Blacktown
City Council

File no:LEP-18-0008

3 December 2018

Ms Ann-Maree Carruthers
Director, Sydney West Region
Planning Services
Department of Environment and Planning
GPO Box 39
Sydney NSW 2001

Dear Ms Carruthers,

Request for a Gateway Determination for a Planning Proposal at Part of Lots 2355 and 2356 DP 1228369, Sundew Parade (Precinct 4) and part of Lot 1 DP 1232886, Elara Boulevard (Precinct 6), Marsden Park

We have prepared a planning proposal to amend *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* to amend zoning anomalies that have occurred as the result of an approved relocation of a rain garden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade and also to rezone part of Lot 1 DP 1232886, Elara Boulevard from R2 to R3. We request a Gateway Determination to progress the Planning Proposal.

The Planning Proposal document, relevant maps and supporting studies are enclosed. We request that this matter be considered and a Gateway Determination issued to enable the Planning Proposal to proceed. If you would like to discuss this matter further, contact Strategic Planner Zara Tai on 9839 6237.

Yours faithfully

Meredith Shipway
Acting Team Leader

Blacktown City Council

Planning Proposal

Newpark Precinct 4 and Precinct 6

Part of Lots 2355 and 2356 DP 1228369, Sundew Parade (Precinct 4) and part of Lot 1 DP 1232886, Elara Boulevard (Precinct 6), Marsden Park

December 2018

Table of Contents

INTRODUCTION

Blacktown City Council has received a request from Calibre Professional Services, on behalf of Woorong Park Pty Ltd to submit to amend *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP). The proposed amendments are:

- to correct the zoning anomalies as a result of an approved relocation of a rain garden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade;
- to rezone part of Lot 1 DP 1232886, Elara Boulevard from R2 to R3.

Corresponding amendments to the various SEPP Maps (HOB, LRA, RDN and LSZ) will be required.

The Sites

The sites are located within Precinct 4 and Precinct 6 New Park Estate, Marsden Park in the Marsden Park Precinct.

The site which is subject to a correction of the zoning anomalies as a result of an approved raingarden, is in Precinct 4, being part of Lot 2355 and all of Lot 2356 DP 128369, Sundew Parade, Marsden Park. It is located east of the tributary to Little Creek.

Both lots are zoned RU6 Transition and SP2 Infrastructure (Local Drainage) under the Growth Centres SEPP. The intention is that Lot 2355 DP 1228369 will be zoned entirely RU6 and Lot 2356 DP 128369 will be zoned entirely SP2 Infrastructure (Local Drainage). It is estimated there will be a loss of approximately 1190 m^2 of land zoned RU6.

The land that is subject to a rezoning from R2 to R3 is located within Precinct 6. Adjacent is a north/south collector road to the east, a proposed park to the south, a proposed school to the north and medium density land zoned R3 and a proposed business/ commercial area zoned B2 Local Centre to the east.

The subject site is approximately 0.7194 ha. The site is undergoing bulk earthworks.

Blacktown Local Planning Panel

The request for a Planning Proposal was reported to the Blacktown Local Planning Panel meeting of 26 September 2018 for advice in accordance with the Local Planning Panel's Direction - Planning Proposals, issued by the Minister for Planning on 23 February 2018, under Section 9.1 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

The Panel's advice is at **Appendix 1.** The Council officer's recommendation was to support the proposed amendments in principle except for an increase in the minimum residential density to 35 dwellings per hectare. Council officers supported an increase in density to 25 dwellings per hectare on the surplus school site which is proposed to be zoned from R2 to R3 Medium Density Residential and to retain the current minimum of 25 dwellings per hectare across the existing R3 zoned land around the local centre.

The Panel supported the proposal being forwarded to the Department of Planning and Environment (DPE) for a Gateway Determination.

Council's Consideration

At the Ordinary Meeting of 28 November 2018, Council resolved to:

1. *Prepare and forward a Planning Proposal to the Department of Planning and Environment requesting a Gateway Determination to amend State Environmental Planning Policy (Sydney Region Growth Centres) 2006 as described in this report.*

A copy of the Council Report is found in **Appendix 2.**

THE PLANNING PROPOSAL

PART 1 – Objectives and Intended Outcomes

The Planning Proposal is to amend State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (Growth Centres SEPP) to:

- correct the zoning anomalies as a result of an approved relocation of a rain garden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade; and
- rezone part of Lot 1 DP 1232886, Elara Boulevard from R2 to R3.

See Figures 1 – 4 below.

Corresponding amendments to the various SEPP Maps (HOB, LRA, RDN and LSZ) will be required.

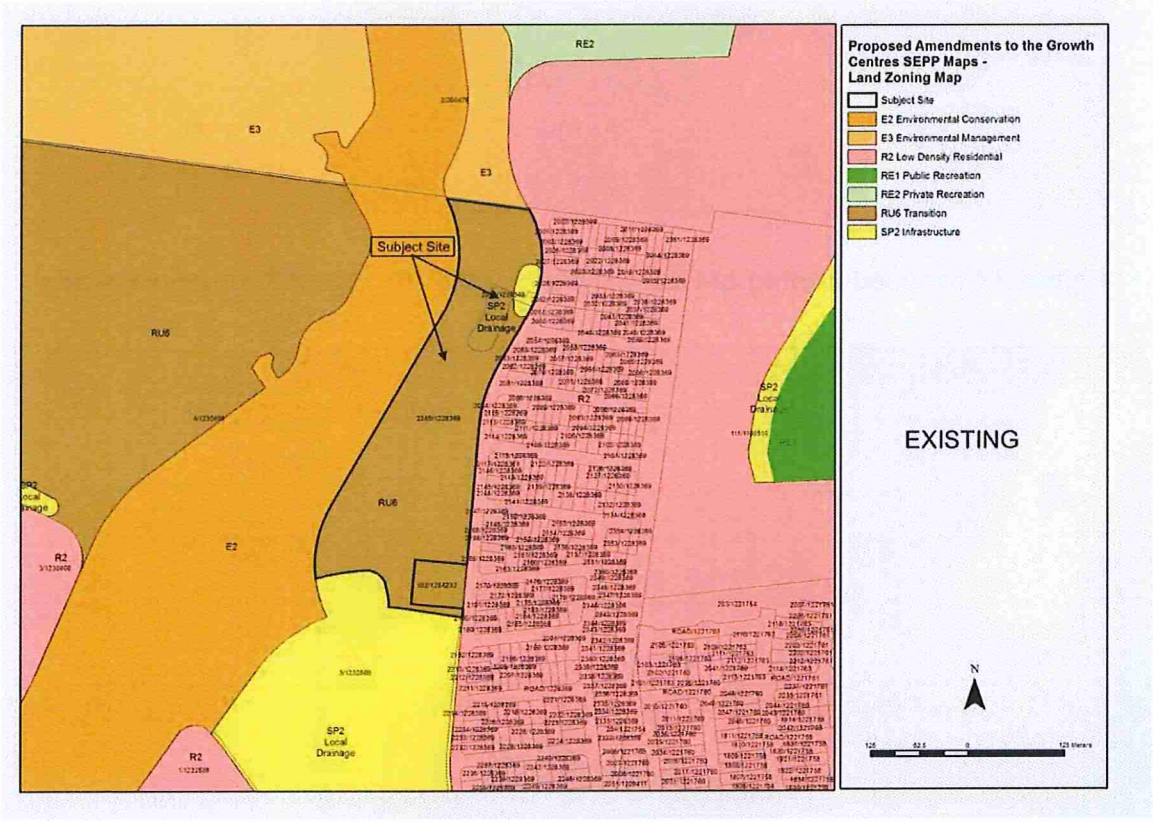


Figure 1: Existing Zoning of Lots 2355 and 2356 DP 1228369 Sundew Parade

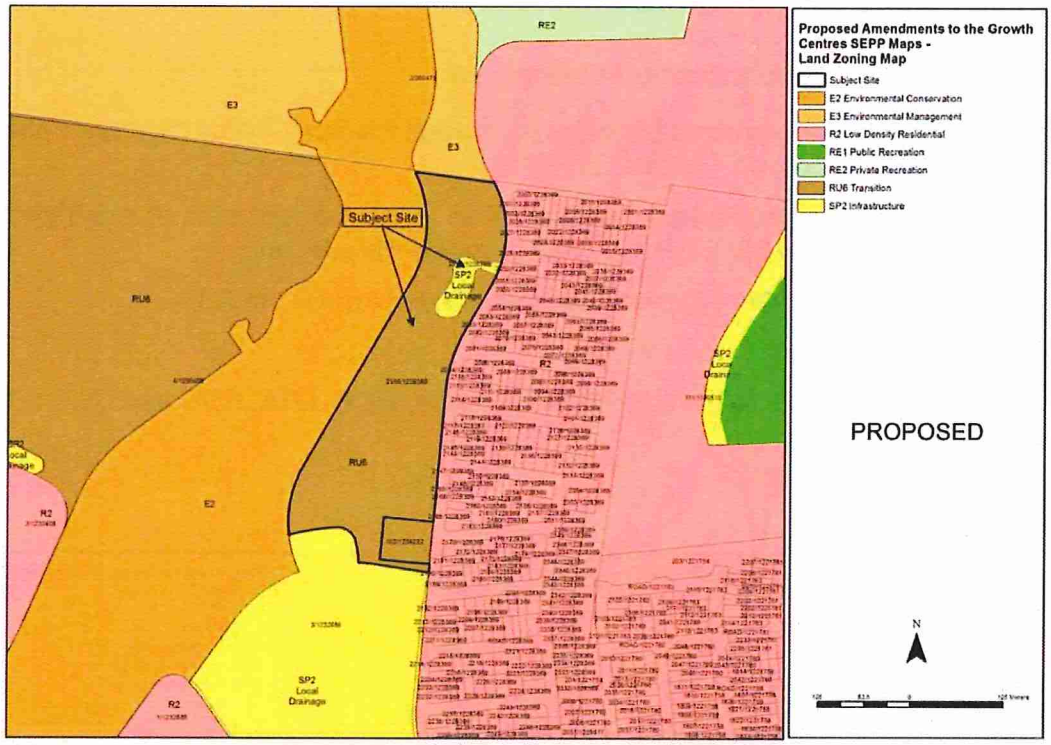


Figure 2 Proposed Zoning of Lots 2355 and 2356 DP 1228369 Sundew Parade

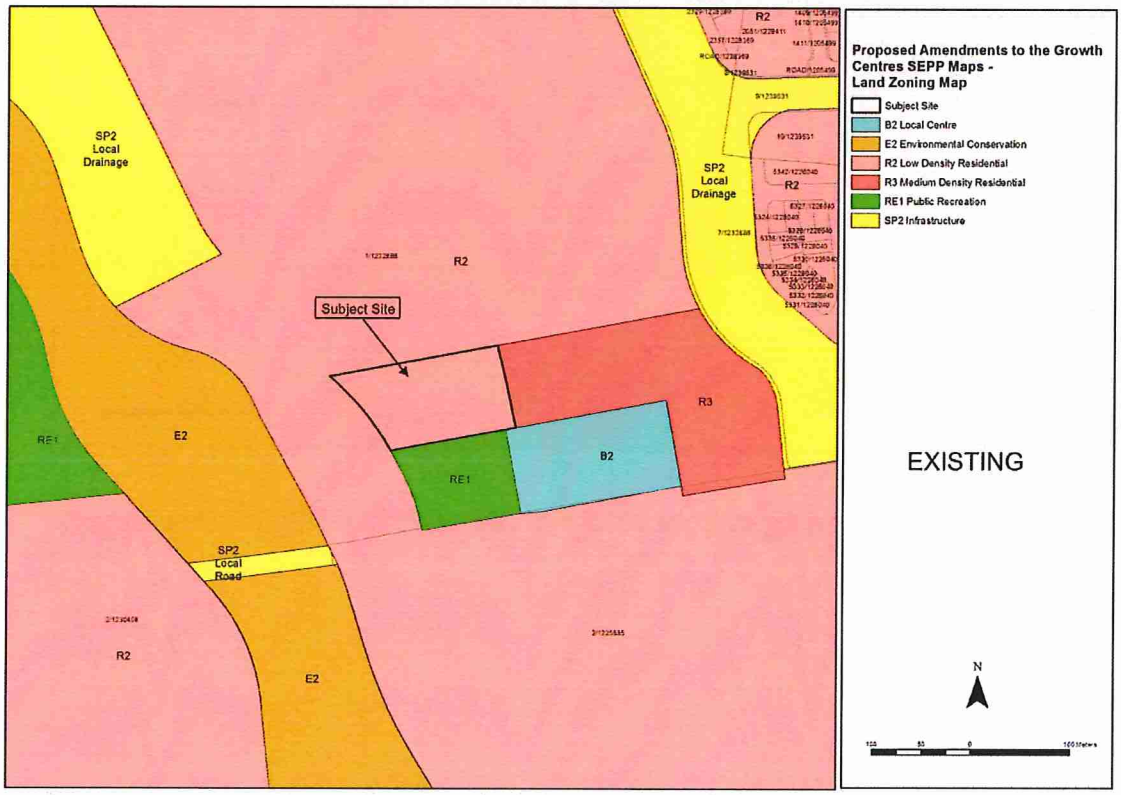


Figure 3 Existing Zoning of part Lot 1 DP 1232886, Elara Boulevard

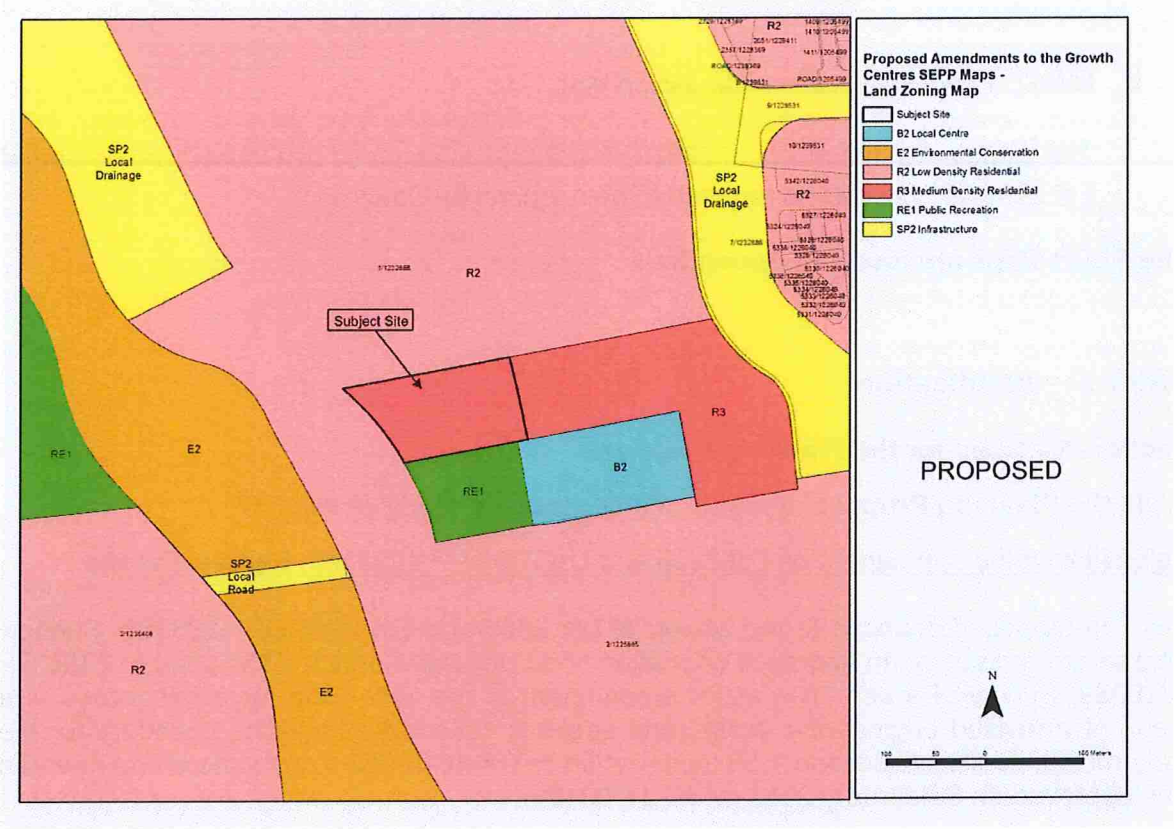


Figure 4 Proposed Zoning of Lot 1 DP 1232886, Elara Boulevard

PART 2 – Explanation of Provisions

The intended objectives and outcomes would be achieved by amending the following Growth Centres SEPP Maps:

1. NWGC Land Zoning Map

   The intention is that all of Lot 2355 DP 1228369 is zoned RU6, all of Lot 2356 DP1228369 is zoned SP2 Local Drainage and part of Lot 1 DP 1232886, Elara Boulevard, is zoned R3.

2. NWGC Height of Building Map

   The intention is that all of Lot 2355 DP 1228369 has a maximum height of 9 m and no part of Lot 2356 DP 1228369 has a height control. Part of Lot DP 1232886 that is proposed to be rezoned R3, has a maximum height of 14 m.

3. NWGC Residential Dwelling Density Map

   The intention is that part of Lot 1 DP 1232886 that is proposed to be rezoned R3 has a minimum density of 25 dwellings per hectare.

4. NWGC Lot Size Map

   The intention is that all of Lot 2355 DP 1228369 has a minimum lot size of 5 ha and no part of Lot 2356 DP 1228369 has a minimum lot size.

5. NWGC Land Reservation Acquisition Map

   The intention is that all of Lot 2356 DP 1228369 is acquired by Council and no part of Lot 2355 DP 1228369 is required to be acquired by Council.

The SEPP Maps are found in Appendix 3.

PART 3 – Justification

Section A – Need for the Planning Proposal

1. Is the Planning Proposal a result of any strategic study or report?

Relocation of the rain garden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade

No. The proposed changes to the zoning of Lot 2355 and Lot 2356 DP 1228369, Sundew Parade are a result of an approved relocation of a raingarden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade. The minor amendment to the SP2 zone for a raingarden is a result of a revised engineering design and seeks to rationalise the zone boundary for the constructed works. A Section 4.55 modification to DA-16-04553 to relocate the raingarden was approved on 8 February 2018 (MOD 17-00491).

Whilst the RU6 zone permits raingardens, it is prudent to amend the SEPP Maps so that the approved drainage infrastructure has the appropriate zone of SP2 Infrastructure (Local Drainage), and to accurately identify land to be acquired by Council.

Rezoning of part of Lot 1 DP 1232886, Elara Boulevard from R2 to R3

No. The Marsden Park ILP identifies an indicative school site of 8 ha. The area required for a school was reduced to 6 ha via an approved modification to DA-16-04214 (super-lot subdivision). The residue land not required for a proposed public school has made this land available for an alternative use.

DA-18-01117, lodged on 29 June 2018, proposes to create a new public road on the southern boundary of the reduced area school site as well as two further residue lots, one of which is the subject site proposed to be rezoned from R2 Low Density Residential to R3 Medium Density Residential.

The proposed change in zone will result in a change of minimum density from 15 dw/ha to 25 dw/ha. The applicant estimates that the increase in minimum density will result in an additional 10 dwellings and a population of 29 dwellings. Our estimates are that the proposal will result in a minimum of 17 dwellings with a population of 49, if construction is single storey. We estimate there could be up to 71 additional dwellings with a population of up to 205 people if development occurs at the maximum of 14 m (4 storeys).

The southern side of the Planning Proposal is located adjacent to zoned public open space and adjoins the site of a future local centre. The site's proximity to these key land uses makes it appropriate to facilitate an increase in residential density.

Rezoning a small portion of R2 to R3 will achieve a consistent medium density development fronting the local centre and public open space, and will complement and positively enhance the residential, retail and open space character of the locality.

2. Is the Planning Proposal the best means of achieving the objectives or intended outcomes, or is there a better way?

Yes. The proposed changes to the zones can only be achieved via amendments to the Growth Centres SEPP Maps as per Section 3.31 of the EP&A Act.

Further work with Blacktown City Council regarding the design of the raingarden has led to an increase in the overall area of the raingarden and a slight change in location for optimal performance. Given the SEPP is an EPI, amending the Growth Centres SEPP via through a Planning Proposal is considered the best mechanism to achieve zoning and boundary changes on the site.

The Planning Proposal is in response to changed circumstances, where revisions to Department of Education land take requirements have made additional land available for an alternative use.

Section B – Relationships to Strategic Planning Framework

3. Is the Planning Proposal consistent with the objectives and actions of the applicable regional or sub-regional strategy (including the Sydney Metropolitan Strategy and exhibited draft strategies)?

Greater Sydney Region Plan: A Metropolis of Three Cities

Key actions of the Plan relate to new land use and transport networks. Key characteristics include:

- accelerate housing supply across Sydney
- improving housing choice to suit different needs and lifestyles; and
- create healthy built environments.

The Plan forecasts growth in the employment and residential sectors with residential dwelling targets of an additional 725,000 new homes by 2036. The NSW population projections indicate that the Blacktown LGA will grow by 41%-57%, that is, an additional 143,650-199,300 people between 2016 and 2036.

The Greater Sydney Region Plan discusses housing in Section 4 – Liveability. Objective 10 is about increasing housing supply. The NWGA is an area where housing is to be supplied. The additional dwellings which are to be provided as a result of this planning proposal will contribute by providing additional housing.

The amendments to the Growth Centres SEPP suggested in this Proposal will support and facilitate the directions of the Plan. Specifically, the amendments will:

- Enable a variety of new dwellings to improve choice and supply in locations that are well serviced by public transport.
- Deliver homes with access to jobs, retail and community facilities.
- Accommodate additional density within a new centre to support government investment in the Sydney Metro Northwest.

Section 6 – Sustainability, Objective 25 aims to protect the health of the waterways. As the purpose of the raingardens is to protect the nearby creek, the rezoning of the location of the raingarden and the acquisition of the land by Council to maintain the raingarden fulfils this objective.

Central City District Plan

Blacktown LGA is located in the Central City District. One of the key focus areas is the creation of a liveable city. This is discussed in Chapter 3: Liveability. The aim of the Planning Priority C5 is to provide housing supply, choice and affordability with access to jobs and services. The additional number of dwellings enabled by the planning proposal will create the opportunity for greater housing choice and affordability.

The District Plan sets the strategic direction for the region over the next 20 years. The key drivers for the Plan include:

- The need to provide housing choice and affordability to meet the needs of a changing society
- Provide access to jobs, homes, and the creation of the '30 minute city'

The Planning Proposal reflects the objectives and actions of the District Plan.

Section 5 Sustainability, Planning Priority N13 aims to protect and improve the health and enjoyment of the waterways in the District. The rezoning of the location of the raingarden and the acquisition of the land by Council to maintain the raingarden, fulfils this planning priority.

4. Is the Planning Proposal consistent with a Council's local strategy or other local strategic plan?

The *Blacktown Planning Strategy 2036* is Council's main land use planning document. It facilitates and manages future growth and development within the City of Blacktown to 2036. It states that by 2036, Blacktown LGA will grow to approximately 500,000 people and 180,000 dwellings. A key direction under the strategy is to accommodate population and employment growth within the new release areas in the NWGA.

The strategic directions outlined in the plan include:

1. A vibrant and inclusive community
2. A clean and sustainable environment
3. A smart and prosperous economy
4. A growing city supported by accessible infrastructure
5. A sporting and active city
6. A leading city

The Planning Proposal is consistent with this local strategy by providing housing within a key growth area. Increasing housing supply through increasing density supports Direction 1 "in providing a vibrant and inclusive community" through its proximity to the local centre. The rezoning and acquisition of the raingarden fulfils Objective 2 - A clean and sustainable environment.

5. Is the Planning Proposal consistent with applicable State Environmental Planning Policies?

A review of the SEPPs has been undertaken and the consistency of the Planning Proposal with the applicable SEPPs is summarised in Table 1. This Planning Proposal does not contain provisions that will contradict or would hinder the application of these SEPPs.

SEPP	Aim	Comments
Growth Centres SEPP	Relevant aims of the Blacktown Growth Centres Precinct Plan under clause 1.2 include: (a) To rezone land to allow for development to occur in the manner envisaged by the growth centre structure plan and the indicative layout (ILP) for the land to which this Precinct Plan applies, (b) To deliver housing choice and affordability by accommodating a wide range of residential dwelling types that cater for housing diversity (c) To guide bulk and scale of future development within the Precinct, (d) To rezone land to allow for retail and commercial uses to meet the needs of future residents of the Marsden Park Precinct and surrounding areas.	The Planning Proposal is consistent with the aims of the Growth Centres SEPP. The Planning Proposal will allow for development to occur as planned for the Marsden Park Precinct in line with the ILP to deliver increased housing within the R3 zone whilst providing affordability, diversity, maintaining bulk and scale with active street frontages allowing for frontages to retail and commercial uses to the adjoining B2 Local Centre site and Local Park. A minor amendment to vary the location of the approved raingarden within Precinct 2 of Woorong Park development will regularise the zoning to reflect the land use on the respective lots.
SEPP 55 – Remediation of land	Relevant considerations of the SEPP relating to Planning Proposals under clause 6 include: (a) the planning authority has considered whether the land is contaminated, (b) if the land is contaminated, the planning authority is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for all the purposes for which land in the zone concerned is permitted to be used, and (c) if the land requires remediation to be made suitable for any purpose for which land in that zone is permitted to be used, the planning authority is satisfied that the land will be so remediated before the land is used for that purpose.	Contamination has been assessed and approved under DA 15-2273 for bulk earthworks for the overall Woorong Park site including Precinct 6 for contaminated areas and found to be acceptable.

Table 1: Relevant SEPP which apply to the sites

6. Is the Planning Proposal consistent with applicable Ministerial Directions?

The Section 9.1 Ministerial Directions (formerly S117 Directions) of the EP&A Act, provide local planning direction and must be considered when rezoning land. The proposed amendment is generally consistent with Directions issued by the Minister for Planning and Environment.

The following table outlines the consistency of the Planning Proposal to the Directions:

Direction		Consistency of Planning Proposal
1	**Employment and Resources**	Strategies 1.1, 1.3, 1.4 and 1.5 are not applicable.
1.2	Rural Zones	Not applicable Part of Lot 2355 and Lot 2356 DP 1228369, Sundew Parade is zoned RU6. Part of the proposal is to rezone land from RU6 to SP2 Local Drainage. Any inconsistency is considered minor as the intent of the proposal is to correct a zoning anomaly.
2	**Environment and Heritage**	Strategies 2.1, 2.2, 2.4 and 2.5 are not applicable
2.1	Environment Protection Zones	Not applicable The subject site is clear of vegetation and is not within an Environment Protection Zone.
2.3	Heritage Conservation	Aboriginal Heritage Impact Permit was issued for DA 15-2273. Salvage works have been carried out in accordance with the AHIP. Archaeological site works within the Woorong Park development area have now been completed in accordance with the AHIP
3	**Housing, Infrastructure and Urban Development**	Strategies 3.2, 3.3, 3.5 and 3.6 are not applicable.
3.1	Residential Zones	The Proposal seeks minor amendments to change the zone from R2 to R3 and increasing the density in the R3 zone to a minimum of 25dw/ha with the primary outcome being to ensure the zoning boundaries are consistent with property boundaries. This Planning Proposal is consistent with this Direction.
3.4	Integrating Land Use and Transport	The Proposal will result in up to 71 dwellings. The land is adjacent to a future centre and bus routes proposed to service the area. The land is located in accordance with the aims of Improving Transport Choice – Guidelines. The Proposal is consistent with this Direction.
4	**Hazard and Risk**	Strategies 4.1 and 4.2 are not applicable
4.1	Acid Sulphate Soils	Not applicable. The sites are not located on the Springwood/Riverstone Acid Sulfate Soil Risk Map
4.2	Mine Subsidence and Unstable Land	Not applicable. The site is not identified as being within a Mine Subsidence District.
4.3	Flood Prone Land	The site is bounded by the two major river systems of Bells Creek and South Creek. The Precinct is bisected by Little Creek, which flows in a westerly direction and joins South Creek approximately 400 m upstream of Richmond Road and the Precincts boundary. Lot 1 DP 1232886, Elara Boulevard is located on land between the 1:00 ARI and the PMF. This is "low flood risk" according to Council's Flood Map. J. Wyndham Prince (JWP) prepared a Stormwater Management Strategy Report which details the stormwater quantity and quality management to ensure the proposed construction of regional Basin 2, which is proposed in DA 16-05360, and water quality management devices are sized appropriately. This ensures that post-development flows do not exceed pre-development flows downstream of the proposed basin in Precinct 6. **(See Appendix 4).** The applicant also submitted an evacuation strategy but this pertains to land already zoned to R2 and R3. There are no flood related development controls proposed in this Planning Proposal.
4.4	Planning for Bushfire Protection	Bushfire protection measures approved in DA16-05384 comply with Planning for Bush Fire Protection 2006
5	**Regional Planning**	Strategies 5.2-5.8 are not applicable
5.1	Implementation of Regional Strategies	The Proposal is consistent with the Central City District Plan and the North West Priority Growth Area Land

		Use and Infrastructure Implementation Plan, as detailed in Section B.
6	**Local Plan Making**	Strategy 6.1 is not applicable
6.2	Reserving Land for Public Purposes	The adjustments to the land required for a public purpose on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade have been approved in a modification to DA-16-04553.
6.3	Site Specific Provisions	The Proposal does not impose any development standards or requirements additional to those contained in the Growth Centres SEPP, nor does it contain or refer to drawings that show a development proposal.
7	**Metropolitan Planning**	Strategies 7.2-7.3 are not applicable.
7.1	Implementation of the Metropolitan Strategy	The Proposal is consistent with the Greater Sydney Region Plan as detailed in Section B.

Table 2: S9.1 Ministerial Directions

Section C – Environmental, Social and Economic Impact

7. Is there any likelihood that critical habitat or threatened species, populations or ecological communities, or their habitats, will be adversely affected as a result of the proposal?

No. The subject lots have already been cleared.

8. Are there any other likely Environmental Effects as a result of the planning proposal and how are they proposed to be managed?

Lot 2355 and Lot 2356 DP 1228369, Sundew Parade

The proposed rezoning on the subject lot ensures the approved raingarden has the appropriate zoning. No adverse impact is foreseen.

Part of Lot 1 DP 1232886- Stormwater management

JWP's Stormwater Management Strategy Report, submitted in DA 16-05360, details the stormwater quantity and quality management. Its purpose is to ensure the proposed construction of regional Basin 2 and water quality management devices are of the correct size which ensures that post-development flows do not exceed pre-development flows downstream of the proposed basin in Precinct 6.

Open space and Community Facilities

There are no changes to the RE1 zone and the proposed increased density fronts the local park to the south of the site. However, there is no additional open space proposed for the additional population expected. This may cause strain on planned open space and community facilities.

Traffic and Pedestrian Issues

The proposal to rezone land from R2 to R3 is expected to have an adverse impact on the traffic network, particularly during a major event such as a flood evacuation. The applicant has not provided any details which addresses this issue.

9. Has the Planning Proposal adequately addressed any social and economic effects?

In relation to the proposed rezoning of part of Lot 1 DP 1232886, the applicant has not provided any details on the provision of any additional hospitals or additional retail

services on the basis that their estimate of increase in demand (5-10 dwellings), is minimal.

Section D – State and Commonwealth interests

10. Is there adequate public infrastructure for the Planning Proposal?

The proposal to change the zoning as a result of the approved relocation of the rain garden on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade facilitates residential development. There are no adverse implications on public infrastructure.

In relation to the proposed rezoning of part of Lot 1 DP 1232886, Elara Boulevard, the applicant has stated that the increase in development yield is less than 1% of the "adopted dwelling yields for the precinct". If the adopted dwelling yields is 10,000 dwellings (estimated number of dwellings at gazettal in 2013), this amount is 100 dwellings. Our estimates on the maximum number of dwellings is 71.

The applicant has not provided details on the provision of additional community facilities and open space for the extra population as their estimates were minimal (10 dwellings only). They considered this to be negligible additional demand on community and open space infrastructure. There has been no comment on whether the existing traffic network can cope with the expected yields. In relation to the additional utilities (water, sewer, electricity), this can be addressed by consulting with the servicing authorities post Gateway Determination.

There is a shortfall of community facilities and open space in the Precinct due to higher than expected dwelling and population yields in the Marsden Park Precinct. The cumulative effect of the increase in yields on existing and planned infrastructure may need to be considered further.

The land is located between the 1:100 ARI and the PMF. The evacuation strategy submitted with the proposal is based on land already zoned R2 and not the land proposed to be rezoned R3 as part of this planning proposal (See Appendix 5). The applicant did not provide a revised study because their estimates of additional were considered to be minimal (10 dwellings) and did not warrant an additional study. This matter can be addressed by consulting with the SES post Gateway Determination.

11. What are the views of State and Commonwealth public authorities consulted in accordance with the Gateway determination?

The following government authorities may need to be consulted:

- Department of Education

  The Department of Education needs to confirm their agreement to the reduction in size of the school site.

- Land Release Team within the Department of Planning

  The land is located within the Growth Centres. This Team should be consulted in relation to the planning proposal.

- The Office of Environment and Heritage

  The proposal involves rezoning land from R2 to R3. This land is located between the 1:100 ARI and the PMF. There may be flood related issues that need to be examined from a strategic perspective.

- State Emergency Service

  The SES needs to assess whether there is enough capacity to evacuate the additional population expected in the area as a result in a change in zone to R3. The evacuation strategy submitted with the proposal needs to be assessed by the appropriate authorities.

- Sydney Water, Endevour Energy and Telstra

  The utility providers need to advise if there is enough capacity to provide for the extra residential development.

Consultation with relevant State and Commonwealth public authorities will be undertaken as directed by the Gateway Determination.

Part 4 – Mapping

- Existing Zoning SEPP Map
- Proposed Zoning SEPP Map
- Existing Height of Building SEPP Map
- Proposed Height of Building SEPP Map
- Existing Lot Size SEPP Map
- Proposed Lot Size SEPP Map
- Existing Residential Density SEPP Map
- Proposed Residential Density SEPP Map
- Existing Land Reservation & Acquisition SEPP Map
- Proposed Land Reservation & Acquisition SEPP Map

These maps are found in Appendix 3.

Part 5 – Community Consultation

The Gateway Determination will stipulate the extent of community consultation required. The usual exhibition period is 28 days. Public consultation will occur in accordance with the Gateway Determination in accordance with Section 3.34 of the EP&A Act.

Part 6 – Project Timeline

Milestones	**Anticipated Month Commencing**
Forward Planning Proposal to the DP&E	December 2018
Date of Gateway Determination	January 2019
Completion of required technical information & Government agency consultation	February 2019
Commencement of public exhibition	March 2019
Completion of public exhibition	April 2019
Timeframe for consideration of submissions	April 2019
Council's consideration & resolution on the report	June 2019
Submission to the Department to finalise the SEPP Amendment	July 2019
Anticipated date RPA will make the plan	September 2019

Table 3: Projected Timeline

Appendix 1

Blacktown Local Planning Panel Advice

Meeting of 26 September 2018

Blacktown Local Planning Panel

PLANNING PROPOSAL ADVICE

DATE OF DETERMINATION	26 September 2018
PANEL MEMBERS	Lindsay Fletcher, Chair Milan Marecic, Independent expert Mary-Lynne Taylor, Independent expert Stan Brulinski, Ward 2 community representative
APOLOGIES	Nil
DECLARATIONS OF INTEREST	Mary-Lynne Taylor declared that the firm, of whom she is an employee, has done work with the applicant, Calibre, but she has had no contact with them on this matter.

Public meeting held at Blacktown City Council, Committee Rooms 2 and 3, on 26 September 2018, opened at 11.03 am and closed at 11.55 am.

PLANNING PROPOSAL

1. LEP-18-0008: Planning Proposal to amend *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* to:
    - adjust the zone boundaries between the RU6 Transition and the SP2 Infrastructure (Local Drainage) zone to align with an approved raingarden, and make consequential amendments to the land reservation acquisition map, height of building map, lot size maps on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade, Marsden Park
    - rezone surplus school land from R2 Low Density Residential to R3 Medium Density Residential and increase the maximum building height from 9 m to 14 m on Lot 1 DP 1232886, Elara Boulevard, Marsden Park
    - increase the minimum density from 15 and 25 dwellings per hectare to 35 dwellings per hectare on the current and proposed R3 Medium Density Residential zoned land around the planned local centre on Lot 1 DP 1232886, Elara Boulevard, Marsden Park.

Blacktown City Council

PANEL ADVICE

The Panel considered the assessment report on the matter and the material presented at the Panel meeting.

The Panel provided the following advice for the Planning Proposal described above:

- The Panel is satisfied that the Planning Proposal meets strategic and site merit tests.
- The Panel supports the matter proceeding to Gateway Determination and notes the Applicant's submission to the Panel supporting the staff recommendation of a minimum density of 25 dwellings per hectare and that their documentation may be amended accordingly before being submitted to Council.

PANEL MEMBERS
Lindsay Fletcher (Chair)
Milan Marecic (Independent expert)
Mary-Lynne Taylor (Independent expert)
Stan Brulinski (Ward 2 community representative)

Appendix 2

Council Report of Ordinary Meeting

28 November 2018

PD071118 3.1. PD380135 Planning Proposal to amend the Growth Centres SEPP in Sundew Parade and Elara Boulevard, Marsden Park

Director: Glennys James, Director Planning & Development
Author: Zara Tai

File: LEP-18-0008

Division is required

Topic

Planning Proposal from Calibre Consulting on behalf of Woorong Park to amend the planning controls on land in Sundew Parade and Elara Boulevard, Marsden Park under State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

Analysis

We have received a request to prepare a Planning Proposal to amend State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (the Growth Centres SEPP) as it relates to 2 sites in Marsden Park.

The northern site of the proposal seeks to adjust the zone boundaries between the RU6 Transition and SP2 Infrastructure (Local Drainage) zones to align with an approved raingarden and make associated amendments to the land reservation acquisition map, height of building map and lot size map on Lots 2355 and 2356 DP 1228369 Sundew Parade, Marsden Park. This proposal is consistent with an approved Development Application on the site that relocated drainage infrastructure.

The southern site of the proposal seeks to rezone surplus school land from R2 Low Density Residential to R3 Medium Density Residential, increase the maximum building height from 9 m to 14 m, and apply a minimum density control of 35 dwellings per hectare on Lot 1 DP 1232886, Elara Boulevard, Marsden Park. Whilst we do not support 35 dwellings per hectare, we do support 25 dwellings per hectare. The resultant controls will be consistent with the zoning, building height and density controls that apply on adjoining land.

The proposal was reported to the Blacktown Local Planning Panel meeting on 26 September 2018 for advice in accordance with the Minister for Planning's Local Planning Panels Direction – Planning Proposals. The Panel supported the recommendation of Council officers to proceed with preparing a Planning Proposal.

Attachment/s

1. Location Plan **[PD380135.1]**
2. Existing and proposed planning controls - Sundew Parade **[PD380135.2]**
3. Existing and proposed planning controls - Elara Boulevard **[PD380135.3]**
4. Blacktown Local Planning Panel advice **[PD380135.4]**

Report Recommendation	1. Prepare and forward a Planning Proposal to the Department of Planning and Environment requesting a Gateway Determination to amend State Environmental Planning Policy (Sydney Region Growth Centres) 2006 as described in this report.

Key reasons

1. Consistency with the Central City District Plan

a. The Greater Sydney Region Plan Liveability Objectives emphasise the importance of place-based planning. These are reflected in the Central City District Plan Liveability Priorities to provide the right housing in the right place, and to co-ordinate the intensification of land use with the location of centres and key transport, services and facilities infrastructure. This provides essential support for future residents and critical mass to support the viability of centres. The Planning Proposal is consistent with these priorities.

2. Supports a future local centre

a. The southern site of the Planning Proposal on Elara Boulevard seeks to rezone land from R2 Low Density Residential to R3 Medium Density Residential on land located adjacent to zoned open space and adjoining the site of a future local centre. The site's proximity to these key land uses makes it appropriate to facilitate an increase in residential density. The consequential increase of 7 additional dwellings is considered appropriate in this location.

b. It is noted that the Applicant's submitted proposal was to increase the minimum density on R3 zoned land (existing and proposed) around the local centre to 35 dwellings per hectare. We do not support this change as it is inconsistent with the planned density of other similarly located R3 zones elsewhere in the Marsden Park Precinct and the North West Growth Area generally. The Applicant has not provided enough justification to support this request. We do however support a minimum residential density of 25 dwellings per hectare.

3. Consistency with planning controls on adjoining land

a. The proposed increase in building height and density is considered appropriate in the context of the controls which apply to the immediately surrounding land. The proposed 14 m height limit and minimum density of 25 dwellings per hectare is the same that applies to land to the east of the site, which is also zoned R3 Medium Density Residential, adjacent to the local centre.

b. Rezoning a small portion of R2 Low Density Residential to R3 Medium Density Residential will achieve a consistent medium density development fronting the local centre and public open space, and will compliment and positively enhance the residential, retail and open space character of the locality.

4. Consistency with an approved development

a. The northern site of the Planning Proposal on Sundew Parade seeks to adjust the zone boundaries between the RU6 Transition and SP2 Infrastructure (Local Drainage) zones to align with an approved location of a raingarden.

b. The southern site is also in response to a development approval that subdivided the future school site to reduce it in size and in doing so created surplus land that is proposed to be rezoned R3 Medium Density Residential.

Supporting analysis

1. Approved location of raingarden

a. The minor amendment to the SP2 Infrastructure (Local Drainage) zone for a raingarden is a result of a revised engineering design and seeks to rationalise the zone boundary for the constructed works.

b. A section 4.55 modification to DA-16-04553 to relocate the raingarden was approved on 8 February 2018 (MOD 17-00491).

c. The raingarden was originally approved with an area of 1,730 m^2. The revised design increased the area of the raingarden to 2,479 m^2 and proposed a new location. With the increased size and location, the raingarden has moved into the RU6 Transition zoned land. Whilst it is noted that the RU6 zone permits raingardens, it is prudent to amend the Growth Centres SEPP so that the approved drainage infrastructure has the appropriate zone of SP2 Infrastructure (Local Drainage), and to accurately identify land to be acquired by Council.

2. Consistency with approved subdivisions

a. The Marsden Park Indicative Layout Plan identifies an indicative school site of 8 ha. This has since been reduced to 6 ha via an approved modification to DA-16-024214 (super-lot subdivision). We will consult with the Department of Education as part of our consideration of the Planning Proposal.

b. DA-18-01117, lodged on 29 June 2018, proposes to create a new public road on the southern boundary of the reduced area school site, as well as 2 further residue lots, one of which is the subject site of the proposed rezoning from R2 Low Density Residential to R3 Medium Density Residential.

c. The amendment to the R2 zone is a result of land that is no longer required for school purposes and is better utilised as R3 zone to accommodate medium density development adjacent to the local centre. The proposed density of 25 dwellings per hectare is consistent with other R3 zones around local centres in the Marsden Park Precinct.

3. Blacktown Local Planning Panel

a. The intended Planning Proposal was reported to the Blacktown Local Planning Panel meeting on 26 September 2018 for advice in accordance with the Minister for Planning's Local Planning Panels Direction - Planning Proposals, issued on 27 September 2018 under section 9.1 of the *Environmental Planning and Assessment Act 1979.*

b. The Panel advised that it is satisfied with Council officers' recommendation, which is reproduced in this report.

c. The Panel supported the proposal being forwarded to the Department of Planning and Environment for a Gateway Determination.

Context

1. Location and site description

a. The 2 sites are located within the Marsden Park Precinct in the North West Growth

Area. The site is currently undergoing bulk earthworks to enable its subdivision and subsequent housing construction.

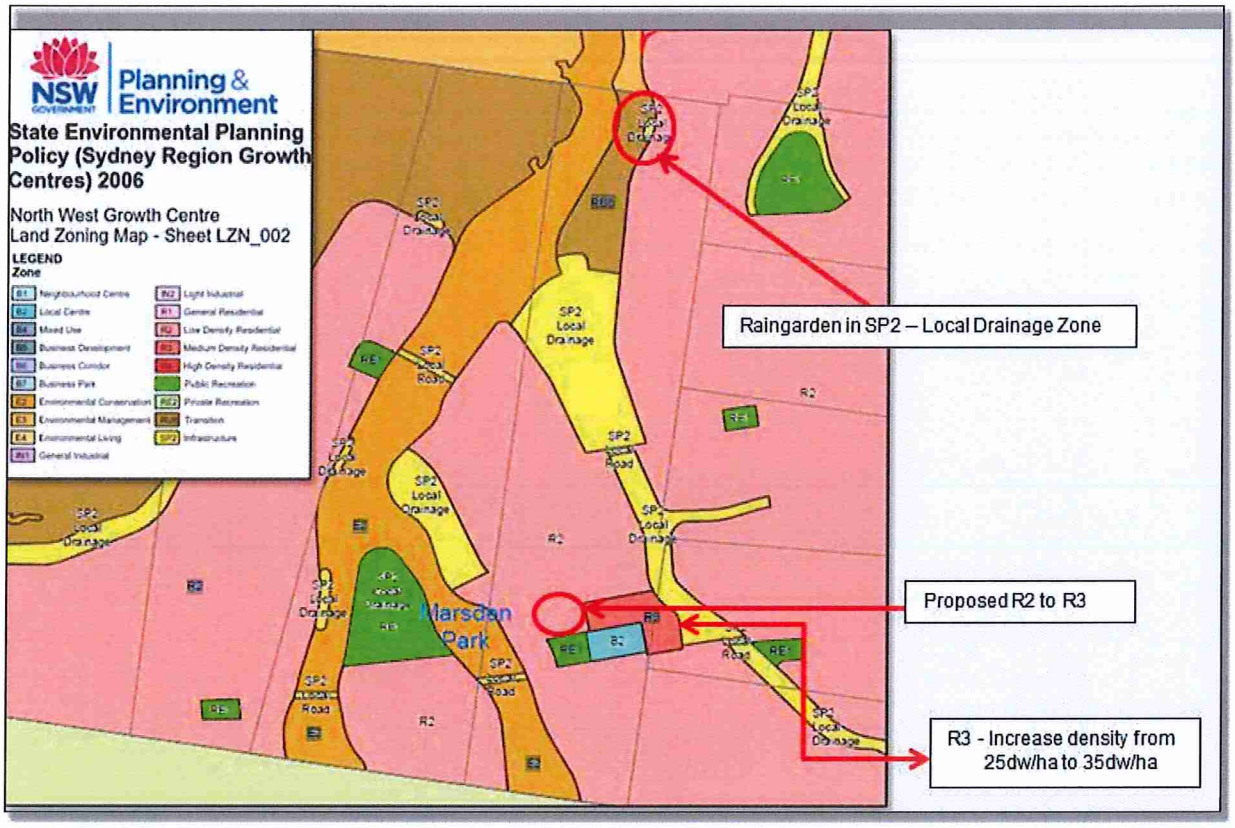
b. The overall site area of our intended Planning Proposal is 9,640 m^2, comprising 2,479 m^2 to be rezoned from RU6 to SP2 (raingarden) and 7,161 m^2 to be rezoned from R2 to R3 (surplus school site).

2. Submission of a request for a planning proposal

a. On 15 August 2018, we received this request for a Planning Proposal to amend the Growth Centres SEPP.

End of report

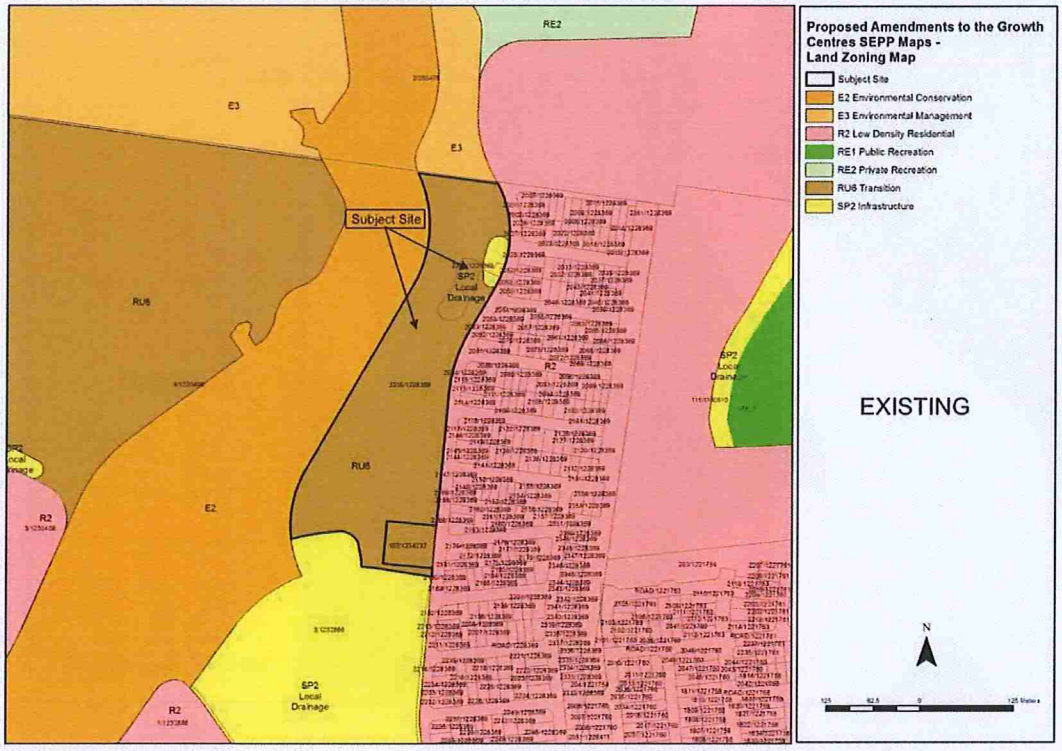
Location map

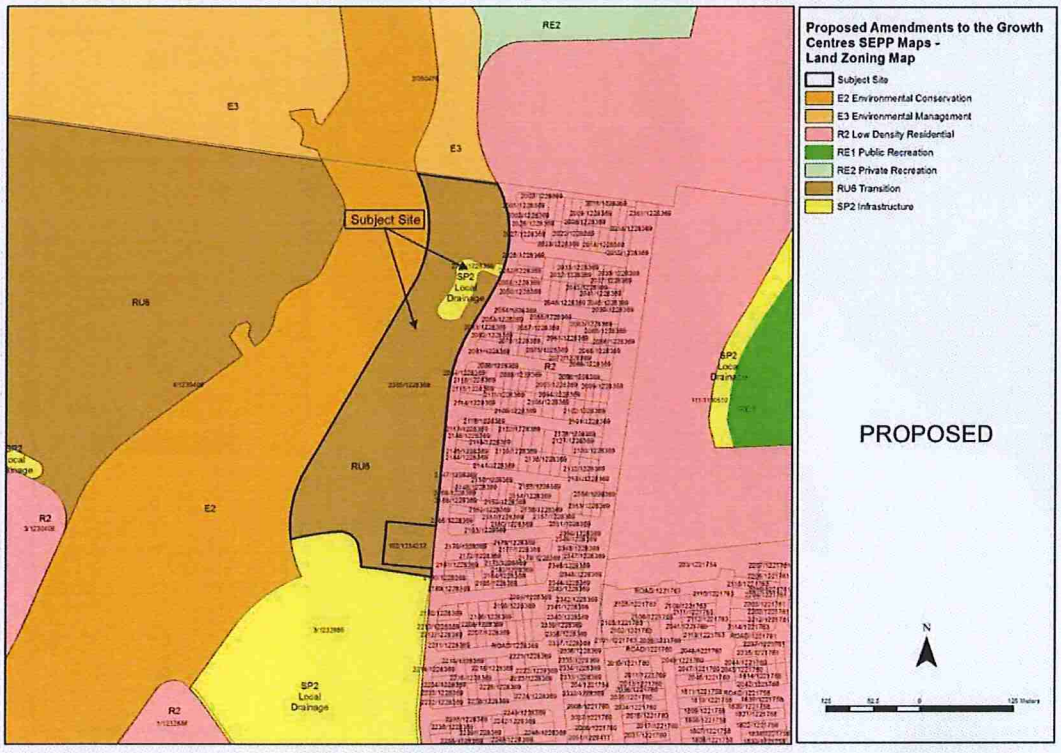


Zoning Map showing location of proposed amendments

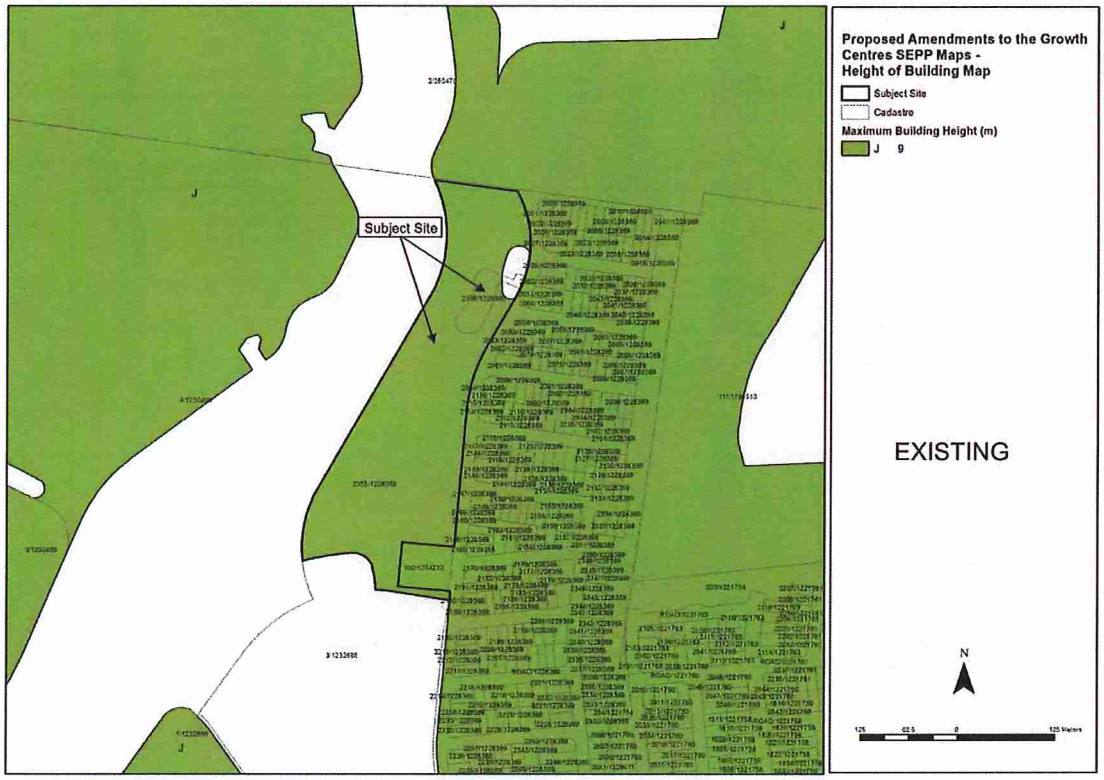
Attachment 2 - Lots 2355 and 2356 DP 1228369 Sundew Parade

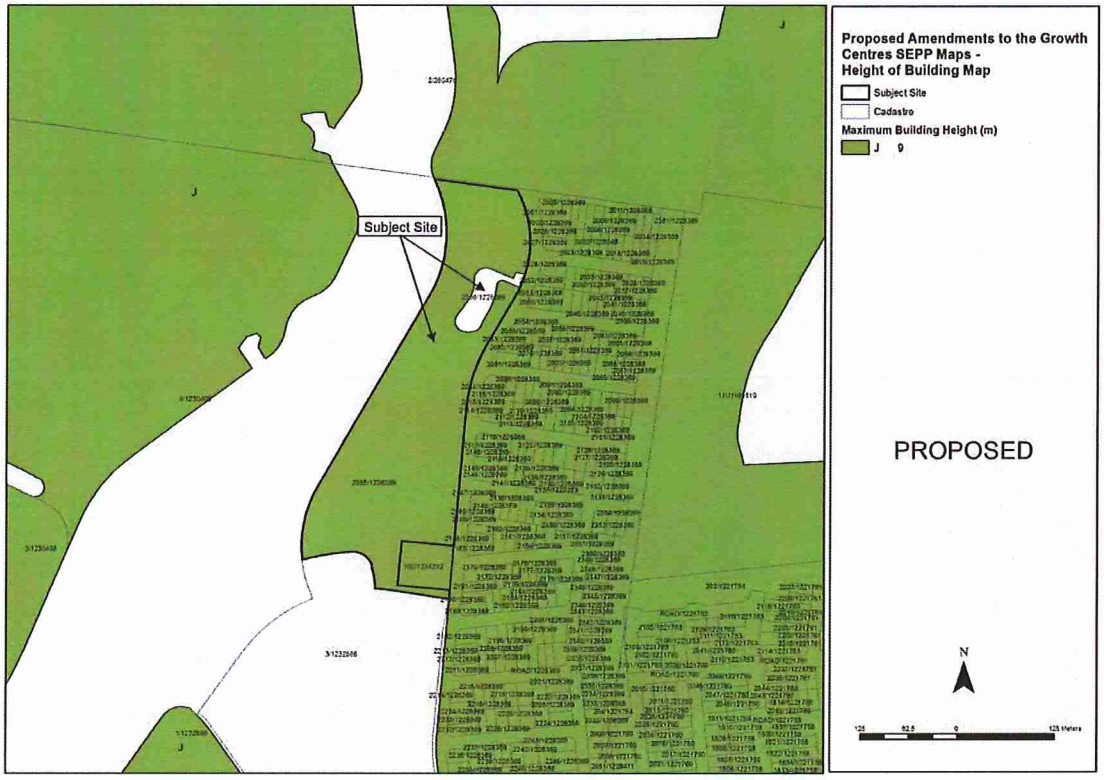
Land Zoning SEPP Map



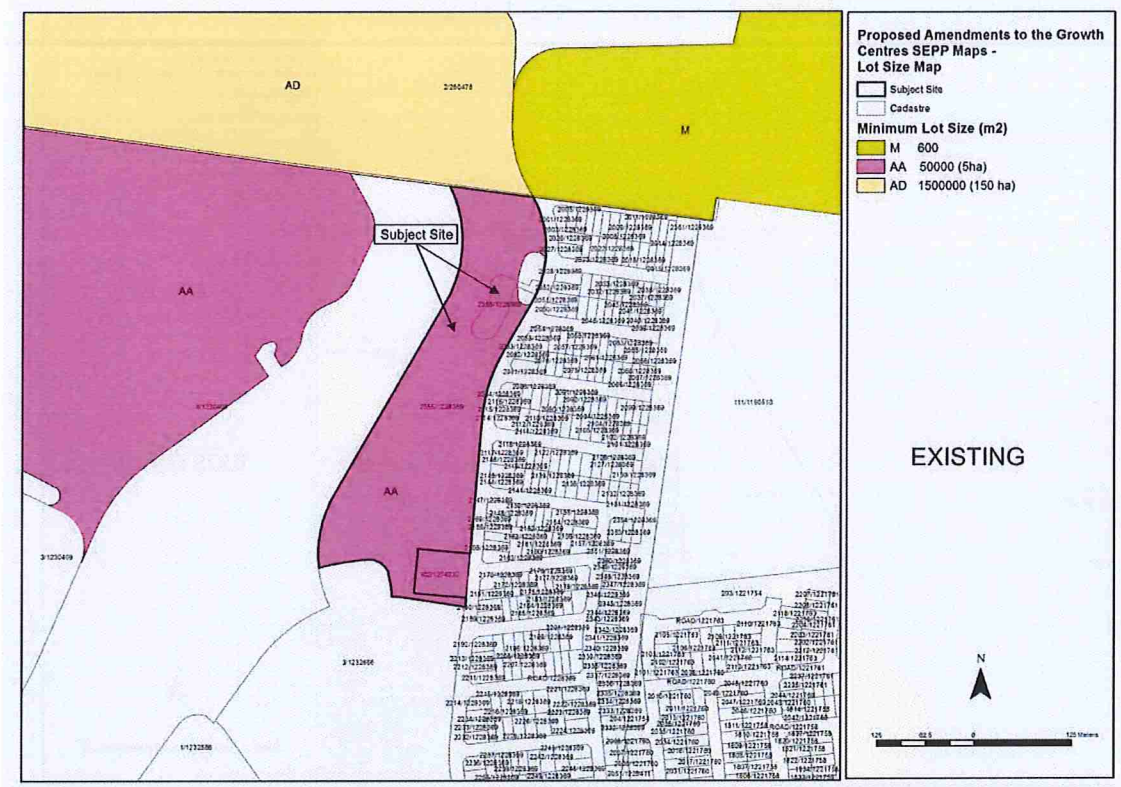


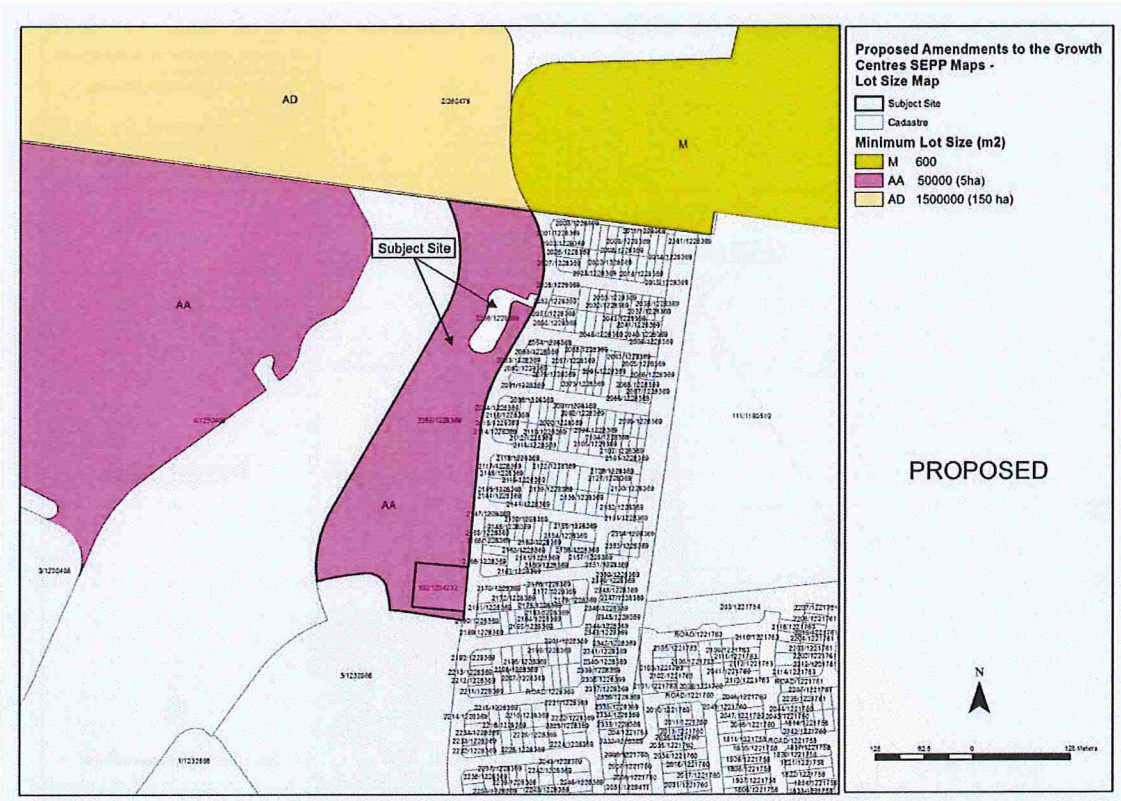
Height of Buildings SEPP Map



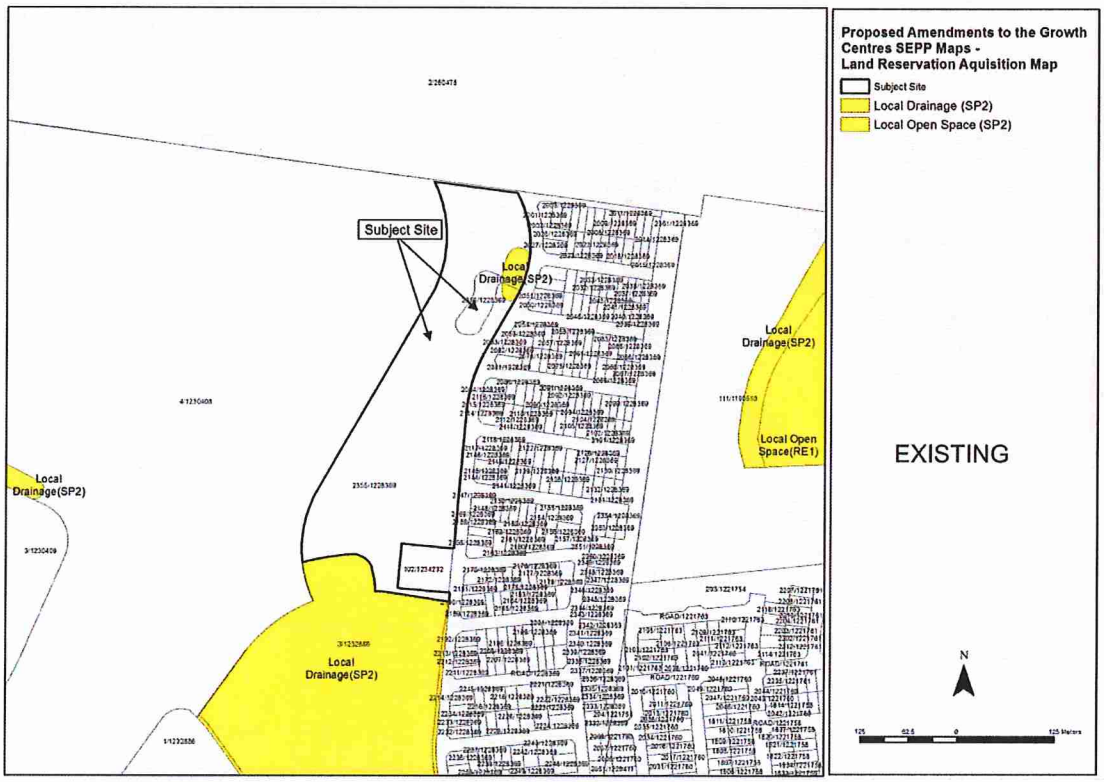


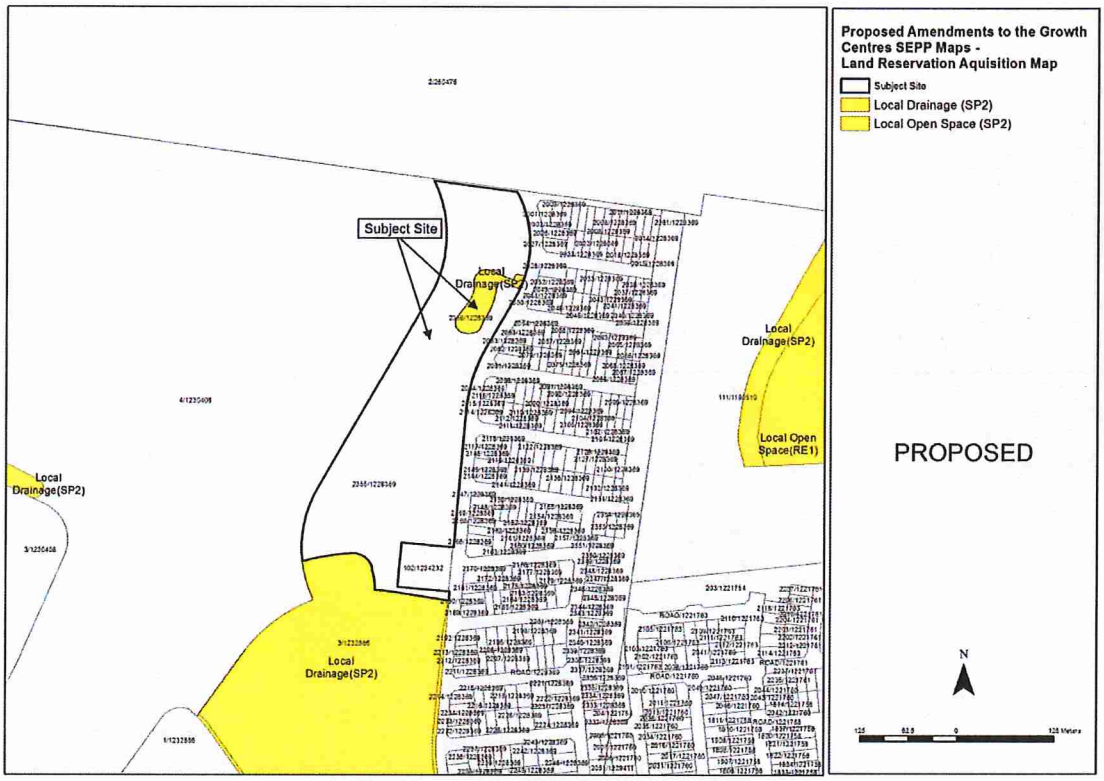
Lot Size SEPP Map





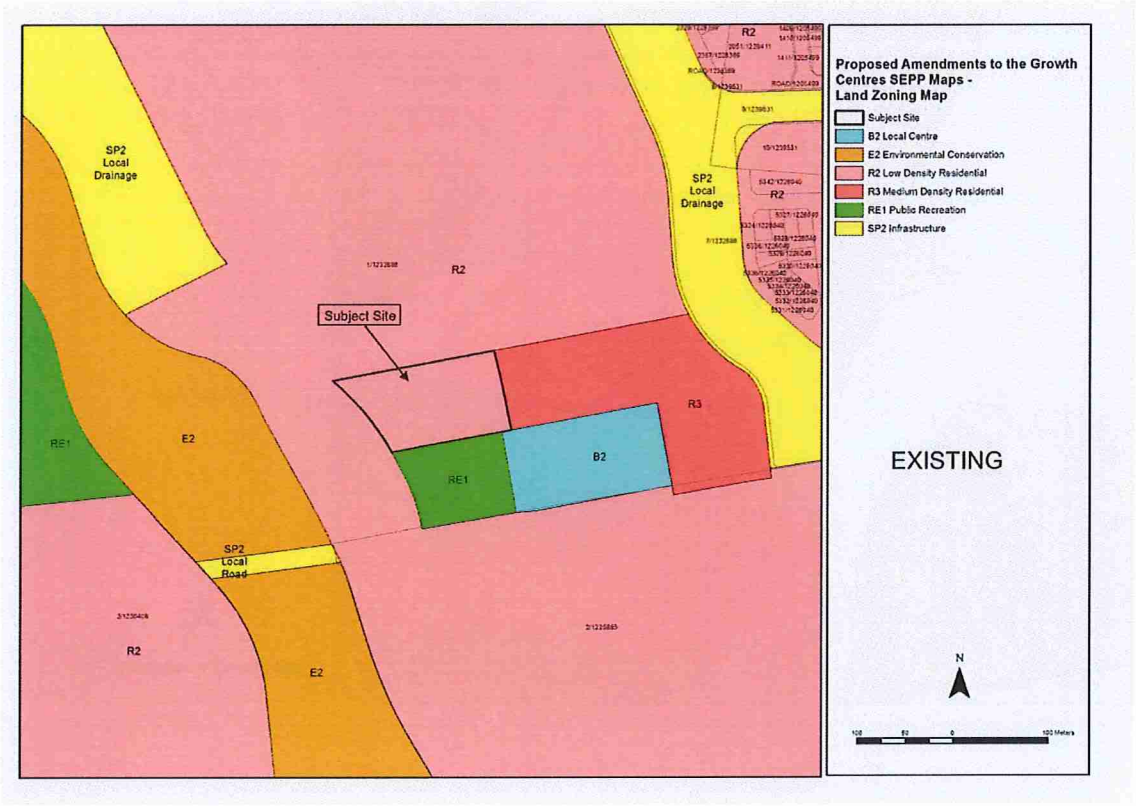
Land Reservation Acquisition SEPP Map

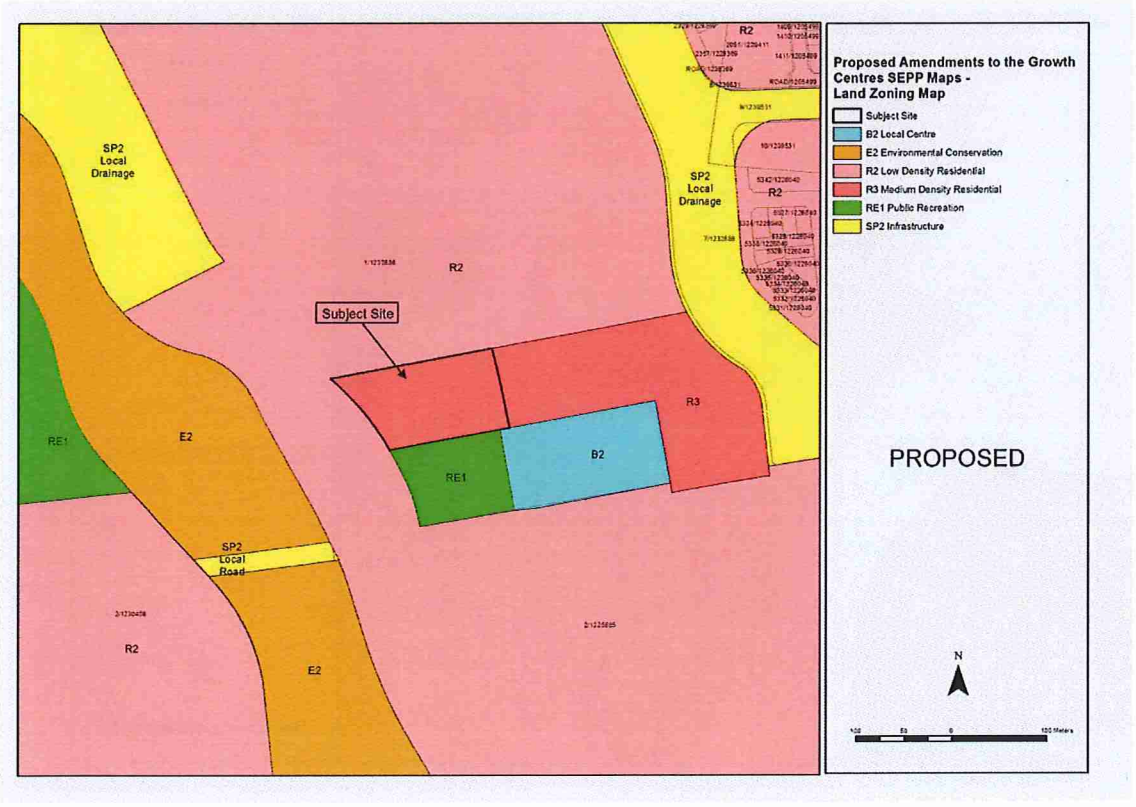




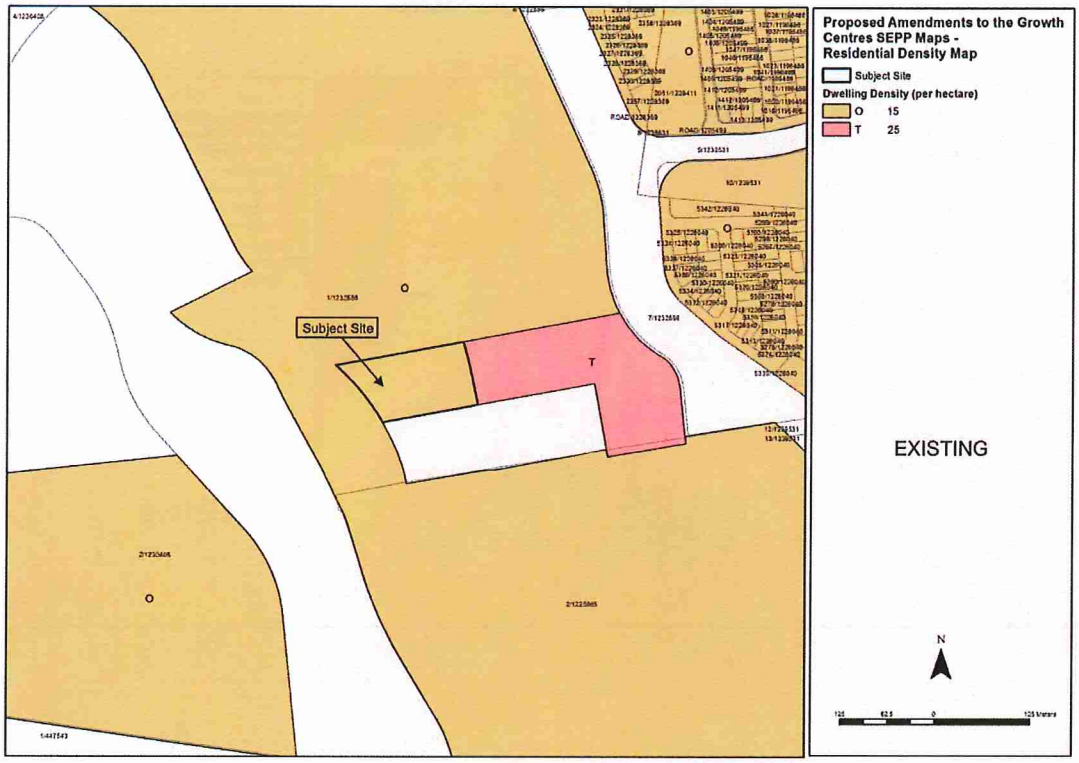
Attachment 3 - Lot 1 DP 1232886

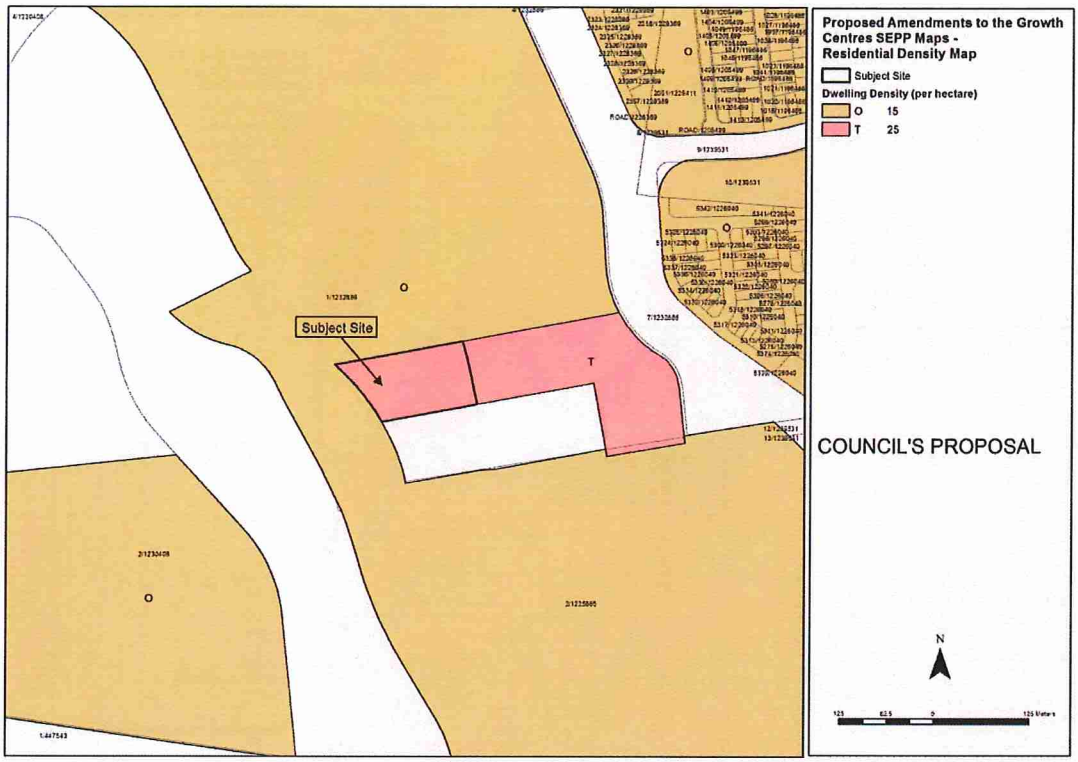
Land Zoning SEPP Map

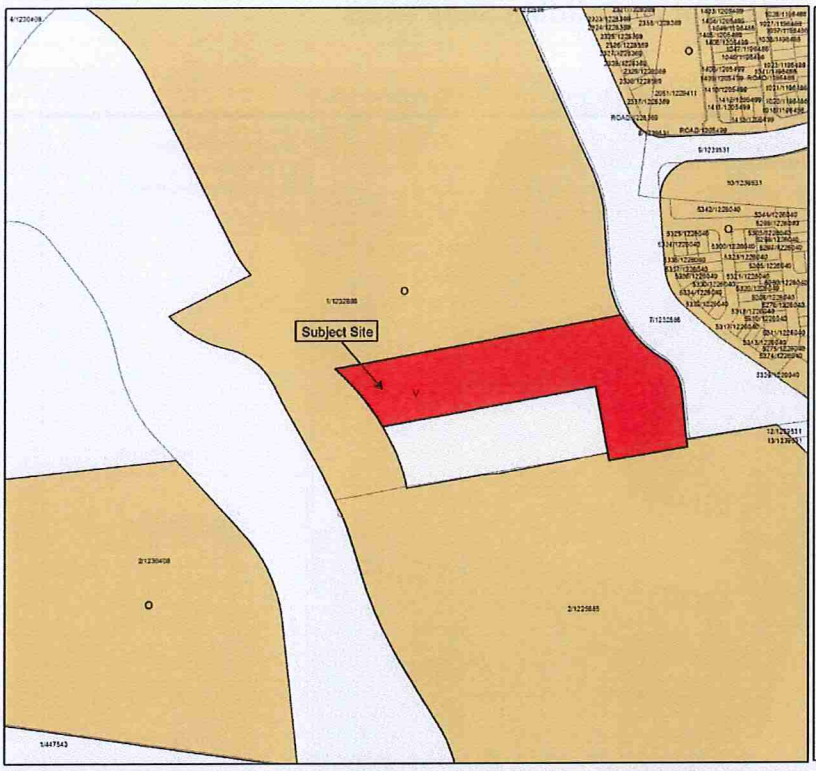




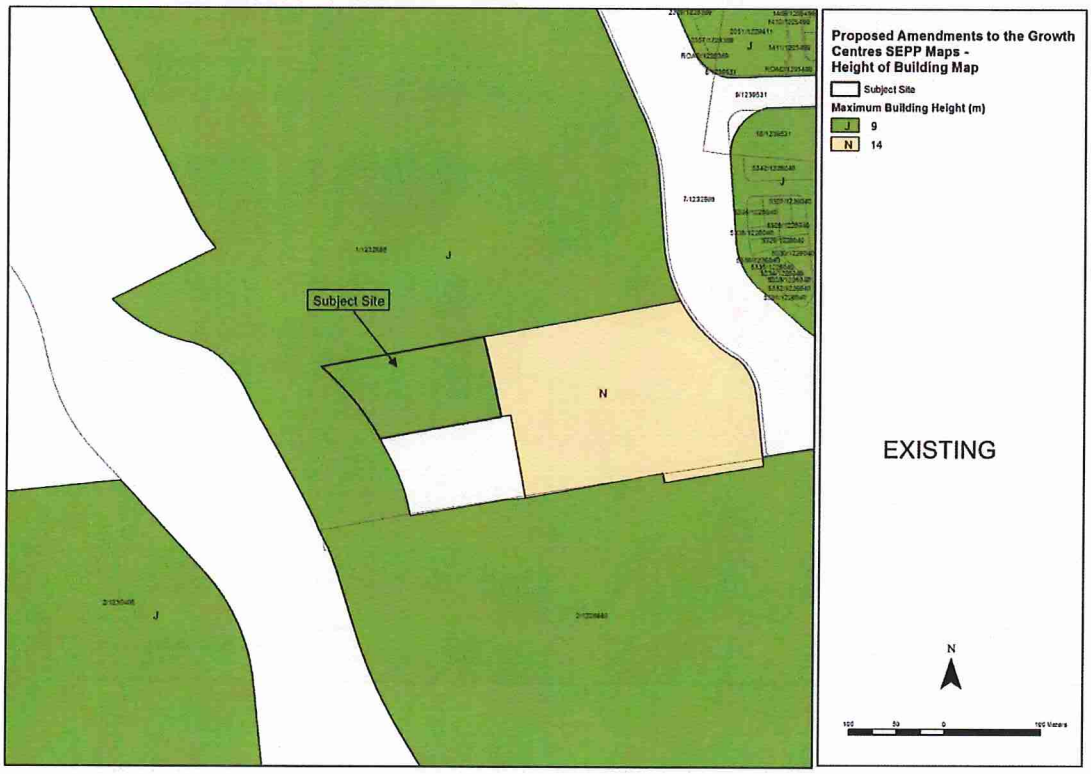
Residential Density SEPP Map for Lot 1 DP 1232886

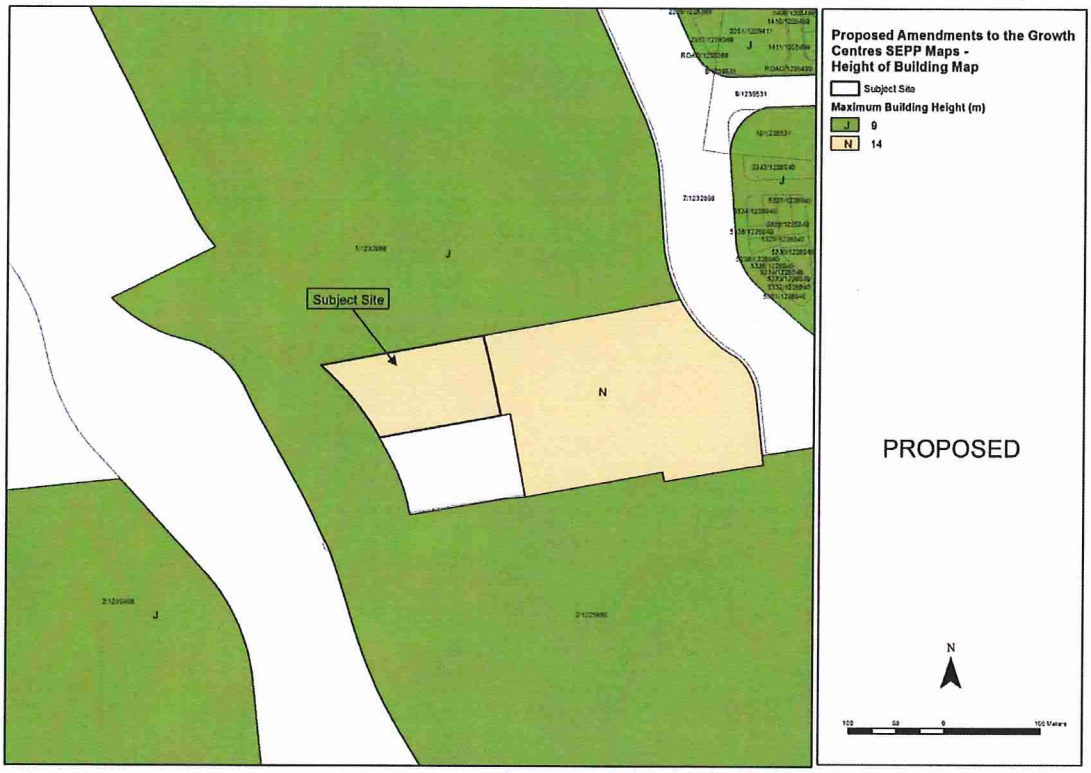





Subject Site
O
V
Proposed Amendments to the Growth Centres SEPP Maps - Residential Density Map
Subject Site
Dwelling Density (per hectare)
O 15
V 35
APPLICANT'S PROPOSAL
N

Height of Building SEPP Map





Blacktown Local Planning Panel
PLANNING PROPOSAL ADVICE

DATE OF DETERMINATION	26 September 2018
PANEL MEMBERS	Lindsay Fletcher, Chair Milan Marecic, Independent expert Mary-Lynne Taylor, Independent expert Stan Brulinski, Ward 2 community representative
APOLOGIES	Nil
DECLARATIONS OF INTEREST	Mary-Lynne Taylor declared that the firm, of whom she is an employee, has done work with the applicant, Calibre, but she has had no contact with them on this matter.

Public meeting held at Blacktown City Council, Committee Rooms 2 and 3, on 26 September 2018, opened at 11.03 am and closed at 11.55 am.

PLANNING PROPOSAL

1. LEP-18-0008: Planning Proposal to amend *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* to:
    - adjust the zone boundaries between the RU6 Transition and the SP2 Infrastructure (Local Drainage) zone to align with an approved raingarden, and make consequential amendments to the land reservation acquisition map, height of building map, lot size maps on Lot 2355 and Lot 2356 DP 1228369, Sundew Parade, Marsden Park
    - rezone surplus school land from R2 Low Density Residential to R3 Medium Density Residential and increase the maximum building height from 9 m to 14 m on Lot 1 DP 1232886, Elara Boulevard, Marsden Park
    - increase the minimum density from 15 and 25 dwellings per hectare to 35 dwellings per hectare on the current and proposed R3 Medium Density Residential zoned land around the planned local centre on Lot 1 DP 1232886, Elara Boulevard, Marsden Park.

Blacktown City Council

PANEL ADVICE

The Panel considered the assessment report on the matter and the material presented at the Panel meeting.

The Panel provided the following advice for the Planning Proposal described above:

- The Panel is satisfied that the Planning Proposal meets strategic and site merit tests.
- The Panel supports the matter proceeding to Gateway Determination and notes the Applicant's submission to the Panel supporting the staff recommendation of a minimum density of 25 dwellings per hectare and that their documentation may be amended accordingly before being submitted to Council.

PANEL MEMBERS
L. Fletcher Lindsay Fletcher (Chair)
Milan Marecic (Independent expert)
Mary-Lynne Taylor (Independent expert)
S. Brulinski Stan Brulinski (Ward 2 community representative)

Appendix 3

Existing and Proposed SEPP Maps

NSW GOVERNMENT Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Land Zoning Map- Sheet LZN_002

Zone

B1	Neighbourhood Centre	IN2	Light Industrial
B2	Local Centre	R1	General Residential
B4	Mixed Use	R2	Low Density Residential
B5	Business Development	R3	Medium Density Residential
B6	Enterprise Corridor	R4	High Density Residential
B7	Business Park	RE1	Public Recreation
E2	Environmental Conservation	RE2	Private Recreation
E3	Environmental Management	RU6	Transition
E4	Environmental Living	SP2	Infrastructure
IN1	General Industrial		

Special Provisions

- Low Density Residential (multi-dwelling housing) - Appendix 4, Clause 2.5
- Riverstone Scheduled Lands - Appendix 4, Clause 6.6
- Green and Gold Bell Frog Habitat - Appendix 4, Clause 6.9
- Additional Uses - Appendix 3, Clause 6.5
- Additional permitted uses, (Clause 13)
- Take away food & drink premises permitted with consent - Appendix 5, (Schedule 1, Clause 1)
- Low Density Residential (multi-dwelling housing) - Appendix 7, Clause 2.5
- Transport Corridor Investigation Area - Appendix 7, Clause 6.10
- Transport Corridor - Appendix 12, Clause 6.10
- Food and drink premises - Apendix 12 (Schedule 1, Clause 1)
- Landfill works - Appendix 12 (Schedule 1, Clause 2)
- Gas processing system and associated plant and eqipment - Appendix 12 (Schedule 1, Clause 3)
- Residential flat building - Appendix 4 (Schedule 1, Clause 2)
- Transport Corridor Investigation Area - Appendix 4, Clause 6.10

Growth Centre Boundaries

- North West Growth Centre Boundary
- North West Growth Centre Precinct Boundary

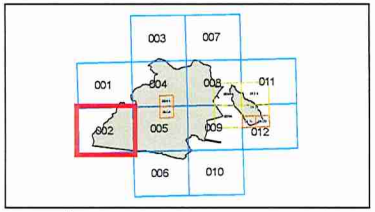
Original SEPP Zones

- Environment Conservation
- Public Recreation - Regional

Cadastre

Cadastre 01/06/18 © Blacktown City Council

EXISTING



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Projection: GDA 1994 MGA Zone 56

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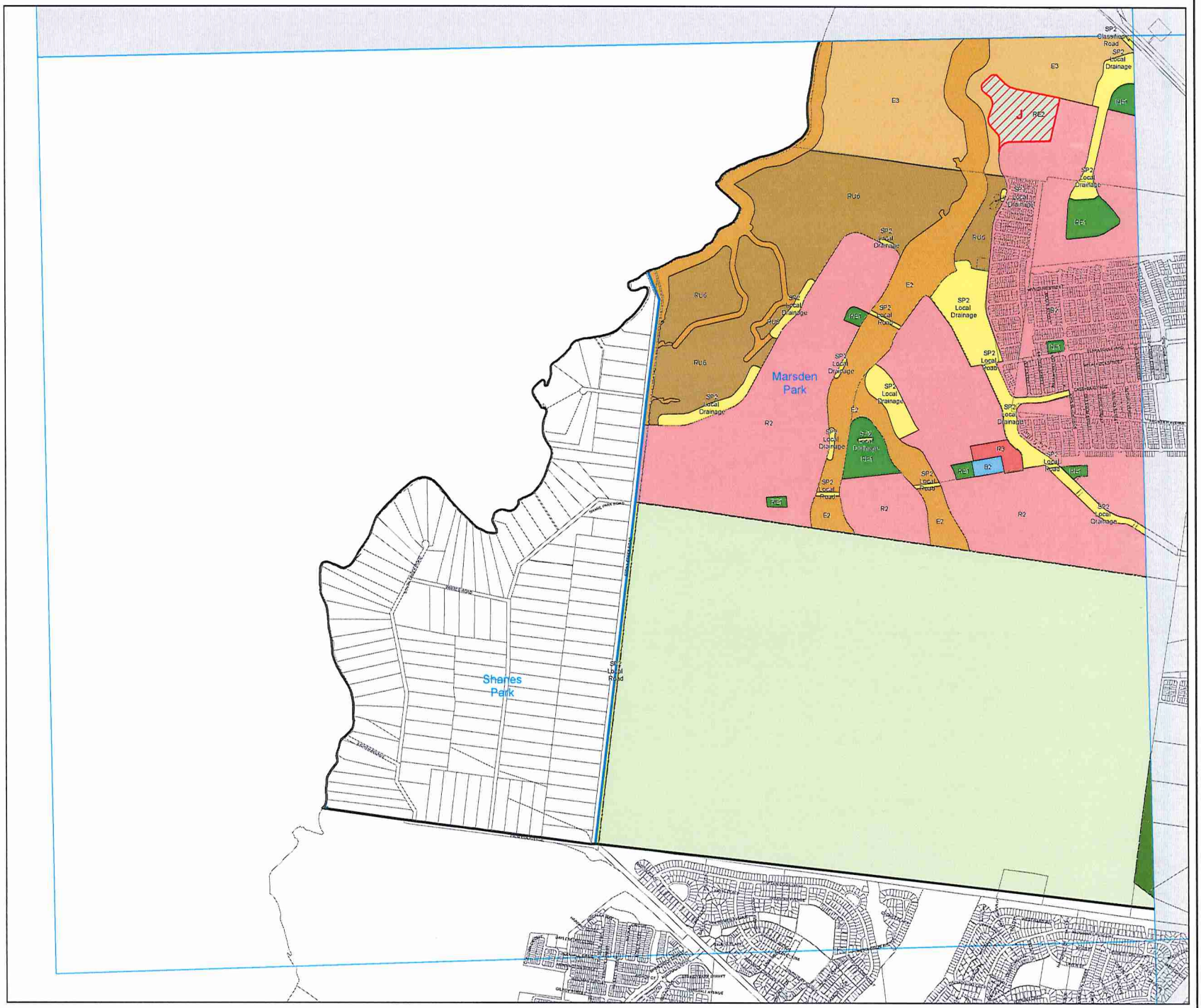

NSW GOVERNMENT | Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Land Zoning Map- Sheet LZN_002

Zone

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B7	Business Park	RE1	Public Recreation
E2	Environmental Conservation	RE2	Private Recreation
E3	Environmental Management	RU6	Transition
E4	Environmental Living	SP2	Infrastructure
IN1	General Industrial		

Special Provisions

- Low Density Residential (multi-dwelling housing) - Appendix 4, Clause 2.5
- Riverstone Scheduled Lands - Appendix 4, Clause 6.8
- Green and Gold Bell Frog Habitat - Appendix 4, Clause 6.9
- Additional Uses - Appendix 3, Clause 6.5
- Additional permitted uses, (Clause 13)
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- Low Density Residential (multi-dwelling housing) - Appendix 7, Clause 2.5
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Growth Centre Boundaries

- North West Growth Centre Boundary
- North West Growth Centre Precinct Boundary

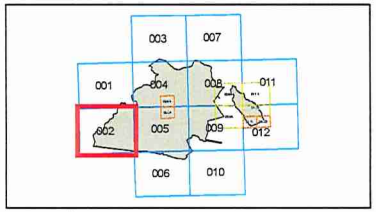
Original SEPP Zones

- Environment Conservation
- Public Recreation - Regional

Cadastre

Cadastre 01/06/18 © Blacktown City Council

PROPOSED



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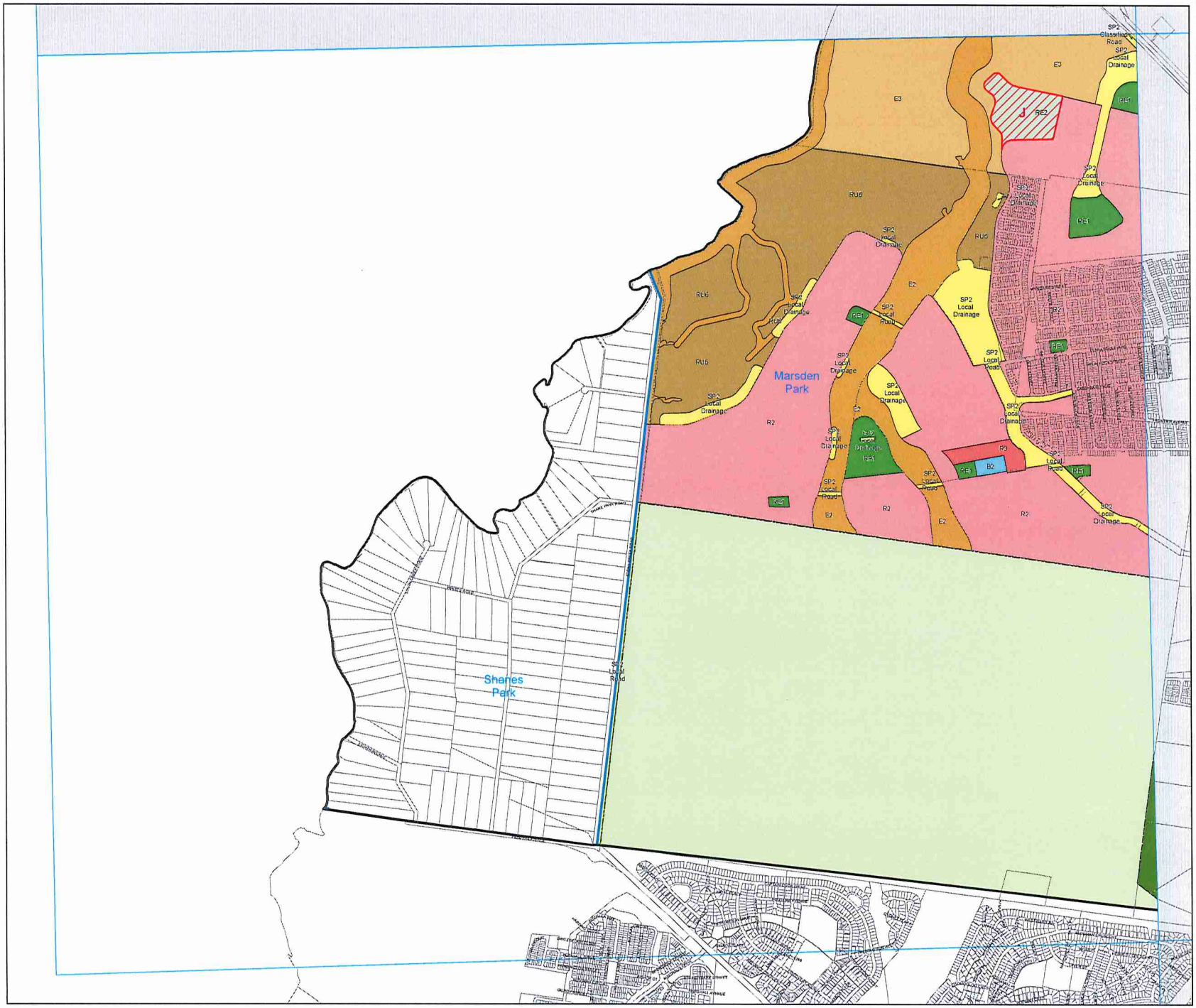


NSW GOVERNMENT Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Height of Building
Sheet HOB_002

Maximum Building Height (m)

A	0
C	5
I	8.5
J	9
K	10
M	12
N	14
O	16
P	18
P1	17
P2	17.5
P3	18.5
R	21
S	24
T1	26
T2	28

Growth Centre Boundaries

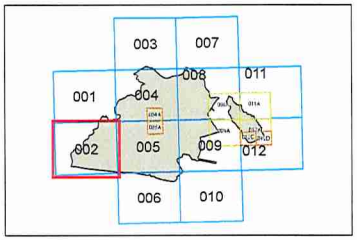
North West Growth Centre Boundary

North West Growth Centre Precinct Boundary

Cadastre

Cadastre 01/06/18 © Blacktown City Council

EXISTING



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MGA Zone 56

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NSW GOVERNMENT | Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Height of Building
Sheet HOB_002

Maximum Building Height (m)

A	0
C	5
I	8.5
J	9
K	10
M	12
N	14
O	16
P	18
P1	17
P2	17.5
P3	18.5
R	21
S	24
T1	26
T2	28

Growth Centre Boundaries

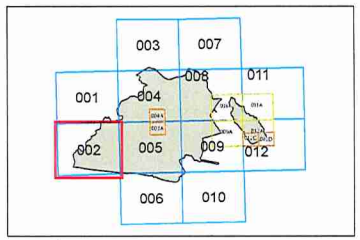
North West Growth Centre Boundary

North West Growth Centre Precinct Boundary

Cadastre

Cadastre 01/06/18 © Blacktown City Council

PROPOSED



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MGA Zone 56

Map Identification Number: SEPP_SRGC_NW_HOB_002_020_20181105

NSW GOVERNMENT | Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Lot Size Map - Sheet LSZ_002

Minimum Lot Size (sq m)

C	250
D	330
G	450
U	1500
V	2500
W	4000
AB1	10 ha
AB2	40 ha
Area A	Clause 4.1A

Growth Centre Boundaries

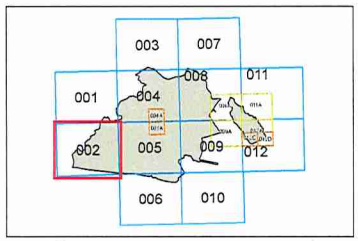
North West Growth Centre Boundary

North West Growth Centre Precinct Boundary

Cadastre

Cadastre 01/06/18 © Blacktown City Council

EXISTING



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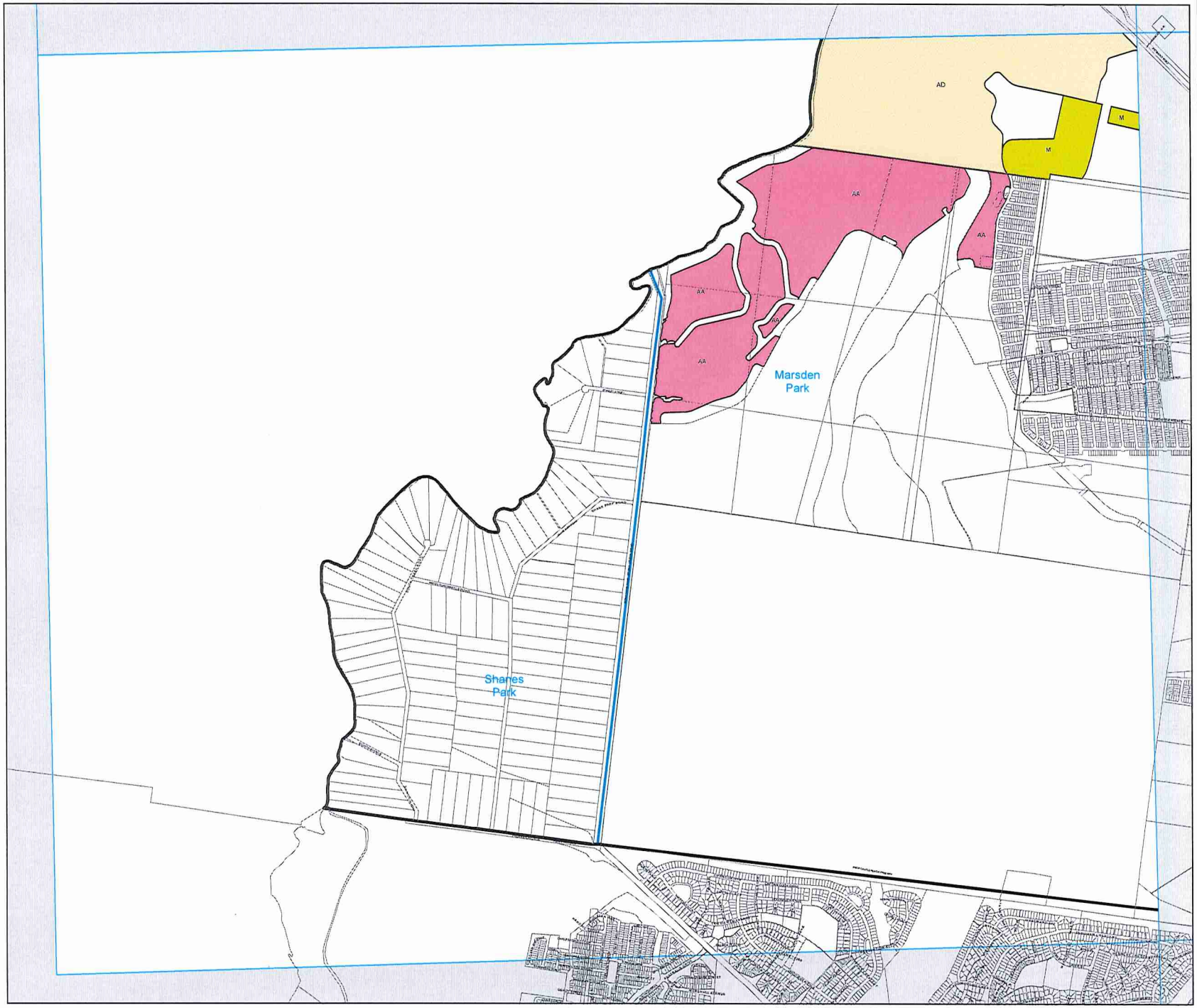


NSW GOVERNMENT Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Lot Size Map - Sheet LSZ_002

Minimum Lot Size (sq m)

C	250
D	330
G	450
U	1500
V	2500
W	4000
AB1	10 ha
AB2	40 ha
Area A	Clause 4.1A

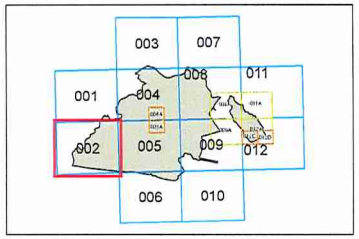
Growth Centre Boundaries

- North West Growth Centre Boundary
- North West Growth Centre Precinct Boundary

Cadastre

Cadastre 01/06/18 © Blacktown City Council

PROPOSED



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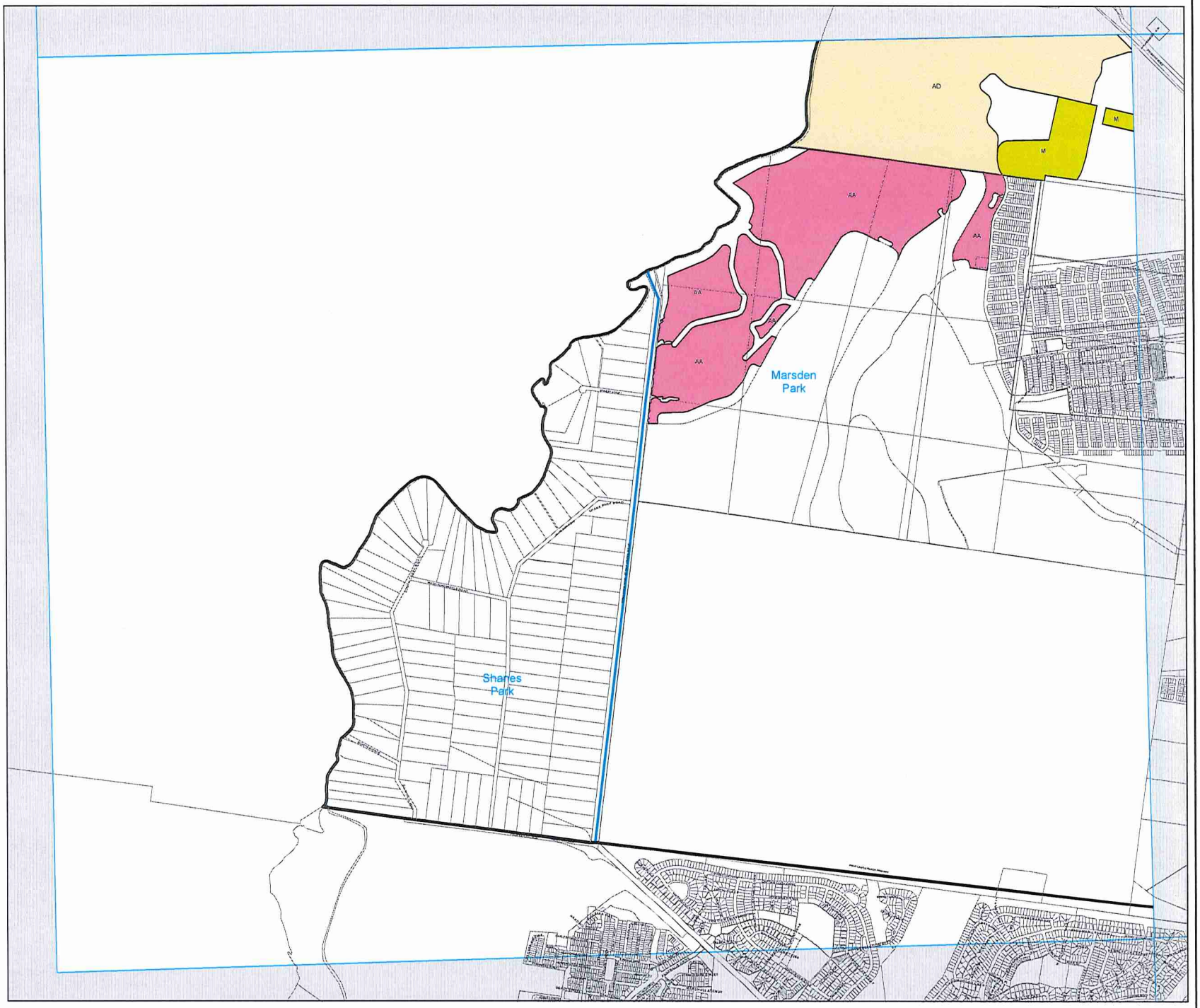


NSW GOVERNMENT Planning & Infrastructure

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Residential Density Map
Sheet RDN_002

LEGEND

Dwelling Density (per hectare)

C	5
L	11
M	12.5
O	15
P	18
Q	20
T	25
U	30
W	40
X	45

Growth Centre Boundaries

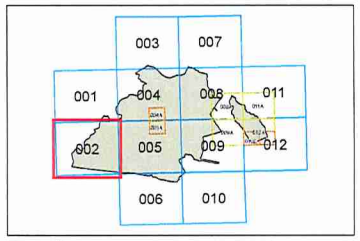
North West Growth Centre Boundary

North West Growth Centre Precinct Boundary

Cadastre

Cadastre 31/01/17 © Blacktown City Council

EXISTING



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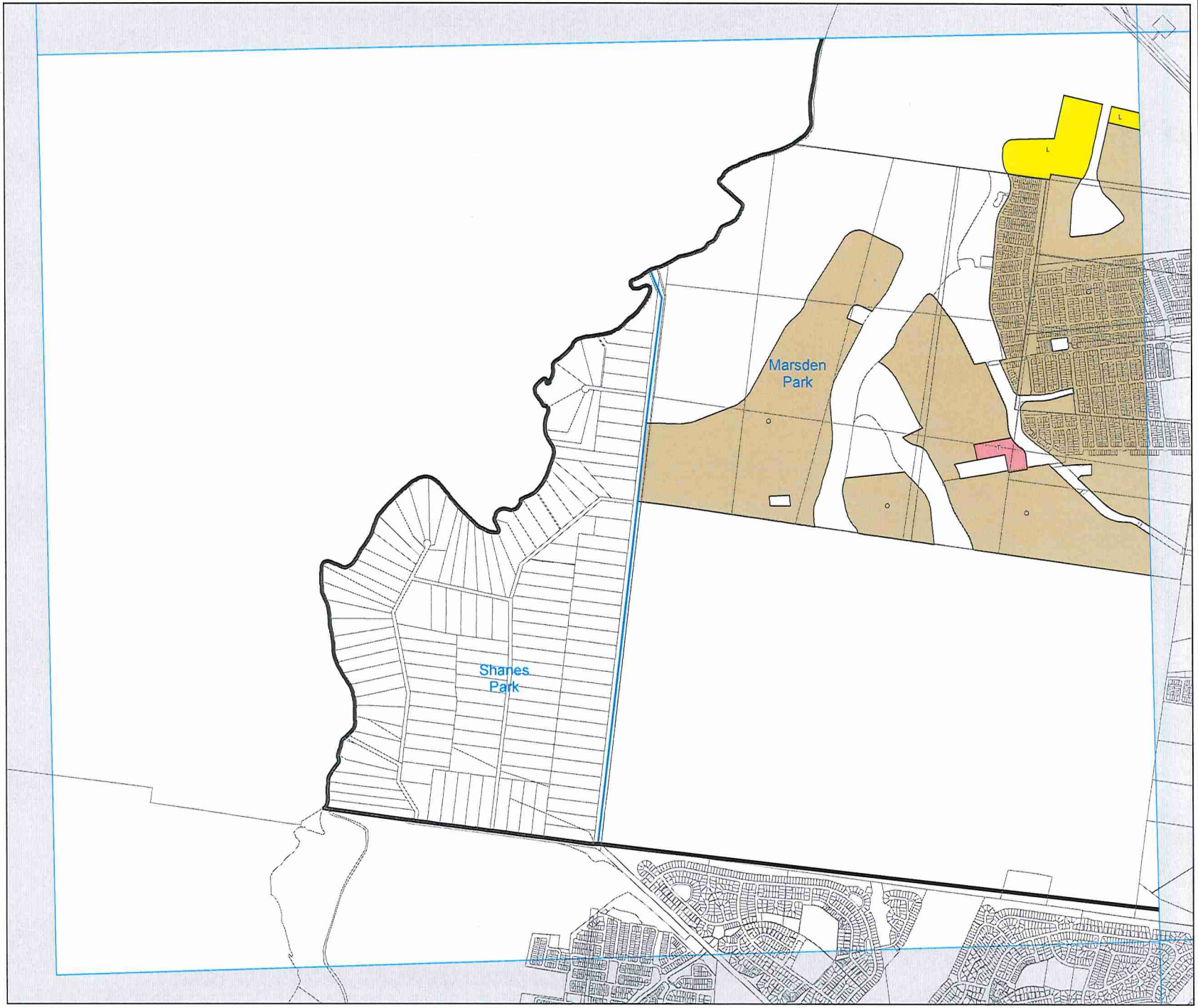


NSW GOVERNMENT Planning & Infrastructure

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre
Residential Density Map
Sheet RDN_002

LEGEND

Dwelling Density (per hectare)

C	5
L	11
M	12.5
O	15
P	18
Q	20
T	25
U	30
W	40
X	45

Growth Centre Boundaries

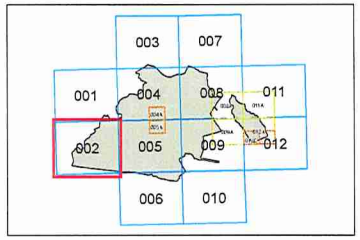
North West Growth Centre Boundary

North West Growth Centre Precinct Boundary

Cadastre

Cadastre 31/01/17 © Blacktown City Council

PROPOSED



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Projection: GDA 1994
MGA Zone 56

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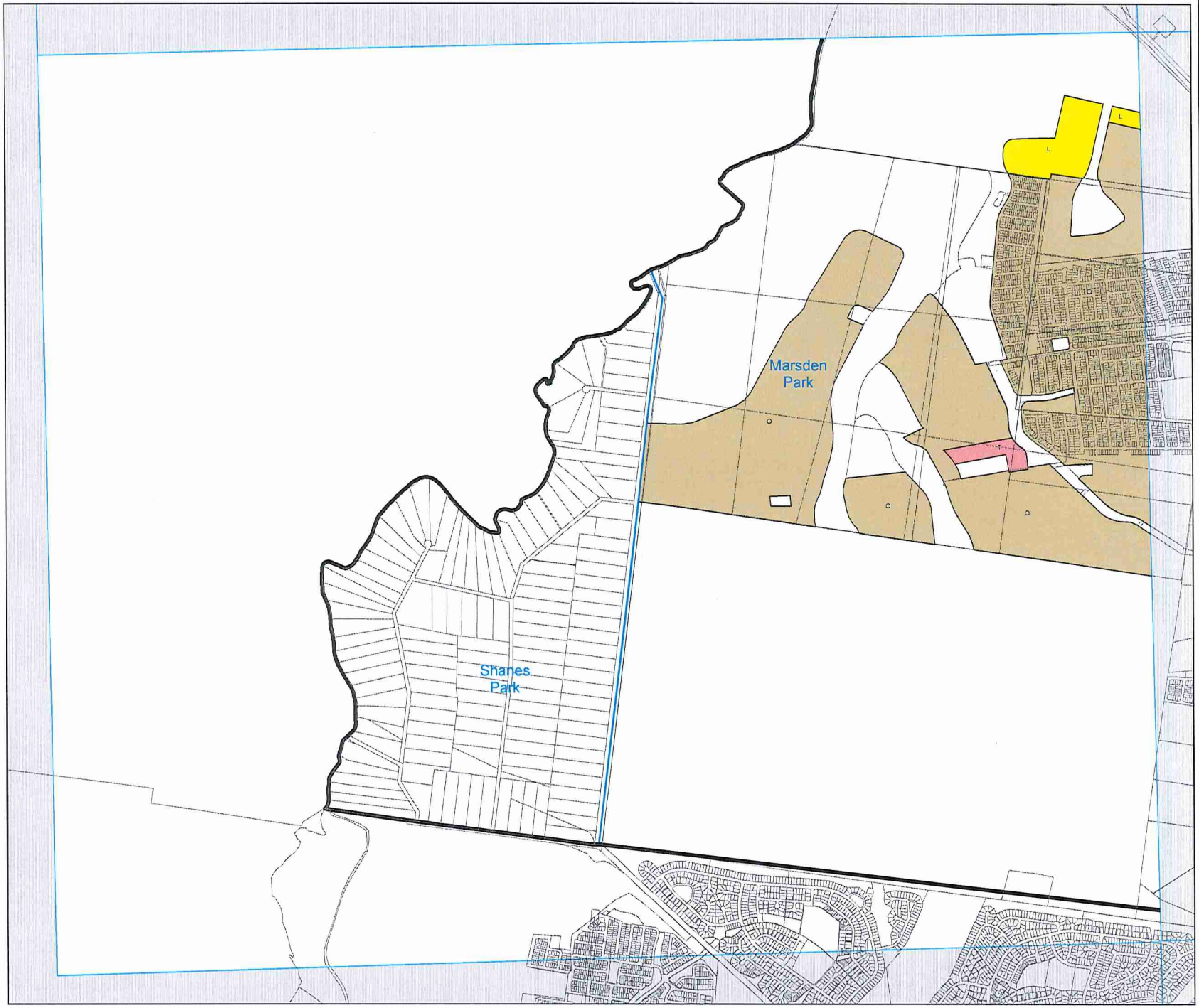


NSW GOVERNMENT Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre Land Reservation Acquisition Map Sheet LRA_002

LEGEND

Land ReservationAcquisition

- Classified Road (SP2)
- Classified Road Wildening (SP2)
- Community Centre (SP2)
- Environmental Conservation (E2)
- Footpath (SP2)
- Local Drainage (SP2)
- Local Open Space (RE1)
- Local Road (SP2)
- Local Road Wildening (SP2)
- Public Creation - Local (E2)
- Pumping Station (SP2)
- Railway (SP2)
- School (SP2)
- Trunk Drainage (SP2)

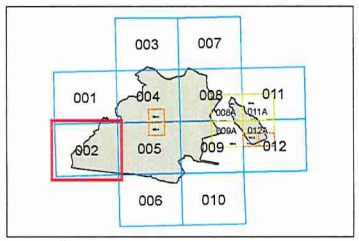
Growth Centre Boundaries

- North West Growth Centre Boundary
- North West Growth Centre Precinct Boundary

Cadastre

- Cadastre 01/06/18 © Blacktown City Council

EXISTING



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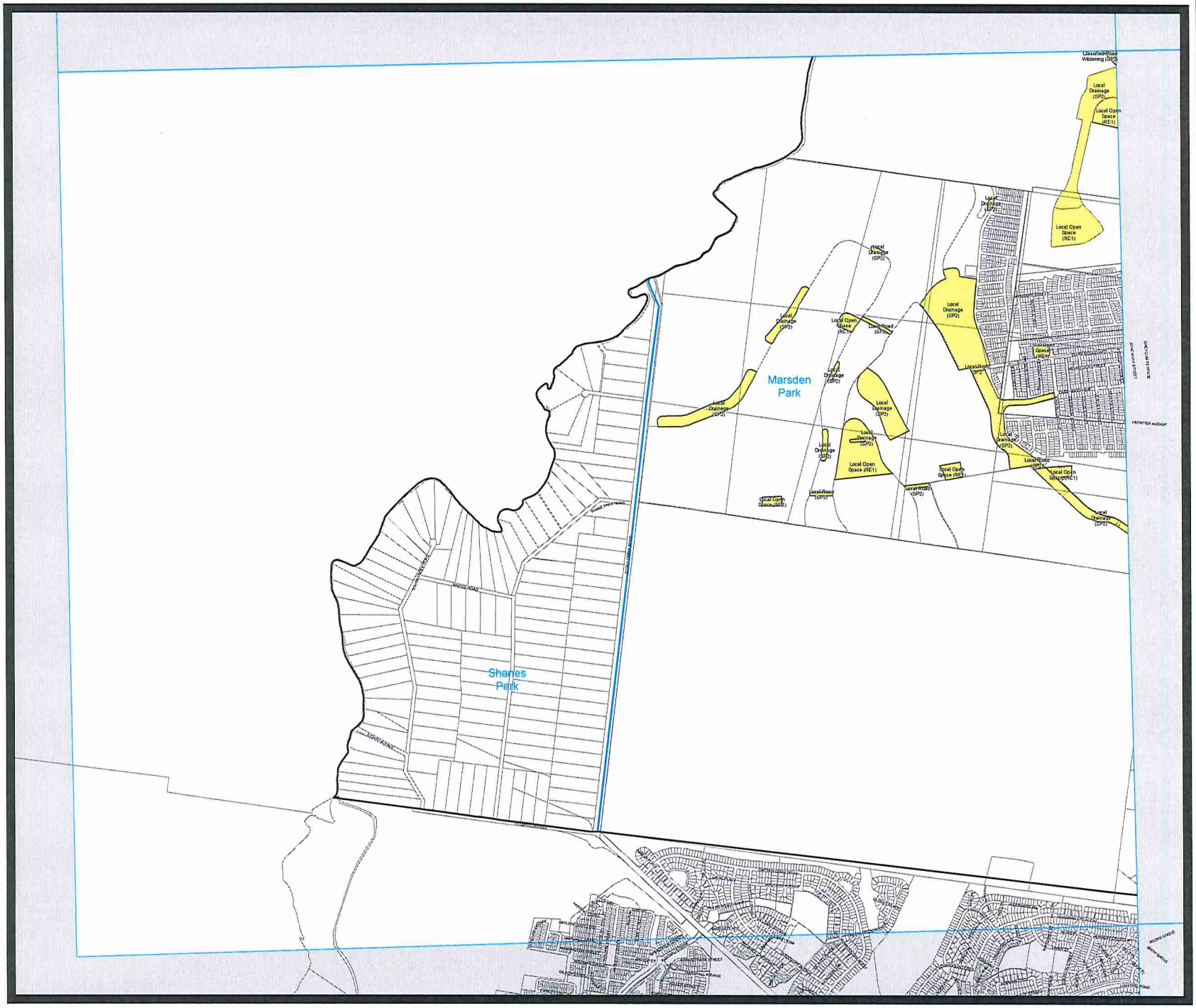

NSW GOVERNMENT Planning & Environment

State Environmental Planning Policy (Sydney Region Growth Centres) 2006

North West Growth Centre Land Reservation Acquisition Map Sheet LRA_002

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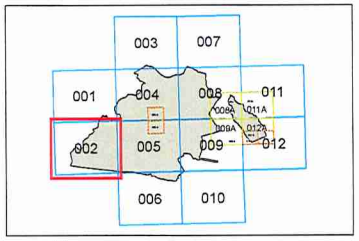
Growth Centre Boundaries

- North West Growth Centre Boundary
- North West Growth Centre Precinct Boundary

Cadastre

- Cadastre 01/06/18 © Blacktown City Council

PROPOSED



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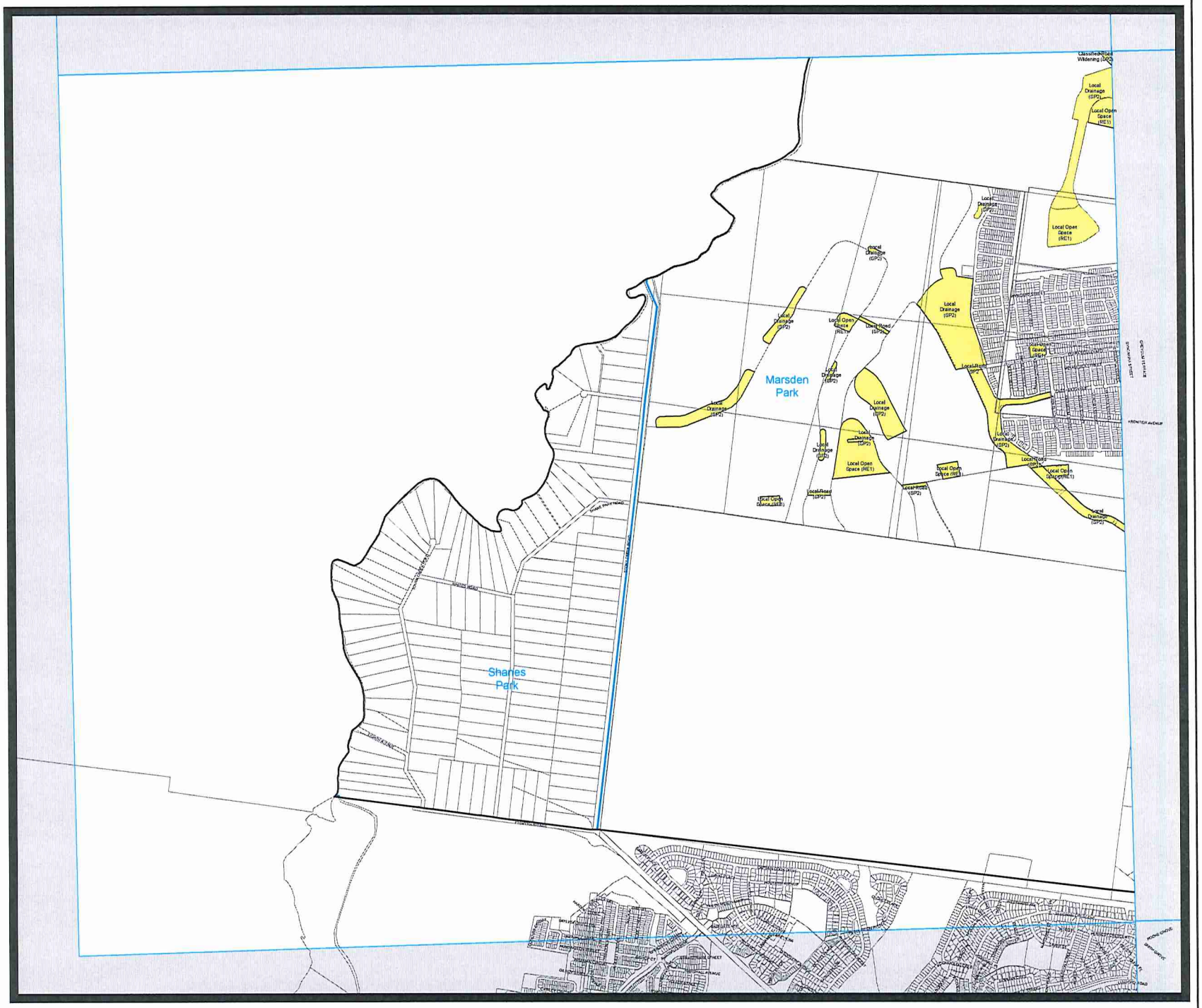


Appendix 4

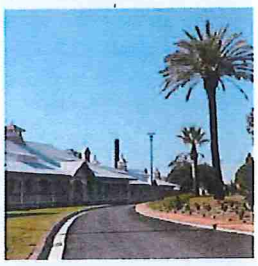
Stormwater Management Strategy prepared by J. Wyndham Prince

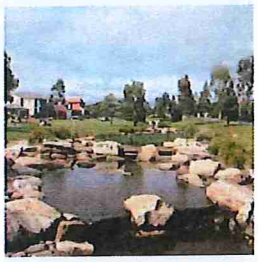
December 2016

SEEKING TO AMEND LOCATION OF RAINGARDEN AND TO REZONE LAND FROM R2 TO R3 AND INCREASE DENSITY AROUND THE LOCAL CENTRE IN NEWPARK

Appendix H – Stormwater Management Strategy Report by JWP

WOORONG PARK PTY LTD





SUSTAINABLE CERTIFICATION

- ISO 9001:2008
- AS/NZS 4801:2001
- ISO 14001:2004
- Endorsed
- Integrated Management System

Marsden Park
Precincts 4 and 6
Winten Hills
Stormwater Management
Strategy Report

December, 2016

WINTEN PROPERTY GROUP

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS

Document Control

Issue	Amendment	Author	Reviewer	Approved
A	First Issue	FL	DC	DC
		02/12/2016	06/12/2016	06/12/2016
B	Second Issue	FL	DC	DC
		09/12/2016	09/12/2016	09/12/2016
File Location	J:\9985 - Woorong Park Development - PM\11 - Central Precincts\SW&E\SW Reports\9985-11_Rpt1B.docx			

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Table of contents

LIST OF PLATES

LIST OF TABLES

LIST OF APPENDICIES

1 INTRODUCTION

Winten Property Group has engaged J. Wyndham Prince to prepare a Stormwater Management Strategy to support the Winten Hills Precincts 4 and 6 Development Application for 500 residential lots, together with the construction of Regional Detention Basin 2 in order to provide an appropriate stormwater management outcome for this precinct.

The primary focus of this report is to provide the stormwater management details to support the proposed works detailed on engineering design drawings 998511/DA00 to DA45 and 98511/DA200 to DA254. However the future development to the south and west of the current Precinct 4 and Precinct 6 Development Applications (ie future development that ultimately discharges into Little Creek) has been considered to ensure that the regional Basin 2 detention and water quality management devices are sized appropriately.

The Marsden Park Residential Precinct planning package was placed on Public Exhibition in November 2012, and was gazetted in June 2013. The Precinct will provide approximately 10,000 new housing lots together with approximately 20 ha of commercial development and will provide much needed housing in the Marsden Park area.

J. Wyndham Prince prepared the Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report for the precinct in July 2013 to support the planning process.

This report builds upon our previous water cycle management strategy in order to deliver a residential subdivision together with supporting drainage infrastructure suitable to ensure all statutory and regulatory requirements are met.

2 PREVIOUS STUDIES

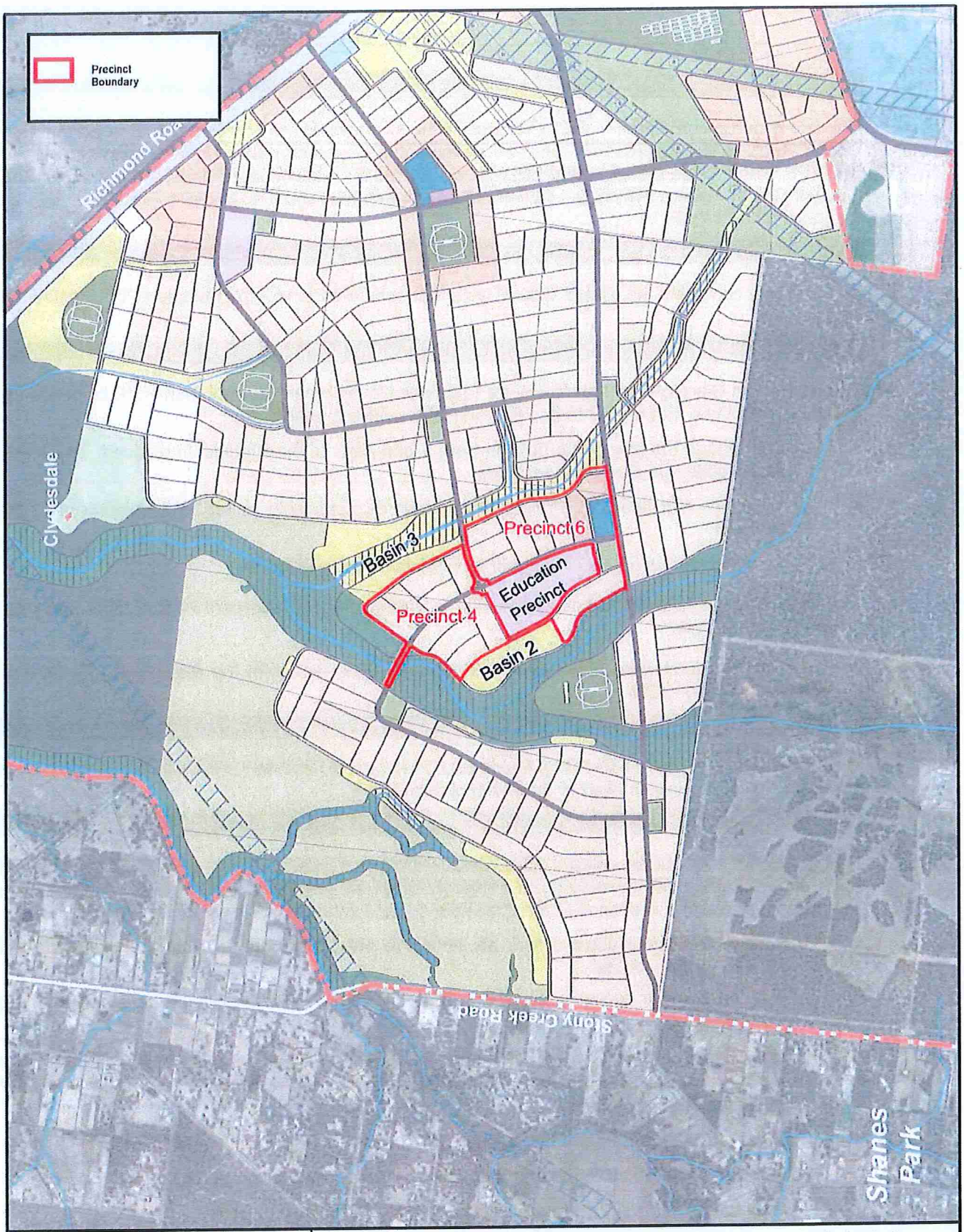
2.1 Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report

The Marsden Park Residential Precinct planning package was placed on Public Exhibition in November 2012. A number of submissions were received as a result of the Public Exhibition process. The submissions made a series of suggested amendments that included changes to development extents; adjustments to playing field and basin arrangements; removal of detention basins and adjustments to drainage corridors. To address these issues, the Water Cycle Management Strategy was updated together with the Indicative Layout Plan for the Precinct. Details of the updated ILP are presented in Plate 2.1.

The key changes implemented in the Post Exhibition report were:

- The hydrological modelling was been updated to better reflect the likely development potential of the Precinct and an investigation into the basin strategy was completed.
- The investigation concluded that Basin 2 could be increased to compensate for the removal of Basins B1, B2, B3 and Basin 1 and that other devices within the Strategy could be reduced without adversely influencing flows throughout the Precinct.
- Basin 4 was reduced, Basin 5 was adjusted, Basin 8 was enlarged to compensate for the removal of Basin 9, and Basin 6 was reconfigured.
- A total of nine (9) trunk drainage channels are located within the Marsden Park Residential Precinct in order to manage the expected stormwater runoff.

As part of this strategy, Basin 2 provided 35,000 m^3 of storage to ensure that post-development flows did not exceed pre-development flows downstream of the Basin. Blacktown City Council required the active storage to operate above the 2% AEP (50 year ARI) tail water level of 15.7 m AHD. A 3,160 m^2 rain garden located within the floor of the Basin was sized to ensure that statutory water quality reduction targets were met, together with industry best practice in stormwater management.



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Marsden Park Residential — **Plate 2-1**

Indicative Layout Plan

200 0 200 m

Scale 1: 10,000 @ A4

Date : 05/12/2016

File Name: 9985-11_Rpt1A_Plate_2-1

3 DEVELOPMENT GUIDELINES

The site is part of the Marsden Park Precinct (MPP) as shown in the Precinct Indicative Layout Plan (refer to Plate 2.1). Consequently, any new development proposed within the MPP must comply with the MPP Water Cycle Management Strategy completed by J. Wyndham Prince, the Blacktown City Council Growth Centre Precincts - Development Control Plan and the Council's Engineering Guide for Development 2005.

3.1 Marsden Park Precinct Water Cycle Management Plan

This strategy considers the overall Water Cycle Management Plan for the Marsden Park Residential Precinct.

3.2 Blacktown City Council Growth Centre Precincts Development Control Plan

The Blacktown City Council Growth Centre Precincts Development Control Plan 2010 identifies the following objectives with regard to flooding and water cycle management:

- To manage the flow of stormwater from urban parts of the Precinct to replicate, as closely as possible, pre-development flows.
- To define the flood constraints and standards applicable to urban development in the Precinct.
- To minimise the potential of flooding impacts on development.

The objectives outlined above have informed the Stormwater Management Strategy that has been developed for this site.

Accordingly this Stormwater Management Strategy is consistent with the Blacktown City Council Growth Centres DCP 2010.

3.3 Blacktown City Council Engineering Guide for Development 2005

Blacktown City Council's Engineering Guide for Development has been utilised to inform updates to the hydrology modelling detailed in Section 6 of this report.

3.4 Guidelines for the Investigation and Design of Section 94 Stormwater Works (2015)

This document sets out the design objectives, controls and criteria for the delivery of the regional stormwater infrastructure to service the development of the Marsden Park Precinct. The following controls are of specific relevance to the Precincts 4 and 6 subdivision Development Application:

- Post development flows are to be limited to pre-development values for the 50% and 1% AEP storm events.
- Serviceability of flood evacuation routes need to be maintained/ achieved for the 0.2 % AEP.
- All residential allotments are to be above the Flood Planning Level. The flood planning level is defined as the 1% AEP with 15% rainfall intensity increase climate change scenario flood level plus 0.5 m freeboard.
- Make provision for orderly and evacuation of people away from rising floodwaters.
- Stabilise the landform and control erosion.
- Achieve the following water quality and environmental flow targets:
    - 90% Reduction in Gross Pollutants;
    - 85% Reduction in Total Suspended Solids;
    - 65% Reduction in Total Phosphorous;
    - 45% Reduction in Total Nitrogen;

- Ensure that the duration of post development stream forming flows are no greater than 3.5 times the duration of pre-development stream forming flows.

3.5 Draft Marsden Park Section 94 Contributions Plan

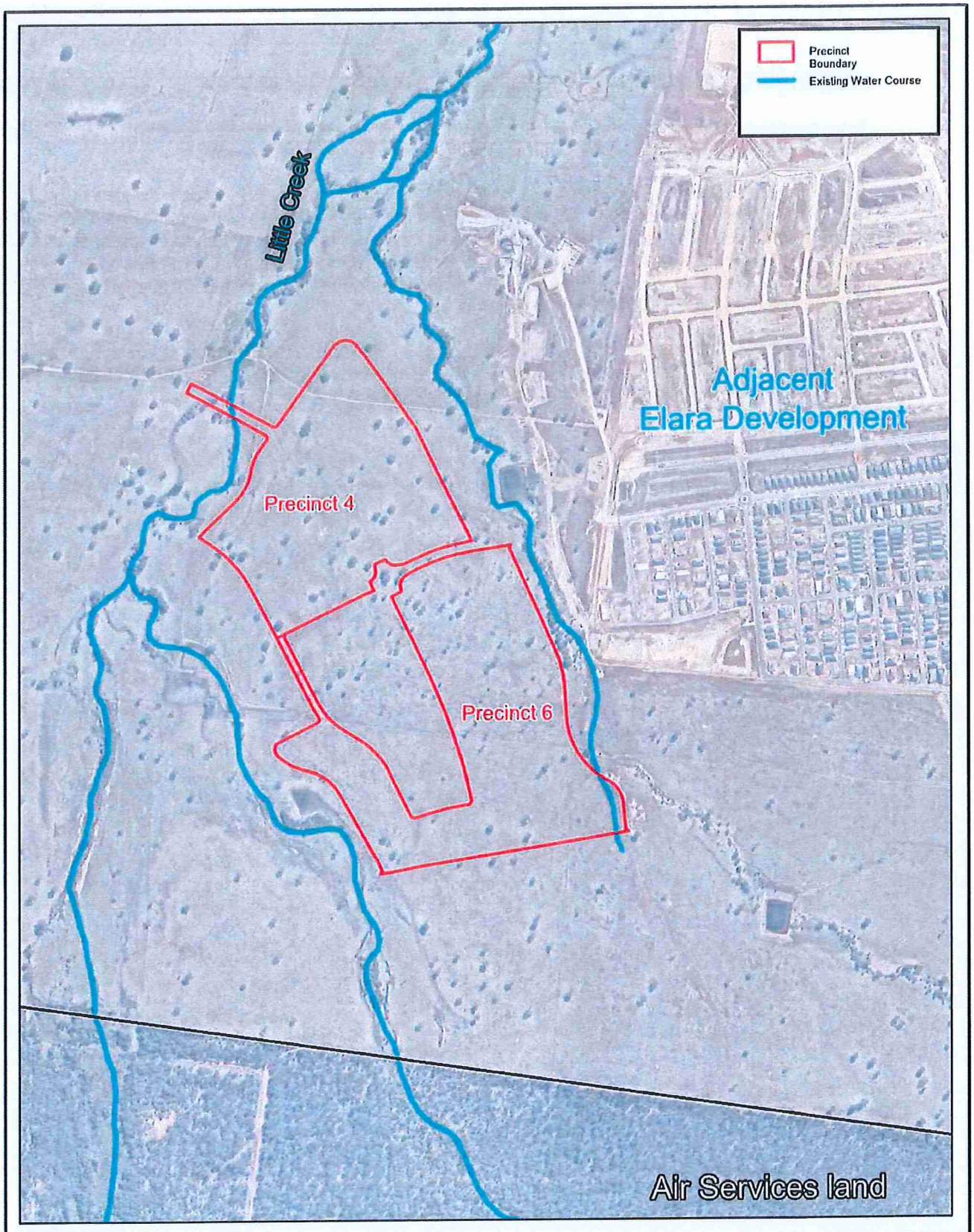
The draft Section 94 Contributions Plan No. 21 – Marsden Park was placed on Public Exhibition from 28 September to 25 October 2016. This document considers the following stormwater management devices to service the Precincts 4 and 6 Winten Hills Development:

- Rain Garden/Bio-retention Item ML5.1 – Blacktown Council have reduced the 3,160 m^2 raingarden documented in the Post Exhibition Water Cycle Management Plan (JWP 2013) to 2,600 m^2.
- Detention Basin Item ML 5.1 – The previously designed (JWP 2013) 35,030 m^3 Basin 2 detention volume has retained in the S94 contributions plan.

4 EXISTING SITE

The site is located in the Marsden Park Residential Precinct, which is within the Blacktown City Council (BCC) Local Government Area. The current applications seeks to develop a 50 hectare portion of this land, which predominantly consists of rural grazing land. The site generally grades to the north and discharges into Little Creek. Refer Plate 4.1 for an overview of the existing site. Little Creek is a tributary of South Creek, which is part of the Hawkesbury/Nepean River catchment.

The Marsden Park Residential Precinct discharge location is immediately upstream of Richmond Road, approximately 1.5 kilometres south of the intersection with St Marys Road.



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Winten Hills
Precincts 4 and 6
Existing Site

Plate 4-1

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200 0 200 m

Scale 1: 10,000 @ A4

Date : 02/12/2016

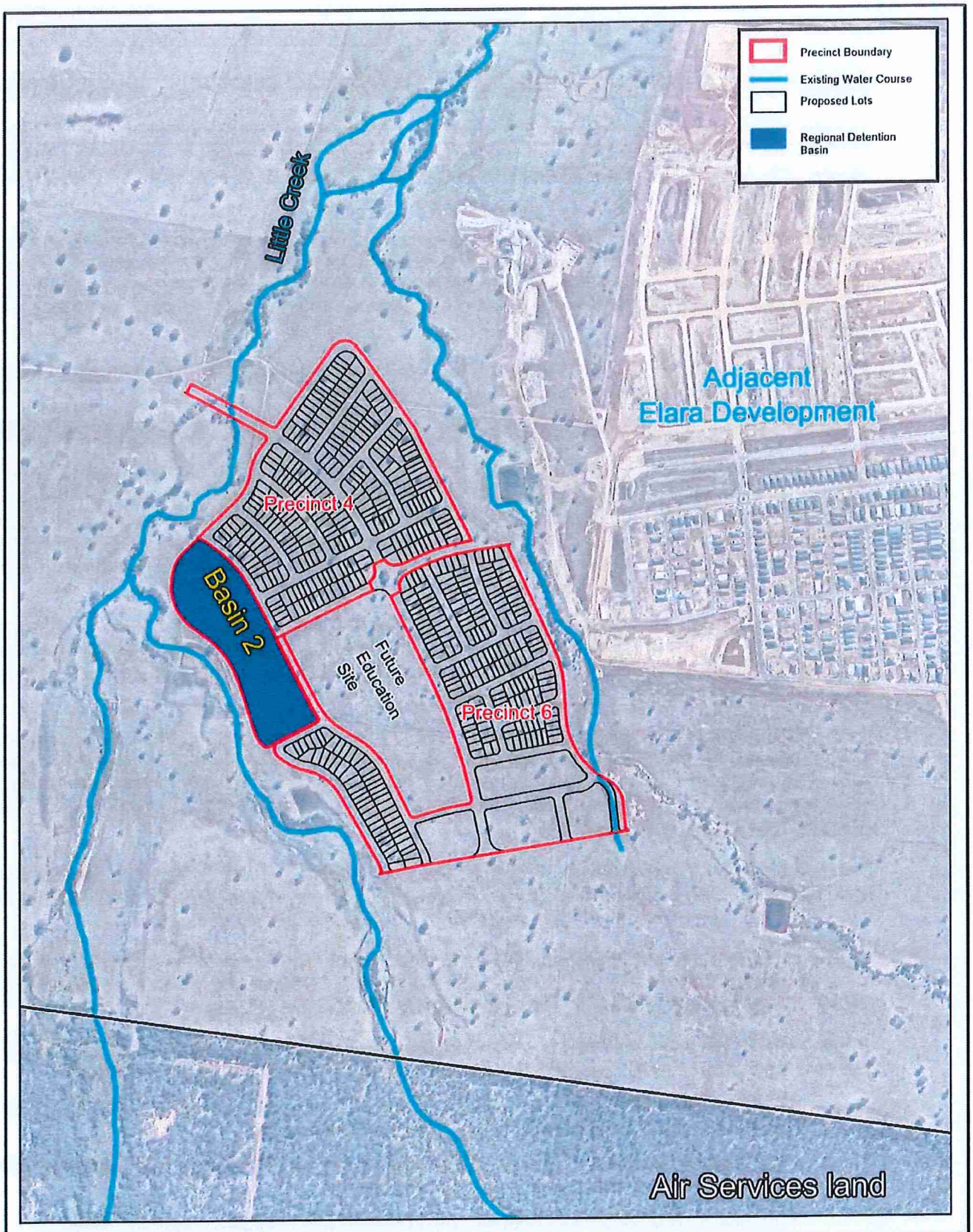
File Name: 9985-11_Rpt1A_Plate_4-1

5 PROPOSED DEVELOPMENT

The proposed development will consist of the subdivision of the site into 499 residential lots together with a supporting road and street drainage network to service the development.

The works also include the construction of Regional Basin 2. This basin, which includes a 2600 m^2 rain garden and approximately 35,000 m^3 of detention storage will will provide the stormwater quantity and quality management for the proposed development. Basin 2 has been sized to cater for the future development of the 36.2 ha catchment that drains to it, and provides compensatory detention for a further 43.4 ha of bypassing developed catchment. Details of the sizing of these devices are provided in Section 6 of this report.

The proposed Precinct 4 and 6 development is detailed on engineering design drawings 998511/DA00 to DA45 and 98511/DA200 to DA254 respectively. Plate 5-1 provides an overview of the development considered in this stormwater strategy.



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Winten Hills
Precincts 4 and 6
Proposed Development

Plate 5-1

N
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Scale 1: 10,000 @ A4

Date : 09/12/2016

File Name: 9985-11_Rpt1A_Plate_5-1

6 STORMWATER MANAGEMENT STRATEGY

The stormwater management devices proposed to service the Precincts 4 and 6 development under the *Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report* were a 35,030 m^3 regional detention basin known as Basin 2, and included a 3,160 m^2 rain garden within the basin floor.

At rezoning, Council required the basin to be designed to provide the required 0.5 EY (2 year ARI) and 1% AEP (100 year ARI) water quantity management above the 2% AEP (50 year ARI) flood level of 15.7 m AHD (i.e. active storage only above 15.7 m AHD). This philosophy is consistent with the Blacktown City Council's Section 94 design Guidelines, and has been adopted as part of this strategy.

The following section of the report details the proposed water quality and quantity management for the catchment managed by Regional Basin 2.

6.1 Water Quality Management

The *"Marsden Park Residential Precinct – Post Exhibition Water Cycle & Flood Management Strategy Report"* (JWP, March 2013) identified an appropriate strategy to control the quality of stormwater runoff leaving the site in accordance with statutory requirements. This report included recommendations on land area and device sizes which are required to implement the strategy. The Water Quality management system for Winten Hills includes a "treatment train" approach that includes on-lot rainwater tanks, gross pollutant traps and bio-retention raingardens.

This water quality assessment considers the full development the catchment discharging to Basin 2 to ensure that the size of this regional device is sufficient to cater for both the current Precincts 4 and 6 development as well as the future development of external catchments that were assumed to discharge to Basin 2 as part of the rezoning strategy.

It has conservatively been assumed that the portion of land that has been earmarked for a future school between Precincts 4 and 6 would be developed as residential housing, consistent with the current land zoning. If the proposed school site does provide it's own water quality and quantity management the configuration of Basin 2 could be amended. However this approach ensures that sufficient land will be provided for Basin 2.

It should be noted that the western portion of the development that discharges into the adjacent regional Basin 3 will be treated in a 7450 m^2 rain garden, with the exception of the commercial and industrial development which will need to provide it's on-lot water quality treatment.

As part of the S94 design Guidelines, Blacktown City Council require the Gross Pollutant Traps to treat the design flow for the 6 month ARI storm event. However the MUSIC modelling has conservatively assumed a lower treatable flow rate by adopting the 3 month ARI flow.

J. Wyndham Prince have updated the *MUSIC* model (which formed the basis of our 2013 strategy), to reflect the revised Precincts 4 and 6 development layout. Updates included the following:

- A new MUSIC-Link model was created for the 36.2 ha catchment discharging to the rain garden in Basin 2 using Blacktown Council's standard nodes;
- Areas defined as "Roofs", "Roads", "Other Impervious" and "Pervious" were updated based on the current Precincts 4 and 6 development layout;
- High flow bypass for Gross Pollutant Traps updated with revised 3 month ARI flows.
- The two (2) Gross Pollutant Traps proposed for Precincts 4 and 6 are vortex style. It has been assumed that a third Gross Pollutant Trap will be provided in the southern external catchment (M5) that discharges to Basin 2

The location of the bio-retention raingarden system remains consistent with the original strategy. Details of the MUSIC model are provided below in Plate 6.1.

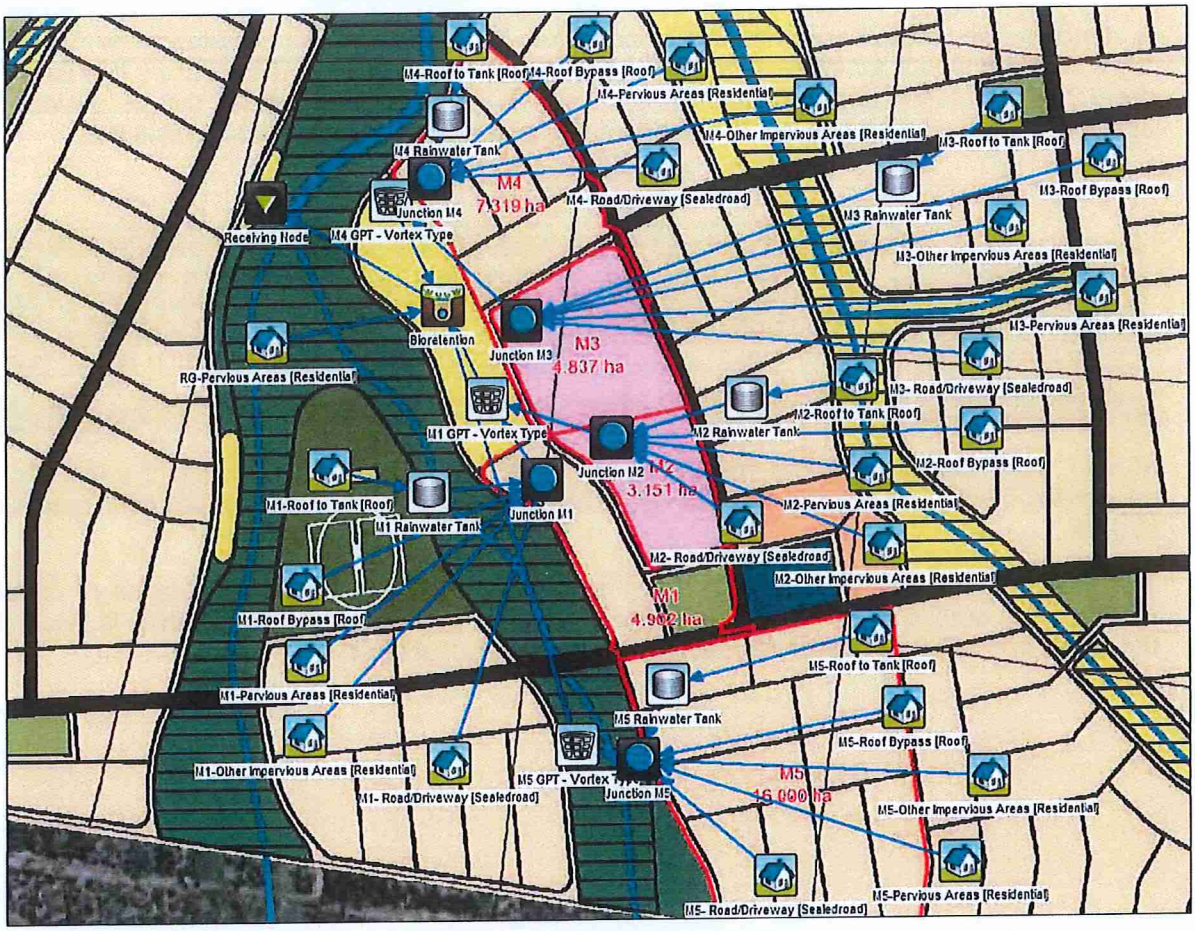


Plate 6.1 MUSIC Model Layout

(9985-11_MU01.sqz)

Iterations were undertaken in *MUSIC 6.2* to confirm that the size of raingarden device under the revised layout achieves the statutory removal rates of 85 % Total Suspended Solids (TSS), 65 % Total Phosphorus (TP) and 45 % Total Nitrogen (TN).

6.1.1 Pollutant Load Estimates

Total annual pollutant load estimates were derived from the results of a MUSIC model based on a stochastic assessment of the developed site incorporating the proposed water quality treatment system are presented in Table 6.1. The estimated reductions in Total Suspended Solids (TSS), Total Phosphorus (TP), Total Nitrogen (TN) and Gross Pollutants (GP) for the proposed development works are also presented in Table 6.1.

Table 6.1 Summary of Pollutant Reductions

Pollutant	Total Developed Source Nodes	Minimum Reduction Required	Total Residual Load from Site	Total Reduction Achieved	Target Reduction Required	Total Reduction Achieved
	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(%)	(%)
TSS	44800	38080	6040	38760	85.0%	86.5%
TP	85.1	55.32	29.50	55.6	65.0%	65.3%
TN	545	245.3	277.0	268.0	45.0%	49.2%
Gross Pollutants	6020	5418	21.1	5999	90.0%	99.6%

MUSIC Catchment Details and a MUSIC-Link report is provided in Appendix B.

6.1.2 Stream Erosion Index

A stream erosion index assessment was undertaken in accordance with Blacktown City Council's "*Developer Handbook for Water Sensitive Urban Design*" (BCC, Nov. 2013) to ensure that the post development duration of stream forming flows are no greater than 3.5 times the pre developed duration of stream forming flows. Results of the SEI assessment are provided in Table 6.2.

Table 6.2 SEI Results

	Determination of Critical Flow							Stream Erosion Index		
Assessment Location	Area (km^2)	$t_c = 0.76A^{0.38}$ (hour)	t_c (minutes)	I_2 (mm/hr)	C_2	Q_2 (m^3/s)	Q_{crit} (m^3/s)	Pre Dev Outflow (ML/yr)	Post Dev Outflow (ML/yr)	SEI
Basin 2 Discharge Location	0.3651	0.52	31	44.2	0.444	1.992	0.498	14.1	35.6	2.5

6.1.3 Discussion of MUSIC Modelling Results

MUSIC water quality modelling results indicate that Vortex Style gross pollutant traps and a raingarden media bed area of 2400 m^2 is sufficient to achieve the required pollutant reduction targets.

The stream Erosion Index assessment indicates that the post development duration of stream forming flows are 2.5 times the pre developed duration of stream forming flows, which is less than the upper limit of 3.5 and therefore meets the statutory requirements.

6.2 Water Quantity Management

6.2.1 *Catchment Refinements*

As part of the sub-division design, the road and lot grading surrounding Basin 2 has been refined. The catchment areas that supported the hydrological model for the *Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report* have been updated. Existing conditions catchment breakup is provided on Figure 6-1, and the Developed Conditions Catchment breakup is provided on Figure 6-2 in Appendix A.

6.2.2 *Updated Hydrologic Modelling*

The *XP-RAFTS* model has been updated to reflect the refined catchment delineation. Table 6.3 details flow reporting locations, and Plate 6.3 provides an overview of the developed catchment managed by Basin 2.

It is noted that the rezoning model considered climate change, and therefore considers the long term operation of this regional detention basin. This has also been considered in the current modelling to ensure that the embankment levels and outlet arrangement are suitable to cater for both current climate and future climate conditions.

For comparison purposes, the hydrologic modelling for climate change conditions documented in Table 6.3 below confirms that with an appropriate outlet arrangement, Basin 2 provides sufficient detention management under future climate conditions also.

Table 6.3 Climate Change Peak Flow Summary (m^3/s)

Comparison Node	Location	0.5 EY		1% AEP		1% AEP with 2% AEP Tail Water	
		Ex	Dev	Ex	Dev	Ex	Dev
CSim103	Upstream of confluence with Little Creek	11.31	7.13	33.27	28.99	33.27	32.80
LC_04	Little Creek Upstream of confluence with Basin 3 outlet	112.97	111.68	290.88	282.84	290.88	282.84
LC_05	Confluence of Little Creek and Basin 3 tributary flows	118.54	118.48	310.73	302.81	310.73	307.85
LC_08	Downstream of Winten Boundary	119.22	119.17	312.78	305.28	312.78	310.31

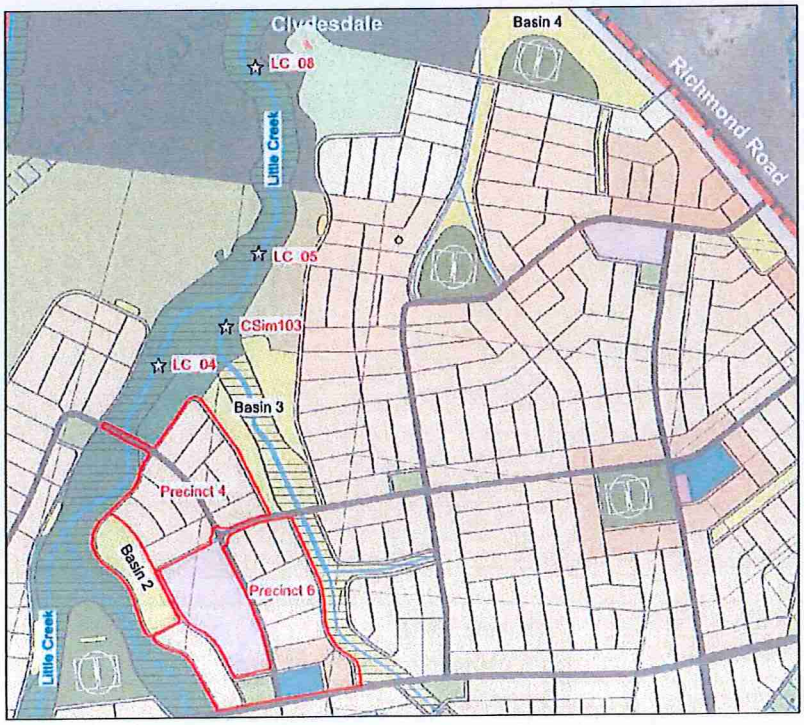
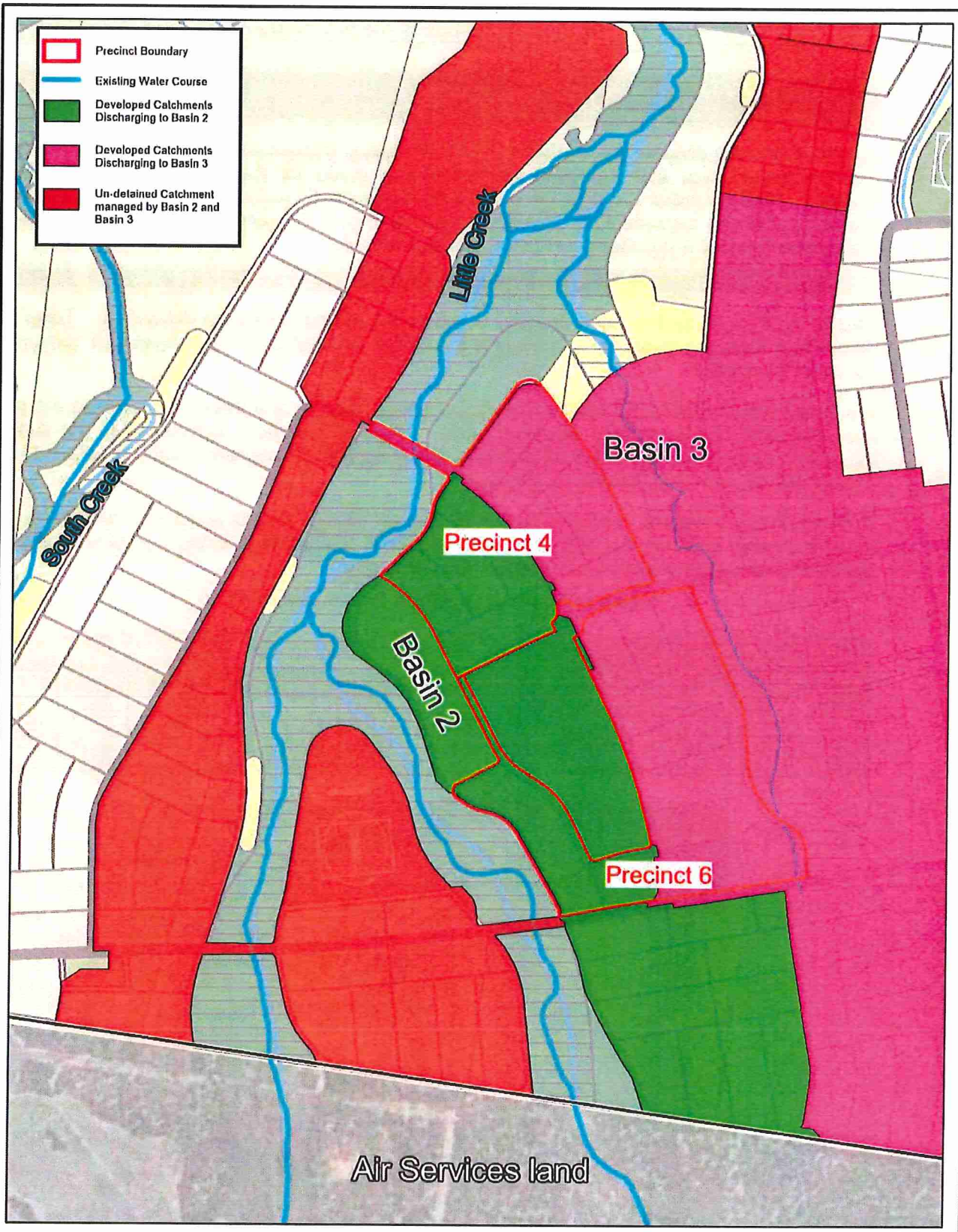


Plate 6.2 Flow Reporting Locations



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Winten Hills
Catchment Management
Overview

Plate 6-3

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Scale 1: 10,000 @ A4

Date : 02/12/2016

File Name: 9985-11_Rpt1A_Plate_6-2

As required by the Section 94 Design guidelines, the basin storage and outlet arrangements documented below relate to current climate conditions.

Table 6.4 below provides a summary of peak flows at key comparison locations downstream of Basin 2 (see Plate 6.2 for reporting locations), and Table 6.5 provides a summary of Basin 2 performance.

Table 6.4 Current Climate Peak Flow Summary (m^3/s)

Comparison Node	Location	0.5 EY		1% AEP		1% AEP with 2% AEP Tail Water	
		Ex	Dev	Ex	Dev	Ex	Dev
CSIm103	Upstream of confluence with Little Creek	8.30	5.55	27.21	25.59	27.21	27.73
LC_04	Little Creek Upstream of confluence with Basin 3 outlet	91.13	90.26	250.04	243.03	250.04	243.03
LC_05	Confluence of Little Creek and Basin 3 tributary flows	95.21	95.18	267.23	259.44	267.23	265.02
LC_08	Downstream of Winten Boundary	95.74	95.73	268.92	261.47	268.92	267.06

Table 6.5 Current Climate Basin 2 Performance

Event	Inflow (m^3/s)	Outflow (m^3/s)	Active Storage Used (m^3)	Basin Stage Used (m AHD)
0.5 EY	6.49	0.63	15953	16.26
1% AEP	15.17	2.41	33876	16.83

(XP-RAFTS MODEL 9985RA19(Dev).xp)

A preliminary outlet configuration has been designed to deliver the required basin performance. The outlet consists of a low flow pit and pipe system, together with a high level pit and pipe system to manage flows under local tail water conditions Further details of the Basin 2 configuration are provided on engineering drawing 998511/DA43.

7 FLOOD ASSESSMENT

The proposed precincts 4 and 6 development are relatively consistent with the development considered at rezoning stage. The hydrologic modelling documented in Section 6.2 confirms that post development flows are no greater than pre-development flows in Little Creek. Hence the flood model that supported the "Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report' (JWP 2013) is still considered valid to confirm flood levels for Winten Hills Precincts 4 and 6.

Figure 6.15 from the 2013 Water Cycle and Flood Management report provides the developed conditions flood level for the combined 1% AEP + 1% AEP regional tailwater condition (provided in Appendix C). It should be noted that all flood modelling in the 2013 assessment considered 1 15% increase in rainfall intensity. An interrogation of the flood levels within Little Creek indicate that the proposed development levels are well clear and provide the minimum freeboard to the proposed lots. Table 7.1 refers to locations in Plate 7.1 within Precincts 4 and 6 where flood levels have been compared with engineering design lot levels.

Table 7.1 Flood Level Assessment – 1% AEP + 1% AEP Regional

Location	Flood Level (JWP 2013) (m AHD)	Proposed Lot Levels	Freeboard (m)	Drawing Reference
1) Immediately Upstream Basin 3	17.3	18.0	0.7	998511/DA05
2) Immediately Downstream Basin 2	17.4	18.0	0.6	998511/DA05
3) Immediately Upstream Basin 2	17.5	20.0	2.5	998511/DA205
4) Adjacent Crossing 2 (Road 100)	19.5	25.0	5.5	998511/DA205

Similarly, Figure 6.18 which documents the 0.2% AEP flood depths and levels from the rezoning assessment (JWP 2013) indicates a flood level of approximately 14.4 m AHD at proposed bridge Crossing 5. Engineering drawing 998511/DA45 shows that the indicative level underside of the bridge deck is approximately 18.0 m AHD. Hence there is approximately 3.6 m freeboard under the bridge deck, and thus appropriate flood evacuation across this bridge has been provided.

Plate 7.1 Flood Level reporting Locations

8 COMPLIANCE WITH CLAUSE 19 OF SEPP (2006)

Clause 19 of the State Environmental Planning Policy (Sydney Region Growth Centres) 2006 requires the following heads of consideration (in *italics*) to be addressed. The subdivision development application has been prepared giving due consideration to the approved *Marsden Park Residential Precinct Post Exhibition Water Cycle & Flood Management Strategy Report* (J. Wyndham Prince 2013). We provide the following additional comments as to how these specific sub-clauses of clause 19 of the SEPP have been addressed:

a) whether or not the development will adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties,

Response: The precinct wide strategy mapped the changes that are likely to occur both within and external to the precinct in July 2013. This assessment confirmed that no detrimental impacts will occur to other developments or properties external to the site. The proposed lot grading for Precincts 4 and 6 is generally consistent with the surface proposed as part of the Marsden Park Residential Precinct Post Exhibition Water Cycle & Flood Management Strategy (MPP WCMS).

b) whether or not the development will alter flow distributions and velocities to the detriment of other properties or the environment of the flood plain,

Response: Appropriate scour protection and erosion mitigation works will ensure that flood velocities are reduced to acceptable levels where the proposed works interface with the receiving waters. No new flow paths to the receiving waters are proposed. Therefore we do not anticipate that the proposed development will alter flow distributions and velocities to the detriment of other properties or the environment of the flood plain.

c) Whether the development will enable safe occupation of the flood prone and major creeks land,

Response: All housing development will be constructed to be above the Flood Planning Level (FPL). The flood Planning Level is defined as the combined local 1% AEP event (with 15% increase in rainfall intensity) + regional 1% AEP tailwater flood level (17.3m AHD) with 0.5 m freeboard. A continuous raising grade will also be provided for all dwellings to the proposed Regional Flood evacuation route on Richmond Road. This arrangement therefore ensures that the Flood Prone Land can be safely occupied and appropriate flood evacuation of the Flood Prone Land is catered for.

d) whether or not the development will detrimentally affect the flood plain environment or cause avoidable erosion, siltation, salinity, destruction of riparian vegetation or a reduction in the stability of the riverbank/watercourse,

Response: The Soil Salinity and Aggressivity Assessment undertaken by DLA Environmental (May 2015) indicates that there is a low potential for salinity impacts in the vicinity of drainage channels, creeks and water dams at depths greater than 2 – 3 m below ground level, and that a soil salinity management plan will need to be implemented as part of the proposed works. However there are no long term salinity or siltation issues expected. Appropriate scour and erosion protection works will need to be provided at the site discharge location/s to ensure avoidable erosion is mitigated.

e) whether or not the development will be likely to result in unsustainable social and economic costs to the flood affected community or general community, as a consequence of flooding,

Response: All proposed development is provided above the Flood Planning Level (see item c above for definition of FPL). The proposed works will enhance the existing environment which is a benefit to the greater community. Therefore we do not anticipate that the proposed development will be likely to result in unsustainable social and economic costs to the flood affected community or general community, as a consequence of flooding.

f) whether or not the development is compatible with the flow conveyance function of the floodway,

Response: The proposed residential development is not located within a floodway.

g) whether or not the development is compatible with the flood hazard,

Response: the proposed development is consistent with the approved Marsden Park Residential Precinct Post Exhibition Water Cycle & Flood Management Strategy Report which shows all development is clear of the high hazard mapping in the 1% AEP event.

h) in the case of development consisting of the excavation or filling of land, whether or not the development:

i) will detrimentally affect the existing drainage patterns and soil stability in the locality, and

Response: flows from the proposed development are safely managed via overland flow paths and a street drainage network and we do not anticipate that there will be any detrimental affect on the existing drainage patterns and soil stability in the locality.

ii) will significantly impact on the likely future use or redevelopment of the land, and

Response: the proposed development supports the proposed future use, and re-development of the land.

iii) will adversely impact on the existing and likely amenity of adjoining properties, and

Response: The proposed development is consistent with the planning proposal and will not have any adverse impact on the existing and likely amenity of adjoining properties.

iv) will minimise the disturbance of relics, and

Response: AHIP No. C0001857 has been issued. The salvage works were strictly carried out in accordance with the AHIP.

v) will adversely impact on any watercourse, drinking water catchment or environmentally sensitive area.

Response: The site is not located in a drinking water catchment. A regional gross pollutant trap and a water quality device will ensure that the expected stormwater pollutants can be treated and managed to the appropriate standards prior to discharge to any environmentally sensitive areas.

9 CONCLUSION

This report details the investigation completed in order to support the proposed subdivision of Precincts 4 and 6 of Winten Hills. Further details of the proposed development is provided in J. Wyndham Prince's engineering design drawings 998511/DA00 to DA45 and 98511/DA200 to DA254.

A water quality assessment undertaken using MUSIC software indicates that Vortex style Gross Pollutant Traps, together with a 2,400 m^2 raingarden will meet the statutory pollutant reduction targets. However 2,600 m^2 as documented in the Marsden Park Section 94 Plan has been conservatively provided.

The XP-RAFTS modelling adopted for the *Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report* has been updated to reflect a more refined catchment delineation, together with an updated Basin 2 design.

Regional detention Basin 2, with an overall volume of 33880 m^3 (active storage above 15.7 m AHD) will ensure that post development flows are less than existing flows, both at the basin outlet and immediately downstream of Winten Property Group's land holding (reporting location LC_08).

As the proposed development is consistent with the development extent considered as part of the rezoning process, the previous flood level assessment (JWP 2013) is considered an appropriate basis on which to assess flood planning levels. Table 7.1 in Section 7 of this report confirms that the required 0.5 m freeboard to the proposed development is achieved in the 1% AEP flood event. Further, the proposed bridge crossing in Precinct 4, which is the primary flood evacuation route for the overall precinct has been designed to ensure that appropriate freeboard is provided in the 0.2 % AEP flood event.

This proposed stormwater management strategy is consistent with the *Marsden Park Residential Precinct Post Exhibition Water Cycle & Flood Management Strategy Report* (J. Wyndham Prince 2013)., meets the objectives of Council's policies and provides best practice stormwater management for Winten Hills Precincts 4 and 6.

If you have any queries regarding this matter please do not hesitate to contact me.

Yours faithfully

J. WYNDHAM PRINCE

DAVID CROMPTON
Manager – Stormwater & Environment

10 REFERENCES

Blacktown City Council 2005, *Engineering Guidelines for Development.*

Blacktown City Council 2016, *Draft Contributions Plan Section 94 – Marsden Park*

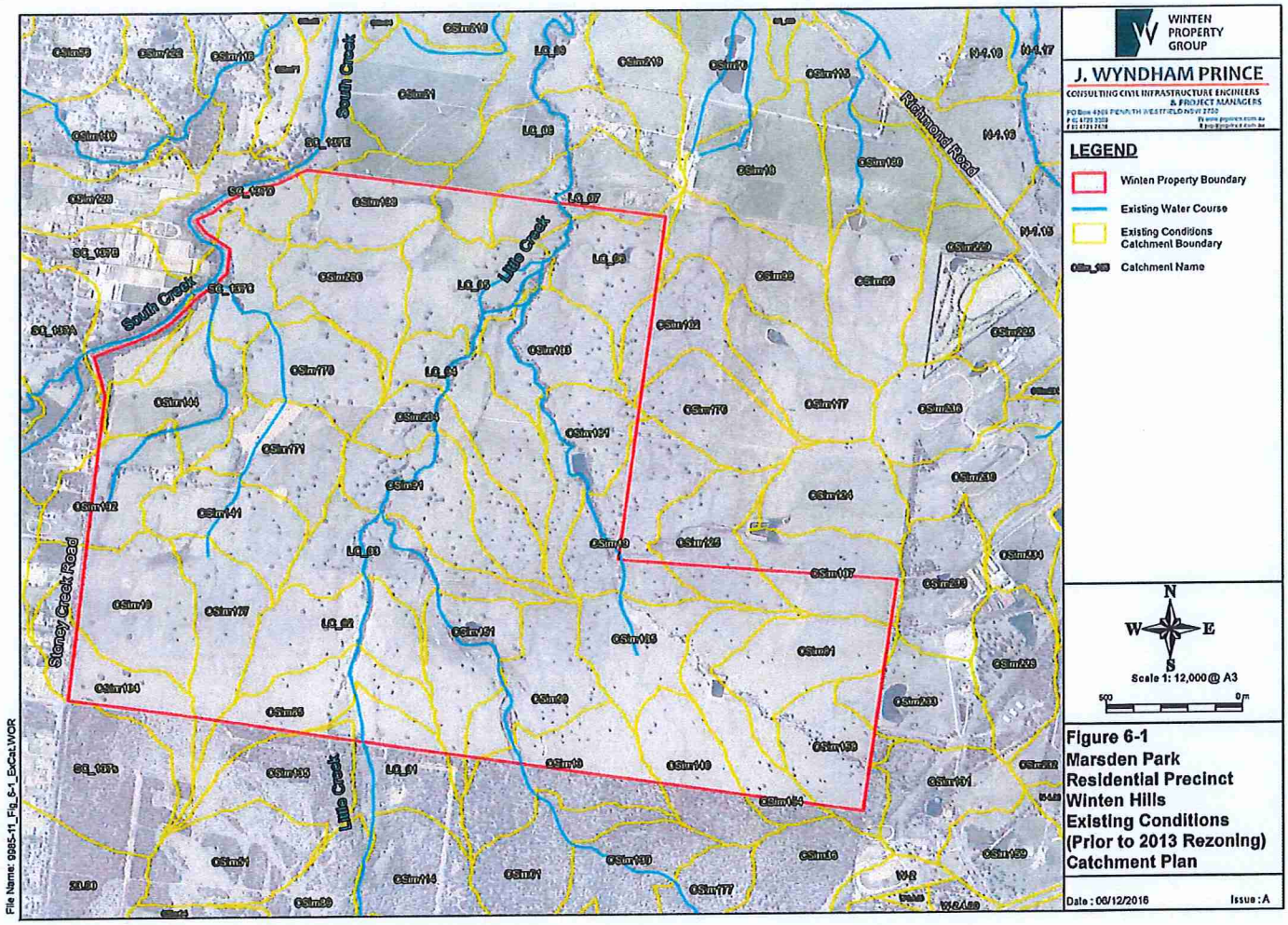
Blacktown City Council 2015, *Memo – Delivery of S94 stormwater infrastructure by Developers in the North West Growth Centre*

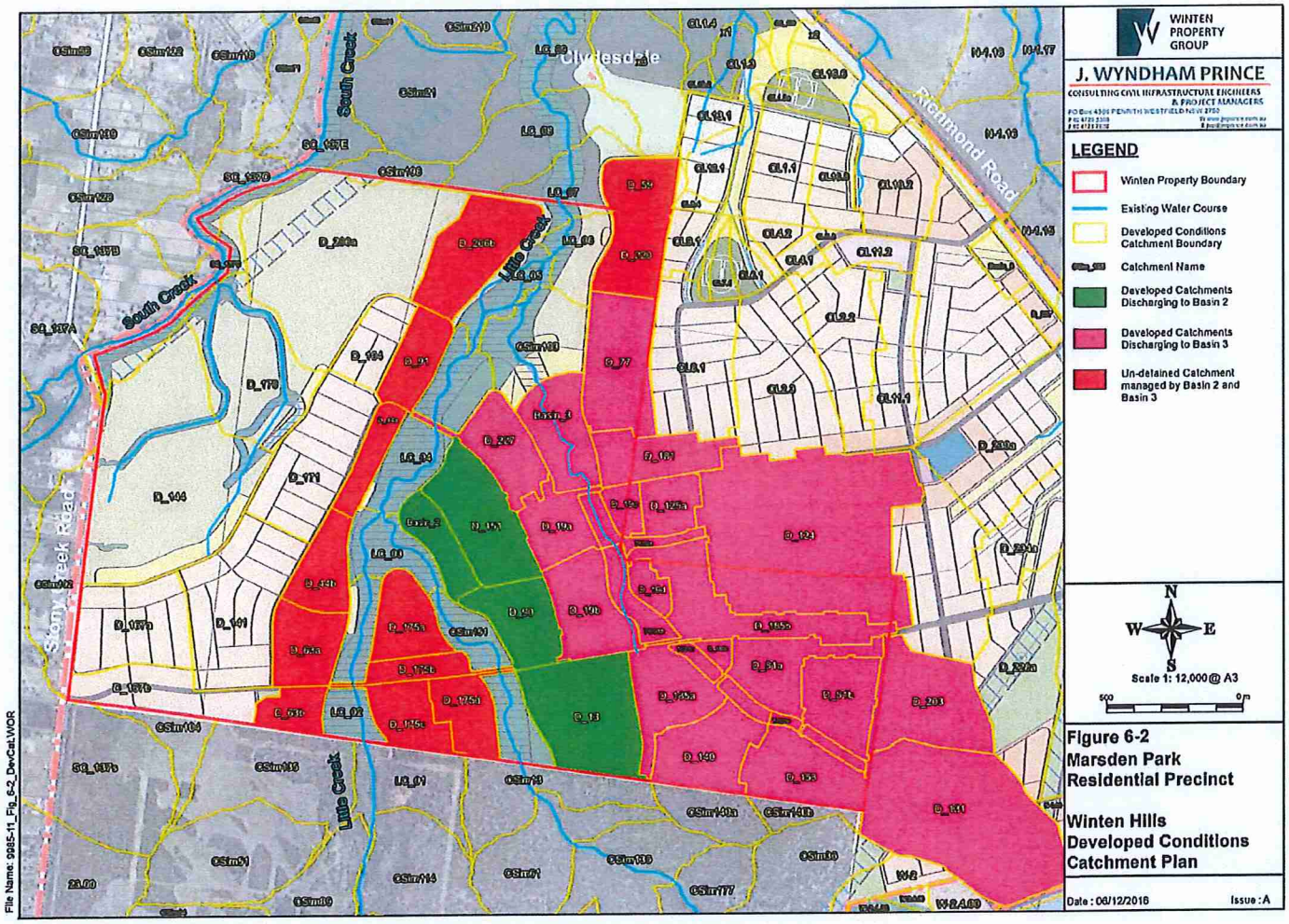
Growth Centres DCP 2010, *Blacktown City Council Growth Centre Precincts Development Control Plan 2010 – Schedule 6 Marsden Park Precinct*, NSW Department of Planning & Infrastructure.

J. Wyndham Prince 2013 – *Marsden Park Residential Precinct - Post Exhibition Water Cycle & Flood Management Strategy Report.*

NSW Government, *State Environmental Planning Policy (Sydney region Growth Centres) 2006 – Appendix 12 Blacktown Growth Centres Precinct.*

APPENDIX A – FIGURES


WINTEN PROPERTY GROUP
J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
LEGEND
Winten Property Boundary
Existing Water Course
Existing Conditions Catchment Boundary
Catchment Name
South Creek
Little Creek
Richmond Road
Sidney Creek Road
N
W
E
S
Scale 1: 12,000 @ A3
500
0m
Figure 6-1
Marsden Park
Residential Precinct
Winten Hills
Existing Conditions
(Prior to 2013 Rezoning)
Catchment Plan
Date : 06/12/2016
Issue : A
File Name: 9985-11_Fig_6-1_ExCat.WOR


WINTEN PROPERTY GROUP
J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
LEGEND
Winten Property Boundary
Existing Water Course
Developed Conditions Catchment Boundary
Catchment Name
Developed Catchments Discharging to Basin 2
Developed Catchments Discharging to Basin 3
Un-detained Catchment managed by Basin 2 and Basin 3
N
W
E
S
Scale 1: 12,000 @ A3
500
0m
Figure 6-2
Marsden Park Residential Precinct
Winten Hills Developed Conditions Catchment Plan
Date : 06/12/2016
Issue : A
File Name: 9985-11_Fig_6-2_DevCat.WOR
South Creek
Little Creek
Stony Creek Road
Richmond Road
Glenfield

APPENDIX B – MUSIC MODELLING PARAMETERS

9985 - MUSIC MODELLING WORKSHEET

Winten Hills Precincts 4&6

	Catchment Division				Node Inputs				
Catchment	Total Catchment Area (ha)	Residential Lot Area (ha)	Road (Incl. Reserve) Area (ha)	Open Space/RG	Road and driveways (ha)	Roof to Tank (ha)	Roof Bypass (ha)	Other Impervious (ha)	Pervious Areas (ha)
M1	4.90	2.313	1.682	0.908	1.830	0.636	0.636	0.917	0.885
M2*	3.150	2.205	0.945		1.118	0.606	0.606	0.441	0.378
M3*	4.836	3.385	1.451		1.717	0.931	0.931	0.677	0.580
M4	7.32	4.955	2.364		2.741	1.363	1.363	0.991	0.861
M5*	16.00	10.933	5.066		5.906	3.007	3.007	2.187	1.893
RG	0.30			0.303					0.303

*Catchments M2, M3 and M5 Roads assumed to be 30% of catchment area, consistent with actual beakup of catchments M1, and M4.

Effective % Impervious
82%
88%
88%
88%
88%
0%

%Impervious	
Lots	85%
Road	95%
Open Space	50%
Rain Garden	0%
% Breakdown of lot area	
Roof	55%
Roof to Tank	27.5%
Roof Bypass Tank	27.5%
Driveways	10%
Other Impervious	20%
Pervious Areas	15%

	Cat. Area (ha)	XP-RAFTS	Urban Rational		
		1yr Flow (m^3/s)	1yr Flow (m^3/s)	3mth Flow (m^3/s)	6mth Flow (m^3/s)
M1 GPT	8.05	1.334	1.327	0.690	0.969
M4 GPT	12.15	2.102	1.885	0.980	1.376
M5 GPT	16.00	2.777	1.970	1.024	1.438
RG	36.21	4.955	4.459	2.319	3.255

				RAINWATER TANK						
				Overflow Pipe Dia		High Flow By-pass	Daily Demand	PET - RAIN		Tank Surface Area
Catchment	Lots	Equivalent Pipe Area (m^2)	Equivalent Pipe radius (m)	Equivalent Pipe dia (mm)	Total Area of Roof to Tank (Ha)	1yr flow on roof (m^3/s)	Daily Demand (kL)	Annual Demand (kL/yr)	Total Tank Volume (m^3)	Tank Surface Area (m^2)
M1	54	0.106	0.184	367	0.636	0.15512	5.4	2700	108.00	91.80
M2*	47	0.092	0.171	343	0.606	0.14791	4.7	2350	94.00	79.90
M3*	73	0.143	0.214	427	0.931	0.22706	7.3	3650	146.00	124.10
M4	131	0.257	0.286	572	1.363	0.33230	13.1	6550	262.00	222.70
M5*	240	0.471	0.387	775	3.007	0.73326	24	12000	480.00	408.00

*Assumed 15 dwellings/hectare consistent with ILP

PET - Rain for landscape area	50 kL/year/dwelling
Assumed Daily Demand	100 L/day
Adopted Tank Size	2.5 kL
Assumed 80% is useable (w/o topups)	80 %
Useable tank	2 kL
Tank Surface Area per Dwelling	1.7 m^2
I5min/1yr	87.8 mm/hr

Input

MUSIC Input

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MUSIC-*link* Report

Project Details

Project:	Winten Hills Precincts 4 and 6
Report Export Date:	2/12/2016
Catchment Name:	109985-11_MJ1
Catchment Area:	36.511ha
Impervious Area*:	86.57%
Rainfall Station:	67035 LIVERPOOL(WHITLAM
Modelling Time-step:	6 Minutes
Modelling Period:	1/01/1967 - 31/12/1976 11:54:00 PM
Mean Annual Rainfall:	857mm
Evapotranspiration:	1261mm
MUSIC Version:	6.2.1
MUSIC-link data Version:	6.21
Study Area:	Blacktown
Scenario:	Blacktown Development

Company Details

Company:	J. Wyndham Prince Copnsulting Engineers
Contact:	David Crompton
Address:	580 High Street, Penrith NSW 2750
Phone:	4720 3340
Email:	dcrompton@jwprince.com.au

* takes into account area fromall source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness

Node: Receiving Node	Reduction
Flow	11.4%
TSS	86.5%
TP	65.3%
TN	49.1%
GP	99.6%

Treatment Nodes

Node Type	Number
Bio Retention Node	1
Rain Water Tank Node	5
GPT Node	3

Source Nodes

Node Type	Number
Urban Source Node	26

Comments

The 80% re-use demand is not applicable to residential developments which will be coverd by BASIX.

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Bio	Bioretention	Hi-flow bypass rate (cum/sec)	None	None	2.319
Bio	Bioretention	PET Scaling Factor	2.1	2.1	2.1
GPT	M1 GPT - Vortex Type	Hi-flow bypass rate (cum/sec)	None	None	0.69
GPT	M4 GPT - Vortex Type	Hi-flow bypass rate (cum/sec)	None	None	0.98
GPT	M5 GPT - Vortex Type	Hi-flow bypass rate (cum/sec)	None	None	1.024
Receiving	Receiving Node	% Load Reduction	None	None	11.4
Receiving	Receiving Node	GP % Load Reduction	90	None	99.6
Receiving	Receiving Node	TN % Load Reduction	45	None	49.1
Receiving	Receiving Node	TP % Load Reduction	65	None	65.3
Receiving	Receiving Node	TSS % Load Reduction	85	None	86.5
Urban	M1- Road/Driveway	Area Impervious (ha)	None	None	1.83
Urban	M1- Road/Driveway	Area Pervious (ha)	None	None	0
Urban	M1- Road/Driveway	Total Area (ha)	None	None	1.83
Urban	M1-Other Impervious Areas	Area Impervious (ha)	None	None	0.917
Urban	M1-Other Impervious Areas	Area Pervious (ha)	None	None	0
Urban	M1-Other Impervious Areas	Total Area (ha)	None	None	0.917
Urban	M1-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	M1-Pervious Areas	Area Pervious (ha)	None	None	0.885
Urban	M1-Pervious Areas	Total Area (ha)	None	None	0.885
Urban	M1-Roof Bypass	Area Impervious (ha)	None	None	0.636
Urban	M1-Roof Bypass	Area Pervious (ha)	None	None	0
Urban	M1-Roof Bypass	Total Area (ha)	None	None	0.636
Urban	M1-Roof to Tank	Area Impervious (ha)	None	None	0.636
Urban	M1-Roof to Tank	Area Pervious (ha)	None	None	0
Urban	M1-Roof to Tank	Total Area (ha)	None	None	0.636
Urban	M2- Road/Driveway	Area Impervious (ha)	None	None	1.118
Urban	M2- Road/Driveway	Area Pervious (ha)	None	None	0
Urban	M2- Road/Driveway	Total Area (ha)	None	None	1.118
Urban	M2-Other Impervious Areas	Area Impervious (ha)	None	None	0.441
Urban	M2-Other Impervious Areas	Area Pervious (ha)	None	None	0
Urban	M2-Other Impervious Areas	Total Area (ha)	None	None	0.441
Urban	M2-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	M2-Pervious Areas	Area Pervious (ha)	None	None	0.378
Urban	M2-Pervious Areas	Total Area (ha)	None	None	0.378
Urban	M2-Roof Bypass	Area Impervious (ha)	None	None	0.606
Urban	M2-Roof Bypass	Area Pervious (ha)	None	None	0
Urban	M2-Roof Bypass	Total Area (ha)	None	None	0.606
Urban	M2-Roof to Tank	Area Impervious (ha)	None	None	0.606
Urban	M2-Roof to Tank	Area Pervious (ha)	None	None	0
Urban	M2-Roof to Tank	Total Area (ha)	None	None	0.606

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	M3- Road/Driveway	Area Impervious (ha)	None	None	1.717
Urban	M3- Road/Driveway	Area Pervious (ha)	None	None	0
Urban	M3- Road/Driveway	Total Area (ha)	None	None	1.717
Urban	M3-Other Impervious Areas	Area Impervious (ha)	None	None	0.677
Urban	M3-Other Impervious Areas	Area Pervious (ha)	None	None	0
Urban	M3-Other Impervious Areas	Total Area (ha)	None	None	0.677
Urban	M3-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	M3-Pervious Areas	Area Pervious (ha)	None	None	0.58
Urban	M3-Pervious Areas	Total Area (ha)	None	None	0.58
Urban	M3-Roof Bypass	Area Impervious (ha)	None	None	0.931
Urban	M3-Roof Bypass	Area Pervious (ha)	None	None	0
Urban	M3-Roof Bypass	Total Area (ha)	None	None	0.931
Urban	M3-Roof to Tank	Area Impervious (ha)	None	None	0.931
Urban	M3-Roof to Tank	Area Pervious (ha)	None	None	0
Urban	M3-Roof to Tank	Total Area (ha)	None	None	0.931
Urban	M4- Road/Driveway	Area Impervious (ha)	None	None	2.741
Urban	M4- Road/Driveway	Area Pervious (ha)	None	None	0
Urban	M4- Road/Driveway	Total Area (ha)	None	None	2.741
Urban	M4-Other Impervious Areas	Area Impervious (ha)	None	None	0.991
Urban	M4-Other Impervious Areas	Area Pervious (ha)	None	None	0
Urban	M4-Other Impervious Areas	Total Area (ha)	None	None	0.991
Urban	M4-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	M4-Pervious Areas	Area Pervious (ha)	None	None	0.861
Urban	M4-Pervious Areas	Total Area (ha)	None	None	0.861
Urban	M4-Roof Bypass	Area Impervious (ha)	None	None	1.363
Urban	M4-Roof Bypass	Area Pervious (ha)	None	None	0
Urban	M4-Roof Bypass	Total Area (ha)	None	None	1.363
Urban	M4-Roof to Tank	Area Impervious (ha)	None	None	1.363
Urban	M4-Roof to Tank	Area Pervious (ha)	None	None	0
Urban	M4-Roof to Tank	Total Area (ha)	None	None	1.363
Urban	M5- Road/Driveway	Area Impervious (ha)	None	None	5.906
Urban	M5- Road/Driveway	Area Pervious (ha)	None	None	0
Urban	M5- Road/Driveway	Total Area (ha)	None	None	5.906
Urban	M5-Other Impervious Areas	Area Impervious (ha)	None	None	2.187
Urban	M5-Other Impervious Areas	Area Pervious (ha)	None	None	0
Urban	M5-Other Impervious Areas	Total Area (ha)	None	None	2.187
Urban	M5-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	M5-Pervious Areas	Area Pervious (ha)	None	None	1.893
Urban	M5-Pervious Areas	Total Area (ha)	None	None	1.893
Urban	M5-Roof Bypass	Area Impervious (ha)	None	None	3.007

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	M5-Roof Bypass	Area Pervious (ha)	None	None	0
Urban	M5-Roof Bypass	Total Area (ha)	None	None	3.007
Urban	M5-Roof to Tank	Area Impervious (ha)	None	None	3.007
Urban	M5-Roof to Tank	Area Pervious (ha)	None	None	0
Urban	M5-Roof to Tank	Total Area (ha)	None	None	3.007
Urban	RG-Pervious Areas	Area Impervious (ha)	None	None	0
Urban	RG-Pervious Areas	Area Pervious (ha)	None	None	0.303
Urban	RG-Pervious Areas	Total Area (ha)	None	None	0.303

Only certain parameters are reported when they pass validation

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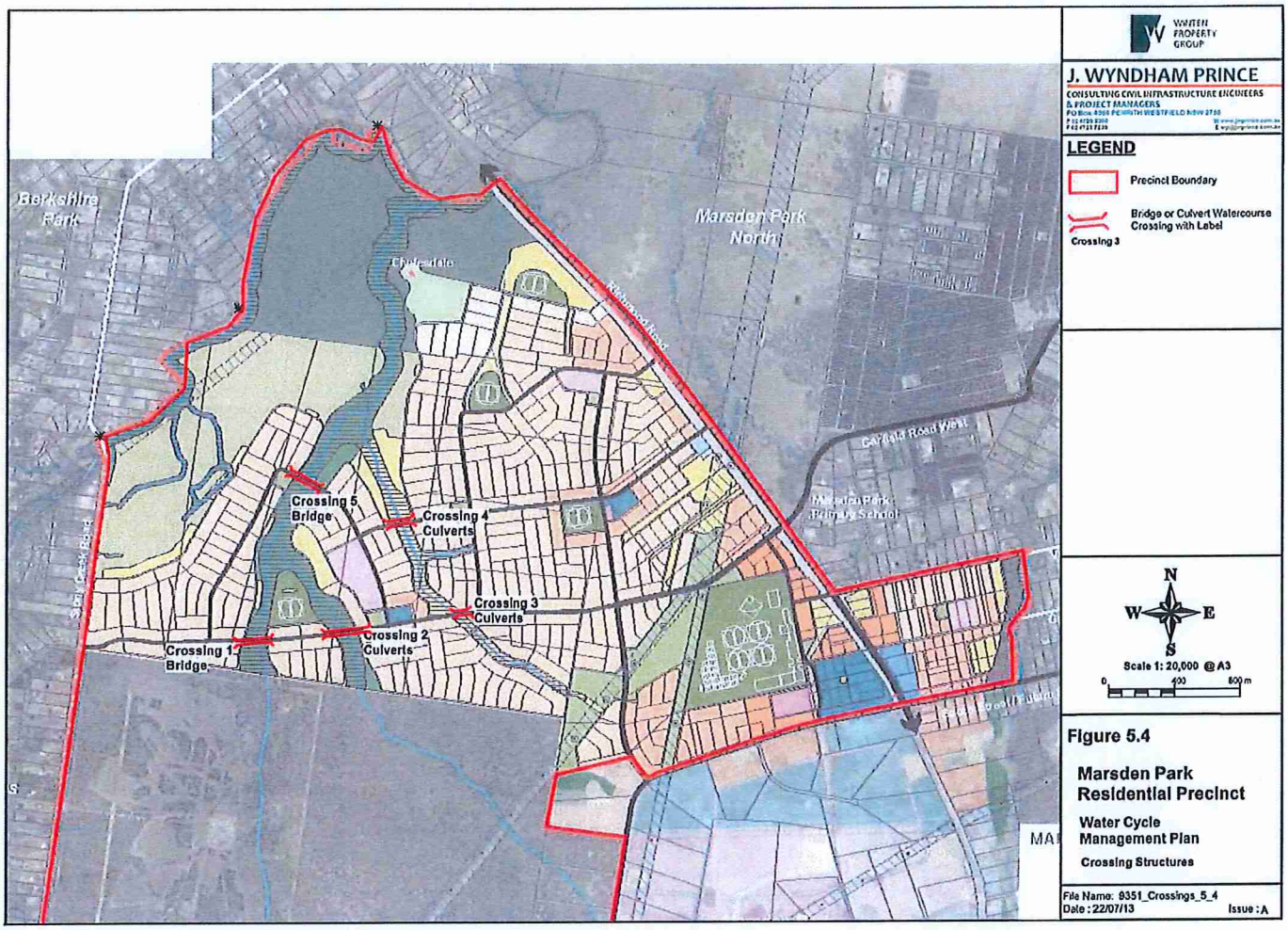
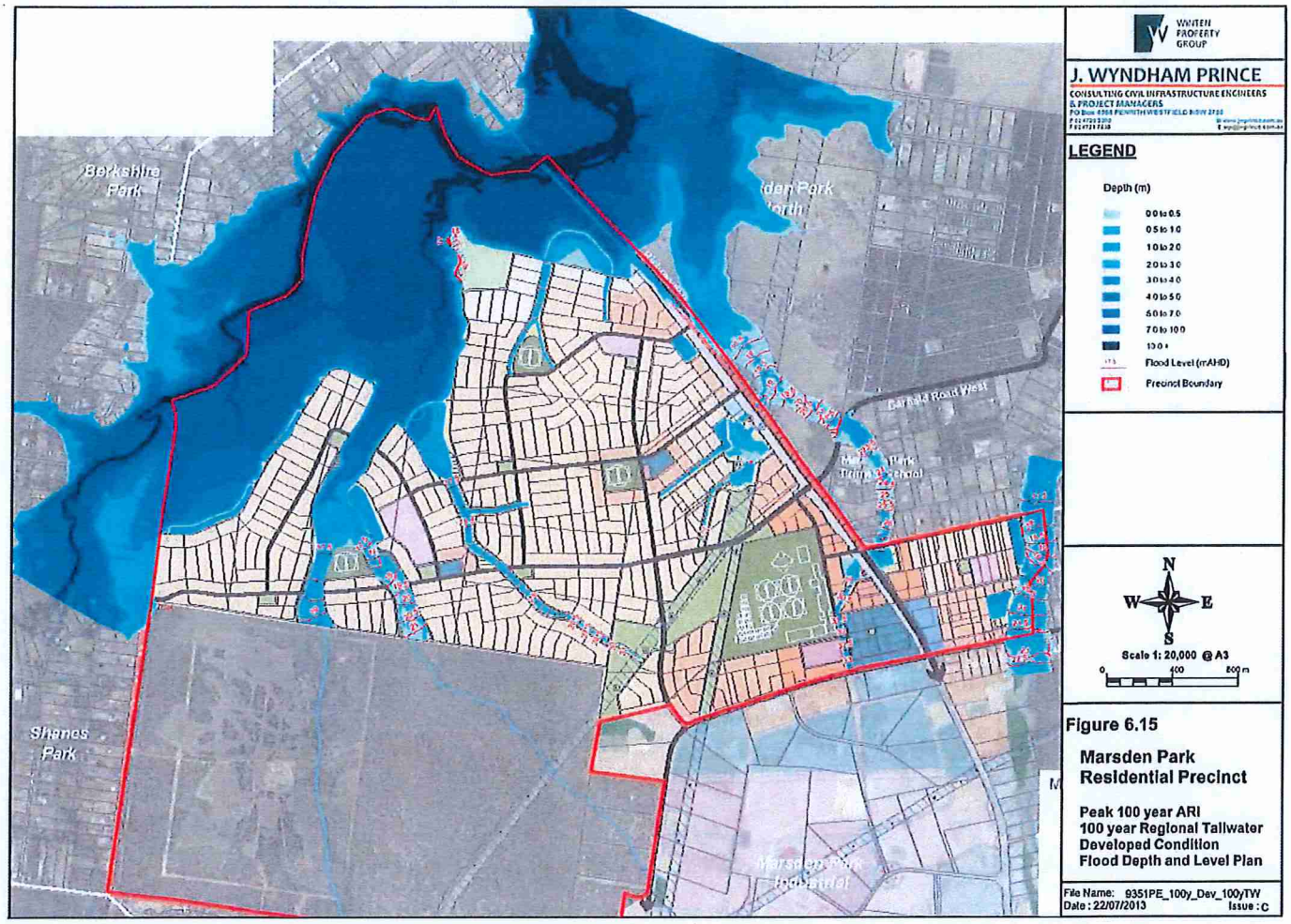
Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Rain	M1 Rainwater Tank	% Reuse Demand Met	80	None	46.6776
Rain	M2 Rainwater Tank	% Reuse Demand Met	80	None	48.09
Rain	M3 Rainwater Tank	% Reuse Demand Met	80	None	47.92
Rain	M4 Rainwater Tank	% Reuse Demand Met	80	None	44.5215
Rain	M5 Rainwater Tank	% Reuse Demand Met	80	None	47.80

Only certain parameters are reported when they pass validation

APPENDIX C – RELEVANT FIGURES FROM 2013 ASSSESSMENT


Berkshire Park
Marsden Park North
Richmond Road
Caddell Road West
Marsden Park Primary School
Crossing 5 Bridge
Crossing 4 Culverts
Crossing 3 Culverts
Crossing 2 Culverts
Crossing 1 Bridge
WINTEN PROPERTY GROUP
J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
LEGEND
Precinct Boundary
Bridge or Culvert Watercourse Crossing with Label
Crossing 3
N
W
E
S
Scale 1: 20,000 @ A3
0
400
800 m
Figure 5.4
Marsden Park Residential Precinct
Water Cycle Management Plan
Crossing Structures
File Name: 8351_Crossings_5_4
Date : 22/07/13
Issue : A


Berkshire Park
Garland Road West
Shanes Park
WINTEN PROPERTY GROUP
J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS
& PROJECT MANAGERS
LEGEND
Depth (m)
0.0 to 0.5
0.5 to 1.0
1.0 to 2.0
2.0 to 3.0
3.0 to 4.0
4.0 to 5.0
5.0 to 7.0
7.0 to 10.0
10.0 +
Flood Level (mAHD)
Precinct Boundary
N
W
E
S
Scale 1: 20,000 @ A3
0
400
800 m
Figure 6.15
Marsden Park Residential Precinct
Peak 100 year ARI
100 year Regional Tailwater
Developed Condition
Flood Depth and Level Plan
File Name: 9351PE_100y_Dev_100yTW
Date : 22/07/2013
Issue : C

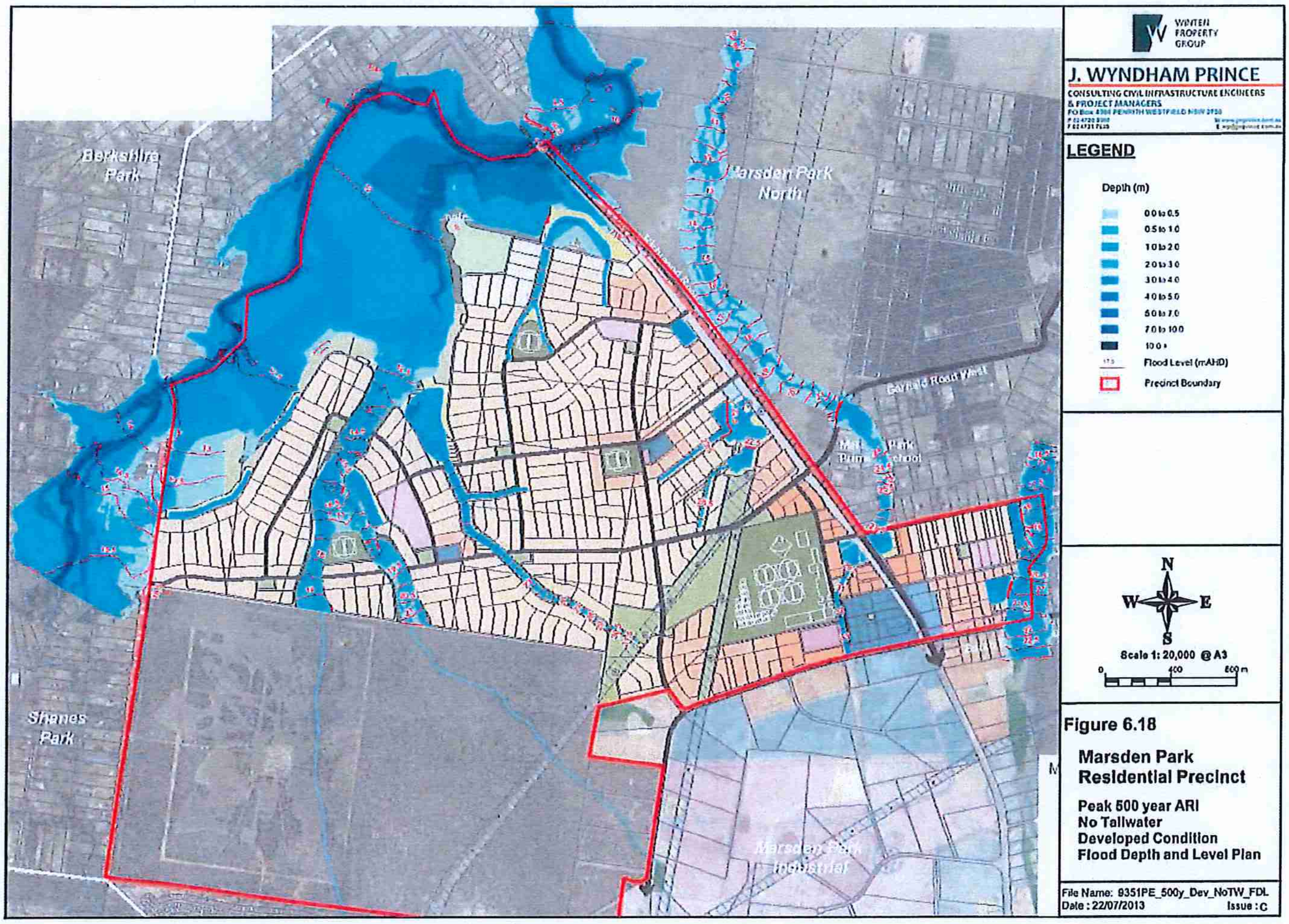


Figure 6.18

Marsden Park Residential Precinct

Peak 500 year ARI
No Tailwater
Developed Condition
Flood Depth and Level Plan

File Name: 9351PE_500y_Dev_NoTW_FDL
Date : 22/07/2013 Issue : C

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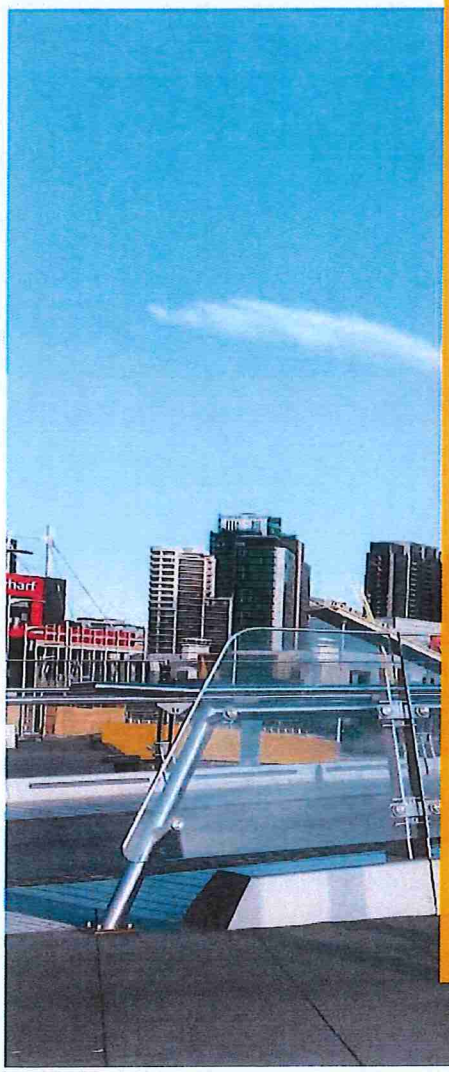

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