and public infrastructure but also ensure that the developer remains compliant with regulatory obligations, thereby mitigating any risk of prosecution or liability for damages resulting from improper stormwater management.

4.1 Stormwater Quality Management Strategy

4.1.1 Water Quality Objectives

As per the requirements of the Northern Territory Government's Subdivision Development Guidelines and to be consistent with best practices with respect to water quality, the MUSIC modelling package has been used for the water quality objective analysis. The information within this report addresses stormwater quality performance and compliance with the Northern Territory Government's Subdivision Development Guidelines.

The treatment train performance will also be assessed against requirements nominated within Table 27 of the Northern Territory Government's Subdivision Development Guidelines. These guidelines nominate the following pollutant reduction targets:

- 90% reduction in Gross Pollutants
- 75% reduction in Total Suspended Solids (TSS)
- 60% reduction in Total Phosphorus
- 35% reduction in Total Nitrogen

4.1.2 Modelling Parameters

MUSIC, version 6.3.0, has been used to model the stormwater quality performance for this project. In accordance with the NT Government's subdivision development guidelines, the Darwin Airport (Station ID: 014015) Rainfall Gauge has been adopted for the generation of rainfall patterns. The rainfall data for the period 1/1/1987 to 31/12/1996 has been selected for use within the model and a six-minute time step adopted. Potential Evapotranspiration in accordance with the Water Sensitive Urban Design Stormwater Quality Modelling Guide (Final) was adopted for this project is detailed in Table 4-1 below:

Table 4-1 | Potential Evapotranspiration (PET) for the Darwin Region

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
PET (mm)	200	160	217	180	158	130	137	155	176	213	202	214

As per the MUSIC Modelling Guidelines, the split catchment method will be adopted to ensure accurate model conditions. The parameters used for the runoff generation can be seen below in Table 4-2.

Table 4-2 | MUSIC Runoff Generation Parameters

Parameter	Residential
Rainfall Threshold (mm)	1
Soil Capacity (mm)	300
Initial Storage (%)	30
Field Capacity (mm)	250
Infiltration Capacity Coefficient a	200
Infiltration Capacity Exponent b	1
Initial Depth (mm)	10
Daily Recharge Rate (%)	25
Daily Baseflow Rate (%)	5
Daily Deep Seepage Rate (%)	0

To best represent expected conditions of the proposed development the surface type split and surface type imperviousness to be used in the model has been based on 15 dwellings per hectare for all urban residential nodes. The parameters used to determine split catchment areas, fractions of imperviousness and pollutant parameters are detailed in Table 4-3 and Table 4-4.

Table 4-3 | Surface Type Split

Development Type	Breakdown of Surface Types (%)		
	Road Reserve	Roof	Ground Level
Residential (15 dwellings / ha)	25	32.5	42.5

Table 4-4 | Catchment Impervious Area Fraction

Development Type	Surface Type Impervious Fraction (%)		
	Road Reserve	Roof	Ground Level
Residential (15 dwellings / ha)	60	100	20

The residential land use nodes have been selected from the MUSIC Modelling Guidelines for use within the MUSIC model. The pollutant export parameters used for the urban residential nodes within the model are detailed in Table 4-5 and Table 4-6.

Table 4-5 | Pollutant Export Parameters (Log_{10} mg/L) for Residential Nodes – Base Flow

Split Land Use Type	TSS Mean	TSS St. Dev,	TP Mean	TP St. Dev,	TN Mean	TN St. Dev,
Roof	1.10	0.17	-0.82	0.19	0.32	0.12
Road	1.10	0.17	-0.82	0.19	0.32	0.12
Ground	1.10	0.17	-0.82	0.19	0.32	0.12

Table 4-6 | Pollutant Export Parameters (Log_{10} mg/L) for Residential Nodes – Storm Event

Split Land Use Type	TSS Mean	TSS St. Dev,	TP Mean	TP St. Dev,	TN Mean	TN St. Dev,
Roof	1.55	0.39	-0.92	0.29	0.42	0.19
Road	2.38	0.40	-0.60	0.50	0.42	0.19
Ground	2.20	0.32	-0.45	0.25	0.42	0.19

4.1.3 Catchment Parameters

For the purpose of this assessment, the proposed site has been split into three catchments, as detailed below and shown in Figure 4-1.

- Catchment A – The catchment that drains to the eastern most sediment forebay and wetland, and generally consists of Stages 12 & 13.
- Catchment B – The catchment that drains to the central sediment forebay and wetland, and generally consists of Stages 13-15.
- Catchment C – The catchment that drains to the western most sediment forebay and wetland, and generally consists of Stages 16-19. It is noted that the western wetland has two sediment forebays with different catchments, however for the purposed of this pollutant export analysis these catchments have been combined.

Figure 4-1 | MUSIC Catchments and Treatment Train

Table 4-7 | Adopted MUSIC Catchment Parameters

Catchment	Total Area (ha)	Road Area (ha)	Roof Area (ha)	Ground Area (Ha)
Cat A	5.443	1.361	1.769	2.313
Cat B	4.483	1.121	1.457	1.905
Cat C	17.031	4.258	5.535	7.238

The MUSIC schematisation is shown in Figure 4 2 below.

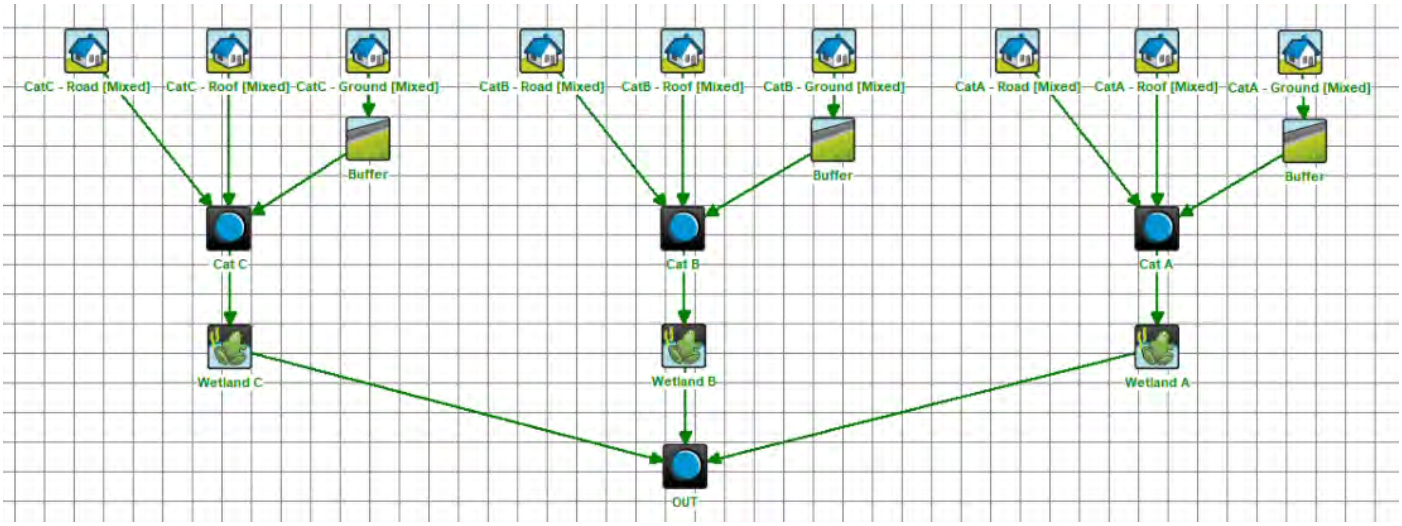

Figure 4-2 | MUSIC Model Schematisation

4.1.4 Treatment Train

The split catchment approach has been adopted for this assessment as it is the industry best practice for allocation of pollutant parameters associated with road, roof and ground nodes. The standard approach for the management of stormwater generated within allotments is to provide a piped connection for roof water and grade the lots such that water which falls on the ground is directed to the street.

4.1.4.1 Vegetated Buffer

The ground component of each catchment is expected to be grassed and vegetated, as such it is suitable to assume that some buffering will occur within the ground node, as detailed in Table 4-8 below. No buffering has been applied to either the Road or the Roof nodes.

Table 4-8 | Buffer node Input Parameters (Ground only)

Parameter	Adopted Value
Percentage of Upstream Area Buffered (%)	80%
Buffer Area (% of upstream Impervious Area)	20%
Exfiltration Rate (mm/hr)	0

4.1.4.2 Ephemeral Wetlands

The ephemeral wetlands that make up the majority of the South edge of the site are intended to store and treat runoff from the rest of the development. Made up of a series of retention basins, sediment ponds and treatment forebays that allow the capture of sediment and gross pollutants. Each wetland will be grassed and vegetated, acting both as detention in the case of storms, and treatment at all times. The ephemeral nature of this system does mean that outside of storm events, there will be no permanent pool volume or standing water.

Table 4-9 details the assumed Wetland parameters common to all treatment nodes, with Table 4-10 detailing the wetland parameters specific to each wetland.

Table 4-9 | Wetland node Common Input Parameters

Parameter	Adopted Value
Extended Detention Depth (m)	0.5
Permanent Pool Volume (m³)	0
Initial Volume (m³)	0
Exfiltration Rate (mm/hr)	0
Evaporative Loss as % of PET	125
Overflow Weir Width (m)	10

Table 4-10 | Wetland node Input Parameters Specific to each node

Parameter	Wetland A	Wetland B	Wetland C
Inlet Pond Volume (m³)*	1,369	1,017	3,114

Surface Area (m²)	3,620	3,280	10,700
Equivalent Pipe Diameter (mm)**	1,300	1,040	1,560

* Inlet Pond is the terminology in MUSIC for the Sediment Forebay – this volume is assumed but should be conservative
** This is the cross-sectional area of the assumed wetland/detention basin outlet configuration (pipes) converted to a pipe diameter for MUSIC.

4.1.4.3 Untreated Areas

Some untreated areas were excluded from the MUSIC model, including:

- Ground areas surrounding the wetland / basins. These areas will predominately be grassed and vegetated and assumed to be self-treating.
- External catchments have been excluded from model such that the treatment train is only sized to offset the proposed development. However. It is noted that the external catchment is a relatively small area along the site's northern boundary between the Tiger Brennan Road reserve and the site.

4.1.5 Results

Table 4-11 below presents the MUSIC results indicating compliance with applicable WQOs.

Table 4-11 | MUSIC Results

Parameter	Source	Residual Load	% Reduction	WQO
Flow (ML/year)	307	292	4.7	-
Total Suspended Solids (kg/year)	48,000	7,180	85.1	75
Total Phosphorus (kg/year)	88.2	32.6	63.1	60
Total Nitrogen (kg/year)	872	565	35.2	35
Gross Pollutants (kg/year)	6,140	0	100	90

The results in Table 4-11 indicate that the proposed development meets the pollutant reduction targets nominated by the Northern Territory Government Subdivision Development Guidelines.

5. Response to Northern Territory Subdivision Development Guidelines

7.1.1 Part 1 Stormwater Management Plans must:

(i) include a catchment plan, clearly illustrating the existing and proposed management of stormwater flows entering and/or leaving the Development Site;

Shown and detailed above through sections 1, 3 and 4.

(ii) for staged developments, provide an overall drainage plan for the whole of the proposed Subdivision, and provide for ongoing stormwater management throughout the staged development construction phase. Typically, a connection to the trunk drainage system must be constructed in the first stage, regardless of where the actual development works commence; however, the Developer may propose alternative stormwater management methods for approval by the Relevant Authority.

Treatment is to occur on-site. Treated stormwater will then be routed to the existing legal points of discharge. Care has been taken as detailed in section 3 above to ensure no worsening of stormwater flows during peak flow conditions.

(iii) expressly consider the findings and recommendations of any existing plans or reports that may affect or be affected by stormwater management on the Development Site.

A key element of Empower's intent with the stormwater management of this development site is to ensure no worsening of any conditions up or downstream of the development. As such, it is our belief that the development causes no effect on any external catchments. Any information pertaining to the site itself is referred to in this report.

(iv) Part 1 Stormwater Management Plans must also identify the following as a minimum:

(A) primary and secondary storm surge levels and extents;

(B) riverine / catchment flood levels and extents;

(C) assumed sea level rise;

(D) locations of stormwater discharges;

(E) any impacts of the Subdivision on the catchment-wide drainage system, including connection points and modifications required to upstream and downstream drainage infrastructure, as applicable;

(F) stormwater management options that may mitigate any adverse impacts on existing drainage infrastructure resulting from the proposed Subdivision; and

(G) stormwater quality requirements, including sizing and positioning of stormwater quality treatment devices.

(A) The site is situated above 17.0 mAHD, and as such is not subject to storm surge.
(B) Local catchment flood extents are illustrated in Appendix A and B for the existing and proposed scenarios respectively.
(C) The site is situated above 17.0 mAHD, and as such is not subject to sea level rise.
(D) The site's lawful points of discharge are illustrated on Figure 3-11
(E) Appendix B includes flood difference maps and flood velocity maps, identifying that the development of the site generally results in a reduction in peak discharge and peak water levels external to the site. There are some minor localised areas where increases in water levels are predicted, however, these areas can be assessed in detail at a later stage. It is anticipated that minor reshaping and earthworks will remove these increases.
(F) The proposed development includes several detention basins and an ephemeral wetland.
(G) Stormwater treatment devices are discussed in Section 4 of this report.

6. Conclusions and Recommendations

6.1 Executive Summary

This report demonstrates compliance of the proposed development with the Northern Territory Government's Subdivision Development Guidelines (SDG).

Stormwater Attenuation

The Flood Impact Assessment (FIA) for The Heights development stages 12-19 has been prepared with the intention to demonstrate non-worsening of pre-development peak flows and compliance with the SDG. The recommendations within this report are considered to be best practices for a development of this type.

The implementation of ephemeral wetlands and stormwater detention basins as detailed within this report is predicted to ensure non-worsening of pre-development peak flow conditions.

The results of the FIA generally show no significant change to flood levels, depths or velocities external to the site.

From review of the pre-vs post flow depth assessment, there are some very minor localised areas where increases in water levels are predicted, however, it is anticipated that minor reshaping and earthworks will remove these increases and that these can be resolved as the design progresses. Notwithstanding this, these localised increases are not expected to materially affect the current use of the land or cause actionable nuisance.

Stormwater Quality Treatment

We have proposed robust sediment and pollution control measures to be implemented throughout the subdivision development process. These measures not only safeguard the environment and public infrastructure but also ensure that the developer remains compliant with regulatory obligations.

This report demonstrates compliance with the SDG.

Appendix A - Hydraulic Model Results - Existing

Appendix B - Hydraulic Model Results - Proposed

Appendix C - Staging Plan


EMPOWER

URBEX

THE HEIGHTS, DURACK
NT PLANNING SCHEME AMENDMENT

TRAFFIC IMPACT ASSESSMENT

March 2026

22-0247

Traffic • Parking • Transport

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DOCUMENT ISSUE

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CONTENTS

EXECUTIVE SUMMARY

MFY was engaged by Urbex to undertake a traffic impact assessment to inform traffic requirements associated with development of vacant land at the northern end of The Heights, Durack. The subject land is part of a larger site that was originally rezoned in 2013 and more recently in 2025 for the creation of The Heights development. 11 Stages of the development have been completed, with the most recent stage delivered (Stage 11) in 2025.

The updated concept plan for Stages 12-19 identifies a potential for approximately 382 residential allotments including nine allotments for multi-dwelling development.

This report details the traffic analysis completed as part of the investigations. The study has been based on 480 residential dwellings to provide flexibility in design.

The development will be serviced by the extension of Packard Avenue and therefore, traffic will distribute to and from the site via the Roystonea Avenue/Yarrawonga Road/Packard Avenue signalised intersection, albeit there could be a small demand for vehicles to exit the development via Nichols Street. Accordingly, the assessment, has included an intersection analysis of the Packard Avenue/Roystonea Avenue/Yarrawonga Road signalised intersection and a review of the status and functionality of Packard Avenue.

The analysis of the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection has been completed for a 20-year design horizon with annual growth rate of 1.5%. In addition, a sensitivity analysis with a higher annual growth of 3.0% as determined by the Department of Logistics and Infrastructure (DLI) has been completed.

The analysis identified the development will not warrant any additional treatment at the signal over and above that required to accommodate the growth in traffic volume on Roystonea Avenue.

This report has been prepared in accordance with the Austroads "Guide to traffic management – Part 12: Traffic Impacts of Developments". Specifically, it has been based on the Traffic Impact Assessment report structure outlined in Appendix C of the Austroads Guide.

1.0 EXISTING AREA CONDITIONS

1.1 STUDY AREA

1.1.1 AREA OF INFLUENCE

The study area is illustrated in Figure 1 and includes the subject site (Land Parcels 12954 & 16214), and the adjacent road network.

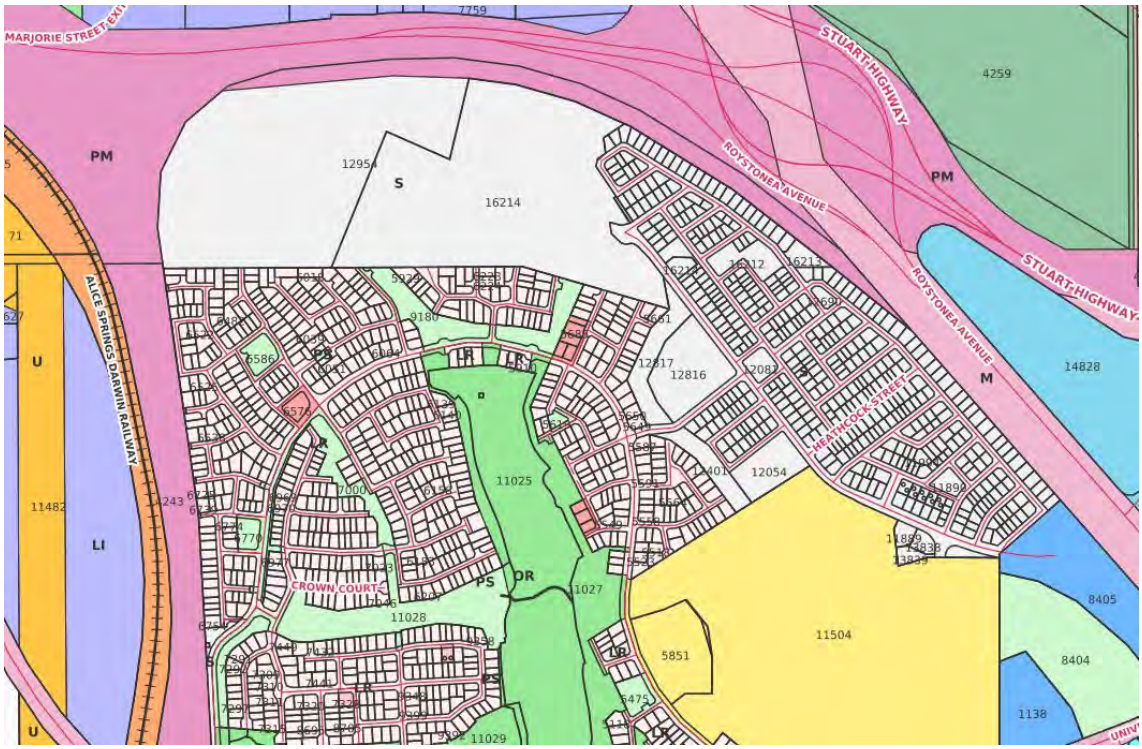


Figure 1: Study area locality and zoning (Source: NTPS)

1.1.2 AREA OF SIGNIFICANT TRANSPORTATION IMPACT

Traffic generated within the study area will use connections to Packard Avenue to distribute to/from the broader road network, primarily via the intersection of Packard Avenue/Roystonea Avenue/Yarrawonga Road.

1.2 STUDY AREA LAND USE

1.2.1 EXISTING LAND USES

The subject land is currently undeveloped.

1.2.2 EXISTING ZONING

The subject land is located within a "Specific Use" zone of the Northern Territory Planning Scheme SP2 (NTPS 2020).

1.2.3 ANTICIPATED FUTURE DEVELOPMENT

While there is no future development anticipated in the vicinity of the subject land, Stage 11 of The Heights land division was completed and titled in 2025. Stage 11 is located to east of the subject site and consists of 42 residential dwellings.

1.3 SITE ACCESSIBILITY

1.3.1 AREA ROADWAY SYSTEM

Figure 2 identifies the road network adjacent to the subject land.

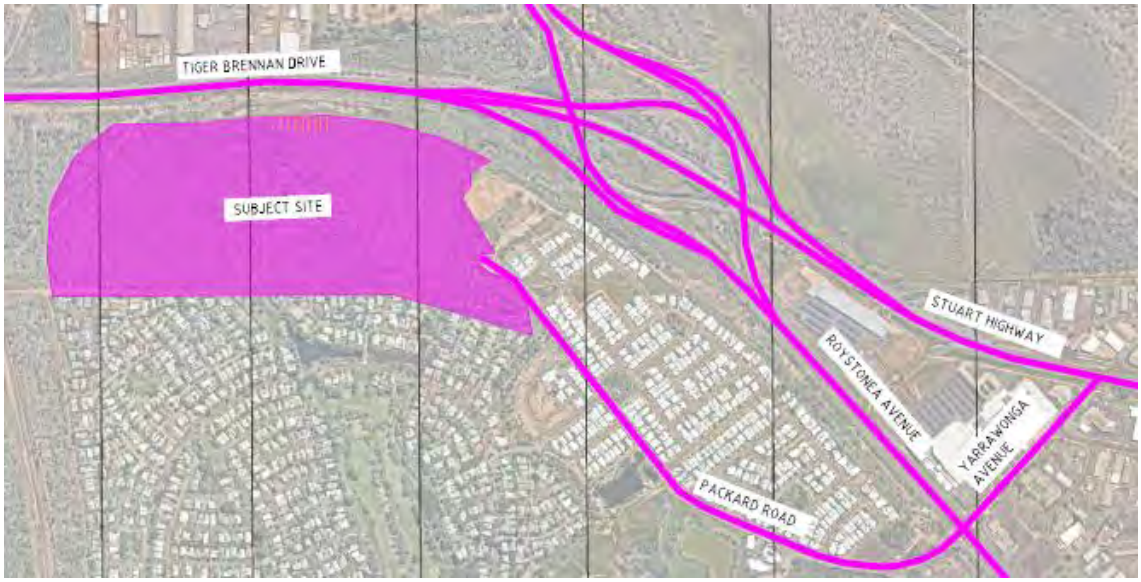


Figure 2: Area roadway system

Packard Avenue is a collector road within the care and control of the City of Palmerston. Packard Avenue provides access to The Heights. It has a 25.6 m road reserve which narrows to approximately 21 m north of Russell Street.

Nichols Street is a residential street which provides connection between Packard Avenue and Woodlake Boulevard which is a collector road servicing the rest of Durack. The Nichols Street/Woodlake Boulevard intersection is treated with a roundabout. Vehicles are only permitted to turn from Nichols Street to Woodlake Boulevard (that is there are no movements permitted from Woodlake Boulevard to Nichols Street). The Nichols Street/Packard Avenue intersection is treated with a give-way treatment on Nichols Street. All movements are permitted at this intersection.

Packard Avenue forms an intersection with Roystonea Avenue and Yarrawonga Avenue. This intersection is treated with a traffic signal. Roystonea Avenue is within the care and control of the DLI. It provides access to and from Stuart Highway and Tiger Brennan Drive which provide connectivity to the broader Darwin region, including the CBD, Casuarina, Berrimah and the Darwin International Airport.

1.3.2 TRAFFIC VOLUMES AND CONDITIONS

Traffic volumes on the adjacent road network have been identified using the following sources:

- traffic counts undertaken on Packard Avenue for the period Tuesday 2 May to Tuesday 9 May 2023;
- 2023 Annual Traffic Report prepared for the Northern Territory Government; and
- SCATS data provided by DLI for the Roystonea Avenue/Packard Avenue/Yarrawonga Avenue intersection.

Figure 3 identifies the existing daily traffic volumes on these roads based on the above data.

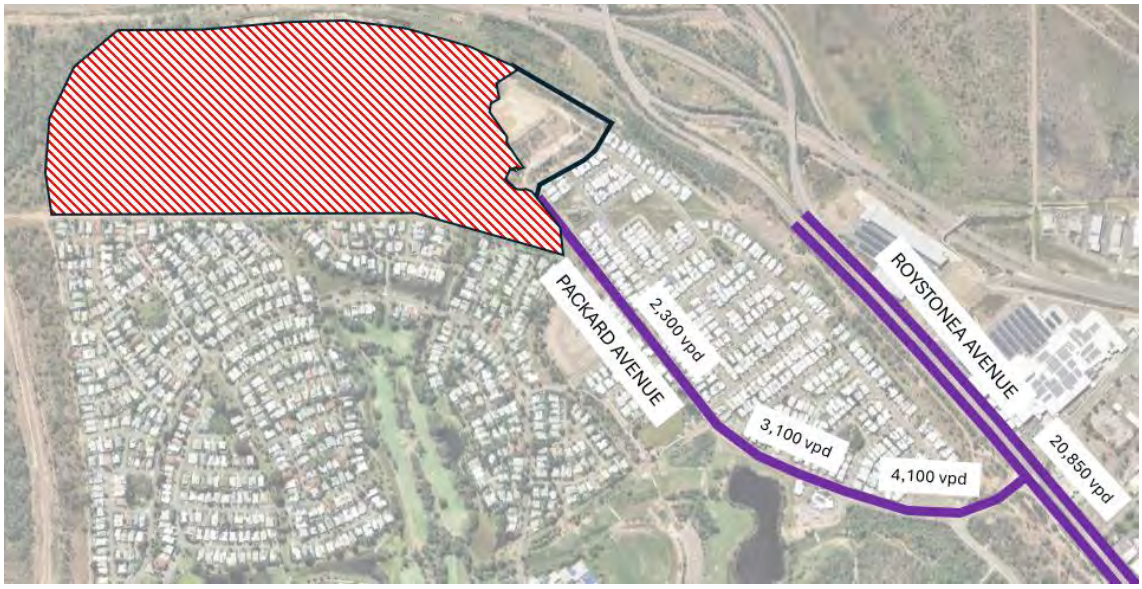


Figure 3: Existing daily traffic volumes

1.3.3 TRANSIT SERVICE

Durack is currently serviced by two bus transit services, namely Routes 73 and 87, which operate on Packard Avenue, Woodlake Boulevard and University Avenue and provide connections to additional transit services at the Palmerston Interchange.

1.3.4 PEDESTRIANS AND CYCLISTS

Footpaths are provided adjacent Packard Avenue, Nichols Street, Woodlake Boulevard, and University Avenue, providing safe routes for pedestrians and cyclists throughout the residential areas.

2.0 PROPOSAL

The current masterplan for the development identifies 382 allotments, including nine allotments for multiple dwelling development, and associated infrastructure. Access to the development will be provided via the extension of Packard Avenue.

It is intended for the development to be delivered in eight stages, albeit the ultimate yield and staging have the potential to change during detailed design and over the lifespan of the project.

Figure 4 identifies the concept for the subject land.

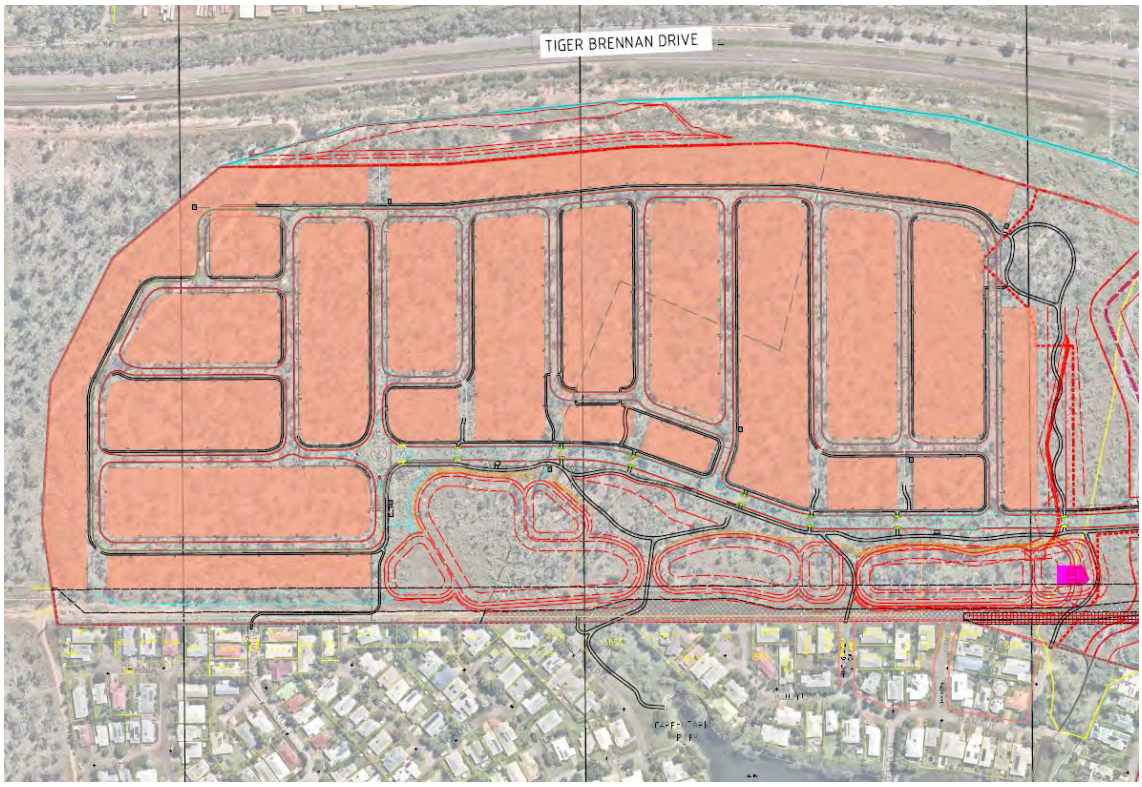


Figure 4: Concept plan for the subject land

Following all approvals, it is anticipated that 40 to 50 allotments will be released annually, with full development anticipated to be completed in approximately eight to ten years.

3.0 PROJECT TRAFFIC

While the development identifies a potential for 382 allotments, the analysis has considered a higher dwelling yield of approximately 480 dwellings, including multiple dwelling developments. This is to ensure that the traffic assessment has accounted for any increase on yield which could result from adjustments to the project during the detailed design phase.

3.1 TRAFFIC GENERATION

Traffic data recorded on Woodlake Boulevard, at all access points to Durack, identified an existing traffic generation of approximately 7.5 trips per dwelling per day. It is anticipated that the expanded development will generate traffic at a comparable rate.

By way of comparison, the RMS *Guide to Traffic Generating Developments* identifies a daily vehicle trip generation rate of nine trips per dwelling and a peak hour rate of 0.85 trips per dwellings.

DLI has stipulated that the higher generation rate should be adopted for the assessment. Should such a rate be realised, the subject site could generate in the order of 4,320 daily trips and approximately 410 peak hour trips.

3.2 TRAFFIC DISTRIBUTION

Traffic generated by the development will distribute towards employment, education, retail and recreation facilities. All trips will be external to the subject site and hence the following traffic distribution has been adopted for this assessment:

- 50% of the traffic will originate to/from the north;
- 10% of the traffic will originate to/from the east; and
- 40% of the traffic will originate to/from the south (including local trips to shops and schools).

While there would be a small demand for local trips to use Nichols Street (in one direction), for the purpose of this assessment, all of the forecast traffic has been allocated to the Packard Avenue/Roystonea Avenue/Yarrawonga Road.

3.3 MODAL SPLIT

The forecast volumes during the peak hours will consist primarily of light vehicle trips, with minimal heavy vehicle (HV) movements to/from the site. Traffic data on Roystonea Avenue identify a HV proportion of less than 1%. Accordingly, for the purpose of this assessment, a heavy vehicle proportion of 1% has been adopted on all approaches, albeit there will be very low heavy vehicle volumes anticipated on Packard Avenue.

4.0 PROJECT DESIGN

4.1 ROAD HIERARCHY

When developing residential land, consideration needs to be given to the provision of an orderly network that provides for safe and convenient access for residents. It is also necessary to establish a hierarchy of roads which satisfy best practice road safety requirements as well as appropriate design criteria for the road cross section, residential amenity standards and emergency access requirements.

Importantly, the potential impact on existing infrastructure also needs to be considered, with the impact of any additional volumes being assessed against the nature and function of the existing roads. While these roads were constructed in accordance with previous standards and it is therefore not appropriate to apply present day construction criteria, it is still essential to consider any change to the nature and function of the roads as they were constructed, and whether additional volumes would adversely impact residents or the functionality of the roads.

The proposed road network will be designed in accordance with the NTSDG and will include a secondary collector road (extension of Packard Avenue) and a series of minor streets and access streets. The determination of the street type is based, amongst other criteria, on the traffic volumes anticipated on each road and include the following:

- Secondary Collector Road: less than 5,000 vehicles per day;
- Access Street: less than 3,000 vehicles per day; and
- Minor Street: less than 150 vehicles per day.

Having regard to the forecast traffic, Figure 5 identifies the anticipated road hierarchy for the development.

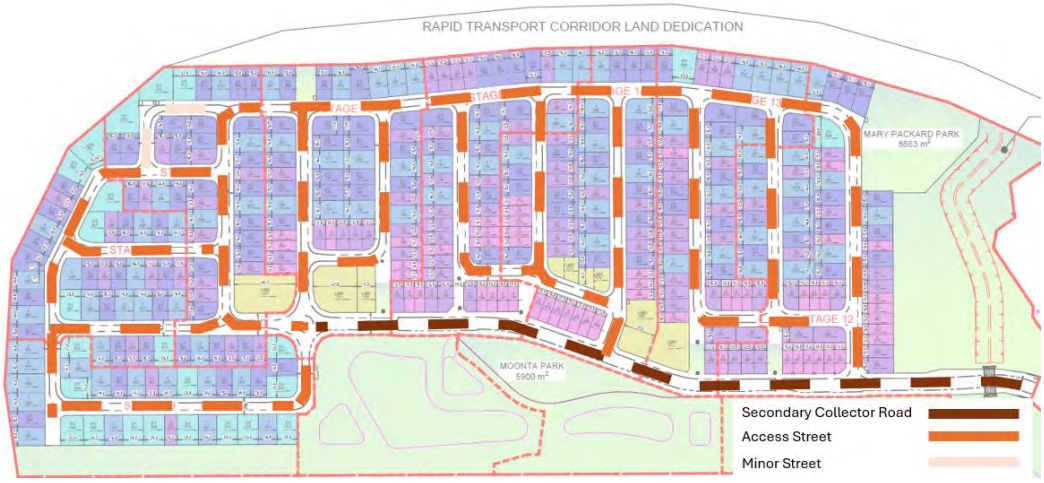


Figure 5: Anticipated road hierarchy for the development

The design of these roads will conform to the requirements in the NTSDG as it relates to road widths and carriageway requirements.

The road design will also have regard to the requirements outlined in the SU Zone which relate to ensuring that access for the site is maintained. Specifically, the following criteria is important when considering the design criteria for the extension of Packard Avenue as it relates to providing access for the development area.

> *Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency.*

Unlike the design criteria for constructing a road, the criteria for maintaining continuous access (ingress and egress) is not defined using dimensional specifications. The key to best managing continuous access is to ensure the design has considered the potential for an event and ensuring that the design mitigates any impact associated with that event. By way of example, the flood mitigation scenario is to design for a 1:100 year flood event to ensure that the access is not impacted by flood waters regularly.

The risk mitigation situation for a crash is therefore to design the Packard Avenue connection to minimise the potential for a crash such that the probability of a crash is very low (akin to a 1:100 flood event). Austroads Guide to Road Safety Part 2: Safe Roads considers the safe system approach to road design and identifies *that preventing an incident is the key factor in risk elimination*.

The key to designing the proposed road connection to minimise the risk of it being obstructed is to ensure the roadside environment provides the message to drivers that a low speed environment is appropriate on the bridge and therefore mitigate the risk of crashes which could cause a blockage of the road network. This could include design features such as a median to reduce speed and minimise any vehicle conflict, landscaping to reinforce the environment to drivers and tactile pavement to raise further awareness to drivers. By adopting design features which foster a low speed environment message to drivers the inherent risk of an incident which obstructed the access would be very low.

4.2 PEDESTRIANS/CYCLISTS

All roads will include footpaths which will provide pedestrian and cyclist connectivity within The Heights. There is also opportunity to provide additional pedestrian/cyclist connections direct to Woodlake Boulevard through the proposed reserves along the southern boundary. This will provide a direct route for residents to amenities such as shops, existing bus stops, schools and reserves, and will foster community interaction. Figure 6 identifies potential connections to existing footpaths.

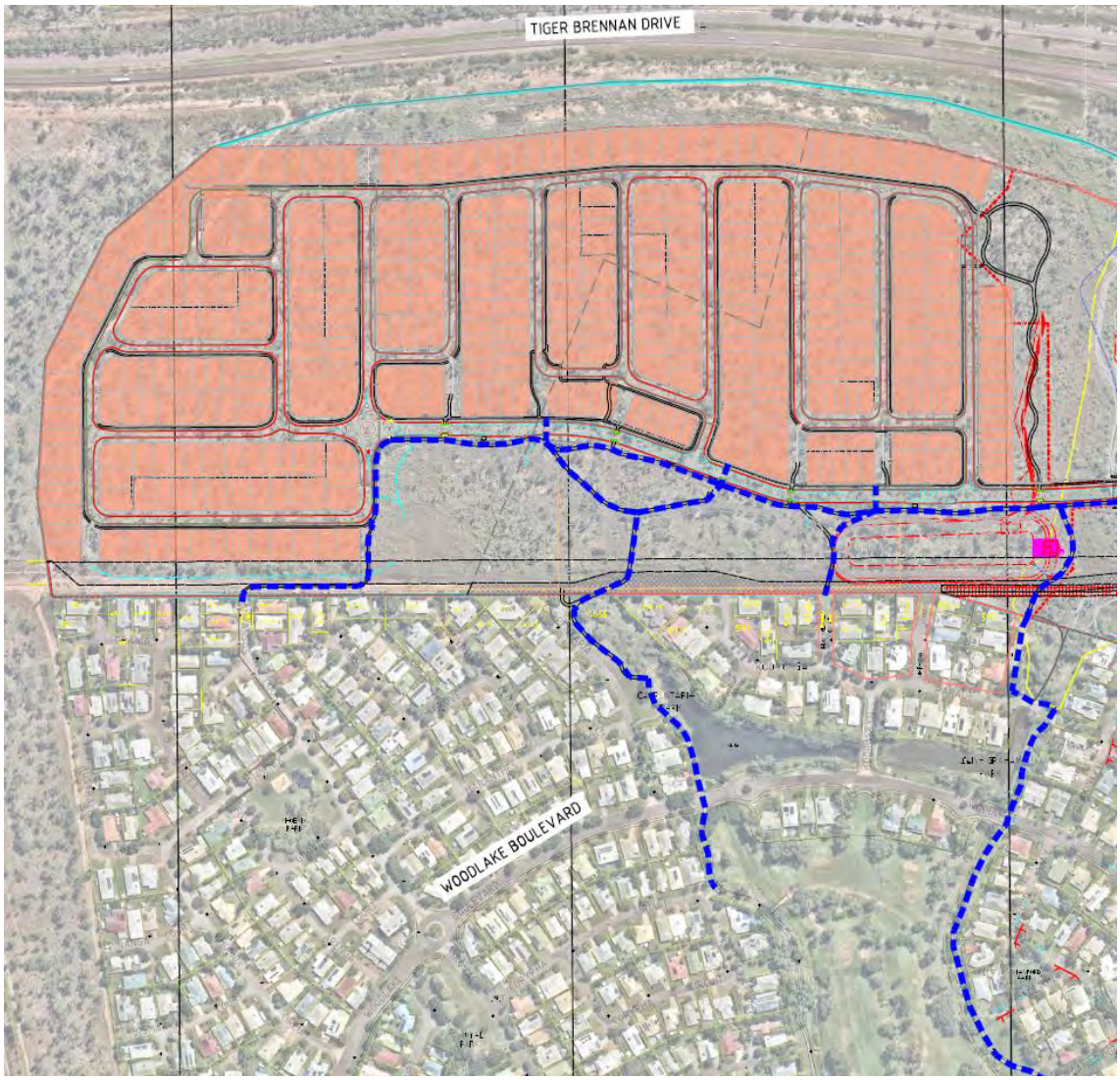


Figure 6: Potential pedestrian/cyclist connections

Treatments to facilitate safe pedestrian crossing movements will be implemented on the collector road at strategic locations. These traffic control devices, which could include protuberances or pedestrian refuges, will be designed in accordance with the Australian Standard, *Manual of uniform traffic control devices Part 10: Pedestrian control and protection (AS 1742.10–2025).* They will foster the pedestrian linkages and provide a safe environment for pedestrians and cyclists. Figure 7 identifies an example of protuberances and a pedestrian refuge on the collector road.

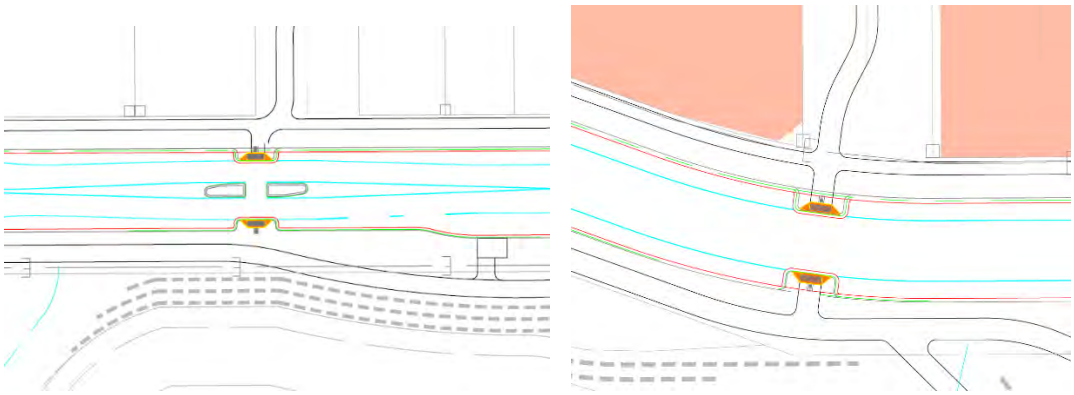


Figure 7: Concept design of protuberances at a pedestrian crossing point and a pedestrian refuge

4.3 ALTERNATE TRANSPORT MODES

The provision of the bus route and bus stops will be subject to approval by relevant authorities, but it is proposed that the road network provide for the existing bus route on Packard Avenue to be extended to service the land division. The road network will be designed to facilitate the movements of a bus. Bus stops could be located along the extension of Packard Avenue. Potential bus stop locations are identified within the Empower concept design, albeit there is flexibility with the location of these facilities.

4.4 ALTERNATIVE EMERGENCY SERVICES ACCESS

Packard Avenue between Heir Street and the eastern section of Plaisted Street will be designed and constructed to minimise the risk of a collision and hence will facilitate access for all vehicles.

Nonetheless, the ingress and egress of emergency vehicles has been given further consideration, given that drivers of such vehicles may choose the quickest route to access the site in an emergency and hence consideration has been given to an alternative access route for emergency services (such as the Northern Territory Fire and Rescue Service (NTFRS)) should the need arise). Given that Packard Avenue will provide access from the east, it may be an option to provide an alternative location for access from the west.

Borassus Court is the westernmost road that extends to the boundary of the site. A trafficable route (by way of a shared pathway) could be established to facilitate emergency access to the development site. Figure 8 identifies a potential connection between the development and Borassus Court for emergency vehicles.

As the development will be limited to one access route, which is via Packard Avenue, consideration has been given to an alternative access route for emergency services (such as the Northern Territory Fire and Rescue Service (NTFRS)). Given that Packard

Avenue will provide access from the east, it would be pertinent to provide an access from the west.

Borassus Court is the westernmost road that extends to the boundary of the site. A trafficable route could be established to facilitate emergency access to the development site. Figure 8 identifies a potential connection between the development and Borassus Court for emergency vehicles.

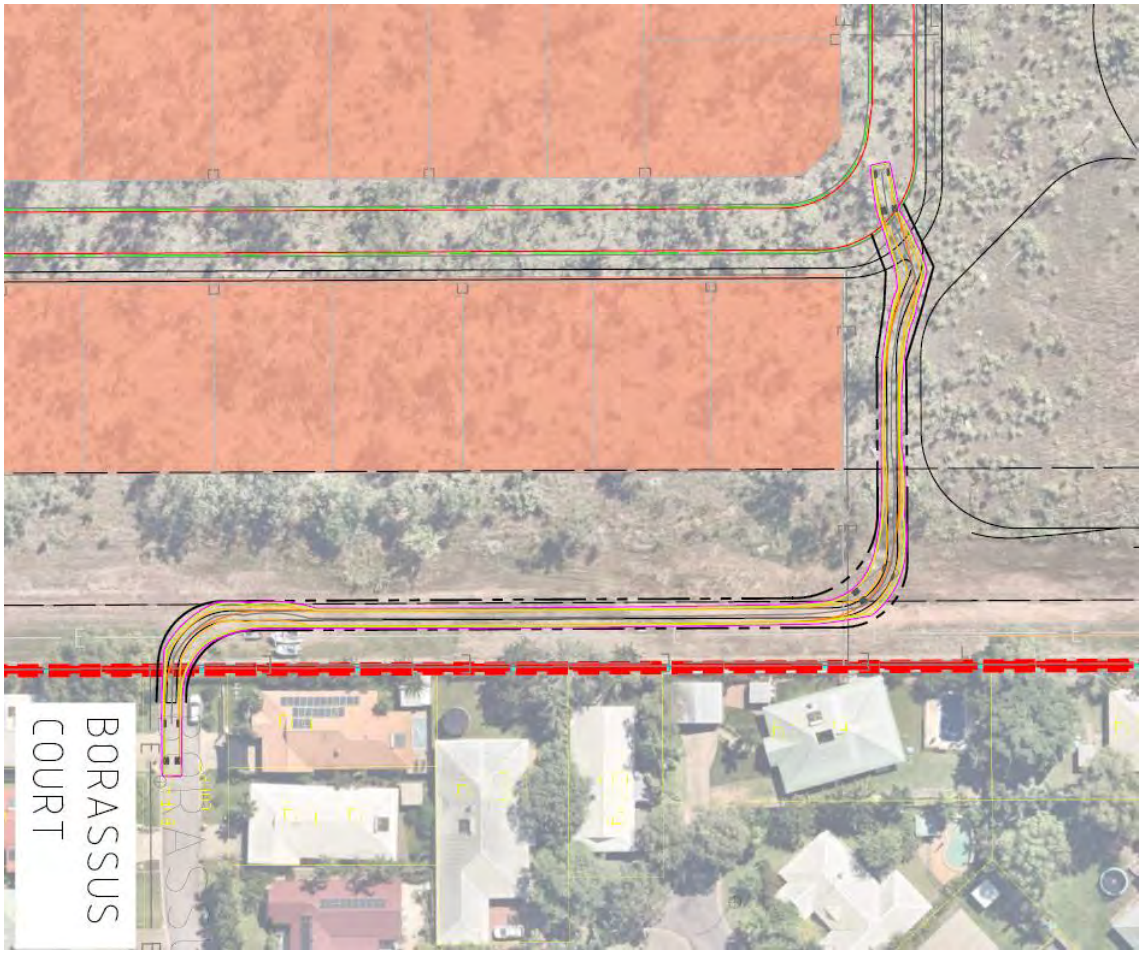


Figure 8: Potential emergency access

This access would be limited to the use of emergency vehicles by installing a barrier to prevent public vehicular access. It will otherwise act as a shared pathway for pedestrians and cyclists. The design of the shared path would be discussed and agreed with emergency services and Council.

5.0 TRANSPORTATION ANALYSIS

5.1 ROYSTONEA AVENUE/PACKARD AVENUE/YARRAWONGA ROAD CAPACITY AND LEVEL OF SERVICE ASSESSMENT

The Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection has been analysed using SIDRA Intersection Software. The scenarios considered in the assessment include the following:

- existing situation;
- a 20-year design horizon with a traffic growth rate of 1.5% on Roystonea Avenue; and
- a sensitivity analysis of a 20-year design horizon with a traffic growth of 3.0% traffic growth on Roystonea Avenue as requested by DLI.

5.1.1 TRAFFIC VOLUME

5.1.1.1 Base Case

The base case traffic volume has been based on the SCATS data provided by DLI. It also includes the forecast traffic volumes associated with Stage 11 of The Heights, Durack, given that this development has been approved. Figure 9 identifies the traffic volumes adopted for the base case assessment of the intersection.

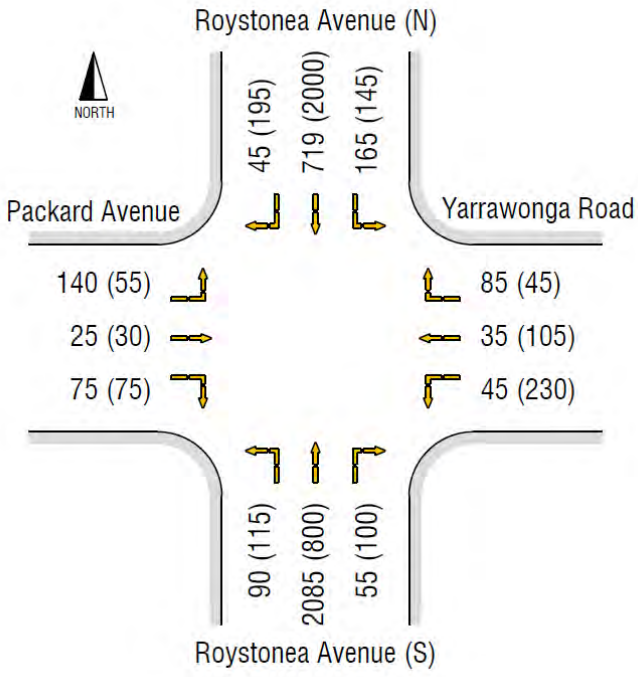


Figure 9: Base case traffic volumes am (pm)

5.1.1.2 2043 1.5% Growth

Figure 10 identifies the movements at the intersection with a 1.5% growth rate on Roystonea Avenue.

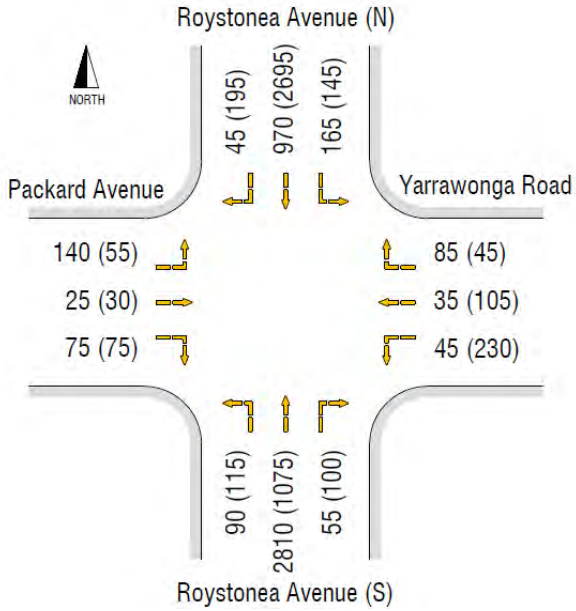


Figure 10: Traffic volumes with a 1.5% growth rate on Roystonea Avenue am (pm)

5.1.1.3 2043 3.0% Growth

Figure 11 identifies the movements at the intersection with a 3.0% growth rate on Roystonea Avenue.

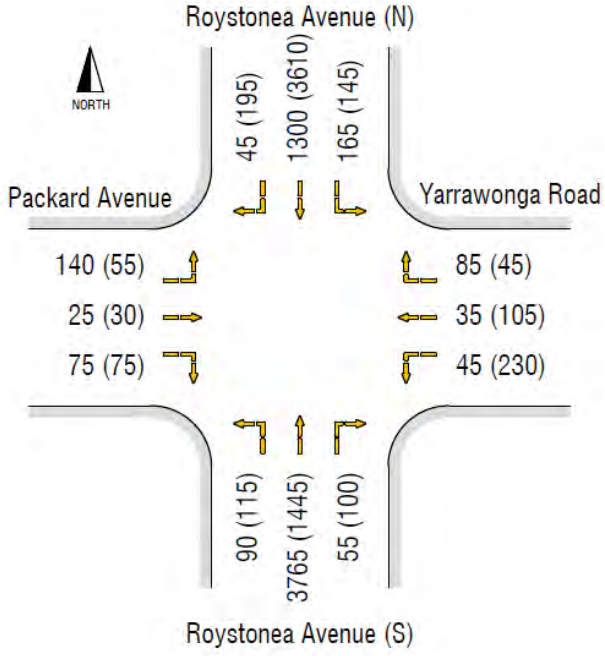


Figure 11: Traffic volumes with a 3.0% growth rate on Roystonea Avenue am (pm)

5.1.1.4 Development Traffic

Figure 12 identifies the forecast additional traffic at the intersection related to the proposed development.

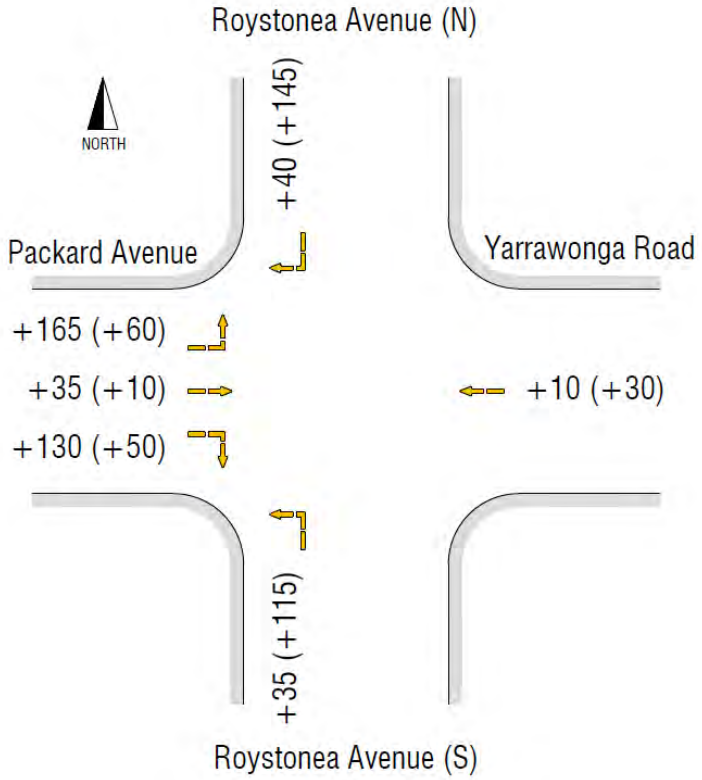


Figure 12: Additional traffic volumes related to the proposed development am (pm)

5.1.2 MODELLING METHODOLOGY

The methodology adopted for the modelling is based on the recommendations in AGTM12 which identifies the following steps:

Capacity and Level of Service

1. Existing conditions

2. Background conditions (existing plus growth) for each horizon year

3. Total traffic (existing, background and site) for each horizon year

In addition, the criteria for the model are also based on the advice in AGTM12 and include the following:

- the Degree of Saturation (DoS) should not exceed a 'practical capacity' of 0.9; and
- the 95th-percentile queue lengths should be within the available storage and should not extend past major (signalised or roundabout) intersections.

5.1.3 INTERSECTION MODELLING PARAMETERS

The Base Case scenarios have been developed based on the current SCATS volume and operational data provided by DLI, including cycle times, phase actuations, and pedestrian crossing actuations. The base case models have been calibrated based on observational data collected on Tuesday 8 October 2024, to reflect the observed queues at each approach during the peak hours. This includes applying a 'favourable approach' to the movements on Roystonea Avenue to account for the platoon arrivals from adjacent signals.

All future scenarios have been modelled on Practical Cycle Time or User Given Cycle Time, allowing SIDRA to distribute the phase times to optimise the performance of the intersection. The current phase and pedestrian actuations have been retained for all future scenarios.

Detailed output of the analysis is provided in Appendix B. The following sections discuss the key modelling outcomes of each scenario.

5.1.4 EXISTING CONDITIONS

Table 1 identifies the results of the key performance indicators including the Degree of Saturation (DOS), 95th-percentile queue lengths, and average delays on each approach in the base case model.

Table 1: Base case model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.59 (0.74)	56 (146)	16 (51)
Yarrawonga Road	0.62 (0.72)	12 (36)	29 (15)
Roystonea Avenue (S)	0.68 (0.64)	117 (75)	15 (34)
Packard Avenue	0.56 (0.65)	8 (10)	25 (26)

The modelling identifies that the intersection operates within capacity. The 95th-percentile queues do not extend to major downstream intersections and the queues in the turn lanes are within the available storage. Further, the average delay at the intersection is low. These results are consistent with the site observations.

5.1.5 BACKGROUND CONDITIONS - 2043 (1.5% TRAFFIC GROWTH) SCENARIO

Table 2 identifies the 1.5% traffic growth scenario model without any development volumes which has been based on the parameters in the base case model. This model is based on the current layout of the intersection.

Table 2: 2043 (1.5% growth) model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.59 (0.85)	71 (198)	16 (88)
Yarrawonga Road	0.87 (0.78)	12 (56)	29 (23)
Roystonea Avenue (S)	0.89 (0.80)	264 (117)	15 (54)
Packard Avenue	0.65 (0.68)	8 (16)	25 (40)

While the modelling shows that the intersection would operate within the practical capacity, the right turn queue on Packard Avenue will extend past the current storage which is 25 m long. The modelling identified that the conversion of the existing through lane to a shared through and right turn lane would provide sufficient storage space. Figure 13 identifies the proposed treatment.

Figure 13: Proposed treatment to accommodate forecast queue

The above intersection layout will require a split phasing for the movements on Packard Avenue and Yarrawonga Road which will have an impact on the capacity of Yarrawonga

Road. As such, the same shared through and right-turn lane has been included on the Yarrawonga Road approach.

A review of the design criteria for a split phase approach confirmed that the dual right turns in adjacent lanes can be accommodated with no changes to infrastructure. Accordingly, the change in lane assignment to cater for through and right turn movements can be adopted with minor linework modifications and a change to the phasing.

Table 3 identifies the results of the 2043 (1.5% traffic growth) scenario and the above intersection layout.

Table 3: 2043 (1.5% growth) with layout changes model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.60 (0.85)	111 (272)	19 (63)
Yarrawonga Road	0.37 (0.84)	24 (49)	24 (20)
Roystonea Avenue (S)	0.88 (0.76)	281 (134)	15 (46)
Packard Avenue	0.39 (0.40)	20 (23)	20 (23)

The above table shows that the intersection will operate within capacity and the change to the intersection layout will adequately accommodate the forecast queue, noting that right turn vehicles will be able to queue in the shared through/right-turn lane.

5.1.6 TOTAL TRAFFIC

5.1.6.1 Existing Conditions plus Site Traffic

Table 4 identifies the results of the 2023 base case scenario with development volumes. There were no changes made to the current layout of the intersection.

Table 4: 2023 base case scenario plus development model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.93 (0.80)	49 (172)	29 (62)
Yarrawonga Road	0.65 (0.71)	13 (44)	26 (14)
Roystonea Avenue (S)	0.82 (0.68)	170 (80)	16 (35)
Packard Avenue	0.87 (0.78)	48 (13)	66 (43)

The modelling shows that the intersection would operate above practical capacity and the queue in the right turn lane on Packard Avenue will extend beyond the available storage.

The intersection was therefore modelled for this scenario based on the shared through/right-turn lane treatments on Packard Avenue and Yarrawonga Road that was adopted for the 2043 Background condition model. Table 5 identifies the results of the 2023 base case scenario with development volumes and the modified layout.

Table 5: 2023 base case scenario plus site traffic with intersection changes model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.81 (0.80)	47 (172)	24 (62)
Yarrawonga Road	0.43 (0.71)	17 (44)	17 (14)
Roystonea Avenue (S)	0.88 (0.68)	185 (80)	14 (35)
Packard Avenue	0.63 (0.52)	41 (27)	33 (27)

The above table shows that the intersection will operate within capacity and the change to the Packard Avenue and Yarrawonga Road layout will adequately accommodate the forecast queues. This shows that the expected changes to the layout in 2043 (based on a 1.5% growth) will be triggered when the development of Durack Heights is complete.

5.1.6.2 2043 (1.5% Traffic Growth) plus Site Traffic

Table 6 identifies the results of the 2043 (1.5% growth) scenario with development volumes and the changes to the Packard Avenue and Yarrawonga Road approaches.

Table 6: 2043 (1.5% Traffic Growth) plus Site Traffic model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.80 (0.87)	119 (293)	38 (109)
Yarrawonga Road	0.55 (0.85)	30 (63)	30 (62)
Roystonea Avenue (S)	0.88 (0.86)	309 (155)	16 (49)
Packard Avenue	0.85 (0.61)	60 (36)	60 (36)

The above results show that the intersection will operate within capacity and the forecast 95th-percentile queues will be accommodated within the available storage. Accordingly, no further changes to the intersection will be required to accommodate the forecast development volumes.

5.1.7 SENSITIVITY ANALYSIS – 2043 (3.0% TRAFFIC GROWTH)

5.1.7.1 Background Conditions

Table 7 identifies the results of the 3.0% growth model without any development volumes.

Table 7: 2043 (3.0% growth) model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.91 (1.03)	175 (864)	27 (60)
Yarrawonga Road	0.97 (0.98)	19 (100)	54 (24)
Roystonea Avenue (S)	0.97 (1.03)	511 (373)	19 (67)
Packard Avenue	0.87 (1.01)	60 (27)	43 (51)

The modelling identifies that the intersection will not operate within capacity if a 3.0% growth rate was to be realised. Specifically, the limitations on capacity associated with the increased volume on Roystonea Avenue will result in long queues which will impact the operation of the downstream intersections and the delays for drivers will be high for these through movements. Accordingly, if the 3.0% per annum growth rate was to be realised, the capacity for the Roystonea Avenue approaches to the intersection will need to be increased.

An iterative approach was adopted in identifying potential treatments required to accommodate the forecast traffic at a 3% growth rate. Such a rate is much higher than anticipated but if realised would include growth associated with development which has access to the subject road network including Roystonea Avenue. While there would be alternate scenarios which could be considered to achieve the additional capacity at the intersection, Figure 14 identifies a potential layout which achieves practical capacity with the adopted growth rate.

Figure 14: Potential layout to accommodate future growth at 3.0%

Table 8 identifies the results of the model incorporating the above upgrades.

Table 8: 2043 (3.0% growth) with upgrade model results am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.78 (0.88)	47 (298)	30 (86)
Yarrawonga Road	0.83 (0.87)	16 (58)	41 (24)
Roystonea Avenue (S)	0.85 (0.89)	343 (140)	23 (57)
Packard Avenue	0.75 (0.87)	23 (16)	35 (43)

The critical factor in identifying a potential layout in this model relates to the forecast queues on Roystonea Avenue and the separation to the adjacent signalised intersections. It can be seen from the above results that the northbound queue on Roystonea Avenue will be 343 m and will not extend to the Roystonea Avenue/University Avenue intersection which is located 350 m away. Similarly, the southbound queue on Roystonea Avenue will be 298 m and will not extend to the Gateway Shopping Centre signalised access which is located 315 m away. The above results also confirm that the upgrades will provide enough capacity to adequately accommodate the forecast growth.

A review of the potential to alter the phasing and lane assignments on Packard Avenue and Yarrawonga Road was considered (as adopted for the 1.5% growth scenario) but as the growth was primarily related to through movements on Roystonea Avenue, this option would not avoid the need for infrastructure works to effect the extension of lanes on Roystonea Avenue. Given such works would be required, the additional turn capacity was no longer required to achieve practical capacity of the intersection.

5.1.7.2 Total Traffic

The forecast development traffic volumes were added to the 2043 3.0% Growth Scenario model based on the layout in Figure 3. There were no other changes made to the model. Table 9 identifies the results of the model.

Table 9: 2043 (3.0% growth) scenario with site traffic and added through lanes am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.87 (0.94)	65 (479)	48 (146)
Yarrawonga Road	0.52 (0.99)	25 (97)	43 (22)
Roystonea Avenue (S)	0.98 (0.96)	710 (176)	29 (57)
Packard Avenue	0.98 (0.89)	135 (20)	136 (75)

The above results indicate that the additional volumes would result in the intersection exceeding practical capacity and the queues extending to the adjacent intersection on the northern approach of Roystonea Avenue and Yarrawonga Road.

In order to provide for practical capacity at the intersection following development of Durack Heights, the additional right turn and lane assignment changes on Packard Avenue and Yarrawonga Road (as per the 1.5% growth scenario) will need to be introduced, despite the upgrade realised due to the growth on the road network. Figure 15 identifies these changes as they relate to the future intersection.

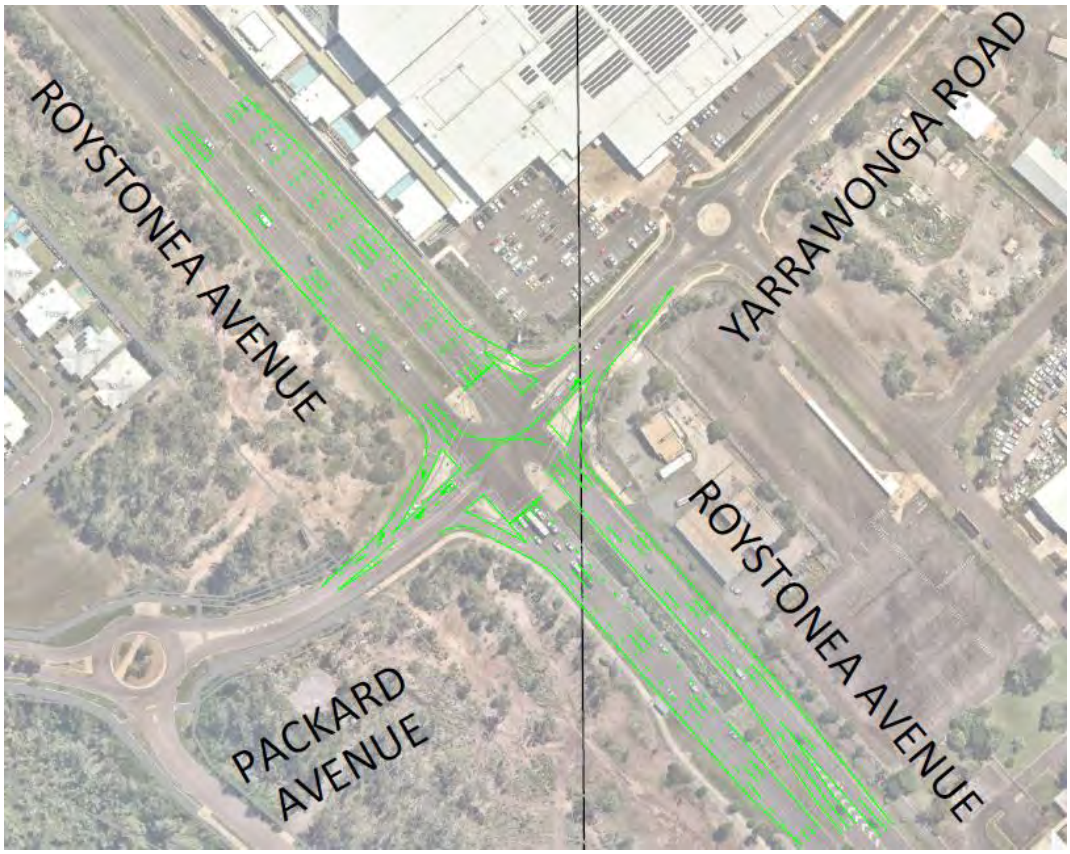


Figure 15: Upgrade to the intersection to accommodate the forecast development volumes

Table 10 identifies the results of the model incorporating the additional turning movements.

Table 10: 2043 (3.0% growth) scenario with site traffic, added through lanes and shared right/through lanes am (pm)

Approach	DOS	95th-percentile Queue (m)	
		Through/Left-turn	Right-turn
Roystonea Avenue (N)	0.86 (0.85)	91 (288)	42 (108)
Yarrawonga Road	0.79 (0.88)	34 (90)	34 (24)
Roystonea Avenue (S)	0.89 (0.86)	315 (186)	25 (60)
Packard Avenue	0.89 (0.86)	110 (49)	68 (49)

The above assessment confirms that the changed intersection layout (namely the shared through and right lane on Packard Avenue and Yarrawonga Road and the change in signal phasing) will accommodate the additional traffic from the development.

Accordingly, even in the higher growth scenario of 3.0%, the intersection modifications associated with the development of Durack Heights will be the same as the 1.5% growth scenario. To be clear, the modifications triggered by the Durack Heights development would include:

- Conversion of the through lane on Packard Avenue to a through and right turn lane;
- Conversion of the through lane on Yarrawonga Road to a through and right turn lane; and
- Modification of the phasing of the signal to a split phase for the Packard Avenue and Yarrawonga Road approaches.

5.2 PACKARD AVENUE

The proposal will result in an additional 4,300 trips on Packard Avenue. Figure 12 identifies the anticipated daily traffic volume on the local road network.

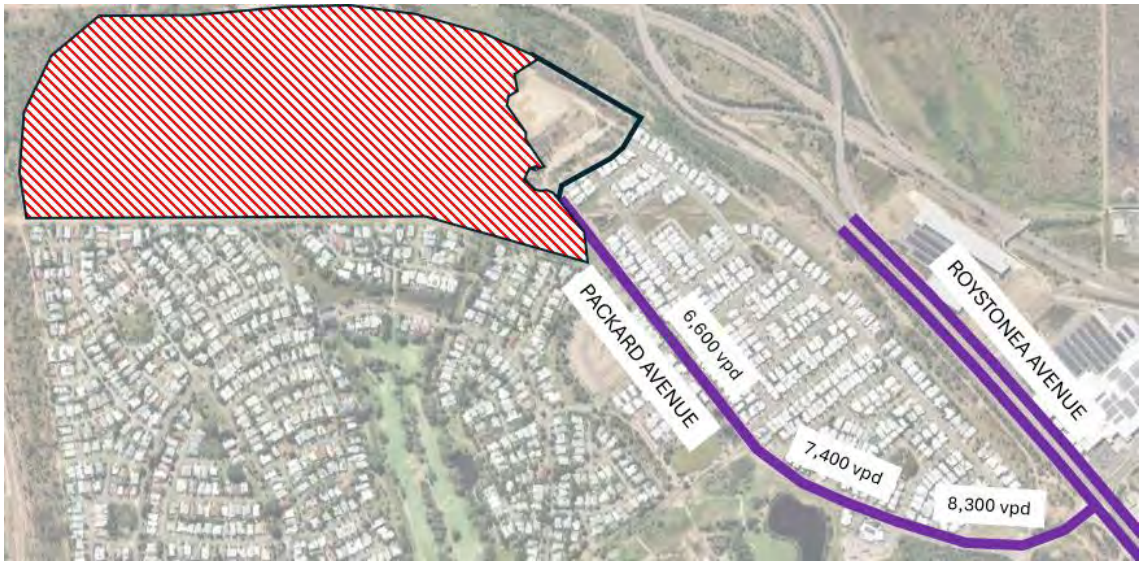


Figure 16: Forecast traffic on the local road network

The forecast volumes will mean that Packard Avenue will operate at Secondary Collector Road status north of Russell Street, where the Packard Avenue cross section alters from a divided carriageway to a single dual lane carriageway. It will comply with the requirements in the NTSDG in that:

- the road reserve width will be 21.6 m;
- the carriageway width will be 11.0 m; and

- footpaths will be provided on both side of the road with widths of 1.5 m and 2.5 m respectively

Whilst formalised parking lanes are not provided in this section of Packard Avenue, the carriageway width will accommodate on-street parking on both sides of the road whilst permitting simultaneous two-way movements.

The historical nature of the road network in Durack means that there will be direct access to properties via Packard Avenue. While this is a legacy of the approved design, the current proposal seeks to provide for alternate access routes to manage the growth of traffic on Packard Avenue, ensure alternative emergency routes are available and to limit the status of Packard Avenue (north) to a Secondary Collector Road.

South of Haultain Street, Packard Avenue will operate as a Primary Collector Road. Notwithstanding that the road is constructed, this section of Packard Avenue meets the design requirements in the NTSDG for a primary collector road in that:

- the road reserve exceeds the minimum width of 24.6 m;
- the carriageway width will exceed the minimum of 7.0 m; and
- formalised parking lanes are provided on both sides of the road

Whilst there is a requirement for 2.5 m wide footpaths on both sides of the road, this section of Packard Avenue provides a continuation of the 1.5 m and 2.5 m footpaths which will adequately cater for the anticipated pedestrian traffic.

6.0 IMPROVEMENT ANALYSIS

6.1 IMPROVEMENTS TO ACCOMMODATE EXISTING TRAFFIC

There will be no improvements required to accommodate the existing traffic.

6.2 IMPROVEMENTS TO ACCOMMODATE BACKGROUND TRAFFIC

Modelling of background growth on Roystonea Avenue at 1.5% and 3.0% for a 20-year design horizon identified that the 3.0% growth scenario triggers a requirement to modify the intersection to cater for the additional volumes on Roystonea Avenue

6.3 IMPROVEMENTS TO ACCOMMODATE SITE TRAFFIC

The modifications triggered by the Durack Heights development would include:

- Conversion of the through lane on Packard Avenue to a through and right turn lane;
- Conversion of the through lane on Yarrawonga Road to a through and right turn lane; and
- Modification of the phasing of the signal to a split phase for the Packard Avenue and Yarrawonga Road approaches.

6.4 EVALUATION

The improvements identified will allow for the Roystonea Avenue/Packard Avenue/Yarrawonga Road intersection to operate with sufficient capacity and safety to accommodate the future traffic growth on Roystonea Avenue. The additional volume associated with the proposed development will be accommodated at the future intersection in the unlikely event that the higher traffic growth is realised.

7.0 FINDINGS

7.1 SITE ACCESSIBILITY

The proposed rezoning of land at The Heights, Durack will be serviced by the extension of Packard Avenue. It is anticipated that the majority of the traffic will distribute via the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection albeit there may be a small demand for traffic to exit the development via Nichols Street. A separate emergency access will also be provided.

7.2 TRANSPORTATION IMPACTS

The primary impact of the proposal will occur at the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection where the majority of traffic will access the local road network to and from the site Nonetheless, SIDRA analysis indicates that the forecast volumes associated with the development will be accommodated within the existing operation of the intersection.

The SIDRA assessment of growth potential at the intersection identified that an upgrade to this intersection will be required within a 20-year design horizon if a growth rate of 3.0% is realised. This upgrade will be irrespective of the development and the development of itself will not trigger the requirement for any upgrades.

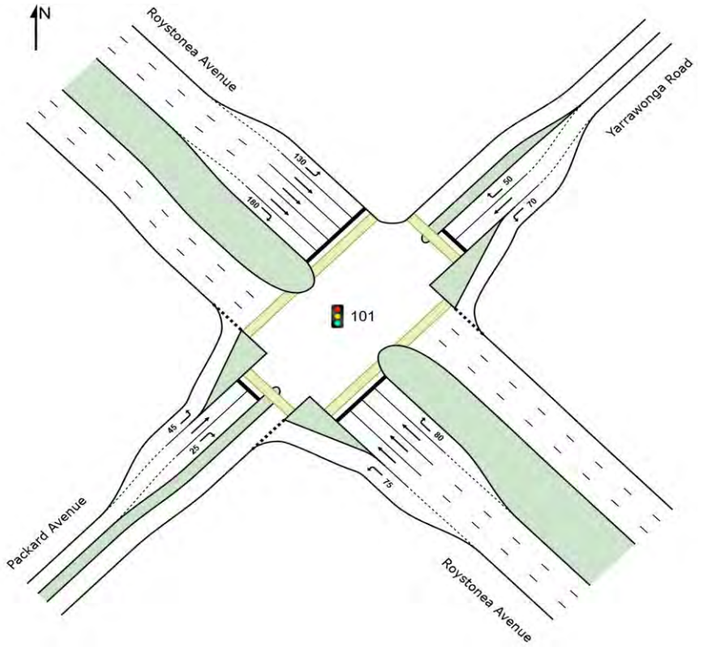
7.3 NEED FOR ANY IMPROVEMENTS

Notwithstanding the identified improvements at the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection which primarily relate to the through traffic growth scenarios, there will be no additional requirements or improvements on the adjacent road network to facilitate the proposed residential development.

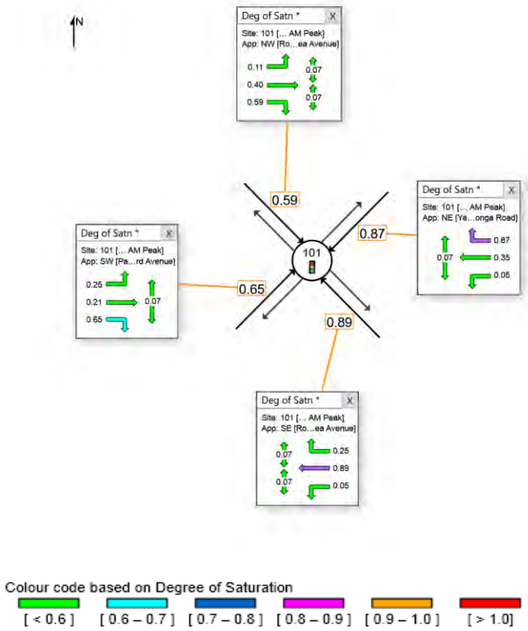
APPENDIX A

SIDRA ANALYSIS

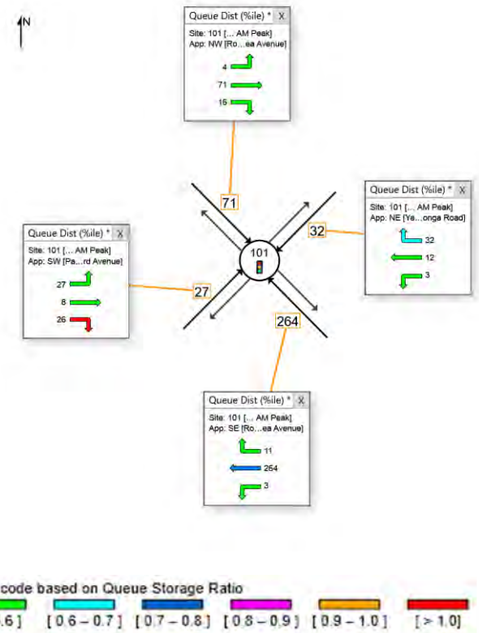
INTERSECTION LAYOUT



DEGREE OF SATURATION



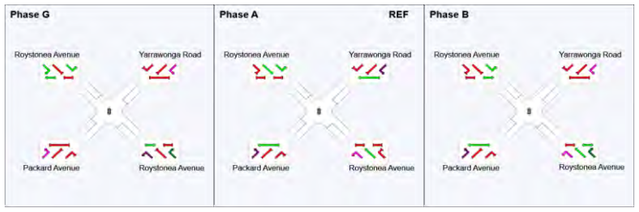
95%ile QUEUE DISTANCE (metres)

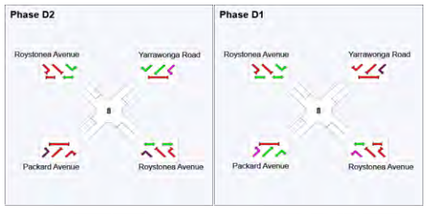


PHASING SUMMARY

Phase Timing Summary

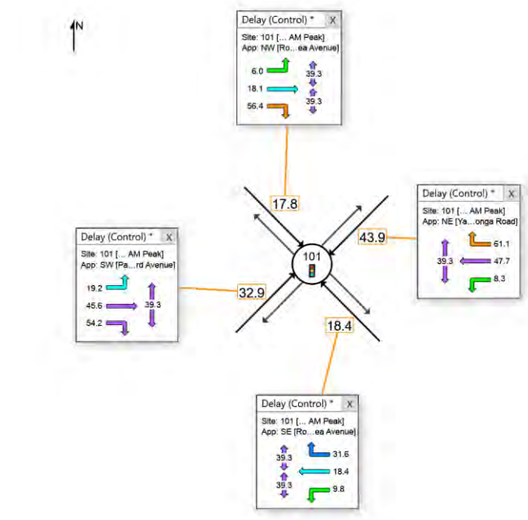
Phase	G	A	B	D2	D1
Phase Change Time (sec)	79	0	44	56	67
Green Time (sec)	4	40	6	5	6
Phase Time (sec)	8	46	12	11	13
Phase Split	9%	51%	13%	12%	14%





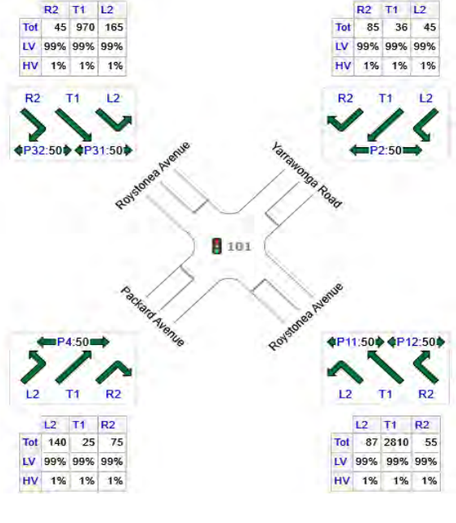
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



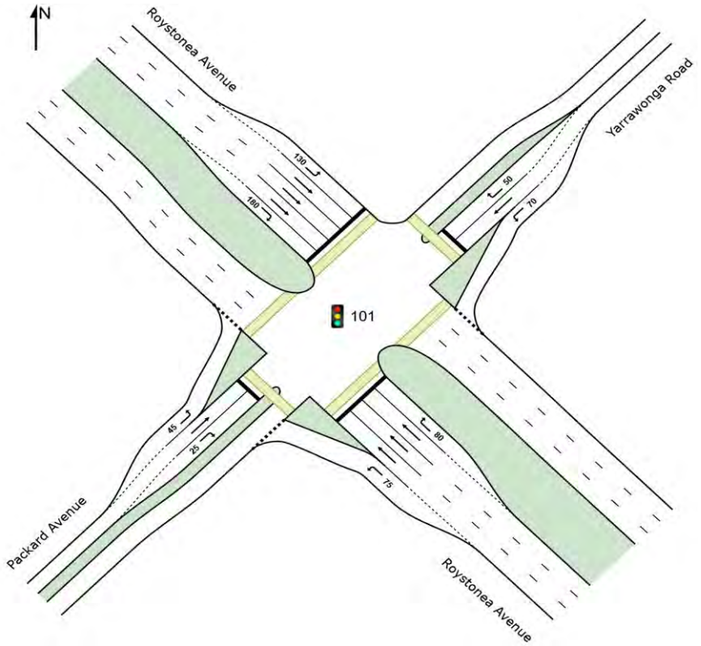
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

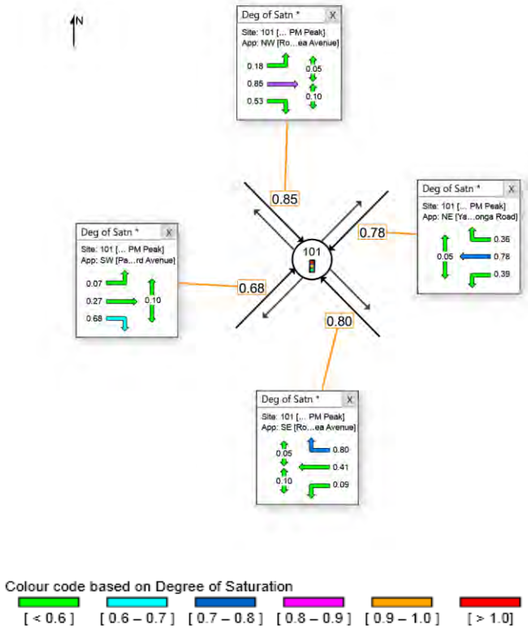


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth
	AM Peak

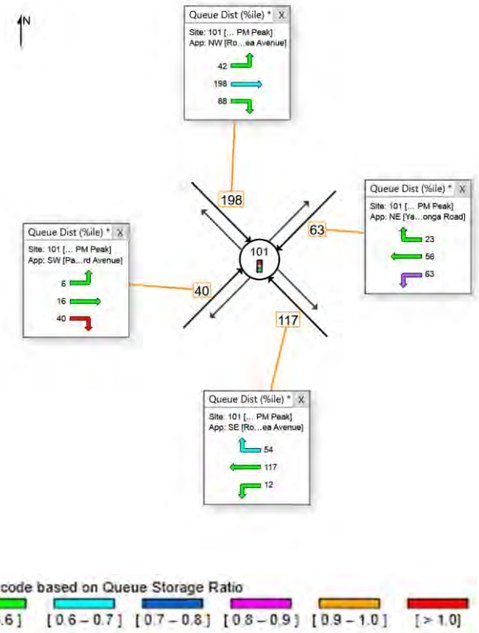
INTERSECTION LAYOUT



DEGREE OF SATURATION



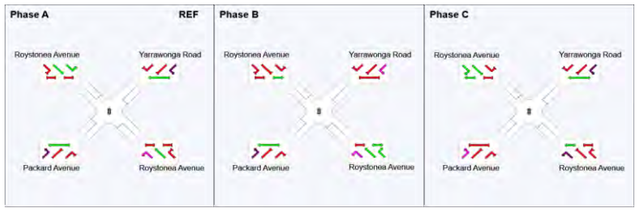
95%ile QUEUE DISTANCE (metres)



PHASING SUMMARY

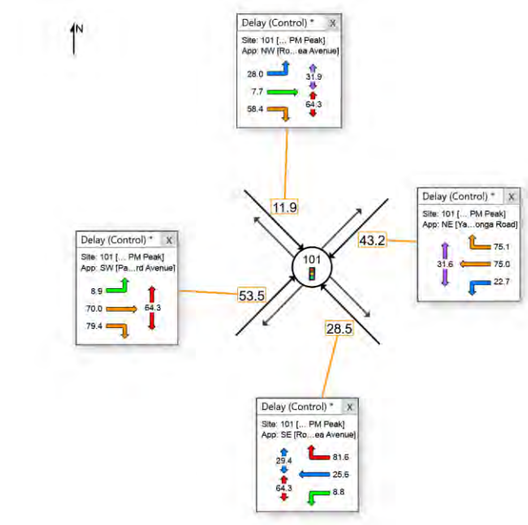
Phase Timing Summary

Phase	A	B	C	D1	D2
Phase Change Time (sec)	0	56	72	108	123
Green Time (sec)	50	10	30	9	10
Phase Time (sec)	56	16	36	16	16
Phase Split	40%	11%	26%	11%	11%



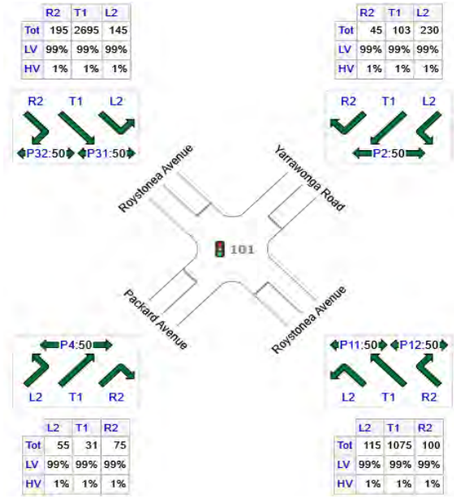
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



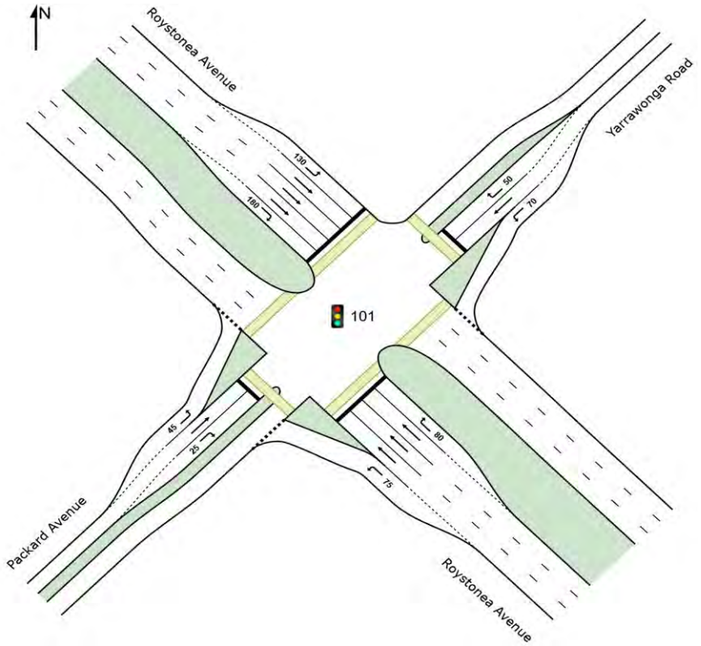
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

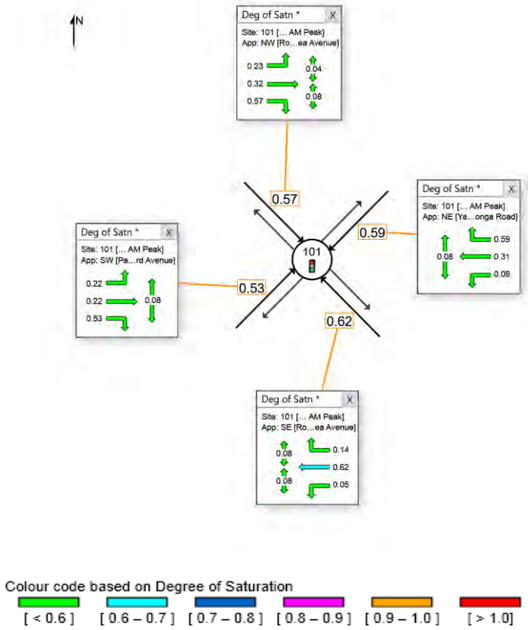


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth
	PM Peak

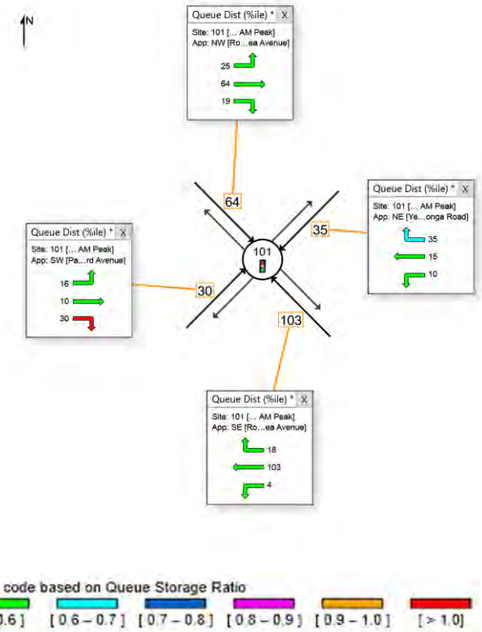
INTERSECTION LAYOUT



DEGREE OF SATURATION



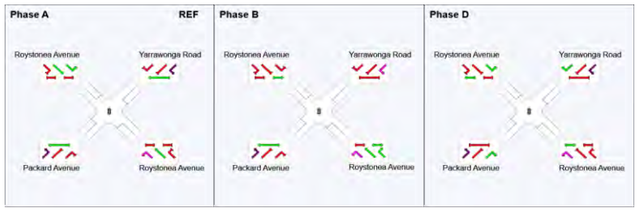
95%ile QUEUE DISTANCE (metres)

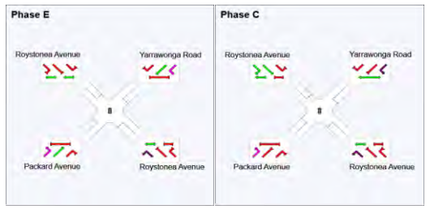


PHASING SUMMARY

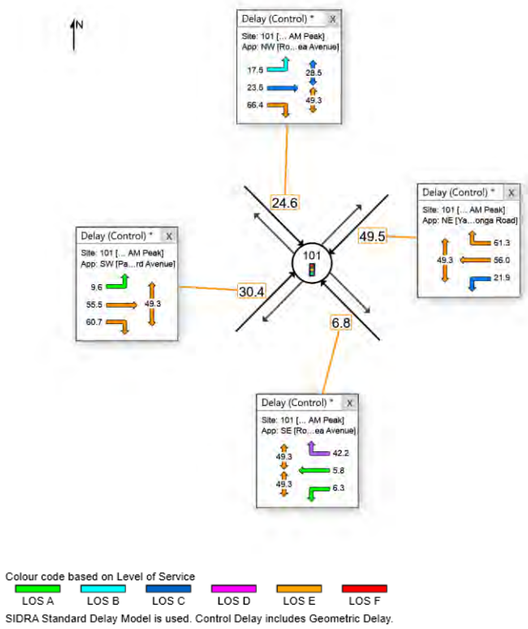
Phase Timing Summary

Phase	A	B	D	E	C
Phase Change Time (sec)	0	48	67	84	100
Green Time (sec)	44	13	12	9	6
Phase Time (sec)	50	18	19	15	10
Phase Split	45%	16%	17%	13%	9%

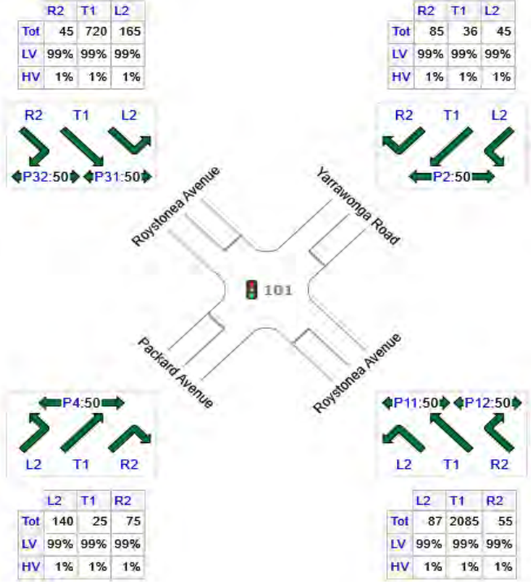




DELAY (CONTROL) & LEVEL OF SERVICE

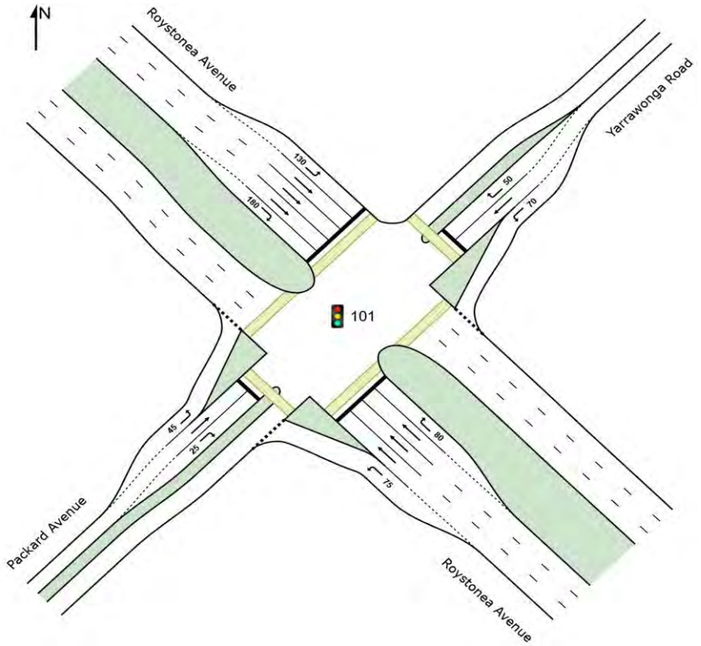


INPUT VOLUMES

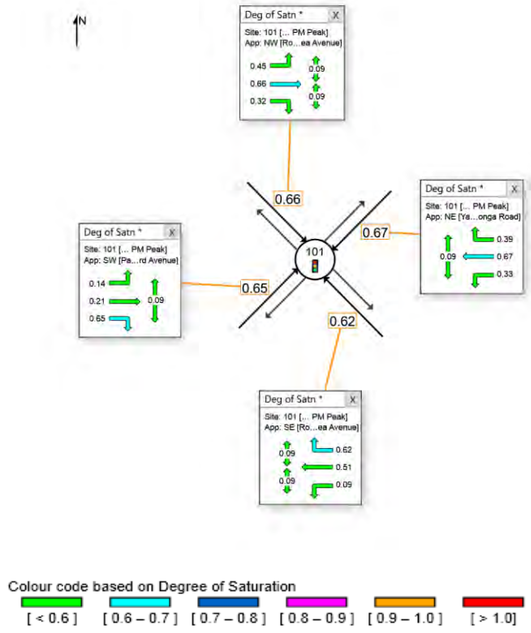


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	Base Case
	AM Peak

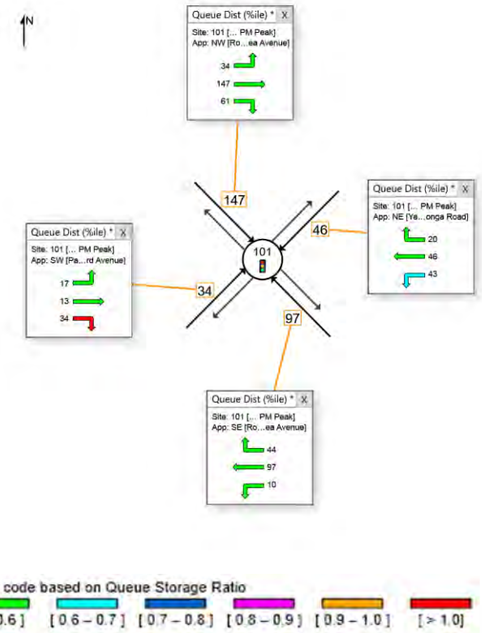
INTERSECTION LAYOUT



DEGREE OF SATURATION



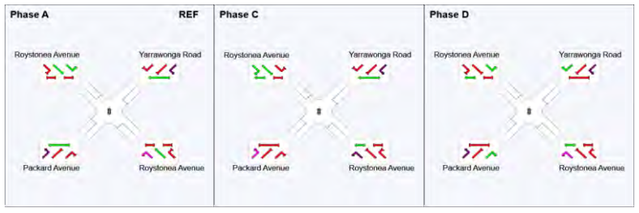
95%ile QUEUE DISTANCE (metres)



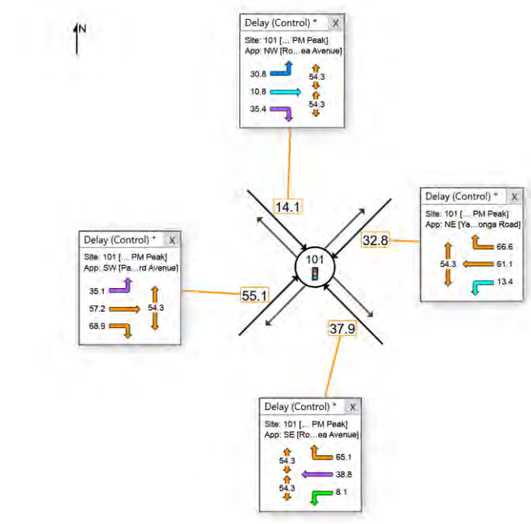
PHASING SUMMARY

Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	23	72	86	103
Green Time (sec)	17	43	8	10	11
Phase Time (sec)	23	49	15	16	17
Phase Split	19%	41%	13%	13%	14%



DELAY (CONTROL) & LEVEL OF SERVICE

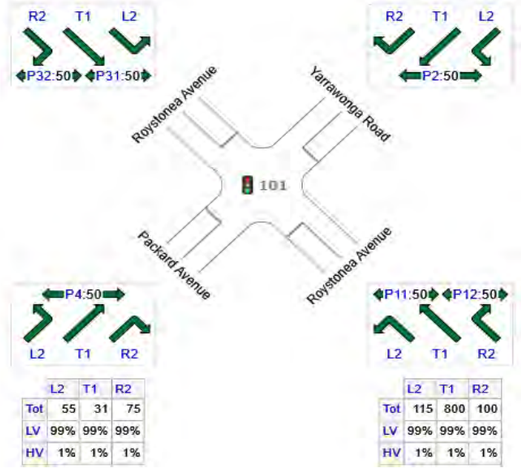


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	195	2000	145
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	45	103	230
LV	99%	99%	99%
HV	1%	1%	1%

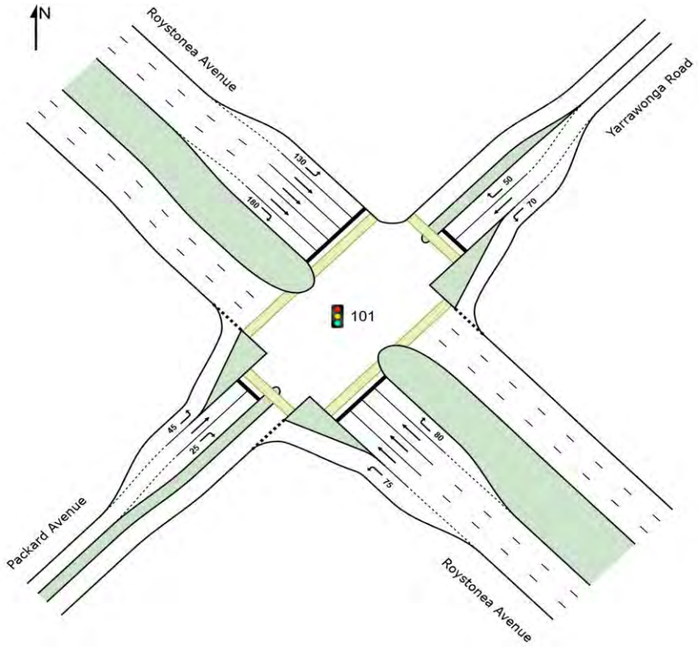


	L2	T1	R2
Tot	55	31	75
LV	99%	99%	99%
HV	1%	1%	1%

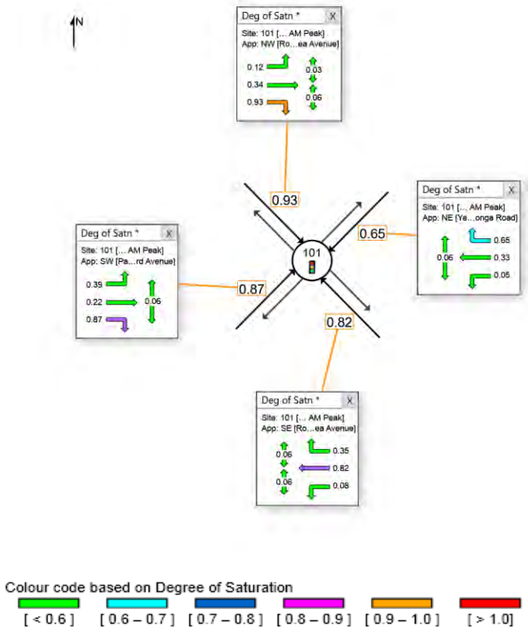
	L2	T1	R2
Tot	115	800	100
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	Base Case
	PM Peak

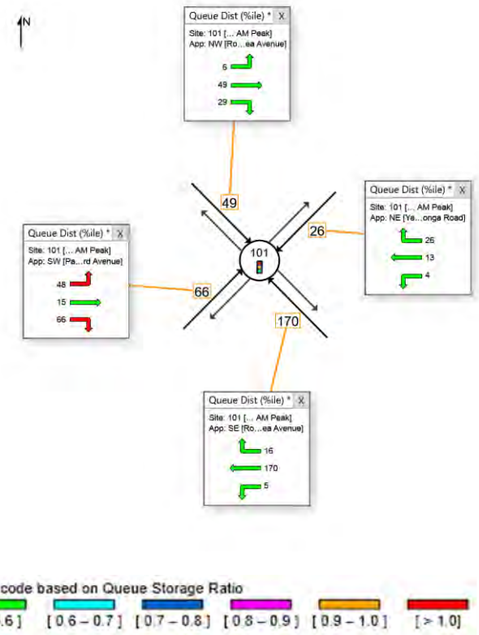
INTERSECTION LAYOUT



DEGREE OF SATURATION



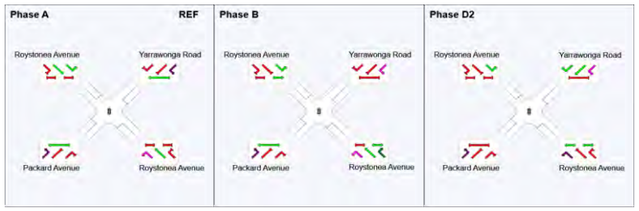
95%ile QUEUE DISTANCE (metres)

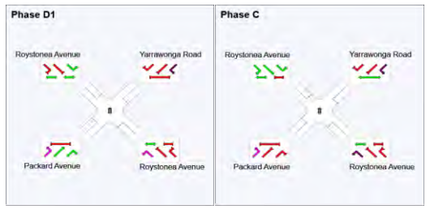


PHASING SUMMARY

Phase Timing Summary

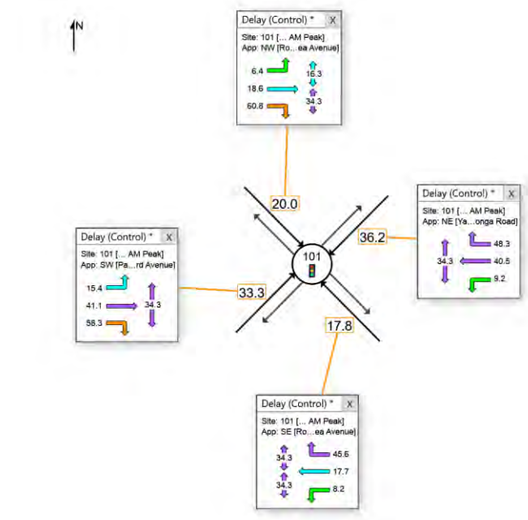
Phase	A	B	D2	D1	C
Phase Change Time (sec)	0	27	41	52	69
Green Time (sec)	23	8	6	11	4
Phase Time (sec)	29	13	12	18	8
Phase Split	36%	16%	15%	23%	10%





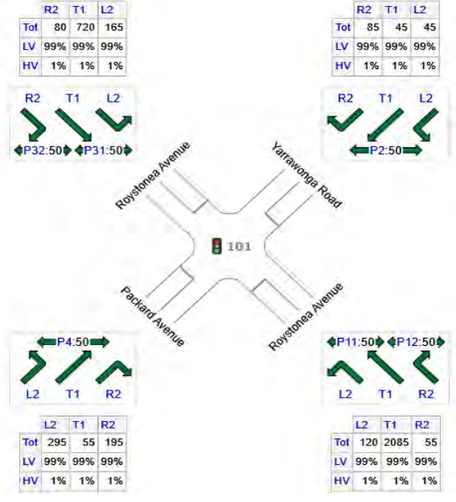
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



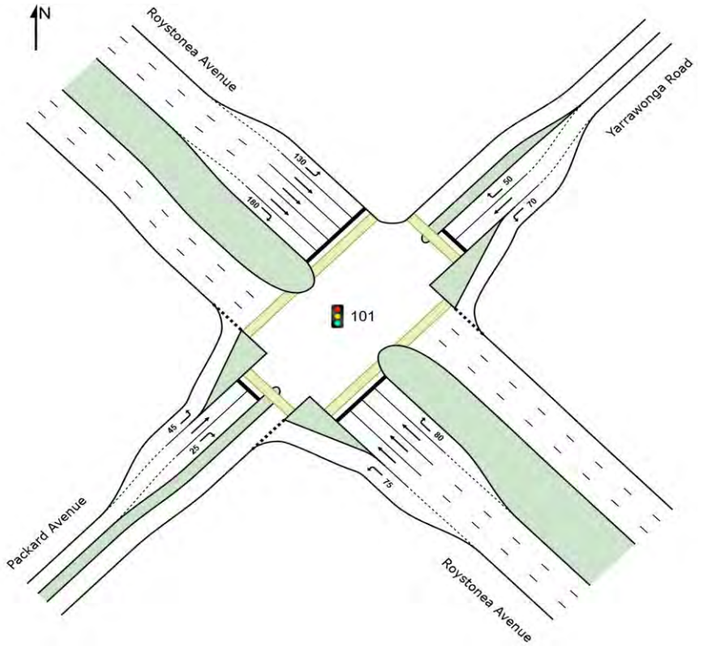
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

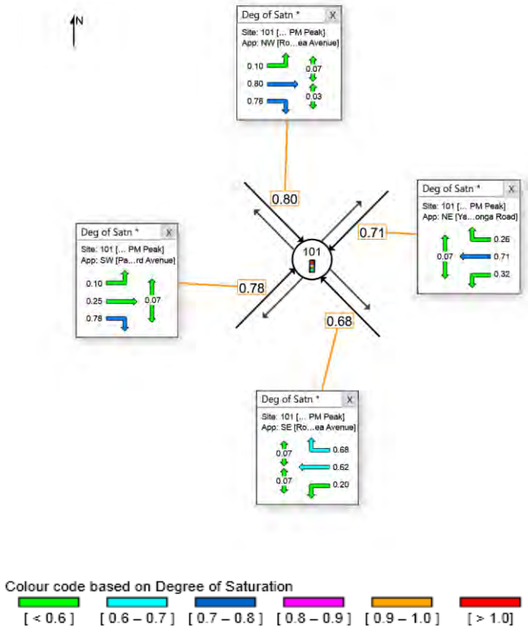


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case (No Change)
	PM Peak

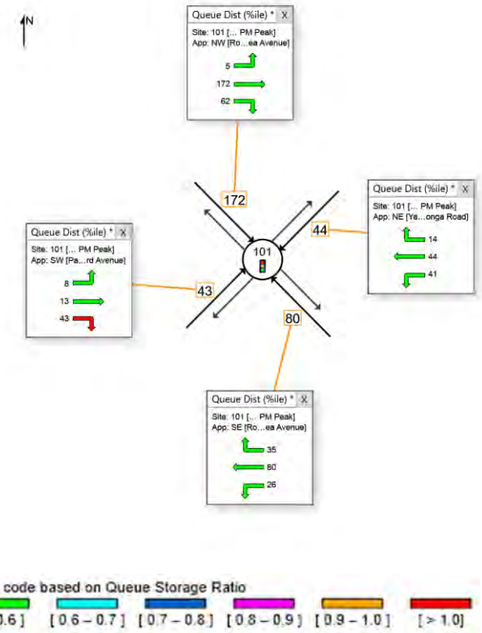
INTERSECTION LAYOUT



DEGREE OF SATURATION



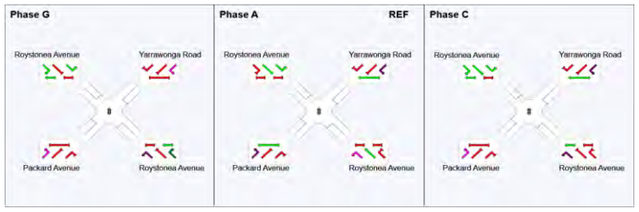
95%ile QUEUE DISTANCE (metres)

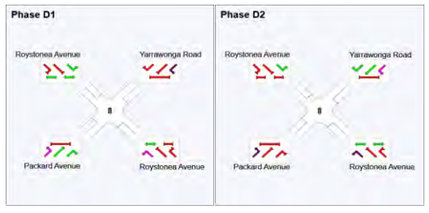


PHASING SUMMARY

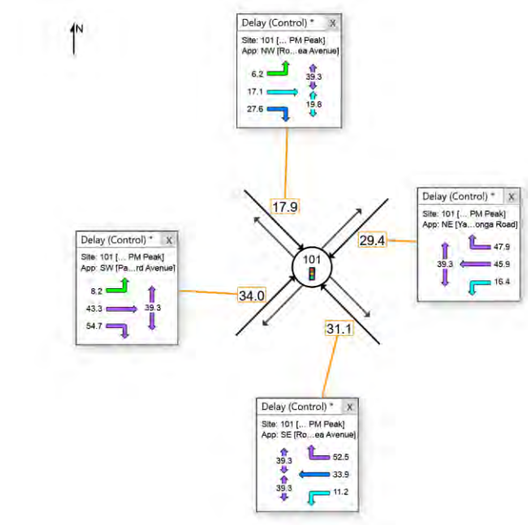
Phase Timing Summary

Phase	G	A	C	D1	D2
Phase Change Time (sec)	76	0	27	47	61
Green Time (sec)	8	21	14	8	9
Phase Time (sec)	14	27	20	14	15
Phase Split	16%	30%	22%	16%	17%



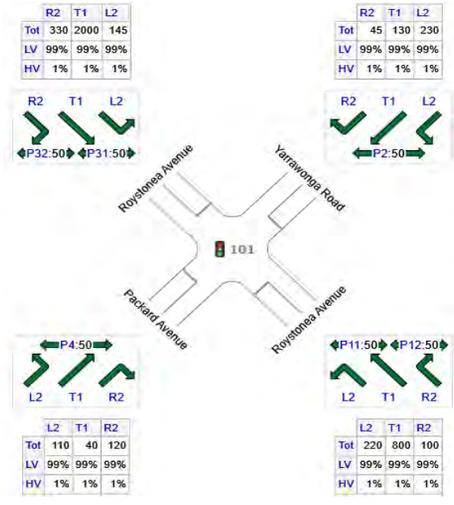


DELAY (CONTROL) & LEVEL OF SERVICE



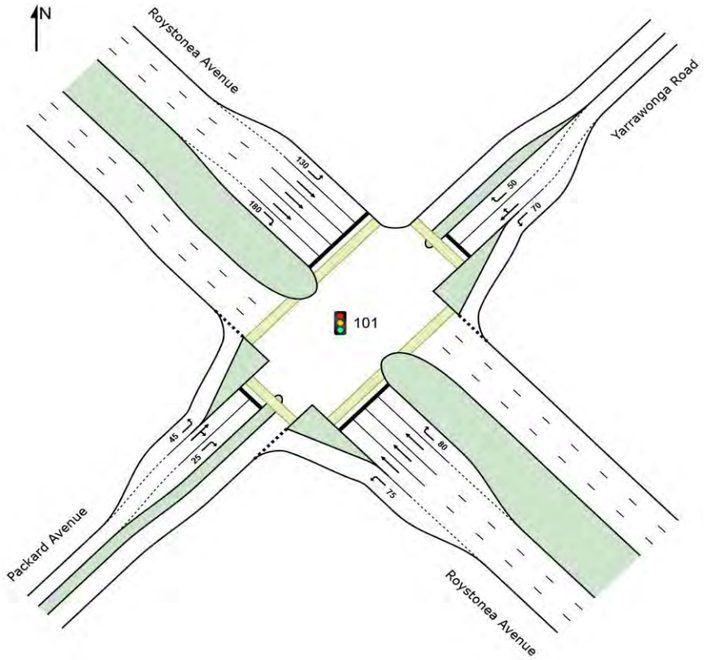
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

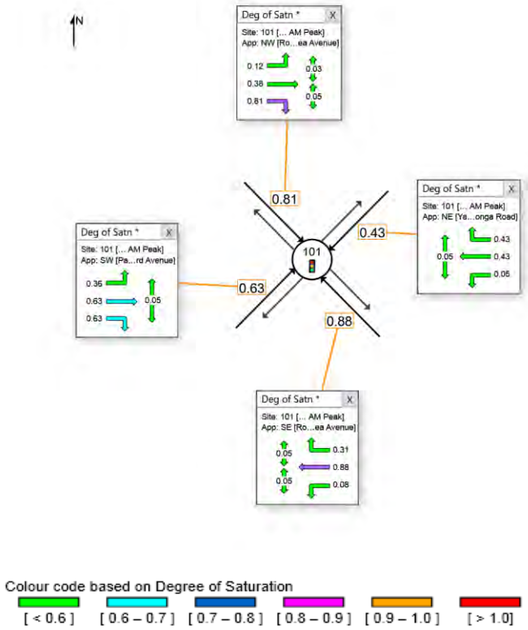


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case (No Change)
	PM Peak

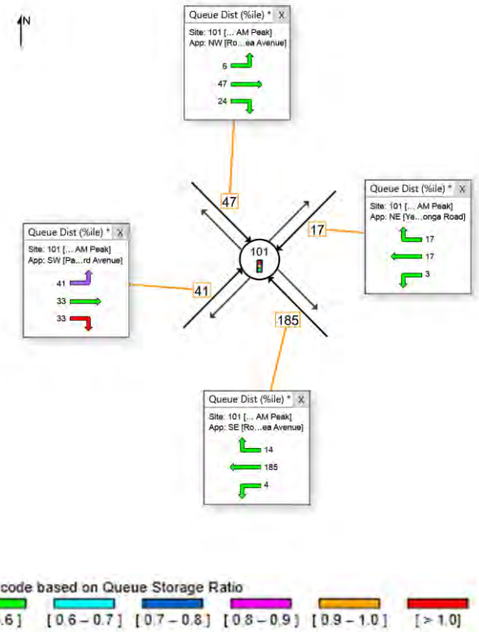
INTERSECTION LAYOUT



DEGREE OF SATURATION



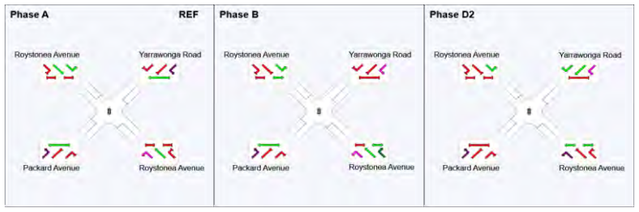
95%ile QUEUE DISTANCE (metres)

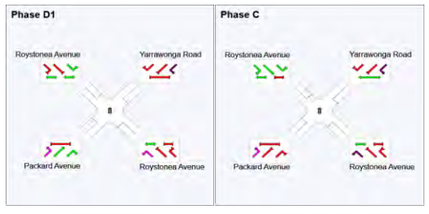


PHASING SUMMARY

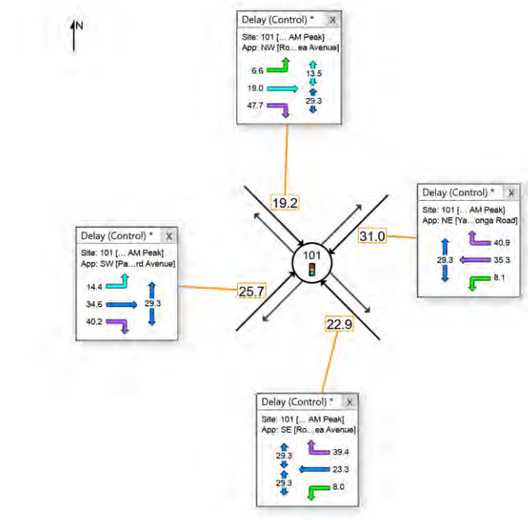
Phase Timing Summary

Phase	A	B	D2	D1	C
Phase Change Time (sec)	0	20	34	45	59
Green Time (sec)	16	8	6	8	4
Phase Time (sec)	22	13	12	15	8
Phase Split	31%	19%	17%	21%	11%

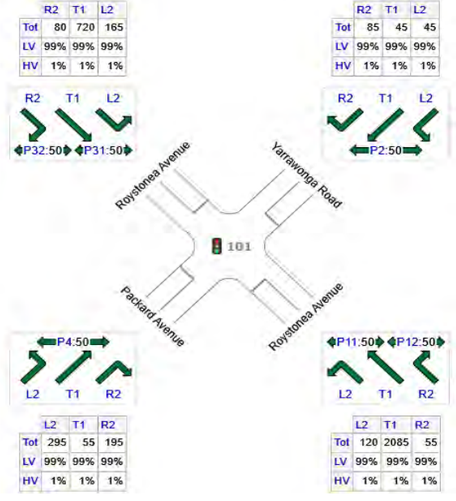




DELAY (CONTROL) & LEVEL OF SERVICE

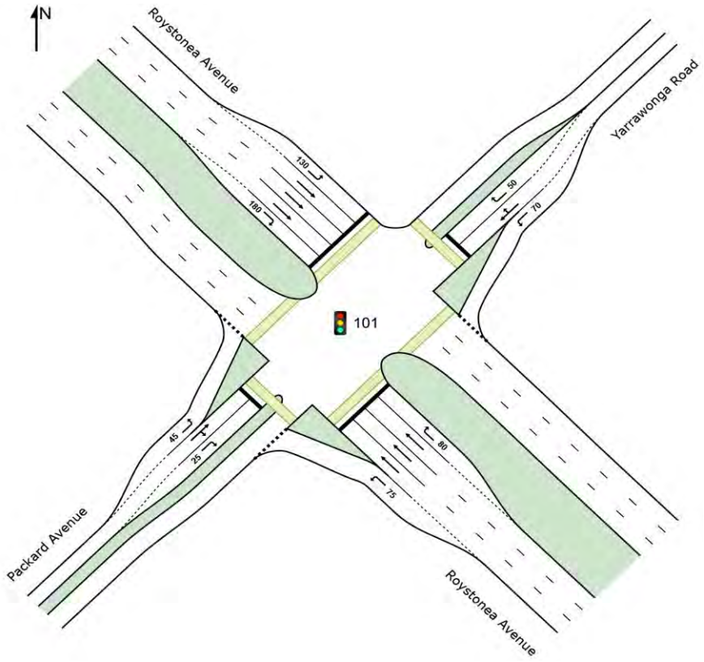


INPUT VOLUMES

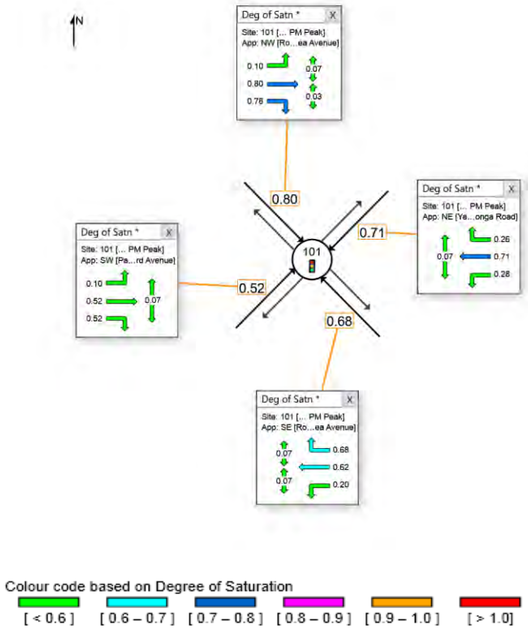


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case (No Change)
	PM Peak

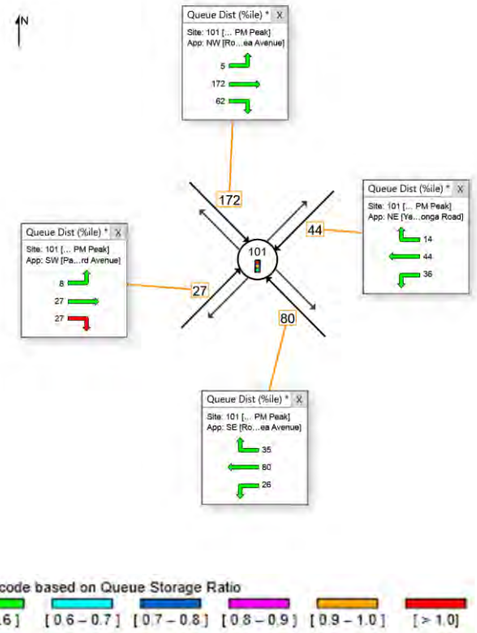
INTERSECTION LAYOUT



DEGREE OF SATURATION



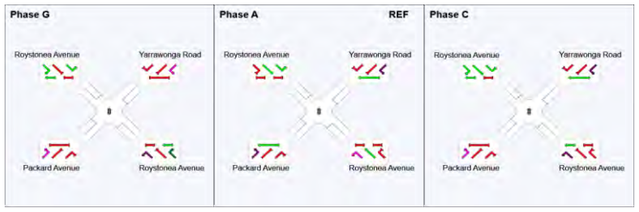
95%ile QUEUE DISTANCE (metres)



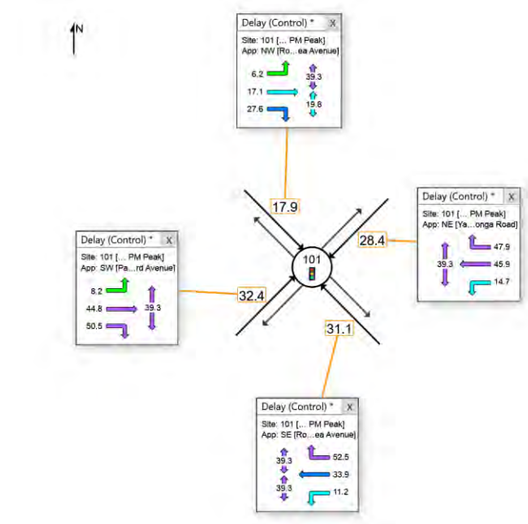
PHASING SUMMARY

Phase Timing Summary

Phase	G	A	C	D1	D2
Phase Change Time (sec)	76	0	27	47	61
Green Time (sec)	8	21	14	8	9
Phase Time (sec)	14	27	20	14	15
Phase Split	16%	30%	22%	16%	17%

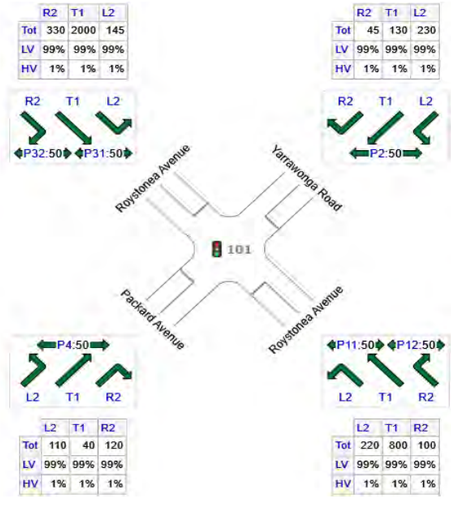


DELAY (CONTROL) & LEVEL OF SERVICE



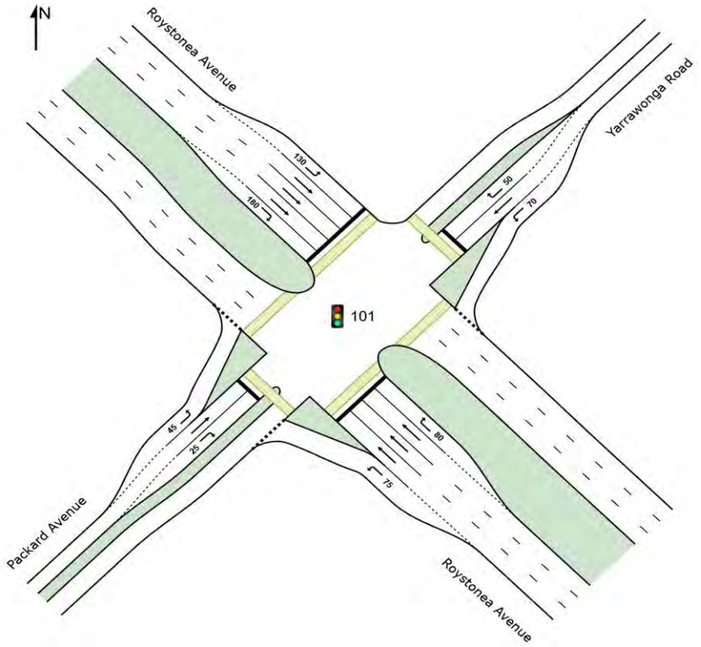
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

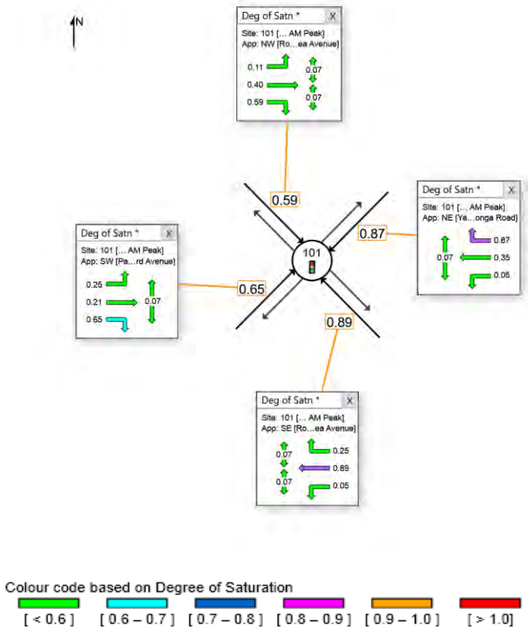


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case (No Change)
	PM Peak

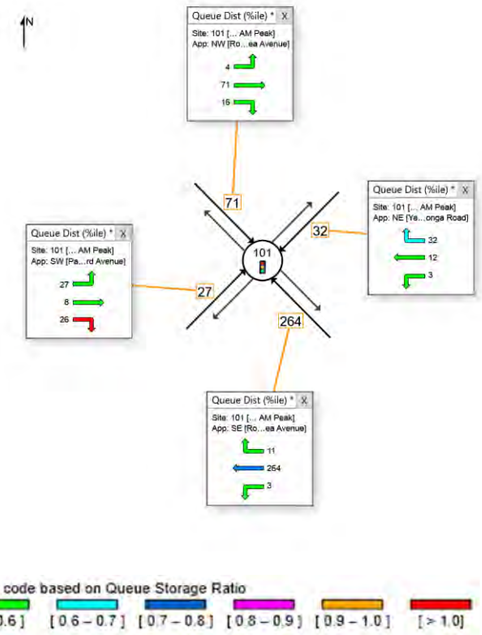
INTERSECTION LAYOUT



DEGREE OF SATURATION



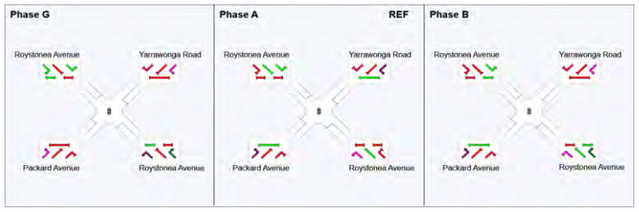
95%ile QUEUE DISTANCE (metres)

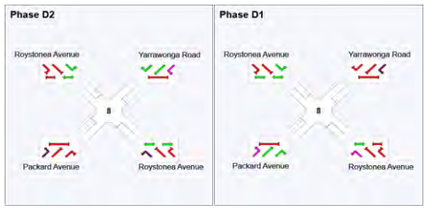


PHASING SUMMARY

Phase Timing Summary

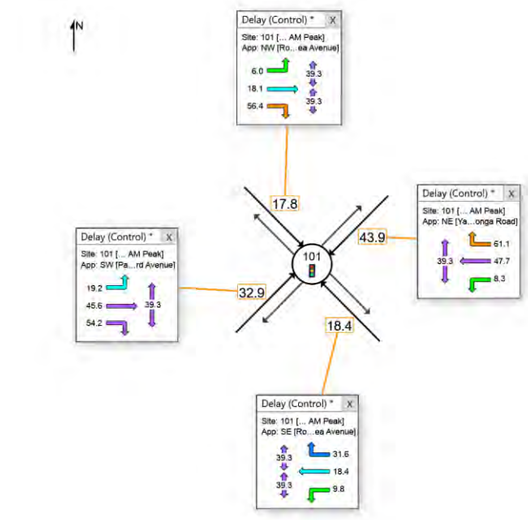
Phase	G	A	B	D2	D1
Phase Change Time (sec)	79	0	44	56	67
Green Time (sec)	4	40	6	5	6
Phase Time (sec)	8	46	12	11	13
Phase Split	9%	51%	13%	12%	14%





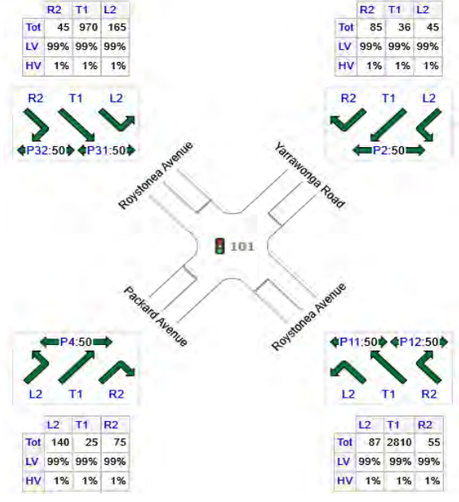
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



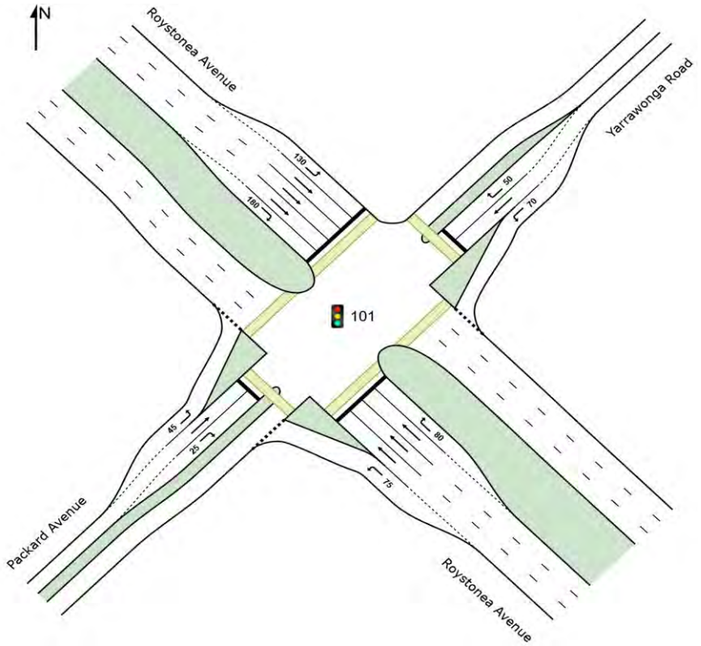
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

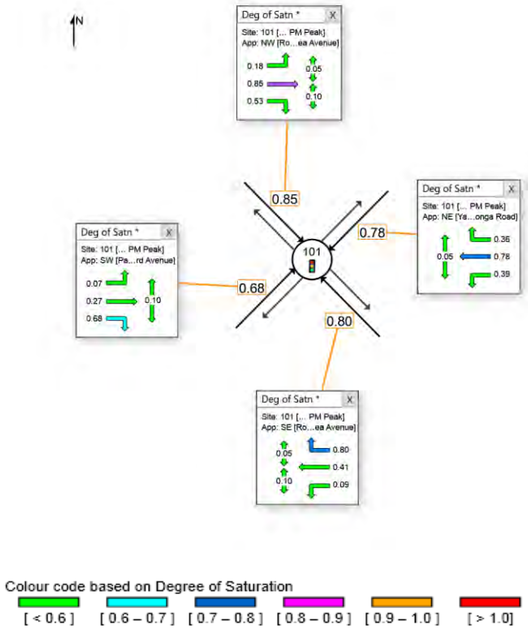


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - No Development
	AM Peak

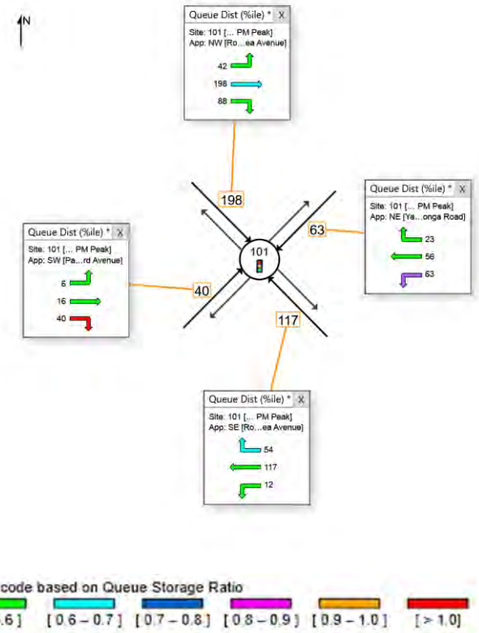
INTERSECTION LAYOUT



DEGREE OF SATURATION



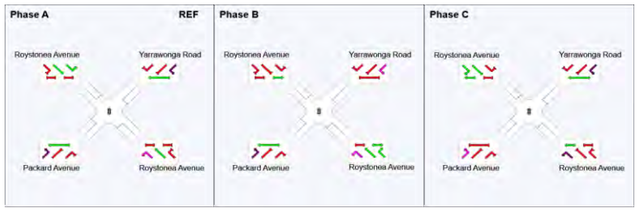
95%ile QUEUE DISTANCE (metres)



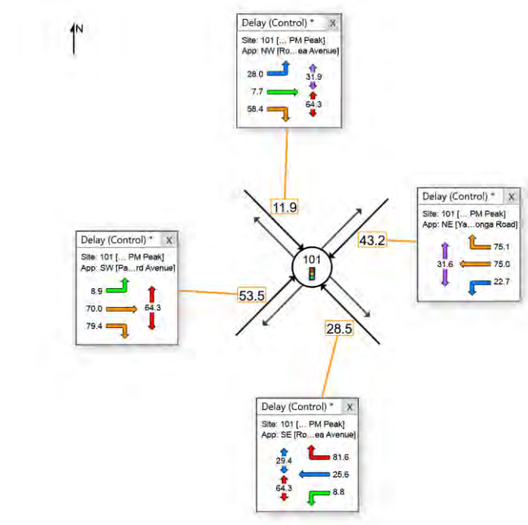
PHASING SUMMARY

Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	23	72	86	103
Green Time (sec)	17	43	8	10	11
Phase Time (sec)	23	49	15	16	17
Phase Split	19%	41%	13%	13%	14%

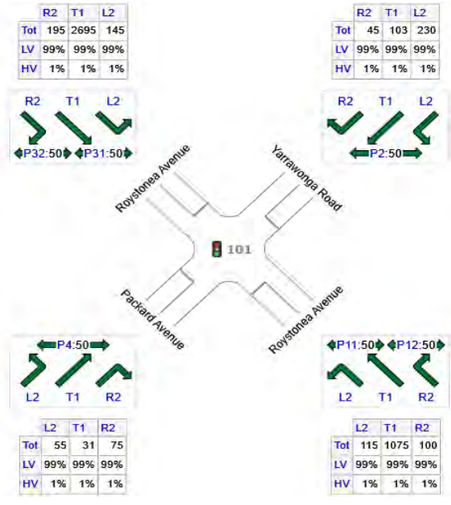


DELAY (CONTROL) & LEVEL OF SERVICE



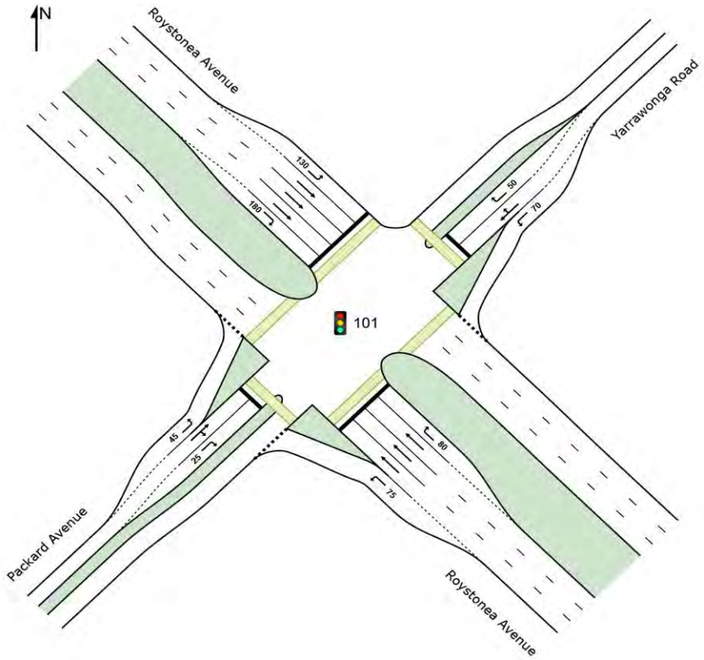
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

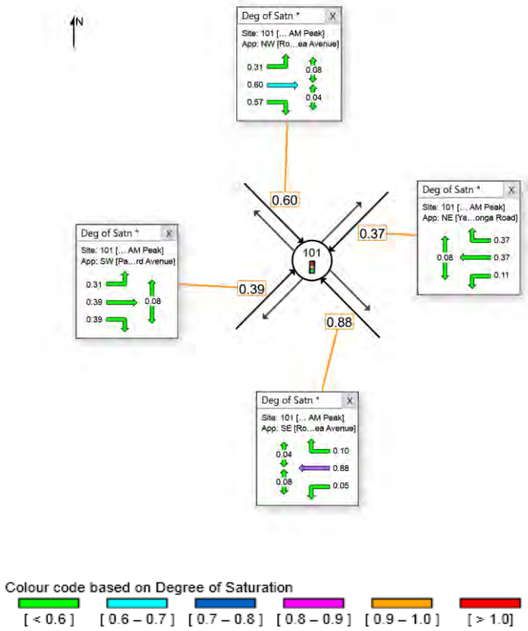


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - No Development
	PM Peak

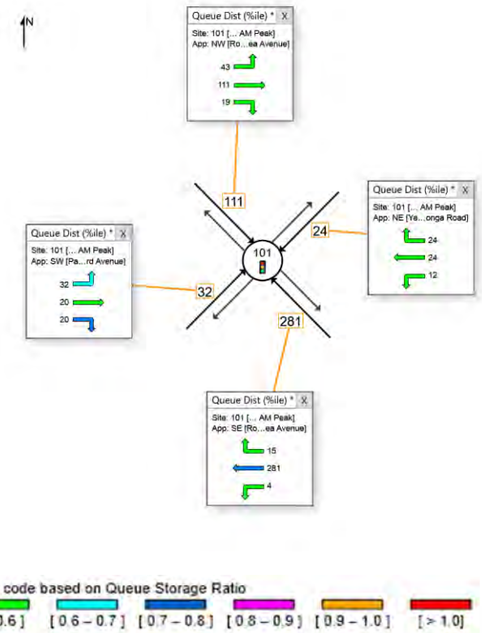
INTERSECTION LAYOUT



DEGREE OF SATURATION



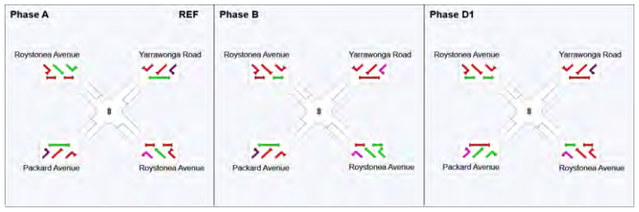
95%ile QUEUE DISTANCE (metres)

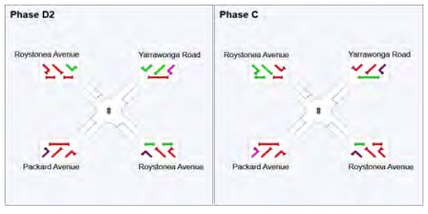


PHASING SUMMARY

Phase Timing Summary

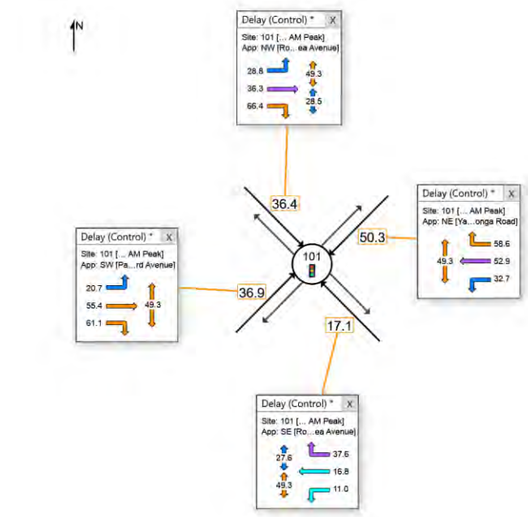
Phase	A	B	D1	D2	C
Phase Change Time (sec)	0	27	69	82	99
Green Time (sec)	23	36	8	10	5
Phase Time (sec)	29	41	15	16	9
Phase Split	26%	37%	14%	15%	8%





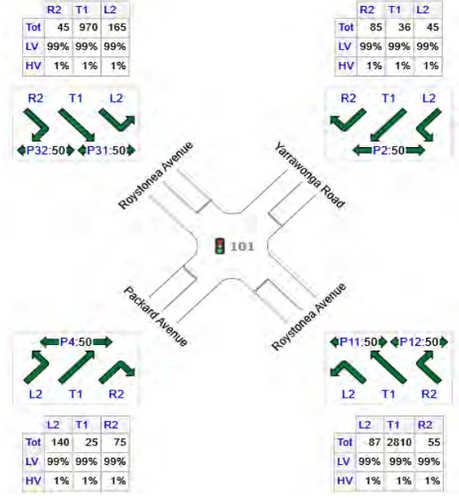
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



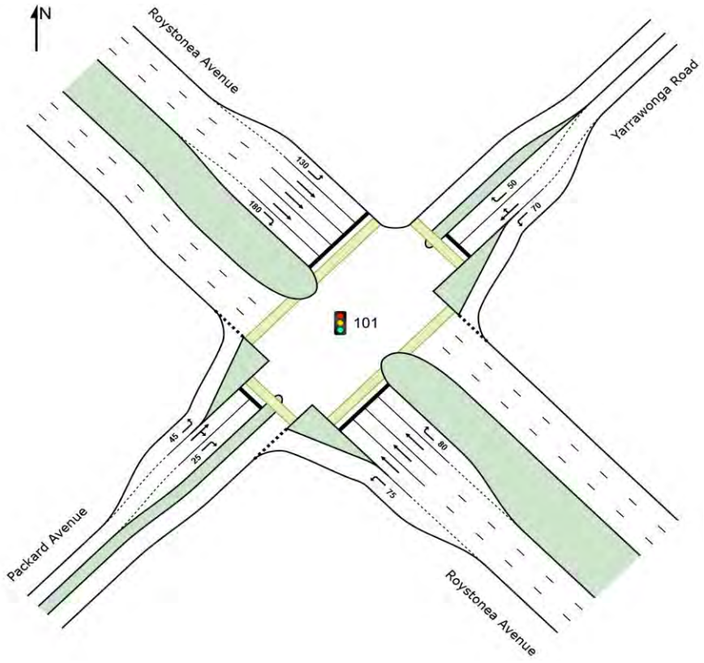
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

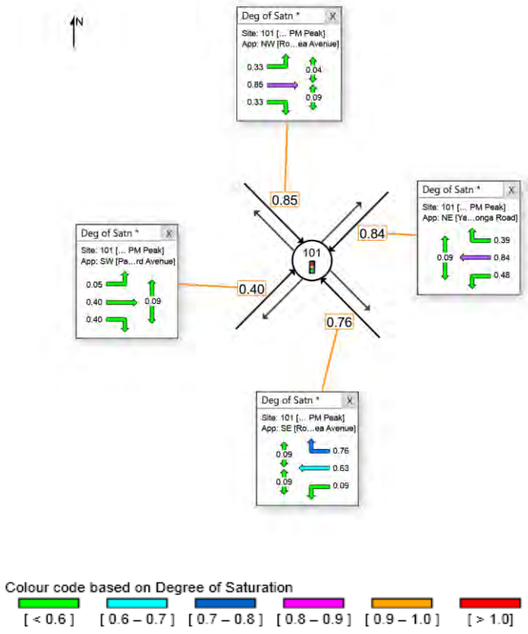


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - No Development with Layout Change
	AM Peak

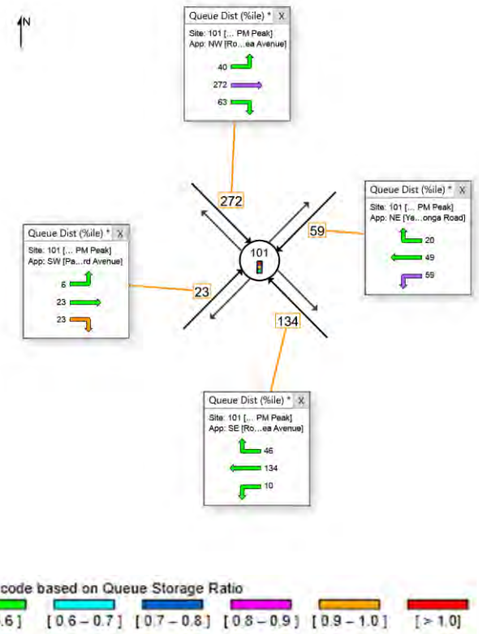
INTERSECTION LAYOUT



DEGREE OF SATURATION



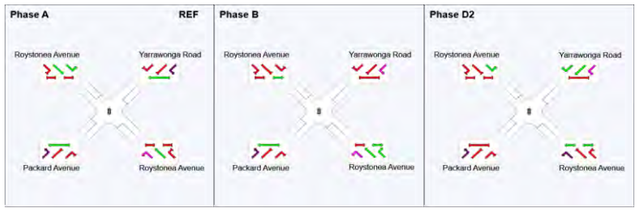
95%ile QUEUE DISTANCE (metres)



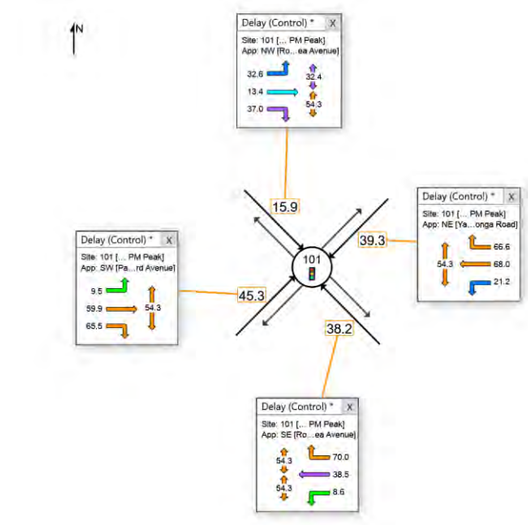
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D2	D1	C
Phase Change Time (sec)	0	28	43	57	72
Green Time (sec)	22	9	8	9	41
Phase Time (sec)	28	15	14	16	47
Phase Split	23%	13%	12%	13%	39%

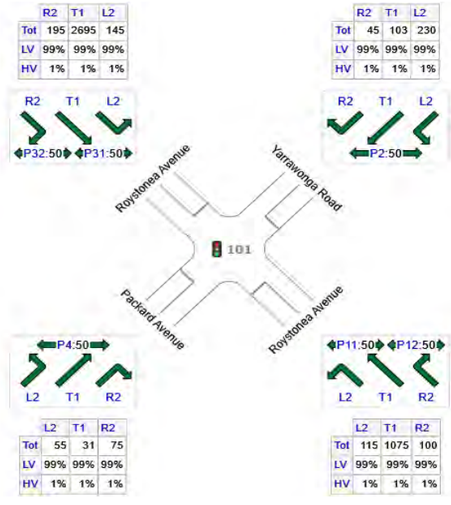


DELAY (CONTROL) & LEVEL OF SERVICE



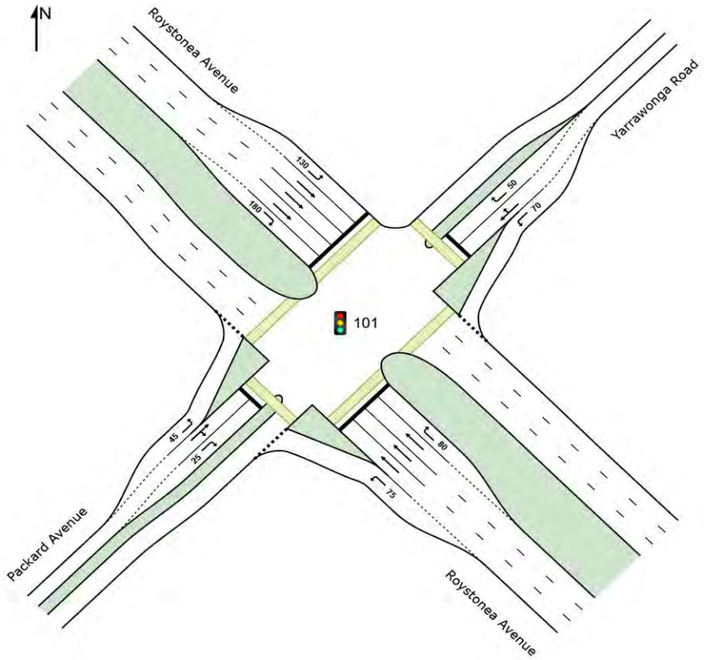
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

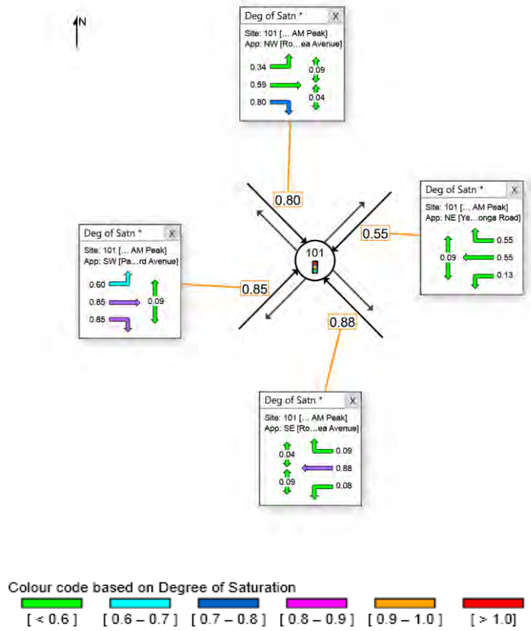


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - No Development with Layout Change
	PM Peak

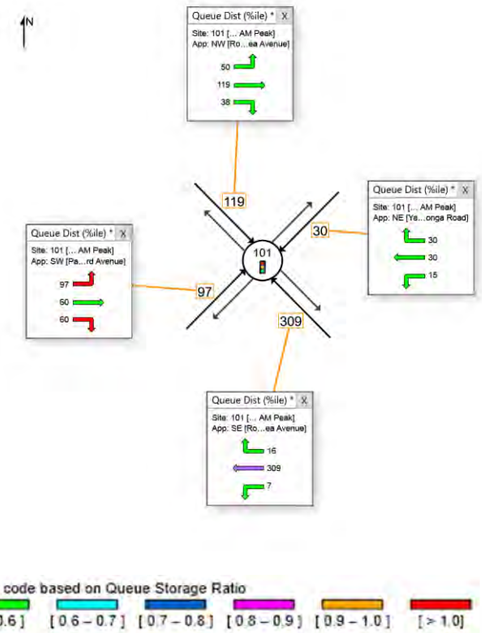
INTERSECTION LAYOUT



DEGREE OF SATURATION



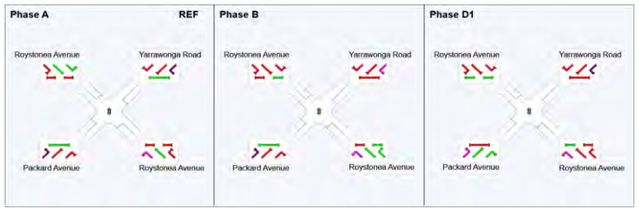
95%ile QUEUE DISTANCE (metres)

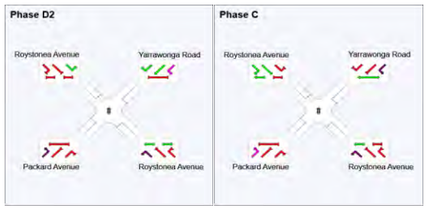


PHASING SUMMARY

Phase Timing Summary

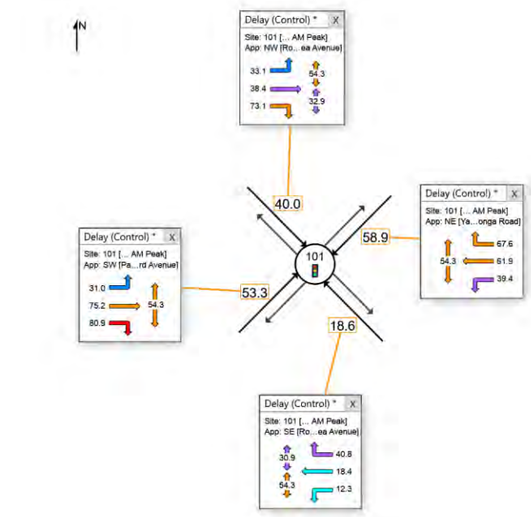
Phase	A	B	D1	D2	C
Phase Change Time (sec)	0	29	75	92	107
Green Time (sec)	25	40	12	8	7
Phase Time (sec)	31	45	19	14	11
Phase Split	26%	38%	16%	12%	9%





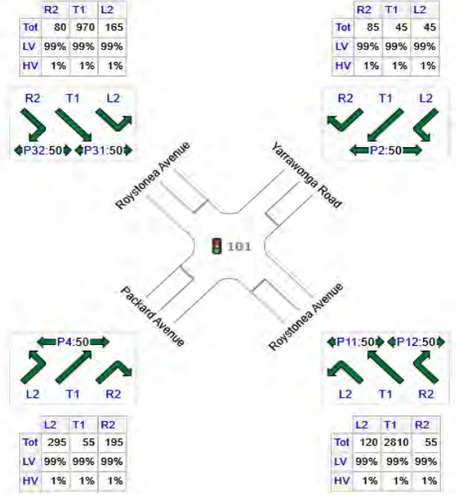
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



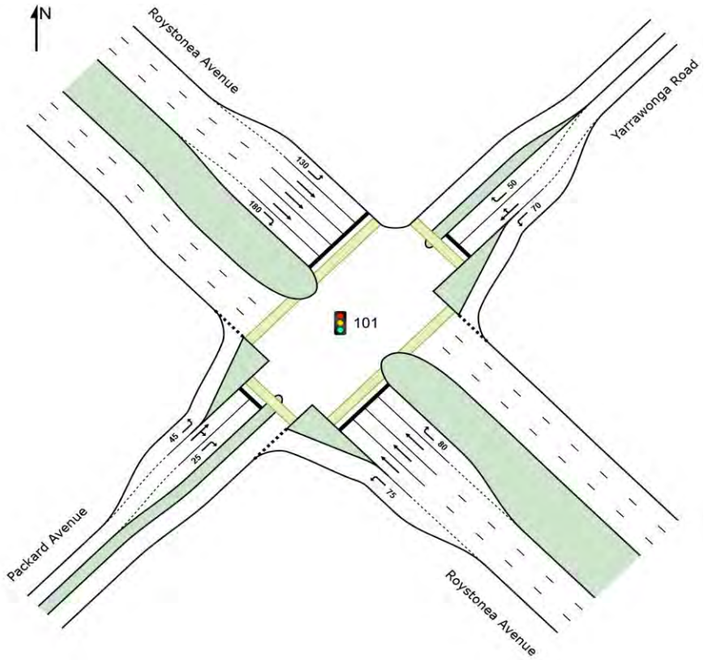
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

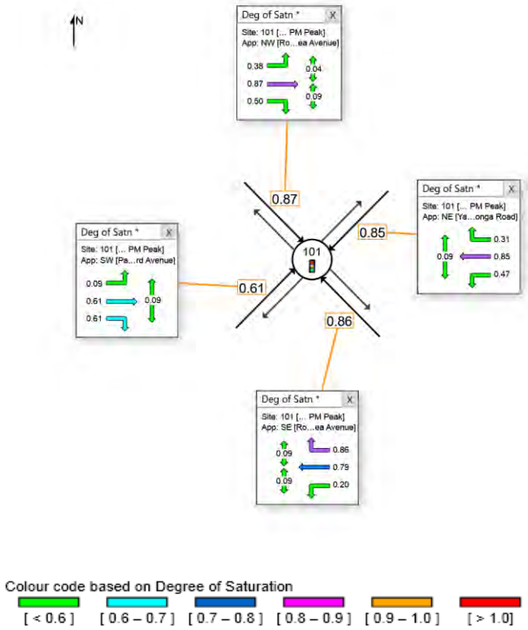


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - Development with Layout Change
	AM Peak

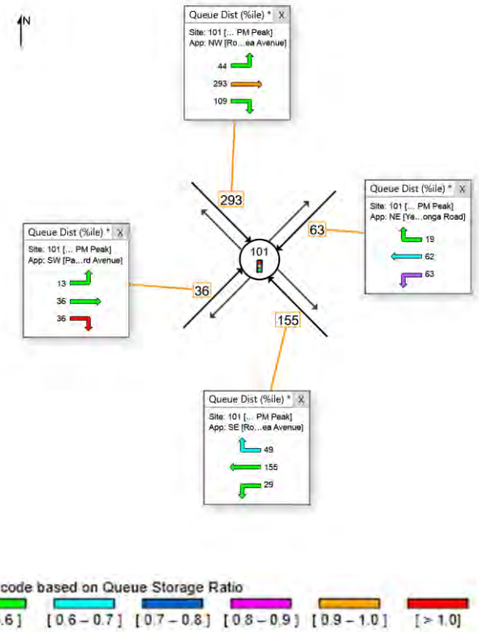
INTERSECTION LAYOUT



DEGREE OF SATURATION



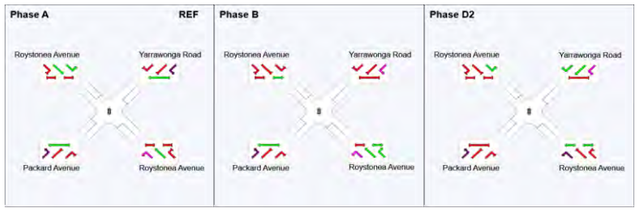
95%ile QUEUE DISTANCE (metres)

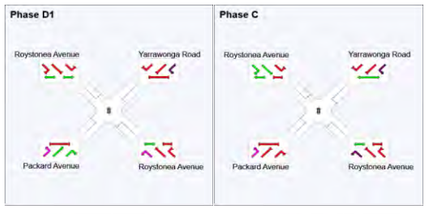


PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D2	D1	C
Phase Change Time (sec)	0	22	36	52	67
Green Time (sec)	16	8	10	9	46
Phase Time (sec)	22	14	16	16	52
Phase Split	18%	12%	13%	13%	43%





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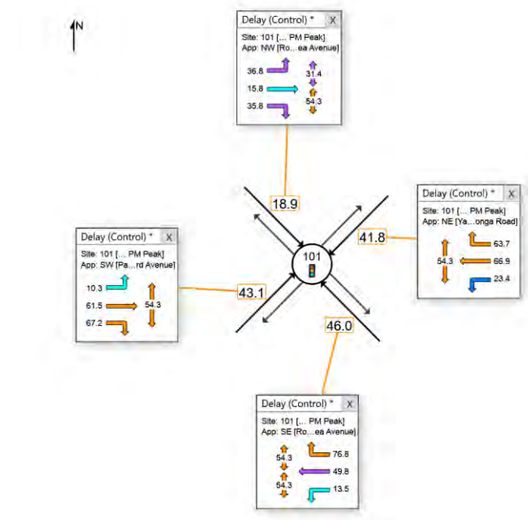
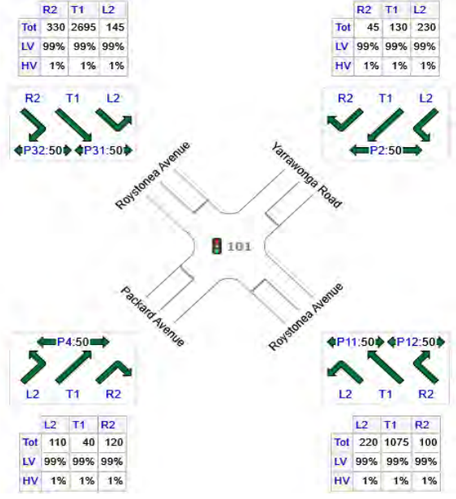
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



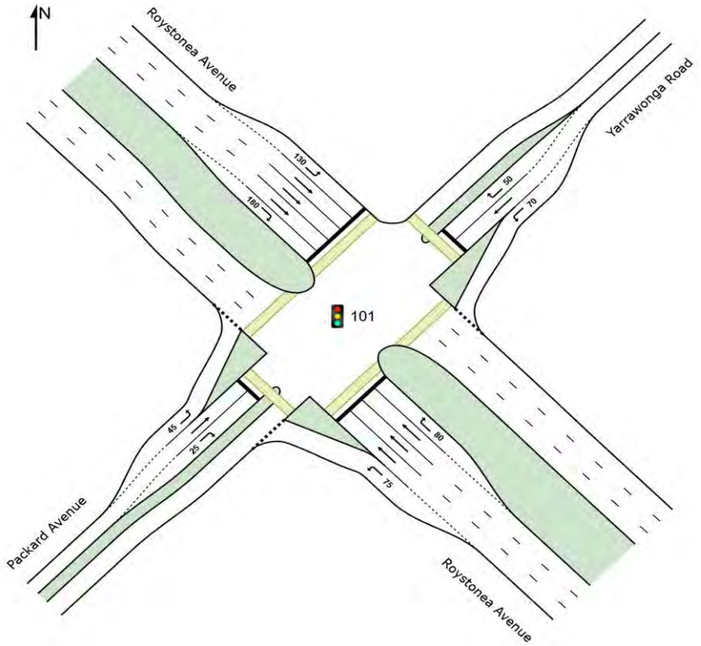
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

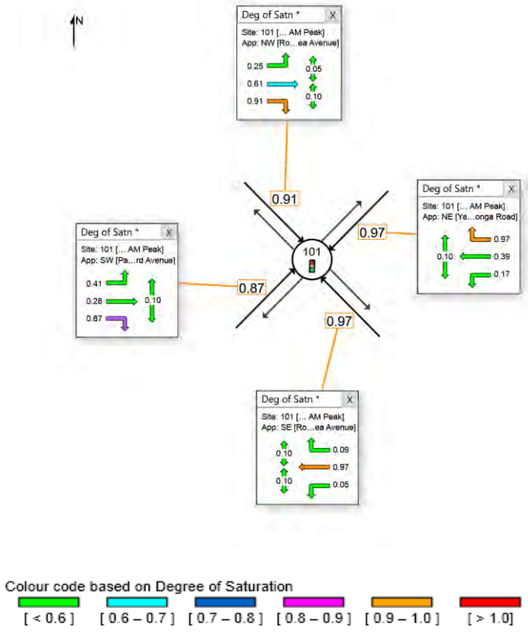


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 1.5% Growth - Development with Layout Change
	PM Peak

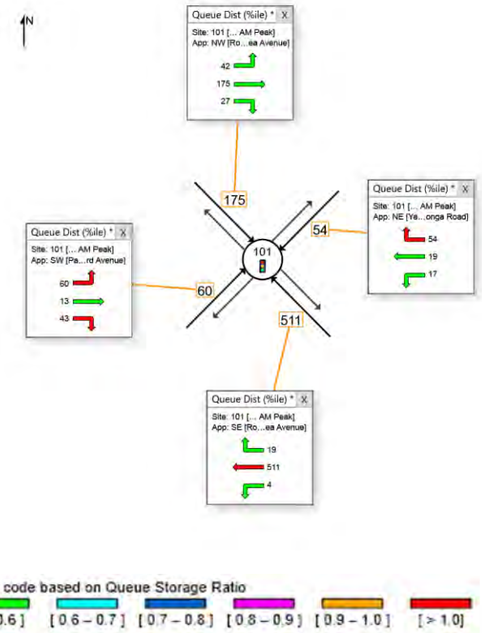
INTERSECTION LAYOUT



DEGREE OF SATURATION



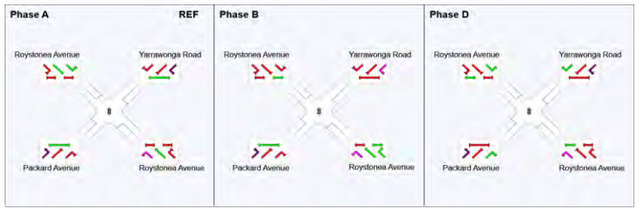
95%ile QUEUE DISTANCE (metres)



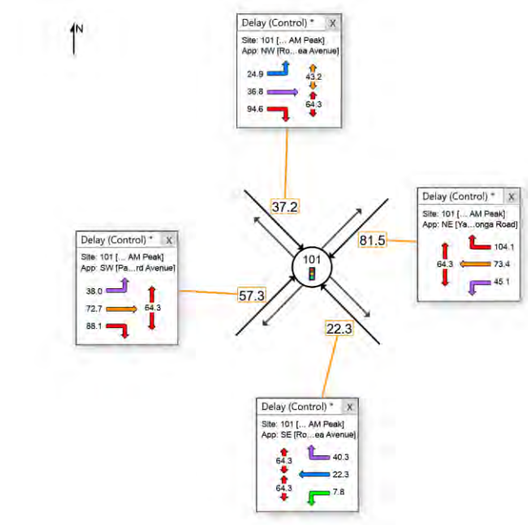
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D	E	C
Phase Change Time (sec)	0	50	104	116	130
Green Time (sec)	46	48	7	7	4
Phase Time (sec)	52	53	14	13	8
Phase Split	37%	38%	10%	9%	6%

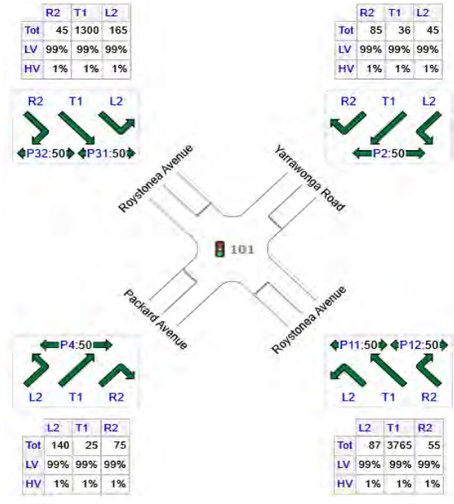


DELAY (CONTROL) & LEVEL OF SERVICE



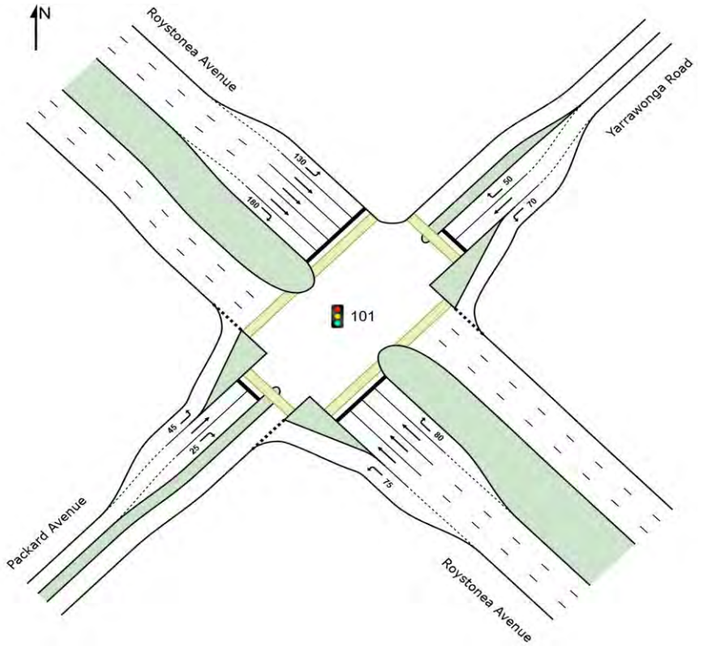
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

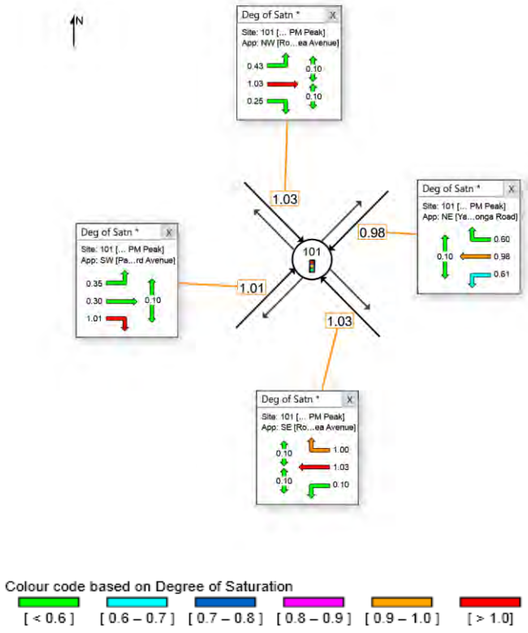


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - No Development
	AM Peak

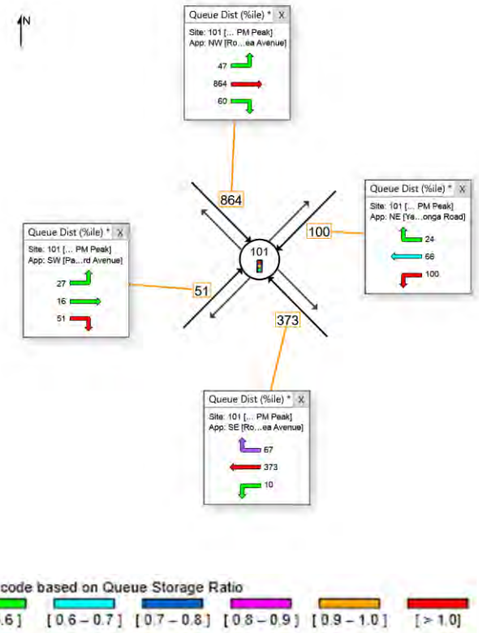
INTERSECTION LAYOUT



DEGREE OF SATURATION



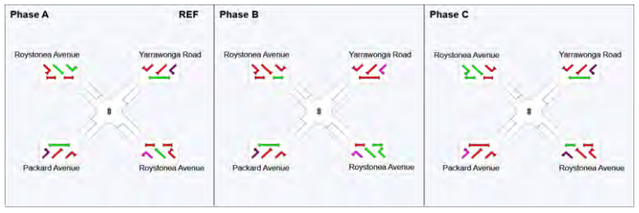
95%ile QUEUE DISTANCE (metres)



PHASING SUMMARY

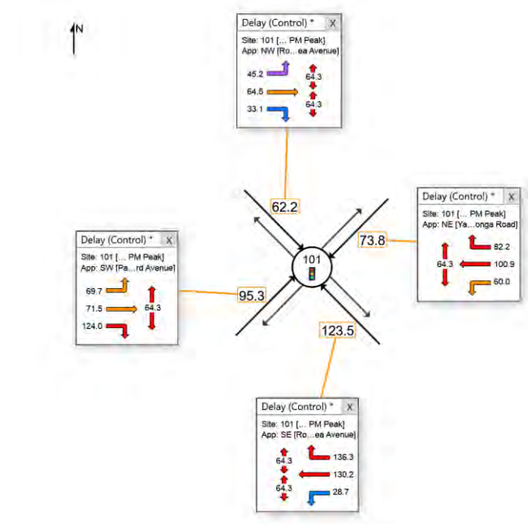
Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	30	99	111	126
Green Time (sec)	24	63	6	8	8
Phase Time (sec)	30	69	13	14	14
Phase Split	21%	49%	9%	10%	10%



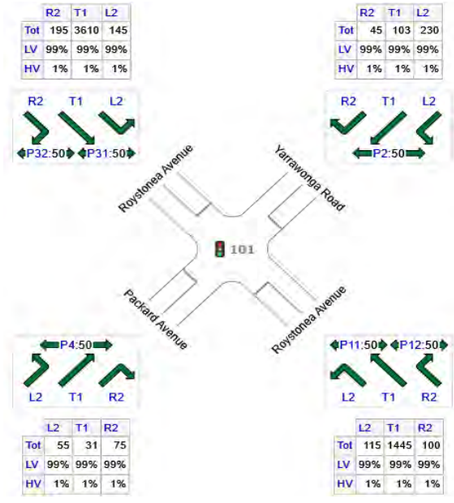
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



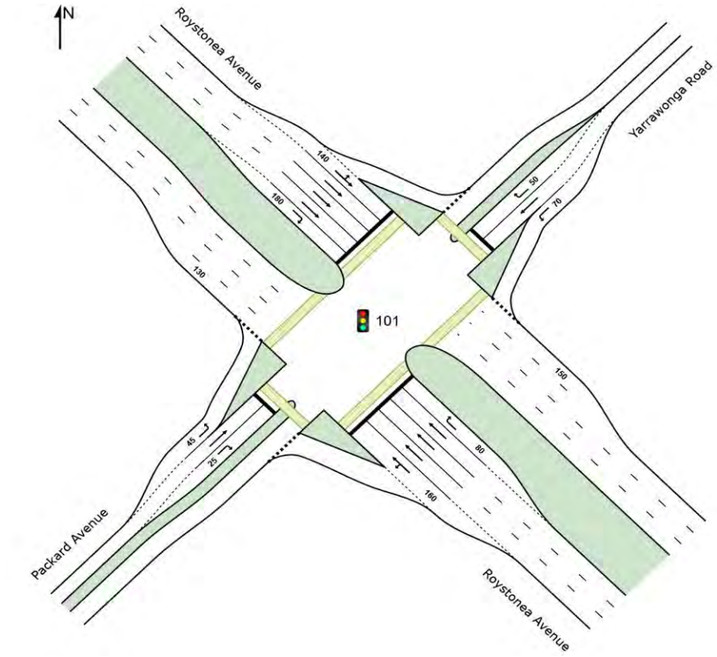
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

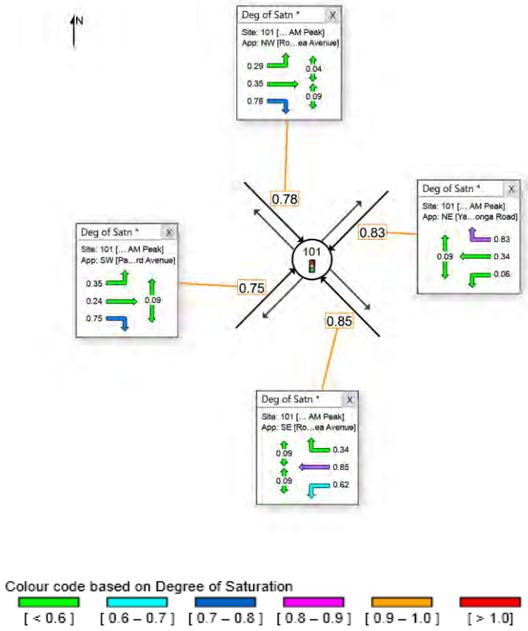


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - No Development
	PM Peak

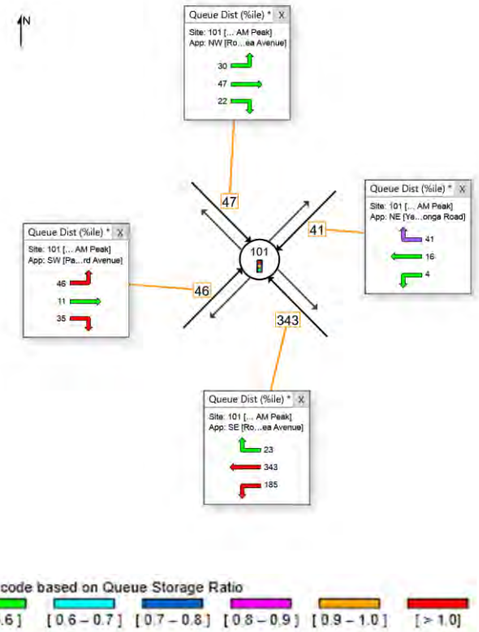
INTERSECTION LAYOUT



DEGREE OF SATURATION



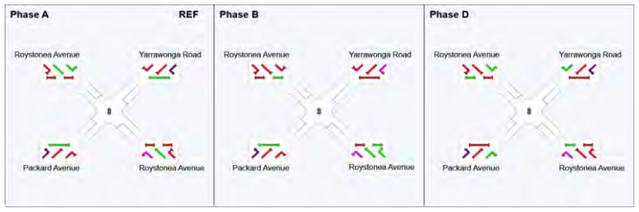
95%ile QUEUE DISTANCE (metres)



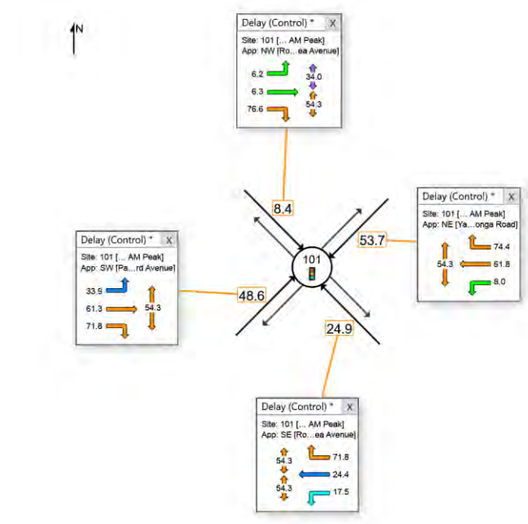
PHASING SUMMARY

Phase Timing Summary

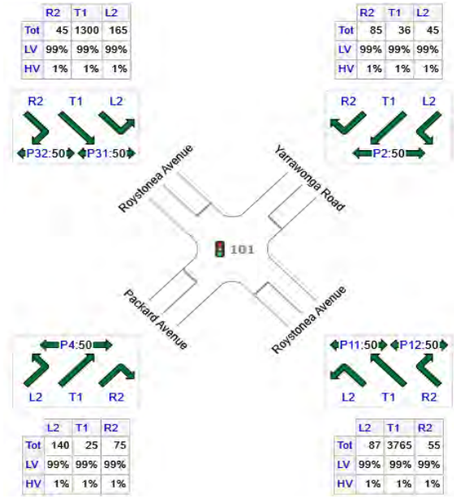
Phase	A	B	D	E	C
Phase Change Time (sec)	0	67	84	96	110
Green Time (sec)	63	11	7	7	4
Phase Time (sec)	69	16	14	13	8
Phase Split	58%	13%	12%	11%	7%



DELAY (CONTROL) & LEVEL OF SERVICE

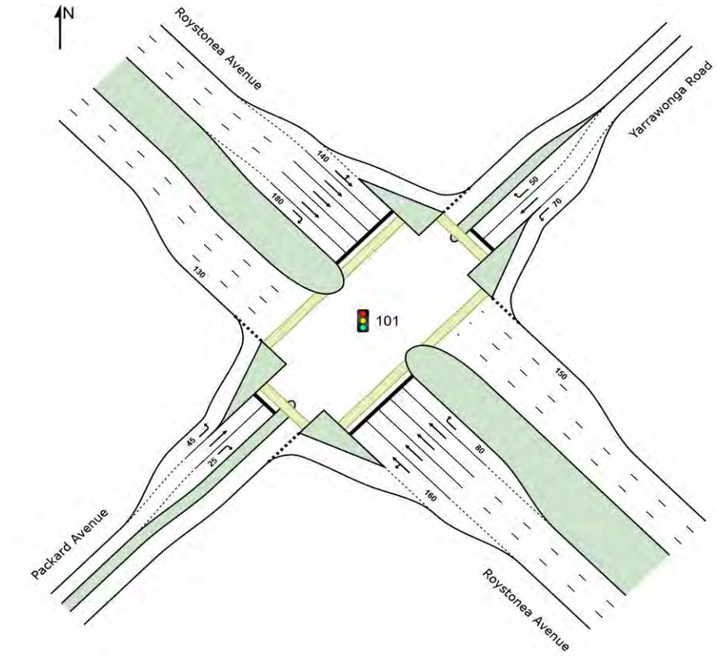


INPUT VOLUMES

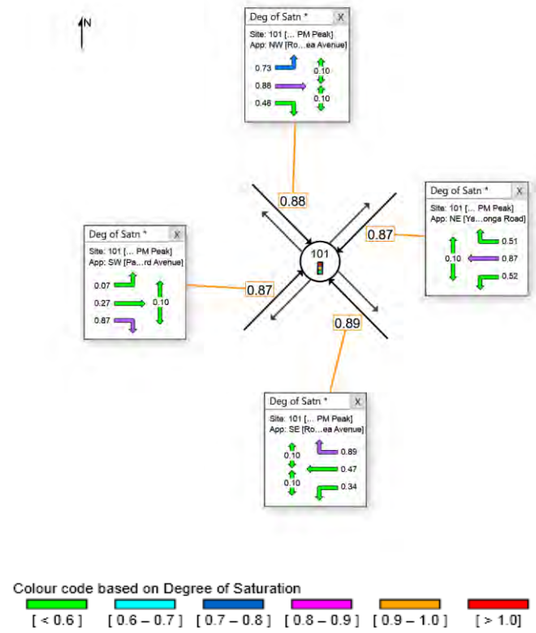


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - No Development with Layout Change
	AM Peak

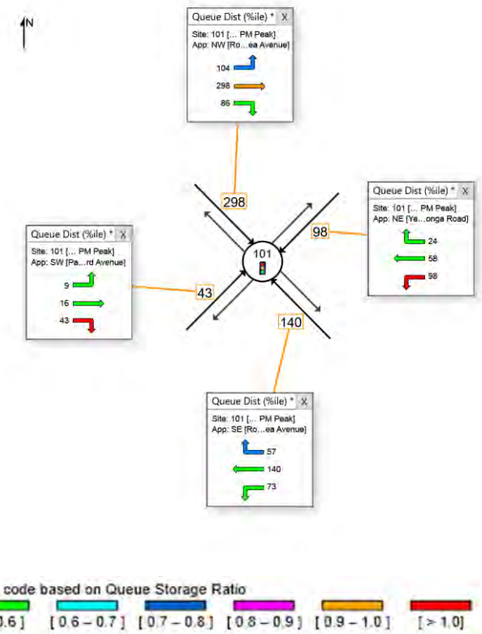
INTERSECTION LAYOUT



DEGREE OF SATURATION



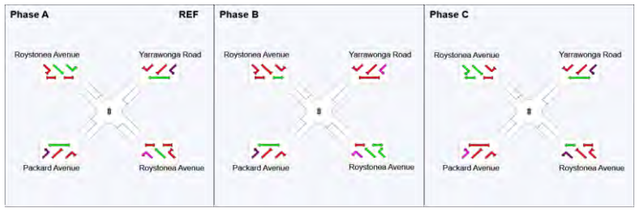
95%ile QUEUE DISTANCE (metres)

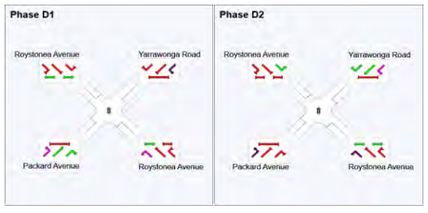


PHASING SUMMARY

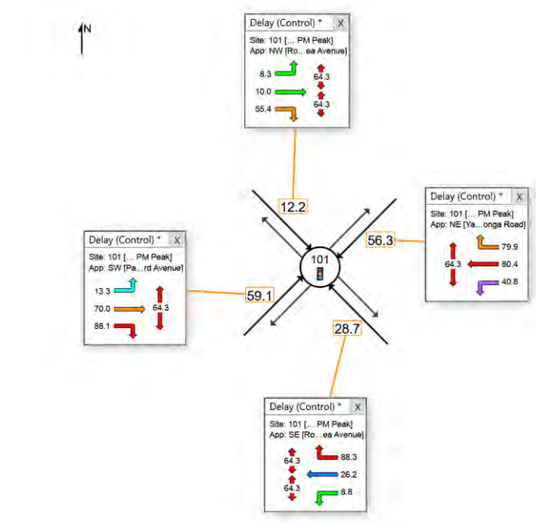
Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	57	96	109	125
Green Time (sec)	51	33	7	9	9
Phase Time (sec)	57	39	14	15	15
Phase Split	41%	28%	10%	11%	11%



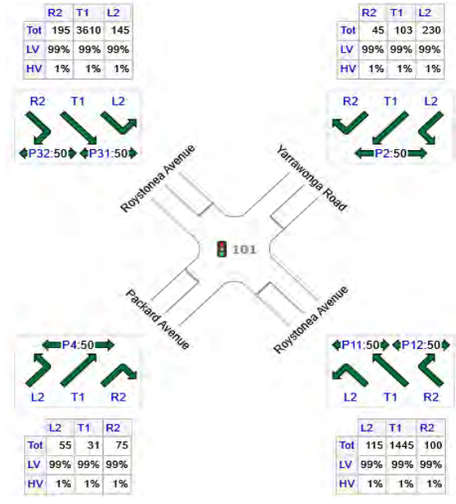


DELAY (CONTROL) & LEVEL OF SERVICE



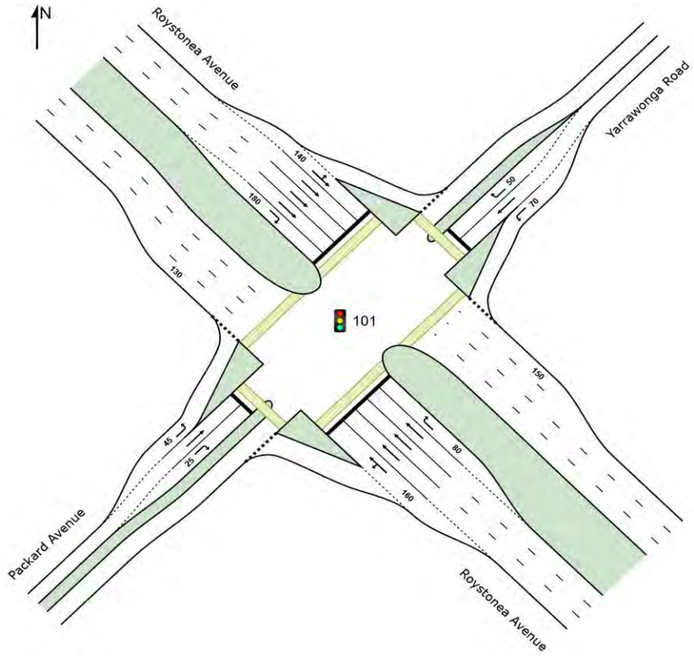
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

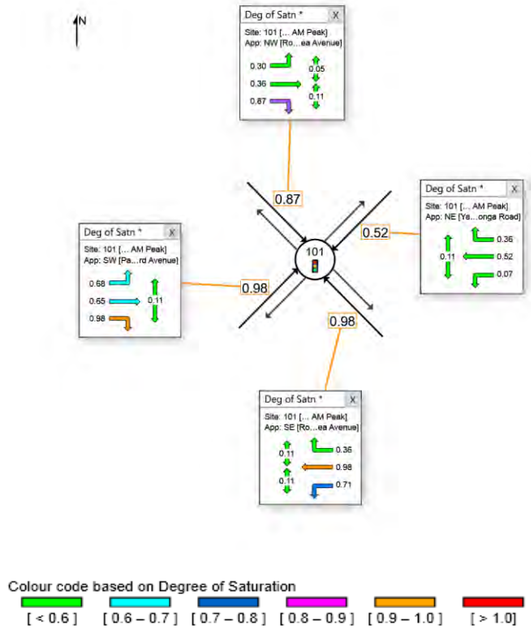


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - No Development with Layout Change
	PM Peak

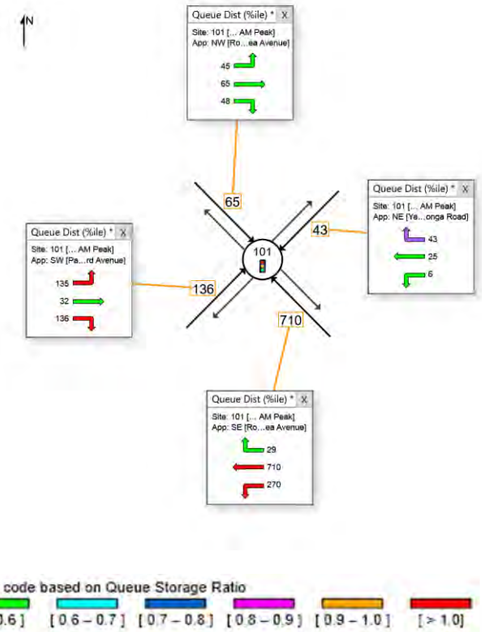
INTERSECTION LAYOUT



DEGREE OF SATURATION



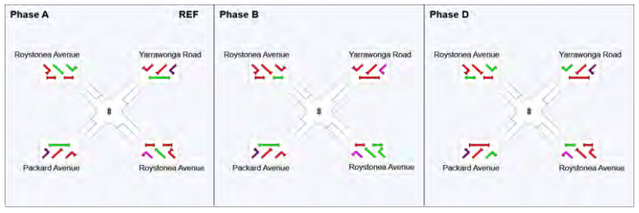
95%ile QUEUE DISTANCE (metres)



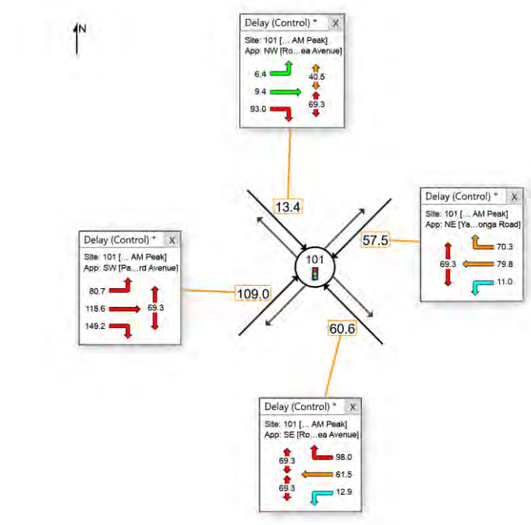
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D	E	C
Phase Change Time (sec)	0	78	97	122	136
Green Time (sec)	74	13	20	7	8
Phase Time (sec)	80	18	27	13	12
Phase Split	53%	12%	18%	9%	8%

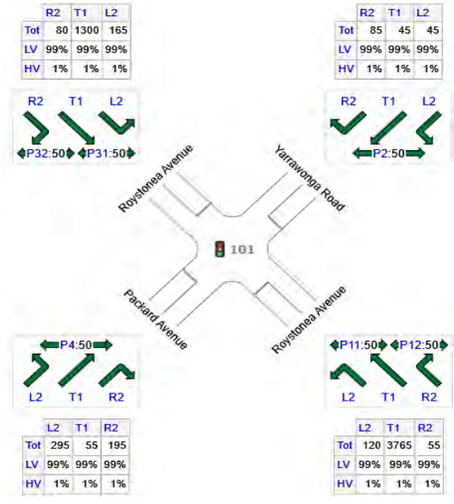


DELAY (CONTROL) & LEVEL OF SERVICE



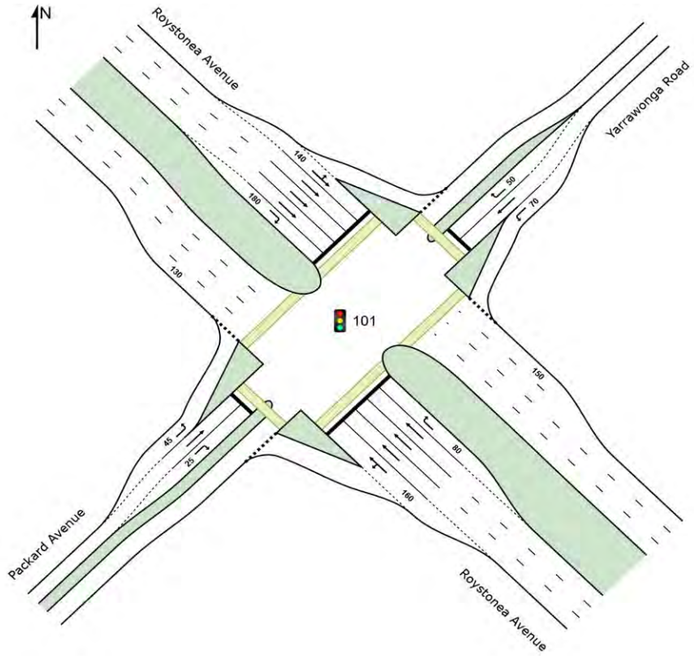
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

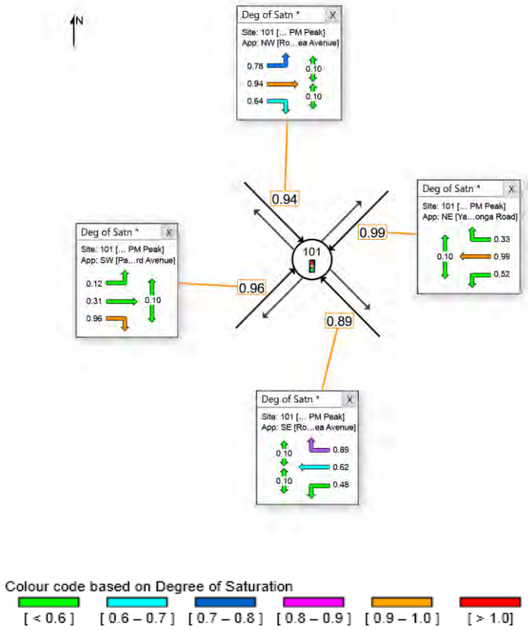


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - Development with Layout Change
	AM Peak

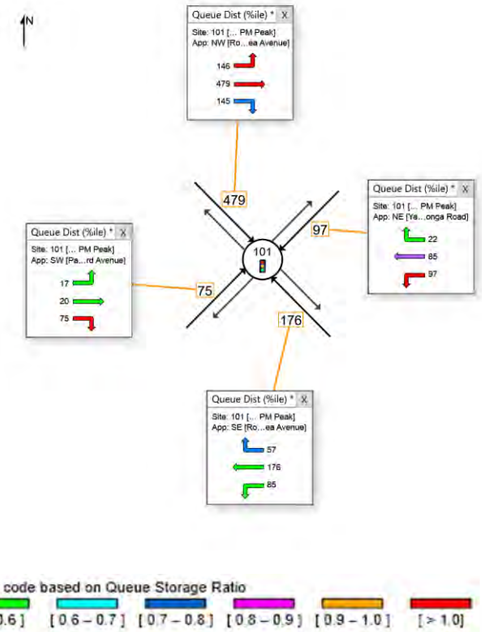
INTERSECTION LAYOUT



DEGREE OF SATURATION



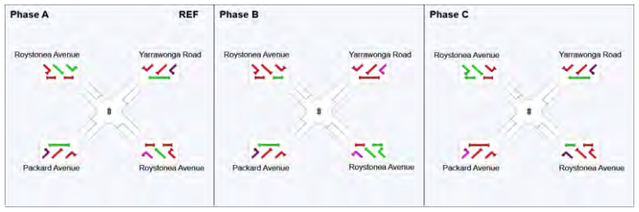
95%ile QUEUE DISTANCE (metres)

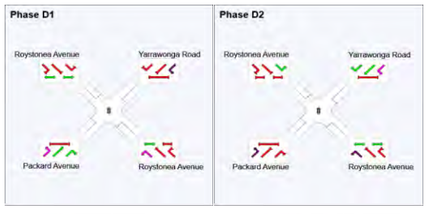


PHASING SUMMARY

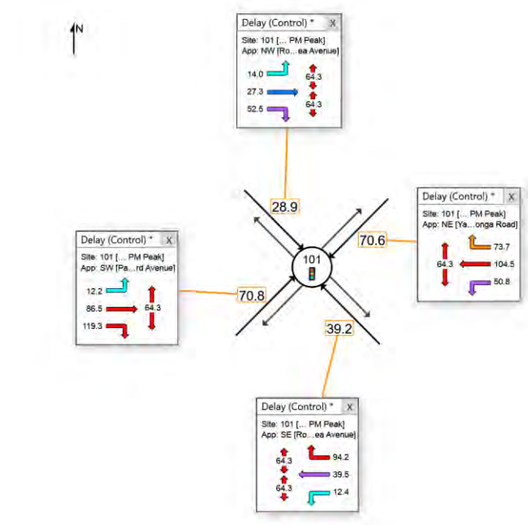
Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	43	91	108	125
Green Time (sec)	37	42	11	10	9
Phase Time (sec)	43	48	18	16	15
Phase Split	31%	34%	13%	11%	11%



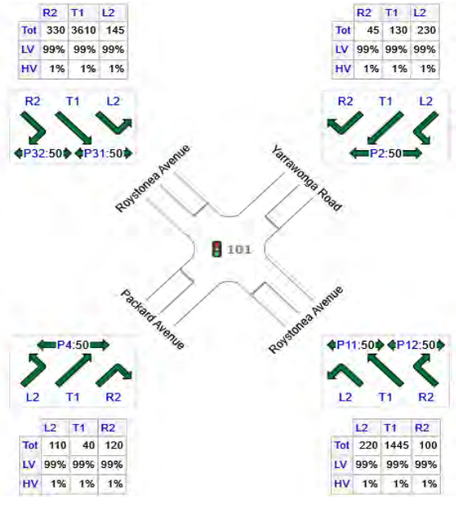


DELAY (CONTROL) & LEVEL OF SERVICE



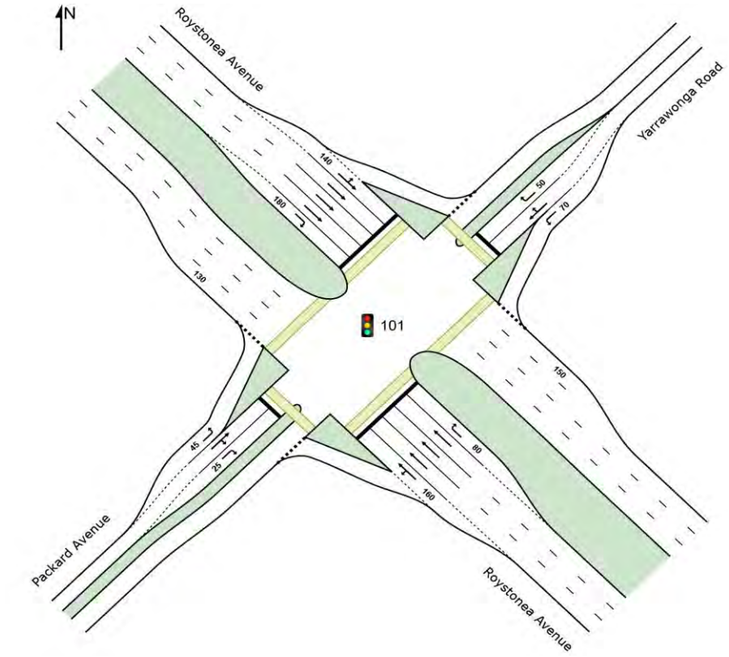
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

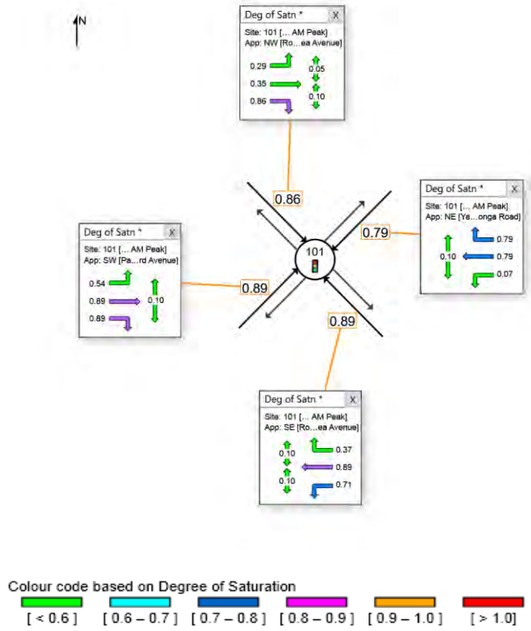


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 3% Growth - Development with Layout Change
	PM Peak

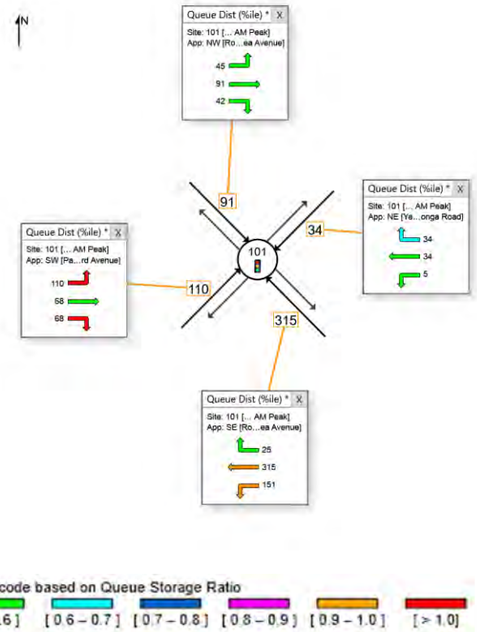
INTERSECTION LAYOUT



DEGREE OF SATURATION



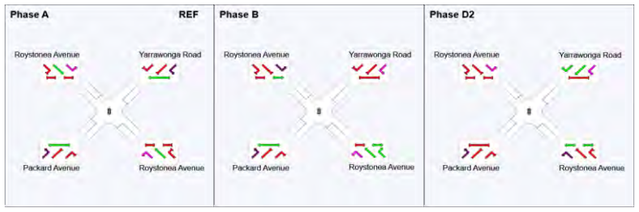
95%ile QUEUE DISTANCE (metres)



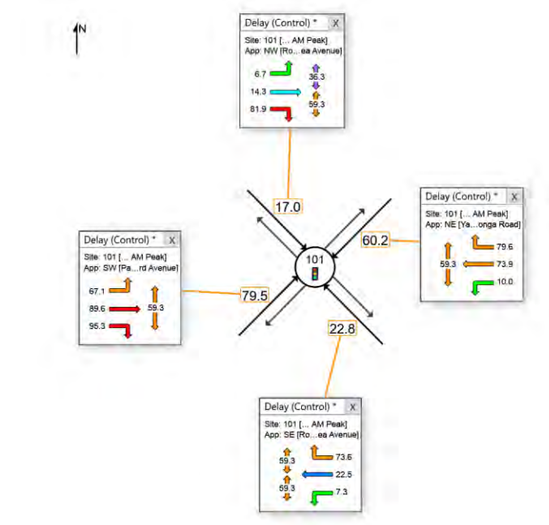
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D2	D1	C
Phase Change Time (sec)	0	69	86	97	116
Green Time (sec)	65	11	6	13	7
Phase Time (sec)	71	16	12	20	11
Phase Split	55%	12%	9%	15%	8%



DELAY (CONTROL) & LEVEL OF SERVICE



SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	80	1300	165
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	85	45	45
LV	99%	99%	99%
HV	1%	1%	1%

R2 T1 L2 ◆P32:50 ◆P31:50

R2 T1 L2 ◆P2:50

P4:50◆ L2 T1 R2

◆P11:50 ◆P12:50 L2 T1 R2

	L2	T1	R2
Tot	295	55	195
LV	99%	99%	99%
HV	1%	1%	1%

	L2	T1	R2
Tot	120	3765	55
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
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INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
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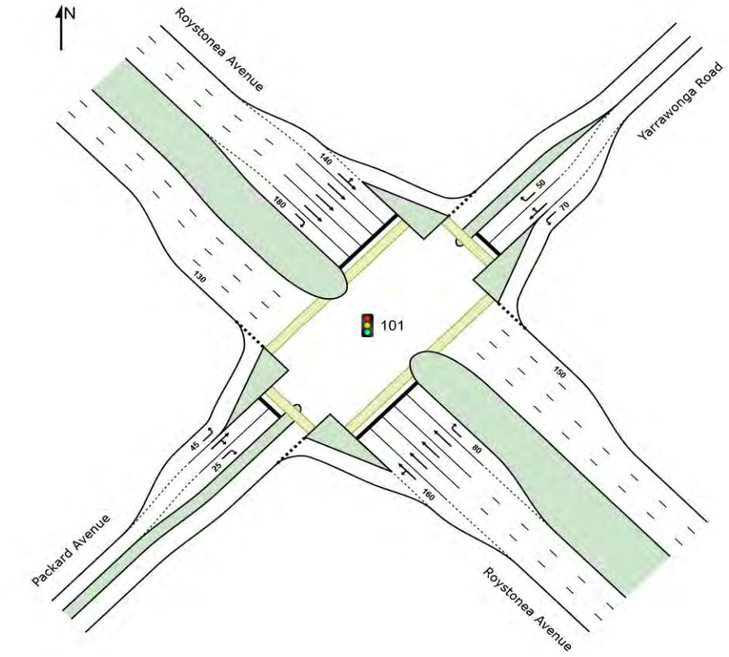
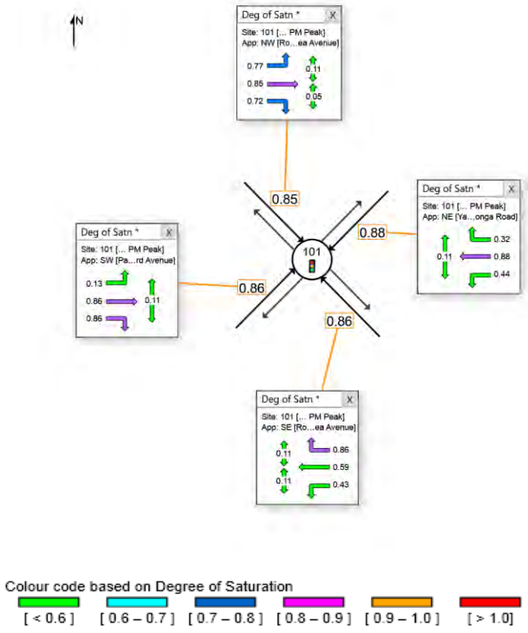
	AM Peak

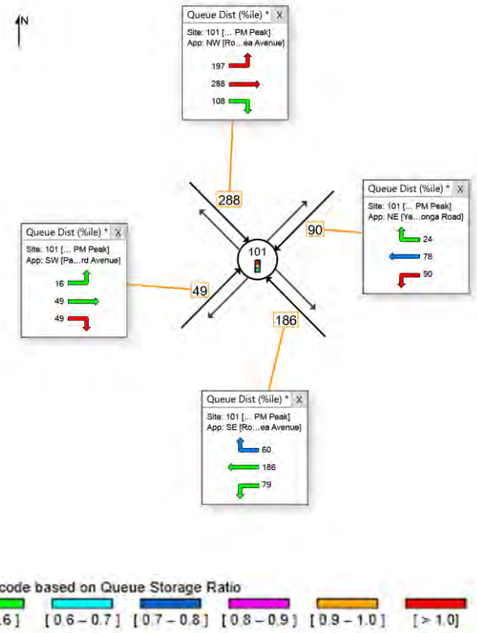
INTERSECTION LAYOUT



DEGREE OF SATURATION



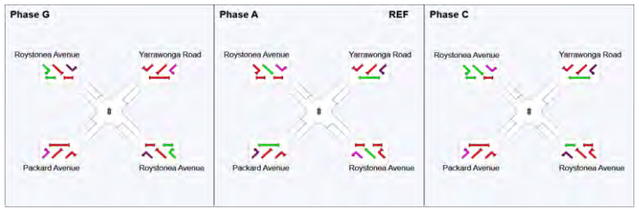
95%ile QUEUE DISTANCE (metres)



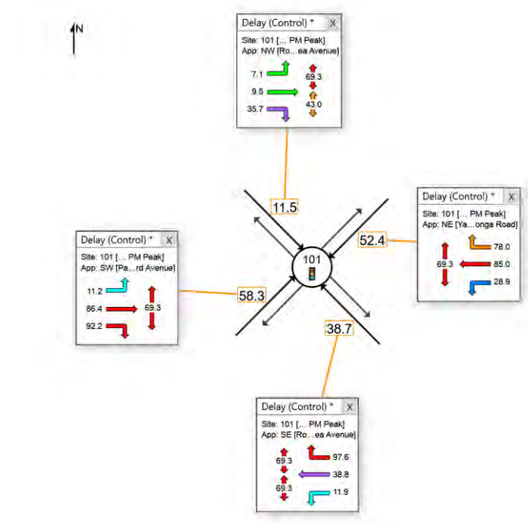
PHASING SUMMARY

Phase Timing Summary

Phase	G	A	C	D1	D2
Phase Change Time (sec)	134	0	66	102	116
Green Time (sec)	10	60	30	8	12
Phase Time (sec)	16	66	36	14	18
Phase Split	11%	44%	24%	9%	12%

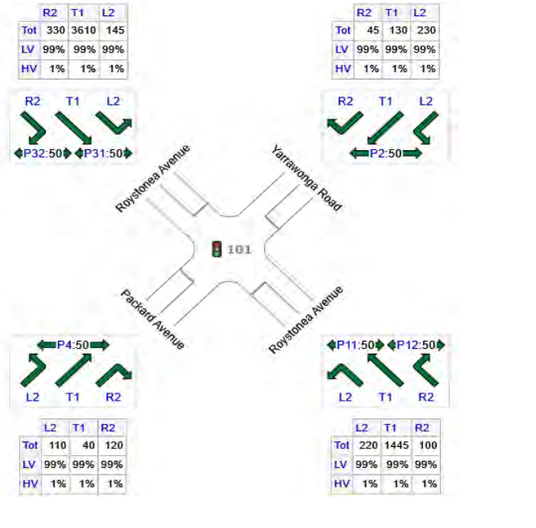


DELAY (CONTROL) & LEVEL OF SERVICE



SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES



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	PM Peak

Ecology and Heritage Constraints Assessment – The Heights, Durack

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2	Glen Ewers	Glen Ewers	Kassi Picken (Urbex)	13 December 2022

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1 INTRODUCTION

Urbex engaged EcOz Environmental Consultants (EcOz) to prepare an ecology and heritage constraints assessment for two adjacent properties; Lots 12954 and 14473 (known herein as the 'site') located in The Heights, in Durack, Northern Territory (NT). The site is approximately 50 ha and is currently privately owned by Charles Darwin University. Figure 1 shows the site location.

This report provides an assessment of the potential presence of ecological and heritage constraints to support Urbex's due diligence – with regards to land clearing approval – prior to residential development of the site.

To ascertain the constraints potentially present at the site, EcOz undertook a desktop analysis – using a combination of spatial datasets – which was then supplemented by a site inspection. Specifically, this assessment:

- Investigates the veracity of existing land unit descriptions (vegetation, landform, slope and surface soil).
- Assesses habitat quality based on evidence of threatening processes (such as fire, weeds, previous disturbance).
- Presents a threatened species' likelihood of occurrence assessment based on the habitats present, modelling and proximate records.
- Identifies sensitive vegetation types.
- Provides a preliminary assessment of heritage values – via communications with the NT Heritage Branch – and sacred sites – via an Aboriginal Area Protection Authority (AAPA) Register check.

This report presents the methods and results of those studies. Report findings complement the contamination due diligence report prepared by EcOz (refer to report issued 18 August 2022).

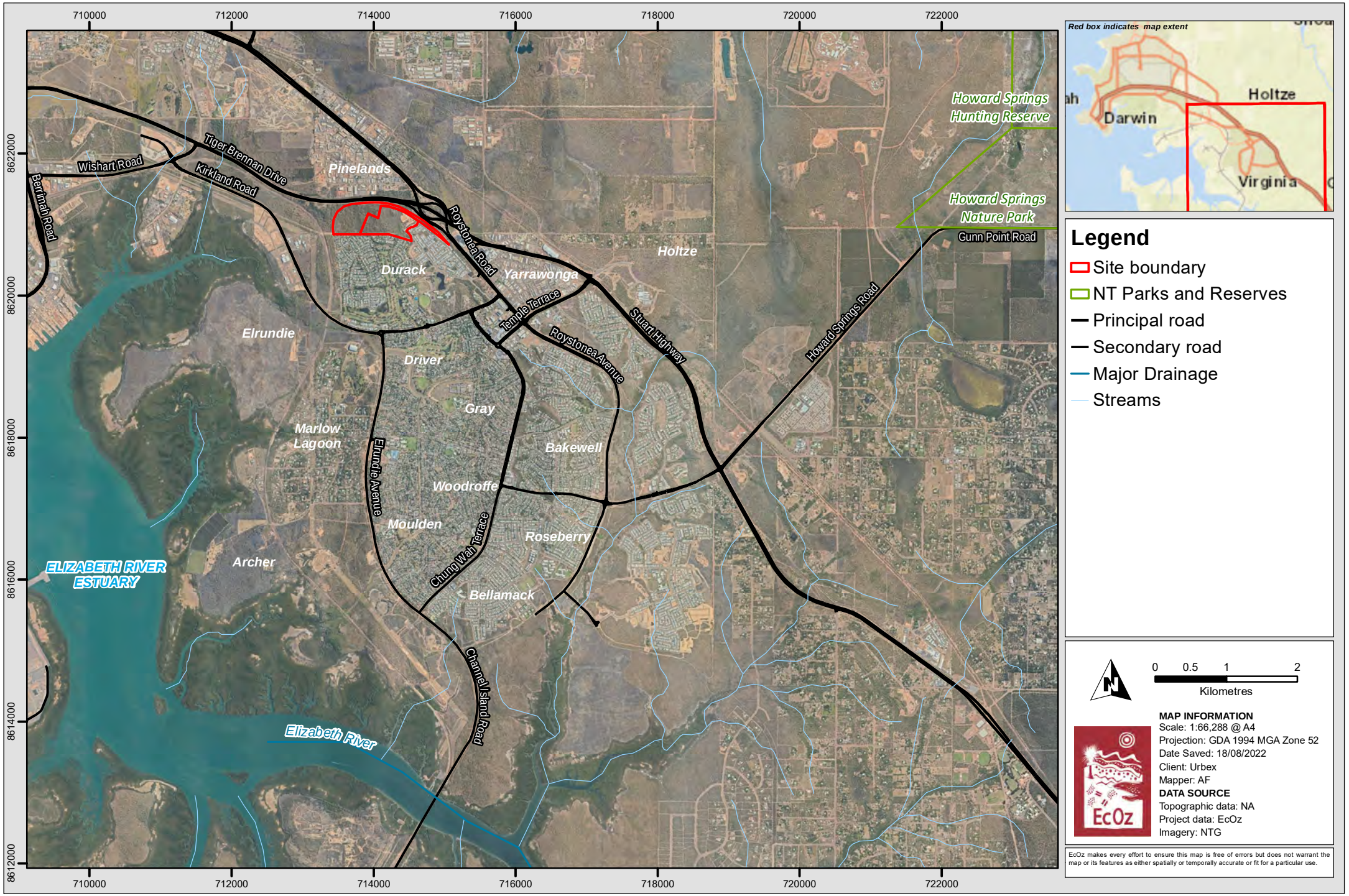

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Figure 1. Map of site location

2 LAND UNIT DESCRIPTIONS

A land unit is a homogenous part of a land surface, distinct from surrounding terrain with consistent properties in landform, soil and vegetation (Jessop & King 1997). Their scale is useful for identifying habitat features that may support threatened species and sensitive vegetation types. The site is within the extent of land unit mapping of the Greater Darwin region at a scale of 1:25,000 (Fogarty et al. 1984).

On 9 August 2022, EcOz botanist Anna Lemon undertook a site inspection to verify landforms present, dominant flora species in different stratum, and slopes and surface soils in order to ground-truth the mapped land units. Eleven check sites were selected from aerial imagery as representative of probable land units within the site. Data collected from the site inspection (Appendix A) were then compared with desktop findings. Where necessary, land unit descriptions were adjusted to reflect results from field verification. This information was used to ascertain the ecological values the site is able to support.

A breakdown of the land units and soils confirmed at the site is presented below in Table 1 and Figure 1. Five land units occur within the site, comprising of rises and drainage lines which supports sparse to moderately dense mid-stratums. Most of the site consists of side slopes and rises (land units 2b1, 2b2 and 1c, respectively) with Eucalypt woodland present along the western and northern boundaries (Figure 3 and Figure 4). A significant proportion of the western boundary had experienced a recent fire – estimated to have occurred in the months prior to the site inspection. Broad drainage systems (land unit 6b) were observed along the southern and eastern site boundaries which comprises an open shrubland of species used to seasonal waterlogging, with a grassland understorey (Figure 5). Land unit 4c, which consists of plains with open forest of *Eucalyptus* species, was mapped but ground-truthed as absent from the site. Land units along the eastern boundary of the site were not able to be verified due to access constraints; however, satellite imagery suggests that 26 % of the site is disturbed due to development activities.

Table 1. Summary of the land units relevant to the site

Land unit	Landform	Soil	Slope	Habitat type and vegetation	Area (ha) in site
1c	Rises and short steep slopes	Leptic Rudosols	5 - 15%	Woodland of *Eucalyptus miniata*, *Eucalyptus tetrodonta* and *Corymbia bleeseri* over *Sorghum* spp.	10.07
2b1	Side slopes	Brown Kandosols	2 - 5%	Open woodland to woodland of *Eucalyptus miniata*, *Eucalyptus tetrodonta*, *Corymbia foelscheana*, *Eucalyptus tectifica* over *Sorghum* spp.	14.76
2b2				Low open to open woodland of *Eucalyptus miniata* and *Eucalyptus tetrodonta* over sparse grasses	0.67
6b	Broad lowland plains	Tenosolic Redoxic Hydrosols	<1.5%	Tall shrubland to low open woodland of *Grevillea* spp., *Melaleuca* spp., *Lophostemon lactifluus* over annual *Sorghum* sp., *Heteropogon triticeus*, *Eriachne* spp.	10.78
Disturbed	Varies			Cleared native vegetation. Landform and surface soils altered.	12.73

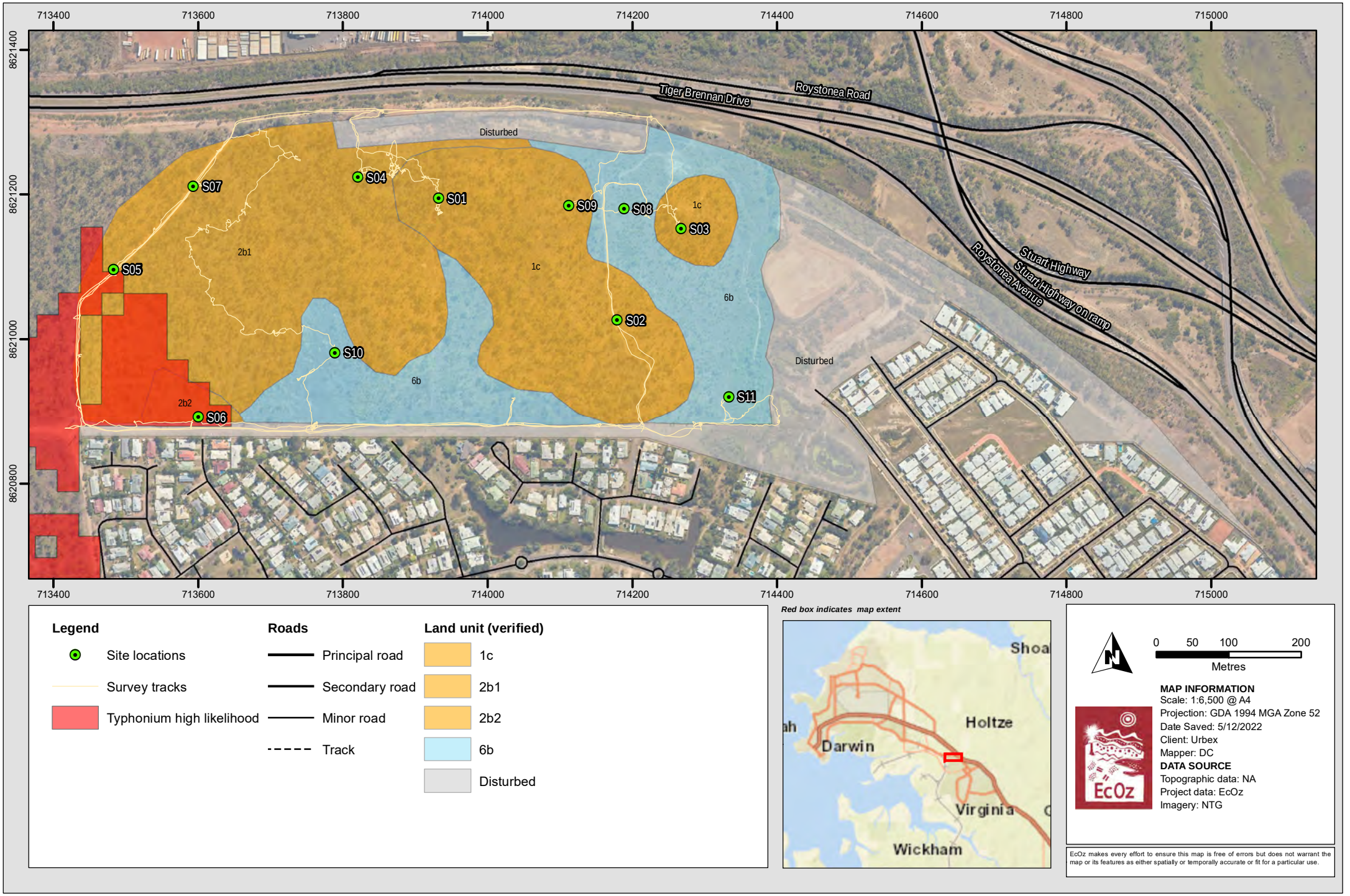

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Figure 2. Map of verified land units and Typhonium praetermissum modelled likelihood habitat

Figure 3. Photograph of land unit 2b1 observed post-fire within the site

Figure 4. Photograph of land unit 1c (rises) observed within the site

Figure 5. Photograph of land unit 6b (drainage systems) observed within the site

3 HABITAT QUALITY AND THREATENING PROCESSES

The desktop and field studies identified a number of threatening processes to biodiversity as a consequence of human presence in the region. These are discussed below.

3.1 Fire

The northern savannas constitute the most fire-prone landscapes in Australia (Russell-Smith & Whitehead 2015), and regular fires have always been a natural part of the environment in the Top End. However, frequent fires can result in fewer flora species and reduced structural complexity (McKay 2017), both of which can also significantly diminish the habitat quality for fauna and facilitate weed invasion.

Regional fire history and fire scar mapping was obtained through the Northern Australia and Rangelands Fire Information (NAFI) website. This mapping shows that from 2012 – 2021, fire has impacted the site across four years – 2012, 2013, 2014 and 2016. the entire site was impacted by fire in 2014. Fires have also encroached into sections of the eastern boundary in late 2012 and the western boundary in 2013 and 2016.

The site inspection showed that a 2022 fire – estimated to have occurred in recent months prior to the site inspection – has impacted a large proportion of the western section of the site. The recent fire did not restrict access throughout the site, but likely reduced the capacity of the botanist to detect some weed species and identify the extent of weed infestations. . Figure 3 presents an indicative photograph of a fire-impacted site.

3.2 Weeds

Some species of introduced flora are declared to be weeds under the NT *Weeds Management Act* because of the environmental and/or economic harm they can cause. Class A weeds are to be eradicated by landowners and occupiers. Class B weeds must have their growth and spread controlled by landowners and occupiers. The remaining introduced flora species are referred to as *environmental weeds*. The Commonwealth Government has also categorised some species as Weeds of National Significance (WoNS).

A desktop review of the NT Weed Branch weed dataset identified records for 31 introduced flora species – including both declared and environmental weeds – within the site and surrounding area. The most frequently reported species is Gamba Grass (*Andropogon gayanus*).

The site inspection detected four weed species in varying patch sizes and densities throughout the site. A list of weeds and indicative photographs is presented in 2 and Figure 6 respectively. Gamba Grass was the most widespread across the site – ranging from sparsely distributed to fairly dense patches in areas of significant disturbance. Tully Grass (*Urochloa humidicola*) and Stylo (*Stylosanthes* sp.) were observed in very dense patches (> 50% cover) within the drainage system as well as near the stormwater ponds in the south-east corner of the site. Hyptis (*Hyptis suaveolens*) and Annual Mission Grass (*Cenchrus pedicellatus*) were observed only once; however, given a recent fire had burnt a large proportion of the western section of the site prior to the site inspection, it is unlikely that the full extent of weed infestations were observed. Accordingly, some weeds may not have been detected.

Table 2. List of weeds observed within the site

Common name	Scientific name	Status	No. of observations
Gamba Grass	*Andropogon gayanus**	Class A & B	14
Hyptis	*Mesosphaerum suaveolens*	Class B	1
Annual Mission Grass	*Cenchrus pedicellatus*	Not Declared	1
Stylo	*Stylosanthes* sp.	Not Declared	1
Tully Grass	*Urochloa humidicola*	Not Declared	1

**Denotes Weed of National Significance (WoNS)*

Figure 6. Photographs showing infestations of Gamba Grass (top), Stylo (left) and Tully Grass (right)

3.3 Previous disturbance

Illegally-dumped household waste, abandoned vehicles, soil stockpiles and scrap metal associated with extraction/gravel pit works, and building materials were recorded during the site inspection. Communication with the NT Heritage Branch suggests the presence of a concrete slab may be attributed to WWII military activities. For further information, refer to the contamination due diligence report issued 18 August 2022.

4 ECOLOGICAL AND HERITAGE VALUES

The following section outlines the key ecological and heritage values of the site that were identified in the desktop assessment and site inspection.

4.1 Sensitive vegetation

In the NT, sensitive vegetation types are those considered significant under the *Land Clearing Guidelines* (DEPWS 2021a) due to their unique and/or inherently high biodiversity values. They include rainforest, vine thicket, closed forest or riparian vegetation, mangroves, monsoon vine forest, sandsheet heath and vegetation containing large trees with hollows suitable for fauna.

The rainforests overlay on NR Maps (DEPWS 2000) suggests rainforest occurs within the site; however, satellite imagery indicates that rainforest habitat is not present. Absence of rainforest habitat was verified during the site inspection.

The site contains vegetation and soils consistent with drainage lines and rises (including side slopes) with sparse to moderately dense mid-stratum (Section 2). Upper-stratum vegetation – such as *Eucalyptus* and *Corymbia* species – are insufficient in size and therefore no large (or hollow-bearing) trees were observed. This may be attributed in part to frequent fires described in Section 3.1.

4.2 Threatened species

The assessment focuses on flora and fauna species that are listed as Vulnerable, Endangered or Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (*EPBC Act*) and/or the NT *Territory Parks and Wildlife Conservation Act* (*TPWC Act*).

Habitat modelling completed by the NT Government identified potential habitat for the threatened flora species *Stylidium ensatum*, *Typhonium praetermissum* and *Ptychosperma macarthurii* within the site. However, satellite imagery and the site visit indicate there is no rainforest or riparian habitat within the site, and therefore the habitat is not suitable for *Ptychosperma macarthurii*. Likewise, no suitable habitat was observed for *Stylidium ensatum* during the site inspection. Modelled habitat for the species occurs in land unit 6a, which generally lacks the closed vegetation type typically associated with the species. Soils within the modelled habitat had also dried during the dry season prior to the site inspection (Figure 7). *Typhonium praetermissum* may be present – see Section 4.2.3.

Figure 7. Photographs of unsuitable habitat for *Stylidium ensatum*

4.2.1 Procedure

The purpose of this assessment is to identify which threatened species known from the region have the potential to occur within the site, and which can be reasonably excluded from further assessment because they are unlikely to occur within the site. The following procedure was undertaken:

- Records of threatened flora and fauna species within the Darwin Coastal bioregion from the NT Government's Flora and Fauna Atlases were used to generate a list of species records, dates and number of records. Bioregions give a broad area with largely similar habitat characteristics and species assemblages. The consideration of species records at a bioregion level ensures all potential species are accounted for.
- The EPBC Protected Matters Search Tool (PMST) (accessed September 2022) was used to generate a list of threatened flora and fauna species that may occur within the site. The PMST is an online enquiry tool managed by the Commonwealth Department of Climate Change, Energy, the Environment and Water which interrogates a range of existing flora and fauna data, as well as predictive modelling to speculate on the presence of species within a search area. The PMST uses a grid system to determine which protected matters it encapsulates for a particular search. The PMST report (Appendix B) was generated on 19 September 2022.
- Information about the habitat type and quality obtained during the site inspection was used to identify which species are reasonably likely to occur within the site.
- The likelihood that each threatened species will occur in the site was evaluated. This was based on a synthesis of their habitat requirements, the habitat within the site, and the distribution, abundance and recency of proximate species records. Likelihood ratings are defined in Table 3.

Table 3. Ratings for the desktop threatened species likelihood of occurrence assessment

Rating	Definition
KNOWN	The species is confirmed to live within the site.
HIGH	It is expected that this species lives within the site because there is core habitat and recent (post-2000) proximate records or knowledge that the species occurs in the local area.
MEDIUM	This species may live within the site because there is suitable habitat; however, there is evidence that lowers its likelihood of occurrence (known range contraction of the species in the region, no recent records with the search area, substantial loss of habitat within the site since previous records, species is naturally-rare or occurs at a low density etc.).
LOW	This species may occur, as a vagrant, within the site; only marginally-suitable habitat is present.
NONE	There is strong evidence that this species will not occur within the site (i.e. there is no suitable habitat and/or the species is considered to be regionally-extinct).

Note: Statuses used are CR – Critically Endangered; DD – Data Deficient, EN – Endangered; NE – Not Evaluated; NT – Near Threatened; VU – Vulnerable.

There are records of 61 terrestrial threatened species within the Darwin Coastal bioregion. This includes the 21 threatened species identified within the Protected Matter Search Tool report (Appendix B). Of these, there are:

- 9 species that only occur in the Kakadu region.
- 4 species that only occur in the bioregion as vagrants.
- 8 migratory shorebirds with no suitable habitat within the site.
- 20 species with restricted ranges and/or distributions of strong associations with habitat types not present within the site.

This leaves a total of 20 threatened species considered in the 'likelihood of occurrence' assessment (Table 4).

Table 4. Summary table of threatened species 'likelihood of occurrence' assessment

Common name	Scientific name	Status		Likelihood of occurrence
		Cth	NT	
BIRDS				
Red Goshawk	*Erythrotriorchis radiatus*	VU	VU	**LOW** Prefers tall, open Eucalyptus forest and riparian areas. Nests in large trees within 1 km of permanent water. Recorded only as vagrant in Darwin region with no breeding records.
Gouldian Finch	*Erythrura gouldiae*	EN	VU	**LOW** Prefers areas with certain grass species (especially Sorghum), a nearby source of surface water and – in the breeding season – hollow-bearing Snappy Gum trees on slopes. Rarely recorded in the Darwin region; however, increase in sightings during 2022 – a 'boom' year. Not known to breed in the Darwin region.
Partridge Pigeon (eastern)	*Geophaps smithii smithii*	VU	VU	**LOW** Eucalyptus forests and woodlands with a structurally-patchy understorey of grasses. Not generally recorded in Darwin region except from rural outskirts. Nearest record is 6 km away in Shoal Bay (2018).
Masked Owl (northern mainland)	*Tyto novaehollandiae kimberli*	VU	VU	**LOW** Eucalyptus tall open forests, but also roosts in monsoon rainforests and forages in more open vegetation types, including grasslands. Few recent records in the region with no recent records in Darwin.
MAMMALS				
Fawn Antechinus	*Antechinus bellus*	VU	EN	**LOW** Eucalyptus open forests and woodlands with a relatively dense shrubby understorey. Few recent records in the bioregion; none in proximity to developed areas.
Brush-tailed Rabbit-rat	*Conilurus penicillatus*	VU	EN	**NONE** Mixed Eucalypt open forest and woodland. Likely to be locally extinct with no records in the Darwin region since 1984.
Northern Quoll	*Dasyurus hallucatus*	EN	CR	**LOW** Since the arrival of Cane Toads, generally restricted to rocky upland areas with numerous crevices and rock piles. Few recent records in the region.
Ghost Bat	*Macroderma gigas*	VU	NT	**LOW** Forages over a wide range of habitats. Permanent roost sites are generally deep natural caves or disused mines. Potentially forages in the Darwin region but few records. No breeding habitat in the Darwin region.
Black-footed Tree-rat (Kimberley and mainland Northern Territory)	*Mesembriomys gouldii gouldii*	EN	EN	**LOW** See Section 4.2.2.
Northern Brush-tailed Phascogale	*Phascogale pirata*	VU	EN	**LOW** Tall open forests. Drastic range decline such that few recent records in the bioregion.
Pale Field-rat	*Rattus tunneyi*	-	VU	**LOW** Historically occurred in a wide range of habitats, but now primarily in dense vegetation along creeks. Drastic range decline such that few recent records in the bioregion. No preferred habitat in site.

Common name	Scientific name	Status		Likelihood of occurrence
		Cth	NT	
Bare-rumped Sheath-tailed Bat	*Saccolaimus saccolaimus nudicluniatus*	VU	NT	**LOW** Wide range of habitats, with roosting records in Pandanus woodland and Eucalypt tall open forests. No roosting habitat in site, which is surrounded on three sides by high density development. Difficult to detect species that is seldom recorded with no species records within a 5 km radius
Northern Brushtail Possum	*Trichosurus vulpecula arnhemensis*	VU	NT	**MEDIUM** See Section 4.2.3.
REPTILES				
Mertens' Water Monitor	*Varanus mertensi*	-	VU	**NONE** Locally common along the edges of freshwater watercourses and lagoons. No suitable habitat within site.
Mitchell's Water Monitor	*Varanus mitchelli*	-	VU	**NONE** Locally common along the edges of freshwater swamps, watercourses and lagoons. No suitable habitat within site.
Yellow-spotted Monitor	*Varanus panoptes*	-	VU	**LOW** Broad range of habitats – including coastal beaches, savanna woodlands and floodplains. Seldom recorded since the arrival of Cane Toads.
PLANTS				
Darwin Cycad	*Cycas armstrongii*	-	VU	**KNOWN** Open grassy woodland with adequate drainage. Common within a limited range that broadly coincides with the greater Darwin region. Recorded throughout site at low to moderate intensities during 2022 site inspection.
-	*Ptychosperma macarthurii*	-	EN	**NONE** Dense rainforests fed from lowland springs at the edges of tropical riverine floodplains. No suitable habitat recorded in 2022 site inspection.
-	*Stylidium ensatum*	EN	EN	**NONE** Margins of drainage areas in poorly drained sandy or loamy flats that are damp well into the Dry season. No suitable habitat recorded in 2022 site inspection.
-	*Typhonium praetermissum*	-	VU	**HIGH** See Section 4.2.3.

The key threatened species that are known to occur on site or otherwise have a 'High' or 'Medium' likelihood of occurrence within the site are outlined below in Table 5.

Table 5. Summary of threatened species with 'High' and 'Medium' Likelihood of Occurrence

Likelihood	Species	Class	EPBC Act	TPWC Act
KNOWN	Darwin Cycad (*Cycas armstrongii*)	Plant	-	VU
HIGH	*Typhonium praetermissum*	Plant	-	VU
MEDIUM	Northern Brushtail Possum (*Trichosurus vulpecula arnhemensis*)	Mammal	VU	NT

4.2.2 Darwin Cycad

The Darwin Cycad (*Cycas armstrongii*) is listed as Vulnerable under the *TPWC* Act and is endemic to the Top End, with abundant populations occurring throughout the greater Darwin region, often forming dense stands (Kerrigan et al. 2012). The species occurs mainly in open grassy woodlands where adequate draining appears to be a limiting factor, and also on rocky outcrops, undulating hills and plains (Kerrigan et al. 2012; Liddle 2009). Prime cycad habitat contains deep loamy, well-drained soil and the species is frequently associated with *Eucalyptus miniata* and *Eucalyptus tetrodonta* woodland habitat (Liddle 2009). Land clearing presents a major threat to this species. Within ideal habitat and under favourable conditions, the Darwin Cycad can occur at densities ranging from several to > 1000 individuals per hectare (Liddle 2004; Watkinson and Powell 1997). Areas with high-density stands of cycads – i.e. > 400 individuals per hectare – are important for maintaining the species' diversity and function (Hill 2020).

As is commonly the case in savanna woodlands across the Darwin region, the Darwin Cycad was observed during the site inspection as being present throughout the site at low to moderate density (< 400 individuals per hectare) in moderate to well drained areas on higher ground. No high-density stands are present within the site.

4.2.3 Typhonium praetermissum

Typhonium praetermissum is listed as Vulnerable under the *TPWC Act*. It is a small perennial herb with above ground parts emerging from underground corms after onset of favourable rain during the annual wet season. This species generally occurs in open *Eucalyptus tetrodonta* and *Eucalyptus miniata* woodland and favours unshaded areas in red-brown clay and shallow gravelly soils. *Typhonium praetermissum* plants are typically found in gravelly sandy substrate supporting less than 20% vegetation ground cover and is strongly associated with the margins of lateritic plateau areas (NTH 2021).

The species is endemic to the greater Darwin region, extending from the Gunn Point area, south to Lake Bennett and west to Cox Peninsula. Previous survey work undertaken by EcOz, Department of Environment, Parks and Water Security (DEPWS, as DENR) and the Herbarium in 2020 recorded the species in Holtze within 2 km east of the site. These occurrences are part of the 'Palmerston and Holtze sub-population' of the species (as per Cuff & Green 2019).

Habitat loss due to clearing for residential expansion and rural subdivision presents a major threat to this species. Additional threats include habitat modification via spread of introduced perennial grass species such as Gamba Grass and Mission Grass – which are present on site – known to hinder recruitment of native herbaceous flora and increase fuel loads, resulting in more intense fires that can reduce habitat quality for this species.

Habitat modelling completed by the NT Government identified potential habitat for *Typhonium praetermissum* within the site. During the site inspection, high likelihood habitat was confirmed for *Typhonium praetermissum* in the south-western corner of the site (Figure 8). The surrounding habitat was also potentially suitable, extending into land units 2b1 and 2b2 (Figure 2). The site has not been surveyed for the species to date. Survey work will be required in the areas of high modelled habitat. The significance of any records within the site and ramifications for future development will require discussion with DEPWS.

Figure 8. Photographs of suitable habitat for the threatened *Typhonium praetermissum*

4.2.4 Northern Brushtail Possum

The Northern Brushtail Possum is listed as Vulnerable under the *EPBC Act*. This sub-species occurs continuously from the Gulf of Carpentaria hinterland near Borroloola, in the Northern Territory, to the Kimberley, in Western Australia (Morris et al. 2012). The Northern Brushtail Possum prefers tall Eucalypt open forests with large hollow-bearing trees, particularly where the understorey includes some shrubs that bear fleshy fruits, but also utilises surrounding habitat types such as mangrove communities, rainforests and semi-urban areas – including Darwin suburbs (TSSC 2021). Species decline is mostly a consequence of frequent extensive fires and predation by feral cats (Stobo-Wilson et al. 2019). Habitat modification from invasive grasses, namely the African Gamba grass (*Andropogon gayanus*) and Mission grass (*Pennisetum polystachion*) – which were detected during the site inspection – presents an additional threat to the species (TSSC 2021).

Whilst there are no Northern Brushtail Possum records within the site, the species is locally common with 26 records within a 5 km radius. Based on the findings from the desktop assessment and site inspection, this species is considered to have a medium likelihood of occurrence within the site. Suitable tree species are present within the site; however, site woodland habitat does not contain tall, large hollow-bearing trees preferred by the species. Habitat quality for the species is further reduced by an unfavourable fire regime at the site and the presence of invasive grassy weed species. High-density residential and industrial development – bordering the site on three-sides – has removed connectivity between the site and intact woodland habitat.

4.2.5 Black-footed Tree-rat

This threatened species is considered as having a low likelihood of occurring (Table 4); however, is discussed in this report because the greater Darwin region represents a stronghold for this species in decline.

The Kimberley and mainland Northern Territory sub-species of the Black-footed Tree-rat (*Mesembriomys gouldii gouldii*) is listed as Endangered under the *EPBC Act* and the *TPWC Act*. It is a medium-sized nocturnal rodent that is largely arboreal but also forages on the ground. The Black-footed Tree-rat predominantly occurs in woodlands and lowland open forests with large trees dominated by *Eucalyptus miniata* and/or *E. tetrodonta* and a moderately dense and diverse mid-storey of small trees and shrubs where the subspecies dens mostly in tree hollows but may also use clumps of *Pandanus spiralis* (DEPWS 2021b). The Black-footed Tree-rat generally requires fruit and seed resources including Pandanus fruits, other fruiting trees and shrubs (Rankmore 2006). Black-footed Tree-rats have a large home range (~67 ha) (Rankmore and Friend 2008).

The sub-species is thought to be more prevalent in woodlands with infrequent and low intensity fires which support greater fruiting species diversity (Price and Baker 2005; Rankmore 2006). Inappropriate fire regimes and habitat fragmentation caused by land clearing appear to be the main drivers of this species decline as well as predation by feral cats (Hill 2012). Frequently burnt landscapes may contain fewer larger hollow-bearing trees which is an important resource for the species. This species does not use highly modified habitat and

requires forested corridors connecting remnant patches of intact woodland larger than 1 ha in size (Rankmore and Price 2004). The continuing decline of this species means that all known populations and habitat supporting them is considered important and should be protected wherever possible (Stokeld et al. 2020).

The Black-footed Tree-rat is considered to have a low likelihood of occurrence within the site. There is only one recent record (post-2000) of the species within a 5 km radius. Woodland habitat in the site was not found to contain large hollow-bearing trees nor a mid-storey appropriate for the species. Poor habitat quality for the species is further intensified by an unfavourable fire regime at the site, the presence of invasive grassy weed species, and development in the surrounding Palmerston region which has removed forested corridors and connectivity to intact woodland habitat – the site is bordered on three sides by high-density residential and industrial development.

4.3 Heritage values and sacred sites

The NT Heritage Branch has verified the absence of nominated, provisional, or declared heritage places within the site as well as the absence of any previously declared Aboriginal archaeological sites (see Appendix C).

The AAPA has verified the absence of any currently registered sacred sites, recorded sacred sites and restricted work areas within the site (Appendix D).

5 CONCLUSION

Land unit mapping and the site inspection confirmed that the site is differentiated into four landforms and five land units:

- Three Eucalypt woodland land units on side slopes or rises and short steep slopes.
- One tall shrubland to low open woodland land type on broad lowland plains.
- Disturbed habitat consisting of extensive Gamba Grass weed infestation and native vegetation clearing for development.

No sensitive vegetation types are present.

A ‘threatened species’ likelihood of occurrence assessment identified several which occur or have the potential to occur in the site. These are a:

- Known occurrence of Darwin Cycad (listed as Vulnerable under the *TPWC Act*) in low to moderate density patches throughout the site.
- High likelihood of occurrence of *Typhonium praetermissum* (listed as Vulnerable under the *TPWC Act*). High likelihood modelled habitat for the species was confirmed in the south-western corner of the site and surrounding habitat was assessed as moderate suitability.
- Medium likelihood of occurrence of Northern Brushtail Possum (listed as Vulnerable under the *EPBC Act*).

In communication with NT Heritage Branch, there are no heritage concerns associated with the site. A preliminary assessment of sacred sites (via an AAPA Register check) determined that no sacred sites or restricted work areas are present in the site.

In liaison with DEPWS, targeted surveying of *Typhonium praetermissum* may be required in the identified high likelihood areas prior to land clearing or residential development approval in those areas.

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APPENDIX A LAND UNIT VERIFICATION SITES AND PHOTOS

Site ID	Easting	Northing	Land unit (verified)
S01	713932	8621194	1c
S02	714179	8621026	1c
S03	714267	8621152	1c
S04	713821	8621224	2b1
S05	713483	8621096	2b1
S06	713600	8620892	2b2
S07	713593	8621211	2b1
S08	714189	8621180	6b
S09	714112	8621185	1c
S10	713789	8620981	6b
S11	714333	8620920	6b

S01 - vegetation	S01 - soils
	

S02 - vegetation	S02 - soils
	-

S03 - vegetation	S03 - soils
	

S04 - vegetation	S04 - soils
	

S05 - vegetation	S05 - soils
	

S06 - vegetation	S06 - soils
	

S07 - vegetation	S07 - soils
	

S08 - vegetation	S08 - soils
	

S09 - vegetation	S09 - soils
	

S10 - vegetation	S10 - soils
	

S11 - vegetation	S11 - soils
	

APPENDIX B EPBC PROTECT MATTERS SEARCH TOOL (PMST) REPORT

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 19-Sep-2022

Summary

Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	22
Listed Migratory Species:	21

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	26
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Species		[Resource Information]
Status of Conservation Dependent and Extinct are not MNES under the EPBC Act. Number is the current name ID.		
Scientific Name	Threatened Category	Presence Text
BIRD		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Erythrura gouldiae Gouldian Finch [413]	Endangered	Species or species habitat known to occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Geophaps smithii smithii Partridge Pigeon (eastern) [64441]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area
[Tyto novaehollandiae kimberli](#) Masked Owl (northern) [26048]	Vulnerable	Species or species habitat likely to occur within area
FROG		
[Uperoleia daviesae](#) Howard River Toadlet, Davies's Toadlet [85375]	Vulnerable	Species or species habitat likely to occur within area
MAMMAL		
[Antechinus bellus](#) Fawn Antechinus [344]	Vulnerable	Species or species habitat likely to occur within area
[Conilurus penicillatus](#) Brush-tailed Rabbit-rat, Brush-tailed Tree-rat, Pakooma [132]	Vulnerable	Species or species habitat may occur within area
[Dasyurus hallucatus](#) Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
[Mesembriomys gouldii gouldii](#) Black-footed Tree-rat (Kimberley and mainland Northern Territory), Djintamoonga, Manbul [87618]	Endangered	Species or species habitat likely to occur within area
[Petrogale concinna canescens](#) Nabarlek (Top End) [87606]	Endangered	Species or species habitat may occur within area
[Phascogale pirata](#) Northern Brush-tailed Phascogale [82954]	Vulnerable	Species or species habitat likely to occur within area
[Saccolaimus saccolaimus nudicluniatus](#) Bare-rumped Sheath-tailed Bat, Bare-rumped Sheathtail Bat [66889]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
[Trichosurus vulpecula arnhemensis](#) Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
[Acanthophis hawkei](#) Plains Death Adder [83821]	Vulnerable	Species or species habitat known to occur within area
SHARK		
[Pristis pristis](#) Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
[Apus pacificus](#) Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Marine Species		
[Crocodylus porosus](#) Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area
[Pristis pristis](#) Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Migratory Terrestrial Species		
[Cecropis daurica](#) Red-rumped Swallow [80610]		Species or species habitat may occur within area
[Cuculus optatus](#) Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
[Hirundo rustica](#) Barn Swallow [662]		Species or species habitat likely to occur within area
[Motacilla cinerea](#) Grey Wagtail [642]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat known to occur within area
[Rhipidura rufifrons](#) Rufous Fantail [592]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
[Acrocephalus orientalis](#) Oriental Reed-Warbler [59570]		Species or species habitat may occur within area
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat may occur within area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
[Calidris canutus](#) Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area
[Charadrius leschenaultii](#) Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
[Charadrius veredus](#) Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
[Glareola maldivarum](#) Oriental Pratincole [840]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Limnodromus semipalmatus		
Asian Dowitcher [843]		Species or species habitat may occur within area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Bird		
Acrocephalus orientalis		
Oriental Reed-Warbler [59570]		Species or species habitat may occur within area overfly marine area
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Bubulcus ibis as Ardea ibis		
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Cecropis daurica as Hirundo daurica Red-rumped Swallow [80610]		Species or species habitat may occur within area overfly marine area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat likely to occur within area overfly marine area

Scientific Name	Threatened Category	Presence Text
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat may occur within area overfly marine area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat known to occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area overfly marine area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat may occur within area overfly marine area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area
Reptile		
Crocodylus johnstoni Freshwater Crocodile, Johnston's Crocodile, Johnstone's Crocodile [1773]		Species or species habitat may occur within area
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Darwin to Moomba Gas Pipeline	2001/213	Controlled Action	Completed
Glyde Point Industrial Estate and Associated Infrastructure	2004/1506	Controlled Action	Completed
Operation of 17 Tiger Helicopters at Robertson Barracks	2004/1459	Controlled Action	Post-Approval
Talisman Saber 2005 Military Exercise	2004/1819	Controlled Action	Post-Approval

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
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-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Department of Agriculture Water and the Environment
GPO Box 858
Canberra City ACT 2601 Australia
+61 2 6274 1111

APPENDIX C NT HERITAGE BRANCH ASSESSMENT OF HERITAGE VALUES

From: Dianne Bensley
To: Glenn Low
Subject: RE: Request for Heritage Check
Date: Friday, 7 October 2022 9:50:30 AM
Attachments: image013.png
image014.png
image015.png
image016.png
image017.png
image018.png
image001.jpg
image002.jpg
image003.jpg

Good morning Glenn,
I thought these parcels looked familiar and it turns out that I conducted a heritage search for a Due Diligence check in June for the same properties. I have again conducted a search of my maps and databases and I can confirm that there are no nominated, provisional or declared heritage places located within either of the two properties (Lot 12954 & Lot 14473, Town of Palmerston). There are also no previously declared Aboriginal archaeological sites located within either of the two properties. Heritage Branch has no concerns with these two parcels.
Kind regards,
Di

Dianne Bensley
Senior Heritage Officer, Heritage Branch
Community Participation and Inclusion
Territory Families, Housing and Communities

Floor 1, JHV2- Jape Home Maker Village, 356 Bagot Road, Millner
PO Box 37037 Winnellie NT 0821

t. 08 8999 5051
w. tfhc.nt.gov.au

I acknowledge Aboriginal people as the Traditional Owners of the country I work on, and their connection to land and community. I pay my respect to all Traditional Owners, and to the Elders both past and present.

From: Glenn Low <Glenn.Low@ecoz.com.au>
Sent: Thursday, 6 October 2022 12:14 PM
To: Dianne Bensley <Dianne.Bensley@nt.gov.au>
Subject: Request for Heritage Check

Hi Dianne,

Hope you are well. I retrieved your email via my colleague Simon Aylott.
Could you please undertake a Heritage check for this area in Durack, Palmerston? I am not privy to any heritage checks completed for this area previously.

Thank you. Kind regards,
Glenn

Please see the following file or link attachments:
Land_units_modified.prj
Land_units_modified.shp
Land_units_modified.shx
Land_units_modified.cpg
Land_units_modified.dbf

Glenn Low
Environmental Consultant

Level 1, 70 Cavenagh Street, DARWIN
GPO Box 381
Tel 08 8981 1100
glenn.low@ecoz.com.au
www.ecoz.com.au

APPENDIX D AAPA REGISTER CHECK

Aboriginal Areas Protection Authority
protecting sacred sites across the territory

Our File: RI2022/742
In Reply Please Quote: 202215122

ECOZ PTY LTD
GPO Box 381
DARWIN, NT, 0800

ATTENTION: Glenn Low

RE: Abstract of Records - Lots 12954 and 14473 located in Palmerston, NT. - 202215122

On 12th October 2022 the Aboriginal Areas Protection Authority (the Authority) received your application for an abstract of records under regulation 7 of the *Northern Territory Aboriginal Sacred Sites Regulations 2004* (NT) (the Regulations).

The contents of this letter and the enclosed map comprise the abstract which is hereby provided to you for the purposes of regulation 7(3). I advise, in accordance with regulation 7(3)(a), that for the parcel of land the subject of this abstract:

i. there are currently no registered sacred sites located on the parcel of land;
ii. there are currently no recorded sacred sites located on the parcel of land;
iii. there are currently no restricted work areas in the parcel of land which are provided for in Authority Certificate;

The map enclosed provides an overview of any registered or recorded sacred sites and restricted work areas described above. The information provided to you in this abstract is for information purposes only and cannot be relied upon as an exhaustive list of sacred sites in the area. There may be other sacred sites in the parcel of land of which the Authority is not yet aware.

A person is only permitted to enter and remain on a sacred site, carry out works on a sacred site, or make use of a sacred site in accordance with an Authority Certificate granted by the Authority (refer ss22 and 25 of the Act, also see ss34 and 35). Should you desire to do any of these things please make an application for an Authority Certificate. Further information about this process can be found here – https://www.ntlis.nt.gov.au/aapa-online/auth/login. Undertaking any of these acts without an Authority Certificate puts you at risk of prosecution under the Act (refer ss33-35). This abstract does not protect you in any way for your acts and is not an Authority Certificate.

The current Act and Regulations can be found online here - https://legislation.nt.gov.au/. Please ensure you are familiar with the legislation, particularly the offences in relation to sacred sites and the processes involved for obtaining an Authority Certificate if and when you require one.

Further information concerning abstracts and requests for information from the Authority can be found in the frequently asked questions (FAQs) which can be found online here– https://www.aapant.org.au/our-services/request-information-0#faq1.

The cost of providing the information set out in this letter and the attached map is $58 (GST inclusive if applicable) and an invoice will be issued to you by the Department of Corporate and Digital Development.
If you have any queries, please do not hesitate to contact the Registrar via email through enquiries.aapa@nt.gov.au or (08) 8999 4356.

Yours sincerely,

Wendy Forscutt
ACTING REGISTRAR
12th October 2022

Darwin
P: +61 (08) 8999 4365
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www.aapant.org.au
enquiries.aapa@nt.gov.au
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47 Mitchell Street DARWIN NT
GPO Box 1890, DARWIN NT 0801

Alice Springs
P: +61 (08) 8951 5023
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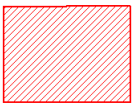
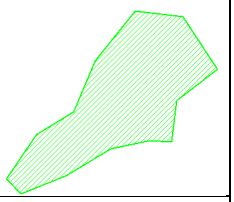
www.aapant.org.au
enquiries.aapa@nt.gov.au
1st Floor, NT House
44 Bath Street ALICE SPRINGS NT
All mail to Darwin GPO

Frequently Asked Questions

In these FAQs, a reference to:

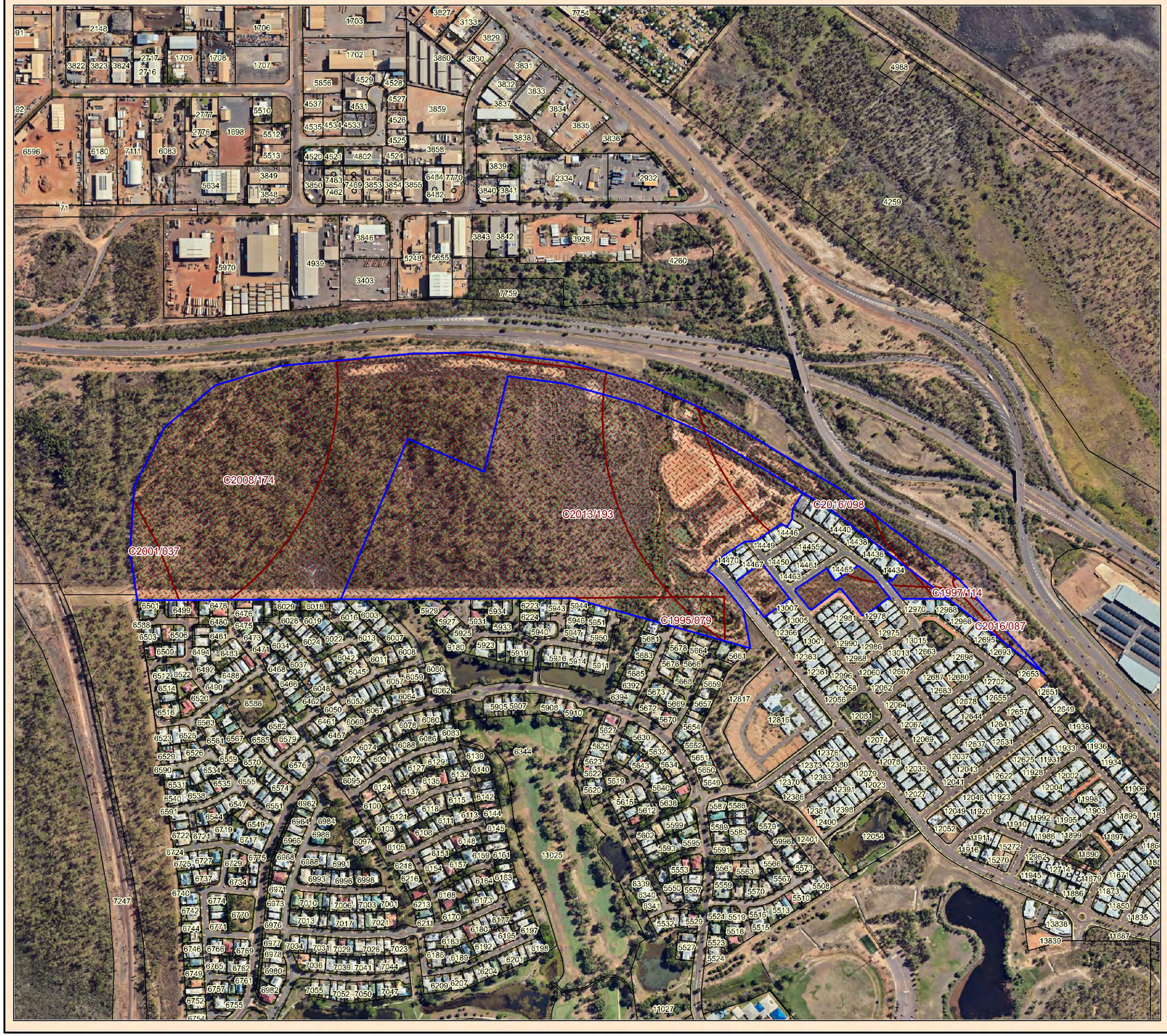
- "the Act" is a reference to the *Northern Territory Aboriginal Sacred Sites Act 1989* (NT); and
- "the Regulations" is a reference to the *Northern Territory Aboriginal Sacred Sites Regulations 2004* (NT).
  The Act and Regulations can be found here - https://legislation.nt.gov.au/.

Question	Answer
What is a sacred site?	The term "sacred site" is defined in s3 of the Act by reference to its meaning in the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth) which provides a sacred site is "a site that is sacred to Aboriginals or is otherwise of significance according to Aboriginal tradition, and includes any land that, under a law of the Northern Territory, is declared to be sacred to Aboriginals or of significance according to Aboriginal tradition".
What is a registered sacred site?	A registered sacred site is indicated on the map by this symbol:  The site number is indicated on the map by a number in the following format XXXX-XX. A registered sacred site is a site that has been added to the Register of Sacred Sites maintained by the Authority following the process set out in Part III Division 2 of the Act. The effect of registering a sacred site is set out in s45 of the Act. The extent of a registered site is the red hatched area: 
What is a recorded sacred site?	A recorded sacred site is a site that is known to the Authority but has not been registered and includes recorded sacred burial sites. The Authority may hold the information required to register the site should this become the wishes of the custodians. Alternatively, a recorded sacred site may still require further research in order to obtain all necessary information. The recorded coordinate point for a sacred site is a reference point only and does not necessarily indicate the location or extent of any specific site feature. A recorded sacred site point is indicated on the map by this symbol:  A recorded sacred burial site is indicated on the map by this symbol:  Note that recorded sites have not gone through the registration process set out in s28 of the Act. As such, the full extent of the sacred site may change upon registration. The extent of a recorded sacred site is the green hatched area. 
The map shows that there are no registered or recorded sites in the area of interest. Does this mean I can proceed with my works?	Whether you proceed with your works is a decision for you however you should carefully consider the area concerned and the provisions of the Act (particularly those that address the protections an Authority Certificate provides and the punishments prescribed for the offences set out in Part IV of the Act). If there is no record of an Authority Certificate being issued over the area concerned, it is possible that there may be sacred sites that are not currently known to the Authority.
How long does it take to get an Authority Certificate?	The Authority takes an average of three months to produce an Authority Certificate. The timeframe will vary depending on various factors including the complexity of the proposed works, availability of custodians, remoteness, and access to land.

Question	Answer
How much does an Authority Certificate cost?	Division 1A and Division 1 of Part III of the Act set out the procedures for applications for Authority Certificates. The cost of an Authority Certificate differs depending on whether it is a "standard application" or a "non-standard application". The classification of an application is determined by the Authority in accordance with the guidelines prescribed by Regulation 3 and set out at Schedule 1 to the Regulations. Standard applications will incur a fee in accordance with Schedule 4 of the Regulations. Non-standard applications are subject to charges which will depend on the nature of the application and the work required by the Authority. These charges are calculated by the Authority in accordance with Regulation 6 of the Regulations. If you submit an application that is determined to be a non-standard application, the Authority will provide you with an estimate of charges for your consideration and approval.
What information is on the Register of Sacred Sites?	The information on the Register of Sacred Sites differs due to the information available and the information permitted by the custodians of the sacred site to be recorded. Please refer to section 29 of the Act for further information. However, generally the Register of Sacred Sites may include the following types of information in relation to a sacred site: • the coordinate point of the site (NB: the coordinate point for a sacred site is a reference point only and does not necessarily indicate the location or extent of any specific site feature); • features of the site; • geographic description; • custodian group details; and • Aboriginal traditions associated with the site.
How do I inspect the Register of Sacred Sites?	Section 48 of the Act allows a person to apply to the Authority to inspect the Register of Sacred Sites. The viewing will take place in the Authority's offices, which are located in Darwin and Alice Springs. No hard or soft copies of the Register will be provided and photographs of the Register are prohibited. Information that is of a sensitive commercial nature or relates to matters required to be kept secret according to Aboriginal tradition will not be provided. To view the Register of Sacred Sites please apply online. You must specify the sites or certificates that you would like to view (see the map for the relevant numbers). A staff member will then contact you to organise an inspection time in either our Darwin or Alice Springs office. In accordance with regulation 8 and with reference to item 2 of Schedule 4 to the Regulations, the fee payable to inspect the Register of Sacred Sites is 23 revenue units per sacred site.
Authority Certificate Records are available for Public Inspection in the area of interest. What does this mean?	Areas over which the Authority has previously issued an Authority Certificate are indicated on the map by this hatching:  In an abstract provided by the Authority pursuant to regulation 7(3) of the Regulations, areas over which the Authority has previously issued an Authority Certificate are indicated on the map. For these areas, the Authority has consulted custodians for the area in the past about prior works. There may be conditions in the Authority Certificate. These conditions will relate to the works covered by that certificate only. You cannot rely on an Authority Certificate that was issued to another person. If there is a record of an Authority Certificate being issued over the area concerned, that certificate only applies to those prior works and will not provide any protection for your works.

Question	Answer
There are restricted work areas in the area of interest. What does this mean?	In an abstract provided by the Authority pursuant to regulation 7(3) of the Regulations, a restricted work area will be indicated on the map by this hatching:  A restricted work area relates to an area identified in an issued Authority Certificate. It is an area that had restrictions on the kind of activities that were permitted (or not permitted) in the area.
Can I see the Authority Certificate records that are available for public inspection over the area of interest?	Yes. The Authority will provide access to information on prior Authority Certificates that have been issued in the area of interest. An application may be made pursuant to section 48. You will be provided with a list of Authority Certificates granted or refused over the area of interest, including the conditions for any works that may have been proposed for that area. The conditions listed in a prior Authority Certificate are for the works stated in that particular Certificate. Restrictions on works can vary. Sometimes an Authority Certificate will prohibit any work in the area or will prevent certain activities, such as ground disturbing work, damage to trees, or the removal of sand or gravel. The conditions in a certificate are specific to each application and depend on the works proposed. The viewing will take place in the Authority's offices, which are located in Darwin and Alice Springs. No hard or soft copies of the Register will be provided and photographs of the Register are prohibited. Information that is of a sensitive commercial nature or relates to matters required to be kept secret according to Aboriginal tradition will not be provided. To view Authority Certificates that have been previously issued or refused in your area of interest, please apply online. You must specify the sites or certificates that you would like to view. The map contained in this letter will contain relevant record reference numbers. A staff member will then contact you to organise an inspection time in either our Darwin or Alice Springs office. In accordance with regulation 8 and with reference to item 3 of Schedule 4 to the Regulations, the fee payable to inspect the Register of Sacred Sites is 23 revenue units per inspection of Authority Certificate application and related Certificate or refusal.
No Authority Certificates have been issued in the area of interest. What does this mean?	Areas where the Authority has not issued an Authority Certificate are indicated on the map by this shading: In an abstract provided by the Authority pursuant to regulation 7(3) of the Regulations, areas where the Authority has not issued an Authority Certificate are indicated on the map. These are areas where the Authority has not undertaken anthropological research. The Authority may not have records of the sacred sites in this area. It means that there may be sites in the area and work should only proceed with an Authority Certificate, which will be issued after the Authority has spoken with custodians in the area.
There are "other sites" in the area of interest. What does this mean?	Other sites are shown on the map by this symbol:  In an abstract provided by the Authority pursuant to regulation 7(3) of the Regulations, other sites (where known) are shown on the map. Other sites include archaeological places or sacred objects. These places and objects are protected under the *Heritage Act 2011* (NT).
There is a burial site in the area of interest. What does this mean?	Burial sites are shown on the map by this symbol:  In an abstract provided by the Authority pursuant to regulation 7(3) of the Regulations, burial sites (where known) are shown on the map. Under the *Criminal Code Act 1983* (NT) it in an offence to interfere with remains of a deceased person. It is also an offence contrary to the *Heritage Act 2011* to interfere with the remains of a deceased Aboriginal person without authorisation under that Act. In the event that any skeletal remains are unearthed, it is your responsibility to stop works and immediately report such disturbance to the NT Police and the Director Heritage Branch, Department of Territory Families, Housing and Communities. For further information, please contact the Director Heritage Branch, Department of Territory Families, Housing and Communities on (08) 8999 5051 or email heritage.branch@nt.gov.au.

Question	Answer
I know the custodians of the sites in the area of interest. Do I still need an Authority Certificate?	Yes. An Authority Certificate provides a defence against prosecution under the Act as long as the conditions of the Certificate are adhered to. The Authority can only issue an Authority Certificate if it is satisfied of the matters set out in s22 of the Act.
I own the land that is the area of interest. Do I still need an Authority Certificate?	The rights of land owners are preserved under s44(1) of the Act. Ownership of the land, however, will not defend you against a prosecution under the Act in the event a sacred site is damaged. Only an Authority Certificate can do this. Owners of land that may include sacred sites should ensure they consider the Act and whether they may require an Authority Certificate for their use of the land.
Can I share my abstract of records with other people?	No. It is an offence under s38 of the Act to permit access to, or furnish a document produced for a purpose of the Act without permission of the Authority. The abstract of records has been provided to you by the Authority for the limited purpose of your consideration. Should you wish to share the abstract, you should write to the Authority seeking permission under s38(1) of the Act. You should detail the purpose of sharing the abstract of records.
Can I publish the abstract of records?	No. It is an offence under s38 of the Act to permit access to, or furnish a document produced for a purpose of the Act without permission of the Authority. The abstract of records has been provided to you by the Authority for the limited purpose of your consideration. Should you wish to publish the abstract, you should write to the Authority seeking permission under s38(1) of the Act. You should detail the purpose of publishing the abstract of records.



Abstract of Authority's Records - Regulation 7(3)(b) - 202215122

Provided to:
ECOZ PTY LTD

ASSESSED AT 13/10/2022

This Abstract of Records is not an Authority Certificate. It is not for works, publication or distribution.

It is an offence under s.38 to publish or distribute this Abstract of Records without permission of the Authority.

To seek an Authority Certificate from the Authority apply online at www.aapant.org.au/our-services

N.B. The Sacred Site point is indicative of the general sacred site location and does not necessarily represent the location of any specific feature of the sacred site or the site extent and is not an exhaustive record as unrecorded site may exist in the area

J2022 0821

0 400
meters
Scale 1:6,500

KEY

- Subject Land
- Authority Certificate Records available for Public Inspection
- No Records available for Public Inspection

Aboriginal Areas Protection Authority
protecting sacred sites across the territory

Prepared and produced by Aboriginal Areas Protection Authority (AAPA), Darwin, Northern Territory of Australia ©AAPA Northern Territory of Australia

List of Records available for Inspection

Authority Certificates

Cert No	With RWA	Superseded_by
C2016/098	No	
C2016/087	No	
C2013/193	No	
C2008/174	No	
C2001/037	No	C2001/093
C2000/050	No	C2003/116,C2003/065,C2003/064,C2003/044,C2003/042,C2002/089,C2002/084, C2002/071,C2002/066,C2002/048,C2002/047,C2002/042,C2001/120,C2001/093, C2001/059,C2001/038,C2001/037,C2000/109,C2000/095,C2000/069,
C1997/136	No	
C1997/114	No	
C1995/079	No	

EcOz Environmental Consultants

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ABN 81 143 989 039

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E: ecoz@ecoz.com.au

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NORTHERN TERRITORY OF AUSTRALIA

Planning Act 1999

AMENDMENT TO NT PLANNING SCHEME 2020

PA2024/0406

I, JOSHUA ROLAND BURGOYNE, Minister for Lands, Planning and Environment, under Section 25(3)(b) of the *Planning Act 1999*, amend the NT Planning Scheme 2020 by making the amendment, specified in the Schedule.

Dated 11 - 11 - 2025

Minister for Lands, Planning and Environment

SCHEDULE

AMENDMENT TO NT PLANNING SCHEME 2020

1. Definition

In this amendment –

"amending map" means the attached map, signed by the Minister for Lands, Planning and Environment and marked with Planning Application reference PA2024/0406, deposited in the office of the Department of Lands, Planning and Environment, Darwin;

"zoning map" means the zoning map within the meaning of the NT Planning Scheme 2020 as in force prior to the amendment taking effect.

2. Amendment of Zoning Map

The NT Planning Scheme 2020 is amended by amending the zoning map relating to Part Lot 12954 Town of Palmerston and Part Lot 16214 Town of Palmerston to the extent of its inconsistency with the amending map in respect of the area of land shown on the amending map bounded by a thick black line and lettered S.

3. Amendment to Schedule 4: Specific Use Zones

4.1.2 Specific Uses – Palmerston

Part Lot 12954 Town of Palmerston and Part Lot 16214 Town of Palmerston)

Purpose

Facilitate the master-planned subdivision of land to provide for a range of lot sizes and future zoning that facilitates a variety of low-rise housing options whilst appropriately responding to and/or integrating key ***site*** and locality transport, drainage and landscape characteristics, where full reticulated services are available.

Administration

1. This specific use zone applies to Part Lots 12954 and 16214 Town of Palmerston.

2. Clause 6.2 (Subdivision in Zones LR, LMR, MR and HR) applies to the subdivision of land subject to this specific use zone, to the extent of any inconsistencies within this zone. The subdivision requirements are to be applied as if the land is zoned in accordance with the plan required by sub-clause 3, and as if the land were a greenfield area identified for compact urban growth in the strategic framework for the purpose of Clause 6.2.1.

3. An application for subdivision must include a plan showing the intended future zoning of all proposed lots.

4. The consent authority may ***consent*** to the subdivision of land that is not in accordance with sub-clause 14(a) - 14(c) if it is satisfied that all lots created are consistent with the zone purpose and outcomes.

5. The consent authority may ***consent*** to the subdivision of land that is not in accordance with sub-clause 14(d) if it is satisfied that subdivision provides lots suitable for urban residential purposes that respond appropriately to the physical characteristics of the land and does not detrimentally impact on surrounding land.

6. The consent authority may ***consent*** to the subdivision of land that is not in accordance with sub-clause 14(e) – 14(g) if it is satisfied that the design of ***public open space***, stormwater and active travel infrastructure provides a level of ***amenity*** equivalent to that of a design complying with the applicable requirements.

7. The consent authority must not ***consent*** to a subdivision that is not in accordance with sub-clause 14(h) and 14(i).

8. Land may be used and developed for ***residential buildings*** for the purpose of a temporary sales office with ***consent***. The assessment level will be Merit Assessable and the development is to be in accordance with sub-clause 15. The consent authority may ***consent*** to a temporary sales office that is not in accordance with sub-clause 15 if it is satisfied that it is consistent with the zone purpose and outcomes, and is appropriate to

the ***site*** having regard to such matters as its location, nature, scale and impact on surrounding ***amenity***.

Zone Outcomes

9. A master-planned subdivision facilitating a blend of **dwellings-single**, associated **dwellings-independent**, **dwellings-group** and **dwellings-multiple** predominantly of two storeys or less, on a range of lot sizes that respond to changing community needs.

10. Lots intended for non-residential activities such as **community centres**:
    a) Should be located to support the needs of the immediate residential community;
    b) Facilitate development of a scale and intensity compatible with the residential character and ***amenity*** of the area;
    c) wherever possible, are co-located with other non-residential activities in the locality; and
    d) be located to avoid adverse impacts on the local road network.

11. ***Residential buildings*** for use as a temporary sales office are of a scale and conducted in a manner consistent with residential ***amenity***.

12. An efficient pattern of land use is provided with all residential lots connected to reticulated services, integrated with existing transport networks, and with reasonable access to open space and community facilities.

13. A safe, attractive and permeable pedestrian and cycle network is provided that promotes and encourages walking and cycling, and which connects to the established pedestrian and cycle networks of Palmerston.

Requirements

14. Subdivision design:
    a) Is consistent with the master plan diagram within this specific use zone;
    b) Provides a maximum gross dwelling density of 14 ***dwellings*** per hectare;
    c) Has a maximum 10% of lots capable of accommodating **dwelling-group** or **dwelling-multiple** developments;
    d) Ensures, by site grading and civil design, that residential lots less than 600m2 incorporate a minimum area equivalent to the combined minimum building envelope and area of private open space that does not slope in excess of 2%;
    e) Has a minimum of 10% of the subdivision area as ***public open space***, with no more than 20% of the required area of ***public open space*** allocated for stormwater management/drainage purposes (e.g. creeks, drainage channels, wetlands, detention basins etc);
    f) Incorporates a ***public open space*** corridor providing a sympathetic interface between new lots and the existing established areas of Durack, and providing for walking and cycle paths that integrate into the existing and adjoining open space networks;

g) Incorporates existing prominent, significant or important landscape features, including Packard's Knob, into the open space network;

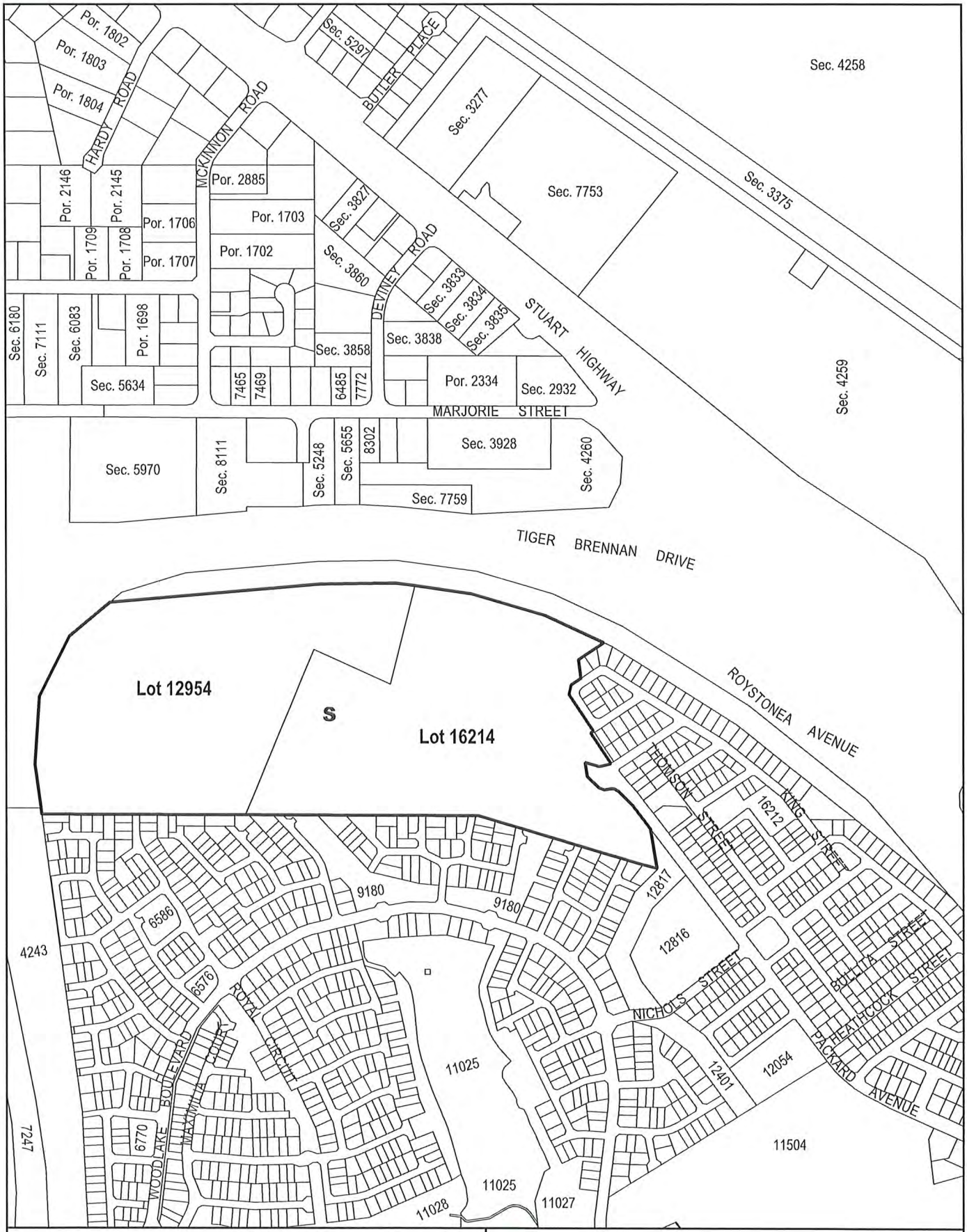
h) Includes appropriate acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface; and

i) Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency.

15. A temporary sales office is to:

a) be set back as if it were a ***residential building*** in accordance with this specific use zone; and

b) provide car parking for the development in accordance with Clause 5.2.4 (Vehicle Parking).



NT Planning Scheme 2020
Amendment PA2024/0406
Rezone Part Lots 12954 and 16214
Town of Palmerston

MINISTER FOR LANDS, PLANNING AND ENVIRONMENT

Date 11-11-2025

NORTHERN TERRITORY GOVERNMENT

Department of Lands, Planning and Environment

0 100 200 300 m

Scale: 1: 9000 @A4

File No: PA2024/0406
Date: 15/10/2025

Z:\6--11 Drafting\Drafting 2025\2025-06884 - Re-zoning Plans - Lots 12954 and 14473 Town of Palmerston\3 - Working Files\Lots 12954, and 14473 Town of Palmerston.qgz

NORTHERN TERRITORY OF AUSTRALIA

Planning Act 1999
Section 29

REASONS FOR DECISION

NORTHERN TERRITORY PLANNING SCHEME 2020

PA2024/0406

I have decided to alter the exhibited proposal and amend the NT Planning Scheme 2020 by rezoning Part Lot 12954 Town of Palmerston and Part Lot 16214 Town of Palmerston from Zone SP8 (Specific Use) to a new specific use zone.

I am satisfied that, Pursuant to section 25(3)(b), the amendment:

(a) promotes the purpose and objectives of the Act as it will provide for residential development in an area consistent with the strategic framework, that responds to the unique characteristics of the site and locality, in accordance with contemporary provisions of the NT Planning Scheme 2020; and

(b) was exhibited in accordance with the *Planning Act 1999* and altered to respond appropriately to community concerns.

Pursuant to section 27(1) I am satisfied that the altered amendment is not sufficiently extensive to justify re-exhibiting, as it responds to the wishes of the community and provides clarity for decision-making.

JOSHUA ROLAND BURGOYNE
Minister for Lands, Planning and Environment
11 / 11 / 2025

22 May 2026

Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
DARWIN NT 0801

Attention: Daniel Herlihy

Dear Daniel

RE: Response to Submissions – PA2026/0086
At: Lots 12954 and 16214 Town of Palmerston (The Heights, Durack Stages 12-19)

Cunnington Rosse Town Planning and Consulting have been engaged by the proponent in the above matter, being a development application for *subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 stages (The Heights Stages 12-19)*. The application was lodged on 11 March 2026 and on public exhibition from 20 March to 3 April. A total of 3 public and 10 service authority submissions were received. This response also addresses matters raised in the preliminary technical assessment prepared by Development Assessment Services and provided on 28 April 2024.

1.0 Matters From Technical Assessment

The following queries were raised via the preliminary technical assessment prepared by Development Assessment Services. Queries / perceived variations are identified in italics below, with the applicants response immediately thereafter.

- *Further information required to determine whether the acoustic barrier is located within Zone PM*

Like any boundary fence adjacent a main road / future main road, the acoustic wall will be located within residential lot boundaries.

- *SP2 Clause 14(b) and (c) – Dwelling density:*
    - *Maximum gross density of 14 dwellings per hectare exceeded;*

- *Maximum of 10% of lots capable of accommodating dwellings-multiple exceeded – 94.24% of lots can accommodate dwellings-multiple.*

- *Technical assessment is based on:*
  - *Including dwellings-independent in the determination of overall dwelling density; and*
  - *Changes to the Northern Territory Planning Scheme introduced in February 2026 allow 1-bedroom dwellings in Zone LMR to have a minimum land area requirement of 150m^2 (previously 300m^2, and remains 300m^2 for 2+ bedrooms)*
- *This equates to gross density of 25.19 dph, and 94% of lots able to accommodate group dwellings*

Maximum density in SP2, together with the potential for proposed lots to accommodate dwellings-multiple, is determined by applying the Territory-wide density rates in **Clause 5.4.1** of the Planning Scheme against the proposed lot sizes and zoning in the development.

Until February 2026, maximum dwelling density in Zone LMR was one dwelling per 300m^2, meaning lots in Zone LMR must have a minimum area of 600m^2 in order to accommodate dwellings-multiple. On 6 February 2026 Amendment No. 159 amended the NT Planning Scheme to reduce the minimum area requirements for 1-bedrooom dwellings in Zone LMR to 150m^2 per dwelling, meaning a 450m^2 LMR lot could, in theory, accommodate 3 1-bedroom dwellings.

Zone SP2 was introduced into the NT Planning Scheme in November 2025 via amendment No. 151, and included 2 specific criteria relating to dwelling density, namely:

- **Clause 14(b) –** that subdivision design provides for a maximum gross density of 14 dwellings per hectare; and
- **Clause 14(c) –** that subdivision design has a maximum 10% of lots capable of accommodating dwelling-group or dwelling-multiple developments.

Clearly, Zone SP2 was determined on the basis of a minimum area requirement of 300m^2 per dwelling in Zone LMR, and on the basis of both the layout master plan (included in SP2) and subdivision master plan (including lot yield, submitted with the application leading to Amendment No. SP2). The proposed subdivision is clearly consistent with the density requirements based on the rates in the NT Planning Scheme at the time SP2 was introduced. The intervening introduction of Amendment No. 159 effectively doubles to potential maximum density in Zone LMR, and creates a theoretical non-compliance with the above clauses.

The proposed subdivision includes 9 lots intended for, and to be constructed and serviced in a manner able to accommodate, *dwellings-group* or *dwellings-multiple* under Zone LMR. All other lots will be constructed and serviced for single dwellings only.

Clause 14 in Zone SP2 clearly did not anticipate an increased density rate for 1-bed dwellings. Furthermore, such an approach to overall maximum density creates an absurdity that would assume a maximum density consistent with "higher residential density" under the CUGP. Clearly, the subdivision layout, lot sizes and intended zoning is comparable to other recent estate subdivisions, consistent with low to low-medium density suburban housing. Furthermore, considering maximum density solely on the basis of what can be achieved within the parameters of compliance with **Clause 5.4.1** (as amended) ignores the servicing and feasibility constraints of constructing multiple 1-bedroom dwellings on land that can otherwise accommodate 3 or 4-bedroom dwellings. It is noted that both **14(b)** and **14(c)** can be varied subject to achievement of the zone purpose and outcomes. Amendment No. 159 in no way alters the achievement of the range of lot sizes, low-rise housing options, integrated with reticulated services and a high quality public realm.

The inclusion of *dwellings-independent* in the overall determination of dwelling density is contrary to the assessment approach taken on recent estate subdivision matters, and ignores the inherent 'collective' approach to *dwellings-single* and *dwellings-independent* through both definition (in **Schedule 2.1**) and requirements (in **Clause 5.4.1**).

- ***SP2 Clause 14(d) –*** *Private open space and building envelopes extend into areas with slopes exceeding 2%. Request building envelopes overlaid onto slope plan to demonstrate compliance.*

The non-compliance is unclear, and separate notional building envelope and slope plans have been deliberately provided to ensure clarity between the two (separate) matters. **Clause 14(d)** in Specific Use Zone SP2 requires a minimum area **equivalent** to the combined minimum building envelope and area of POS that does not slope in excess of 2%, and the submitted slope plans show higher slopes in boundary setbacks only, thus complying with the clause. It is noted that drawing errors show slopes exceeding 2% on lots 694, 652, 780, 912, 840, 847 and 899, These will be corrected prior to endorsed plans being issued.

- ***Clause 6.2.1 –*** *Lot envelope / dimension non-compliances*

Other than those identified in the statement of effect submitted as part of the original application, it is assumed that DAS have applied a 'strict' interpretation of primary vs secondary street frontage in their assessment. The proposed urban design approach applies a front setback to the boundary to which the dwelling 'fronts'. It would be illogical to apply this requirement to the longer-side lot boundary, noting that all roads and lots will be created as part of the proposed subdivision.

- ***Clause 6.2.2 –*** *Further information required to determine location of infrastructure and easements in relation to street boundaries – streetlights, distribution pillars, easements, substations*

Electrical distribution pillars are not street infrastructure, rather are located within the lot boundaries via 0.5 – 1 metre easements located exclusively within the front setback areas. The pillars will be sited as part of the low-voltage electrical design during the detailed design process. Considering subclause 4 of **Clause 6.2.2,** electrical distribution pillar easements do not affect compliance with the vehicle parking requirements (as they are aligned outside of the

driveway areas and do not affect the length of unbroken kerb); building setbacks (they're entirely within the front setback area); or private open space (within front setback area).

The approved High Voltage electrical plan shows the approved location of substations, noting that the majority of substations are sited in public open space / road reserve areas, and the two substations within residential lots do not affect lots less than 600m2 (to which **Clause** 6.2.2 applies). Recent development applications for subdivision have not been required to show the location of street lighting, which will be set-out as part of the low-voltage electrical design during the detailed design process. The final street lighting layout design is not expected to affect the intended driveway locations, or compliance with vehicle parking requirements (do not affect the length of unbroken kerb); building setbacks (outside of lot boundaries); or private open space (outside of lot boundaries). No through-lot easements are required.

2.0 Service Authority Submissions

Service authority submissions were received from:

- NT Department of Logistics and Infrastructure – Transport and Civil Infrastructure Division and Passenger Transport Division (separate submissions)
- Northern Territory Department of Lands, Planning and Environment – Development Coordination, Land Resource Division
- Northern Territory Fire and Emergency Services
- NT Health – Medical Entomology
- Power and Water Corporation (3 x submissions – 2 x Services Development and 1 x Distribution Development)
- City of Palmerston
- Aboriginal Areas Protection Authority

Matters raised in the respective service authority submissions are summarised in the following sections, with the applicants response immediately thereafter.

2.1 City of Palmerston

The City of Palmerston's submission is separated into matters that require (at Councils request) resolution prior to consideration by the Development Consent Authority; additional matters that Council is satisfied can be addressed

via development permit conditions; and recommended development permit conditions. This section deals with these matters separately.

2.1.1 Resolution Required – Clause 14(i)

Councils submission requires further information to enable consideration and support of the application against **Clause 14(i)** in Specific Use Zone SP2, noting Councils ongoing concerns regarding the proposed subdivision with a single vehicle access location. The submission requires further evidence to demonstrate the relevant portion of Packard Road will have sufficient width to manage risks associated with lane closures, specifically demonstration that continuous access can be maintained in the event of maintenance or accidents resulting in lane closures. Council is of the opinion that the application is overly reliant on risk mitigation, and does not adequately comply with **Clause 14(i).**

Clause 14(i) in Zone SP2 provides as follows:

> *Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency.*

Despite Councils submission, **Clause 14(i)** does not stipulate a response regarding road maintenance. Furthermore, the optimal approach to ensuring continuous access is the avoidance of an accident or emergency in the first instance, and the road network has been designed accordingly.

Notwithstanding, Urbex have sought further advice and clarification from MFY, the project traffic engineers, to address Councils concerns. MFY's further advice, included in **Attachment B,** outlines:

- The capacity requirements of the relevant section of road during an emergency event, demonstrating (conservatively) that the proposed (Packard Avenue) access road would be used to approximately half its capacity in the event of a mass-evacuation (e.g. bushfire), whilst still allowing for the reverse flow of vehicles required to enter the area;
- Emergency access requirements in the event of a crash on the access road, demonstrating adequate width to provide a bypass for other vehicles; and
- Notwithstanding the limited scope of **Clause 14(i),** provides a traffic management plan to demonstrate how traffic control could be implemented in the event of altered traffic movements as a result of maintenance works.

Based on the findings in **Attachment B** the portion of Packard Avenue between Heir Street and Plaisted Road has been designed in a manner that ensures continuous access and egress in the event of an accident or emergency.

2.1.2 Resolution Required – Pedestrian Connections

Councils submission raises concerns regarding what it perceives to be an over-reliance on "potential" pathways external to the development site; connections to shared roadways (where no off-street pedestrian infrastructure currently exists); and requests consideration of a direct pathway connection between the existing Heights stage 11 and the proposed Mary Packard Park public open space. Councils concerns are raised in the context of SP2 Zone Purpose **Clause 13,** to which Council holds the view is not adequately met by the proposed subdivision.

Clause 13 requires the achievement of:

> *A safe, attractive and permeable pedestrian and cycle network is provided that promotes and encourages walking and cycling, and which connects to the established pedestrian and cycle networks of Palmerston.*

The landscaping master plan (updated in **Attachment B**) seeks to maximise pedestrian connections to both existing and potential future infrastructure, including:

- To the north along Tiger Brennan Drive, anticipating the provision of a shared path within the Tiger Brennan Drive corridor;
- To the established pedestrian and shared paths along Packard Avenue, providing established walking and cycling access to wider Palmerston;
- A pedestrian connection to existing pedestrian infrastructure within Carpentaria Court. Existing pedestrian infrastructure terminates approximately 100 metres south of the subject land, with the proposed development including an extension to the existing pedestrian path to connect to the proposed pedestrian network within the subject land (to be undertaken by Urbex subject to the requirements of the City of Palmerston); and
- Pedestrian pathway connections to the existing road reserves at Borassus Court, Kooyonga Parade, Sorrento Close, Deakin Parade and Huntingdale Court. The established road reserves do not currently included off-street pedestrian infrastructure, footpaths etc, thus pedestrian movement utilises either the verge or shares the vehicle carriageway.

The proposed pedestrian and cycle network seeks to maximise permeability for pedestrians and cyclists, connecting the proposed shared path network at as many locations as possible. Removing shared path connections to existing streets that don't currently include footpath / shared path infrastructure ignores the fact that these corridors

currently accommodate pedestrian and cycle movements, and would adversely impact both the proposed subdivision and the established areas of Durack by:

- Limiting permeability and pedestrian / cyclist connectivity;
- Disadvantaging existing residents of Durack by restricting access to services and facilities provided as part of the proposed development, e.g. new areas of public open space, playgrounds and public transport services; and
- Increase pressure on a reduced number of pedestrian connection/s (e.g. Carpentaria Court) rather than allowing dispersal of pedestrian movements across a number of connections.

Clearly, the proposed Carpentaria Court and Packard Avenue will remain the primary pedestrian and cycle connections, and provide for the broadest range of users (e.g. those with young children or mobility impairment). The provision of multiple connections in addition to the primary connections maximises opportunities and permeability, and encourages walking and cycling. Design details for the pedestrian routes crossing Packard Avenue will be developed in accordance with the Northern Territory Subdivision Development Guidelines and applicable Australian Standards for pedestrian infrastructure over a Secondary Collector Road. There are no conflicting intersection or sightline issues that preclude the provision of safe pedestrian connections across Packard Avenue at the locations shown.

Evidently and based on the outcomes identified in the landscaping master plan, the overall pedestrian and cycle network will ensure a safe, attractive and permeable network with connections to the established networks external to the site.

Council's submission also requests consideration of an additional pedestrian connection between Healey Circuit (in the recently completed stage 11 of The Heights) and Mary Packarrd Park in stage 12. The land separating the existing stage 11 from proposed stage 12, between Tiger Brennan Drive to the north and Packard Avenue to the south, conveys substantial stormwater flows from the Tiger Brennan Drive detention basin (owned, operated and maintained by DLI) through the development site to the proposed ephemeral basins in the southern part of the site. Consideration of a pedestrian crossing in this location was undertaken by the project civil engineers, Empower, and is included in **Attachment C.** Empowers advice confirms an additional crossing at this location:

- Would result in significant risks associated with the hydraulic behaviour of the Tiger Brennan Drive basin, potentially partially submerging the basin outlet thus impact on its current functionality;
- Would likely require significant earthworks, steeper finished surface level grades and likely reduce useable public open space;

- Would present public safety issues if proposed at grade (e.g. a 'causeway' type pedestrian crossing with limited useability during rainfall events); and

- Is unfeasible if proposed as a pedestrian bridge connection.

The subdivision layout between stages 11 and 12 together with the dedicated pedestrian and shared path connections (both existing and proposed) along Packard Avenue enable access between the two subdivision areas (stages 1-11 and 12-19) with short walking distances along higher order pedestrian and shared path infrastructure. Accordingly, an additional pedestrian connection between Healey Circuit and Mary Packard Park is both unfeasible and unnecessary.

2.1.3 Emergency Vehicle Access

Council's submission notes no objection to the alternative emergency vehicle access via a shared pathway Indicated through Borassus Court in the original application), however requests details of off-site upgrade works and clear mechanisms for how these upgrades will be secured and delivered through conditions.

Further investigations have identified Carpentaria Court as a more suitable location for back-up emergency vehicle access / egress due to the direct connection to Woodlake Boulevard. Emergency vehicle access will be via the shared path, and will only be required when emergency vehicle access coincides with Packard Avenue being blocked in its entirety. Vehicle access through the shared paths will be prevented by the use of locked bollards at all other times. No alterations to the public road network external to the site are likely to be required to accommodate this arrangement, however any upgrades will be subject to approval by the City of Palmerston and will be undertaken by Urbex. It is expected that standard conditions on any resultant development permit will be sufficient to ensure the City of Palmerston is able to withhold Part 5 clearance until any required works are completed.

2.1.4 Additional Matters

The additional matters identified below are provided in Council's submission to support the recommended conditions (referred to in **section 2.1.5** of this report).

Lack of Endorsed Masterplans

The submission notes that none of the submitted masterplans have been approved by Council, and that before works commence Council requests:

- Streets and pathways masterplan backed by an updated traffic impact assessment;

- Updated Part 1 stormwater management plan; and
- Public open space masterplan confirming park hierarchy, layout, and landscaping.

The submission (and approval) of infrastructure master plans to service authorities (including Council) is standard and able to be addressed via standard conditions on any resultant development permit.

Development Staging

Council accepts the proposed 14-stage development structure in principle, noting concerns relating to ensuring public open space is delivered alongside residential lots, not lagging behind; and a formally approved staging plan to confirm sequencing.

Public open space is evenly distributed within the development stages, including Mary Packard Park within the first residential stage (albeit separated into part b to enable park development and completion whilst residential dwellings are being completed). Staging will ensure the availability of public open space for residents of early stages prior to the completion of development, and all public open space areas will be completed prior to the last residential stage. Standard conditions on any resultant development permit ("staging must proceed in the order shown on endorsed plans) will enforce sequencing.

Stormwater, Erosion and Sediment Control

Submission notes that stormwater will discharge into Council-controlled infrastructure. Given downstream environmental sensitivity and proximity to established housing, Council requests detailed, certified Erosion and Sediment Control Plans (ESCP) before land clearing. ESCP's must reflect the risk and complexity of each development stage. It is expected that standard precedent and general conditions on any resultant development permit will ensure the preparation, certification, implementation and compliance with ESCP's.

2.1.5 Development Permit Conditions

Other recommended conditions relate to master plan and staging approval, traffic assessment, stormwater, road cross-sections, detailed design approvals, erosion and sediment control, delivery of public infrastructure and vesting of civic infrastructure and easements (where applicable) to the City of Palmerston. Such conditions are expected for a development of this nature, and it is anticipated that such requirements will be enforced via standard precedent and general conditions on any resultant development permit.

2.2 Transport and Civil Infrastructure

The Transport and Civil Infrastructure submission confirms no objection to the proposed development, and provides standard conditions relating to road designs, approvals, construction management, access, stormwater and fencing. The identified conditions are expected for a development of this nature and are anticipated to be included in any resultant development permit. Passenger Transport comments confirm the provision of public transport services, including bus stops, into the master plan.

2.3 Department of Lands, Planning and Environment

The DLPE submission includes input from the Flora and Fauna division, Land Resources, Weed Management, Crown Land Estate, and the Environment and Heritage Division.

The Flora and Fauna Division considers that the proposed subdivision poses a low risk to most biodiversity values, except for the risk to *Typhonium praetermissum* which is unknown, and recommends targeted surveys in accordance with the Australian Government's *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance*. The survey should be undertaken at the appropriate time of year by a suitably qualified person with experience surveying for cryptic threatened plant species.

Typhonium praetermissum is listed as Vulnerable under the *Territory Parks and Wildlife Conservation Act 1976* and, as of 6 February 2026, Endangered under the *Environment Protection and Biodiversity Conservation Act 1999*. This species has been detected less than 2km to the east and north-east of the development area and distribution modelling for *Typhonium praetermissum* by DLPE indicates that an area of high likelihood habitat (approximately 17ha) occurs across the western third of the development area.

The project environmental services consultant, Ecoz, have confirmed (consistent with their Ecology and Heritage Constraints Assessment provided with the original application) surveys will be required in the first quarter of 2027 in accordance with the requirements identified in the DLPE submission. The surveys will inform the assessment of the potential impact on the species against the Australian Government's Significant Impact Guidelines. Whilst the submission requests deferral, it is considered that the required surveys can proceed as a condition precedent, including any required referral under the *Environment Protection and Biodiversity Act 1999,* prior to the intended commencement of construction works in dry season 2027.

All other threatened fauna and flora species are considered to have a low potential impact from the proposed subdivision, and other matters arising from the submission either raise no concerns or can be addressed via standard conditions, including:

- The Land Management Unit recommends a condition requiring a Type 3 Erosion and Sediment Control Plan (ESCP) be included on any resultant Development Permit, noting that should the indicated subdivision stages not exceed a duration of two years individually and disturbed surfaces are completely stabilised for said stage prior to the commencement of earth disturbing works commencing for the next stage, then a Type 2 ESCP is sufficient;

- Weed Management Branch provided advice regarding the developers obligations under the *Weeds Management Act 2001;*

- Crown Land Estate noted their role in the acquisition of land on behalf of the Northern Territory Government, including the transfer of land to government for the purpose of future road reserves (the PM area across the northern part of the subdivision). The proposed transfer will be discussed directly with Crown Land Estate; and

- Heritage Branch comments confirm no recorded Aboriginal or Macassan archaeological places and objects within the subject land, however, note the likelihood of unrecorded Aboriginal archaeological places is possible. Comments conclude that physical survey work is not required, however an Unexpected Finds Protocol and suitable induction materials are recommended.

2.4 NTFES

The Northern Territory Fire and Emergency Services submission confirms there are no objections to the proposed subdivision and advises that street fire hydrants must meet the requirements of the *Australian Standard 2419.1 Pressures and Flows.* Hydrant flow requirements will be addressed during detailed design.

2.5 Medical Entomology

The NT Health submissions confirms there are no objections to the proposed subdivision, and notes the potential for mosquito breeding sites to be created by the proposed development. A number of recommendations regarding the design, construction and ongoing management of sediment basins and ephemeral wetlands are included in the submission, with recommended notes on any resultant development permit regarding ongoing management and the avoidance of residual ponding within drainage infrastructure.

2.6 Power and Water Corporation (PWC)

Separate submissions were provided by PWC's Services and Distribution Development divisions, with an updated Services Development submission provided following submission of the services master plan. Formal endorsement of the master plan will be provided following detailed review. Water, sewer and electrical design, approval and reticulation requirements referred to in the submissions are expected for a project of this nature, and it is assumed that conditions precedent included on any resultant development permit will require approval of the services master plan and subsequent stage-by-stage detailed design approval.

2.7 Aboriginal Areas Protection Authority (AAPA)

The AAPA submission confirmed that Urbex 120 Pty Ltd hold an Authority Certificate over the subject land, covering the development works. The certificate (C2024/071) covers the development area in its entirety and does not include any Restricted Works Areas (RWA).

3.0 Public Submissions

Public submissions were received from:

- Tiska Howell and Richard McArthur, 5 Carpentaria Court, Durack
- Gary O'Hearn, 9 Carpentaria Court, Durack
- Cheryl Dennis (address not provided)

Matters raised in the public submissions have been summarised and grouped into the table below, with the applicants response provided.

Matters Raised in Submissions	Applicant Response
Traffic and Access Impacts	
• Concern regarding increased traffic volumes, particularly through Nichols Street and Carpentaria Court, driven by new development stages and school drop-off/pick-up traffic. • Alleged lack of accurate traffic data (SCATS/VPD), especially accounting for wet-season peaks and school-related traffic. • Fear that proposed "walk/cycle paths" may act as de facto vehicle access routes, or a precursor to future road connections through currently quiet residential areas.	• The development application included a detailed traffic impact assessment, which identified minor upgrades to the Packard Avenue / Roystonea Avenue / Yarrawonga Road signalised intersection as a result of the proposed development, with no additional requirements or improvements on the adjacent road network to facilitate the development. • The original road connection through Carpentaria Court, proposed by Urbex through the Master Plan and Specific Use Zone Planning Scheme Amendment process, is no longer proposed. Other than a proposed secondary emergency vehicle access at Carpentaria Court (protected via lockable

Matters Raised in Submissions	Applicant Response
• Strong opposition to convert cul-de-sacs into through routes, undermining their original design intent.	bollards) there is no proposal by Urbex to "convert" pedestrian or cycle paths into vehicle access roads, and the existing culs-de-sac in the Fairway Waters area of Durack will not become through-roads as part of the proposed development. Any future alteration to these existing streets will be a matter for the City of Palmerston.
Residential Amenity, Privacy and Lifestyle	
• The proposed pathways and lighting: - Reduce privacy due to direct overlooking along rear property boundaries; - Increase noise, disturbance, and night-time light spill; and - Diminish residents' long-established enjoyment of homes and parkland. • Submitters highlight they purchased properties specifically for the quiet, safe, park-adjacent environment, some over 20 years ago. • Concerns about property value impacts due to loss of amenity and perceived safety issues.	• Access corridors (shared paths) will be designed in accordance with the Subdivision Development Guidelines, relevant Australian Standards and subject to a Risk Assessment (refer Vegetation Strategy **Clause 1.3** in the Landscape Master Plan) to ensure good casual surveillance from adjoining streets, public and private areas. Furthermore, public pathways and lighting will be coordinated to ensure even lighting and clear views without dead ends, barriers or potential areas of entrapment. Lighting will be designed in accordance with and subject to assessment against **Section 12** of the Subdivision Development Guidelines. • Allowing for increased activity within walking trails and shared use areas incorporating appropriate design and CPTED (Crime Prevention Through Environmental Design) will improve opportunities for passive surveillance and is likely to improve community safety outcomes relative to the existing interface.

Matters Raised in Submissions	Applicant Response
	• Public open space lighting will be subject to detailed design and approval from the City of Palmerston, in accordance with **Section 12** of the Northern Territory Subdivision Development Guidelines. Amongst numerous requirements and standards, **Section 12.1(a)** notes *"…Lighting must be designed to ensure no nuisance / obtrusive lighting in accordance with AS/NZS 4282."* • No unreasonable noise disturbance from suitably designed pedestrian / shared pathways is likely to occur. • Perceived or actual impacts on property values are not an applicable consideration in statutory planning matters, either through **Sections 46** or **51** of the Planning Act, nor through numerous case law examples.
Safety and Security	
• Increased risk of anti-social behaviour, trespass, and reduced safety due to new access corridors near homes. • Lighting and open access behind residences seen as reducing passive surveillance effectiveness. • Concern that pathway width (~3 metres) and alignment could enable unauthorised vehicle use.	• Access corridors (shared paths) will be designed in accordance with the Subdivision Development Guidelines, relevant Australian Standards and subject to a Risk Assessment (refer Vegetation Strategy **Clause 1.3** in the Landscape Master Plan) to ensure good casual surveillance from adjoining streets, public and private areas. Furthermore, public pathways and lighting will be coordinated to ensure even lighting and clear views without dead ends, barriers or potential areas of entrapment. Lighting will be designed in accordance with and subject to assessment

Matters Raised in Submissions	Applicant Response
	against **Section 12** of the Subdivision Development Guidelines. • Allowing for increased activity within walking trails and shared use areas incorporating appropriate design and CPTED (Crime Prevention Through Environmental Design) will improve opportunities for passive surveillance and is likely to improve community safety outcomes relative to the existing interface. • It is anticipated that shared path designs are likely to require permanent measures to prevent unauthorised vehicle access, subject to the requirements of the City of Palmerston. Such measures will be considered during the detailed design process.
Planning, Design and Alternatives	
• Submissions argue there are less intrusive alternative alignments, such as: - Locating paths entirely within the new development; and - Routing access away from residential rear boundaries. • Lack of justification for selecting the most intrusive layout when alternatives appear available. • Reference to prior decisions or assurances that 'Old' Durack should not be adversely impacted by development in Durack Heights.	• All shared and pedestrian pathways are located entirely within the subject land, with the exception of the proposed footpath extension along Carpentaria Court, subject to further approval from the City of Palmerston. • The proposed pathway network has been designed to maximise permeability and options for walking and cycling, both throughout the subdivision and connecting to existing infrastructure. Maximising permeability mitigates pedestrian and cycle movements being concentrated to one or two external connections (an approach likely to be the most "intrusive" on existing residents),

Matters Raised in Submissions	Applicant Response
	and improves accessibility for both new and existing residents.
Consultation and Process	
• Strong dissatisfaction with consultation processes, including: - Short public exhibition periods (around 2 weeks), coinciding with holidays. - Poor visibility and placement of planning notices. - Inconsistent or incomplete information provided at community meetings. - Confusion over where submissions should be lodged and a lack of transparency from both developers and authorities.	• Public exhibition was undertaken in accordance with **Section 47** of the Northern Territory Planning Act, and exhibition signs were posted on each public road frontage (including 2 signs on the Tiger Brennan Drive frontage) and clearly legible from the public road/s. A total of 12 signs were displayed during the exhibition period, with the signs and online notices clearly articulating the process for making submissions. • In addition to the statutory exhibition requirements, Urbex held community consultation at the Gray Community Hall on Saturday 28 Marck 2026 from 8-11am. Urbex advised residents via posters at various locations, letterbox drops to residents (carried out the weekend prior) and social media notification.
Technical and Environmental Concerns	
• Insufficient detail provided regarding: • Stormwater management, runoff, and flooding risks. • Proposed lakes/ponds, including depth, earthworks, compaction, and long-term maintenance.	• The proposed stormwater management arrangements are detailed in the stormwater management plan (SMP) submitted as part of the original application. The plan details the proposed ephemeral basin system, including proposed earthworks and resultant levels. • The SMP confirms the implementation of ephemeral wetlands and stormwater detention basins is predicted to ensure non-worsening of pre-development peak flow

Matters Raised in Submissions	Applicant Response
• Concern these features may dry out seasonally, creating safety, environmental, and amenity risks for nearby residents.	conditions, with no significant change to flood levels, depths or velocities external to the site. • The SMP indicates there are some very minor localised areas where increases in water levels are predicted, however, it is anticipated that minor reshaping and earthworks will remove these increases, and that the increases are not expected to materially affect the use of the land or cause actionable nuisance. • The extent of detail outlining the proposed stormwater management provided with the original application is sufficient to address the requirements of the Northern Territory Planning Scheme and satisfies **Section 46(3)** of the Planning Act.
Requested Outcomes	
• Rejection or substantial redesign of proposed pathways, particularly near Carpentaria Court. • Relocation of paths away from residential boundaries. • Removal or redesign of lighting to prevent light spill. • Provision of full technical documentation (engineering, lighting, traffic, earthworks). • Genuine, extended consultation with affected residents. Suspension of works until all planning and consultation issues are resolved. • Physical measures to permanently prevent vehicle access.	• Final pedestrian and shared path designs will be subject to approval from the City of Palmerston. It is the proponents view that the concept shared path layout shown in the Landscape Master Plan achieves a suitable balance between maximising pedestrian / cyclist permeability, providing opportunities for alternative transport, recreation and fitness, and responding to established development on adjacent and surrounding land. • Public open space lighting will be subject to detailed design and approval from the City of Palmerston, in accordance with **Section 12** of the Northern Territory Subdivision Development Guidelines. Amongst numerous requirements and standards, **Section 12.1(a)**

Matters Raised in Submissions	Applicant Response
	notes *"…Lighting must be designed to ensure no nuisance / obtrusive lighting in accordance with AS/NZS 4282."* • Full detailed design drawings and technical documentation will be submitted to the City of Palmerston, Power and Water Corporation and Department of Logistics and Infrastructure during the detailed design and approval phase. • Public exhibition was undertaken in accordance with the requirements of the Northern Territory Planning Act. In addition to the statutory exhibition requirements, Urbex undertook direct consultation with existing residents. • Vehicle access restrictions will be subject to the requirements of the City of Palmerston, however it is expected that bollards may be required to prevent unauthorised vehicle access.

I confirm my client and/or representative will be present in person to respond to matters relating to the proposed development at the relevant hearing of the consent authority. Please do not hesitate to contact the undersigned with any further queries on that contained herein.

Brad Cunnington
Cunnington Rosse Town Planning and Consulting

Attachment A: Revised Landscaping Master Plan
Attachment B: MFY Response – Traffic / Transport
Attachment C: Empower Advice – Footpath Connection
Attachment D: Approved HV Master Plan

THE HEIGHTS

DURACK

URBEX

THE HEIGHTS DURACK

PUBLIC OPEN SPACE MASTERPLAN

LARRAKIA COUNTRY

2202420 • FINAL - ISSUE G • 15/05/2026

Acknowledgment of Country

Clouston Associates a division of Beveridge Williams acknowledge the Aboriginal and Torres Strait Islander peoples of this nation. We recognise their unique cultural and spiritual relationships to land, water, sea and sky. We refer to this knowledge and seek to better understand our place and responsibilities in working on country.

We particularly recognise the Larrakia, their continued custodianship of the land where this project is located, and commit to ongoing, meaningful engagement that recognises Larrakia perspectives and authority.

Image: Aboriginal or Torres Strait Islander Country.
Source: Darwin Convention Centre, 2025.

THE HEIGHTS DURACK

PUBLIC OPEN SPACE MASTERPLAN

Client

URBEX

Prepared by

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Image: Tropical wetland, Darwin. Source: Adobe Stock Images, 2025.

Image: Whistling Kite. Source: Adobe Stock Images, 2025.

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INTRODUCTION

OVERVIEW

Clouston Associates have been commissioned by Urbex to develop the Public Open Space Masterplan (POS MP) for The Heights Durack Subdivision. The project is located in northwest Palmerston and the extent covers the area to the north of the existing Durack suburb to Tiger Brennan Drive. The project focuses on opportunities for the premium residential community to have a strong connection with its public open spaces promoting an outdoor lifestyle.

The Heights Durack aims to activate and integrate the development with the natural and existing landscape features through its open space network. The spaces will provide an outdoor experience, creating a sense of place and encouraging the exploration and appreciation of the development area.

The intent of the public open space in Durack is to provide meaningful and memorable open spaces that connect with the site's tropical natural lifestyle and the Territory's history. These aspects form the foundation for delivering activities and links, with the theme parks, playgrounds, bicycle and walking paths, scenic views, natural attractions all supported with appropriate amenities.

The Public Open Space Masterplan aims to identify design principles that will guide and assist in achieving a public open space network that is consistent, explorative, engaging, meets community needs and is aesthetically pleasing. Its outcome includes, but is not limited to, guidelines for materials, locations, activities, typologies of public open spaces and their use and purposes, theming, colour palettes, planting, artwork, lighting whilst ensuring accessible and sustainable features are consistently incorporated.

POS MP APPROVAL PROCESS

The project has been undertaken in three stages which include:

- Phase 1 Concept Design
  - *Confirming the vision, themes and values of the development with Urbex.*
- Phase 2 Draft Masterplan *[this document]*
  - *Development of POS MP documents aligning to NTSDG requirements for stakeholder review.*
- Phase 3 Final Masterplan
  - *Refinement and finalisation of the Public Open Space Masterplan for endorsement.*

VISION, THEMES AND VALUES

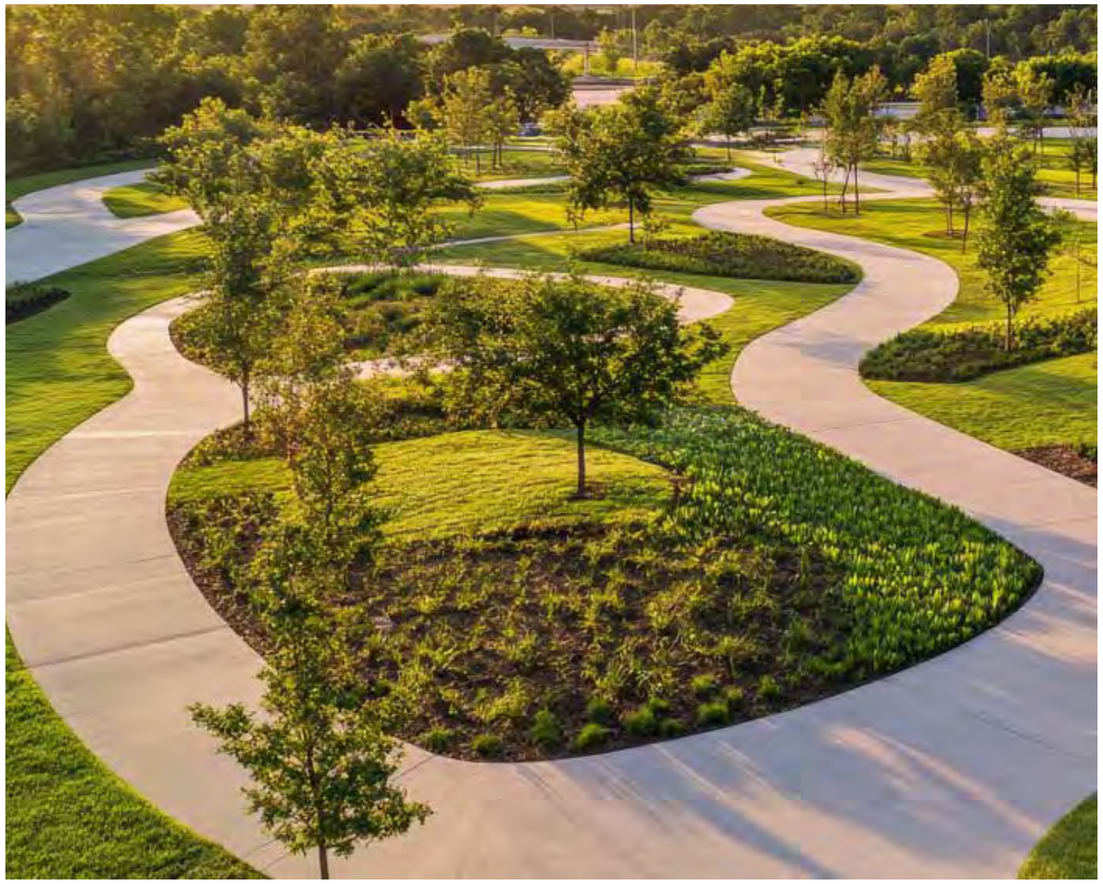
The Heights Durack intent to create a sense of community space, not only for the new subdivision but also by connecting the surrounding areas and existing open spaces. It aims to offer both visitors and residents a variety of experiences, from broad exploration to a deeper understanding of the local area.

Integrated storytelling will guide the interpretation of the site and its value, reflecting the character and history of the region and Territory.

The Heights Durack themes are:

- A Tropical Living - The Whistling Kite *(Also refer image on Page 4)*
- A Historical Significance - The 1869 Goyder Survey Expedition

These storylines and themes are vital, as they not only encapsulate the Territory's past but have the potential to enhance historical significance contextually by their celebration throughout The Heights Durack.



Public Open Space. Source: Adobe Stock Images, 2025.

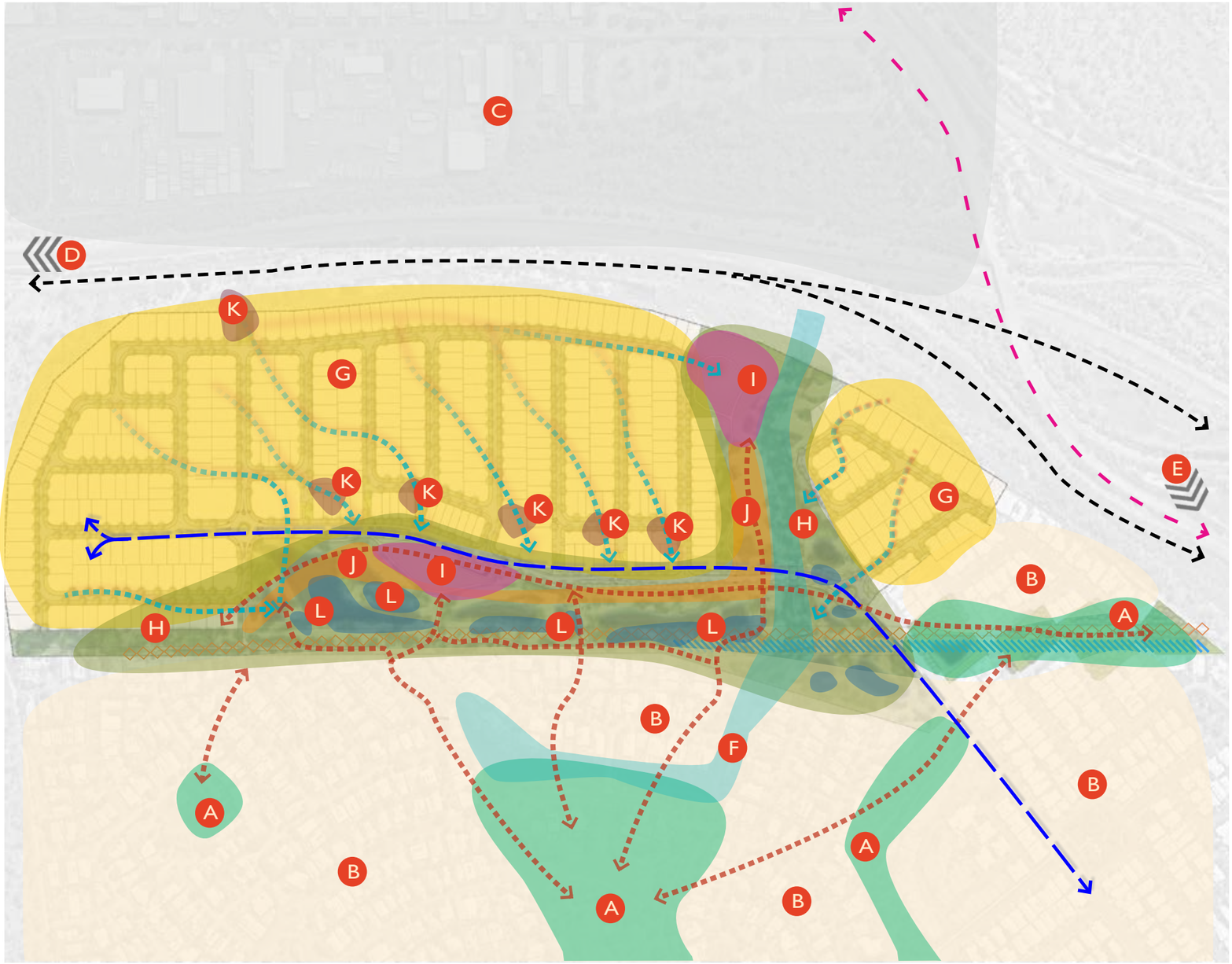
INTRODUCTION

THE PUBLIC OPEN SPACE MASTERPLAN STRATEGIC INTENT

The aim of the project is to prepare a comprehensive Landscape Masterplan (Public Open Space Masterplan) to guide the future use, development and management of The Heights Durack subdivision reflecting a consistent and comprehensive design language throughout the site.
To communicate the strategic vision of The Heights Durack Public Open Space Masterplan, the adjacent diagram has been developed to illustrate and analyse an overview of the development, with more detailed descriptions of specific components on subsequent plans.

LEGEND

- Major Arterial Road - Tiger Brennan Drive
- Major Highway - Stuart Highway
- Secondary Collector - Packard Avenue
- Connection from subdivision to Public Open Spaces
- Connection throughout existing and future Public Open Spaces
- Power Easement
- Water Easement
- A — Existing Public Open Spaces
- B — Existing Residential Zone
- C — Existing Industrial Zone
- D — Darwin City
- E — Palmerston City CBD
- F — Existing Stormwater Drainage
- G — The Heights Subdivision Residential Lots
- H — Open Space
- I — Local / Neighbourhood Park
- J — Linkage Corridor
- K — Pedestrian Linkages
- L — Ephemeral Basin



Masterplan Strategic Diagram

THE PUBLIC OPEN SPACE MASTERPLAN

LEGEND

- A — Local Park - Mary Packard Park
- B — Neighbourhood Park - Moonta Park
- C — Linkage Corridor - Linear Park
- D — Pedestrian Linkages
- E — Linkage Corridor - Existing Parks
- Moonta Park 400m Walking Catchment
- Mary Packard Park 400m Walking Catchment

PLEASE NOTE:

1. This plan is part of Public Open Space Masterplan and is to be read in conjunction with other documents such as the:

- *Staging Plan*
- *Access & Movement Plan*
- *Public Infrastructure Plan*

2. Additional Public Open Space may be accommodated within the Drainage Reserve subject to final detailed design of these areas.

3. With no definition provided in the SDG, the portion of ACTIVE space has been estimated in line with the definition of 'Active Recreation' provided in the CoP Play Space Strategy 2022 and also includes all proposed play and POS infrastructure. The ACTIVE portions are outlined in the Public Open Space Park Plans.

The remaining portion (%) should be considered the PASSIVE areas of each park.

LINKAGE CORRIDORS areas are clearly outlined in the adjoining table.

Beyond the defined POS areas (park and linkage corridors) there will be additional PASSIVE areas in the adjoining natural surrounds and Drainage Reserve. To be clear these areas have not been reflected or added to any calculations.

PUBLIC OPEN SPACE		
KEY	ITEM	AREA
A	LOCAL PARK - *Mary Packard Park*	0.89ha
B	NEIGHBOURHOOD PARK - *Moonta Park*	0.62ha
C	LINKAGE CORRIDORS *Linear Park*	3.05ha
D	PEDESTRIAN LINKAGES *Pedestrian access connections*	0.27ha
E	LINKAGE CORRIDORS *Existing parks - Stage 11*	1.4ha
TOTAL PUBLIC OPEN SPACE		6.23ha
DRAINAGE RESERVE [2]		*8.2ha*
TOTAL DEVELOPMENT AREA		44ha
PERCENTAGE OF PUBLIC OPEN SPACE		14.2%

POS OVERVIEW PLAN

THE PUBLIC OPEN SPACE MASTERPLAN

STAGING PLAN

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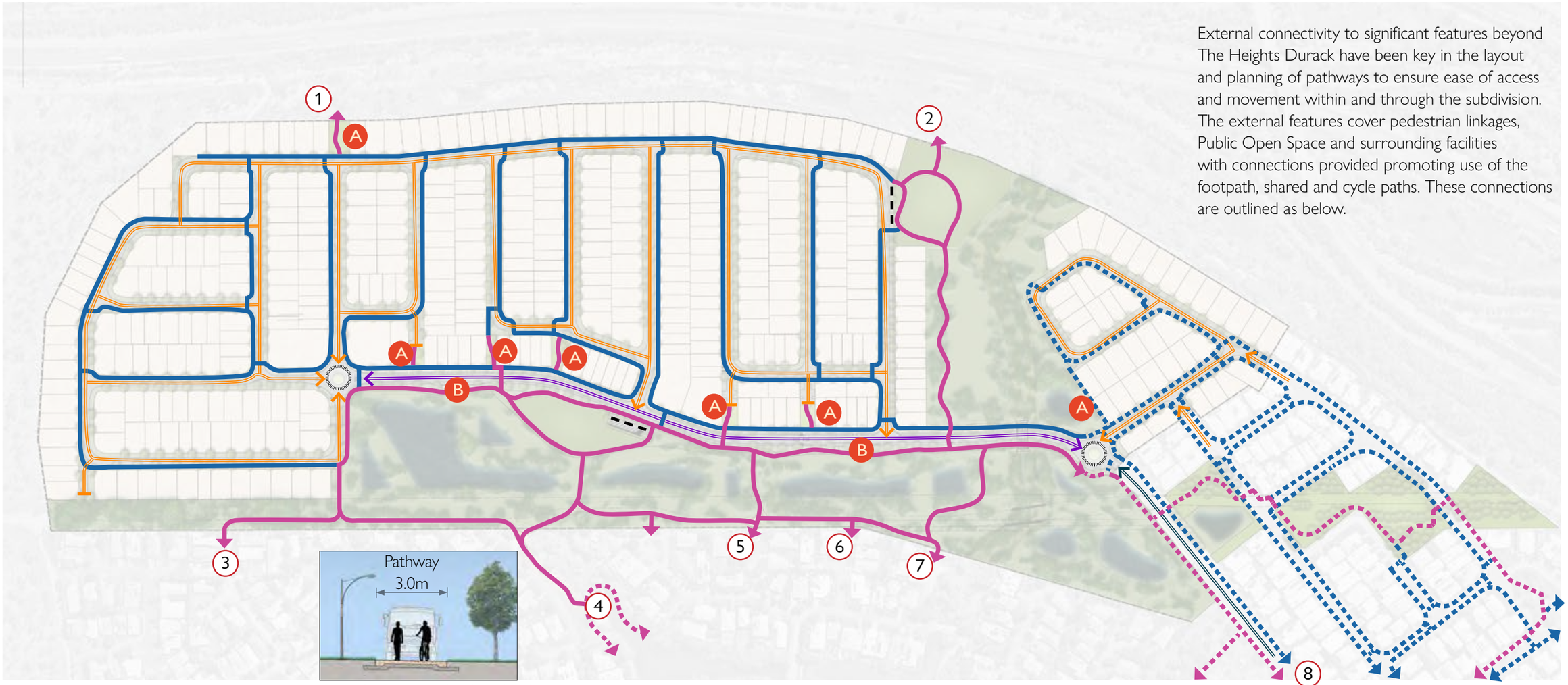
0 40 80 120 200m

CLOUSTON associates

THE PUBLIC OPEN SPACE MASTERPLAN



EMERGENCY ACCESS SECTION

External connectivity to significant features beyond The Heights Durack have been key in the layout and planning of pathways to ensure ease of access and movement within and through the subdivision. The external features cover pedestrian linkages, Public Open Space and surrounding facilities with connections provided promoting use of the footpath, shared and cycle paths. These connections are outlined as below.

LEGEND

- Shared pathway 2.5 meters wide
- Pedestrian pathway 1.5 meters wide
- Main subdivision access - Packard Avenue
- Secondary Collector - Packard Avenue
- Local access street
- Roundabout
- Existing shared path
- Existing pedestrian pathway
- Dedicated POS Car Parking
- A — Pathways through pedestrian links
- B — Bus stops

1. Future links to future shared path connecting
2. Palmerston to Darwin along Tiger Brennan. The future path (by others) is strategic positioned along the rapid transit corridor.
3. Pedestrian connection to existing Borassus Ct (note existing connection to a shared road).
4. Shared connection through the existing Carpentaria Park to existing shared pathways connecting to numerous features and adjoining area of Public Open Space. Connection to provide potential 3m emergency access point (with bollards) to Carpentaria Ct.
5. Shared connections to existing Huntingdale Ct,
6. Sorrento Cl and Kooyonga Parade (note existing
7. connections to a shared road).
   Shared connection to existing Deakin Place (note existing connection to a shared road).
8. Shared and pedestrian connections to existing pathways throughout Durack that provide access to neighbouring shops, educational facilities, and recreational facilities.

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ACCESS & MOVEMENT PLAN

THE PUBLIC OPEN SPACE MASTERPLAN

LEGEND

- A Local Park - Mary Packard Park
- B Neighbourhood Park - Moonta Park
- C Linkage Corridor - Linear Park
- D Pedestrian Linkages
- E Linkage Corridor - Existing Parks
- Playground
- Integrated Waterplay
- Multi-aged Fitness Station
- Teenage/Adult Play Elements
- Kickabout Space
- Fitness Node
- Picnic & BBQ Facilities w/ Fixed Shade
- Seating Node w/ Fixed Shade
- Seating Node
- Shared Pathway
- Open Grassed area
- Tree Planting
- View Point
- Dog Amenities

ACCESSIBILITY STATEMENT

Accessibility is thoroughly embedded in the design of The Heights Durack with key principles in both the Recreational & Landscape Strategies. All pathways throughout the public space will be designed to AS1428.1 (Design for access and mobility) with intention for all walkways (therefore minimising ramps or stairs). Pathways are complemented with frequent rest opportunities, with seating nodes at 70-120m intervals as indicated in the Public Infrastructure Plan. The furniture theme will be formed around the current HPA benches installed in Stage 11 Parks, with this theme to be consistent throughout all POS areas. Picnic and seating facilities will include features such as accessible tables and free space accommodating wheelchairs. Accessible play items are to be incorporated in playgrounds with large use of rubber softfall ensuring access to play areas.

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0 40 80 120 200m

PUBLIC INFRASTRUCTURE PLAN

VEGETATION STRATEGY

TREE PLANTING OVERVIEW

As well as their environmental and aesthetic qualities, trees play a key role in defining neighbourhood character, setting up distinctions between road types and creating both physical and visual links throughout the subdivision. Trees provide shade, scale and visual amenity to the road corridor whilst also extending and connecting to open space and retained bushland areas to form a network of habitat links.

Strategically chosen trees can have a significant long-term impact expanding tree canopy coverage, to help provide shade and cooling. As well as environmental impacts easing the urban heat island effect, it also increases social benefits promoting walkability and improve overall well-being.

STREET TREE FRAMEWORK & THEMING

The street tree framework for The Heights Durack proposes a complex planting palette with a mix of trees for different streets. The mixed approach aims to strike the right balance of having suite of trees that provide a unique character for that street while also assisting in wayfinding, the mix also promotes biodiversity and increases resilience, sustaining the ongoing benefits of street tree planting. In summary the approach addresses the theming requirements of the NTSDG & City of Palmerston's preference for biodiversity and to shift away from a single species per street.

Generally taller growing, wide canopied trees have been selected along the main collector roads as well as where adjoining open space areas to form a green canopy along the high-volume roads. Smaller growing, tighter canopied trees are to be used along the local streets to reflect the change in road scale and provide shade to on-street parking and pedestrians.

The street tree palette consists of Top End native species that have been selected for their hardiness to local conditions as well as their proven suitability in street tree applications in terms of form, longevity and vigour.

Typically, a Mix Type will be applied to a street which may see 2 to 4 of the species applied which will be determined by factors such as timing, availability, extent of street and feasible planting locations. Final species will be confirmed in consultation with the City of Palmerston at the appropriate detailed design and construction phases.

PROPOSED PLANT SPECIES

Tree species proposed beyond the streetscape will utilise the proposed tree species for streets schedule as a starting point. This will be expanded on using a wider species list previously provided by the City of Palmerston to Clouston as well as endemic species available from local nurseries. Similar to the street tree planting, Top End species will be selected for their hardiness to suit local conditions as well proven native and exotic trees they have been implemented successfully across urban landscapes throughout

Likewise, the same approach for shrub, groundcover and grass planting will be employed with hardy, low maintenance, tested species selected to suit the appropriate location. A balance of general mixes will ensure biodiversity is promoted with mass planting and repetitive use of species throughout locations will reinforce a strong sense of place in line with the Landscape Strategy. Typically lusher, denser and aesthetically pleasing planting will be planted in irrigated garden beds amongst active spaces such play areas and seating nodes, while hardier native planting will be used in areas deeper in the open spaces, mirroring the local natural habitats of the native bushland.

All Public Open Space planting will be finalised in consultation with the City of Palmerston through the detailed design phases of each stage.

PROPOSED TREE SPECIES FOR STREETS

Key	Species Scientific Name	Species Common Name	Small / Medium / Large Tree
AA	*Alstonia actinophylla*	Milkwood	Large
AT	*Allosyncarpia ternata*	Allosyncarpia	Large
BD	*Brachychiton diversifolius*	Northern Kurrajong	Medium
BA	*Buchanania arborescens*	Little Gooseberry	Medium
CB	*Carallia brachiata*	Bush Current	Medium
CA	*Canarium australianum*	White Beech	Medium
CS	*Cordia subcordata*	Kerosene Wood	Small
CBe	*Corymbia bella*	Ghost/White Gum	Medium
CPo	*Corymbia polycarpa*	Long-fruited Bloodwood	Medium
CP	*Corymbia ptychocarpa*	Swamp Bloodwood	Medium
ME	*Mimusops elengi*	Spanish Cherry	Medium
ML	*Maniltoa lenticellata*	Cascading Bean	Medium
NO	*Nauclea orientalis*	Leichhardt Tree	Large
SA	*Syzygium armstrongii*	Small White Bush Apple	Medium
SF	*Syzygium forte*	White Bush Apple	Large
SN	*Syzygium nervosum*	Daly River Satinash	Medium
TM	*Terminalia microcarpa*	Damson Plum	Large

STREET TREE MIXES

Mix Type	Species	Location
Mix A	ST, SA, SF, TM (inc roundabout)	Secondary Collector (Packard Ave)
Mix B	CP, CB, SN, CS	Local Access Streets
Mix C	AA, CS, CPo, BD	
Mix D	BA, SA, , MC, ML	
Mix E	AT, CA, CBe, ME	

NOTE

Street Trees adjoining Public Open Space to be permanently irrigated.

VEGETATION STRATEGY

RETAINED VEGETATION MANAGEMENT

Retained vegetation is an important component of the open space network within The Heights Durack. It is restricted to two areas – within Mary Packard Park and to limited areas of the drainage reserve that adjoin the open space linkage corridors to the east of the subdivision and along the southern boundary adjoining Durack. Retained vegetation is valuable within residential areas arising from enhanced biodiversity and habitats. Retained vegetation provides a natural, undeveloped context for overall development.

The final extent of the retained vegetation in each locality would be subject to final landscape and civil designs. For Mary Packard Park, retained vegetation is proposed to be preserved on Packard's Knoll, a significant natural feature of the development site. There may be other opportunities for retained vegetation or revegetation abutting the drainage reserve and northern corridor subject to final design. An indicative extent of retained vegetation is indicated on the Park's Preliminary Page on (refer p. 22).
For the open space areas, retention of vegetation will be limited as significant earthworks will be required to ensure finished levels support the stormwater design. Where possible retained vegetation will be maximized, recognizing there will be substantial clearing required to deliver the proposed basins, shared paths links and Moonta Park. The remnant vegetation within the pedestrian linkages and drainage reserve will be a combination of retained and revegetation to reflect the existing natural habitat.

Retained vegetation can include complete vegetation strata comprising trees, shrubs and grasses/ groundcovers. In some instances, selected trees alone will be retained and protected. Where appropriate, biodiversity and habitat values will be enhanced through revegetation, extension of mixed vegetation planting and infill planting utilising local and endemic species.

VEGETATION MANAGEMENT REQUIREMENTS

The following outlines the overall approach to managing the retained vegetation during the development phase and post development phase. The works described are generic and would generally apply to all areas.

1. DEVELOPMENT PHASE

The following actions would be undertaken during the development phase and reflected in the design and built works:

1.1 Detailed Survey and Site Investigations

As part of the design process, detailed site survey and on-site investigations of the native vegetation is undertaken to assess overall health, species diversity, weeds and density of undergrowth. This will provide guidance on the extent of tree assessment required, refining planting lists, identifying weed control and clearing works to be undertaken as part of the park development. The site investigation will also locate natural features to be considered and incorporated in the design. The extent and timing of surveys would occur during the early Design Development phases for each appropriate stage.

1.2 Tree Assessment / Arborist Report

After the concept design is finalised and the areas of retained vegetation are defined, an arborist is engaged to undertake an assessment of all trees within the retained vegetation area and also trees that may be retained in developed areas of the park. The assessment report will guide the detailed design development and will be provided as a supporting document of the Design Report for final submission for Council approvals. The report will include guidelines for working around retained trees, works required to specific retained trees and nominate trees to be removed due to risk or poor health.

1.3 Risk Assessment

The retained vegetation would be assessed in respect of overall risks. Tree failure risks would be covered as part of the tree assessment (above). Other issues to be addressed would be safety and applying the principles of Crime Prevention Through Environmental Design (CPTED). In this instance the primary concern would be to ensure good casual surveillance from adjoining streets, public and private areas.
Clear sightlines and overlook should be maximised. It is also important that public pathways and lighting are co-ordinated to ensure even lighting and clear views without dead ends, barriers or potential areas of entrapment. Trees in high use areas (e.g playgrounds) and near paths will be assessed against a higher risk rating to ensure public safety.

1.4 Revegetation

Present erosion is typical of Top End seasonal creeks where minor erosion and changes in creek alignment occurs each year during the Wet Season. Risks to these creek lines will be reduced as the sub-division develops. In the interest of public safety and ongoing maintenance, localised hardening, bank protection and stabilisation of the creeklines will be required. This would generally involve minor regrading of the creek bed and laying of suitably sized dump rock over a geotextile liner. They are directed at protecting areas historically subject to gully erosion and removing the deep holes and drop-offs that have resulted.

1.5 Construction Access

Construction access will be carefully surveyed and marked out prior to construction start. It would be aligned to minimise damage to nominated retained vegetation, in particular Packard's Knoll. One way flow of vehicles and maximum width of 3m would be provided. Post construction, these access routes would generally be contained in areas marked for future clearing or access routes, if otherwise these areas would be rehabilitated since it is anticipated that future vehicle or machine access will be limited to maintenance access points only.
In some instances, the construction access routes would convert to recreational trails. Construction would be either cement stabilised gravel walking trails or concrete subject to an assessment of expected use and long-term stability. These walking trails would comply with Grade 1 (wheelchair accessible, no walking experience required) or Grade 2 (generally no steeper than 10%, few steps, no bushwalking experience required. Refer AS 2165.1).

RETAINED VEGETATION MANAGEMENT

2. POST DEVELOPMENT PHASE

The management activities post development (soft-scaping handover) will be the responsibility of City of Palmerston and will comprise as follows:

2.1 Weed Management

The Heights Durack is a greenfield development and originally comprised remnant native bush areas. Weed encroachment is limited to the boundary areas to adjoining cleared areas, weeds introduced to ponds and creek lines arising from water movement of seeds and propagules, and weeds along edges of disturbed ground (firebreak, tracks etc).

The main weeds present that pose the most risk in terms of fire and environmental harm are Mission Grass (annual and perennial) and Gamba Grass. As the area is developed and residential housing fills in around the retained vegetation, much of the weed risk will shift to garden escape plants. This occurs easily by seed spreading and also dumping of vegetation (cuttings, clippings, etc.) by residents into park and retained vegetation areas. These can be extremely diverse and pose different levels of risk.

Weed management contracts extending over multiple seasons is the best means of controlling weeds. Seasonally focussed efforts with spraying and physical control are the most effective methods for the major grass weeds. Garden escapes require carefully targeted actions in parallel with education and policing. When local residents understand the value of weed free bush areas, instances of illegal dumping is greatly reduced.

Refer *Weed Management* for further information.

2.2 Fire Management

A reduction of fuel loads within the protected bush through active weed management of predominantly introduced grasses is paramount to minimising fire risk. Maintaining a balance of underbrush and native grasses will generally limit fuel loads reducing potential fire hazards.

Landscaped buffers, including pathways, running parallel to the edges of all bushland provide easy emergency access.

The landscape buffers will be a combination of open parkland treatments of grass and scattered canopy trees and/ or cleared grass and/ or standard road verges of grass and street trees. The overall width of the buffer would be determined by the individual situation but would general be between 4 – 20m in total. (a minimum 4m buffer along house lots boundaries that adjoin public open space would be established and maintained in accordance with requirements of the Bushfires Management Act 2016.

2.3 Maintenance Strategy

Maintenance contracts for retained vegetation areas will be undertaken by qualified specialist vegetation management companies who are skilled in these works. These areas are not standard landscape maintenance areas. Protection of native vegetation, support of natural cycles of plant regeneration and rapid response to weed infestation requires an extensive knowledge of native plants, weeds and management. Regular assessment and treatment as required of soil stability, groundcover density, canopy cover, weed presence and dumping is required.
The maintenance effort is concentrated as follows:

Build-up and early Wet Season:
- Mulching of revegetation areas
- Infill planting of tubestock as required (no establishment irrigation subject to timing)
- Initial spray of grass weeds

Image: Retained bush with revegetaton planting to disturbed areas in foreground. Source: Clouston associates.

Wet Season
- Follow up weed treatment
- Monitoring of soil stability

Dry Season
- Early slashing of any thick grass growth
- Spot treatment of perennial weeds
- Monitor and hand watering of revegetation areas as required (limited to monthly operations in 1st year only)

Maintenance activities in all the parks will be of similar nature. The open grass parkland, walkways, street verges and property boundaries will define the native vegetation areas. Maintenance requirements specific to the native vegetation areas will include but not limited to:
- Weed monitoring and treatment
- Manual slashing of any native grasses immediately prior to seed set
- Pruning or plant removal of any plants overhanging walkways and trees that pose a safety to path or playground users.
- Mulching annually.
- Rubbish removal.
- Revegetation of bare or disturbed areas.
- Repair / rectification of areas of erosion.

CYCAD & SAND PALM MANAGEMENT

This Cycad & Sand Palm Management Strategy has been developed for The Heights Durack and is to be read in conjunction with the NRETAS Management Program for Cycads in the Northern Territory of Australia (2009–2014).

This strategy sets out practical measures to ensure compliance with the Management Program which applies only to Cycads (Cycas armstrongii), which is listed as Vulnerable under the Territory Parks and Wildlife Conservation Act. Where land clearing has been formally approved by the Northern Territory Government, no additional permit is required for the non-commercial removal of cycads within approved clearing areas. Any salvaging of Cycads for commercial purposes is subject to the commercial harvest provisions of the NRETAS document.

Protection and Conservation

Retained bush within The Heights Durack will be primarily located within Mary Packard Park with possible additional areas in other Public Open Space and Drainage Reserves. While these areas are limited, all Cycads & Sand Palms within the retained bush are to be retained and protected. Prior to handover to the City of Palmerston, maintenance of remnant bushland in open space areas will be undertaken to protect native vegetation. Maintenance activities will include: weed control, maintenance of firebreaks, selective controlled burns (undertaken in agreement with NTFRS and City of Palmerston), control of vehicle access and illegal dumping. These measures will reduce threats to existing Cycads & Sand Palms and support natural regeneration.

Salvage Operations and Program

It is anticipated that the required clearing operations to be undertaken to enable the development of the residential estate would be approved as a matter of course through the Planning process of the NT Government. It is the developer's intent that wherever possible, Cycads & Sand Palms in areas to be cleared would be salvaged for re-use. In accordance with the NRETAS, that have undertaken salvage operations, indicate that an 80% survival rate is a reasonable expectation for Cycads. All salvaged Cycads will be labelled with Parks and Wildlife–approved tags prior to removal. Salvage operations would be ongoing throughout the project, occurring prior to commencement of clearing.

It is preferable for plants to be transplanted immediately to their final location. This tends to be less disruptive for the plant and is also more cost effective. Due to staging and timing, immediate transplantation to final locations will not always be feasible. Clearing permits and construction works will determine salvaging windows. However, where possible, salvage works would be timed for the dry season which is considered the optimum time for transplanting provided irrigation is available. Where irrigation is not available, transplanting would be timed for the beginning of the wet season.

The final works program and development sequence for The Heights Durack is yet to be finalised. However, the preferred approach to be pursued in salvage operations would be:

1. Identify area to be cleared, as surveyed, and undertake assessment of total numbers of Cycads & Sand Palms available for salvage.
2. Confirm open space areas immediately available for re-installation of Cycads & Sand Palms.
3. Prepare landscape design plans that identify location and numbers of salvaged Cycads & Sand Palms to be utilised in each open space area.
4. Prepare Cycads & Sand Palms balance sheet to identify excess or shortfall in numbers for this stage of works.
5. Where there is a Cycad & Sand Palm surplus available, plants are to be potted up and stored for future use.

It is anticipated that overall and through various stages throughout the project there will be surplus Cycads & Sand Palms. Therefore the developer will arrange with local businesses for the commercial sale of the plants.
At such times, appropriate application for permits issued under the Territory Parks and Wildlife Conservation Act would be undertaken for Cycads.

The proposed Strategy ensures a good environmental and community outcomes rather than undertaking no salvaging actions prior to clearing works.

Image: Livistona humilis (Sand Palm) left & Cycas armstrongii (Cycad).
Source: Michael J Barritt, 2025.

Images:
Weed Removal. Source: Adobe Stock Images, 2025.
Irrigation. Source: Clouston associates 2025.

WEED MANAGEMENT

Management of weeds throughout the development is required from both a legislative and economic sales perspective. The Weeds Management Act will apply to the development. In the case of The Heights the primary concern relates to Gamba Grass (covered by the Weeds Management Act and Weed Management Plan Gamba Grass 2020-2030 (2024 Revision). Other weed either present or likely to occur within the development site includes Mission Grass (annual and perennial), Hyptis and Coffee Bush.

Gamba Grass is to be controlled in accordance with the requirements of the NTG Department of Environment, Parks and Water Security Weeds Management Plan Gamba Grass 2020 – 2030. Specifically, as outlined in Table 3 *Class B Zone - Land parcels (3-140 Ha) Control growth and spread:*

- Establish and maintain a gamba grass free buffer of 15m in width along the inside of the land parcel boundaries, around infrastructure, and on both sides of tracks and roads. The buffer must be established by chemical, mechanical or physical means, and must be done prior to seeding each year.
- Where the Class B zone adjoins the Class A zone boundary, it is required that a gamba grass free buffer of 500m is established and maintained on the Class B zone side of the boundary. This buffer must be established and maintained by chemical, mechanical or physical means, and must be done prior to seeding each year.
- Undertake annual gamba grass control activities and weed spread prevention activities to ensure gamba grass free areas remain gamba grass free.
- Undertake annual gamba grass control activities so gamba grass is reduced.

All other weeds will be controlled in accordance with the Northern Territory Weed Management Handbook 2018. In areas of retained vegetation and developed open space areas, weed management is to ensure the areas are completely free of weeds.

IRRIGATION STRATEGY

Irrigation is fundamental to ensure the successful establishment of all soft landscaping elements throughout The Heights Durack. Beyond initial establishment, irrigation plays a critical role in long term plant health, maintenance efficiency, and overall landscape resilience. A strategic, waterwise approach strategy is proposed to ensure that Public Open Space areas receive sufficient reticulation to create and sustain landscapes for the local community's use.

The strategy outlines the approach for key landscape elements:

- Tree Bubblers to all trees in Parks and adjoining verges. Bubblers supported with aeration pipes allow for deep watering encouraging strong root development and long-term stability.
- Garden Beds with targeted irrigation to support proposed planting palettes. Garden beds are typically positioned strategically to active spaces including along shared pathways at nodal and key entry points. This allows for ease of location and service with mainlines typically running parallel to pathways.
- Grassed Areas. Irrigation for grass is consolidated to active area surrounds including along shared pathways and to greater expanses in Moonta & Mary Packard Parks where picnicking and ball/grass play are encouraged. Efficiency is proposed through minimising small strips of grass that require irrigation, therefore allowing large irrigation heads to cover optimal distances in larger areas.
- Revegetation & Dryland Grassed Areas. Temporary irrigation points (typically wired to main controllers) will be installed to support establishment, with intention for the above ground lines to be removed or decommissioned once vegetation is self-sustaining.

Irrigation documentation will be produced on a stage-by-stage basis during the design development. During this phase main lines systems, controllers and water sources will be identified. During design development any future provisions will be identified, and items such as mainline, additional values and controller wires will be installed for future connections.

Urbex are aware that City of Palmerston's (CoP) Irrigation Manual requires updates and doesn't always align with CoP current practices and therefore will request clear direction from CoP in regards to preferred items, such as controller type and power supply. Solar-power supply will be considered in situations where mainline supply may be restricted.

EPHEMERAL BASIN MANAGEMENT

The ephemeral basins within The Heights Durack are an important component in the overall stormwater management strategy for the development. For clarity the ephemal basins intend to function in line with the "Ephmeral Wetlands" Stormwater Treatment Device as outlined in NTSDG, refer Table 33. For further information refer to civil and hydraulic reports which outline the details related to stormwater management, including inflows, trash interception, water level fluctuations and outflows under varying rainwater events.

The ephemeral basins are multi-functional in that they also are important components in the overall amenity of the development and provide valuable biodiversity and habitat benefits. Effective management of the associated landscape aspects are critical in the long-term function of these features and to ensure the amenity and habitat benefits are protected.

The ephemeral basins are intended to be functional natural systems supporting native plants and animals including fish. A healthy, natural system will support good quality water and have a reduced maintenance requirement. There will be seasonal fluctuations and changes over time.

The landscape design will include wetland and margin planting of native species that are crucial to the uptake of nutrients. Retained vegetation and revegetation on adjoining areas are important to minimize sediment inflow to the ephemeral basins.

The primary management activity would be weed control to the basins themselves and the margins.

Standing water poses a risk of increased breeding of biting insects. In addition to medical risks, there is also a nuisance risk when numbers of biting insect numbers are high and outdoor activities are negatively impacted. This is most readily managed through natural predation. Native fish and frogs are effective controls through predation of larvae. Dense vegetation in shallow water and areas of waterlogged soils are not readily controlled by native fish. The design of the basins embankments and designed water levels will address these risks.

MAJOR & MINOR STORM EXTENT

A key intent of the stormwater design of The Heights Durack is to ensure that all play equipment, pathways and picnic and seating shade structures are located outside of minor drainage flow paths and are not inundated by a minor storm event.
The above plan demonstrates that throughout open space areas Minor & Major Storm Extents are largley contained to drainage areas and outside or limited in parks and designated Public Open Space areas.

During the design development stages, detailed plans will be provided with any design solutions outlined to demonstrate alignment with the aforementioned stormwater design intent within Public Open Spaces.

Image: NT Landscape. Source: Michael J Barritt, 2025.

RECREATIONAL STRATEGY

The Recreation Strategy for The Heights Durack is based on principles and guidelines aligning with the City of Palmerston's Play Space Strategy (2022). Our principles are:

- Healthy outdoor lifestyle and engagement with nature.
- Integrated, diverse and accessible play spaces for all.
- Play environments as gathering spaces for the community to thrive.
- Sense of place based on sustainable and cohesive design.

To provide insight into the general character of the recreation spaces, indicative illustrations of similar landscapes are provided in the below images.

LANDSCAPE STRATEGY

The Landscape Strategy's intent is to deliver a cohesive design language throughout the subdivision with the following integrated features:

- Retention, creation and enhancement of the existing and natural features.
- Shading and cooling elements with a strong focus on tree canopies.
- Sustainable, durable materials and finishes consistent throughout the site.
- Accessible, equitable elements catering for a wide range of users.
- Species diversity through open spaces and streetscapes.

PUBLIC ART & INTERPRETATION STRATEGY

INTRODUCTION

This Public Art and Interpretation Strategy establishes a coherent, place responsive framework for public art and interpretive landscape elements across the Public Open Space (POS) network comprising of Mary Packard Park, Moonta Park, pedestrian linkages and linear park surrounding Packard's Avenue. The strategy draws from the Themes of the Whistling Kite and the historical significance of the 1869 Goyder Survey Expedition, embedding these narratives into park infrastructure such as wayfinding, seating, play and landscape elements.

VISION

Public art and interpretive landscape elements are approached not as standalone sculptural objects, but as integrated, functional and subtle interventions that enhance legibility, identity and user experience, while respecting the natural landform and supporting the contemporary uses of parks by the community.

- Diversity – Public art and interpretation opportunities to raise awareness and appreciation of cultural values, local and surrounding.
- Creativity – Public art and interpretation opportunities to support innovative and creative ideas.
- Heritage – Public art and interpretation opportunities to reflect our social history.

MARY PACKARD PARK THEME

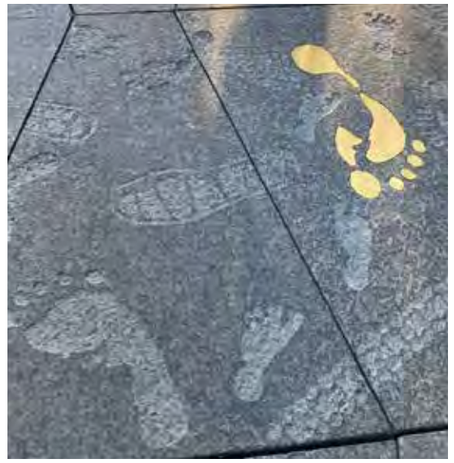
Mary Packard Park is a local park with a conceptual framework inspired by the Survey Expedition. This theme is expressed through path alignments, gathering spaces, interpretive play and spatial sequencing that reference ideas of mapping, direction and orientation. The Whistling Kite offers a reference to movement, orientation and vantage within the landscape and play elements. Possible public art and interpretation opportunities are illustrated.

Survey markers like direction navigation poles, topography inspired park signage surrounded by complementary landscape features including planting and rock boulders.

Topography inspired activities, as well as shelter/play feature referencing and celebrating the expidition's "Elrundie Camp'

Conical rise - Seating following the contour of the hill.

Historic survey / grid inlays also double as sun dial.



Footsteps of the Expedition Small, abstract markers set into paths.

Seating engraved with historic references, co-ordinates, grids.

PUBLIC ART & INTERPRETATION STRATEGY

LINEAR PARK & PEDESTRIAN LINKAGES THEME

The linear park and pedestrian linkages are integrated by a theme of movement and discovery, expressed through an exploration trail and by the flight patterns of the Whistling kite. The corridor emphasises continuity, rhythm and flow, guiding users intuitively between destinations while offering moments of pause and interpretation. This space reinforces the idea of journey as an experience in itself, connecting parks, people and landscape. Possible public art and interpretation opportunities are illustrated.

Nest-like shade structure nestled within shade trees and planting, providing passive cooling.

Seating wall gradually tapers into an integrated information and interactive walls.

Laser-cut panels cast kite silhouettes or wing patterns onto paths, seating and play surfaces, allowing the kite to appear to glide, circle and fade as the sun shifts.
The Whistling kite is rarely experienced up close, instead perceived through its moving shadow.

Wayfinding markers integrated into the exploration trail / pathway and designed to also function as running loop distance markers.

Seating nodes are conceived as 'perches' within the landscape a tool for observation, pause and connection across the public realm., informed by the Whistling Kite's gliding movement, pause & observation.

Survey-inspired paving inlays function as wayfinding cues, strengthening desire lines and guiding movement across the site.

Vine-covered seating node creates nest-like seating spaces inspired by the Whistling kite's nesting.

MOONTA PARK THEME

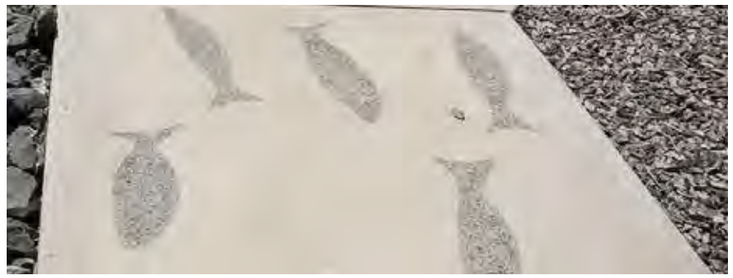
Moonta Park celebrates the journey and arrival of 'The Moonta" and other maritime exploration. Public art and landscape elements translate this narrative into an active, playful environment that supports imagination, movement, challenge and shared experience.

Ship and aquatic themed playground equipment suitable for all ages, incorporate large slides, big swings and playing areas.

Marine-inspired landscape elements that support interaction and imaginative play, extending the narrative

Play equipment - double as sea faring experiences:
1. Crew hammocks
2. Lookout stations
3. Treasure hunt trails

Abstract wave-inspired park sign reflecting coastal movement



Sandblast pattern & brass inlays suggest the journey path, movement & orientation.

Acknowledgements of Harrison D. Packard preserved by including seating walls with names sand blasted on the frontages or brass plaques may be included to provide historical information and interpretation.

Seating wall / retaining wall to have aquatic, ship interactive play.

Kinetic elements - respond to sea breeze also double as navigation signal

POS - PARK PRELIMINARY PLANS

NTS

A Playground
Whistling kite theme - Feature play elements such as rope structure, rotator, swing set, mounds and slides, supported with shade sails. Integrated with nature play & irrigated garden beds.

B Fitness Node
Small-medium sized station with static & dynamic equipment.

C Picnic & BBQ Facilities w/ Fixed Shade
Large shelter with table setting and bbq supported with items such as bin enclosures, bubbler, bike racks.

D Grassed Area
Open irrigated grass areas with surrounding trees.

E Possible Parallel Car Parking

✳ Seating Node
Bench seating with supporting elements as appropriate: eg. bin enclosure/bubbler/tap

Tree

MARY PACKARD PARK	
LOCATION	Stage 12
SDG CATEGORY	Local Park
AREA	8,900m²+
PORTION OF ACTIVE SPACE	50%
CoP PLAY SPACE HIERARCHY	Local
UNDEVELOPED REMNANT BUSHLAND (PACKARD KNOLL)	Approx. 30%

Garden Bed
Incorporating nature play elements where linking to surrounding play areas, creating a connected and interactive landscape that encourages imaginative play and exploration.

Primary Pathway

Shared Pathway

Pedestrian Pathway

MARY PACKARD PARK PRELIMINARY PLAN

POS - PARK PRELIMINARY PLANS

NTS

A Playground
Ship theme - Feature play equipment with relative rope structure, climbing structure, swing sets, flying fox, rotator, cycle loop supported with shade sails.

B Integrated Waterplay Splash Pad
Includes Buckets, jets & sprayers supported with shade sails & integrated with nature play elements, dry creek bed, bridge crossings & play wires.

C Multi-aged Fitness Station
A large station with static & dynamic pieces suitable for a wide range of ages, supported with shade sails.

D Teenage/Adult Play Elements
Items aimed for "older children" play, such as: table tennis/sporting elements/digital equipment/parkour/ half basketball court. Supported with shade sails.

E Fitness Node
A small station with static & dynamic pieces.

F Picnic & BBQ Facilities w/ Fixed Shade
Large shelter/s with table setting and bbq supported with items such as bin enclosures, bubbler, bike racks.

G Kickabout Space / Grassed Area
Large open irrigated grass area with shade tree planting.

MOONTA PARK	
LOCATION	Stage 14 (TBC)
SDG CATEGORY	Neighbourhood Park
AREA	6,200m²+
PORTION OF ACTIVE SPACE	90%
CoP PLAY SPACE HIERARCHY	Major
UNDEVELOPED REMNANT BUSHLAND	0%

H Seating Node w/ Fixed Shade
Bench seating with supporting elements as appropriate: eg. bin enclosure/bubbler/tap etc

I Carpark
Incorporates tree planting to provide shade

✳ Seating Node
Bench seating setting

Garden Bed
Incorporates nature play elements that link to surrounding play areas, creating a connected and interactive landscape that encourages imaginative play, adventure and exploration.
Lush Tropical Feature Planting to play area surrounds. Includes palms & pandanus.

Trees

Primary Pathway

Shared Pathway

MOONTA PARK PRELIMINARY PLAN

CLOUSTON associates

INDEX

The table below has been provided to assist where design elements have been addressed in line with the Public Open Space Masterplan requirements as per Northern Territory Subdivision Development Guidelines (June 2024), Section 5.2 (b).

Design Element	**Response**
(i) location, category and size of Public Open Space, including a summary of the total area and the proportion of the area designated to different types of public open space (active, passive, linkage corridors etc.);	Refer to p.7 ***POS Overview Plan;*** p.8 ***Staging Plan***; and p.22-23 ***Public Open Space Park Plans***.
(ii) how linkage corridors are connected to external linkages, public open space in neighbouring suburbs or adjacent shopping, educational and recreational facilities;	Refer to p.9 ***Access & Movement Plan***; and p.6 ***The Public Open Space Strategic Intent*** diagram**.**
(iii) the proposed network of footpaths, shared paths and cycle paths in the Subdivision that will link each Public Open Space together and to adjoining subdivisions/developments, and provide a clear hierarchy of pedestrian movement to Areas of Significance and to and between sporting, recreation and community facilities;	
(iv) how access for persons with disability, and appropriate furniture, is provided to all Public Open Space compliant with requirements for access for persons with disability.	Refer to p.10 ***Public Infrastructure Plan***; p.17 ***Recreation Strategy***; and p.18 ***Landscape Strategy***.
(v) Public Infrastructure to be constructed in linkage corridors, with facilities designed to encourage pedestrian and cyclists activity over private vehicle use for short trips;	Refer to p.10 ***Public Infrastructure Plan***; and p.22-23 ***Public Open Space Park Plans***.
(vi) stormwater management elements and Water Sensitive Urban Design (WSUD) strategies to be included in the Subdivision. These must be integral with the Public Open Space and landscape design;	Refer to p.16 ***Stormwater Elements Strategy*** - ***Ephemeral Basin Management*** and ***Major & Minor Storm Events***.
(vii) areas of ecological importance to be protected and include connective habitat corridors to adjoining natural habitats;	Refer to ***Vegetation Strategy*** - p.11 ***Proposed Plant Species***; p.12 ***Retained Vegetation Management***; and p.14 ***Cycad & Sand Palm Management***. Refer also to p.18 ***Landscape Strategy***.
(viii) biting insect transition, easements and buffer zones;	Refer to p.16 ***Stormwater Elements Strategy*** - ***Ephemeral Basin Management***.
(ix) a recreation strategy accommodating all age groups and recreational interests;	Refer to p.17 ***Recreation Strategy***; and p.22-23 ***Public Open Space Park Plans***.
(x) a street tree framework and theme which clearly notes which tree species will be planted in each street with reference to the local authority street tree strategy where available;	Refer to p.11 ***Vegetation Strategy*** - ***Tree Planting Overview*** and ***Street Tree Framework & Theming***.
(xi) the location, identification and health report for existing vegetation to be retained;	Refer to ***Vegetation Strategy*** - p.11 ***Proposed Plant Species***; p.12 ***Retained Vegetation Management***; p.14 ***Cycad & Sand Palm Management***; and p.15 ***Weed Management***
(xii) a proposed plant species list of new trees, shrubs, and grass;	
(xiii) the irrigation reticulation main line systems, controllers, and water sources; and	Refer to ***Vegetation Strategy*** - p.15 ***Irrigation Strategy***.
(xiv) irrigation strategy and water use table for irrigated landscape planting and grassing in public open space.	

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MM/22-0247

19 May 2026

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Mr. Brad Cunnington
Cunnington Rosse Town Planning and Consulting
Darwin Corporate Park, Unit 6, T212, 631 Stuart Highway
BERRIMAH NT 0828

Dear Brad,

RE: PA2026/0086 – PROPOSED SUBDIVISION OF LOTS 12954 AND 16241 TO CREATE 387 LOTS (382 RESIDENTIAL AND 5 PUBLIC OPEN SPACE LOTS) BEING THE HEIGHTS, DURACK STAGES 12-19

I am in receipt of correspondence from the City of Palmerston to Development Assessment Services (DAS) at the Department of Lands Planning and Environment (DLPE) relating to the above application. Specifically, Council sets out three matters for which it seeks consideration by the Consent Authority, namely:

> *1. Specific aspects of the proposed development requiring updated plans: These are specific issues to be resolved before the City of Palmerston can support the application. They can be addressed either before the development approval is issued, or through development conditions requiring the submission of updated plans.*
> *2. Additional matters: These matters can be addressed through approval conditions, and before the commencement of works.*
> *3. Recommended development conditions: These are conditions to address components of the development that impact City of Palmerston and are provided in the event the consent authority approve the application in its current form*

As requested, I have considered the matters raised by Council as they relate to traffic engineering and road safety. In relation to Part 1, Council provides the following commentary:

> *The development application has been designed to align with the outcomes and requirements in specific use zone SP2, which was introduced into the NT Planning Scheme 2020 by the Minister in November 2025 as an interim zone to facilitate a master planned residential subdivision at this site. For the most part, the development is consistent with zone SP2 or can otherwise be conditioned to meet the assessment provisions within this zone.*
>
> *There are however several aspects of the application which do not comply and which need to be addressed before City of Palmerston can support the application. Paramount amongst these is the failure of the application to demonstrate compliance with development requirement 14 i):*

> *Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency.*

> *Throughout the assessment of the planning scheme amendment introducing zone SP2, the City of Palmerston expressed significant concerns regarding the subdivision's over-reliance on a single access point. Council explicitly advised that if a single road link were supported, it must have sufficient width to manage risks associated with lane closures. Currently, Council is not satisfied that this has been demonstrated.*

> *The application implies mitigating risk is all that is required to address the outcome; however, it must acknowledge that accidents happen and maintenance is inevitable and therefore, a more robust design response is required. The development requirement in zone SP2 is explicit in this regard, and a cross section showing how this segment of road will be designed to manage continuous access in the event of lane/s closure is needed before compliance is achieved.*

From a risk mitigation perspective, it is important to ensure that during an emergency event (be that a requirement for emergency vehicles to get to a property or collision, for emergency services to retrieve someone or in the case of a natural emergency such as a fire) an access route is available. This scenario is not comparable to the requirement for lane closures due to maintenance.

Development requirement 14(i) specifically refers to Packard Avenue being "designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency". It does not reference the requirements during maintenance.

I have set-out below three assessments, namely:

- The capacity requirements of the subject section of road during an emergency event. In this scenario, the highest case would be a scenario where residents were required to evacuate the area (say in the case of a bushfire).

  The peak flow capacity of a road (that is the hourly flow rate at which the maximum number of vehicles, passengers, or the like, per unit time, can be accommodated under prevailing roadway, traffic and control conditions with a reasonable expectation of occurrence) is a function of mean free speed and jam density (the maximum possible traffic density when traffic has completely stopped). The capacity typically ranges between 1500 pc/h/ln and 2400 pc/h/ln but can be as low as 1000 pc/h/ln and higher on freeways.

  Amongst other criteria, the capacity is impacted by physical design characteristics such as the width of the road, adjacent obstructions (such as trees or bridge abutments), the alignment of the road and the speed of vehicles using the road.

  Packard Avenue is proposed to be 11.6 m wide in the subject section of carriageway and has a speed limit of 50 km/h. It is sealed and slightly curvilinear in nature due to the roundabout. The 85th percentile speed is expected to be in the order of the speed limit, albeit it would be reduced

to approximately 35 km/h through the roundabout. Figure 1 illustrates a cross section of the road.

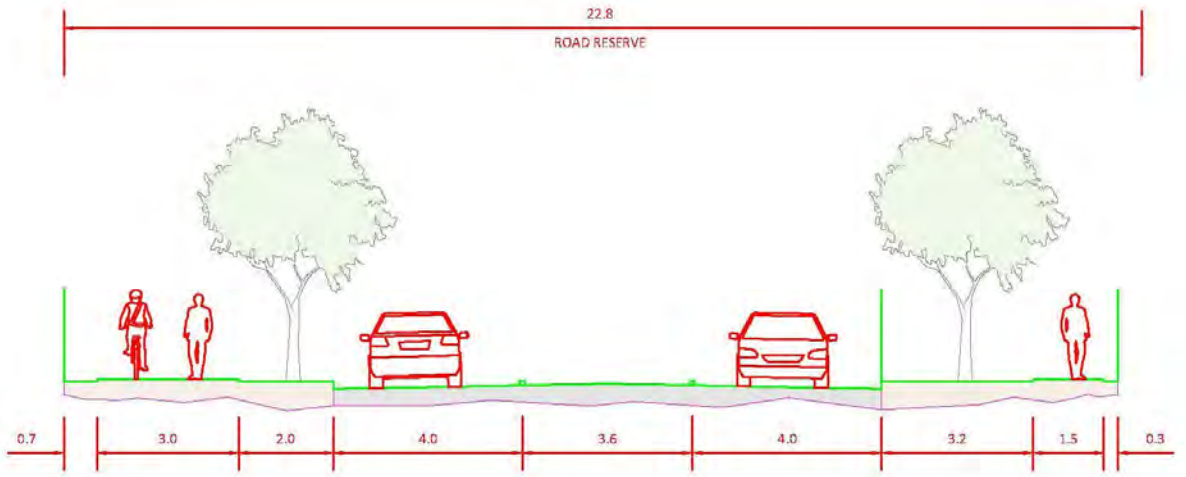


Figure 1: Cross Section of Packard Avenue across bridge

The jam density for Packard Avenue would be expected to be in the order of 140 vehicles per km (based on a length of road and 7 m per vehicle).

Applying the above criteria, Packard Avenue would have a capacity of 1750 pc/h/ln (that is the capacity in one direction). Adopting a conservative assessment, using a space, on average, of 8m per vehicle along a length of road, the jam density would be 120 vehicles per km resulting in a capacity of 1500 pc/h/ln.

The subject development area will include in the order of 380 dwellings. For the purpose of this assessment, I have adopted 400 dwellings as a potential yield. I have also assumed that all drivers will evacuate the area using private vehicles and that all residents within the subject development would be home at the time of the evacuation event. This will not in practice be the case but nonetheless has been adopted for this high case assessment.

The emergency evacuation window in the event of an approaching bushfire is 90 minutes. Nonetheless, I have adopted a calculation using a 60 minute evacuation period. Applying these factors, there could be 400 vehicles being required to exit the area in one hour (based on one vehicle per dwelling exiting in an evacuation event). This would result in a utilisation ratio of 0.27. Should two vehicles per dwelling be required to evacuate within the hour period, there would be a utilisation ratio of 0.53.

The above assessment confirms that even in the unrealistic scenario of all dwellings being occupied at the time of the evacuation and all dwellings generating two vehicles, the access road would still only be used to approximately half its capacity. Further, this assessment still allows for the reverse flow of vehicles which may be required to enter the area (such as emergency vehicles for example) with no obstruction.

- Emergency access requirements should a crash occur on the access road. The design of the connection west of Heir Street has incorporated a number of elements which will provide for safe and convenient access for all road users and ensure an environment which will encourage safe driver behaviour and minimise the risk of crashes at this location.

  Further, the cross section of the road will provide for effectively three lane widths and a raised median to ensure separation of opposing traffic. Accordingly, there will be a reduced risk of a crash due to increased separation.

  Nonetheless, should a crash or a breakdown occur, there would be adequate width to provide for a bypass for other vehicles, as illustrated in Figure 2.

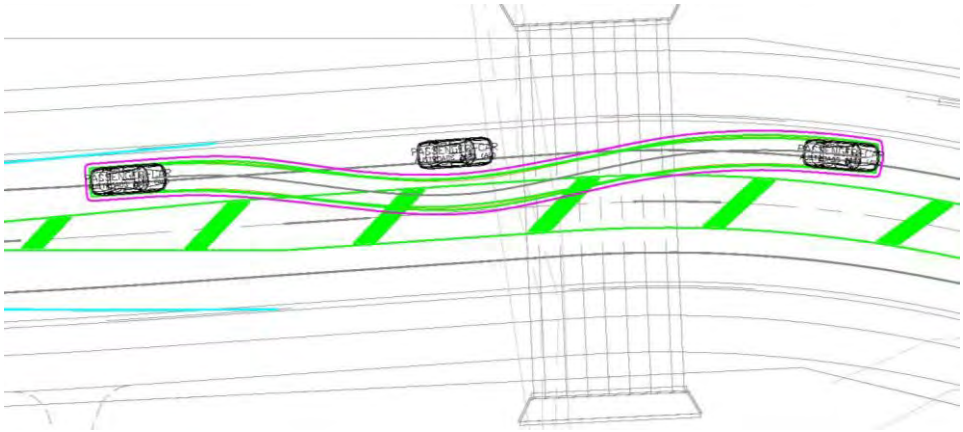


Figure 2: Possible bypass lane scenario should a breakdown or crash occur on Packard Avenue

Figure 3 represents an alternative scenario at an intersection.

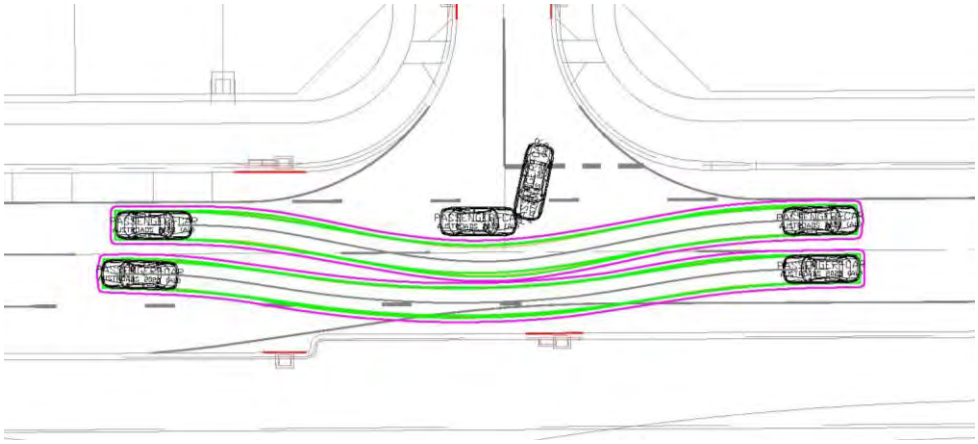


Figure 3: Possible alternate scenario where dual lane traffic can be accommodated adjacent a vehicle obstructing a portion of the road.

In the extreme event where no access was available over the bridge, the shared access paths will be designed to accommodate access for emergency access vehicles should this be required. Figure 4 illustrates the turn paths of a fire appliance accessing the area via the emergency access paths.

Figure 4: MFS turn paths on emergency access routes

- Maintenance requirements. Development Requirement 14(i) does not contemplate works required for maintenance of the road. This is appropriate because traffic control requirements during road works are planned and works staged to minimise impact and ensure access is maintained. This will enable construction traffic management plans to be developed to provide for access for residents during the works.

  In order to illustrate a traffic control option which could be adopted, MFY Drawing No. MFY_220247_05-SH01A illustrates a potential construction traffic management contra-flow scenario which could be adopted in the case of resealing works. Such a scenario is used often and would be a compliant outcome for the subject area.

In summary, it is important to distinguish between planned maintenance works where traffic control will be implemented to manage lane closures during maintenance and the intent of Development requirement 14(i) which relates to ensuring safe passage is available for residents and emergency services in the event of an emergency.

The design characteristics of the road connection have carefully considered the importance of maintaining the connection and providing for access in the event of an incident which creates a hazard or restriction on the road.

Yours sincerely,
MFY PTY LTD

Melissa Mellen
Director

Encl. MFY_220247_05-SH01A

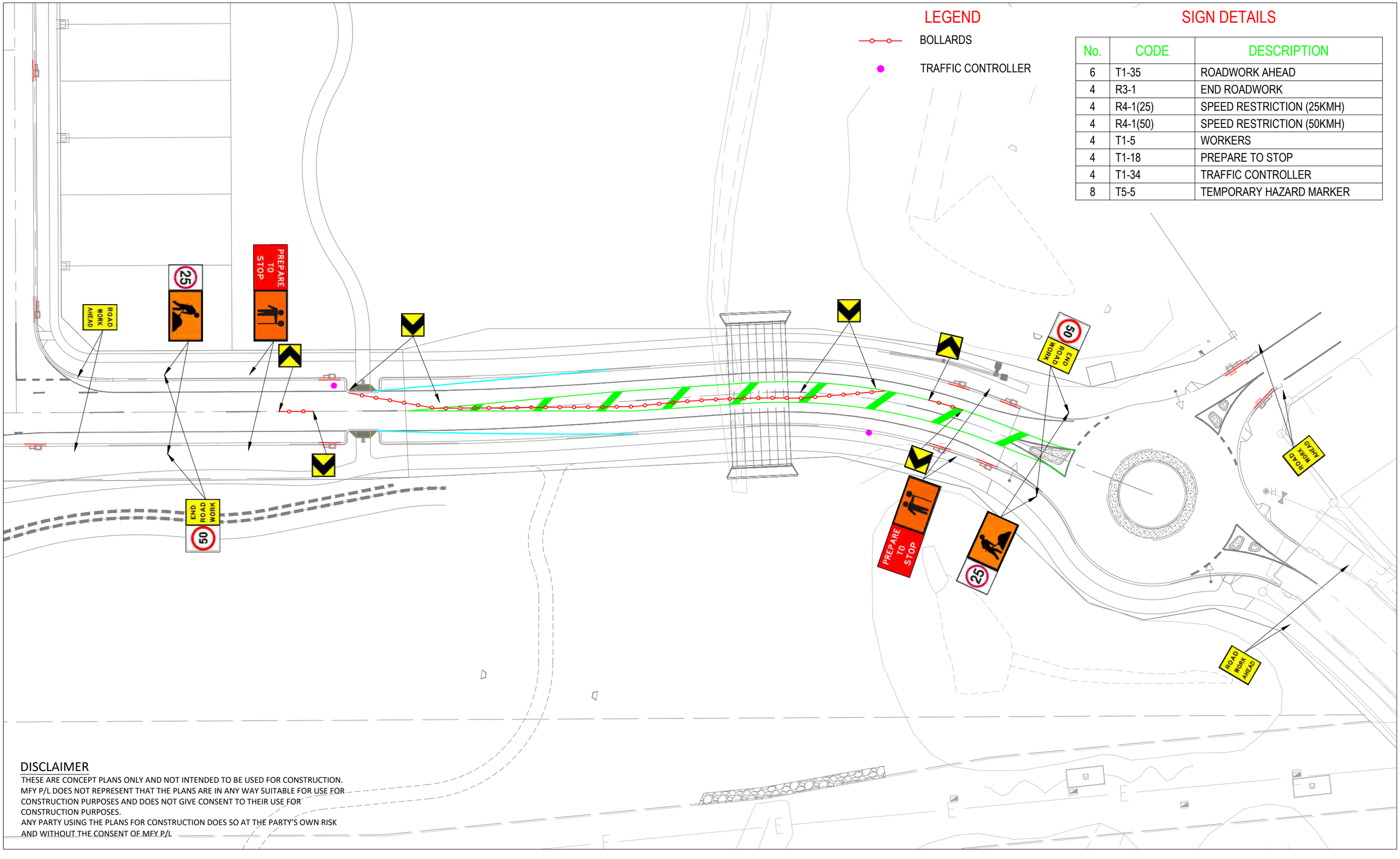
LEGEND

BOLLARDS

TRAFFIC CONTROLLER

SIGN DETAILS

No.	CODE	DESCRIPTION
6	T1-35	ROADWORK AHEAD
4	R3-1	END ROADWORK
4	R4-1(25)	SPEED RESTRICTION (25KMH)
4	R4-1(50)	SPEED RESTRICTION (50KMH)
4	T1-5	WORKERS
4	T1-18	PREPARE TO STOP
4	T1-34	TRAFFIC CONTROLLER
8	T5-5	TEMPORARY HAZARD MARKER



DISCLAIMER

THESE ARE CONCEPT PLANS ONLY AND NOT INTENDED TO BE USED FOR CONSTRUCTION.
MFY P/L DOES NOT REPRESENT THAT THE PLANS ARE IN ANY WAY SUITABLE FOR USE FOR CONSTRUCTION PURPOSES AND DOES NOT GIVE CONSENT TO THEIR USE FOR CONSTRUCTION PURPOSES.
ANY PARTY USING THE PLANS FOR CONSTRUCTION DOES SO AT THE PARTY'S OWN RISK AND WITHOUT THE CONSENT OF MFY P/L

The Heights

Durack, Northern Territory

Temporary Traffic Control Lane Closure

Drawing:	MFY_220247_05-SH01	**Revision:**	A
Drawn:	BH	**Scale:**	1:600
Date:	19.05.2026	**Paper Size:**	A3

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Tuesday, May 19, 2026 13:39:34

20 May 2026
B00610-L03-MKB:mkb

Kassi Picken
Development Director
Urbex Pty Ltd

Via Email: Kassi.Picken@Urbex.com.au

Dear Kassi,

RE: The Heights, Durack
Response to CoP concern wrt Zone Outcome 13
Connection from Stage to Packard's Knob Park

Empower have been engaged by Urbex to provide engineering design and advice for the Durack Heights Development located in Palmerston.

This letter is provided pursuant to City of Palmerston's (CoP) query related to Zone Outcome 13, related to Urbex's Development Application for The Heights Durack Stages 12-19. This question is copied in immediately below.

CoP's question includes a variety of matters. **This letter addresses only the issue of: "a direct pathway connection between Heights Stage 11 and the proposed POS12…"**

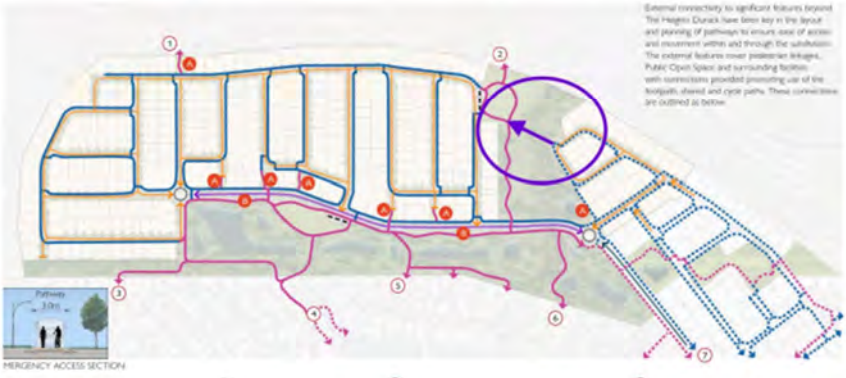
Urbex initially acquired the site in 2022 with the site zoned under Specific Use Zone 8 (SP8). SP8 included a masterplan which included two road crossings of the significant stormwater drainage corridor that extends from Tiger Brennan Drive (North) to Fairway Waters (South). These were proposed at;

1. Packard Avenue extension from Stage 11 through Stages 12-19, and
2. A road connection between Stage 11 and the area now being proposed as POS12

Additional detail is also required in response to Zone Outcome 13:

> *A safe, attractive and permeable pedestrian and cycle network is provided that promotes and encourages walking and cycling, and which connects to the established pedestrian and cycle networks of Palmerston.*

City of Palmerston acknowledges the efforts made to provide a permeable pedestrian and cycle network throughout the proposed subdivision but has concerns about how the subdivision responds and connects to the established pedestrian network. An overreliance on potential pathways external to the development site at Carpentaria Court and Borassus Place, as well as connections to a 'shared roadway' at Huntingdale Court, Sorrento Close, Kooyonga Parade, Deaken Place where there are no connecting pathways, fails to address the requirements of the zone outcome. An updated response and revised plan is needed, and if future external connections are to be relied on, how they can be secured through the development approval process. A direct pathway connection between Heights Stage 11 and the proposed POS12 should also be explored as part of an updated pathway plan as this would not only satisfy the zone's functional requirements but build additional redundancy into the road/pathway network (shown in purple in below image -added by City of Palmerston for reference).



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Following Urbex's acquisition of the site, they have undertaken significant site opportunities and constraints modelling, including detailed stormwater modelling, to ascertain best development outcomes for the master planned community. As a result of this extensive background work, Urbex proposed an alternative layout for their masterplan, which was presented as part of the Planning Scheme Amendment process. That alternative layout excluded the 2nd connection (between Stage 11 and POS12). That planning scheme amendment has been endorsed by the NTG.

Consideration of the 2nd road access into the development is not covered by this letter. This issue is raised only to highlight that we believe that this issue has been previously requested and decided as not being required.

This letter addresses the significant complication to stormwater management that an additional crossing between Stage11 and POS12 would create. **Management of stormwater flows through the site have been developed based on the following strategy;**

- Flows from the Tiger Brennan Drive Detention Basin is conveyed through the development site in a safe manner which does not create excessive scouring;
    - This detention basin is owned, operated and maintained by DLI and has an approximate catchment of 65 Ha
    - Flows discharged from the existing Tiger Brennan Drive detention basin into the subject site are significant
- Sufficient detention is provided within the proposed development of Stages 12-19 to account for;
    - differed rates of runoff from the developed site, plus
    - existing flows from the Tiger Brennan Drive Detention Basin
    - so that flows downstream or upstream of the site are not worsened due to the development
- We note the following constraints;
    - Stormwater flows through the downstream Clive Graham Park are significant, and in some events may pt adjacent development under pressure
    - Detention of flows with The Heights Stages 12-19 must consider not worsening tailwater conditions for the Tiger Brennan Drive detention basin, as this may lead to altered flows within Tiger Brennan Drive.

We have considered 3 cases for a potential direct pathway between Stage 11 and POS12;

1. A road connection
2. A lower-level causeway pedestrian connection
3. A bridge connection

Road Connection

In the existing condition (Prior to Urbex's acquisition of the site) it appears that during storms up to and including the 1% AEP (100 Year ARI) Event, allotments adjacent to the Clive Graham Park (south of the subject site) were subjected to inundation.

As part of the ultimate stormwater management plan for managing water discharged from the development site, it is proposed that subsequent detention of flows discharged from the Tiger Brennan Drive basin shall be implemented through the Packard Avenue Crossing.

The purpose of this basin upstream of Packard Avenue is to reduce the flow discharged from the development site and ensure the flows near properties adjacent to the Clive Graham Park are not worsened. This is a critical engineering feature for the management of stormwater flows.

The introduction of a secondary road crossing from Healey Circuit (within Stage 11) to POS12, in a manner akin to that identified in the SP8 master plan, would ultimately create three detention basins in series. There are significant risks associated with this concept as the tailwater effect of the middle basin may impact the way the Tiger Brennan Drive Basin behaves hydraulically. Based on a preliminary assessment of the surrounding levels and flat grades, it is envisaged that a three-basin system may partially submerge the outlet of the Tiger Brennan Drive Basin. This has the potential to impact the current functionality of the basin where there is a free outfall with no known tailwater effect.

Noting the existing operational issues associated with the detention basin (including an inconsistent approach to maintenance of the basin that potentially impact on the performance of the basin), which have been highlighted to DLI since Urbex's Acquisition of the site, an approach which has the potential to further limit the functionality of the detention basin is not considered appropriate.

Furthermore, the proposed development seeks to retain Packard's Knob (POS12). The implementation of a three-basin system would result in significant additional earthworks, steeper finished surface level grades and likely reduction of usable open space within the development.

Causeway Pedestrian Connection

In terms of impacts on stormwater performance, a lower-level causeway would simply be a lower-level order road crossing. In this regard, we would have similar concerns (as raised in the section above) related to the performance of 3 stormwater detention basins acting in series.

Additionally, we would be concerned with depths of stormwater flows across any proposed causeway installation during lesser frequent events, during which pedestrians may be nearby.

Bridge Connection

The cost of this infrastructure would score very lowly from a cost-benefit consideration. This bridge would be compared to a simple pathway network (that is already being proposed), including a short walk along a pleasant park pathway along the eastern and western sides of the linear stormwater open space network, with a crossing at Packard Avenue.

Should you have any queries with the above, please do not hesitate to contact me.

Yours Faithfully,

Matthew Beggs

Senior Civil Principal
for and on behalf of
Empower Engineers & Project Managers Pty Ltd

Empower Engineers & Project Managers Pty Ltd | ABN: 23 010 743 692
39 Georgina Crescent Yarrawonga NT 0830
PO Box 38521 Winnellie, NT 0821
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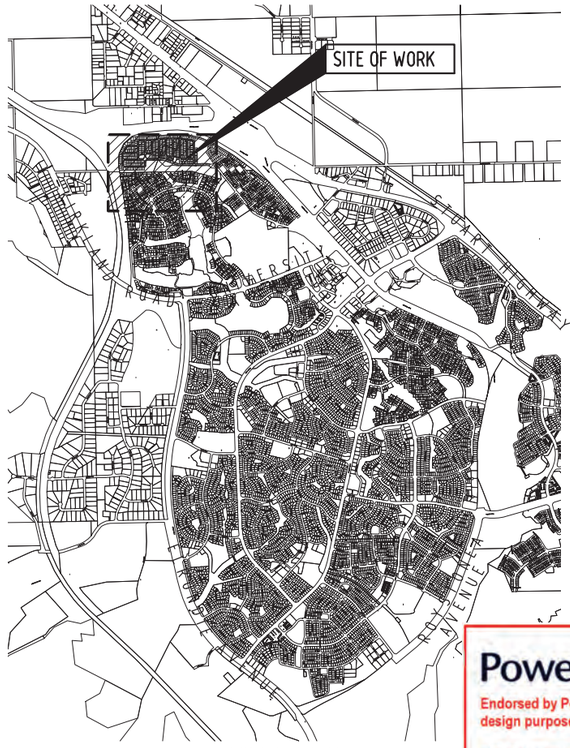
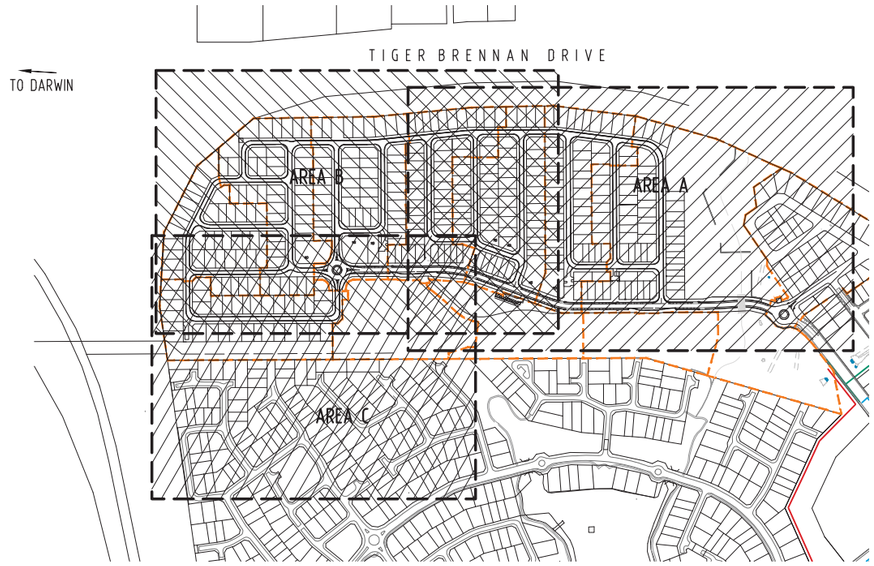
www.empowergroup.global

NORTH



LOCALITY PLAN (N.T.S.)



SITE PLAN (N.T.S.)

LEGEND - HV FEEDERS

- RMU — RING MAIN UNIT.
- (P) — PACKAGE SUBSTATION (RATING AS SHOWN). 'E' INDICATES EXISTING.
- HV CABLE - 6.35/11kV 3 x 1C 240 Sq mm Al (WATER BLOCKED), XLPE/WBT/SCN/HDPE/NJ/PVC IN 150mm HD uPVC CONDUIT & 1 x 1C 70 Sq mm Cu, BARE EARTH DIRECT BURIED. 'T' INDICATES TEMPORARY. '11PA19 DURACK'.
- E — EXISTING HV CABLE 3 x 1C 240 Sq mm Al, XLPE. '11PA19 DURACK'.
- HV CABLE - 6.35/11kV 3 x 1C 240 Sq mm Al (WATER BLOCKED), XLPE/WBT/SCN/HDPE/NJ/PVC IN 150mm HD uPVC CONDUIT & 1 x 1C 70 Sq mm Cu, BARE EARTH DIRECT BURIED. 'E' INDICATES EXISTING/'T' INDICATES TEMPORARY. '11PA10 DRIVER'.
- E — EXISTING HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA10 DRIVER'.
- HV CABLE - 6.35/11kV 3 x 1C 240 Sq mm Al (WATER BLOCKED), XLPE/WBT/SCN/HDPE/NJ/PVC IN 150mm HD uPVC CONDUIT & 1 x 1C 70 Sq mm Cu, BARE EARTH DIRECT BURIED. '11AR12 FAIRWAY WATERS'.
- E — EXISTING HV CABLE 3x1C 240 Sq mm Al, XLPE. '11AR12 FAIRWAY WATERS'.
- CJ — HV CABLE JOINT.
- T — TEMP. HV AERIAL/AERIAL EARTH CONDUCTORS - HYDROGEN HV/FLUORINE EARTH. '11PA19 DURACK'.
- T — TEMP. HV POWER POLE.
- T — TEMP. HV LINKS.
- T — TEMP. HV GUY/STAY.

PowerWater

Endorsed by Power and Water Corporation (PWC) for distribution network design purpose only.

The endorsement is valid for 12 months from the date of High Voltage (HV) master plan endorsement or otherwise advised.

PWC provides no guarantees or assurances in supplying the load described in the HV master plan, until a Negotiated Connection Agreement is executed with the requested contracted maximum demand.

DELEGATED PWC OFFICER NAME: DUMINDA BOWALA

DELEGATED PWC OFFICER SIGNATURE:

HV MASTER PLAN ENDORSEMENT DATE: 07/05/2026

ESTIMATED MAXIMUM DEMAND/LOAD (STAGES)			
STAGE	STAGE LOTS	STAGE LOAD	LOAD CONNECTED SUB's
12	61xSD	305kVA	SUB's S1 & S2
13	48xSD 1xMD (REFER NOTE 2a)	262.5kVA	SUB's S1 & S2
14	54xSD 3xMD (REFER NOTE 2b)	310.5kVA	SUB S3
15	48xSD	240kVA	SUB S4
16	48xSD 2xMD (REFER NOTE 2c)	276kVA	SUB's S4 & S5
17	42xSD 2xMD (REFER NOTE 2d)	255kVA	SUB's S4, S5, S6 & S7
18	38xSD 1xMD (REFER NOTE 2e)	203.5kVA	SUB's S6 & S7
19	34xSD	170kVA	SUB's S6 & S7
ALL	373xSD 9xMD (REFER NOTE 2)	2022.5kVA 2.02MVA)	SUB's S1 TO S7

ANTICIPATED STAGING CONSTRUCTION		
STAGE	START	COMPLETE
STAGE 12	2026	2027
STAGE 13	2027	2028
STAGE 14	2028	2029
STAGE 15	2029	2030
STAGE 16	2030	2031
STAGE 17	2031	2032
STAGE 18	2032	2033
STAGE 19	2033	2034

BASIC SUPPLY LOAD (SUB's)			
SUB	SUB RATING	SUB LOAD	SUB DIVERSIFIED LOAD
S1	500kVA	510kVA	255kVA
S2	750kVA	621kVA	317.5kVA
S3	750kVA	683kVA	350.5kVA
S4	750kVA	622kVA	327.5kVA
S5	500kVA	500kVA	250kVA
S6	500kVA	500kVA	250kVA
S7	750kVA	534kVA	272kVA

NOTES

1 - SD LOTS LOAD IS 5kVA.

2 - THE NUMBER OF DWELLINGS FOR MD LOTS HAVE BEEN PROVIDED BY DEVELOPER AND ARE AS FOLLOWS:

a) STAGE 13 MD LOT (LOT 572) LOAD IS - MAX 5 DWELLINGS @4.5kVA PER DWELLING IS 22.5kVA.

b) STAGE 14 MD LOTS (LOTS 667/675/705) LOADS ARE -
i) LOT 667 - MAX 5 DWELLINGS @ 4.5kVA PER DWELLING IS 22.5kVA
ii) LOT 675 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA
ii) LOT 705 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

c) STAGE 16 MD LOTS (LOTS 791/792) LOADS ARE -
i) LOT 791 - MAX 6 DWELLINGS @ 4.5kVA PER DWELLING IS 27kVA
ii) LOT 792 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

d) STAGE 17 MD LOT (LOTS 814/833) LOADS ARE -
i) LOT 814 - MAX 3 DWELLINGS @ 4.5kVA PER DWELLING IS 13.5kVA
ii) LOT 833 - MAX 7 DWELLINGS @ 4.5kVA PER DWELLING IS 31.5kVA

e) STAGE 18 MD LOT (LOT 880) LOAD IS - MAX 3 DWELLINGS @4.5kVA PER DWELLING IS 13.5kVA.

3 - TOTAL APPROX NEW U/G HV CABLE (NOT INCLUDING TEMP.) IS 2950m.

DEVELOPER:
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DARWIN NT 0801

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EMAIL: kassi.picken@urbex.com.au
CONTACT: KASSI PICKEN

AGA CONSULTING ENGINEERS PTY LTD
ELECTRICAL & MECHANICAL
ACN 070 242 296

GPO BOX 3897
DARWIN NT 0801

MOBILE : 0411 262714
EMAIL: alekg@agaeng.com.au

NO	DESCRIPTION	DRN	DATE	APPD
D	RE-ISSUED FOR APPROVAL	K.T.	5-5-26	A.G.
C	ISSUED FOR APPROVAL	K.T.	23-3-26	A.G.
B	RE-ISSUED FOR REVIEW	K.T.	1-12-25	A.G.
A	ISSUED FOR REVIEW	K.T.	17-12-24	A.G.

AMENDMENTS

DRG NO	TITLE
E9	HV SCHEMATIC - STAGE 17
E8	HV SCHEMATIC - STAGE 16
E7	HV SCHEMATIC - STAGE 15
E6	HV SCHEMATIC - STAGE 14
E5	HV SCHEMATIC - STAGE 12
E4	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 3 OF 3)
E3	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 2 OF 3)
E2	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 1 OF 3)

ASSOCIATED DRAWINGS

DRAWING STATUS		APPD	DATE
P	PRELIMINARY/PROPOSED		
T	TENDERING PURPOSES ONLY		
AC	APP. FOR CONSTRUCTION		
AI	AS INSTALLED		
C	CANCELLED/SUPERSEDED		
	AGA478-5A		

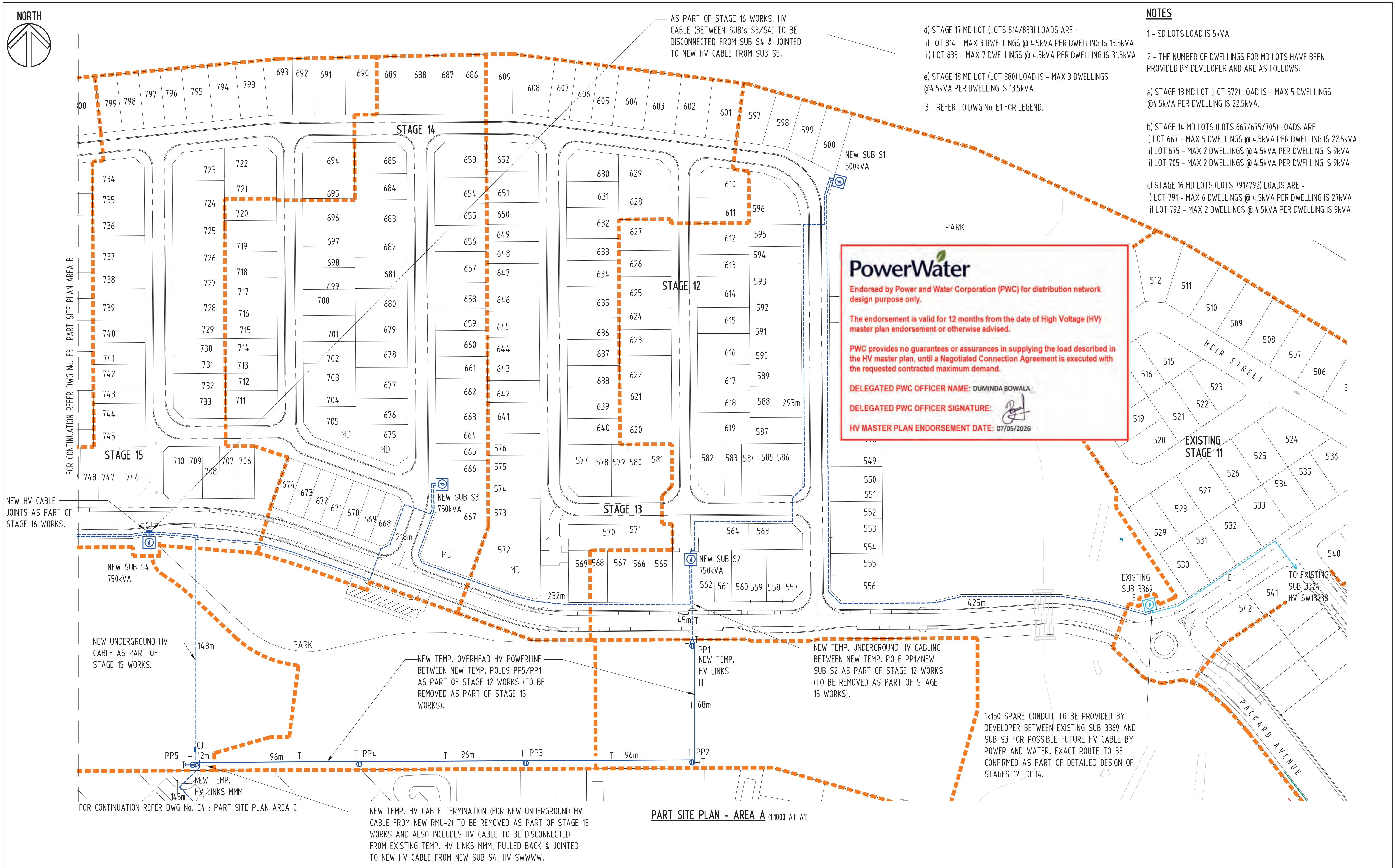
PowerWater
NORTHERN TERRITORY

DES	A.GANGUR
DRN	K.TAVENER
CKD	A.GANGUR
APPD	
SCALE	N.T.S.
ISSUED	5-5-26
ALL DIM. IN	mm
DRAFTING STANDARD TO	A.S.1100

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
LOCALITY/SITE PLANS, LEGEND & SCHEDULES

A1 | DRAWING NUMBER E1 | D AMDT

FILE No:



NORTH
AS PART OF STAGE 16 WORKS, HV CABLE (BETWEEN SUB's S3/S4) TO BE DISCONNECTED FROM SUB S4 & JOINTED TO NEW HV CABLE FROM SUB S5.
STAGE 14
STAGE 12
STAGE 13
STAGE 15
EXISTING STAGE 11
PARK
NEW SUB S1 500kVA
NEW SUB S2 750kVA
NEW SUB S3 750kVA
NEW SUB S4 750kVA
EXISTING SUB 3369
TO EXISTING SUB 3324 HV SW13238
HEIR STREET
PACKARD AVENUE
FOR CONTINUATION REFER DWG No. E3 : PART SITE PLAN AREA B
FOR CONTINUATION REFER DWG No. E4 : PART SITE PLAN AREA C
NEW HV CABLE JOINTS AS PART OF STAGE 16 WORKS.
NEW UNDERGROUND HV CABLE AS PART OF STAGE 15 WORKS.
NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP5/PP1 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).
PP1 NEW TEMP. HV LINKS III
NEW TEMP. UNDERGROUND HV CABLING BETWEEN NEW TEMP. POLE PP1/NEW SUB S2 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).
1x150 SPARE CONDUIT TO BE PROVIDED BY DEVELOPER BETWEEN EXISTING SUB 3369 AND SUB S3 FOR POSSIBLE FUTURE HV CABLE BY POWER AND WATER. EXACT ROUTE TO BE CONFIRMED AS PART OF DETAILED DESIGN OF STAGES 12 TO 14.
PP5 PP4 PP3 PP2
NEW TEMP. HV LINKS MMM
NEW TEMP. HV CABLE TERMINATION (FOR NEW UNDERGROUND HV CABLE FROM NEW RMU-2) TO BE REMOVED AS PART OF STAGE 15 WORKS AND ALSO INCLUDES HV CABLE TO BE DISCONNECTED FROM EXISTING TEMP. HV LINKS MMM, PULLED BACK & JOINTED TO NEW HV CABLE FROM NEW SUB S4, HV SWWWW.
148m 145m 12m 96m 96m 96m 68m 45m 232m 218m 293m 425m
PowerWater
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The endorsement is valid for 12 months from the date of High Voltage (HV) master plan endorsement or otherwise advised.
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DELEGATED PWC OFFICER NAME: DUMINDA BOWALA
DELEGATED PWC OFFICER SIGNATURE:
HV MASTER PLAN ENDORSEMENT DATE: 07/05/2026
NOTES
1 - SD LOTS LOAD IS 5kVA.
2 - THE NUMBER OF DWELLINGS FOR MD LOTS HAVE BEEN PROVIDED BY DEVELOPER AND ARE AS FOLLOWS:
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i) LOT 791 - MAX 6 DWELLINGS @ 4.5kVA PER DWELLING IS 27kVA
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i) LOT 814 - MAX 3 DWELLINGS @ 4.5kVA PER DWELLING IS 13.5kVA
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e) STAGE 18 MD LOT (LOT 880) LOAD IS - MAX 3 DWELLINGS @4.5kVA PER DWELLING IS 13.5kVA.
3 - REFER TO DWG No. E1 FOR LEGEND.

PART SITE PLAN - AREA A (1:1000 AT A1)

DEVELOPER:
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NO	DESCRIPTION	DRN	DATE	APPD
D	RE-ISSUED FOR APPROVAL	K.T.	5-5-26	A.G.
C	ISSUED FOR APPROVAL	K.T.	23-3-26	A.G.
B	RE-ISSUED FOR REVIEW	K.T.	1-12-25	A.G.
A	ISSUED FOR REVIEW	K.T.	17-12-24	A.G.

AMENDMENTS

DRG NO	TITLE
E9	HV SCHEMATIC - STAGE 17
E8	HV SCHEMATIC - STAGE 16
E7	HV SCHEMATIC - STAGE 15
E6	HV SCHEMATIC - STAGE 14
E5	HV SCHEMATIC - STAGE 12
E4	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 3 OF 3)
E3	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 2 OF 3)
E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES

ASSOCIATED DRAWINGS

DRAWING STATUS		APPD	DATE
P	PRELIMINARY/PROPOSED		
T	TENDERING PURPOSES ONLY		
AC	APP. FOR CONSTRUCTION		
AI	AS INSTALLED		
C	CANCELLED/SUPERSEDED		

AGA478-5A

PowerWater
NORTHERN TERRITORY

DES	A.GANGUR
DRN	K.TAVENER
CKD	A.GANGUR
APPD	
SCALE	1:1000 AT A1
ISSUED	5-5-26
ALL DIM. IN mm	

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 1 OF 3)

A1 DRAWING NUMBER E2 AMDT D

DRAFTING STANDARD TO A.S.1100 FILE No:

NOTES

1 - SD LOTS LOAD IS 5kVA.

2 - THE NUMBER OF DWELLINGS FOR MD LOTS HAVE BEEN PROVIDED BY DEVELOPER AND ARE AS FOLLOWS:

a) STAGE 13 MD LOT (LOT 572) LOAD IS - MAX 5 DWELLINGS @4.5kVA PER DWELLING IS 22.5kVA.

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ii) LOT 705 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

c) STAGE 16 MD LOTS (LOTS 791/792) LOADS ARE -
i) LOT 791 - MAX 6 DWELLINGS @ 4.5kVA PER DWELLING IS 27kVA
ii) LOT 792 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

d) STAGE 17 MD LOT (LOTS 814/833) LOADS ARE -
i) LOT 814 - MAX 3 DWELLINGS @ 4.5kVA PER DWELLING IS 13.5kVA
ii) LOT 833 - MAX 7 DWELLINGS @ 4.5kVA PER DWELLING IS 31.5kVA

e) STAGE 18 MD LOT (LOT 880) LOAD IS - MAX 3 DWELLINGS @4.5kVA PER DWELLING IS 13.5kVA.

3 - REFER TO DWG No. E1 FOR LEGEND.

NORTH

STAGE 17
STAGE 16
STAGE 15
STAGE 14
STAGE 18
STAGE 19

NEW SUB S5 500kVA
NEW SUB S7 750kVA
NEW SUB S3 750kVA
NEW SUB S4 750kVA
NEW SUB S6 500kVA

257m
275m
356m
395m
160m
218m
425m
148m
145m
96m
12m

NEW HV CABLE JOINTS AS PART OF STAGE 16 WORKS.

AS PART OF STAGE 16 WORKS, HV CABLE (BETWEEN SUB's S3/S4) TO BE DISCONNECTED FROM SUB S4 & JOINTED TO NEW HV CABLE FROM SUB S5.

FOR CONTINUATION REFER DWG No. E2 : PART SITE PLAN AREA A

NEW UNDERGROUND HV CABLE AS PART OF STAGE 15 WORKS.

NEW TEMP. HV CABLE TERMINATION (FOR NEW UNDERGROUND HV CABLE FROM NEW RMU-2) TO BE REMOVED AS PART OF STAGE 15 WORKS AND ALSO INCLUDES HV CABLE TO BE DISCONNECTED FROM EXISTING TEMP. HV LINKS MMM, PULLED BACK & JOINTED TO NEW HV CABLE FROM NEW SUB S4, HV SWWWW.

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP5/PP1 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).

PARK

PP5 PP4 CJ NEW TEMP. HV LINKS MMM

FOR CONTINUATION REFER DWG No. E4 : PART SITE PLAN AREA C

PowerWater

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DELEGATED PWC OFFICER NAME: DUMINDA BOWALA

DELEGATED PWC OFFICER SIGNATURE:

HV MASTER PLAN ENDORSEMENT DATE: 07/05/2026

PART SITE PLAN - AREA B (1:1000 AT A1)

DEVELOPER:
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MOBILE : 0411 262714
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NO	DESCRIPTION	DRN	DATE	APPD
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B	RE-ISSUED FOR REVIEW	K.T.	1-12-25	A.G.
A	ISSUED FOR REVIEW	K.T.	17-12-24	A.G.

AMENDMENTS

DRG NO	TITLE
E9	HV SCHEMATIC - STAGE 17
E8	HV SCHEMATIC - STAGE 16
E7	HV SCHEMATIC - STAGE 15
E6	HV SCHEMATIC - STAGE 14
E5	HV SCHEMATIC - STAGE 12
E4	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 3 OF 3)
E2	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 1 OF 3)
E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES

ASSOCIATED DRAWINGS

	AGA478-5A	

DRAWING STATUS

		APPD	DATE
P	PRELIMINARY/PROPOSED		
T	TENDERING PURPOSES ONLY		
AC	APP. FOR CONSTRUCTION		
AI	AS INSTALLED		
C	CANCELLED/SUPERSEDED		

PowerWater
NORTHERN TERRITORY

DES	A.GANGUR
DRN	K.TAVENER
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APPD	
SCALE	1:1000 AT A1
ISSUED	5-5-26
ALL DIM. IN	mm
DRAFTING STANDARD TO	A.S.1100

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 2 OF 3)

A1 | DRAWING NUMBER E3 | D AMDT

FILE No:

NORTH

NOTES

1 - SD LOTS LOAD IS 5kVA.

2 - THE NUMBER OF DWELLINGS FOR MD LOTS HAVE BEEN PROVIDED BY DEVELOPER AND ARE AS FOLLOWS:

a) STAGE 13 MD LOT (LOT 572) LOAD IS - MAX 5 DWELLINGS @4.5kVA PER DWELLING IS 22.5kVA.

b) STAGE 14 MD LOTS (LOTS 667/675/705) LOADS ARE -
i) LOT 667 - MAX 5 DWELLINGS @ 4.5kVA PER DWELLING IS 22.5kVA
ii) LOT 675 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA
ii) LOT 705 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

c) STAGE 16 MD LOTS (LOTS 791/792) LOADS ARE -
i) LOT 791 - MAX 6 DWELLINGS @ 4.5kVA PER DWELLING IS 27kVA
ii) LOT 792 - MAX 2 DWELLINGS @ 4.5kVA PER DWELLING IS 9kVA

d) STAGE 17 MD LOT (LOTS 814/833) LOADS ARE -
i) LOT 814 - MAX 3 DWELLINGS @ 4.5kVA PER DWELLING IS 13.5kVA
ii) LOT 833 - MAX 7 DWELLINGS @ 4.5kVA PER DWELLING IS 31.5kVA

e) STAGE 18 MD LOT (LOT 880) LOAD IS - MAX 3 DWELLINGS @4.5kVA PER DWELLING IS 13.5kVA.

3 - REFER TO DWG No. E1 FOR LEGEND.

FOR CONTINUATION REFER DWG No. E3 : PART SITE PLAN AREA B

STAGE 18 · STAGE 17 · STAGE 16 · STAGE 15 · STAGE 19

NEW SUB S6 500kVA

NEW SUB S4 750kVA

AS PART OF STAGE 16 WORKS, HV CABLE (BETWEEN SUB's S3/S4) TO BE DISCONNECTED FROM SUB S4 & JOINTED TO NEW HV CABLE FROM SUB S5.

NEW HV CABLE JOINTS AS PART OF STAGE 16 WORKS.

NEW UNDERGROUND HV CABLE AS PART OF STAGE 15 WORKS.

NEW TEMP. HV CABLE TERMINATION (FOR NEW UNDERGROUND HV CABLE FROM NEW RMU-2) TO BE REMOVED AS PART OF STAGE 15 WORKS AND ALSO INCLUDES HV CABLE TO BE DISCONNECTED FROM EXISTING TEMP. HV LINKS MMM, PULLED BACK & JOINTED TO NEW HV CABLE FROM NEW SUB S4, HV SWWWW.

NEW CABLE JOINTS AS PART OF STAGE 15 WORKS.

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP5/PP1 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).

PARK

NEW TEMP. HV LINKS MMM

NEW UNDERGROUND HV CABLE AS PART OF STAGE 12 WORKS.

NEW RMU-2 AS PART OF STAGE 12 WORKS.

NEW HV CABLE JOINTS AS PART OF STAGE 12 WORKS.

NEW UNDERGROUND HV CABLE AS PART OF STAGE 12 WORKS.

EXISTING HV CABLE (FROM EXISTING SUB 2385) CUT AT NEW HV CABLE JOINT PULLED BACK & RELOCATED INTO NEW RMU-2 AS PART OF STAGE 12 WORKS.

FOR CONTINUATION REFER DWG No. E3 : PART SITE PLAN AREA B

AS PART OF STAGE 12 WORKS, NEW RMU-2 TO BE INSTALLED IN PARK, EXISTING UNDERGROUND HV CABLE TO BE CUT, ONE END PULLED BACK INTO NEW RMU-2/CONNECTED TO HV SWOOO, OTHER END JOINTED TO NEW UNDERGROUND HV CABLE FROM NEW RMU-2 HV SWPPP. ALSO NEW UNDERGROUND HV CABLE INSTALLED/CONNECTED BETWEEN/TO NEW RMU-2 HV SWNNN & NEW TEMP HV LINKS MMM.

NEW RMU-1 AS PART OF STAGE 12 WORKS.

EXISTING INDOOR INTAKE STN CDU FK INDOOR

EXISTING RMU-CDU

NEW RMU-1

TO EXISTING SUB 2078 HV SW3282

TO EXISTING RMU UNIVERSITY AVE WATER PARK HV SW12749

TO EXISTING SUB 2376 HV SW3855

TO EXISTING SUB 1927 HV SW3091

TO EXISTING SUB 2346 HV SW3816

UNIVERSITY AVENUE

NEW U/G HV CABLE/HV CABLE JOINTS AS PART OF STAGE 12 WORKS. EXISTING HV CABLES CUT AT NEW HV CABLE JOINTS, JOINTED TO NEW HV CABLES PULLED INTO NEW RMU-1.

TO EXISTING SUB 2355

TO EXISTING SUB 2403

EXISTING SUB 2385

TO EXISTING SUB 2417

EXISTING SUB 2396

AUSTRALIS CRES · ORANIA CRES · PHOENIX CRES · COCOS GROVE · WOOYETIA CLOSE · CARPENTARIA COURT

PowerWater

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DELEGATED PWC OFFICER NAME: DUMINDA BOWALA

DELEGATED PWC OFFICER SIGNATURE:

HV MASTER PLAN ENDORSEMENT DATE: 07/05/2026

PART SITE PLAN - AREA D (1:1000 AT A1)

PART SITE PLAN - AREA C (1:1000 AT A1)

DEVELOPER:
URBEX PTY LTD
PO Box 2289
DARWIN NT 0801
MOBILE: 0457 848327
EMAIL: kassi.picken@urbex.com.au
CONTACT: KASSI PICKEN

AGA CONSULTING ENGINEERS PTY LTD
ELECTRICAL & MECHANICAL
ACN 070 242 296
GPO BOX 3897
DARWIN NT 0801
MOBILE : 0411 262714
EMAIL: alekg@ggoeng.com.au

NO	DESCRIPTION	DRN	DATE	APPD
D	RE-ISSUED FOR APPROVAL	K.T.	5-5-26	A.G.
C	ISSUED FOR APPROVAL	K.T.	23-3-26	A.G.
B	RE-ISSUED FOR REVIEW	K.T.	1-12-25	A.G.
A	ISSUED FOR REVIEW	K.T.	17-12-24	A.G.

AMENDMENTS

DRG NO	TITLE
E9	HV SCHEMATIC - STAGE 17
E8	HV SCHEMATIC - STAGE 16
E7	HV SCHEMATIC - STAGE 15
E6	HV SCHEMATIC - STAGE 14
E5	HV SCHEMATIC - STAGE 12
E3	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 2 OF 3)
E2	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 1 OF 3)
E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES

ASSOCIATED DRAWINGS

DRAWING STATUS		APPD	DATE
P	PRELIMINARY/PROPOSED		
T	TENDERING PURPOSES ONLY		
AC	APP. FOR CONSTRUCTION		
AI	AS INSTALLED		
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	AGA478-5A		

PowerWater
NORTHERN TERRITORY

DES	A.GANGUR
DRN	K.TAVENER
CKD	A.GANGUR
APPD	
SCALE	1:1000 AT A1
ISSUED	5-5-26
ALL DIM. IN	mm
DRAFTING STANDARD	TO A.S.1100

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 3 OF 3)

A1 | DRAWING NUMBER E4 | D AMDT | FILE No:

LEGEND - HV FEEDERS

- NEW HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA19 DURACK'.
- EXISTING HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA19 DURACK'.
- NEW HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA10 DRIVER'.
- EXISTING HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA10 DRIVER'.
- NEW HV CABLE 3x1C 240 Sq mm Al, XLPE. '11AR12 FAIRWAY WATERS'.
- EXISTING HV CABLE 3x1C 240 Sq mm Al, XLPE. '11AR12 FAIRWAY WATERS'.
- T TEMP. HV OVERHEAD - HYDROGEN. '11PA19 DURACK'.

NEW WORKS - STAGE 12

NEW HV CABLE JOINTS

CJ — PPP — NNN — 000 — RM6

NEW RMU-2

WOODLAKE BLVD SUB 2385

WOODLAKE BLVD SUB 2355

SHORT SECTION OF NEW UNDERGROUND HV CABLING TO BE PULLED BACK FROM NEW TEMP. HV LINKS MMM & JOINTED TO NEW UNDERGROUND HV CABLING FROM NEW SUB S4 HV SWWWW AS PART OF STAGE 15 WORKS.

THIS SECTION OF NEW TEMP. OVERHEAD HV POWERLINE TO BE REMOVED AS PART OF STAGE 15 WORKS.

NEW SUB S2 — DRS — JJJ — HHH — GGG — EEE — KKK — III — DRS — FFF — NEW SUB S1

NEW TEMP HV LINKS LLL

NEW TEMP. UNDERGROUND HV CABLING TO BE REMOVED AS PART OF STAGE 15 WORKS.

NEW TEMP HV LINKS MMM

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SUB 2396 MARANTHES PL.

SUB 2403 HELLICONIA CRT.

SUB 2417 PHEONIX CRT.

SUB 2416 ARENGA CRT.

SUB 2460 MAJESTIC DVE

SUB 2402 ROYAL CRT.

SUB 2506 DON CRT

SUB 2448 WOODLAKE BLVD

SUB 2505 MINTO LANE

SUB 2427 WOODLAKE BLVD

SUB 2621 CROWSON CL

TO ARZSS 11AR12 (CB12)

SUB 2654 HEDLEY PL

SUB 2479 UNIVERSITY AVE

SUB 2376 CHILDCARE CTR

TO RMU HV 11747

TO HV LINKS 21527

BULLITA ST SUB 3317

N/O - TO BE CLOSED.

UNIVERSITY AVE WATER PARK

SUB 3235 PACKARD AVE

SUB 3229 HAUTAIN AVE

SUB 3231 DELACRUZ ST

TO RMU HV SW21740

TO PZSS 11PA19 (CB19 - N/O : TO BE CLOSED)

NEW WORKS - STAGE 12

SUB 3281 WILLING

SUB 3324 THOMPSON ST

SUB 3369

NEW WORKS - STAGE 12

N/C - TO BE OPENED

SUB 3306 NICHOLS ST

SUB 2354 WOODLAKE BLVD

SUB 2418 PRIMARY SCHOOL

SUB 2346 WOODLAKE BLVD

NEW HV CABLE JOINTS

NEW RMU-1

NEW HV CABLE JOINTS

TO SUB 2078 HV SW3282

RM6 CDU

TO HV CDU PALMERSTON INDOOR CAMPUS INTERNAL

TO SUB 1927 HV SW3091

FK INDOOR

RM6

HV SCHEMATIC (11AR12 FAIRWAY WATERS/11PA10 DRIVER/11PA19 DURACK) (N.T.S.)

NO	DESCRIPTION	DRN	DATE	APPD	DRG NO	TITLE
	AMENDMENTS					ASSOCIATED DRAWINGS
D	RE-ISSUED FOR APPROVAL	K.T.	5-5-26	A.G.	E9	HV SCHEMATIC - STAGE 17
C	ISSUED FOR APPROVAL	K.T.	23-3-26	A.G.	E8	HV SCHEMATIC - STAGE 16
B	RE-ISSUED FOR REVIEW	K.T.	25-11-25	A.G.	E7	HV SCHEMATIC - STAGE 15
A	ISSUED FOR REVIEW	K.T.	17-12-24	A.G.	E6	HV SCHEMATIC - STAGE 14
					E4	HV ELECTRICAL RETICULATION MASTERPLAN (SHEET 3 OF 3)
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					E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES

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POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV SCHEMATIC – STAGE 12

A1 | DRAWING NUMBER E5 | FILE No: | D AMDT

LEGEND - HV FEEDERS

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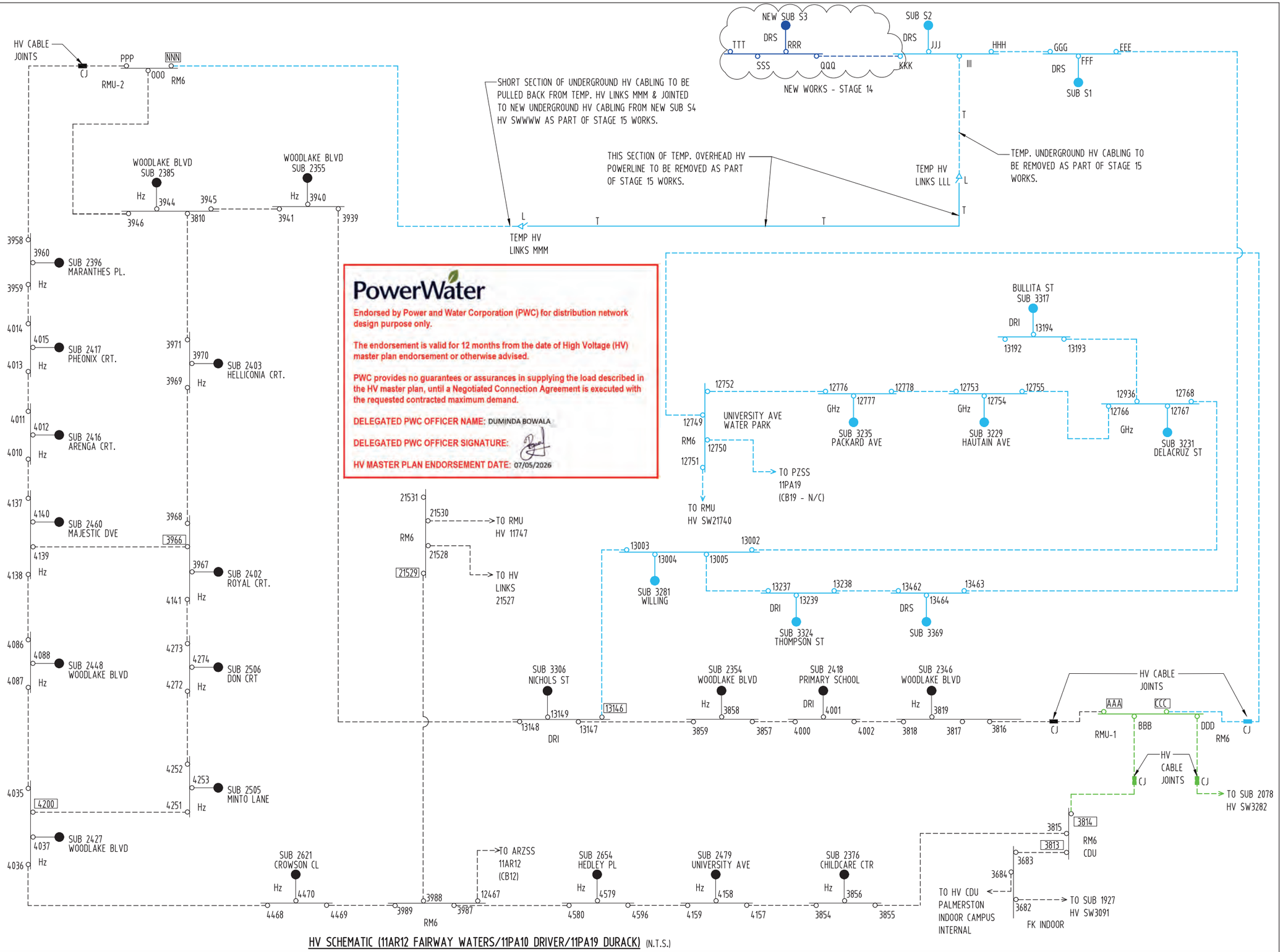

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DELEGATED PWC OFFICER SIGNATURE:

HV MASTER PLAN ENDORSEMENT DATE: 07/05/2026

HV SCHEMATIC (11AR12 FAIRWAY WATERS/11PA10 DRIVER/11PA19 DURACK) (N.T.S.)

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NORTHERN TERRITORY

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POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV SCHEMATIC – STAGE 14

A1 | DRAWING NUMBER E6 | FILE No: | D AMDT

LEGEND - HV FEEDERS

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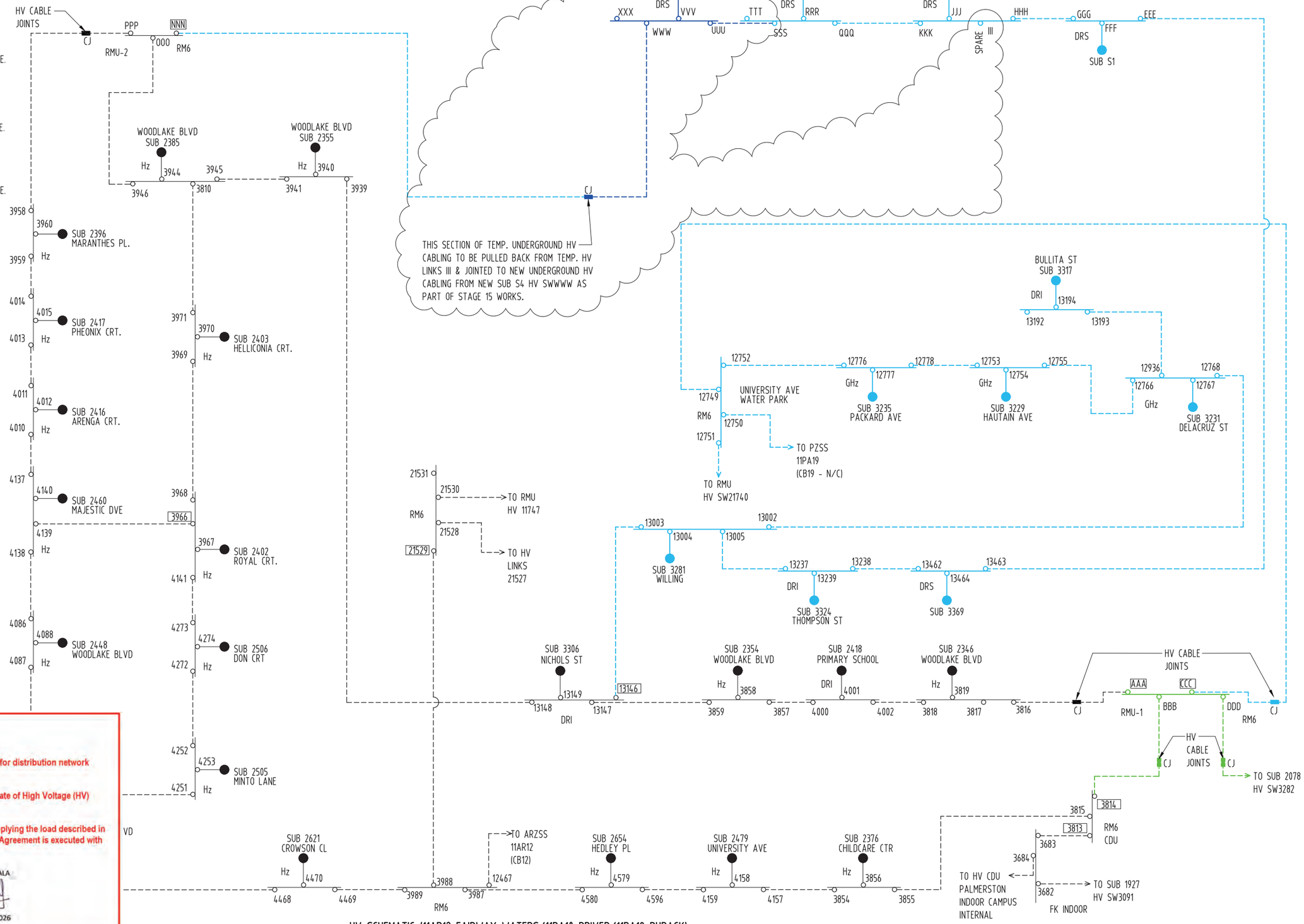

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PowerWater
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POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV SCHEMATIC – STAGE 15

A1 | DRAWING NUMBER E7 | D AMDT

FILE No:

LEGEND - HV FEEDERS

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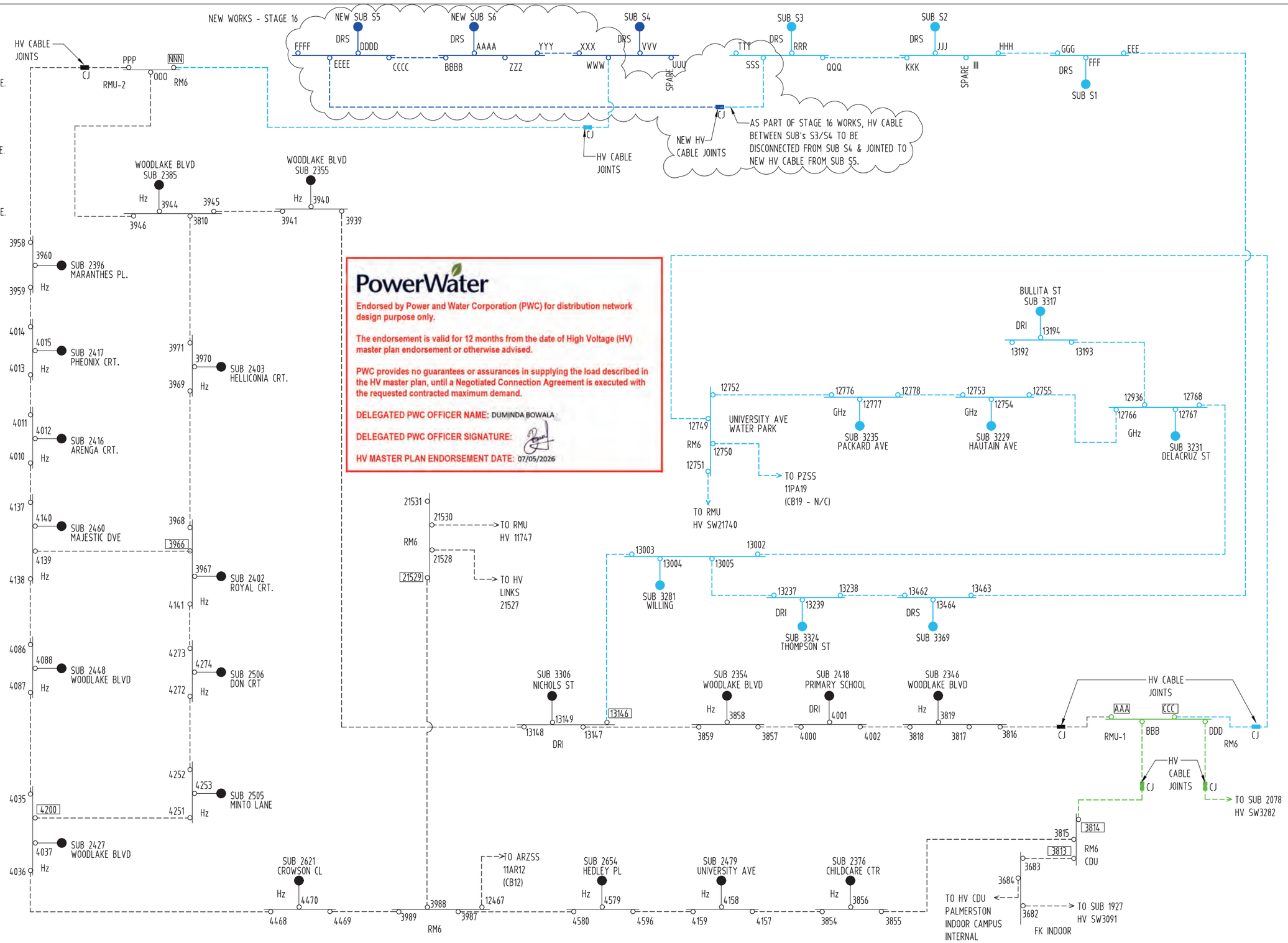

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POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV SCHEMATIC – STAGE 16

A1 | DRAWING NUMBER E8 | D AMDT

FILE No:

LEGEND - HV FEEDERS

- NEW HV CABLE 3x1C 240 Sq mm Al, XLPE. '11PA19 DURACK'.
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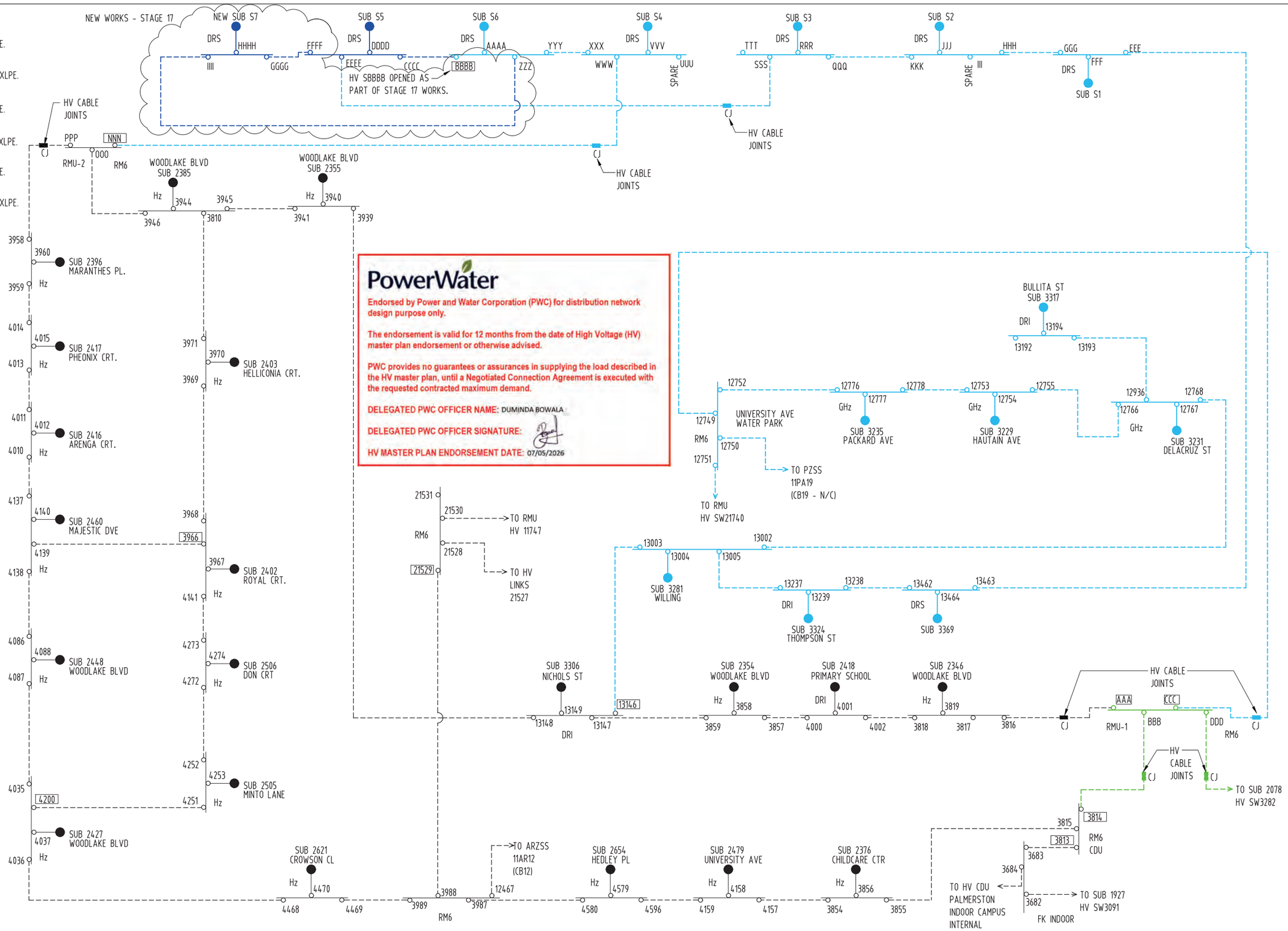

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SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV ELECTRICAL MASTERPLAN
HV SCHEMATIC – STAGE 17

A1 | DRAWING NUMBER E9 | D AMDT

FILE No:

Technical Assessment PA2026/0086

TECHNICAL ASSESSMENT OF PROPOSED DEVELOPMENT AGAINST RELEVANT PROVISIONS OF THE NORTHERN TERRITORY PLANNING SCHEME 2020

APPLICATION NO:	PA2026/0086
LOT NUMBERS:	Lot 12954, Kooyonga Parade & Lot 16214,Durack
TOWN/HUNDRED:	Town of Palmerston
ZONES:	Specific Use Zone SP2 & PM (Proposed Main Road) – both zones apply to Part Lot 12954 Town of Palmerston and Part Lot 16214 Town of Palmerston)
SITE AREA:	Lot 12954 = 25.02ha Lot 16214 = 20.24ha Combined = 45.26ha
PROPOSAL:	Subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 Stages (The Heights Stages 12-19)
PLANS USED FOR ASSESSMENT:	
DATE ASSESSMENT FINALISED:	Friday, 5 June 2026

Pursuant to section 44 of the *Planning Act 1999* 'subdivision' requires consent and is subject to assessment against the provisions of the NT Planning Scheme 2020 relevant to zoned land.

The relevant NTPS2020 clauses are detailed in the pages below:

This is a technical assessment of the proposal against the requirements of the Northern Territory Planning Scheme 2020 (NTPS2020) and is no indication of whether or not approval will be given by the consent authority.

NORTHERN TERRITORY GOVERNMENT

Schedule

Part 1 Guidance

Northern Territory Planning Scheme 2020				DAS DLPE Comments
1.7	*Operation of the Planning Scheme*			The land is located within a Specific Use Zone listed in Schedule 4.1 of the NTPS2020. As such, the requirements of the Specific Use Zone prevail over all parts of the NTPS2020 (to the point of any conflict), including the Darwin Regional Land Use Plan (DRLUP).
	1.	*Where there is inconsistency between Parts within this Planning Scheme, the following rules apply:*		
		(e)	*the provisions of Parts 1, 2, 3, 5, 6 and 7 apply to development described in Schedule 4.1 (Specific Use Zones) except where they conflict with any conditions specified in that Schedule.*	
1.8	*When development consent is required*			
	(c)	***Impact Assessable** – use and development that requires the exercise of discretion by the consent authority to determine if it is appropriate given the location of the **site** and the potential impacts on surrounding uses, and if it accords with the Strategic Framework.* *Use and development of land requires **consent** and is Impact Assessable when any of the following apply:*		The application is for the subdivision of land other than that included at Clause 1.8(1)(b)(iii) which is for consolidation.
		ii.	*it is for the subdivision of land other than that included at Clause 1.8(1)(b)(iii);*	
1.10	*Exercise of Discretion by the Consent Authority*			
	1.	*In considering an application for **consent** for a use or development, the consent authority must consider the use or development in its entirety except in relation to:*		The application is not in relation to sub-clauses (a), (b) or (c) and therefore the subdivision (development) must be considered in its entirety.
		(a)	*an application to alter, change or vary a development permit under sections 43A, 46 or 57 of the Act;*	
		(b)	***access** to a **main road**; or*	
		(c)	*a Merit Assessable application under Clause 1.8(1)(b)(ii)(2).*	
	4.	*In considering an application for a use or development identified as Impact Assessable the consent authority must take into account all of the following:*		See below:
		(a)	*any relevant requirements, including the purpose of the requirements, as set out in Parts 5 or 6;*	The relevant requirements are identified and discussed in Clause 4.1.2.2 (Zone SP2) and also under 'Part 6 – Subdivision Requirements' below.
		(b)	*any Overlays and associated requirements in Part 3 that apply to the land;*	No Overlays are applicable to the site/proposed development
		(c)	*the guidance provided by the relevant zone purpose and outcomes in Part 4, or Schedule 4.1 Specific Use Zones; and*	The application is located within Specific Use Zone SP2 (Clause 4.1.2.2) of the Northern Territory Planning Scheme 2020 and Zone PM (Proposed Main Road). It is noted that the proposed residential and public open space lots are not within Zone PM (image below).

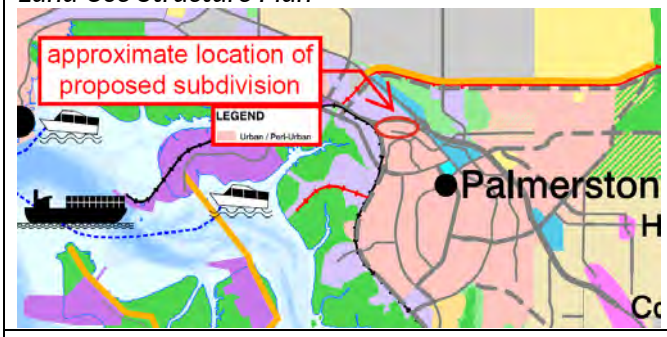
				
		(d)	*any component of the Strategic Framework relevant to the land as set out in Part 2.*	The following Strategic Framework is applicable to the site: • Darwin Regional Land Use Plan • Holtze to Elizabeth River Subregional Land Use Plan • Central Palmerston Area Plan

Part 2 – Strategic Framework

Northern Territory Planning Scheme 2020					**DAS DLPE Comments**
2.2	*Components and Operation of the Strategic Framework*				As discussed below, there is no Sub-Regional Land Use Plan or Area Plan that is directly applicable to the subject site and therefore the Strategic Planning Policies would apply.
	2.	*Strategic Planning Policies* *Strategic Planning Policies establish high level policies, principles and strategic directions to guide future development.* *Strategic Planning Policies:*			
		(a)	*may apply generally or to a particular issue or matter; and*		
		(b)	*inform and guide:*		
			i.	*the preparation of Strategic Land Use Plans;*	
			ii.	*decision making in the absence of Strategic Land Use Plans applicable to a particular **site** or issue; and*	
			iii.	*decision making in relation to variations to any component of the hierarchy of Strategic Land Use Plans.*	
	4.	*The Strategic Framework guides the interpretation of all Parts of the Planning Scheme.* *Where there is inconsistency between the components of the Strategic Framework, Area Plans, providing the most detailed level of guidance, prevail over higher-order Land Use Plans and Strategic Planning Policies to the extent of any inconsistencies.* *Subregional Land Use Plans, Regional Land Use Plans and Strategic Planning Policies will guide interpretation of the Planning Scheme when:*			
		(a)	*there is no applicable Area Plan;*		

		(b)	*the Area Plan does not provide guidance on a particular issue;*	
		(c)	*a use or development does not accord with an Area Plan; or*	
		(d)	*a new Area Plan is being created or a change is proposed to an existing Area Plan.*	

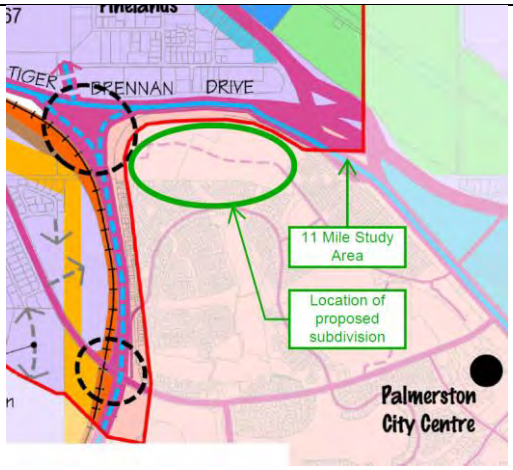
The Darwin Regional Land Use Plan (DRLUP)

Northern Territory Planning Scheme 2020		**DAS DLPE Comments**
Land Use Structure Plan  		The Land Use Structure identifies the location of the proposed subdivision as being on land identified as "urban/peri urban".
Urban and Peri-Urban Residential – Key Urban and Peri-Urban Residential Objectives		Generally complies with Strategic Framework – the application is for the subdivision of land for residential purposes which at completion will provide a supply of residential lots and public open space. The application proposes the facilitate a range of lot sizes (and associated dwelling densities) that will allow for a range residential types (in line with the zoning requirements). Stages 12 onwards are a continuation of another approved subdivision for which the permit had lapsed. The application recognises the importance of Packard's Knob and aims to protect it by incorporating it into public open space. The application does not provide retail and commercial lots as this would conflict with the Master Plan that does not include commercial lots, and which prevails over Part 2 of the NTPS2020.
●	*Identify sufficient suitable opportunities for residential development to ensure an ongoing supply of lots to meet market demand.*	
●	*Encourage a diverse range of dwelling types and residential localities to cater for changing demographics (including single person households and an ageing population), to meet increasingly diverse community aspirations and minimise the impacts of development on established localities.*	
●	*Focus future urban development in localities close to established areas to enhance the economic viability of infrastructure extensions.*	
●	*Encourage detailed design that:*	
	• *recognises the contribution natural and cultural sites make to urban character*	
	• *provides for appropriate protection and maintenance of natural and conservation areas*	
	• *is climatically appropriate and avoids the creation of heat islands.*	
Urban and peri-urban areas identified in the land use structure include established areas and broad hectare land potentially suitable for future development. These areas will accommodate a full range of land uses such as:		
●	*a variety of housing types*	
●	*retail and commercial*	

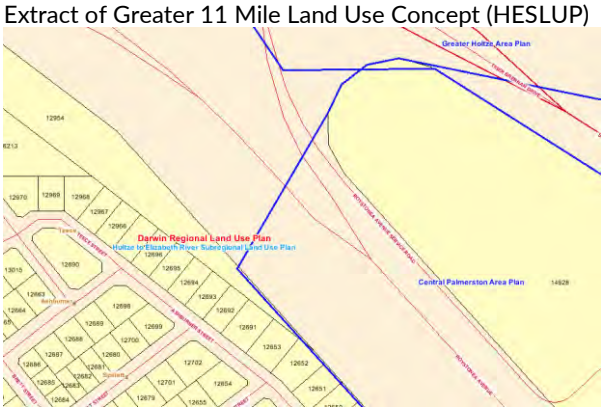
●	*community facilities and services*	
●	*sport, recreation and urban open space*	
●	*natural and conservation areas.*	

Holtze to Elizabeth River Subregional Land Use Plan (HESLUP)

Northern Territory Planning Scheme 2020		DAS DLPE Comments
Forward	*The HESLUP is a plan for the long-term, identifying and confirming strategic corridors for main roads, rail and utilities, and responding to the pattern of current and future land uses.*	Not directly applicable – the Holtze to Elizabeth River Subregional Land Use Plan (HESLUP) is identified on NT Atlas as being applicable to Lots 12954 and 16214, Town of Palmerston. The HESLUP focuses on area around Palmerston, and identifies and confirms strategic corridors for main road, rail and utilities. Lot 12954 is identified as being subject to the CPAP (discussed below) and therefore the lot is technically not subject to the HESLUP. The lot, however, is shown as being outside the CPAP study area on the 'Land Use Vision' map on page 7 of the CPAP and therefore the HESLUP is considered to be the most detailed level of strategic framework for the area. Despite the above, the HESLUP is not directly applicable to the proposal because it does not provide guidance for the area known as Durack Heights. The HESLUP identifies potential future roads that link to Weddell and identifies potential road intersections. These areas have been protected through the Zoning of the land (Zone PM – Proposed Main Road).
Part 1	*The Planning Commission has developed this subregional land use plan over an area around Palmerston that extends into Litchfield.*	
	Within the boundary of this subregional plan, uses and development of land that require impact assessment will need to accord with the relevant concepts and policy in this document; or, if the land is subject to an area plan, accord with that more detailed level of the strategic framework.	
Part 2	*The study area for this subregional plan is shown at Figure 4. The focus of the subregional plan is land along the north of Palmerston into Litchfield; and land along the south of Palmerston into Litchfield.* 	

Central Palmerston Area Plan (CPAP)

Northern Territory Planning Scheme 2020	DAS DLPE Comments
 Extract of Greater 11 Mile Land Use Concept (HESLUP)  Extract from NT Atlas mapping.	Not applicable – the Central Palmerston Area Plan (CPAP) is identified as being applicable to Lot 12954 only (see extract from NT Atlas below) however the location of the proposed subdivision / works is not located within the CPAP study area.

The Compact Urban Growth Policy

Northern Territory Planning Scheme 2020	DAS DLPE Comments

3.1	*Policy Application* *This Policy applies to higher density residential proposals in urban brownfield and greenfield localities throughout the Northern Territory.* *This Policy will be used to assess the appropriateness of delivering higher density residential land uses.* *This Policy will also be used to guide the development of Area Plans, Rezonings and Exceptional Development Applications where higher density residential land uses are proposed.* - Page 7	The Compact Urban Growth Policy only applies to 'higher density residential proposals', and in the policy, 'higher density' is defined as 60 dwellings per hectare which equals a dwelling density of 1 dwelling per 166m^2. While the application has potential to create opportunity for 'higher density' development (see discussion under sub-clause 14(b) of Clause 4.1.2.2 - Zone SP2), the application itself is for the subdivision of land to create LR (Low Density Residential) and LMR (Low-medium Density Residential) lots. In addition to the above, the policy indicates that it is used to assess the appropriateness of delivering higher density residential land uses, and to guide the development of Area Plans, Rezonings and Exceptional Development Applications. The application does not propose land uses (proposes to subdivide land and provides intended zoning), and the Policy was required to be assessed during the rezoning of the land (PA2024/0406) which was subsequently approved with one reason being its consistency with the strategic framework.

Part 3 Overlays

No Overlays are applicable to the land/proposed development.

NOT APPLICABLE

Part 4 – Zones and Assessment Tables

Northern Territory Planning Scheme 2020			DAS DLPE Comments
4.1	*Preliminary*		Zone PM (Proposed Main Road) and Specific Use Zones are listed in the table to this clause.
	5.	*Zones which apply in this Planning Scheme are listed in the table to this clause.*	

4.30 Zone PM (Proposed Main Road)

Northern Territory Planning Scheme 2020	**DAS DLPE Comments**

Zone Purpose			
Restrict development on land that is reserved for future development of a significant road transport corridor and associated transport infrastructure.			Aligns with purpose - only earthworks and drainage have been proposed within Zone PM. Technical comments (dated 24/03/2026) on the application have been received from Transport and Civil Infrastructure – DLI who have advised of no objections in principle to the subdivision, subject to standard conditions being included on any Development Permit issued.
Zone Outcomes			
1.	*Development is limited to that which has approval from the agency responsible for the **proposed main road**.*		Aligns with zone outcome – only earthworks and drainage have been proposed within Zone PM. Technical comments (dated 24/03/2026) on the application have been received from Transport and Civil Infrastructure – DLI who have advised of no objections in principle to the subdivision, subject to standard conditions being included on any Development Permit issued. The residual section/s of Lots 12954 & 16214 that are zoned PM are likely to be amalgamated with the NTG road reserve at a later date (this will not require Planning Act 1999 approval – refer to definition of "consolidation"). In addition to the above the application indicates that an acoustic barrier will be constructed between the northern boundaries of the northern residential lots and proposed lots 925 and 938 (Zone PM). The location of this barrier will be within residential lots.
2.	*Subdivision and development does not prejudice future establishment, operation and maintenance of the transport corridor as anticipated by the Strategic Framework.*		
3.	*Development, other than for a **main road** or associated transport infrastructure:*		
	(a)	*is of a scale and intensity compatible with the character and amenity of the area;*	
	(b)	*minimises impacts on sensitive environments;*	
	(c)	*is provided with an appropriate level of services and infrastructure;*	
4.	*Development that is not defined in Schedule 2 (Definitions) may occur only when assessment has determined that the development is appropriate in the zone, having regard to the purpose and outcomes of this zone and such matters as the location, nature, scale and intensity of the development.*		Not applicable – the proposal is for the purpose of subdivision.

Clause 4.1.2.2 - Zone SP2 – Part Lot 12954 Town of Palmerston and Part Lot 16214 Town of Palmerston

Northern Territory Planning Scheme 2020	**DAS DLPE Comments**
Purpose	
Facilitate the master-planned subdivision of land to provide for a range of lot sizes and future zoning that facilitates a variety of low-rise	Aligns with zone purpose – the application proposes 370 lots intended for dwelling-singles* that range in size from 300m^2 to 770m^{2,} and 12 lots (proposed zone LMR) that allow for multiple-dwellings that range in size from 600m^2 to 2126m^2. The intended

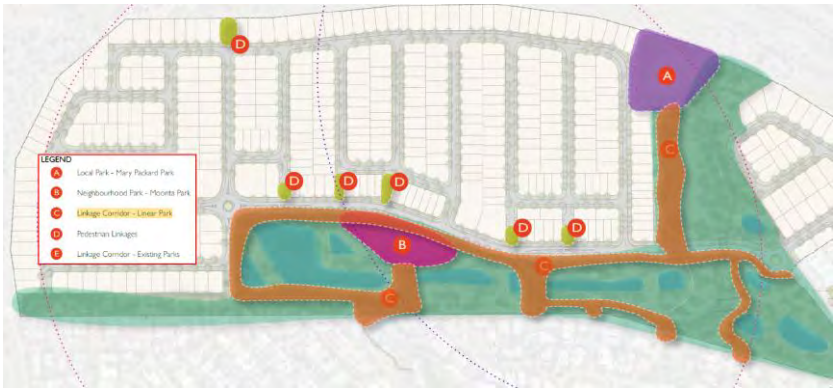
*housing options whilst appropriately responding to and/or integrating key **site** and locality transport, drainage and landscape characteristics, where full reticulated services are available.*		zoning does not allow for buildings over 2 storeys or 8.5m in height (low-rise). Key sites such as Packard's Knob have been retained, and full reticulated services are proposed as part of this application. *348 x LMR lots capable of accommodating 1 dwelling only (area between 300m^2 and 599m^2) & 22 LR lots
<u>*Administration*</u>		
1.	*This specific use zone applies to Part Lots 12954 and 16214 Town of Palmerston.*	The proposed subdivision is located on land within Zone SP2.
2.	*Clause 6.2 (Subdivision in Zones LR, LMR, MR and HR) applies to the subdivision of land subject to this specific use zone, to the extent of any inconsistencies within this zone. The subdivision requirements are to be applied as if the land is zoned in accordance with the plan required by subclause 3, and as if the land were a greenfield area identified for compact urban growth in the strategic framework for the purpose of Clause 6.2.1.*	Clause 6.2 of the NTPS2020 is discussed under Part 6 (heading) below.
3.	*An application for subdivision must include a plan showing the intended future zoning of all proposed lots.*	The application includes a intended future zoning plan (extract below). 
4.	*The consent authority may **consent** to the subdivision of land that is not in accordance with sub-clause 14(a) - 14(c) if it is satisfied that all lots created are consistent with the zone purpose and outcomes.*	Proposal does not comply with sub-clauses 14(b) and 14(c) .
5.	*The consent authority may **consent** to the subdivision of land that is not in accordance with sub-clause 14(d) if it is*	The proposal can comply with sub-clause 14(d) subject to condition.

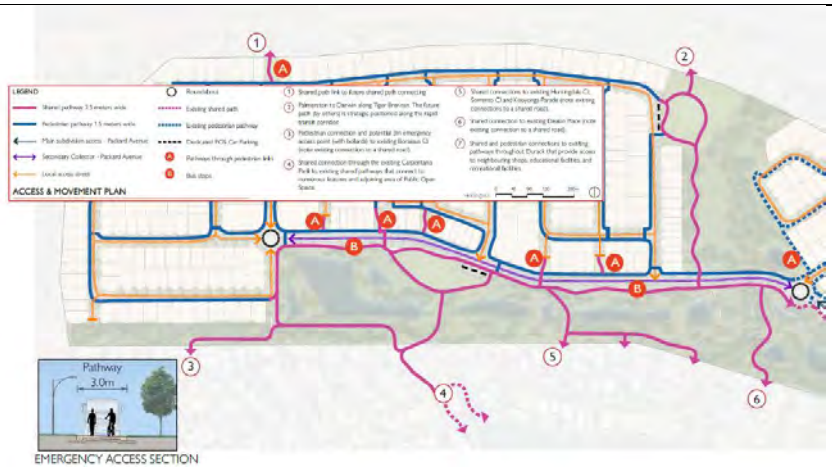
	satisfied that subdivision provides lots suitable for urban residential purposes that respond appropriately to the physical characteristics of the land and does not detrimentally impact on surrounding land.	
6.	*The consent authority may **consent** to the subdivision of land that is not in accordance with sub-clause 14(e) - 14(g) if it is satisfied that the design of **public open space**, stormwater and active travel infrastructure provides a level of **amenity** equivalent to that of a design complying with the applicable requirements.*	The proposal complies with sub-clauses 14(e) to 14(g).
7.	*The consent authority must not **consent** to a subdivision that is not in accordance with sub-clause 14(h) and 14(i).*	The proposal complies with sub-clauses 14(h) to 14(i).
8.	*Land may be used and developed for **residential buildings** for the purpose of a temporary sales office with **consent**. The assessment level will be Merit Assessable and the development is to be in accordance with sub-clause 15. The consent authority may **consent** to a temporary sales office that is not in accordance with sub-clause 15 if it is satisfied that it is consistent with the zone purpose and outcomes, and is appropriate to the **site** having regard to such matters as its location, nature, scale and impact on surrounding **amenity**.*	Not applicable – the application is for subdivision only.
Zone Outcomes		
9.	*A master-planned subdivision facilitating a blend of **dwellings-single**, associated **dwellings-independent**, **dwellings-group** and **dwellings-multiple** predominantly of two storeys or less, on a range of lot sizes that*	Aligns with zone outcome – the application proposes 370 lots intended for dwelling-singles* hat range in size from 300m^2 to 770m^{2,} and 12 lots (proposed zone LMR) that allow for multiple-dwellings that range in size from 600m^2 to 2126m^2. The intended zoning does not allow for buildings over 2 storeys or 8.5m in height (low-rise).

	respond to changing community needs.		*see sub-clause 14(b) for discussion on 1 bedroom dwelling-groups
10.	*Lots intended for non-residential activities such as **community centres**:*		Not applicable – the intended zones are residential (LR and LMR) and Public Open Space (PS). While Zones LMR and PS allow for "community centres" and other developments, the zone purposes indicate that the primary development within these zones is low rise housing options (for LMR) and open space for public use and enjoyment (for PS). Once the zone normalisation is completed, community centres will either be prohibited (in zone LR) or impact assessable (in zones LMR and PS).
	(a)	*Should be located to support the needs of the immediate residential community;*	
	(b)	*Facilitate development of a scale and intensity compatible with the residential character and amenity of the area;*	
	(c)	*wherever possible, are co-located with other non-residential activities in the locality; and*	
	(d)	*be located to avoid adverse impacts on the local road network.*	
11.	***Residential buildings** for use as a temporary sales office are of a scale and conducted in a manner consistent with residential **amenity**.*		Not applicable – the development application is for subdivision only.
12.	*An efficient pattern of land use is provided with all residential lots connected to reticulated services, integrated with existing transport networks, and with reasonable access to open space and community facilities.*		Aligns with zone outcome – the application includes a services plan that shows all residential lots connected to reticulated services and integrated into the existing transport network (Packard Avenue). Additionally, each lot is within 400m walking distance of public open space.
13.	*A safe, attractive and permeable pedestrian and cycle network is provided that promotes and encourages walking and cycling, and which connects to the established pedestrian and cycle networks of Palmerston.*		Generally aligns with zone outcome – the proposed subdivision layout locates all public open space parcels within a short walk/ride from each residential lot however there are no proposed commercial shops located in close proximity (walking/riding distance), therefore residents will be reliant on vehicles for their shopping.
Requirements			
14.	*Subdivision design:*		

	(a)	*Is consistent with the master plan diagram within this specific use zone;*	Complies – the proposed subdivision design follows the Master Plan Diagram. The first image below shows the referenced master plan and the below image shows the proposed subdivision layout (contained within the development application). **Extract from "Master Plan Diagram to Zone SP2" (page 13 of Schedule 4 of NTPS2020)**  **Proposed subdivision layout:** 
	(b)	*Provides a maximum gross dwelling density consistent with Zone LR (Low Density Residential) and Zone LMR (Low to Medium Density Residential);*	Complies – the application proposes lots that can accommodate 1 – 2 storey residential buildings including dwelling-singles, dwelling-groups and dwelling-multiples (up to 2 storeys). No Zone HR or higher density zones are proposed.
	(c)	*Has a maximum 10% of lots that are 600m^2 or greater that are capable of accommodating dwelling-group or dwelling-multiple developments;*	Complies – there are 28 lots over the size of 600m^2, and 22 of those lots are zoned LR (can't accommodate dwelling-groups or dwelling-multiples).
	(d)	*Ensures, by site grading and civil design, that residential lots less than 600m^2 incorporate a minimum area equivalent to the combined minimum*	Can comply – The applicant indicates that each lot complies with sub-clause 14(d) because slopes greater than 2% are only within the building setbacks of each lot, and the remaining portions of each lot include a minimum area equivalent to the combined minimum building envelope and area of private open space.

		building envelope and area of private open space that does not slope in excess of 2%;	The slope plan also includes the below notation:  NOTE: 1. SETBACKS APPLIED AS FOLLOW: 6m TO FRONT, 1.5m TO SIDE AND REAR, 2.5m TO SECONDARY STREET FRONTAGES The applicant does not provide drawings that include each lots combined minimum building envelope and area of private open space overlayed on top of the slope plan. This drawing would be able to verify that each lot can comply with sub-clause 14(d). It is recommended this be a condition on any permit issued. Using the applicant's calculation, a 10m x 30m lot which equals an area of 300m2, and requires a minimum primary street building setback of 6m (6 x 10m = 60m2), and a 1.5m side and rear setback ((30m + 30m +10m) x 1.5m = 105m2) would have 135m2 remaining to fit the required combined area of the building envelope and private open space. The building envelope area for lots 300m2 to less than 450m2 is 105m2 (7m x 15m – see sub-clause 6 of Clause 6.2.1), and the required amount of private open space (not including area B which can be included in the building envelope) is 45m2. Therefore, the combined minimum building envelope and area of private open space is 150m2 (105m2 building envelope and 45m2 private open space) which exceeds the remaining 135m2 available. Using the above calculations, it is considered that any lot that is 315m2 and above could theoretically comply with sub-clause 14(d), and any lot that is 300m2 – 315m2 could comply if there are no slopes along at least one side or rear boundary. DAS has reviewed all lots between 300m2 – 315m2 and found that all of these lots included no slope on at least one side or rear boundary. It is DAS's view that the subdivision application most likely complies with sub-clause 14(d) however the DCA may require a drawing showing the combined minimum building envelope and area of private open space overlayed on the slope plan. In addition to the above, during their response to the initial technical assessment the applicant indicated that the drawing errors show slopes exceeding 2% on lots 694, 652, 780, 912, 840, 847 and 899 and that these can be corrected prior to endorsement of drawings.
	(e)	*Has a minimum of 10% of the subdivision area as **public open space**, with no more than 20% of the required area of **public open space** allocated for stormwater management/drainage purposes (e.g. creeks, drainage channels,*	Complies – as discussed under sub-clause (b) above, DAS calculates the area of land subject to this application (excluding Zone PM) as 40.03ha, and the applicant calculates 39.3112. The NTPS2020 definition of "public open space" means - *outdoor spaces that are generally accessible to the community and provide for a range of sport, recreation, cultural, entertainment or leisure pursuits;* The applicant provides a public open space master plan which shows the following areas of public open space:

		wetlands, detention basins etc);	PUBLIC OPEN SPACE KEY ITEM AREA A LOCAL PARK - *Mary Packard Park* 0.89ha B NEIGHBOURHOOD PARK - *Moonta Park* 0.62ha C LINKAGE CORRIDORS *Linear Park* 3.05ha D PEDESTRIAN LINKAGES *Pedestrian access connections* 0.27ha E LINKAGE CORRIDORS *Existing parks - Stage 11* 1.4ha TOTAL PUBLIC OPEN SPACE 6.23ha *DRAINAGE RESERVE* [2] *8.2ha* TOTAL DEVELOPMENT AREA 44ha PERCENTAGE OF PUBLIC OPEN SPACE 14.2% DAS excludes the linkage corridors created in a previous stage (key E) and provides the amended total public open space area of 4.83ha (sum of keys A through to D). This equals a total of 12%. In addition to the above, the applicant indicates that the area of drainage infrastructure is not included in the public open space calculations.
	(f)	*Incorporates a **public open space** corridor providing a sympathetic interface between new lots and the existing established areas of Durack, and providing for walking and cycle paths that integrate into the existing and adjoining open space networks;*	Complies – public open space 'linkage corridors' shown on the POS overview pan matches the proposed the 'path links' shown on the access and movement plan. 

			 Together these plans indicate that the POS linkage corridors will connect with the existing established areas of Durack. There is no intention within the application (or NTPS2020 requirement) to consolidate the existing public open space (Lot 9180) with the proposed public open space parcel within the proposed subdivision. Consolidation or registration of a right of way easement would guarantee legal access between the lots. However, this would not be necessary as long as City of Palmerston owns the land (proposed public open space in new subdivision will be vested to City of Palmerston).
	(g)	*Incorporates existing prominent, significant or important landscape features, including Packard's Knob, into the open space network;*	Complies – the proposed open space network includes links to Packard's Park (location of Packard's Knob), Moonta Park and walking trails around the ephemeral basins (which have been designed in a way to provide visual amenity to the area).
	(h)	*Includes appropriate acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface; and*	Can comply – the application indicates that an acoustic barrier will be constructed between the northern boundaries of the northern residential lots and proposed lots 925 and 938 (Zone PM). A condition can be included requiring the acoustic barrier will be to the standards of TCI.
	(i)	*Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this*	Can comply – comments (dated 02/04/2026) from NT Fire & Emergency Services advised that they had no objections in principle or conditions. Additionally, the TIA provided with the application recommends strategies to reduce the likelihood of a crashes along the identified section of Packard Avenue. These strategies appear to be included in the application.

		location in the event of an accident or emergency.	Despite the above, the road network will be subject to Council requirements.
15.	*A temporary sales office is to:*		Not applicable – a temporary sales office is not proposed as part of this subdivision application.
	(a)	*be set back as if it were a **residential building** in the zone identified by the intended future zoning plan required by sub-clause 3 and/or in accordance with an approved setback plan; and*	
	(b)	*provide car parking for the development in accordance with Clause 5.2.4 (Vehicle Parking).*	

COMPLIES

Part 5 – Development Requirements

The application is for the subdivision of land and therefore Part 5 is not applicable.

NOT APPLICABLE

Part 6 – Subdivision Requirements

6.2 Subdivision in Zones LR, LMR, MR and HR

6.2.1 Lot Size and Configuration for Subdivision in Zones LR, LMR, MR and HR

Northern Territory Planning Scheme 2020	DAS DLPE Comments
Purpose	
Ensure that subdivision of land for urban residential purposes creates lots of a size, configuration and orientation suitable for residential development at a density envisaged by the zone.	The majority of lots are oriented to allow dwellings to take advantage of environmental conditions such as prevailing breezes and sunlight (see sub-clause 9 below for discussion). In addition to the above, the proposal generally meets Zone LR and LMR density requirements required for subdivisions (see sub-clause 7 below for discussion). It is noted that the proposal does not meet the Clause 4.1.2.2 - Zone SP2 density requirements (see sub-clause 14(b) of Clause 4.1.2.2 above for discussion).
Administration	

<table>
<tr><td>1.</td><td>The consent authority must not consent to a subdivision that reduces a lot size by an area greater than 5% of the minimum specified in Table A to this clause:</td><td rowspan="4">The proposed lot sizes complies with size requirements specified in Table A to this clause, and is not located in Alice Springs.</td></tr>
<tr><td></td><td>(a) in Zone LR; or</td></tr>
<tr><td></td><td>(b) in Zones LR and MR in Alice Springs and adjacent zoned areas.</td></tr>
<tr><td>2.</td><td>The consent authority must not consent to a subdivision in Zone LMR that is not in accordance with Table A to this clause.</td></tr>
<tr><td>3.</td><td>The consent authority may consent to a subdivision in Zone LR, MR or HR that is not in accordance with Table A to this clause only if it is satisfied that all lots created are consistent with the purpose of this clause and the zone purpose and outcomes.</td><td></td></tr>
<tr><td>4.</td><td>The consent authority may consent to a subdivision that is not in accordance with sub-clauses 5-12, only if it is satisfied the subdivision is consistent with the purpose of this clause and the zone purpose and outcomes.</td><td>The proposal generally complies with the purpose of this clause as discussed above.

Administration-clause 2 of Clause 4.1.2.2 - Zone SP2 provides that “Clause 6.2 (Subdivision in Zones LR, LMR, MR and HR) applies to the subdivision of land subject to this specific use zone, to the extent of any inconsistencies within this zone. The subdivision requirements are to be applied as if the land is zoned in accordance with the plan required by subclause 3, and as if the land were a greenfield area identified for compact urban growth in the strategic framework for the purpose of Clause 6.2.1”.

Please see Clause 4.1.2.2 above for discussion on the purpose and outcomes of Zone SP2.</td></tr>
<tr><td colspan="3">Requirements</td></tr>
<tr><td>5.</td><td>Land is to be subdivided in accordance with Table A to this clause.

Table A to Clause 6.2.1: Lot Size and Configuration in Residential Subdivisions
<table><tr><th>Zone</th><th>Minimum Lot Size</th></tr><tr><td>LR in greenfield areas identified for compact urban growth in the strategic framework</td><td>Average of 600m² and no smaller than 450m²</td></tr><tr><td>LR other than greenfield areas identified for compact urban growth in the strategic framework</td><td>800m²</td></tr><tr><td>LR, MR, HR and lots for residential buildings in Zone T</td><td>800m²</td></tr><tr><td>LMR</td><td>300m²</td></tr></table></td><td>Complies – sub-clause 2 of Zone SP2 allows land zoned SP2 to be treated as a “greenfield” area for the purposes of Clause 6.2.1.

The size of all intended LR lots range between 600m^2 and 770m^2, and the size of all intended LMR lots range between 300m^2 and 1816m^2.</td></tr>
<tr><td>6.</td><td>Lots are to conform with the building envelope requirements in Table B to this clause.</td><td>Does not comply - the majority of lots are rectangle (equal width and length) with the shorter boundary length fronting the primary street. Therefore, the following minimum lot width and length is required to accommodate the minimum building envelope size:</td></tr>
</table>

Table B to Clause 6.2.1: Lot Size and Configuration in Residential Subdivisions

Lot Size	Minimum Building Envelope Requirement
300m² to less than 450m²	7m x 15m (exclusive of any boundary setbacks or service authority easements)
450m² to less than 600m²	8m x 15m (exclusive of any boundary setbacks or service authority easements)
600m² and greater	17m x 17m (exclusive of any boundary setbacks or service authority easements)

Lot size	Minimum lot dimensions
300m^2 to no less than 450m^2	10m x 22.5m (11m x 22.5 for corner lots) (10m x 23.5 for lots with secondary streets along rear boundary) (14.5m x 18m for lots with wider primary street frontage)
450m^2 to less than 600m^2	11m x 22.5m (12m x 22.5 for corner lots) (11m x 23.5 for lots with secondary streets along rear boundary) (15.5m x 18m for lots with wider primary street frontage)
600m^2 and greater	20m x 24.5m (21m x 24.5m for corner lots) (20m x 25.5 for lots with secondary streets along rear boundary

Definition for “primary street” is listed in the NTPS2020.

DAS has identified the following aspects of non-compliance:

- Lots 570, 571 and 564 – these lots have areas of 450-451m^2, and the “primary street” has been identified as Spooner Street.
- Lots 675 and 676 – these lots are over 600m^2, and the “primary street” has been identified as the portion of Loveday Street that runs parallel with Packard Avenue.
- Lot 653 – this lot is 600m^2 and requires at least 21m along the shortest boundaries (corner lot).

		• Lot 695 – this lot is 401m^2. Plaisted Road has been identified as the "primary street" and requires at least 14.5m along its shortest boundaries. • Lot 792 – this lot is 788m^2. Packard Avenue (or the Bosworth Street) has been identified as potential "primary streets" and therefore at least 20m along its shortest boundary. • Lots 881, 853 and 887 – these lots are over 600m^2 and require area within the boundary at least 20m (along the "primary street" boundary) x 24.5m. • Proposed / required service authority easements (for residential lots) not shown on drawings (eg: see 23/03/2026 comments from PAWC (electricity)).
7.	*Lots have sufficient area and appropriate dimensions to provide for the proposed density of developments including **dwellings**, vehicle **access**, parking and **ancillary** buildings.*	Generally complies – the proposed layout allows for the building envelope (required by sub-clause 6) to fit on each parcel with the exception to the lots listed above. It is noted that Lots 570, 571, 564, 563, and 695 are located on corner lots and would comply if the primary and secondary streets were swapped. Lots 653, 675, 676, 792, 881, 853 and 887 have minor encroachments however would otherwise be able to accommodate dwellings, vehicle access, parking and ancillary buildings.
8.	*There are no battle-axe lots.*	Complies – no battle-axe lots are proposed.
9.	*Lots are oriented to allow **dwellings** to take advantage of environmental conditions such as prevailing breezes and sunlight.*	Generally complies – with the exception to lots 570, 571, 564 and 563, the proposed subdivision layout shows lots that are orientated north-south are in a row that runs east-west which allows passive shading from adjacent developments (with exception to the end lots). Lots that are oriented east-west allow houses to be built that minimise the length of wall facing the rising and setting sun.
10.	*Lots are connected to reticulated services.*	Can comply – the applicant indicates that reticulated services will be connected to all lots as per the Engineering Infrastructure Report. It is noted that the report does not show electrical infrastructure. Conditions on the permit can be included that require servicing to be to relevant authority requirements.
11.	*Potential land use conflicts are minimised by taking account of the visual and acoustic privacy of residents.*	Complies – the subdivision is for a residential area, and no detrimental visual and acoustic privacy issues have been identified.

			The zoning of the lots will allow for building heights of no more than 2 storeys/8.5m in height which will prevent unreasonable overlooking of neighbouring lots.
12.	*Where there are lots for medium and higher density residential development, those lots are:*		Not applicable – the proposed lots are for low to low-medium density residential.
	(a)	*distributed in small groups serviced by public transport;*	
	(b)	*in close proximity to **public open space** and with adequate **access** to community facilities and services; and*	
	(c)	*not located in a cul-de-sac.*	

DOES NOT COMPLY – with sub-clause 6

6.2.2 Lots Less Than 600m² for Dwellings-Single

Northern Territory Planning Scheme 2020		DAS DLPE Comments
Purpose		
*Ensure the subdivision of land to lots of less than 600m² will allow residential development that minimises impact on **amenity** and the functionality of the street infrastructure.*		Can align with purpose – street infrastructure and proposed (required) PAWC easement locations not shown. A condition can be included to ensure smaller lot sizes do not impact of public infrastructure.
Administration		
1.	*The consent authority must not **consent** to a subdivision that is not in accordance with sub-clauses 3 and 4.*	Please see discussion under sub-clause 5.
2.	*An application must provide plans to demonstrate the requirements of sub-clause 4.*	
Requirements		
3.	*Lots subject to this clause shall not have a boundary to any public road less than specified in the table to this clause.*	Complies – all lots meet minimum length of boundary to a public road requirements.

Table to Clause 6.2.2: Lots Less than 600m² for Dwellings-Single

Range of Lot Size	Minimum length of any Boundary to a Public Road
300m² to less than 450m²	10m
450m² to less than 600m²	13m

4.	*The **site** layout of lots subject to this clause is able to comply with the purpose of this clause and the development requirements for vehicle parking (5.2.4), **building setbacks** (5.4.3 and 5.4.3.3) and private open space (5.4.6).*	Can comply – the majority of lots are rectangle and meet the building envelope requirements (sub-clause 6 of Clause 6.2.1). It is considered that the required area/dimensions of private open space can be included within the abovementioned building envelope. Lots that do not comply with the building envelope requirements have minor encroachments that will not prevent the requirements of sub-clause 4 being achieved. Proposed / required service authority easements (for residential lots) not shown on drawings (eg: see 23/03/2026 comments from PAWC (electricity) and 8/03/2026 comments from PAWC (water)). In addition to the above, it is noted that street infrastructure locations (eg: street lights) are not shown (purpose of requirements) and may influence the location of vehicle access, POS area, etc. A condition can be included to ensure smaller lot sizes do not impact of public infrastructure.

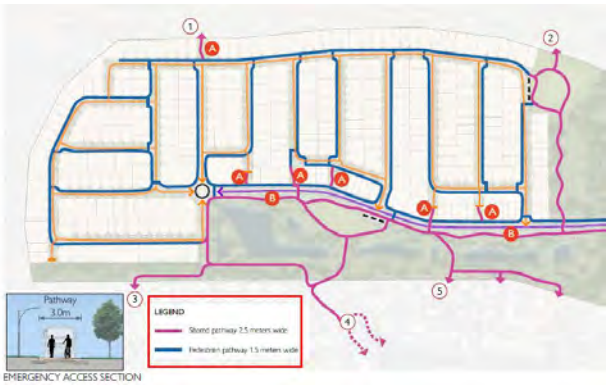
6.2.3 Site Characteristics for Subdivision in Zones LR, LMR, MR and HR

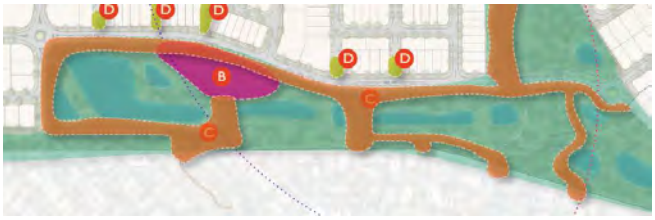
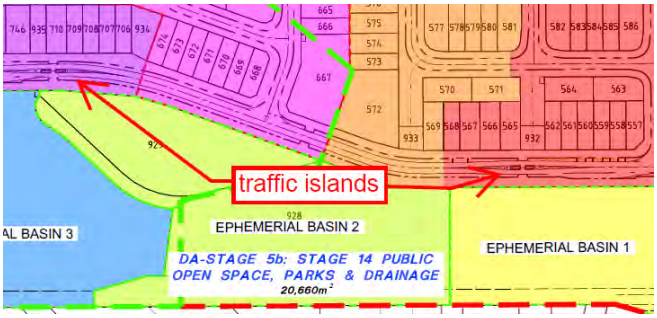
Northern Territory Planning Scheme 2020		DAS DLPE Comments
Purpose		
Ensure that the subdivision of land provides lots suitable for urban residential purposes that respond appropriately to the physical characteristics of the land and does not detrimentally impact on surrounding land.		The proposal generally complies with requirements under Clause 6.2.3. It is recommended that a survey to identify if there are any Typhonium Praetermissum within the subject lot is provided and whether the proposed subdivision layout impacts on these locations (if any).
Administration		
1.	*The consent authority may **consent** to a subdivision that is not in accordance with sub-clauses 2-6, only if it is satisfied the subdivision design is consistent with the purpose of this clause.*	TBC
Requirements		
2.	*Avoid the development of land of excessive slope, unstable or otherwise unsuitable soils (e.g. seasonally waterlogged) and natural drainage lines.*	Complies – the subject site is without significant gradient with exception to 2 portions of land (terrain unit 1c) that have slopes of 10-15%. The easternmost portion of terrain 1c is Packard's Knob

		which will be included in the proposed POS area. The westernmost portion will be graded to be flat.
3.	*Ensure, by **site** selection or **site** grading, that areas intended for lots less than 600m² do not slope in excess of 2%, such that the need for on-site stormwater structures, retaining walls and the like is minimised.*	Not applicable – lot slope requirements are provided for by sub-clause (d) of Clause 14 of Zone SP2.
4.	*Retain and protect significant natural and cultural features.*	Can comply – the proposal retains Packard's Knob. The application also includes an Ecology and Heritage Constraints Assessment that no sensitive vegetation, sacred sites (via AAPA register check) or restricted work areas are present. There is a likelihood of Cycad and Typhonium Praetermissum. The applicant has indicated that if any Cycads are found, they will be re-planted in the POS area or sold. The assessment recommends a survey to identify if there are any Typhonium Praetermissum within the subject lot.
5.	*Avoid development of land affected by a 1% AEP flood or storm surge event.*	Complies – current NTG Overlays and flood mapping indicate the land is no subject to a flood or storm surge event.
6.	*Retain and protect natural drainage lines and any distinctive landform features or stands of natural vegetation and incorporate them into **public open space**.*	Complies – a search on NR Maps did not identify any drainage lines. The applicant has indicated that there are drainage lines that will be incorporated into the POS area. The Ecology and Heritage Constraints Assessment identified that there were no high density are present on the site.

6.2.4 Infrastructure and Community Facilities for Subdivision in Zones LR, LMR, MR and HR

Northern Territory Planning Scheme 2020	DAS DLPE Comments
Purpose	
Ensure that subdivision of land for residential purposes is appropriately integrated with infrastructure, community services and facilities.	Can comply – proposed street infrastructure locations not shown (in relation to lots). The application does show public bus stop locations and provides a high level of public open space (POS) and connectivity to existing pedestrian/road networks.

		Conditions on the permit can be included that require servicing to be to relevant authority requirements.
Administration		
1.	*The consent authority may **consent** to a subdivision that is not in accordance with sub-clauses 2-7, only if it is satisfied the subdivision is consistent with the purpose of this clause.*	TBC
Requirements		
2.	*Provide a high level of internal accessibility and external connections for pedestrian, cycle and vehicle movements.*	Complies – the access & movement plan provided with the application shows every street with pedestrian provisions and pedestrian access through POS corridors and between the parks. Additionally, bike storage will be available each park. 
3.	*Provide links to schools, commercial facilities and public transport services.*	Generally complies – while there are no education or commercial facilities as part of this subdivision, the proposed layout does provide a high level of pedestrian connection to existing pedestrian networks outside of the subdivided area. In addition to the above, two bus stops are proposed along Packard Avenue that will provide public transport options within a 400m radius of each lot.
4.	*Provide traffic management to restrain vehicle speed, deter through traffic and create safe conditions for all road users.*	Complies – the TIA provided with the application recommends speed reduction strategies along the bridge. The application appears to apply these strategies more broadly along Packard Avenue including running a portion of the 'linkage corridor' along Packard Avenue which will foster.. and including islands

		The key to designing the proposed road connection to minimise the risk of it being obstructed is to ensure the roadside environment provides the message to drivers that a low speed environment is appropriate on the bridge and therefore mitigate the risk of crashes which could cause a blockage of the road network. This could include design features such as a median to reduce speed and minimise any vehicle conflict, landscaping to reinforce the environment to drivers and tactile pavement to raise further awareness to drivers. By adopting design features which foster a low speed environment message to drivers the inherent risk of an incident which obstructed the access would be very low.   In addition to the above, the applicant indicates that *"Internal road layout and alignment avoids through-roads and distributes traffic evenly throughout the subdivision."*
5.	*Incorporate street networks capable of accommodating safe and convenient bus routes with stops within a 400m radius of a majority of* ***dwellings****.*	Complies – two public bus stops are proposed that are within a 400m radius of all residential lots.
6.	*Provide for connection to reticulated services.*	Can comply required – the applicant indicates that the subdivision will be connected to reticulated water, electricity, sewerage services. Power and Water Corporation (power and water services) have provided comments indicating requirements. Further information demonstrating that reticulated services infrastructure will not impact on above requirements is recommended (see sub-clause 4 of Clause 6.2.2 Lots Less Than 600m^2 for Dwellings-Single above for further discussion). Conditions on the permit can be included that require servicing to be to relevant authority requirements.

7.	*Provide a minimum of 10% of the subdivision area as **public open space** which:*		Complies – the proposed subdivision meets the POS requirements under Clause 14(e) of the Specific Use Zone which takes precedent over this requirement.
	(a)	*ensures the majority of **dwellings** are within 400m walking distance of a neighbourhood park;*	
	(b)	*incorporates recreational open space in larger units available for active leisure pursuits;*	
	(c)	*is unencumbered by drains and has sufficient flat area for informal recreation; and*	
	(d)	*is designed to provide a safe environment for users by allowing clear views of the open space from surrounding **dwellings** or passing vehicles.*	

PA2026/0086 - Subdivision

Lot 16214 Town of Palmerston

DURACK

Lot 12954 Town of Palmerston

0 KOOYONGA PDE

DURACK

Current Zones:

MZ (Multi Zone)

I would like to make the following points for the Traffic Assessment -Appendix H

- There has been no traffic scat numbers or vpd for traffic cutting through Nichols st from Packard ave to Woodlakes blvd ever recored especially for the wet season drop off and pick ups for Durack school, application is only focusing on Packard Ave. Nichols st was developed back around 2010 and from then until now no scat or vpd have ever been given
- The original assessment back in 2010 was for traffic management was 300-500 cars per a day well I that blew way out, I believe it to be around 1000 in the peak of wet season of school drop off and pick up, with all these new stages being released it will only go much higher
- There are no other roads that lead from Durack Heights to the school that all of the traffic will go directly down Nichols st the developers have not proposed anything new
- The planning submission is only open for 2 weeks this is not long enough for objections especially as the pink planning notices where not on display for people to see when driving through from Durack Heights down Packard and cutting through Nichols st to Woodlakes blvd- Old Durack as it will impact on the old Durack area with traffic flow
- The Minster of Lands and Planning made the decision last year ruling that there should be no impact given to the old Durack from the Development of Durack Heights
- There has been poor planning and there should be an alternative route to and from the school which does not impact old Durack

Kind Regards,

Cheryl Dennis 0409 327 484

X

Cheryl Dennis

ID: 681563 – NN:ct

10 April 2026

Development Assessment Services
Department of Infrastructure, Planning and Logistics

Email: das.ntg@nt.gov.au

Dear Sir/Madam

Re: PA2026/0086 – Proposed subdivision of Lots 12954 and 16241 to create 387 lots (382 residential and 5 public open space lots) being the Heights, Durack Stages 12-19

City of Palmerston thanks the consent authority for the opportunity to provide a submission about the above application. The key matters Council is seeking the consent authority consider are outlined below, which are presented in three (3) parts:

1. Specific aspects of the proposed development requiring updated plans: These are specific issues to be resolved before the City of Palmerston can support the application. They can be addressed either before the development approval is issued, or through development conditions requiring the submission of updated plans.
2. Additional matters: These matters can be addressed through approval conditions, and before the commencement of works.
3. Recommended development conditions: These are conditions to address components of the development that impact City of Palmerston and are provided in the event the consent authority approve the application in its current form.

Part 1 – Specific aspects of the proposed development requiring updated plans

The development application has been designed to align with the outcomes and requirements in specific use zone SP2, which was introduced into the NT Planning Scheme 2020 by the Minister in November 2025 as an interim zone to facilitate a master planned residential subdivision at this site. For the most part, the development is consistent with zone SP2 or can otherwise be conditioned to meet the assessment provisions within this zone.

There are however several aspects of the application which do not comply and which need to be addressed before City of Palmerston can support the application. Paramount amongst these is the failure of the application to demonstrate compliance with development requirement 14 i):

> *Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, is designed and constructed to a standard that will best manage continuous access and egress to land west of this location in the event of an accident or emergency.*

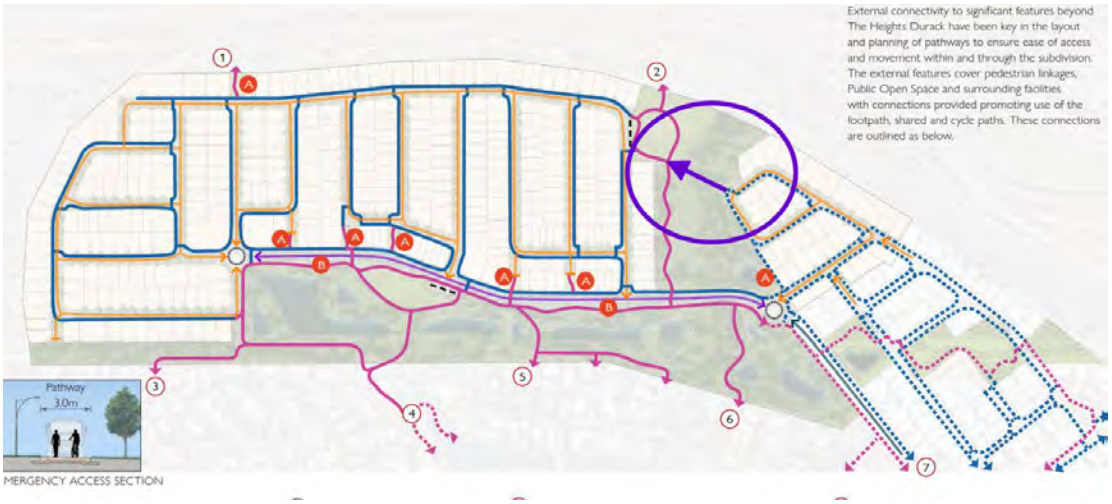
Throughout the assessment of the planning scheme amendment introducing zone SP2, the City of Palmerston expressed significant concerns regarding the subdivision's over-reliance on a single access point. Council explicitly advised that if a single road link were supported, it must have sufficient width to manage risks associated with lane closures. Currently, Council is not satisfied that this has been demonstrated.

The application implies mitigating risk is all that is required to address the outcome; however, it must acknowledge that accidents happen and maintenance is inevitable and therefore, a more robust design response is required. The development requirement in zone SP2 is explicit in this regard, and a cross section showing how this segment of road will be designed to manage continuous access in the event of lane/s closure is needed before compliance is achieved.

Additional detail is also required in response to Zone Outcome 13:

> *A safe, attractive and permeable pedestrian and cycle network is provided that promotes and encourages walking and cycling, and which connects to the established pedestrian and cycle networks of Palmerston.*

City of Palmerston acknowledges the efforts made to provide a permeable pedestrian and cycle network throughout the proposed subdivision but has concerns about how the subdivision responds and connects to the established pedestrian network. An overreliance on potential pathways external to the development site at Carpentaria Court and Borassus Place, as well as connections to a 'shared roadway' at Huntingdale Court, Sorrento Close, Kooyonga Parade, Deaken Place where there are no connecting pathways, fails to address the requirements of the zone outcome. An updated response and revised plan is needed, and if future external connections are to be relied on, how they can be secured through the development approval process. A direct pathway connection between Heights Stage 11 and the proposed POS12 should also be explored as part of an updated pathway plan as this would not only satisfy the zone's functional requirements but build additional redundancy into the road/pathway network (shown in purple in below image -added by City of Palmerston for reference).



Further, whilst specific details of medians and other treatments along Packard Avenue will need to be addressed through detailed design and will be informed once the road hierarchy is confirmed, most residents will be required to cross this road to access the wider pedestrian network. Therefore, additional detail in an updated pathway plan is needed to demonstrate how safe pedestrian movement will be facilitated. Median treatments where roads intersect with Packard Avenue should also be incorporated and road safety audits of these intersections will likely be required to ensure safe pedestrian and traffic movement.

City of Palmerston has no objection to the alternative emergency access proposed at Borassus Court by way of shared pathway though the development site; however, details of what upgrades are needed external to the site and how these upgrades are secured through the development approval process is needed before City of Palmerston could support this arrangement.

Part 2 - Additional matters

The applicant has engaged with City of Palmerston ahead of the submission of this development application, including in the preparation of draft masterplans and technical reports, and outlining their response to strategic and statutory requirements. Based on these discussions and through the resolution of the matters outlined in Part 1 of this submission, City of Palmerston would have no objection to the granting of a development permit, subject to appropriate development conditions being applied. The additional matters provided below are provided to support the recommended development conditions in Part 3 of this submission.

Masterplans and detailed design

Whilst the masterplans provided may be sufficiently advanced for the purposes of a development application, importantly they have not been approved or endorsed by the City of Palmerston at this time. Prior to the commencement of works, the following requirements must be addressed to the satisfaction of the City of Palmerston:

- A streets and pathways masterplan, supported by an updated traffic impact assessment is required before (amongst other things) the street hierarchy and pathway network is confirmed.
- An updated Part 1 stormwater plan (of which initial comments have been provided) is required before City of Palmerston can confirm acceptance of stormwater drainage systems.
- An updated public open space masterplan is needed before (amongst other things) acceptance of park hierarchy, landscaping and open space areas are confirmed.

Upon approval, these masterplans will inform the detailed design documentation (including a Part 2 stormwater management plan) and drawings that will need to be submitted and approved by the City of Palmerston prior to construction of each development stage.

Staging

The application proposes splitting the development into 14 development stages, comprising 3 bulk earthwork stages and 8 residential stages, with three of the residential stages broken into 2 substages to deliver and title residential lots prior to open spaces being completed.

The City of Palmerston does not object to this staging in principle, provided the development follows the sequential order outlined in the application and ensures adequate public open space is delivered alongside residential lots. To achieve this outcome, a condition is required to formally approve a staging plan, to be endorsed prior to the commencement of works and guaranteeing the appropriate sequencing of development.

Erosion and Sediment Control

Stormwater from the development site is proposed to be discharged to public infrastructure under the control of City of Palmerston. As such, works undertaken on site must be done so to manage the disturbance of soils and prevent and/or mitigate erosion and subsequent sediment discharge from the development site. The objective being to prevent detriment to the built and natural environments downstream through the implementation of best practice erosion, drainage and sediment control.

Whilst City of Palmerston recognises its role in administering this process, given the sensitivity of the downstream environment and established residential community at this location, it will require a copy of the ESCPs to be provided prior to the clearing of land or other soil disturbing activities. The level of information and detail supplied in an ESCP must be commensurate with the potential environmental risk and the complexity of the proposed works.

Part 3 - Recommended development conditions

Should the consent authority decide that the application complies with the planning scheme that applies to the area (including comments provided in Part 1) and includes sufficient information to properly consider the effect of the development on other land, City of Palmerston requests the following conditions precedents, general conditions and notes be included on the development permit. It is requested that any variation to the conditions below is discussed with City of Palmerston prior a permit being drafted or issued.

Conditions Precedent

1. Prior to the endorsement of plans, submit the following to the City of Palmerston for approval in accordance with the Subdivision Masterplan requirements of the Northern Territory Subdivision Development Guidelines, and the City of Palmerston:
    (a) A streets and pathways masterplan, supported by an updated traffic impact assessment showing distribution of traffic volumes for the subdivision network to support road classifications, and a safe, attractive and permeable pedestrian network that connects to the established pedestrian network.
    (b) an updated public open space masterplan.
    (c) an updated Part 1 stormwater management plan.
    (d) A staging plan showing the sequence of development.
    (e) An updated cross section of Packard Avenue, between the intersection of Heir Street and the eastern intersection of Plaisted Road, demonstrating how continuous access and egress to land west of this location will be maintained in the event of an accident or emergency.
    (f) An Operational Environmental Management plan for the duration of the development and for the overall site.

2. Prior to the commencement of works, submit the following to the City of Palmerston for approval in accordance with the Subdivision Masterplan requirements of the Northern Territory Subdivision Development Guidelines and the City of Palmerston:
   (a) A Part 2 Stormwater Management Plan.
   (b) A Bulk Earthworks Masterplan, indicating finished levels of the subdivision, noting that all earthworks are to be designed to eliminate the need for excessive fill and retaining walls.

3. Prior to the commencement of works for each approved stage (excluding site clearing and bulk earthworks), the Developer shall submit detailed design documentation (engineering design, design report and specifications) for all proposed works for approval form City of Palmerston, to the satisfaction of the consent authority, inclusive of the following components of each stage:
   (a) Detailed drawings relating to stormwater drainage.
   (b) Roads, pathways (including cycle pathways) and vehicle crossings, including road safety audits where required by City of Palmerston.
   (c) Pedestrian/ cycle paths.
   (d) Streetscaping and landscaping (including irrigation and lighting).
   (e) Open space/ park areas (including permanent irrigation).

4. Prior to the commencement of works for each stage, including for site clearing and bulk earthworks, a Type 2 Erosion and Sediment Control Plan (ESCP) certified by a Certified Professional in Erosion and Sediment Control (CPESC) is to be provided to City of Palmerston, to the satisfaction of the consent authority.

General Conditions

1. The works carried out under this permit shall be in accordance with the drawings endorsed as forming part of this permit.
2. The subdivision must proceed in the order of stages as shown on the endorsed staging plan, unless otherwise agreed to in writing by City of Palmerston and the consent authority.
3. All reasonable and practicable measures must be undertaken to prevent erosion occurring onsite, sediment leaving the site, and runoff from the site causing erosion offsite. Appropriate erosion and sediment control measures must be effectively implemented throughout the construction phase of the development (including clearing) and all disturbed soil surfaces must be satisfactorily stabilised against erosion at completion of works, to the satisfaction of City of Palmerston and the consent authority on written advice from the Certified Professional in Erosion and Sediment Control (CPESC) for each stage.
4. All proposed and affected roads, street lighting, stormwater drainage, site earthworks, vehicular access, pedestrian/ cycle corridors, public open space and streetscaping/ landscaping must be designed and constructed at the owner's expense in accordance with the requirements of the NT Subdivision Development Guidelines and to the technical requirements of City of Palmerston, to the satisfaction of the consent authority.

5. All proposed roads and public open space areas to be created on the plan of subdivision submitted for approval by the Surveyor General must be dedicated to the relevant City of Palmerston.
6. Any easements or reserves required for the purpose of stormwater drainage, street lighting, roads, access or for any other purpose, must be provided free of cost to the City of Palmerston.

Notes

- A "Permit to Work Within a Road Reserve" will be required from City of Palmerston before commencement of any work within Council owned land, including site access.
- Site clearing and bulk earthworks carried out ahead of detailed design approvals are undertaken at the developers own risk.
- All cut and fill works are to be designed to eliminate the need for excessive cut and fill and retaining walls for the proposed lots and stormwater flow from lots.

Please contact Councils planning and development team at development@palmerston.nt.gov.au or phone 8935 9922.

Yours sincerely

Nadine Nilon
Deputy Chief Executive Officer / General Manager Infrastructure

NORTHERN TERRITORY GOVERNMENT

Department of
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Daniel Herlihy
Development Assessment Services
GPO Box 1680
Darwin NT 0801

File reference
DDPI2010/7345-04-0023~0019
TCI Project No: 2022-0154

Dear Daniel

Re: DARWIN – LOT 12954 & 16214 TOWN OF PALMERSTON – 0 KOOYONGA PARADE, DURACK – SUBDIVISION TO CREATE 397 LOTS (382 RESIDENTIAL AND 5 PUBLIC OPEN SPACE LOTS) IN 8 STAGES (THE HEIGHTS STAGES 12 -19) – URBEX – CUNNINGTON ROSSE TOWN PLANNING AND CONSULTING

I refer to the Development Assessment Services' correspondence of 20 March 2026, regarding Planning Application PA2026/0086 on subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 Stages (The Heights Stages 12-19).

I am pleased to advise that Transport and Civil Infrastructure (TCI), Department of Logistics and Infrastructure (DLI) has no objections in principle to the above mentioned Subdivision, subject to the following comments and requirements:

1. All proposed work (including the provision or connection of services) within, or impacting upon the NTG controlled roads road reserves shall be designed, supervised and certified on completion by a practising and registered civil engineer, and shall be in accordance with the standards and specifications of TCI, DLI.

   Design documents must be submitted to TCI for road agency approval, irrespective of approvals granted by other authorities e.g. Power & Water Corporation (PWC). No works within, or impacting upon the NTG road reserves are to commence prior to gaining road agency approval.

   Note that a development permit issued under the *Planning Act* is not an approval for access onto a Territory Road. Approval for access to be taken from, or constructed within the NTG controlled roads reserve rests solely with TCI, DLI as the approving road authority.

2. The developer, its contractor or service provider is required to obtain a "Permit to Work within the NTG Road Reserves" prior to the commencement of any works within the NTG controlled roads road reserve.

3. A Construction Traffic Management Plan (detailing all appropriate site management measures, including construction access, proposed haulage routes, vehicle types, protection of existing assets, protection of public access and a risk assessment) shall be submitted to TCI, DLI for consideration prior to commencement of any works.

4. Direct access shall not be permitted to the subject lot from the NTG controlled roads road reserve. All access arrangements shall be via local roads.

5. No temporary access for construction purposes shall be permitted from the NTG controlled roads road reserve. Construction and delivery vehicles shall not be parked on the NTG controlled roads road reserve.

6. The loads of all trucks entering and leaving the site of works are to be constrained in such a manner as to prevent the dropping or tracking of materials onto streets. This includes ensuring that all wheels, tracks and body surfaces are free of mud and other contaminants before entering onto the sealed road network.

   The use of shaker screens/ rubble pads to remove loose material from trucks prior to entering the road network is a requirement. Where tracked material on the road pavement becomes a potential safety issue, the developer will be obliged to sweep and clean material off the road.

7. Surface stormwater run-off from the development site onto the NTG controlled roads road reserve is not permitted. The developer shall ensure that the stormwater run-off from the development site is collected to prevent uncontrolled discharge to adjoining lands through the provision of kerbing, transverse grated drains and inlet pits, or alternatively the site is to be graded to collect the run-off internally.

   Accordingly, stormwater shall be wholly contained within the site and discharged into the local underground stormwater system to the standards and approval of the City of Palmerston (where it impacts on council controlled road reserves), the Crown Land Management Division (where it impacts on Crown land or a drainage easement in favour of the Territory). Stormwater design plans submitted for approval shall provide details of site levels and existing downstream drainage infrastructure.

8. The installation of any services or service connections within the NTG controlled roads road reserves is subject to TCI, DLI approval. All service related works are to be contained within the appropriate nominal service corridor (refer standard drawing CS-3001).

9. Where unfenced, the NTG controlled roads frontages are to be appropriately fenced in accordance with the Department's standards and requirements to deter unauthorised vehicular and/or pedestrian movement. Any gates provided are to be fixed to open inwards only.

10. The developer shall consider the Department's Policy "Road Traffic Noise on NTG controlled roads" and have carried out, in accordance with AS3671 Road Traffic Noise Intrusion - Building Siting and Construction, an assessment by a suitably qualified person of the development's present and predicted future exposure to road traffic noise levels. Where required, the developer shall provide appropriate noise attenuation measures to the satisfaction of the Chairman, Development Consent Authority.

    All noise attenuation works deemed necessary, e.g. building materials and design, lot layout or noise barriers, shall be wholly contained within the subject Lot (including foundations) and carried out and maintained at full cost to the developer.

11. The finish of any Prime Identification sign, if erected, shall be such that, if illuminated, day and night readability is the same and is of constant display (i.e. not flashing or of variable message). The sign shall be positioned:

    i. so as not to create sun or headlight reflection to motorists; and
    ii. be located entirely (including foundations and aerially) within the subject Lot.

    Advertising signage including temporary or permanent, e.g. 'A' frame, vehicle or trailer mounted, etc. shall not be erected or located within the NTG controlled road road reserve.

12. Any floodlighting or security lighting provided on site is to be shielded in a manner to prevent the lighting being noticeable or causing nuisance to NTG controlled road traffic.

13. Stormwater drainage shall be wholly contained within the subdivisional area and appropriately discharged into a local underground stormwater system to the standards and approval of the City of Palmerston, (where it impacts on the council controlled and reserves),the Crown Land Management Division (where it impact on crownland or drainage easement in favour of the Territory. All proposed

Lots fronting NTG controlled roads shall be graded such that the stormwater run-off from the properties is away from NTG controlled roads and is able to be collected within the development area and local stormwater system. The local underground stormwater drainage system shall provide adequate connection points for individual lot drainage along the downstream sides of each property catchment.

The stormwater drainage design submitted for road agency approval shall include an assessment of the potential increased stormwater run-off based on the full development potential of the proposed subdivisional area, and impact on the existing downstream stormwater drainage system. The developer must demonstrate that the proposed subdivision development will not increase flooding of existing properties and will meet Departmental standards for flooding of arterial public roads in a major storm event. The assessment report must also identify upgrades and/or retention facilities required to accommodate the increased flow.

14. All works within the proposed new subdivision road reserves, including the construction/ extension of Packard Avenue, shall be to the standards and requirements of the City of Palmerston.

15. Any new road reserves (distributor, collector or local roads) created via this subdivision shall be vested with the relevant local authority and shall be noted on the survey plan as such. The NTG will not accept new distributor, collector or local roads in existing local government areas.

16. The clearing and future use of the land, including any noise attenuation measures, shall not be detrimental to the drainage of the NTG controlled road reserves through the blocking of offlet drains, natural drainage channels or overland flow. Alternative proposals to cater for the above may be considered by this Department.

Should you wish to discuss the above mentioned further, please contact TCI, DLI on telephone 8999 4412.

Please quote TCI Project No 2022-0154 in all correspondence.

Yours sincerely

Claire Brown
General Manager, Transport and Civil Infrastructure

27 / 03 / 2026

Daniel Herlihy

From: Beth Niemeier
Sent: Wednesday, 8 April 2026 5:05 PM
To: Das NTG
Cc: EDTSS DLI
Subject: Development proposal comments Transport and Safety Services.

Hi DAS
I am hoping we can add these comments for the following development proposals on behalf of Public Transport, Transport Safety and Services. Some of these are now past the due date unfortunately, so apologies and hoping the comments can be considered.
Cindy McDonald is on leave at present and has asked me to follow these up; however, has approved these comments.

[redacted]

PA2026/0086
Lot 12954 Town of Palmerston
This proposal relates to the next stage of the Durack Heights development.
Public transport provision, including the placement of bus stops along Packard Avenue, has been incorporated into the approved Durack Heights master plan.

[redacted]

[redacted]

[redacted]

Thanks for your consideration

Beth Niemeier
Road Safety Policy
Transport Safety and Services
Department of Logistics and Infrastructure

Level 2, Energy House, 18-20 Cavenagh Street, Darwin

t.(08) 8924 7966
e. beth.niemeier@nt.gov.au
w. www.nt.gov.au

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Record No: D2026/86728
Container No: NE590/16214

Your Ref: PA2026/0086

Daniel Herlihy
Development Assessment Services
GPO Box 1680
Darwin NT 0810

Dear Daniel

Re: Lot 12954 & 16214 Kooyonga Parada Durack Town of Palmerston

In response to your letter of the above proposal for the purpose of subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 Stages (The Heights Stages 12-19), Power and Water Corporation (PWC) advises the following with reference to electricity enquiries:

1. PWC has received a power servicing request of 2.0MVA for The Heights Stages 12 – 19 from the Proponent (Urbex 120 P/L).

2. Urbex 120 shall be responsible for the design and installation of adequate underground electricity reticulation to each of the newly created lots in accordance with PWC's NP020 - Guidelines for Developers of Subdivision and Electricity Infrastructure.

3. Urbex 120 shall comply to specific advice on High Voltage Master Plan requirements assessed by Power Services - Demand Planning group including appliable electrical headwork.

4. Urbex 120 shall engage accredited electrical consultant and contractor (only with relevant fields of experience from the attached accreditation list) to design and construct the electricity network extension as required in consultation with PWC for approvals on:
   - 11kV high voltage Master Plan for Stages 12 – 19.
   - Underground high voltage distribution network extensions and low voltage reticulations for each proposed stage.
   - Current standard One-Pillar-per-Two-Lot subdivision design for underground low voltage reticulation as per NP041 - Guidelines for Electrical Design Consultants.
   - Street Light Design for the subdivision shall be in accordance with current NP027 - Construction and Connection of Streetlight Assets.

5. PWC shall check and approve detailed electrical design drawings for construction and carry out final connection works at applicable cost under Australian Energy Regulator (AER) process.

6. Appropriate electricity easements for substations/pillars shall be surveyed and registered to the Land Titles Office by Urbex 120 at no cost to PWC.

If you have any further queries, please contact the undersigned on 8924 5729 or email: PowerDevelopment@powerwater.com.au

Yours sincerely

Thanh Tang
Manager Distribution Development
23 March 2026

PowerWater

Phone 1800 245 092
Web powerwater.com.au

Container No: LD590/12954

Attn: Daniel Herlily
Development Assessment Services, DLPE
GPO Box 1680
Darwin NT 0801

Dear Daniel,

RE: PA2026/0086 – Lots 12954 & 16214, Town of Palmerston – 0 Kooyonga Parade, Durack – Subdivision to Create 397 Lots (373 SD and 9 MD Residential Lots, 8 Public Open Space Lots, 4 Dual-Function Lots, 2 PM Parcels and 1 Parcel for the Proposed Stormwater Basin) – The Heights, Stages 12–19

In response to your letter regarding the above development application, Power and Water Corporation (PWC) provides the following advice in relation to water and sewerage enquiries:

Condition Precedent

1. While PWC has received the Master Plan for the proposed development, formal endorsement is pending completion of a detailed review. Endorsement of the Master Plan is required prior to the submission or assessment of detailed design drawings.

   The Master Plan must demonstrate that the proposed water and sewerage infrastructure adequately services the ultimate development and meets PWC requirements for the acceptance of gifted assets.

   Any variations to the endorsed Master Plan must be referred back to PWC for review and approval.

General Conditions

2. Only one water service connection and one sewer service connection is permitted per proposed individual Lot. All new water and sewer services are to be designed and constructed by the developer at no cost to PWC.

3. Existing water easements within the subject Lots are to be retained. Structures must not be located on, over, or within a water supply or sewerage easement, or within areas where no easement exists (including road reserves), unless prior written approval is obtained from PWC.

4. All works required under the above conditions are to be carried out in accordance with PWC's Connection Code and at the full cost of the developer. Standard charges, quoted charges, WASSEP charges, and any applicable contribution charges may apply. PWC may reassess and adjust applicable charges as necessary.

5. PWC advises that the Development Services Section (developer.concierge@powerwater.com.au) and the Power Network Engineering Section (powerdevelopment@powerwater.com.au) must be notified by email at least one (1) month prior to the commencement of construction works.

Should you have any further enquiries, please contact the undersigned on (08) 9463 2089 or via email at developer.concierge@powerwater.com.au.

Yours sincerely

Craig Thomas

Craig Thomas
Services Development

08 April 2026

cc: Brad Cunnington
email: brad@crtpc.com.au

NORTHERN TERRITORY GOVERNMENT
Department of **LANDS, PLANNING AND ENVIRONMENT**

Level 1
Goyder Centre
25 Chung Wah Terrace

Postal address
PO Box 496
Palmerston NT 0831

E DevelopmentAssessment.DLPE@nt.gov.au

T 08 8999 4446

23 April 2026

Mr Daniel Herlihy
Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
DARWIN NT 0801

Our Ref: DLPE2026/0090
Your Ref: PA2026/0086

Dear Mr Herlihy

Re: PA2026/0086 Subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 Stages (The Heights Stages 12-19)

The information provided for the above application has been assessed by the relevant divisions within the department, and the following comments are provided:

Flora and Fauna Division

Threatened Species
The threatened species listed in **Table 1** occur, or are likely to occur within, or immediately adjacent to, the proposed development area. This is based on a search of the Department of Lands, Planning and Environment (DLPE) databases within a 5km radius of the proposed development area, expert knowledge of species' habitat requirements, and information about habitats occurring within the development area. **Table 1** provides an assessment of the potential risk posed by the project to each species, based on current available information (including that provided by the applicant) and indicates whether the available information is sufficient to make a robust assessment, including identifying where further surveys are required to address important information gaps.

The Flora and Fauna Division considers that the risk to *Typhonium praetermissum* from the proposed subdivision is unknown and targeted surveys are recommended. This is discussed further below. Risks are considered low for all other species in **Table 1** (**Attachment 1**).

Typhonium: *Typhonium praetermissum* is listed as Vulnerable under the *Territory Parks and Wildlife Conservation Act 1976 (*TPWC Act) and, as of 6 February 2026, Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This species has been detected less than 2km to the east and north-east of the development area and distribution modelling for *Typhonium praetermissum* by DLPE indicates that an area of high likelihood habitat (approximately 17ha) occurs across the western third of the development area (**Figure 1**).

Table 1 – Species classified as threatened under the TPWC Act and/or the EPBC Act, that are known to occur, or have a high potential of occurring, within or adjacent to the proposed development area; their conservation status; and an assessment of the risk of impact posed by the project. Note that while a number of migratory shorebird species (that use habitats associated with Darwin Harbour) have been recorded within the database search area, they are not included in **Table 1** as they are unlikely to use habitats occurring within the proposed development.

Conservation status = VU – Vulnerable; EN – Endangered; CR – Critically Endangered.

Common Name	Scientific Name	TPWC Act	EPBC Act	Potential Impact	Survey Required
Fauna					
Common Brushtail Possum (north-western)	*Trichosurus vulpecula arnhemensis*	-	VU	Low	No
Black-footed Tree-rat	*Mesembriomys gouldii gouldii*	EN	EN	Low	No
Howard River Toadlet	*Uperoleia daviesae*	VU	VU	Low	No
Mertens' Water Monitor	*Varanus mertensi*	VU	EN	Low	No
Yellow-spotted Monitor	*Varanus panoptes*	VU	-	Low	No
Northern Blue-tongued Skink	*Tiliqua scincoides intermedia*	-	CR	Low	No
Fawn Antechinus	*Fawn Antechinus bellus*	EN	VU	Low	No
Pale Field-rat	*Rattus tunneyi*	VU	-	Low	No
Partridge Pigeon (eastern)	*Geophaps smithii smithii*	VU	VU	Low	No
Northern Quoll	*Dasyurus hallucatus*	CR	EN	Low	No
Gouldian Finch	*Chloebia gouldiae*	VU	EN	Low	No
Flora					
Typhonium	*Typhonium praetermissum*	VU	EN	Unknown	Yes
Darwin Cycad	*Cycas armstrongii*	VU	-	Low	No
Cleome	*Cleome insolata*	VU	-	Low	No

The Ecology and Heritage Constraints Assessment provided with the application recommends that a targeted survey for *Typhonium praetermissum* be undertaken to assess the potential risk to the species. However, results of a targeted survey for *Typhonium praetermissum* have not been provided by the applicant. Therefore, the Flora and Fauna Division recommends that a targeted survey for *Typhonium praetermissum* be undertaken to inform an assessment of the potential impacts on the species using the Australian Government's Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.

The survey should be undertaken at the appropriate time of year by a suitably qualified person with experience surveying for cryptic threatened plant species. The Flora and Fauna Division has prepared guidelines, '*Northern Territory guidelines for targeted surveys of threatened and significant plant species*[1]', outlining the recommended survey methodology for *T. praetermissum* (Bickerton et al 2020)[2].

[1] https://environment.nt.gov.au/media/docs/survey-guidelines/supplement-1-typhonium-survey-guidelines.pdf

[2] Reference: Bickerton D., Cuff N., Chong C., Cowie I. and Lewis D. (2020). *Northern Territory threatened plant survey guidelines, Supplement 1: Typhonium field surveys, (50/2020)*, Department of Environment, Parks and Water Security, Darwin, Northern Territory.

Biodiversity

Significant and/or Sensitive Vegetation: DLPE mapping indicates that rainforest vegetation may be present within the development area. However, interpretation of aerial imagery and a site inspection undertaken by an environmental consultant indicated that rainforest vegetation is not present on site. The majority of the project area comprises rises and minor drainage lines supporting woodland and open woodland vegetation. Interpretation of aerial imagery suggests that approximately 25% of the area is disturbed, consisting of cleared native vegetation with alterations to landform and surface soils, with substantial invasion by gamba grass in many areas.

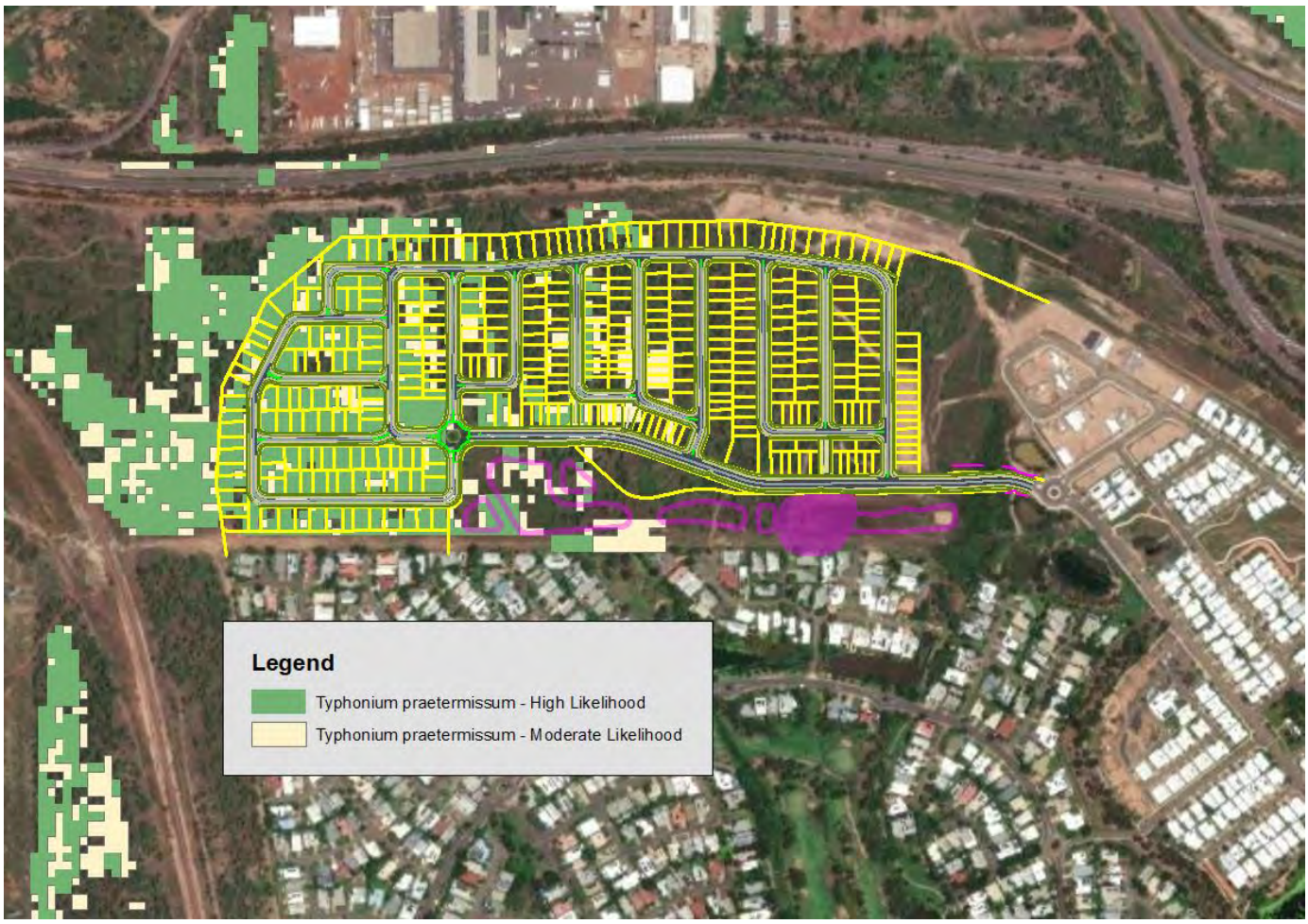


Figure 1 – DLPE modelling of the likelihood of occurrence of *Typhonium praetermissum* in relation to the proposed subdivision

Deferral for further information to be provided:

The Flora and Fauna Division considers that the proposed subdivision poses a low risk to most biodiversity values, but presents an unknown risk to *Typhonium praetermissum*, which is listed as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Flora and Fauna Division recommends that the application be deferred to allow the following information to be provided:

- A targeted survey for *Typhonium praetermissum* is required to inform an assessment of the potential impact, using the Australian Government's Significant Impact Guidelines 1.1 - Matters of National Environmental Significance. The survey should be undertaken at the appropriate time of year by a suitably qualified person with experience surveying for cryptic threatened plant species.

The applicant should consider the survey results and if there is potential for significant impact, refer the proposal under the *Environment Protection and Biodiversity Act 1999*.

Land Resources Division

Land Management Unit

Due to slope, presence of waterways, size of development, and duration of works for each stage appearing to exceed two years, it is recommended that preparation and implementation of a Type 3 Erosion and Sediment Control Plan (ESCP) be included as a condition on the Development Permit, in accordance with the wording below.

Condition Precedent:

1. Prior to the commencement of works, a Type 3 Erosion and Sediment Control Plan (ESCP) must be developed in accordance with the Department of Lands, Planning and Environment (DLPE) Erosion and Sediment Control Plan (ESCP) Procedures (Note 1).

   The ESCP must be certified by a suitably qualified and experienced professional (Note 2) and must be subsequently reviewed and approved by an independent suitably qualified and experienced professional auditor. The auditor-approved ESCP must be submitted to Development Assessment Services (via email: das.ntg@nt.gov.au).

General Conditions:

1. All works relating to this permit must be undertaken in accordance with the independent auditor-approved ESCP.

2. Ongoing implementation of the auditor-approved ESCP must be regularly monitored and reported on by an independent auditor in accordance with the audit schedule in the auditor-approved ESCP to ensure erosion and sediment control management is in accordance with the auditor-approved ESCP and is effective to the satisfaction of the Auditor.

3. Each ESCP audit report must be emailed, within 15 business days after the audit, to Development Assessment Services at: das.ntg@nt.gov.au

4. Should the auditor-approved ESCP require amendment, the revised ESCP must be certified by a suitably qualified and experienced professional, and must be subsequently reviewed and approved by the independent auditor. The revised certified ESCP must be submitted to Development Assessment Services (via email: das.ntg@nt.gov.au).

Permit Notes:

1. The DLPE Erosion and Sediment Control Plan (ESCP) Procedures factsheet is available at https://environment.nt.gov.au/rangelands/technical-notes-and-fact-sheets/land-management-technical-notes-and-fact-sheets

2. A suitably qualified and experienced professional in erosion and sediment control as defined by the International Erosion Control Association (IECA) Australasia – https://www.austieca.com.au/rsp-esc/suitably-qualified-professional.

3. Information regarding erosion and sediment control can be obtained from the IECA Best Practice Erosion and Sediment Control 2008 books available at https://austieca.com.au/home and Land Management Factsheets available at https://nt.gov.au/environment/soil-land-vegetation. For further advice, contact the Development Coordination Branch: (08) 8999 4446

Alternatively, if the Development Consent Authority conditions the development staging so that each bulk earthworks stage is undertaken discretely and completed prior to commencing the next stage; it is considered that the earth-disturbing works will be sufficiently limited to reduce erosion and sediment risks associated with prolonged exposure of large disturbed areas.

Each identified stage (stages 1, 4 and 8) is indicated in the application to not exceed a duration of two years, and all disturbed surfaces would need to be completely stabilised prior to the commencement of earth disturbing works commencing for the next stage. Where the size and duration of works are limited in this manner, it is recommended that preparation and implementation of a Type 2 ESCP be conditioned on the Development Permit in accordance with the wording below.

Condition Precedent:

1. Prior to the commencement of works, a Type 2 Erosion and Sediment Control Plan (ESCP) must be developed in accordance with the Department of Lands, Planning and Environment (DLPE) Erosion and Sediment Control Plan (ESCP) Procedures (Note 1).

   The ESCP must be certified by a suitably qualified and experienced professional (see Note 2) and must be submitted to Development Assessment Services (via email: das.ntg@nt.gov.au).

General Condition:

1. Should the certified Type 2 ESCP require amendment, the revised ESCP must be certified by a suitably qualified and experienced professional and submitted to Development Assessment Services (via email: das.ntg@nt.gov.au).

2. All works relating to this permit must be undertaken in accordance with the certified Type 2 ESCP.

3. At completion of works, certification must be provided by a suitably qualified and experienced professional regarding satisfactory implementation of permanent erosion and sediment control measures and site stabilisation. This certification must be submitted to Development Assessment Services via email: das.ntg@nt.gov.au.

Permit Notes:

1. The DLPE Erosion and Sediment Control Plan (ESCP) Procedures factsheet is available at: https://environment.nt.gov.au/rangelands/technical-notes-and-fact-sheets/land-management-technical-notes-and-fact-sheets.

2. A suitably qualified and experienced professional in erosion and sediment control as defined by the International Erosion Control Association (IECA) Australasia – https://austieca.com.au/esc-certification/suitably-qualified-professional.

   Information regarding erosion and sediment control can be obtained from the IECA Best Practice Erosion and Sediment Control 2008 books available at https://austieca.com.au/home and Land Management Factsheets available at https://nt.gov.au/environment/soil-land-vegetation. For further advice, contact the Development Coordination Branch: (08) 8999 4446.

Weed Management Branch

A desktop assessment of the Northern Territory (NT) Weeds Database for the application area, surrounding parcels and roads has revealed current and or previous data records of the following:

Common Name	Botanical Name	Declared
Gamba grass	*Andropogon gayanus*	Class B
Perennial mission grass	*Cenchrus polystachios*	Class B
Thatch grass	*Hyparrhenia rufa*	Class A
Lantana	*Lantana montevidensis*	Class B
Neem	*Azadirachta indica*	Class B
Mosman river grass	*Cenchrus echinatus*	Class B
Paddys lucerne	*Sida rhombifolia*	Class B
Flannel weed	*Sida cordifolia*	Class B
Spinyhead	*Sida acuta*	Class B
Hyptis	*Mesosphaerum suaveolens*	Class B

All land in the NT is subject to the *Weeds Management Act 2001* (WM Act). The WM Act describes the legal requirements and responsibilities that apply to all persons, owners and occupiers of land regarding declared and potential weeds. General duties described in Division 1 of the WM Act include the requirement for owners or occupiers of land to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading.

Gamba grass and neem are each subject to a statutory weed management plan. Management obligations outlined in these plans are legally binding on all owners and occupiers. Management requirements and copies of the statutory weed management plans are available online[3].

Gamba grass and perennial mission grass are declared weeds, Class B and are listed in the Darwin Regional Weeds Strategy 2021-2026 as a Category 2 – priority weeds for strategic control.

Guidelines for the prevention of weed spread are outlined in '*Preventing Weed Spread is Everybody's Business*[4]', which highlights the areas of risk for all activities associated with weed spread. The document details the pathways through which weeds are spread and provides actions to reduce weed spread. Proponents seeking to develop land for any purpose should address these actions.

Further information regarding weed management requirements is available online[5], or alternatively contact the Weed Management Branch for further advice on (08) 8999 4567.

Should this development application be approved, the Weed Management Branch recommend the following note to be included on the development permit:

[3] https://nt.gov.au/environment/weeds/weed-management-planning
[4] https://denr.nt.gov.au/__data/assets/pdf_file/0011/257987/preventing-weed-spread.pdf
[5] http://www.nt.gov.au/environment/weeds

Permit note:

All land in the Northern Territory is subject to the *Weeds Management Act 2001* (WM Act). The WM Act describes the legal requirements and responsibilities that apply to owners and occupiers of land regarding declared weeds. Division 1 general duties include the requirement to take all reasonable measures to prevent land being infested with a declared weed and to prevent a declared weed from spreading. There are additional duties including a prohibition on buying, selling, cultivating, moving or propagating any declared weed and the requirement to notify the Weed Management Branch of a declared weed not previously present on the land within 14 days of detection.

Gamba grass and neem are each subject to a statutory weed management plan. Management obligations outlined in these plans are legally binding on all owners and occupiers. Management requirements and copies of the statutory weed management plans are available online https://nt.gov.au/environment/weeds/weed-management-planning.

Information regarding weed management is available on the Department of Lands, Planning and Environment (DLPE) website: https://nt.gov.au/environment/weeds, or alternatively contact the Weed Management Branch for further advice on (08) 8999 4567.

Lands and Planning Division

Crown Land Estate

Crown Land Estate does not have an objection to the subdivision, however, the proposed transfer of land to the NT of Australia for a future road reserve has not yet been discussed with Crown Land Estate. As Crown Land Estate is responsible for acquisition of land on behalf of the Territory, the proposed mechanism for transfer of the land to the Territory should be discussed with Crown Land Estate prior to the endorsement of plans.

Environment and Heritage Division

Heritage Branch

A search has found that there are no recorded Aboriginal or Macassan archaeological places and objects within Lots 12954 and 16214 Town of Palmerston. The likelihood of unrecorded Aboriginal archaeological places has been assessed as possible. The extent of pre-existing disturbance, and the nature of the work itself has also been considered. No physical survey work is required for this proposed impact.

To best meet the obligations under the *Heritage Act 2011*, an Unexpected Finds Protocol and suitable induction materials should be developed for the project. This includes the requirement that if archaeological places are discovered over the course of the work, establish an exclusion zone around the site and contact the Heritage Branch immediately. The Heritage Branch can provide a template on request.

Context of Heritage Branch Advice

The NT Government's Heritage Branch administers the *Heritage Act 2011* and provides authoritative advice about obligations under the *Heritage Act 2011*, including steps to take to manage the impact of proposed work on Aboriginal and Macassan archaeological places and objects.

It is important that advice given by the Heritage Branch is followed. A failure to follow advice received from the Heritage Branch may be considered as evidence in an investigation if damage occurs to a declared heritage place, an Aboriginal or Macassan archaeological place or object.

Relevant parts of the NT's *Heritage Act 2011*

1. All provisionally declared and declared heritage places and objects are protected under the *Heritage Act 2011*;
2. All Aboriginal or Macassan archaeological places and objects are automatically protected - this includes places and objects not previously recorded;
3. Places and objects include an artefact or thing given shape by a person - examples include stone tools, stone arrangements, fish traps, rock art, modified trees, and shell middens;
4. Ancestral remains are also protected;
5. Underwater Cultural Heritage is protected, up to three nautical miles from the coast; and
6. There is an obligation to notify of the discovery of Aboriginal or Macassan archaeological places or objects.

Conditions of advice

This advice is based on the description of the works provided to the Heritage Branch. If the work expands or changes significantly seek further advice.

In preparing this advice, the Heritage Branch has referred to the NT Heritage Register and the Heritage Branch archaeological database which includes information about Aboriginal and Macassan archaeological places and objects in the NT. However, the database only includes information about known archaeological places. The fact that there are no known archaeological places recorded may be because no archaeological surveys have been conducted in that particular area and is not necessarily an indication they do not exist.

Should you have any further queries regarding these comments, please contact the Development Coordination Branch by email DevelopmentAssessment.DLPE@nt.gov.au or phone (08) 8999 4446.

Yours sincerely

Maria Wauchope
Executive Director Land Resources

Attachment 1 - Species identified as being at low risk of impact by the project (**Table 1**)

Attachment 1

Species identified as being at low risk of impact by the project (**Table 1**)

Black-footed Tree-rat; Common Brushtail Possum: These species prefer tall, open woodland habitat with mature trees suitable for hollows. The area proposed for subdivision includes areas of eucalypt woodland, which may provide suitable nesting and foraging habitat for these species. However, given the small area of remnant woodland present on the site, any impact on populations of these species at a regional scale is likely to be low.

Fawn Antechinus: These species occur in a wide range of habitats, with a preference for areas with a dense understorey, which are often associated with areas that experience cooler and less frequent fires. A review of fire history data (Northern Australian Fire Information (NAFI)) shows that the proposed development area is regularly burnt, resulting in the area being unlikely to support suitable habitat for this species. The Flora and Fauna Division considers that the risk to the Fawn Antechinus is low.

Gouldian Finch: There are records of this species close to the development area. The habitat preference for Gouldian Finches changes seasonally. In the breeding season, the species prefer rocky upland woodland dominated by *Eucalyptus tintinnans* (or similar species such as *E. leucophloia*) that is within proximity of persistent waterholes or springs. In the wet season, the species moves to lowland grassy systems. Areas with an understorey of native grass species, including *Sorghum* and *Heteropogon*, are particularly favoured by Gouldian Finches for foraging. The proposed subdivision is considered low risk as the site does not contain suitable nesting habitat and represents only a tiny proportion of potential foraging habitat available within the region.

Howard River Toadlet: This species has been recorded approximately 2km to the northeast of the proposed development area. The Howard River Toadlet is associated with sandsheet heath habitat, which was not identified in the development area. Therefore, the Flora and Fauna Division considers the risk to this species to be low.

Mertens' Water Monitor; Northern Blue-tongued Skink; Yellow-spotted Monitor: These species may occur within or adjacent to the development area, particularly where there is suitable floodplain and riparian habitat, but the area of suitable habitat within the development footprint is very small in a regional context.

Northern Quoll: The Northern Quoll has undergone severe declines and is now thought to be in low densities across the Top End, and there is a very low likelihood that the poor-quality woodland in the development area represents important habitat for the species.

Pale Field-rat: This species occurs in a range of habitat types and is generally associated with areas that are located near watercourses and wetlands. Suitable, high-quality habitat for the species does not appear to be present within the development area.

Partridge Pigeon (eastern): The Partridge Pigeon nests on the ground, preferring sites with relatively dense grass cover. A review of fire history data (NAFI) shows that the proposed development area is regularly burnt, resulting in the area being unlikely to support suitable nesting habitat. While the Partridge Pigeon has been detected within the surrounding area, the likelihood that the species is present within the development area is considered low.

Darwin Cycad: Darwin Cycad generally prefer well-drained eucalypt woodland which occurs within the development area. The species is reported to occur in the project area at low densities. The risk to this species overall is considered low. While the risks are low, impacts to

local cycad populations or individuals can be further reduced by applying the principles outlined in the '*Management Program for Cycads in the Northern Territory of Australia 2009-2014*[6]'.

Cleome: This species has been detected within the vicinity of the project area. Cleome grows in low open woodlands on seasonally waterlogged sandy soils. The area proposed for subdivision includes drainage lines and Melaleuca woodland over Eriachne and Sorghum species that could potentially provide suitable habitat for Cleome. However, any impact of the proposed subdivision on these species at a regional scale is considered to be low due to the very small area affected.

[6] https://www.agriculture.gov.au/sites/default/files/documents/cycadmgmnt200906.pdf

NORTHERN TERRITORY GOVERNMENT | NT HEALTH

Building 19 Royal Darwin Hospital 105 Rocklands Drive Tiwi NT 0810

Postal address
Medical Entomology NT Health PO Box 413266
Casuarina NT 0811

E medicalentomology.rdh.ths@nt.gov.au

T 08 89228337

26 March 2026

File reference
EFILE 2025/17387

Senior Assessment Officer
Development Assessment Services
Department of Infrastructure, Planning and Logistics
Floor 1, Energy House, 18-20 Cavenagh Street,
Darwin GPO Box 1680, Darwin, NT 0801

Dear Assessment Officer

Re: PA2026/0086 Lot 12954 Town of Palmerston, Kooyonga Pde, Durack NT and Lot 16214 Town of Palmerston, Durack NT. Subdivision to create 397 lots (382 residential and 5 public open space lots) in 8 Stages (The Heights Stages 12-19).

Thank you for the opportunity to comment on the above Development Application. Medical Entomology comments are as follows.

1. There are no Medical Entomology objections to the proposed subdivision.
2. There is the potential for mosquito breeding sites to be created by the development, during the construction phase in temporary sediment ponds, and the via the construction of the final stormwater basins. Whilst the NT Subdivision Development Guidelines and Medical Entomology guidelines mentioned in the Stormwater Management Plan outline measures to prevent mosquito breeding, Medical Entomology would like to provide some specific comments below.

- Temporary sediment basins used during the construction phase should be designed and constructed as free draining structures where possible, particularly any sediment basin that is likely to be used for multiple years. Shallow ponding sediment basins from other subdivisions have become mosquito breeding sites after dense vegetation colonises the floor of the pond. If the use of shallow ponding sediment basins cannot be avoided, then a dry season larval mosquito treatment program is likely to be required.
- There have been past issues with some constructed ephemeral wetlands. Mosquito breeding conditions were caused by shallow ponding during the wet and early dry season due to continual stormwater discharge, via seepage and urban sources, and due to minimal fall in the basins. The problems could have been minimised via the installation of concrete low flow drains and use of more gradient across the floor of the basins. Therefore, for the proposed subdivision it is recommended that concrete low flow drains be constructed through the proposed ephemeral wetlands, terminating at the nearest downstream lake in Durack. The ephemeral wetlands should have sufficient gradient to ensure no residual ponding occurs. This would also apply to other dry stormwater basins such as detention basins.
- *Attachment G. Stormwater Management Plan. Five 'kidney shaped' ponds (Stages 9-11) to be gifted to CoP as part of this new development.* Pond A appears to be too shallow, both from the design

criteria shown in the SMP (1m deep), and from a recent inspection in which dense semi-aquatic vegetation growth was observed in the pond. From a mosquito prevention perspective, Pond A should be at least 1.8m deep with relatively steep sides (1V:3H or steeper). However, City of Palmerston design requirements will take precedent over Medical Entomology requirements as CoP are the handover authority.

The other 'kidney shaped' ponds generally appear to be suitable from a mosquito prevention perspective, with mostly steep sides and open water. There are some areas of shallow water and semi-aquatic vegetation that could promote mosquito breeding, however it is noted in the SMP that the developer proposes to re-define the basins back to their design condition as part of the handover process. The removal of the shallow and weed infested areas in the ponds should reduce the mosquito breeding potential. Whilst Medical Entomology is not the handover authority for these ponds, further mosquito prevention advice can be provided if required. The general design criteria of deep water (>1.8m) and relatively steep sides (1V:3H or steeper) will be suitable from a mosquito prevention perspective.

3. Whilst the subdivision is located a minimum of 1km from the nearest tidal mangroves, seasonal biting midge pest problems will still affect at least the western half of the subdivision, similar to Fairway Waters. Mangrove biting midges will fly up to 2km and further from the mangrove margin during the peak dry season months. Therefore, there might be some complaints to the developer, council and NTG. There are currently no effective broad scale control options for mangrove biting midges.

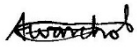
Recommended Development conditions

a) There should be a note on the Development Permit mentioning sediment basins and other temporary water ponding structures should be managed to prevent mosquito breeding during the construction phase, until they are removed.

b) There should be a note on the development permit mentioning wetlands and other stormwater basins should be confirmed as free from residual ponding before asset handover.

Please contact me if there are any queries with this letter.

Yours sincerely



Allan Warchot
Advice and Control Officer

Aboriginal Areas
Protection Authority
protecting sacred sites across the territory

Development Assessment Services
DAS.NTG@nt.gov.au

Dear Development Assessment Services

PA2026/0086 - Lot 12954 Town of Palmerston

We refer to the above application for a development permit.
The Aboriginal Areas Protection Authority (AAPA) notes that Urbex 120 Pty Ltd hold an Authority Certificate over Lot 12954 Town of Palmerston (C2024/071)

An Authority Certificate is based on consultation with custodians and provides clear conditions about what can and cannot be done in and around sacred sites. An Authority Certificate issued under the Sacred Sites Act will ensure the protection of sacred sites located on the land, providing both certainty and legal protection when conducting any development activity.

Background Information
AAPA is a statutory body responsible for overseeing the protection of Aboriginal sacred sites on land and sea across the Northern Territory.

The protection of sacred sites is recognised by the Northern Territory Government and the broader Territory community as an important element in the preservation of the Territory's cultural heritage, for the benefit of all Territorians. AAPA seeks to strike a balance between the protection of sacred sites and development in the Northern Territory.

Yours sincerely,

Jayde Manning
Minister and Policy Officer
20 March 2026

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Winnellie NT 0821

E NTFES.StrategicServices@pfes.nt.gov.au

T 08 8948 9130

Our reference - 04-D26-42874

Development Assessment Services
Department of Lands, Planning and Environment
GPO Box 1680
Darwin NT 0801

Dear Development Assessment Services

Re: PA2026/0086 Lot 12954 Town of Palmerston - New Application Submitted

The Northern Territory Fire and Emergency Services has assessed the information contained in the new application for PA2026/0086 Lot 12954 Town of Palmerston and advises there are no objections to the application.

However, the applicant must ensure the street fire hydrants meet the requirements of the Australian Standard AS 2419.1 pressures and flows.

If there are any questions or further information required, please contact the Fire Safety Command, NT Fire and Rescue Service via email: fire.safety@pfes.nt.gov.au.

Yours sincerely

Krystel Harvey
Director Strategic Services
Northern Territory Fire and Emergency Services

2 April 2026

From: Gazza O'Hearn
To: Das NTG
Cc: Patrick Coleman; Tiska Howell; Andrew Harvey; Brittany Duggan
Subject: Fw: URBEX Development
Date: Tuesday, 7 April 2026 6:31:16 PM
Attachments: Letter to Council re urbex development.docx
councilacknowledgementlogo11_19cba8c7-1e5e-447c-8769-f5af407e4634.jpg
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communityhealthcheckbanner_0a023838-cf93-42ff-9928-c070de744475.jpg

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Hi,

Please find attached correspondence regarding the proposed changes to Carpentaria Court, Durack.

At the recent meeting held by URBEX, attendees were initially advised to forward submissions, recommendations, or concerns to Palmerston City Council. However, upon attending the Council meeting this evening, we were informed that submissions are to be directed to Development Assessment Services (DAS).

Accordingly, I am submitting the attached correspondence for your review and request that it be considered as part of the assessment process.

Please confirm receipt of this submission and advise if any further information is required.

----- Forwarded Message -----
From: Christopher Tickner <christopher.tickner@palmerston.nt.gov.au>
To: gazohearn@yahoo.com.au <gazohearn@yahoo.com.au>
Sent Tuesday 7 April 2026 at 04:04:52 pm ACST
Subject: FW: URBEX Development

Hi Gary

Thank you for your email.

As discussed, pls forward your submission to das.ntg@nt.gov.au.

Happy to discuss as the application progresses.

Thanks
Christopher

City of Palmerston acknowledges the Larrakia people as the Traditional Custodians of the Palmerston region. We pay our respects to the Elders past, present and future leaders and extend that respect to all Aboriginal and Torres Strait Islander people.

We are committed to embracing diversity and eliminating all forms of discrimination within our facilities and welcome all people regardless of sexual orientation, gender identity, ethnicity and faith.

Community Plan Health Check

Christopher Tickner
Planning & Development Manager
Infrastructure

p: 08 7969 7807
m: 0476 815 594
a: PO Box 1, Palmerston NT 0831 Australia
w: www.palmerston.nt.gov.au e: christopher.tickner@palmerston.nt.gov.au

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We are committed to embracing diversity and eliminating all forms of discrimination within our facilities and welcome all people regardless of sexual orientation, gender identity, ethnicity and faith.

Community Plan Health Check

From: Gazza O'Hearn <gazohearn@yahoo.com.au>
Sent: Monday, 6 April 2026 11:57 AM
To: City of Palmerston <palmerston@palmerston.nt.gov.au>
Cc: Brittany Duggan <brittany.duggan@hotmail.com>; Patrick Coleman <pat@telm.com.au>; Judith Ohearn <ohearnjudith@yahoo.com.au>
Subject: URBEX Development

Dear Council,

Please find attached my **Formal Objection Submission** regarding the proposed pathway and lighting works associated with the URBEX development impacting Carpentaria Court, Durack.

This submission outlines significant concerns in relation to the design, intent, and potential impacts of the proposed works, including loss of residential amenity, safety and security risks, and the strong likelihood that the pathway may function as, or evolve into, a vehicular access route.

I draw particular attention to the following key issues:

- The pathway alignment closely reflects a previously proposed road configuration connecting through Carpentaria Court
- Direct and ongoing impacts to privacy, noise levels, and lighting affecting adjacent residential properties
- Inadequate consultation and lack of transparency in the information provided to affected residents
- Insufficient technical detail regarding earthworks and the proposed lakes/ponds, including potential impacts on adjoining properties

Given the seriousness of these concerns and the potential for long-term impacts on both my property and the broader Carpentaria Court community, I respectfully request that:

1. This submission is formally acknowledged and recorded
2. The matters raised are fully investigated and addressed
3. I am provided with a written response outlining Council's position and any actions proposed

If the proposed works have not satisfied all statutory requirements, including appropriate approvals and genuine consultation, I request that Council give consideration to suspending the works indefinitely, pending further review.

For transparency and accountability, this correspondence has been copied to residents of Carpentaria court.

I look forward to your prompt response.

Yours sincerely,

Gary (Gaz) O'Hearn
Phone: 0448 762 812

Proposed Pathway and Lighting Works – Urbex Development

Location: Rear of 9 Carpentaria Court, Durack

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1. OBJECTOR DETAILS

Name: Gary O'Hearn
Address: 9 Carpentaria Court, Durack
Contact Details: 0448 762 812 Email: gazohearn@yahoo.com.au

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2. PURPOSE OF SUBMISSION

This submission constitutes a formal objection to the proposed pathway and associated lighting works being undertaken by URBEX adjacent to Carpentaria Court.

The objection is based on significant concerns regarding:

- Inconsistency with the established residential character
- Adverse impacts on amenity, privacy, and safety
- Lack of transparency and inadequate consultation
- Potential for unintended or future vehicular access
- Insufficient technical detail regarding associated earthworks and infrastructure

3. BACKGROUND

On 28 March 2026, I attended a consultation session hosted by URBEX at Gray Community Hall. Based on information presented, including plans and verbal representations, it is evident that the proposed pathway alignment:

- Extends across the Carpentaria Court turning area
- Continues along the park frontage
- Runs directly along the rear boundary of existing residential properties

The configuration closely resembles a previously proposed road alignment, raising concerns that the pathway may serve as a precursor to future vehicular access.

4. GROUNDS FOR OBJECTION

4.1 Incompatibility with Residential Character

Carpentaria Court is a quiet residential cul-de-sac designed with no through access. The introduction of a through-pathway significantly alters the function and character of the area by:

- Introducing through-movement where none currently exists
- Increasing activity levels inconsistent with a low-density residential environment
- Creating a corridor for public access immediately adjacent to private homes

4.2 Loss of Privacy and Residential Amenity

The proposed pathway and lighting along rear property boundaries will result in:

- Direct overlooking into private residential spaces
- Increased noise and disturbance from pedestrian and cyclist traffic
- Continuous night-time light spill from pathway lighting
- Reduced ability for residents to enjoy their properties without intrusion

Residents have enjoyed a high level of privacy and amenity for over 20 years, which will be significantly diminished.

4.3 Safety and Security Risks

The development introduces:

- Increased opportunity for trespass and anti-social behaviour
- Uncontrolled access points behind residential properties
- Reduced passive surveillance effectiveness due to rear access design

Additionally, the design and visual depictions suggest potential for informal or deliberate vehicle use, creating further safety risks.

4.4 Potential for Vehicular Access (Design Intent Concern)

The pathway alignment, width, and connection to the turning head strongly resemble a roadway configuration.

Of particular concern:

- Drawings depict vehicle movement along the pathway
- The alignment mirrors previous road proposals
- No effective physical controls have been identified to prevent vehicle access

Labelling infrastructure as a “pathway” does not prevent future or unintended use as a roadway.

4.5 Inadequate Consultation and Procedural Deficiencies

The consultation process undertaken to date has been inadequate and does not meet reasonable expectations for community engagement:

- No formal record of submissions or feedback was captured
- Information provided was inconsistent and lacking detail
- No clear explanation of the proposal’s scope, impacts, or alternatives
- Directly affected residents were not meaningfully engaged

This represents a failure in transparent and effective consultation.

4.6 Insufficient Technical Information (Earthworks and Lakes/Ponds)

Significant concerns remain regarding the proposed lakes/ponds opposite Carpentaria Court, particularly in relation to their design, construction, and long-term functionality.

- **No** confirmed depths or detailed design specifications have been provided
- **No** explanation of earthworks, compaction methodology, or ground treatment has been made available
- **No** assessment has been undertaken or shared regarding potential impacts on adjoining properties, including land stability and structural integrity

Further, there is **no** evidence of a sustainable water management strategy for these features. In the absence of a permanent water source or maintenance plan, it is highly likely that the lakes/ponds will dry out during the dry season. This would result in exposed, degraded areas that present safety risks, reduce visual amenity, and create environments conducive to anti-social behaviour.

Given the close proximity to established residential properties, this lack of technical detail and forward planning is unacceptable and represents a material risk to both property and community safety.

4.7 Availability of Less Impactful Alternatives

The proposed alignment represents the most intrusive option for existing residents.

Reasonable alternatives appear to exist, including:

- Locating pathways within the development boundary
- Routing pathways along the opposite side of the park
- Avoiding direct interface with residential rear boundaries

No justification has been provided for selecting the current alignment over less impactful options.

5. REQUESTED OUTCOMES

In light of the above, I formally request that Council:

1. **Reject or require redesign** of the proposed pathway alignment adjacent to Carpentaria Court
2. **Relocate the pathway** away from residential rear boundaries to minimise amenity impacts
3. **Remove or redesign lighting** to eliminate light spill into adjoining properties
4. **Provide full technical documentation**, including:
    - Engineering drawings
    - Lighting plans
    - Traffic and access assessments
    - Geotechnical and earthworks reports

5. **Provide formal clarification** in regard to the distances from the existing houses/fence lines to the rear of the new development. **URBEX could not provide** any accurate distances at their consultation/meeting.
6. **Undertake genuine consultation** with directly affected residents
7. **Implement physical controls** to permanently prevent vehicular access
8. **Suspend works** until all planning, consultation, and assessment requirements have been properly satisfied

6. CONCLUSION

The proposed works, as currently understood, represent a significant and unjustified impact on the amenity, safety, and character of Carpentaria Court.

The lack of transparency, insufficient technical detail, and strong indicators of future access intent further compound these concerns.

This submission respectfully requests that Council give full and proper consideration to the impacts on existing residents and require substantial modification or rejection of the current proposal.

Please refer to drawings below- taken during "consultation" 28/03/2026

1: This drawing shows pathway/roadway access to the Urbex development which looks suspiciously like the previous drawings where URBX had road access through Carpentaria court.

2: This drawing showing shows access down the front of the park in Carpentaria court which nobody in the street wants. Access would make more sense along the rear of the park. ⟷

There is also no pathway along the rear fence line of the houses that back onto the bushland. If a pathway is put there it severely restricts privacy and the lifestyle, we have been privy to for over 20 years. ⟷

There is no need for the pathway to go along the fence line and URBX has said they will install lights along the pathway which will severely diminish our privacy and lifestyle.

In regard to the lakes/ponds and their construction. URBEX could give no answer as to the depth of the lakes/ponds and how compaction/earthworks would affect the existing hoses in Carpentaria court and long the fence line.


Galaxy A34 5G

3: This drawing shows pathway/roadway access to the Urbex development which looks suspiciously like the previous drawings where URBX had road access through Carpentaria Court. The drawing/depiction of a vehicle using the pathways for access highlight this. Naming something a pathway will not stop vehicle access once people realise there is a short cut through Carpentaria court.

From:	Tiska Howell
To:	Das NTG; palmerston@palmerston.nt.gov.au
Subject:	PA2026/0086 - Carpentaria Court
Date:	Wednesday, 8 April 2026 10:55:35 AM

Good morning, please accept this email as a formal of objection to the proposed Urbex plans regarding Carpentaria Court, Durack. Please also note that the pink sign was placed at the bush end of Carpentaria Court on the 19/3/26 and we do not consider (approx 16 days) is sufficient time to allow residents to object especially when there has been the Easter holidays in the same period. I attended the PCC meeting tonight and was advised by the Mayor to contact you. I also attended the Urbex Community day on the 28/3/26 and spoke to various people there on the morning. I asked where the proposed "walk/cycle" path was going and was shown a diagram with a thin line(standard size path)entering at the end of the Court near the turn around bay and running up through the park to meet with the existing path at the top of the lake. I was also told that no firm decision had been made as to where exactly it was going as they were in negotiations with the Palmerston City Council (PCC), as Carpentaria Park is Council land. I asked about water run off plans as currently water flows off the vacant land, through the park to the lake and over the last 2 years we are experiencing increased back up of water both in the park and in the Court on the road. I was told about proposed water retention ponds to be built in Durack Heights. Since attending the open day it has been brought to my attention that the proposed "walk/cycle" path is in fact a 3mtr wide path with emergency vehicle access and street lighting. We previously objected to our Court being opened to make it a thorough fare (PA2024/0406). We and a lot of residents in our nearby streets utilise Carpentaria Park daily for exercise and social activities. A 3mtr path will basically remove the entire area. This will dimish our current aspect of park views and therefore will also amount to a significant impact on the value of our property. We purchased here 20 years ago and the park, bush and safety aspects were the reasons we purchased our property. There is no reason why a resident of the Heights would need to use a specific path to access the Court as they will have other options to access the school etc. There are no other 3mtr wide walk/cycle paths in Durack. We feel this "walk/cycle" path is yet another attempt to establish vehicle access under the guise of a "walk/cycle" path. Emergency vehicles already have access at the Woodlake end of Durack where there are gates and they have been using this for years without any problems. We would appreciate your support in this matter. This has been ongoing for over 10 years with these developers trying to disrupt our lives for the sake of saving costs and it is simply not fair on us. Could you please confirm receipt of our submission and we would appreciate advice of any DCA meetings to be held in relation to this matter. Kind regards -Tiska Howell & Richard McArthur, 5 Carpentaria Court, Durack.