NORTHERN TERRITORY OF AUSTRALIA

PROPOSAL TO AMEND NT PLANNING SCHEME
PA2024/0406

The Minister for Lands, Planning and Environment has accepted an application to amend the NT Planning Scheme 2020 made by Cunnington Rosse Town Planning and Consulting for exhibition. The application seeks to:

- rezone Lot 12954 Town of Palmerston (0 Kooyonga Parade, Durack) and Lot 14473 Town of Palmerston (0 Roystonea Avenue, Durack) from Zone SP8 (Specific Use) to a new specific use zone.

Rezoning will transition the existing Zone SP8 from the former NTPS 2007 to the current NTPS 2020. This will provide new subdivision and development requirements similar to those that apply within standard land use zones, but with specific requirements consistent with the developers intention of maintaining some key aspects of Zone SP8 and responding to critical aspects of the site and surrounds.

Attached are:

- a locality map
- extracts from the NT Planning Scheme 2007 relating to existing Zone SP8 (Specific Use Zone Palmerston No.8); and
- a copy of the application document (including proposed specific use zone at Attachment A).

Period of Exhibition and Lodging a Submission

The exhibition period is from **Friday 18 April 2025** to **Friday 16 May 2025**.

Submissions in relation to this application must be in writing and include the name and postal address of the author and may be made publicly available in full.

Written submissions are to be received by 11.59pm on **Friday 16 May 2025** and addressed to:

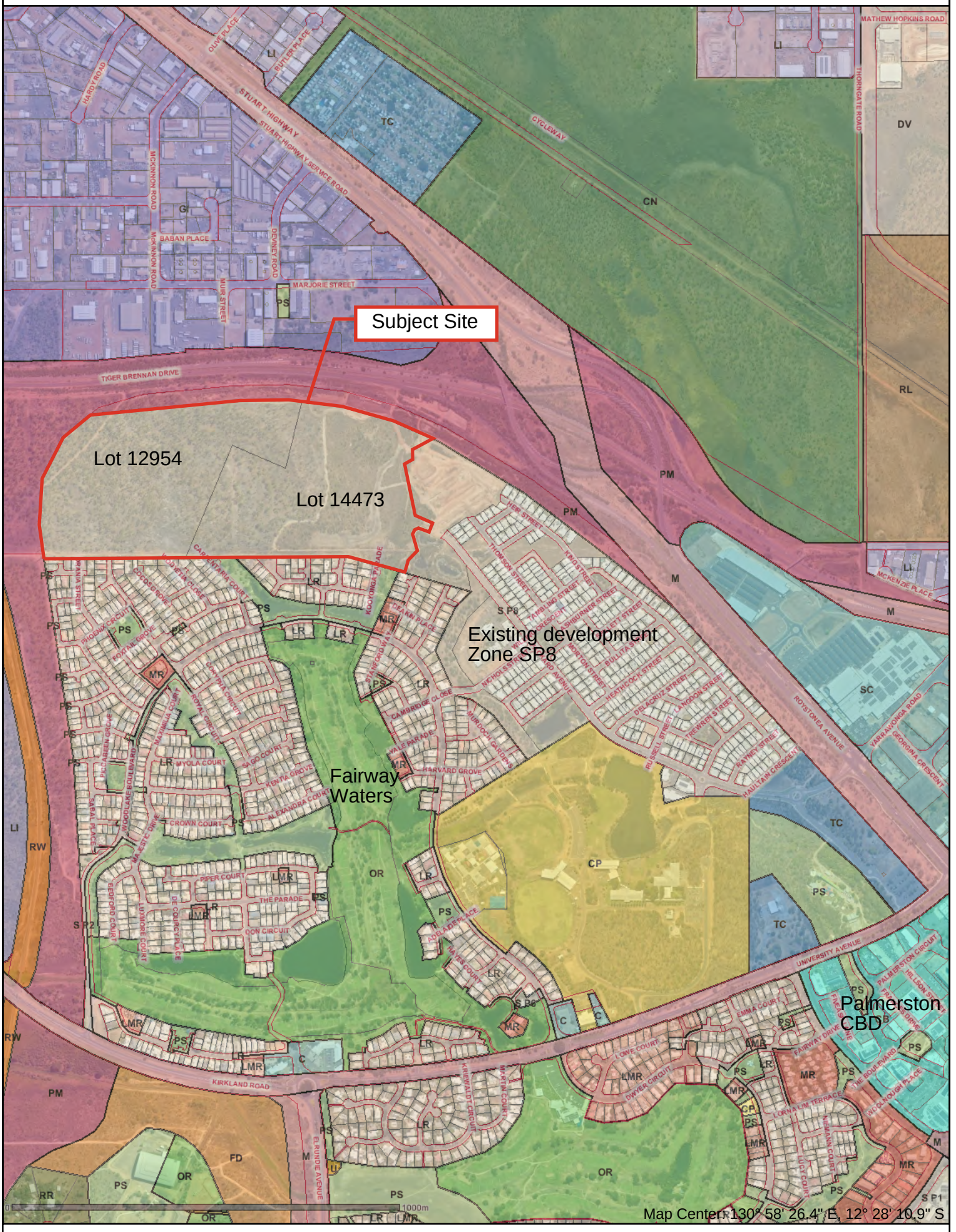
Lands Planning
Department of Lands, Planning and Environment
GPO Box 1680
DARWIN NT 0801; or

Email: planning.ntg@nt.gov.au; or

Hand delivered to: Level 1, Energy House, 18-20 Cavenagh Street, Darwin

For more information contact Fletcher Willis, on 08 8924 7341 or fletcher.willis@nt.gov.au

Locality Map



Bottom Left: -12° 28' 31", 130° 57' 46" Top Right: -12° 27' 50", 130° 59' 06" Approximate Scale: 1:12,000 Datum: GDA 1994

SP8

Amendment No. 207 gazetted 22.02.2012 creates SP8

Amendment No. 226 gazetted 30.05.2012 represents several minor alterations that are necessary to clarify the intent of the zone.

Amendment No. 302 gazetted 23.10.2013 represents several alterations to the zone.

Amendment No. 514 published in the NT News on 07.06.2019 represents several alterations to the zone.

Part Lot 9765, Town of Palmerston (50 University Avenue, Durack).

SP8 Specific Use Zone Palmerston No. 8 is structured as follows:

Part 1

1. Purpose
2. Development Design Philosophy

Part 2

3. Subdivision
4. Lot Size and Configuration
5. Minimum Site Areas

Part 3

6. Land Use
7. Home Based Business
8. Small Lot Integrated Housing
9. Retirement Living
10. Secondary Dwellings

Part 4

11. Building Setbacks
12. Building Height
13. Plot Ratio
14. Vehicle Parking
15. Loading Bays
16. Private Open Space
17. Communal Open Space

Part 5

18. Master Plan

    The master plan text is referenced under clause 2.7 of the NT Planning Scheme as referenced policy and includes:

    - Open Space Overlay
    - Landscape Guiding Principles
    - Housing Design Principles
    - Housing Location Principles
    - Climate Principles

Background material to the specific use zone and master plan is available on the NT Planning Scheme internet site and includes:

Housing Affordability and Moderate Income Price Points

Geotechnical Assessment

Shared Access Way Details

Stormwater Drainage Strategy

Traffic Assessment

NT Planning Scheme definitions apply and appear in **bold** throughout this zone.

Part 1

1. PURPOSE

1. The purpose of this zone is to facilitate the subdivision, use and development of the land that provides for housing choice through a range of lot sizes and housing types and includes opportunities for commercial and community uses.

2. DEVELOPMENT DESIGN PHILOSOPHY

1. Any subdivision and future development is expected to be designed to respond to Palmerston's tropical climate and lifestyle attributes.
2. This includes, but is not limited to, adherence to the overarching design principles which are graphically expressed in the master plan. The master plan is annexed to this specific use zone and the text to the master plan is referenced under clause 2.7 of the NT Planning Scheme.

Refer to Schedule 2.

3. The overarching design principles are:
   (a) to create a community that is connected with the University through open space links to the existing lake and University campus;
   (b) to build on and improve the **amenity** of the site and context by:
      - enhancing the natural features of the site through good subdivision design, orientation of lots and housing, linkages and landscaping;
      - accommodating existing landscape features, such as Packard's Knob, into the open space network; and
      - providing acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface to the requirements of the Department of Lands and Planning.
   (c) to integrate sensitively with the surrounding neighbourhoods by:
      - linking new walking and cycling paths into the Palmerston Central Business District networks;
      - developing multiple walking and cycling paths into the adjoining Durack networks;
      - minimising vehicle traffic movement into Durack with only one point of vehicular egress through Cambridge Close; and
      - linking cycle pathways into the regional cycling trails to Palmerston and Darwin.
   (d) to create distinctive and walkable neighbourhoods by:
      - designing a street network that is permeable and promotes walking and cycling;
      - developing parks and open spaces that reflect the Community Safety Design Guide principles; and
      - developing safe routes to school for children and pathways that encourage individuals to exercise and reduce vehicle use.

Refer to the Open Space Overlay and Landscape Guiding Principles in the Durack Master Plan at Schedule 2.

Refer to the Community Safety Design Guide at Schedule 3.

(e) to accommodate a diverse community by:

- providing for a range of housing opportunities that suit a wide range of households, for example, the inclusion of secondary dwellings and retirement living;
- distributing different housing types throughout the development;
- providing for limited commercial uses, generally concentrated between the University lake and Roystonea Avenue.

(f) to provide variety in housing design and the streetscape by:

- including a range of lot sizes;
- maximising the individuality of dwellings which will create variety to streetscape design;
- minimising the dominance of on-site car parking, including garages and carports, from the street; and
- maximising outdoor/indoor relationships.

(g) to maximise environmental integrity by orientating lots and designing housing to minimise solar loading and encourage shading, cross ventilation and landscaping.

Refer to the Housing Design and Location Principles in the Durack Master Plan at Schedule 2.

Refer to the Climate Principles in the Durack Master Plan at Schedule 2.

Part 2

3. SUBDIVISION

1. With **consent** land within this zone may be developed for the purpose of a subdivision if:

   (a) the development application to subdivide the land is for the purpose of the initial staging.

   (b) the subsequent development application is accompanied by:

      i. a detailed land use plan indicating the proposed land use;

      ii. a plan(s) indicating minimum **building setbacks** for each lot, as stated in clause 11 of this zone;

      iii. a land and house package design for each integrated housing lot;

   and the plans will form part of any development permit for subdivision.

   (c) the overall subdivision design includes the following:

      i. open space corridors that link to the existing open space network in Durack, incorporating stormwater drainage systems and Water Sensitive Urban Design principles appropriate for the Northern Territory climate;

      ii. a proposed public open space network incorporating Packard's Knob, a European heritage site;

      iii. one or more parcels of land for community purposes with a combined area of 0.6ha; and

Refer to the Housing Design and Location Principles in the Durack Master Plan at Schedule 2.

iv. vehicle ingress and egress points from Roystonea Avenue and University Avenue and an egress point at Cambridge Close.

(d) provide a minimum of 10% of the subdivision area as public open space, with no more than 20% of the total area of public open space allocated for stormwater management/drainage purposes (e.g. creeks, drainage channels, wetlands, detention basins etc).

4. LOT SIZE AND CONFIGURATION

1. The purpose of this clause is to ensure that the development contains lots of a size, configuration and orientation suitable for residential purposes.

2. The overall subdivision design should be in accordance with the minimum lot size requirements specified in table A to this clause and:

   (a) ensure that lots have sufficient area and appropriate dimensions to provide for the proposed density of development including dwellings, vehicle access, parking and ancillary buildings by conforming with the building envelope requirements in table B to this clause;

   (b) orientate lots and design housing to take advantage of prevailing breezes and minimise solar loading; and

   (c) the subdivision design should promote user safety and links to schools, the Palmerston Central Business District and the Charles Darwin University campus.

   (d) accommodate a range and mixture of the housing typologies, identified in Table A to this Clause, across the subdivision as one way to achieve a diverse community as required by sub-clause (e) of this zone.

   (e) the range and mixture in housing typology composition should allow for an element of flexibility across the development within the limits of:

   - a maximum Gross Dwelling Density of 14 Dwellings per Hectare;
   - the minimum lot size is 250m²;
   - small lot integrated housing (250m² to 299m²) limited to a maximum percentage of all residential lots of 5%; and
   - multiple dwellings limited to a maximum percentage of all residential lots of 5%.

Refer to the Community Safety Design Guide at Schedule 3.

Gross Dwelling Density refers to the ratio of the number of residential dwellings to the area of land covered by **S**P8

Table A to Clause 4

Housing Type	Minimum Lot Size	Density
small lot integrated housing ($250m^2$ - $300m^2$)	$250m^2$	1 per lot
compact lot housing 1 ($300m^2$ - $399m^2$)	$300m^2$	1 per lot
compact lot housing 2 ($400m^2$ - $499m^2$)	$400m^2$	1 per lot

Table A to Clause 4		
Housing Type	**Minimum Lot Size**	**Density**
traditional 1 ($500m^2$ - $699m^2$)	$500m^2$	1 plus one secondary dwelling
traditional 2 ($700m^2$)	$700m^2$	1 plus one secondary dwelling
multiple dwelling ($600m^2$)	$600m^2$	1 per $300m^2$
retirement living	$800m^2$	1 per $200m^2$
Note: the gross dwelling density is maximum 14 dwellings per hectare.		

Table B to Clause 4 Minimum Building Envelopes	
Lot size	**Minimum Building Envelope**
$250m^2$ – $399m^2$	10m x 12m (exclusive of any boundary setbacks or service authority easements)
$400m^2$ – $599m^2$	10m x 12.5m (exclusive of any boundary setbacks or service authority easements)
≥$600m^2$	12m x 15m (exclusive of any boundary setbacks or service authority easements)

5. MINIMUM SITE AREAS

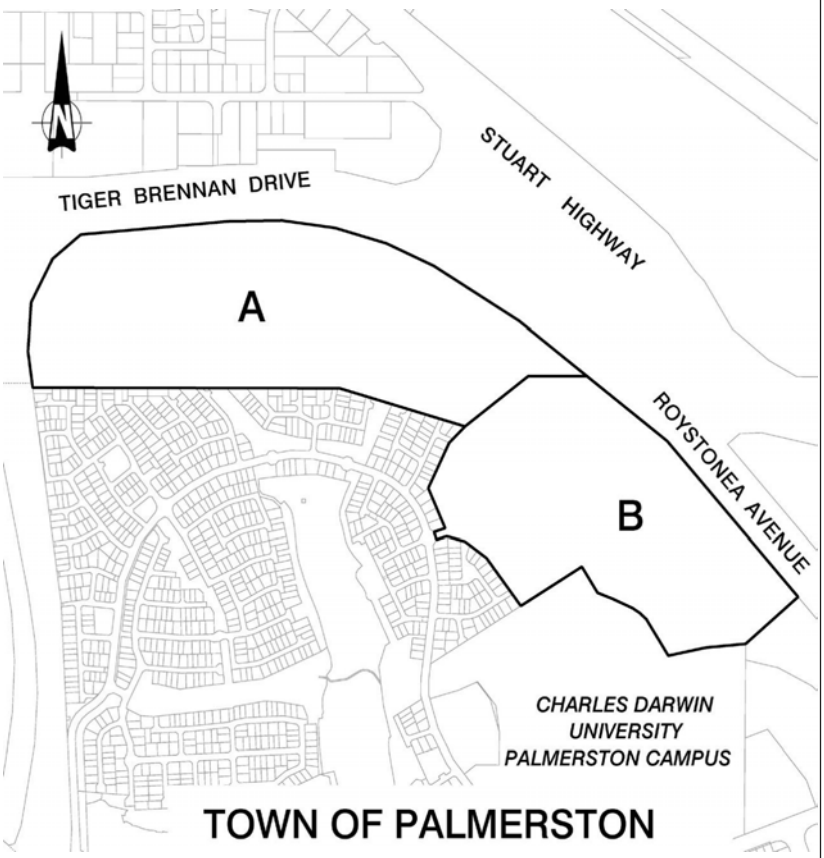
1. The purpose of this clause is to ensure that lots in this zone will be of a size capable of accommodating the potential future use.
2. The land uses listed in clause 6 may only be developed on lots that meet the minimum lot sizes listed in the table to this clause.

Table to Clause 5	
Land Use	**Minimum Lot Size**
display home **single dwelling** (small lot integrated housing)	250m^2
single dwelling	300m^2
temporary sales office	400m^2
secondary dwelling	500m^2
multiple dwellings	600m^2
office **restaurant** **shop** **supporting accommodation** **home based visitor accommodation** home based business **home based child care centre** **home based contracting** **medical consulting rooms**	700m^2
child care centre **community centre** **group home** **hostel**	800m^2
medical clinic	1,200m^2

Part 3

6. LAND USE

1. The parts of Lot 9765 that are subject to this clause are the areas of land bounded by a thick black line and marked as A and B on the diagram to this clause.
2. The intended uses for:
   - Area A are residential and community uses; and
   - Area B are residential, commercial and community uses.



3. A lot in Area A may be used for the purposes outlined in Table A to this clause if the development is consistent with the building setback plan endorsed for the lot under clause 3 and the development complies with all other requirements of this zone.
4. A lot in Area B may be used for the purposes outlined in Table B to this clause if the development is consistent with the building setback plan endorsed for the lot under clause 3 and the development complies with all other requirements of this zone.
5. For lots identified as commercial on the detailed land use plan endorsed under clause 3 of this zone:
   (a) **single dwellings** or **multiple dwellings** are permitted with **consent** to be developed in conjunction with a commercial use; and
   (b) clause 7.9 of the NT Planning Scheme does not apply.

TABLE A TO CLAUSE 6			
Land Use		**specific use zone clause**	**NT Planning Scheme clause**
child care centre	**D**	5, 11, 14	8.1.5
community centre	**D**	5, 11, 12, 14	
display home	**P**	5	
group home	**P**	5, 11, 12	7.10.5
home based business	**P**	5, 7	
home based child care centre	**D**	5, 14	7.10.6
home based contracting	**P**	5, 14	7.10.8
home based visitor accommodation	**D**	5, 14	7.10.1
hostel	x		
medical clinic	x		
medical consulting rooms	**D**	5, 14	7.10.9
multiple dwellings	**D**	5, 11, 12, 14, 16	
multiple dwellings (retirement living)	**P**	9	
office	x		
restaurant	x		
secondary dwelling	**P**	5, 10	
shop	x		
single dwelling	**P**	5, 11, 12, 14, 16	
single dwelling (small lot integrated housing)	**P**	5, 8, 11, 12, 14, 16	
supporting accommodation	**D**	5, 11, 12, 14	

TABLE B TO CLAUSE 6			
Land Use		**specific use zone clause**	**NT Planning Scheme clause**
child care centre	**D**	5, 11, 14	8.1.5
community centre	**D**	5, 11, 12, 14	
display home	**P**	5	
group home	**P**	5, 11, 12	7.10.5
home based business	**P**	5, 7	
home based child care centre	**D**	5, 14	7.10.6
home based contracting	**P**	5, 14	7.10.8
home based visitor accommodation	**D**	5, 14	7.10.1
hostel	**D**	5, 11, 12, 13, 14	
medical clinic	**D**	5, 11, 12, 13, 14, 15	
medical consulting rooms	**D**	5, 14	7.10.9
multiple dwellings	**D**	5, 11, 12, 14, 16	
multiple dwellings (retirement living)	**P**	9	
office	**D**	5, 11, 12, 13, 14	
restaurant	**D**	5, 11, 12, 13, 14	
shop	**D**	5, 11, 12, 13, 14	
secondary dwelling	**P**	5, 10	
single dwelling	**P**	5, 11, 12, 14, 16	
single dwelling (small lot integrated housing)	**P**	5, 8, 11, 12, 14, 16	
supporting accommodation	**D**	5, 11, 12, 14	

7. HOME BASED BUSINESS

1. The purpose of this clause is to ensure that home based businesses are established and operated in a manner that does not detract from the residential **amenity** of the locality.
2. In this zone, a home based business means a business which is carried on in a **dwelling** or on the **site** of a **dwelling** by a person resident in the **dwelling** and may include the caring for up to five children including children who reside in the **dwelling**.
3. A **dwelling** may be used for the purpose of a home based business where:
   (a) the business does not employ more than 2 people not members of the household;
   (b) the total floor area of the dwelling plus the other areas of the site that are used for the home based business does not occupy an area greater than 50m^2;
   (c) no goods or equipment are visible from public areas;
   (d) there is one on-site car parking space for every non-resident employee in addition to two on-site parking spaces for the dwelling; and
   (e) not more than one vehicle kept on the **site** is used for the purpose of the home based business.
4. If 3 or more vehicles are required to be parked on the **site** then the car parking layout should meet the requirements of NT Planning Scheme clause 6.5.3. The consent authority may approve an application for a home based business that does not meet the requirements of clause 6.5.3 only if it is satisfied that there will be no loss of **amenity** to the locality.
5. A home based business may not establish in a secondary dwelling.

8. SMALL LOT INTEGRATED HOUSING

1. The purpose of this clause is to ensure that small lot integrated housing has a high level of residential **amenity**.
2. Small lot integrated housing consists of two adjoining lots with a minimum area of 250m^2 each, a total area of not less than 500m^2, which contain two purpose designed **dwellings** on freehold titles.
3. A **site** identified for integrated housing on the land use plan endorsed under clause 3 of this zone should:
   (a) have a house and land package design that has been endorsed by the consent authority and developed in accordance with the endorsed design;
   (b) be generally located no more than 250m to public open space;
   (c) be generally located within 400m of a public transport stop; and
   (d) not be located in a cul-de-sac.

Refer to the Housing Design and Location Principles in the Durack Master Plan at Schedule 2.

9. RETIREMENT LIVING

1. The purpose of this clause is to ensure that retirement living has a high level of residential **amenity** that meets the needs of the intended residents.
2. A **site** identified for retirement living on the land use plan endorsed under clause 3 of this zone and as defined under the *Retirement Villages Act* of the Northern Territory should be located within a 400m radius of community or commercial facilities and a public transport stop.
3. Multiple dwellings are permitted in an area identified as retirement living, provided that the dwellings:
   (a) have a residential density of not more than 1 dwelling per 200m^2;
   (b) provide 1 vehicle parking space per dwelling;
   (c) provide 1 visitor vehicle parking space per 4 dwellings;
   (d) provide minimum setbacks for residential buildings including verandahs and balconies and structures without external walls, excluding garages and carports, of:
      i. 3m to primary street frontage, including garages and carports;
      ii. 1.5m to secondary street frontage;
      iii. 0m to side and rear boundaries, including structures without external walls and carports, for a maximum of 50% of the length of that side or rear boundary and to a maximum height of 3.7m. At 1.5m from the side or rear boundary, the maximum height may be increased to 8.5m; and
   (e) provide private open space of 30m^2 (exclusive of driveways and car parking areas) but inclusive of an area with minimum dimensions of 4m x 4m for each dwelling.

10. SECONDARY DWELLINGS

1. The purpose of this clause is to ensure that a secondary dwelling is ancillary to the **single dwelling** on a **site**.
2. A maximum of one secondary dwelling may be permitted on lots identified for single dwellings on the plan endorsed under clause 3 of this zone, provided that the secondary dwelling:
   (a) is located on a lot not less than 500m^2 in area;
   (b) does not or will not exceed 50m^2 in floor area;
   (c) is not separately serviced; and
   (d) is not to be separately titled under the *Unit Titles Scheme Act.*
3. The consent authority may approve an application for a secondary dwelling that has a floor area greater than 50m^2 but not more than 100m^2 as long as the building footprint of both dwellings does not exceed 60% of the area of the **site**.

Part 4

11. Building Setbacks

1. The purpose of this clause is to ensure that buildings and ancillary structures are located so:
   - they are compatible with the streetscape and surrounding development including residential buildings on the same **site**;
   - as to minimise any adverse effects of building massing when viewed from adjoining land and the street;
   - as to avoid undue overlooking of adjoining properties; and
   - as to encourage breeze penetration through and between buildings.
2. **Building setbacks** for **dwellings** and ancillary structures shall adhere to the building setback plan endorsed under clause 3 of this zone, which achieves the following siting outcomes:
   (a) single dwelling residential lots where:
      i. carports and garages are to be setback a minimum of 6m to the primary street frontages;
      ii. gate entryway structures, with no more than 2 solid walls and roof, and with maximum dimensions of 2m x 2m, are permitted within the primary street frontage setback area; and
      iii. on lots of 400m^2 - 500m^2 in size, storage structures may be located with a 0m side setback on one side boundary for a length not exceeding 5.5m along the side boundary and the maximum height of the storage structure shall be no more than 2.1m.
   (b) small lot integrated housing and compact housing on lots 250m^2 - 399m^2 in size and multiple dwelling lots less than 800m^2 in size where:
      i. the primary street frontage setback shall be 4.5m with 3.0m permitted for structures without enclosed walls such as balconies, porches but excluding carports;
      ii. garages and carports are to be setback a minimum of 6m to the primary street frontage;
      iii. gate entryway structures, with no more than 2 solid walls and roof, and with maximum dimensions of 2m x 2m, are permitted within the primary street frontage setback area; and
      iv. for side and/or rear setback a maximum of two setbacks may be 0m, including structures without external walls, provided that the structure along one of the two boundaries is limited to a maximum height of 3.7m. At 1.5m from the reduced setback boundary, the maximum height may be increased to 8.5m.

Refer to the building setback plan endorsed under clause 3 of this zone.

(c) single dwelling lots 400m^2 and greater in size identified specifically on the building setback plan endorsed under clause 3 of this zone where:

i. the primary street frontage setback shall be 4.5m with 3.0m permitted for structures without enclosed walls such as balconies, porches but excluding any structure used for undercover parking; and

ii. garages, carports or any other structure used for undercover parking are to be setback a minimum of 6m to the primary street frontage.

(d) the consent auhority must not **consent** to building setbacks that are not in accordance with this clause.

3. The additional setback requirements for **residential buildings** longer than 18m outlined in clause 7.3.1 of the NT Planning Scheme apply.

4. The setback requirements for more than one building on one **site** outlines in clause 7.3.2 of the NT Planning Scheme apply.

12. BUILDING HEIGHT

1. The purpose of this clause is to ensure that the height of buildings is compatible with adjoining or nearby development or development reasonably anticipated and does not unduly overlook adjoining properties.

2. The height of any point of a building is to be measured from ground level vertically below that point and includes the height of a mound specifically provided or made to elevate the building.

3. The height of any part of a building is not to exceed:

(a) 8.5m above ground level in Area A, unless it is a flag pole, aerial or antenna.

(b) 8.5m above ground level in Area B, unless:

i. it is a flag pole, aerial or antenna; or

ii. the site has been identified on the detailed land use plan which is part of the development permit for subdivision as stated in clause 3 of this zone and in that circumstance the building may not exceed 4 storeys above ground level.

13. PLOT RATIO

1. The purpose of this clause is to provide for development that will, in terms of building massing, be compatible with adjacent and nearby development.

2. Development of sites within Area B for a **hostel**, **office**, **restaurant** or **shop** should not exceed a **plot ratio** of 1.

14. VEHICLE PARKING

1. The car parking requirements and parking layout provisions outlined in clause 6.5 of the NT Planning Scheme apply except for retirement living units.

Refer to clause 9 for Retirement Living Units

15. LOADING BAYS

1. The purpose of this clause is to provide for the loading and unloading of vehicles associated with the use of land.
2. An **office**, **restaurant** or **shop** use or development on a **site** must provide areas wholly within the **site** for loading and unloading of vehicles at the ratio of 1 loading bay for every 2000m^2 of the total **net floor area**.

   A loading bay is to:

   (a) be at least 7.5m by 3.5m;

   (b) have a clearance of at least 4m; and

   (c) have access that is adequate for its purpose.

16. PRIVATE OPEN SPACE

1. The purpose of this clause is to ensure that each **dwelling** has private open space that is appropriately sited to provide for domestic purposes.
2. Private open space areas should:

   (a) satisfy the minimum area and dimensions contained in the table to this clause;

   (b) be directly accessible from the **dwelling** and enable an extension of the function of the **dwelling**;

   (c) be located to take into account views from the **site**, the natural features of the **site** and the location of any private open space or habitable room associated with neighbouring **dwellings**; and

   (d) be 'open to the sky' in accordance with relevant guidelines except for areas within side building setbacks on lots less than 400m2.

3. Where the private open space is at **ground level** on a side or rear boundary and other than for a single **dwelling** it should be:

   (a) screen fenced to a height of at least 1.8m providing a visual barrier to adjoining residences and public areas; or

   (b) fenced to a height of at least 1.8m and planted with dense vegetation which will provide a visual barrier within two years of planting.

4. Where the private open space is at **ground level** on a primary or secondary street frontage and other than for a **single dwelling** it should be fenced to a height of 1.8m such that a visual screen is provided while allowing permeability that permits surveillance of the street and the fencing shall not obscure the front entrance to the **dwelling**.
5. If a **dwelling** within a **multiple dwelling** development has no direct access at **ground level** to private open space, the **multiple dwelling** development should incorporate communal open space.

Table to Clause 16 Minimum Areas of Private Open Space	
Type of Dwelling	**Private Open Space Area**
Single dwellings on a lot less than 600m^2	50m^2 (exclusive of driveways and parking areas) but inclusive of an area with minimum dimensions of 4m x 4m
Multiple dwellings (for each **dwelling** with direct **ground level** access)	45m^2 (exclusive of driveways and car parking areas) but inclusive of an area with minimum dimensions of 4m x 4m
Multiple dwellings (for each **dwelling** without direct **ground level** access)	12m^2 inclusive of an area with minimum dimensions of 2.8m x 4m

17. COMMUNAL OPEN SPACE

1. For **multiple dwelling** developments where all **dwellings** have access to private open space at ground level, communal open space in accordance with clause 7.6 of the NT Planning Scheme is not required.

designIQ shaping the urban canvas

INDICATIVE CONCEPT MASTERPLAN

THE HEIGHTS durack

PEET

CUNNINGTON ROSSE
Town Planning & Consulting

Planning Scheme Amendment

LOTS 12954 AND 14473 TOWN OF PALMERSTON (ROYSTONEA AND KOOYONGA AVENUES, DURACK)

December 2024

Contact

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Position	Director
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Important Note

This report has been prepared for the sole purpose of making an amendment to the Northern Territory Planning Scheme, and this report is strictly limited to the purpose, and facts and circumstances stated within. It is not to be utilized for any other purpose, use, matter or application.

While every effort has been made to ensure accuracy, Cunnington Rosse Town Planning and Consulting does not accept any responsibility in relation to any financial or business decisions made by parties other than those for whom the original report was prepared for and/or provided to.

If a party other than the Client uses or relies upon facts, circumstances and/or content of this report without consent of Cunnington Rosse Town Planning and Consulting, Cunnington Rosse Town Planning and Consulting disclaims all risk and the other party assumes such risk and releases and indemnifies and agrees to keep indemnified Cunnington Rosse Town Planning and Consulting from any loss, damage, claim or liability arising directly or indirectly from the use of or reliance on this report.

Document Control

Author	Brad Cunnington
Version	1.1
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1.0 Introduction

Cunnington Rosse Town Planning and Consulting has been engaged by Urbex to prepare, lodge and manage a Submission to the Northern Territory Minister for Lands, Planning and Environment to amend the Northern Territory Planning Scheme. The proposed Planning Scheme Amendment (PSA) comprises the rezoning of Part Lots 14473 and Lot 12954 Town of Palmerston from specific use zone SP8 in the *Northern Territory Planning Scheme 2007* to a new specific use zone under the *Northern Territory Planning Scheme 2020* (the Scheme). This submission is made pursuant to **Section 12A** of the *Northern Territory Planning Act 1999* (the Act).

The proposed specific use zone will facilitate the subdivision of the subject land for the purpose of a residential estate comprising the remaining undeveloped areas The Heights, Durack. Whilst development could proceed under the existing SP8 Specific Use Zone, the proposed specific use zone reflects Urbex development intent (having acquired the remaining undeveloped area of The Heights from the original developer). Furthermore, the proposed zoning will enable development consistent with the subdivision criteria in **Part 6.2** of the 2020 Planning Scheme. The specific use zone is intended to function in a manner similar to Zone FD (Future Development) per **Clause 4.27** of the 2020 Planning Scheme, albeit including specific subdivision design requirements to ensure development responds to the unique characteristics of the site and surrounding locality. Once each stage of the subdivision is complete, the resultant lots will undergo 'zone normalisation' and be rezoned to one of the appropriate Territory-wide zones within the Planning Scheme.

The report describes the nature of the subject land and locality and considers the relevant planning history, site characteristics, proposed uses and development on site, as well as the relevant provisions of **Section 12A(2)** and **Section 13(1)** of the Act, providing justification for the proposed amendment in relation to Northern Territory strategic planning policy and direction.

This report (and application) is to be read in together with the following attachments:

Attachment A: Proposed Specific Use Zone SPX

Attachment B: Specific Use Zone Master Plan

Attachment C: Stages 12-19 Subdivision Master Plan

Attachment D: Preliminary Engineering Services Report

Attachment E: Traffic Assessment

Attachment F: Title Documents

2.0 Site and Locality

The site is described in **Table 1** below, and the area of rezoning is identified in **Figure 1**.

Site Details	
Location	Lot 12954 Town of Palmerston (Kooyonga Parade, Durack) and Lot 14473 Town of Palmerston (Roystonea Avenue, Durack)
Area	50.24 hectares (area under title)
Easements	Electricity Supply, Water Supply and Sewerage Easements to the Power and Water Corporation Right of Way Easement over 14473 to the benefit of 12954
Planning Considerations	
Planning Scheme (current)	Northern Territory Planning Scheme 2007
Zone	SP8 (Specific Use Palmerston)
Strategic Framework	Darwin Regional Land Use Plan Holtze to Elizabeth River Subregional Land Use Plan

Table 1: *Site Details*

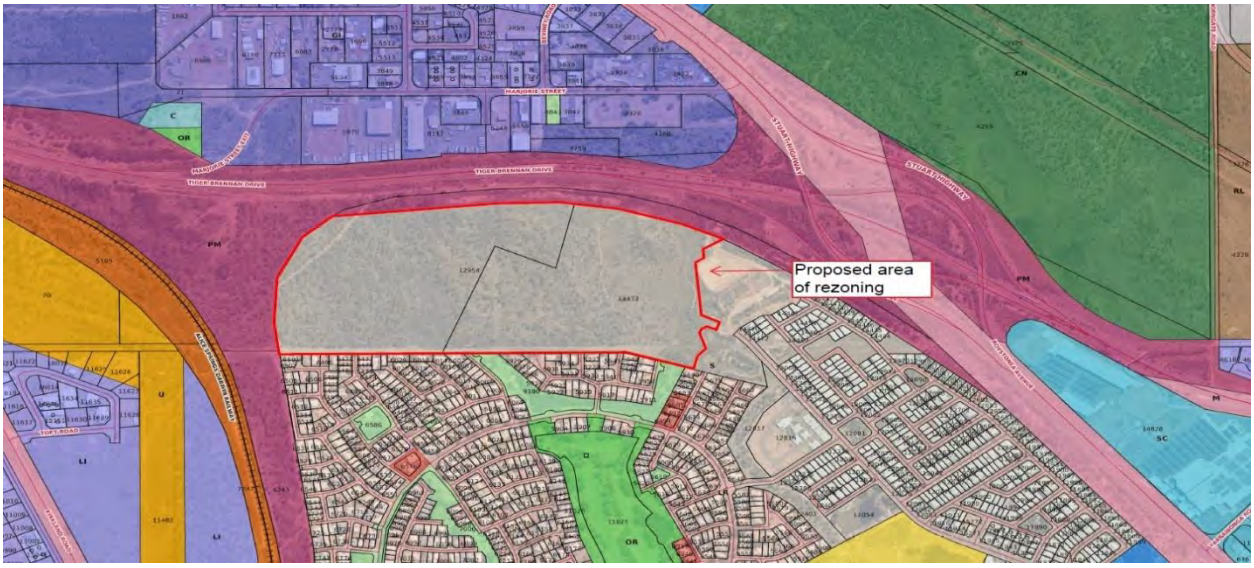


Figure 1: *Proposed Area of Rezoning*

The subject land comprises the majority of Lot 14473 and Lot 12954 Town of Palmerston. The site does not include the area within Lot 14473 currently being subdivided through Development Permit DP23/0062 (Subdivision of stage 11 of The Heights), nor the portion of 12954 set aside for future main road development within Zone PM (Proposed Main Road). The site is undeveloped and consists of remnant and regrowth vegetation. The land is bereft of development or other modifications with the exception of a number of informal vehicle tracks and drainage areas, particularly in the eastern portion, and the cleared services corridor extending adjacent the southern boundary (adjoining the established Fairway Waters residential estate). The existing southern boundary corridor generally aligns with the electricity supply, sewerage, water supply and right of way easements extending through the site. The north-eastern portion of the site contains Packard's Knob, a thickly timbered conical rise originally named by George W Goyder during his 1869 survey expedition.

The subject land is located in the predominantly residential suburb of Durack, approximately 1.5 kilometres north west of the Palmerston Central Business District (CBD), and 14 kilometres east of the Darwin CBD. The subject land abuts existing established urban areas containing residential uses, public open space and organised recreation land uses (the Fairway Waters subdivision and Palmerston Golf Course) to the south, with the more recent residential development areas of The Heights to the east. The site is located south of the Tiger Brennan Drive arterial road corridor, with the area immediately north of the subject land comprising land set aside for future road widening / expansion in Zone PM (Proposed Main Road). Land to the west of the site, also in Zone PM, is set aside for the future Weddell Freeway arterial road corridor and associated connection to Tiger Brennan Drive.

3.0 Planning History

The site has an extensive planning history relating to the subdivision and development of The Heights. In March 2023, Development Permit DP23/0062 was issued for the purpose of a subdivision to create 43 lots (The Heights stage 11) as the intended final development stage under the pre-existing Heights Master Plan and SP8 Specific Use Zone. Construction works associated with this subdivision are currently underway. In May 2024 Variation Permit DP23/0062A was issued for the purpose of separating the stage 11 public open space into 4 separate parcels.

4.0 Section 12A(2) of the Act

Section **12A(2)** of the Act requires that a request to amend the Scheme be in writing and include:

a) *an explanation of the proposed amendment;*

b) *a statement of the purpose of the proposed amendment and its desired effect;*

c) *an assessment of the proposed amendment with respect to the matters to be considered by the Minister under section 13(1);*

d) *the details of any community consultation conducted, or to be conducted, in addition to the consultation required under this Act.*

These matters are considered herein.

4.1 Section 12(A)(2)(a) – Explanation of the Proposed Amendment

This application seeks to rezone the site identified in **Figure 1** from specific use zone SP8 in **Schedule 1** of the *Northern Territory Planning Scheme 2007*, to a new specific use zone to be included in **Schedule 4** of the *Northern Territory Planning Scheme 2020.* The proposed specific use zone will:

- Facilitate the subdivision of land, with development (subdivision) applications anticipated on a stage-by-stage basis with zone normalisation to follow the issuing of a development permit for each stage;
- Enable subdivision in accordance with the urban residential subdivision requirements in **Part 6.2** of the *Northern Territory Planning Scheme 2020,* aligning the subdivision outcomes with other similarly zoned greenfield and brownfield estates;
- Allow future development in accordance with the Territory-wide requirements of the Planning Scheme, including the applicable requirements for residential development in Zone LR (Low Density Residential) and Zone LMR (Low-Medium Density Residential); and
- Ensure subdivision design and layout responds to the unique site and locality characteristics, including the retention and incorporation of Packard's Knob into the design of public open space, acoustic protection requirements at the site interface with Tiger Brennan Drive, and the additional road connection to Carpentaria Court.

The proposed amendment will facilitate subdivision consistent with the preliminary subdivision master plan in **Attachment C,** comprising:

- 375 single dwelling residential lots;
- 7 dwelling-group lots intended for development consistent with Zone LMR;
- Primary connection through the existing Heights estate via Packard Avenue, with a secondary vehicle connection to Carpentaria Court;
- Public Open Space incorporating Packard's Knob and a community use area;
- Dedicated open space pedestrian linkages to existing urban areas to the south; and

- Stormwater drainage and detention areas providing separation between the proposed estate and existing residential areas to the south and east.

A preliminary Engineering Services Report in **Attachment D** demonstrates the intended civil design and servicing arrangements, and provides an indicative understanding of the intended road layout, earthworks, servicing and open space outcomes. The Traffic Assessment in **Attachment E** considers the proposed subdivision road layout, connections to the existing road network, and the impact of resultant traffic on existing intersections both to the east and south. The draft specific use zone is provided at **Attachment A,** and copied in italics below, with the explanation for each clause provided immediately thereafter.

SPX – Lots 12954 and 14473 Town of Palmerston	
Clause Reference	**Wording**
Purpose	*Facilitate the master-planned subdivision of land to provide for a range of lot sizes and future rezoning to facilitate 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.*
Explanation of Clause	Zone purpose statement to confirm the intended development outcomes.
Administration 1	*This specific use zone applies to Part Lot 14473 and Lot 12954 Town of Palmerston.*
Explanation of Clause	Confirms that the specific use zone applies to lots 14473 and 12954 Town of Palmerston only.
Administration 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****.*
Explanation of Clause	Confirmation of reliance on the urban residential subdivision requirements in **Part 6.2** of the Planning Scheme unless varied by the specific use zone. The subdivision requirements are to be applied based on the intended ultimate zoning of proposed lots (e.g. LR, LMR),

	and the application of the *greenfield area* status enables subdivision of lots intended for Zone LR to align to the smaller lot size requirements in **Clause 6.2.1.**
Administration 3	*An application for subdivision must include a plan showing the intended future zoning of all proposed lots.*
Explanation of Clause	Administration subclause 3 requires the subdivision application nominate the intended future zoning of proposed lots to enable the assignment of assessment criteria under subclause 2, in a manner consistent with the requirements for subdivision in Zone FD pursuant to **Clause 6.5.1.**
Administration 4	*The consent authority may consent to the subdivision of land that is not in accordance with sub-clause 12(a) and 12(b) if it is satisfied that all lots created are consistent with the zone purpose and outcomes.*
Explanation of Clause	Provides guidance to the Development Consent Authority regarding the consideration of variations to sub-clause 12(a) (subdivision in accordance with the master plan) and 12(b) (gross dwelling density). The variation parameters provide flexibility to the consent authority to exercise discretion in the application of the clauses.
Administration 5	*The consent authority may consent to the subdivision of land that is not in accordance with sub-clause 12(c) – 12(h) 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 compliant design; and*
Explanation of Clause	Provides guidance to the Development Consent Authority regarding the consideration of variations to sub-clause 12(c) (maximum proportion of dwelling-group or dwelling-multiple lots within the subdivision), 12(d) (maximum slope for residential lots less than 600m^2), 12(e) (minimum public open space), 12(f) (public open space interface and walking / cycling connections), 12(g) (landscape features) and 12(h) (Carpentaria Court connection). Whilst the subdivision master plan does not seek to vary these requirements, it is critical that the consent authority is able to exercise discretion in interpreting and applying broad development and design requirements to proposed subdivisions, including the facilitation of design progression of the master plan as the development proceeds. The ability for the consent authority to apply discretion to such requirements is similar to the administration clauses allowing discretion to the urban subdivision requirements in **Part 6.2** of the Scheme.
Administration 6	*The consent authority must not consent to a subdivision that is not in accordance with sub-clause 12(i); and*

Explanation of Clause	Confirms that no variation can be approved to sub-clause 12(i) (being the requirement for acoustic attenuation at the Tiger Brennan Drive / Roystonea Avenue interface). Acoustic attenuation will be critical to ensure appropriate amenity outcomes for future residents.
Administration 7	*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 13. The consent authority may **consent** to a temporary sales office that is not in accordance with sub-clause 13 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**.*
Explanation of Clause	Allows the temporary use of land and/or buildings as a sales office, including a reference to the specific requirement in the zone (subclause 13) and guidance for the consent authority in exercising amenity.
Zone Outcome 8	*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.*
Explanation of Clause	Establishes the baseline purpose for the requirements in sub-clause 12.
Zone Outcome 9	*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; and*
Explanation of Clause	Provides the ability for non-residential development and use of land providing it is limited to the purpose, and consistent with the design and layout requirements, identified therein.
Zone Outcome 10	*Residential buildings for use as a temporary sales office are of a scale and conducted in a manner consistent with residential amenity.*

Explanation of Clause	Establishes a specific zone outcome for the use and/or development of land for the purpose of a temporary sales office.
Zone Outcome 11	*An efficient pattern of land use with all residential lots connected to reticulated services, integrated with existing transport networks, and with reasonable access to open space and community facilities.*
Explanation of Clause	Broader zone outcome statement consistent with that applicable to urban residential development in other zones.
Requirement 12	*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 600m^2 incorporate a minimum area equivalent to the combined minimum building envelope and area of private open space that do 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 a vehicle and pedestrian connection to Carpentaria Court; and* i) *Includes appropriate acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface.*

Explanation of Clause	Subclause 12 contains the primary design and assessment requirements applicable to the subdivision of land within the proposed specific use zone. The specific requirements seek to ensure that the subdivision: a) Is consistent with the master plan diagram within the proposed specific use zone (developed from the subdivision master plan); b) Maintains an overall dwelling density consistent with the existing stages of The Heights and the existing maximum dwelling density within Zone SP8; c) Limits the number of lots able to be developed for *dwelling-group* or *dwelling-multiple* development relative to the overall number of lots in the subdivision. Whilst the existing SP8 Zone limits the number of *multiple dwellings* (now defined as *dwellings-group* or *dwellings-multiple*) to 5%, it also allows up to 5% *small lot integrated housing* (single dwellings on lots with a minimum area of 250m^2). As the small lot integrated housing model in SP8 facilitates dwellings of a density consistent with the maximum density outcomes for *dwellings-group* in Zone LMR (1 per 300m^2), the combined proportion limits in the existing zone (10%) are comparable to that proposed; d) Ensures that smaller residential single dwelling lots below 600m^2 incorporate sufficient flat space to accommodate the minimum building envelope and minimum private open space areas. These requirements will need to be addressed during the subdivision design stage and as part of the subdivision development application. Whilst **Clause 6.2.3(3)** of the Planning Scheme requires the entirety of such lots not exceed a slope of 2%, in this case the requirement has been applied to the minimum building envelope and private open space areas. This approach is reflective of the existing topography of the subject land and the need to incorporate the level transitions across the site without unduly relying on retaining walls or other such structures. Applying the maximum 2% slope to the building envelope and private open space area allows the front setback area, including the driveway, to be utilised to transition site levels, consistent with the approach adopted in the existing areas of The Heights; e) Stipulates the minimum public open space requirement (consistent with the existing SP8 requirements and the Territory-wide requirements in **Clause 6.2.4(7)** and ensures there's sufficient useable public open space unconstrained by stormwater infrastructure and the like;

	f) Ensures subdivision design considers the interface with existing residential areas to the south and east as well as providing walking and cycling connections to benefit residents of existing areas (by providing access to new areas of public open space) and residents of the future estate; g) Ensures that existing positive landscape character elements are incorporated into the design of public open space areas; h) Stipulates the requirement for an additional vehicle connection to Carpentaria Court to provide an additional vehicle access / egress option for future residents and avoid complete reliance on Packard Avenue for vehicle access and egress (particularly in the case of emergencies); and i) Ensures the subdivision of land includes an appropriate acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface consistent with previous stages and in accordance with the requirements of the Department of Logistics and Infrastructure.
Requirement 13	*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)*
Explanation of Clause	Subclause 13 applies building setback and car parking requirements in the event that land is developed for the purpose of a temporary estate sales office. The setback requirements assume future conversion for residential use, and the car parking requirements defer to **Clause 5.2.4** to enable the consent authority to ensure sufficient car parking will be available for the intended use.

Diagram to Draft Specific Use Zone	

Table 2: *Draft Specific Use Zone and Explanation of Clauses*

4.2 Section 12A(2)(b) – Purpose and Effect of Amendment

The subject land is part of a master planned estate covering the area currently within specific use zone SP8 of the 2007 Scheme. The master plan was prepared over 10 years ago and underpins the requirements set out in SP8. Since SP8 was developed and introduced into the Planning Scheme in 2012, a new planning scheme (the Northern Territory Planning Scheme 2020) has been implemented which provides greater opportunities for site and context-specific development outcomes. In addition, new development and subdivision requirements have been introduced into the Planning Scheme since SP8 which now facilitate smaller lot housing including desired development outcomes. Accordingly, a number of specific estate development components within SP8, for example the ability to subdivide residential land to create lots as small as 300m^2 (introduced to the Territory-wide zones in 2014), that didn't exist at the time SP8 was introduced into the 2007 Planning Scheme, now exist as Territory-wide clauses within **Part 6** of the Planning Scheme.

In addition to the evolution of the Northern Territory Planning Scheme since SP8 was introduced, SP8 was prepared to facilitate the specific subdivision and development outcomes per the original The Heights Master Plan prepared by the previous developer. The Master Plan provided a number of specific criteria applicable to the subdivision of land, the development and use of resultant lots, and the development and/or use of land for non-residential purposes.

Due to the amount of time between the original Master Plan / creation of SP8 and now, and based on the intentions of the current developer, there is a need to alter a number of specific development outcomes identified in the original Master Plan in a manner that does not align with the existing SP8 Zone.

Whilst it is possible to seek and obtain a development permit under the existing zoning and the 2007 Planning Scheme, **Clause 2.4** (Specific Use Zones) of the 2007 Scheme states:

1. *Despite anything to the contrary in this Planning Scheme, land described in Schedule 1 (Specific Use Zones) may be used or developed as specified in the Schedule subject to any conditions specified in the Schedule and any further conditions imposed by the consent authority.*

2. *The provisions of Parts 1, 2, 4, 5, 7 and 8 apply to development described in Schedule 1 except where they conflict with any conditions specified in that Schedule.*

Clause 2.5 (Exercise of Discretion by the Consent Authority) provides:

1. *In considering an application for consent for a proposed use or development, the consent authority must consider the proposed use or development in its entirety except in relation to:*

    a) *an application to alter or vary a development permit under sections 43A, 46 or 57 of the Act; or*

    b) *access to a main road.*

2. *Parts 4 and 5 set out the standards that apply to the development of land, subject to sub-clauses 3, 4 and 5.*

3. *The consent authority may consent to the development of land that does not meet the standard set out in Parts 4 or 5 in circumstances set out in a provision of Parts 4 or 5.*

4. *The consent authority may consent to the development of land that does not meet the standard set out in Parts 4 or 5 if it is satisfied that special circumstances justify the giving of consent.*

5. *When consenting to a development of land, the consent authority may impose a condition requiring a higher standard of development than is set out in a provision of Parts 4 or 5 if it considers it necessary to do so.*

Notably, the decision in *Bradley v Development Consent Authority & Kalhmera Pty Ltd [2017] NTCAT 922* found that subclause 4 does not expressly or impliedly empower a consent authority to give consent to a use or development of land that does not comply with a specific requirement of a specific use zone within **Schedule 1** of the Planning Scheme. Accordingly, any variation to the SP8 requirements under the 2007 Scheme, e.g. residential building setbacks, cannot be issued a development permit under **Part 5** of the Planning Act. On this basis the proponent is seeking the Minister approve the proposed PSA to apply a specific use zone to the subject land.

Whilst the intent is to replace the existing SP8 zone over the remaining undeveloped portion of The Heights in order for subdivision and development criteria to align with the Territory-wide requirements of the 2020 Planning Scheme, it has also been recognised that there are a number of specific development outcomes in the original Master Plan and SP8 Zone which should be retained and protected. Accordingly, the proposed specific use zone includes specific criteria in subclause 12 to ensure development outcomes maintain consistency in certain areas with the SP8 requirements, and are responsive to critical aspects of the site and surrounding locality.

Ultimately, the proposed amendment will:

- Rezone the remaining undeveloped areas of The Heights from SP8 to a new specific use zone within the 2020 Planning Scheme which will:
    - Facilitate subdivision of the land in accordance with the Territory-wide urban residential subdivision requirements with additional criteria in response to elements of the existing SP8 zone and the specific nature of the subject land and surrounding locality;
        - Upon the development of each subdivision stage, resultant lots will then go through a 'zone-normalisation' process to amend the respective zone from the (proposed) specific use zone to the relevant Territory-wide zone (likely to be Zones LR or LMR for the residential lots, and PS (Public Open Space) for the open space and drainage areas); and
        - The development of resultant lots, including residential building setbacks, private open space, car parking etc, will be subject to the relevant Territory-wide requirements applicable to the relevant zone per **Part 5** of the Planning Scheme. The exception to this is that the development and/or use of land for the purpose of a *temporary sales office* will occur under the proposed specific use zone, with zone normalisation for the selected sales office allotment occurring at the time of conversion for residential use.

4.3 Section 12A(2)(c) – Relevant Matters under Section 13(1)

Section 13(1) of the Act requires the Minister to consider the following when considering a request to amend the Planning Scheme.

a) whether the proposed amendment promotes the purpose and objectives of this Act;

Section 2A of the Act provides the purpose and objectives of the Act. The proposal is consistent with the purpose and objectives of the Act in that it:

- is consistent with the strategic framework, namely the Darwin Regional Land Use Plan and the Holtze to Elizabeth River Subregional Land Use Plan, in that it continues to facilitate urban development on site;

- will allow residential development in a manner consistent with the residential zones of the 2020 Planning Scheme resulting in more accessible and more consistent development requirements for landowners and the community;

- will continue to promote the sustainable use of land in a manner similar to the outcomes sought through the original master planning process;

- will continue to protect places of cultural and landscape significance such as Parkard's Knob; and

- promotes good subdivision design outcomes that respect the amenity of the locality through the specific subdivision criteria within the proposed specific use zone and through the intended reliance on the 2020 Planning Scheme requirements which have a greater outcome-focus.

b) *whether the proposed amendment, other than a proposed amendment to a strategic framework, is contrary to any strategic framework in the planning scheme;*

The Darwin Regional Land Use Plan (DRLUP) and the Holtze to Elizabeth River Subregional Land Use Plan are applicable to the site.

Darwin Regional Land Use Plan

The Darwin Regional Land Use Plan was prepared by the Northern Territory Planning Commission and incorporated into the Northern Territory Planning Scheme as a policy document in 2015. The plan provides a vision, goals and intended outcomes for development of the Darwin Region, identifies regional opportunities and the intention for development into the medium and long term. The Land Use Structure on Page 13 of the Plan identifies the subject land as Urban / Peri-Urban (as part of the Palmerston suburbs and urban area).

Page 16 of the Plan identifies Urban / Peri-Urban to include:

- A variety of housing types;

- Retail and commercial;

- Community facilities and services;

- Sport, recreation and urban open space; and

- Natural and conservation areas.

Commencing on page 12, the Plan deals with residential land uses and development, and provides the following key residential objectives:

- Integrate new and existing residential development to maintain character and create a cohesive society that meets the diverse needs and aspirations of all sectors of the community.
- Ensure sustainable development by encouraging:
    - the efficient use of land, water, energy and other resources;
    - accessible and efficient public transport to reduce transport demands;
    - cost effective provision and efficient utilisation of infrastructure and services;
    - development that is consistent with the community's economic, social, cultural and environmental values;
    - the creation of character and identity; and
    - opportunities for community initiatives that support happier, healthier and inclusive communities.

The DRLUP also recognises the infrastructure efficiencies realised through a more compact urban form, and the need for infill development to support growth in the region. It identifies The Heights, Durack as an example of infill development as a residential community on land previously part of the Charles Darwin University campus, close to the Palmerston CBD. The proposed zone will facilitate development in a manner broadly consistent with the existing zone, albeit in a manner more aligned to the 2020 Planning Scheme, and is consistent with the intended land use and development outcomes for *urban* areas per the DRLUP.

Holtze to Elizabeth River Subregional Land Use Plan

The Holtze to Elizabeth River Subregional Land Use Plan (HESLUP) also identifies the subject land within the *Urban / Per-Urban* areas, and the site is not within one of the four identified Focus Areas. Whilst there are a number of Planning Principles within the HESLUP that apply broadly to the development of urban and peri-urban areas, they generally apply to future growth and the development areas rather than existing zoned areas (noting that the HESLUP does not prevent the development of land in accordance with its existing zoning). Whilst the HESLUP will inform the consideration of future development applications for subdivision (as *impact assessable* applications), the fundamental land use, dwelling type, density and lot yield development outcomes are consistent across the existing SP8 Zone and the proposed specific use zone. Ultimately, and in this context, the proposed PSA is not contrary to any aspect or planning principle within the HESLUP.

c) whether the proposed amendment is not significant enough to require exhibition;

The proponent is aware that the proposed amendment will likely require exhibition.

d) whether the proposed amendment is within a declared class of amendments that do not require exhibition;

It is understood that the proposal is not within a declared class of amendments in accordance with **Section 11(3)** of the Act.

e) the merits of the proposed amendment and whether the amendment is in the public interest;

The proposed amendment will retain key aspirations of the existing specific use zoning (including dwelling densities, the protection of Packard's Knob, public open space requirements, open space and active travel connections and integration, and acoustic treatment along the main road boundaries) whilst facilitating development in accordance with the requirements of the 2020 Scheme. Public interest matters are limited to the continued provision of land for residential development and housing (although noting the limited public interest benefit relative to the existing zone), and the facilitation of built form and subdivision outcomes in accordance with the 2020 Planning Scheme.

4.4 Section 12A(2)(d) – Community Consultation

The proponent has consulted with service authorities, local and Northern Territory Government agencies regarding the proposed amendment and the subdivision master plan. No specific community consultation has been undertaken on the proposed amendment as it seeks to retain the key aspirations of the existing specific use zoning, whilst providing an opportunity to normalise the zoning of new lots post-subdivision to achieve outcomes consistent with residential development requirements of the 2020 Scheme. It is understood the amendment will undergo consultation in the form of statutory exhibition.

5.0 Development Impacts and Servicing

The future subdivision and development of land under the proposed specific use zone will address the detailed servicing design requirements in accordance with the Northern Territory Subdivision Design Guidelines, and the service capacity, headworks and infrastructure upgrade requirements applicable to development under the proposed zone are likely to be similar (if not identical) to development under the existing SP8 Zone. Notwithstanding, Urbex have engaged Empower Engineers and Project Managers to undertake an assessment of the engineering design considerations for the site and intended development, and provide a summary of proposed infrastructure elements to service the development site. This report is contained in **Attachment D.** The report considers the site characteristics and key features, proposed development, geotechnical considerations, road, drainage, water, electricity and communications infrastructure, and the intended earthworks approach. The high level concepts within the preliminary report and associated plans will be further refined and submitted to the appropriate authorities for approval as part of the future stages of the development (during the subdivision development applications).

In addition to preliminary engineering design and service infrastructure considerations, Urbex engaged MFY Traffic Engineers to undertake a preliminary assessment of the proposed master plan together with the existing and proposed road network both within and servicing the site. The traffic assessment is contained in **Attachment E** and identifies:

- The Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection will operate satisfactorily without the need for any upgrades to the intersection unless in the unlikely event that the traffic volume on Roystonea Avenue grows a rate of 3.0% per annum for 20 years. In this scenario, there will be a requirement to upgrade for additional through lanes on Roystonea Avenue to cater for the forecast growth on the road. Only a minor change to the marking on Packard Avenue and Yarrawonga Road will be required to cater for the development volume;

- The Woodlake Bouelvard/Kirkland Road intersection will operate satisfactorily for the current traffic volumes and the forecast development volume. Further analysis of the intersection is dependent on the treatment of the intersection which is currently being explored by the Department of Logistics and Infrastructure;

- The forecast additional traffic volume at the Woodlake Boulevard/University Drive intersection is less than 5% and will be within the daily fluctuation limits at the intersection;

- There will be no change to the status of Woodlake Boulevard as a Secondary Collector Road; and

- Packard Avenue will operate partly as a Primary Collector Road and partly as a Secondary Collector Road. The road has been designed to operate at such capacities.

The assessment confirms that the existing infrastructure will accommodate the forecast traffic associated with the intended development of the subject land, and noted that accessibility could be further enhanced by efficient pedestrian and cyclist connections to foster movements between The Heights and the balance of Durack (Fairway Waters). Specifically in relation to the proposed additional road connection to the south of the subject land, the assessment noted that:

- Additional connections would provide improved traffic distribution opportunities;

- Alternative access route(s) would be available in the event of an emergency;

- Vehicle connection to Woodlake Boulevard would not change the nature and function of that road; and

- There would be a reduced traffic impact on Packard Avenue.

The assessment concluded that it would be a superior outcome for the development if at least one additional access could be created to service the subject site, noting that the extension of Carpentaria Court would have minimal

impact for residents due to the adjacent reserve, and that the road design requirements could be accommodated within the existing road reserve.

6.0 Conclusion

This report supports a submission to the Minister for Lands, Planning and Environment to amend the Northern Territory Planning Scheme by rezoning the subject land from SP8 under the *Northern Territory Planning Scheme 2007* to a new specific use zone under the *Northern Territory Planning Scheme 2020.* The proposed amendment will facilitate the subdivision of land subject to the requirements of the 2020 Planning Scheme, albeit in a manner responsive to the specific considerations applicable to the subject land and surrounding locality. The proposed amendment will facilitate development of the remaining stages of The Heights residential estate, with resultant lots then going through a 'zone-normalisation' process and rezoned consistent with their intended use.

The proposed zone retains the fundamental purpose, dwelling density and yield, open space layout, retention of landscape features and connectivity identified in the original Master Plan and existing SP8 Zone, however will enable subdivision consistent with the 2020 Planning Scheme rather than the 2007 Scheme, and similarly align the resultant development of housing with the 2020 Scheme.

The proposed amendment is consistent with the Planning Scheme's Strategic Framework, and will facilitate the continued development for the purpose of a residential estate in a manner that integrates with surrounding land, existing development and the locality in general.

Brad Cunnington
Cunnington Rosse Town Planning and Consulting

Draft Specific Use Zone

4.1.2.2 – SPX (Part Lot 14473 and Lot 12954 Town of Palmerston)

Purpose

Facilitate the master-planned subdivision of land to provide for a range of lot sizes and future rezoning to facilitate 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 Lot 14473 and Lot 12954 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 12(a) and 12(b) 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 12(c) – 12(h) 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 compliant design;

6. The consent authority must not consent to a subdivision that is not in accordance with sub-clause 12(i); and

7. 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 13. The consent authority may ***consent*** to a temporary sales office that is not in accordance with sub-clause 13 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

8. 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.

9. 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; and

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

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

Requirements

12. 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 600m^2 incorporate a minimum area equivalent to the combined minimum building envelope and area of private open space that do 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 a vehicle and pedestrian connection to Carpentaria Court; and

i) Includes appropriate acoustic treatment along the Tiger Brennan Drive and Roystonea Avenue interface.

13. 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)

Diagram to SPX (Specific Use Zone Master Plan)

Attachment B

THE HEIGHTS

DURACK

- RESIDENTIAL AREA
- ROAD AREA
- VERGE AREA
- OPEN SPACE AND STORMWATER MANAGEMENT AREAS
- FUTURE TRANSPORT CORRIDOR LAND DEDICATION
- DEVELOPMENT BOUNDARY
- PEDESTRIAN PATH
- PEDESTRIAN CONNECTION

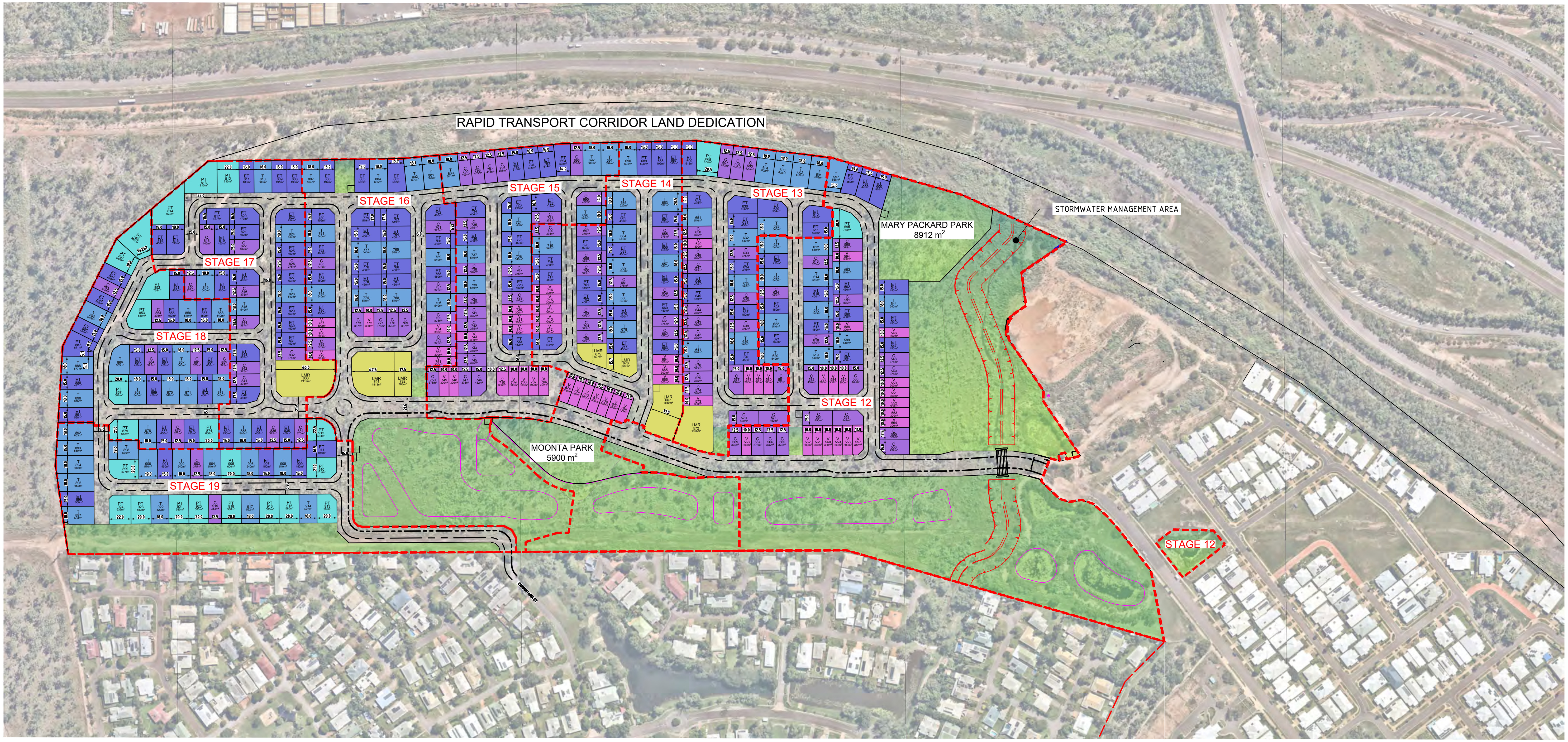
SCALE 1:2000 (A1) 1:4000 (A3)

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

REVISION: A DATE: ----

urbex

Empower ENGINEERS & PROJECT MANAGERS ABN 23 010 743 692



LEGEND

- V (VILLA)
- C (COURTYARD)
- ET (ECO-TRADITIONAL)
- T (TRADITIONAL)
- PT (PREM-TRADITIONAL)
- LMR (DUPLEX)
- EXISTING PARK IN STAGE 11
- PARKS IN STAGE 12-STAGE 19

SCALE 1:2000 (A1) 1:4000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

Stage 12

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	18	29%	$5412m^2$	$301m^2$
C	12.5m	17	27%	$6693m^2$	$394m^2$
ET	15m	14	23%	$6405m^2$	$458m^2$
T	18m	12	19%	$6508m^2$	$542m^2$
PT	20m	1	2%	$748m^2$	$748m^2$
LMR	-	0	0%	$0m^2$	-
Total	-	62	100%	$25766m^2$	$416m^2$

Stage 14

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	15	26%	$4521m^2$	$301m^2$
C	12.5m	12	21%	$4500m^2$	$375m^2$
ET	15m	18	32%	$8284m^2$	$460m^2$
T	18m	9	16%	$4963m^2$	$551m^2$
PT	20m	0	0%	$0m^2$	-
LMR	-	3	5%	$2873m^2$	$627m^2$
Total	-	57	100%	$25141m^2$	$441m^2$

Stage 16

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	7	14%	$2100m^2$	$300m^2$
C	12.5m	10	20%	$3714m^2$	$371m^2$
ET	15m	18	37%	$8519m^2$	$473m^2$
T	18m	12	25%	$6707m^2$	$559m^2$
PT	20m	0	0%	$0m^2$	-
LMR	-	2	4%	$2601m^2$	$1301m^2$
Total	-	49	100%	$23641m^2$	$482m^2$

Stage 18

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	$0m^2$	-
C	12.5m	6	15%	$2250m^2$	$375m^2$
ET	15m	16	39%	$7546m^2$	$472m^2$
T	18m	12	29%	$6617m^2$	$551m^2$
PT	20m	7	17%	$4831m^2$	$690m^2$
LMR	-	0	0%	$0m^2$	-
Total	-	41	100%	$21244m^2$	$518m^2$

All Stages

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	55	14%	$16533m^2$	$301m^2$
C	12.5m	97	25%	$37463m^2$	$386m^2$
ET	15m	116	31%	$54354m^2$	$469m^2$
T	18m	83	22%	$46207m^2$	$557m^2$
PT	20m	24	6%	$15903m^2$	$663m^2$
LMR	-	7	2%	$9098m^2$	$1300m^2$
Total	-	382	100%	$179558m^2$	$470m^2$

Stage 13

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	5	10%	$1500m^2$	$300m^2$
C	12.5m	19	40%	$7530m^2$	$396m^2$
ET	15m	12	25%	$5644m^2$	$470m^2$
T	18m	10	21%	$5672m^2$	$567m^2$
PT	20m	1	2%	$770m^2$	$770m^2$
LMR	-	1	2%	$1505m^2$	$1505m^2$
Total	-	48	100%	$22621m^2$	$471m^2$

Stage 15

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	10	20%	$3000m^2$	$300m^2$
C	12.5m	20	41%	$7773m^2$	$389m^2$
ET	15m	11	22%	$5338m^2$	$485m^2$
T	18m	8	16%	$4474m^2$	$559m^2$
PT	20m	0	0%	$0m^2$	-
LMR	-	0	0%	$0m^2$	-
Total	-	49	100%	$20585m^2$	$420m^2$

Stage 17

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	$0m^2$	-
C	12.5m	11	26%	$4265m^2$	$388m^2$
ET	15m	22	51%	$10264m^2$	$467m^2$
T	18m	6	14%	$3286m^2$	$548m^2$
PT	20m	3	7%	$2500m^2$	$833m^2$
LMR	-	1	2%	$2119m^2$	$2119m^2$
Total	-	43	100%	$22434m^2$	$522m^2$

Stage 19

Lot Size (m^2)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	$0m^2$	-
C	12.5m	2	4%	$738m^2$	$369m^2$
ET	15m	5	13%	$2354m^2$	$471m^2$
T	18m	14	44%	$7980m^2$	$570m^2$
PT	20m	12	39%	$7054m^2$	$588m^2$
LMR	-	0	0%	$0m^2$	-
Total	-	33	100%	$18126m^2$	$549m^2$

Attachment C

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	EM	YL	WR	WR	25/10/24

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client: URBEX PTY LTD
Project: THE HEIGHTS
Title: CONCEPT LOT YIELD PLAN FOR PLANNING SCHEME AMENDMENT

Datum: AHD
PSM .
RL .
(MGA) COORD

NOT FOR CONSTRUCTION

Project No. | Drawing No.: B00610-MP-LY03 | Rev: A

Plot Date: 22/11/2024 12:40:00 PM User: MARK CARILLO File Name: S:\1265\data\MAN12DSYN01\B00610_209214 CIVIL-DRGS\4.2 CURRENT\B00610-MP-Yield plan

Empower
ENGINEERS &
PROJECT MANAGERS

The Heights Durack

Engineering Report for Planning Scheme Amendment

Job No:
B00610

Submission to:
Urbex Pty Ltd

Date:
25 November 2024

DOCUMENT CONTROL SHEET

Project	**The Heights, Durack**
Report Title	Engineering Report for Planning Scheme Amendment
Job No.	B00610

REVISION HISTORY

Revision Number	Prepared By	Reviewed By	Date
A	Willem Rockett	Petr Ingerman	25 November 2024
B			
C			

DISTRIBUTION DETAILS

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

APPROVAL

Issue Approved:	WR						

Table of Contents

1 Introduction

Empower Engineers & Project Managers (Empower) have been engaged by Urbex Pty Ltd (Urbex) to prepare an engineering report to support the Planning Scheme Amendment for the Proposed Development Site at The Heights, Durack. The intent of this report is to demonstrate engineering considerations for the whole of the site at a high level and provide a summary of proposed infrastructure elements to service the development site. Development works for Stages 1-11 of the development have been undertaken to be consistent with *SP8 Specific Use Zone Palmerston No. 8*. The location of the proposed development Site can be seen in Figure 1-1 below:

Figure 1-1 | The Heights Durack - Future Development Area

The general arrangement for the proposed development is presented within Appendix A.

It is noted that the designs provided within this report are concept in nature and have not been fully detailed. Further efforts shall be necessary to accompany future applications for Development Permits and clearances of Conditions Precedent and these shall be presented within appropriate drawings and reports consistent with best practices and locally specific documentation.

2 Site Characteristics

2.1 Existing Land Use and Topography

The future development site is located on two land parcels described in Table 2-1 below. The Property is bounded by:

- The Tiger Brennan Drive and Roystonea Avenue Road reserves along the northern and eastern boundaries
- A Crown Lands/DLI/DLPE Future Road Reserve to the west; and
- The existing fairway waters development to the south.

The above surrounding features can be seen in Figure 2-1 below sourced from NR Maps.

Table 2-1 | Proposed Development Site Details

Item	Parcel No.:	Parcel Area (m2)
1	Lot 14473 Town of Palmerston	252,200**
2	Lot 12954 Town of Palmerston	250,200

** - To be reconfigured on titling of the Stage 11 Development delivered under the SP8 Specific Use Zone.

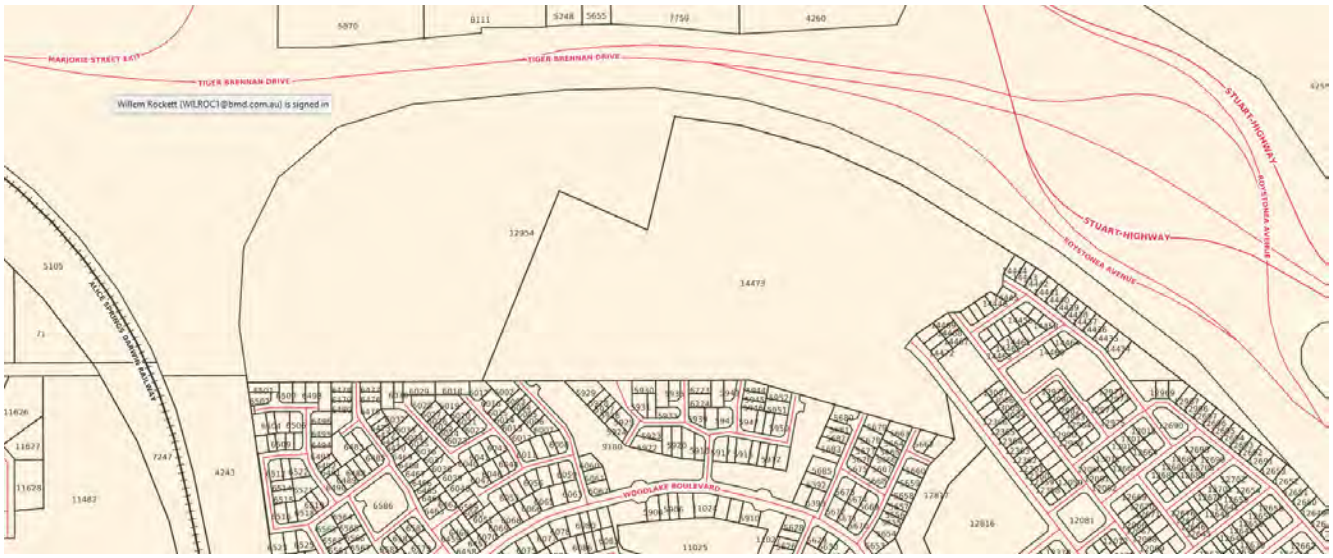


Figure 2-1 | Proposed Development Land Parcels as sourced from NR Maps

2.2 Existing Development and Interface

The Heights is a mature development with 11 stages currently delivered. Stages 1-10 were delivered by the original developer and Stage 11 has been developed by Urbex. Figure 2-2 below outlines the existing development.

Figure 2-2 | Stage 11 and Surrounding Development Area

Future Stages of The Heights, Durack will interface with the existing Stage 11 Development to the east and the existing Fairway Waters Development to the south. The proposed development shall connect to the following infrastructure:

- Packard Avenue Road Reserve (Secondary Collector Road)
- Carpentaria Court Road Stub (Existing 13.0 m Road Reserve).
- Trunk Water and Sewerage
- Existing Stormwater Infrastructure discharging to the ponds.
- Existing Stormwater Management Area

All trunk infrastructure has been provided to the boundary of the development.

2.3 Proposed Development

The current masterplan for the development consists of 382 allotments delivered over eight stages, however this has the potential to change during detailed design and over the lifespan of the project. The typical allotment characteristics and the lot yield for the proposed development are presented within Table 2-2 and Table 2-3 below respectively.

Table 2-2 | Allotment Characteristics Table

Allotment Type	Typical Allotment Frontage**	Typical Allotment Area^^
Villa (V)	10.0 m	300 sqm
Courtyard (C)	12.5 m	375 sqm
Eco-Traditional (ET)	15.0 m	450 sqm
Traditional (T)	18.0 m	540 sqm
Premium Traditional (PT)	20.0 m	600 sqm
Low-Medium Density Residential (LMR)	N/A	N/A

** - Frontages vary for corner lots and lot categorisation varies due to building envelopes.

^^ - Based on a 30 m grid, some allotments may have a larger area and the same frontage.

Table 2-3 | Development Lot Yield and Lot Mix

Allotment Type	No. Allotments	Lot Mix (%)
Villa (V)	55	14.40%
Courtyard (C)	97	25.39%
Eco-Traditional (ET)	116	30.37%
Traditional (T)	83	21.73%
Premium Traditional (PT)	24	6.28%
Low-Medium Density Residential (LMR)	7	1.83%
Total	382	100.00%

The information within Table 2-2 and Table 2-3 above has also been summarised within Appendix B.

2.4 Soil Types and Geotechnical Considerations

A geotechnical investigation has been undertaken for the subject site to confirm soil types and soil profiles. A summary of the geotechnical investigation can be seen in Figure 2-3 below. Soil classifications within Figure 2-3 have been outlined further within Table 2-4 below. This geotechnical investigation has been informed by 22 test pits and a site investigation. Reference is made to the following report: *Report on Preliminary Geotechnical Assessment - Proposed Residential Subdivision Lot 9765 Roystonea Avenue*, Durack, NT prepared by *Douglas Partners*. The soil profiles within the Stage 11 area are 6b and 4c as described in Table 2-4 below.

As noted within the Douglas Partners geotechnical investigation, groundwater levels within the 6b soil profiles may be close to the natural surface level. It is noted that significant filling is proposed over the portion of the Stage 11 development within the 6b soil profile. With this, all earthworks are to be placed and compacted under level one supervision with appropriate compaction achieved. This process shall ensure that the final surface levels are substantially higher than existing levels and alleviate potential concerns around groundwater.

Table 2-4 | Soil Type Descriptions - Douglas Partners (2009)

Unit	Landform	Test Pits	Slope	Drainage	Soils	Vegetation
1c	Low scarps & short steep slopes	None	10.0-15.0%	V Rapid	Shallow gravelly lithosols	Eucalypt woodland to minor open woodland
2ba	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 earths	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/melaleuca tall shrubland to minor open woodland

Figure 2-3 | Soil Profiles within the Subject Site

2.5 Existing Easements

The following easements exist within the proposed development site:

- Underground Electrical Transmission Line
  - A 10.0 m wide easement exists along the Southern boundary and connects to the Stage 11 Parks - Refer Figure 2-4 below.
  - Any works associated with this easement shall be subject to the approvals of Power Water Corporation's Power Development Team.
- Water Main
  - A 10.0 m wide water easement exists which connects the DN 300 water main in Sorrento Close to the DN 300 Water Main on Packard Avenue - Refer Figure 2-4 below.
  - Any works associated with this easement shall be subject to the approvals of Power Water Corporation's Water Development Team.

Figure 2-4 | Existing Water and Electrical Easements

2.6 Future Transport Corridor

The Future Transport Corridor is located adjacent to the Tiger Brennan Drive and Roystonea Avenue road reserves. The land is intended to be dedicated back to Crown Lands progressively. The land dedication area has been shown within the plans in Appendix A and Appendix B. The land dedication area shall be grass seeded and stabilised prior to the dedication to Crown Lands. Earthworks shall be necessary within the future transport corridor to facilitate the ultimate levels for the proposed development site. The Future Transport Corridor shall be free draining when handed over to Crown Lands.

2.7 Adjacent Tiger Brennan Drive Infrastructure

A large detention basin exists adjacent to Tiger Brennan Drive immediately upstream of the proposed development site. The basin outlet structure consists of a broad crested high flow weir and a low flow culvert arrangement (4 x 1200 x 600 RCBC Units). The inlet to the basin consists of 3 x 1800 x 900 RCBC's under Tiger Brennan Drive.

The existing basin has been presented below in Figure 2-5. The Tiger Brennan Drive basin shall be included in all stormwater modelling. We have assumed that appropriate maintenance shall be undertaken by DLI. It is noted that the modelling of the basin shall assume that sufficient capacity exists within the 3 x 1800 x 900 RCBC Units under Tiger Brennan Drive such that nil overtopping of stormwater occurs during the 1% AEP Event. Design reports confirming this were unavailable when requested from DLI/DLPE.

Figure 2-5 | Existing Tiger Brennan Drive Detention Basin - imagery from July 2012

3 Engineering Considerations

3.1 Current Earthworks Strategy

Bulk Earthworks shall be necessary to shape the road reserves and the allotments within the development. Bulk earthworks shaping shall have the following characteristics:

- Allotments Front to Back:
  - Allotments generally graded between 1 and 2% from back to front with some allotments having a front batter from the property boundary to the building envelope (Nominal 6.0 m offset from the front boundary) and graded to ensure safe vehicle access.
  - Rear allotment interaction shall consist of either a 1 in 1 batter where less than 900 mm high or a retaining wall.
- Allotments Side to Side:
  - Allotments generally graded between 1 and 2% from side to side.
  - Side Boundary interaction shall consist of either a 1 in 1 batter where less than 900 mm high or a retaining wall.
- Public Open Space:
  - Public open space shall ensure that batter slopes of 1 in 6 are not exceeded.
  - Retaining walls may be implemented as required.

It is envisaged that all inter-allotment batters shall be landscaped by the ultimate property owner. Earthworks cut to fill shall be designed such that the site generally balances and import/export is not required. This is to be confirmed through future detailed design. Figure 3-1 below shows the general allotment interaction (in section) across the development. Reference is made to Section Markers E13 and E14 at the top of the figure.

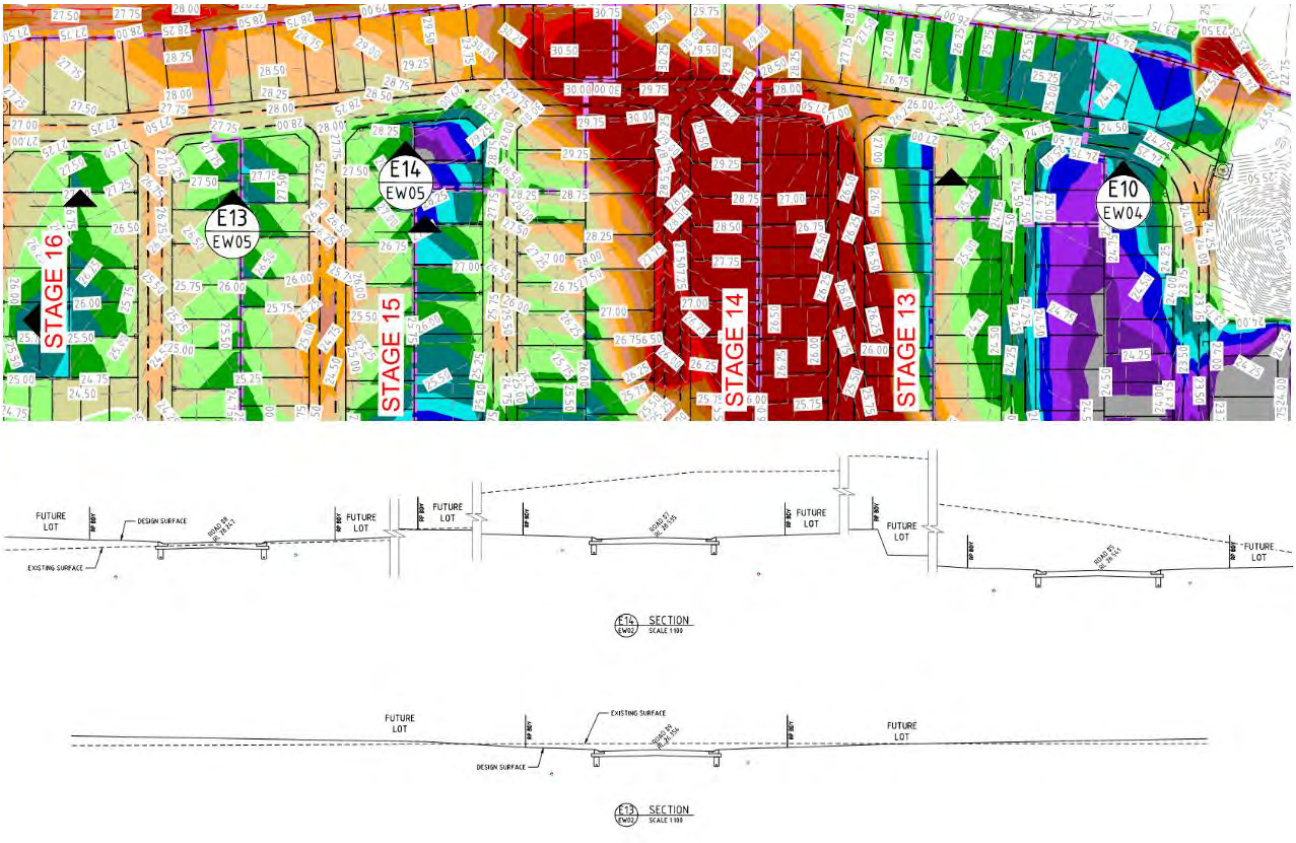


Figure 3-1 | Earthworks Sections Across Road Reserves

3.2 Stormwater Management

3.2.1 Existing Infrastructure

Adjacent to Stages 9, 10 and 11, five ponds exist. The stormwater infrastructure discharged to each of the ponds has been designed, documented and approved by CoP. The stormwater network which services parts of Stages 3-7, and 9-11 flows to two of the five ponds which were constructed prior to Urbex's acquisition of the site (Refer Figure 3-3 below for pond arrangement).

3.2.2 Proposed Infrastructure

The site is separated by two catchments: east and west. The Eastern and Western catchments are shown in Figure 3-2 below in Orange and Blue respectively. The discharge points for each of the catchments are also shown as arrows in Figure 3-2 below.

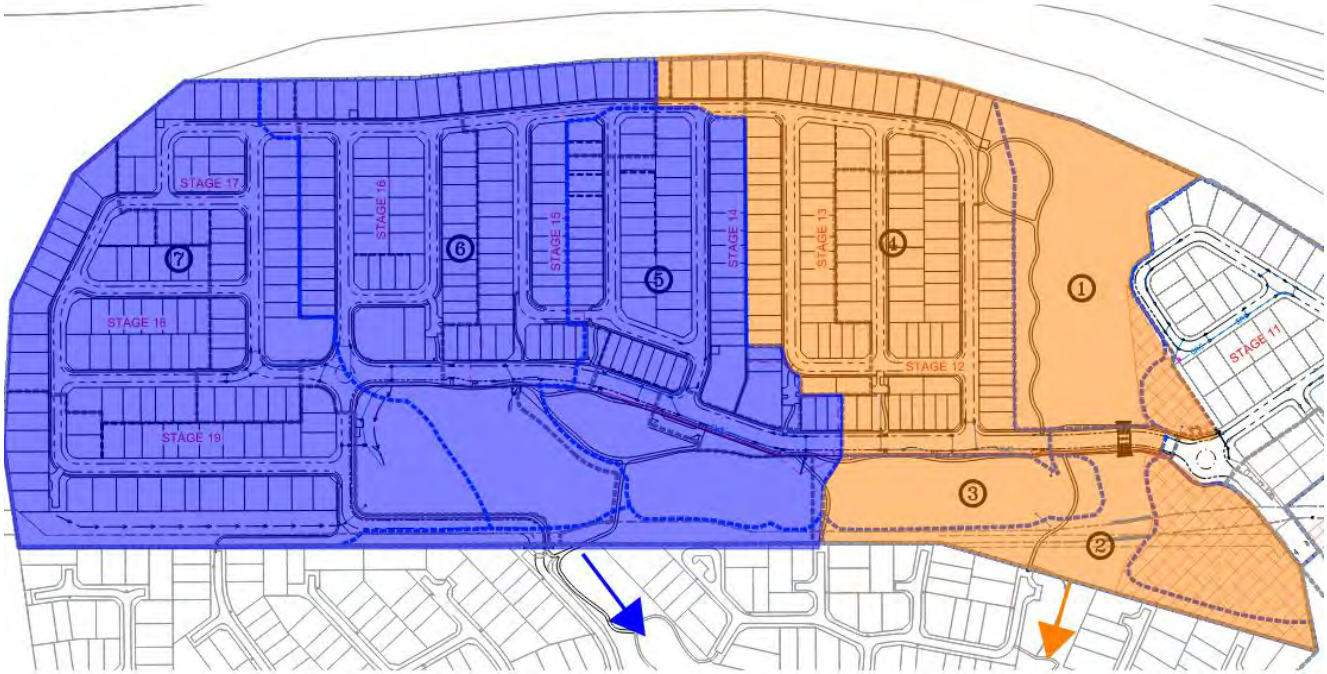


Figure 3-2 | Stormwater Catchments Overview

3.2.2.1 Eastern Catchment

The eastern catchment discharges to an open drain within the fairway waters development. As part of the previous stages of the development, prior to Urbex's acquisition of the site, a stormwater strategy was developed which consists of five interconnected ponds which flow to the eastern discharge point of the site. These ponds are shown in Figure 3-3 below. The constructed extent of the stormwater network within stages 4-7 and 9-11 have controlling levels such that no other option exists but to retain the ponds. Once flows are discharged to Fairway Waters, they are conveyed through a series of existing lakes downstream of the subject site.

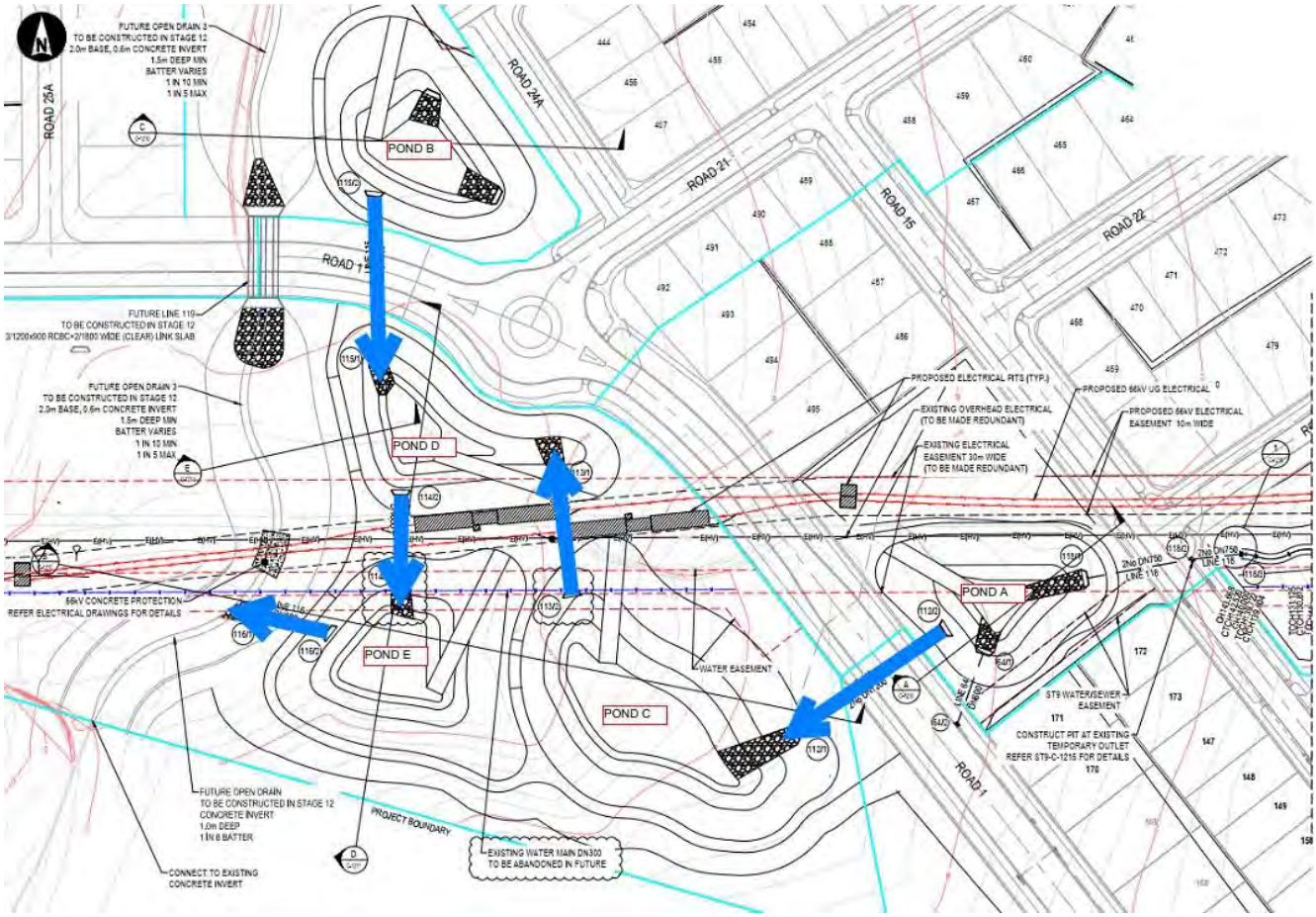


Figure 3-3 | Pond Arrangement as per Design prepared by others.

The proposed arrangement for the management of stormwater quality and quantity for the proposed development at the eastern discharge point site consists of the following engineering features:

- Five existing ponds as detailed in Figure 3-3 Above on the eastern side of the drainage channel.
    - Ponds A and B act as sediment forebays
    - Ponds C to E act as macrophyte zones and detention basins.
- A new combined detention basin and ephemeral wetland on the western side of the drainage channel.
    - To consist of a dry sediment forebay and a dry macrophyte zone.

Flow from the tiger Brennan drive basin shall be conveyed through the site within an open swale. The general stormwater management arrangement for the eastern discharge point can be seen in Figure 3-4 below. The detailed modelling undertaken during the detailed design shall confirm no increase in pre-development peak discharge and compliance with the pollutant reduction targets nominated within the NT SDG.

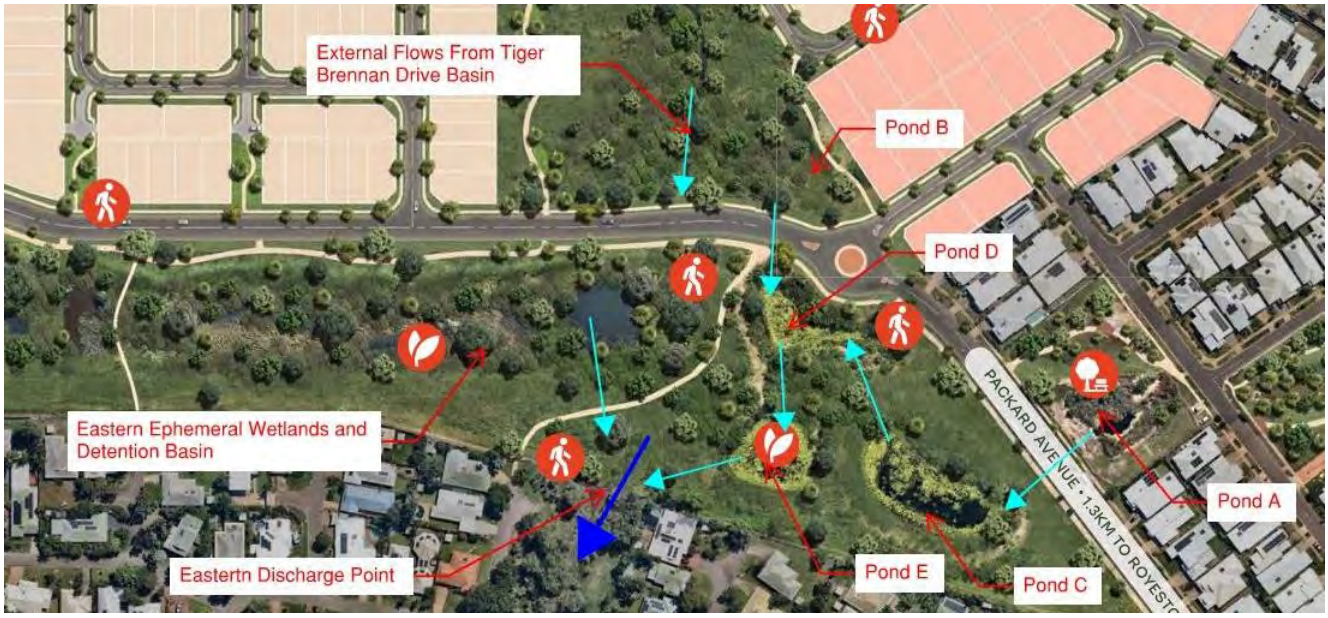


Figure 3-4 | Eastern Discharge Point and Stormwater Management

3.2.2.2 Western Catchment

The western catchment discharges to an open drain within the fairway waters development. The proposed arrangement for the management of stormwater quality and quantity for the proposed development at the western discharge point site consists of the following engineering features:

- Central combined Detention Basin and Ephemeral Wetlands
  - To consist of a dry sediment forebay and a dry macrophyte zone.
- Western Central combined Detention Basin and Ephemeral Wetlands
  - To consist of two dry sediment forebay and a dry macrophyte zone.

Once flows are discharged to Fairway Waters, they are conveyed through a series of existing lakes.

The general stormwater management arrangement for the western discharge point can be seen in Figure 3-5 below. The detailed modelling undertaken during the detailed design shall confirm no increase in pre-development peak discharge and compliance with the pollutant reduction targets nominated within the NT SDG.

Figure 3-5 | Western Discharge Point and Stormwater Management

3.3 Water Reticulation

3.3.1 Existing Infrastructure

Currently the following infrastructure has been provided to the Proposed Development Site:

- An Existing DN 375 Water Main on the Packard Avenue Roundabout Constructed as part of stage 11 Works.
- An Existing DN 300 Water Main from Woodlake Boulevard to Sorrento Close Constructed as part of the Fairway Waters Development
- An existing DN 300 Water Main Connecting the Packard Avenue DN 375 to the Sorrento Close DN 300 main - Date of construction unknown.

An extract from the Online sourced BYDA Data has been presented below which shows the three connections described above.

Figure 3-6 | Existing water Infrastructure Sourced from BYDA - Red Lines Show Trunk Mains and Blue lines show non-trunk infrastructure

3.3.2 Previous Masterplan

The water masterplan which was current at the time of acquisition detailed a connection to the north utilising an existing enveloper pipe under Tiger Brennan Drive. A consultation took place between PWC, Empower and Urbex on 28/09/2022 and the key outcomes of this discussion were:

- The connection under Tiger Brennan Drive is no longer required; and
- A Connection is to be provided at the western boundary of the site.

The above considerations have been taken forward into the revised masterplan prepared by Empower and submitted as part of the Stage 11 development.

3.3.3 Proposed Infrastructure

The intention of the masterplan strategy for the development is to be consistent with the previously approved Aurecon masterplan network where practical to do so. The general strategy includes an extension of the previously constructed DN 375 Trunk Main to cater for the scenario where there is only one connection to the Stages 12-19 Areas. From the secondary connection point the DN 300 Trunk Main is continued to the western boundary of the site. Additionally, a DN 225 Rider Main is located within the road reserve and a DN 150 reticulation mains are consistent

DN375 - BLACK
DN300 - RED
DN225 - BLUE

throughout the remaining stages. The proposed layout is illustrated in Figure 3-7 below.

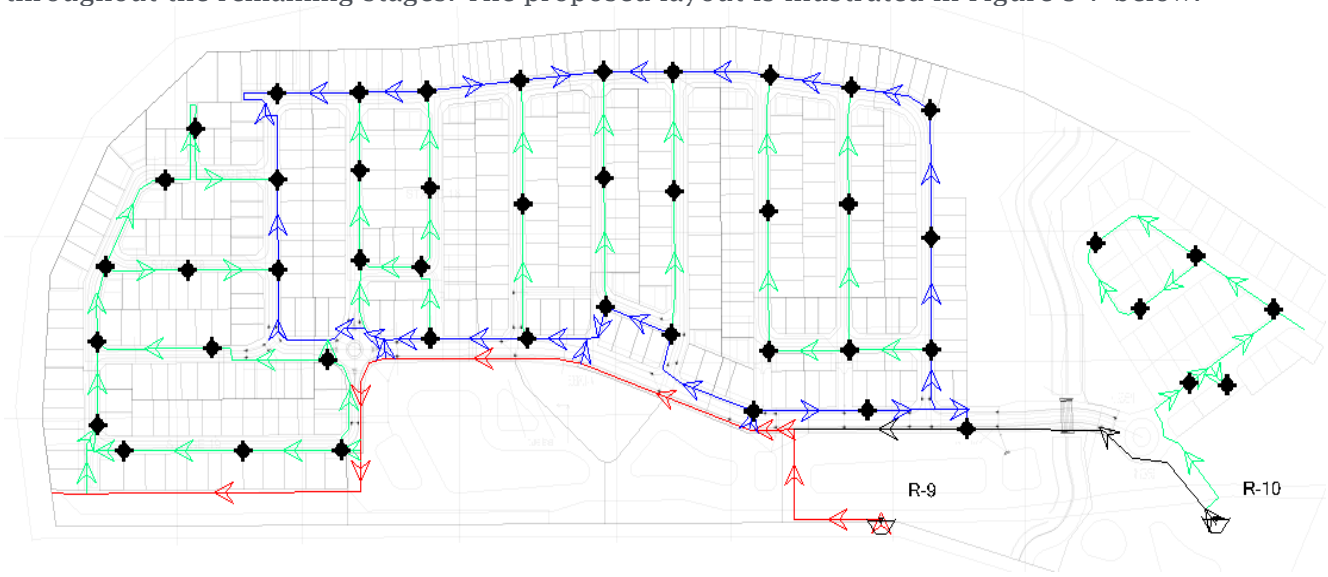


Figure 3-7 | Water Network Layout

It is Empower's understanding that the purpose of the DN 375 trunk main is to provide adequate connection to the future stages until such time that the second connection from Woodlake Boulevard can be supplied. It is Empower's understanding that PWC intend to decommission the Woodlake Boulevard to Sorrento Close DN 300 water main at such time that the connection to the new development is provided to Sorrento Close. These works shall be undertaken at the direction of PWC. The Water Masterplan has been included within Appendix B.

3.3.4 Future Infrastructure

Within the previous Aurecon masterplan, a connection to Pinelands under Tiger Brennan Drive via an existing enveloper pipe was proposed. In initial discussions with PWC, this was no longer required and as such it is no longer proposed to install this connection.

PWC have requested that a connection be provided to the West of the development site to service potential future connections. As shown in Figure 3-7 above, a DN 300 Connection is to be provided at the western boundary as part of the development.

3.4 Sewerage

3.4.1 Existing Infrastructure

Currently, a number of connection points for sewerage infrastructure exist. These include:

- The Existing DN 300 Sewer Main adjacent to the Packard Avenue roundabout constructed as part of the stage 11 Development.
- Various connections adjacent to the Fairway waters development within existing neighbouring road reserves.

The existing infrastructure has been assessed for capacity and results have been presented in the revised Sewer Masterplan Prepared by Empower.

3.4.2 Proposed Infrastructure

3.4.2.1 Eastern Discharge

The existing DN 300 sewer main is top be extended into the future stages of the site and a trunk main constructed to service the majority of Stages 12-19 of the future development. A preliminary design for the gravity main has been presented in Appendix C to confirm the proposed approach is feasible with the anticipated design levels. Previous reporting submitted to PWC has also confirmed sufficient capacity exists within the PWC Trunk Main to service the development. This is to be confirmed for each detailed design with an amendment to the sewerage masterplan. The general arrangement of the eastern and western catchments can be seen below in Figure 3-8. The sewer master plan can be seen in Appendix B.

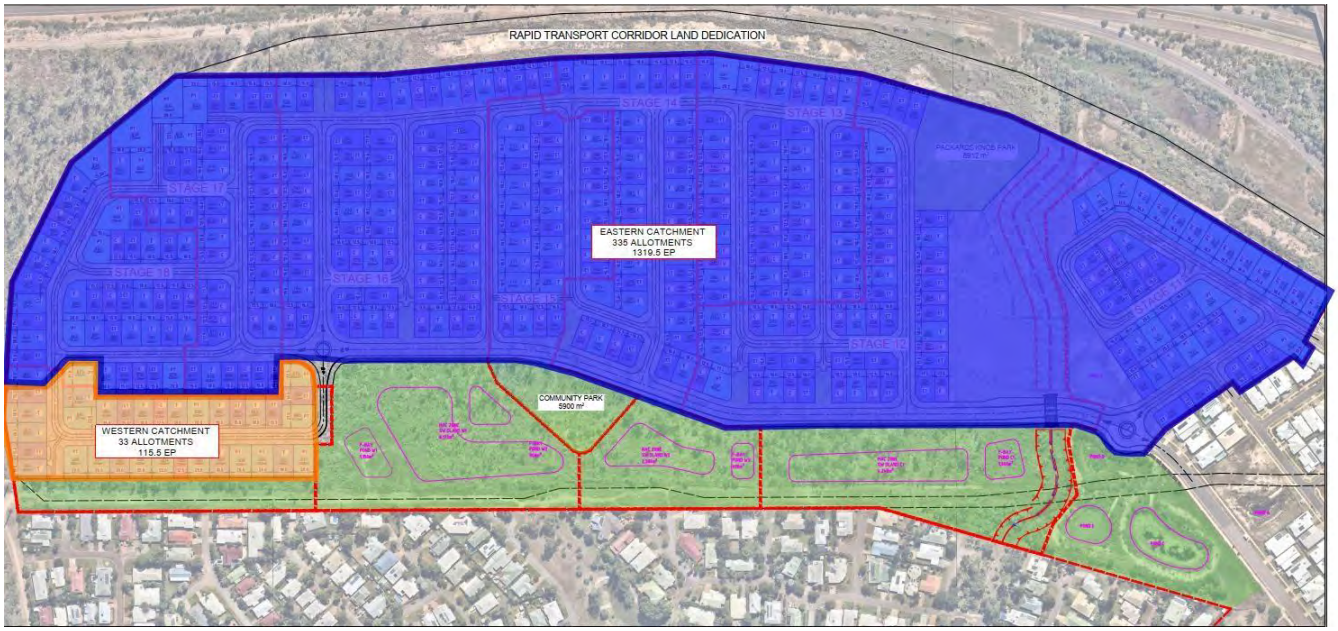


Figure 3-8 | General Sewerage Catchments for Stages 11-19

Western Discharge

The Aurecon Sewerage Masterplan Rev 11 detailed two catchments discharging at the locations listed below:

- Catchment D - 777 EP discharging to the DN 300 Trunk Main at Structure 1A
  - This then flows to the DN 750 Trunk Main (Line T1)
- Catchment C - 1,668 EP discharging to the DN 600 Trunk Main at Structure A10
  - This then flows to the DN 750 Trunk Main (Line T1)

The discharge of Catchment D required the duplication of a DN 225 gravity main from The Heights Durack through to the Structure 1A mentioned above. This sewer main traverses through a brownfield site and has the potential to severely impact the Fairway Waters Golf Course and was determined to be an undesirable outcome for the revised development layout by Empower and PWC.

With this, a new strategy was developed by Empower whereby the majority of flows were to be discharged to the Existing DN 300 Gravity Main (Line C) which discharges Catchment C within the Aurecon Masterplan. In order to determine the maximum allotments which can be discharged to the existing DN 150 Gravity Main in Carpentaria Court, a static analysis of the existing line was undertaken. The results of this static analysis determined the maximum capacity of the DN 150 gravity main was found to be 36 Lots or 126 EP. With this, the sewerage disposal strategy was revised and no more than 36 allotments shall be discharged to existing infrastructure within Carpinteria Court.

The existing structures mentioned above have been shown in Figure 3-9 below.

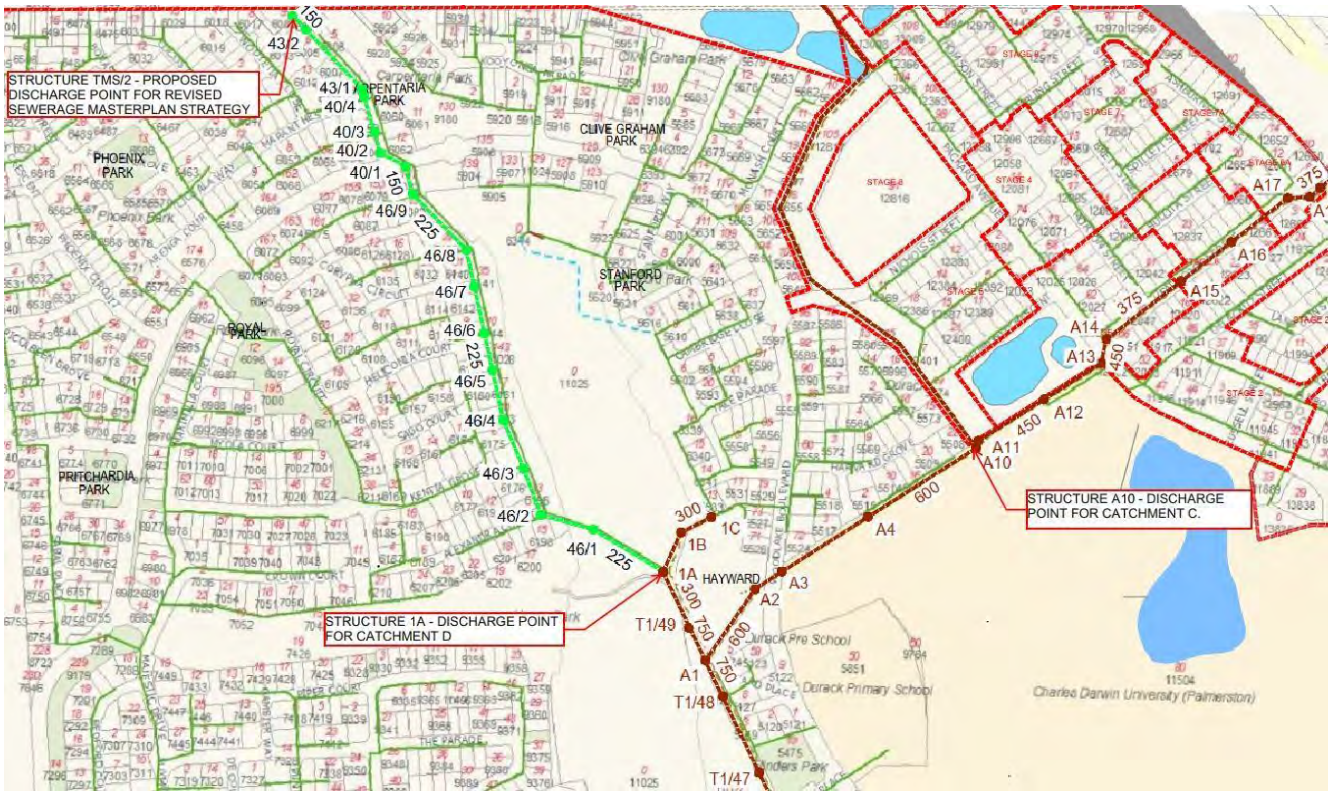


Figure 3-9 | Existing Structures and Discharge Points for Sewerage Catchments

3.5 Roadworks and Pedestrian Connections

3.5.1 Existing Infrastructure

A number of existing road reserve interfaces exist with the proposed development.

These include:

1. **Packard Avenue:** Secondary collector Profile with a 21.6 m Road Reserve Constructed as part of the Stage 11 Development.
2. **Kooyoonga Parade East:** 13.0 m Road Reserve based on superseded design guidelines.
3. **Sorrento Close:** 13.0 m Road Reserve based on superseded design guidelines.
4. **Huntingdale Court:** 13.0 m Road Reserve based on superseded design guidelines.
5. **Kooyoonga Parade West:** Looped Road with a road reserve width at boundary of approximately 30.0 m.
6. **Carpentaria Court:** 13.0 m Road Reserve based on superseded design guidelines.
7. **Borassus Court:** 13.0 m Road Reserve based on superseded design guidelines.

Each of the existing roads are Controlled by City of Palmerston.

3.5.2 Proposed Infrastructure

An internal road network within the development has been prepared based on the NT SDG Guidance and typical road cross sections. The road typology shall be refined throughout the detailed design of the development and supported by the traffic and Transport planning. The internal road network shall also encompass a pedestrian movement network within the road reserve and within Public Open Space. A preliminary road layout based on the current masterplan can be seen in Appendix B.

The following road and pedestrian connections are proposed as part of the masterplan:

- Road connections
    - Primary connection to the existing Heights Stage 11 Development adjacent to the Packard Avenue Roundabout. This is to be a continuation of the Secondary collector Road.
    - Secondary Connection shall be provided to the South interfacing with Carpentaria Court. The existing end treatment of Carpentaria Court is to be amended and transitioned to a 16.0 m wide road reserve consistent with an Access Street under the NT SDG.
- Pedestrian connections to the Fairway Waters Development:
    - Borassus Court;
    - Capenteria Court;
    - Huntingdale Court; and;
    - Kooyoonga Parade East.

The above connections can be seen in Appendix B.

3.5.2 Traffic Considerations

Traffic Considerations for the future development have been assessed and considered by others. Traffic engineering has not been included as part of this report.

3.6 Electrical LV, HV, streetlighting and NBN

3.6.1 Existing Infrastructure

Existing HV electrical infrastructure has been provided via substations at the following locations:

- Within Stage 11 of the Development Adjacent to the Packard Avenue Roundabout; and
- Within the Fairway Waters Development on Phoenix Circuit adjacent to Phoenix Park.

Existing LV, Streetlighting and NBN infrastructure has also been provided at the Packard Avenue Roundabout within stage 11 of the existing development.

3.6.2 Proposed Infrastructure

The proposed HV masterplan as prepared by AGA, has been presented in Appendix D. This shows that as part of the next stage associated with the prosed development, a HV link is to be provided to the existing substation in Phoenix Park. This is to be achieved through a temporary overhead line. As part of the connection works a HV line shall be constructed within the existing verges of Borassus Court and Phoenix Circuit. The preliminary alignment for the HV Connection from the Proposed development to the existing substation can be seen in Figure 3-10 below. LV Infrastructure shall be designed and documented for each stage of the development and submitted to PWC for approval. Similarly, streetlights shall be designed for streetscapes and open space in accordance with best practices and submitted to CoP for approval. Similarly, NBN design shall be compiled and submitted to the relevant authorities.

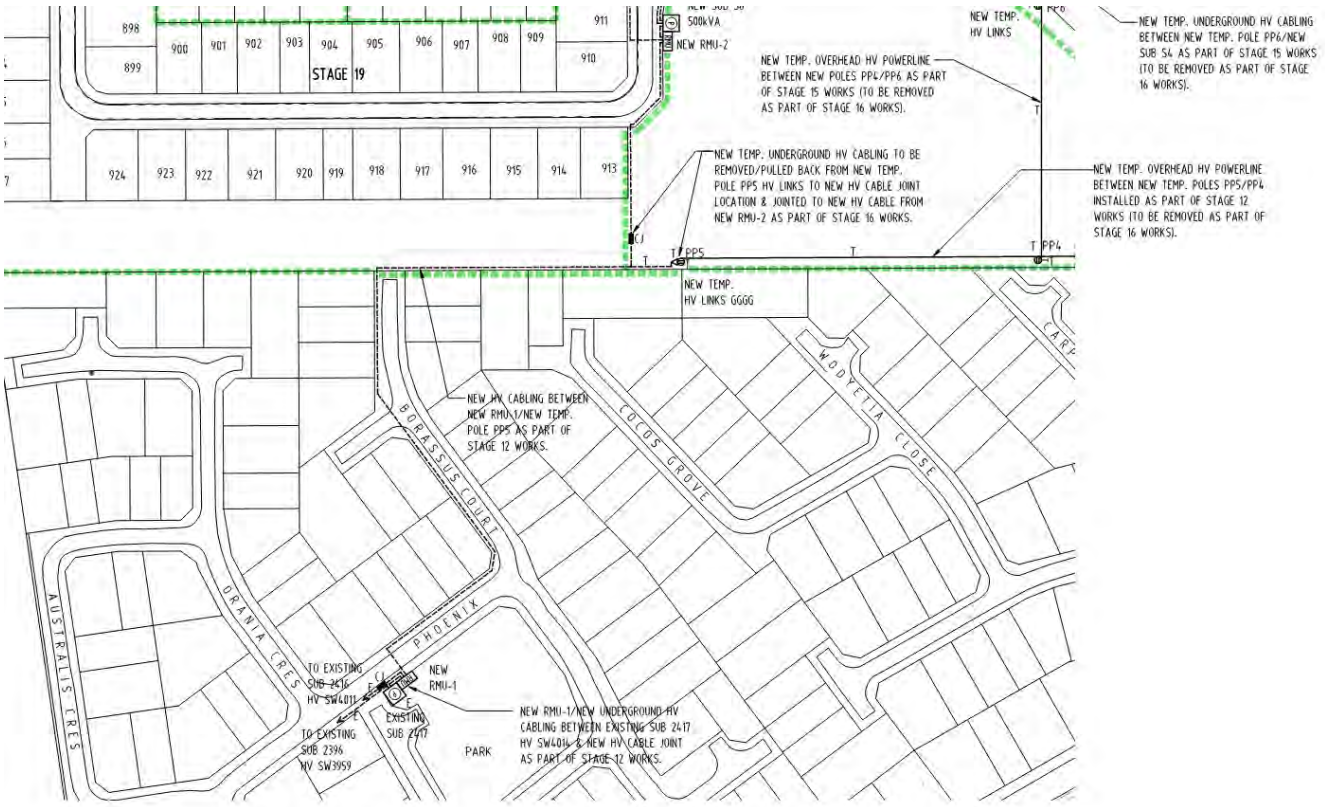


Figure 3-10 | Electrical HV Connection to Phoenix Circuit

3.7 Services Interaction

All utilities services shall be designed and documented to ensure appropriate vertical and horizontal clearances to CoP Assets are provided. Power and Water Corporation's amendment to WSA02 and WSA03 identify minimum clearance requirements of other services to Power Water Corp assets. Figure 3-11 and Figure 3-12 below outline the minimum clearances to PWC's Sewer and Water assets respectively.

Minimum clearances between CoP Stormwater assets and other services shall be adopted as 300 mm in accordance with AS3500.3. Furthermore, Driveway locations shall be designed such that the following clearances are achieved:

- 500 mm from street signs
- 600 mm from any stormwater drainage pit
- 1000 mm from overhead power/street light poles
- 1200 mm clear of service pits, pillars, valve boxes etc.
- 6.0 metres from the tangent point of any intersections

TABLE 4.2(NT)
CLEARANCES BETWEEN SEWERS AND OTHER UNDERGROUND SERVICES

Utility (Existing Service)	Minimum Horizontal Clearance (mm) New Sewer Size		Minimum Vertical Clearance[1] (mm)
	≤DN 300	>DN 300	
Sewers	600	600	300
Gas Mains	600	600	300
Telecommunication conduits and cables	600	600	300
Electricity conduits and cables	600	1000	300[2]
Drains	600	600	300
Water mains	1000[3]/600	1000[3]/600	500[4]
Kerbs	150	600[5]	150

NOTES:
1. Vertical clearances apply when sewers cross one another and other utility services, except in the case of water mains when a vertical separation shall always be maintained, even when the sewer and water main are parallel. *The sewer should always be located below the water main to minimise the possibility of backflow contamination in the event of a water main break.*
2. For minimum vertical clearances for electrical services refer to PWC Power Networks requirements.
3. When the sewer is at the minimum vertical clearance below the water main (500mm), maintain a minimum horizontal clearance of 1000mm. *This minimum horizontal clearance can be progressively reduced to 600mm as the vertical clearance is increased to 750mm.*
4. *Sewers should always cross under water mains and stormwater drains.* For cases where there is no alternative and the sewer must crossover a water main, construction shall be in accordance with Standard Drawing WAT-1211 of WSA 03.
5. Clearance from kerbs shall be measured from the nearest point of the kerb.

Figure 3-11 | Minimum Clearances to PWC Sewer Assets

TABLE 4.1(NT)
CLEARANCES BETWEEN WATER MAINS AND UNDERGROUND SERVICES

Utility (Existing Service)	Minimum Horizontal Clearance (mm) New Main Size ≤DN 200	Minimum Horizontal Clearance (mm) New Main Size >DN 200	Minimum Vertical Clearance[1] (mm)
Water mains >DN 375	600	600	500
Water mains ≤DN 375	600	600	300
Gas Mains	600	600	300
Telecommunication conduits and cables	600	600	300
Electricity conduits and cables	600	1000	300[2]
Drains	600	600	300
Sewers	1000[3]/600	1000[3]/600	500[4]
Kerbs	150	600[5]	150

NOTES:
1. Vertical clearances apply when water mains cross one another and other utility services, except in the case of sewers when a vertical separation shall always be maintained, even when the water main and sewer are parallel. *The water main should always be located above the sewer to minimise the possibility of backflow contamination in the event of a water main break.*
2. For minimum vertical clearances for electrical services refer to PWC Power Networks requirements.
3. When the sewer is at the minimum vertical clearance below the water main (500mm), maintain a minimum horizontal clearance of 1000mm. *This minimum horizontal clearance can be progressively reduced to 600mm as the vertical clearance is increased to 750mm.*
4. *Water mains should always cross over sewers and stormwater drains.* For cases where there is no alternative and the main must cross under the sewer, construction shall be in accordance with Standard Drawing WAT-1211.
5. Clearance from kerbs shall be measured from the nearest point of the kerb. For water mains ≤DN 375, clearances from kerbs can be progressively reduced until the minimum of 150mm is reached for water mains ≤DN 200."

Figure 3-12 | Minimum Clearances to PWC Water Assets

3.8 Acoustic Fencing

An acoustic assessment has been undertaken by others as part of the master planning considerations for the site. It has identified that Acoustic Fencing shall be necessary at the interface to Tiger Brennan Drive. The proposed allotments which back onto Tiger Brennan Drive shall have an acoustic fence installed.

4 Public Open Space

Public Open Space within the proposed development shall be designed and documented by others. The preliminary Public open space design can be seen within Figure 4-1 below. Some usable public open space shall also serve a stormwater engineering purpose with a high level of amenity. Public Open Space dedications shall be consistent with the parameters set out in the Northern territory Subdivision Development Guidelines. A preliminary calculation of the areas proposed for public open space within the proposed development site has been included within Appendix B.

Figure 4-1 | Public Open Space Concept Design

5 Conclusions & Recommendations

The proposed future stages of The Heights residential development at Durack have been presented within the appendices of this report. A number of engineering considerations have been presented within this report and it's appendices. The engineering concepts presented within this report and it's appendices confirm the existing infrastructure which interfaces the development are sufficient to cater for the proposed development.

It is proposed that the concepts detailed within this plan are to be further refined and submitted to the appropriate authorities for approval as part of the future stages of the development.

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Appendix A - General Plan for Development

Empowered to do more

- RESIDENTIAL AREA
- ROAD AREA
- VERGE AREA
- OPEN SPACE AND STORMWATER MANAGEMENT AREAS
- FUTURE TRANSPORT CORRIDOR LAND DEDICATION
- DEVELOPMENT BOUNDARY
- PEDESTRIAN PATH
- PEDESTRIAN CONNECTION

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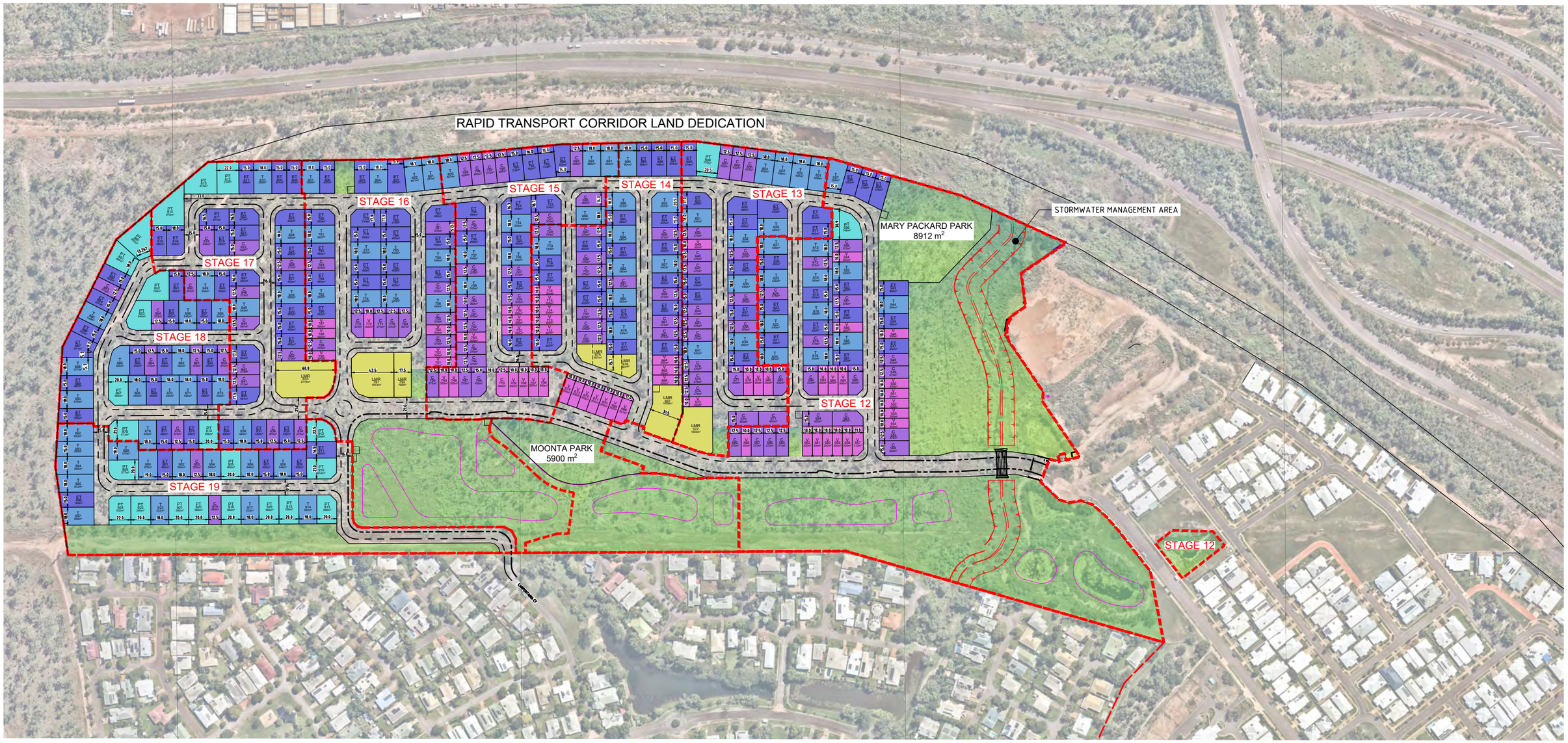
Appendix B - Preliminary Engineering Plans

Empowered to do more



LEGEND

- V (VILLA)
- C (COURTYARD)
- ET (ECO-TRADITIONAL)
- T (TRADITIONAL)
- PT (PREM-TRADITIONAL)
- LMR (DUPLEX)
- EXISTING PARK IN STAGE 11
- PARKS IN STAGE 12~STAGE 19

0 40 80 120 160 200m

40 30 20 10

SCALE 1:2000 (A1) 1:4000 (A3)

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

Stage 12

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	18	29%	5412m²	301m²
C	12.5m	17	27%	6693m²	394m²
ET	15m	14	23%	6405m²	458m²
T	18m	12	19%	6508m²	542m²
PT	20m	1	2%	748m²	748m²
LMR	-	0	0%	0m²	-
Total	-	62	100%	25766m²	416m²

Stage 14

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	15	26%	4521m²	301m²
C	12.5m	12	21%	4500m²	375m²
ET	15m	18	32%	8284m²	460m²
T	18m	9	16%	4963m²	551m²
PT	20m	0	0%	0m²	-
LMR	-	3	5%	2873m²	627m²
Total	-	57	100%	25141m²	441m²

Stage 16

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	7	14%	2100m²	300m²
C	12.5m	10	20%	3714m²	371m²
ET	15m	18	37%	8519m²	473m²
T	18m	12	25%	6707m²	559m²
PT	20m	0	0%	0m²	-
LMR	-	2	4%	2601m²	1301m²
Total	-	49	100%	23641m²	482m²

Stage 18

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	0m²	-
C	12.5m	6	15%	2250m²	375m²
ET	15m	16	39%	7546m²	472m²
T	18m	12	29%	6617m²	551m²
PT	20m	7	17%	4831m²	690m²
LMR	-	0	0%	0m²	-
Total	-	41	100%	21244m²	518m²

All Stages

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	55	14%	16533m²	301m²
C	12.5m	97	25%	37463m²	386m²
ET	15m	116	31%	54354m²	469m²
T	18m	83	22%	46207m²	557m²
PT	20m	24	6%	15903m²	663m²
LMR	-	7	2%	9098m²	1300m²
Total	-	382	100%	179558m²	470m²

Stage 13

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	5	10%	1500m²	300m²
C	12.5m	19	40%	7530m²	396m²
ET	15m	12	25%	5644m²	470m²
T	18m	10	21%	5672m²	567m²
PT	20m	1	2%	770m²	770m²
LMR	-	1	2%	1505m²	1505m²
Total	-	48	100%	22621m²	471m²

Stage 15

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	10	20%	3000m²	300m²
C	12.5m	20	41%	7773m²	389m²
ET	15m	11	22%	5338m²	485m²
T	18m	8	16%	4474m²	559m²
PT	20m	0	0%	0m²	-
LMR	-	0	0%	0m²	-
Total	-	49	100%	20585m²	420m²

Stage 17

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	0m²	-
C	12.5m	11	26%	4265m²	388m²
ET	15m	22	51%	10264m²	467m²
T	18m	6	14%	3286m²	548m²
PT	20m	3	7%	2500m²	833m²
LMR	-	1	2%	2119m²	2119m²
Total	-	43	100%	22434m²	522m²

Stage 19

Lot Size (m²)	Lot Classification	No.	Mix	Area	Av. Area
V	10m	0	0%	0m²	-
C	12.5m	2	4%	738m²	369m²
ET	15m	5	13%	2354m²	471m²
T	18m	14	44%	7980m²	570m²
PT	20m	12	39%	7054m²	588m²
LMR	-	0	0%	0m²	-
Total	-	33	100%	18126m²	549m²

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	EM	YL	WR	WR	25/10/24

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS

DURACK

Empower ENGINEERS & PROJECT MANAGERS ABN 23 010 743 692

Client: URBEX PTY LTD

Project: THE HEIGHTS

Title: CONCEPT LOT YIELD PLAN FOR PLANNING SCHEME AMENDMENT

Datum: AHD PSM . RL . (MGA) COORD

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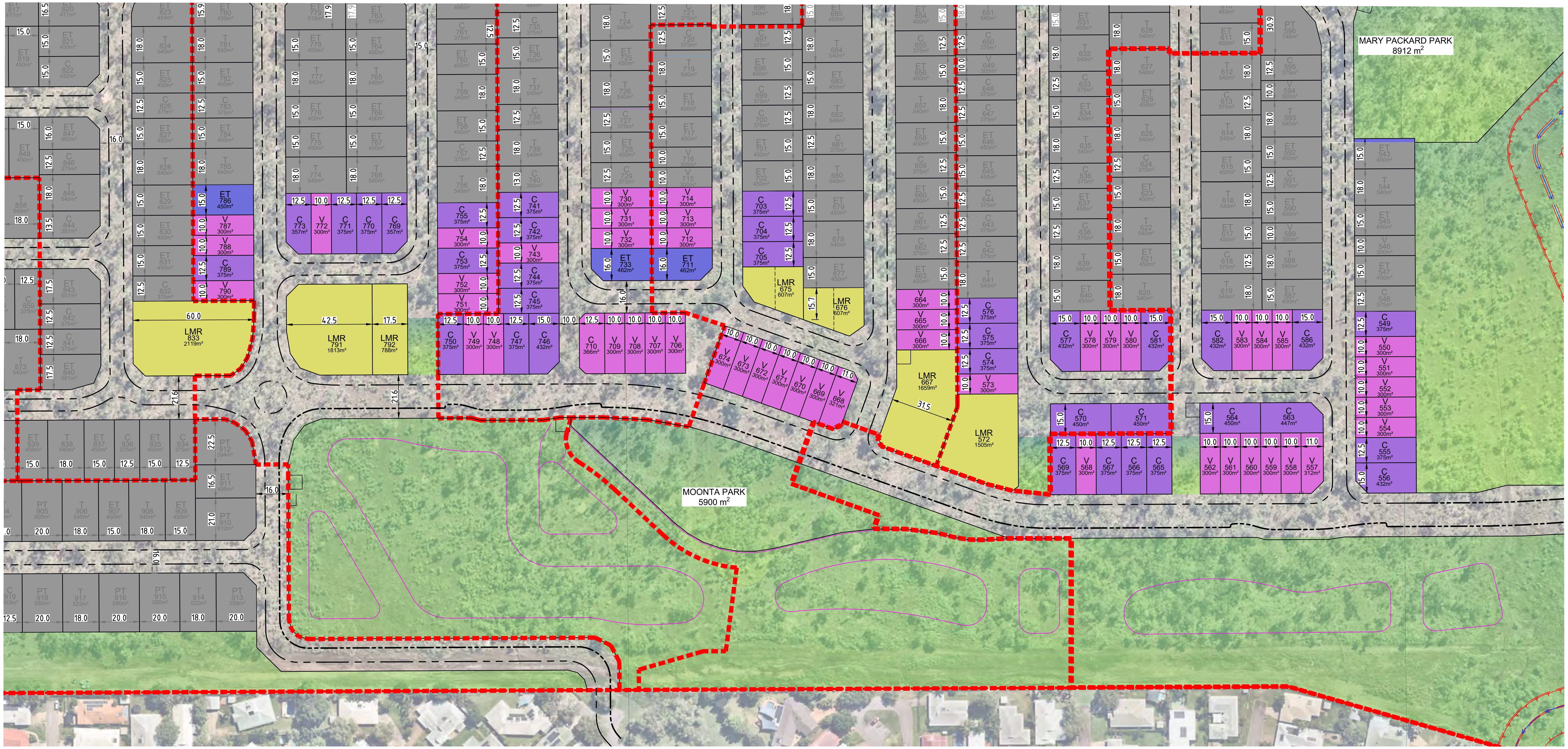

LEGEND

- V (VILLA)
- C (COURTYARD)
- ET (ECO-TRADITIONAL)
- T (TRADITIONAL)
- PT (PREM-TRADITIONAL)
- LMR (DUPLEX)
- EXISTING PARK IN STAGE 11
- PARKS IN STAGE 12-STAGE 19

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C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	CCM	PDW	WR	WR	10/01/24

Registered Engineer

Date Register

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THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client URBEX PTY LTD

Project THE HEIGHTS

Title CONCEPT LOT YIELD DETAIL PLAN

Datum AHD
PSM .
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(MGA) COORD

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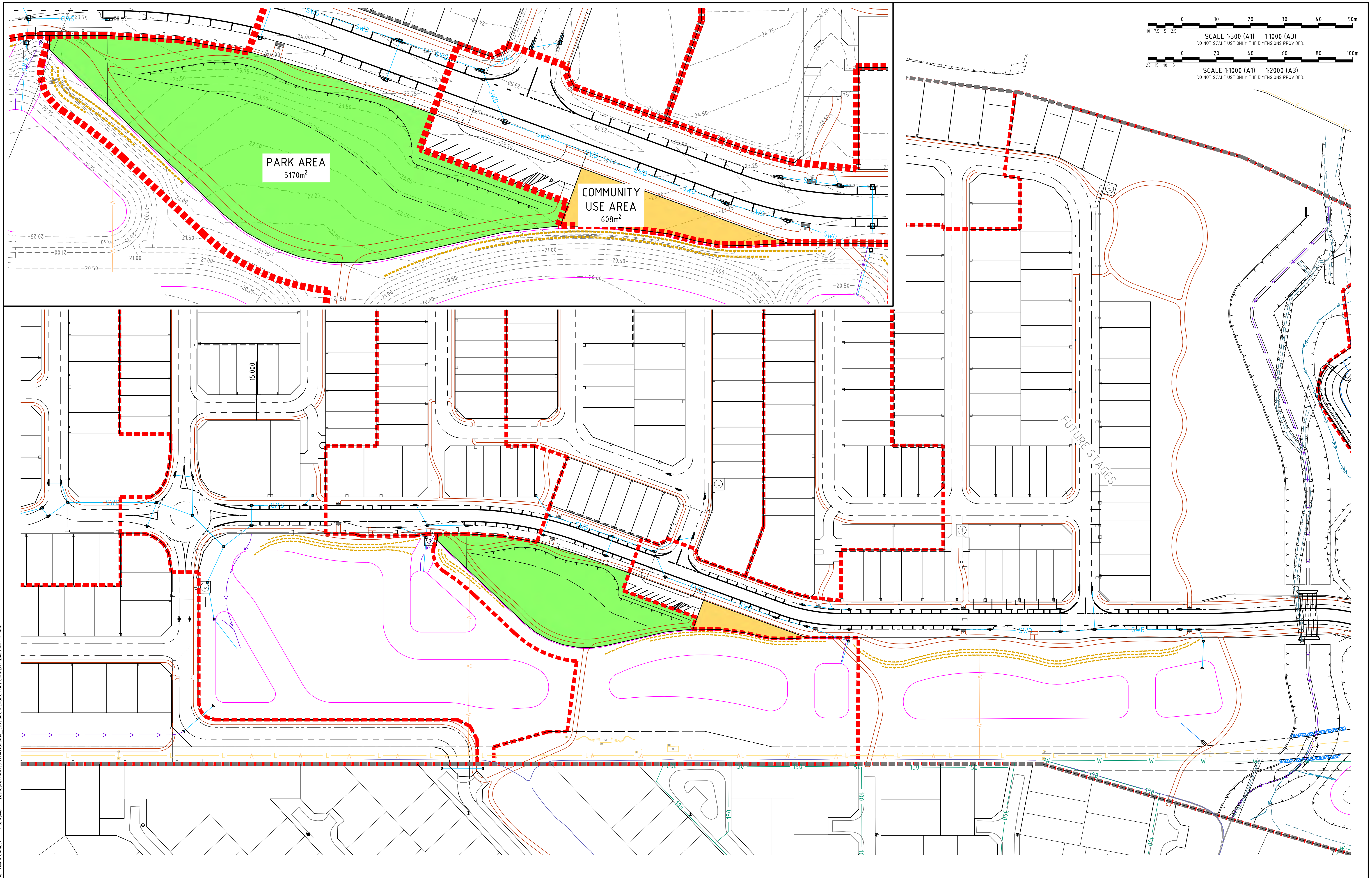
Rev E



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C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	CCM	PDW	WR	WR	10/01/24

Registered Engineer

Date Register

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THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client: URBEX PTY LTD

Project: THE HEIGHTS

Title: PARK PRECINCT LAYOUT PLAN

Datum: AHD
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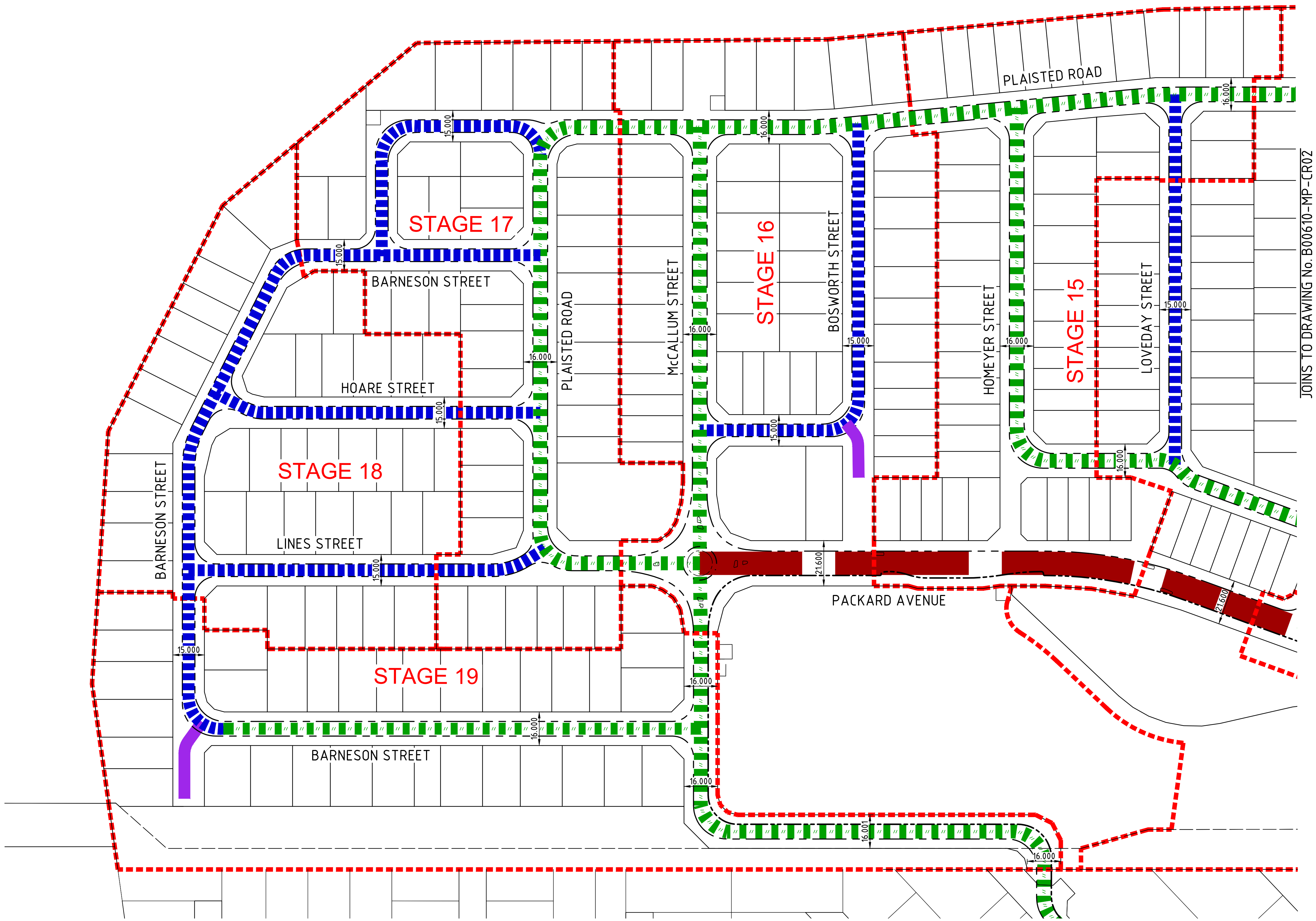

LEGEND

- PROPOSED STAGE BOUNDARY
- PROPOSED LOT BOUNDARY

ROAD HIERARCHY

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- 16.0m WIDE (MIN.) ACCESS STREET IN ACCORDANCE WITH NT SDG STANDARD DRAWING SS 1000
- 15.0m WIDE MINOR STREET IN ACCORDANCE WITH NT SDG STANDARD DRAWING SS 1000
- CONCRETE DRIVEWAY ACCESS

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A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer
Date Register
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THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client: URBEX PTY LTD
Project: THE HEIGHTS
Title: ROAD HIERARCHY PLANS
SHEET 1 OF 2

Datum: AHD
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(MGA) COORD

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NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
	B00610-MP-CR01	D

LEGEND

- PROPOSED STAGE BOUNDARY
- PROPOSED LOT BOUNDARY

ROAD HIERARCHY

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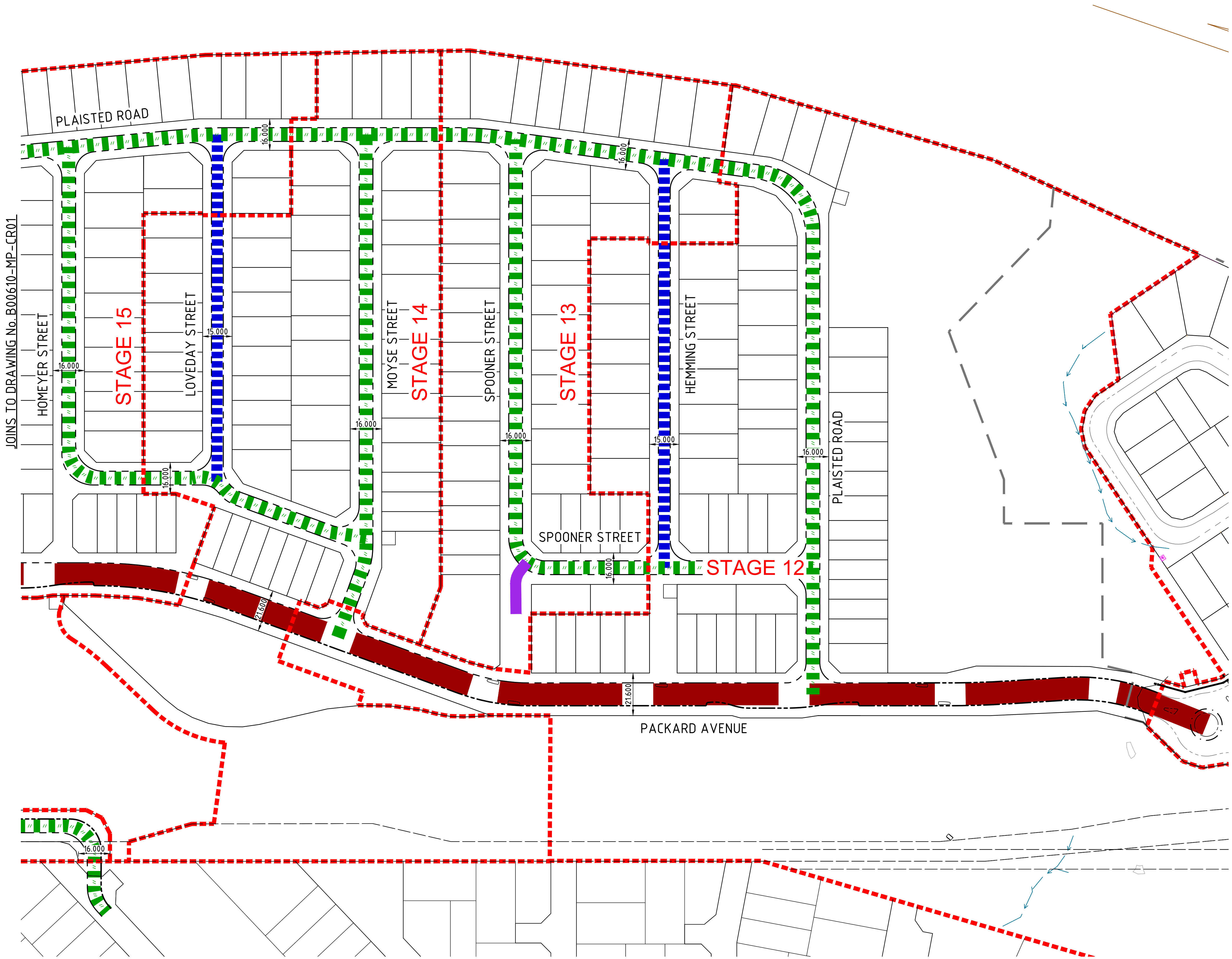
- 16.0m WIDE (MIN.) ACCESS STREET IN ACCORDANCE WITH NT SDG STANDARD DRAWING SS 1000
- 15.0m WIDE MINOR STREET IN ACCORDANCE WITH NT SDG STANDARD DRAWING SS 1000
- CONCRETE DRIVEWAY ACCESS



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DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

REVISION IN PROGRESS

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B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client URBEX PTY LTD

Project THE HEIGHTS

Title ROAD HIERARCHY PLANS SHEET 2 OF 2

Datum AHD
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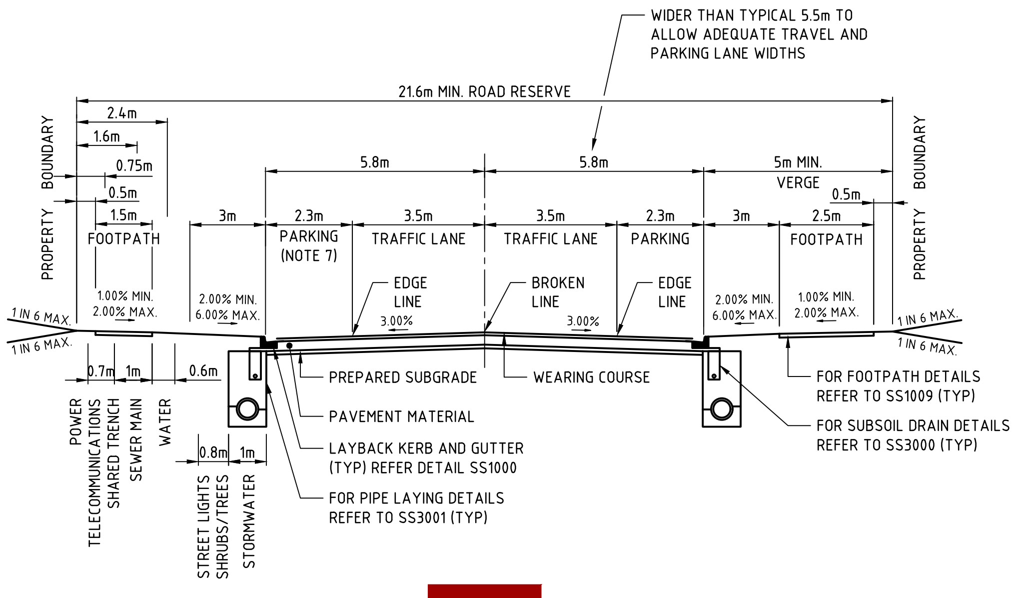
Project No. Drawing No. B00610-MP-CR02

Rev D

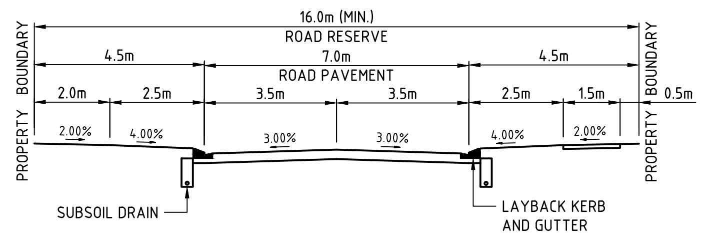
User: MARK CARILLO

Plot Date: 22/11/2024 12:40:36 PM



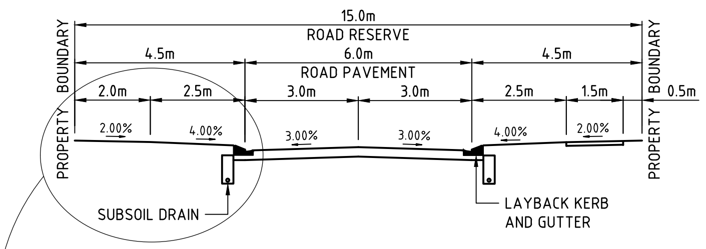
NT SDG 21.6m (MIN.) - SECONDARY COLLECTOR

SCALE 1:100



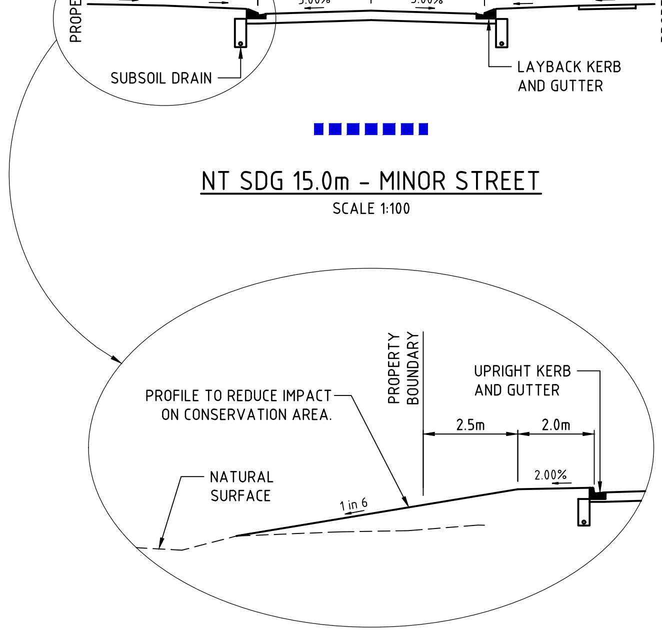
NT SDG 16.0m (MIN.) - ACCESS STREET

SCALE 1:100



NT SDG 15.0m - MINOR STREET

SCALE 1:100



ALTERNATE SECTION

SCALE 1:100

0 2 4 6 8 10m

2.0 1.5 1.0 0.5

SCALE 1:100 (A1) 1:200 (A3)

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
D	UPDATED LAYOUT	EM	YL	WR	WR	25/10/24
C	ADJUSTMENT TO LMP LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS

DURACK

Empower

ENGINEERS & PROJECT MANAGERS

ABN 23 010 743 692

Client **URBEX PTY LTD**

Project **THE HEIGHTS**

Title **ROAD CROSS SECTIONS**

Datum AHD

PSM .

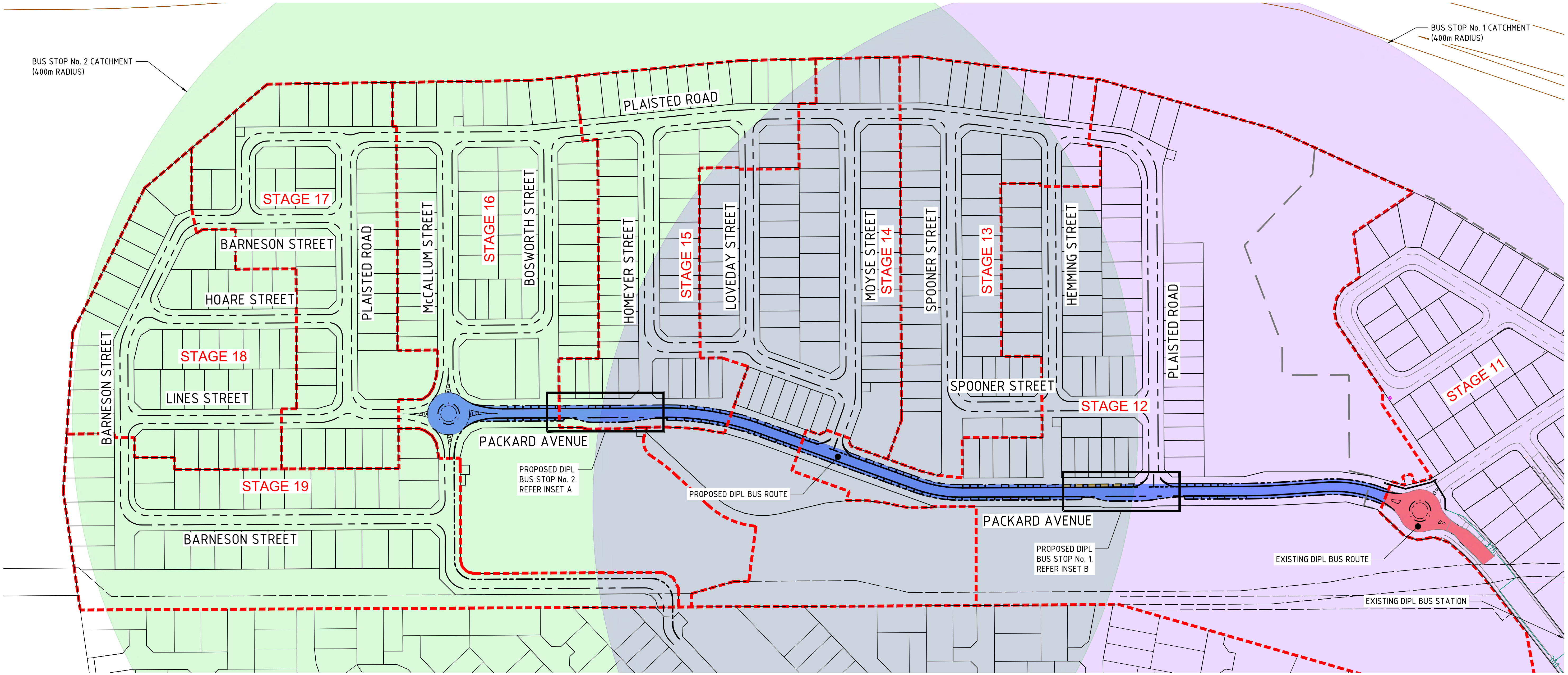
RL .

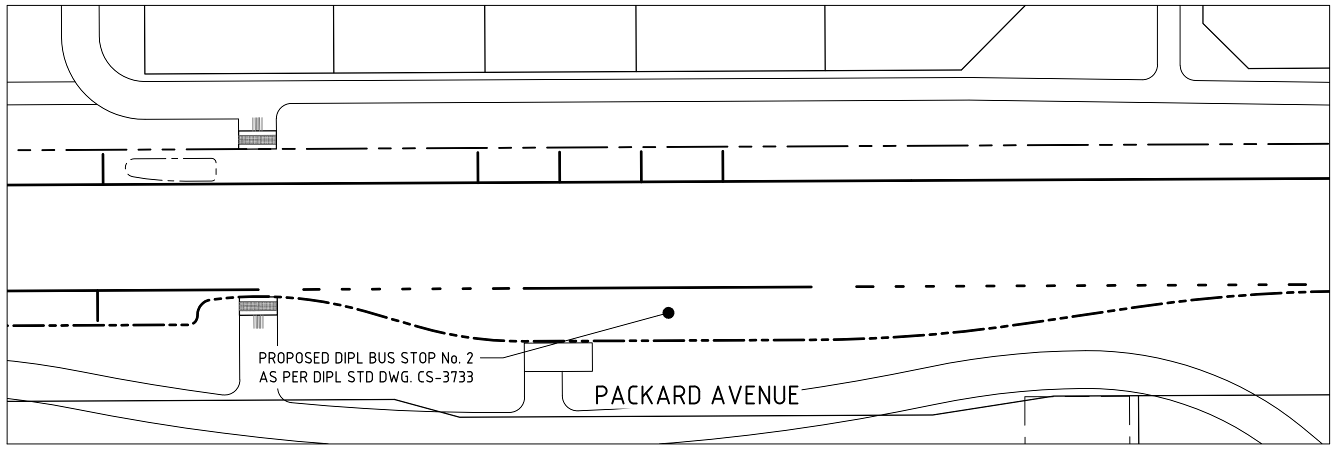
(MGA) COORD

NOT FOR CONSTRUCTION

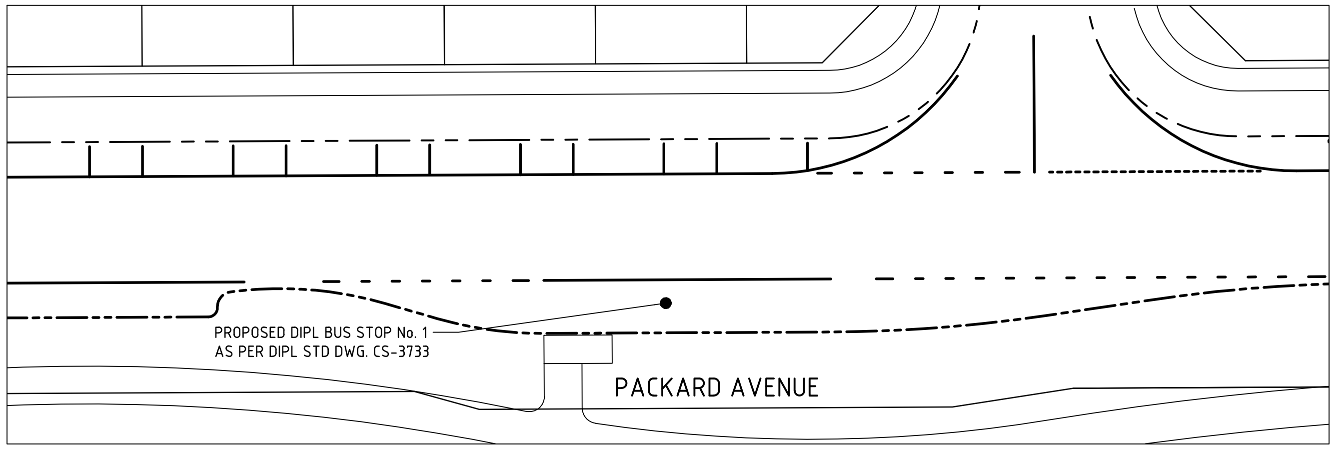
Project No.	Drawing No.	Rev
	B00610-MP-CR03	D

Plot Date: 27/11/2024 12:49:38 PM User: MARK CARILLO File Name: S:\1265\data\MAN\DSYN01\B00610_299214 CIVIL-DRGS\4.2 CURRENT\B00610-MP-RDP





INSET A
SCALE 1:250 (A1)



INSET B
SCALE 1:250 (A1)

SCALE 1:1500 (A1) 1:3000 (A3)
DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

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	EM	YL	WR	WR	25/10/24

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

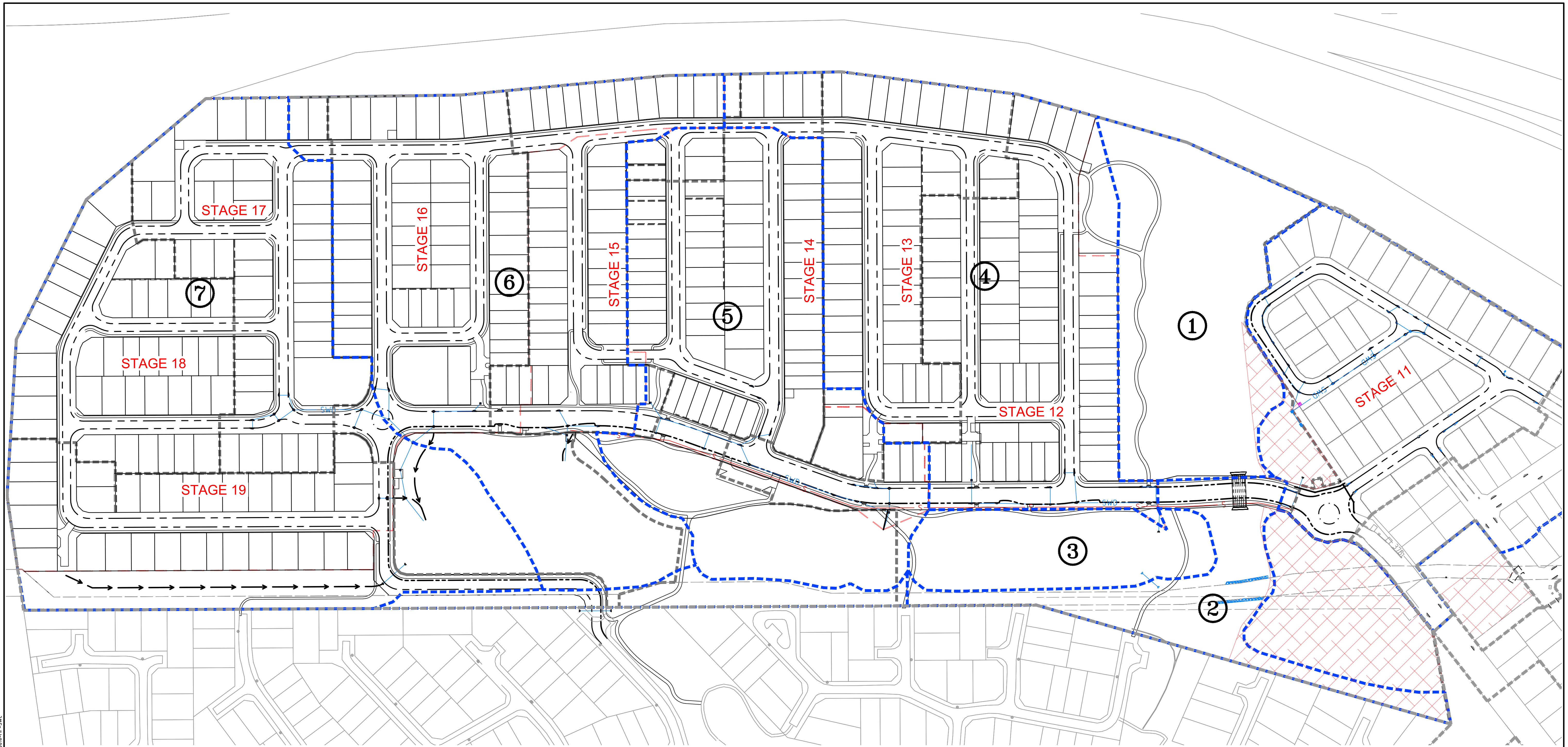
Client: URBEX PTY LTD
Project: THE HEIGHTS
Title: DIPL BUS STOP CATCHMENT AND DETAILS PLAN

Datum: AHD
PSM .
RL .
(MGA) COORD

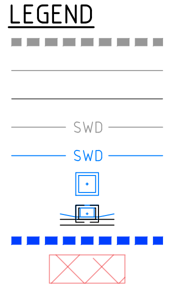
NOT FOR CONSTRUCTION

Project No. | Drawing No.: B00610-MP-CR04 | Rev: A

Plot Date: 22/11/2024 12:40:43 PM User: MARK CARILLO File Name: S:\12ds\data\MAN12DSYN01\B00610_2092\4 CIVIL-DRGS\4.2 CURRENT\B00610-MP-RDP



LEGEND



CATCHMENT	AREA (Ha)
1	3.05
2	1.51
3	1.35
4	7.12
5	5.93
6	7.75
7	10.21

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.

User: MARK CARILLO
Plot Date: 22/11/2024 12:40:59 PM

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

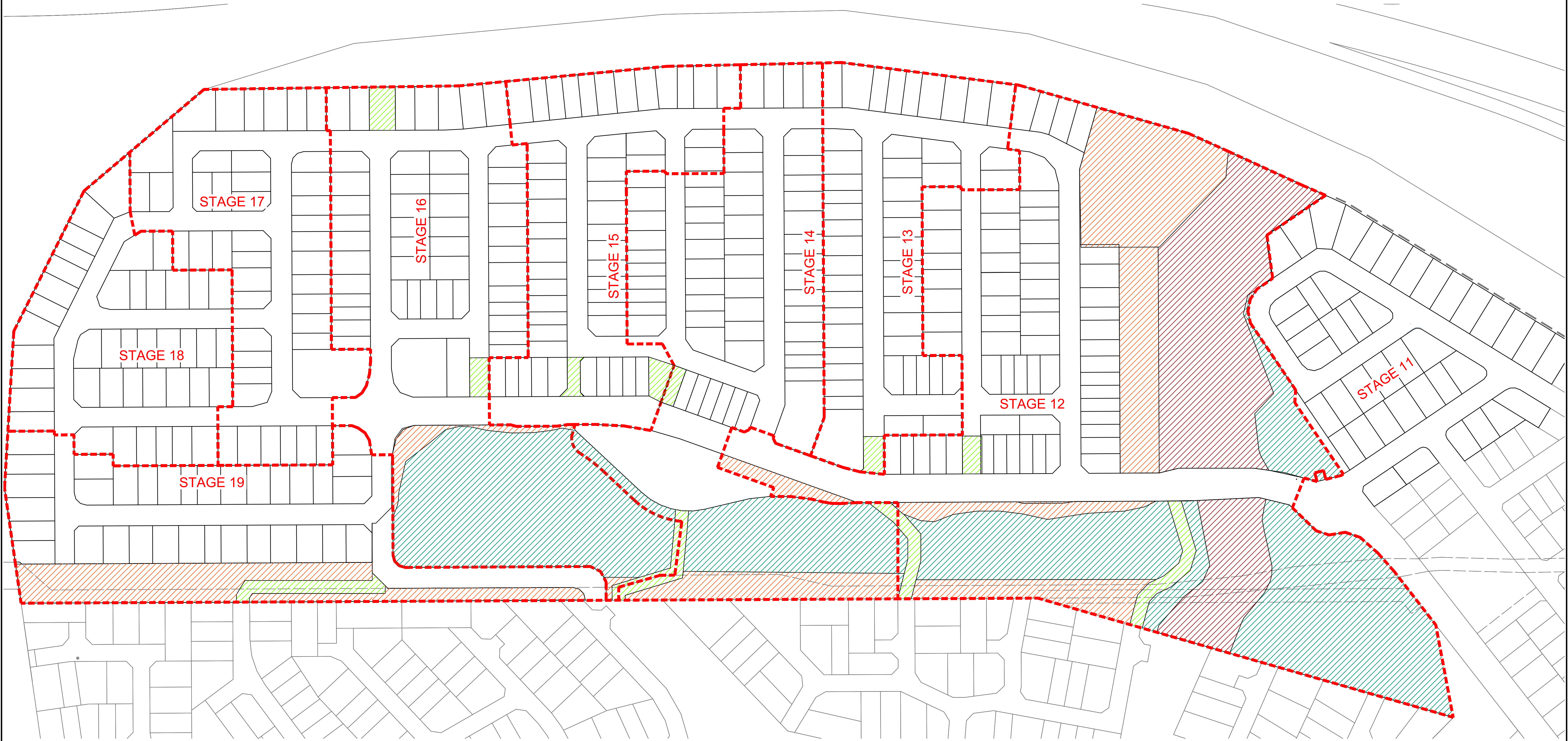
Client URBEX PTY LTD
Project THE HEIGHTS
Title STORMWATER CATCHMENT PLAN

Datum AHD
PSM .
RL .
(MGA) COORD

N

NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
	B00610-MP-CD01	C



LEGEND

- LANDSCAPED AREAS
- PEDESTRIAN LINKAGES
- STORMWATER MANAGEMENT (USABLE POS AREA)
- STORMWATER MANAGEMENT (ENCUMBERED)

0 30 60 90 120 150m

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

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

POS SUMMARY TABLE

STAGE	STAGE AREA	LANDSCAPED AREAS	PEDESTRIAN LINKAGES	STORMWATER MANAGEMENT (USABLE)	COMBINED POS AREA	STORMWATER MANAGEMENT (ENCUMBERED)
STAGE 12	121,163	19,246	2,266	23,653	45,165	30,587
STAGE 13	30,713	0	455	0	455	0
STAGE 14	54,248	9,051	1,135	0	10,186	9,453
STAGE 15	31,047	0	773	0	773	0
STAGE 16	57,202	1,439	1,495	0	2,934	18,645
STAGE 17	31,900	0	0	0	0	0
STAGE 18	27,455	0	0	0	0	0
STAGE 19	37,518	8,661	1,187	0	9,848	0
TOTAL AREAS	**391,246**	**38,397**	**7,311**	**23,653**	**69,361**	**58,685**
PERCENTAGE OF AREAS	**100.00%**	**9.81%**	**1.86%**	**6.05%**	**17.73%**	**15.00%**

CUMULATIVE POS DELIVERY TABLE

STAGE	CUMULATIVE AREA	CUMULATIVE POS	% POS DELIVERED	NON SW MANAGEMENT POS	% POS
STAGE 12	121,163	45,165	37.276%	25,766	21.266%
STAGE 13	151,876	45,620	30.038%	22,621	14.894%
STAGE 14	206,124	55,806	27.074%	25,141	12.197%
STAGE 15	237,171	56,579	23.856%	20,585	8.679%
STAGE 16	294,373	56,579	19.220%	23,641	8.031%
STAGE 17	326,273	56,579	17.341%	22,434	6.876%
STAGE 18	353,728	59,513	16.825%	21,244	6.006%
STAGE 19	391,246	69,361	17.728%	18,377	4.697%

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

ENGINEERING CERTIFICATION

Registered Engineer

Date

Registered Accreditation

THE HEIGHTS
DURACK

Empower ENGINEERS & PROJECT MANAGERS ABN 23 010 743 692

Client URBEX PTY LTD
Project THE HEIGHTS
Title STORMWATER PUBLIC OPEN SPACE

Datum AHD
PSM .
RL .
(MGA) COORD

N

NOT FOR CONSTRUCTION

Project No. B00610-MP-CD02 | Drawing No. | Rev C

Plot Date: 22/11/2024 12:41:12 PM User: MARK CARILLO
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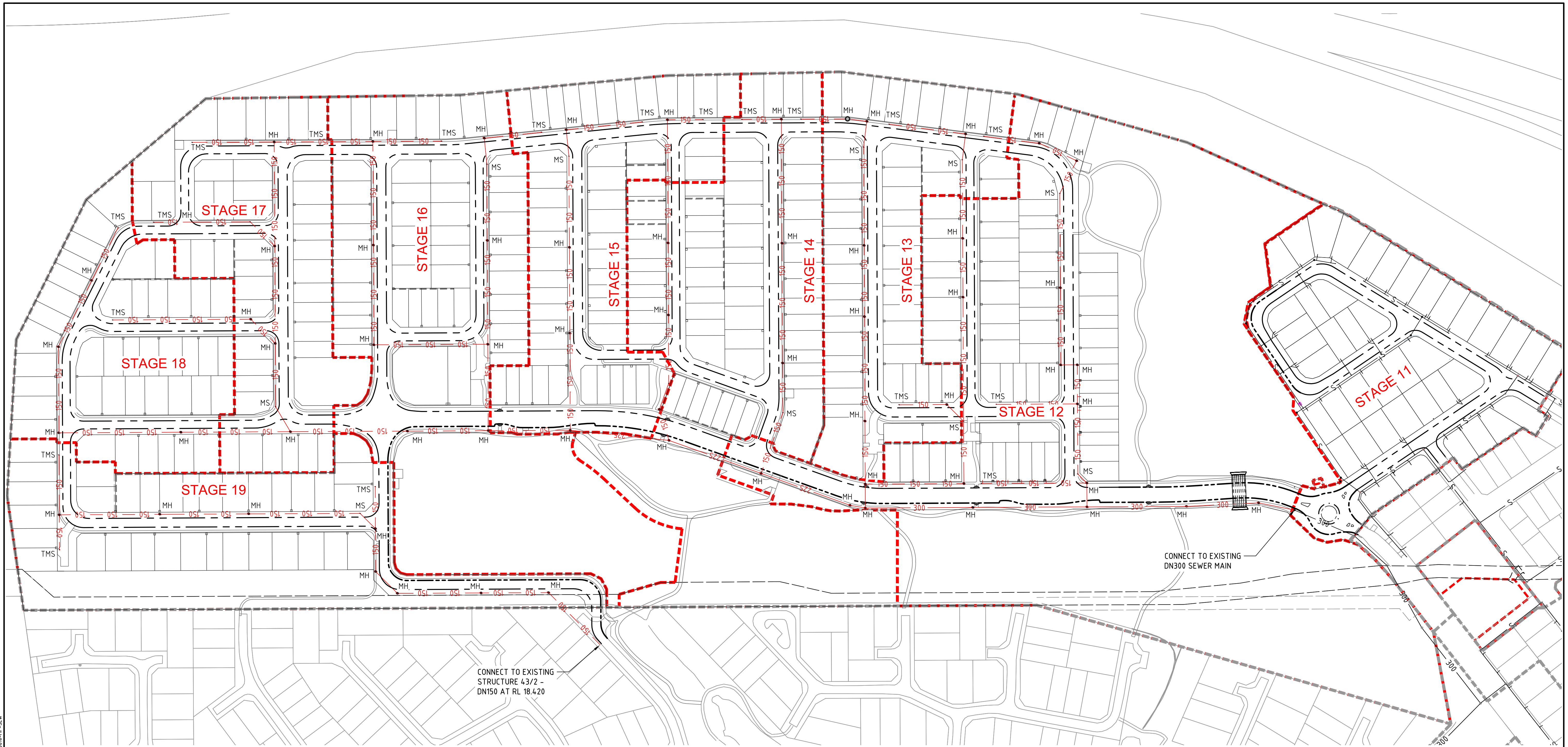


LEGEND

(red dashed line)	STAGE BOUNDARY
(line)	PROPOSED LOT BOUNDARY
(grey line)	EXISTING LOT BOUNDARY
— S —	EXISTING SEWER RETICULATION
— 150 — 150 —	PROPOSED ⌀150 SEWER RETICULATION
— 225 — 225 —	PROPOSED ⌀225 SEWER RETICULATION
— 300 — 300 —	PROPOSED ⌀300 SEWER RETICULATION
◎	SEWER MANHOLE
○	SEWER MAINTENANCE SHAFT/ TERMINAL MAINTENANCE SHAFT

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.

Plot Date: 22/11/2024 12:41:25 PM User: MARK CARILLO File Name: S:\12ds\data\MAN12DSYN01\B00610_2092\4 CIVIL-DRGS\4.2 CURRENT\B00610-MP-SEW

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client: URBEX PTY LTD

Project: THE HEIGHTS

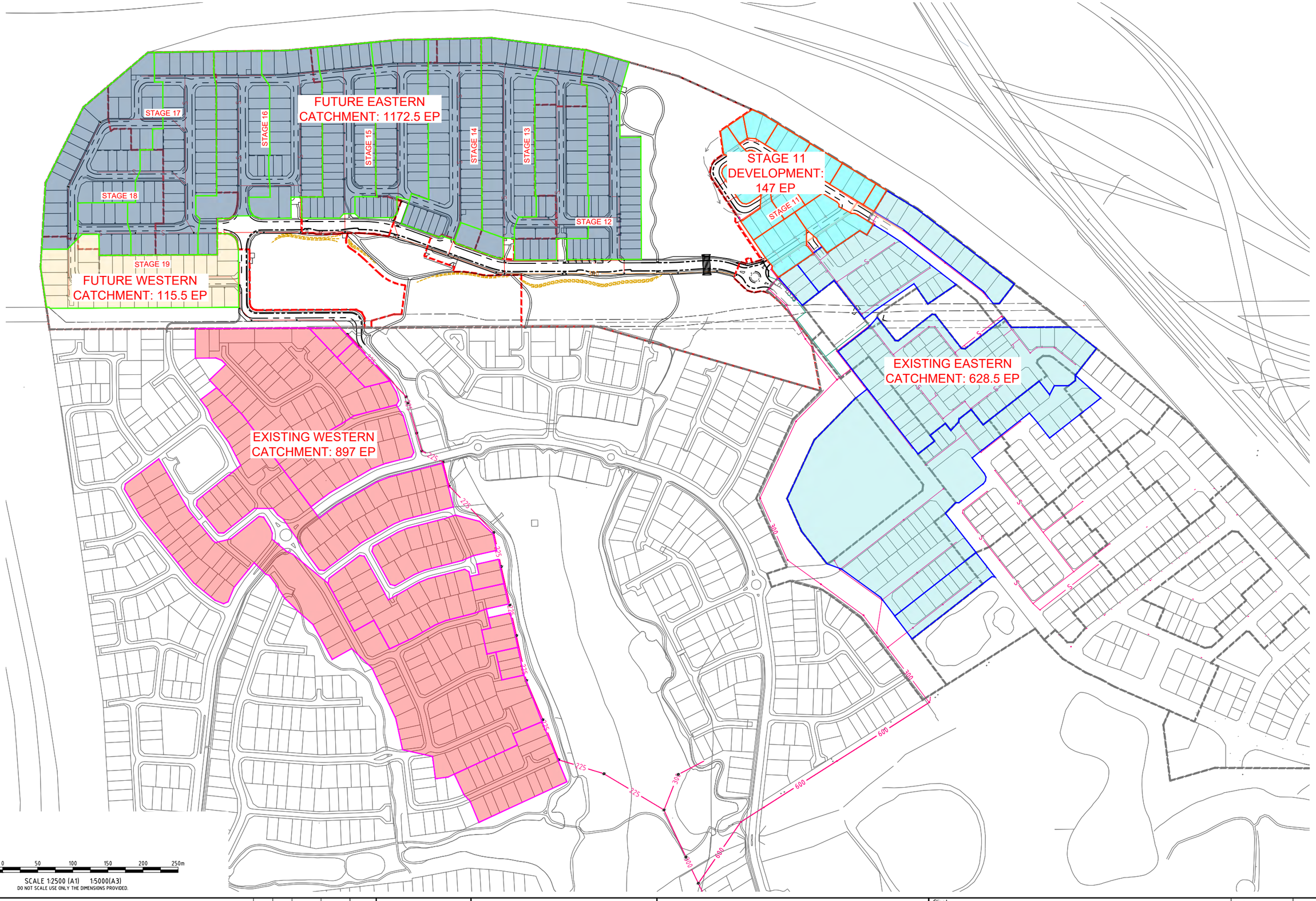
Title: SEWER RETICULATION MASTER PLAN

Datum: AHD
PSM .
RL .
(MGA) COORD

N

NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
B00610-MP-SE01		C



No.	Amendments	Drawn	Design	Design Chk	Appd	Date
C	ADJUSTMENT TO LMD LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

REVISION IN PROGRESS

Registered Engineer

Date Register

ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client URBEX PTY LTD

Project THE HEIGHTS

Title SEWER RETICULATION CATCHMENT PLAN

Datum AHD
PSM .
RL .
(MGA) COORD

N

NOT FOR CONSTRUCTION

Project No.	Drawing No.	Rev
B00610	MP-SE02	C

Plot Date: 22/11/2024, 12:41:39 PM
User: MARK CARILLO
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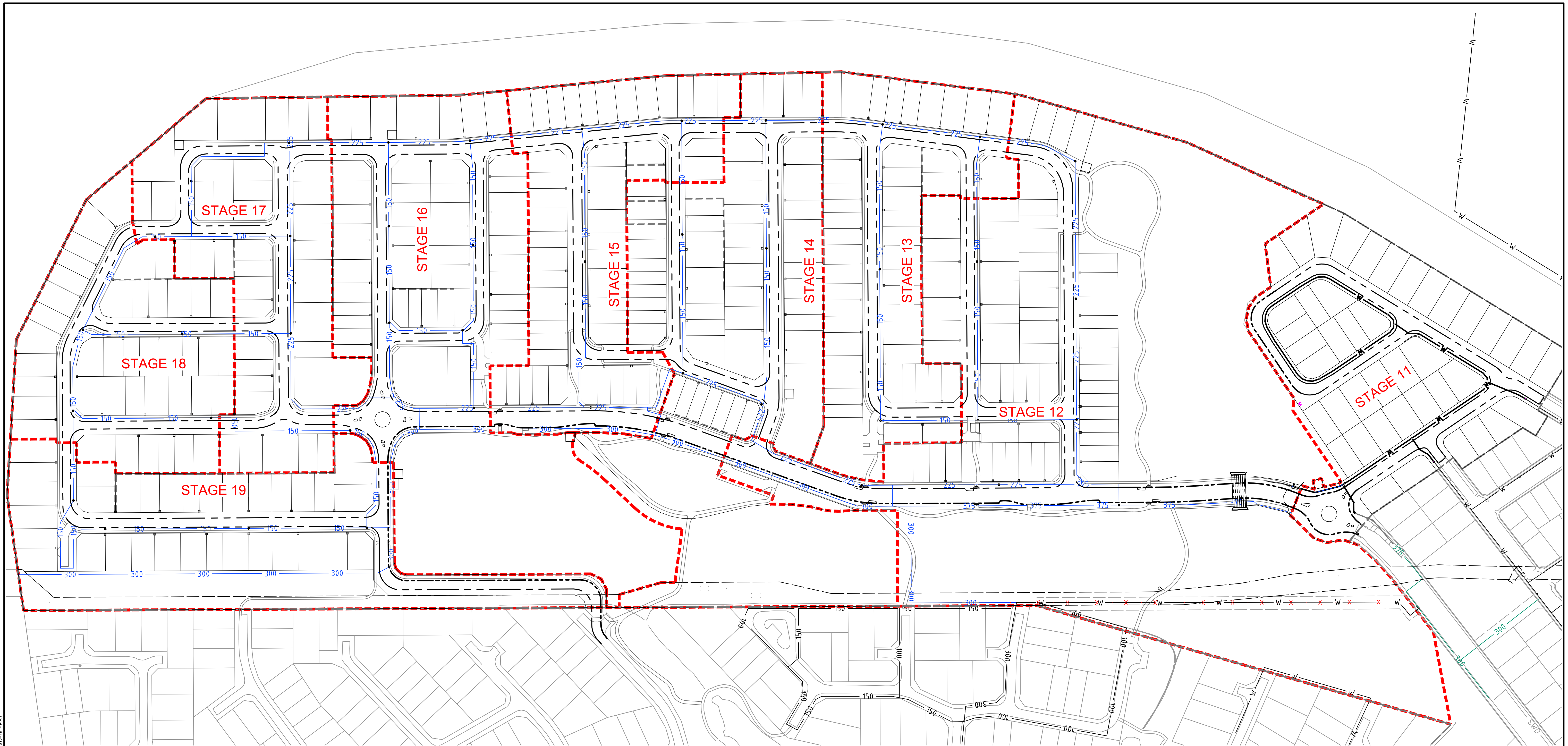


LEGEND

(red dashed line)	STAGE BOUNDARY
(line)	PROPOSED LOT BOUNDARY
(line)	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.

File Name: S:\126\data\MAN\DSYN01\B00610_2092\4 CIVIL_DRGS\4.2 CURRENT\B00610-MP-WAT
User: MARK CARILLO
Plot Date: 22/11/2024 12:41:52 PM

REVISION IN PROGRESS

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
C	ADJUSTMENT TO LMR LOTS	YL	ES	WR	WR	03/09/24
B	MASTER PLAN LOT LAYOUT AMENDMENT	MC	PDW	WR	WR	07/08/24
A	ORIGINAL ISSUE	MC	PDW	WR	WR	DD/MM/24

Registered Engineer
Date Register
ENGINEERING CERTIFICATION

THE HEIGHTS
DURACK

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client: URBEX PTY LTD
Project: THE HEIGHTS
Title: WATER RETICULATION MASTER PLAN

Datum: AHD
PSM .
RL .
(MGA) COORD

N

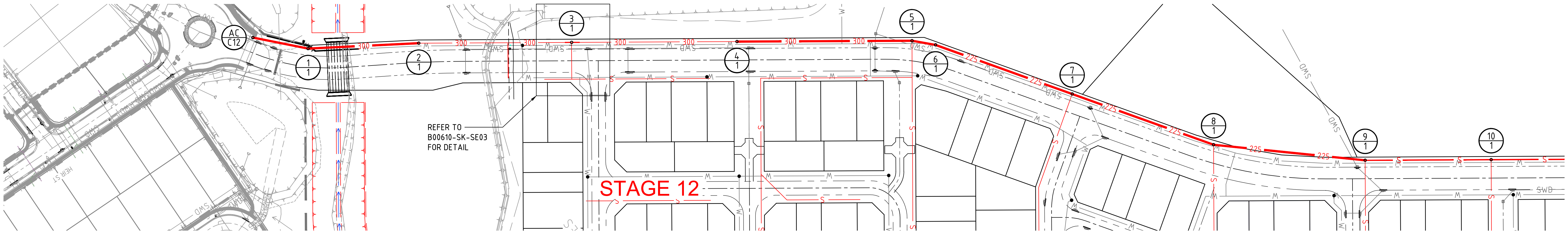
NOT FOR CONSTRUCTION

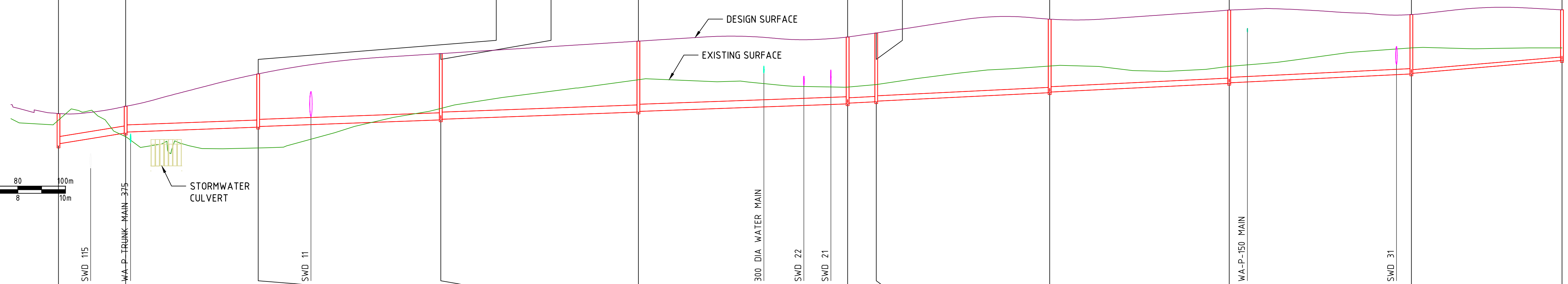
Project No. Drawing No. B00610-MP-WA01
Rev C

Empower
ENGINEERS &
PROJECT MANAGERS

Appendix C - DN 300 Sewer Concept Design

Empowered to do more





SCALE 1:1000 (A1) 1:2000 (A3)

SCALE 1:100 (A1) 1:200 (A3)

DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

Manhole	Angle / Line	Manhole Type/Drop	Manhole Cover	Junction Drop	Depth below F.S.L.	Invert Level	Finished Surface Level	Chainage
AC C12		S1100			1.358 / 1.258	18.260 / 18.360	19.618	0.000
1/1	ANGLE -14.09°	S1100 Drop 1 Type 11	Class D	Drop 1	1.131 / 1.081	18.800 / 18.850	19.931	28.185
2/1	ANGLE 2.51°	S1100 Drop 1 Type 11	Class D	Drop 1	2.239 / 2.209	19.050 / 19.080	21.289	83.786
3/1	Line 2	S1100 Drop 1 Type 11	Class D	Drop 1	2.788 / 2.758	19.356 / 19.386	22.144	160.414
4/1		S1100 Drop 1 Type 11	Class D	Drop 1	2.982 / 2.952	19.685 / 19.715	22.667	243.351
5/1	ANGLE 10.39° Line 5	S1100 Drop 1 Type 11	Class D	Drop 1	2.807 / 2.777	20.031 / 20.061	22.838	331.151
6/1	ANGLE 9.61°	S1100 Drop 1 Type 11	Class D	Drop 1	2.889 / 2.859	20.118 / 20.148	23.007	343.151
7/1	Line 9	S1100 Drop 1 Type 11	Class D	Drop 1	3.092 / 3.062	20.498 / 20.528	23.590	415.942
8/1	ANGLE -13.86° Line 10	S1100 Drop 1 Type 11	Class D	Drop 1	3.083 / 3.053	20.889 / 20.919	23.972	491.281
9/1	ANGLE -6.14° Line 11	S1100 Drop 1 Type 11	Class D	Drop 1	2.497 / 2.467	21.286 / 21.316	23.784	567.719
10/1	Line 12	S1100 Drop 1 Type 11	Class D	Drop 1	2.133	21.847	23.981	630.919

Section	Prop. Description	Diameter/Type	Grade (%) (mm/m)	(1 in X)	Length	Chainage
AC C12 – 1/1	0	ø300uPVC SN8	(15.6) 1.56%	(1 in 64)	28.185	28.185
1/1 – 2/1	0	ø300uPVC SN8	(3.6) 0.36%	(1 in 278)	55.601	55.601
2/1 – 3/1	0	ø300uPVC SN8	(3.6) 0.36%	(1 in 278)	76.628	76.628
3/1 – 4/1	0	ø300uPVC SN8	(3.6) 0.36%	(1 in 278)	82.937	82.937
4/1 – 5/1	0	ø300uPVC SN8	(3.6) 0.36%	(1 in 278)	87.8	87.800
5/1 – 6/1	0	ø225uPVC SN8	(4.8) 0.48%	(1 in 208)	12	12.000
6/1 – 7/1	0	ø225uPVC SN8	(4.8) 0.48%	(1 in 208)	72.791	72.791
7/1 – 8/1	0	ø225uPVC SN8	(4.8) 0.48%	(1 in 208)	75.339	75.339
8/1 – 9/1	0	ø225uPVC SN8	(4.8) 0.48%	(1 in 208)	76.438	76.438
9/1 – 10/1	0	ø150uPVC SN8	(8.4) 0.84%	(1 in 119)	63.2	63.200

JUNCTION LINE No.

DATUM (m) 6.0

LINE 1

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	YL	PDW	WR	WR	21/07/23

Registered Engineer 27/7/2023 5294036 — Date — Register

ENGINEERING CERTIFICATION

urbex

Empower ENGINEERS & PROJECT MANAGERS ABN 23 010 743 692

Client: URBEX

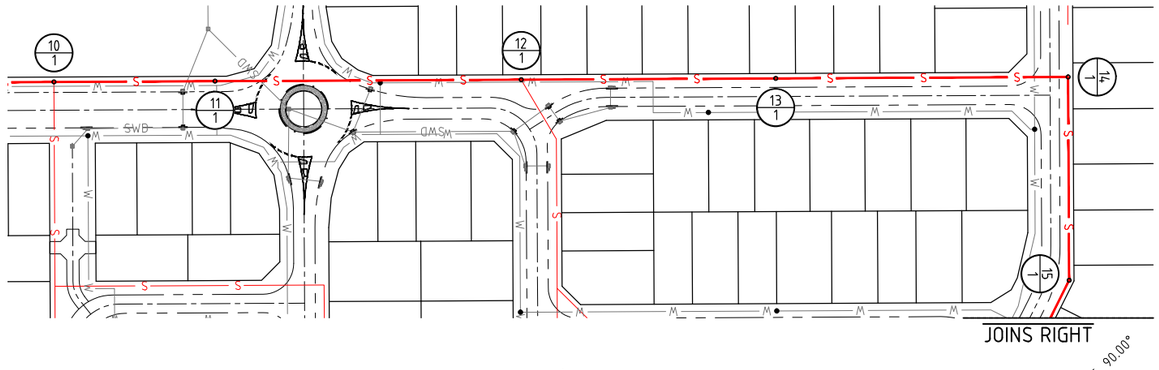
Project: THE HEIGHTS

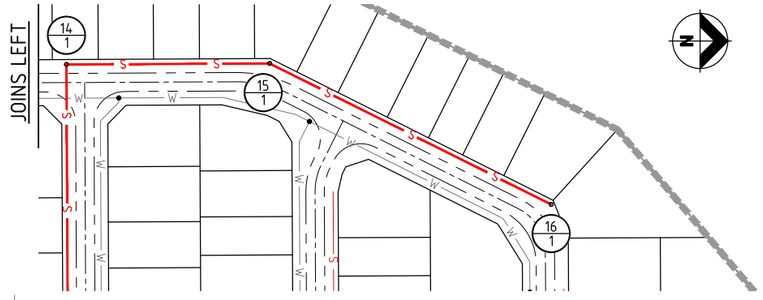
Title: TRUNK SEWER LAYOUT PLAN AND LONGITUDINAL SECTION SHEET 1 OF 2

Datum: AHD PSM - RL - (MGA) COORD

FOR APPROVAL

Project No. Drawing No. B00610-SK-SE01 Rev A





DO NOT SCALE USE ONLY THE DIMENSIONS PROVIDED.

	10/1		11/1		12/1		13/1		14/1		14/1		15/1		16/1
MANHOLE TYPE/DROP	Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11		Class D1 S1100 Drop 1 Type 11
MANHOLE COVER															
JUNCTION LINE No.															
JUNCTION DROP	Drop 1		Drop 1		Drop 1		Drop 1		Drop 1		Drop 1		Drop 1		Drop 1
PROP. DESCRIPTION		0		0		0		0		0		0		0	
DIAMETER/TYPE		⌀150uPVC SN8		⌀150uPVC SN8		⌀150uPVC SN8		⌀150uPVC SN8		⌀150uPVC SN8		⌀150uPVC SN8		⌀150uPVC SN8	
GRADE (%) (mm/m)		(8.4) 0.84%		(8.4) 0.84%		(8.4) 0.84%		(8.4) 0.84%		(10.0) 1.00%		(10.0) 1.00%		(10.0) 1.00%	
(1 in X)		(1 in 119)		(1 in 119)		(1 in 119)		(1 in 119)		(1 in 100)		(1 in 100)		(1 in 100)	
LENGTH		52.499		99.901		83		95.4		66.305		66.305		102.638	
DATUM (m)		10.0													
DEPTH BELOW F.S.L.	2.133 2.103		1.516 1.486		1.879 1.849		1.731 1.701		1.668 1.628		1.668 1.628		1.821 1.791		1.716
INVERT LEVEL	21.847 21.877		22.318 22.348		23.187 23.217		23.914 23.944		24.746 24.786		24.746 24.786		25.449 25.479		26.505
FINISHED SURFACE LEVEL	23.981		23.834		25.066		25.645		26.414		26.414		27.269		28.221
CHAINAGE	630.919	52.499	683.418	99.901	783.319	83.000	866.319	95.400	961.719	66.305	961.719	66.305	1028.024	102.638	1130.662
LINE		1													

File Name: C:\12dS\data\MAN12DSYN01\B00610_2092\4 CIVIL-DRGS\4.1 SKETCHES\B00610-SK-SE01

User: YELI LIN

Plot Date: 27/07/2023 8:35:23 AM

No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	YL	PDW	WR	WR	27/07/23

Wlackett

Registered Engineer
27/7/2023 5294036
Date Register

ENGINEERING CERTIFICATION

urbex

Empower
ENGINEERS & PROJECT MANAGERS
ABN 23 010 743 692

Client **URBEX**

Project **THE HEIGHTS**

Title **TRUNK SEWER
LAYOUT PLAN AND LONGITUDINAL SECTION
SHEET 2 OF 2**

Datum
AHD
PSM -
RL -
(MGA) COORD

FOR APPROVAL

Project No. | Drawing No. **B00610-SK-SE02** | Rev **A**

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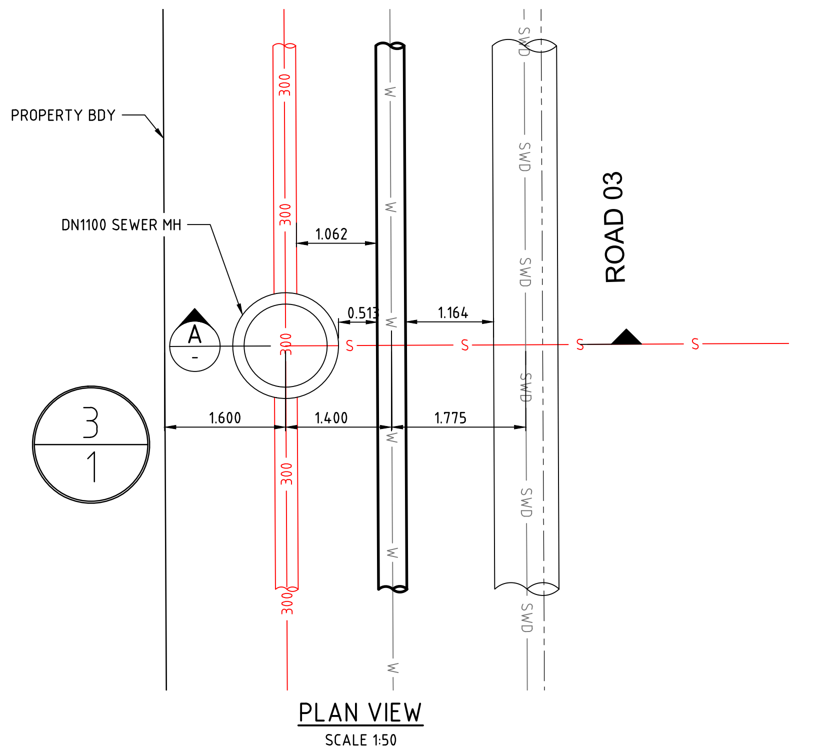

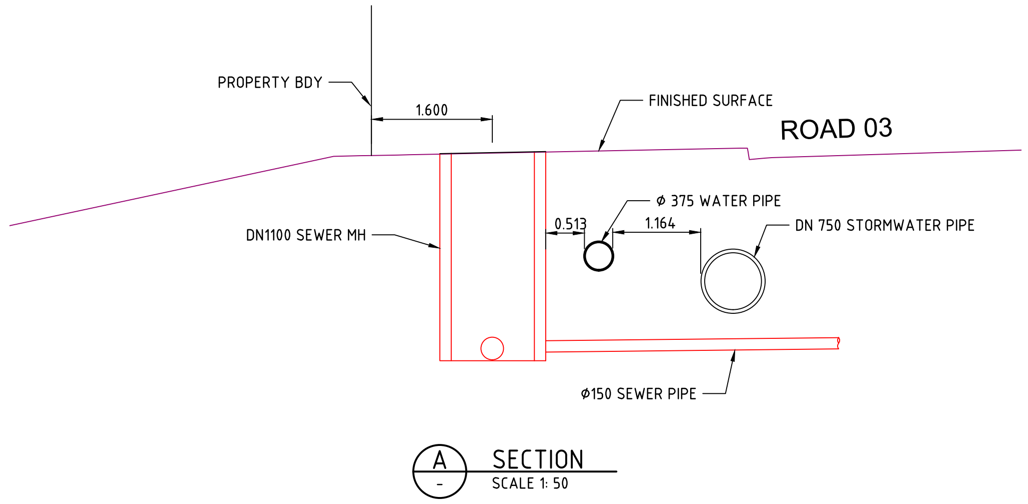

SCALE 1:50 (A1) 1:100 (A3)
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No.	Amendments	Drawn	Design	Design Chk	Appd	Date
A	ORIGINAL ISSUE	YL	PDW	WR	WR	21/07/23

Registered Engineer 27/7/2023 5294036
Date Register
ENGINEERING CERTIFICATION

urbex

Empower ENGINEERS & PROJECT MANAGERS ABN 23 010 743 692

Client URBEX
Project THE HEIGHTS
Title CLEARANCE DISTANCE DETAIL

Datum AHD
PSM -
RL -
(MGA) COORD

FOR APPROVAL

Project No. Drawing No. B00610-SK-SE03 Rev A

Empower
ENGINEERS &
PROJECT MANAGERS

Appendix D - HV Masterplan

Empowered to do more

NORTH

FOR CONTINUATION REFER DWG No. E3 : PART SITE PLAN AREA B

STAGE 14

STAGE 15

STAGE 13

STAGE 12

NEW SUB S1
750kVA

NEW SUB S3
750kVA

NEW SUB S4
750kVA

NEW SUB S2
500kVA

PARK

EXISTING
STAGE 11

EXISTING
SUB 3324

TO EXISTING
SUB 3324
HV SW13238

NEW TEMP.
HV LINKS

PP6

PP4

PP3

PP2

PP1

NEW TEMP. UNDERGROUND HV CABLING BETWEEN NEW TEMP. POLE PP6/NEW SUB S4 AS PART OF STAGE 15 WORKS (TO BE REMOVED AS PART OF STAGE 16 WORKS).

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW POLES PP4/PP6 AS PART OF STAGE 15 WORKS (TO BE REMOVED AS PART OF STAGE 16 WORKS).

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP4/PP1 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).

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).

PART SITE PLAN - AREA A (1:1000 AT A1)

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NO	DESCRIPTION	DRN	DATE	APPD
A	ISSUED FOR REVIEW	K.T.	?-2-24	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	?-2-24
ALL DIM. IN	mm
DRAFTING STANDARD TO	A.S.1100

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 1 OF 3)

A1 | DRAWING NUMBER E2 | A AMDT

FILE No:

NORTH

STAGE 17

STAGE 16

STAGE 15

STAGE 14

STAGE 18

STAGE 19

NEW SUB S5
500kVA

NEW SUB S7
500kVA

NEW SUB S6
500kVA

NEW RMU-2

NEW SUB S4
750kVA

NEW SUB S3
750kVA

PARK

NEW TEMP.
HV LINKS

NEW TEMP. UNDERGROUND HV CABLING BETWEEN NEW TEMP. POLE PP6/NEW SUB S4 AS PART OF STAGE 15 WORKS (TO BE REMOVED AS PART OF STAGE 16 WORKS).

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW POLES PP4/PP6 AS PART OF STAGE 15 WORKS (TO BE REMOVED AS PART OF STAGE 16 WORKS).

NEW TEMP. UNDERGROUND HV CABLING TO BE REMOVED/PULLED BACK FROM NEW TEMP. POLE PP5 HV LINKS TO NEW HV CABLE JOINT LOCATION & JOINTED TO NEW HV CABLE FROM NEW RMU-2 AS PART OF STAGE 16 WORKS.

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP4/PP1 AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 15 WORKS).

NEW UNDERGROUND HV CABLING BETWEEN NEW RMU-1/NEW TEMP. POLE PP5 AS PART OF STAGE 12 WORKS.

NEW TEMP.
HV LINKS GGGG

NEW TEMP. OVERHEAD HV POWERLINE BETWEEN NEW TEMP. POLES PP5/PP4 INSTALLED AS PART OF STAGE 12 WORKS (TO BE REMOVED AS PART OF STAGE 16 WORKS).

PP6 PP5 PP4 PP3

FOR CONTINUATION REFER DWG No. E2 : PART SITE PLAN AREA A

FOR CONTINUATION REFER DWG No. E4 : PART SITE PLAN AREA C

PART SITE PLAN - AREA B (1:1000 AT A1)

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E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES
	AGA478-5A

ASSOCIATED DRAWINGS

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T	TENDERING PURPOSES ONLY		
AC	APP. FOR CONSTRUCTION		
AI	AS INSTALLED		
C	CANCELLED/SUPERSEDED		

PowerWater
NORTHERN TERRITORY

DES	A.GANGUR
DRN	K.TAVENER
CKD	A.GANGUR
APPD	
SCALE	1:1000 AT A1
ISSUED	?-2-24
ALL DIM. IN	mm
DRAFTING STANDARD TO	A.S.1100

POWER NETWORKS – PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 2 OF 3)

A1 | DRAWING NUMBER E3 | A AMDT

FILE No:

NORTH

FOR CONTINUATION REFER DWG No. E3 : PART SITE PLAN AREA B

PART SITE PLAN - AREA C (1:1000 AT A1)

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E1	LOCALITY/SITE PLANS, LEGEND & SCHEDULES

ASSOCIATED DRAWINGS

	AGA478-5A		

DRAWING STATUS

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PowerWater
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DRAFTING STANDARD TO A.S.1100	

POWER NETWORKS - PALMERSTON DISTRIBUTION
SUBDIVISION OF LOT 9765
DURACK SUBDIVISION (THE HEIGHTS)
HV MASTERPLAN
HV ELECTRICAL RETICULATION (SHEET 3 OF 3)

A1

DRAWING NUMBER E4

FILE No:

A AMDT

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Urbex

THE HEIGHTS, DURACK
NT PLANNING SCHEME AMENDMENT

TRAFFIC ASSESSMENT

November 2024

22-0247

Traffic • Parking • Transport

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DOCUMENT ISSUE

Revision issue	Date	Description	Approved by
Draft 1	11 Nov 2024	Draft for review	SV
Draft 2	19 Nov 2024	Updated draft to include revised model	MM
Final	20 Nov 2024	For issue	MM
Rev A	27 Nov 2024	For issue	MM

CONTENTS

1.0 INTRODUCTION

This report relates to the traffic investigations completed to inform the proposed Planning Scheme Amendment (PSA) for the vacant land at the northern end of The Heights in Durack. The subject land was part of a larger site which was rezoned in 2013 for the creation of The Heights development. Ten stages of the development have been completed and Stage 11 has recently been approved for development.

A PSA has now been proposed by Urbex on the remaining land to enable changes to the allotment density and the approved infrastructure requirements. The concept plan developed to inform the PSA identifies a potential for approximately 382 residential allotments.

This report details the traffic investigations completed to inform the PSA. It is specific to the assessment of the broader road network and its capacity to accommodate the forecast traffic including vehicles, pedestrians, cyclists and alternative transport modes.

The investigations include a detailed review of the road network required to provide safe and convenient accessibility for the land division, including identification of the appropriate road hierarchy and review of the capacity of intersections on arterial roads.

The assessment has been based on Empower's Concept Plan B00610-MP-LY03 Rev A, dated 25 October 2024.

2.0 BACKGROUND

In 2013, PSA approval was granted to facilitate the residential development of The Heights. The land zone approval was based on a masterplan which identified a potential for 820 residential dwellings and a retirement village. Figure 1 identifies the masterplan which formed the basis of the 2013 investigations.

Figure 1: 2013 Concept masterplan (NT Gov: Amendment to NT Planning Scheme No 302)

The following infrastructure requirements, as they relate to traffic engineering requirements, were included in the approval:

- the development of a collector road which formed a signalised intersection with Roystonea Avenue;
- a one-way connection from the collector road to Woodlake Boulevard; and
- a connection between University Drive (an existing road in the control of Charles Darwin University (CDU)) and Packard Avenue.

Ten stages of the development have been completed and Stage 11 of the development comprising of 42 residential allotments has been approved. With respect to the traffic infrastructure, the development of the collector road and the one-way connection have been realised as Packard Avenue and Nichols Steet respectively while the University has not extended the road through its site. Figure 2 identifies the current status of The Heights Durack.

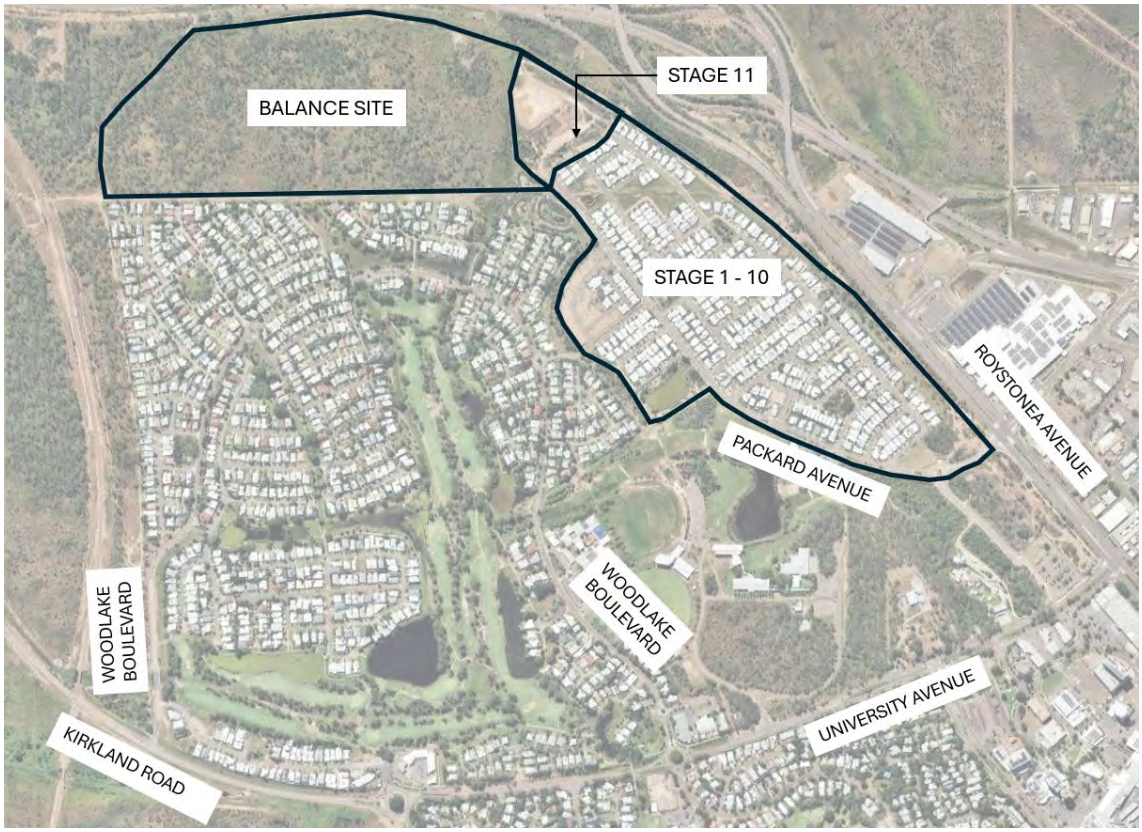

Figure 2: The Heights Durack, 2024

3.0 SUBJECT SITE

The subject of this Planning Scheme Amendment is the balance site within The Heights. The site is zoned as SP8 Specific Use Zone Palmerston Number 8 in the Northern Territory Planning Scheme.

3.1 ROAD NETWORK

Tiger Brennan Drive, Roystonea Avenue, Kirkland Road and University bound Durack suburb. These are arterial roads and are in the care and control of the Department of Logistics and Infrastructure (DLI).

Roystonea Avenue and Tiger Brennan Drive form a grade separated interchange with the National Highway. Kirkland Road transitions into University Avenue at the intersection with Edmund Avenue. University Avenue forms a signalised intersection with Roystonea Avenue while Kirkland Road forms a signalised intersection with Wishart Avenue which extends to Tiger Brennan Drive.

Packard Avenue and Woodlake Boulevard are two collector roads which service Durack. These roads are in the care and control of the City of Palmerston.

Packard Avenue provides access to The Heights Durack. It has a 25.6 m road reserve which narrows to approximately 21 m north of Russel Street. Woodlake Boulevard provides access to the balance of Durack. It has a road reserve width of 21 m.

Packard Avenue and Woodlake Boulevard are connected via Nichols Street. 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 which is treated with a traffic signal. Woodlake Boulevard forms intersections with University Avenue and Kirkland Road. The Woodlake Boulevard/University Avenue intersection is a four-way intersection which is treated with a roundabout. The Woodlake Boulevard/Kirkland Road intersection is treated with channelised turn lanes on Kirkland Road, albeit DLI has identified that this intersection is currently being investigated with a view to implementing an upgrade to improve the safety of the intersection.

There are also a number of roads which terminate at the southern boundary of the site, including Borassus Court, Carpenteria Court, Sorrento Close, Kooyonga Parade, Deakin

Place and Monash Court. These roads provide access to residential dwellings and are in the care and control of the City of Palmerston.

3.1.1 TRAFFIC VOLUMES

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

- traffic count data collected on Packard Avenue and Woodlake Boulevard 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.

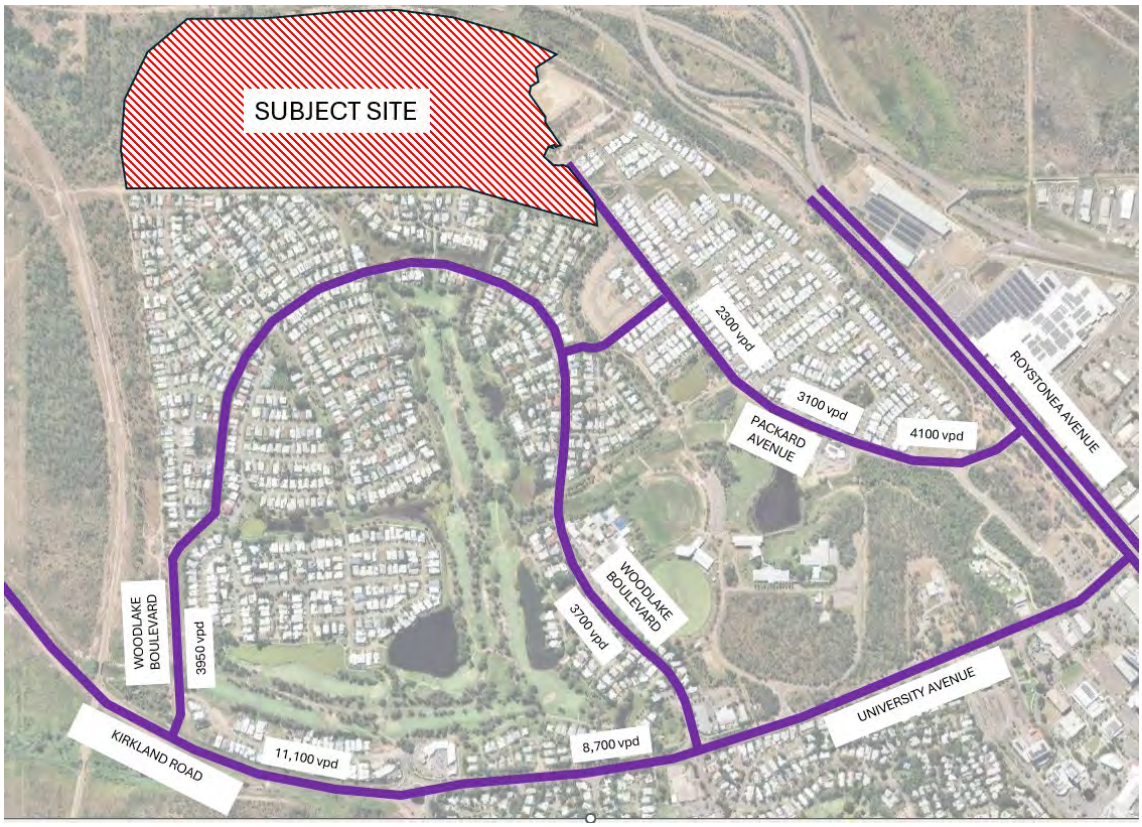

Figure 3: Existing daily traffic volume

3.1.2 TRANSIT SERVICE

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

3.1.3 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. Additionally, there are off-street footpaths provided within the nature reserves in Durack. Figure 4 identifies the key pedestrian/cyclist paths adjacent to the site.

Figure 4: Key pedestrian/cyclist paths

3.1.4 FUTURE INFRASTRUCTURE

It has been identified by DLI that the Kirkland Road/Woodlake Boulevard intersection will be upgraded. Designs are currently being considered for long term and short-term options, albeit no details of the potential options have been provided.

4.0 PROPOSAL

The proposed PSA seeks to rezone the subject land to Specific Use (SP2) zone in the NT Planning Scheme (NTPS) to facilitate a residential land division. The current masterplan for the development identifies 382 allotments and associated infrastructure which would be delivered in eight stages (albeit the delivery staging has the potential to change during detailed design and over the lifespan of the project). Figure 5 identifies the proposed concept for the subject land.

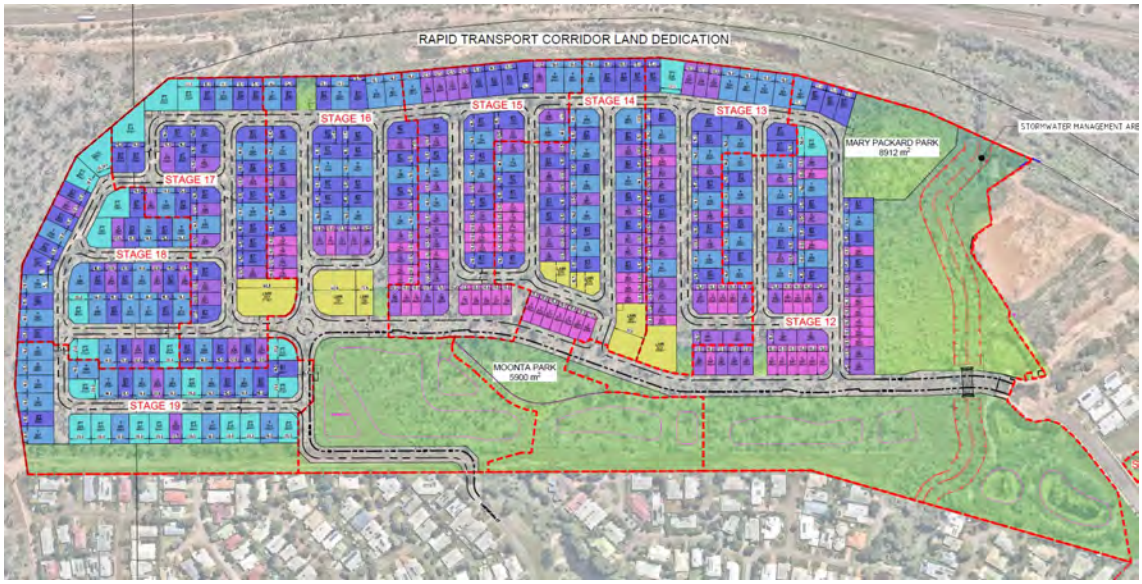

Figure 5: Proposed concept for the subject land

5.0 TRAFFIC INVESTIGATION

5.1 VEHICLE ACCESS

A detailed review of the approved access arrangement for The Heights was completed to understand its functionality in facilitating access for the development. The review identified the following:

- all traffic would be distributed to Packard Avenue. This would result in a change to the nature and function of the road;
- the one-way connection via Nichols Street would only cater for entry trips to local schools and shops which would therefore only amount to a small proportion of traffic (less than 10%);
- the CDU Road, if established, is unlikely to attract any significant public traffic as it would result in a circuitous access to and from Packard Avenue. The CDU Road currently operates as a driveway which provides access to the CDU Palmerston campus and can cater for drivers wishing to access this site;
- a major portion of traffic would, therefore, use Roystonea Avenue/Packard Avenue/Yarrawonga Road intersection to access the site via Packard Avenue; resulting in the potential for a change in the nature and function of this road in the road hierarchy and high than desirable volumes for direct residential access; and
- there will be no alternative exit route from The Heights in the event of an emergency, given that all access will be via Packard Avenue.

The risks identified above clearly demonstrate that the proposal to provide for all access via Packard Avenue will have the potential to impact residents along this street but also to create a risk for residents who wish to exit the suburb in an emergency.

The Durack land division (Fairway Waters) included road connections which terminate at the boundary of the subject site. While confirmation of the extension of these roads was not emphatic, it is clear that there was an intention to at the very least consider the potential for connections between the subject land and the previously developed suburb. Such connections are consistent with orderly planning of land divisions and will provide for safe and convenient accessibility for numerous transport modes. Accordingly, a review of the potential for additional access via Woodlake Boulevard to the subject land was considered, having regard to improved connectivity, potential impact on adjacent residents and the nature and function of the road network.

Specifically, a traffic assessment was completed to identify the potential impacts to the road network if additional connections were provided to Woodlake Boulevard. The assessment, which is provided in Appendix A, identified the following:

- additional connections would provide improved traffic distribution opportunities;

- alternative access route(s) would be available in the event of an emergency;
- vehicle connection to Woodlake Boulevard would not change the nature and function of that road; and
- there would be a reduced traffic impact on Packard Avenue.

Detailed discussions were also undertaken with the relevant road authorities including the City of Palmerston and the DLI with respect to the provision of additional connections on Woodlake Boulevard. A document summarising the discussions and outcomes is provided in Appendix B.

The findings of the assessment identified that it would be a superior outcome for the development if at least one additional access could be created to service the subject site. While it may be more beneficial to increase the distribution by the provision of two connections to Woodlake Boulevard, a detailed review of the potential connections identified that the extension of Carpentaria Court would have minimal impact for residents, due to the adjacent reserve, and that the road design requirements could be accommodated within the existing road reserve.

The following works have therefore been identified to facilitate connectivity for the subject land:

- extension of Packard Avenue; and
- extension of Carpentaria Court.

Packard Avenue will be the primary access route for residents. The extension of the road will be designed as a Secondary Collector Road as defined in the NTSDG.

The extension of Carpentaria Court will be designed as an access street as defined in the NTSDG and will include a 16 m wide road reserve. It will be completed without compromising accessibility to existing allotments. Figure 6 identifies a potential treatment for the extension which will be subject to detailed design.

Figure 6: Potential extension to Carpentaria Court

In addition to the above, Nichols Street intersection with Woodlake Boulevard will be reconstructed to permit entry and exit movements. The proposed change will ameliorate the safety concerns associated with drivers entering illegally at the roundabout, reducing potential head-on conflicts. Figure 7 identifies the modifications required to the intersection to accommodate two-way movements via Nichols Street.

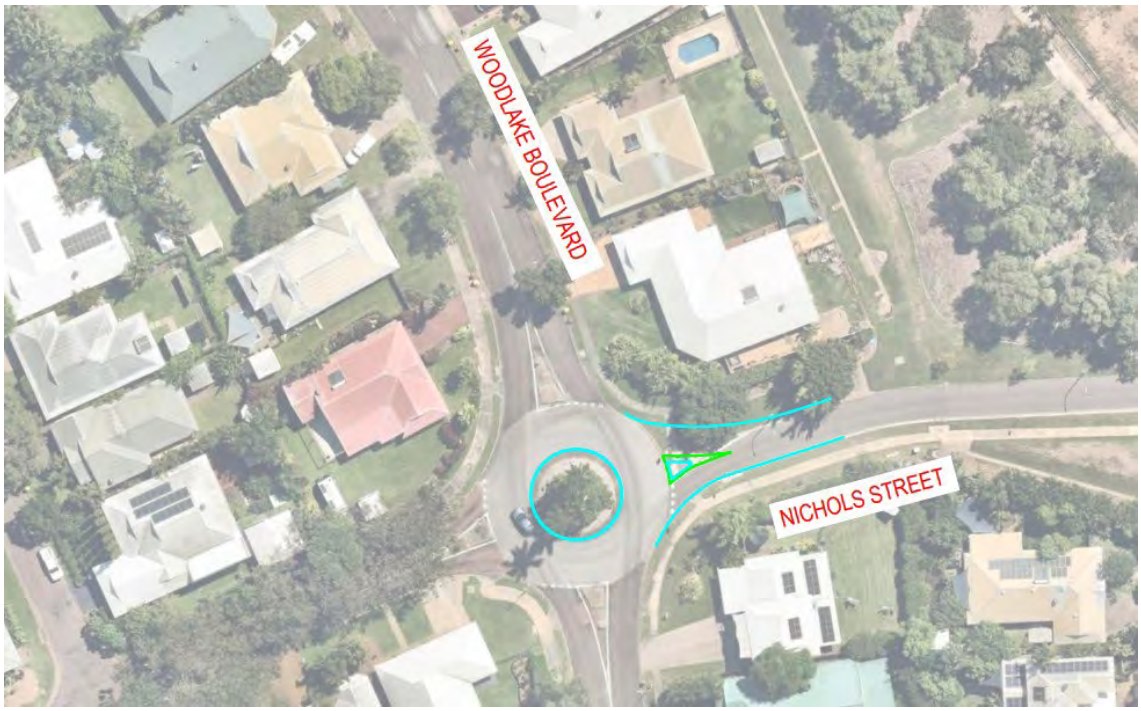

Figure 7: Modifications to the Woodlake Boulevard/Nichols Street intersection

5.1.1 EXISTING ROAD NETWORK

The NTSDG is a design tool used to inform the design of the road network for a land division. It is not, however, an assessment tool by which to consider the status of an existing road. Specifically, the introduction of the NTSDG reads as follows:

> *These Guidelines provide the technical framework for the design and construction of new Public Infrastructure for Subdivisions in the Northern Territory of Australia (NT).*

The interface between existing residential developments and proposed land divisions can result in superseded road standards being required to match to the new development which may have an alternative design. Such a situation is not uncommon and importantly the creation of an expanded residential area does not then result in previously constructed roads being non-compliant. It simply means that they were constructed when superseded design criteria were relevant.

What is important is that the nature and function of the road network is not impacted as a result of the proposed development. That is, the role of the road within the road hierarchy is maintained when considering the road at the time it was constructed.

5.2 PEDESTRIANS/CYCLISTS

All roads will include footpaths which will provide pedestrian and cyclist connectivity within The Heights. There is also the 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 8 identifies potential connection to existing footpaths.

Figure 8: Potential pedestrian/cyclist connections

5.3 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 and 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.

6.0 TRAFFIC ANALYSIS

While the development identifies a potential for 380 allotments, the analysis has considered a higher dwelling yield of approximately 440 dwellings, including duplex developments. This will allow for flexibility in the lot yield during the detailed design phase, should the market demand for smaller allotments increase.

6.1 TRAFFIC FORECAST

The assessment has adopted the following traffic generation rates for low density residential dwellings identified in the 2002 RTA Guide to Traffic Generating Development as directed by DLI:

- 9.0 trips per dwelling per day; and
- 0.85 trips per dwelling in each peak hour.

While the RTA Guide identifies a lower traffic generation rate for duplexes, the higher rate identified above has been adopted for all dwellings. Adopting these rates identifies that the proposal could generate in the order of 4,000 vehicles per day or 375 trips in the peak hour.

Notwithstanding the above, detailed traffic counts which captured all connections to Durack identified that the actual traffic generation of dwellings in Durack is slightly lower than 7.5 trips/dwelling/day. The RTA Guide recommends that site specific data provides a more accurate assessment when considering the potential traffic generation and hence impact associated with a development. Nonetheless, rates specified by DLI have been adopted for the assessment even though they will result in an overestimate of the anticipated volume associated with the development.

6.2 TRAFFIC DISTRIBUTION

Traffic generated by the development will distribute towards employment, education, retail and recreation facilities. Based on the advice in the RTA Guide, approximately 25% will be related to local trips which will include schools, shopping and recreation. All trips will be external to the subject site. Accordingly, the following traffic distribution has been adopted for this assessment:

- 50% of the traffic will originate to and from the north on Stuart Highway and Tiger Brennan Drive, of which:
- 10% of the traffic will originate to and from the east via Yarrawonga Road;
- 15% of the traffic will originate to and from the south on Roystonea Avenue and Stuart Highway; and

- 25% of the traffic will originate to and from adjacent amenities such as schools and shops. These will occur via Packard Avenue and Woodlake Boulevard.

The route choice for drivers will be dependent on the point of origin and destination and proximity to the access location. Destinations including schools, retail facilities and employment areas will be more conveniently accessed via the Roystonea Avenue/Packard Avenue/Yarrawonga Road intersection. Accordingly, most of the traffic generated by the development will distribute via Packard Avenue. There will, however, be exceptions which would include the following:

- drivers in the western part of the development who wish to travel to and from Darwin CBD could choose to use Kirkland Road via Carpentaria Court and Woodlake Boulevard. Figure 9 identifies the catchment area for the likely use of Carpentaria Court and the potential distribution for drivers in this area to choose between Packard Avenue and Carpentaria Court;

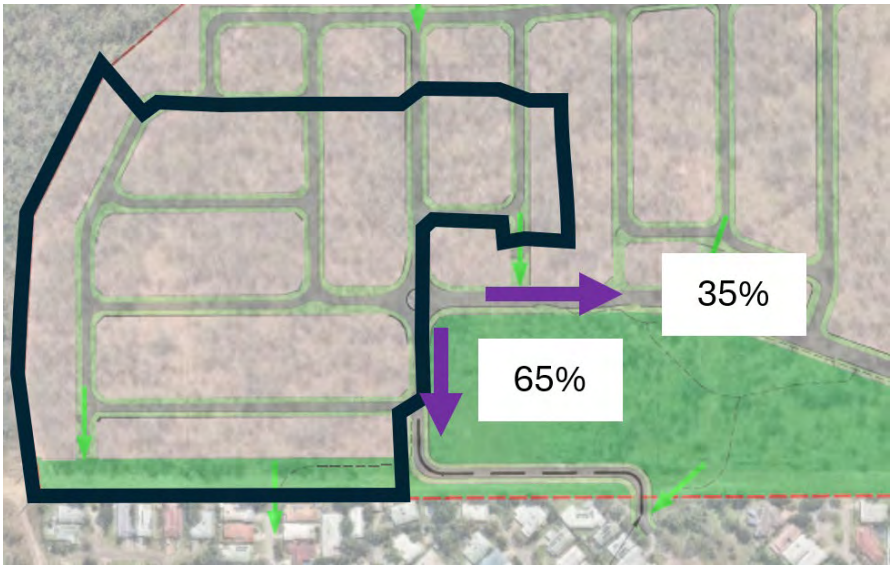

Figure 9: Catchment for drivers to access Kirkland Road via Carpentaria Court and Woodlake Boulevard

- Woodlake Boulevard presents an equally convenient access to developments to the west of Roystonea Avenue including Palmerston Shopping Centre when compared to the use of Packard Avenue. This is based on travel distance and average delay for drivers which have been recorded on-site. It is estimated that 15% of the local trips will occur in this region of which 8.5% will occur via Woodlake Boulevard;
- Traffic control currently restricts movements on Nichols Street to westbound. While separate to this proposal, consideration is being given to modifying the treatment to provide for two-way movements on Nichols Street. This will provide an alternate route for drivers, albeit the position of this route will still rely on the use of Packard Avenue;
- Assuming the two-way link at Nicols Street, 5% of forecast volumes would occur via Carpentaria Court while 3.5% would occur via Nichols Street.

Figure 10 identifies the forecast additional daily traffic volumes on the road network based on the above traffic generation and distribution.

Figure 10: Forecast daily traffic movements AADT (percentage of forecast development traffic)

6.3 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 and which establishes 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 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 11 identifies the anticipated road hierarchy for the development.

Figure 11: 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.

7.0 LOCAL ROAD NETWORK ANALYSIS

Figure 12 identifies the anticipated daily traffic volume on the local road network.

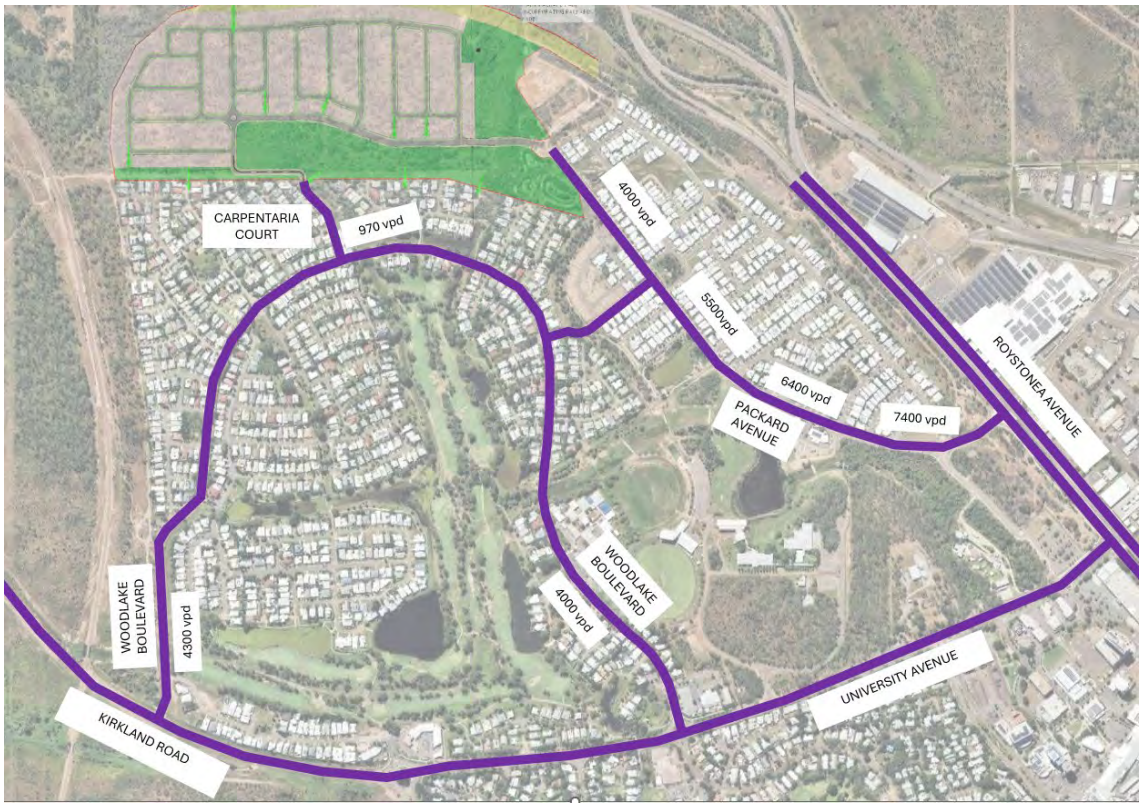

Figure 12: Forecast traffic on the local road network

7.1.1 PACKARD AVENUE

The assessment identifies that the development could generate an additional 3,500 vehicles on Packard Avenue per day. This could result in a daily traffic volume of approximately 7,400 vehicles at the southern end of Packard Avenue, which will reduce to approximately 6,400 vehicles per day between Haultain Crescent and Russell Street and 5,500 vehicles per day between Russell Street and Nichols Street.

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.

7.1.2 WOODLAKE BOULEVARD

The forecast volume at either ends of the Woodlake Boulevard will be less than 4,500 vehicles per day and will be within the anticipated traffic volumes on a Secondary Collector Road and therefore there will be no change to the nature of function of this road.

The forecast increase in volumes of 335 vpd will be less than 10% which is consistent with the daily fluctuation in road volumes on any road network. Accordingly, there will be negligible impact on Woodlake Boulevard as a result of the increase in volumes generated by the future residential development.

Importantly, as the proposal relates to transport planning, connection to Woodlake Boulevard will provide for alternate access routes but equally an integrated development, allowing for shared accessibility and integrated communities.

7.1.3 CARPENTARIA COURT

The forecast increase in traffic on Carpentaria Court will result in an increase in traffic volume of approximately 535vpd. The existing volume on the southern end of Carpentaria Court is approximately 435vpd, albeit it is much lower at the northern end where the road services six residences and would have a volume of approximately 55 vpd.

Notwithstanding that the NTSDG is a design guideline for land development projects and road construction and is not an assessment tool to assess the impact on existing infrastructure, the northern end of Carpentaria Court is a cul-de-sac and would act as a Minor Street. The connection of the road to the future development will result in this section of the road changing to an Access Street. This will result in an increase in volumes adjacent residents.

The connection of Carpentaria Court will provide for significant benefits for the development and improved safety for Durack Heights residents. It will also provide connectivity between existing facilities (school, child care, community facilities) in Durack and future residents. The road will be diverted to ensure that the connection is not immediately adjacent existing residents and will still result in a volume less than 500 vpd (or 50vph during peak times). While this would result in the full length of Carpentaria Court being an access street, it would still result in the volume being less than 1000 vpd which is at the lower end of the Access Street volumes and would not significantly impact on adjacent residents.

8.0 PACKARD AVENUE/ROYSTONEA DRIVE INTERSECTION ANALYSIS

DLI specified detailed analysis would be required at intersections where there is more than 10% of the development traffic or the forecast additional traffic at the intersection is more than 5% of existing movements.

The forecast additional traffic on Woodlake Boulevard will be below 10% of the forecast development volume. Further, the forecast peak hour traffic at the Kirkland Road/Woodlake Boulevard and University Avenue/Woodlake Boulevard will be between 3% and 4% of the existing traffic at the intersections. Accordingly, these intersections will be below DLI's threshold and hence will not require detailed analysis.

A significant portion of the traffic will be distributed to the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection and, therefore, analysis of this intersection has been completed. The scenarios analysed include the existing situation and a 20-year design horizon. Traffic growth rates of 1.5% and 3.0% have been considered in the assessment as directed by DLI and have been applied to the traffic movements on Roystonea Avenue.

The intersection has been modelled using SIDRA Intersection Software. The technical aspects of the analysis have been documented in detail in MFY's report titled 'The Heights Durack Technical Analysis Report' dated 20 November 2024. This report is provided in Appendix C. The following sections summarises the outcomes of the assessment.

8.1.1 EXISTING SCENARIO

The existing scenario situation that was modelled included the existing volumes (SCATS data provided by DLI) plus the forecast traffic volumes associated with the Stage 11 development of The Heights Durack, given that construction of this stage of the development has been approved. Figure 13 identifies the traffic volumes adopted for the base case assessment of the intersection:

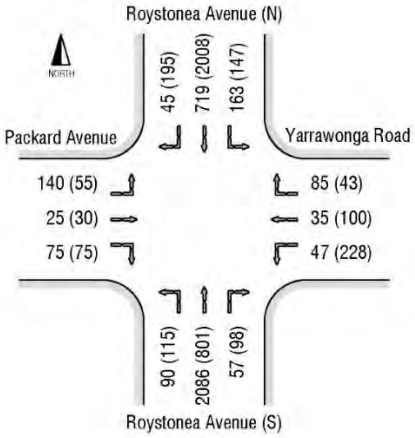

Figure 13: Base case traffic volumes

The model was calibrated based on site visits completed in the am and pm peak hours, giving confidence that the model generally reflects the existing situation on-site. The results of the model identify that the intersection operates well 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. The average delay for movements on Roystonea Avenue is low. These results are consistent with the site observations.

8.1.1.1 Existing plus development volumes

Forecast traffic volumes associated with future development within the rezoned land were added to the existing volumes to understand the potential impact on the signalised intersection following completion of development. The results identified the following:

- the degree of saturation of the intersection would not exceed 0.8 on any approach, which is below the accepted value of 0.9;
- there would be an increase in queue lengths on Roystonea Avenue during the morning and afternoon peak traffic periods but all queues would still be accommodated within the channelised turn lanes and would clear in a single cycle;
- the queue length on Packard Avenue would be accommodated between the roundabout and the signal; and
- there would be small increases in delays at the intersection, with an average increase in delay of 12.1 seconds at the intersection.

Accordingly, the assessment confirms that there will not be a significant impact to the intersection based on its current operation.

8.1.2 2043 - 1.5% GROWTH SCENARIO

The 1.5% growth scenario represents the anticipated growth rate on the road network considering historical growth information and potential development in the broader region which could result in additional traffic at the subject intersection.

Analysis of the intersection based on its existing configuration and operation, but applying the increased volumes identified that it would continue to operate within accepted capacity parameters, namely:

- A degree of saturation of less than 0.9;
- Queues not exceeding the length of existing storage facilities on Roystonea Avenue and clearing within one signal cycle;
- The queue length on Packard Avenue would be accommodated between the signal and the roundabout; and
- an average delay of 23.1 seconds for drivers would be experienced at the intersection.

The 1.5% growth rate could therefore be accommodated at the intersection with no additional works required.

8.1.2.1 2043 – 1.5% Growth plus Development Scenario

Forecast traffic volumes associated with future development within the rezoned land were added to the 1.5% growth volumes to understand the potential impact on the signalised intersection following completion of development. The results identified the following:

- the degree of saturation of the intersection would not exceed 0.9 on any approach;
- there would be an increase in queue lengths on Roystonea Avenue during the morning and afternoon peak traffic periods but all queues would still be accommodated within the channelised turn lanes and would clear in a single cycle;
- the queue length on Packard Avene would be accommodated between the roundabout and the signal; and
- there would be small increases in delays at the intersection, with an average increase in delay of 12.8 seconds at the intersection.

Accordingly, the assessment confirms that there will not be a significant impact to the intersection based on its future operation.

8.1.3 2043 3.0% GROWTH SCENARIO

The 3% growth rate assessment represents a conservation approach to considering the potential future impact on the road network. While it is not expected to be realised, it does provide authorities with an understanding of any potential infrastructure requirements should additional traffic be experienced on the road network.

The modelling identifies that the intersection will not be functional if the traffic volumes were to increase at a growth rate of 3%. Specifically, the following impacts would occur:

- the degree of saturation would exceed practical capacity (0.9) on all approaches and in some cases exceed saturation (1.0);
- there would be a significant increase in the queue on Roystonea Avenue (in the order of 900m); and
- there would be an average delay of 80.6 seconds for drivers at the intersection.

The modelling, therefore, demonstrates that the existing intersection configuration would not be fit for purpose to cater for future volumes should they grow at a rate of 3% per annum, irrespective of the development.

8.1.3.1 2043 – 3.0% Growth Scenario with intersection upgrade

Optioneering of potential treatments identified that additional through lanes will be required on Roystonea Avenue for the intersection to operate within a DOS of 0.9 and acceptable queues and delays. Figure 14 identifies a concept of a potential treatment which would cater for the forecast 3% growth volumes.

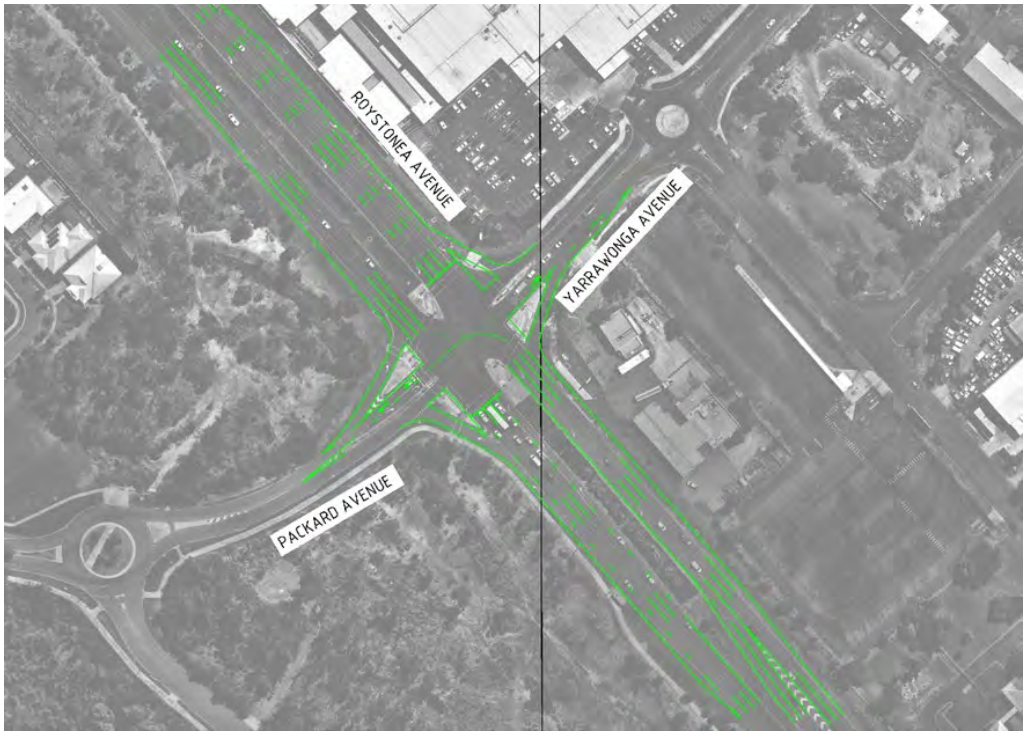

Figure 14: Potential configuration of Roystonea Avenue/Packard Avenue intersection to cater for increased traffic growth based on a 3% growth rate

Modelling of the operation of the upgraded intersection confirm that the additional lanes will result in the intersection operating within capacity. Specifically, the results of the model identified the following:

- the degree of saturation of the intersection would not exceed 0.9 on any approach;
- all queues would still be accommodated within the channelised turn lanes and would clear in a single cycle;

- the queue length on Packard Avene would be accommodated between the roundabout and the signal; and
- there would be an average increase in delay of 20.0 seconds at the intersection

There will, therefore, be a requirement for the intersection to be upgraded when the general road traffic growth reaches the 3% pa volume increase.

8.1.3.2 2043 – 3.0% Growth Scenario with intersection upgrade and development volumes

An assessment was therefore completed to understand whether the upgraded intersection could also tolerate traffic generated by the proposed development. The results of the analysis identified that:

- the intersection would continue to operate with a degree of saturation of less than 0.9;
- all queues would still be accommodated within the channelised turn lanes and would clear in a single cycle;
- the queue length on Packard Avene would be accommodated between the roundabout and the signal; and
- there would be an average increase in delay of 52.3 seconds at the intersection

Traffic associated with the proposed development would therefore be accommodated at the future intersection without additional infrastructure upgrade requirements.

8.2 INTERSECTION ANALYSIS OUTCOME

The modelling of the various scenarios has identified that the intersection will operate satisfactorily with the development traffic for both the existing traffic and 1.5% growth traffic scenarios.

Speculation that traffic growth will extend to 3% per annum on the road network is very conservative given that such growth has not been demonstrated within the past ten year. Nonetheless, should such a growth occur, there will be a requirement to upgrade the intersection to cater for the traffic on Roystonea Avenue regardless of the development.

One option to cater for such a growth would be to construct additional through lanes on Roystonea Avenue. Such a treatment would cater for future volumes associated with both the growth and the development volumes.

Accordingly, it is evident that the forecast traffic volume will have minimal impact on the operation of the intersection. If there is a trigger for an upgrade, it will be related to the increase in traffic on Roystonea Avenue and no further works will be required to cater for development related traffic.

9.0 SUMMARY

The proposed rezoning of the subject will enable the completion of The Heights development in Durack. It includes access via Woodlake Boulevard to provide for improved connectivity and improved emergency alternatives for residents. The proposed access configuration will result in a safer and more convenient outcome than the approved infrastructure.

The traffic analysis completed to review the impacts related to the proposed access configuration identified the following:

- the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection will operate satisfactorily without the need for any upgrades to the intersection as a result of the development;
- the additional traffic volumes at the Woodlake Boulevard/Kirkland Road intersection will not exceed 10% and hence will be consistent with the acceptable criteria identified by DLI;
- there will be no change to the nature or status of Woodlake Boulevard which will continue to function as a Secondary Collector Road; and
- The extended section of Packard Avenue will operate as a Secondary Collector Road, with the Primary Collector Road criteria applying to the portion of road which is divided by a solid central median.

The analysis confirms that the existing infrastructure will accommodate the forecast traffic associated with the development of the balance of The Heights. Further, the operation and design of each road will be consistent with the requirements of the NTSDG and there will be no change to the nature and function of existing infrastructure which was designed to accommodate future growth as demonstrated in this assessment.

Accessibility for the subject land will be further enhanced by efficient pedestrian and cyclist connections which will foster movements between The Heights and the balance of Durack. The investigations have identified convenient routes via existing paths in reserves which will provide a high amenity facility for residents and improved design options.

APPENDIX A

THE HEIGHTS DURACK ACCESS REVIEW

22-0247 DURACK HEIGHTS MASTER PLAN
SUMMARY OF PRELIMINARY TRAFFIC INVESTIGATIONS

This technical note refers to the proposed master plan for Durack Heights Stages 11 to 19. Specifically, it reviews the road hierarchy requirements and the potential implications on the broader road network.

The potential upgrade and extension of the road in Charles Darwin University to effect a connection between Packard Avenue and University Avenue has not been considered in this assessment. Further investigations in respect to the benefits and constraints associated with the introduction of an additional collector road and whether this would enhance the road hierarchy is warranted prior to assuming this infrastructure will be delivered.

Notwithstanding the above, should the collector road be delivered, it would not considerably impact the distribution assessment as it would in effect create an alternate access route via Packard Avenue and hence would rely on the northern section of Packard Avenue catering for the anticipated volumes associated with the development.

1 TRAFFIC VOLUMES

The development area has the potential to accommodate in the order of 410 to 420 residential allotments. The NT growth study modelling has adopted a traffic generation rate of 7.5 trips per dwelling. Based on this the indicative allotment yield will generate 3,150 vehicles per day.

The following traffic distribution has been adopted for this assessment:

- 40% of the traffic will originate to and from the north on Roystonea Avenue, of which 20% will occur via Tiger Brenan Drive and 20% will occur via Stuart Highway;
- 10% of the traffic will originate to and from the east via Yarrawanga Road;
- 25% of the traffic will originate to and from the south on Roystonea Avenue; and
- 25% of the traffic will originate to and from adjacent amenities such as schools and shops.

2 ROAD HIERARCHY

A significant consideration when planning for land divisions is to establish a functional road hierarchy and that there are route choices for drivers to ensure that the traffic can be distributed so that it does not impact the nature and function of the established road network.

Currently there are two collector roads within the adjacent residential area, namely:

- Packard Avenue; and
- Woodlake Boulevard.

The primary access to the residential precinct is at a signalised intersection of Roystonea Avenue and Packard Avenue. Woodlake Boulevard intersects with University Avenue and Kirkland Road. Roystonea Avenue is an arterial road which provides access to Stuart Highway while University Avenue and Kirkland Road provide access to the Palmerston town centre and a connection to Tiger Brennan Drive via Wishart Road.

In order to inform the road hierarchy and access requirements for the subsequent land division stages within Durack Heights, consideration was given to the anticipated additional traffic volumes and the implications associated with the following alternate access scenarios.

- Scenario 1: One connection via Packard Avenue;
- Scenario 2: One connection via Packard Avenue and one connection via Woodlake Boulevard;
- Scenario 3: One connection via Packard Avenue and two connections via Woodlake Boulevard

2.1 ASSESSMENT CRITERIA

The following assessment criteria were considered when reviewing the scenarios:

- whether there is any impact to the nature and function of the roads within the established road hierarchy;
- the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection performance and capacity; and
- the requirement to facilitate direct access to residences, primarily via Packard Avneue.

2.1.1 Existing Conditions

Figure 1 identifies the current annual average daily traffic volumes on Packard Avenue and Woodlake Boulevard.

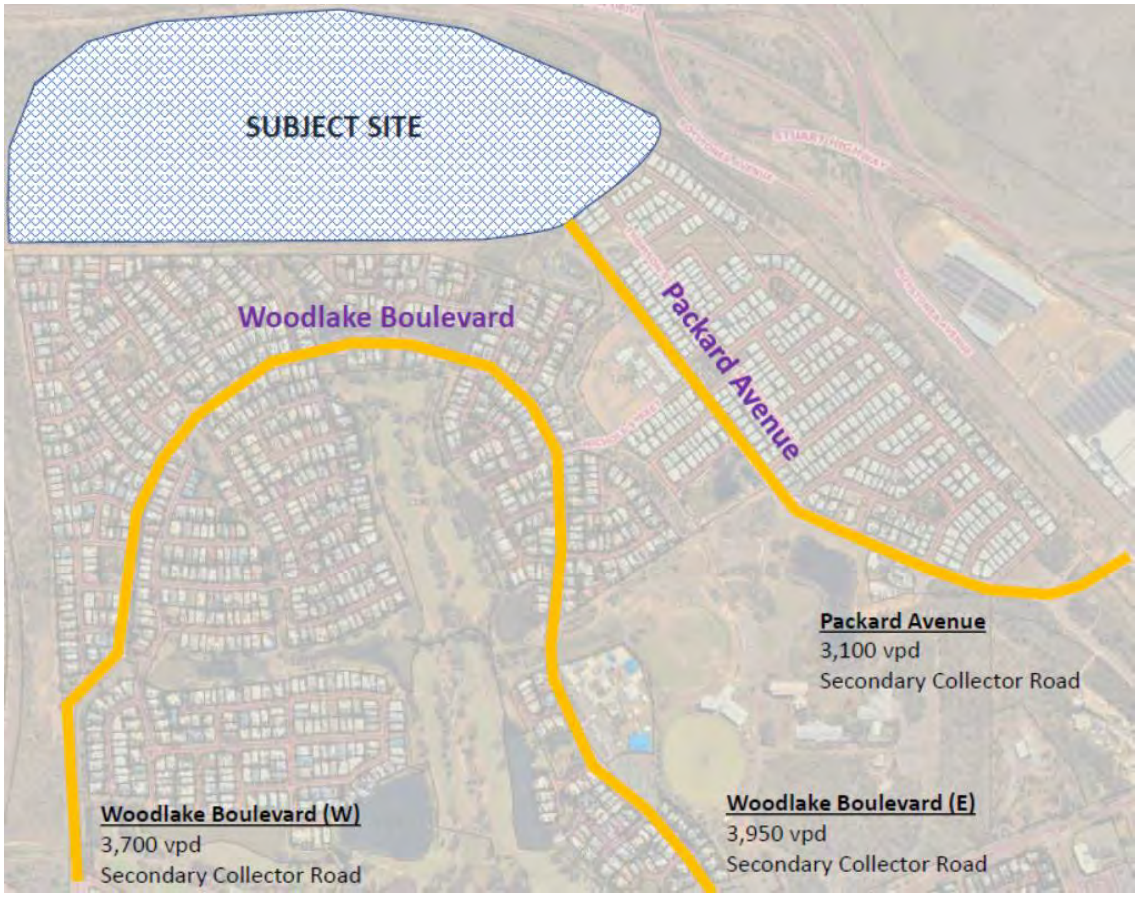

Figure 1: Existing traffic volumes and status of roads

It can be seen on the above figure that the traffic volumes are comparable between the three roads and, based on the current daily traffic volumes, both roads are Secondary Collector Roads in accordance with the Northern Territory Subdivision Development Guidelines (NTSDG).

2.1.2 Scenario 1

All traffic will use the Packard Avenue/Roystonea Avenue traffic signal with the exception of a small proportion of the traffic which will use Woodlake Boulevard via Nichols Street to access the school.

Based on the above distribution, Figure 2 identifies the forecast AADT and the status of the roads.

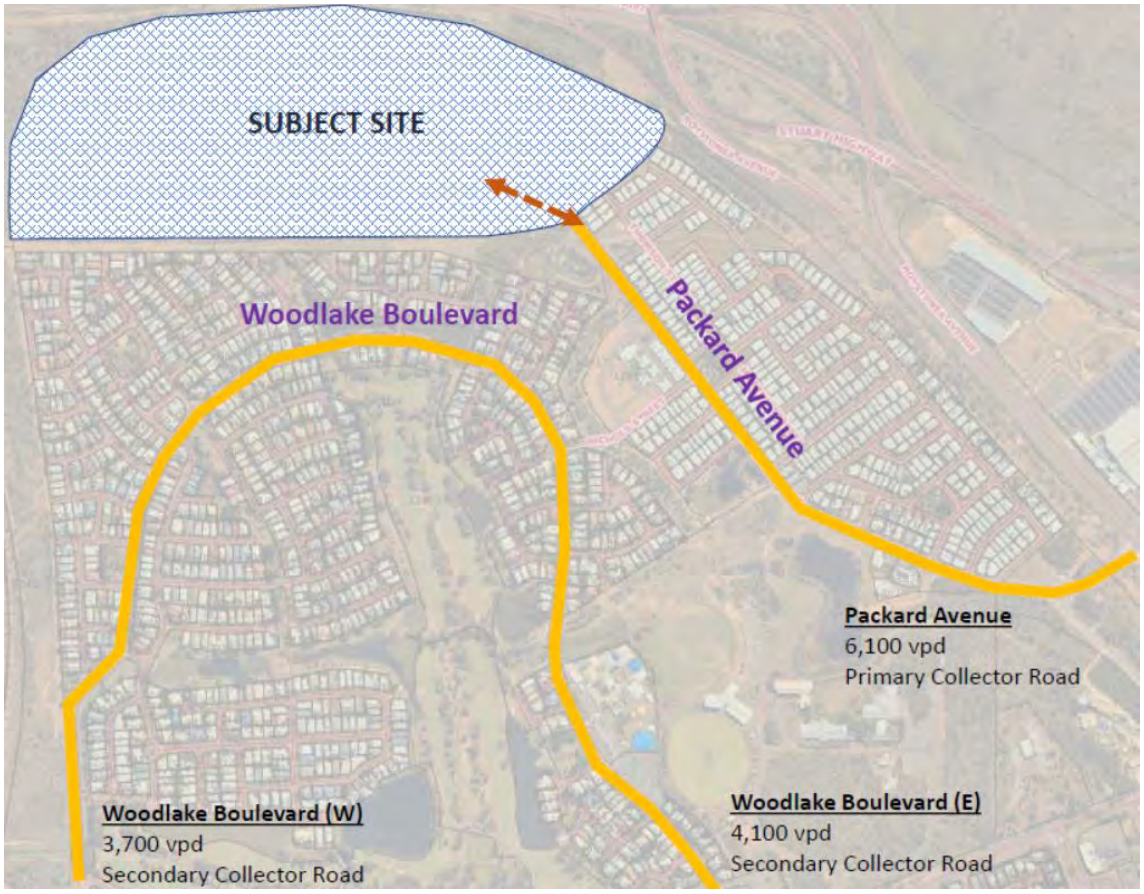

Figure 2: Forecast traffic volumes and status of roads in Scenario 1

The following outcomes can be deduced from the above figure.

- the additional traffic will result in the change in nature and function of Packard Avenue to a Primary Collector Road; and
- the increase in traffic will have an impact on safe and convenient access for dwellings with direct access to Packard Avenue.

2.1.3 Scenario 2

A connection to Woodlake Boulevard will provide an alternate route particularly for drivers travelling to and from the south. The following distribution have been adopted for this scenario:

- trips to and from schools, shopping and recreational activities will be distributed between Woodlake Boulevard and Packard Avenue;
- trips to and from the south will use the University Avenue/Roystonea Avenue intersection via Woodlake Boulevard (E) and the Packard Avenue/Roystonea Avenue intersection; and
- 50% of trips to and from Tiger Brenan Drive will use Woodlake Boulevard (W).

Based on the above distribution, Figure 3 identifies the forecast AADT and the status of the roads.

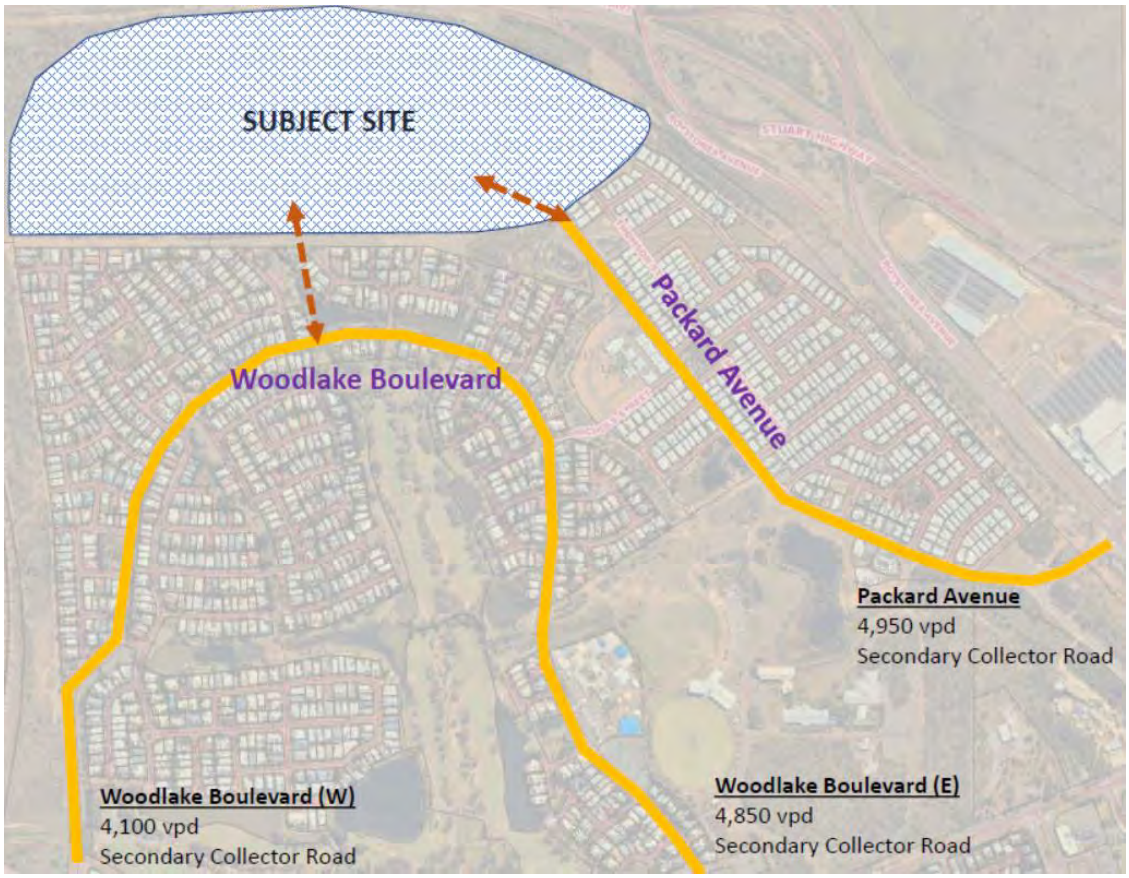

Figure 3: Forecast traffic volumes and status of roads in Scenario 2

The following outcomes can be deduced from the above figure.

- the connection will result in a more balanced distribution between Packard Avenue and Woodlake Boulevard;
- there will be no change in nature or function of Woodlake Boulevard or Packard Avenue;
- there will be less impact on safe and convenient access for dwellings with direct access to the road; and
- Woodlake Boulevard (E) will still experience a higher volume than Woodlake Boulevard (W) but there will be less discrepancy between the two sections of road.

2.1.4 Scenario 3

A second connection to Woodlake Boulevard will provide an alternate route particularly for drivers travelling to and from the west. The following distribution has been adopted for this scenario:

- trips to and from schools, shopping and recreational activities will be distributed between Packard Avenue and Woodlake Boulevard, albeit more drivers may choose to use Woodlake Boulevard (W) to access University Avenue/Kirkland Road;
- a portion of the trips to and from the south which will use the University Avenue/Roystonea Avenue intersection will access University Avenue via Woodlake Boulevard (W); and
- 50% of trips to and from Tiger Brenan Drive will use Woodlake Boulevard (W).

Based on the above distribution, Figure 4 identifies the forecast AADT and the status of the roads.

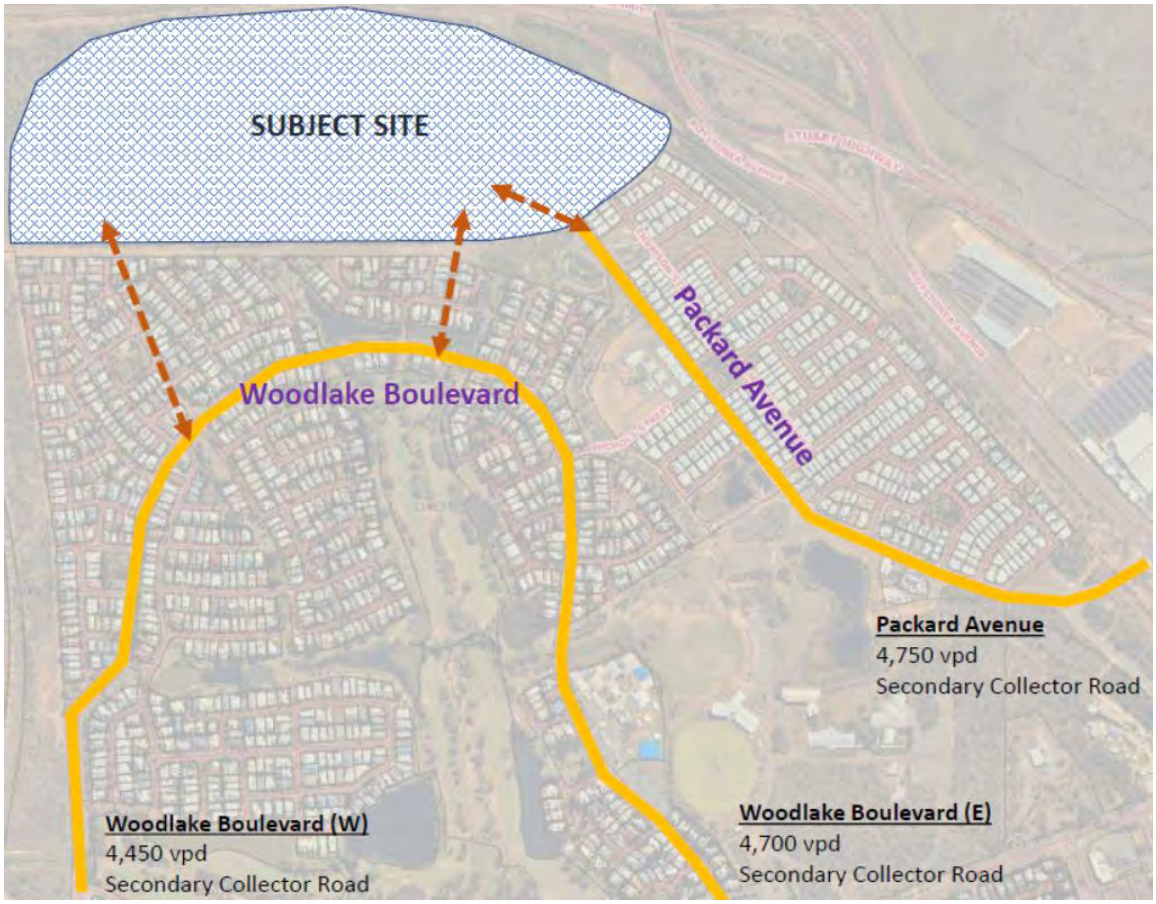

Figure 4: Forecast traffic volumes and status of roads in Scenario 3

The following outcomes can be deduced from the above figure:

- traffic distributed relatively evenly on all three roads;
- no change to the nature or function of any of the roads; and
- there will be less impact on the safe and convenient access requirements for dwellings fronting these roads.

2.2 PACKARD AVENUE/ROYSTONEA AVENUE INTERSECTION

Modelling of the Packard Avenue/Roystonea Avenue/Yarrawonga Avenue intersection was completed to understand the functionality of the signal for each scenario. The following key performance indicators were used in the assessment of the intersection:

- Degree of Saturation (DOS) less than 0.9;
- 95th-percentile queue distance to be within the available storage; and
- Level of Service (LOS) E or better for every movement.

Table 1 summarises the performance of the intersection.

Table 1: Summary of the intersection modelling

Scenario	DOS	95th-percentile Queue	Level of Service
Existing	✓	✓	✓
Scenario 1	✗	✗	✓
Scenario 2	✓	✓	✓
Scenario 3	✓	✓	✓

The modelling identifies the following outcomes:

- the intersection operates satisfactorily in the existing conditions;
- the intersection will not have adequate capacity to accommodate the forecast traffic volumes in Scenario 1; and
- the intersection will accommodate the forecast traffic volumes in Scenarios 2 and 3.

APPENDIX B

THE HEIGHTS DURACK ROAD NETWORK AND ACCESS PLANNING

THE HEIGHTS, DURACK
REZONING ASSESSMENT
ACCESS PLANNING

MFY has been engaged by Urbex to prepare a Traffic Impact Assessment (TIA) for the rezoning of the balance land at The Heights, Durack. While the TIA will discuss the investigations completed to inform the rezoning of the land, this document details the negotiations that were undertaken with the respective road authorities with respect to access for the land.

Urbex purchased the site in 2022. The previous developer had an approved masterplan which identified that access will be provided via the extension of Packard Avenue, a one-way connection to Woodlake Boulevard via Nichols Street and the potential extension of an existing road in the control of Charles Darwin University to create an 'eastern collector' that would intersect with Packard Avenue.

The provision of the above connections proposed by the previous developer does not equate to providing alternative access routes for residents in future stages as these drivers will still be required to use Packard Avenue for access. Further, the proximity to the Roystonea Avenue intersection on Packard Avenue reduces the potential for drivers to use these connections to access the greater road network.

From a traffic planning perspective, the provision of multiple access options for residential land divisions is beneficial for the following reasons:

- multiple route options for residents;
- efficient distribution which will limit traffic volumes on any one route and therefore provide a better amenity for residents; and
- alternative routes in the event of an emergency.

On this basis, consideration was given to the potential for direct accessibility to Woodlake Boulevard via the existing roads to supplement the Packard Avenue extension. A detailed analysis was completed considering multiple access scenarios. The assessment identified the following:

- the existing access strategy will result in a change in road hierarchy status of Packard Avenue and will require improvements at the Packard Avenue/Roystonea Avenue intersection;
- one or two connections to Woodlake Boulevard will enable the current status of Packard Avenue to be maintained and will not require any additional treatments to the Packard Avenue/Roystonea Avenue intersection. While there will be increased

traffic volumes on Woodlake Boulevard, the forecast increase would not change the status of the road; and

- the provision of a connection will foster interconnectivity between The Heights and the rest of Durack.

The analysis concluded that it will be beneficial for the project and the greater community to achieve a second connection to the road network via Woodlake Boulevard.

Negotiations were undertaken with representatives from City of Palmerston (CoP) and the Department of Logistics and Infrastructure (DLI) in this regard. The negotiations identified the following:

- CoP's preference is for Packard Avenue to be the only direct connection for the Heights, albeit it would consider potential connections to Woodlake Boulevard subject to the impact on connecting roads;
- DLI's preference is also for Packard Avenue to be the only direct connection for the Heights due to potential capacity and safety impacts at the Woodlake Boulevard/University Avenue intersections; and
- CoP and DIPL are in favour of permitting two-way movements between Packard Avenue and Woodlake Boulevard at Nichols Street.

Subsequently, DLI have identified that it would accept connections via Woodlake Boulevard and that a detailed assessment of the intersection would be required if the following conditions were met:

- the forecast traffic on Woodlake Boulevard exceeds 10% of the development traffic; and
- the forecast traffic at the Woodlake Boulevard/Kirkland Road and Woodlake Boulevard/University Avenue intersections exceed 5% of the existing volumes.

In addition to the above, CoP were also keen for the Eastern Connector to be provided in accordance with the previous developer's master plan for The Heights and the Palmerston Area Plan.

The provision of such a road is subject to the approval of CDU as the road is currently vested in its land. Liaison and consultation with CDU identified that its preference is for the road to be retained in its current form.

With respect to the Palmerston Area Plan, DIPL Lands and Planning have advised that the inclusion of the connection was based on the approved masterplan from the previous developer. Urbex has sought planning advice and confirmed that adjustment to the Area Plan can be requested.

APPENDIX C

MFY TRAFFIC IMPACT ASSESSMENT REPORT

URBEX

THE HEIGHTS, DURACK
NT PLANNING SCHEME AMENDMENT

TRAFFIC IMPACT ASSESSMENT

November 2024

22-0247

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DOCUMENT ISSUE

Revision issue	Date	Description	Approved by
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Final	20 November 2024	For issue	MM

CONTENTS

EXECUTIVE SUMMARY

MFY was engaged by Urbex to undertake a traffic impact assessment to inform the proposed Planning Scheme Amendment (PSA) for the vacant land at the northern end of The Heights in Durack. The subject land was part of a larger site which was rezoned in 2013 for the creation of The Heights development. Ten stages of the development have been completed and Stage 11 has recently been approved for development.

A PSA has now been proposed by Urbex on the remaining land to enable changes to the allotment density and the approved infrastructure requirements. The concept plan developed to inform the PSA identifies a potential for approximately 425 residential allotments.

This report details the traffic analysis completed as part of the investigations. It should be read in conjunction with The Heights Durack NT Planning Scheme Amendment Traffic Assessment which provides commentary in respect to all aspects of the proposal as they relate to traffic and parking requirements. The study has considered the potential access arrangement for the land which includes the extensions of Packard Avenue and Carpentaria Court. Additionally, discussions to permit two-way movements between Packard Avenue and Woodlake Boulevard have been undertaken between key stakeholders. While the provision of the treatment is not finalised, the traffic redistribution of such a treatment has been considered in this assessment.

The study area is bound by Roystonea Avenue, Kirkland Road, University Drive and Tiger Brennan Drive. It includes Packard Avenue, extending to its intersection with Roystonea Avenue and Yarrawonga Road as well as Nichols Street and Woodlake Boulevard.

Traffic forecast and distributions completed as part of this analysis identified that majority of the traffic will occur via the Packard Avenue/Roystonea Avenue traffic signal. Further, the forecast traffic on Woodlake Boulevard/Kirkland Road and Woodlake Boulevard/University Drive intersections will not meet the thresholds identified by DLI to warrant detailed analysis. Therefore, the assessment has included an intersection analysis of the Packard Avenue/Roystonea Avenue/Yarrawonga Road signalised intersection.

The analysis of the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection has been completed for a 20-year design horizon with annual growth rates of 1.5% and 3.0% as determined by the Department of Logistics and Infrastructure (DLI). The anticipated development volumes include forecast traffic generated by the proposed land division as well as traffic that would be redirected with the changes at the Nichols Street/Woodlake Boulevard intersection.

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 & 14473), and the adjacent road network.

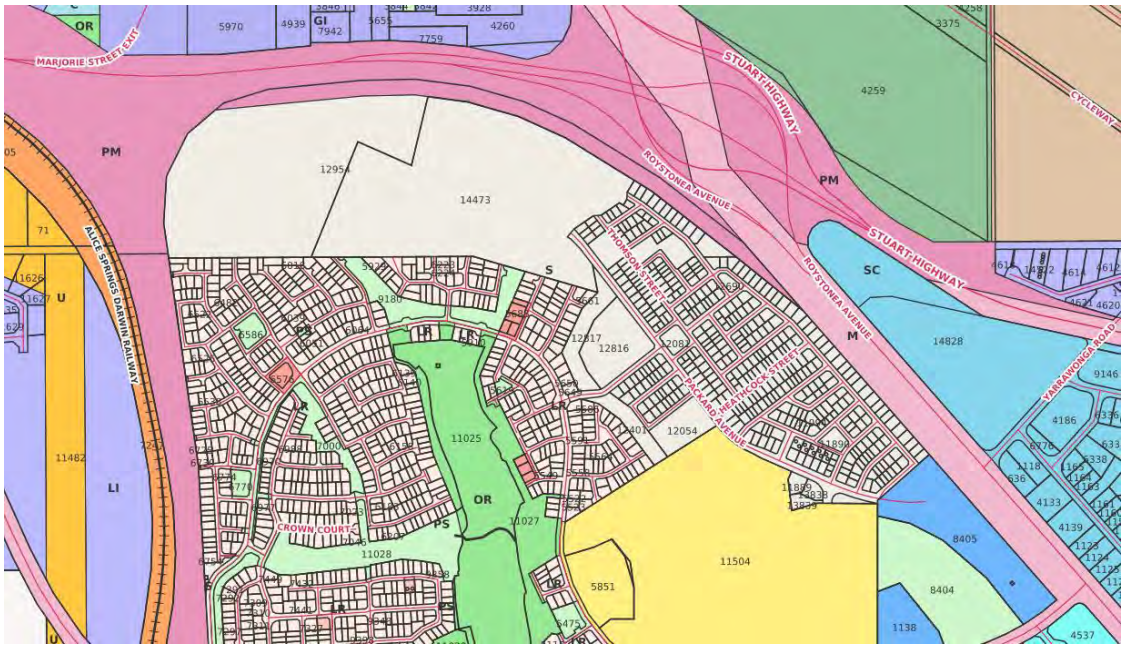


Figure 1: Study area locality and zoning (Source: NTPS)

1.1.2 AREA OF SIGNIFICANT TRANSPORTATION IMPACT

Traffic generated within the study area will use connections to Packard Avenue and Carpentaria Court to distribute to/from the broader road network via the following routes:

- the intersection of Packard Avenue/Roystonea Avenue/Yarrawonga Road; and
- Woodlake Boulevard.

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 (NTPS).

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 has been approved for development. Stage 11 is located to east of the subject site and is within Parcel 14473 on the north-eastern portion of Durack Heights. It will consist 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.

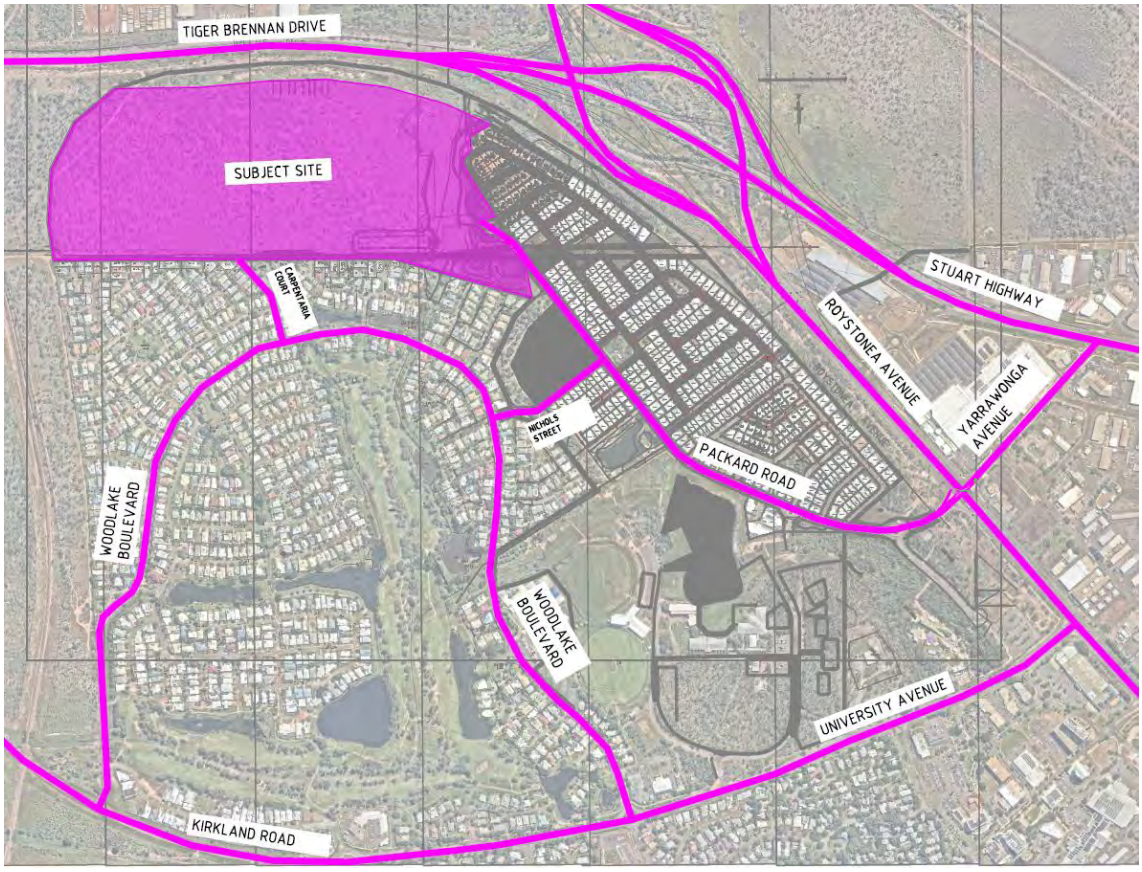


Figure 2: Area roadway system

Packard Avenue and Woodlake Boulevard are collector roads 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. Woodlake Boulevard provides access to the balance of Durack. It has a road reserve width of 21 m.

Packard Avenue and Woodlake Boulevard are connected via Nichols Street. 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.

Woodlake Boulevard forms intersections with University Avenue and Kirkland Road (which is an extension of University Avenue). The Woodlake Boulevard/University Avenue intersection is a four-way intersection which is treated with a roundabout.

The Woodlake Boulevard/Kirkland Road intersection is treated with channelised turn lanes on Kirkland Road. DLI has identified that the Kirkland Road/Woodlake Boulevard intersection will be upgraded, albeit potential treatments are still being investigated.

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 and Woodlake Boulevard 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.

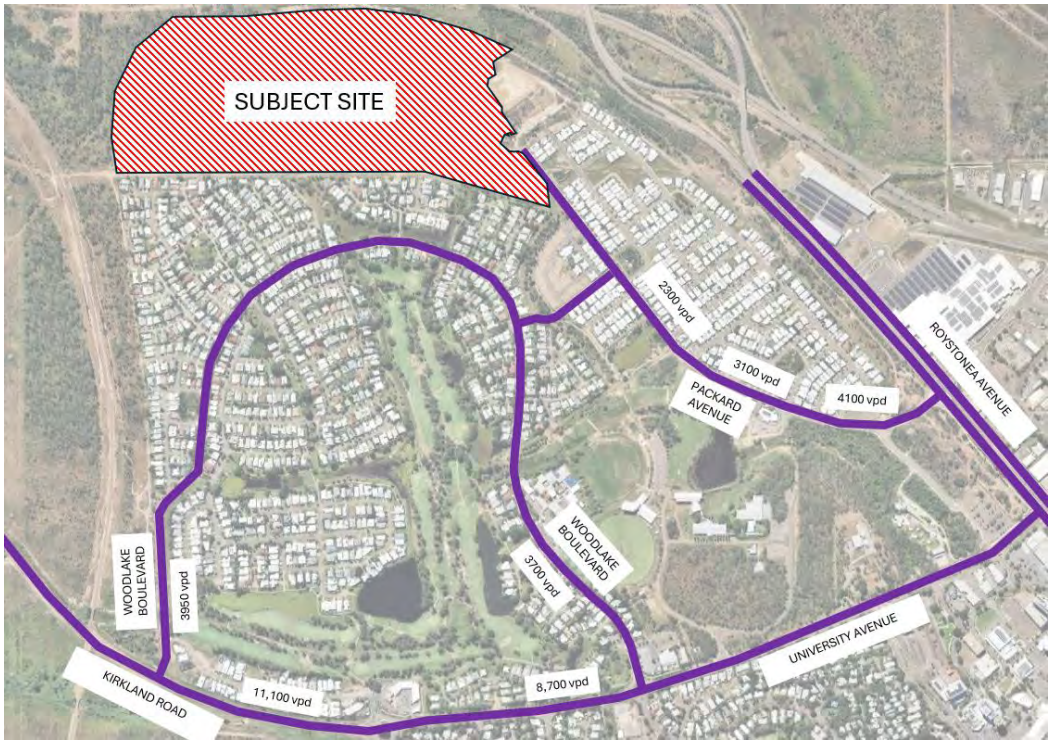


Figure 3: Existing daily traffic volumes

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 proposed PSA seeks to rezone the subject land to Specific Use (SP2) zone in the NT Planning Scheme (NTPS) to facilitate a residential land division. The current masterplan for the development identifies 382 allotments and associated infrastructure which would be delivered in eight stages. The ultimate yield and staging has the potential to change during detailed design and over the lifespan of the project. Figure 4 identifies the proposed concept for the subject land.

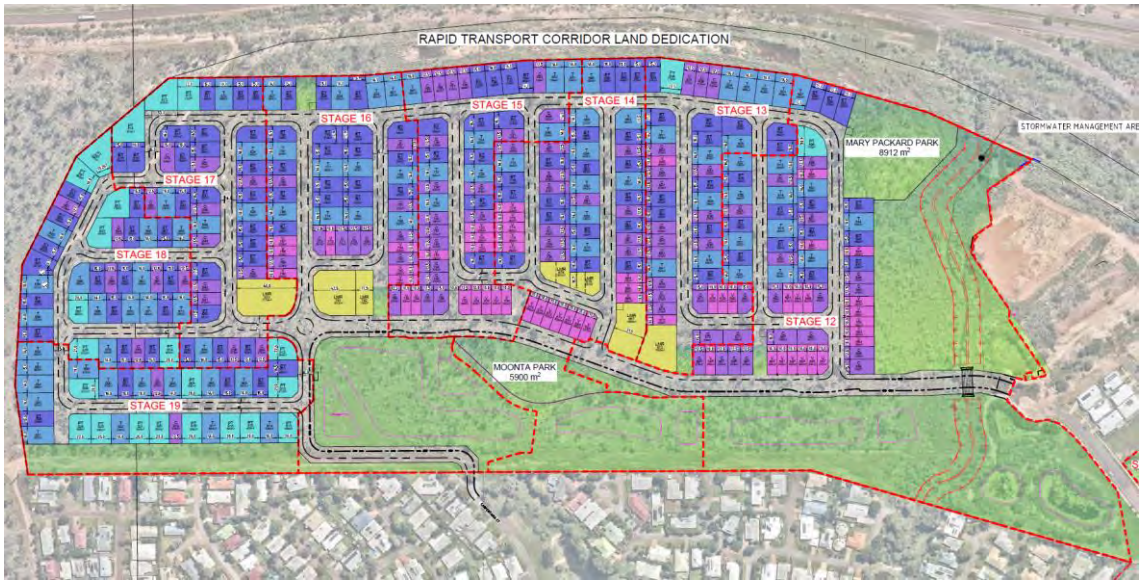


Figure 4: Proposed concept for the subject land

The concept plan identifies the following access points:

- extension of Packard Avenue; and
- extension of Carpentaria Court which forms an intersection with Woodlake Boulevard at its southern end.

In conjunction with the proposed rezoning, it is proposed to permit two-way movements on Nichols Street at Woodlake Boulevard. The nature of the treatment is currently being discussed with key stakeholders including Council and DLI. The treatment will improve connectivity between these streets and the Durack suburb.

MFY's *The Heights Durack NT Planning Scheme Amendment Traffic Assessment* report dated November 2024 details the investigations completed to inform the access arrangement for the land.

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

3.0 PROJECT TRAFFIC

While the development identifies a potential for 380 allotments, the analysis has considered a higher dwelling yield of approximately 440 dwellings, including duplex developments. This will allow for minor adjustments to be made during the detailed design phase.

3.1 DEVELOPMENT TRAFFIC

3.1.1 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. Based on these rates, the subject site could generate in the order of 4,000 daily trips or 375 peak hour trips.

3.1.2 TRAFFIC DISTRIBUTION

Traffic generated by the development will distribute towards employment, education, retail and recreation facilities. Based on the advice in the RMS Guide, approximately 25% will be related to local trips which will include schools, shopping and recreation. All trips will be external to the subject site. Accordingly, the following traffic distribution has been adopted for this assessment:

- 50% of the traffic will originate to and from the north on Stuart Highway and Tiger Brennan Drive;
- 10% of the traffic will originate to and from the east via Yarrawonga Road;
- 15% of the traffic will originate to and from the south on Roystonea Avenue and Stuart Highway; and
- 25% of the traffic will originate to and from adjacent amenities such as schools and shops. These will occur via Packard Avenue and Woodlake Boulevard.

The route choice for drivers will be dependent on the point of origin and destination and proximity to the access location. Most likely destinations including schools, retail facilities, employment areas will be more conveniently accessed via the Roystonea Avenue/Packard Avenue/Yarrawonga Road intersection. Accordingly, most of the traffic

generated by the development will distribute via Packard Avenue. There will, however, be exceptions which would include the following:

- drivers in the western part of the development who wish to travel to and from Darwin CBD could choose to use Kirkland Road via Carpentaria Court and Woodlake Boulevard. Figure 5 identifies the catchment area for the likely use of Carpentaria Court and the potential distribution between Packard Avenue and Carpentaria Court;

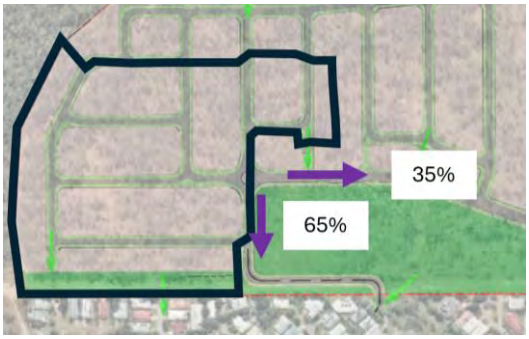


Figure 5: Catchment for drivers to access Kirkland Road via Carpentaria Court and Woodlake Boulevard

- Woodlake Boulevard presents an equally convenient access to developments to the west of Roystonea Avenue including Palmerston Shopping Centre when compared to the use of Packard Avenue. This is based on travel distance and average delay for drivers. It is estimated that 15% of the local trips will occur in this region of which 8.5% will occur via Woodlake Boulevard. 5% of trips would occur via Carpentaria Court while 3.5% would occur via Nichols Street; and
- There will be some movements to and from the existing school and child care facility located on Woodlake Boulevard in Durack

3.1.3 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 identifies 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

3.1.4 TRIP ASSIGNMENT

Figure 10 identifies the forecast additional daily traffic volumes on the road network based on the above traffic generation and distribution.

Figure 6: Forecast daily traffic movements AADT (percentage of forecast development traffic)

4.0 TRANSPORTATION ANALYSIS

4.1 CAPACITY AND LEVEL OF SERVICE

DLI specified detailed analysis would be required at intersections where there is more than 10% of the development traffic or the forecast additional traffic at the intersection is more than 5% of existing movements.

Based on the distribution, the forecast additional traffic on Woodlake Boulevard will be below 10% of the forecast development volume. Further, the forecast peak hour traffic at the Kirkland Road/Woodlake Boulevard and University Avenue/Woodlake Boulevard will be between 3% and 4% of the existing traffic at the intersections. Accordingly, these intersections will not meet DLI's threshold for detailed analysis. Importantly, the forecast traffic, which will be in the order of 30 trips in the peak hour and equates to approximately one additional trip every two minutes, is low and will not have any material impact at the intersection.

A significant portion of the traffic will occur via the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection and, therefore, analysis of this intersection has been completed. The scenarios analysed include the existing situation and a 20-year design horizon. A traffic growth rate of 1.5% and 3.0% have been considered in the assessment as identified by DLI and have been applied to the traffic movements on Roystonea Avenue.

The performance of the intersection has been analysed using SIDRA Intersection software. The following scenarios have been considered in the assessment:

- 2023 Base Case
- 2023 Base Case + Development
- 2043 (1.5% Growth)
- 2043 (1.5% Growth) + Development
- 2043 (3% Growth)
- 2043 (3% Growth) + Development

4.1.1 TRAFFIC VOLUME

4.1.1.1 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 7 identifies the traffic volumes adopted for the base case assessment of the intersection.

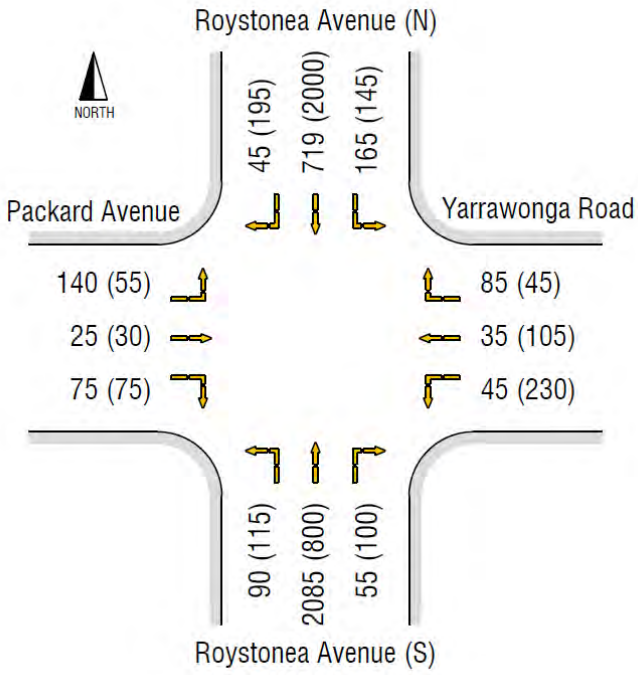


Figure 7: Base case traffic volumes am (pm)

4.1.1.2 2043 1.5% Growth

Figure 8 identifies the movements at the intersection with a 1.5% growth rate on Roystonea Avenue.

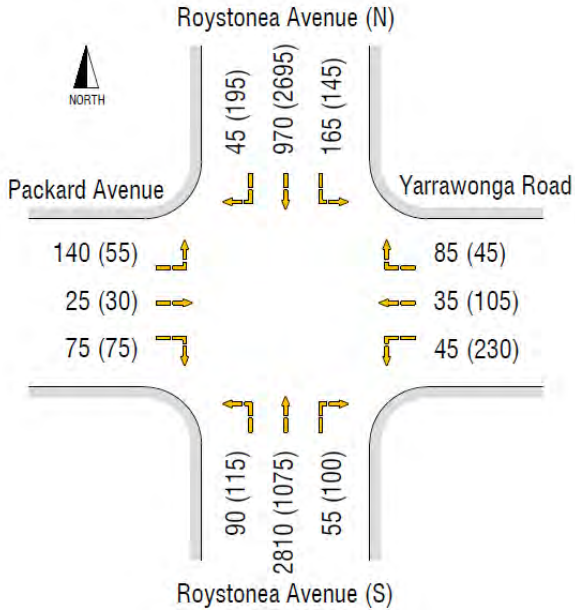


Figure 8: Traffic volumes with a 1.5% growth rate on Roystonea Avenue am (pm)

4.1.1.3 2043 3.0% Growth

Figure 9 identifies the movements at the intersection with a 3.0% growth rate on Roystonea Avenue.

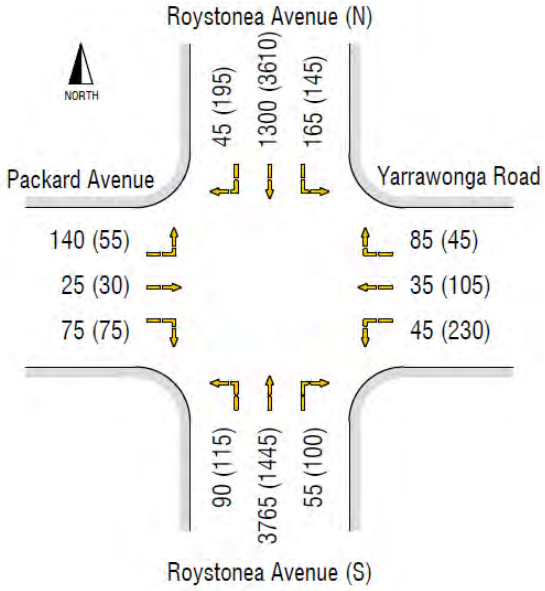


Figure 9: Traffic volumes with a 3.0% growth rate on Roystonea Avenue am (pm)

4.1.1.4 Development Traffic

Figure 10 identifies the forecast additional traffic at the intersection related to the proposed development.

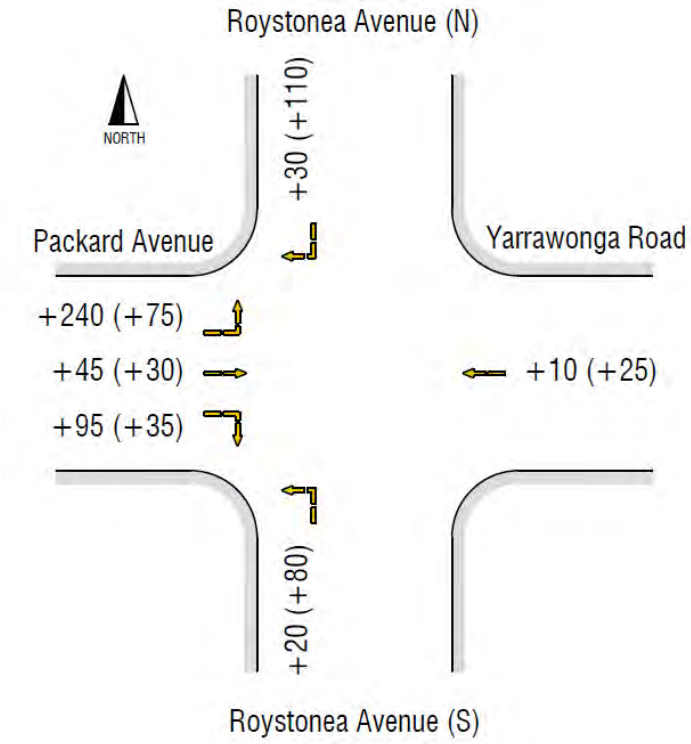


Figure 10: Additional traffic volumes related to the proposed development am (pm)

4.1.2 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.

4.1.3 2023 SCENARIO

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 key performance indicators am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.57 (0.66)	64 (147)	24.6 (14.1)
Yarrawonga Road	0.59 (0.67)	35 (46)	49.5 (32.8)
Roystonea Avenue (S)	0.62 (0.62)	103 (97)	6.8 (37.9)
Packard Avenue	0.53 (0.65)	30 (34)	30.4 (55.1)

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. The average delay for movements on Roystonea Avenue is low. These results are consistent with the site observations.

Table 2 identifies the results of the base case with development volumes model. The model was programmed to enable SIDRA to nominate phase times to balance the operation of the intersection. Table 2 identifies the results with the development volumes.

Table 2: Base case plus development model results am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.80 (0.71)	68 (179)	27.6 (18.6)
Yarrawonga Road	0.33 (0.71)	31 (58)	44.9 (35.5)
Roystonea Avenue (S)	0.80 (0.69)	209 (105)	21.4 (40.7)
Packard Avenue	0.76 (0.72)	97 (50)	41.8 (54.2)

The modelling identifies that the intersection will operate within capacity. The forecast 95th-percentile queue lengths will not extend beyond the available storage for any movement.

4.1.4 2043 (1.5% TRAFFIC GROWTH) SCENARIO

Table 4 identifies the 1.5% traffic growth scenario model without any development volumes which has been based on the parameters in the base case model.

Table 3: 2043 (1.5% growth) results am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.65 (0.84)	85 (236)	24.1 (13.3)
Yarrawonga Road	0.69 (0.88)	33 (61)	47.7 (38.9)
Roystonea Avenue (S)	0.86 (0.78)	236 (128)	13.4 (37.6)
Packard Avenue	0.62 (0.80)	29 (33)	34.0 (56.4)

The modelling identifies that the intersection will operate within capacity if a growth rate of 1.5% were to be realised. The 95th-percentile queues will not extend to major

downstream intersections and the queues in the turn lanes will be within the available storage. The average delay for movements on Roystonea Avenue will be low.

The forecast development traffic volumes were included to the 2043 1.5% Growth Scenario model. There were no other changes made to the model. Table 4 identifies the results of the model.

Table 4: 2043 (1.5% growth) with development results am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.78 (0.88)	108 (315)	31.8 (20.8)
Yarrawonga Road	0.44 (0.85)	36 (72)	54.7 (44.5)
Roystonea Avenue (S)	0.89 (0.86)	342 (169)	22.2 (52.4)
Packard Avenue	0.90 (0.79)	141 (51)	67.1 (60.2)

The above assessment identifies that the intersection would operate within a capacity of 0.9 and the queue will not extend to adjacent signals or outside existing storage lanes.

4.1.5 2043 (3.0% TRAFFIC GROWTH) SCENARIO

Table 5 identifies the results of the 3.0% growth model without any development volumes. The 2043 design year scenario was modelled using an annual growth rate of 3.0%.

Table 5: 2043 (3.0% growth) model key performance indicators am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.98 (1.03)	187 (899)	39.8 (60.8)
Yarrawonga Road	0.73 (0.93)	48 (107)	73.1 (74.6)
Roystonea Avenue (S)	0.97 (1.03)	555 (393)	22.4 (128.4)
Packard Avenue	0.65 (0.93)	62 (48)	57.8 (86.7)

The modelling identifies that the intersection will not operate within capacity if a 3.0% growth rate was to be realised. There will be significantly long queues which will impact the operation of the downstream intersections and the delays for drivers will be high.

An iterative approach was adopted in identifying potential treatments required to accommodate the forecast traffic at a 3% growth rate. The modelling of options identified that the following potential treatments would cater for the forecast growth:

- additional through lanes on Roystonea Avenue; and
- shared through and right turn lanes on Packard Avenue and Yarrawonga Road. This treatment will require split phasing on these roads.

Figure 13 identifies the potential layout.

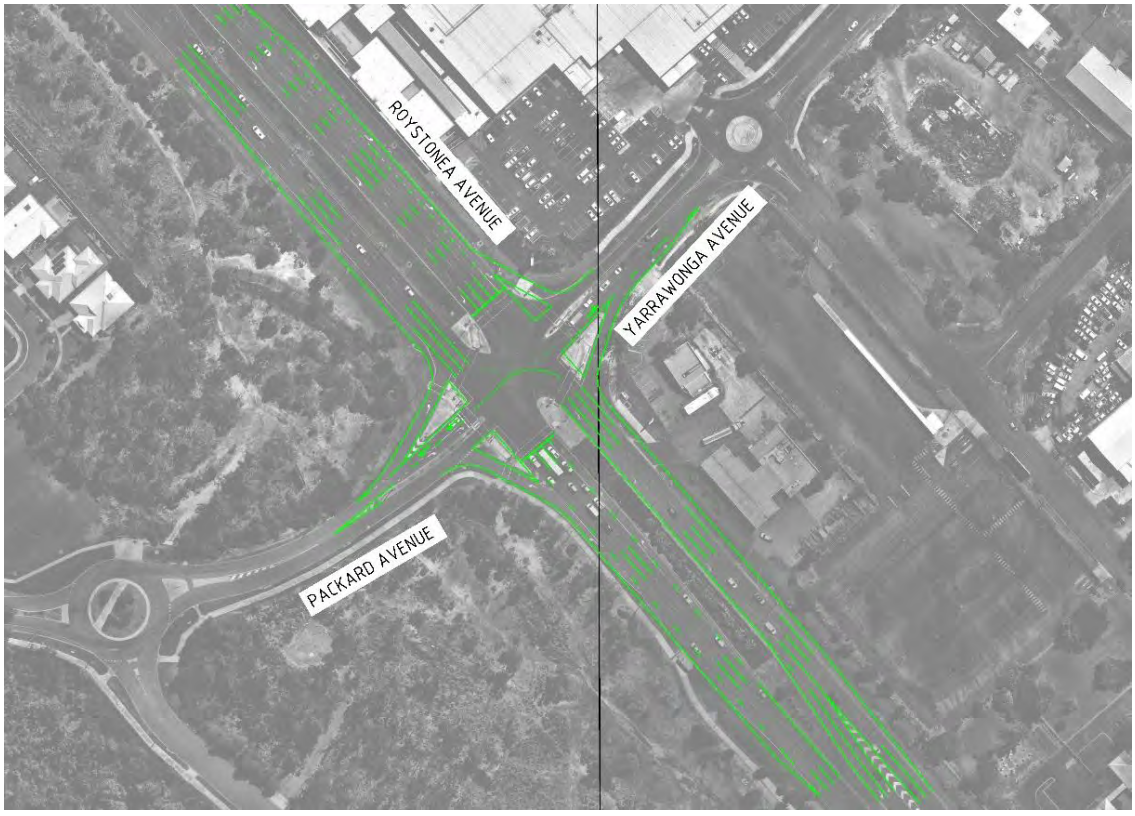


Figure 13: Potential upgrade option to the intersection

Table 6 identifies the results of the model incorporating the above upgrades.

Table 6: 2043 (3.0% growth) model with upgrade key performance indicators am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)
Roystonea Avenue (N)	0.52 (0.85)	79 (273)	16.2 (11.3)
Yarrawonga Road	0.68 (0.87)	24 (76)	45.8 (47.1)
Roystonea Avenue (S)	0.88 (0.80)	267 (143)	15.8 (31.3)
Packard Avenue	0.48 (0.53)	29 (28)	37.8 (54.1)

The above results indicate that the upgrades will provide enough capacity to adequately accommodate the forecast growth. The degree of saturation for traffic on Roystonea would not exceed 0.9 but equally demonstrates that the works identified will not result in an overdesign of the intersection.

The forecast development traffic volumes were included in the 2043 3.0% Growth Scenario model with the potential upgrades. There were no other changes made to the model. Table 7 identifies the results of the model.

Table 8: 2043 (3.0% growth) scenario model results with added through lanes and shared right/through lanes am (pm)

Approach	DOS	95th-percentile Queue (m)	Average Delay (s)

Roystonea Avenue (N)	0.80 (0.87)	86 (310)	18.2 (15.0)
Yarrawonga Road	0.80 (0.82)	29 (87)	52.7 (50.5)
Roystonea Avenue (S)	0.89 (0.89)	304 (165)	79.6 (36.8)
Packard Avenue	0.90 (0.85)	120 (48)	143.0 (52.1)

The above results identify that the additional traffic related to the development will be accommodated at the intersection with no additional upgrades than those already required to cater for the growth on the road network. The forecast queues will be accommodated within the available storage and will not impact on adjacent intersections.

While the model identified relatively high delays on Packard Avenue, this relates to the change in phasing to accommodate the growth on the road network Further, a review of the detailed output within SIDRA identified that the affected movements would clear within one cycle length and therefore the intersection would operate satisfactorily. Importantly, the arterial road traffic would have priority at the intersection.

5.0 IMPROVEMENT ANALYSIS

5.1 IMPROVEMENTS TO ACCOMMODATE EXISTING TRAFFIC

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

5.2 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

5.3 IMPROVEMENTS TO ACCOMMODATE SITE TRAFFIC

No further improvements will be required to accommodate the site traffic over and above that required to accommodate the background traffic. The analysis identified that the intersection would have sufficient capacity to accommodate the development traffic and the forecast queues will not impact the operation of the road network.

5.4 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.

6.0 FINDINGS

6.1 SITE ACCESSIBILITY

The proposed rezoning of land at The Heights, Durack will be serviced by the extension of Packard Avenue as well as a connection to Woodlake Boulevard via Carpentaria Court. The development will also include modifications to the Nichols Street/Woodlake Boulevard intersection to permit all movements to and from Nichols Street. A significant portion of the traffic is anticipated to access the subject land via the Packard Avenue/Roystonea Avenue/Yarrawonga Road intersection, while some traffic will use Woodlake Boulevard.

6.2 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.

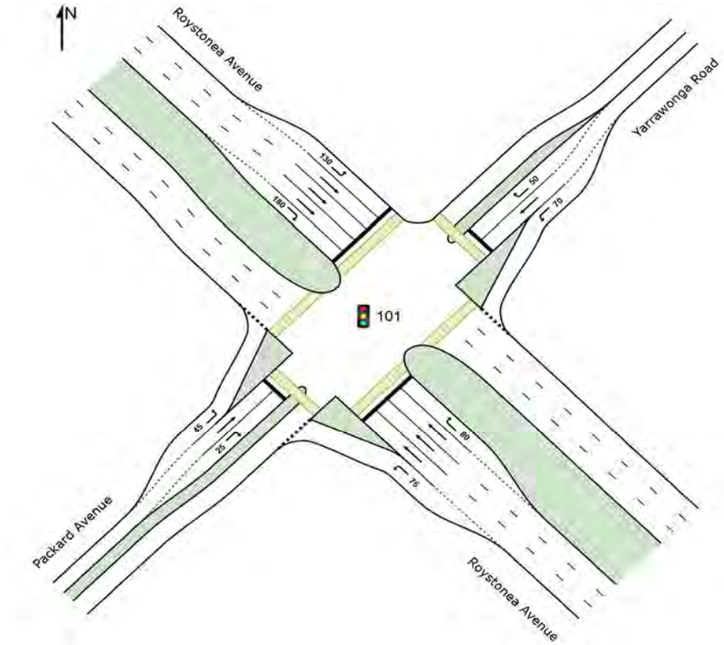
6.3 NEED FOR ANY IMPROVEMENTS

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.

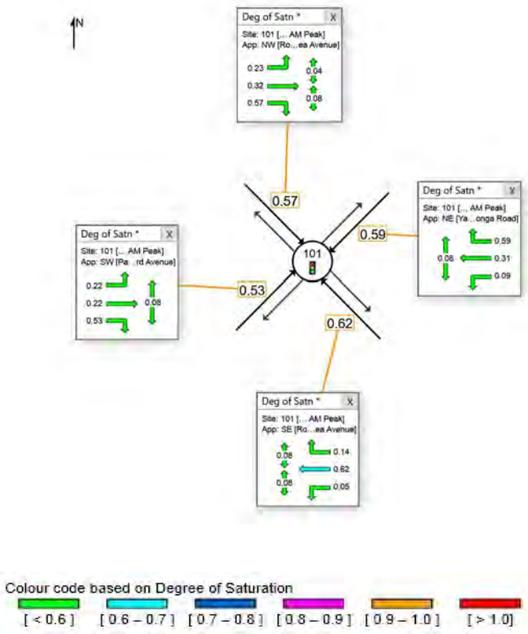
APPENDIX A

SIDRA ANALYSIS

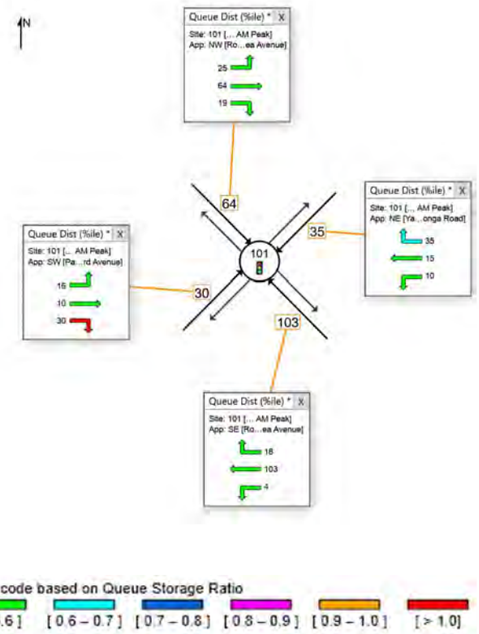
INTERSECTION LAYOUT



DEGREE OF SATURATION



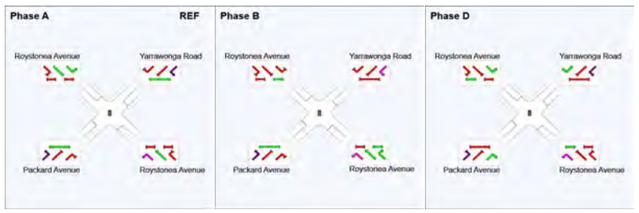
95%ile QUEUE DISTANCE (metres)



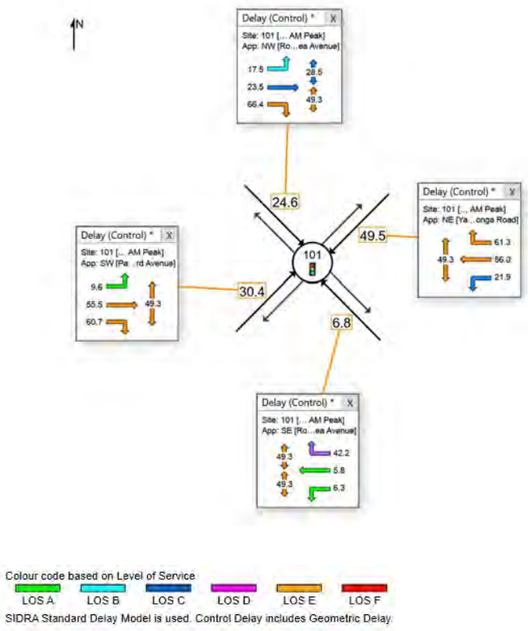
PHASING SUMMARY

Phase Timing Summary

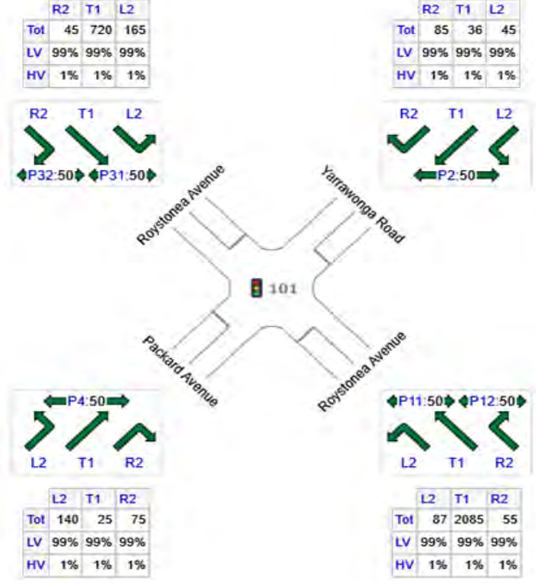
Phase	A	B	D	E	C
Phase Change Time (sec)	0	48	67	84	100
Green Time (sec)	44	13	12	9	6
Phase Time (sec)	50	18	19	15	10
Phase Split	45%	16%	17%	13%	9%



DELAY (CONTROL) & LEVEL OF SERVICE

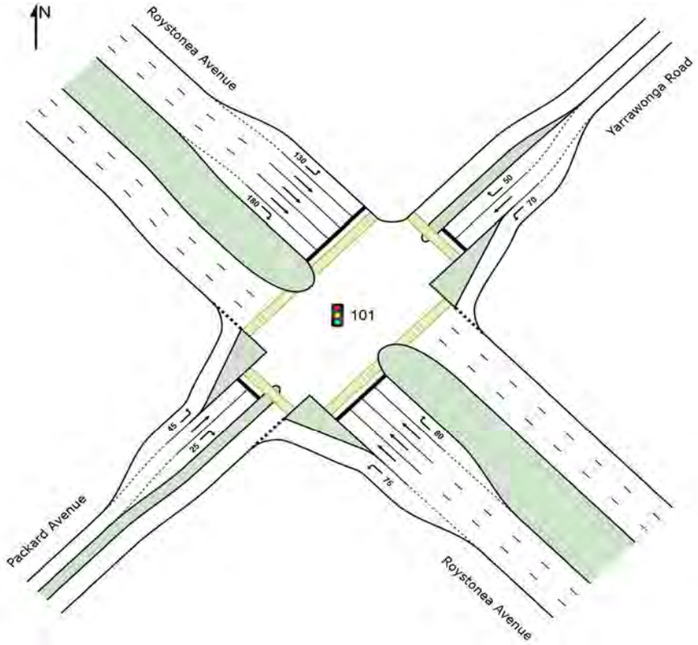


INPUT VOLUMES

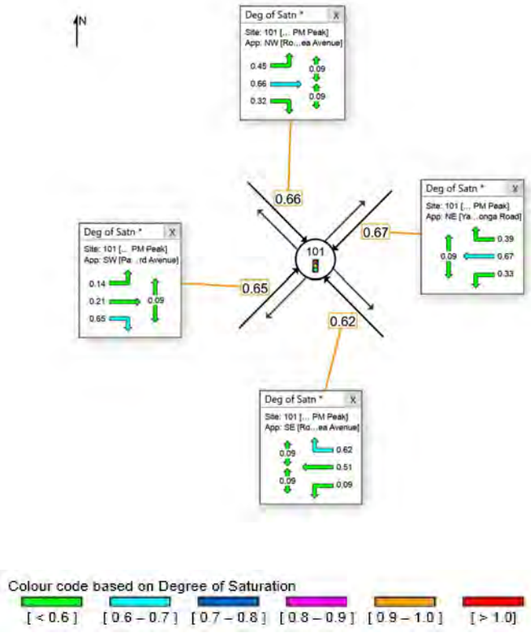


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	Base Case
	AM Peak

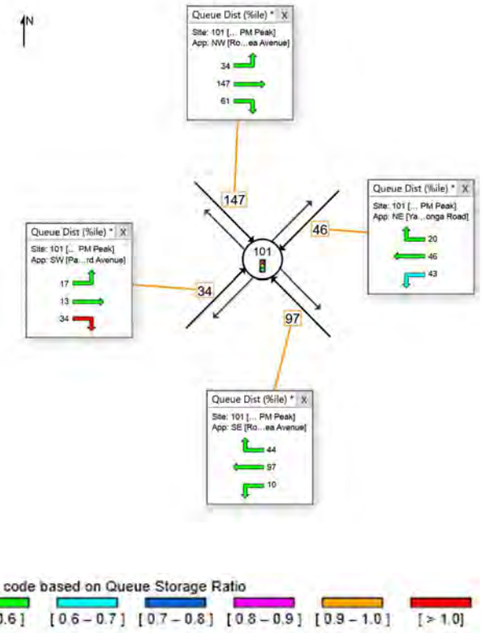
INTERSECTION LAYOUT



DEGREE OF SATURATION



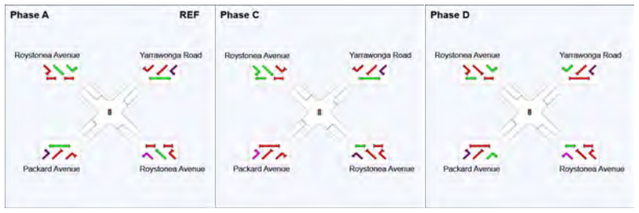
95%ile QUEUE DISTANCE (metres)

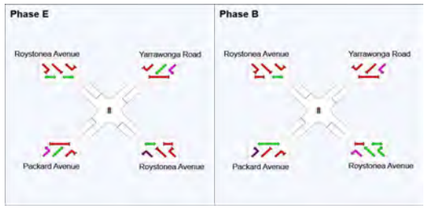


PHASING SUMMARY

Phase Timing Summary

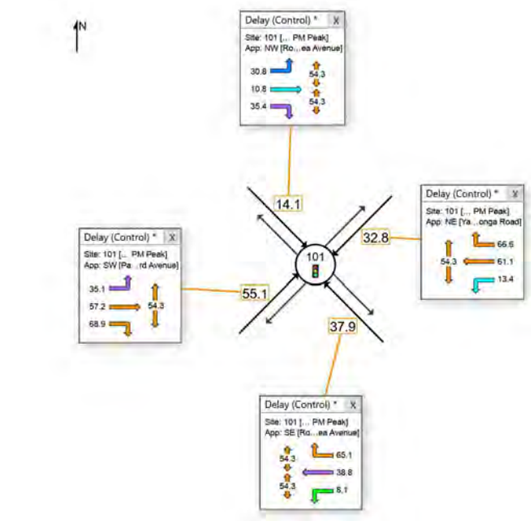
Phase	A	C	D	E	B
Phase Change Time (sec)	0	23	72	86	103
Green Time (sec)	17	43	8	10	11
Phase Time (sec)	23	49	15	16	17
Phase Split	19%	41%	13%	13%	14%





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

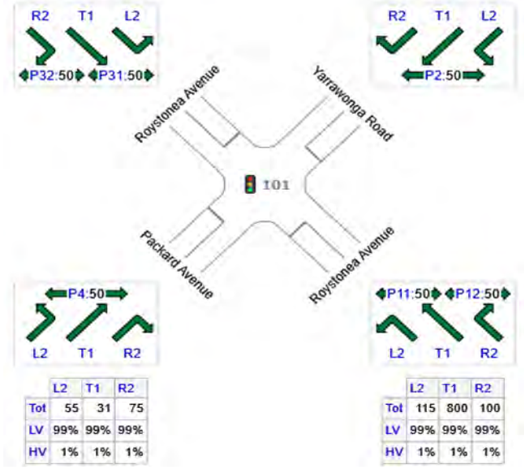


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	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%

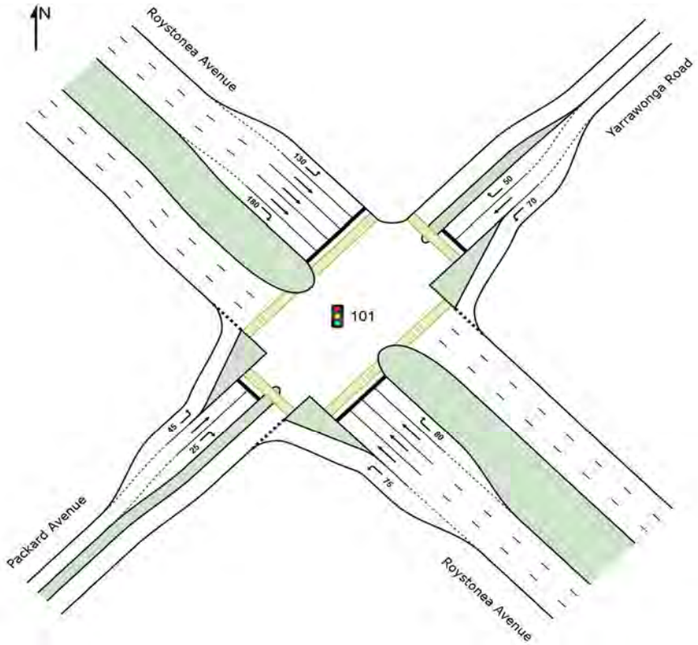


	L2	T1	R2
Tot	55	31	75
LV	99%	99%	99%
HV	1%	1%	1%

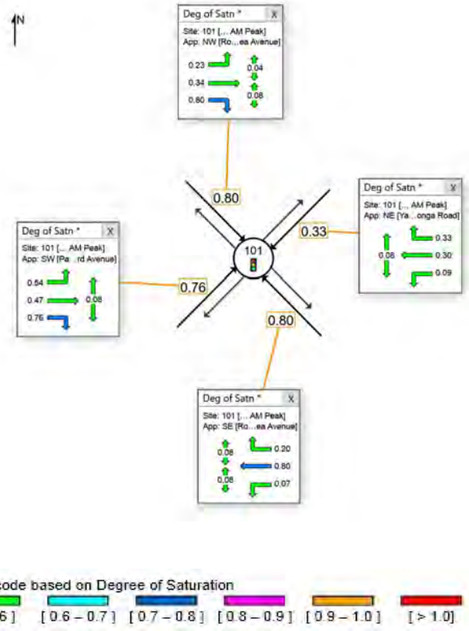
	L2	T1	R2
Tot	115	800	100
LV	99%	99%	99%
HV	1%	1%	1%

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

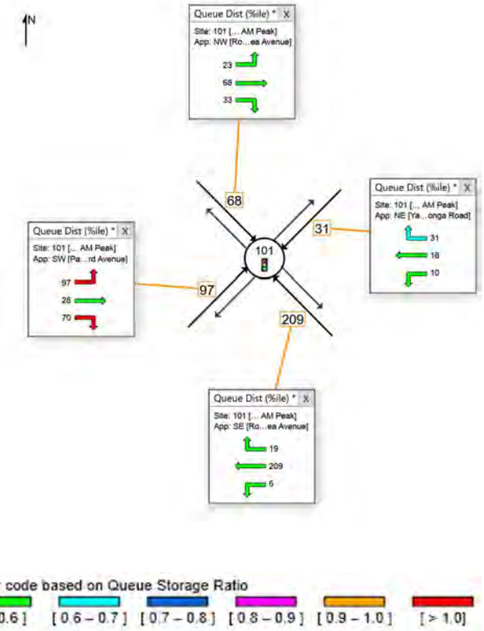
INTERSECTION LAYOUT



DEGREE OF SATURATION



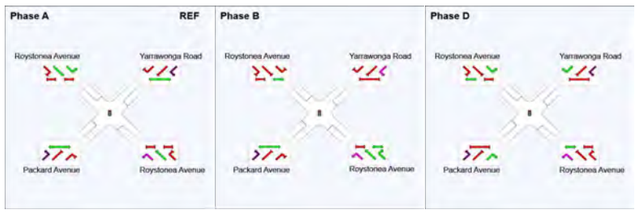
95%ile QUEUE DISTANCE (metres)



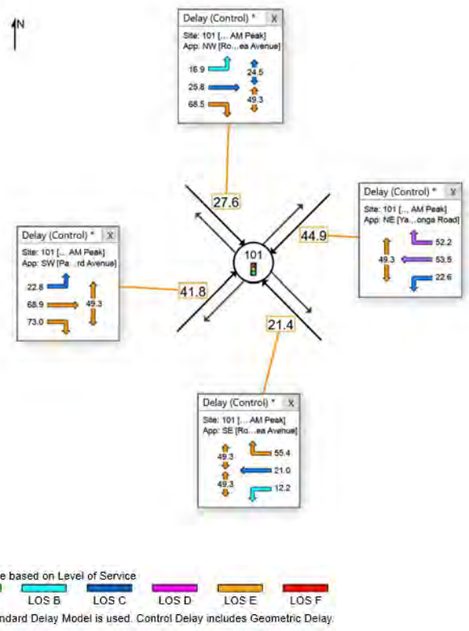
PHASING SUMMARY

Phase Timing Summary

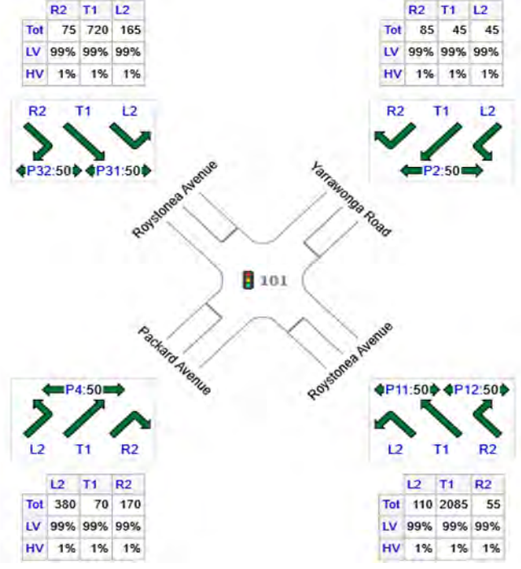
Phase	A	B	D	E	C
Phase Change Time (sec)	0	36	59	81	97
Green Time (sec)	30	17	16	9	6
Phase Time (sec)	36	23	23	16	12
Phase Split	33%	21%	21%	15%	11%



DELAY (CONTROL) & LEVEL OF SERVICE

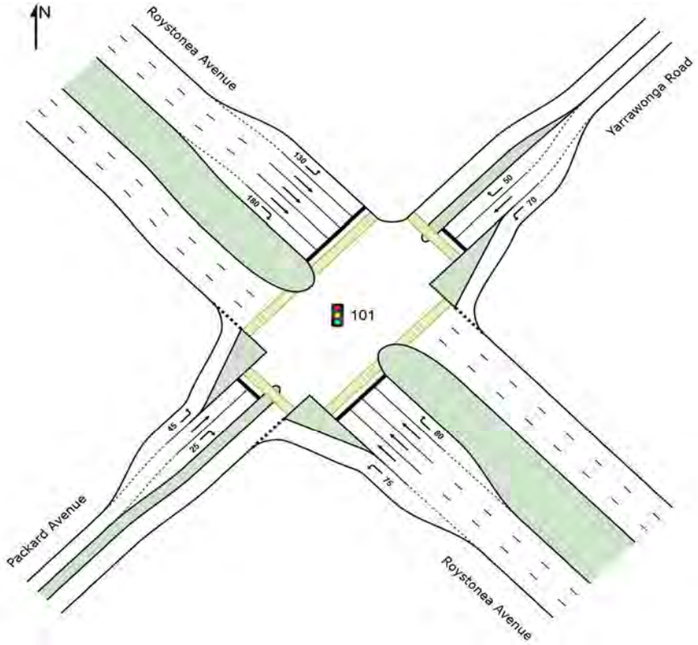


INPUT VOLUMES

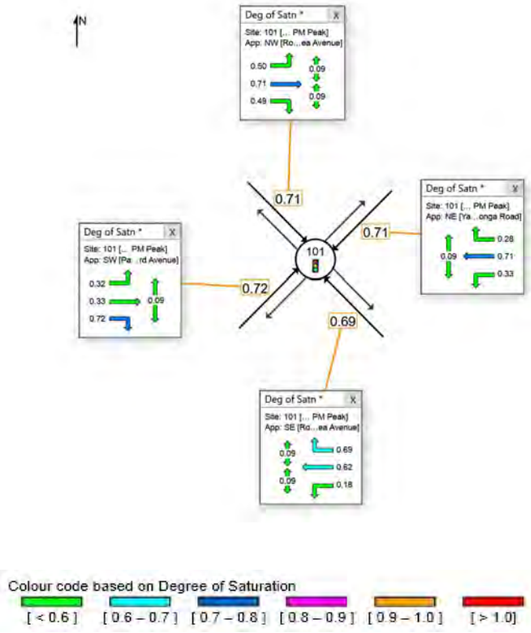


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case
	AM Peak

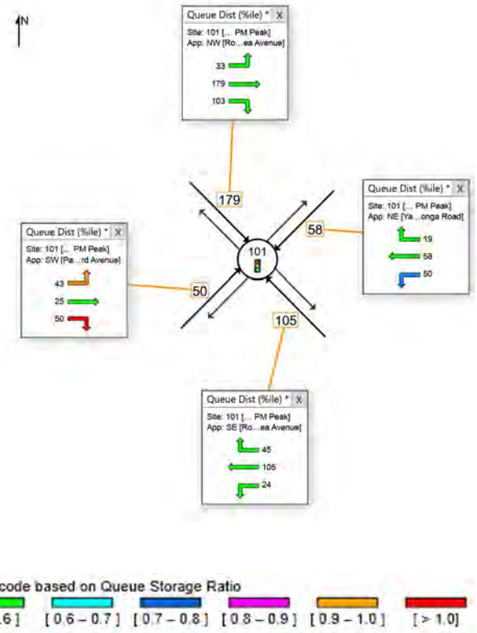
INTERSECTION LAYOUT



DEGREE OF SATURATION



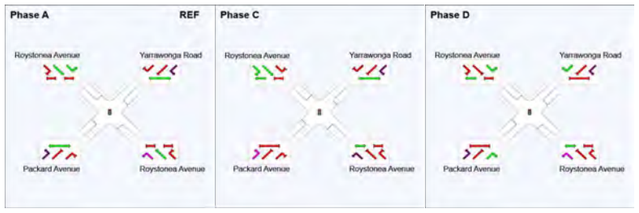
95%ile QUEUE DISTANCE (metres)

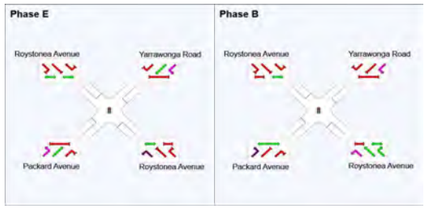


PHASING SUMMARY

Phase Timing Summary

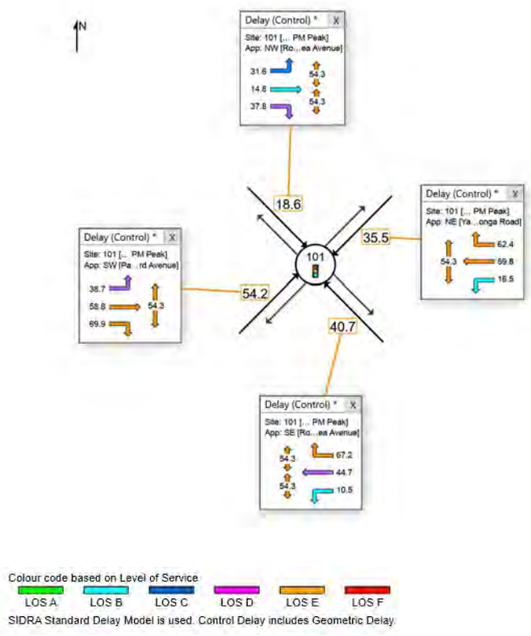
Phase	A	C	D	E	B
Phase Change Time (sec)	0	18	67	84	103
Green Time (sec)	12	43	11	12	10
Phase Time (sec)	18	49	18	19	16
Phase Split	15%	41%	15%	16%	13%





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

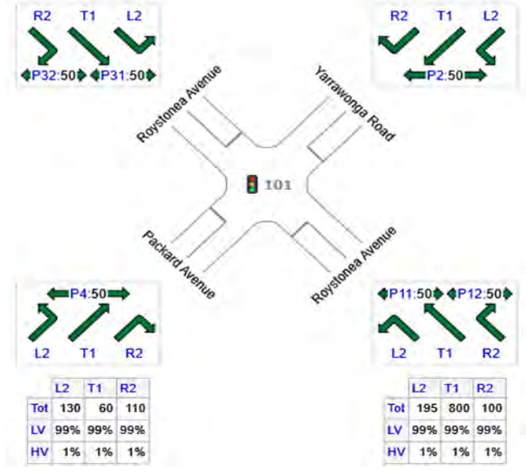


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	305	2000	145
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	45	130	230
LV	99%	99%	99%
HV	1%	1%	1%

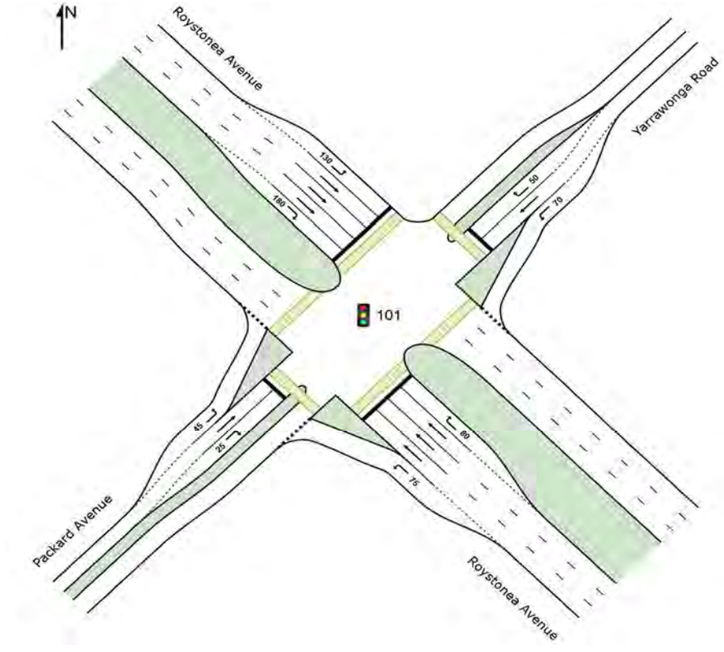


	L2	T1	R2
Tot	130	60	110
LV	99%	99%	99%
HV	1%	1%	1%

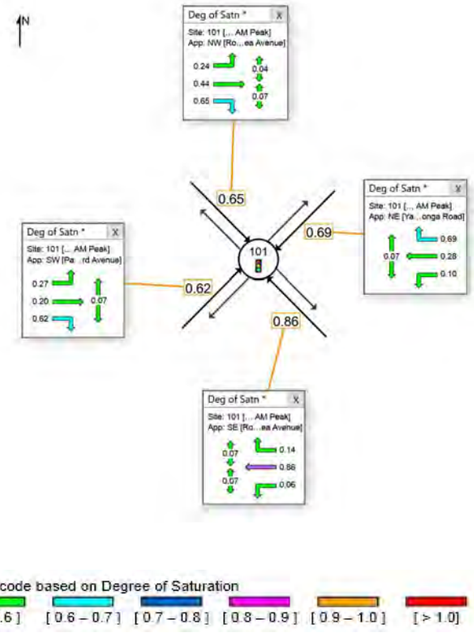
	L2	T1	R2
Tot	195	800	100
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2023 Development Case
	PM Peak

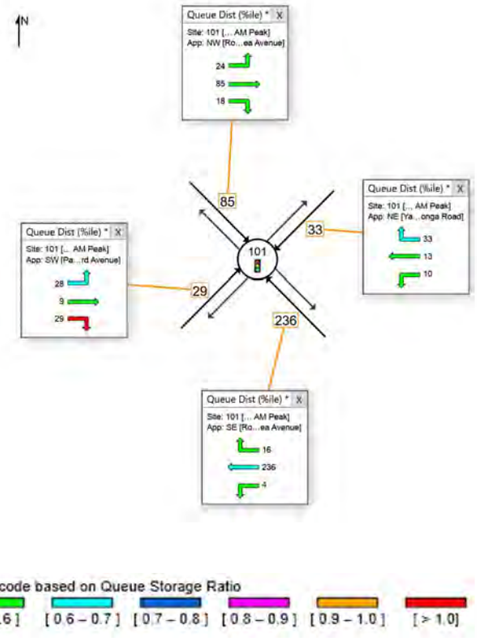
INTERSECTION LAYOUT



DEGREE OF SATURATION



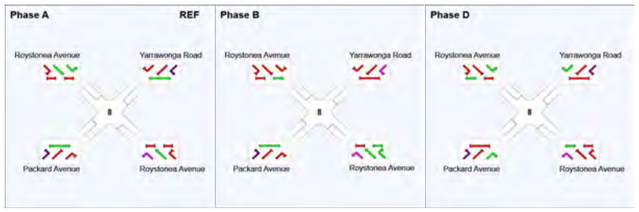
95%ile QUEUE DISTANCE (metres)



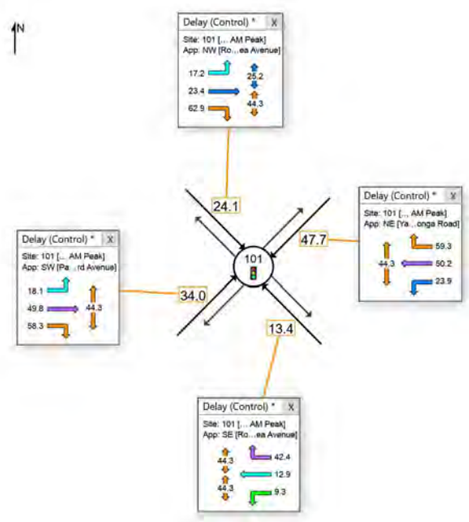
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D	E	C
Phase Change Time (sec)	0	36	64	76	90
Green Time (sec)	32	22	7	7	4
Phase Time (sec)	38	27	14	13	8
Phase Split	38%	27%	14%	13%	8%



DELAY (CONTROL) & LEVEL OF SERVICE

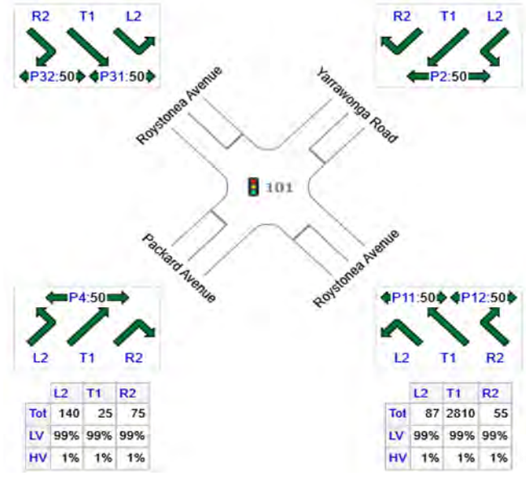


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	45	970	165
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	85	36	45
LV	99%	99%	99%
HV	1%	1%	1%

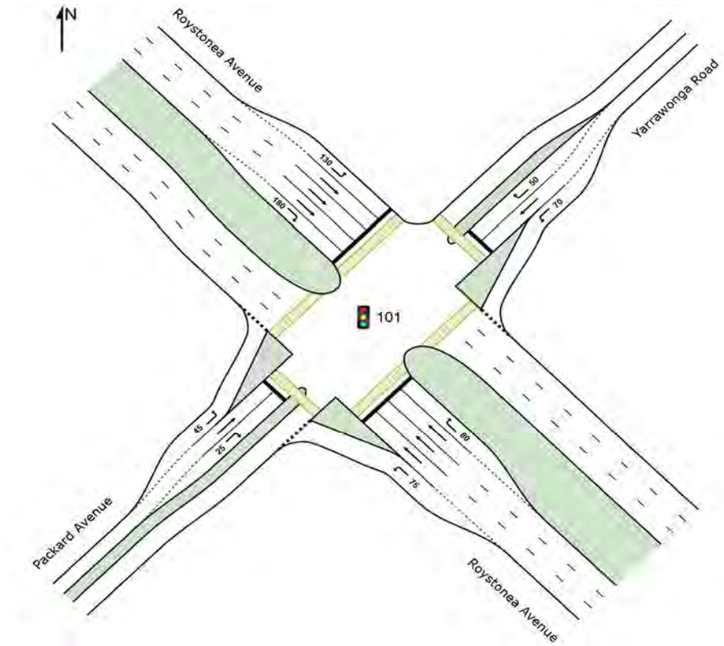


	L2	T1	R2
Tot	140	25	75
LV	99%	99%	99%
HV	1%	1%	1%

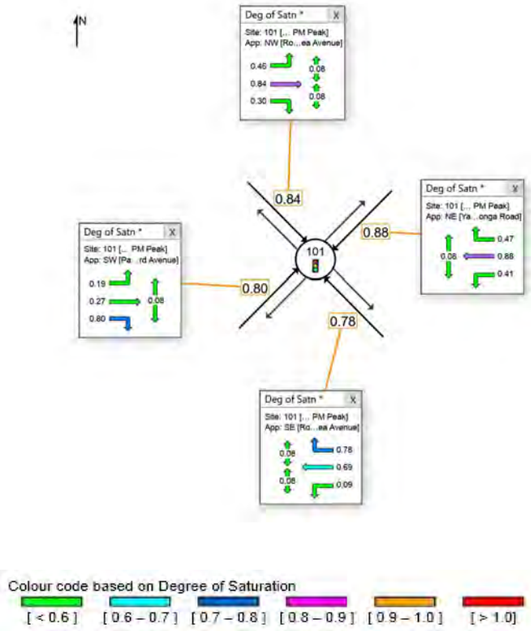
	L2	T1	R2
Tot	87	2810	55
LV	99%	99%	99%
HV	1%	1%	1%

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

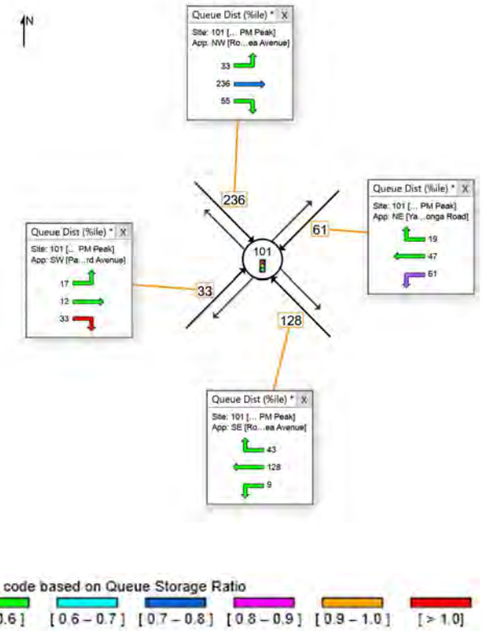
INTERSECTION LAYOUT



DEGREE OF SATURATION



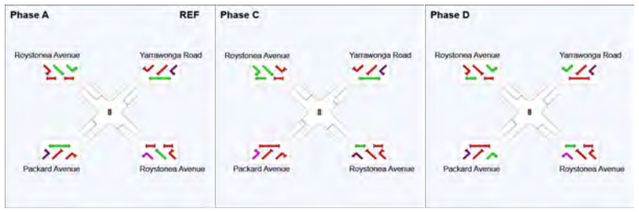
95%ile QUEUE DISTANCE (metres)

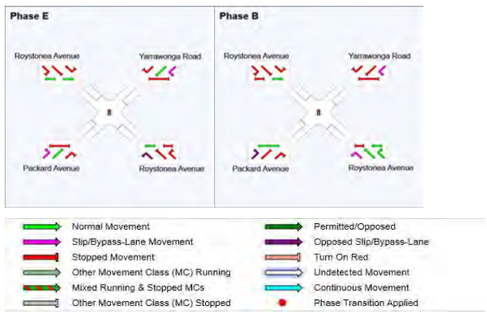


PHASING SUMMARY

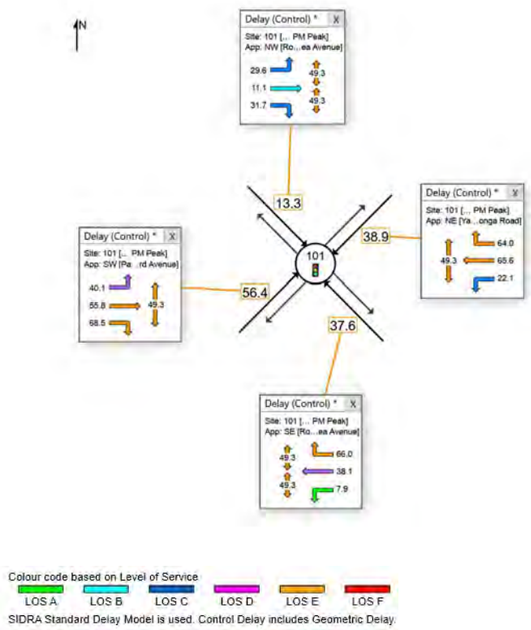
Phase Timing Summary

Phase	A	C	D	E	B
Phase Change Time (sec)	0	23	70	82	96
Green Time (sec)	17	41	6	7	8
Phase Time (sec)	23	47	13	13	14
Phase Split	21%	43%	12%	12%	13%

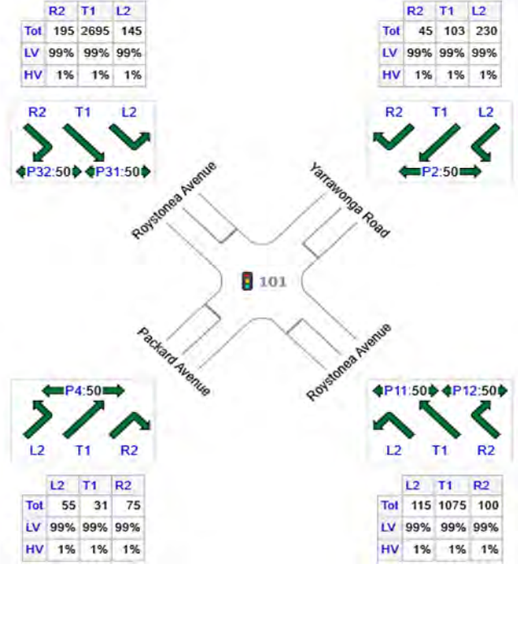




DELAY (CONTROL) & LEVEL OF SERVICE

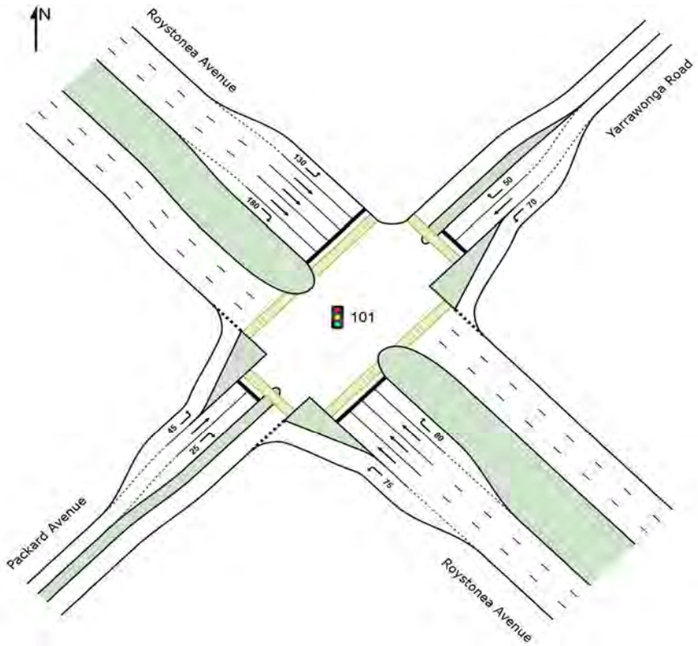


INPUT VOLUMES

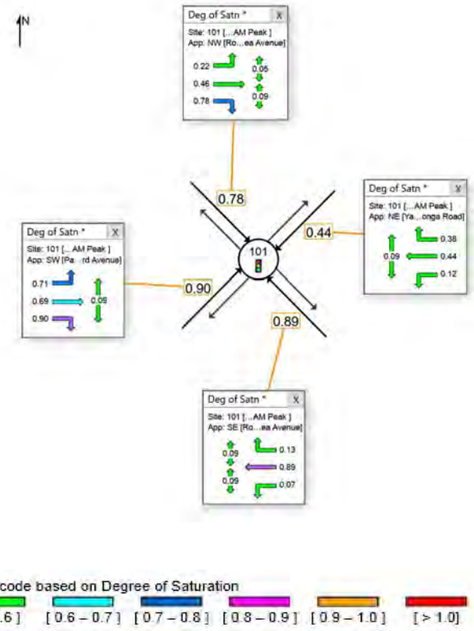


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Design Year - 1.5% Growth
	PM Peak

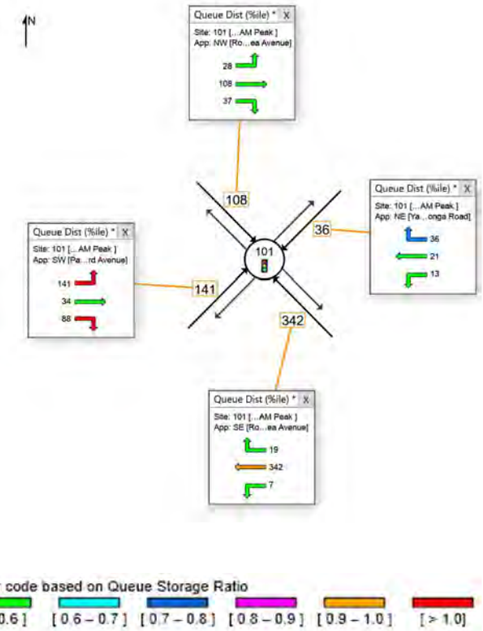
INTERSECTION LAYOUT



DEGREE OF SATURATION



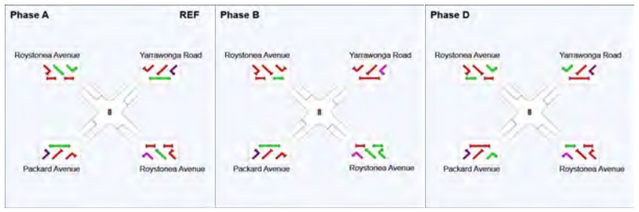
95%ile QUEUE DISTANCE (metres)



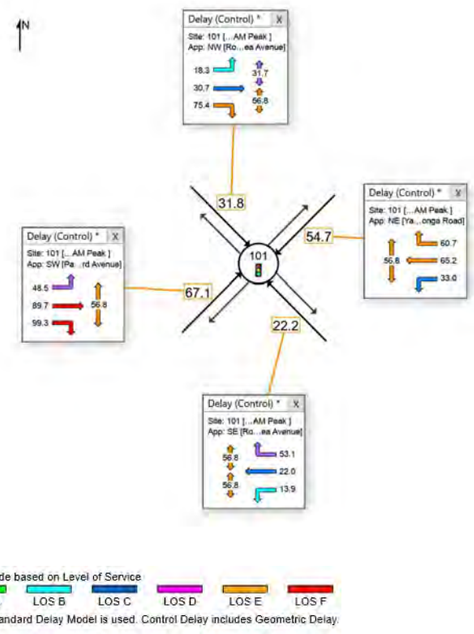
PHASING SUMMARY

Phase Timing Summary

Phase	A	B	D	E	C
Phase Change Time (sec)	0	41	77	98	112
Green Time (sec)	37	30	16	7	7
Phase Time (sec)	43	35	23	13	11
Phase Split	34%	28%	18%	10%	9%



DELAY (CONTROL) & LEVEL OF SERVICE

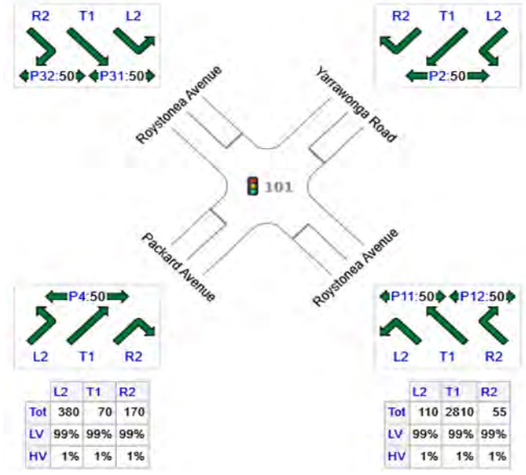


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	75	970	165
LV	99%	99%	99%
HV	1%	1%	1%

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

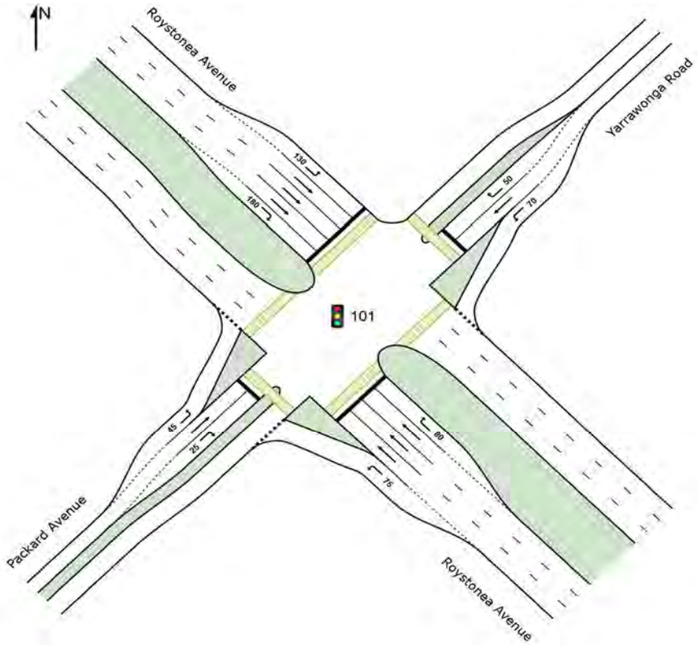


	L2	T1	R2
Tot	380	70	170
LV	99%	99%	99%
HV	1%	1%	1%

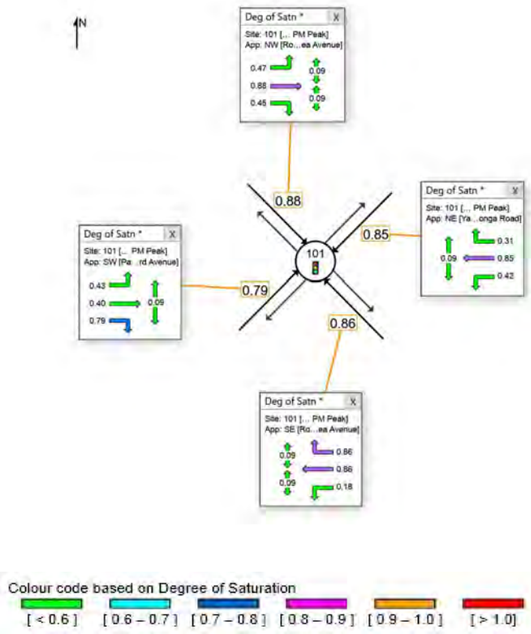
	L2	T1	R2
Tot	110	2810	55
LV	99%	99%	99%
HV	1%	1%	1%

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

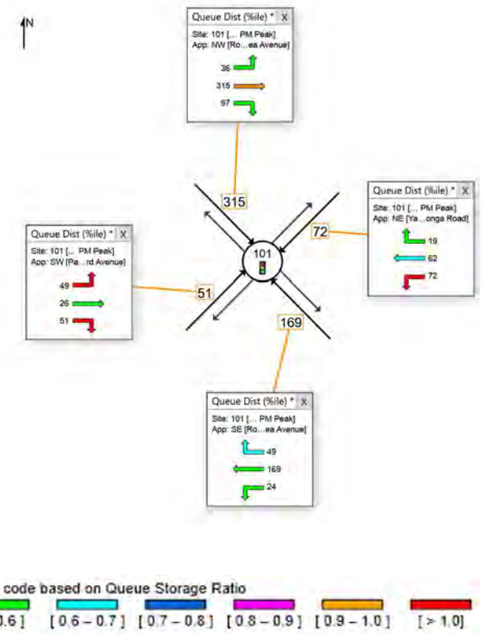
INTERSECTION LAYOUT



DEGREE OF SATURATION



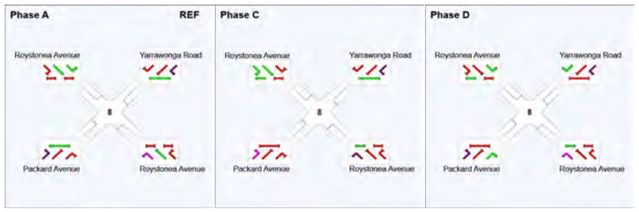
95%ile QUEUE DISTANCE (metres)



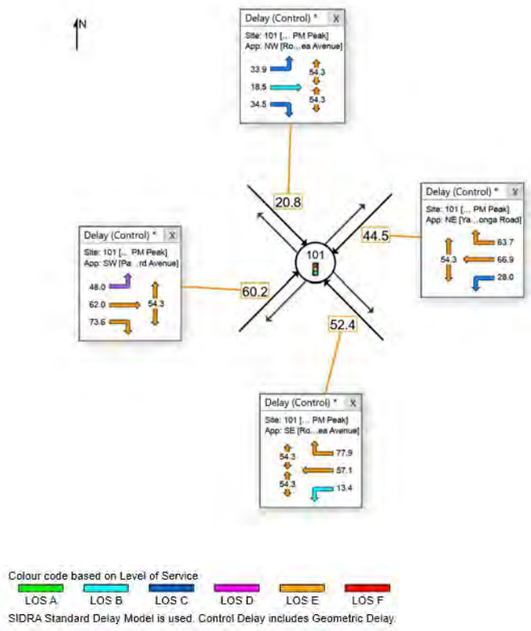
PHASING SUMMARY

Phase Timing Summary

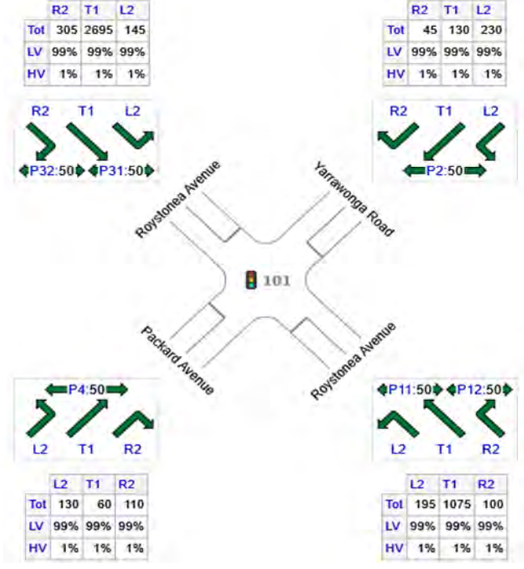
Phase	A	C	D	E	B
Phase Change Time (sec)	0	20	73	89	106
Green Time (sec)	14	47	10	10	8
Phase Time (sec)	20	53	17	16	14
Phase Split	17%	44%	14%	13%	12%



DELAY (CONTROL) & LEVEL OF SERVICE

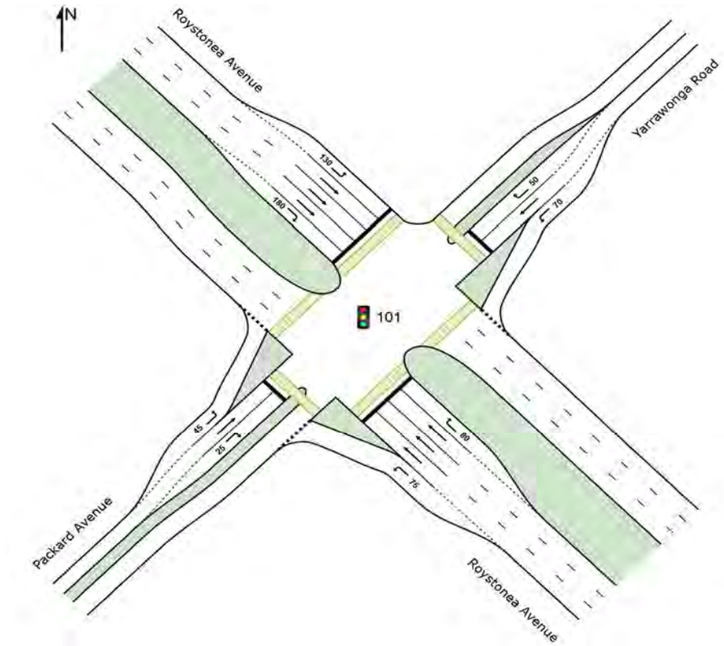


INPUT VOLUMES

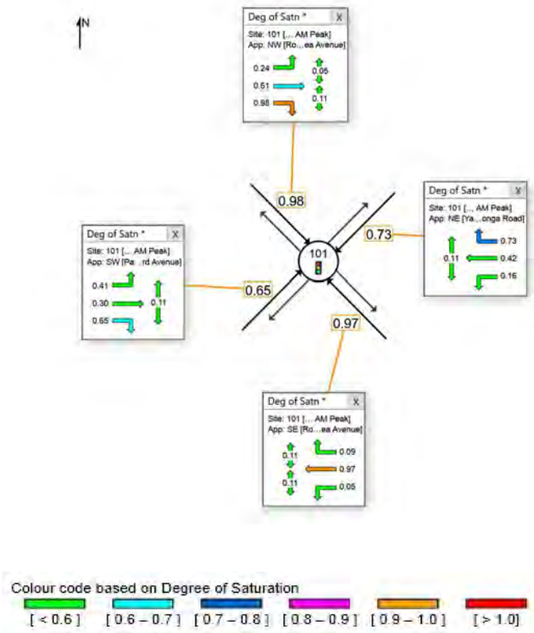


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Development Case - 1.5% Growth
	PM Peak

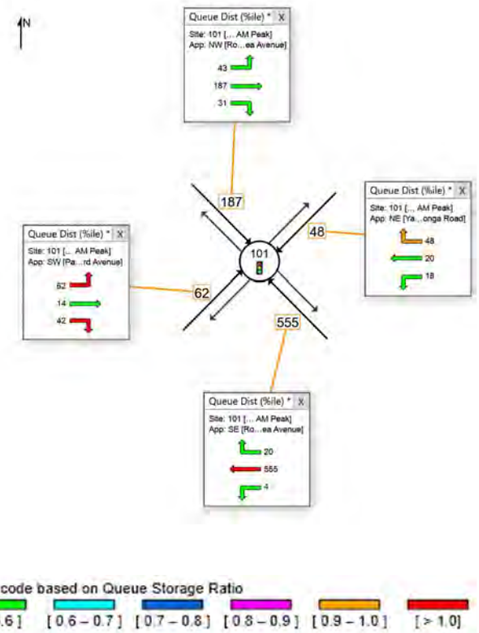
INTERSECTION LAYOUT



DEGREE OF SATURATION



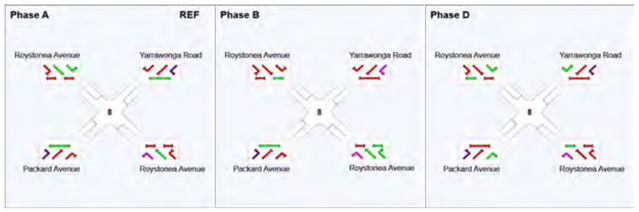
95%ile QUEUE DISTANCE (metres)

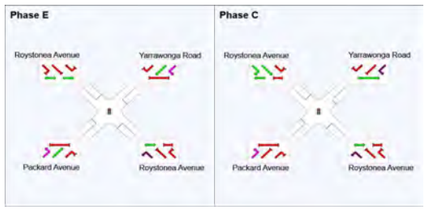


PHASING SUMMARY

Phase Timing Summary

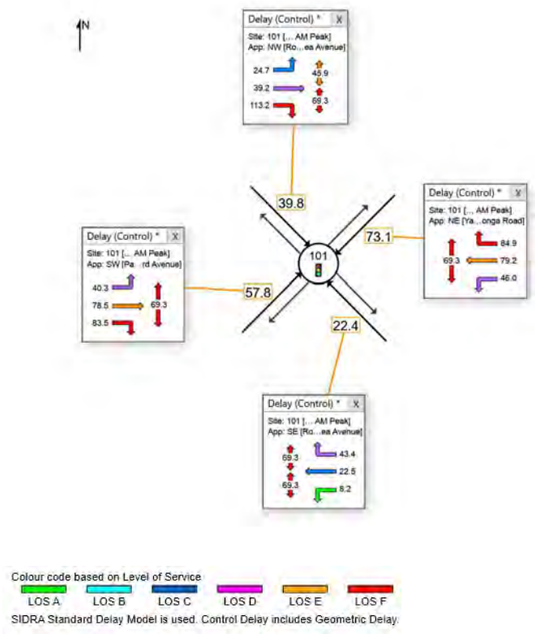
Phase	A	B	D	E	C
Phase Change Time (sec)	0	54	111	126	140
Green Time (sec)	50	51	10	7	4
Phase Time (sec)	56	56	17	13	8
Phase Split	37%	37%	11%	9%	5%





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

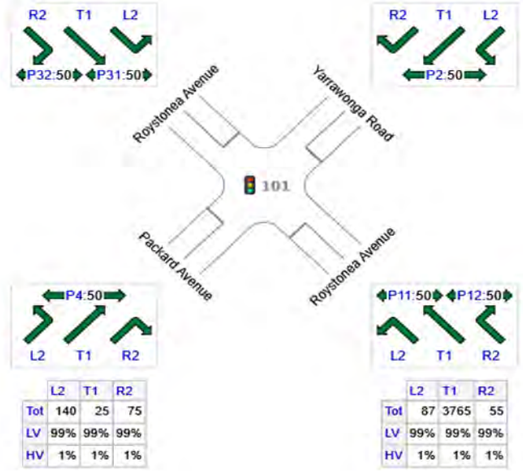


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	45	1300	165
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	85	36	45
LV	99%	99%	99%
HV	1%	1%	1%

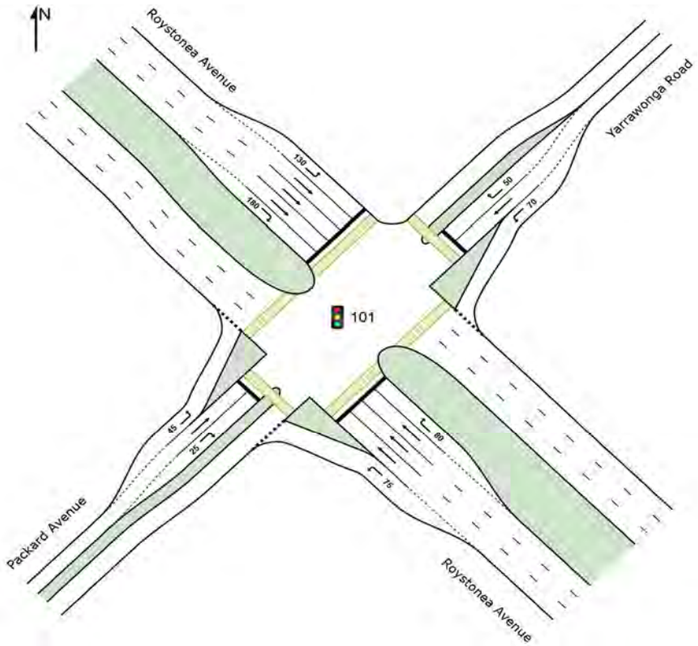


	L2	T1	R2
Tot	140	25	75
LV	99%	99%	99%
HV	1%	1%	1%

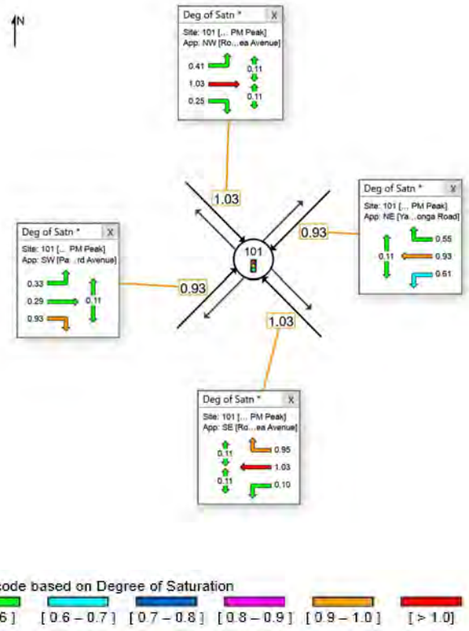
	L2	T1	R2
Tot	87	3765	55
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Design Year - 3% Growth
	AM Peak

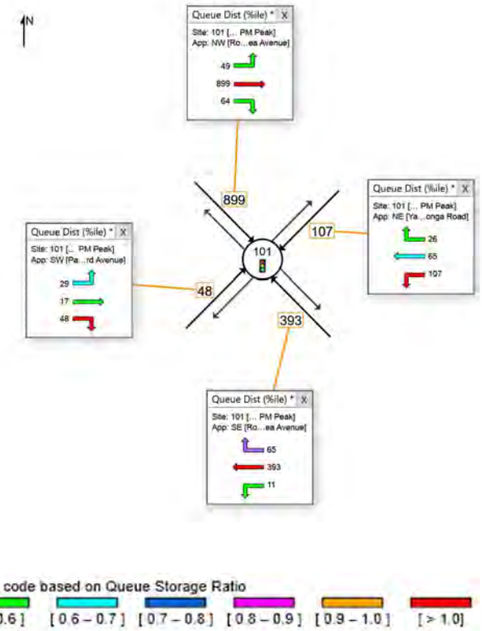
INTERSECTION LAYOUT



DEGREE OF SATURATION



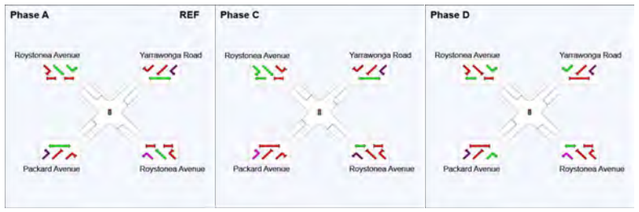
95%ile QUEUE DISTANCE (metres)

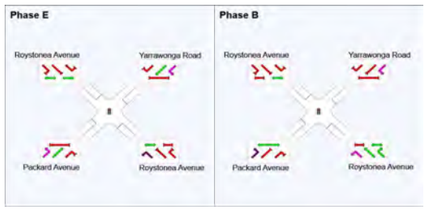


PHASING SUMMARY

Phase Timing Summary

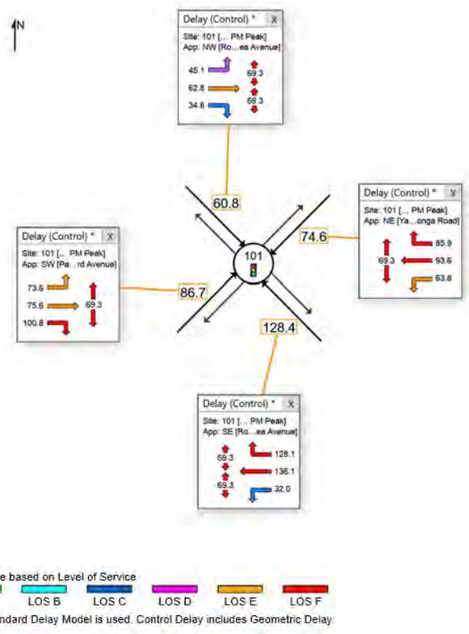
Phase	A	C	D	E	B
Phase Change Time (sec)	0	32	106	119	135
Green Time (sec)	26	68	7	9	9
Phase Time (sec)	32	74	14	15	15
Phase Split	21%	49%	9%	10%	10%





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

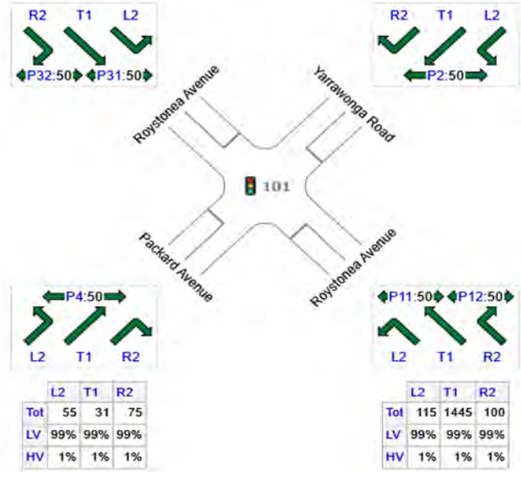


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	195	3610	145
LV	99%	99%	99%
HV	1%	1%	1%

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

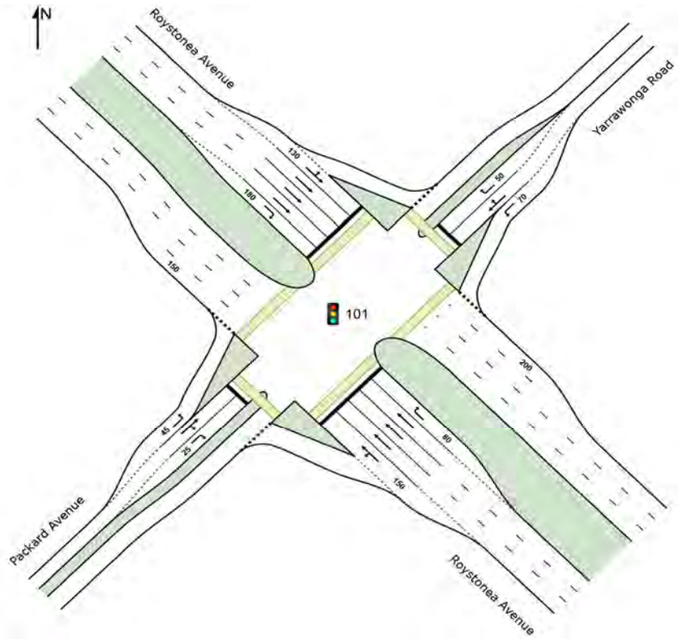


	L2	T1	R2
Tot	55	31	75
LV	99%	99%	99%
HV	1%	1%	1%

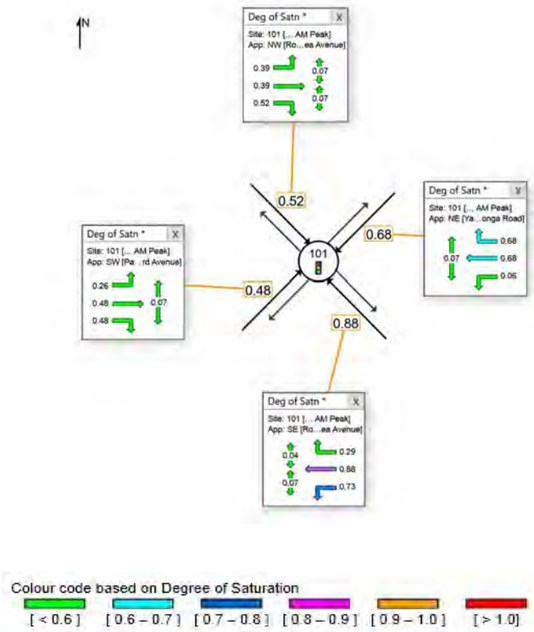
	L2	T1	R2
Tot	115	1445	100
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Design Year - 3% Growth
	PM Peak

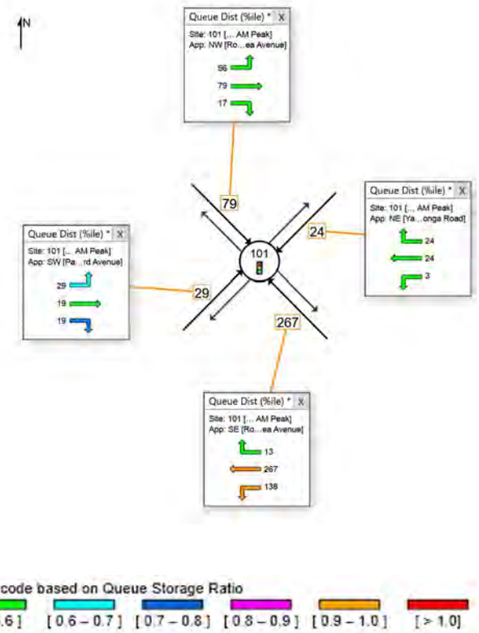
INTERSECTION LAYOUT



DEGREE OF SATURATION



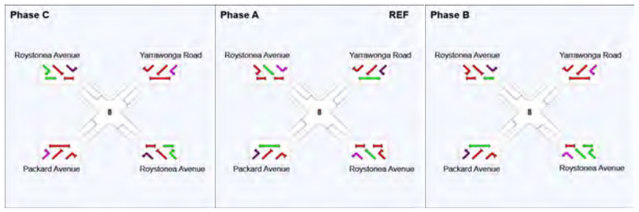
95%ile QUEUE DISTANCE (metres)

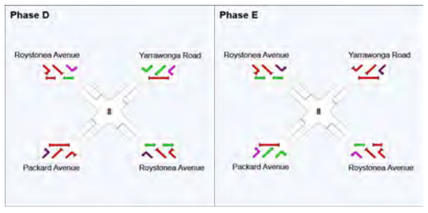


PHASING SUMMARY

Phase Timing Summary

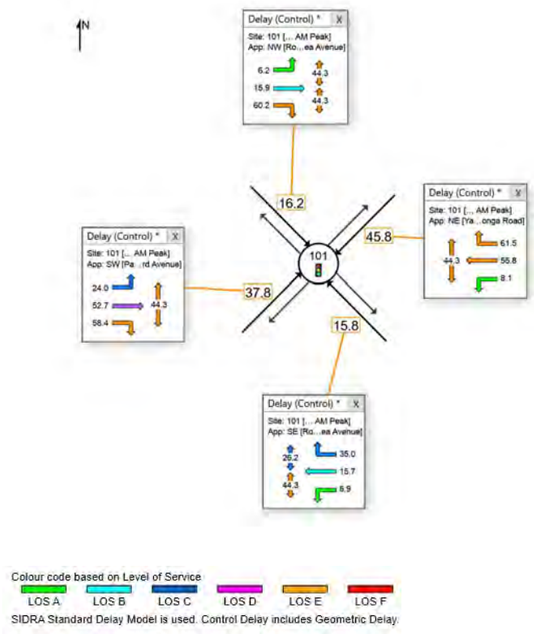
Phase	C	A	B	D	E
Phase Change Time (sec)	88	0	53	65	76
Green Time (sec)	5	49	6	5	6
Phase Time (sec)	9	55	12	11	13
Phase Split	9%	55%	12%	11%	13%





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

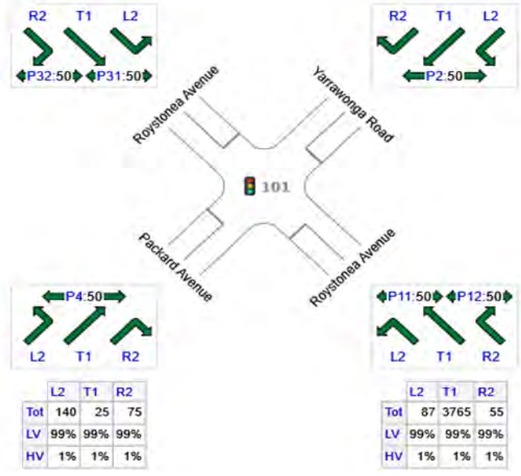


SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

	R2	T1	L2
Tot	45	1300	165
LV	99%	99%	99%
HV	1%	1%	1%

	R2	T1	L2
Tot	85	36	45
LV	99%	99%	99%
HV	1%	1%	1%

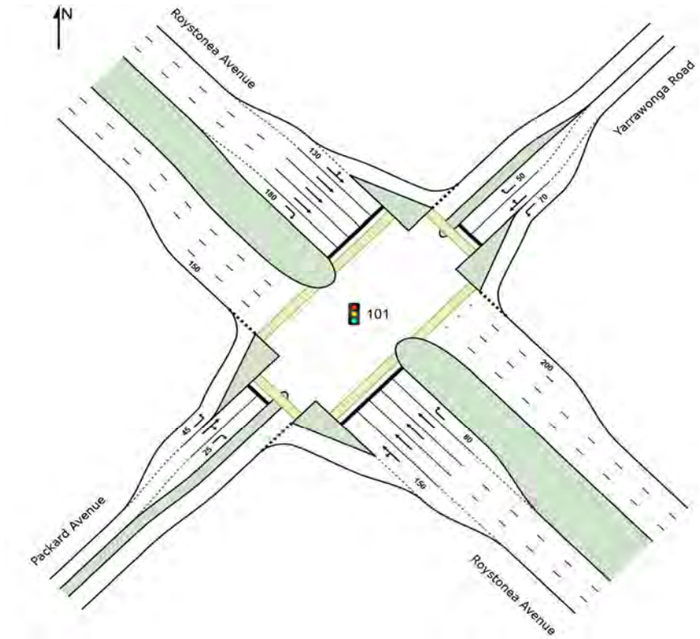


	L2	T1	R2
Tot	140	25	75
LV	99%	99%	99%
HV	1%	1%	1%

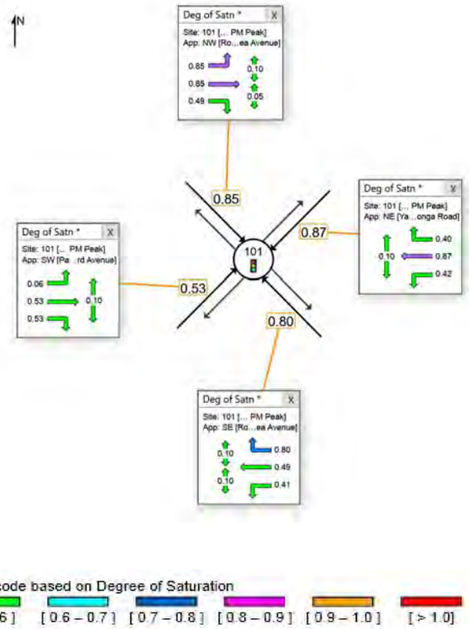
	L2	T1	R2
Tot	87	3765	55
LV	99%	99%	99%
HV	1%	1%	1%

JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Design Year - 3% Growth
	AM Peak - modified layout

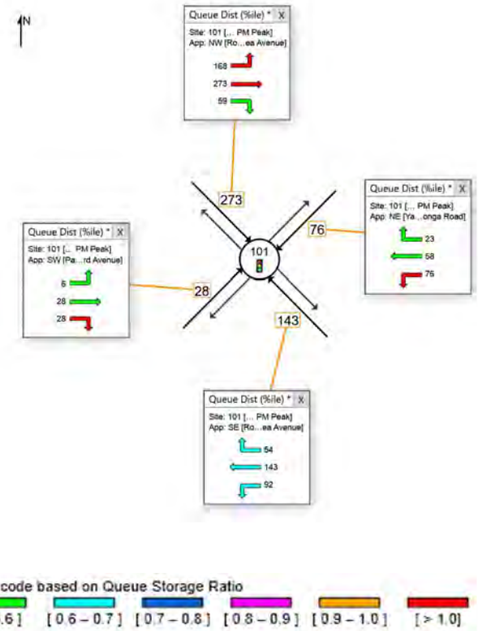
INTERSECTION LAYOUT



DEGREE OF SATURATION



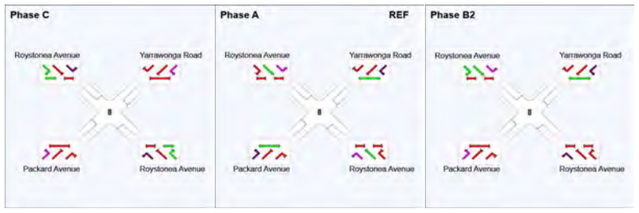
95%ile QUEUE DISTANCE (metres)

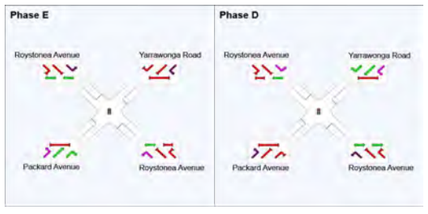


PHASING SUMMARY

Phase Timing Summary

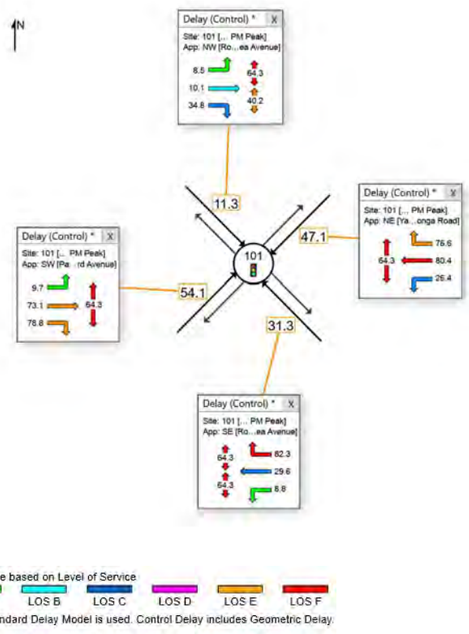
Phase	C	A	B2	E	D
Phase Change Time (sec)	124	0	67	95	109
Green Time (sec)	10	61	22	8	9
Phase Time (sec)	16	67	28	14	15
Phase Split	11%	48%	20%	10%	11%





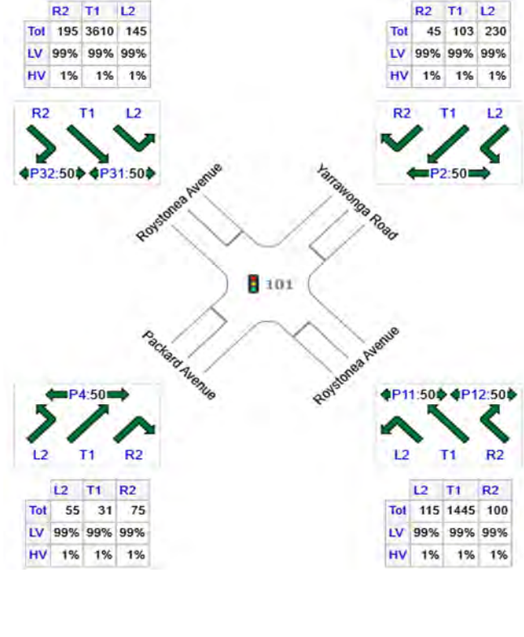
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

DELAY (CONTROL) & LEVEL OF SERVICE



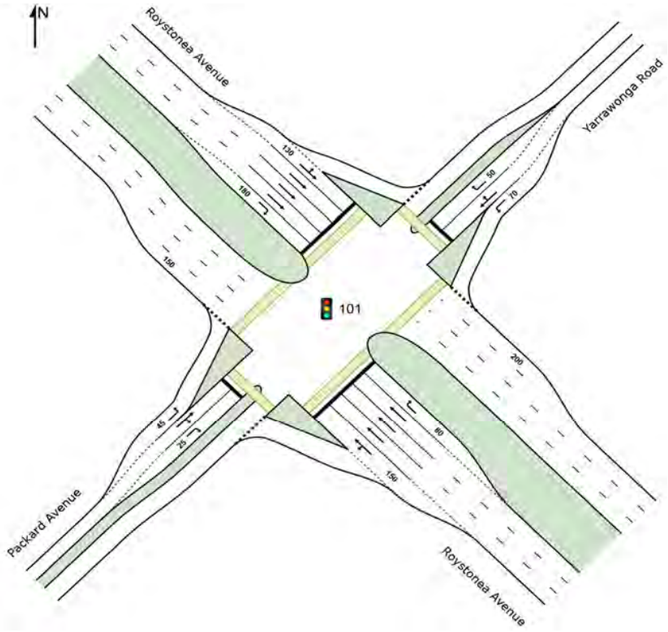
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

INPUT VOLUMES

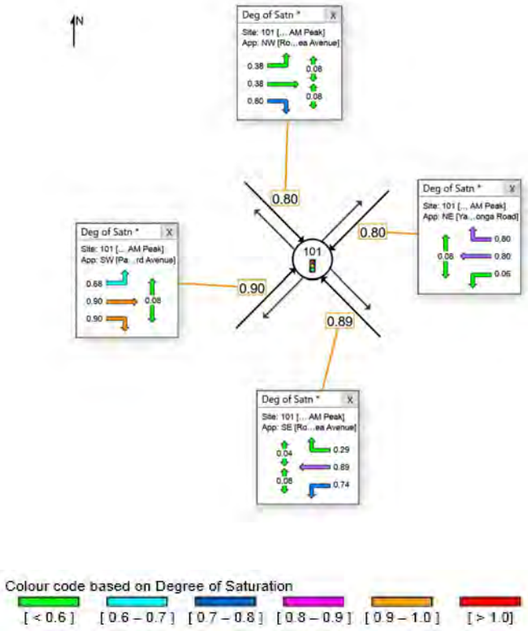


JOB NUMBER:	22-0247
PROJECT NAME:	Durack Heights
INTERSECTION:	Roystonea Avenue-Packard Avenue-Yarrawonga Road
SCENARIO:	2043 Design Year - 3% Growth
	PM Peak - modified layout

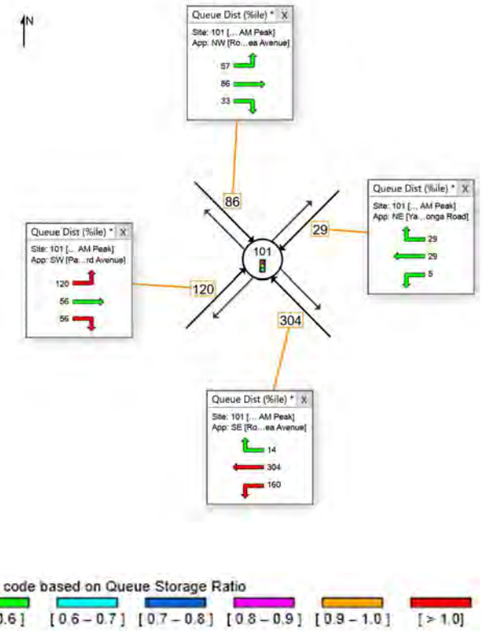
INTERSECTION LAYOUT



DEGREE OF SATURATION



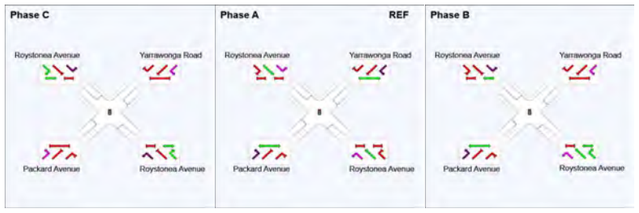
95%ile QUEUE DISTANCE (metres)

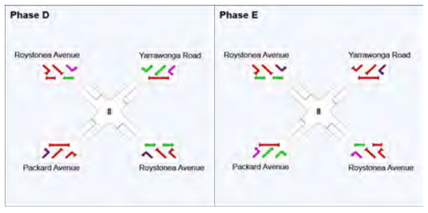


PHASING SUMMARY

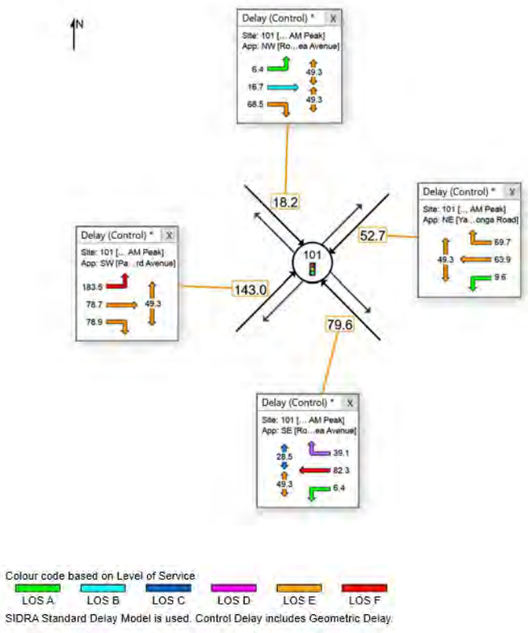
Phase Timing Summary

Phase	C	A	B	D	E
Phase Change Time (sec)	97	0	59	71	82
Green Time (sec)	6	55	6	5	9
Phase Time (sec)	10	61	12	11	16
Phase Split	9%	55%	11%	10%	15%





DELAY (CONTROL) & LEVEL OF SERVICE



INPUT VOLUMES

	R2	T1	L2
Tot	75	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

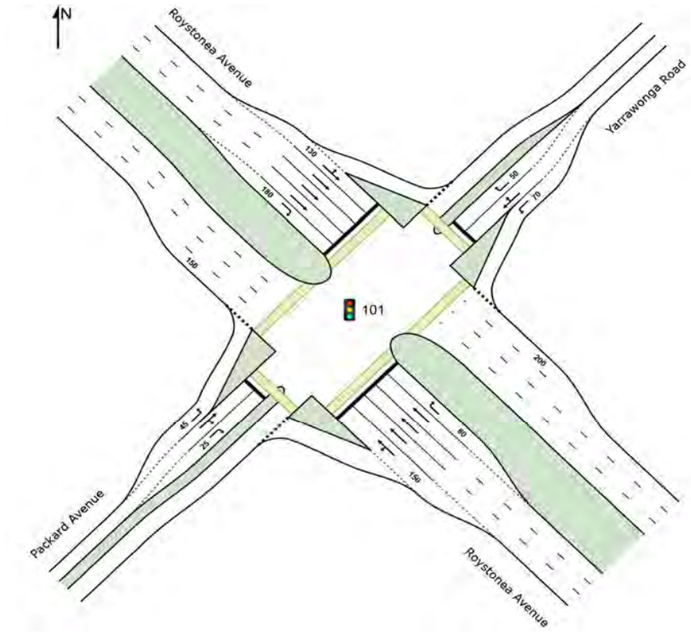
P11:50 P12:50 L2 T1 R2

	L2	T1	R2
Tot	380	70	170
LV	99%	99%	99%
HV	1%	1%	1%

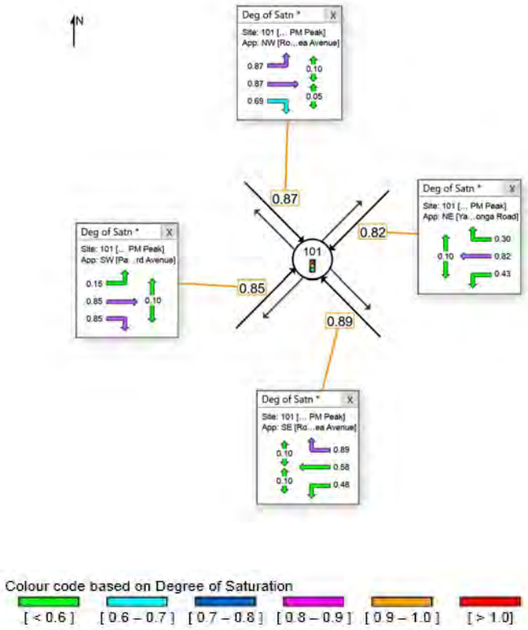
	L2	T1	R2
Tot	110	3765	55
LV	99%	99%	99%
HV	1%	1%	1%

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

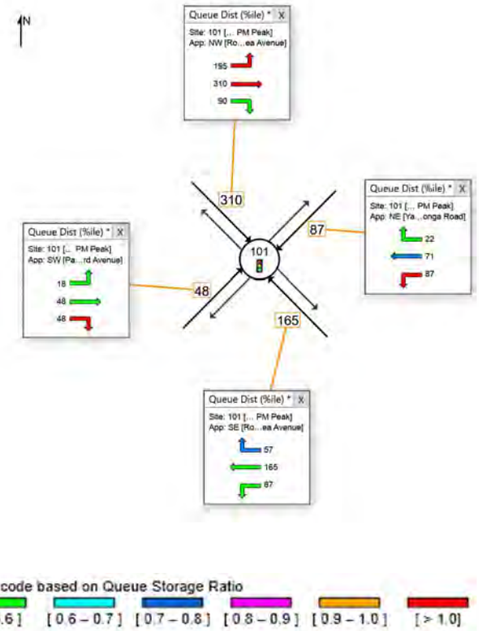
INTERSECTION LAYOUT



DEGREE OF SATURATION



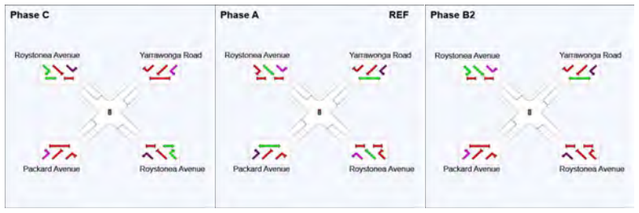
95%ile QUEUE DISTANCE (metres)

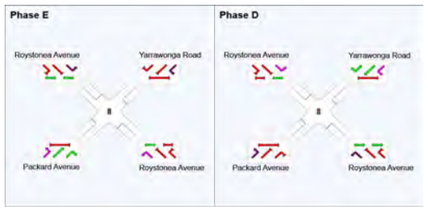


PHASING SUMMARY

Phase Timing Summary

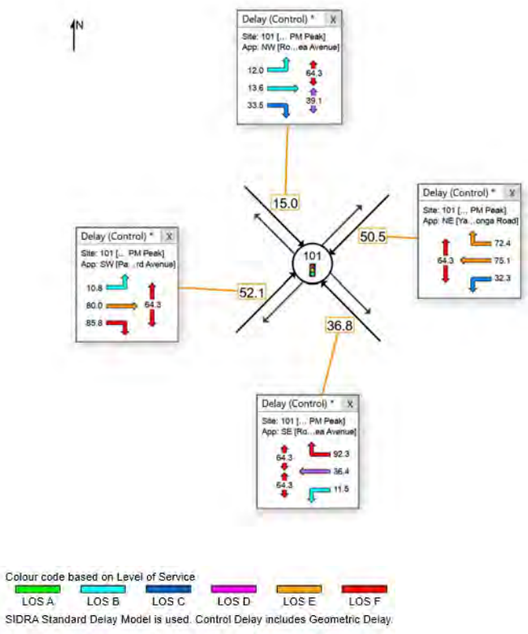
Phase	C	A	B2	E	D
Phase Change Time (sec)	125	0	60	93	107
Green Time (sec)	9	54	27	8	12
Phase Time (sec)	15	60	33	14	18
Phase Split	11%	43%	24%	10%	13%





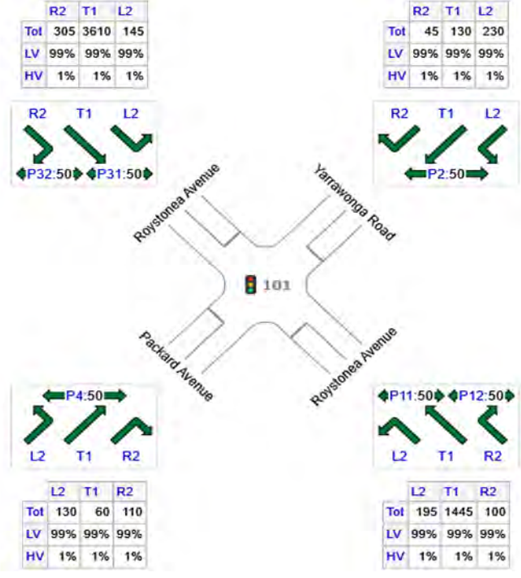
Normal Movement
Slip/Bypass-Lane Movement
Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Permitted/Opposed
Opposed Slip/Bypass-Lane
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

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 Development Case - 3% Growth
	PM Peak - modified layout

Date Registered: 21/09/2022 **Volume** 864 **Folio** 174

Duplicate Certificate as to Title issued? No

SEARCH CERTIFICATE

Lot 12954 Town of Palmerston from plan(s) LTO2015/099
Area under title is 25 hectares 200 square metres

Owner:
Urbex 120 Pty Ltd (ACN 648 037 281)
of 1 Sandpiper Avenue, Port of Brisbane QLD 4178

Easements:
Electricity supply easement to Power and Water Corporation
Water supply Easement to Power and Water Corporation

Registered Date	Dealing Number	Description
		Previous title is **Volume** 844 **Folio** 343
09/11/2022	983956	Mortgage Westpac Banking Corporation
08/12/2017	897110	Electricity supply Easement to Power and Water Corporation
09/10/2017	894085	Electricity supply Easement to Power and Water Corporation
22/12/2015	862085	Right of Way Easement granted over lot(s) 14473

End of Dealings

NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information
The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Lot 12954 Town of Palmerston plan(s) LTO2015/099

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register
(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title
CUFT 864 174 (order 1)

Tenure Type
ESTATE IN FEE SIMPLE

Tenure Status
Current

Area Under Title
25 hectares 200 square metres

Owners
Urbex 120 Pty Ltd (ACN 648 037 281)
1 Sandpiper Avenue, Port of Brisbane QLD 4178

Easements
Electricity supply easement to Power and Water Corporation
Water supply Easement to Power and Water Corporation
Electricity supply Easement to Power and Water Corporation
Electricity supply Easement to Power and Water Corporation

Scheme Name
(none found)

Scheme Body Corporate Name
(none found)

Reserved Name(s)
(none found)

Unit Entitlements
(none found)

Transfers
21/09/2022 Consolidated transfer see dealing 980862

Tenure Comments
(none found)

Historic Titles
CUFT 844 343 (order 1)
CUFT 823 290 (order 1)
CUFT 821 871 (order 1)
CUFT 821 856 (order 1)
CUFT 810 704 (order 1)
CUFT 807 532 (order 1)
CUFT 807 529 (order 1)
Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5354)

Address
KOOYONGA PDE, DURACK

Survey Plan
LTO2015/099

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
25 hectares, 200 square metres

Map Reference
(none found)

Parent Parcels
Lot 11821 Town of Palmerston plan(s) LTO2013/056
Lot 12956 Town of Palmerston plan(s) LTO2015/054

Parcel Comments
"LOT C"

Survey Comments
LOTS 12954 AND 12955, SUBDIVISION OF LOTS 11821 AND 12956, TOWN OF PALMERSTON

Proposed Easements
(none found)

Local Government Area
PALMERSTON MUNICIPALITY

Region
DARWIN

Custodian - Valuer General (+61 8 8995 5375)

Owner's Last Known Address
Urbex 120 Pty Ltd, GPO BOX 2289, DARWIN NT 0801

Parcels in Valuation
Lot 12954 Town of Palmerston

Unimproved Capital Value
$7,500,000 on 01/07/2023
$6,250,000 on 01/07/2020
$3,750,000 on 01/07/2017
$6,250,000 on 01/07/2014

Custodian - Property Purchasing (+61 8 8999 6886)

Acquisitions
(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area DARWIN BUILDING AREA

Building Permits
(none found)

Visit the website http://www.nt.gov.au/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 6046)

Planning Scheme Zone
MZ (Multi Zone)

Overlays:
(none found)

Strategic Frameworks: The following strategic frameworks may apply to your land
Regional Plans:
- Darwin Regional Land Use Plan

Sub Regional Plans:
- Holtze to Elizabeth River Subregional Land Use Plan

Area Plans:
- Palmerston Central Area Plan

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2018/0409

Type
Planning Scheme Amendment

Date Received
04/10/2018

Application Purpose
Amendments to SP8

Application Status
Approved

Other Affected Parcels
Lot 14473 Town of Palmerston

Instrument Signed
03/06/2019

Instrument Number
514

Instrument Issued
Signed

Instrument Status
Current

Custodian - Pastoral Estate - Vegetation Assessment Unit (+61 8 8999 4454)
(none found)

Visit the website for information on Pastoral land permits.

Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel

Power Water - Electricity	(none found)
Power Water - Water	(none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
(none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Department of Industry, Tourism and Trade (+61 8 8999 5263)

Mineral Titles

Title ID	Status	Title Type	Expiry Date	Legislation
RL390	Granted	Reserve Land		Mineral Titles Act 2010

For additional information contact the Mineral Titles Team on +61 8 8999 5322

Energy Titles

Title ID	Status	Title Type	Expiry Date	Legislation
GRO1	Granted	Geothermal Reserved from Occupation		Geothermal Energy Act 2009
RB56	Granted	Reservation of Blocks		Petroleum Act 1984
RB167	Granted	Reservation of Blocks		Petroleum Act 1984
RB225	Granted	Reservation of Blocks		Petroleum Act 1984

For additional information contact the Petroleum Tenure Team on +61 8 8999 5263

Land Access Agreements
(none found)

For additional information contact the Land Access Team on +61 8 8999 6442

For further information contact as above or visit the website https://strike.nt.gov.au

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
(none found)

For further information contact Environment Protection Authority or visit the website https://ntepa.nt.gov.au/your-business/public-registers/contaminated-land-audits

Custodian - Heritage Branch (+61 8 8999 5039)

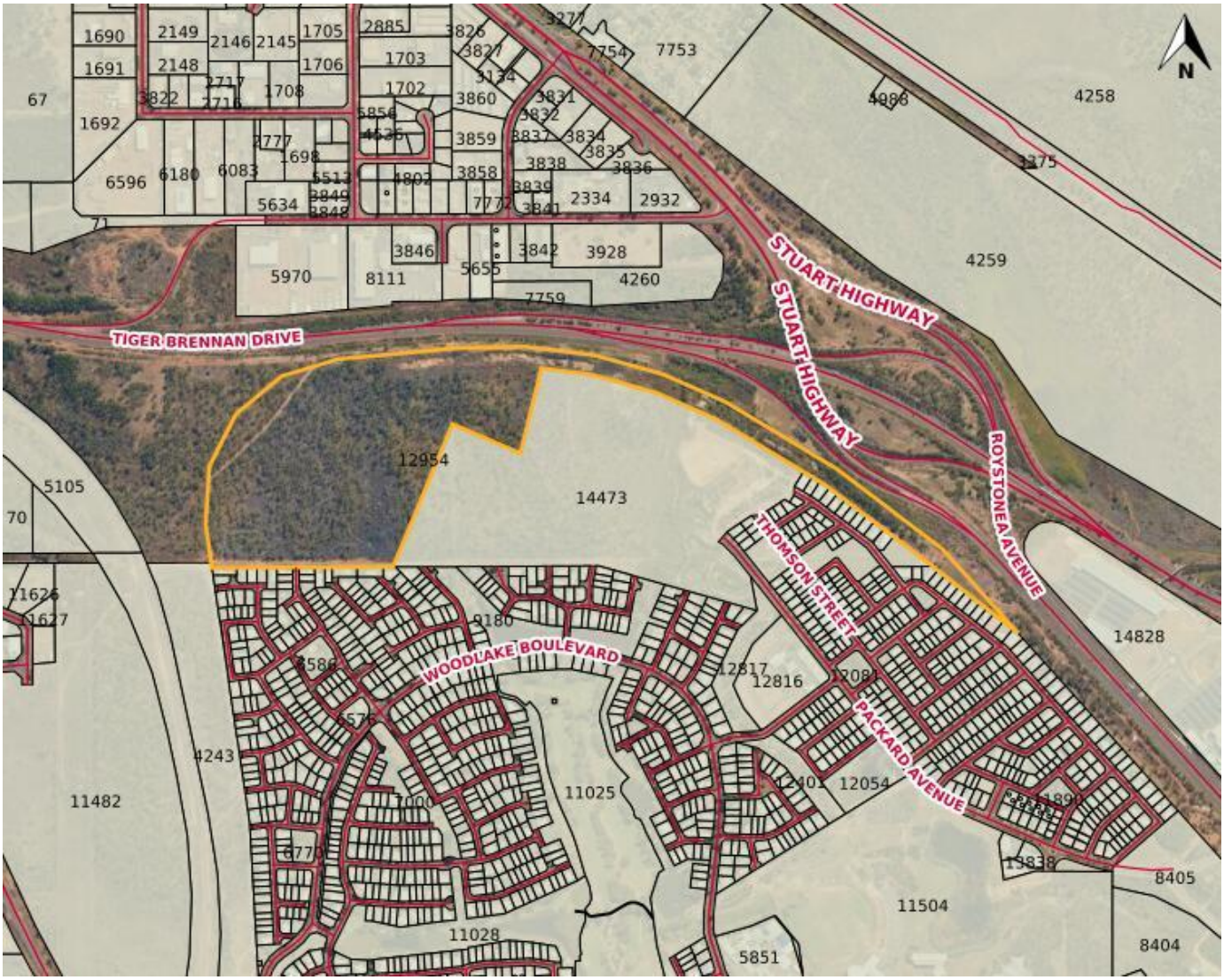
Heritage Listing:
(none found)

For further information on heritage places contact Heritage Branch or visit the website https://nt.gov.au/property/land/heritage-register-search-for-places-or-objects

Other Interests

For Account balances, contact Palmerston City Council

Locality Diagram



Date Registered: 21/09/2022 **Volume** 864 **Folio** 173
Duplicate Certificate as to Title issued? No

SEARCH CERTIFICATE

Lot 14473 Town of Palmerston from plan(s) LTO2016/014E
Area under title is 25 hectares 2200 square metres

Owner:
Urbex 120 Pty Ltd (ACN 648 037 281)
of 1 Sandpiper Avenue, Port of Brisbane QLD 4178

Easements:
Electricity supply easement to Power and Water Corporation
Electricity supply easement to Power and Water Corporation
Electricity supply easement to Power and Water Corporation
Sewerage easement to Power and Water Corporation
Sewerage easement to Power and Water Corporation
Water supply easement to Power and Water Corporation
Water supply easement to Power and Water Corporation
Water supply easement to Power and Water Corporation
Water supply easement to Power and Water Corporation

Registered Date	Dealing Number	Description
		Previous title is **Volume** 862 **Folio** 598
09/11/2022	983956	Mortgage Westpac Banking Corporation
09/10/2017	894188	Electricity supply Easement to Power and Water Corporation
09/10/2017	894187	Electricity supply Easement to Power and Water Corporation
09/10/2017	894186	Electricity supply Easement to Power and Water Corporation
09/10/2017	894185	Electricity supply Easement to Power and Water Corporation
22/12/2015	862085	Right of Way Easement granted over lot(s) 14473

End of Dealings

NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information
The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Lot 14473 Town of Palmerston plan(s) LTO2016/014E

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register
(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title
CUFT 864 173 (order 1)

Tenure Type
ESTATE IN FEE SIMPLE

Tenure Status
Current

Area Under Title
25 hectares 2200 square metres

Owners
Urbex 120 Pty Ltd (ACN 648 037 281)
1 Sandpiper Avenue, Port of Brisbane QLD 4178

Easements
Electricity supply easement to Power and Water Corporation
Electricity supply easement to Power and Water Corporation
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Electricity supply Easement to Power and Water Corporation
Electricity supply Easement to Power and Water Corporation
Electricity supply Easement to Power and Water Corporation
Electricity supply Easement to Power and Water Corporation

Scheme Name
(none found)

Scheme Body Corporate Name
(none found)

Reserved Name(s)
(none found)

Unit Entitlements
(none found)

Transfers
21/09/2022 for $17,600,000

Tenure Comments
(none found)

Historic Titles
CUFT 862 598 (order 1)
CUFT 844 344 (order 1)
CUFT 821 868 (order 1)
CUFT 821 867 (order 1)
CUFT 821 866 (order 1)
CUFT 821 865 (order 1)
CUFT 821 857 (order 1)
CUFT 810 700 (order 1)
Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5354)

Address
ROYSTONEA AVE, DURACK

Survey Plan
LTO2016/014E

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
25 hectares, 2200 square metres

Map Reference
(none found)

Parent Parcels
Lot 12955 Town of Palmerston plan(s) LTO2015/099

Parcel Comments
TO BE SUBDIVIDED INTO LOTS 16168 TO 16214 - LTO2024/040.

Survey Comments
LOT 14473, SUBDIVISION OF LOT 12955, TOWN OF PALMERSTON.

Proposed Easements
(none found)

Local Government Area
PALMERSTON MUNICIPALITY

Region
DARWIN

Custodian - Valuer General (+61 8 8995 5375)

Owner's Last Known Address
Urbex 120 Pty Ltd, GPO BOX 2289, DARWIN NT 0801

Parcels in Valuation
Lot 14473 Town of Palmerston

Unimproved Capital Value
$7,575,000 on 01/07/2023
$6,250,000 on 01/07/2020
$3,125,000 on 01/07/2017
$3,125,000 on 01/07/2014

Custodian - Property Purchasing (+61 8 8999 6886)

Acquisitions
(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area DARWIN BUILDING AREA

Building Permits
(none found)

Visit the website http://www.nt.gov.au/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 6046)

Planning Scheme Zone
SP8 (Specific Use)

Overlays:
(none found)

Strategic Frameworks: The following strategic frameworks may apply to your land
Regional Plans:
- Darwin Regional Land Use Plan

Sub Regional Plans:
- Holtze to Elizabeth River Subregional Land Use Plan

Area Plans:
- None

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2022/0463

Type
Variation of Development Permit

Date Received
14/11/2023

Application Purpose
Separate the public open space into four separate parcels and define the balance parcel.

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
24/05/2024

Instrument Number
DP23/0062A

Instrument Issued
Signed

Instrument Status
Current

File Number
PA2022/0463

Type
Subdivision

Date Received
22/11/2022

Application Purpose
Subdivision to create 43 lots (Durack Heights stage 11)

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
15/03/2023

Instrument Number
DP23/0062

Instrument Issued
Signed

Instrument Status
Current

File Number
PA2018/0409

Type
Planning Scheme Amendment

Date Received
04/10/2018

Application Purpose
Amendments to SP8

Application Status
Approved

Other Affected Parcels
Lot 12954 Town of Palmerston

Instrument Signed
03/06/2019

Instrument Number
514

Instrument Issued
Signed

Instrument Status
Current

File Number
PA2017/0108

Type
Subdivision

Date Received
13/03/2017

Application Purpose
Changes to DP14/0768B for the purpose of staging and the addition of 10 lots

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
23/05/2017

Instrument Number
DP17/0184

Instrument Issued
Signed

Instrument Status
Expired

Custodian - Pastoral Estate - Vegetation Assessment Unit (+61 8 8999 4454)
(none found)

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Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel

Power Water - Electricity	(none found)
Power Water - Water	(none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
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Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
(none found)

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Custodian - Heritage Branch (+61 8 8999 5039)

Heritage Listing:
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Other Interests

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Locality Diagram