

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2019/1074
Date: 26 March 2020



28°S
ENVIRONMENTAL

AMENDED IN RED

By: Leila Torrens
Date: 26 March 2020



2 August 2019

Economic Development Queensland
Department of State Development, Manufacturing, Infrastructure and Planning
Attn: Richard Bender
by e-mail: Richard.bender@dsgmip.qld.gov.au

Dear Richard,

**RE: CARSELDINE URBAN VILLAGE, STAGE 1 SUBDIVISION APPLICATION –
ECOLOGY & BUSHFIRE TECHNICAL NOTE**

1 Introduction and Background

Thank-you for the opportunity to provide advice regarding ecological and bushfire matters associated with the Stage 1 subdivision application under the Carseldine Urban Village (**CUV**) masterplan (DEV2018/932). We understand that that Economic Development Queensland (**EDQ**) requires 28 South Environmental Pty Ltd (**28 South**) to review and provide a technical note advising on the proposed Stage 1 subdivision's (**Attachment 1**) compliance with the: Masterplan (**Attachment 2**); Water and Sewer Masterplan (DEV2018/932) (**Attachment 3**); and accompanying technical studies.

In response to this request, 28 South has reviewed the following documentation to guide this advice:

- 1) Fitzgibbon Urban Development Area Development Scheme (**FDS**);
- 2) Fitzgibbon Bushland Management Plan (**FBMP**);
- 3) Priority Development Area Guideline 14 – Environmental Values and Sustainable Resource Use (**Guideline 14**);
- 4) Priority Development Area Guideline 18 – Development Interfaces (**Guideline 18**);
- 5) CUV Masterplan;
- 6) Approved CUV Water and Sewer Masterplan (**WSMP**);

- 7) 28 South's Ecological Assessment Report for the proposed Carseldine Urban Village Masterplan Development Application (**Ecology Report**); and
- 8) Land and Environment Consultants Bushfire Assessment and Management Plan for the Carseldine Urban Village (**Bushfire Report**).

2 Proposed Stage 1 Development and Associated Infrastructure Compliance

2.1 Development Area

We understand that it is proposed to lodge a development application to EDQ for the subdivision of Stage 1 of the CUV. Stage 1 of the CUV is located in the central north of the overarching CUV masterplan and is bound to the: north by Beams Road; west by the existing Site access Road; south by bushland associated with Cabbage Tree Creek; and to the east by historical open space/sporting fields. Stage 1 will be comprised of 54 terrace allotments, 1 mixed-use allotment, 1 retirement allotment, pedestrian links, landscaped buffers and embellishments, access roads and lanes, on-street parking and associated infrastructures such as sewer and stormwater as illustrated in **Attachment 1**.

The Stage 1 development area occurs largely within existing sporting fields as shown in **Attachment 4**. A small area of Significant Vegetation (2,384m²) and 9 habitat trees will be impacted by the development of Stage 1. This impact remains consistent with that shown in Ecological Report and CUV masterplan.

Due to the identified impacts, the development of Stage 1 will require the preparation of a Fauna Flora Management Plan (**FFMP**) to be compliant with the environmental provisions of the FDS, the FBMP and the Ecology Report. This FFMP must illustrate:

- 1) The location, type and area of Significant Vegetation to be impacted by development;
- 2) The location of habitat trees to be impacted by development; and
- 3) The location of proposed rehabilitation areas to be utilised to provide necessary offset obligations as defined by the FBMP.

Table 1 below defines the required areas, types and habitat tree numbers to be subject to the FFMP and replaced through ecological restoration works in order to acquit offset obligations.

Table 1 Impacts and Offset Obligations

Impact type	Impact Total	Offset Ratio	Offset Obligation
Significant Vegetation – RE 12.3.11	2,384 m ²	1:2	4,768 m ² 50% remnant (2,384 m ²) 50% non-remnant (2,384 m ²)
Habitat Tree	9	1:3	9 nest boxes / 27 trees

The ensuing FFMP prepared for Stage 1 should reflect the above numbers for compliance purposes.

2.2 Associated Infrastructure

To ensure Stage 1¹ can: i) utilise *Existing buildings and infrastructure... to their maximum potential*²; ii) meet the capacity requirements for Stage 1 (and future developments within the CUV); and iii) remain compliant with the approved WSMP, a new sewer connection is required. To facilitate this, a new sewer will need to be constructed and connected into the existing sewer main in the south of the CUV. The existing Queensland Urban Utilities (QUU) sewer alignment within the CUV traverses the northern banks of Cabbage Tree Creek as shown by the pink linework within the WSMP (**Attachment 3**).

The sewer alignment within the approved WSMP collects sewer from Stage 1 (and future stages) into one main that traverses the western extent of Stage 1, following the existing road

¹ and importantly the subsequent stages of the CUV Masterplan.

² Within the FDS's *Land Use Plan, Precinct 1 – Precinct Outcomes (a) General* - identifies that development utilise existing infrastructure to its maximum potential. As such, to avoid creating large new sewer lines that are required to connect into an existing sewerage treatment plant, a new connection into the existing main capable of facilitating the developments needs,, maximises the use of this existing infrastructure.

alignment, before departing this collocation at the western extent of the now un-used Queensland University of Technology Science Facility (**Facility**), tracking southward through mapped bushland areas (within the Bushland and Open Space Zone) to a connection point in the central south of the CUV (**Attachment 3**).

Since submission and approval of the WSMP and CUV masterplan, further consideration of the environmental features impacted by the approved WSMP have been undertaken by the applicant. This has resulted in the sewer being realigned and large components now proposed to be tunnel bored to avoid impacts to significant vegetation and habitat trees. This is conceptually illustrated in **Attachment 4**³.

In summary, the re-alignment of this sewer now sees the new alignment traverse through the existing un-used Facility to avoid impacts to existing habitat trees supported in the Bushland and Open Space zone to the north and west of the Facility. Where the sewer alignment meets bushland areas to the south of the Facility, it is proposed to commence tunnel boring methodologies for the sewer. This will largely avoid impacts to bushland and habitat trees between the Facility and the existing sewer main (**Attachment 4**). Minor impacts to degraded vegetation around the existing sewer main and manhole will be incurred; however, these impacts are minor, short term and recoverable through rehabilitation measures as defined by the FBMP. As noted, the areas immediately surrounding the existing sewer main, and manhole are highly degraded. These areas lack canopy cover and are dominated by dense exotic grasses and lantana. It is proposed to maximise the amount of required workspace at the connection point within these clearings.

These amendments are generally in accordance with the approved WSMP; however, result in a significant reduction in ecological impacts and considered to be a superior outcome to that approved and permissible through the WSMP, FDS and FBMP.

Table 2 below defines the required areas, types and habitat tree numbers to be subject to the FFMP and replaced through ecological restoration works in order to acquit offset obligations.

³ Detained design of this sewer alignment and associated works (e.g. tunnel boring pads, trench areas and additional work space areas) have not been specifically defined.

Table 2 Impacts and Offset Obligations

Impact type	Impact Total	Offset Ratio	Offset Obligation
Significant Vegetation – RE 12.3.11	1,945m ²	1:2	3,890m ² 50% remnant (1,945m ²) 50% non-remnant (1,945m ²)
Significant Vegetation – RE 12.5.3	440m ²	1:2	880 m ² 50% remnant (440m ²) 50% non-remnant (440m ²)
Habitat Tree	9	1:3	27 Nest boxes
Cabbage Tree Creek	Nil.	1:1	Nil

The ensuing FFMP prepared for Associated Infrastructure should reflect the above numbers for compliance purposes.

3 Bushfire Management Plan Compliance

A detailed Bushfire Management Plan (**BMP**) was prepared by Land and Environmental Consultants for the preliminary CUV masterplan and FDS Precinct Plan⁴. This BMP was prepared with a focus on Stages S, 1, 2 and 3. With respect to Stage 1, the BMP has identified that proposed development will be affected by bushfire hazard areas emanating from the Bushland and Open Space zone to the south and west. This assessment outlines that National Construction Code (**NCC**) class 1-3 buildings and associated class 10 buildings and structures

⁴ This advice on bushfire compliance is predicated on the information provided to EDQ by Land and Environment Consultants with the report titled: *Bushfire assessment and management plan – Carseldine Urban Village – 523 Beams Road – Carseldine – Queensland – Prepared for Economic Development Queensland – 27 April 2018*. 28 South take no responsibility for the technical outcomes of this reporting.

are subject to compliance with Bushfire Attack Level (**BAL**) construction requirements in Australian Standard (**AS**) 3959-2009.

BAL assessments were performed on these bushfire attack scenarios using the ‘method 2’ procedure in AS 3959-2009 and the *Flamesol BAL calculator version 4.2*. the results of this calculation with respect to hazardous vegetation are presented in **Table 3**.

Table 3 - BAL Scores and Setbacks to Hazardous Vegetation

Bushfire attack scenarios	Distance of building envelope to bushfire hazard vegetation (m)				
	BAL-40	BAL-29	BAL-19	BAL-12.5	BAL-LOW
South	9-<9	9-<13	13-<19	19-<100	100+
West	8-<10	10-<15	15-<22	22-<100	100+

In summary, if development of Stage 1 incorporates a number of mitigation and construction measures, it can remain compliant with the outcomes sought under the State’s model bushfire hazard overlay code, the FDS, the FBMP and the Ecology Report.

Recommendations include:

- Establishing a 10m wide setback between the Bushland and Open Space zone and development areas of Stage 1 which comprise of pedestrian / cyclist ways or access tracks;
- BAL construction specifications for NCC class 1-3 buildings and associated class 10 buildings and structures;
- Location advice and radiant heat flux exposure limit of 10kW/m² for the retirement building (e.g. exit and entry points on the north-eastern components of the building).
- Design criteria for pedestrian / cyclist ways to serve effectively as building setbacks for stage 1 and fire-fighter access;

- Reference to design specification guidelines for private-access driveways and public-access roads which will support efficient access for emergency services and orderly evacuation of occupants;
- Reference to design specifications guidelines for a reticulated hydrant system which will enable an efficient response by emergency services to fire; and
- Design and maintenance requirements for vegetation restoration and landscaping treatments which will present these areas from exacerbating bushfire hazard on the Site.

The proposed Stage 1 plan of subdivision can readily comply with the outcomes recommended and sought by the BMP. All setbacks from hazardous vegetation identified within the BMP (**Attachment 5**) are achieved as the design is consistent with the assessed preliminary masterplan and FDS Precinct Plan. It is noted that this plan refers to a superseded layout, however, the setbacks remain applicable to the Stage 1 plan of subdivision.

The proposed allotments in the west and south-west of the residential subdivision will require construction to BAL 12.5 standard. The retirement village building will also be required to achieve a BAL 12.5 construction standard; however, ensure that design achieves setbacks to specific elements of the building to facilitate separation equivalent to 10kW.m². This must be a consideration during the design process of the building and cannot be assessed at this point in time. It is recommended a suitably qualified bushfire hazard consultant be engaged to guide design of this building.

4 Summary of Compliance

This Technical Note has identified through review of the: i) planning frameworks; ii) CUV masterplan and WSMP; and iii) Ecology Report and BMP that the proposed Stage 1 subdivision and associated infrastructure that it is considered to be generally in accordance with their governing approval documents. It is noted that the proposed tunnel boring of the sewer infrastructure does not divert from the approval of the WSMP; however, results in significantly better ecological outcomes and demonstrates a commitment to the goals set out within the FDS Vision, PDA-Wide Criteria and FBMP.

4.1 Further Works Required

A small number of action items have arisen from this review which are summarised below:

- Habitat Tree and Significant mapping of areas between the un-used QUT Facility and sewer connection points to define the extent of any impacts (e.g. where tunnel boring enters and daylights or the additional workspace areas around connection points); and
- Preparation of specific FFMP for Stage 1 and its sewer infrastructure.

We trust this information meets your requirements. If you have any further questions, please contact me.

Kind regards,



Mitch Taylor
Director

Attachment 1 – Proposed Plan of Subdivision

**CARSELDINE
URBAN VILLAGE**

**PLAN OF SUBDIVISION
STAGE 1 - SHEET 1
OVERALL**

PLAN REF: **128180 – 46G**
 DATE: 10 SEPTEMBER 2019
 CLIENT: EDQ
 DRAWN BY: MD / JC
 CHECKED BY: MD

Legend

- Site Boundary
- - - Proposed Stage Boundary
- Approved Easement V (Access and Future Works) over Lot 322 on SP311781 - DEV2019/1032

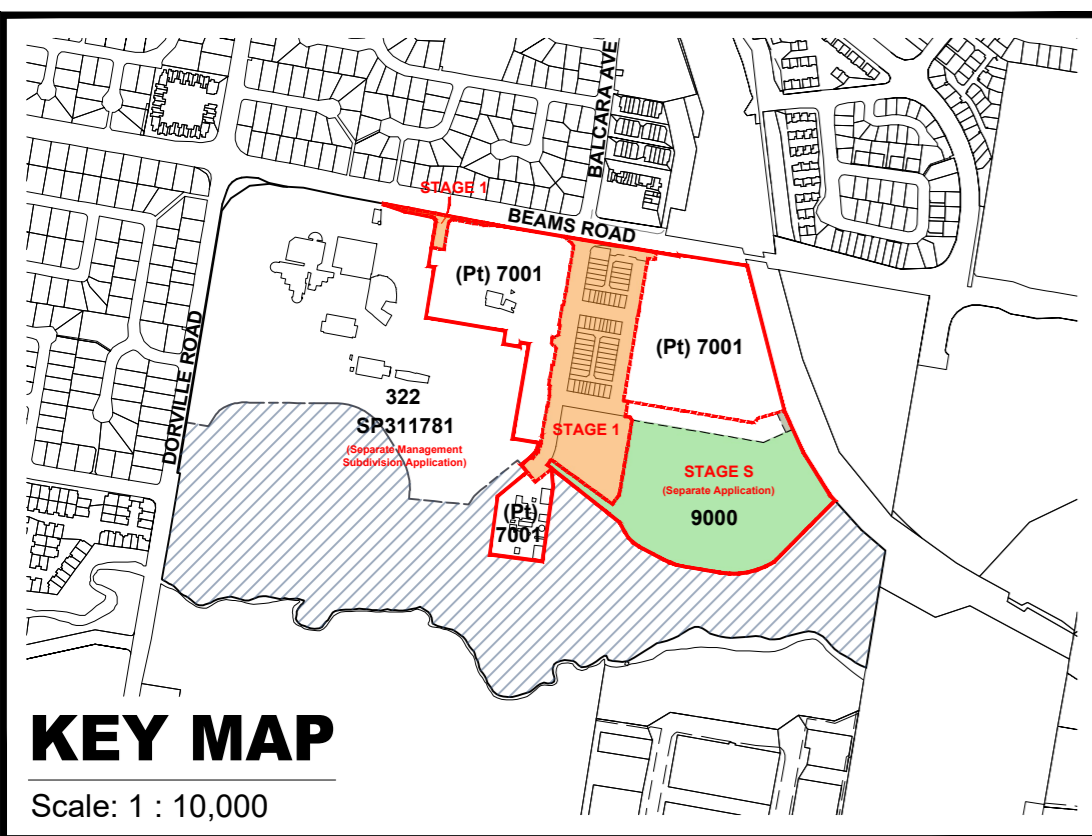
Note:
 All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.

Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

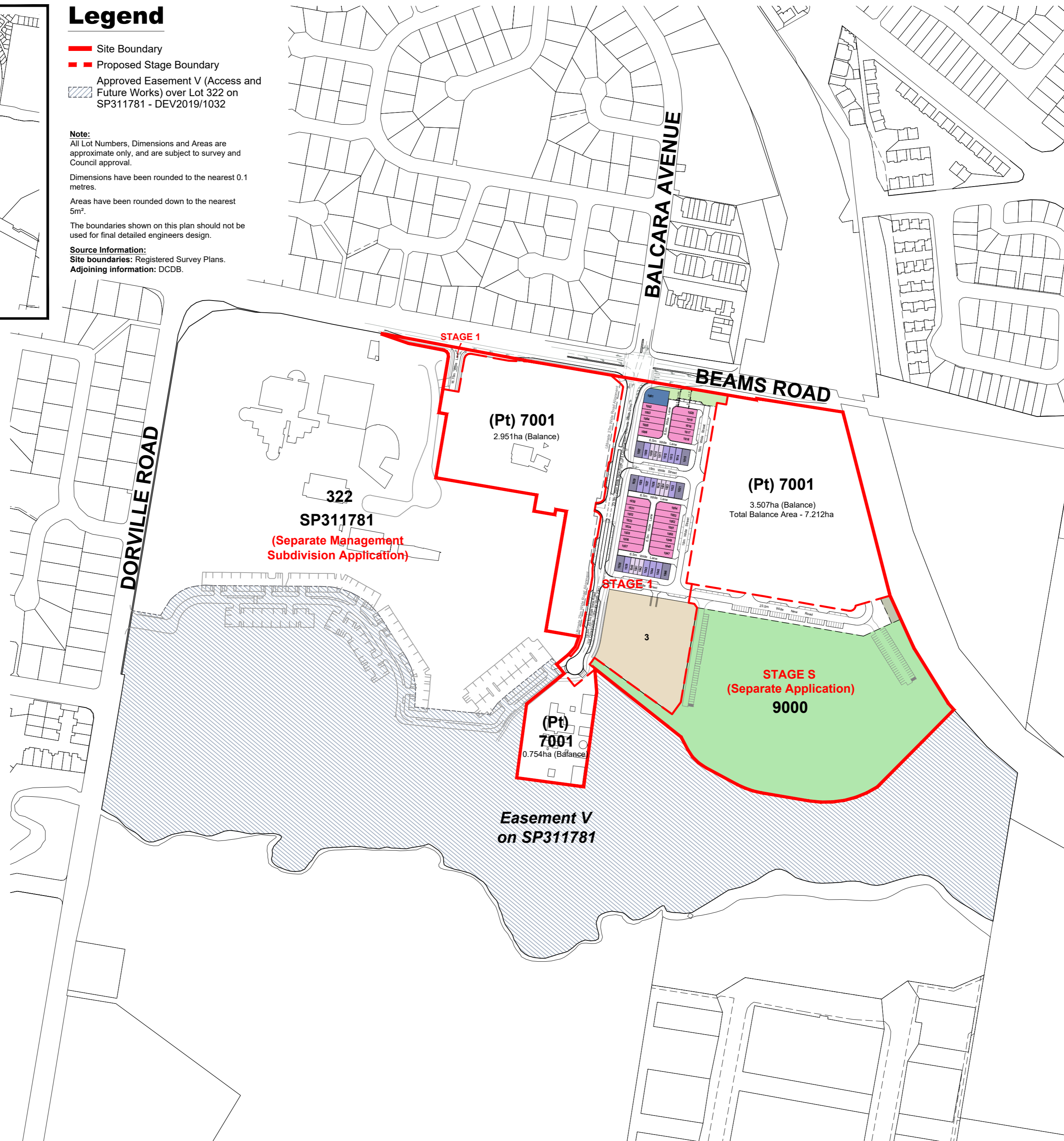
The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:
 Site boundaries: Registered Survey Plans.
 Adjoining information: DCDB.



Yield Breakdown		
Allotment Details	Stage 1	
	Lots	Percentage
16.5m Deep Terrace Allotments		
4.6m x 16.5m Terrace	9	17.0%
6.6m x 16.5 Terrace	12	22.6%
8.4m x 16.5m Terrace	6	11.3%
Sub-total	27	50.9%
25.25m Deep Terrace Allotments		
6.6m x 25.25m Terrace	26	49.1%
Sub-total	26	49.1%
Overall Residential Allotments	53	100.0%
Master Allotment		
Mixed Use Allotment	1	
Total Allotments	55	

Land Budget		
Land Use	Stage 1	
	Area	Percentage
Area of Stage	3.507 ha	100.0%
Saleable Land		
Residential Allotments	0.740 ha	21.1%
Master Allotment	0.911 ha	26.0%
Mixed Use Allotment	0.039 ha	1.1%
Total Area of Saleable Land	1.690 ha	48.2%
Road		
Village Main Street (27m Wide)	0.533 ha	31.5%
Western Access Road (23m Wide)	0.248 ha	14.7%
Loop Road (20m Wide)	0.166 ha	9.8%
Access Place (19m Wide)	0.464 ha	27.5%
Modified Access Place (16.75m Wide)	0.129 ha	7.6%
Access Lane (6.5m Wide)	0.200 ha	11.8%
Pedestrian Link Within Road Reserve	0.077 ha	4.6%
Total Area of New Road	1.817 ha	51.8%

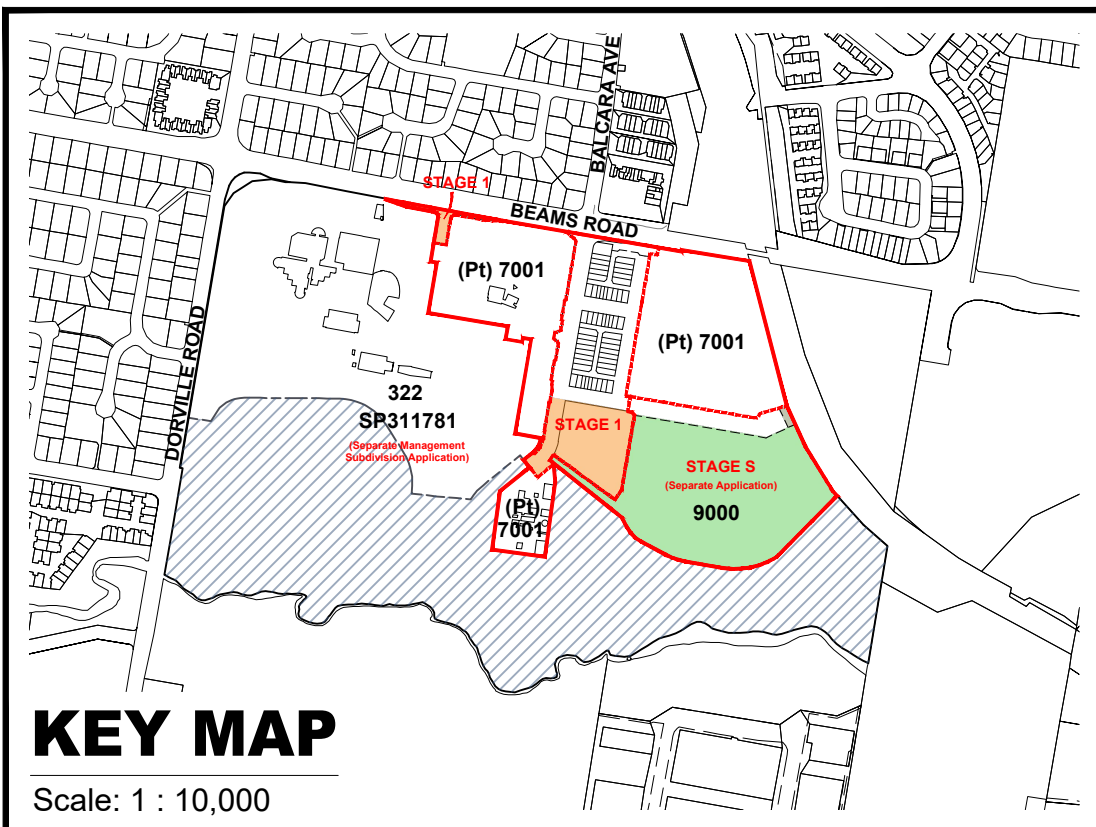
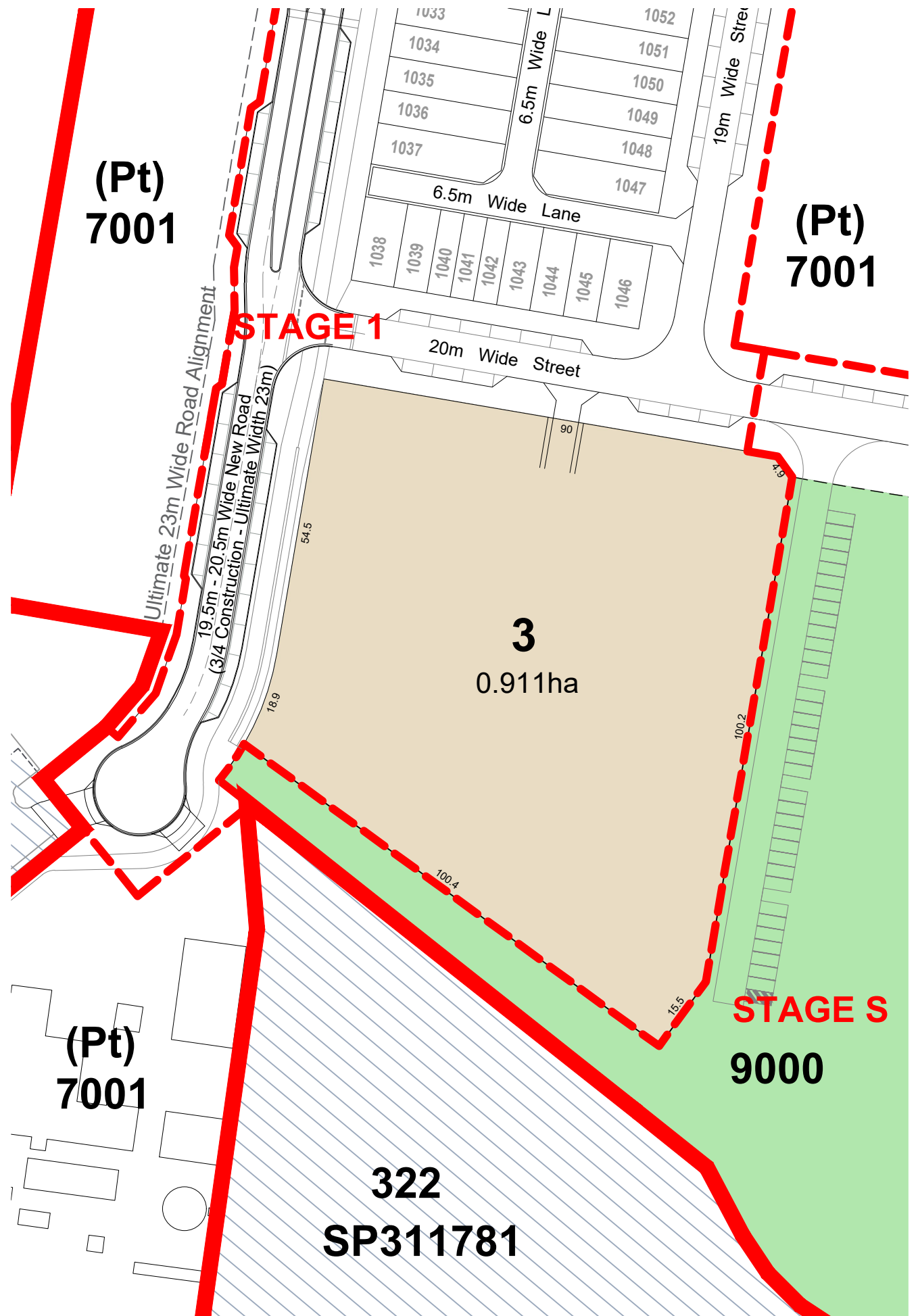


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Yield Breakdown		
Allotment Details	Stage 1	
	Lots	Percentage
16.5m Deep Terrace Allotments		
4.6m x 16.5m Terrace	9	17.0%
6.6m x 16.5 Terrace	12	22.6%
8.4m x 16.5m Terrace	6	11.3%
Sub-total	27	50.9%
25.25m Deep Terrace Allotments		
6.6m x 25.25m Terrace	26	49.1%
Sub-total	26	49.1%
Overall Residential Allotments	53	100.0%
Master Allotment		
	1	
Mixed Use Allotment		
	1	
Total Allotments	55	

Land Budget		
Land Use	Stage 1	
	Area	Percentage
Area of Stage	3.507 ha	100.0%
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Residential Allotments	0.740 ha	21.1%
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Access Place (19m Wide)	0.464 ha	27.5%
Modified Access Place (16.75m Wide)	0.129 ha	7.6%
Access Lane (6.5m Wide)	0.200 ha	11.8%
Pedestrian Link Within Road Reserve	0.077 ha	4.6%
Total Area of New Road	1.817 ha	51.8%



Legend

- Site Boundary
- - - Proposed Stage Boundary
- Approved Easement V (Access and Future Works) over Lot 322 on SP311781 - DEV2019/1032

Note:
All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
Areas have been rounded down to the nearest 5m².
The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:
Site boundaries: Registered Survey Plans.
Adjoining information: DCDB.

PLAN REF: **128180 - 46G**
DATE: 10 SEPTEMBER 2019
CLIENT: EDQ
DRAWN BY: MD / JC
CHECKED BY: MD



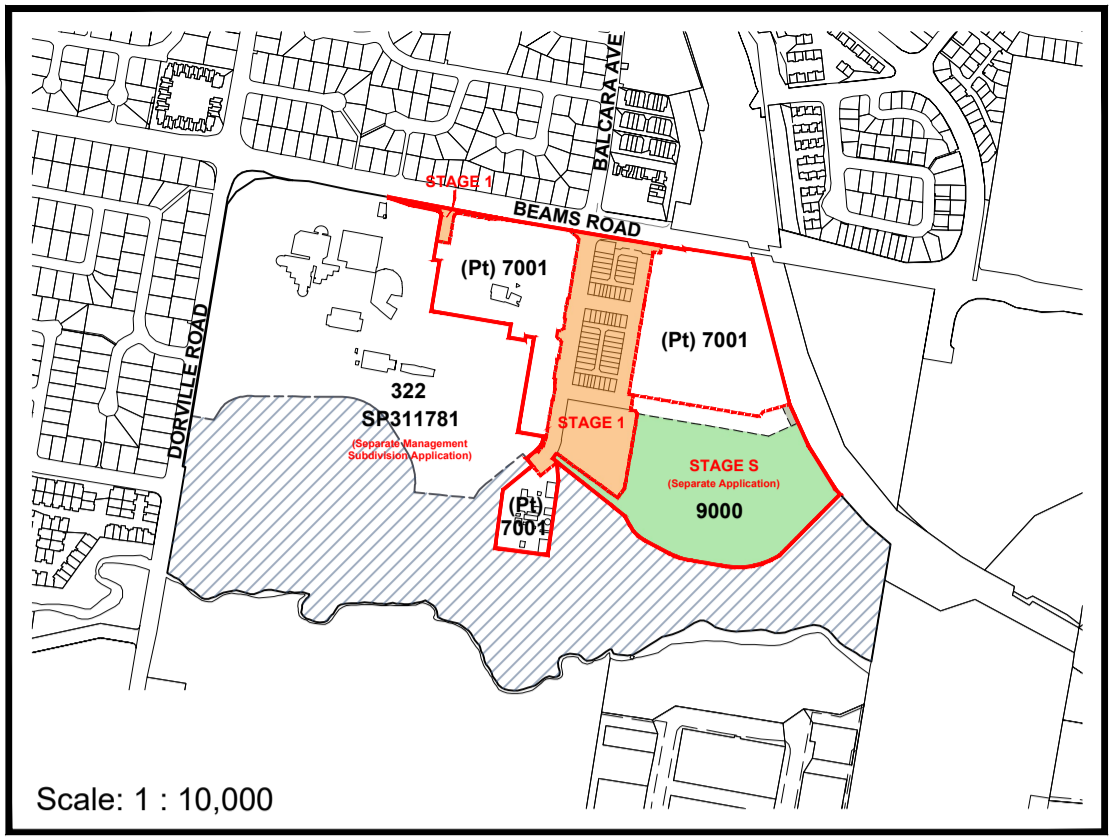
CARSELDINE URBAN VILLAGE PLAN OF SUBDIVISION STAGE 1 - SHEET 4 - MASTER LOT

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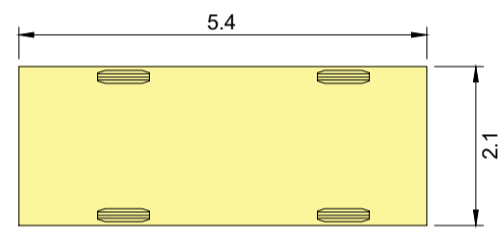


Legend

- Site Boundary
- - - Proposed Stage Boundary
- / / / Approved Easement V (Access and Future Works) over Lot 322 on SP311781 - DEV2019/1032
- Visitor Parking for Stage 1 Dwellings
- Visitor Parking - Additional Parking

Parking Breakdown

Total Dwellings	53
Total Visitor Parking Spaces Required (per dwelling)	40
Total Visitor Parking Spaces Provided	40
Additional Visitor Parking Spaces Within Stage 1*	40
 To be utilised as visitor parking for future Stage subdivision(s) 	



Parking Bay Diagram

Scale 1 : 100

322
SP311781

Note:
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Dimensions have been rounded to the nearest 0.1 metres.

Areas have been rounded down to the nearest 5m².

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

Source Information:
Site boundaries: Registered Survey Plans.
Adjoining information: DCDB.

(Pt) 7001

(Pt) 7001

(Pt) 7001

**Easement V
on SP311781**

**STAGE S
9000**

Plan of layout has been amended in red as part of this approval.

CARSELDINE URBAN VILLAGE CAR PARKING ANALYSIS PLAN STAGE 1

PLAN REF: **128180 - 48C**
DATE: 10 SEPTEMBER 2019
CLIENT: EDQ
DRAWN BY: MD / JC
CHECKED BY: MD



0 10 20 30 40 50 1:750 @ A2

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Attachment 2 – Masterplan

CARSELDINE URBAN VILLAGE OVERALL MASTERPLAN

PLAN REF: 128180 - 370
 DATE: 03 October 2019
 CLIENT: EDG
 DRAWN BY: MD
 CHECKED BY: MD/DG

Note:
 All Lot Numbers, Dimensions and Areas are approximate only, and are subject to survey and Council approval.
 Dimensions have been rounded to the nearest 0.1 metres.
 Areas have been rounded down to the nearest 5m².
 The boundaries shown on this plan should not be used for final detailed engineers design.

Source Information:
 Site boundaries: Registered Survey Plans.
 Adjoining information: DCDB.
 Contours: QUT.

Development Yield (Maximum Density)	
Residential Dwellings	606 dwellings
Commercial (sq.m)	15,050 sq.m GFA ^
Retail (sq.m)	4,000 sq.m GFA
Childcare	100 children

^ Includes existing commercial and community uses.

Legend

- Site Boundary
- - - Proposed Stage Boundary
- Mixed Use - Village Heart
- Mixed Use
- (3) Height Limit (Storeys)
- ⊛ Indicative Civic Plaza and Pocket Park
- Special Purpose
- Civic and Open Space
- Bushland and Open Space
- Vegetation Within Road Reserve
- ▨ Future Busway Corridor
- ▨ Existing Driveway and Carpark (Retention)
- ▨ Existing Lease Boundary
- ▨ Temporary Turnaround Easement
- ▨ Investigation Area (Beams Road Railway Overpass)
- ▨ Investigation Area (Potential Road Layout Subject to Future Applications)



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Attachment 3 – Water and Sewer Masterplan

Connection point A shall be provided on the western side of Gate valve RV436569 to be at the right pressure zone

CONNECTION TO EXISTING DN400 WATER MAIN









Connection Point B shall be provided to the existing DN150 AC Water main at the western verge of Dorville Road

A reticulation manhole shall be provided in parallel to the existing manhole on the trunk main

AMENDED IN RED
 By: Leila Torrens
 Date: 9 November 2018



LEGEND

-  EXISTING QUU WATER MAIN
-  PROPOSED DN125 WATER MAIN
-  PROPOSED DN180 WATER MAIN
-  PROPOSED DN250 WATER MAIN
-  EXISTING QUU WASTEWATER MAIN
-  PROPOSED DN160 WASTEWATER MAIN
-  PROPOSED DN250 WASTEWATER MAIN
-  CADASTRE

- NOTES:**
- ALL EXISTING SERVICES TO BE CONFIRMED ON SITE
 - REFER LANDSCAPE DRAWINGS FOR WATER FEED DETAILS & LOCATIONS
 - FOR EP DEMAND DETAILS REFER TO CALIBRE ENGINEERING SERVICES REPORT 15-003002-WER02

NOTE
 NOTWITHSTANDING THAT EXISTING SERVICES MAY OR MAY NOT BE SHOWN ON THE PROJECT DRAWINGS, NO RESPONSIBILITY IS TAKEN BY THE SUPERINTENDENT OR THE PRINCIPAL FOR THIS INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS. THE DETAILS ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL ASCERTAIN THE POSITION OF ANY UNDERGROUND SERVICES IN THIS AREA AND SHALL BE RESPONSIBLE FOR MAKING GOOD ANY DAMAGE THERETO.

PLANS AND DOCUMENTS referred to in the PDA DEVELOPMENT APPROVAL


Approval no: DEV2018/932
 Date: 9 November 2018



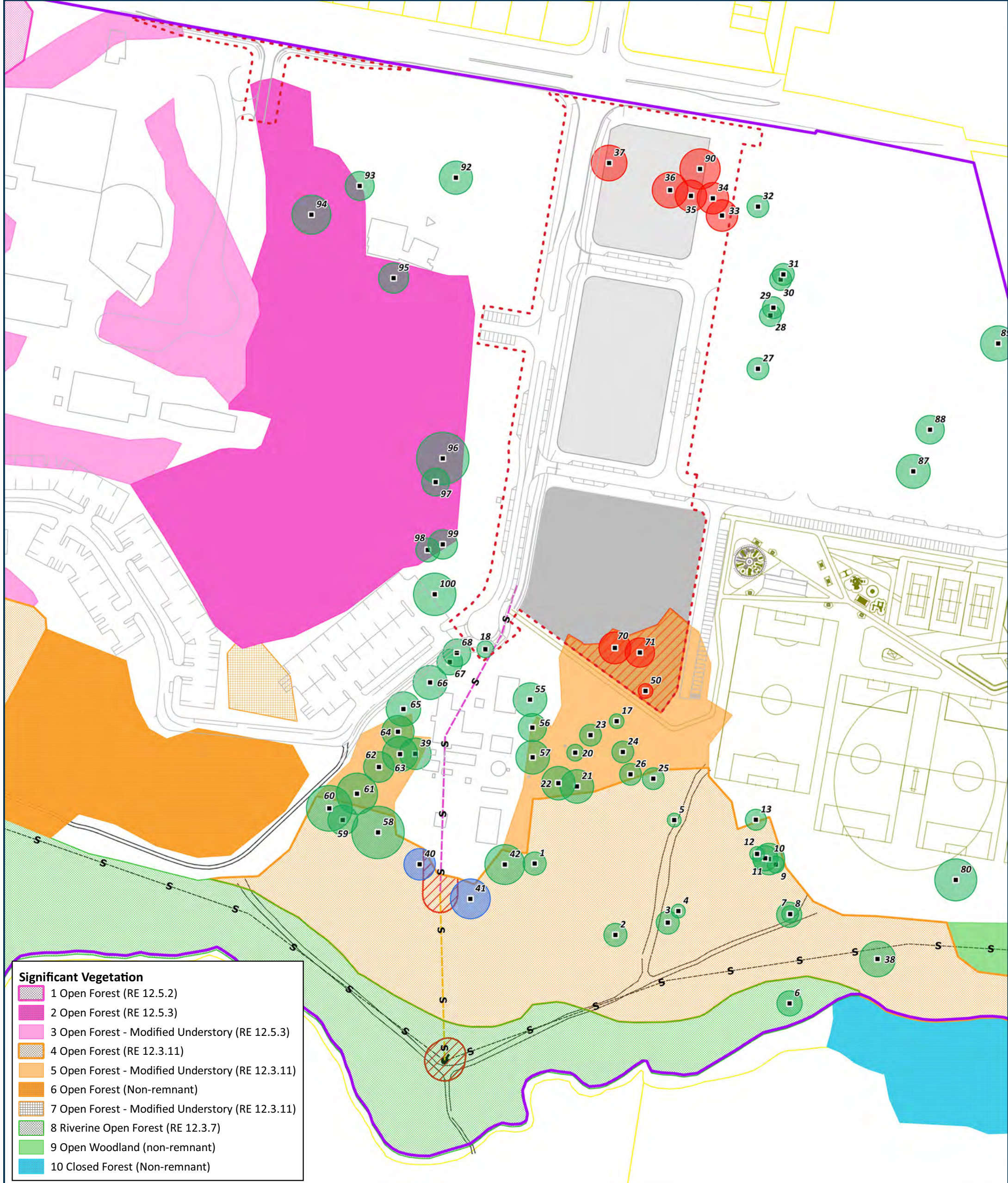
WATER AND WASTEWATER INFRASTRUCTURE

IDENTIFIER	DESCRIPTION
1	CONNECTION TO EXISTING DN300 QUU WATER MAIN IN BEAMS ROAD
2	CONNECTION EXISTING DN150 QUU WATER MAIN IN DORVILLE ROAD
3	NEW INTERNAL WATER NETWORK CONSISTING OF A COMBINATION OF DN200, DN150 AND DN100 WATER MAINS
4	CONNECTION TO EXISTING DN900 QUU TRUNK WASTEWATER MAIN ADJACENT CABBAGE TREE CREEK
5	NEW INTERNAL WASTEWATER NETWORK CONSISTING OF A COMBINATION OF DN225 AND DN150 WASTEWATER MAINS

PDA, REF NO. DEV2017/864

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Attachment 4 – Stage 1 and Associated Infrastructure Ecological Impacts



Significant Vegetation

	1 Open Forest (RE 12.5.2)
	2 Open Forest (RE 12.5.3)
	3 Open Forest - Modified Understory (RE 12.5.3)
	4 Open Forest (RE 12.3.11)
	5 Open Forest - Modified Understory (RE 12.3.11)
	6 Open Forest (Non-remnant)
	7 Open Forest - Modified Understory (RE 12.3.11)
	8 Riverine Open Forest (RE 12.3.7)
	9 Open Woodland (non-remnant)
	10 Closed Forest (Non-remnant)

Carselfine Urban Village

Attachment 4 - Stage 1 Impacts to Vegetation

28 South Project Ref: 2017-054

Data Sources: Nearmap Aerial Imagery (May 2019); Digital Cadastre Database (Dept. Natural Resources, Mines and Energy 2019)

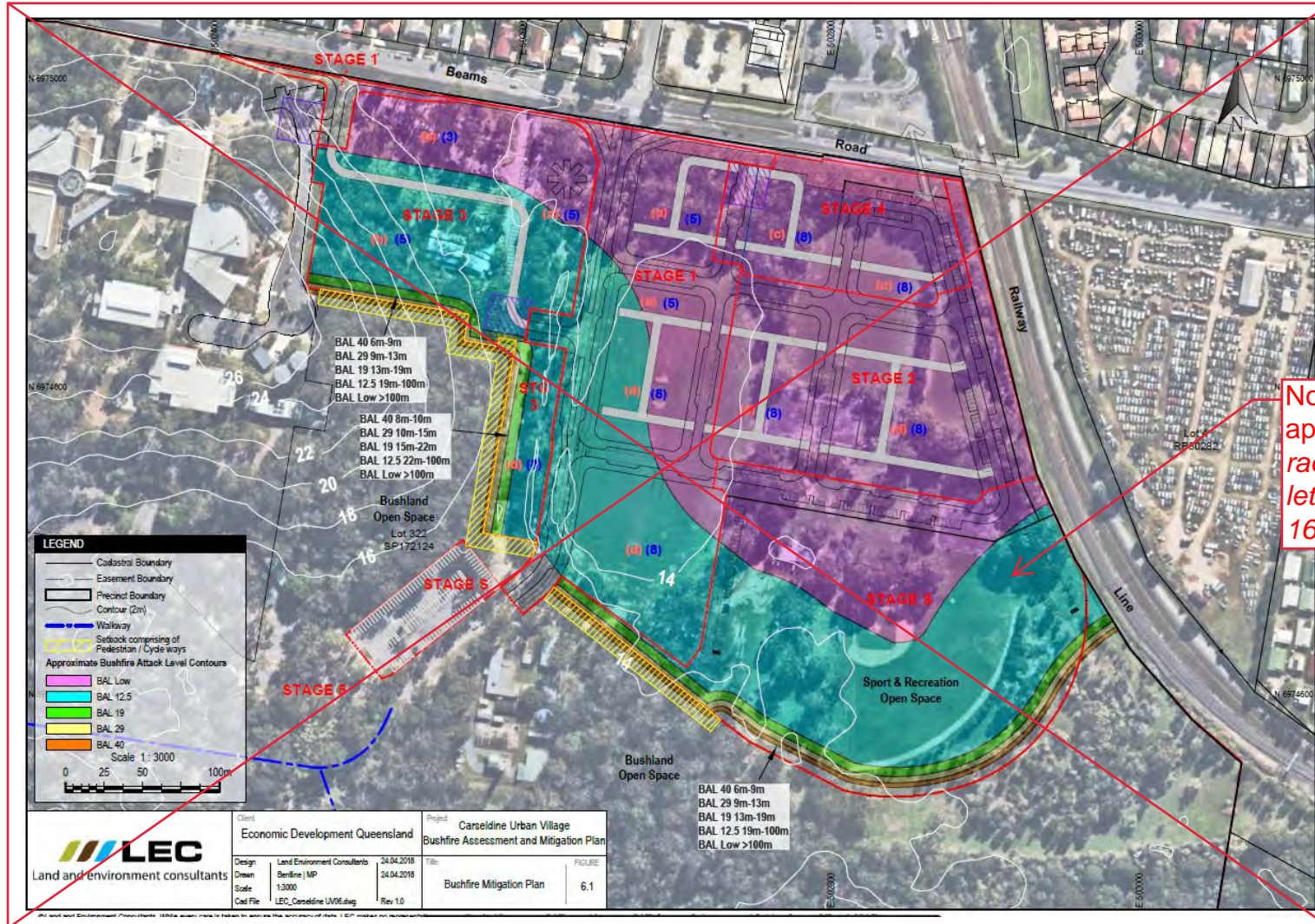
Legend

	Carselfine Urban Village Site Boundary
	Stage 1 Boundary
	Stage 1 Development Area
	Future Subdivision - Retirement Living
	Proposed Sewer Alignment
	Proposed Sewer Alignment to be tunnel bored
	Existing Sewer Main
	Habitat Trees To be retained
	Habitat Trees To be removed
	Habitat Trees To be retained subject to Arborist Assessment and Supervision
	Impact to Significant Vegetation
	Cadastre

Issue Date	Revision	Author
3 June 2019		RF
Approved	Revision Note	
MT		

(A3) GDA 94 MGA 56
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Attachment 5 – BAL Contours



Not part of this PDA development approval. Refer to Addendum to radiant heat exposure modelling letter, prepared by LEC, dated 16/02/2020.