PLANNING PROPOSAL

Rezoning of No. 33 Morshead Road, Mount Annan (Camden Council)

Western Sydney Planning Panel

(Compiled in Response to Gateway Determination May 2021)

Volume 2: Annexures

Annexures

A: Gateway Determination (8 May 2021)
B: Subject Land Holding (Deposited Plan)
C: Indicative Development Scheme
D: Recent Passage of Planning Proposal
E: Overview of State Environmental Planning Policies
F: Overview of Section 9.1 Directions (EP&A Act)
G: Stage 1 – Preliminary Environmental Investigation
H: Ecological Constraints Assessment
I: Traffic Impact Assessment

Annexure “A”

Gateway Determination (8 May 2021)

Planning, Industry & Environment

Gateway Determination

***Planning proposal (Department Ref: PP-2021-3247)**: to amend the Camden Local Environmental Plan 2010 to rezone land at 33 Morshead Road, Mount Annan, to facilitate medium density residential development.*

I, the Executive Director, Central River City and Western Parkland City at the Department of Planning, Industry and Environment, as delegate of the Minister for Planning and Public Spaces, have determined under section 3.34(2) of the *Environmental Planning and Assessment Act 1979* (the Act) that an amendment to the Camden Local Environmental Plan (LEP) 2010 to rezone land at 33 Morshead Road, Mount Annan, to facilitate medium density residential development should proceed subject to the following conditions:

1. The following minor amendments are to be made to the planning proposal prior to exhibition:
    - the cover page is amended to reflect adoption of the planning proposal;
    - under *4 Explanation of provisions (Part 2)*, thumbnail mapping is included to indicate existing and proposed zones and existing and proposed minimum lot size;
    - community consultation is to include, but not limited to, written notification being provided to occupiers of homes adjoining the subject land;
    - under 8 Project Timeline (Part 6), the timeline is amended to reflect projected target dates, include those in conditions 4 and 5 below;
    - supporting studies; section 9.1 Directions and State Environmental Planning Policy assessment, are to form separate appendices and, where appropriate, are to be referenced in the proposal document; and,
    - for the purpose of exhibition, extraneous documents are to be removed from appendices.
2. Public exhibition is required under section 3.34(2)(c) and schedule 1 clause 4 of the Act as follows:

    (a) the proposal is to be made publicly available for a minimum of **28 days**; and

    (b) the planning proposal authority must comply with the notice requirements for public exhibition of planning proposals and the specifications for material that must be made publicly available as identified in section 6.5.2 of *A guide to preparing local environmental plans* (Department of Planning and Environment, 2018).

3. Consultation is required with Camden Council under section 3.34(2)(d) of the Act. Council is to be provided with a copy of the planning proposal and any

relevant supporting material, and given at least 21 days to comment on the proposal.

4. The planning proposal is to be exhibited 3 months from the date of the Gateway determination.
5. The planning proposal is to be reported to the Panel for a final recommendation 9 months from the date of the Gateway determination.
6. A public hearing is not required to be held into the matter by any person or body under section 3.34(2)(e) of the Act. This does not discharge the Sydney Western City Planning Panel from any obligation it may otherwise have to conduct a public hearing (for example, in response to a submission or if reclassifying land).
7. The time frame for completing the LEP is to be **12 months** following the date of the Gateway determination.

Dated 7th day of May 2021.

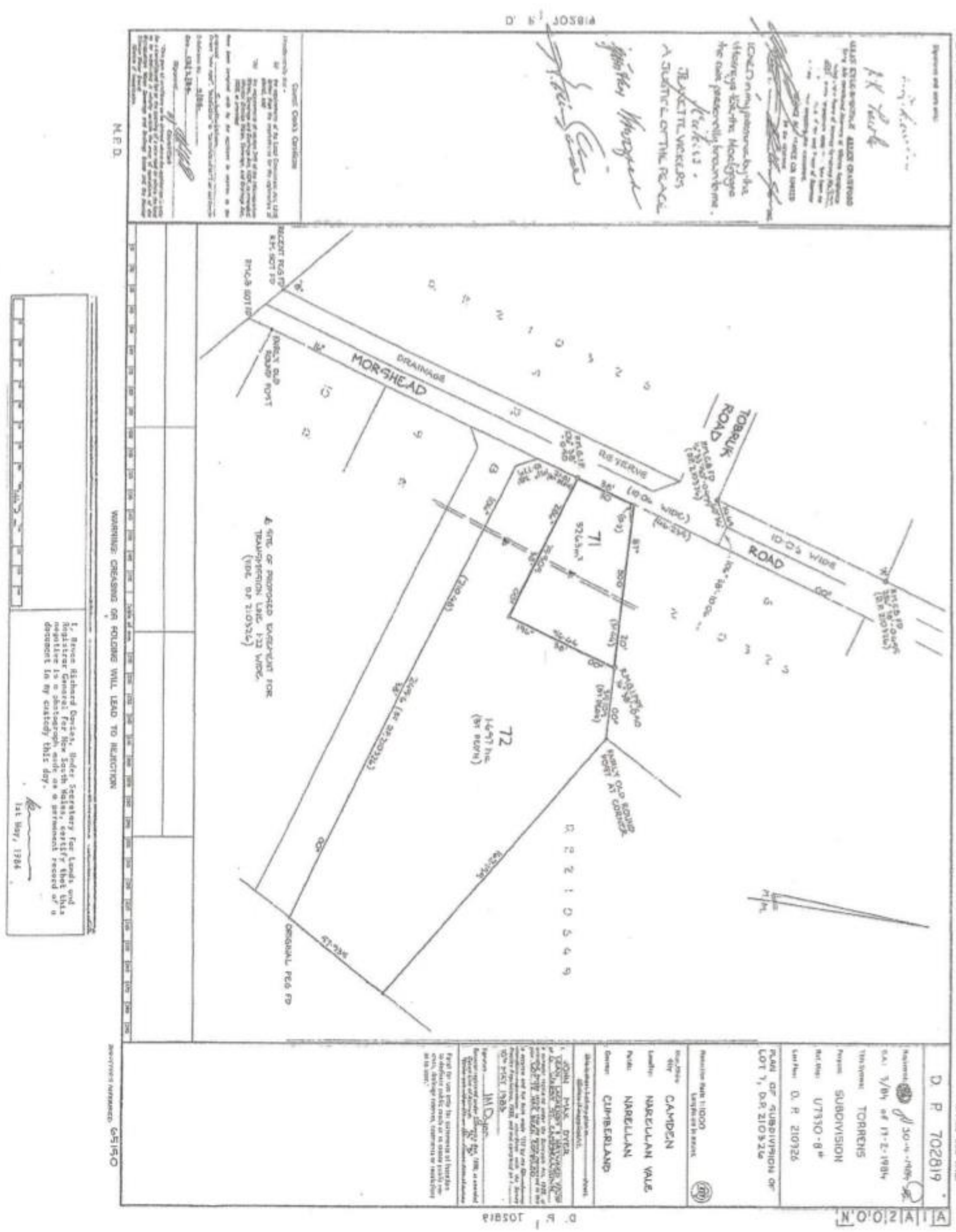
Catherine Van Laeren
Central River City and Western Parkland City
Department of Planning, Industry and Environment

Delegate of the Minister for Planning and Public Spaces

PP-2021-3246 (IRF20/5205)

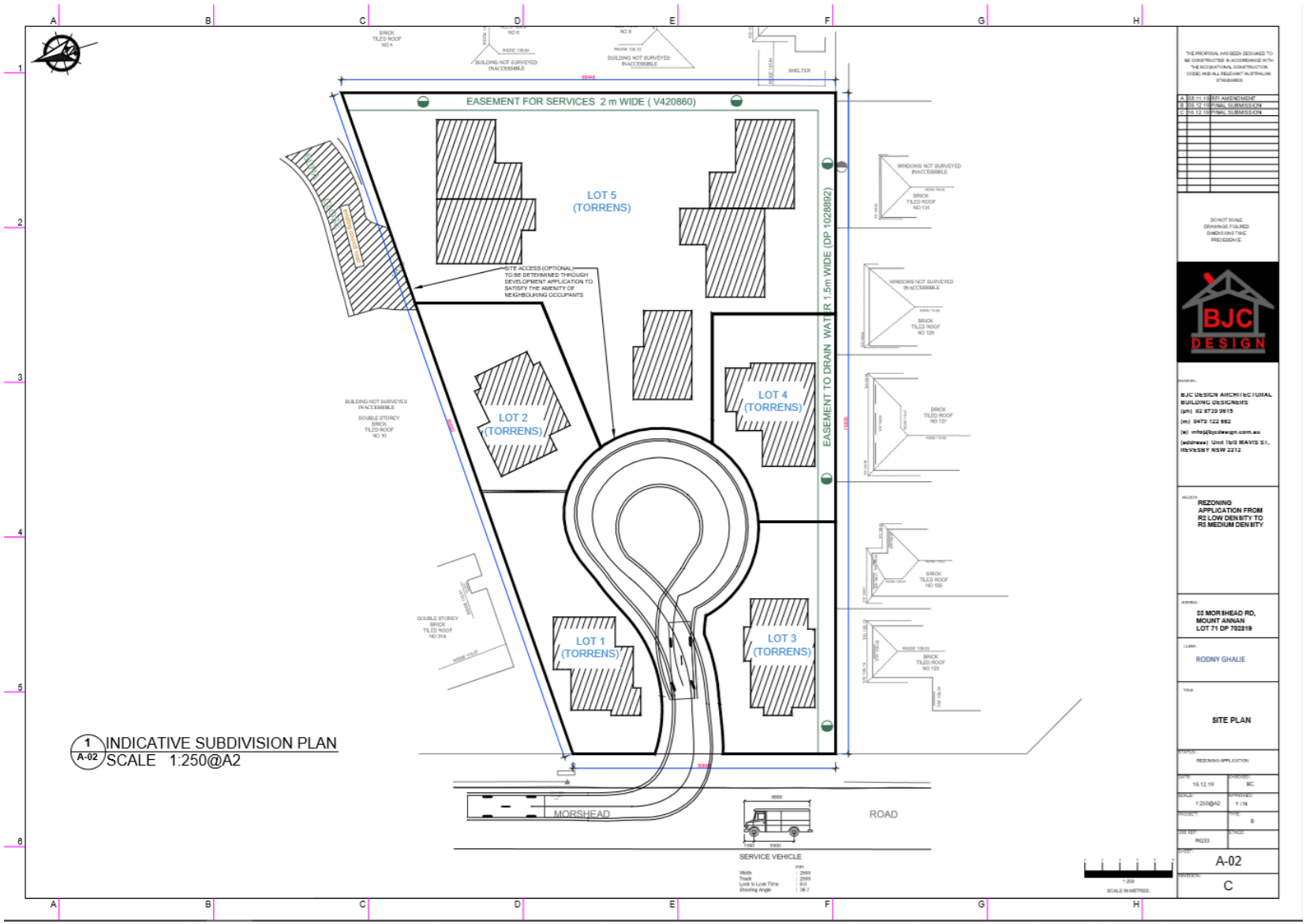
Annexure “B”

Subject Land Holding (Deposited Plan)


PLAN FORM 2
D.P. 702819
OFFICE USE ONLY
TORRENS
SUBDIVISION
PLAN OF SUBDIVISION OF LOT 1, D.P. 210926
CAMDEN
NARELLAN VALE
NARELLAN
CUMBERLAND
MORSHEAD
TOBRUK ROAD
DRAINAGE RESERVE
71
72
WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION

Annexure “C”

Indicative Development Scheme



1 / A-02 INDICATIVE SUBDIVISION PLAN
SCALE 1:250@A2

Annexure “D”

Recent Passage of Planning Proposal

- The planning proposal was lodged in October 2018 and Council's report recommended that the proposal proceed to Gateway. Council's resolution did not endorse this recommendation.
- An amended planning proposal was lodged with Council December 2019.
- On 18 February 2020, the Camden Local Planning Panel (LPP) supported the draft planning proposal. Council resolved on 14 April 2020 not to proceed, initiating the rezoning review process.
- On 5 June 2020, the Department wrote to Council advising of the rezoning review request.
- On 25 June 2020, Council responded confirming that the proposal submitted to the Department for review was the same proposal that was considered by Council.
- On 30 October 2020, the Sydney Western City Planning Panel (the Panel) advised that the proposal should be submitted for Gateway determination and invited Council to be the Planning Proposal Authority (PPA) for this proposal.
- On 30 November 2020, Council advised the Planning Panel Secretariat that as Council had previously resolved not to support the proposal, it did not wish to be the PPA for this proposal.
- On 17 December 2020, the Panel provided a letter to the Department stating in accordance with section 3.32(1) of the *Environmental Planning Assessment Act 1979*, the Panel as delegate of the Minister for Planning and Public Spaces has considered the matter and determined itself as the PPA.

Annexure “E”

Overview of State Environmental Planning Policies

Note

The following State Environmental Planning Policies have been deleted in response to a Property Report generated from the NSW Government planning portal and analogous Planning Proposals recently prepared by Camden Council.

SEPP No. 4 – Development Without Consent and Miscellaneous Complying Development

SEPP No. 6 – Number of Storeys in a Building

SEPP No. 22 – Shops and Commercial Premises

SEPP No. 30 – Intensive Agriculture

SEPP No. 47 – Moore Park Showground

SEPP No. 52 – Farm Dams and other Works in Land and Water Management Plan Areas

SEPP No. 59 – Central Western Sydney Economic and Employment Area

SEPP No. 60 – Exempt and Complying Development

SEPP No. 62 – Sustainable Aquaculture

SEPP No. 71 Coastal Protection

SEPP (Kurnell Peninsula) 1989

SEPP Sydney Region Growth Centres, 2006

SEPP Temporary Structure and Places of Public Entertainment

SEPP Kosciuszko National Park – Alpine Resorts, 2007

SEPP Rural Lands, 2008

SEPP Western Sydney Parklands

SEPP Western Sydney Employment Lands, 2009

SEPP Sydney Drinking Water Catchment, 2011

SREP Drinking Water Catchments No. 1

State Environmental Planning Policies (SEPPs)	Consistency	Comments
SEPP No 1 Development Standards	N/A	CLEP 2010 is a Standard Instrument Local Environmental Plan. It incorporates Clause 4.6 Exceptions to Development Standards, which negates the need for consistency with SEPP 1.
SEPP No. 14 - Coastal Wetlands	N/A	Not applicable in the Camden LGA.
SEPP No. 19 - Bushland in Urban Areas	N/A	The Vegetation on-site does not constitute urban bushland. Accordingly there is no adverse impact.
SEPP No. 21 - Caravan Parks	N/A	Not applicable to this PPR.
SEPP No. 26 - Littoral Rainforests	N/A	Not applicable in the Camden LGA.
SEPP No. 33 - Hazardous and Offensive Development	N/A	Not applicable to this PPR, given the nature of the land.
SEPP No. 36 - Manufactured Home Estates	N/A	Not applicable to this PPR.
SEPP No. 44 - Koala Habitat Protection	N/A	Not applicable in the Camden LGA.
SEPP No. 50 - Canal Estates	N/A	Not applicable to this PPR.
SEPP No. 55 – Remediation of land	Yes	Phase 1 Contamination Report established risk at the site to be low.

SEPP No. 64 - Advertising and Signage	N/A	Not applicable to this PPR.
SEPP No. 65 - Design Quality of Residential Flat Development	Yes	The PPR does not apply to zones where residential flat buildings are permissible.
SEPP No. 70 - Affordable Housing (Revised Schemes)	Yes	The PPR does not mitigate against the application of the SEPP.
SEPP (Affordable Rental Housing) 2009	Yes	The PPR will not contain provisions that will contradict or would hinder the application of the SEPP.
SEPP (Housing for Seniors or People with a Disability)	Yes	The PPR does not contain provisions that will contradict or would hinder a future application for SEPP (HSPD) housing.
SEPP (Building Sustainability Index: BASIX) 2004	Yes	The PPR will not contain provisions that will contradict or would hinder the application of the SEPP. Future development applications for dwellings will need to comply with this policy.
SEPP (Major Development) 2005	N/A	Not applicable to this PPR.
SEPP (Mining, Petroleum Production and Extractive (Industries) 2007	Yes	This Planning Proposal does not contain provisions which would contradict or hinder the application of this SEPP.
SEPP (Infrastructure) 2007	Yes	Certain infrastructure required to service residential development would be permissible in accordance with this SEPP.

SEPP (Exempt and Complying Development Codes) 2008	Yes	The PPR does not contain Provisions that will contradict or would hinder the Application of the SEPP at future stages, post rezoning.
SEPP (Concurrences) 2018	Yes	The PPR does not constrain the application of the Planning Strategy's Concurrence Function.
SEPP (Miscellaneous Consent Provisions) 2007: Land Application	Yes	The application of the Miscellaneous Consent Provisions are not compromised by the PPR.
SEPP (Primary Production and Rural Development) 2019: Land Application	N/A	The PPR does not apply to land deemed to be rural and/or devoted to primary production.
SEPP (Vegetation in Non-Rural Areas) 2017: Subject Land	Yes	Vegetation retention has been adequately addressed in the accompanying ecological report.
SEPP (Educational Establishments and Child Care Facilities) 2017: Land Application	Yes	The PPR does not compromise the application of the SEPP.
Deemed State Environmental Planning Policies (Formerly Regional Environmental Plans)	**Consistency**	**Comments**
SREP No.9 - Extractive Industry (No 2)	N/A	Not applicable to this PPR.
SREP No.20 - Hawkesbury-Nepean River (No 2 1997)	Yes	The general planning considerations and specific planning policies and strategies will be observed. Further, the relevant development controls will be addressed in future development.

Annexure “F”

Overview of Section 9.1 Directions (EP&A Act)

Notes

The following Section 9.1 Directions have been deleted from the compliance table due to its revocation.

Direction 5.8 Second Sydney Airport Badgerys Creek.

It is also noted that the following Directions do not apply to the Camden Local Government Area.

3.7 Reduction in non-hosted short-term rental accommodation period

7.3 Paramatta Road Corridor Urban Transformation Strategy

7.4 Implementation of North West Priority Growth Area Land Use and Infrastructure Implementation Plan

7.5 Implementation of Greater Paramatta Priority Growth Area Interim Land Use and Infrastructure Implementation Plan

7.6 Implementation of Wilton Priority Growth Area Interim Land Use and Infrastructure Implementation Plan

7.7 Implementation of Glenfield to Macarthur Urban Renewal Corridor

7.8 Implementation of Western Sydney Aerotropolis Interim Land Use and Infrastructure Implementation Plan

7.9 Implementation of Bayside West Precincts 2036 Plan

7.10 Implementation of Planning Principles for the Cooks Cove Precinct

Ministerial Direction	Applicable to LEP	Consistency of LEP with Direction	Assessment
1. Employment and Resources			
1.1 Business and industrial Zones	No	N/A	N/A
1.2 Rural Zones	No	N/A	N/A
1.3 Mining, Petroleum Production and Extractive Industries	No	Yes	The PPR does not propose the extraction of minerals specified.
1.4 Oyster Production	No	N/A	N/A
1.5 Rural Lands	No	N/A	N/A
2. Environment and Heritage			
2.1 Environmental Protection Zones	Yes	Yes	The site does not comprise environmentally sensitive lands (Refer to Annexure "G").
2.2 Coastal Protection	No	N/A	N/A
2.3 Heritage Conservation	Yes	Yes	The site is not listed or proximate to a heritage item or Conservation Area
2.4 Recreation Vehicle Area (RVA)	No	N/A	The PPR does not propose development of a RVA.
3. Housing, Infrastructure and Urban Development			
3.1 Residential Zones	Yes	Yes	The proposal is entirely consistent in seeking to provide increased housing diversity, leveraging off an optimising use of infrastructure, whilst not impacting adversely environmental and resource lands.
3.2 Caravan Parks and Manufactured Home Estates	Yes	Yes	Caravan Parks are currently precluded in all proposed residential zones. Further, it is intended to prohibit them in the proposed R3 zone.

3.3 Home Occupations	Yes	Yes	"Home occupations" are permissible without consent in all relevant zones.
3.4 Integrating Land Use and transport	Yes	Yes	The PPR seeks to increase the density of residential development in a location with access to reasonable public transport and services./facilities.
3.5 Development Near Licensed Aerodromes	Yes	Yes	The PPR does not compromise the operation of the Camden Airport.
3.6 Shooting Ranges	No	N/A	There are no licensed shooting ranges in the locality.
4. Hazard and Risk			
4.1 Acid Sulphate Soils	No	N/A	Land not known to exhibit acid sulphate qualities. Accordingly, the Direction does not apply.
4.2 Mine Subsidence and Unstable Land	Yes	Yes	The land is in the South Campbelltown Subsidence District and can be readily developed in accordance with standard subsidence parameters.
4.3 Flood Prone Land	Yes	Yes	The lands are not designated to be flood prone.
4.4 Planning for Bushfire Protection	Yes	Yes	The PPR is not impacted by fire prone land.
5. Regional Planning			
5.1 Implementation of Regional Strategies	No	N/A	Not applicable in the Camden LGA
5.2 Sydney Drinking Water Catchments	No	N/A	Not applicable in the Camden LGA
5.3 Farmland of State and Regional Significance on the NSW Far North Coast	No	N/A	Not applicable in the Camden LGA.
5.4 Commercial and Retail Development along the Pacific Highway, North Coast	No	N/A	Not applicable in the Camden LGA.
5.5 Development in the vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)	No	N/A	Revoked.

5.6 Sydney to Canberra Corridor	No	N/A	Revoked.
5.7 Central Coast	No	N/A	Revoked.
5.9 North West Rail Link Corridor Strategy	No	N/A	Not applicable in the Camden LGA.
5.10 Implementation of Regional Plans	Yes	Yes	No relevant Regional Plan applies. The PPR is, however, consistent where relevant with the Greater Sydney Region Outline Plan and Western City District Plan.
5.11 Development of Aboriginal Land Council land	Yes	N/A	The subject land is not impacted.
6. Local Plan Making			
6.1 Approval and Referral Requirements	Yes	Yes	The proposal is consistent with this direction because it does not alter the provisions relating to approval and referral requirements.
6.2 Reserving Land for Public Purposes	Yes	Yes	The PPR does not propose any addition to public open space (or reduction)
6.3 Site Specific Provisions	Yes	Yes	No site specific requirements are proposed.
7. Metropolitan Planning			
7.1 Implementation of A Plan for Growing Sydney	Yes	Yes	Consistent – Seeks to increase housing supply and diversity at a local scale in a location which is generally consistent with the locational commentary of the Plan.
7.2 Implementation of Greater Macarthur Land Release Investigation	N/A	N/A	The land is not in the subject investigation area.

Annexure “G”

Stage 1 – Preliminary Environmental Investigation

STAGE 1 PRELIMINARY ENVIRONMENTAL INVESTIGATION

ADDRESS : 33 Morshead Rd Mt Annan NSW 2567

CLIENT : BJC Design

REPORT No. : NE255-18

DATE : 28 January 2018

GEOTESTA

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Geotesta was engaged by BJC Design Pty Ltd to conduct a Stage 1 Preliminary Investigation (Stage 1 PI) on the property known as 33 Morshead Rd Mt Annan, NSW. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998, no further investigations are required; and
- the site is suitable for the proposed use.

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation).

1. INTRODUCTION

Geotesta was engaged by BJC Design Pty Ltd to conduct a Stage 1 Preliminary Investigation (stage 1 PI) on the property known as 33 Morshead Rd Mt Annan, NSW 2567. The Stage 1 PI is a review of current and historical activities on the site and an assessment of the potential risk of soil/groundwater contamination existing on the land.

The property covers an area of approximately 3,263 m² and is currently occupied with a single storey dwelling with grass and scarce tree cover. The site slopes from west to east.

2. PLANNING GUIDELINES

It is understood that the land will be subdivided for the purpose of low density residential development. This Preliminary Investigation was conducted in general accordance with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998.*

Land contamination is most often the result of past uses. It can arise from activities that took place on or adjacent to a site and be the result of improper chemical handling or disposal practices, or accidental spillages or leakages of chemicals during manufacturing or storage. Activities not directly related to the site may also cause contamination; for example, from diffuse sources such as polluted groundwater migrating under a site or dust settling out from industrial emissions.

When carrying out planning functions under the EP&A Act, a planning authority must consider the possibility that a previous land use has caused contamination of the site as well as the potential risk to health or the environment from that contamination. Decisions must then be made as to whether the land should be remediated, or its use of the land restricted, in order to reduce the risk. Failure to consider the possibility of contamination at appropriate stages of the planning decision process may result in:

- inappropriate land use decisions
- increased risk to human health
- detrimental effects on the biophysical environment
- impacts on the safety of existing and new structures
- delay in realising developments
- substantial fall in the land value and the passing on of unanticipated development costs to other parties

When an authority carries out a planning function, the history of land use needs to be considered as an indicator of potential contamination. Where there is no reason to suspect contamination after acting substantially in accordance with these Guidelines, the proposal may be processed in the usual way. However, where there is an indication that the land is, or may be, contaminated, the appropriate procedures outlined in these Guidelines should be followed.

Essentially, the Guidelines recommend that rezonings, development control plans and development applications (DAs) are backed up by information demonstrating that the land is suitable for the proposed use or can be made suitable, either by remediation or by the way the land is used.

3. OBJECTIVES AND SCOPE

The objective of the work is to comply with the Department of Urban Affairs and Planning and Environment Protection Authority *Managing Land Contamination: Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998* and gain a better understanding of the environmental risks associated with the site by conducting a Stage 1 PI.

The Stage 1 PI was conducted in general accordance and consideration of the Planning Guidelines and the Australian Standard AS 4482.1-2005 Guide to the sampling and investigation of potentially contaminated soil - Part 1: Non volatile and semi-volatile compounds, the Australian Standard AS 4482.2-1999 Guide to the sampling and investigation of potentially contaminated soil - Part 2: Volatile substances, the National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999 (amended 2013), and other relevant NSW guidelines and legislation. The Stage 1 PI consisted of a desktop historical review. The works included the following:

- site inspection;
- aerial photograph, public record search;
- geological review
- review of available environmental and planning reports in the area; and
- production of this report including recommendations and associated environmental risk.

Activities undertaken to achieve the above objectives are reported and discussed in the following sections.

4. SITE DESCRIPTIONS

4.1. *Site Details*

The site under investigation is located to the west of Morshead Road, approximately 7.5km northwest of Campbelltown and 59km southwest of Sydney. The site is currently covered by one title.

Street address: 33 Morshead Rd

Coordinates: Latitude: -34.046739, Longitude: 150.754182

Suburb: Mt Annan 2567

State: NSW

Council: Cmaden Council

Folio: 71/702819

Total Surface area: (approximately) 3,263 m²

4.2. *Site, Surrounding Area and Topography*

The site is a residential property with scarce trees and grass cover. There was no sign of intensive agriculture, such as market gardens; there were no stockyards of livestock dipping facilities on the property. There was no indication on the site of imported filling or major earthworks. A separate investigation was conducted by Geotesta for salinity assessment consisting of 2 boreholes across the site and no fill material was encountered during this investigation.

The surrounding area consists of low density urban residential with no commercial or industrial activities observed. Warehouses are located to a few hundred metres to the north with commercial and entertainment activities. A kindergarten is located 500m to the southeast of the site.

The proposed site at 33 Morshead Rd Mt Annan slopes from west to east with an overall slope of 4.0%. The ground elevation ranges between RL106m and RL103m.

4.3. *Site Geology*

The geological origin of the soil profile was identified from our visual examination of the soil samples, geotechnical experience, and reference to geological maps of the area. The geological map of the area indicates that the site is underlain by siltstone, sandstone and shale of Wianamatta Group.

5. SITE HISTORY

5.1. *Historical Background*

The area now known as Mount Annan was originally home to the Dharawal people, based in the Illawarra region, although the Western Sydney-based Darug people and the Southern Highlands-based Gandangara people were also known to have inhabited the greater Camden area. Very early relations with British settlers were cordial but as farmers started clearing and fencing the land, affecting food resources in the area. In 1805, wool pioneer John Macarthur was granted 5,000 acres (20 km²) at Cowpastures (now Camden). After the land was cleared, it was used for farming for most of the next 200 years until Sydney's suburban sprawl reached the town of Camden and modern suburbs like Mount Annan were subdivided into housing blocks. Between 1882 and 1962 Camden was connected to Campbelltown and Sydney by the Camden railway line. Camden is served by Camden Airport, which is mostly used by trainee pilots for flying schools, the Australian Air League, and other forms of general aviation.

5.2. *Satellite Photograph Review*

A review of satellite photographs was conducted on the site and the local area. The images indicate that the surrounding area was not developed for residential purpose at least until 1984. Most of land clearance seems to be occurring in early 1990s.

5.3. *EPA Records and other Reports*

The site is not on any contaminated registry held by the NSW EPA.

5.4. *Summary*

Based on the desk study assessment conducted most of the site can be considered as a greenfield site with the existing house as brownfield. There were no past activities identified on the site that may have impacted on the soil or groundwater on the site. There are no surrounding activities such as landfilling and intensive farming (piggery and poultry sheds), or mining that would impact on the site.

6. POTENTIAL FOR CONTAMINATION

The site can be considered to be mainly a green field site with a low potential for onsite sourced contamination. The surrounding activities do not have a potential to impact to site.

7. ACID SULFATE AND SALINITY ASSESSMENT

Reference to the EPA website indicates the site is unlikely to have acid sulfate potential with also low potential for salinity as shown in the maps below.

Acid Sulfate Map

Salinity Map

8

8. DISCUSSION OF RESULTS

In accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* the site is considered to have a Low Risk of soil and groundwater contamination.

The site is considered suitable for the proposed development and no further assessment work is considered necessary.

9. CONCLUSIONS

Based on the scope of works conducted the following conclusions can be made:

- the site history, desk study and inspection indicates past activities on the site have a very low potential for environmental impacts on the soil and groundwater; and
- in accordance with the Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998,* no further investigations are required; and
- the site is suitable for the proposed use.

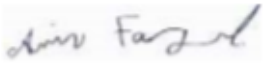
10. RECOMMENDATIONS

No further environmental investigation works are considered necessary (including a Stage 2 Detail Investigation).

Should you require any further information regarding this report, please do not hesitate to contact the undersigned.

For and on behalf of

GEOTESTA PTY LTD



Amir Farazmand

Senior Consultant

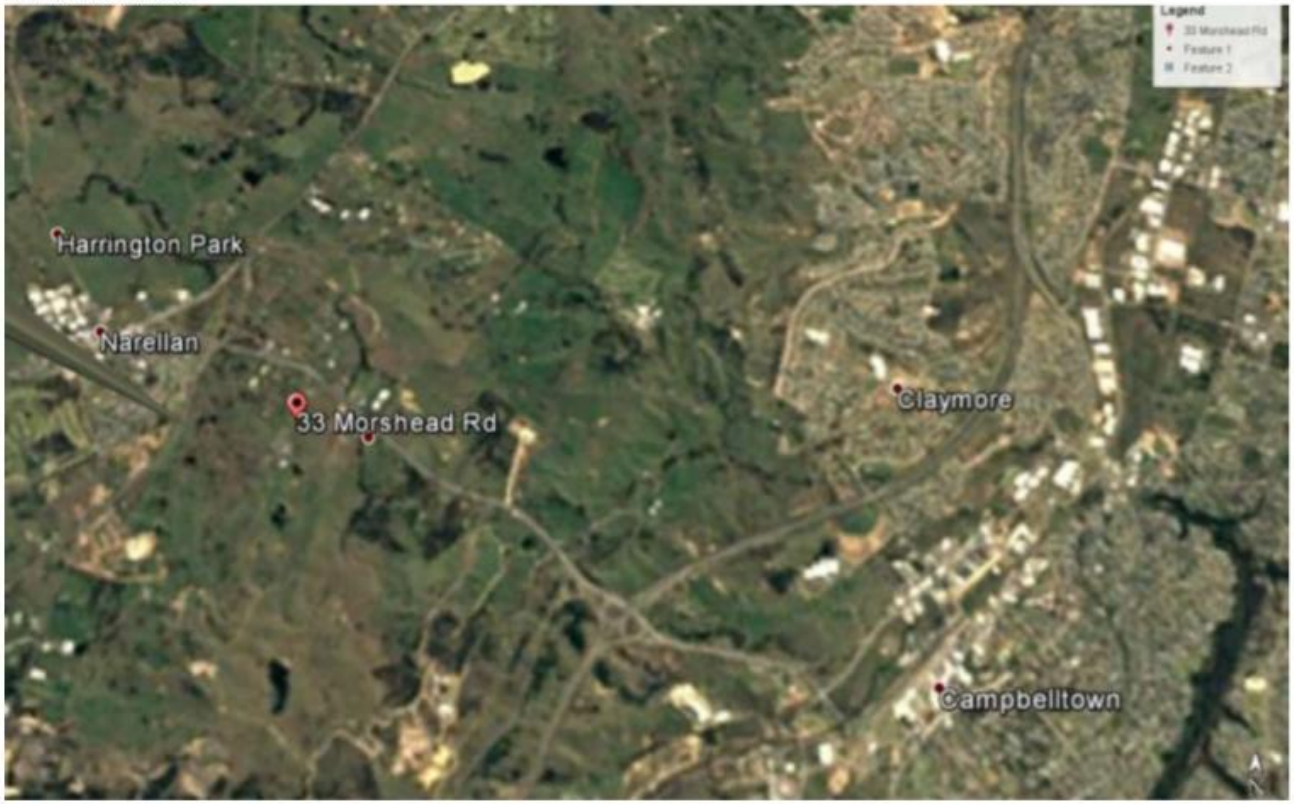
References

- Department of Urban Affairs and Planning and Environment Protection Authority Managing Land Contamination: *Planning Guidelines, State Environmental Planning Policy No. 55—Remediation of Land 1998*
- National Environment Protection Council, December 1999. National Environment Protection (Assessment of Site Contamination) Measure.
- NSW Environment Protection Authority, December 1994. Guidelines for Assessing Service Station Sites
- Standards Australia, 2005. Guide to the sampling and Investigation of Potentially Contaminated Soil, Part 1: Non-volatile and Semi-volatile compounds. AS 4482.1

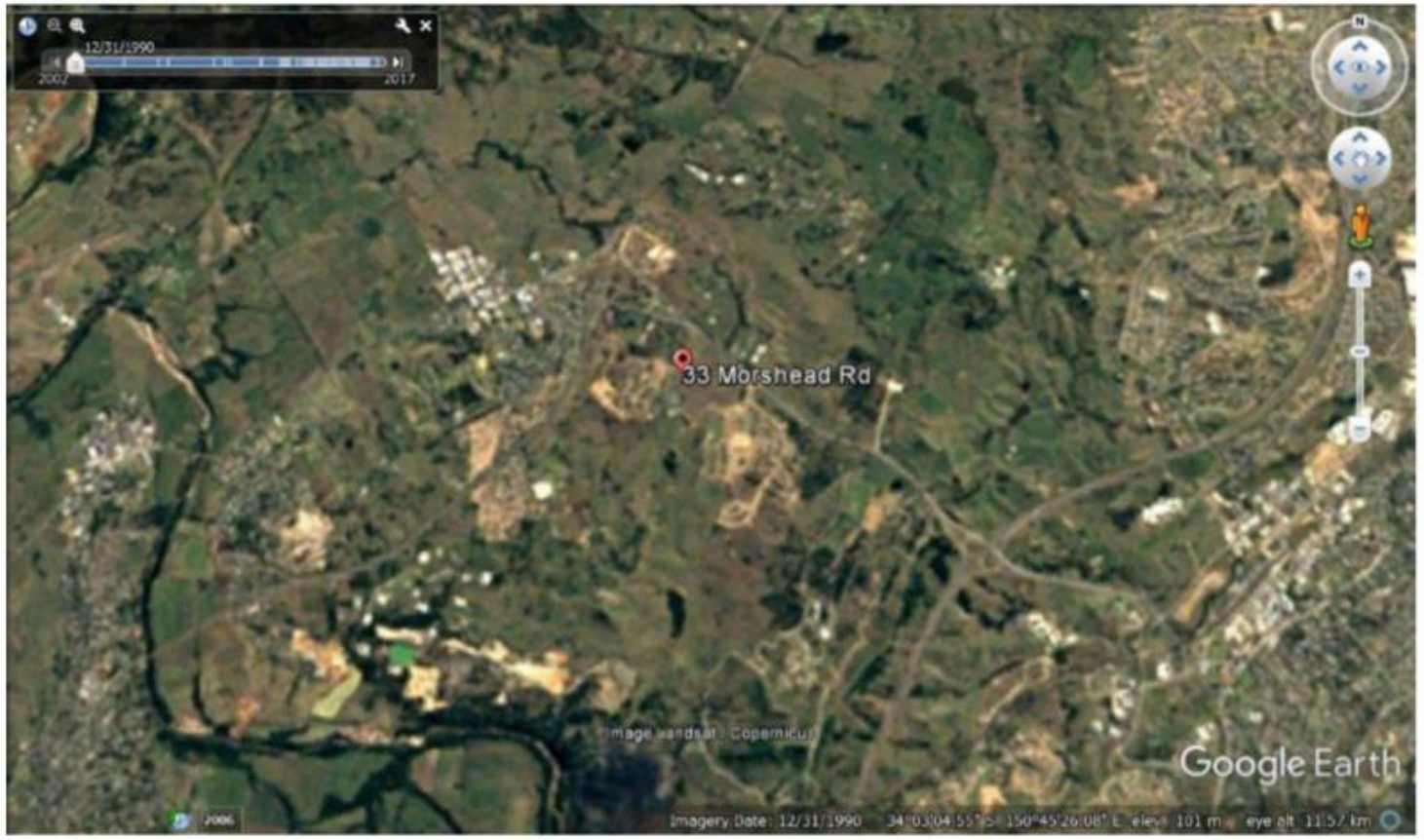
Appendix A

Aerial Photographs

Aerial Photo 1984



Aerial Photo 1990



Aerial Photo 2002

Aerial Photo 2010

Aerial Photo 2017

Annexure “H”

Ecological Constraints Assessment

Ecological Constraints Assessment

33 Morshead Road, Mt Annan NSW

Report prepared by Narla Environmental Pty Ltd

for BJC Design Pty Ltd

June 2018

NARLA

NARLA

environmental

Report:	Ecological Constraints Assessment
Prepared for:	BJC Design Pty Ltd
Prepared by:	Narla Environmental Pty Ltd
Project no:	bjca1
Date:	June 2019
Version:	1.1

Narla Environmental Pty Ltd
www.narla.com.au

Report Certification

Works for this report were undertaken by:

Staff Name	Position	Role
Kurtis Lindsay BSc (Hons)	Narla Environmental – Principal Ecologist	Project Management, Review
Nathan Banks BZool	Narla Environmental – Field Ecologist	Field Ecologist
Emily Benn BSc (Hons)	Narla Environmental - Ecologist	Report Preparation, Mapping.
Dean Sugden BEnvSc & Mngt	Narla Environmental - Ecologist	Report Preparation

As the Manager and Principal Ecologist of Narla Environmental Pty Ltd, I certify that:

- This Flora and Fauna Assessment has been prepared in accordance with the brief provided by the client.
- The information presented in this report is a true and accurate record of the study findings in the opinion of the authors.

Kurtis Lindsay
Principal Ecologist and Manager
Narla Environmental Pty ltd
02 9986 1295
0414 314 859
kurtis.lindsay@narla.com.au

Table of Contents

1.Introduction

1.1 Project Proposal

Narla Environmental Pty Ltd (Narla) was engaged by BJC Design Pty Ltd on behalf of the proponent to prepare an Ecological Constraints Assessment (ECA) for 33 Morshead Road, Mt Annan, NSW (the 'Subject Site') (Lot 71, DP702819) (**Figure 1**).

The proponent intends to utilise the Subject Site for subdivision and further residential development and are interested in establishing how much of the property they can utilise.

Narla have produced this report in order to identify any potential ecological impacts associated with the development of the site, and recommend appropriate measures to mitigate any potential ecological impacts in line with the requirements of the consent authority, Camden Council.

The main purpose of this Ecological Constraints Assessment was to determine the presence of any threatened fauna, flora or ecological community on the Subject Site that are listed under the *Biodiversity Conservation Act 2016 (BC Act)* or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

1.2 Site Description and Location

The area of the Subject Site is 3,292 m^2 (approximately 0.33 ha) and is bordered by Morshead Road on the western boundary, and residential properties on all other surrounding borders (**Figure 1**). The site is located within an urban environment in Mt Annan NSW. The surrounding blocks of land adjoining the Subject Site comprise of medium and low density residential development.

1.1 Topography, geology and soils

The Subject Site is situated on the Blacktown Soil Landscape, which is characterised by gently undulating rises on Wianamatta Group shales. Local relief to 30 m, slopes usually >5%. Broad rounded crests and ridges with gently inclined slopes. Cleared Eucalypt woodland and tall open-forest (dry sclerophyll forest).

The underlying geology of the Blacktown Soil Landscape consists of shales from the Wianamatta Group—Ashfield Shale consisting of laminite and dark grey siltstone, Bringelly Shale which consists of shale with occasional calcareous claystone, laminite and infrequent coal, and Minchinbury Sandstone consisting of fine to medium-grained quartz lithic sandstone.

Soils are generally shallow to moderately deep (>100 cm) hardsetting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines (Chapman and Murphy 1989).

Figure 1. Location of the Subject Site at 33 Morshead Road, Mount Annan NSW

1.2 Camden Local Environmental Plan 2010

1.2.1 Preservation of Trees or Vegetation

The objective of this clause is to preserve the amenity of the area, including biodiversity values, through the preservation of trees and other vegetation.

This clause applies to species or kinds of trees or other vegetation that are prescribed for the purposes of this clause by a development control plan made by the Council.

Note. A development control plan may prescribe the trees or other vegetation to which this clause applies by reference to species, size, location or other manner.

A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree or other vegetation to which any such development control plan applies without the authority conferred by:

- development consent, or
- a permit granted by the Council.

The refusal by the Council to grant a permit to a person who has duly applied for the grant of the permit is taken for the purposes of the Act to be a refusal by the Council to grant consent for the carrying out of the activity for which a permit was sought.

This clause does not apply to a tree or other vegetation that the Council is satisfied is dying or dead and is not required as the habitat of native fauna.

This clause does not apply to a tree or other vegetation that the Council is satisfied is a risk to human life or property.

A permit under this clause cannot allow any ringbarking, cutting down, topping, lopping, removal, injuring or destruction of a tree or other vegetation:

- that is or forms part of a heritage item or that is within a heritage conservation area, or
- that is or forms part of an Aboriginal object or that is within an Aboriginal place of heritage significance, unless the Council is satisfied that the proposed activity:
    - is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area, and
    - would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or heritage conservation area.

Note. As a consequence of this subclause, the activities concerned will require development consent. The heritage provisions of clause 5.10 will be applicable to any such consent.

This clause does not apply to or in respect of:

- the clearing of native vegetation:
    - that is authorised by a development consent or property vegetation plan under the Native Vegetation Act 2003, or
    - that is otherwise permitted under Division 2 or 3 of Part 3 of that Act, or
- the clearing of vegetation on State protected land (within the meaning of clause 4 of Schedule 3 to the Native Vegetation Act 2003) that is authorised by a development consent under the provisions of the Native Vegetation Conservation Act 1997 as continued in force by that clause, or
- trees or other vegetation within a State forest, or land reserved from sale as a timber or forest reserve under the Forestry Act 1916, or

- action required or authorised to be done by or under the Electricity Supply Act 1995, the Roads Act 1993 or the Surveying and Spatial Information Act 2002, or
- plants declared to be noxious weeds under the Noxious Weeds Act 1993.

1.2.2 Zoning

The Subject Site is zoned 'R2 – Low Density Residential'. The Camden Local Environmental Plan (2010) requires that development satisfies the objectives of the LEP in relation to the designated zoning. These include:

- To provide for the housing needs of the community within a low density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To allow for educational, recreational, community and religious activities that support the wellbeing of the community.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To ensure the single dwelling character, landscaped character, neighbourhood character and streetscapes of the zone are maintained over time and not diminished by the cumulative impact of multi dwelling housing or seniors housing.

The Subject Site does not hold any of the following constraints that are relevant to this ECA report including;

- Bushfire Prone Land;
- Riparian or Watercourses;
- Terrestrial Biodiversity; or,
- Vegetation Protection.

1.2.3 Camden Development Control Plan (2011)

Clause 2 'General Subdivision Requirements' of Part C of the Camden DCP (2010) outlines a number of objectives relevant to subdivision in the Camden Local Government Area (LGA). These include:

- Manage subdivision throughout the Camden LGA to ensure sense of place is maintained by ensuring that development density and scale are in harmony with the existing or planned character of places.
- Ensure equitable and easy access by everyone to all facilities, services and infrastructure in our community.
- Encourage variety in dwelling size and design to promote housing choice.
- Ensure minimal adverse impacts on environmental systems.
- Mitigate any access and traffic impacts and reinforces vehicle and pedestrian safety.
- Consider any building and/or land of heritage significance being present on or adjacent to the site.
- The layout of typical cross sections within the DCP prevails over other guides and specifications

Controls that apply to subdivision and development in the Camden LGA as outlined by the Camden DCP (2010) include:

- Any proposed subdivision must demonstrate how the proposed subdivision design has addressed the following as discussed throughout this DCP:
    - site planning
    - natural environment management
    - water management
    - land management
    - environmental heritage

- access and parking
- acoustic amenity
- infrastructure and services
- any other relevant parts of this DCP

1.3 Relevant Legislation and Policy

The following summary of relevant legislation and policy will likely need to be addressed as part of the DA.

Table 1. Relevant legislation and policy addressed in this report

Legislation/ Policy	Relevant Ecological Feature on Site	Triggered	Action Required
Environmental Planning and Assessment Act 1979 (EP&A Act)	All features	Yes	An Ecological Impact Assessment Report and all subsequent recommendations relevant to the DA (The planning process).
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	No EPBC listed species were observed on the subject site. Suitable habitat for several EPBC Act (Commonwealth) threatened fauna and flora species is present.	Yes	An assessment of significance of impact from the proposed DA on Matters of National Environmental Significance (MNES) EPBC Act Assessment of Significant Impact Criteria
Biodiversity Conservation Act 2016 (BC Act)	No BC Act listed species were observed on the subject site. Suitable habitat for a small number of BC Act (NSW) listed threatened fauna and flora species is present.	Yes	Establish whether the proposed works will remove over 0.5 ha of native vegetation. Undertake a test of significance of impact from the proposed DA on potentially occurring threatened fauna.
Biosecurity Act 2015 (Bio Act)	Priority weeds identified on site (Weedwise2017). ▪ *Asparagus aethiopicus;;* ▪ *Olea europaea subsp. cuspidata;* and, ▪ *Lycium ferocissimum.*	Yes	Prohibition on dealings[1]: Must not be imported into the State or sold. Regional Recommended Measure[2]: The plant or parts of the plant are not traded, carried, grown or released into the environment
SEPP Native Vegetation 2017	The subject site is located in Camden, an LGA to which this SEPP applies.	Yes	Further assessment of potential impacts and clearing of native vegetation.
State Environmental Planning Policy No 19 - Bushland in Urban Areas (SEPP 19)	The Subject Site does not directly border any Council Bushland or Reserves.	No	None
State Environmental Planning Policy No. 44 – Koala Habitat Protection (SEPP 44)	This SEPP does apply to the Camden Local Government Area; however, the Subject Site is <1ha in size. Therefore, this SEPP does not apply to the proposed development. One Schedule 2 Feed Tree (*Eucalyptus microcorys)* is situated within the subject site.	No	None

1.4 Scope of assessment

The objectives of this report were to assess all possible ecological constraints within the Subject Site that may arise pursuant to Part 3 (Rezoning) and Part 4 (Development Assessment) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the local planning provisions of Camden Council, including to:

- Establish the likelihood of occurrence of migratory species, threatened species, endangered populations and threatened ecological communities as listed under the New South Wales *Biodiversity Conservation Act 2016* (BC Act) and/or the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) within the Subject Site.
- Identify and map the distribution of vegetation communities in the subject area and discuss patch size and condition.
- Record presence and the extent of any priority weeds.
- Determine ecological impacts or risks that may result due to the proposed development(s).
- Recommend any controls or additional actions to be taken to see the proposed DA through while protecting or improving ecological / biodiversity values of the Subject Site.

2.Methodology

2.1 Desktop Assessment and Literature Review

A thorough literature review of local information relevant to the Camden Local Government Area (LGA) was undertaken. Online databases were utilised to gain an understanding of the site and its surrounds to an area of approximately 10km². Searches utilising NSW Wildlife Atlas (Bionet) (OEH 2017b) and the Commonwealth Protected Matters Search Tool (PMST 2017) were conducted to identify any confirmed, historical local occurrences or modelled occurrence of threatened species, populations and communities as well as any migratory fauna within a 10km² search area centred on the Subject Site. This data was used to assist in establishing the presence or likelihood of any such ecological values as occurring on or adjacent the Subject Site, and helped inform our Ecologist on what to look for during the site assessment.

Soil landscape and geological mapping was examined to gain an understanding of the environment on the Subject Site and assist in determining whether any threatened flora or ecological communities may occur there.

The Native Vegetation of the Sydney Metropolitan Area (OEH 2013) was utilised during desktop assessment to gain an understanding of vegetation communities located on the property as well as in the local vicinity.

2.2 Ecological Site Assessment

A site assessment was undertaken by Narla Environmental Ecologist Nathan Banks on Wednesday 3rd of January 2018. The following processes were performed during the site assessment:

- Recording the identification and extent of vegetation communities on the Subject Site, with a particular focus on the presence of any endangered ecological communities (EEC)
- Recording a detailed list of flora species encountered on the Subject Site, with a focus on indigenous species including threatened species, species diagnostic of threatened ecological communities and priority weeds.
- Recording opportunistic sightings of any fauna species seen or heard on or immediately surrounding the Subject Site
- Assessment of the connectivity and quality of the vegetation within the Subject Site and surrounding area
- Identifying and recording the locations of notable fauna habitat such as important nesting, roosting or foraging microhabitats.
- Targeting the habitat of any threatened and regionally significant fauna including:
- Tree hollows (habitat for threatened large forest owls, parrots, cockatoos and arboreal mammals)
- Caves and crevices (habitat for threatened reptiles, small terrestrial mammals and microbats)
- Termite mounds (habitat for threatened reptiles and the echidna)
- Soaks (habitat for threatened frogs and dragonflies)
- Wetlands (habitat for threatened fish, frogs and water birds)
- Drainage lines (habitat for threatened fish and frogs)
- Fruiting trees (food for threatened frugivorous birds and mammals)
- Flowering trees (food for threatened nectarivorous mammals and birds)
- Trees and shrubs supporting nest structures (habitat for threatened birds and arboreal mammals), and
- Any other habitat features that may support fauna (particularly threatened) species.

Not all exotic and non-native indigenous plants (native cultivars) were identified within the domestic garden beds throughout the site. Flora surveys were focused on remnant vegetation particularly, shrubs and herbs trees native to the area. Focus was also given to identifying significant weed infestation and Priority Weeds.

2.3 Study Limitations

This study was undertaken to provide a broad identification of all relevant constraints to any future development within the Subject Site. This study was not meant to provide a complete inventory of all species with potential to occur on the Subject Site; rather it was to provide an assessment into the likelihood of the presence of any significant ecological features (migratory species, threatened species, communities and populations) on the Subject Site, and the potential for impact of the proposed works on those ecological features.

The species inventory provided for the site was restricted to what was observed during the single day field visit by the Narla Ecologist on 3rd of January 2018. The timing of the survey may not have coincided with emergence times of some species of flora and fauna, such as seasonally flowering ground orchids, seasonal migratory fauna or nocturnal fauna.

To account for those species that could not be identified during the field survey, detailed habitat assessments were combined with desktop research and local ecological knowledge to establish an accurate prediction of the potential for such species to occur on or adjacent the Subject Site.

In situations where the habitat on or around the Subject Site was deemed potentially suitable for certain species that could not have been surveyed for during the field assessment, the precautionary principle was applied and those species were assumed present.

This study is not an Ecological Impact Assessment; however, it may form the basis for an Ecological Impact Assessment to be compiled.

3. Results and Discussion

3.1 Flora

A total of 60 plant species identified within the Subject Site, of which 17 were native, and 43 were exotic/ non-native (**Appendix**; **Table 6**). Nomenclature follows PlantNet (2016).

3.1.1 Threatened Flora Species

Desktop analysis revealed one threatened flora species *Pimelea spicata* (Spiked-Rice Flower) as having the potential to occur on or within 10 km radius of the Subject Site.

Despite a thorough targeted search using the random meander method, no individual specimens of Spiked-Rice Flower were observed. However, this does not rule out the potential for some threatened species to still exist on the Subject Site in a state of dormancy within the soil seed bank in the Subject Site. However, the chances of this are considered low owing to the isolated and historically disturbed condition of the site.

3.1.2 Weeds

Of all the exotic plant species identified within the Subject Site, three are currently classified as Priority Weeds within the Camden LGA. These weeds must be managed in accordance with the *Biosecurity Act 2015*. These species include *Asparagus aethiopicus* (Ground Asparagus), *Olea europaea subsp. Cuspidata* (African Olive) and *Lycium ferocissimum* (African Boxthorn).

All priority weeds listed above with the exception of African Olive are listed as Weeds of National Significance (WoNS) (Weedwise, 2017). It is a requirement of all landowners and managers to ensure that the listed plants do not continue to spread and that the plants must not be sold, propagated or knowingly distributed.

Table 2. Control methodologies for priority weeds identified on the Subject Site

Scientific Name	Common Name	Control Methodology
Asparagus aethiopicus	Ground Asparagus	Manual Remove: Plants can be controlled by crowning - the practice of digging out the entire crown or corm (by severing the tough surrounding roots) that sits just below the surface of the soil and leaving the roots and watery tubers in situ.
Olea europaea subsp. Cuspidata	African Olive	This plant can be controlled by cut and paint methodology. The main stem should be cut 15cm above the ground surface and then a herbicide solution (1 part Glyphosate per 1.5 parts of water) should be generously applied to the cut stump with a paintbrush.
Lycium ferocissimum	African Boxthorn	This plant can be controlled by cut and paint methodology. The main stem should be cut 15cm above the ground surface and then a herbicide solution (1 part Glyphosate per 1.5 parts of water) should be generously applied to the cut stump with a paintbrush.

3.2 Vegetation Communities

At the time of ecological assessment, there were no vegetation communities mapped within the subject site. The closest mapped vegetation community to the subject site was Alluvial Woodland, which occurred in two small patches approximately 450m East of the subject site (OEH 2016b).

Ecological site assessment by the Narla Ecologist revealed that vegetation within the Subject Site comprised a majority of exotic garden beds and exotic fruit trees, with a number of native grasses and herbs amongst one locally indigenous native canopy species *Corymbia maculata* (Spotted Gum).

It is likely that the remnant Spotted Gum located in the centre of the property is remnant of Cumberland Plain Woodland (CPW) which is listed as an Endangered Ecological Community (EEC) under the BC Act (**Plate 1**). Within the subject site CPW is represented only by the single Spotted Gum.

Other areas within the subject site contained a native groundcover of herbs and grasses but lacked a distinct native canopy. Such areas were confirmed to be representative of CPW Derived Native Grassland (DNG), as classified under the CPW Final Determination (OEH 2009) (**Plate 2**). Dominant native grasses found within the CPW and DNG included *Dichelachne micrantha, Themeda australis, Austrodanthonia tenuior*. Scattered herbs including *Einadia nutans, Wahlenbergia gracilis* and *Tricoryne elatior* were also found within the subject site.

The extent of the two potential Cumberland Plain Woodland EEC's identified within the Subject Site are comprised of a single Spotted Gum tree and a small patch of native groundcovers. The removal of these vegetation assemblages is considered a minor constraint to the proposed rezoning and development within the Subject Site. The subject site is highly isolated and is not considered to have a vegetation assemblage which is considered significant in the locality. An 'Assessment of Significance' will be required to accompany a Flora and Fauna Impact Assessment Report Flora pursuant of the rezoning and DA, which will outline the minor significance in removing the single Spotted Gum tree and small patch of native grassland within the Subject Site and provide specific recommendations to minimise this impact. These impacts would be expected to include replacement planting within soft landscaping areas within the Subject Site.

Figure 2. Historical Vegetation Mapping within close proximity to the subject site (OEH 2016b)

Plate 1. Remnant *Corymbia maculata* (Spotted Gum) within the subject site, which forms part of the Cumberland Plain Woodland EEC.

Plate 2. Derived Native Grassland (DNG) within the subject site

Plate 3. Example of escaped garden ornamentals within the subject site.

Figure 3. Cumberland Plain Woodland and Derived Native Grassland mapped within the Subject Site by Narla Environmental.

3.1 Fauna

A total of eleven (11) fauna species were encountered on the day of the field survey (**Table 3**). All native species encountered are listed as 'protected' under the *NSW Biodiversity Conservation Act 2016*. None were listed threatened under either the BC Act or EPBC Act. One introduced species, *Passer domesticus* (House Sparrow) was encountered during the site assessment.

The list of fauna recorded during the site visit was produced opportunistically and thus only represented a subset of the fauna species that may occur on the Subject Site at any one time. For this reason, a thorough assessment of fauna habitat availability was conducted as a priority during the site visit. This provided a better understanding of the fauna species that may potentially occur on the Subject Site during some part of their lifecycle.

Table 3. List of fauna species identified during the site visit on 3rd January 2018

Class	Scientific Name	Common Name	Status
Aves	*Anthochaera carunculata*	Red Wattlebird	Protected
Aves	*Corvus coronoides*	Australian Raven	Protected
Aves	*Dacelo novaeguineae*	Laughing Kookaburra	Protected
Aves	*Gymnorhina tibicen*	Australian Magpie	Protected
Aves	*Hirundo neoxena*	Welcome Swallow	Protected
Aves	*Manorina melanocephala*	Noisy Miner	Protected
Aves	*Passer domesticus*	House Sparrow	Introduced
Aves	*Strepera graculina*	Pied Currawong	Protected
Aves	*Trichoglossus moluccanus*	Rainbow Lorikeet	Protected
Aves	*Turdus merula*	European Blackbird	Introduced
Gastropoda	*Cornu aspersum*	Garden Snail	Introduced
Reptilia	*Eulamprus quoyii*	Eastern Water Skink	Protected

3.1.1 Fauna Habitat

Whilst the Subject Site provided some potential foraging, nesting and roosting habitat for a suite of fauna, much of the subject site was weed infested with a majority of the property containing manicured exotic grasses. To this extent, the subject site was considered to hold sub-optimal fauna habitat, owing to the historical disturbance and clearing of the property for development and domestic garden beds.

The most significant fauna habitat feature within the Subject Site were the three Eucalypts, including one *Corymbia maculata* (Spotted Gum), one *Eucalyptus microcorys* (Tallowwood) and one *Eucalyptus elata* (River Peppermint) that provide foraging habitat for a number of threatened nectariviorous birds. When in flower, native *Eucalyptus microcorys, Corymbia maculata* and *Eucalyptus Elata* are likely to provide foraging resources for nectivorous birds and flying-foxes such as the threatened vulnerable *Pteropus poliocephalus* (Grey-Headed Flying Fox). All of the canopy trees on the Subject Site have potential to contain 'lerp', leaf-psyllid insects that exude a sugary coating that is often consumed by nectivorous birds.

There were no tree hollows observed within trees located on the subject site, nor was there any bushrock or crevices suitable for fauna habitat.

3.1.2 Threatened Fauna Species

Following Desktop and Site Ecological Assessment, a list of six (6) threatened fauna species) were identified as having the potential to utilise habitat on and around the Subject Site for foraging or sheltering purposes. The total list of threatened species deemed as having potential to occur in the subject site is presented (**Table 4**).

Table 4. Threatened fauna deemed as having potential to occur on the subject site during part of their lifecycles

Species	BC Act	EPBC Act	Likelihood	Potential Habitat Utilised
Pteropus poliocephalus (Grey-headed Flying Fox)	Vulnerable	Vulnerable	High	Flowering and fruiting trees and shrubs for foraging. No roosting.
Glossopsitta pusilla (Little Lorikeet)	Vulnerable	-	Low - Moderate	Flowering trees for foraging.
Anthochaera Phrygia (Regent Honeyeater)	Critically Endangered	Critically Endangered	Low	Flowering trees for foraging.
Lathamus discolor (Swift Parrot)	Endangered	Critically Endangered	Low	Flowering trees for foraging.
Daphoensitta chrysoptera (Varied Sittella)	Vulnerable	-	Low	Rough-barked trees for foraging and nesting
Meridolum corneovirens (Cumberland Land Snail)	Endangered	-	Low	Limited bark and leaf litter at the base of canopy trees such as Spotted Gum, Tallowwood and River Peppermint.

A Flora and Fauna Impact Assessment Report will be required to assess the potential for the proposed development to have any significant effect on any of the potentially occurring threatened fauna under the relevant Commonwealth 'EPBC Act Significant Guidelines' and State (Section 5AA of the EP&A Act) 'Assessment of Significance'. This report should be submitted as part of an application for any clearing of native vegetation of the Subject Site.

The extent of threatened fauna habitat within the Subject Site includes three (3) flowering trees. The removal of such habitat is considered a minor constraint to the proposed rezoning and development of the Subject Site. It is likely that these three trees provide suboptimal, intermittent habitat for the threatened species mentioned above. An 'Assessment of Significance' will be required to accompany a Flora and Fauna Impact Assessment Report pursuant of the rezoning and DA, which will outline the low significance of removing intermittent suboptimal threatened species habitat and provide specific recommendations to minimise this impact. Impact mitigation recommendations are likely to include revegetation with habitat trees similar to those being cleared, within soft landscaping areas around the Subject Site.

3.1.3 Grey Headed Flying Fox Camps in the Camden LGA

Camden is home to one grey-headed flying-fox camp, which is located in Brownlow Hill.

4. Recommendations

Narla Environmental have extensive experience with similar rezoning and development applications in the Camden LGA and believe that the proposed application will have an increased likelihood of approval if the recommendations and mitigation measures outlined within this report are addressed and adhered to.

4.1 Development Application Phase

Narla propose the following recommendations regarding the management of biodiversity on the property. Implementation of these recommendations will help see the rezoning and development application proposed for the Subject Site approved by Camden Council.

4.1.1 Avoidance of Impacts

Minimising the removal of native vegetation will reduce the overall impact of the proposed development and improve likelihood of obtaining rezoning and DA approval. Where possible, mature native trees should be retained and protected. However, in the case that native vegetation including the mature native trees are required for removal, replacement planting can be undertaken in soft landscaping areas around the proposed development to offset this small impact.

4.1.2 Clearing of Trees and Vegetation

If DA is lodged prior to 24th November 2018

Should the proponent desire to remove any native trees or undertake clearing within the areas mapped as containing remnant canopy trees belonging to Cumberland Plain Woodland, it is considered likely that Camden Council will require the proponent to submit a Flora and Fauna (Ecological) Impact Assessment including Assessments of Significance on all potentially occurring threatened species under the Biodiversity Conservation Act 2016. This report should be delivered by a suitably qualified Ecologist.

If DA is lodged post 24th November 2018

The requirements of the BC Act 2016 and Biodiversity Conservation Regulation 2017 are mandatory for all development applications submitted after the 24th November 2018 within the Camden LGA. This new legislation and regulation stipulates clearing 'area threshold' values that determine whether a development is required to be assessed in accordance with the 'Biodiversity Offset Scheme' (BOS). Minimum entry thresholds for vegetation clearing depend on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

Table 5. Biodiversity Offset Scheme Entry Thresholds

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	**0.25 ha or more**
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

If vegetation clearing exceeds the minimum threshold, the BOS applies to the proposed development including biodiversity impacts prescribed by clause 6.1 of the Biodiversity Regulation 2017. In this instance the proponent will be required to prepare a Biodiversity Development Assessment Report (BDAR) to assess impact and calculate the required offsets to continue to DA approval.

The vegetation mapped as CPW and DNG by the Narla Ecologist (**Figure 3**) makes up a total area of approximately 78.8m^2 (0.0078ha). The vegetation within these areas is considered to hold moderately to highly quality DNG, whilst the CPW consists of only the canopy stratum for this community, which in this instance is one Spotted Gum (**Figure 3**).

Since less than 0.25 ha of native vegetation will be cleared to allow for the proposed development, the proponent will not be required to enter the BOS. No offset credits are expected to offset impacts from the vegetation loss. Instead, it is considered likely that proponent will be granted rezoning and DA approval following submission of an Assessment of Significance only.

4.1.3 Tree Removal and Replacement Plantings

Camden Council may require the proponent to retain the Spotted Gum and design a development that does not impact it. However, this tree is highly isolated and does not provide significant habitat for threatened fauna within the locality. If this tree is required for removal, Camden Council will most likely require replacement plantings of at least two new Spotted Gum trees or a tree species of a greater ecological value (e.g. 45L advanced stock) to replace the individual removed. These should be planted within the property bounds or on the properties road verge.

It is also expected that council will wish to see landscaping made up of at least 50% - 80% plant species native to CPW EEC, such as *Themeda australis, Dichondra repens* and *Einadia nutans*. An experienced Ecologist and local provenance nursery will be able to provide advice on where to source replacement plants to meet the requirements of council.

4.2 Post Development Application Approval

Once the development application has been approved, Camden council will issue with a set of 'Conditions' of approval of your DA. All Conditions of Approval will be required to be implemented prior to obtaining your construction certificate.

Conditions are likely to include the requirement to implement the recommendations put forward in the Ecological Impact Assessment Report.

4.2.1 Pre-Clearing Assessment

Owing to the possibility of trees supporting nesting birds, and hollow bearing trees potentially supporting threatened arboreal mammals, birds and Microbats, Camden Council may request a Pre-Clearing Assessment of the property undertaken by a qualified ecologist within the proposed area of impact. The assessment will involve checking of all:

- trees, shrubbery and tussocks for nesting native birds
- all logs and other debris thoroughly checked for sheltering reptiles or small mammals
- all other habitat features

4.2.2 Vegetation Clearing

Camden Council may require that a qualified ecologist is present on site during vegetation clearing to supervise felling of all trees. Each tree should be felled using the 'slow drop technique' which involves the use of ropes and pulleys, or an excavator fitted with a 'grab' attachment which can slowly push the trees to the ground.

Once trees have been felled an ecologist should be on site to inspect the tree for any potential hollows and fauna. Any fauna captured must be relocated offsite into suitable habitat, or taken by the ecologist to a registered wildlife carer.

All proposed construction, machinery operation, excavation, vehicle movement and other works that occur on the Subject Site must be prevented from impacting on any hollow-bearing trees, logs/woody debris, and other native vegetation that are to be retained outside the activity footprint.

4.2.3 Demolition of Existing Structure

Microbats often utilise man-made structures including sheds and houses for roosting habitat. Small cavities that provide similar protection to tree hollows will be utilised by microbats where shortages of natural roosting habitat exists, or may even be used in preference (ABS 2017).

Owing to the potential roosting habitat within any existing unoccupied dwellings, Camden Council may request that certain crevices and cavities of the building are inspected by an Ecologist for roosting microbats, prior to demolition taking place. If microbats are found, they will be captured and relocated to suitable nearby habitat by the Ecologist.

4.2.4 Tree Protection

The protection of existing trees desired to be retained on site or immediately surrounding the site should be undertaken prior to clearing, ancillary works, excavation or machinery works. Protection must remain around trees for the entire duration of construction, ancillary works, excavation or machinery works.

4.2.5 Erosion Management

Ensure that adequate erosion and sediment mitigation measures are in place at all times during construction activity. Refer to the 'Blue Book' (Landcom 2004) for best practice erosion and sedimentation control methods.

4.2.6 Storage, Stockpiling and Laydown Areas

Position all storage, stockpiling and laydown areas away from any areas of native vegetation.

5. Conclusion

Subject to the recommendations of this Ecological Constraints Assessment and all relevant controls in the Camden Council DCP 2011 outlined in this report, it is considered that the clearing of vegetation and preparation of the subject site for rezoning and development could be achieved.

Threatened fauna habitat and potential Endangered Ecological Communities within the Subject Site is majorly comprised of a single Spotted Gum Tree and a small patch of native grassland. This vegetation is considered a minor constraint to the rezoning and development of the Subject Site due to it being highly isolated and situated within a highly urbanised environment. The removal of such would not cause a significant impact on threatened fauna or EEC's within the locality. To reduce the impact of this native vegetation clearing it is likely that the proponent will be required to conduct replacement planting for the native species removed to retain the biodiversity value of the Subject Site.

Narla Environmental support the future subdivision and/or development of this site.

6.References

Chapman and Murphy (1989) Soil Landscapes of Sydney 1:100 000 Sheet. Soil. Conservation Service of NSW, Sydney. [January 2018]

Commonwealth of Australia Department of the Environment (PMST) (2016) Protected Matters Search Tool http://www.environment.gov.au/epbc/pmst/ [January 2018]

New South Wales Office of Environment and Heritage (2017a) List of key threatening processes https://legislation.nsw.gov.au/#/view/act/2016/63/sch4 [January 2018]

New South Wales Office of Environment and Heritage (2017b) New South Wales Wildlife Atlas (BioNet). http://www.bionet.nsw.gov.au [January 2018]

New South Wales Department of Planning & Environment (NSW DP&E) (2017) Planning Viewer (online) https://www.planningportal.nsw.gov.au/find-a-property/2289181_33_Morshead_Road_71_Mount_Annan_DP702819 [January 2018]

NSW Office of Environment and Heritage (2013a) The Native Vegetation of the Sydney Metropolitan Area. Volume 1: Technical Report (Version 2.0)

NSW Office of Environment and Heritage (2013b) The Native Vegetation of the Sydney Metropolitan Area. Volume 2: Vegetation Community Profiles (Version 2.0)

Camden Local Environmental Plan (2010)

Camden Development Control Plan (2011)

PlantNET (2016) The NSW Plant Information Network System). Royal Botanic Gardens and Domain Trust, Sydney. http://plantnet.rbgsyd.nsw.gov.au [January 2018]

WeedWise (2017) Weeds declared in the Local Control Authority area of Camden Local Government Area http://weeds.dpi.nsw.gov.au/WeedDeclarations?RegionId=70 [January 2018]

7. Appendix

Table 6. Flora species identified on the subject site during the site assessment conducted by Narla Environmental on 3rd January 2017

Scientific Name	Exotic/Non-indigenous	Canopy	Mid Strata	Groundcover
Acacia parramattensis			x	
Agave americana	x			x
Aloe vera	x		x	
Araujia sericifera	x			x
Asparagus aethiopicus	x			x
Austrodanthonia tenuior				x
Avena sativa	x			x
Bidens pilosa	x			x
Briza minor	x			x
Bromus catharticus	x			x
Bryophyllum delagoensis	x			x
Callistemon viminalis	x		x	
Centaurium tenuiflorum	x			x
Conyza sp	x			x
Corymbia maculata		x		
Cupressocyparis x leylanaii	x	x		
Cynodon dactylon				x
Cyperus eragrostis	x			x
Dichelachne micrantha				x
Ehrharta erecta	x			x
Einadia hastata				x
Einadia trigonos				x
Eucalyptus elata		x		
Eucalyptus microcorys	x			
Glycine microphylla				x
Glycine tabacina				x
Gnaphalium polycaulon	x			x
Gomphrena celosioides	x			x
Hypochaeris radicata	x			x
Rhaphiolepis indica	x		x	
Jasminum polyanthum	x			x
Ligustrum sinense	x		x	
Lycium ferocissimum	x		x	
Malus sp.	x		x	
Microlaena stipoides				x
Morus sp.	x		x	
Nerium oleander	x		x	
Ochna serrulata	x		x	
Olea europaea subsp. cuspidata	x		x	

Scientific Name	Exotic/Non-indigenous	Canopy	Mid Strata	Groundcover
Onopordum acanthium	x			x
Paspalum dilatatum	x			x
Passiflora sp.	x			x
Pennisetum clandestinum	x			x
Photinia sp.	x		x	
Pinus radiata	x	x		
Plantago lanceolata	x			x
Plumeria sp.	x		x	
Prunus persica	x		x	
Romulea rosea var reflexa	x			x
Rumex brownii	x			x
Setaria sp	x			x
Sida rhombifolia	x			x
Sporobolus africanus	x			x
Themeda australis				x
Trachelospermum jasminoides	x			x
Tricoryne elatior				x
Verbena bonariensis	x			x
Wahlenbergia communis				x
Wahlenbergia gracilis				x
Wisteria sp.	x		x	

NARLA

environmental

Eastern Sydney Office
2/26-30 Tepko Road
Terrey Hills
NSW 2084

Western Sydney Office
7 Twenty-fifth Avenue
West Hoxton
NSW 2171

Hunter Valley Office
10/103 Glenwood Drive
Thornton
NSW 2322

www.narla.com.au
Ph: 02 9986 1295

Annexure "I"

Traffic Impact Assessment

HEMANOTE CONSULTANTS

33 MORSHEAD ROAD, MOUNT ANNAN

PROPOSED REZONING AND SUBDIVISION

LOT 71, DP 702819

UPDATED TRAFFIC IMPACT ASSESSMENT

DECEMBER 2019

HEMANOTE CONSULTANTS PTY LTD

TRAFFIC ENGINEERING & DESIGN CONSULTANTS

PO BOX 743, MOOREBANK NSW 1875

CONTACTS: 0414 251 845 & 0414 445 497

EMAIL: hemanote@optusnet.com.au

I

UPDATED TRAFFIC IMPACT ASSESSMENT
LOT 71, DP 702819
33 MORSHEAD ROAD, MOUNT ANNAN
PROPOSED REZONING & SUBDIVISION
DATE: 19 DECEMBER 2019

Document Tittle Updated Traffic Impact Assessment – 33 Morshead Road, Mount Annan

Doc. Revision	Prepared by	Reviewed by	Issued by	Issued date
Draft 1 (internally)	Ngoc Dang	Hany Takla	Hany Takla	10/072018
Final report (to client)	Ramy Selim	Hany Takla	Ramy Selim	10/09/2018
Updated Final report (to client)	Ramy Selim	Hany Takla	Ramy Selim	26/09/2018
Updated Final report (to client)	J. Payet	H. Takla	H. Takla	19/12/2019

Table of Contents

1 INTRODUCTION

This report has been prepared by Hemanote Consultants to assess the traffic implications of the proposed rezoning and subdivision application for the site legally known as Lot 71 in DP702819 and located at 33 Morshead Road, Mount Annan.

This report is to be read in conjunction with the design layout plans prepared by BJC Design and submitted to Camden Council as part of a Rezoning Development Application from low density to medium density residential.

This report is set as follows:

- *Section 2:* Description of the existing site location and it use;
- *Section 3:* Description of existing road network, traffic conditions & transportation services in the vicinity of the site;
- *Section 4:* Description of the proposed rezoning residential development, road layout and impacts on traffic; and
- *Section 5:* Outlines Conclusion.

2 EXISTING SITE DESCRIPTION

➢ ***Site Location***

The subject site is located on the eastern side of Morshead Road, north of its intersection with Holdsworth Drive and at property No. 33 Morshead Road, within the suburb of Mount Annan. Refer to Figure 1 for a site locality map.

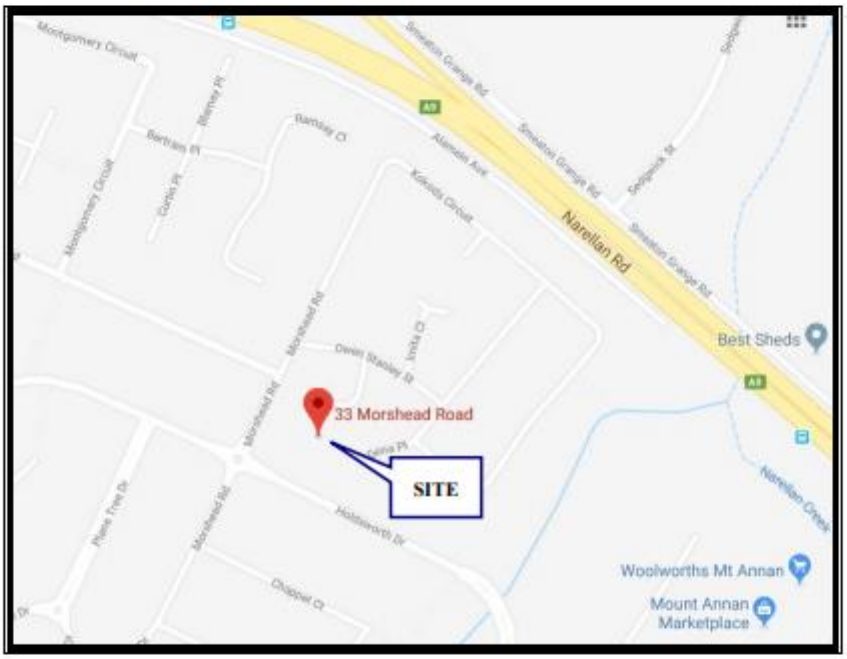


Figure 1: Site Locality Map

➢ ***Existing Site & Surrounding Land Use***

The subject site has an area of approximately 3,263m^2 and currently consists of a single dwelling. It has a frontage of approximately 30 metres to Morshead Road with a single driveway access point. It also fronts Buna Close from the north.

The site is located in a mainly residential area, with a mixture of single dwellings and multi dwellings sites.

The subject site is currently zoned R2 'Low Density Residential' and is surrounded by a number of R3 'Medium Density Residential' sites, as shown on The Camden LEP 2010 Land Zoning Map in Figure 2 below.

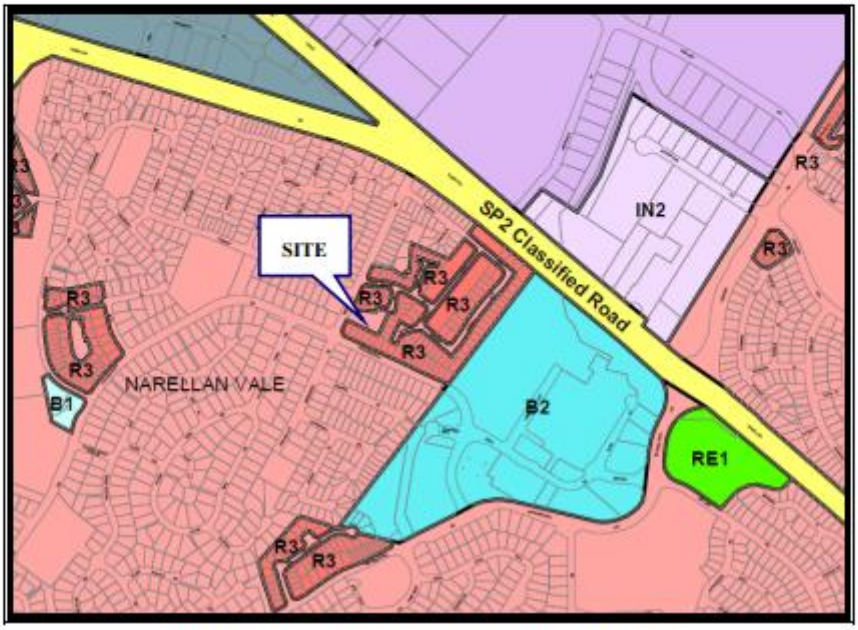


Figure 2: Current zoning in the vicinity of the subject site

Figure 3: Aerial map – Subject site and surrounding roads

Photo 1: The frontage of the subject site to Morshead Road

3 EXISTING TRAFFIC & TRANSPORT CONDITIONS

3.1 Existing Road Network, Classification & Traffic Controls

The existing road network in the vicinity of the subject site is shown in Figure 4 and summarised as follows:

- Narellan Road — A classified State Road under the jurisdiction of the Roads and Maritime Services. It is a multi-lane two-way divided road and carries a high volume of traffic daily and connects to the Camden By-Pass and to Waterworth Drive.
- Holdsworth Drive — A local residential road that runs east-west in the vicinity of the subject site. It has a two-way undivided carriageway with one traffic lane in each direction, in addition to a parking lane on each side of the road. It has a legal speed limit of 50 km/h. It intersects with Morehead Road near the subject site and is controlled by a roundabout.
- Morshead Road — A local residential road that runs north-west in the vicinity of the subject site. It has a two-way undivided carriageway with one traffic lane in each direction. It has a legal speed limit of 50 km/h. It intersects with Holdsworth Drive near the subject site and is controlled by a roundabout.
- Buna Close — A local cul-de-sac road with a two-way carriageway having a width of approximately 5 metres. It connects to the northern boundary of the subject site and it runs off Owen Stanley Street which is a local road as well that connects to Morshead Road. Buna Close provides vehicular access to adjoining residential properties.

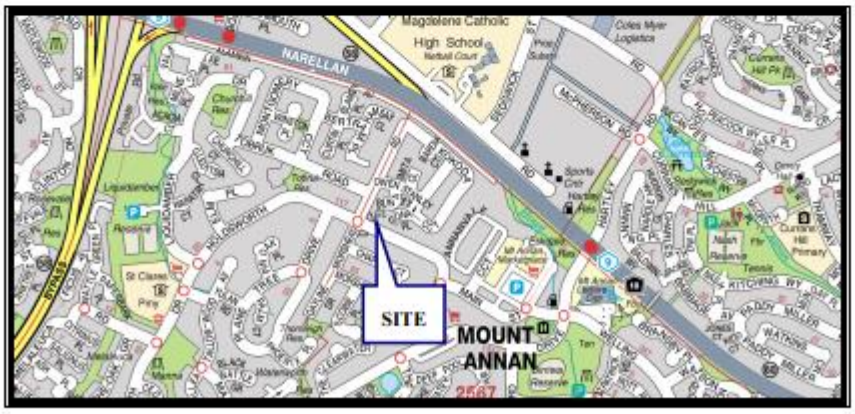


Figure 4: Subject site and surrounding road network

Photo 2: Morshead Road near the subject site - facing south

Photo 3: Holdsworth Drive near Morshead Road - facing west

Photo 4: Buna Close at the north boundary of the subject site - facing south

The current traffic flows on Morshead Road and Holdsworth Drive are considered to be appropriate for local residential roads, where traffic is free flowing without any major queuing or delays in peak hours, with spare capacity.

The current traffic flows on Owen Stanley Street and Buna Close are also low and appropriate for local roads providing vehicular access to adjoining residential properties, without any major queuing or delays in peak hours, with spare capacity.

It is determined that the existing Level of Service on the above mentioned roads is at level 'A' in accordance with Table 4.4 of the Roads & Maritime Services' *"Guide to Traffic Generating Developments - 2002"* (attached below) with peak hour flow being less than 200 vehicles/hr per direction.

Level of Service	One Lane (veh/hr)	Two Lanes (veh/hr)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Table 4.4: Urban road peak hour flows per direction (RMS Guide)

➢ ***Current Intersection Performance***

Average Vehicle Delay (AVD) and Level of Service (LOS) – The AVD and LOS provide a measure of the operational performance of an intersection as indicated in Table 4.2 of the Roads & Maritime Services' "*Guide to Traffic Generating Developments - 2002*" (attached below).

It has been observed that the operational performance of the intersection of Morshead Road and Holdsworth Drive is in Good operation at a level of service 'A', in accordance with Table 4.2 of the Roads & Maritime Services guide with an average delay less than 14 seconds per vehicle.

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Table 4.2: Level of Service Criteria for intersections (RMS Guide)

3.2 Existing Transportation Services

The subject site has good access to existing public transport services in the form of trains and buses. The site is located approximately 7 km north west of Macarthur Railway Station.

Regular bus routes currently operate along both sides of Holdsworth Drive and Waterworth Drive in very close proximity to the subject site (i.e. bus route 890, 892 and 893). Refer to Figure 5 for bus routes map in the vicinity of the subject site.

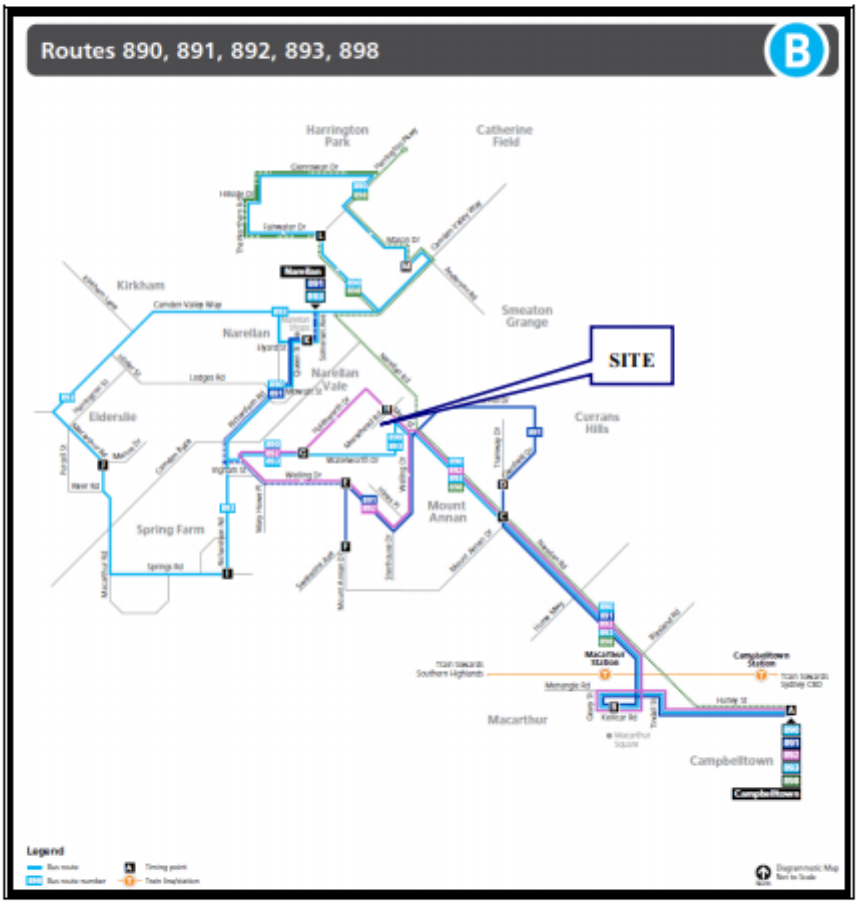


Figure 5: Bus routes map in the vicinity of the subject site

4 PROPOSED REZONING DEVELOPMENT

4.1 Description of the Proposal

The planning proposal request approval for the rezoning and subdivision of the subject site located at 33 Morshead Road, Mount Annan from zoning R2 'Low Density Residential' to R3 'Medium Density Residential'.

The proposed rezoning of the subject land is expected to allow for the provision of up to ten (10) subdivided lots (to accommodate a single dwelling on each lot) with an internal two-way road, which will be an extension to Morshead Road at the western boundary of the site.

Refer to ***Appendix 'A'*** for the proposed development site layout plans.

4.2 Vehicular Access

The proposed vehicular access to and from the subject site will be through a proposed new no-through road (cul-de-sac) to be constructed off Morshead Road at the western boundary of the site. A secondary optional vehicular access to and from the subject site will also be through a new road to be constructed as an extension to the existing dead-end road of Buna Close at the northern boundary of the site subject to Council approval.

The proposed roads are to provide vehicular access to the proposed subdivided lots and dwellings for the subject site.

All vehicular access is to be located and constructed in accordance with the requirements of AS2890.1:2004, where adequate sight distance is provided. Details of the proposed road layout are outlined in Section 4.3 of this report.

4.3 Proposed Road Alignment (proposed new access road)

As part of the subject rezoning proposal and future residential subdivision of the subject site, it is proposed to construct a new no-through road (cul-de-sac) off Morshead Road at the western boundary of the site to service the proposed residential development, including the provision of vehicular access to off-street car parking spaces/garages for the proposed future dwellings.

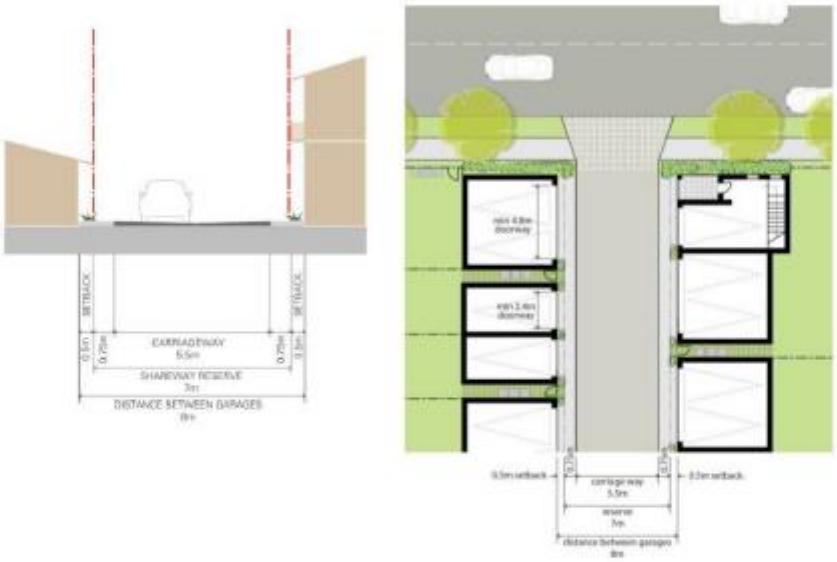
It is also proposed to construct a new road extension at the end of the existing Buna close, to service the proposed residential development, including the provision of vehicular access to off-street car parking spaces/garages for the proposed future dwellings, subject to Council approval.

At present, the carriageway in Morshead Road has a width of approximately 8 metres. The new no-through road end (cul-de-sac) will have a clear carriageway radius of 9.92 metres, in addition to a 1.2m wide footpath/nature strip on either side with roll-top type kerb, as per the requirements for Access Road or Access Place under Category E of Table 2.1 of the Camden Council Engineering Design Specification for a cul-de-sac road under 200 metres in length.

The proposed access road laneway falls under the category of laneways as per Section 3.3.2 of Camden Growth Centre Precincts DCP, which outlines that the primary purpose of laneways is to "create attractive front residential streets by removing garages and driveway cuts from the street frontages, improving the presentation of houses and maximising on street parking spaces and street trees".

The proposed cul-de-sac will have a total radius of 9.92 metres, in addition to a 1.2m wide footway on either side. Therefore, the proposed no-through road layout is considered to be adequate for the proposed rezoning and future subdivision of the subject site and in accordance with Figure 3-16 of the DCP, as shown on the next page. The proposed no-through road carriageway must have a minimum width of 6 metres.

The cul-de-sac layout has been designed in a way to accommodate a full turn for a Medium Rigid Vehicle (MRV - 8.8 metres in length), which can be utilised by a waste collection truck or an emergency vehicle. Refer to the attached vehicle swept paths diagrams for MRV in Appendix 'B' of this report.



Typical Laneway section **Typical Laneway (plan)**

Figure 3-16: Laneway principles

4.4 Expected Traffic Generation

An indication of the potential traffic generation of the proposed rezoning of the subject site from low density to medium density residential and the expected future subdivision of the site into nine (9) dwellings is provided by the RMS *Guide to Traffic Generating Development 2002 – Technical Direction*.

The Guide specifies the following traffic generation rates for dwelling houses in Sydney:

- 10.7 daily vehicle trips per dwelling, and
- 0.95 (AM) peak hour vehicle trips per dwelling.
- 0.99 (PM) peak hour vehicle trips per dwelling.

Therefore, the proposed development site for 9 dwellings has an estimated traffic generation as shown on the following table:

Development Site	Type of dwellings	Estimated No. of dwellings	Daily vehicle trips	AM & PM Peak hour vehicle trips
33 Morshead Road, Mount Annan	Single dwellings	9	97	9

It should also be noted that the rates used by the RMS Guide are based on surveys of areas where public transport accessibility can be often limited. However, the subject site has access to a regular bus route within a short walking distance and therefore these rates are considered to be conservative and could justifiably be further reduced.

The RMS guide states that *"As a guide, about 25% of trips are internal to the subdivision, involving local shopping, schools and local social visits"*.

The estimated peak hour traffic generation of 10 vehicle per hour for the proposed rezoning and future subdivision development site is considered to be acceptable and will have no major impact on the surrounding road network and can be easily accommodated.

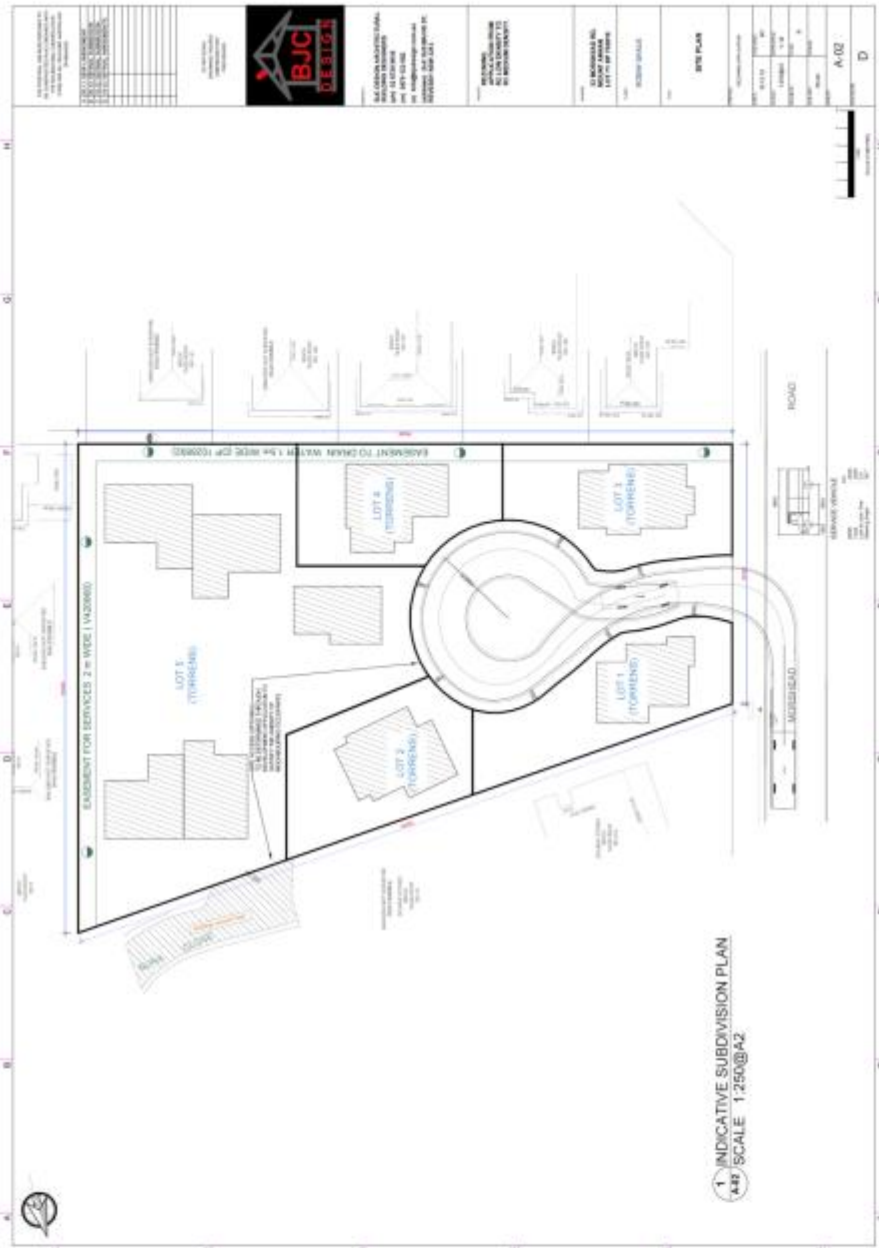
It will not alter the current levels of service and additional traffic can be readily accommodated within the existing road network, without the need for any upgrade or change. The external impact of the traffic generated by the proposal is considered to be satisfactory and will remain well within the Environmental capacity of the surrounding streets, with no adverse impacts on the amenity of the area.

5 CONCLUSION

It can be concluded from the traffic impact assessment that the proposed rezoning and subdivision of the subject site located at 33 Morshead Road, Mount Annan from zoning R2 'Low Density Residential' to R3 'Medium Density Residential' will have no adverse impacts on the surrounding road network.

- The current traffic flows on the surrounding roads are considered to be appropriate for local residential roads, where traffic is free flowing without any major queuing or delays in peak hours, with spare capacity.
- The estimated traffic generated trips are considered to be acceptable and of low impact on the surrounding road network and can be easily accommodated with the existing road network.
- The external impact of the traffic generated by proposal is considered to be satisfactory and will remain well within the Environmental capacity of the surrounding streets, with no adverse impacts on the amenity of the area.
- The location and layout of the proposed access road is considered to be adequate and will provide vehicular access to the expected future residential subdivision and is in accordance with Council's Engineering Design Specification and Council's DCP.
- The subject site has good access to existing public transport services in the form of regular bus services.

Appendix A – Proposed Development Site Layout Plans


BJC DESIGN
SITE PLAN
A-02
D
EASEMENT FOR SERVICES 2 m WIDE
LOT 1 (TORRENS)
LOT 2 (TORRENS)
LOT 3 (TORRENS)
LOT 4 (TORRENS)
LOT 5 (TORRENS)
ROAD
MORSHEAD
1 A-02 INDICATIVE SUBDIVISION PLAN
SCALE 1:250@A2

Appendix B – Vehicle Swept Paths


ROAD
LOT 4 (TORRENS)
LOT 3 (TORRENS)
LOT 1 (TORRENS)
LOT 2 (TORRENS)
MORSHEAD
SERVICE VEHICLE